Figure xx. SELCOPYi - Cover shot.
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Information in this document details general features and functionality of the SELCOPY Product Suite 3.40 component, SELCOPYi.

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

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/selcdoc.html:

- SELCOPY Product Suite Customisation Guide
- SELCOPY User Manual
- CBLVCAT User Manual
- SELCOPYi Reference and User Guide
- SELCOPYi Text Editor (CBLe) Manual
- SELCOPYi Structured Data Editor Manual
- SELCOPYi Training Material Manual

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

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

The SELCOPY training material and documentation were introduced for Release 3.10 in PTF RS00021.

First Edition (2012/12/14)

Option 2 - Data Edit

◊ The SDE Edit/Browse Entry Panel
◊ Display Modes
◊ LAYOUT Command
◊ Scrolling the Display to a specific field/record
◊ Selecting/Ordering Visible Fields
◊ Adjusting Field Display Column-widths
◊ Using FIND, EXCLUDE and ONLY commands
◊ Using CHANGE commands
◊ Filtering records using ALL(WHERE)/MORE/LESS commands
◊ Using a FILTER to Select Records on Load
◊ Working with Multiple Record-Types
◊ Creating a Structured Data Object (SDO)
◊ Modifying Data
◊ Working with Segmented Records

Second Edition (2013/01/31)

Option 5 - File Copy/Reformat

◊ The File Copy/Reformat (FCOPY) Panel
◊ Copying a Standard Sequential Dataset
◊ Copying PDS/PDSE Library members
◊ Record Selection
◊ Specifying Start Record / Number of Records to Copy
◊ Browse the Output File (F11)
◊ Using a FILTER to Select Records for Copy
◊ Browse Output File
◊ Specifying brackets in the FILTER expression.
◊ Generate FCOPY primary command
◊ Modify/Execute Generated FCOPY primary command
◊ Reformat
◊ Create Output Copybook
◊ Updating the Output Copybook
◊ Force Recompile of Updated Output Copybook
◊ Running File Copy Reformat in Batch

Third Edition (2013/02/27)

Option 6 - File Search/Update

◊ The File Search/update (FSU) Panel
◊ Searching a PDS/PDSE Library
◊ Search Report Output (Standard 80-column Screen Width)
◊ Displaying Additional Hit Information Fields
◊ Using F6 to edit the Hit File/Record
◊ Adjusting Report Table View
◊ Selecting Library Members for Search/Update
◊ Condensing Selected Members by Timestamp/Size/Userid
◊ Condensing Selected Members using FIND
◊ Condensed Member Selection List
◊ Condensed Member Search Results
Fourth Edition (2013/10/09)

Updated to reflect SELCOPYi Rel 3.20 revised Function Key defaults.


Option 1 - Text Edit

◊ Function keys, shortcuts and convenience features
◊ UNDO/REDO
◊ Multiple (windowed) views
◊ Marked Line- and Box-block features
◊ String Coloring

Option 12 - DB2

◊ Setting up sample DB2 Tables
◊ Display of DB2 Table detailed Information (INFO)
◊ DB2 Table Edit
◊ Editing selected table rows (using the "WHERE" dialog)
◊ Editing Related Tables (REEDIT)
◊ Generating CSV or XML from selected table rows/columns
◊ Handling Relational Constraint Errors

Sixth Edition (2015/01/19)

SELCOPYi Rel 3.30 (cover change only).

Seventh Edition (2017/08/22)

SELCOPYi Rel 3.40.

Option 8.1 - SELCOPY/debug

◊ Locate Sample SELCOPY JCL
◊ The SELCOPY/debug Menu
◊ SELCOPY/debug Operation
Setup Training Material

Sample data files and COBOL/PL1 copybooks are supplied with the SELCOPYi program.

To create your own personal copies of these datasets, allowing you to follow the training manual in real time, select option T from the SELCOPYi Primary Option Menu.

```
<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
<th>User</th>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settings</td>
<td>Set SELCOPY/i options</td>
<td>USER123</td>
<td>2013/11/06</td>
<td>14:42:01</td>
</tr>
<tr>
<td>Text Edit</td>
<td>Edit/View small text-type files</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Edit</td>
<td>Edit/Browse potentially large data files</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>List</td>
<td>List Volumes, VTOCs, Datasets, Members etc</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home</td>
<td>Edit and execute point-and-shoot commands</td>
<td>OpSys:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copy/Reformat</td>
<td>File Copy with optional copybook reformat</td>
<td>z/OS 1.11.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Search/Update</td>
<td>File Search/Update/Copy/Reformat</td>
<td>System:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compare</td>
<td>File/Library Compare Utilities</td>
<td>VM User:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utilities</td>
<td>General utilities</td>
<td>ZDS111</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structure</td>
<td>Create structure from copybooks etc</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Filter</td>
<td>Create record selection filter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Print</td>
<td>Print Dataset (Batch)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DB2</td>
<td>Work with DB2, browse/edit tables etc</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T Training</td>
<td>Setup SELCOPY/i Training Material</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W Window List</td>
<td>Display active windows, select with cursor to switch focus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X Exit</td>
<td>Exit SELCOPY/i</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

Use F4 (WINDOW) to switch between SELCOPYi display windows.

Use "=" command(+optional fastpath e.g. =3.4) to access this menu/sub-options.

---

Figure 1. SELCOPYi - Setup SELCOPY/i Training Material.
Windowed Display System

Mainframe z/OS sessions are typically connected via a **3270 Emulation** package running on the user’s PC.

Most users logon to **TSO/ISPF** with one of the following "standard" screen sizes:

<table>
<thead>
<tr>
<th>Model</th>
<th>Rows</th>
<th>Columns</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>24</td>
<td>80</td>
</tr>
<tr>
<td>3</td>
<td>32</td>
<td>80</td>
</tr>
<tr>
<td>4</td>
<td>43</td>
<td>80</td>
</tr>
<tr>
<td>5</td>
<td>27</td>
<td>132</td>
</tr>
</tbody>
</table>

Via their settings, modern 3270 emulators may be configured to run with large "dynamic" screen sizes, such as **62 lines by 160 columns**.

**SELCOPYi** takes advantage of large screen sizes by employing a multi-windowed display system.

If you would like to use a large screen for your z/OS (TSO/ISPF) session, configuration is usually very simple, taking only a few minutes. For assistance with your setup please contact CBL (support@cbl.com).

Note that **ISPF** restricts screen width to **160 columns**, and requires an update via its own Settings (=0).

During this section you will learn how to:

- Open multiple display windows
- Switch focus between open windows
- Move windows
- Resize windows
- Save/Restore favourite dataset window locations
Opening Multiple Display Windows

When started with a 3270 screen width of 132 or higher and a screen depth of 32 or higher, SELCOPYi will operate in "windowed" mode, with its Primary Options Menu located centralised at the at the top of the screen by default.

```
File Edit Actions Options Utilities Window SwapList Help US LR

Primary Options Menu

File Snapshot Window Help QuickRef
Command> Scroll> Csr
Z25UPRIM Lines 1-22 of 22

0 Settings  Set SELCOPYi options  User: TESI
1 Tent Edit  Edit/View small text-type files  Version: 3.38
2 Data Edit  Edit/Browse potentially large data files  Date: 2014/09/04
3 List      List Volumes,UTC0s,Datasets,Members etc.  Time: 15:34:42
4 Home      Edit/Execute point-and-shoot commands  OpSys: 2.05 1.11.0
5 Copy/Reformat  File Copy with copybook reformat option  System RDC0
6 Search/Update  File Search/Update/Copy/Reformat  VM User: ZOSII
7 Compare  File/Library Compare Utilities
8 Utilities  Inc SELCOPY debug, XML/C5U gen etc
9 Structure  Create structure from copybooks etc
10 Filter  Create record selection filter
11 Print  Print Dataset
12 DB2  Work with DB2, browse/edit tables etc
13 Training  Setup SELCOPY/i Training Material
14 Window List  Display active windows, select with cursor to switch focus
X Exit  Exit SELCOPY/i

Use F4 (WINDOW) to switch between SELCOPYi display windows.

Use "=" command (optional fastpath e.g. =3.4) to access this menu/sub-options.
```

Figure 2. SELCOPYi - POM Window.
Select option 1 to open the **Text Edit** panel in a separate window.

![Figure 3. SELCOPYi - Text Edit Panel Window.](image)
Help (HTML) Windows

Press Function Key F1 to open the context sensitive Help in a further separate window.

Help (HTML) documents are automatically positioned to display right-justified on the screen.

Figure 4. SELCOPYi - Help Window.
Switching focus between open windows

- The "focus" window is indicated by a blue (reverse-video) title-bar.
- Other windows have a white (reverse-video) title-bar. (Shown as black in these screen shots!)
- Only the command-line and input fields of the focus-window are enterable.
- Press the WINDOW key (default is F4) to switch focus to the **next** window. The Primary Options window should now overlay the others as shown below.
- Type "-" (minus-sign) on the command line, then press the WINDOW key to switch focus to the **previous** window.

![Primary Option Menu](image)

**Figure 5. SELCOPYi - Focus Window.**
Other ways to switch window focus:

1. Place your cursor on any visible part of a window, then press ENTER.

2. Type the WINDOWLIST (WL) primary command to display a list of open windows.
   Place your cursor on the title of a window, then press ENTER.

---

Figure 6. SELCOPYi - Focus Window.
Moving Windows

- Press F3 to close the HELP window.

- At the "Text Edit Entry Panel", enter the name of a sample file:
  - Type `userpfx.SECLTRN.SAM1` in the Dsn field, to specify the PDS library containing the supplied COBOL copybook.
  - Type `ZZST1CPC` in the Member field.

- Press ENTER to edit the sample COBOL copybook.

![Figure 7. SELCOPYi - Focus Window.]

![Figure 8. SELCOPYi - Focus Window.]

**File Edit Actions Options Utilities Window Snaplist Help**

<table>
<thead>
<tr>
<th>Command</th>
<th>Options</th>
<th>Utilities</th>
<th>File Edit Actions Options Utilities Window Snaplist Help</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Figure 7. SELCOPYi - Focus Window.

**File Edit Actions Options Utilities Window Snaplist Help**

<table>
<thead>
<tr>
<th>Command</th>
<th>Options</th>
<th>Utilities</th>
<th>File Edit Actions Options Utilities Window Snaplist Help</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

Figure 8. SELCOPYi - Focus Window.
Moving Windows (2)

- Move the cursor anywhere into the window "Title-Bar" then press ENTER.
  Note: The "Title-Bar" is the thick block (either blue or white) at the top of each window normally which contains some text to identify the window. For edit-type windows, this will be the name of the file displayed. For other windows it will have a indentifying title e.g. "Primary Option Menu".

- The window title-bar and borders will be highlighted in reverse-video.

- This indicates that the window is in move/resize pending state.

- Move the cursor elsewhere on the SELCOPYi "Desktop", then (and only then!) press ENTER again.

- The window will be moved to your desired location.

Figure 9. SELCOPYi - Focus Window.

```
File Edit Actions Options Utilities Window Swap List Help

- TESTI.SELCTR.MAY1.ZZSZ1CPC  80 F DDE  Size=10 Alt=0,0;0

000001  01 TRACK
000002  05 PERSISTENT-ID PIC X(016).
000003  05 TRACK-NUM PIC 9(003).
000004  05 TRACK-ID PIC 9(004).
000005  05 NAME PIC X(120).
000006  05 ARTIST PIC X(120).
000007  05 ALBUM PIC X(070).
000008  05 TOTAL-TIME PIC 9(007) BINARY.
000009  05 FILE-SIZE PIC 9(009) BINARY.
000010  05 BIT-RATE PIC 9(004) BINARY.
000011  05 SAMPLE-RATE PIC 9(005) PACKED-DECIMAL.
000012  05 YEAR PIC 9(004).
000013  05 NORMALIZATION PIC 99(005) PACKED-DECIMAL.
000014  05 DISC-NUMBER PIC 99(003).
000015  05 ALBUM-ARTIST PIC X(041).
000016  05 RELEASE-DATE PIC X(020).
000017  05 DATE-MODIFIED PIC X(020).
000018  ** End of File **
```
Dragging Windows

With the cursor in the window title-bar:

- Press function key **F7** to "drag" the window **up** 1 position.
- Press function key **F8** to drag the window **down** 1 position.
- Press function key **F10** to drag the window **left** 1 position.
- Press function key **F11** to drag the window **right** 1 position.
- In combination with any of the above, simultaneously hold down the "Shift" key to drag the window **5** positions instead of 1.

Top/Bottom/Left/Right Justification of Windows

With the cursor in the window title-bar or on any of the borders:

- Press function key **F5** to move the window to the **very top** of the screen. Press **F5** again to move it to the **very bottom** of the screen, i.e. F5 will toggle the window location between being top and bottom justified without altering it's width or depth.
- Similarly you may press function key **F6** to move the window to the **very left** of the screen. Pressing **F6** again moves it to the **very right** of the screen, i.e. F6 will toggle the window location between being left and right justified without altering it's width or depth.
Resizing Windows

- Move the cursor anywhere into the window top "Border" then press ENTER. Note: The "Border" is the thin unbroken blue line surrounding each window.
- The window title-bar and borders will be highlighted in reverse-video.
- This indicates that the window is in move/resize pending state.

Figure 11. SELCOPYi - Focus Window.
- Move the cursor up or down a number of lines, then (and only then!) press ENTER again.
- The window depth will grow or shrink as desired.
- This technique may be repeated on the bottom, left or right borders and even the corners.

Figure 12: SELCOPYI - Focus Window.
Dragging Window Borders

With the cursor in the window borders:

- Press function key **F7** to “drag” a horizontal border **up 1** position.
- Press function key **F8** to drag a horizontal border **down 1** position.
- Press function key **F10** to drag a vertical border **left 1** position.
- Press function key **F11** to drag a vertical the border **right 1** position.

- In combination with any of the above, simultaneously hold down the "**Shift**" key to drag the window **5** positions instead of **1**.

---

Also with the cursor in either the window borders or title-bar:

- Press function key **Shift-F3** to **decrease the width** by **20**.
- Press function key **Shift-F4** to **increase the width** by **20**.
- Press function key **Shift-F5** to **decrease the depth** by **20**.
- Press function key **Shift-F6** to **increase the depth** by **20**.

- Press function key **Shift-F1** to **save** the location.
- Press function key **Shift-F2** to **restore** from a saved location.

**Note:** Window location save/restore (Shift-F1/F2) is supported for Text-Edit and Data-Edit windows. (Menu and panel windows are automatically restored to their previous location.)
Maximise/Minimise

At the right edge of each window's title-bar you will find the minimise (-), maximise (+) and close (x) buttons.

To "press" one of these buttons simply place your cursor on it and hit ENTER.

SELCOPYi also provides another convenient method of switching between window "maximised" and "restored" state.

- Place the cursor anywhere on either the window "Title-Bar" or "Border"
- Press the Shift-F12 (F24) key to either maximise or restore the window (depending on its current state).

Note that as soon you maximise any window, then all windows will display in maximised state. Remember, all other open windows are still available, just press the "Window" key (F4) to access them.

Figure 14. SELCOPYi - Min/Max/Close Buttons.

Figure 15. SELCOPYi - Focus Window.
Maximise/Minimise (2)

In maximised state the maximise button is replaced by the restore (_) button.

Note that there are now two close (x) buttons displayed one above the other.

The bottom button will close the individual window, while the top one will close the entire SELCOPYi application.

Figure 16. SELCOPYi - Min/Max/Close Buttons.

Minimised windows are displayed at the bottom left of the "desktop".

Figure 17. SELCOPYi - Focus Window.
Option 1 - Text Edit

SELCOPYi's own **Text Editor**, while running in ISPF compatibility mode for ease and familiarity, has some significant advantages over the **standard ISPF-Editor**.

The most obvious of these is that it uses the SELCOPYi "**windowed-display**" system providing movable, resizeable overlapping views of many files at once. It even allows multiple simultaneous views of the same file.

During this section you will learn about:

- Function keys, shortcuts and convenience features
- UNDO/REDO
- Multiple (windowed) views
- Marked Line- and Box-block features
- String Coloring
Option 1 - Text Edit

Function keys, shortcuts and convenience features

Running on z/OS systems, the SELCOPYi Text Editor operates in ISPF-Edit (ISREDIT) compatibility mode, meaning that its look and feel is very similar and it supports all the commonly used primary and line commands of the original standard editor.

There are however some differences you should be aware of, as well as some additional features that you may enjoy using.

- Select option 1 to open the Text Edit panel.
- At the "Text Edit Entry Panel", enter the name of a sample file that was created for you during the "Setup Training Material" section.
  - Type `userpfx.SELECTRN.SAM1` in the Dsn field, to specify the PDS library containing the sample COBOL copybook.
  - Type `ZZST2CPC` in the Member field.
- Press ENTER to edit the library member.

<table>
<thead>
<tr>
<th>Option 1 - Text Edit Function keys, shortcuts and convenience features</th>
</tr>
</thead>
<tbody>
<tr>
<td>SELCOPY/i - TEST1.SELECTRN.SAM1(ZZST2CPC) 80 F POSE Size=59 Alt=0,0;0</td>
</tr>
<tr>
<td>File Edit Actions Options Utilities Window SwapList Help w5 wR</td>
</tr>
<tr>
<td>Command&gt; Scroll&gt; Csr</td>
</tr>
<tr>
<td>000001</td>
</tr>
<tr>
<td>000002</td>
</tr>
<tr>
<td>000003</td>
</tr>
<tr>
<td>000004</td>
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<td>000005</td>
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<td>000022</td>
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<tr>
<td>000023</td>
</tr>
<tr>
<td>000024</td>
</tr>
<tr>
<td>000025</td>
</tr>
<tr>
<td>s1=InsLine s2=DelLine s3=DupLine s4=ACTION s5=MrkBox s6=MrkLine</td>
</tr>
<tr>
<td>s7=SPLTJOIN s8=BoxFuncs s10=UNDO s11=REDO s12=ResetBox</td>
</tr>
<tr>
<td>Te Line=1 Col=1 Alt=0,0;0 Size=59 Recl=80 Fmt=F Files=2 Views=2</td>
</tr>
</tbody>
</table>

Figure 18. SELCOPYi - POM Window.
Inserting, Deleting, Replicating, Splitting and Joining lines

- By default, a scale line is provided at the top of the screen that remains permanently visible as you scroll down the file.
- Type `SCALE OFF` to remove it, and `SCALE ON` to restore it.
- You will notice a difference from the standard ISPF editor when you type "I" in the prefix area of line 1 to insert a new line.
- Whereas the standard ISPF editor will allow you to type data on the inserted line then press `ENTER` to automatically insert another line, the SELCOPYi Text Editor simply inserts a single line.
- Type "Inn" (where nn is a number) in the normal way to insert multiple lines at once.
- While you may, of course, use any of the standard line-commands if you prefer, SELCOPYi provides some convenient default Function Key definitions.
  - Press `Shift-F1` (F13) to insert new lines (instead of having to move the cursor into the prefix area then enter I).
  - Press `Shift-F2` (F14) to delete the current line (instead of having to move the cursor into the prefix area then enter D).
  - Press `Shift-F3` (F15) to replicate the current line (instead of having to move the cursor into the prefix area then enter R).
  - Press `Shift-F7` (F19) to split a line so that text following the cursor is removed from the current and inserted as a new line.
  - Place your cursor at the end of a line then use the same key `SPLTJOIN` to join on text from the next line.
• Type the **PFS (PFSHOWSTYLE)** primary command to control the way Function Keys F13-F24 are displayed at the bottom of the screen.

Type **HELP PFS** for more information on how to get "F13" to display as "s1" (denoting Shift-F1) etc as shown in the following screen shots.

This feature may also be set via the Settings->Function Keys (=0.8) panel.

• In addition, users running with the recommended large 160 column screens width (e.g. 62 lines x 160 cols) will find it handy to use the **PFSHOW ALL** option.

The benefit of this being that function keys 1-12 are always displayed on the first line, with the corresponding "Shift" keys (F13-F24) directly underneath. Keys that are not set to any command will still occupy the relevant slot thereby maintaining the up/down alignment of standard/shift keys.

Again, this feature may also be set via the Settings->Function Keys (=0.8) panel.

• Just like under standard ISPF, you may type **KEYS** to display a dialog that allows view and modification of the current function "KeyList".

Most SELCOPYi utilities have their own independent key list. e.g. The KeyList for the Text-Edit utility (in ISPF compatibility mode) is called “TEXTEDIT” and for the Data-Edit it’s called “DATAEDIT”.

Changes made to key definitions using this panel are permanent.

Press the **HELP (F1)** key for more information.

• Unlike ISPF, you may also make temporary key definitions that are individual to the current Text-Edit window (the feature is also available for Data-Edit and any other type of window).

To temporarily modify a key definition just type the primary command **PF** followed by the number of the key (e.g. 6 to modify F6, or 21 to modify Shift-F9) followed by the text of the command to be executed when the key is pressed.

e.g. **PF 1 SAVE**
Selective Line Editing

- SELCOPYi supports the primary command ONLY (O) as a shortcut to EXCLUDE/FIND.

- Type ONLY 'X' 46 to display only the lines containing letter 'X' in column 46.

  In the standard ISPF editor you would need to type two commands.

  1. X ALL to exclude all lines.
  2. FIND ALL 'X' 46 to show only the required lines.

- Type the primary command HIDE to remove the display of “shadow” lines representing excluded records.

- Type RES HIDE (or SHAD ON) to redisplay shadow lines.

- Type ALL (or RES) to redisplay excluded lines.

  Tip: Using the KEYS dialog, choose a Function key that you’re willing to sacrifice (e.g. F6=RFIND) then define it as ALL; SOS MAKECURR.

  (Use of the command separator character (semi-colon) allows chaining together of multiple commands to be executed with a single key depression.)

  Then, following an ONLY command to select records of interest, you may place your cursor on a particular record and press F6 (or whichever key you chose) to redisplay any excluded lines (ALL) and at the same time scroll the focus record to the top of the screen (SOS MAKECURR).

  Note that after pressing F6 to explore an interesting area of your file, provided you make no changes in that area, you may wish to press the UNDO key (Shift-F10) to reverse the ALL command, in effect reapplying all the line exclusions set by your previous ONLY command.

See later discussion on the UNDO/REDO feature.

![Figure 19. SELCOPYi - Text Edit Panel Window.](image-url)
Displaying HEX Data

- Just like in the standard ISPF-Editor, you may type the primary command **HEX ON/OFF** to display the hexadecimal representation of each text line.

- In addition the SELCOPYi text-editor supports the **HEX** line-command which opens a separate "dump" style storage display for the focus line.

  If you are operating in windowed display mode you'll notice this display appears in a separate window.

  Multiple dump windows may be opened for several different lines.

- Enter the **HEX** line-command in the prefix area of line 6.

- Now modify the data at offset **X'28'** from **X'D7' (c'P') to **X'FF'** and press ENTER.

  You should see the screen shot below.

![Screen Shot of SELCOPYi - Help Window with HEX Data](image)

*Figure 20: SELCOPYi - Help Window.*
Non-Display Characters

• Now press F3 to close the hex-dump window. You should see the screen shot below.

• Notice that the colour of the modified line has changed to **TURQUOISE UNDERSCORE**.
  
  This is to alert the user to the presence of non-display characters within the visible text.

• Display characters are overtypable, and are indicated by the underscore.

  **Non-display** characters (e.g. X'FF') are **protected** from input using a 3270 attribute byte which displays as blank **without** an underscore.

• You can type the primary command **NOND** to toggle this feature on or off.

    | SELCOPY/i - TEST1.SELCTRNSAM1(ZZST2CPC) | 80 F PDSE Size=59 Alt 1,1;3 |
    | Command> |                    |
    | -------- | -------- | -------- |
    | 000001   | 01 ARTIST |
    | 000002   | 05 RT     | PIC X(001). |
    | 000003   | 05 ARTIST | PIC X(070). |
    | 000004   | 01 ALBUM  |
    | 000005   | 05 RT     | PIC X(001). |
    | 000006   | 05 ALBUM  | PIC X(070). |
    | 000007   | 05 TRACK  |
    | 000008   | 05 RT     | PIC X(001). |
    | 000009   | 05 PERSISTENT-ID | PIC X(016). |
    | 000010   | 05 TRACK-NUM | PIC 9(003). |
    | 000011   | 05 TRACK-ID | PIC 9(004). |
    | 000012   | 05 NAME    | PIC X(120). |
    | 000013   | 05 TOTAL-TIME | PIC 9(007) BINARY. |
    | 000014   | 05 FILE-SIZE | PIC 9(009) BINARY. |
    | 000015   | 05 BIT-RATE | PIC 9(004) BINARY. |
    | 000016   | 05 SAMPLE-RATE | PIC 9(005) PACKED-DECIMAL. |
    | 000017   | 05 YEAR    | PIC 9(004). |
    | 000018   | 05 NORMALIZATION | PIC S9(005) PACKED-DECIMAL. |
    | 000019   | 05 DISC-NUMBER | PIC 9(003). |
    | 000020   | 05 ALBUM-ARTIST | PIC X(041). |
    | 000021   | 05 RELEASE-DATE | PIC X(004). |
    | 000022   | 07 RELEASE-YYYY | PIC X(004). |
    | 000023   | 07 FILLER   | PIC X(001). |
    | 000024   | 07 RELEASE-MM | PIC X(002). |
    | 000025   | 07 FILLER   | PIC X(001). |

Figure 21. SELCOPYi - Focus Window.
UNDO/REDO

SELCOPYi supports multi-level UNDO and REDO of changes made during your Text-Edit sessions.

UNDO/REDO is file independent, meaning you can be editing and changing many files within your SELCOPYi session, each of which may have their changes separately undone/redone.

To demonstrate this feature, first use the features described earlier to insert, delete, replicate, split and join lines of text in our sample COBOL copybook, then ...

- Press Function Key F22 (Shift-F10) repeatedly to UNDO each of the changes 1 at a time.
- Press Function Key F23 (Shift-F11) repeatedly to REDO each of the undone changes.

The UNDO/REDO feature is unaffected by the SAVE command.

Type HELP UNDOING for full information on how to configure this feature.
## Multiple (Windowed) views

Whether running in windowed display mode (on a large screen) or not, the SELCOPYi Text-Editor supports multiple views of any edited dataset.

To demonstrate this we'll edit a second slightly larger file.

- **Type the primary command "=" to display (or return focus to) the SELCOPYi Primary Options Menu.**

  If you are running on a standard screen size it is worth noting that this action does not close any of the "windows" we have already seen. Press the WINDOW key (F4) to scroll through each of the open windows.

- **From the Primary Options Menu select option 4 to edit your "HOME" file, which will be discussed in more detail later in this section.**

  Alternatively you may type the HOME (HO) primary command to directly edit this special file.

- **Type M on the command line and press Function Key F8 to scroll to the bottom of this file.**
Multiple (Windowed) Views (2)

Now imagine you’re editing a large program source file and are focused on a point of interest. You then need to look at other parts of the file, but don’t want to lose your current place.

To return to your original location you could use the prefix area to set a line name e.g. `.HERE`, then return to it by typing `LOC .HERE` on the command line.

But SELCOPYi users can just open a 2nd, 3rd, 4th etc view of the file in order to look at other areas, then return to their previous location just by pressing `F3` to close the additional view(s).

To demonstrate ...

- Type the primary command "WIN NEW" to open a new view of the current file.
- Type `M` on the command line and press Function Key `F7` to scroll to the top of the file.
- Just press `F3` to close the new view returning to your original location.

![Figure 22. SELCOPYi - Focus Window.](image-url)

```plaintext
TEST1.SELCOPYi.CMX:2 32752 V SEQ Size=132 Alt=0,0;1
Command> Scroll> Csr
<-------1-------2-------3-------4-------5-------6-------
000000 * * * Top of File * * *
000001 ** TEST1.SELCOPYi.CMX *** L=001 --- 2014/07/30 14:39:49 (T
000002
000003
000004
000005 This is your 'HOME' file (or personal 'Command-Centre').

TEST1.SELCOPYi.CMX:1 32752 V SEQ Size=132 Alt=0,0;1
Command> Scroll> Csr
<-------1-------2-------3-------4-------5-------6-------
.WIN ** Windowed Display System *** .win
000080 While running on a wide (greater than 80-char) screen, SELCOPYi will automatically operate in a windowed display mode.
000082
000083 All SELCOPYi display-windows may then be moved, resized, maximised minimised and restored in a fashion similar to those on your PC.
000085
000086 This is achieved by 'clicking' the window-borders, title-Bar or '-')+-' buttons.
000088 (Clicking means move-cursor, then hit-ENTER.
000089 'Try setting your Mouse to do this!'```

Option 1 - Text Edit
The "WW" Primary Command

Particularly useful when running in windowed display mode, the "WW" command will perform like "WIN NEW", but will also "clone" the original window's width and depth.

In addition, "WW" allows you to supply an optional command that wish to be executed in the new view e.g.

- Type the primary command "WW ONLY '<' 1" to open a new view displaying only lines with a less-than sign in columns 1.

Note that changes to data made in any view will immediately be reflected in all other views of the same file. i.e. Multiple "Views" of the same file are not independent edit sessions but are all logically connected.

Furthermore changes made in one view may be UNDO/REDO in any other view of the same file.

Figure 23. SELCOPY - Focus Window.
Marked Line- and Box-Block features

Lines of data may be deleted, copied or moved within the same file using the familiar line-commands supported by the standard ISPF Editor. Also lines of data may be copied or moved between different files using a very similar CUT/PASTE feature.

In addition, SELCOPY provides features to manipulate a "marked block" of data within an edited file.

There are two types of marked blocks:

1. A **Line-Block** consists of one or more complete lines of text.

   The top/bottom edges of a Line-Block are marked using the "MrkLine" key (Shift-F6 by default).

2. A **Box-Block** consists of one or more columns within one or more lines of text.

   The diagonal corners of a Box-Block are marked using the "MrkBox" key (Shift-F5 by default).

A marked block is "unmarked" using the "ResetBox" key (Shift-F12 by default).

Marked blocks of data may be:

- **Deleted**.
- **Moved** or **copied** to SELCOPY's clipboard.
- Moved or copied to another location within the same or any other edited file.
- **Overlaid** on top of data at another location within the same or any other edited file.
- **Filled** with a single propagated character or left adjusted string.
- **Used to restrict the scope** of many primary commands, such as CHANGE.
- **Used to define a column of incrementing sequence numbers**, or to adjust existing numbers.

To demonstrate some of these features ...

- Edit the sample copybook as before.
- Type ONLY PIC 41.

---

*Figure 24. SELCOPY - Focus Window.*
• Place your cursor anywhere on line 2 then press the "MrkLine" key (Shift-F6).

• Line 2 will be highlighted.

• Place your cursor anywhere on line 12 then press Shift-F6.

• The block of lines from 2 to 12 will be highlighted.
• Type **HOME** on the command line and press **ENTER**.
You should then see your HOME command-centre as shown below.

```
SELCOPY/i - TEST1.SELCOPYi.CMX  32752 V SE0  Size=132  Alt=0,0;1
Command> **TEST1.SELCOPYi.CMX** >>> L=001 30 2014/07/30 14:39:49 (TEST1
000001 '--- SELCOPYi ---'
000002
000003 This is your 'HOME' file (or personal 'Command-Centre').
000005 Type the 'HOME' (HO) command, or select Option 4 from the Primary
000006 Option Menu (=4) to return directly to this file at any time during
000007 your SELCOPYi session.
000008 'What is the purpose of my HOME file???'
000009 TSO, ISPF and internal SELCOPYi primary commands may obviously be
000010 issued from any SELCOPYi command-line. But since the same, or similar,
000011 command-sequences are executed regularly/frequently, it becomes
000012 very convenient and efficient to store these commands (along with
000013 meaningful comments) in an easy to maintain plain-text file.
000014 To execute your stored commands just place your cursor anywhere
000015 within the command text, then press the 'ACTION' key (Default='F16').
000016 Try it now on the next line ... (Commands are colour-coded blue)
000021 <tso lista
000022 \\
000023 |_______________ execute the 'TSO LISTA' command.'
000024
000025 The '<' sign at the beginning of the line indicates that when the
000026 s1=Insline  s2=DelLine  s3=DupLine  s4=ACTION  s5=MrkBox  s6=MrkLine
000027 s7=SPLTJOIN  s8=BoxFuncs s10=UNDO  s11=REDO  s12=ResetBox
```

*Figure 26. SELCOPYi - Focus Window.*
Copying a Line-Block (3)

- Place your cursor anywhere on line 6 of your HOME file.
- Press the "BoxFuncs" key (Shift-F8).

The "Line/Box-Block Options" panel will be displayed as shown below.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Mark Diagonal Corner of a Box-block</td>
</tr>
<tr>
<td>L</td>
<td>Mark Top/Bottom Edge of a Line-block</td>
</tr>
<tr>
<td>R</td>
<td>Reset Marked Line-/Box-block</td>
</tr>
<tr>
<td>C</td>
<td>Copy (i.e. Insert) marked Line-/Box-block at the cursor position</td>
</tr>
<tr>
<td>K</td>
<td>Copy and Keep marked block active</td>
</tr>
<tr>
<td>M</td>
<td>Move marked block</td>
</tr>
<tr>
<td>O</td>
<td>Overlay text at cursor with contents of marked block</td>
</tr>
<tr>
<td>D</td>
<td>Delete marked block</td>
</tr>
<tr>
<td>CC</td>
<td>Copy marked block to the clipboard</td>
</tr>
<tr>
<td>CM</td>
<td>Move marked block to the clipboard</td>
</tr>
<tr>
<td>P</td>
<td>Paste data from the clipboard</td>
</tr>
<tr>
<td>S</td>
<td>Insert sequence numbers into marked box</td>
</tr>
<tr>
<td>W</td>
<td>Delete word at cursor, or blanks up to next word</td>
</tr>
</tbody>
</table>

F1=HELP     F2=SPLIT     F4=WINDOW     F9=SWAP     F12=RETRIEV     s2=EXPAND

Figure 27. SELCOPYi - Focus Window.
• Type "C" in the option field and press ENTER.

• The marked block of lines will be copied into your HOME file following your previous cursor position at line 6.

This is your 'HOME' file (or personal 'Command-Centre').

Type the 'HOME' (HO) command, or select Option 4 from the Primary Option Menu (=4) to return directly to this file at any time during your SELCOPYi session.

'What is the purpose of my HOME file???'

TSO, ISPF and internal SELCOPYi primary commands may obviously be issued from any SELCOPYi command-line. But since the same, or similar, command-sequences are executed regularly/frequently, it becomes very convenient and efficient to store these commands (along with meaningful comments) in an easy to maintain plain-text file.

Figure 28. SELCOPYi - Focus Window.
Deleting a Box-Block (1)

- Place your cursor at column 29 of the first copied line then press the "MrkBox" key (Shift-F5).
- The first (top-left) box corner will be highlighted.
- Place your cursor at column 43 of the last copied line then press the Shift-F5 to mark the (bottom-right) corner.
- The box block will be highlighted.

Figure 29. SELCOPYi - Min/Max/Close Buttons.
Deleting a Box-Block (2)

- Press the "BoxFuncs" key (Shift-F8).
- The "Line/Box-Block Options" panel will be displayed.

Figure 30. SELCOPYi - Focus Window.
Deleting a Box-Block (3)

- Type "D" in the option field and press ENTER.
- The marked box-block will be deleted from your HOME file.
- Any data to the right of block will have been shifted left.
  This would include any data that was beyond the visible window area to the right.

Figure 31. SELCOPYi - Min/Max/Close Buttons.
Moving a Box-Block (1)

- Place your cursor at **column 11** of the **first** copied line then press the "**MrkBox**" key (Shift-F5).
- The first box corner will be highlighted.
- Place your cursor at **column 12** of the **last** copied line then press the **Shift-F5**.
- The box block containing COBOL level number will be highlighted.

```
SELCOPY/i - TEST1.SELCOPYi.CMX  32752 V SE0  Size=141  Alt=2,2;5
File Edit Actions Options Utilities Window SwapList Help wS wR
Command> Scroll> Csr
<---------1---------2---------3---------4---------5---------6---------7------
0000001 ** TEST1.SELCOPYi.CMX *** L=001 --- 2014/07/30 14:39:49 (TEST1
0000002
0000003
0000004
0000005 This is your 'HOME' file (or personal 'Command-Centre').
0000006
0000007   05 RT         = X(001).
0000008   05 ARTIST     = X(070).
0000009   05 RT         = X(001).
000010   05 ALBUM      = X(070).
000011   05 RT         = X(001).
000012   05 PERSISTENT-ID = X(016).
000013   05 TRACK-NUM  = 9(003).
000014   05 TRACK-ID   = 9(004).
000015   05 NAME       = X(120).
000016 Type the 'HOME' (HD) command, or select Option 4 from the Primary
000017 Option Menu (=4) to return directly to this file at any time during
000018 your SELCOPYi session.
000019
000020 'What is the purpose of my HOME file???'
000021 TSO, ISPF and internal SELCOPYi primary commands may obviously be
000022 issued from any SELCOPYi command-line. But since the same, or similar,
000023 command-sequences are executed regularly/frequently, it becomes
000024 very convenient and efficient to store these commands (along with
000025 meaningful comments) in an easy to maintain plain-text file.
  s1=Insline  s2=DelLine  s3=DupLine  s4=ACTION  s5=MrkBox  s6=MrkLine
  s7=SPLITJOIN s8=BoxFuncs s10=UNDO  s11=REDO  s12=ResetBox
Figure 32. SELCOPYi - Focus Window.
Moving a Box-Block (2)

- Place your cursor at column 28 of the first copied line.
- We will move the marked box to this location.
- Press the "BoxFuncs" key (Shift-F8).
- Type "M" in the option field and press ENTER.
- The marked box-block will be moved. Data between the original source column and the target column will be shifted left, but data to the right of the target column will not move.

Figure 33. SELCOPYi - Focus Window.

--- SELCOPYi ---

This is your 'HOME' file (or personal 'Command-Centre').

Type the 'HOME' (HO) command, or select Option 4 from the Primary Option Menu (=4) to return directly to this file at any time during your SELCOPYi session.

'What is the purpose of my HOME file???'

TSO, ISPF and internal SELCOPYi primary commands may obviously be issued from any SELCOPYi command-line. But since the same, or similar, command-sequences are executed regularly/frequently, it becomes very convenient and efficient to store these commands (along with meaningful comments) in an easy to maintain plain-text file.

s1=InsLine, s2=DelLine, s3=DupLine, s4=ACTION, s5=MrkBox, s6=MrkLine, s7=SPLTJOIN, s8=BoxFuncs, s10=UNDO, s11=REDO, s12=ResetBox
Overlaying a Box-Block (1)

- Place your at column 33 of the first copied line then press the "MrkBox" key (Shift-F5).
- Place your at column 35 of the last copied line then press the Shift-F5.
- The box block containing COBOL field data lengths will be highlighted.
- Place your at column 20 of the first copied line as shown below.
  We will overlay the marked box onto this location.

** SE LC O PY i **

This is your 'HOME' file (or personal 'Command-Centre').

Type the 'HOME' (HO) command, or select Option 4 from the Primary Option Menu (=4) to return directly to this file at any time during your SELOP Yi session.

'What is the purpose of my HOME file???'

TSO, ISPF and internal SELCOPYi primary commands may obviously be issued from any SELCOPYi command-line. But since the same, or similar, command-sequences are executed regularly/frequently, it becomes very convenient and efficient to store these commands (along with meaningful comments) in an easy to maintain plain-text file.

Figure 34. SELOCOPYi - Focus Window.
- Press the "BoxFuncs" key (Shift-F8).

**Figure 35. SELCOPYi - Focus Window.**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Mark Diagonal Corner of a Box-block</td>
</tr>
<tr>
<td>L</td>
<td>Mark Top/Bottom Edge of a Line-block</td>
</tr>
<tr>
<td>R</td>
<td>Reset Marked Line-/Box-block</td>
</tr>
<tr>
<td>C</td>
<td>Copy (i.e. Insert) marked Line-/Box-block at the cursor position</td>
</tr>
<tr>
<td>K</td>
<td>Copy and Keep marked block active</td>
</tr>
<tr>
<td>M</td>
<td>Move marked block</td>
</tr>
<tr>
<td>O</td>
<td>Overlay text at cursor with contents of marked block</td>
</tr>
<tr>
<td>D</td>
<td>Delete marked block</td>
</tr>
<tr>
<td>CC</td>
<td>Copy marked block to the clipboard</td>
</tr>
<tr>
<td>CM</td>
<td>Move marked block to the clipboard</td>
</tr>
<tr>
<td>P</td>
<td>Paste data from the clipboard</td>
</tr>
<tr>
<td>S</td>
<td>Insert sequence numbers into marked box</td>
</tr>
<tr>
<td>W</td>
<td>Delete word at cursor, or blanks up to next word</td>
</tr>
</tbody>
</table>

F1=HELP    F2=SPLIT    F4=WINDOW    F9=SWAP    F12=RETRIEV    s2=EXPAND
Overlaying a Box-Block (3)

- Type "O" in the option field and press ENTER.
- The marked box-block will overlay the original data.
  The target data remains marked and no left/right shifting occurs.

![Figure 36. SELCOPYi - Focus Window.](image)

This is your 'HOME' file (or personal 'Command-Centre').

Type the 'HOME' (H0) command, or select Option 4 from the Primary Option Menu (=4) to return directly to this file at any time during your SELCOPYi session.

'What is the purpose of my HOME file???'

TSO, ISPF and internal SELCOPYi primary commands may obviously be issued from any SELCOPYi command-line. But since the same, or similar, command-sequences are executed regularly/frequently, it becomes very convenient and efficient to store these commands (along with meaningful comments) in an easy to maintain plain-text file.

s1=InsLine   s2=DelLine   s3=DupLine   s4=ACTION   s5=MrkBox   s6=MrkLine
s7=SPLTJOIN  s8=BoxFuncs  s10=UNDO    s11=REDO    s12=ResetBox

Figure 36. SELCOPYI - Focus Window.
**Incremental Sequence Numbers (1)**

We can easily replace the data in the marked box with a sequence number.

For our example we'll start the sequence at 100 and increase by 20 for each new line.

- Press the "BoxFuncs" key (Shift-F8).
- Type "S" in the option field and press ENTER.

*Figure 37. SELCOPYi - Focus Window.*
The "Generate Sequence Numbers ..." panel will be displayed.

- Enter "DEC" in the "Base:" option field to select decimal sequence numbers.
- Enter "100" in the "Start Value:" option field.
- Enter "20" in the "Increment:" option field.
- Enter "YES" in the "Leading Zeros:" option field.
- Select option "Use above specified start value".
- Press ENTER to close the panel and update the values.

--- BoxSeq ---

Use this panel to insert or modify a numeric column defined by a marked "Box-block" in a Text-Edit view.

Use the "MrkBox" key (default is Shift-F5) to mark the corners of a box-block before entering this panel.

The box corners define the start/end line and columns to receive the sequenced numbers, incremented/decremented for each line.

Base: DEC

Start Value: 100
Increment: 20
Leading Zeros: YES

/ Use above specified start value.
- Use the first line existing value as start value.
- Adjust every each existing value by the increment number.

Figure 38. SELCOPY/i - Focus Window.
Adjusting Sequence Numbers (1)

We can also use the same panel to adjust the existing numbers in a box block.

As an exercise, we’ll add 3 to each of the original existing numbers.

- First press the **UNDO** key (Shift-F10) to restore the previous values.
- Press the "**BoxFuncs**" key (Shift-F8).
- Type "**S**" in the option field and press **ENTER**.
- Enter "**3**" in the "**Increment:**" field.
- Select option "**Adjust every existing value by the increment number**".

---

**SELCOPY/i - Generate Sequence Numbers in Marked Box**

Use this panel to insert or modify a numeric column defined by a marked "Box-block" in a Text-Edit View.

Use the "MrkBox" key (default is Shift-F5) to mark the corners of a box-block before entering this panel.

The box corners define the start/end line and columns to receive the sequenced numbers, incremented/decremented for each line.

- **Base:** **DEC**
- **Start Value:** Number inserted on 1st line.
- **Increment:** **3** +/- number adjustment to 2nd and subsequent lines.
- **Leading Zeros:** **YES**

---

**F1=HELP**  **F2=SPLIT**  **F4=WINDOW**  **F9=SWAP**  **F12=C RETRIEV**  **s2=EXPAND**
Adjusting Sequence Numbers (2)

Press **ENTER** to update the values.

```
SELCOPY/i - TEST1.SELCOPYi.CMX  32752 V SEQ  Size=141  Alt=12,12;8
Command>                      Scroll> Csr
<--------1--------2--------3--------4--------5--------6--------7--
000001 ** TEST1.SELCOPYi.CMX ***  L=001  ---  2014/07/30 14:39:49 (TEST1
000003 '--- SELCOPYi ---'
000005 This is your 'HOME' file (or personal 'Command-Centre').
000006
000007 RT  05  X(004).
000008 ARTIST  05  X(073).
000009 RT  05  X(004).
000010 ALBUM  05  X(073).
000011 RT  05  X(004).
000012 PERSISTENT-ID  05  X(019).
000013 TRACK-NUM  05  9(006).
000014 TRACK-ID  05  9(007).
000015 NAME  05  X(123).
000016 Type the 'HOME' (HD) command, or select Option 4 from the Primary
000017 Option Menu (=4) to return directly to this file at any time during
000018 your SELCOPYi session.
000019
000020 'What is the purpose of my HOME file???'
000021 TSO, ISPF and internal SELCOPYi primary commands may obviously be
000022 issued from any SELCOPYi command-line. But since the same, or similar,
000023 command-sequences are executed regularly/frequently, it becomes
000024 very convenient and efficient to store these commands (along with
000025 meaningful comments) in an easy to maintain plain-text file.
```

Figure 40: SELCOPYi - Focus Window.
Adjusting Sequence Numbers (3)

You can use the UNDO/REDO keys to verify the increment has occurred for each value.

Figure 41. SELCOPY - Focus Window.

```
RT  05  X(001).
ARTIST  05  X(070).
RT  05  X(001).
ALBUM  05  X(070).
RT  05  X(001).
PERSISTENT-ID  05  X(015).
TRACK-NUM  05  9(003).
TRACK-ID  05  9(004).
NAME  05  X(120).
```

Type the 'HOME' (HD) command, or select Option 4 from the Primary Option Menu (=4) to return directly to this file at any time during your SELCOPY session.

'What is the purpose of my HOME file???'

TSO, ISPF and internal SELCOPY1 primary commands may obviously be issued from any SELCOPY command-line. But since the same, or similar, command-sequences are executed regularly/frequently, it becomes very convenient and efficient to store these commands (along with meaningful comments) in an easy to maintain plain-text file.

```
s1=InsLine  s2=DelLine  s3=Dupline  s4=ACTION  s5=MrkBox  s6=MrkLine
s7=SPLTJOIN  s8=BoxFuncs  s10=UNDO  s11=REDO  s12=ResetBox
```

Figure 41. SELCOPY - Focus Window.
Next we'll use the **BOX** primary command to change all occurrences of "-" (minus) to "#" (sharp) within the COBOL field names only.

- Mark the data block as shown below.
- On the command line type **BOX CHANGE ALL '-' '#'**.
- Press **ENTER** to make the change.

![Figure 42: SELCOPY - Focus Window.](image-url)
Using the "BOX" Primary Command (2)

This technique saves you setting up setting "BOUNDS" and line names in the prefix area before issuing your CHANGE command.

--- SELCOPY _i ---

This is your 'HOME' file (or personal 'Command-Centre').

Type the 'HOME' (H0) command, or select Option 4 from the Primary Option Menu (=4) to return directly to this file at any time during your SELCOPY session.

'What is the purpose of my HOME file???'

TSO, ISPF and internal SELCOPYi primary commands may obviously be issued from any SELCOPYi command-line. But since the same, or similar, command-sequences are executed regularly/frequently, it becomes very convenient and efficient to store these commands (along with meaningful comments) in an easy to maintain plain-text file.

Figure 43. SELCOPYi - Focus Window.
Next we'll use the FILLBOX (FILL) primary command to set all characters within a marked block.

This technique is most frequently used to "blank" out a portion of the file, but we'll use it to set the value 'X'.

- Mark the data block as shown below.
- On the command line type "FILL X".

Mark the data block as shown below.
On the command line type "FILL X".

--- SELCOPY1 ---

This is your 'HOME' file (or personal 'Command-Centre').

Type the 'HOME' (HO) command, or select Option 4 from the Primary Option Menu (=4) to return directly to this file at any time during your SELCOPYi session.

‘What is the purpose of my HOME file???’

TSO, ISPF and internal SELCOPYi primary commands may obviously be issued from any SELCOPYi command-line. But since the same, or similar, command-sequences are executed regularly/frequently, it becomes very convenient and efficient to store these commands (along with meaningful comments) in an easy to maintain plain-text file.
Using the "FILLBOX" Primary Command (2)

Press **ENTER** to set the values.

--- SELCOPY ---

This is your 'HOME' file (or personal 'Command-Centre').

--- SELCOPY ---

Type the 'HOME' (H0) command, or select Option 4 from the Primary Option Menu (=4) to return directly to this file at any time during your SELCOPYi session.

What is the purpose of my HOME file???

TSO, ISPF and internal SELCOPYi primary commands may obviously be issued from any SELCOPYi command-line. But since the same, or similar, command-sequences are executed regularly/frequently, it becomes very convenient and efficient to store these commands (along with meaningful comments) in an easy to maintain plain-text file.

Figure 45: SELCOPYi - Focus Window.
Using the "FILLBOX" Primary Command (3)

The **FILL** command may also be used to set a left adjusted character string on each box block line.

- On the command line type "FILL ABCDEF".
- Press **ENTER** to set the values.

```
SELCOPY/i - TEST1,SELCOPYi.CMX  32752 V SEEK Size=141 Alt=6,6;10
File Edit Actions Options Utilities Window SwapList Help  wS wR
Command> - Scroll> Csr
<--------1--------2--------3--------4--------5--------6--------7--
000001 ** TEST1.SELCOPYi.CMX ***  L=001 ---- 2014/07/30 14:39:49 (TEST1
000002
000003  '--- SELCOPYi ---'
000004
000005  This is your 'HOME' file (or personal 'Command-Centre').
000006
000007 ABCDEF 05 X(001).
000008 ABCDEF 05 X(070).
000009 ABCDEF 05 X(001).
000010 ABCDEF 05 X(070).
000011 ABCDEF 05 X(001).
==CHG> ABCDEF 05 X(016).
==CHG> ABCDEF 05 G(003).
==CHG> ABCDEF 05 G(004).
000015 ABCDEF 05 X(120).
000016 Type the 'HOME' (HO) command, or select Option 4 from the Primary
000017 Option Menu (=4) to return directly to this file at any time during
000018 your SELCOPYi session.
000019
000020 'What is the purpose of my HOME file???'
000021 TSO, ISPF and internal SELCOPYi primary commands may obviously be
000022 issued from any SELCOPYi command-line. But since the same, or similar,
000023 command-sequences are executed regularly/frequently, it becomes
000024 very convenient and efficient to store these commands (along with
000025 meaningful comments) in an easy to maintain plain-text file.
```

Figure 46. SELCOPYi - Focus Window.
String Coloring

"Syntax" coloring, similar to that supported by the standard ISPF-Editor, is available within the SELCOPYi Text-Editor, and is controlled by the HILITE primary command. Type HELP HILITE for more information on this feature.

In addition, SELCOPYi provides the ability to control color highlighting of all occurrences of one or more user defined strings.

- Use primary command SCOLOR to assign a color to all occurrences of a defined string.
- Use primary command LCOLOR to assign a color to the whole of each line that contains a defined string.

To demonstrate, we'll edit another of the sample files that was created during the "Setup Training Material" section.

- Select option 1 from the Primary Options Menu to open the Text Edit panel, then enter the name of the sample file:
  - Type userpfx.SELCTRN.ZZST2DAT in the Dsn field.
  - Press ENTER to edit the sample sequential file.
  - Navigate to the artist "U2" by typing the primary command FIND '1U2' 1.

- Type the primary command SCOLOR 'World' YELLOW.
  This will highlight all occurrences of the string "World" (case-sensitive) in yellow. "YELLOW" may be abbreviated to "Y".

- Type the primary command SCOL '(Live)' R USC.
  This will highlight all occurrences of the string "(Live)" (case-sensitive) in underscored red.

- Place your cursor at column 1 of any visible line, then press the "MrkBox" key (Shift-F5).
  The single character "box-block" will be highlighted.

- Type the primary command BOX LCOLOR '1' G REV.
  This will highlight all "Artist" lines (character '1' at column 1) in green reverse-video.

- Type the primary command BOX LCOL '2' P REV.
  This will highlight all "Album" lines (character '2' at column 1) in pink reverse-video.

Figure 47. SELCOPYi - SCOLOR/LCOLOR.
Option 2 - Data Edit (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 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.

During this section you will learn how to:

- Change Display Modes
- Use the LAYOUT command to display the active structure
- Scroll the display to an individual Field
- Select/Order visible Fields
- Adjust Field display column-widths
- Use the SELECT panel
- Use the FIND, EXCLUDE and ONLY commands
- Use the CHANGE command
- Use UNDO/REDO
- Filter records using ALL/MORE/LESS commands
- Work with Multiple Record Types with different Layouts
- Modify record data/length
- Work with Segmented Records
The SDE Edit/Browse Entry Panel

The SDE panel may be started using any of the following methods:

- Select option 2 from the SELCOPYi Primary Option Menu (=).
- At any primary command prompt type =2.
- At any primary command prompt type SDE.
- From any dataset, library or HFS path list window, use the SD line-command.

To follow the demonstration use the panel to edit the sample dataset using the supplied COBOL or PL1 copybook.

- Specify the Data File:
  - Type userpfx.SELCTRN.ZZST1DAT in the Name field, where userpfx is your own user prefix.
  - If wildcards are specified then a dataset list will be displayed from which you can make a selection.
  - The Member field may be left blank, but regardless will be ignored when the Name field refers to a non-PDS dataset.
  - If wildcards are specified then a member list will be displayed from which you can make a selection.
- Activate the Structure/Copybook overlay option by entering a / in the left margin field.
  - Type userpfx.SELCTRN.SAM1 in the Dsn field, to specify the PDS library containing the supplied COBOL / PL1 copybook. If wildcards are specified then a dataset list will be displayed from which you can make a selection.
  - Type ZZST1CPC in the Member field (for COBOL installations).
  - Type ZZST1CPP in the Member field (for PL1 installations).
- Check the Type option for Cobol or PL1 as appropriate. Note that SELCOPYi uses its own internal "compiler" to parse COBOL and PL1 copybooks, so you may use whichever sample copybook you please without the need for an available IBM compiler.
- Press ENTER to edit the sample dataset.

Note: The following sample commands and screen-shots depict use of the COBOL copybook.
• The first sample dataset represents a music collection, with each "Track" described by a separate logical record.

• The initial view of the data is presented in formatted multi-record (table) display mode.

• Press F10 / F11 to scroll the display left/right in order to view further data fields.

---

Figure 49. SELCOPY - SDE Table View.
Display Modes

Display HEX Data

- Type **HEX ON** to set hexadecimal display on.
- Type **HEX OFF** to set hexadecimal display off.
- Type **HEX** to toggle hexadecimal display on/off.
- Type **Help HEX** for full information.

Notes:

1. Where sample commands are provided, uppercase denotes the minimum abbreviation.
2. To use any SDE command from a non-SDE browse/edit command prompt you must prefix the command with **SD**.
   e.g. **SD Help HEX**
3. From an SDE browse/edit command prompt the **SD** prefix is unnecessary. e.g. **Help HEX**

Figure 50. SELCOPY\i - SDE HEX ON.
Formatted Single-Record (MAP/FMT) Display Mode

- Type MAP or FMT to set formatted single-record display mode.
- Press F7 / F8 to scroll the display up/down in order to view further fields within the same record.
- Press F10 / F11 to scroll the display to the previous/next record.
- Use the SHOW (S) command to control various aspects of the display. Type Help Show for full information.
- Use the OFFSET (OFST) command to control the format of the field offset column. Type Help OFST for full information.
- Use the GROUP (G) command to control display of group fields. Type Help Group for full information.
- Type HEX to toggle hexadecimal display on/off.

Figure 51. SELCOPYi - SDE MAP/FMT.
Unformatted Multi-Record (CHAR) Display Mode

- Type CHAR to set unformatted multi-record display mode.

- For non-segmented structures, this display is the equivalent of removing the structure.

- For segmented structures, each line represents an individual segment in its raw state, with the prefix area indicating the physical record to which it belongs.

- Type HEX to toggle hexadecimal display on/off.

Figure 52. SELCOPY/i - SDE CHAR.
MAP/FMT Line-Command

- You may also use MAP or FMT as a line-command (typed in the prefix area) to display the marked line in formatted single-record mode.

- Alternatively press F17 (Shift-F5) to open a separate window displaying the focus record in formatted single-record (zoomed) mode.

- Note that on a standard 80-column screen SELCOPYi operates in window-maximised mode so that the new window will entirely obscure the original display.

- On a wide screen operating in windowed mode, the new window will open top-right justified, with the intention that both the table view and record view are simultaneously visible.

- Significantly for windowed mode, multiple “zoomed” windows may be opened for different records, with the ability to move and resize each window as desired.

```
- SELCOPYi - Edit USER123.SELCTR, ZZST1DAT using USER123.SELCTR.SAM1(ZZSTIC

Command) 

Record type: UnMapped   Fixed(407) Offset=0 Data elements=1

UnMapped

00000001 CB12D714D518B800A7B0CRolling In the Deep
00000002 2648A25633D150440B94ERumour Has It
00000003 98159238683000C208ETurning Tables
00000004 D003FFC741800208IDon't You Remember
00000005 AED73D98574A4C500E209ASet Fire to the Rain
00000006 E75B5CE1F5CDEA7000F209CHe Won't Go
00000007 6798C2A808F2B51000G209ETake It All
00000008 ED323D1547D75E500B209GI'll Be Waiting
00000009 DB6C88FC280217700I209Ione and Only
00000010 2502515DEB535B0B0{10Alovesong

MAP

00000012 D54442B7A45E22000B2010{Bonus Track}
00000013 CEC9281B30240A80C2010{Adele 21 - A Track By Track Interview

00000014 E41C27B7E0159301A46Hold On

00000015 E41C27B7E0159301A46Hold On

00000016 E41C27B7E0159301A46Hold On

00000017 214ED5B9245130D417Erise to the Sun

00000018 E41C27B7E0159301A46Hold On

00000019 FF47B9E50E96700F417I'm Goin' to the Party

00000020 5D46C68155440BF000G14AHeartbreaker

00000021 C54FE7793248562400H418CBue & #38; Girls

00000022 E41C27B7E0159301A46Hold On

00000023 B044DBED3373A41201{148GI Ain't the Same

00000024 6E44D77A948E8A6D1A418IOn Your Way

00000025 2D4854419775CAB184A19Chevy

Se | Line=11  Col=1  Alt=0,0;0 | Size=1070 | Recl=407  Fmt=F  Files=1  VIEW
```

Figure 53. SELCOPYi - SDE MAP Line-Command.
Unformatted Single-Record (UNFMT) Display Mode

- Type **UNFMT** to set unformatted single-record display mode.
- Type **HEX** to toggle hexadecimal display on/off.
- Press **F7 / F8** to scroll along the length of a long record.
- Press **F10 / F11** to scroll the display to the previous/next record.

Figure 55. SELCOPYi - SDE UNFMT.
Hex Dump (HEXD) Display Mode

- Type **HEXD** to set hex-dump display mode. You may add the **NEW** parameter in order to open the display in a new window.

- Press **F7 / F8** to scroll along the length of a long record.

- Press **F10 / F11** to scroll the display to the previous/next record.

- Use the **SPM** command to show a popup menu providing display options for the hex-dump screen. Type **Help HEXD** for full information.

- The offset field on the first displayed line of data may also be overtyped in order to scroll the display to the specified offset within the record.

- While in multi-record (table) view the **HEXD** line-command may also be typed into record the prefix area to show the selected record in hex-dump format.

---

**Figure 56. SELCOPY - SDE HEXD.**
**Formatted Multi-Record (VFMT) Display Mode**

- Type **VFMT** to return to the default multi-record formatted display mode.

---

**Figure 57. SELCOPY1 - SDE VFMT.**

### Controlling Table Headings

- A fixed heading displays the **Record Type** name. Other items on this line are described in the following table.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed(n)</td>
<td>Displayed when the record-type is of a fixed length n.</td>
</tr>
<tr>
<td>Variable(n1,n2)</td>
<td>Displayed when the record-type may vary in length. Its lower length limit being n1. Its upper length limit being n2.</td>
</tr>
<tr>
<td>Offset=n</td>
<td>Indicates the offset (n) into the record at which record-type mapping is applied.</td>
</tr>
<tr>
<td>Data Elements=n</td>
<td>Indicates the number of fields (n) mapped by this record-type.</td>
</tr>
</tbody>
</table>

- The first **column heading** is fixed and displays the **Field Name**.  
- Subsequent **column headings** are optional. The table below indicates the primary commands used to control each one.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Primary Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Number</td>
<td>Displays the field reference number (#n).</td>
<td>REF ON</td>
</tr>
<tr>
<td>Data Type</td>
<td>Optionally displays one of the following:</td>
<td>TYPE ON</td>
</tr>
<tr>
<td></td>
<td>1. A combination field of the format data-type position:length.</td>
<td>TYPE OFF</td>
</tr>
<tr>
<td></td>
<td>2. A combination field of the format length/format.</td>
<td>TYPE FMT</td>
</tr>
<tr>
<td></td>
<td>3. The position or offset defining the field's location within the record.</td>
<td>TYPE OFFSET</td>
</tr>
<tr>
<td></td>
<td>4. The field's picture string.</td>
<td>TYPE PIC</td>
</tr>
<tr>
<td>Scale</td>
<td>Displays the scale. Use command OFST X to display a hexadecimal offset</td>
<td>SCALE ON</td>
</tr>
<tr>
<td></td>
<td>scale.</td>
<td>SCALE OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OFST P</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OFST X</td>
</tr>
</tbody>
</table>
LAYOUT Command

- Type LAYOUT to display the current structure details in a separate list-window.
- Select the Text menu-bar item or type TEXT to place the information in a text-edit document window, which may be saved in the usual fashion.
- From the LAYOUT window, press F3 to return to the edit/browse view.

![Figure 58: SELCOPY - SDE VFMT.](image-url)

<table>
<thead>
<tr>
<th>Name</th>
<th>Picture</th>
<th>RefNo</th>
<th>Start</th>
<th>End</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRACK</td>
<td>Group</td>
<td>1</td>
<td>1</td>
<td>407</td>
<td>407</td>
</tr>
<tr>
<td>PERSISTENT-ID</td>
<td>X(016)</td>
<td>2</td>
<td>1</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>TRACK-NUM</td>
<td>S9(003)</td>
<td>3</td>
<td>17</td>
<td>19</td>
<td>3</td>
</tr>
<tr>
<td>TRACK-ID</td>
<td>S9(004)</td>
<td>4</td>
<td>20</td>
<td>23</td>
<td>4</td>
</tr>
<tr>
<td>NAME</td>
<td>X(120)</td>
<td>5</td>
<td>24</td>
<td>143</td>
<td>120</td>
</tr>
<tr>
<td>ARTIST</td>
<td>X(070)</td>
<td>6</td>
<td>144</td>
<td>213</td>
<td>70</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>X(070)</td>
<td>7</td>
<td>214</td>
<td>283</td>
<td>70</td>
</tr>
<tr>
<td>TOTAL-TIME</td>
<td>S9(007)</td>
<td>8</td>
<td>284</td>
<td>287</td>
<td>4</td>
</tr>
<tr>
<td>FILE-SIZE</td>
<td>S9(009)</td>
<td>9</td>
<td>288</td>
<td>291</td>
<td>4</td>
</tr>
<tr>
<td>BIT-RATE</td>
<td>S9(004)</td>
<td>10</td>
<td>292</td>
<td>293</td>
<td>2</td>
</tr>
<tr>
<td>SAMPLE-RATE</td>
<td>S9(005)</td>
<td>11</td>
<td>294</td>
<td>296</td>
<td>3</td>
</tr>
<tr>
<td>YEAR</td>
<td>S9(004)</td>
<td>12</td>
<td>297</td>
<td>300</td>
<td>4</td>
</tr>
<tr>
<td>NORMALIZATION</td>
<td>S9(005)</td>
<td>13</td>
<td>301</td>
<td>303</td>
<td>3</td>
</tr>
<tr>
<td>DISC-NUMBER</td>
<td>S9(003)</td>
<td>14</td>
<td>304</td>
<td>306</td>
<td>3</td>
</tr>
<tr>
<td>ALBUM-ARTIST</td>
<td>X(041)</td>
<td>15</td>
<td>307</td>
<td>347</td>
<td>41</td>
</tr>
<tr>
<td>RELEASE-DATE</td>
<td>X(020)</td>
<td>16</td>
<td>348</td>
<td>367</td>
<td>20</td>
</tr>
<tr>
<td>DATE-ADDED</td>
<td>X(020)</td>
<td>17</td>
<td>368</td>
<td>387</td>
<td>20</td>
</tr>
<tr>
<td>DATE-MODIFIED</td>
<td>X(020)</td>
<td>18</td>
<td>388</td>
<td>407</td>
<td>20</td>
</tr>
</tbody>
</table>
Scrolling the Display to a specific field/record.

Locating a Field

- Use the **LOCATE** command to scroll a formatted (either multi- or single-record) display to a specific field. LOCATE may be abbreviated to **L**.
- Field names may be abbreviated.
- The field may be referred to either by its name or by its field reference number, e.g. using the supplied sample COBOL copybook the following commands are functionally equivalent.
  - **L SAMP**
  - **L #11**
- The result of issuing either of these commands from a VFMT display is shown below.
- The parameters **FIRST**, **LAST**, **NEXT** or **PREV** may optionally be added to the command, with **NEXT** being the default.

```
L SAMP
L #11
```

The result of issuing either of these commands from a VFMT display is shown below.

```
<table>
<thead>
<tr>
<th>PD 294:3</th>
<th>ZD 297:4</th>
<th>PD 301:3</th>
<th>ZD 304:3</th>
<th>AN 307:41</th>
</tr>
</thead>
<tbody>
<tr>
<td>00000001</td>
<td>44100</td>
<td>2011</td>
<td>5151</td>
<td>001 Adele</td>
</tr>
<tr>
<td>00000002</td>
<td>44100</td>
<td>2011</td>
<td>7474</td>
<td>001 Adele</td>
</tr>
<tr>
<td>00000003</td>
<td>44100</td>
<td>2011</td>
<td>6529</td>
<td>001 Adele</td>
</tr>
<tr>
<td>00000004</td>
<td>44100</td>
<td>2011</td>
<td>5189</td>
<td>001 Adele</td>
</tr>
<tr>
<td>00000005</td>
<td>44100</td>
<td>2011</td>
<td>9255</td>
<td>001 Adele</td>
</tr>
<tr>
<td>00000006</td>
<td>44100</td>
<td>2011</td>
<td>3374</td>
<td>001 Adele</td>
</tr>
<tr>
<td>00000007</td>
<td>44100</td>
<td>2011</td>
<td>3615</td>
<td>001 Adele</td>
</tr>
<tr>
<td>00000008</td>
<td>44100</td>
<td>2011</td>
<td>10626</td>
<td>001 Adele</td>
</tr>
<tr>
<td>00000009</td>
<td>44100</td>
<td>2011</td>
<td>4929</td>
<td>001 Adele</td>
</tr>
<tr>
<td>00000010</td>
<td>44100</td>
<td>2011</td>
<td>7200</td>
<td>001 Adele</td>
</tr>
<tr>
<td>00000011</td>
<td>44100</td>
<td>2011</td>
<td>3362</td>
<td>001 Adele</td>
</tr>
<tr>
<td>00000012</td>
<td>44100</td>
<td>2011</td>
<td>3693</td>
<td>001 Adele</td>
</tr>
<tr>
<td>00000013</td>
<td>44100</td>
<td>2011</td>
<td>0</td>
<td>000 Adele</td>
</tr>
<tr>
<td>00000014</td>
<td>44100</td>
<td>2012</td>
<td>4608</td>
<td>001 Alabama Shakes</td>
</tr>
<tr>
<td>00000015</td>
<td>44100</td>
<td>2012</td>
<td>6070</td>
<td>001 Alabama Shakes</td>
</tr>
<tr>
<td>00000016</td>
<td>44100</td>
<td>2012</td>
<td>5761</td>
<td>001 Alabama Shakes</td>
</tr>
<tr>
<td>00000017</td>
<td>44100</td>
<td>2012</td>
<td>7294</td>
<td>001 Alabama Shakes</td>
</tr>
<tr>
<td>00000018</td>
<td>44100</td>
<td>2012</td>
<td>7353</td>
<td>001 Alabama Shakes</td>
</tr>
<tr>
<td>00000019</td>
<td>44100</td>
<td>2012</td>
<td>2058</td>
<td>001 Alabama Shakes</td>
</tr>
<tr>
<td>00000020</td>
<td>44100</td>
<td>2012</td>
<td>9197</td>
<td>001 Alabama Shakes</td>
</tr>
<tr>
<td>00000021</td>
<td>44100</td>
<td>2012</td>
<td>1145</td>
<td>001 Alabama Shakes</td>
</tr>
<tr>
<td>00000022</td>
<td>44100</td>
<td>2012</td>
<td>6287</td>
<td>001 Alabama Shakes</td>
</tr>
<tr>
<td>00000023</td>
<td>44100</td>
<td>2012</td>
<td>8411</td>
<td>001 Alabama Shakes</td>
</tr>
</tbody>
</table>
```

Figure 59: SELCOPY - SDE LOCATE field.
Locating a Record

- Use the LOCATE nnn command to scroll to a specific record number nnn.

- Alternatively you may use :nnn
  e.g. the following commands are functionally equivalent.
  - L 1001
  - :1001
  The result of issuing either of these commands from a VFMT display is shown below.

- The LOCATE command may also be used to
  - scroll a VSAM ESDS to the record at a specific RBA.
  - scroll a VSAM KSDS to the record at a specific key, partial key or RBA.

- Type Help Locate for full information.

Figure 60. SELCOPYi - SDE LOCATE record.
Selecting/Ordering Visible Fields

• Type **SELect** followed by a comma separated list of fields in order to restrict the display to those fields of particular interest.

• Fields may be referred to either by their name or by their field reference number.

• Type either of the following commands to produce the results displayed below.
  ♦ SEL TRACK-NUM,ALBUM,ARTIST,NAME
  ♦ SEL #3,#7,ARTIST,NAME

![Figure 61. SELCOPY/ - SDE SELECT 1.](image)

The following results will be displayed after scrolling right once.

![Figure 62. SELCOPY/ - SDE SELECT 2.](image)

• The following results will be displayed after scrolling right once.

![Figure 63. SELCOPY/ - SDE SELECT 2.](image)

• Type **SELect** * to reset the display to show all fields in their default order
Preventing Fields from Scrolling Off-screen (HOLD)

- By adding the **Hold** keyword following the field-name/ref, that field will be prevented from scrolling off the screen.

  - **HOLD** need only be specified once i.e. for the last (right-most) of a sequence of held fields.

  - Type the following command to produce the results displayed below.

    `SEL #3 HOLD,#5,ALBUM,ARTIST`

  - Held fields are highlighted in a different colour.

  Type `Help COLOUR` for full information.

![SELCOPY/1 - Edit USER123.SELCTRL.ZZSTD1AT using USER123.SELCTRL.SAM1(ZZSTD1C)](image)

Figure 63. SELCOPY/1 - SDE SELECT 3.
Adding All Previously Unselected Fields to the Display

- By adding the pseudo-field asterisk (*) to the end of the SELECT command, all previously unselected fields will be included in their default order.

- Type the following command then scroll right to produce the results displayed below.

```
SEL #3 H.#5,ALBUM,ARTIST,*
```

Figure 64. SELCOPY - SDE SELECT 4.
Adjusting Field Display Column-widths

- Use COLWidth command to control the number of characters occupied by any particular field.
- Type the following sequence of commands to produce the results below.

```
SEL #3,#5 H,ALBUM,ARTIST,*
COLW NAME 20
COLW #7 20
COLW #6 18
```

After pressing F11 the display will be updated as follows.

```plaintext
00000001 001 Rolling In the Deep      Adele
00000002 002 Rumour Has It          Adele
00000003 003 Turning Tables         Adele
00000004 004 Don't You Remember     Adele
00000005 005 Set Fire to the Rain   Adele
00000006 006 He Won't Go             Adele
00000007 007 Take It All             Adele
00000008 008 I'll Be Waiting        Adele
00000009 009 One and Only            Adele
00000010 010 Lovesong                 Adele
00000011 011 Someone Like You        Adele
00000012 012 I Found a Boy (Bonus)   Adele
00000013 013 Adele 21 - A Track B    Adele
00000014 014 Hold On                  Boys â®38; Girls Alabama Shakes
00000015 015 Find You                 Boys â®38; Girls Alabama Shakes
00000016 016 Hang Loose               Boys â®38; Girls Alabama Shakes
00000017 017 Rise to the Sun          Boys â®38; Girls Alabama Shakes
00000018 018 You Ain't Alone          Boys â®38; Girls Alabama Shakes
00000019 019 Goin' to the Party       Boys â®38; Girls Alabama Shakes
00000020 020 Heartbreaker            Boys â®38; Girls Alabama Shakes
00000021 021 Boys â®38; Girls         Boys â®38; Girls Alabama Shakes
00000022 022 Be Mine                  Boys â®38; Girls Alabama Shakes
00000023 023 I Ain't the Same         Boys â®38; Girls Alabama Shakes
```

Figure 65. SELCOPY - SDE VFMT.

```plaintext
00000001 001 Rolling In the Deep      Adele
00000002 002 Rumour Has It          Adele
00000003 003 Turning Tables         Adele
00000004 004 Don't You Remember     Adele
00000005 005 Set Fire to the Rain   Adele
00000006 006 He Won't Go             Adele
00000007 007 Take It All             Adele
00000008 008 I'll Be Waiting        Adele
00000009 009 One and Only            Adele
00000010 010 Lovesong                 Adele
00000011 011 Someone Like You        Adele
00000012 012 I Found a Boy (Bonus)   Adele
00000013 013 Adele 21 - A Track B    Adele
00000014 014 Hold On                  Boys â®38; Girls Alabama Shakes
00000015 015 Find You                 Boys â®38; Girls Alabama Shakes
00000016 016 Hang Loose               Boys â®38; Girls Alabama Shakes
00000017 017 Rise to the Sun          Boys â®38; Girls Alabama Shakes
00000018 018 You Ain't Alone          Boys â®38; Girls Alabama Shakes
00000019 019 Goin' to the Party       Boys â®38; Girls Alabama Shakes
00000020 020 Heartbreaker            Boys â®38; Girls Alabama Shakes
00000021 021 Boys â®38; Girls         Boys â®38; Girls Alabama Shakes
00000022 022 Be Mine                  Boys â®38; Girls Alabama Shakes
00000023 023 I Ain't the Same         Boys â®38; Girls Alabama Shakes
```

Figure 66. SELCOPY - SDE VFMT.

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The SELECT panel

- The SELECT panel provides an interactive alternative to typing both the SELECT and COLWIDTH primary commands.

During Data-Edit/Browse, the SELECT panel may be started for the focus record-type using any of the following methods:

- Type SELECT (SEL) from the command line.
- Type SEL in the prefix area.
- Press the Options key (default is F16), then select option 8.

**Figure 67. SELCOPYi - SDE SELECT panel.**

<table>
<thead>
<tr>
<th>Command&gt;</th>
<th>Scroll&gt;</th>
<th>Csr</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZZSGSELD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structure Name: USER123.SELCTRN.SAM1(ZZST1CPC)</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Record Type: TRACK</td>
<td>Show unselected fields at the end: N Y/N</td>
<td></td>
</tr>
<tr>
<td>Perm/Temp: TEMP</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Select record type fields</td>
<td>17 Rows</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>S H</th>
<th>Width</th>
<th>Name</th>
<th>Type</th>
<th>Start</th>
<th>Length</th>
<th>Picture</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td></td>
<td>PERSISTENT-ID</td>
<td>AN</td>
<td>1</td>
<td>16</td>
<td>X(016)</td>
<td>CHARACTER</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>TRACK-NUM</td>
<td>ZD</td>
<td>17</td>
<td>3</td>
<td>9(003)</td>
<td>ZONED</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>TRACK-ID</td>
<td>ZD</td>
<td>20</td>
<td>4</td>
<td>9(004)</td>
<td>ZONED</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>NAME</td>
<td>AN</td>
<td>24</td>
<td>120</td>
<td>X(120)</td>
<td>CHARACTER</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>ARTIST</td>
<td>AN</td>
<td>144</td>
<td>70</td>
<td>X(070)</td>
<td>CHARACTER</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>ALBUM</td>
<td>AN</td>
<td>214</td>
<td>70</td>
<td>X(070)</td>
<td>CHARACTER</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>TOTAL-TIME</td>
<td>FB</td>
<td>284</td>
<td>4</td>
<td>9(007)</td>
<td>FIXED</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>FILE-SIZE</td>
<td>FB</td>
<td>288</td>
<td>4</td>
<td>9(009)</td>
<td>FIXED</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>BIT-RATE</td>
<td>FB</td>
<td>292</td>
<td>2</td>
<td>9(004)</td>
<td>FIXED</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>SAMPLE-RATE</td>
<td>PD</td>
<td>294</td>
<td>3</td>
<td>9(005)</td>
<td>DECIMAL</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>YEAR</td>
<td>ZD</td>
<td>297</td>
<td>4</td>
<td>9(004)</td>
<td>ZONED</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>NORMALIZATION</td>
<td>PD</td>
<td>301</td>
<td>3</td>
<td>9(005)</td>
<td>DECIMAL</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>DISC-NUM</td>
<td>ZD</td>
<td>304</td>
<td>3</td>
<td>9(003)</td>
<td>ZONED</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>ALBUM-ARTIST</td>
<td>AN</td>
<td>307</td>
<td>41</td>
<td>X(041)</td>
<td>CHARACTER</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>RELEASE-DATE</td>
<td>AN</td>
<td>348</td>
<td>20</td>
<td>X(020)</td>
<td>CHARACTER</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>DATE-ADDED</td>
<td>AN</td>
<td>368</td>
<td>20</td>
<td>X(020)</td>
<td>CHARACTER</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>DATE-MODIFIED</td>
<td>AN</td>
<td>388</td>
<td>20</td>
<td>X(020)</td>
<td>CHARACTER</td>
</tr>
</tbody>
</table>

F5=SELALL  F6=DESELALL  F16=EXECUTE  F22=UNDO  F23=RED0

- Enter S in the "S" column to make a field visible.
- Enter H in the "H" column to HOLD a field.
- Enter a number in the "Seq" to control the order of visible fields.
- Enter a number in the "Width" to control the column width of a field.

Selected fields that are not given an explicit Sequence number will be displayed in the order they appear in the panel table.

- The panel table may be manipulated using standard line-commands entered into the numeric "suffix" area on the right hand side of each table row. Table rows may be moved or excluded, but not deleted.

- Use primary command SELALL (on function key F5 by default) to select all (unexcluded) fields.
- Use primary command DESELALL (on function key F6 by default) to deselect all (unexcluded) fields.

- Use primary command RESET without parameters to reset (to blank) all enterable columns, or add the column name to reset each individual column. e.g. RES H

- Selecting Y in the "Show unselected fields at the end" option is the equivalent of adding ","," to the end of the SELECT command, as discussed earlier.

- If option PERM is selected then the select/colwidth combination will saved in the applied structure (SDO). If mapping direct from a COBOL/PL1 copybook then you will be prompted to create a structure or continue without saving.

- Panel input will be obeyed on normal (F3) exit. The EXECUTE (EXEC) primary command (on function key F16 by default) may be used to obey input without exiting the panel. This is particularly useful when running in "windowed" display mode on a large dynamic screen, where both the SELECT panel and the Data-Edit window to which it will apply are simultaneously visible.

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### Using FIND, EXCLUDE and ONLY commands

#### Searching for Data (FIND/F)

Type the following commands to produce the results displayed below.

- **SEL**
- **L1**
- **F HEART**

Press **F5** (RFIND) to search for the next occurrence.

---

#### SELCOPY/1 - Option 2 - Data Edit (SDE) Using FIND, EXCLUDE and ONLY commands

<table>
<thead>
<tr>
<th>SELCOPY/1</th>
<th>Edit</th>
<th>USER123.SELCTRLN.ZST10DAT using USER123.SELCTRLN.SAM1(ZST10DAT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>File Edit Actions Options Utilities Window SwapList Help</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Command&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scroll&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Csr</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Record type: TRACK** | **Fixed(487) Offset=0 Data elements=18** | **PERSISTENT-ID** | **TRACK-NUM** | **TRACK-ID** | **NAME** | **ARTIST** |
| #2 | #3 | #4 | #5 | (--------1----) | (--------1----) | (--------1----) | (--------1----) |
| AN 1:16 | ZD 17:3 | ZD 20:4 | AN 24:120 | AN 144:70 |
| 00000001 | CB12D714D51828C | 001 | 2083 | Rolling In the Deep | Adele |
| 00000002 | 2648A25633D15464 | 002 | 2085 | Rumour Has It | Adele |
| 00000003 | 9815923C6D26830 | 003 | 2087 | Turning Tables | Adele |
| 00000004 | 7D089F752674C18 | 004 | 2099 | Don't You Remember | Adele |
| 00000005 | AED739D8574A4C5 | 005 | 2091 | Set Fire to the Rain | Adele |
| 00000006 | E755BEC1F5CDEA7 | 006 | 2093 | He Won't Go | Adele |
| 00000007 | 6798C2AB0AFB2571 | 007 | 2095 | Take It All | Adele |
| 00000008 | 962B35D1C470E75E | 008 | 2097 | I'll Be Waiting | Adele |
| 00000009 | D8A6CF8DC2802177 | 009 | 2099 | One and Only | Adele |
| 00000010 | 2502515DEB535010 | 010 | 2101 | Lovesong | Adele |
| 00000011 | E374BE6EE7C8681D | 011 | 2103 | Someone Like You | Adele |
| 00000012 | D4E64EBF4631EF20 | 012 | 2105 | I Found a Boy (Bonus) | Adele |
| 00000013 | CEC9281B3202A0A | 013 | 2107 | Adele 21 - A Track B | Adele |
| 00000014 | 6D4C2C7BA7E01593 | 014 | 4169 | Hold On | Alabama Shake |
| 00000015 | E241B92C251C386 | 015 | 4171 | I Found You | Alabama Shake |
| 00000016 | E74C16BC319970C | 016 | 4173 | Hang Loose | Alabama Shake |
| 00000017 | 214E5D59SB4533C | 017 | 4175 | Rise to the Sun | Alabama Shake |
| 00000018 | 0E421AFC091D22D | 018 | 4177 | You Ain't Alone | Alabama Shake |
| 00000019 | FF47FB9E0D89E076 | 019 | 4179 | Goin' to the Party | Alabama Shake |
| 00000020 | 5D46C6815524408F | 020 | 4181 | Heartbreaker | Alabama Shake |
| 00000021 | C54F7792E485624 | 021 | 4183 | Boys & Girls | Alabama Shake |
| 00000022 | 8D45B313F78043E9 | 022 | 4185 | Be Mine | Alabama Shake |
| 00000023 | B044D9ED337A412 | 023 | 4187 | Ain't the Same | Alabama Shake |

---

*Figure 68: SELCOPY: SDE FIND 1.*
Restricting the Search to a Specific Field

The search may be restricted to a specific field e.g.

• F ALABAMA #5

If fields are to be referred to by name, then they must be specified in brackets e.g.

• F ALABAMA (ARTIST)

If none are specified then the search will be restricted to those fields specified by the most recent SELECT command, provided one has been issued. Otherwise all fields will be searched in their default order.

Figure 69. SELCOPY - SDE FIND 2.
Restricting the Search to a List of Fields

- The search may be restricted to a list of comma separated fields e.g.
  - F ALABAMA #5,#6

- Again, if fields are to be referred to by name, then they must be specified in brackets e.g.
  - F ALABAMA (NAME,ARTIST)

Restricting the Search to a Range of Fields

- A range of fields may also be specified by separating the start and end field with a colon e.g.
  - F ALABAMA #2:6

- Again, if any field is to be referred to by name, then they must be specified in brackets e.g.
  - F ALABAMA (#2:ARTIST)

- Type Help Change for full information.
The `EXCLUDE` command takes the same parameters as `FIND` e.g. `X ALL ALABAMA #5,#6`.
Excluding Records Based on Field Content (ONLY/O)

- The **ONLY** primary command may be used to display only the matching records and also takes the same parameters as **FIND** e.g.
  - **ONLY** ALABAMA #5,#6

- **ONLY** may be abbreviated to **O**.

- The **ALL** parameter is unnecessary (and therefore illegal) on the **ONLY** command.

- Use the **ALL** primary command (with no parameters) to redisplay any excluded records.

```sql
SELECT * FROM table WHERE column = 'Alabama' LIMIT 1;
```

**Figure 72. SELCOPY1 - SDE ONLY 1.**
Searching Numeric Data-Type Fields

- Numeric fields may also be searched without needing to be concerned about the underlying data-type (i.e. zoned-decimal, packed-decimal, binary or floating-point). e.g.
  - **ONLY 1 (TRACK-NUM)**

- Type **HIDE** to suppress display of shadow records.

- Type **RES HIDE** or **SHAD ON** to resume display of shadow records.

---

**Figure 73. SELCOPY - SDE ONLY 2.**

<table>
<thead>
<tr>
<th>PERSISTENT-ID</th>
<th>TRACK-NUM</th>
<th>TRACK-ID</th>
<th>NAME</th>
<th>ARTIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>#2</td>
<td>#3</td>
<td>#4</td>
<td>#5</td>
<td></td>
</tr>
<tr>
<td>AN 1:15</td>
<td>ZD 17:3</td>
<td>ZD 20:4</td>
<td>AN 24:120</td>
<td>AN 144:70</td>
</tr>
<tr>
<td>00000001</td>
<td>001</td>
<td>2083</td>
<td>Rolling In the Deep</td>
<td>Adele</td>
</tr>
<tr>
<td>00000014</td>
<td>001</td>
<td>4169</td>
<td>Hold On</td>
<td>Alabama Shake</td>
</tr>
<tr>
<td>00000056</td>
<td>001</td>
<td>2109</td>
<td>Converted</td>
<td>Alabama 3</td>
</tr>
<tr>
<td>00000033</td>
<td>001</td>
<td>2135</td>
<td>All I Really Want</td>
<td>Alanis Moriss</td>
</tr>
<tr>
<td>00000052</td>
<td>001</td>
<td>7973</td>
<td>Mitzi</td>
<td>Alex Harvey</td>
</tr>
<tr>
<td>00000051</td>
<td>001</td>
<td>4407</td>
<td>Hell's Bells</td>
<td>AC/DC</td>
</tr>
<tr>
<td>00000071</td>
<td>001</td>
<td>4053</td>
<td>'N Roll Train</td>
<td>AC/DC</td>
</tr>
<tr>
<td>00000085</td>
<td>001</td>
<td>4343</td>
<td>Dirty Deeds Done</td>
<td>AC/DC</td>
</tr>
<tr>
<td>00000096</td>
<td>001</td>
<td>4337</td>
<td>It's A Long Way To T</td>
<td>AC/DC</td>
</tr>
<tr>
<td>00000107</td>
<td>001</td>
<td>4391</td>
<td>Highway To Hell</td>
<td>AC/DC</td>
</tr>
<tr>
<td>00000119</td>
<td>001</td>
<td>4355</td>
<td>Go Down</td>
<td>AC/DC</td>
</tr>
<tr>
<td>00000125</td>
<td>001</td>
<td>4379</td>
<td>'N Roll Dammat</td>
<td>AC/DC</td>
</tr>
<tr>
<td>00000137</td>
<td>001</td>
<td>4205</td>
<td>Blowin' In the Wind</td>
<td>Bob Dylan</td>
</tr>
<tr>
<td>00000133</td>
<td>001</td>
<td>4257</td>
<td>Shelter from the Sto</td>
<td>Bob Dylan</td>
</tr>
<tr>
<td>00000174</td>
<td>001</td>
<td>2171</td>
<td>Red Headed Woman</td>
<td>Bruce Springs</td>
</tr>
<tr>
<td>00000187</td>
<td>001</td>
<td>2529</td>
<td>Dead Man Walkin'</td>
<td>Bruce Springs</td>
</tr>
<tr>
<td>00000188</td>
<td>001</td>
<td>2197</td>
<td>Devils &amp; Dust</td>
<td>Bruce Springse</td>
</tr>
<tr>
<td>00000190</td>
<td>001</td>
<td>2201</td>
<td>Human Touch</td>
<td>Bruce Springse</td>
</tr>
<tr>
<td>00000192</td>
<td>001</td>
<td>2205</td>
<td>Better Days</td>
<td>Bruce Springse</td>
</tr>
<tr>
<td>00000196</td>
<td>001</td>
<td>2211</td>
<td>The Ghost of Tom Joa</td>
<td>Bruce Springse</td>
</tr>
<tr>
<td>00000209</td>
<td>001</td>
<td>2235</td>
<td>Racing In the Street</td>
<td>Bruce Springse</td>
</tr>
<tr>
<td>00000230</td>
<td>001</td>
<td>2277</td>
<td>The Wrestler</td>
<td>Bruce Springse</td>
</tr>
<tr>
<td>00000231</td>
<td>001</td>
<td>2281</td>
<td>Leavin' Train</td>
<td>Bruce Springse</td>
</tr>
</tbody>
</table>
Using a Relational Operator (EQ/NE/GT/GE/LT/LE)

- A relational operator (defaulting to EQ) may also be specified before the search value. Supported operators are as follow:

<table>
<thead>
<tr>
<th>Operator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQ</td>
<td>Data must be equal to value. (Default)</td>
</tr>
<tr>
<td>NE</td>
<td>Data must be not equal to value.</td>
</tr>
<tr>
<td>GT</td>
<td>Data must be greater than value.</td>
</tr>
<tr>
<td>GE</td>
<td>Data must be greater than or equal to value.</td>
</tr>
<tr>
<td>LT</td>
<td>Data must be less than value.</td>
</tr>
<tr>
<td>LE</td>
<td>Data must be less than or equal to value.</td>
</tr>
</tbody>
</table>

- Type the following commands to produce the results displayed below, illustrating record selection based on the content of the binary numeric field BIT-RATE.
  - SEL BIT-RATE,*
  - ONLY GT 300 (BIT-RATE)

```
SEL BIT-RATE,
♦️ ONLY GT 300 (BIT-RATE)
```

Figure 74. SELCOPY* - SDE ONLY 3.
Searching for INVALID Data

• The keyword INVALID may also be specified to search for fields containing data that is invalid according to its defined data-type. e.g. X'ABCD' in a packed-decimal field.

• Type the following commands to produce the results displayed below.
  SEL #11,#13 H,*
  HEX ON
  ONLY INVALID #11,#13

SELCOPY/i - Edit USER123.SELECTRN.ZZST1DAT using USER123.SELECTRN.SAM1(ZZST1C)

<table>
<thead>
<tr>
<th>Command</th>
<th>Offset=0</th>
<th>Data elements=10</th>
<th>Sample-rate</th>
<th>Normalization</th>
<th>Persistent-ID</th>
<th>Track-Num</th>
<th>Track-ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEL #11,#13 H,*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HEX ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ONLY INVALID #11,#13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

File Edit Actions Options Utilities Window SwapList Help ws wr Scroll> Csr

Scroll> Csr

Record type: TRACK Fixed(407) Offset=0 Data elements=10

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PD 294:3</td>
<td>PD 301:3</td>
</tr>
<tr>
<td>AN 1:16</td>
<td>ZD 17:3 ZD 20:4</td>
</tr>
<tr>
<td>00080208</td>
<td>0005951</td>
</tr>
<tr>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>000</td>
<td>000</td>
</tr>
<tr>
<td>00C</td>
<td>00C</td>
</tr>
<tr>
<td>5836232967147260</td>
<td>5836232967147260</td>
</tr>
<tr>
<td>016</td>
<td>016</td>
</tr>
<tr>
<td>1383</td>
<td>1383</td>
</tr>
<tr>
<td>58CFC69F7A472F0</td>
<td>58CFC69F7A472F0</td>
</tr>
<tr>
<td>003</td>
<td>003</td>
</tr>
<tr>
<td>3147</td>
<td>3147</td>
</tr>
<tr>
<td>67BCBC840762804</td>
<td>67BCBC840762804</td>
</tr>
<tr>
<td>018</td>
<td>018</td>
</tr>
<tr>
<td>3441</td>
<td>3441</td>
</tr>
<tr>
<td>43444409245FB890</td>
<td>43444409245FB890</td>
</tr>
<tr>
<td>003</td>
<td>003</td>
</tr>
<tr>
<td>4069</td>
<td>4069</td>
</tr>
<tr>
<td>93D68F59BC243F</td>
<td>93D68F59BC243F</td>
</tr>
<tr>
<td>023</td>
<td>023</td>
</tr>
<tr>
<td>3821</td>
<td>3821</td>
</tr>
<tr>
<td>43ED60467C11B25</td>
<td>43ED60467C11B25</td>
</tr>
<tr>
<td>003</td>
<td>003</td>
</tr>
<tr>
<td>4479</td>
<td>4479</td>
</tr>
</tbody>
</table>

Figure 75. SELCOPYl - SDE ONLY 4.
Using CHANGE commands

- Type the following commands to produce the results displayed below.
  - SEL TRACK-NUM,NAME HOLD,ALBUM,ARTIST,*
  - Change ‘&’&’&’

- Note: Semi-colon (;) is the default command-separator character. In order to use the separator character as a legitimate part of a command string we must suspend its normal handling. This can be done by either
  1. Updating the separator character in the Settings panel, issuing the command, then resetting the separator character. This is cumbersome and upsetting!
  2. As in the above example, let SELCOPY automatically suspend separator handling for the duration of a single command, simply by prefixing that command with semi-colon (i.e. the prevailing separator character).

- Press F5 (RFIND) to search for the next occurrence.
- Press F6 (RCHANGE) to change it.
- Or add the ALL parameter to the CHANGE command to change all occurrences.
- Type Help Change for full information.

<table>
<thead>
<tr>
<th>SELCOPY</th>
<th>- Edit USER123.SELCTR,ZZST1.DAT using USER123.SELCTR.SANL(ZZST1) Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record type: TRACK Fixed(407) Offset=0 Data elements=18</td>
<td></td>
</tr>
<tr>
<td>TRACK-NUM</td>
<td>NAME</td>
</tr>
<tr>
<td>ZD</td>
<td>17:3</td>
</tr>
<tr>
<td>00000001</td>
<td>Rolling In the Deep</td>
</tr>
<tr>
<td>00000002</td>
<td>Rumour Has It</td>
</tr>
<tr>
<td>00000003</td>
<td>Turning Tables</td>
</tr>
<tr>
<td>00000004</td>
<td>Don't You Remember</td>
</tr>
<tr>
<td>00000005</td>
<td>Set Fire to the Rain</td>
</tr>
<tr>
<td>00000006</td>
<td>He Won't Go</td>
</tr>
<tr>
<td>00000007</td>
<td>Take It All</td>
</tr>
<tr>
<td>00000008</td>
<td>I'll Be Waiting</td>
</tr>
<tr>
<td>00000009</td>
<td>One and Only</td>
</tr>
<tr>
<td>00000010</td>
<td>Lovesong</td>
</tr>
<tr>
<td>00000011</td>
<td>Someone Like You</td>
</tr>
<tr>
<td>00000012</td>
<td>Hold On</td>
</tr>
<tr>
<td>00000013</td>
<td>Boys &amp; Girls</td>
</tr>
<tr>
<td>00000014</td>
<td>Hang Loose</td>
</tr>
<tr>
<td>00000015</td>
<td>Rise to the Sun</td>
</tr>
<tr>
<td>00000016</td>
<td>You Ain't Alone</td>
</tr>
<tr>
<td>00000017</td>
<td>Goin' to the Party</td>
</tr>
<tr>
<td>00000018</td>
<td>Heartbreaker</td>
</tr>
<tr>
<td>00000019</td>
<td>Boys &amp; Girls</td>
</tr>
<tr>
<td>00000020</td>
<td>Be Mine</td>
</tr>
<tr>
<td>00000021</td>
<td>I Ain't the Same</td>
</tr>
</tbody>
</table>

Figure 76. SELCOPY - SDE CHANGE 1.

UNDOS / REDO

Note that all modifications may be individually undone/redone using F22 / F23 (normally Shift-F10 / F11) which are set to execute the UNDO/REDO primary commands.

- Consecutive modifications may be undone by pressing F22 repeatedly.
- Consecutive modifications may be redone by pressing F23 repeatedly.
- The UNDOING primary command controls the following aspects:
  1. Whether the UNDO/REDO facility is activated.
  2. The number of modification levels maintained.
  3. The maximum amount of storage allocated.
- Type Query UNDOING to determine your current settings.
- Type Help UNDOING for full information.
Selecting only records affected by CHANGE

After applying the above CHANGE to all records, you may wish to display only the changed records. To do this type

- **ALL Changed**
- **Type Help ALL** for full information.

### Figure 77. SELCOPY - SDE ALL CHANGED.

<table>
<thead>
<tr>
<th>TRACK-NAME</th>
<th>ALBUM</th>
<th>ARTIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZD 17:3</td>
<td>ZD 60:120</td>
<td>Alabama Shakeys</td>
</tr>
<tr>
<td>#3 #5</td>
<td>#7 #6</td>
<td>Alabama Shakeys</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TRACK-NAME</th>
<th>ALBUM</th>
<th>ARTIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>001 Hold On</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakeys</td>
</tr>
<tr>
<td>002 I Found You</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakeys</td>
</tr>
<tr>
<td>003 Hang Loose</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakeys</td>
</tr>
<tr>
<td>004 Rise to the Sun</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakeys</td>
</tr>
<tr>
<td>005 You Ain't Alone</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakeys</td>
</tr>
<tr>
<td>006 Goin' to the Party</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakeys</td>
</tr>
<tr>
<td>007 Heartbreaker</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakeys</td>
</tr>
<tr>
<td>008 Boys &amp; Girls</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakeys</td>
</tr>
<tr>
<td>009 Be Mine</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakeys</td>
</tr>
<tr>
<td>010 I Ain't the Same</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakeys</td>
</tr>
<tr>
<td>011 On Your Way</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakeys</td>
</tr>
<tr>
<td>012 Heavy Chevy</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakeys</td>
</tr>
<tr>
<td>013 Rainy Day Women #12</td>
<td>The Essential Bob Dylan</td>
<td>Bruce Springsteen &amp; Bruce Springsteen</td>
</tr>
<tr>
<td>013 The Rising</td>
<td>Bruce Springsteen &amp; Bruce Springsteen</td>
<td></td>
</tr>
<tr>
<td>001 Devils &amp; Dust</td>
<td>Devils &amp; Dust</td>
<td>Bruce Springsteen</td>
</tr>
<tr>
<td>005 Black Cowboys</td>
<td>Devils &amp; Dust</td>
<td>Bruce Springsteen</td>
</tr>
<tr>
<td>001 Long Time Comin'</td>
<td>Live In Dublin</td>
<td>Bruce Springsteen</td>
</tr>
<tr>
<td>001 Atlantic City</td>
<td>Live In Dublin</td>
<td>Bruce Springsteen</td>
</tr>
<tr>
<td>002 Old Dan Tucker</td>
<td>Live In Dublin</td>
<td>Bruce Springsteen</td>
</tr>
<tr>
<td>002 Open All Night</td>
<td>Live In Dublin</td>
<td>Bruce Springsteen</td>
</tr>
<tr>
<td>003 Pay Me My Money Down</td>
<td>Live In Dublin</td>
<td>Bruce Springsteen</td>
</tr>
<tr>
<td>003 Eyes On the Prize</td>
<td>Live In Dublin</td>
<td>Bruce Springsteen</td>
</tr>
<tr>
<td>004 Growin' Up</td>
<td>Live In Dublin</td>
<td>Bruce Springsteen</td>
</tr>
</tbody>
</table>
Restricting the CHANGE to Specific Fields

Just like FIND, EXCLUDE and ONLY, the CHANGE command may be restricted to one or more specific fields.

- **C ALL '21' 'Twenty-One' (NAME)**

<table>
<thead>
<tr>
<th>TRACK-NUM</th>
<th>NAME</th>
<th>ALBUM</th>
<th>ARTIST</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rolling In the Deep</td>
<td>21</td>
<td>Adele</td>
</tr>
<tr>
<td></td>
<td>Rumour Has It</td>
<td>21</td>
<td>Adele</td>
</tr>
<tr>
<td></td>
<td>Turning Tables</td>
<td>21</td>
<td>Adele</td>
</tr>
<tr>
<td></td>
<td>Don't You Remember</td>
<td>21</td>
<td>Adele</td>
</tr>
<tr>
<td></td>
<td>Set Fire to the Rain</td>
<td>21</td>
<td>Adele</td>
</tr>
<tr>
<td></td>
<td>He Won't Go</td>
<td>21</td>
<td>Adele</td>
</tr>
<tr>
<td></td>
<td>Take It All</td>
<td>21</td>
<td>Adele</td>
</tr>
<tr>
<td></td>
<td>I'll Be Waiting</td>
<td>21</td>
<td>Adele</td>
</tr>
<tr>
<td></td>
<td>One and Only</td>
<td>21</td>
<td>Adele</td>
</tr>
<tr>
<td></td>
<td>Lovesong</td>
<td>21</td>
<td>Adele</td>
</tr>
<tr>
<td></td>
<td>Someone Like You</td>
<td>21</td>
<td>Adele</td>
</tr>
<tr>
<td></td>
<td>I Found a Boy (Bonus)</td>
<td>21</td>
<td>Adele</td>
</tr>
<tr>
<td></td>
<td>Hold On</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakes</td>
</tr>
<tr>
<td></td>
<td>I Found You</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakes</td>
</tr>
<tr>
<td></td>
<td>Hang Loose</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakes</td>
</tr>
<tr>
<td></td>
<td>Rise to the Sun</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakes</td>
</tr>
<tr>
<td></td>
<td>You Ain't Alone</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakes</td>
</tr>
<tr>
<td></td>
<td>Goin' to the Party</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakes</td>
</tr>
<tr>
<td></td>
<td>Heartbreaker</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakes</td>
</tr>
<tr>
<td></td>
<td>Boys &amp; Girls</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakes</td>
</tr>
<tr>
<td></td>
<td>Be Mine</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakes</td>
</tr>
</tbody>
</table>

Figure 78. SELCOPY - SDE CHANGE 2.
Next we'll demonstrate **CHANGE** of a numeric data-type field, using a relational operator.

Type the following command to change all values greater than or equal to 10, in the TRACK-NUM field only, to 999.

- **C ALL GE 10 999 #3**

![Figure 79. SELCOPYi - SDE CHANGE 3.](image)

**Records of type TRACK.**

<table>
<thead>
<tr>
<th>TRACK-NUM</th>
<th>NAME</th>
<th>ALBUM</th>
<th>ARTIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>#3</td>
<td>Rolling In the Deep</td>
<td>#7</td>
<td>Adele</td>
</tr>
<tr>
<td>#2</td>
<td>Rumour Has It</td>
<td></td>
<td>Adele</td>
</tr>
<tr>
<td>#3</td>
<td>Turning Tables</td>
<td>21</td>
<td>Adele</td>
</tr>
<tr>
<td>#4</td>
<td>Don’t You Remember</td>
<td>21</td>
<td>Adele</td>
</tr>
<tr>
<td>#5</td>
<td>Set Fire to the Rain</td>
<td>21</td>
<td>Adele</td>
</tr>
<tr>
<td>#6</td>
<td>He Won’t Go</td>
<td>21</td>
<td>Adele</td>
</tr>
<tr>
<td>#7</td>
<td>Take It All</td>
<td>21</td>
<td>Adele</td>
</tr>
<tr>
<td>#8</td>
<td>I’ll Be Waiting</td>
<td>21</td>
<td>Adele</td>
</tr>
<tr>
<td>#9</td>
<td>One and Only</td>
<td>21</td>
<td>Adele</td>
</tr>
<tr>
<td>#3</td>
<td>Lovesong</td>
<td>21</td>
<td>Adele</td>
</tr>
<tr>
<td>#3</td>
<td>Someone Like You</td>
<td>21</td>
<td>Adele</td>
</tr>
<tr>
<td>#3</td>
<td>I Found a Boy (Bonus)</td>
<td>21</td>
<td>Adele</td>
</tr>
<tr>
<td>#3</td>
<td>Adele Twenty-One - A</td>
<td>21</td>
<td>Adele</td>
</tr>
<tr>
<td>#14</td>
<td>Hold On</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakes</td>
</tr>
<tr>
<td>#15</td>
<td>I Found You</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakes</td>
</tr>
<tr>
<td>#16</td>
<td>Hang Loose</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakes</td>
</tr>
<tr>
<td>#17</td>
<td>Rise to the Sun</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakes</td>
</tr>
<tr>
<td>#18</td>
<td>You Ain’t Alone</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakes</td>
</tr>
<tr>
<td>#19</td>
<td>Goin’ to the Party</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakes</td>
</tr>
<tr>
<td>#20</td>
<td>Heartbreaker</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakes</td>
</tr>
<tr>
<td>#21</td>
<td>Boys &amp; Girls</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakes</td>
</tr>
<tr>
<td>#22</td>
<td>Be Mine</td>
<td>Boys &amp; Girls</td>
<td>Alabama Shakes</td>
</tr>
</tbody>
</table>

**ZZSD212I 310 (out of 310) occurrences were changed in 310 (out of 1070) records of type TRACK.**

Figure 79. SELCOPYi - SDE CHANGE 3.
Filtering records using ALL(WHERE)/MORE/LESS commands

As an alternative to using the ONLY, FIND and EXCLUDE commands, records may be 'filtered' by a (potentially complex) SQL-style expression using the ALL, MORE and LESS commands.

- **ALL** excludes all records except those that match the selection criteria.
- **MORE** re-includes any currently excluded records that match the selection criteria.
- **LESS** excludes any included records that match the selection criteria.
- **WHERE** is a synonym for **ALL**.

Type the following commands to produce the results below.

- **SELECT #10,#3,#5 H,#7,#6,***
- **ALL  BIT-RATE > 300**

```
Command> all bit-rate > 300

FILE EDIT USER123.SELCTRLN.ZZST1DAT using USER123.SELCTRLN.SAM1(ZZST1C)

Record type: TRACK  Fixed(407) Offset=0 Data elements=10

BIT-RATE TRACK-NUM NAME ALBUM ARTIST
#10 #3 #5
FB 292:2 ZD 17:3 AN 24:120 AN 24:120 AN 24:120

00000091 320 006 There's Gonna Be Som Dirty Deeds Done Di AC/DC
00000099 320 004 Live Wire High Voltage AC/DC
00000597 320 002 Babe I'm Gonna Leave Led Zeppelin I Led Zepp
00000600 320 001 Black Dog Led Zeppelin IV Led Zepp
00000605 320 007 Tea For One Presence Led Zepp
00001071 *** End of Data ***
```

*Figure 80. SELCOPYI - SDE ALL 1.*
Using Multiple Selection Criteria

Selection criteria expressions may specify multiple conditions.

- **ALL** BIT-RATE > 300 OR #10 < 128

### Figure 81: SELCOPYi - SDE ALL 2.

<table>
<thead>
<tr>
<th>BIT-RATE</th>
<th>TRACK</th>
<th>NUM</th>
<th>NAME</th>
<th>ALBUM</th>
<th>ARTIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>FB 292:2</td>
<td>ZD 17:3</td>
<td>AN 24:120</td>
<td>There's Gonna Be Som</td>
<td>Dirty Deeds Done Dir</td>
<td>AC/DC</td>
</tr>
<tr>
<td>FB 292:2</td>
<td>ZD 17:3</td>
<td>AN 24:120</td>
<td>I'm Gonna Leave</td>
<td>High Voltage</td>
<td>AC/DC</td>
</tr>
<tr>
<td>FB 292:2</td>
<td>ZD 17:3</td>
<td>AN 24:120</td>
<td>Black Dog</td>
<td>Led Zeppelin I</td>
<td>Led Zeppelin</td>
</tr>
<tr>
<td>FB 292:2</td>
<td>ZD 17:3</td>
<td>AN 24:120</td>
<td>Tea For One</td>
<td>Presence</td>
<td>Led Zeppelin</td>
</tr>
<tr>
<td>FB 292:2</td>
<td>ZD 17:3</td>
<td>AN 24:120</td>
<td>Wish You Were Here</td>
<td>Wish You Were Here</td>
<td>Pink Floy</td>
</tr>
<tr>
<td>FB 292:2</td>
<td>ZD 17:3</td>
<td>AN 24:120</td>
<td>You Are the Best Thing</td>
<td>Gossip In the Grain</td>
<td>Ray LaMon</td>
</tr>
<tr>
<td>FB 292:2</td>
<td>ZD 17:3</td>
<td>AN 24:120</td>
<td>Let It Be Me</td>
<td>Gossip In the Grain</td>
<td>Ray LaMon</td>
</tr>
<tr>
<td>FB 292:2</td>
<td>ZD 17:3</td>
<td>AN 24:120</td>
<td>Sarah</td>
<td>Gossip In the Grain</td>
<td>Ray LaMon</td>
</tr>
<tr>
<td>FB 292:2</td>
<td>ZD 17:3</td>
<td>AN 24:120</td>
<td>I Still Care For You</td>
<td>Gossip In the Grain</td>
<td>Ray LaMon</td>
</tr>
<tr>
<td>FB 292:2</td>
<td>ZD 17:3</td>
<td>AN 24:120</td>
<td>Winter Birds</td>
<td>Gossip In the Grain</td>
<td>Ray LaMon</td>
</tr>
<tr>
<td>FB 292:2</td>
<td>ZD 17:3</td>
<td>AN 24:120</td>
<td>Meg White</td>
<td>Gossip In the Grain</td>
<td>Ray LaMon</td>
</tr>
<tr>
<td>FB 292:2</td>
<td>ZD 17:3</td>
<td>AN 24:120</td>
<td>Hey Me, Hey Mama</td>
<td>Gossip In the Grain</td>
<td>Ray LaMon</td>
</tr>
<tr>
<td>FB 292:2</td>
<td>ZD 17:3</td>
<td>AN 24:120</td>
<td>Henry Nearly Killed</td>
<td>Gossip In the Grain</td>
<td>Ray LaMon</td>
</tr>
<tr>
<td>FB 292:2</td>
<td>ZD 17:3</td>
<td>AN 24:120</td>
<td>A Falling Through</td>
<td>Gossip In the Grain</td>
<td>Ray LaMon</td>
</tr>
<tr>
<td>FB 292:2</td>
<td>ZD 17:3</td>
<td>AN 24:120</td>
<td>Gossip In the Grain</td>
<td>Gossip In the Grain</td>
<td>Ray LaMon</td>
</tr>
</tbody>
</table>

00001071 *** End of Data ***
Increasing the size of the Command Input Area

Complex expressions may require more space to type than is available on a single command line.

Type **CLN** to show an options dialog that allows you to increase the number of command lines visible for the current display window.

---

**Figure 82.** SELOCOPY - SDE Command Line Options.

---

**Figure 83.** SELOCOPY - SDE ALL 3.

---
Using a FILTER to Select Records on Load

You may wish to select records based on specific criteria during initial load of the file into the SELCOPYi Structured Data Editor.

For example, to load only the first 20 records that contain a value in position 348 (the year component of RELEASE-DATE)

- that is greater than '0000'
- but less than '1980'

Choose the Quick Filter feature from the SDE Edit / Browse Entry Panel (=2).

- Activate the Filter option by entering a / in the left margin field.
- Enter Q to select Quick filter.
- Type FILT (or press F6) to define or modify the filter selection-criteria.

Figure 84. SELCOPYi - SDE Quick Filter 1.
Specifying Simple FILTER Selection Criteria

- Enter **20** in the *Limit>* field to restrict the number of records selected.
- Enter **I** in the *Type>* field to specify that selected records should be included in the load.
- Enter **348** into the *Position* column of table row 1.
- Enter **4** into the *Length* column.
- Enter > (greater-than) into the *ROp* (Relational Operator) column.
  Alternatively enter blank to get a list of available operators from which you may make your selection (by placing the cursor and pressing ENTER).
- Enter **'0000'** into the *Value* column.
  - For simple case-insensitive character strings there is no need to add quotes (this will be done automatically).
  - You may specify the string using `C'AbCd'` notation if case-sensitivity is required.
  - Hex strings may be specified using `X'1234'` notation.
- Enter **'1980'** into the *Value* column.
- Enter **'00001** into the table prefix area (000001).
  The *AND/OR* column on the new line will automatically set to **AND**.
- Enter < (less-than) into the *ROp* (Relational Operator) column of inserted table row 2.
  - Enter **'1980'** into the *Value* column.

![SELCOPY_I - Quick Filter - Selection Criteria](image)

*Figure 85. SELCOPY_I - SDE Quick Filter 2.*
Activating/Deactivating a FILTER

- Press F3 to return to the SDE Edit/Browse Entry Panel.
- Press ENTER to edit the sample file using the active filter.
- To activate/deactivate the filter simply check/uncheck the Filter option.
- A saved filter may be activated by specifying filter type F and entering the saved filter dataset / member name.
- To define a saved filter either:
  1. Select the Filter option (=10) from the SELCOPYi Primary Option Menu.
  2. At the SDE Edit / Browse Entry Panel, specify filter type F, enter the saved filter dataset/mem member name then press F6 (or type FILTER).
- If a structure is active then your filter will define selection criteria referring to the values of named (formatted) fields.
- Formatted selection criteria are individually specified for each defined record-type.

Figure 86. SELCOPYi - SDE Quick Filter 3.
Files with multiple record-types may be mapped by:

1. Multiple (COBOL or PL1) copybooks.
2. A single copybook with multiple 01-LEVEL entries, each defining a separate record-type.
3. A SELCOPYi Structured Data Object (SDO) which may be generated from one or more copybooks, using the Structure option from the Primary Option Menu (=9).

The second sample dataset (userpfx.SELCTRNN.ZZST2DAT) contains the same information as the first, but is comprised of three distinct record-types:

1. ARTIST
2. ALBUM
3. TRACK

To reproduce the following screen-shot browse the sample dataset in its raw state, i.e. without applying a copybook / structure overlay.

Use the Data Edit (=2) panel to:

- Specify the Data File:
  - Type userpfx.SELCTRNN.ZZST2DAT in the Name field, where userpfx is your own user prefix.
  - If wildcards are specified then a dataset list will be displayed from which you can make a selection.
- Specify the Action:
  - Activate option Browse Data by entering a /.
- Deactivate the Structure/Copybook overlay:
  - Uncheck the option by removing the /. This option is provided so that you may deactivate or re-activate structure formatting without needing to remove or retype the dataset and member name.
- Press ENTER to edit the sample dataset.
- Type RECLEN to switch on/off the display of record length column, which displays the length of each record in front of the data.

You will notice that:

- Record 1 is length=71 and contains '1' in position 1 indicating it is an ARTIST record.
- Record 2 is length=71 too, but contains '2' in position 1 indicating it is an ALBUM record.
- Records 3 - 15 are length=268 and contain '3' in position 1 indicating they are TRACK records.

Figure 87. SELCOPYi - SDE Sample Dataset 2.
Automatic Record-Type Association (for Direct Copybook Overlay)

Exit unformatted browse of Sample Dataset 2, then re-edit specifying Structure / Copybook overlay using the second sample copybook (ZZST2CPx), which contains 01-LEVEL entries for each of the 3 record-types.

- Specify the Structure/Copybook overlay:
  - Activate the option by entering a / in the left margin field.
  - Type userpf.SELCTRNX.SAM1 in the Dsn field, to specify the PDS library containing the supplied COBOL / PL1 copybook. This dataset name should already be in place (same as previous sample).
  - Type ZZST2CPC in the Member field (for COBOL installations).
    Type ZZST2CPP in the Member field (for PL1 installations).
  - Check the Type option for Cobol or PL1 as appropriate. Note that SELCOPYi uses its own internal "compiler" to parse COBOL and PL1 copybooks, so you may use whichever sample copybook you please without the need for an available IBM compiler.

- Press ENTER to edit the sample dataset.

Unlike some other products, SELCOPYi is able to display files with multiple record-types in Formatted Multi-Record (VFMT) Display Mode with all record-types visible simultaneously. A set of record-type column headings will be displayed for each new group of one or more consecutive records of the same type.

You will notice that SELCOPYi has attempted to automatically assign record-types, by matching each individual record's length to the length (or range of lengths) defined by the copybook for each record-type. Where this process is unable to uniquely identify a record-type, the first matching record-type is assigned.

The initial view of the sample dataset shows that:

- **ARTIST** record #1 has automatically been assigned the correct record-type. (first match on fixed record length=71).
- **ALBUM** record #2 has automatically been assigned the incorrect record-type (ARTIST). (first match on fixed record length=71).
- **TRACK** record #3 has automatically been assigned the correct record-type. (unique match on fixed record length=268).

![SELCOPYi - SDE Automatic Record-Type Id.](image)

Figure 88. SELCOPYi - SDE Automatic Record-Type Id.
Record-Identification Criteria (for Direct Copybook Overlay)

When it isn’t possible to automatically infer the correct record-type association from the record-length alone, then record-identification criteria must be explicitly specified.

As formatting is provided directly by our sample COBOL or PL1 copybook, then in order to specify record-identification we must use either of the following methods.

- Press F16 (Shift-F4) to display the Utilities Menu then:
  1. Select option 6 - Modify record-type Identification criteria.
  2. In the Use When column for the ALBUM table entry, type any of the following equally valid expressions:
     - RT='2'
     - substr(record,1,1)='2'
     - left(record,1)='2'
  3. Press ENTER to register the update.
  4. Press F3 repeatedly to return to the browse/edit view.

- Type any of the following primary commands:
  1. USE ALBUM WHEN RT='2'
  2. USE ALBUM WHEN SUBSTR(RECORD,1,1)='2'
  3. USE ALBUM WHEN LEFT(RECORD,1)='2'

![Figure 89. SELCOPYi - SDE Explicit Record-Identification.](image)

Record-Identification criteria defined for direct copybook overlay will persist throughout the SELCOPYi session, but will need to be reestablished beyond that.

A SELCOPYi Structured Data Object (SDO) permanently consolidates the information defined by one or more copybooks, potentially defining multiple record-types, along with the Record-Identification criteria for each.

An SDO is stored in a dataset (typically a library member), and provides significant performance improvement over direct copybook overlay for all SELCOPYi Structured Data components that are capable of record formatting e.g. Browse / Edit, File-Search, File-Reformat, File-Compare.
Locating NEXT/PREV record by Record-Type

- In both formatted multiple-record (VFMT) and formatted single-record (FMT / MAP) display modes, the NEXT (N) and PREV (P) primary commands may be used to navigate to records, based on their record-type.
  - Type **NEXT ARTIST** to scroll to the next record of the type ARTIST.
  - Type **N /** to scroll to the next record of the same type as the focus record.
  - Type **N ?** to scroll to the next record of a different type from focus record.
  - Type **Help NEXT** for full information.

- It's often handy to set a **PF key** temporarily for the browse/edit session.
  - e.g. to temporarily set **F5 / F6** to jump to the previous/next ARTIST record, type the following primary commands.
  - **PF 5 PREV ARTIST**
  - **PF 6 NEXT ARTIST**
Selecting Visible Record-Types

Since SELCOPYi is capable of displaying multiple record-types simultaneously in Formatted Multi-Record (VFMT) Display Mode, it is handy to be able to select precisely which record-types are visible at any given time.

Records of any unselected record-type are represented by "shadow" lines (just like excluded records). This feature is controlled by the SHADOW primary command.

Record-types may be selected / deselected using either:

1. The VIEW (V/V+/V-) primary command. e.g.
   - To select only TRACK records type:
     - V TRACK
   - To reselect all record-types type:
     - V *
   - To select only ARTIST and ALBUM records type:
     - V ARTIST,ALBUM
   - To deselect ARTIST and ALBUM records type:
     - V- ARTIST,ALBUM
   - To additionally select ALBUM and TRACK records type:
     - V+ ALBUM,TRACK

2. The V, V+ or V- line-commands (typed into the prefix area).
   - Use V to select only records of the focus record-type.
   - Use V+ to additionally select records of the focus (shadow line) record-type.
   - Use V- to deselect records of the focus record-type.

Note:
In Formatted (VFMT/MAP) Display Modes, some primary commands are record-type specific, meaning they act on records of one type only and are sensitive to the focus record-type i.e. the record-type of the record at the cursor (or at the top of screen if the cursor is on the command line).

For example, the following commands are record-type sensitive:

- FIND, CHANGE, EXCLUDE and ONLY
- LOCATE, ALL(WHERE), MORE and LESS

To avoid ambiguity when issuing any of these commands you may wish to either:

1. Select a single record-type using the VIEW command.
2. Temporarily suspend record-type formatting using the CHAR command.
Creating a Structured Data Object (SDO)

An SDO may be generated from COBOL or PL1 copybooks using any of the following methods:

- Select option 9 - Structure from the SELCOPYi Primary Option Menu, then select option 1 - Copybook.
- At any primary command prompt type 9.1.
- At any primary command prompt type SDO.

The following example will use the panel to generate an SDO from the ZZST2CPC (sample #2) COBOL copybook, containing three record-types along with their respective record-identification criteria.

- Specify the Structure File to Create:
  - Type userpfx.SELCTRNN.SDO in the Dsn field, where userpfx is your own user prefix.
  - Type ZZST2 in the Member field.

- Optionally Specify a Title:
  - Activate the option by entering a / in the left margin field.
  - Type a short (up to 30 characters) title e.g.
    SELCOPYi Training - Sample 2

- Optionally Specify a Description:
  - Activate the option by entering a / in the left margin field.
  - Type a longer (up to 124 characters) description e.g.
    Training Material: Sample Record Collection Structure
    Multiple Record-Types (ARTIST, ALBUM, TRACK)

![SELCOPYi - SDE Main Panel 1](image)

Figure 91. SELCOPYi - SDE Main Panel 1.
Specifying Copybook Libraries

Select option 1 to specify the dataset name(s) of the libraries containing your COBOL / PL1 copybooks using an editable table.

- Insert a new line into the Copybook Library table by typing I into the table prefix area (000001).
- Type `userpfx.SELCTRN.SAM1` into inserted table row 1.
- Press F3 to return to the SDO main panel.

**Figure 92. SELCOPYi - SDE Copybook Libraries Panel.**

```
  Create Structure - Copybook Library List.
  Copybook Library Dataset name
  <...+....1....+....2....+....3....+....4....>
  000001 USER123.SELCTRN.SAM1
  000002 *** End of Data ***
```
Specifying Record-Type Details

Select option 2 to specify the source (copybook member name), identification criteria and other optional details for each record-type.

- Define the ARTIST record-type as follows:
  1. Insert a new line into the table by typing I into the table prefix area (000001).
  2. Type ZZST2CPC (for COBOL) or ZZST2CPP (for PL1) into the Copybook Library Member field of inserted table row 1.
  3. The Type field will automatically be set to PRI indicating a primary record-type (requiring explicit record-type identification criteria). This default is already correct.
     Press F1 with cursor in this field for additional help information.
  4. The Start Level field will automatically be set to 1 indicating the record-type is defined at LEVEL 01.
     This default is also already correct.
     Press F1 with cursor in this field for additional help information.
  5. Type ARTIST into the Record-Type Name field of inserted table row 1.
  6. The Record Offset field will automatically be set to 0 indicating the layout describes data from the beginning of the record. Again, this default is also already correct.
     Press F1 with cursor in this field for additional help information.
  7. The Lang field will automatically be set to COBOL. Update this to PL1 if necessary.

Figure 93. SELCOPYi - SDE Define Record-Types

```plaintext
SELCOPYi - Create STRUCTURE from COBOL/PL1 copybook(s)
Copybook Type Start Record-Type Name (01-Lev) Record Lang
Library Level Offset Member
...
000001 ZZST2CPC PRI 1 ARTIST 0 COBOL
000002 *** End of Data ***
```
Specifying Record-Type Identification Criteria

- Define the identification criteria for the ARTIST record-type as follows:

  1. With the cursor anywhere on inserted table row 1, press F6 (ZOOM) to access a screen where details may be added / updated using a form.

  2. In the Id field, type any of following equally valid expressions:

     - RT='1'
     - substr(record,1,1)=‘1’
     - left(record,1)=‘1’

     Longer expressions may be entered via a text-edit window by pressing F14 (EXPAND).

  3. Press F3 to return to the record-types definition table panel.

Figure 94. SELCOPY/I - SDE Define Record-Type Identification Criteria.

Press PF3 to return to the record-types list table.

Figure 94: SELCOPY/I - SDE Define Record-Type Identification Criteria.
Specifying Additional Record-Types

- Define the ALBUM record-type as follows:
  1. Replicate table entry line 1 by typing R into the table prefix area (000001).
  2. The Copybook Library Member field will already be correct as all of our sample record-types are defined by the same copybook.
  3. The Type field will already be correct.
  4. The Start Level field will already be correct.
  5. Type ALBUM into the Record-Type Name field of table row 2.
  6. The Record Offset field will already be correct.
  7. The Lang field will already be correct.
  8. Press F6 (ZOOM) to access the form screen.
  9. In the Id field, type any of following equally valid expressions:
     ≈ RT='2'
     ≈ substr(record,1,1)='2'
     ≈ left(record,1)='2'
  10. Press F3 to return to the record-types definition table panel.

- Define the TRACK record-type as follows:
  1. Replicate table entry line 2 by typing R into the table prefix area (000002).
  2. Type TRACK into the Record-Type Name field of table row 3.
  3. Press F6 (ZOOM) to access the form screen.
  4. In the Id field, type any of following equally valid expressions:
     ≈ RT='3'
     ≈ substr(record,1,1)='3'
     ≈ left(record,1)='3'
Generating the SDO

- Press F3 to return to the record-types definition table panel.
- Press F3 again to return to SDO main panel.
- Select option 3 should you wish to supply any COBOL Replacing Options (not necessary for our sample).
- Select either:
  - Option 4 to Create the SDO in the foreground.
  - Option 5 to Create a Batch Job to generate the SDO.

  **Note:** To specify a //JOB statement that will be automatically inserted at the start of any z/OS batch job generated using SELCOPYi, select option 6 Batch from the Settings panel (=0.6).

- If created in the foreground, a message similar to the following should appear on completion:
  ZZSD14SI Structure USER123.SELCTRN.SDO(ZZST2) created with 3 record type(s).
  Maximum record length 268, minimum record length 71.

- Generated batch job displayed below.

```
SELCOPYi - USER123.SELCOPY.i.SDL.02012345.1119177.JCL 80 F SEQ size=40x
Command> Scroll> Car
00001 //USER123S JOB,,CLASS=A,MSGCLASS=X,MSGLEVEL=(1,1),NOTIFY=&SYSUID
00002 //*
00003 //** SELCOPYi 3.2B (C)2012 Compute(Bridgend) Ltd UK +44(1656)652222
00004 //** JCL for: ZZSGSD01 SDE Create Structure.
00005 //** Created by: USER123 2012/11/20 11:19:17
00006 //*
00007 //SELCOO01 EXEC PGM=SDEMAIN,REGION=0M
00008 //STEPLIB DD DISP=SHR,DSN=CBLI320.EXE
00009 // DD DISP=SHR,DSN=CBLI310.EXE
00010 //ZZSUSERI DD DISP=SHR,DSN=USER123.CBLI.INI
00011 //SDEPRINT DD SYSOUT=*  
00012 //SDEIN  DD *
00013 create structure USER123.SELCTRN.SDO(ZZST2) replace
00014 title " SELCOPYi Training - Sample 2 "
00015 descr " Training Material: Sample Record Collection Structure 
00016 Multiple Record-Types (ARTIST,ALBUM,TRACK) "
00017 lib{
00018 
00019 rec(
00020 primary
00021 name ARTIST
00022 level 1
00023 source cobol ZZST2CPC
00024 offset 0
00025 use if RT='1'
00026 )
00027 rec(
```

Figure 96. SELCOPYi - SDO Generated Batch Job.
Browse/Edit using a generated SDO

- Display the Data-Edit panel by typing SDE.
- Specify the Data File:
  - Type userpfx.SELCTRN.ZZST2DAT in the Name field, where userpfx is your own user prefix.
- Specify the Structure/Copybook overlay:
  - Activate the option by entering a / in the left margin field.
  - Type userpfx.SELCTRN.SDO in the Dsn field, to specify the PDS library containing the generated Structured Data Object (SDO).
  - Type ZZST2 in the Member field.
- Check the Type option for SDO. This is actually optional as SELCOPYi will always check to see if the file specified is an SDO before attempting to parse it as COBOL or PL/I.
- Press ENTER to edit the sample dataset.

![SELCOPYi - Structured Data Browse/Edit](image)

**Action:**
- Browse Data.
- Edit Full. (Insert/Update/Delete) — Edit Full Read-Only. (DISP=SHR)
- Edit In-Place. (Update only) — Edit Full Read-Only & Auxiliary.

**Structure/Copybook overlay:**
- Dsn> USER123.SELCTRN.SDO Member> ZZST2
  - Type: __ SDO __ ADATA __ COBOL __ PL/I

**Record Selection:**
- For> 0 # records
- Filter> F Filter selected records. (F=File; Q=Quick) (PF6=Edit Filter)
- File> USER123.SELCOPYI.FLT Member> TRACKA

**Additional Options:** (Enter "/" to display HFS and Profile options.)

*Figure 97. SELCOPYi - SDO Browse/Edit using an SDO.*
Modifying Data

- In **Edit** mode individual record data may be modified by:
  - Overtyping, inserting or deleting data in character or hex.
  - Executing a **CHANGE** command.

- In **Full Edit** mode, records may be inserted and deleted by:
  - Typing the **INSERT** (I) primary-command.
    e.g. to insert a new **ALBUM** record:
      1. **Type I ALBUM**
      2. The new record will be inserted following the focus record.
        In multi-record (VFMT / CHAR) display modes focus is defined by the cursor position.
  - Using the **DELETE** primary-command.
  - Additionally, in formatted (VFMT) or unformatted (CHAR) multi-record display modes, records may be inserted and deleted using the **standard line-commands**
    - **Inn** to insert records.
    - **Dnn, DD-DD** to delete records.
    - **Mnn, MM-MM** to move records.

- Modifications may be individually undone/redone using **F22 / F23** (normally Shift-F10 / F11) which are set to execute the **UNDO/REDO** primary commands.
  - Consecutive modifications may be undone by pressing F22 repeatedly.
  - Consecutive modifications may be redone by pressing F23 repeatedly.
  - The **UNDOING** primary command controls the following aspects:
    1. Whether the UNDO/REDO facility is activated.
    2. The number of modification levels maintained.
    3. The maximum amount of storage allocated.
  - **Type Query UNDOING** to determine your current settings.
  - **Type Help UNDOING** for full information.

Modifying Record Lengths

- In **Full Edit** mode, the length of a variable length record may be altered in the following ways:
  - In multi-record (VFMT / CHAR) modes,
    1. **Type RECLEN ON** to display the Length record prefix column.
    2. Overtype the current Length value for any individual record.
  - In single-record (FMT / MAP /UNFMT / HEXD) modes,
    1. Overtype the current Length value.
  - Using the shift-left / right line-commands:
    1. \( (nn \) or \( (nn-( (nn-( ) to shift-left, \)
    2. \( ) nn \) or \( )nn-)) \) to shift-right.
    Note: Record-length modification may occur only where the right **BOUNDS** setting is higher than the individual record’s length.
  - Using the **SHIFT** primary-command.
    Type **Help SHIFT** for full information.
  - Using the **CHANGE** primary-command, in particular when the **DATA** parameter is specified with different length search and replace values.
    Type **Help Change** for full information.
Working with Segmented Records

Records may be organised in such a way that they are split into a number of logical segments, each segment being mapped by a unique structure (COBOL group or PL/I 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. e.g.

```
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.

The third sample dataset contains the same information as the second, but each physical record is comprised of three distinct segment-types:

- A single PRIMARY (BASE) **(ARTIST)** segment followed by...
- a number of SECONDARY **(ALBUM)** segments, each one followed by...
- a number of SECONDARY **(TRACK)** segments

To reproduce the following screen-shot browse the sample dataset in its raw state,

Use the Data Edit (=2) panel to:

- Specify the Data File:
  - ♦ Type *userpfx.SELCTRNX.ZZST3DAT* in the Name field, where *userpfx* is your own user prefix.
  - ♦ Deactivate the Structure/Copybook overlay:
    - ♦ Uncheck the option by removing the `/`.

**Figure 98. SELCOPYi - SDE Sample Dataset 3.**
Creating an SDO defining Segmented Record-Types

Files with segmented record-types should be mapped by a SELCOPYi Structured Data Object (SDO) generated from one or more copybooks.

The sample #3 segmented SDO (member name ZZST3) should be created using the (=9.1) panel in exactly the same way as for (non-segmented) sample #2, except that:

1. The ARTIST record-type is defined as Type DEF. DEF record-types must be specified without identification criteria.

2. The ALBUM record-type is defined as Type SEC. Identification criteria is required.

3. The TRACK record-type is defined as Type SEC. Identification criteria is required.

If created in the foreground, a message similar to the following should appear on completion:

ZZSD403I Segmented Structure USER123.SELCTRN.SDO(ZZST3) created with 1 primary (base) segment type(s) and 2 secondary type(s). Maximum segment length 268, minimum segment length 71.
Browse/Edit using a Segmented SDO

At the SDE Browse/Edit panel:

- Specify the **Data File**:
  - Type `userpfx.SELCTRN.ZZST3DAT` in the **Name** field, where `userpfx` is your own user prefix.

- Specify the **Structure/Copybook overlay**:
  - Activate the option by entering a `/` in the left margin field.
  - Type `userpfx.SELCTRN.SDO` in the **Dsn** field, to specify the PDS library containing the generated Structured Data Object (SDO).
  - Type `ZZST3` in the **Member** field.

- Check the **Type** option for `SDO`. This is actually optional as SELCOPYi will always check to see if the file specified is an SDO before attempting to parse it as COBOL or PL1.

- Press **ENTER** to edit the sample dataset.

Figure 100. SELCOPYi - SDO Browse/Edit using a Segmented SDO.

**Notes:**

- By default, the prefix area indicates the **physical record number** to which each segment is attached.

- Type **PREFIX LOGical** to display individual segment numbers in the prefix area.

- Type **PREFIX Physical** to reset the prefix to display physical record numbers.

- Type **Help PREFIX** for full information.

- The **LOCATE** command is sensitive to the **PREFIX** setting (PHYSICAL|LOGICAL) when used to locate an absolute record / segment number.
Navigating Segmented Datasets

- Whether in formatted (VFMT / FMT) or unformatted (CHAR / UNFMT / HEXD) display modes, all logical segments are displayed individually. To display the data in its raw state you must edit / browse the dataset with the structure (SDO) deactivated.

- For efficiency reasons the process of separating each physical record into its logical segment is performed once only, at initial load.

- In single-record modes, display is sensitive to the PREFIX setting (PHYSICAL|LOGICAL).

<table>
<thead>
<tr>
<th>PREFIX Mode</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYSICAL</td>
<td>Segment&gt; pppppppp / llllll</td>
</tr>
<tr>
<td></td>
<td>♦ &quot;pppppppp&quot; denotes the physical record number.</td>
</tr>
<tr>
<td></td>
<td>♦ &quot;llllll&quot; denotes the logical segment number within that physical record.</td>
</tr>
<tr>
<td>LOGICAL</td>
<td>Segment&gt; sssssss</td>
</tr>
<tr>
<td></td>
<td>♦ &quot;ssssssss&quot; indicates the logical segment number within the whole file.</td>
</tr>
</tbody>
</table>

Fig. 101. SELCOPY/i - SDE Formatted Single-Segment Display Mode (FMT/MAP).

- In formatted (FMT / MAP) or unformatted (UNFMT / HEXD) single-record modes, the scrolling keys F10 / F11 will navigate to the next/prev visible segment, regardless of its type (PRIMARY/SECONDARY).

- In both formatted multiple- (VFMT) and single-record (FMT / MAP) display, the NEXT (N) and PREV (P) primary commands may be used to navigate more specifically to segments, based on their segment-type.
  - Type N B to scroll to the next base (primary) segment.
  - Type N ALBUM to scroll to the next segment of the type ALBUM.
  - Type N / to scroll to the next segment of the same type as the focus segment.
  - Type N ? to scroll to the next segment of a different type from focus segment.
  - Type Help NEXT for full information.
Modifying Segmented Datasets

- Individual segment data may be modified by:
  - Overtyping, inserting or deleting data in character or hex.
  - Executing a CHANGE command.

- Segments may be inserted and deleted by:
  - Typing the INSERT primary-command. e.g. to insert a new ALBUM segment:
    ◦ Type I ALBUM
    ◦ The new segment will be inserted following the focus segment.
  - Using the DELETE primary-command.

- Additionally, in formatted (VFMT) or unformatted (CHAR) multi-segment display modes, both PRIMARY and SECONDARY segments may be inserted, deleted and moved using the standard line-commands:
  - Inn to insert segments.
  - Dnn, DD-DD to delete segments.
  - Mnn, MM-MM to move segments.
Note that secondary segments may be detached and reattached to different primary segments using move operations.

- Modifications may be individually undone/redone using F22 / F23 (normally Shift-F10 / F11) which are set to execute the UNDO/REDO primary commands:
  - Consecutive modifications may be undone by pressing F22 repeatedly.
  - Consecutive modifications may be redone by pressing F23 repeatedly.
  - The UNDOING primary command controls the following aspects:
    1. Whether the UNDO/REDO facility is activated.
    2. The number of modification levels maintained.
    3. The maximum amount of storage allocated.
  - Type Query UNDOING to determine your current settings.

- Modifications to fields referenced by segment identification criteria will result in the segment prefix area being flagged with ==ID>.
This indicates that the modification will potentially cause the segment-type to re-assigned. Immediate re-assignment does not take place automatically. This is deliberate, since the user may be in the midst of several changes.

Re-assignment of segment-type may be explicitly requested using:
  - The ID line-command.
  - The IDENTify primary-command.
  - Type Help IDENTify for full information.

- The status of a segment being either PRIMARY or SECONDARY will not be altered by an IDENTIFY process.
  - To alter an individual segment's PRIMARY / SECONDARY status use:
    - The STP line-command to make the selected record a PRIMARY segment.
    - The STS line-command to make the selected record a SECONDARY segment.

Inserting/Deleting Primary (Base) Segments

- Insert of a primary (base) segment will cause a new physical record to be created in the file.
- Delete of a primary (base) segment will cause all its secondary segments to become attached to the previous primary segment. Beware that this may result in the creation of a physical record that exceeds the file's defined maximum length.

Modifying Segment Lengths

- The length of a segment may be altered in the following ways:
  - In multi-segment (VFMT / CHAR) modes,
    1. Type RECLEN ON to display the Length segment prefix column.
    2. Overtype the current Length value for any individual segment.
  - In single-segment (FMT / MAP / UNFMT / HEXD) modes,
    ◦ Overtype the current Length value.
  - Using the shift-left / right line-commands:
    ◦ (nn or ((nn-(( to shift-left.
    ◦ )nn or )nn-)) to shift-right.
  - Using the SHIFT primary-command.
  - Using the CHANGE primary-command.
Option 5 - File Copy/Reformat (FCOPY)

The SELCOPY/i File Copy/Reformat utility (FCOPY) copies records from one or more input file to a single output file, or to one or more members of a (PDS/PDSE) library. Input and output access methods, record-format and geometry may be mixed without restriction, and the copy process may be executed either online or in batch.

The output may be specified as:

- a single PDS/PDSE library member
- a PDS/PDSE library DSN (multiple member names implied by the input)
- a flat sequential dataset
- a VSAM KSDS, ESDS, RRDS/VRDS.
- a Hierarchical File System (HFS/ZFS) file.

The input may similarly be specified, with multiple input files defined using wildcards within each of the following file name components:

- Dataset name
- HFS path file-name (not directory)
- PDS/PDSE Member name
- Volume name

Access method, record-format and geometry for multiple input file may also be mixed without restriction.

Records may be selectively copied by specifying any combination of the following, which are applied to each input file:

- Start record number
- Start record key, or partial key (VSAM KSDS files only)
- Start relative-byte address (RBA) (VSAM ESDS/KSDS files)
- Number of records to process
- Record selection criteria (FILTER)

Records may be reformatted as they are copied by specifying an input and output structure/copybook. Specification of an input structure also enables record selection based on record-type and/or the content of fields defined by the structure.

Additionally, although not recommended for high volume output, copy to a VSAM KSDS may optionally be performed for records out of key sequence.

A handy aspect of the File Copy/Reformat utility is the ability to peek at the relevant files directly from the panel.

- F19 (Shift-F7) to browse the Input Data file
- F20 (Shift-F8) to browse the Output Data file
- F22 (Shift-F10) to browse the Input Copybook
- F23 (Shift-F11) to browse the Output Copybook
The FCOPY panel may be started using any of the following methods:

- Select option 5 from the SELCOPYi Primary Option Menu (=).
- At any primary command prompt type =5.
- At any primary command prompt type FCOPY (FC).
- From any dataset, library or HFS path list window, use the C line-command.

### Copying a Standard Sequential Dataset

To follow the demonstration use the panel to make a complete copy of supplied sample dataset 1.

1. **Specify the Input File:**
   - Type `userpfx.SELCTRN.ZZST1DAT` in the DSN/Path Mask field, where `userpfx` is your own user prefix.
   - If wildcards are specified then a dataset list will be displayed from which you can select one or more files for processing. Initially ALL files are selected, but you may press F5/F6 to toggle back and forth between all files being selected or deselected. Further selection/deselection may be made by manually overtyping the Sel column for each individual entry.
   - Where PDS/PDSE datasets are to be processed a further member selection list may be accessed by placing the cursor on the library name and pressing ENTER. Within the dataset list, the member mask field may be overtyped to refine member selection invidually for each library.

2. **Specify the Output File:**
   - Type `userpfx.SELCTRN.ZZST1DAT.FCOPY1` in the DSN/Path field. If wildcards are specified then a dataset list will be displayed from which you can make a selection.
   - The Member field should be left blank. otherwise the dataset list will be restricted to files residing on matching volumes only.
   - The Volume field should be left blank.
Choose New Output File Access Method

- If the output file does not yet exist, you will be prompted to create it and given the choice of the access method to be used.
- The Dataset Organisation input field will automatically be primed to match the input file, N for a Non-VSAM standard sequential file in this case.
- Permitted options are:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>To allocate a new PDS/PDSE library.</td>
</tr>
<tr>
<td>N</td>
<td>To allocate a new standard sequential (Non-VSAM) file.</td>
</tr>
<tr>
<td>K</td>
<td>To define a new VSAM KSDS.</td>
</tr>
<tr>
<td>E</td>
<td>To define a new VSAM ESDS.</td>
</tr>
<tr>
<td>R</td>
<td>To define a new VSAM RRDS.</td>
</tr>
</tbody>
</table>

- Press ENTER or select the OK button to continue.

Figure 103. SELCOPYi - Choose new Output file Access Method.
Allocate New Output File

- The allocation dialog will be displayed next allowing you to enter various details for your new file.
- Initial values will be primed using the input file as a model, provided it is of a compatible type.
- You may overtype any of the values displayed in green, and/or enter an alternative model dataset then press ENTER to retrieve its details.
- Select the Allocate button to create the file (note that pressing ENTER the first time will place the cursor on the Allocate button).
- A message box will appear confirming the new file has been created.
- Press F3 to continue with the copy process.
- For large file copies a progress window will be displayed, indicating how many records have so far been read, selected etc.
- You may use the 3270 Attention key to interrupt the copy process. But remember to first unlock the keyboard by pressing the 3270 Reset key. Please consult your 3270 emulator’s keyboard settings/help if you’re unsure of which physical keys are mapped to these 3270 functions.
- A summary message (detailing the number of records copied etc), will be displayed once the copy process has completed.

![SELCOPY/i - Allocate new Output File](image)

Figure 104. SELCOPY/i - Allocate new Non-VSAM file.
Copying PDS/PDSE Library members

- Specify the Input File:
  - Type `userpfx.SELECTRN.ZZST5DAT` in the DSN/Path Mask field, where `userpfx` is your own user prefix.
  - Type `TRACK02*` in the Member Mask field.

- Specify the Output File:
  - Type `userpfx.SELECTRN.ZZST5DAT.FCOPY1` in the DSN/Path field.

- Press ENTER to continue.

![SELCOPYI - File Copy](image)

Figure 105. SELCOPYI - COPY Library Members.
Select Input Datasets List

- If the input file mask matches more than one dataset, or matches a PDS/PDSE library then a file selection list will be displayed.
- Within the dataset list, the member mask field may be overtyped to refine member selection individually for each selected library.
- Place your cursor on the library dataset then press ENTER to access the member selection panel if required. If the member selection panel is not accessed then all members matching the mask will be included in the copy process.

```
SELCOPY/i - Select Files to Process

Select files to be included in the operation.

File Mask> USER123.SELCTRZ.ZZSST5DAT(TRACK02*)

To (de)select members place cursor on each lib name and press ENTER.  1 Row
Set File Name       Member       Volume Org YSAM GDG RecFm Lrecl
                    Mask

+        +        +        +        +        +        +        +        +        +        +        +
-        -        -        -        -        -        -        -        -        -        -        -

*** Top of Data ***

S. USER123.SELCTRZ.ZZSST5DAT TRACK02* P0 N FB 407 000001

*** End of Data ***
```

Figure 106: SELCOPY/i - Select Input Library.
Select input Members

- Individual members may be selected/deselected for copy from this screen.
- Initially ALL members are selected, but you may press F5/F6 to toggle back and forth between all files being selected or deselected.
- Further selection/deselection may be made by manually overtyping the Sel column for each individual entry.
- The sample screen shot below shows members TRACK020 and TRACK023 only selected for copy.

```
<table>
<thead>
<tr>
<th>Sel</th>
<th>Member</th>
<th>Alias</th>
<th>Created</th>
<th>LastMod</th>
<th>Cursize</th>
<th>Inisize</th>
<th>TTR</th>
<th>Us</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TRACK020 N</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0000F5</td>
<td></td>
<td>0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TRACK021 N</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0000F6</td>
<td></td>
<td>0002</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TRACK022 N</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0000F7</td>
<td></td>
<td>0003</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TRACK023 N</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0000F8</td>
<td></td>
<td>0004</td>
<td></td>
</tr>
</tbody>
</table>
```

**Figure 107. SELCOPY/i - Select Input Members.**
Allocate New Output Library

- Press **F3** to return to the File Copy panel once all selections have been made, then press **ENTER** to continue with the copy.

- You will then be prompted to allocate your new output library.

**Figure 108. SELECTY1 - Allocate New Output Library.**
PDS Copy Statistics

- A summary message and the PDS Copy Statistics list are displayed once the copy process has completed.
- For each member processed the **Action** column will contain one of the following:

<table>
<thead>
<tr>
<th>Action</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copied</td>
<td>The member was copied to the output library.</td>
</tr>
<tr>
<td>Replaced</td>
<td>The member replaced an existing version in the output library.</td>
</tr>
<tr>
<td>*NoRepl</td>
<td>The member already existed in the output library, and the Replace existing members option was not selected.</td>
</tr>
</tbody>
</table>

- You may type the **TEXT** primary command or select the "Text" menu bar item to create a temporary text-edit document containing the statistics information.

Figure 109. SELCOPYi - PDS Copy Statistics.

---

**Figure 109.** SELCOPYi - PDS Copy Statistics.
Record Selection

- Specify the **Input File**:  
  Type `userpfx.SELCTRN.ZZST2DAT` in the `DSN/Path Mask` field, where `userpfx` is your own user prefix.

- Specify the **Output File**:  
  Type `userpfx.SELCTRN.ZZST2DAT.ESDS1` in the `DSN/Path` field.

Figure 110. SELCOPY/i - Record Selection Intro.
In order to assist with record selection it's very helpful to peek at the file you wish to select from.

- From the File Copy panel press **F19 (Shift-F7)** to browse the input file.
- We will initially select to copy records 16 to 20.

---

**SELCOPYi - Browse USER123.SELCTRLN.ZZST2DAT 268 V SEQ**

Command>

Press PF4 for Utilities menu including point/shoot options

Record type: UnMapped  Variable(0,268)  Offset=0  Data elements=1

<table>
<thead>
<tr>
<th>Length</th>
<th>UnMapped</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;--------1--------2--------3--------4--------5--------6--------</td>
<td></td>
</tr>
<tr>
<td>00000001</td>
<td>71 1Adele</td>
</tr>
<tr>
<td>00000002</td>
<td>71 221</td>
</tr>
<tr>
<td>00000003</td>
<td>268 3CB12DD714D51828C00A208CRolling In the Deep</td>
</tr>
<tr>
<td>00000004</td>
<td>268 32648A25633D1540406206ERumour Has It</td>
</tr>
<tr>
<td>00000005</td>
<td>268 398159230C6D2E68300C208CTurning Tables</td>
</tr>
<tr>
<td>00000006</td>
<td>268 37D003FF752074C18600D208IDon't You Remember</td>
</tr>
<tr>
<td>00000007</td>
<td>268 3RED7739D8574AA4C500E29ASet Fire to the Rain</td>
</tr>
<tr>
<td>00000008</td>
<td>268 3E755BCE1CF5CDEA700F209CShe Won't Go</td>
</tr>
<tr>
<td>00000009</td>
<td>268 36798C2A9BF2B25T100G209ETake It All</td>
</tr>
<tr>
<td>00000010</td>
<td>268 3962B35D1647DE75E00H209GI'll Be Waiting</td>
</tr>
<tr>
<td>00000011</td>
<td>268 3D8A6C8FDC28021770I209IOne and Only</td>
</tr>
<tr>
<td>00000012</td>
<td>268 32502515DEB5350101(210ALovesong</td>
</tr>
<tr>
<td>00000013</td>
<td>268 3E374BE6EE7C66B1D01A210CSomeone Like You</td>
</tr>
<tr>
<td>00000014</td>
<td>268 3D4EB4EBF4651E2001B210EIFound a Boy (Bonus Track)</td>
</tr>
<tr>
<td>00000015</td>
<td>268 3CEC9281B3204A01C210GAdele 21 - A Track By Track Interview</td>
</tr>
<tr>
<td>00000016</td>
<td>71 1Alabama Shakes</td>
</tr>
<tr>
<td>00000017</td>
<td>71 2Boys &amp;$38; Girls</td>
</tr>
<tr>
<td>00000018</td>
<td>268 36D4C2C7B0A7059380A416IHold On</td>
</tr>
<tr>
<td>00000019</td>
<td>268 3E241B09CC251C3600B417AI Found You</td>
</tr>
<tr>
<td>00000020</td>
<td>268 3E74C16C5819870C00C417CHang Loose</td>
</tr>
<tr>
<td>00000021</td>
<td>268 3214ED5988533CC00D417ERise to the Sun</td>
</tr>
<tr>
<td>00000022</td>
<td>268 3E42E1AFCD141D2200E417GYou Ain't Alone</td>
</tr>
<tr>
<td>00000023</td>
<td>268 3FF47FB9E05DE86700F417IGoin' to the Party</td>
</tr>
<tr>
<td>00000024</td>
<td>268 3D46C68152440BF00G418AHeartbreaker</td>
</tr>
</tbody>
</table>

---

*Figure 111. SELCOPYi - Browse Input File.*
Specifying Start Record / Number of Records to Copy

- Press F3 to return to the File Copy panel.
- In the Record Selection section, activate the Start option by entering a / in the left margin field.
- Enter the start record number 16 in the Start field.
- Ensure that the Record/Key/RBA selectable option to the right is set to Record. This switch indicates the type of Start value provided.

<table>
<thead>
<tr>
<th>Option</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record</td>
<td>Start value is a record number. Value may be specified using 1234 or X'1234' notation.</td>
</tr>
<tr>
<td>Key</td>
<td>Start value is a VSAM KSDS key or partial key. Value may be specified using xxxx, 'xxxx', C'xxx' or X'1234' notation.</td>
</tr>
<tr>
<td>RBA</td>
<td>Start value is a VSAM ESDS/KSDS relative byte address (RBA). Value may be specified using 1234 or X'1234' notation.</td>
</tr>
</tbody>
</table>

- Activate the For option by entering a / in the left margin field.
- Enter the number of records to copy 5 in the For field.
- Press ENTER to continue.

**Figure 112. SELCOPYi - Start Record/For.**
Choose New Output File Access Method

- The Dataset Organisation input field will automatically be primed to match the input file, N for a Non-VSAM standard sequential file in this case.
- But we wish to create a VSAM ESDS, so enter E instead.
- Press ENTER to continue.

Figure 113. SELCOPY/i - SDE LOCATE field.
Define New VSAM Output File

- The Define ESDS dialog will be displayed next allowing you to enter various details for your new file.
- Initial values will NOT be primed using the input file as a model since, in this case, it is not of a compatible type.
- You may overtype any of the values displayed in green, and/or enter an alternative model dataset then press ENTER to retrieve its details.
- Enter the value **268** in the *Avg rec len* field.
- Enter the value **268** in the *Max rec len* field.
- Select the Define button to create the file (note that pressing ENTER the first time will place the cursor on the Define button).
- A message box will appear confirming the new file has been created.

![Figure 114. SELCOPYi - Define ESDS.](image)

**Options**: Define, Cancel, Help
Copy Summary Message

- Press F3 to return to the File Copy dialog.
- Press ENTER to continue with the copy process.
- For large file copies a progress window will be displayed, indicating how many records have so far been read, selected etc.
- You may use the 3270 Attention key to interrupt the copy process. But remember to first unlock the keyboard by pressing the 3270 Reset key. Please consult your 3270 emulator's keyboard settings/help if you're unsure of which physical keys are mapped to these 3270 functions.
- A summary message (detailing the number of records copied etc), will be displayed once the copy process has completed.

![SELCOPY/i - File Copy](image)

Figure 115. SELCOPY/i - Summary message.
Browse the Output File (F20)

• From the File Copy panel you may press **F20 (Shift-F8)** to browse the output file.

![SELCOPY/i - Browse USER123.SELECTRN.ZZST2DAT.ESDS1. 407 V ESDS](image)


Figure 116. SELCOPY/i - Browse Output File (F20).
Using a FILTER to Select Records for Copy

You may wish to select records for copy based on specific selection criteria.

For example, to copy only the first 7 records that contain '3' in record position 1, and the string 'BLUES' anywhere in the record,

- Update the Output File:
  - Type `userpfx.SELCTRL.ZZST2DAT.ESDS2` in the DSN/Path field.

- In the Record Selection section, activate the Filter option by entering a `/` in the left margin field.

- Enter Q (Quick Filter) in the Filter field.

- The Start and For fields may be used to restrict records eligible for selection by the filter, but for our example these options should be deactivated.

![SELCOPY/i - File Copy](image)

Command> File Help JCL Command

Input PDS/PDSE Library, Sequential, VSAM DSN mask or HFS path mask: USER123.SELCTRL.ZZST2DAT  
Member Mask> (All mask matches will be copied, press PF5 to view/deselect matches)

Output PDS/PDSE Library, Sequential, VSAM DSN or HFS path:

Member> Replace existing members  
Volume> (If output file is uncataloged)

Strip/Pad Char> e.g. X'FF' (If copying fixed<->var length records)

Record Selection: For each input file, copy only selected records.

- Start> # records  
- For>  
- Filter> Q Select records to copy. (F=File; Q=Quick)  
- File>

Options:

- Reformat using structure/copybook layouts  
- Recurse HFS Sub-directories

- Append to existing Output  
- Ignore HFS fileid case

Figure 117. SELCOPY/i - Specify Quick Filter.
Specifying Simple FILTER Selection Criteria

- Enter 7 in the *Limit* field to restrict the number of records selected.
- Enter I in the *Type* field to specify that selected records should be included in the copy process.
- Enter 1 into the *Position* column of table row 1 (this is the default).
- Enter 1 into the *Length* column.
- Enter = (equals) into the *ROp* (Relational Operator) column (this is the default). Alternatively enter blank to get a list of available operators from which you may make your selection (by placing the cursor and pressing ENTER).
- Enter 3 into the *Value* column.
- Replicate table entry line 1 by typing R into the table prefix area (000001). The AND/OR column will automatically set to AND.
- Enter 1 into the *Position* column of inserted table row 2 (this is the default).
- Enter 0 into the *Length* column of inserted table row 2 (this is the default). A length value of zero has a special meaning indicating the length of data from the start position to end of the record.
- Enter << (which means "contains") into the *ROp* (Relational Operator) column of inserted table row 2.
- Enter blues into the *Value* column.
  - For simple case-insensitive character strings there is no need to add quotes (this will be done automatically).
  - You may specify the string using C'ABCD' notation if case-sensitivity is required.
  - Hex strings may be specified using X'1234' notation.

---

<table>
<thead>
<tr>
<th>Position</th>
<th>Length</th>
<th>ROp</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>=</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>&lt;&lt;</td>
<td>blues</td>
</tr>
</tbody>
</table>

**Figure 118. SELCOPYI - Quick Filter.**
Filtered Copy Summary Message

- Press F3 to return to the File Copy dialog.
- Press F6 (FILTER) should you wish to review/modify your filter selection criteria.
- Press ENTER to continue with the copy process. You will be prompted to create your new output file once again. You should choose to create another ESDS, entering the name of the ESDS created in the previous example as a model.
- Press F3 to return to the File Copy dialog again, then press ENTER to continue with the copy process.
- A summary message (detailing the number of records selected etc), will be displayed once the copy process has completed.

Figure 119. SELCOPY/i - Filtered Copy Summary Message.
Browse Output File

When you press **F20 (Shift-F8)** to browse the output file you should expect to see the following.

```
SELCOPY/i - Browse USER123.SELCTRNL.ZZST2DAT.ESDS2    268 V ESDS
Command> Press PF4 for Utilities menu including point/shoot options
Figure 120.

<table>
<thead>
<tr>
<th>Record type: UnMapped</th>
<th>Variable(0,268) Offset=0 Data elements=1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length UnMapped</td>
<td></td>
</tr>
<tr>
<td>&lt;----+----+----+----+----+----+----+----+----+----+----+----+----+----+----</td>
<td></td>
</tr>
<tr>
<td>00000001</td>
<td>268 37CBFDF20ADBE19BF00E211GBourgeoisie Blues</td>
</tr>
<tr>
<td>00000002</td>
<td>268 3079FF06C1501FB9600D797IRoman Wall Blues</td>
</tr>
<tr>
<td>00000003</td>
<td>268 38EED324BE20D301008438ADown Payment Blues</td>
</tr>
<tr>
<td>00000004</td>
<td>268 392DD5148CDEF39F00H421ESubterranean Homesick Blues</td>
</tr>
<tr>
<td>00000005</td>
<td>268 32AF08B93888AEEB700F303AEveryday I Have the Blues (Live)</td>
</tr>
<tr>
<td>00000006</td>
<td>268 3FD4B86E2C95D53CF00H369AGus's Blues (Intro)</td>
</tr>
<tr>
<td>00000007</td>
<td>268 30C9E4EB0FF13BF8800B370CKilling the Blues</td>
</tr>
<tr>
<td>00000008</td>
<td>*** End of Data ***</td>
</tr>
</tbody>
</table>
```

Figure 120. SELCOPY/i - Browse Output File.
Specifying brackets in the FILTER expression.

Multiple **AND/OR** conditions may be defined through the filter definition panel, but complex bracketed expressions may only be specified by manually modifying the FCOPY command generated by the panel.

For example, to select records based on the following complex filter criteria:

```plaintext
where position 1 = '3'
and
  ( record contains "BLUES" anywhere
  or record contains "ROCK 'N' ROLL" anywhere
  or record contains "SOUL" anywhere
  )
```

- **Update the Output File:**
  - Type `userfx.SELCTRN.ZZST2DAT.ESDS3` in the **DSN/Path** field.
- **Press F6 (FILTER) to enter the filter definition panel.**
- **Type in the conditions as depicted in the following screen shot.**

![Figure 121: SELCOPYi - Filter: Multiple Selection Criteria.](image)

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Generate FCOPY primary command

Press F3 to return to the File Copy panel, then select item Command from the top menu bar.

You will be prompted once again to define your new output file (you should use the previous sample as the model dataset), following which the generated FCOPY primary command will be displayed in a text edit window (in a format suitable for point-and-shoot execution using the ACTION key, which by default is F16 (Shift-F4)).
Modify/Execute Generated FCOPY primary command

Brackets may now be added to the filter expression as required.

Although the filter expression is fairly free format, care must be taken to maintain a backslash (\) character in the right-most position of any newly added lines (the backslash character indicates that the command is continued on the following line). The recommended approach would be to replicate, then modify existing lines rather than to insert new ones.

The modified FCOPY command may then be executed simply by placing your cursor on the first line of the command (beginning with the less-than (<) sign), then pressing the ACTION key, which by default is F16 (Shift-F4).

You may also want to consider copying the generated command into your HOME file, saving it there for future repeat executions.

```
Selcopyi - USER123.SELCOPYi.SQL.D20130323.T1509371.CMX  80 F SEQ Size=19
Command>
<--------1---------2---------3---------4---------5---------6---------7-------->
000001 < sd FCOPY
000002  
000003  'USER123.SELCTRLN.ZZST2DAT'
000004  }
000005  USER123.SELCTRLN.ZZST2DAT.ESDS3
000006
000007  filter
000008  
000010  include record
000011  where (  
000012      substr(record, 1, 1) = 3
000013      and 
000014      ( substr(record, 1) << c'Blues'
000015      or substr(record, 1) << "Rock 'n' Roll"
000016      or substr(record, 1) << c"Soul"
000017      )
000018  }
000019  |
000020 * * * End of File * * *
```

Figure 123. SELCOPYI - Modified Command.
Browse Output from Generated Command Window

You may wish to browse your output file before exiting (and discarding precious changes to) your generated FCOPY command. One handy way to do this is to:

1. Type the command **DSN B** on the command line (but do not press ENTER).
2. Place your cursor on the name of the dataset that you wish to browse, within the generated FCOPY command.
3. Press **ENTER**.

Alternatively, type the command **DSN** (without the **Browse** option) to get a drop-down list of available utility functions including edit, delete and rename.

![Browse Output from Generated Command Window](image)

Figure 124. SELCOPY/i - Browse Filtered Output File.
The **FCOPY** utility may also be used to reformat records as they are copied to the output file.

Reformat requires use of two, similar but not identical, structures that define the layout of the input and output records, with each output field being sourced from the corresponding input field of the same name (within the same record-type).

Input and output fields for any given record-type may (but need not necessarily) be:

- in a different order
- a different length
- a different data-type

Additionally fields may exist in either input or output without existing in the other.

- Specify the **Input File**:
  - Type `userpfx.SELCTRLN.ZZST1DAT` in the *DSN/Path Mask* field, where `userpfx` is your own user prefix.

- Specify the **Output File**:
  - Type `userpfx.SELCTRLN.ZZST1DAT.FCOPY2` in the *DSN/Path* field.

- Select *Reformat using structure/copybook layouts* from the **Options** section of the FCOPY panel.

---

**Figure 125. SELCOPYi - Reformat 1.**
Specify Input Copybook

• Press ENTER to proceed to the File Reformat panel.

• Specify the Input Structure/Copybook File:
  ♦ Type userfx.SELCTRNSAM1 in the Dsn field, to specify the PDS library containing the supplied COBOL/PL1 copybook. If wildcards are specified then a dataset list will be displayed from which you can make a selection.

  ♦ Type ZZST1CPC in the Member field (for COBOL installations).
  Type ZZST1CPP in the Member field (for PL1 installations).
  If wildcards are specified then a member list will be displayed from which you can make a selection.

  ♦ Check the Type option for Cobol or PL1 as appropriate for your installation.

• Do NOT press ENTER yet!

Figure 126. SELCOPYi - Input Copybook.
Use Input Copybook as Model

We'll now create an output copybook using a selection of the fields from the input copybook, but in a different order, and with some of the fields shortened.

- Press **F22 (Shift-F10)** to browse the input copybook. You should see that it has 18 records as below (assuming COBOL installation).
- Type **GO E** to switch from browse mode to text-edit.

```
00000001  01 TRACK
  05 PERSISTENT-ID   PIC X(016).
  05 TRACK-NUM      PIC 9(003).
  05 TRACK-ID       PIC 9(004).
  05 NAME           PIC X(120).
  05 ARTIST         PIC X(070).
  05 ALBUM          PIC X(070).
  05 TOTAL-TIME     PIC 9(007) BINARY.
  05 FILE-SIZE      PIC 9(009) BINARY.
  05 BIT-RATE       PIC 9(004) BINARY.
  05 SAMPLE-RATE    PIC 9(005) PACKED-DECIMAL.
  05 YEAR           PIC 9(004).
  05 NORMALIZATION  PIC S9(005) PACKED-DECIMAL.
  05 DISC-NUMBER    PIC 9(003).
  05 ALBUM-ARTIST   PIC X(041).
  05 RELEASE-DATE   PIC X(020).
  05 DATE-ADDED     PIC X(020).
  05 DATE-MODIFIED  PIC X(020).
080808019 *** End of Data ***
```

Figure 127. SELCOPY/I - Browse Input Copybook.
• Move 05 field ARTIST following 01 TRACK, and change PIC X(070) to PIC X(020).

• Move 05 field ALBUM following 05 ARTIST, and change PIC X(070) to PIC X(024).

• Move 05 field TRACK-NUM following 05 ALBUM.

• Move 05 field NAME following 05 TRACK-NUM.

• Delete all other lines following 05 NAME.

• Type CREATE ZZSP1CPC on the command line, but do NOT press ENTER.

• Make a mental note that total record length defined by the copybook is 167 (i.e. the sum of all the field lengths 20+24+3+120).

• Type C* in the prefix area of line 1 of the file, then press ENTER. to create the new member.

```
c* 01 TRACK
000002 05 ARTIST     PIC X(020).
000003 05 ALBUM      PIC X(024).
000004 05 TRACK-NUM  PIC 9(003).
000005 05 NAME       PIC X(120).
000006 * * * End of File * * *
```

Figure 128. SELCOPYI - Create Output Copybook.
Specify Output Copybook

- Type **CANCEL** to discard changes to the input copybook and return to the File Reformat panel.
- Specify the **Output Structure/Copybook File**: 
  - Type `userpfx.SELCTRAN.SAM1` in the **Dsn** field.
  - Type `ZZSP1CPC` in the **Member** field (assuming COBOL installation).
  - Check the **Type** option for **Cobol** or **PL1** as appropriate for your installation.

<table>
<thead>
<tr>
<th>Input Structure/Copybook overlay:</th>
<th>Recompile</th>
<th>Dsn &gt; USER123.SELCTRAN.SAM1</th>
<th>Member &gt; ZZST1CPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type: _SDO _AData / COBOL _ PL1</td>
<td><em>N</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output Structure/Copybook overlay:</th>
<th>Recompile</th>
<th>Dsn &gt; USER123.SELCTRAN.SAM1</th>
<th>Member &gt; ZZSP1CPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type: _SDO _AData / COBOL _ PL1</td>
<td><em>N</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Help (PF1)  2. Execute (ENTER)  3. Back (PF3)  4. Exit (PF15)
Execute Reformat

- Press ENTER to execute the reformat.
- You will be prompted to create your new output file, which should be allocated with record length 167 (fixed) (and block size 0).
- A summary message will be displayed on completion.
- Press F20 (Shift-F8) to browse the output file in formatted mode.

<table>
<thead>
<tr>
<th>ARTIST</th>
<th>ALBUM</th>
<th>TRACK-NUM</th>
<th>NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adele</td>
<td>21</td>
<td>#3</td>
<td>1 Rolling In the</td>
</tr>
<tr>
<td></td>
<td>Adele</td>
<td>#1</td>
<td>2 Rumour Has It</td>
</tr>
<tr>
<td>Adele</td>
<td>1</td>
<td>#4</td>
<td>3 Turning Tables</td>
</tr>
<tr>
<td>Adele</td>
<td>21</td>
<td></td>
<td>4 Don't You Remember</td>
</tr>
<tr>
<td>Adele</td>
<td>21</td>
<td>#5</td>
<td>5 Set Fire To The</td>
</tr>
<tr>
<td>Adele</td>
<td>21</td>
<td></td>
<td>6 He Won't Go</td>
</tr>
<tr>
<td>Adele</td>
<td>21</td>
<td></td>
<td>7 Take It All</td>
</tr>
<tr>
<td>Adele</td>
<td>21</td>
<td></td>
<td>8 I'll Be Waiting</td>
</tr>
<tr>
<td>Adele</td>
<td>21</td>
<td></td>
<td>9 One and Only</td>
</tr>
<tr>
<td>Adele</td>
<td>21</td>
<td></td>
<td>10 Lovesong</td>
</tr>
<tr>
<td>Adele</td>
<td>21</td>
<td></td>
<td>11 Someone Like You</td>
</tr>
<tr>
<td>Adele</td>
<td>21</td>
<td></td>
<td>12 I Found A Boy</td>
</tr>
<tr>
<td>Adele</td>
<td>21</td>
<td></td>
<td>13 Adele 21 - A T</td>
</tr>
<tr>
<td>Alabama</td>
<td>Boys 20; Girls 21</td>
<td></td>
<td>1 Hold On</td>
</tr>
<tr>
<td>Alabama</td>
<td>Boys &amp;38; Girls 2</td>
<td></td>
<td>2 I Found You</td>
</tr>
<tr>
<td>Alabama</td>
<td>Boys &amp;38; Girls 3</td>
<td></td>
<td>3 Hang Loose</td>
</tr>
<tr>
<td>Alabama</td>
<td>Boys &amp;38; Girls 4</td>
<td></td>
<td>4 Rise To The Sun</td>
</tr>
<tr>
<td>Alabama</td>
<td>Boys &amp;38; Girls 5</td>
<td></td>
<td>5 You Ain't Alone</td>
</tr>
<tr>
<td>Alabama</td>
<td>Boys &amp;38; Girls 6</td>
<td></td>
<td>6 Goin' To The P</td>
</tr>
<tr>
<td>Alabama</td>
<td>Boys &amp;38; Girls 7</td>
<td></td>
<td>7 Heartbreaker</td>
</tr>
<tr>
<td>Alabama</td>
<td>Boys &amp;38; Girls 8</td>
<td></td>
<td>8 Boys &amp;38; Girl</td>
</tr>
<tr>
<td>Alabama</td>
<td>Boys &amp;38; Girls 9</td>
<td></td>
<td>9 Be Mine</td>
</tr>
</tbody>
</table>

Figure 130. SELCOPYi - Browse Formatted Output.
Updating the Output Copybook (1)

- Press **F3** to return to the File Reformat panel.
- Press **F23 (Shift-F11)** to browse the output copybook.
- Type **GO E** to switch from browse mode to text-edit.

Figure 131. **SELCOPY**: - Browse Output Copybook.

```
---+------80PDS--+-
| File Edit Actions Options Utilities Window SwapList Help | wS wR |
| Command> go e | Scroll> Csr |

Press PF4 for Utilities menu including point/shoot options
Record type: UnMapped  Fixed(80) Offset=0 Data elements=1
  UnMapped
<-------1-------2-------3-------4-------5-------6-------7
  00000001  01 TRACK
  00000002  05 ARTIST  PIC X(20).
  00000003  05 ALBUM   PIC X(24).
  00000004  05 TRACK-NUM PIC 9(003).
  00000005  05 NAME    PIC X(120).
00000006 *** End of Data ***
```
• Update **05** field **ARTIST** changing **PIC X(020)** to **PIC X(010)**.

• Update **05** field **ALBUM** changing **PIC X(024)** to **PIC X(010)**.

• Update **05** field **NAME** changing **PIC X(120)** to **PIC X(050)**.

• Make a mental note that total record length defined by the copybook is now 73 (i.e. the sum of all the field lengths 10+10+3+50).

• Press **F3** and save your changes before returning to the File Reformat panel.

---

Figure 132. SELCOPY/i - Update Output Copybook.
If your structure/copybook file-id refers to a COBOL, PL1 or ADATA source file (not an SDO) then a compile step must be performed in order to turn the source copybook into SELOCPYI's own internal structure (SDO) format.

A temporary SDO will be created, lasting the duration of the SELOCPYI session, making subsequent reference to the same copybook during the session much faster by bypassing the compile stage.

If, however as in our case, the output copybook (or any of its included components) should be modified during the session, then a recompile of the source will normally be required.

For performance reasons Recompile> N (meaning no recompile should occur) is the default.

Specify Recompile> Y to force a copybook recompile each time the reformat process is executed.

Alternatively type the primary command:

```
SD DROP copybook_name
```

- Enter Y in the Recompile field for the Output Copybook.
- Press ENTER to repeat the reformat, using the updated copybook.

![SELOCPYI - File Reformat](image)

Option 5 - File Copy/Reformat (FCOPY) Force Recompile of Updated Output Copybook (1)
- Press **F20 (Shift-F8)** to browse the output file in formatted mode.

- Note that the **=LGTH>** flag appears in the prefix area for each record. This is expected, alerting you that the output record (the original fixed length=167) does not match the new version of the mapped record-type (length=73).

---

**Figure 134. SELCOPYi - Browse Formatted Output 2.**
The File Copy/Reformat utility may also be run in batch, by selecting JCL from the panel menu bar.

After typing the SUB primary command to submit the generated JCL deck, you will have the option to allow SELCOPYi to automatically guide you into SDSF (starting a new ISPF split screen) in order to view the output.

Figure 135. SELCOPYi - Generated Batch Job.
Option 6 - File Search/Update/Copy/Reformat (FSU)

The File Search/Update/Copy/Reformat utility allows you to:

- Globally search and optionally update multiple sequential, PDS/PDSE, GDG, HFS and/or VSAM data sets.

- Restrict PDS/PDSE library search/update/copy:
  - to members with names that match a member name mask
  - to members satisfying directory element selection criteria
  - e.g. select on timestamp, size, userid etc or any combination.
  - to members selected by one or more previous searches.

- Specify an output file to which all input records will be copied regardless of whether record data has been changed.

- Apply a filter in order to restrict search/update/copy to records matching specific selection criteria.

- Search and optionally update uncataloged data sets by generic volume id.

- Specify the start record for search/update/copy operations.

- Restrict the number of records read for search/update/copy operations.

- Restrict the search/update operation to specific columns within the file records.

- Apply a structure (copybook) overlay to format input file records.

- Optionally restrict search/update to records assigned to specific record types, and specific fields within those record-types.

- For Formatted File Search/Update, optionally specify an output file and output structure (copybook) to reformat input record fields (i.e. alter field data type, re-order and/or delete fields).

- Update character data using different length search and update CHANGE strings.

- Control use of blank padding or blank absorption when character search and update CHANGE strings are of different length. Note that the CHANGE operation will fail if the length of the updated record is greater than the file's maximum record length.

Following File Search/Update/Copy/Remap execution, report output is generated in a structured format suitable for presentation to the user in an SDE window view.

During execution, a progress window is displayed which allows the user to interrupt processing at any point using the Attention key.
The File Search/Update (FSU) Panel

The FSU panel may be started using any of the following methods:

- Select option 6 from the SELCOPYI Primary Option Menu (=).
- At any primary command prompt type =6.
- At any primary command prompt type FSU.
- From any dataset, library or HFS path list window, use the F line-command.

Searching a PDS/PDSE Library

![Image](image.png)

To follow the demonstration use the panel to search the supplied sample library for a the character string "blues" (case-insensitive).

Specify the **Input Library**:

- Type `userpfx.SELCTRN.ZZST5DAT` in the DSN/Path Mask field, where `userpfx` is your own user prefix.
- The Member Mask field may be left blank in order to search all members of the input library. Alternatively type "*" or a member mask of your choice.
- The Volume Mask field should be left blank in this case, otherwise the input dataset list will be restricted to files residing on matching volumes only.

Specify the **Search Options**:

- Enter EQ in the Relational Operator (Op) field.
- Type `blues` in the String field.
  - For simple case-insensitive character strings there is no need to add quotes (this will be done automatically).
  - You may specify the string using `C'ABCD'` notation if case-sensitivity is required.
  - Hex strings may be specified using `X'1234'` notation.
- Enter 0 in the Limit field in order to display all hits in each member. Alternatively, enter 1 to display the first hit only.

- Press ENTER to run the search. For operations lasting more than a second, a progress window will be displayed with the report in the background, (continually updating at one second intervals).

- Long running processes may be interrupted by pressing the **Attention key**.
**Search Report Output (Standard 80-column Screen Width)**

Following execution, the structured report output file is displayed as a formatted table view, with search matches displayed under the heading:

**Record type: Hit**

- The first record *(Record type: Command)* displays the following fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timestamp</td>
<td>The date/time of execution.</td>
</tr>
<tr>
<td>Command</td>
<td>The FSU primary command generated by the panel.</td>
</tr>
</tbody>
</table>

- The second record *(Record type: Summary)* among other fields displays the following:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RecordsTot</td>
<td>The number of records processed.</td>
</tr>
<tr>
<td>FilesTot</td>
<td>The number of files/members processed.</td>
</tr>
<tr>
<td>Hits</td>
<td>The number of occurrences of the search value encountered.</td>
</tr>
<tr>
<td>RecordsHit</td>
<td>The number of records encountered with at least once occurrence of the search value.</td>
</tr>
<tr>
<td>FilesHit</td>
<td>The number of files/members encountered with at least once occurrence of the search value.</td>
</tr>
</tbody>
</table>

- For library searches on standard 80-column screens, view of the Hit records is restricted to two columns:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>zMember</td>
<td>The name of the hit library member. zMember is a held field, meaning it will remain visible when the display is scrolled right.</td>
</tr>
<tr>
<td>zRecord</td>
<td>The contents of the hit record.</td>
</tr>
</tbody>
</table>

**SELCOPY/mtree - Edit USER123.SELFCFSU.T103716.RPT using USER123.SELCFSU.T103716**

Option 6 - File Search/Update/Copy/Reformat (FSU) Search Report Output (Standard 80-column Screen Width)

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Displaying Additional Hit Information Fields

To view additional information fields that are normally suppressed from view on a narrow screen, place the cursor on the hit record of interest then press the ZOOMW key, F17 (Shift-F5).

The chosen hit record will be displayed individually, in a separate single-record (zoomed) format window with the following additional fields made visible.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>zDsn</td>
<td>The library dataset name.</td>
</tr>
<tr>
<td>zRecNo</td>
<td>The hit record number.</td>
</tr>
<tr>
<td>zHitNo</td>
<td>The hit record number within the file/member.</td>
</tr>
<tr>
<td>zLrecl</td>
<td>The logical record length of the hit record.</td>
</tr>
<tr>
<td>zHits</td>
<td>The number search value occurrences within this hit record.</td>
</tr>
</tbody>
</table>

Press **F3** to return to the table view.

---

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>61 - 120</td>
<td>Bob Dylan</td>
</tr>
<tr>
<td>181 - 240</td>
<td>The Essential Bob Dylan</td>
</tr>
<tr>
<td>241 - 300</td>
<td>© b 2001</td>
</tr>
<tr>
<td>301 - 360</td>
<td>Bob Dylan</td>
</tr>
<tr>
<td>361 - 407</td>
<td>© 2012-2013</td>
</tr>
</tbody>
</table>
Using F6 to edit the Hit File/Record

From the report table-view, you may place your cursor on any Hit record, then press **F6** to edit the hit file. The edit view will be automatically scrolled in order to place the hit record at the top of the screen.

This feature may be adjusted using the **Settings->List (=0.5)** panel to select the required action:

<table>
<thead>
<tr>
<th>Option</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edit</td>
<td>Text Editor (Edit)</td>
</tr>
<tr>
<td>View</td>
<td>Text Editor (Read-only)</td>
</tr>
<tr>
<td>Browse</td>
<td>Data Editor (read-only)</td>
</tr>
<tr>
<td>SDE</td>
<td>Data Editor (Full Edit)</td>
</tr>
<tr>
<td>SDEU</td>
<td>Data Editor (Update-in-place)</td>
</tr>
<tr>
<td>None</td>
<td>No Action</td>
</tr>
</tbody>
</table>

The screen below shows the display after pressing **F6** from the table view with the cursor on the first hit from member **TRACK008**.

![Figure 139. FSU - Edit Hit Member](image)

---

**Option 6 - File Search/Update/Copy/Reformat (FSU)**

Using F6 to edit the Hit File/Record
Adjusting Report Table View

If you wish to display suppressed fields while in table view, you may use the **SELECT** primary command as depicted below.

Note that, by default, the **SELECT** command operates on the **focus record-type** (i.e. the record at the top of the screen, or at the cursor if it is placed in the file-area).

To avoid this complication add "FROM HIT" to your usual **SELECT** primary command. e.g.

```
select zMember,zRecNo hold, zRecord from Hit
```

Enter the **SELECT (SEL)** primary command without parameters to adjust your visible columns using an interactive dialog panel.

Alternatively, the **SEL** line-command may entered into the prefix area of any record. Although the prefix area is normally suppressed when the report is being displayed on a standard 80-column screen width, you may enter the primary command **PREFIX ON** to re-show it.

---

![Figure 140: FSU - Report with Tailored SELECT Option 6 - File Search/Update/Copy/Reformat (FSU) Adjusting Report Table View](image)

---

--- Press PF1 for Help, PF6 to edit file at cursor line ----

Se | Line=1 | col=1 | Alt=0,0;0 | Size=10 | Recl=454 | Fmt=V | Files=1 | Views=
Selecting Library Members for Search/Update

At the Search/Update front panel, if input refers to a library and the Member Mask field is either left blank, or includes wildcard characters, then by default all member mask matches will be processed, without the need to confirm via a member selection list.

However, you may press the SELECT key F5 to access the member selection list, when required.

Manual selection for individual members is made by adding/removing "S" in the Sel column.

Initially all members matching the mask will be selected, but this may be toggled using the F5 (Select) and F6 (Deselect) keys once the list is displayed.

Figure 141. FSU - Member Selection List
Condensing Selected Members by Timestamp/Size/Userid

Listed members will be **active in the Search/Update process** provided both of the following are true.

1. The list entry is **selected** ("S" in the Sel column).
2. The list entry is not **excluded**.

List entries may be **selected/deselected** as follows:

1. Individually, by entering or removing "S" from the Sel column.
2. On mass, by pressing F5/F6, which will select/deselect all entries.

**Note:** Excluded entries are not affected by pressing F5/F6.

List entries may be **included/excluded** as follows:

1. By entering "X" and other related "line-commands" into the numeric area at the right-hand side, as if working in an edit environment.
2. Using the **ALL, MORE and LESS** primary commands with an associated selection criteria **expression**.

<table>
<thead>
<tr>
<th>Option</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL</td>
<td>Includes only entries satisfying the expression.</td>
</tr>
<tr>
<td>MORE</td>
<td>Additionally includes entries satisfying the expression.</td>
</tr>
<tr>
<td>LESS</td>
<td>Excludes entries satisfying the expression.</td>
</tr>
</tbody>
</table>

• **ALL** with no parameters will re-include all list entries. **LESS** with no parameters will exclude all list entries.

**Excluded entries** are represented in the display by **shadow-lines**.

Type primary command **HIDE** to suppress display of shadow-lines, and **RESET HIDE (RES H)** to redisplay them.

**Examples:**

- To include only members whose last modified date is in the range 2010/05/01 to 2010/12/12, type:
  ```plaintext```
  all LastMod >= 2010/05/01 & LastMod < 2011
  ```plaintext```
- To exclude all members whose current size is zero records, type:
  ```plaintext```
  less CurSize=0
- To reinclude all excluded members whose last modified userid is USER123 or begins with USER321, type:
  ```plaintext```
  more user=user123 | user >> user321

**Figure 142.** FSU - Member Selection (ALL/MORE/LESS)
Condensing Selected Members using FIND

The FIND panel is displayed when primary command FIND (F) is executed from a member selection list and may be used to condense the list of selected members. Only those members that contain at least one record which satisfies the find operation are selected for subsequent processing.

Following execution of the find operation, the FIND panel remains open to allow further find/condense operations on the list of remaining members.

To follow the demonstration use the panel to pre-select members containing the string "soul" (case-insensitive).

- Type soul in the Find string field.
  - For simple case-insensitive character strings there is no need to add quotes (this will be done automatically).
  - You may specify the string using C'ABCD' notation if case-sensitivity is required.
  - Hex strings may be specified using X'1234' notation.

- Enter 1 in the Limit field in order to display the first hit only. Since the purpose of running the FIND is only to condense the member selection list for a subsequent search, then establishing the presence of more than one hit would be wasteful.

- Enter Yes in the View report field in order to display the FIND report. This will allow us to use the F6 facility from the report to edit the hit member. Set this option to No if you are not interested in the detail.

- Enter Yes in the Condense member list field so that, for subsequent FSU operations, any member without at least one search match will be deleted from the selection list.

Press ENTER to execute the search.

```
--SELCOPY/i - Select Input Members - FIND
File Help
Command> ZZSQFSU9
Find string    ==> 'soul'
Limit          ==> 1 Max number of hits per file/member (0=>All)
Scope          ==> CHAR$ (CHARS, WORD, PREFIX, SUFFIX)
Start column   ==> 0 (8=>All columns)
End column     ==> 0 (8=>Start column only)
Start record   ==> 1 (0=>All)
Number of records ==> 0 (0=>All)
Relational operator ==> EQ (EQ, NE, GT, GE, LT, LE)
View report    ==> Yes Display FSU FIND report output
Condense member list ==> Yes Include only members containing hit(s)
```
Exit (F3) from the report (if requested) will return to the FIND panel where you may execute further search operations to progressively condense the member list.

Exit (F3) from the FIND panel will return to the condensed member selection list. Should you wish to reset the condensed list, then just overtype the Member Mask input field and press ENTER.
Condensed Member Search Results

Exit (F3) will return to the main FSU panel, where you can run the original search for the string "blues" using your condensed member list.

Expected results are displayed below.

```
SELCOPY /I - Edit USER123.SELCFSU.T112212.RPT using USER123.SELCFSU.T112212.x
Command> 

*** Top of Data ***
Record type: Command Fixed(126) Offset=0 Data elements=4
Timestamp Command
<--------1--------> <--------1-------->2-------->3-------->4-------->5--------> 6
2013/02/25 11:22:12 FSU input ( 'USER123.SELCTRNLZZST5DAT ( TRACK001 TRACK003 

Record type: Summary Variable(51,52) Offset=0 Data elements=14
RunType RecordsTot FilesTot Hits RecordsHit FilesHit RemapErrs
<--------> <--------> <--------> <--------> <--------> <--------> <-------->
FIND 357 4 3 3 3

Record type: Hit Variable(47,454) Offset=0 Data elements=13
zMember zRecord
<--------> <-------->1-------->2-------->3-------->4-------->5-------->6-------->7
TRACK003 EF3024088704CFF500C405GWalking In the Shadow of the Blues
TRACK004 079FF06C1501FB9600D797IRoman Wall Blues
TRACK005 7CB7FD20AD0E19AD00E211GBourgeoisie Blues

*** End of Data ***

--- Press PF1 for Help, PF6 to edit file at cursor line ---
Se | Line=0 | Col=1 | Alt=0,0;0 | Size=5 | Recl=454 | Fmt=V | Files=1 | Views=0
```

Figure 146. FSU - Condensed Member Search Results*
Option 8.1 - Debug SELCOPY/batch language

The SELCOPY/debug utility allows you to:

- Interactively step through SELCOPY control statements and set run **break points**.

  In doing so, a developer can "**watch**" the values of variables and expressions and also display and update areas of storage.

  Coloured hiliting may be used to "track" the location of any **@name** pointer that is visible in a dump style storage window.

  The purpose of this is typically either to **analyse a problem** with existing code or simply gain an understanding of how a job operates.

  The tool is also invaluable when developing new SELCOPY job steps, as the control statements may be modified and **rerun** without leaving the debug environment.

- SELCOPY/debug runs as separate application under SELCOPYi. This means it has its own "**ring**" of movable/resizable **windows** used to display:

  - SYSIN control statements
  - SYSPRINT output listing
  - Watch List for variable and storage locations
  - Dump format storage for Work Area, POS Expressions and @ Pointers
  - EQUated names/values
  - Execution TRACE
  - IMS PCB
  - SQL Log
  - WTO Log

- Debug SELCOPY step(s) from an **existing Batch Job**.

  Input/Output files will be allocated automatically using **DD statements** extracted from the job.

  Any SELCOPY step may be selected to run either in interactive debug mode, or as a (foreground) subtask.

  Any non-SELCOPY step may also be selected to run as a subtask, but execution of PROCs is not supported.

- Debug SELCOPY/batch control statements from a dataset.

  In which case it is the user's responsibility to ensure that all necessary input/output datasets are allocated to the appropriate filenames prior to execution.

  Alternatively, you may use SELCOPY's own **dynamic allocation**.

  e.g.

  ```
  READ  INDD  DSN='MY.INPUT.DATASET.NAME'
  WRITE OUTDD DSN='MY.OUTPUT.DATASET.NAME'
  ```
Locate Sample SELCOPY JCL

We'll use a supplied sample SELCOPY batch job to explore the debug utility.

To locate the sample JCL, if available, first we'll need to identify the high-level qualifier (HLQ) under which the SELCOPY package was installed.

To do this, first select option 1 from the SELCOPYi Primary Option Menu (=) to access the Settings panel.

At the bottom of this panel you'll see the REXX Macro Path library definitions.

Make a note of the library name indicated for

CBL Supplied Library:

The library name should take the form hlq.SZZSDIST.CBLE as shown in the sample below.

Make a note of this HLQ as we'll refer to it later as SiteHLQ.

Figure 147. 01 SELCOPY/debug Menu (=8.1)
List the sample JCL library

Now type in the primary command: **LL SiteHLQ..INIT.JCL**

A Library List will be displayed as shown below.

<table>
<thead>
<tr>
<th>Library</th>
<th>Member</th>
<th>Alias</th>
<th>VY</th>
<th>MM</th>
<th>Created</th>
<th>Last Mod</th>
<th>CurSize</th>
<th>IniSize</th>
<th>Mod</th>
</tr>
</thead>
<tbody>
<tr>
<td>AZZI340</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2017/07/21 16:43</td>
<td>81</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AZZS340</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2017/07/21 16:43</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AZZY340</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2017/07/21 16:43</td>
<td>109</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GIMUNZIP</td>
<td>1</td>
<td>1</td>
<td>2017/07/21 16:43</td>
<td>81</td>
<td>81</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RFNJOB</td>
<td>1</td>
<td>1</td>
<td>2017/07/21 16:43</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z2TADABL</td>
<td>1</td>
<td>12</td>
<td>2012/04/11 13:05</td>
<td>74</td>
<td>109</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z2IDB2B</td>
<td>1</td>
<td>40</td>
<td>2014/06/30 14:37</td>
<td>139</td>
<td>68</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z2IIP1</td>
<td>1</td>
<td>10</td>
<td>2011/09/22 17:41</td>
<td>72</td>
<td>102</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z2IIYP2</td>
<td>1</td>
<td>33</td>
<td>2010/04/20 11:59</td>
<td>85</td>
<td>76</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z2IIYP3</td>
<td>1</td>
<td>8</td>
<td>2011/09/22 17:41</td>
<td>72</td>
<td>68</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z2ISAMP</td>
<td>1</td>
<td>11</td>
<td>2010/05/13 13:55</td>
<td>68</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z2ISD01</td>
<td>1</td>
<td>14</td>
<td>2009/01/15 14:01</td>
<td>154</td>
<td>149</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z2ISD02</td>
<td>1</td>
<td>3</td>
<td>2010/09/29 15:50</td>
<td>164</td>
<td>164</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z2ISJ01</td>
<td>1</td>
<td>9</td>
<td>2010/04/14 13:58</td>
<td>30</td>
<td>26</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z2ISJ02</td>
<td>1</td>
<td>4</td>
<td>2010/05/13 11:58</td>
<td>26</td>
<td>26</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z2ISJ03</td>
<td>1</td>
<td>2</td>
<td>2010/05/13 11:59</td>
<td>27</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z2ISJ04</td>
<td>1</td>
<td>2</td>
<td>2010/05/13 11:59</td>
<td>33</td>
<td>33</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z2ISJ05</td>
<td>1</td>
<td>3</td>
<td>2009/01/19 12:02</td>
<td>72</td>
<td>71</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z2ISMG</td>
<td>1</td>
<td>12</td>
<td>2010/05/11 17:40</td>
<td>186</td>
<td>182</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z2ISNAME</td>
<td>1</td>
<td>22</td>
<td>2008/04/04 17:40</td>
<td>188</td>
<td>157</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z2ISY01</td>
<td>1</td>
<td>3</td>
<td>2010/05/13 11:06</td>
<td>238</td>
<td>238</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z2ISB01</td>
<td>1</td>
<td>32</td>
<td>2010/03/21 10:49</td>
<td>35</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z2ISB02</td>
<td>1</td>
<td>26</td>
<td>2010/05/13 10:50</td>
<td>23</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z2ISB03</td>
<td>1</td>
<td>23</td>
<td>2010/05/13 10:51</td>
<td>63</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z2ISB04</td>
<td>1</td>
<td>16</td>
<td>2002/03/21 10:51</td>
<td>11</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Figure 148. 02 SELCOPY/debug Menu (=8.1)*
Copy the Sample Job to a personal library

From the Library List, locate member ZZSSDB1 and use the SELCOPYi Text-Editor to edit it.

This sample job uses SELCOPY to selectively read members of the SELCOPYi supplied help library (sourced in HTML) in order to produce a report of all embedded hyper-links.

Hyper-links are defined using an HTML tag such as

```html
<A NAME="LinkName"/>
```

The JCL is supplied with references to dataset names that require tailoring for your installation and userid, so you will need to take a copy of the JCL in order to modify it.

e.g. With "C*" inserted in the prefix area of the first line, type:

```jcl
CREATE userpfx.SELCTRN.JCL(ZZSSDB1)
```

---

**SELCOPY/i - CBL.INST.CBL17202.INIT.JCL(ZZSSDB1) 80 F PDSE Size=76 Alt-x**

Command> cre USER123.SELCTRN.JCL(ZZSSDB1)

**C* //ZZSSDB1 JOB ('ACCT#'),'CBLINST',**

```
000002 // USER=, /* RACF */
000003 // GROUP=, /* RACF */
000004 // PASSWORD=, /* RACF */
000005 // NOTIFY=,
000006 // CLASS=A,MSGCLASS=X,MSGLEVEL=(1,1)
000007 /*
000008 /*
000009 /*
000010 //DELETE EXEC PGM=IDCAMS,REGION=OM
000011 //SYSPRINT DD SYSOUT=* 
000012 //SYSSIN DD *
000013 DELETE JGE.ZZSSDB1.OUTPUT PURGE
000014 /*
000015 /*
000016 /*
000017 //SETPAR1 SET ALLOC='TRK',PRI='2',SEC='i' Output file geometry.
000018 //SETPAR2 SET DISP=(NEW,CATLG),UNIT=SYSALLDA
000019 /*
000020 //ZZSSDB1A EXEC PGM=SELCOPY,REGION=OM
000021 //HELPLIB DD DISP=SHR,DSN=NBJ.INST.CBL13295.SZZSHELP.HTML
000022 //OUTFILE DD DISP=&DISP,DSN=JGE.ZZSSDB1.OUTPUT,
000023 // UNIT=&UNIT,
000024 // DCB=(DSORG=PS,RECFM=VB,RECL=256,BLKSIZE=0),
000025 // SPACE=(&ALLOC,(&PRI,SEC),RLSE)
```

---

Figure 149. 03 SELCOPYi debug Menu (=8.1)
Tailor the Sample Job

Use your preferred method to copy the JCL into a library called `userpfx.SELCTRN.JCL`, then issue the following `CHANGE` commands to tailor the job so it may be run locally.

- **CHANGE ALL 'NBJ.INST.CBL13295' 'SiteHLQ'**

  Where "SiteHLQ" is the high-level qualifier determined earlier.

- **CHANGE ALL 'JGE' 'userpfx'**

  Where "userpfx" is the user prefix used to create your own personal datasets.

```plaintext
000001 //ZZSSDB1 JOB (ACCT#), 'CBLINST',
000002 //   USER=, /* RACF */
000003 //   GROUP=, /* RACF */
000004 //   PASSWORD=, /* RACF */
000005 //   NOTIFY=,
000006 //   CLASS=A, MSGCLASS=X, MSGLEVEL=(1,1)
000007 /**
000008 /**
000009 /**
000100 //DELETE EXEC PGM-IDCAMS,REGION=OM
000110 //SYSPRINT DD SYSOUT=*
000120 //SYSIN DD *
==CHG> DELETE USER123.ZZSSDB1.OUTPUT PURGE
000140 /**
000150 /**
000160 /**
000170 //SETPAR1 SET ALLOC='CYL',PRI='2',SEC='1' Output file geometry.
000180 //SETPAR2 SET DISP=(NEW,CATLG),UNIT=SYSALLDA
000190 /**
000200 //ZZSSDB1A EXEC PGM=SELCOPY,REGION=OM
==CHG> /HELPLIB DD DISP=SHR,DSN=CBL.INST.CBL17202.SZZSHELP.HTML
==CHG> /OUTFILE DD DISP=&amp;DISP,DSN=USER123.ZZSSDB1.OUTPUT,
000230 // UNIT=&amp;UNIT,
000240 // DCB=(DSORG=PS,RECFM=VB,LRECL=256,BLKSIZE=0),
000250 // SPACE=(&amp;ALLOC,(&amp;PRI,&amp;SEC),RLSE)
  s1=InsLine s2=DelLine s3=DupLine s4=ACTION s5=MrkBox s6=MrkLine
  s7=SPLJOIN s8=BoxFuncs s10=UND0 s11=REDO s12=ResetBox
```

Figure 150. 04 SELCOPY/debug Menu (=8.1)
Run the Sample Job in Batch

Once the job has been correctly tailored, SAVE the changes then submit the job to check it runs OK.

Then we can take a look at the expected output report which will have been written to dataset `userpfx.ZZSSDB1.OUTPUT`.

Edit the report file and note it tells us that help library member "ZZSIABOU" has hyper-links on records 49, 56, 57, 58 and 69.

---

<table>
<thead>
<tr>
<th>Member</th>
<th>RecNo</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZZSIABOU</td>
<td>00049</td>
</tr>
<tr>
<td>ZZSIABOU</td>
<td>00050</td>
</tr>
<tr>
<td>ZZSIABOU</td>
<td>00051</td>
</tr>
<tr>
<td>ZZSIABOU</td>
<td>00052</td>
</tr>
<tr>
<td>ZZSIABOU</td>
<td>00053</td>
</tr>
<tr>
<td>ZZSIABOU</td>
<td>00054</td>
</tr>
<tr>
<td>ZZSIABOU</td>
<td>00055</td>
</tr>
<tr>
<td>ZZSIABOU</td>
<td>00056</td>
</tr>
<tr>
<td>ZZSIABOU</td>
<td>00057</td>
</tr>
<tr>
<td>ZZSIABOU</td>
<td>00058</td>
</tr>
<tr>
<td>ZZSIABOU</td>
<td>00059</td>
</tr>
<tr>
<td>ZZSIABOU</td>
<td>00060</td>
</tr>
<tr>
<td>ZZSIABOU</td>
<td>00061</td>
</tr>
<tr>
<td>ZZSIABOU</td>
<td>00062</td>
</tr>
</tbody>
</table>

---

Figure 151. 05 SELCOPY/debug Menu (=8.1)
Cross-Check the Report (optional)

If you like, you can cross-check the results by editing member SiteHLQ.SZZSHELP.HTML(ZZSIABOU).

Figure 152. 06 SELCOPY/debug Menu (=8.1)
The SELCOPY/debug Menu

The SELCOPY/debug menu panel may be accessed using any of the following methods:

- Select option 8 from the SELCOPY Primary Option Menu (=) to access the Utilities menu then select option 1.
- At any primary command prompt type s8.1.
- At any primary command prompt type SELCOPY (SELC).

Figure 153. 07 SELCOPY/debug Menu (=8.1)
Select option to supply JCL

Since we have an existing batch job, select option 1 to "Supply JCL".

1. Supply JCL
   - Debug SECOPY step(s) from an existing Batch Job.
     - Input/Output files will be allocated automatically using DD statements extracted from the job.
     - Any SECOPY step may be selected to run either in interactive debug mode, or as a (foreground) subtask.
     - Any non-SECOPY step may also be selected to run as a subtask, but execution of PROCs is not supported.

2. Supply SYSIN
   - Debug SECOPY/batch control statements from a dataset.
     - It is the user's responsibility to ensure that all necessary input/output datasets are allocated to the appropriate filenames prior to execution.
     - Alternatively, use SECOPY's own dynamic allocation. e.g.
       ```plaintext
       READ INDD DSN='MY.INPUT.DATASET.NAME'
       WRITE OUTDD DSN='MY.OUTPUT.DATASET.NAME'
       ```

F1=HELP    F2=SPLIT    F4=WINDOW    F9=SWAP    F12=CRETRIEV    s2=EXPAND
Specify JCL to debug

- Type `userpfx.SELCTRN.JCL` in the `Dsn` field, to specify the JCL library.
- Type `ZZSSDB1` in the `Member` field, or leave blank to select from a member list.
- You now have the option of pressing Function key `F5` to edit the job before proceeding.
- When you're ready to proceed press `ENTER` to analyse the JCL.

This process will create some local work datasets. These will be automatically deleted once the debug session has ended.

The created work datasets will include separate library members corresponding to any in-stream (DD *) datasets encountered in the job.

### Figure 155. 09 SELCOPY/debug Menu (=8.1)

**SELCOPY/i - SELCOPY/Debug - JCL Batch Job Input**

- **Source JCL:**
  
  ```
  Dsn> USER123.SELCTRN.JCL
  Member> ZZSSDB1
  
  Debug SELCOPY step(s) from an existing Batch Job.
  
  Input/Output files will be allocated automatically using DD statements extracted from the job.
  
  Any SELCOPY step may be selected to run either in interactive debug mode, or as a (foreground) subtask.
  
  Any non-SELCOPY step may also be selected to run as a subtask, but execution of PROCS is not supported.
  
  From the multi-windowed SELCOPY/debug environment you may:
  - Step through your control statements one by one.
  - Set, then run to, multiple strategic "break-points".
  - "Watch" program storage areas and @xxxxx variable values.
  - "Track" @xxxxx positional variables in all storage windows by assigning each variable a separate highlight colour.
  - Modify control statements then restart execution without leaving the debug environment.
  ```

**F5=Edit-JCL  s1=REMIND**
Job Step Selection

Once the JCL analysis has completed you will be presented with a Job Step Selection panel, which lists all the steps found in the JCL.

Initially all steps are selected to run, with any steps that run PGM=SELCOPY or PGM=SLC set to run in Debug mode.

Our sample job has only two steps.

The first runs PGM=IDCAMS in order to delete the output dataset ahead of the second step which creates it afresh.

Only the second step which runs PGM=SELCOPY is set to run in debug mode, but please be aware that this too is optional.

If you have a JCL deck containing several SELCOPY steps, with the early ones only required in order to set up for the step(s) you wish to debug, then it makes sense to just run them normally in the foreground, just like any other program.

To do this just blank out the "Y" in the "Debug" column for those steps.

Press the HELP key for more information if required.

Press ENTER to run the selected job steps.

The "DELETE" step will run IDCAMS in the TSO foreground first.

Then the SELCOPY/debug application will start to run the "ZZSSDB1A" step interactively.

<table>
<thead>
<tr>
<th>SELCOPY/i - SELCOPY/Debug - Job Step Selection List</th>
</tr>
</thead>
<tbody>
<tr>
<td>File Edit Actions Options Utilities Window SwapList Help wS wR</td>
</tr>
<tr>
<td>Command&gt; =</td>
</tr>
<tr>
<td>ZZSGSDB1</td>
</tr>
<tr>
<td>Source JCL: USER123.SELCTRLN.JCL(ZZSSDB1)</td>
</tr>
<tr>
<td>Cleanup&gt; YES Erase work files on exit?</td>
</tr>
<tr>
<td>Sel  Debug Step  PGM  PROC  Status  RetCode  Info</td>
</tr>
<tr>
<td>S     DELETE    IDCAMS     Pending</td>
</tr>
<tr>
<td>S     Y         ZZSSDB1A   SELCOPY     Pending</td>
</tr>
<tr>
<td>*** End of Data ***</td>
</tr>
</tbody>
</table>

Figure 156. 10 SELCOPY/debug Menu (=8.1)
Although not recommended, the SELCOPY/debug application may be used on one of the standard 3270 models that provide a very basic number of rows/columns (e.g. Model 3 provides 32 rows x 80 columns).

In this case the debugger starts in non-windowed display mode and, as depicted below, you will see the "SYSIN" window in "full-screen" mode.

The other "windows" that we are about to encounter will still be available, either by using the "WINDOW" key (F4) to scroll around the window ring, or by using the "View" menu-bar item to directly access any window from a drop-down selection list.

Alternatively, although not really very practical, you may switch to windowed-mode even on a small screen size.

To do this select the "Restore" button located one character to the left of the red "x" (close button) at the top right of the screen.

Entering the primary command WIN RESTORE will also achieve this.

```
SELCOPY: SELCOPY Assembler Interactive Debug for z/OS 2.1.0 - USER123.SELCDBGx
File View Go StepOver StepInto ReRun Window Help [F5][F6][F7][F8][F9][F10][F11][F12]
Command> hilite selc|    Scrol> Csr
<---------------------2---------------------4---------------------6---------------------7--
000001 ** US KL23.SELCDBG.ZZSSDB1.COMB.ZZSSDB1A(SYSIN) *** L=001 --- 2017/08/0
000002 *<<SELCDBG>>[e 'user123.secltrn.jcl(zzssdb1)'
000003
000004    equ Member    1
000005    equ InputRec   1001
000006    equ OutputRec  2001
000007
000008    option worklen=4096
000009
000010 read HELPLIB into InputRec dirdata
000011
000012 ** Select member **
000013    if dir
000014       then do SelectMember
000015       then goto get
000016
000017
000018 ** Select data records from selected members **
000019    if pos InputRec,InputRec+Lrecl-1 = '<< ' then if pos @,InputRec+Lrecl-1 = '>>' ptr=END
000020    or pos InputRec,InputRec+Lrecl-1 = '<< ' then if pos @,InputRec+Lrecl-1 = '>>' ptr=END
000021        then cvbc 4 at uxincount to OutputRec+8+1 format='99999'
000022
000023    then @LEN=LEN-@L
000024    then pos OutputRec+8+6 = @LEN AT @
000025    then do SetMember
000026        s1=StepOver s2=StepInto s3=Go   s4=Popup   s5=MrkBox   s6=MrkLine
000027        s7=BreakPt s8=BoxFuncs s10=UNDO   s11=REDO   s12=ResetBox
Le|   Line=1| Col=1| Alt=0,0;1| Size=49| Recl=80| Fmt=F| Files=4| Views=4
```

Figure 157. 11 SELCOPY/debug Menu (=8.1)
SELCOPY/debug Operation

- When the debugger starts in windowed display mode then a number of windows are displayed automatically.
  1. "SYSIN" displays the active SELCOPY control statements in a Text-Edit style window. Its default location is at the top-left of the screen.
  2. "SYSPRINT" displays SELCOPY’s printed output in another Text-Edit style window. Its default location is at the bottom-right of the screen.
  3. "Work Area" displays the data starting at POS=1 in a dump-style storage window. Its default location is at the top-right of the screen.

- In the SYSIN window, the current operation (that will be executed next) is highlighted in blue reverse-video.

The screen shots that follow were recorded with "HILITE SELCOPY" activated to provide syntax highlighting for SELCOPY control statements. This is not set on by default and is not always desirable as too much colour highlighting can be distracting.

- The SYSPRINT window will refresh itself during the course of the run, automatically scrolling to the bottom to reveal any fresh print output.

The screen shots that follow were also recorded with "HILITE SELCOPY" activated in the SYSPRINT window. Again, this is not necessarily desirable.

- The "Work Area" storage window will initially display blanks since the first operation (which is likely to cause input) has not yet been executed.

Storage windows display data in rows of 4, 8, 16 or 32-bytes depending on the window width. They may be scrolled up and down to reveal more data, and that data may be modified at any time by overtyping either the hex or character areas.

---

**Figure 158. SELCOPY/debug Windowed**

---

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Customisable Window Locations

- All debug windows may be moved and resized in the standard fashion.

Any customised window locations will be **preserved across debug sessions**.

- Recommended layout for standard initial windows shown below.

---

**Figure 159. 13 SELCOPY/debug Windowed**
To gain an understanding of the way this particular SELCOPY job operates, we'll start by tracing through a few statements one at a time.

The first statement will read a record from our input HTML library into a location within our work area defined as position InputRec, which is a symbolic name (EQUate) for 1001.

Before we execute the READ statement, in order to monitor the input from HELPLIB, we'll open up a new storage window to display the data at POS InputRec.

This could be done by typing in a simple primary command: WIN POS InputRec.

Alternatively, with focus on the SYSIN window, move your cursor onto any occurrence of the word InputRec. Then press Function Key F4 to display the cursor sensitive popup menu as shown below.

This key provides menu access to a variety of SELCOPY/debug features. Among them, the item Storage@Pos "xxx" will open a dump window for the specified position ("xxx" being the word at the cursor location).

To select an item from the popup, simply move your cursor to it and press ENTER, or select it with your mouse if you have your 3270 emulator set up for this useful feature.
Stepping through Control Statements (2)

Initially we’ll be tracing through the statements using the StepOver function.

StepOver and StepInto are distinct from each other in only one particular respect (to be revealed in due course).

- To trace the next statement use any one of the following:
  - Select the StepOver item from the main menu-bar at the top of the screen.
  - Type the primary command STEPOver (SO).
  - Press function key Shift-F1 (F13).

The storage window for POS InputRec will now display the first record from HELPLIB, and the next statement (“if dir”) will be highlighted.

Since the READ statement just executed uses the DIRDATA keyword, (which indicates input of DIRECTORY and DATA records from a PDS/PDSE library is required) we see the directory record for the first member of HELPLIB.

The member name “@@@INDEX” occupies the first 8 bytes of this record.

Other directory information such as timestamps, member size etc follow but are not in readable character format.

---

Figure 161. 15 SELCOPY/debug Windowed
StepOver/StepInto sub-routines

- Use **StepOver** again to trace through the "if dir" statement, which tests if the most recently read record was a directory record.

We expect the test to succeed in this case so we logically proceed to the immediately following "THEN" statement, which will be highlighted.

- The statement "then do SelectMember" will cause SELCOPY to perform a sub-routine defined within its control statements using a label.

The debugger provides a choice when tracing is halted at a **DO** statement (synonyms are **PERFORM** and **GOSUB**). Do you want to trace INTO or OVER the sub-routine?

The **StepInto** function subsequently allows the user to step through individual statement within the performed sub-routine.

The **StepOver** function treats the sub-routine call as a single statement, **breaking** next on the statement that logically follows the return from that sub-routine.

To be absolutely clear, if you choose **StepOver**, the statements within the performed sub-routine are still executed, it's just that the debugger will not **break** on each one.

Figure 162: 16 SELCOPY/debug Windowed
Setting a run BREAK point

- Use the **StepInto** function this time, so we can trace through the statements within the sub-routine.

  **StepInto** may be selected from the menu-bar or by pressing Shift-F2 (F14).

  The SYsin window will automatically scroll to the first statement following the sub-routine user-label. In addition, provided that the current statement is still visible, the debugger will attempt to scroll the top line of the display to the nearest preceding "heading". A "heading" in this context is defined as a line containing at least **two consecutive asterisks** or **equals-signs**.

  So, to ensure that the sub-routine name label appears at the top of the screen, just enclose your label names in "==" (which are not treated as part of the name) as shown below.

- The "**SelectMember**" sub-routine tests for library member names beginning with either "ZZSI" or "ZZSS", and forces **bypass** of all further processing for those that fail this selection.

  Since this is a large library, and we don't want to trace through failing selection of hundreds of members, this is a perfect opportunity to set our first **break-point**.

- Place your cursor anywhere within the SYsin statement...

  ```
  then pos Member = 8 at InputRec
  ```

  ... then set a break-point on that statement using one of the following methods:

  - Press F4 to display the popup, then select "Break".
  - Press function key Shift-F7 (F19) which executes the primary command **BReakpoint (BRK)**. Repeating the operation will toggle an existing break-point OFF then ON again.

  Type "HELP BR" for more information about this command.

- Any statement set as a **break-point** will be highlighted in **red reverse-video**.

---

**Figure 163. 17 SELCOPY/debug Windowed**

![Selcopy Debug Windowed](image)
With one or more break points set, you may now perform the **GO** operation using any of the following methods:

1. Select the **Go** item from the main menu-bar at the top of the screen.
2. Type the primary command **GO**.
3. Press function key **Shift-F3** (**F15**).

**GO** causes the debugger to run through the SELCOPY control statements (without pausing on each one) up until the next logically encountered break-point.

Having hit our break-point, we are about to save our current library member name at the work-area position referred to as **MEMBER** (which is a symbolic name (**EQUate**) for 1).

The **WATCH List** window allows us to monitor multiple variables and work-area locations without opening a separate storage window for each one.

To watch the **MEMBER** field:

1. Place your cursor on any occurrence of the word "Member" within the control statements.
2. Press **Shift-F4** to display the **popup** menu.
3. Select item **Watch Pos **Member**** to display the **WATCH** panel (shown below).
4. Update the **Length>** field to 8.
5. Update the **Data-Type>** field to **CHA**.
6. Press **ENTER** to display the item in the Watch List, or press **F1** for help.

---

**Figure 164.** 18 SELCOPY/debug Windowed
• The WATCH List window will open in its initial default location. But note that focus will not automatically be placed on it, and if your SYSIN window is placed as suggested below, then it may completely obscure the new WATCH window.

In this case, use the WINDOW key (F4) to scroll through your open windows until you find it.

Then move the new WATCH window so it is visible, as shown below.

• Next press Shift-F1 to step-over the statement

    then pos Member = 8 at InputRec

• The WATCH List window will automatically update to reflect the value "ZZSIABOU" for item P_MEMBER.

• Press F1 for further information on the Watch-List window, including supported primary- and line-commands e.g.

    ♦ Line-command "I" to insert a new watch item. An alternative to using the popup method.

    ♦ Line-command "SC" to display a scale for the current value.

    ♦ Line-command "SP" to add a space line which is useful to visually separate groups of watched items.

    ♦ Line-command "PW" to open a separate storage-window for the watched item (P_xxxx).

This is particularly useful if you ever need to modify the value, which is not supported directly through the Watch-List itself.

![Screen shot of the WATCH List window.](image)
• Use StepOver function a few more times to trace through the statements executed following location of a member within the required name range.

The next records read from HELPLIB will be DATA (not DIRectory records), so processing will continue with the IF/OR tests (starting on line 20) to determine the presence of the string “<A” (in either upper- or lower-case).

• Once again, for debugging purposes, we are not interested in any data record that doesn't contain a hyper-link, so it's sensible to set another break-point on the "THEN" statement following this condition (line 21).

• Place your cursor anywhere within the SYSIN statement ...

  then if pos @,InputRec+Lrecl-1 = '>'  ptr=@END

... then press Shift-F7 (F19) to set the break-point. which again will be hilghted in red reverse-video.

• Press the "GO" function key Shift-F3 (F15) to run to the next break-point.

Figure 166. 20 SELCOPY/debug Windowed
The storage-window for "Pos INPUTREC" will now display the first input data record containing a **hyper-link**.

Note that the first 4-bytes of the record are occupied by the **record descriptor word (RDW)** prefix to all records read from Physical Sequential (DSORG=PS) files defined as containing variable length (RECFM=V) records.

SELCOPY's inclusion of the RDW within the input record may be controlled using the RDW/NORDW options.

Although in this particular case it's not too difficult to spot the position of the "<a" string within the input record, a visual highlight of the location can often be extremely useful.

Since it has already been determined by SELCOPY at this point, the location is referrable using the default "@" pointer variable (automatically set by a positional range-test).

- Place your cursor on the "@" symbol (on line 21 of control statements) then press Shift-F4 to display the **popup** menu.
From the popup menu, select item **Track "@"** to display a selectable highlight colour list.

- Figure 168. 22 SELCOPY/debug Windowed
Adding further WATCH list items (1)

- Select Green from the list of colours. The location of the pointer variable @ will now be highlighted in green reverse-video.

Hilighting of tracked locations is applied to all storage windows.

Select "Track List" from the popup menu at any time if you need a reminder of your tracked items and their respective colours.

- The next statement determines the presence of the closing tag (">") and explicitly sets pointer variable @END to its location. Use the above technique again to track @END in PINK.

- Other positional expressions may also be tracked. Use the above technique once more to track InputRec+Lrecl-1 in RED.

This mark will make it clear where the current input record ends, all data beyond being residue from previous records that still remains in the work area.

- Next we start to construct our output record.

Line 22 of the control statements converts a 4-byte binary field (at pos UXINCOUNT) to numeric character at an offset within the output record (OUTPUTREC+8+1).

We'll monitor the construction of our output record by adding a WATCH item.

1. Place your cursor on any occurrence of the word "OutputRec" within the control statements.
2. Press Shift-F4 to display the popup menu.
3. Select item Watch Pos "OutputRec" to display the WATCH panel.
4. Update the Length> field to 100.
5. Leave the Data-Type> field as CHA.
6. Press ENTER to add the item to the existing Watch List.

![Figure 169. 22 SELCOPY/debug Windowed](image-url)
• Repeat the previous technique to watch position UXINCOUNT, which is SELCOPY’s internally maintained input record (4-byte binary) number.

For this item we’ll select to display it using hexadecimal representation.

1. Blank out the Data-Type> field and press ENTER.
2. Select item CHB from the list
   Alternatively we might choose to interpret the field as BIN (Binary Integer).

• The next statement sets a numeric variable @LEN.

To watch the numeric value of @LEN:

1. Place your cursor on any occurrence of the word "@LEN" within the control statements.
2. Press Shift-F4 to display the popup menu.
3. Select item Watch Var "@LEN" to display the WATCH panel.
4. Both the Length> and Data-Type> fields are ignored for Type> V (V=VAR) watch list items so just press ENTER to add the item to the Watch List.

• Items may also be added to the Watch List using a command line interface.

Type "HELP WATCH" for full information.

Figure 170. 23 SELCOPY/debug Windowed Option 8.1 - Debug SELCOPY/batch language
• Use the StepInto operation to trace through the sub-routine SetMember which ensures that the member name is included in the output record for the first hit within each member only.

Figure 171. 24 SELCOPY/debug Windowed
• Continue stepping through and past the PRINT statement on line 26.

• The SYSPRINT window will automatically update to display the printed output.

Figure 172. 25 SELCOPY/debug Windowed
Suspend/Resume all Break-Points

• Next remove each existing break point using the toggle key Shift-F7.

• Alternatively,
  ♦ Type "Break ALL OFF" to remove all existing break points at once.
  ♦ Type "Break SUSPENDALL" to suspend all existing break points.
  ♦ Type "Break RESUMEALL" to reinstate all suspened break points.

• With all other breaks removed or suspended add a new break on line 27 (i.e. after execution of the PRINT statement).

• Now press the GO key (Shift-F3) repeatedly to see how the process progresses.

The SYSPRINT window should update after each GO operation.

• The screen shot below was recorded with "HILITE OFF" in effect (to remove syntax highlighting for the SELCOPY language)

... making it much much clearer to see that:

• Pos expression "InputRec+Lrecl-1" is tracked in red.
• Pos expression "@" is tracked in green.
• Pos expression "@END" is tracked in pink.

---

**Figure 173.** 26 SELCOPY/debug Windowed
In order to optimise the visible area of your watch list window, you may wish to move its prefix area to the right and reduce its width to 2-characters.

Type "PREFIX RIGHT 2" (PREF R 2) from the command-line of the WATCH list window to do this.

Type "HELP SET" (H S) from the command-line of the WATCH list window for more information on its customisable aspects.
Automatic BREAKIN threshold

- Next remove your last existing break point using the toggle key Shift-F7, then press the GO key (Shift-F3) with the intention of running to end-of-job.
- Once all break points are removed, or the logic of your SELCOPY determines that none are actually hit, then to guard against infinite loops or unintentionally excessive I/O, the debugger will automatically break in after a certain number of statements have been processed.
- The default is 10,000 statements, but this may be overridden by typing "SET BREAKIN nnn" from the command-line of the SYSDIN window.
Once SELCOPY has reached End-Of-Job its run statistics block is displayed at the end of the SYSPRINT output.

You may force early termination, and therefore display of the statistics block reflecting processing so far, by typing "EOJ" at any stage during the debug session.

You may also restart your debug run from the beginning at any stage by typing "RERUN (RR)". Wherever possible RERUN will preserve all existing BREAK points, WATCH list items etc.

You may modify and save your control statements at any time during the run, but if not already at EOJ then you will not be able to continue debugging without forcing a RERUN.

Once SELCOPY has terminated, you may wish to examine one or more output files.

This can be done without leaving the debug environment, and since the SELCOPY selection summary usually contains the name of the output file required, you'll find it convenient to type "DSN" on the command-line then place your cursor on the dataset name before pressing ENTER.

See below.

Figure 176. 29 SELCOPY/debug Windowed
View Output file(s) from debug environment

Figure 177. 30 SELCOPY/debug Windowed
Option 12 - DB2

DB2 support is included as a standard component of the SELCOPYi program. i.e. it is not a separately licensable product.

As well as browsing and editing DB2 tables, SELCOPYi provides tools to

- issue DB2 commands,
- execute SQL,
- list DB2 objects with extended functionality,
- create DB2 object (Tables, Indexes etc) using "wizard" style dialogs to generate SQL,

Focusing on table edit, during this section you will learn about:

- Setting up sample DB2 Tables
- Display of DB2 Table detailed Information (INFO)
- DB2 Table Edit
- Editing selected table rows (using the "WHERE" dialog)
- Editing Related Tables (REDIT)
- Generating CSV, XML or JSON from selected table rows/columns
- Handling Relational Constraint Errors
Setting up sample DB2 Tables

SELCOPYi will create some sample DB2 Tables for you.

The table data will be copied from your own SELCOPYi sample datasets (See chapter "Setup Training Material" if you haven’t created these) and represents a simple recorded music collection.

The sample database comprises a hierarchy of **Artist**, **Album** and **Track** table rows.

To create your own personal tables, allowing you to follow the training manual in real time, first select option 12 from the main SELCOPYi Primary Options Menu to display the **DB2 Primary Options Menu** as shown below.

If necessary fill in the name of the **DB2 Subsystem** and your **SQLID** in the enterable fields.

A further optional check box may be selected to request that SELCOPYi DB2 auditing should occur. Audit of DB2 table edit views is managed separately and is not affected by this check box setting. If **Create Audit File** is selected, an audit log file will be allocated immediately before attempting to connect to the DB2 subsystem and closed when the connection is dropped.

---

**Figure 178. SELCOPYi DB2 Figure 01**
Setting up sample DB2 Tables (2)

- Select option **T - Setup DB2 Training Material**.

  A new panel will be displayed as shown below.

- Enter the name of a DB2 Database in which you wish to create the sample tables.

  This option defaults to your **current SQLID**.

  If the database does not already exist, then it will be created using DB2 defaults and **CCSID EBCDIC**.

- Press **ENTER** to start the setup procedure.

While the setup is running you can expect the screen to update a few times, and for a number of messages to appear and disappear.

- Eventually, provided no serious errors occur, you should expect to see the following message box.

  Press **ENTER** or **F3** to continue.
Setting up sample DB2 Tables (3)

- The sample tables will be displayed in a "List Tables" window, as shown below.
- "List" windows to display tables, and many other DB2 objects, may be opened by selecting Option 7 from the DB2 Primary Options Menu.

![List Tables window](image-url)
DB2 Table Information

- At the "List Tables" window, enter "/" (forward slash) in the prefix area for table `sqlid.SELCTRN_ALBUM` (the first table in the list).

  A popup window will be displayed detailing all of the line-commands available to this type of object list.

- Place your cursor anywhere on the "I - Table Information" entry in the popup list, then press ENTER.

  Alternatively, enter the "I" line-command directly into the prefix area for table `sqlid.SELCTRN_ALBUM`.
• An HTML document window will display detailed information about the selected DB2 table.

• Underlined text denotes a hyperlink to other significant parts of the document.

Use the **TAB** key to move the cursor immediately to the next/previous hyperlink.

With your cursor on a link, press **ENTER** to make the jump.

Press **F3** repeatedly to return from any number of nested hyperlink jumps.

---

**DB2 Table Information (2)**

- **Table**: TEST1.SELECTRN_ALBUM
- **Type**: Base table
- **In Database**: TEST1
- **Tablespace**: SELC165

<table>
<thead>
<tr>
<th>Column Number</th>
<th>Prime Key Seq</th>
<th>Name</th>
<th>Type</th>
<th>Length of Precision</th>
<th>Scale</th>
<th>Type Code</th>
<th>Null</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>ID</td>
<td>SMALLINT</td>
<td>2</td>
<td>0</td>
<td>500</td>
<td>No</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>NAME</td>
<td>VARCHAR</td>
<td></td>
<td>80</td>
<td>448</td>
<td>No</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>ARIDIS-ID</td>
<td>SMALLINT</td>
<td>2</td>
<td>0</td>
<td>500</td>
<td>No</td>
</tr>
</tbody>
</table>

Statistics for table TEST1.SELECTRN_ALBUM

- RUNSTATS time stamp: 0001-01-01 00:00:00.000000
- Number of rows: -1
- Pages used: -1
- DASD kilobytes: -1

Columns of table TEST1.SELECTRN_ALBUM
• Place your cursor on the link for "Referential constraints:" then presss ENTER.

• We can see that SELCTRN_ALBUM has both a parent table (SELCTRN_ARTIST), and a child table (SELCTRN_TRACK), and that the Delete Rule is Restrict in both cases.

• Press F3 to exit the Table Information window and return to the Table List.

Figure 182. SELCOPYi DB2 Figure 05
### DB2 Table Edit

- In the prefix area for table **SELCRTN_TRACK** enter the line-command **"E"** to start the DB2 Edit Table dialog.

Since "E" is the default line-command, you can actually just place your cursor anywhere on the line and press **ENTER**, or select it by double-clicking with your mouse.

- The DB2 Table edit dialog will appear with the selected table name already filled in.

---

#### Figure 183. SELCOPY\(\text{i}\) DB2 Figure 06
Ensure that none of the Row/Column Selection Options are set, then press ENTER to edit the TRACK table.

The table will be displayed in default multi-row format.

Type the INFO primary command to display detailed information about the currently edited DB2 table.

All the power of the SELCOPYi Data-Editor is now at your finger tips.

e.g. to open another separately scrollable view of the same table just type the primary command WIN NEW or WW.

Figure 184. SELCOPYi DB2 Figure 07
The Zoom Window

- With your cursor anywhere on a particular row, press the “ZoomW” key (Shift-F5) to open a separate window displaying the selected row in “zoomed” format.

- Additional DB2 specific column attribute information is displayed in a zoomed view.

- Any number of zoomed view windows may be opened at the same time, then moved/resized as desired, making visual comparison of multiple rows beautifully simple.

Figure 185. SELCOPYi DB2 Figure 08
Editing selected table columns and rows

- Press F3 to exit the edit session and return to the Table Edit dialog.
- Type SELECT (SEL), or press Shift-F4 to start a dialog that allows you specify the columns you wish to see.
- The same dialog is used to define the sort order of your selected rows.

The screen shot above shows specification of the following:

- Explicit selection of columns in the following order:
  1. ALBUM_ID
  2. TRACK_NUM
  3. BIT_RATE
  4. YEAR
  5. NAME

  with all other "unselected" columns following at the end.

- Columns ALBUM_ID and TRACK_ID are defined as held, meaning they will always stay visible when the screen is scrolled right to reveal further columns.

- The row sort order is defined as
  1. YEAR in ascending sequence
  2. BIT_RATE in descending sequence

- The NAME column width is restricted to 50 characters.
Using the "WHERE" dialog

Type WHERE (WH), or press Shift-F6 to start a dialog that allows you to enter one or more row selection conditions against each of the listed table columns.

As an exercise we'll select all TRACK rows that have the string "Live", either in round- or square-brackets.

We'll also make the selection case insensitive and add an extra condition to deselect rows with zero in the "YEAR" column.

Once we've selected the rows, we'll standardise by changing all the square-bracketed versions to use round-brackets.

- Place your cursor in the Op (Relational Operator) input field for table column "NAME", then enter "/" and press ENTER to display a list of valid operators.

- Select LK (Like) from the list by placing the cursor and pressing ENTER. Alternatively, just enter "LK" directly into the Op field.

- Tab to the Value input field, then enter "%(Live)%". There is no need to put the value in quotes, SELCOPYi will add them for you.

- Tab again to the VO (Value Option) input field, then enter "/". Select "A - Any Case" to indicate case insensitivity.

- Use the Back-Tab key to get to the numeric prefix area then enter "R" to replicate the dialog table row for "NAME". Now we can enter a second condition based on the contents of this DB2 table column.

- On the duplicate line, change the Con (Connector) field from "AND" to "OR", then enter "%(Live)%" in the Value input field.

- In the Op (Relational Operator) input field for table column "YEAR", enter "<>" which indicates a "not equal" condition is required.

- Tab to the Value input field, then enter 0.

- On the line defining the first condition for the "NAME" column (line 3), enter "(" into the opening parenthesis field, and on the line defining the second condition (line 4), enter ")" into the closing parenthesis field. This will make the NAME (OR) conditions and the YEAR condition independent of each other.

File Edit Actions Options Utilities Window Swap List Help VU VR

Option 12 - DB2

Using the "WHERE" dialog

Type WHERE (WH), or press Shift-F6 to start a dialog that allows you to enter one or more row selection conditions against each of the listed table columns.

As an exercise we'll select all TRACK rows that have the string "Live", either in round- or square-brackets.

We'll also make the selection case insensitive and add an extra condition to deselect rows with zero in the "YEAR" column.

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- In the Op (Relational Operator) input field for table column "YEAR", enter "<>" which indicates a "not equal" condition is required.

- Tab to the Value input field, then enter 0.

- On the line defining the first condition for the "NAME" column (line 3), enter "(" into the opening parenthesis field, and on the line defining the second condition (line 4), enter ")" into the closing parenthesis field. This will make the NAME (OR) conditions and the YEAR condition independent of each other.

File Edit Actions Options Utilities Window Swap List Help VU VR

Option 12 - DB2

Using the "WHERE" dialog

Type WHERE (WH), or press Shift-F6 to start a dialog that allows you to enter one or more row selection conditions against each of the listed table columns.

As an exercise we'll select all TRACK rows that have the string "Live", either in round- or square-brackets.

We'll also make the selection case insensitive and add an extra condition to deselect rows with zero in the "YEAR" column.

Once we've selected the rows, we'll standardise by changing all the square-bracketed versions to use round-brackets.
Using FIND/CHANGE

- Press F3 to exit the WHERE dialog then ENTER to edit the selected rows.
- Type FIND [LIVE] to hilite the square-bracketed versions of the string.
- Type CHANGE ALL [LIVE] '(Live)' to update them all to use round-brackets.

Note that the CHANGE command requires that the string "(Live)" is enclosed in quotes, whereas "[Live]" needn't be. That is because round-brackets have a special meaning when used in FIND/CHANGE command syntax (type "HELP CHANGE" for more info).

- Press F3 to exit and save changes.

Figure 188. SELCOPY(DB2 Figure 11)
At the "List Tables" window, enter "EI" (Edit Immediate) in the prefix area for table `sqlid.SELCTRNR_ARTIST`.

The "EI" and "BI" (Browse Immediate) line-commands bypass the dialogs that allow you to specify row selection and other edit/browse options, making them suitable only for tables small enough to be loaded completely into available storage.
To explore the Artist "Alanis Morrisette" enter "RE" in the prefix area.

```
<table>
<thead>
<tr>
<th>ID</th>
<th>NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Adele&lt;</td>
</tr>
<tr>
<td>02</td>
<td>Alabama Shakes&lt;</td>
</tr>
<tr>
<td>03</td>
<td>Alabama 3K</td>
</tr>
<tr>
<td>04</td>
<td>Alanis Morissette&lt;</td>
</tr>
<tr>
<td>05</td>
<td>Alex Harvey&lt;</td>
</tr>
<tr>
<td>06</td>
<td>AC/DC&lt;</td>
</tr>
<tr>
<td>07</td>
<td>Bob Dylan&lt;</td>
</tr>
<tr>
<td>08</td>
<td>Bruce Springsteen&lt;</td>
</tr>
<tr>
<td>09</td>
<td>Bruce Springsteen &amp; The Sessions Band&lt;</td>
</tr>
<tr>
<td>10</td>
<td>Burt Bacharach &amp; Elvis Costello&lt;</td>
</tr>
<tr>
<td>11</td>
<td>Christina Aguilera&lt;</td>
</tr>
<tr>
<td>12</td>
<td>Christina Aguilera &amp; Dave Navarro&lt;</td>
</tr>
<tr>
<td>13</td>
<td>Coldplay&lt;</td>
</tr>
<tr>
<td>14</td>
<td>Crash Test Dummies&lt;</td>
</tr>
<tr>
<td>15</td>
<td>Damien Rice&lt;</td>
</tr>
<tr>
<td>16</td>
<td>David Gray&lt;</td>
</tr>
<tr>
<td>17</td>
<td>Deep Purple&lt;</td>
</tr>
<tr>
<td>18</td>
<td>Del Amitri&lt;</td>
</tr>
<tr>
<td>19</td>
<td>Duffy&lt;</td>
</tr>
<tr>
<td>20</td>
<td>DJ Fresh&lt;</td>
</tr>
<tr>
<td>21</td>
<td>Embrace&lt;</td>
</tr>
<tr>
<td>22</td>
<td>Florence + The Machine&lt;</td>
</tr>
<tr>
<td>23</td>
<td>Gretchen Wilson&lt;</td>
</tr>
<tr>
<td>24</td>
<td>Guns N' Roses&lt;</td>
</tr>
<tr>
<td>25</td>
<td>Jennifer Hudson&lt;</td>
</tr>
<tr>
<td>26</td>
<td>Jessie J&lt;</td>
</tr>
<tr>
<td>27</td>
<td>John Mayer&lt;</td>
</tr>
<tr>
<td>28</td>
<td>John Mellencamp&lt;</td>
</tr>
<tr>
<td>29</td>
<td>Journey&lt;</td>
</tr>
<tr>
<td>30</td>
<td>Judas Priest&lt;</td>
</tr>
<tr>
<td>31</td>
<td>Kosheen&lt;</td>
</tr>
</tbody>
</table>
```

Figure 190. SELCOPYI DB2 Figure 13
The Related Tables List

- A separate window will appear listing all related tables.
- The ARTIST table has only one dependent (child), the ALBUM table.
- Enter "RE" in the list entry prefix area (or just select it with the mouse).

### Related Tables

<table>
<thead>
<tr>
<th>ID</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Adele</td>
</tr>
<tr>
<td>20</td>
<td>Alabama Shakes</td>
</tr>
<tr>
<td>30</td>
<td>Alabama 3</td>
</tr>
<tr>
<td>40</td>
<td>Alanis Morissette</td>
</tr>
<tr>
<td>50</td>
<td>Alex Harvey</td>
</tr>
<tr>
<td>60</td>
<td>AC/DC</td>
</tr>
<tr>
<td>70</td>
<td>Bob Dylan</td>
</tr>
<tr>
<td>80</td>
<td>Bruce Springsteen</td>
</tr>
<tr>
<td>90</td>
<td>Bruce Springsteen</td>
</tr>
<tr>
<td>100</td>
<td>Burt Bacharach &amp; E</td>
</tr>
<tr>
<td>110</td>
<td>Christina Aguilera</td>
</tr>
<tr>
<td>120</td>
<td>Christina Aguilera</td>
</tr>
<tr>
<td>130</td>
<td>Coldplay</td>
</tr>
<tr>
<td>140</td>
<td>Crash Test Dummies</td>
</tr>
<tr>
<td>150</td>
<td>Damien Rice</td>
</tr>
<tr>
<td>160</td>
<td>David Gray</td>
</tr>
<tr>
<td>170</td>
<td>Deep Purple</td>
</tr>
<tr>
<td>180</td>
<td>Del Amitri</td>
</tr>
<tr>
<td>190</td>
<td>Duff</td>
</tr>
<tr>
<td>200</td>
<td>DJ Fresh</td>
</tr>
<tr>
<td>210</td>
<td>Embrace</td>
</tr>
<tr>
<td>220</td>
<td>Florence + The Machine</td>
</tr>
<tr>
<td>230</td>
<td>Gretchen Wilson</td>
</tr>
<tr>
<td>240</td>
<td>Guns N’ Roses</td>
</tr>
<tr>
<td>250</td>
<td>Jennifer Hudson</td>
</tr>
<tr>
<td>260</td>
<td>Jessie J</td>
</tr>
<tr>
<td>270</td>
<td>John Mayer</td>
</tr>
<tr>
<td>280</td>
<td>John Mellencamp</td>
</tr>
<tr>
<td>290</td>
<td>Journey</td>
</tr>
<tr>
<td>300</td>
<td>Judas Priest</td>
</tr>
<tr>
<td>310</td>
<td>Kosheen</td>
</tr>
</tbody>
</table>

**Related Tables**

<table>
<thead>
<tr>
<th>Table</th>
<th>Name</th>
<th>Type</th>
<th>Key Rule</th>
<th>by DB2</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTIST</td>
<td>TESTI</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Related Table Relationship**

<table>
<thead>
<tr>
<th>Table</th>
<th>Name</th>
<th>Type</th>
<th>Key Rule</th>
<th>by DB2</th>
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</table>

**Related Table**

<table>
<thead>
<tr>
<th>Table</th>
<th>Name</th>
<th>Type</th>
<th>Key Rule</th>
<th>by DB2</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTIST</td>
<td>TESTI</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A separate edit window will display only the ALBUM rows for Alanis Morrisette (ARTIST_ID = 40).

To explore the album "Jagged Little Pill" enter "RE" in the prefix area.

<table>
<thead>
<tr>
<th>ID</th>
<th>NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>Alanis Morrisette</td>
</tr>
</tbody>
</table>

Figure 192. SELCOPY: DB2 Figure 15
A separate window will once again appear listing all the related tables.

The **ALBUM** table again has only one DEPENDENT, the **TRACK** table.

Enter "RE" in the list entry prefix area (or select it with the mouse).

A separate edit window will display only the **TRACK** rows for **Jagged Little Pill** (ALBUM_ID = 50).

---

**Figure 193. SELCOPYi DB2 Figure 16**

---
Generating CSV, XML or JSON from selected table rows/columns

Typically used for export to other platforms, Comma Separated Variable (CSV), Extended Markup Language (XML) and JavaScript Object Notation (JSON) documents may be generated from the currently viewed DB2 table data.

To select the data columns required:

1. Press the **Options** key (Shift-F4) to display the DB2 options popup.

2. Select **Option 1** to **Select/Exclude visible field-names**.

Alternatively, just type the **SELECT (SEL)** primary command, with no parameters to display the field selection dialog.

<table>
<thead>
<tr>
<th>Command</th>
<th>Options</th>
<th>Utilities</th>
<th>Window</th>
<th>SnapList</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2(DB2): Edit table TEST1.SECLTRN_ARTIST in tablespace TEST1.SECLTRN</td>
<td>Scroll&gt; Csr</td>
<td>Top of 73</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MUI</td>
<td>Field Selection</td>
<td>Record Information</td>
<td>Shadow-line options</td>
<td>Configure display of SHADOWed records</td>
<td>Configure display of Var-length, SQL-Code and flags</td>
</tr>
<tr>
<td>00000001</td>
<td>1. Select/Exclude visible field-names</td>
<td>(PPF1)</td>
<td>(PPF2)</td>
<td>(PPF3)</td>
<td>(PPF4)</td>
</tr>
<tr>
<td>00000002</td>
<td>2. Configure display of Var-length, SQL-Code and flags</td>
<td>(PPF2)</td>
<td>(PPF3)</td>
<td>(PPF4)</td>
<td>(PPF5)</td>
</tr>
<tr>
<td>00000008</td>
<td>3. Exit utilities menu without action</td>
<td>(PPF3)</td>
<td>(PPF4)</td>
<td>(PPF5)</td>
<td>(PPF6)</td>
</tr>
<tr>
<td>00000009</td>
<td>4. Configure display of SHADOWed records</td>
<td>(PPF4)</td>
<td>(PPF5)</td>
<td>(PPF6)</td>
<td>(PF7)</td>
</tr>
<tr>
<td>00000010</td>
<td>Field options</td>
<td>Configure display of Var-Length and Nullable fields</td>
<td>Delete focus field (ALBUM_ID) value</td>
<td>Open single-record (ZOOM) view in new window</td>
<td></td>
</tr>
<tr>
<td>00000012</td>
<td>5. Configure display of Var-Length and Nullable fields</td>
<td>(PPF5)</td>
<td>(PPF6)</td>
<td>(PF7)</td>
<td>(PF8)</td>
</tr>
<tr>
<td>00000013</td>
<td>6. Delete focus field (ALBUM_ID) value</td>
<td>(PPF6)</td>
<td>(PF7)</td>
<td>(PF8)</td>
<td>(PF9)</td>
</tr>
<tr>
<td>00000014</td>
<td>7. Open single-record (ZOOM) view in new window</td>
<td>(PF7)</td>
<td>(PF8)</td>
<td>(PF9)</td>
<td>(PF10)</td>
</tr>
<tr>
<td>00000015</td>
<td>Window options</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00000017</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 194: SELCOPY/DB2 Figure 17

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The "SELECT" dialog

We'll select column PERSISTENT_ID first, followed by TRACK_NUM and NAME.

- Set option "Perm/Temp:" to "TEMP".
- Set option "Show unselected fields at the end:" to "N".
- Enter "S" to select each of the required columns.
- Enter "1" in Seq field for PERSISTENT_ID to ensure it's selected first.

If not explicitly ordered by entering a number in the Seq field, other fields will be selected in the order they appear in the selection table.

You can enter standard edit line-commands ("M" and "A") in the numeric "prefix" area on the right to re-order the selection table rows.

- Press F3 to exit the dialog.

Your DB2 table view will be updated according to your selections.

---

**Figure 195. SELCOPYi DB2 Figure 18**

Option 12 - DB2 The "SELECT" dialog

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The "CSVGEN" dialog

Type the primary command CSVGEN (CSV) with no parameters to start the CSV dialog.

- Select option "Start at Top-of-File".
- Select option "End at End-of-File".
- Enter an Output CSV Text File name of your choice.
  e.g. <userid>.SELCOPYI.CSV(PILL)

File Command Help

Table: TEST1.SELECTION

Command> =

Top of Data

0000000

0000001

0000002  20 Alabama Shakes

0000003  30 Alabama 3K

0000004  40 Alannis Morissette

0000005

0000006

0000007

0000008

0000009

0000010

0000011

0000012

0000013

0000014

0000015

0000016

0000017

0000018

0000019

0000020

0000021

0000022

0000023

0000024

0000025

0000026

0000027

0000028

0000029

0000030

0000031

0000000

DIF534314D647590

0000001

0000002  02240532256353F

0000003  03493246353103D

0000004  022662317201300

0000005  027600552064636

0000006  043600647426373

0000007  065760665898087

0000008  001306133836655

0000009  004060110756095

0000010  001360136802034

0000011  041890086575PI

0000012  02804008305468

0000013  70CE817166687550

0000000

0000001

0000002

0000003

0000004

0000005

0000006

0000007

0000008

0000009

0000010

0000011

0000012

0000013

0000000

1 All I Really Want<

2 You Oughta Know<

3 Perfect<

4 Hand In My Pocket<

5 Right Through You<

6 Forgiveness<

7 You Learn<

8 Head Over Feet<

9 Mary Jane<

10 Ironic<

11 Not the Doctor<

12 Wake Up<

13 You Oughta Know<

Figure 196. SELCOPYi DB2 Figure 19
Sample "CSVGEN" output

Press the **OPTION** key (F6) if you wish to review other available CSVGEN options, otherwise just press **ENTER** to generate your **Comma Separated Variable** document.

![DB2 Command Line](image)

<table>
<thead>
<tr>
<th>Persistent_ID</th>
<th>Track_Name</th>
<th>Artist_Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>00000001</td>
<td>02E603E528328388</td>
<td>&quot;You Oughta Know&quot;</td>
</tr>
<tr>
<td>00000002</td>
<td>02E603E528328388</td>
<td>&quot;All I Really Want&quot;</td>
</tr>
<tr>
<td>00000003</td>
<td>02E603E528328388</td>
<td>&quot;Perfect&quot;</td>
</tr>
<tr>
<td>00000004</td>
<td>02E603E528328388</td>
<td>&quot;Right Through You&quot;</td>
</tr>
<tr>
<td>00000005</td>
<td>02E603E528328388</td>
<td>&quot;Forgiven&quot;</td>
</tr>
<tr>
<td>00000006</td>
<td>02E603E528328388</td>
<td>&quot;Head Over Feet&quot;</td>
</tr>
<tr>
<td>00000007</td>
<td>02E603E528328388</td>
<td>&quot;Mary Jane&quot;</td>
</tr>
<tr>
<td>00000008</td>
<td>02E603E528328388</td>
<td>&quot;Ironic&quot;</td>
</tr>
<tr>
<td>00000009</td>
<td>02E603E528328388</td>
<td>&quot;Not the Doctor&quot;</td>
</tr>
<tr>
<td>00000010</td>
<td>02E603E528328388</td>
<td>&quot;Wake Up&quot;</td>
</tr>
<tr>
<td>00000011</td>
<td>02E603E528328388</td>
<td>&quot;You Oughta Know&quot;</td>
</tr>
</tbody>
</table>

---

**Figure 197. SELCOPYi DB2 Figure 20**

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The "XMLGEN" dialog

Exit the generated CSV, then type the primary command XMLGEN (XML) with no parameters to start the XML dialog.

- Select option "Start at Top-of-File".
- Select option "End at End-of-File".
- Enter an "Output XML Text File" name of your choice.
  e.g. <userid>.SELCOPYI.XML(PILL)
Press the **OPTION** key (F6) if you wish to review other available XMLGEN options, otherwise just press **ENTER** to generate your **Extended Markup Language** document.

Type the primary command **JSON** with no parameters to start an equivalent dialog to generate your **JavaScript Object Notation**.
Handling Relational Constraint Errors

Next, as an exercise, we'll delete the artist **Bob Dylan** from our music collection.

- Use **F3** to exit as far as the **ARTIST** table.
- Enter "D" in the prefix area, or press the "**DelLine**" key (Shift-F2), to delete the **Bob Dylan** (ID=70) row.
- Press **F3** to exit and save, or type primary command **SAVE**.
- Because of the table's relational constraints, DB2 prevents an **ARTIST** row from being deleted while any **ALBUM** rows exist with the same foreign key.

In this case SELCOPYi, reinserts the deleted row at the top of the screen.

The row is flagged with **R-532** in the prefix area, indicating the **SQLCODE** encountered by the SAVE.

---

**Figure 200.** SELCOPYi DB2 Figure 23

---

F5=RFIND  F6=REPLACE  s1=InsLine  s2=DelLine  s3=DupLine  s4=Options  s5=ZoomM  s1=UNDO  s11=RED0
s6=Lines  s7=Col01  s10=2720  s8=Size=72  s9=RectOn  f1=MOV  f2=Files  f3=View+  f10=View=1  2017/08/22 211
Enter "E" in the prefix area to display the "DB2 Save SQL Error" dialog.

```
Figure 201: SELCOPYi DB2 Figure 24
```

<table>
<thead>
<tr>
<th>ID</th>
<th>NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
<td>Bob Dylan</td>
</tr>
<tr>
<td>71</td>
<td>Adele</td>
</tr>
<tr>
<td>72</td>
<td>Alabama Shakes</td>
</tr>
<tr>
<td>73</td>
<td>Alabama 3</td>
</tr>
<tr>
<td>74</td>
<td>Alanis Morissette</td>
</tr>
<tr>
<td>75</td>
<td>Alex Harvey</td>
</tr>
<tr>
<td>76</td>
<td>AC/DC</td>
</tr>
<tr>
<td>77</td>
<td>Bruce Springsteen</td>
</tr>
<tr>
<td>78</td>
<td>Bruce Springsteen &amp; The Eurythmics</td>
</tr>
<tr>
<td>79</td>
<td>Christina Aguilera</td>
</tr>
<tr>
<td>80</td>
<td>Christina Aguilera &amp; Dave Navarro</td>
</tr>
<tr>
<td>81</td>
<td>Coldplay</td>
</tr>
<tr>
<td>82</td>
<td>Crash Test Dummies</td>
</tr>
<tr>
<td>83</td>
<td>Damien Rice</td>
</tr>
<tr>
<td>84</td>
<td>David Gray</td>
</tr>
<tr>
<td>85</td>
<td>Deep Purple</td>
</tr>
<tr>
<td>86</td>
<td>Del Amor</td>
</tr>
<tr>
<td>87</td>
<td>Duffy</td>
</tr>
<tr>
<td>88</td>
<td>DJ Fresh</td>
</tr>
<tr>
<td>89</td>
<td>Dropkick</td>
</tr>
<tr>
<td>90</td>
<td>Florence + The Machine</td>
</tr>
<tr>
<td>91</td>
<td>Gretchen Wilson</td>
</tr>
<tr>
<td>92</td>
<td>Guns N' Roses</td>
</tr>
<tr>
<td>93</td>
<td>Jennifer Hudson</td>
</tr>
<tr>
<td>94</td>
<td>Jessie J</td>
</tr>
<tr>
<td>95</td>
<td>John Mayer</td>
</tr>
<tr>
<td>96</td>
<td>John Mellencamp</td>
</tr>
<tr>
<td>97</td>
<td>Journey</td>
</tr>
<tr>
<td>98</td>
<td>Judas Priest</td>
</tr>
<tr>
<td>99</td>
<td>Kosheen</td>
</tr>
</tbody>
</table>
The "DB2 Save SQL Error" dialog provides a detailed explanation of the SQL error, and identifies the parent and dependent column names.

It also gives you the opportunity to correct the violation using the Related Table Edit (REDIT) feature.

- Enter "R" in the "Actions" field to start Related Table edit.

Figure 202. SELCOPYi DB2 Figure 25
Releasing locks on Dependent Tables

If locks on dependent tables are held by DB2, then they must be released before continuing.

- Enter "2" to "Rollback outstanding changes".

![Diagram showing DB2 Figure 26]

Figure 203. SEFCOPYi DB2 Figure 26
The **ALBUM** table is edited, displaying only rows matching the foreign key for the artist Bob Dylan (ARTIST_ID=70).

We'll attempt to delete "The Essential Bob Dylan", expecting a similar problem due to the existence of "TRACK" table rows matching this album.

- Enter "D" to delete "The Essential Bob Dylan".
- Press F3 to exit and save, or type primary command SAVE.
- The reinserted row is flagged with R-532 in the prefix area.
- Enter "E" in the prefix area to display the "DB2 Save SQL Error" dialog.
- Enter "R" in the "Actions" field to start Related Table edit.

---

**DB2(Gtk): Edit Table** TESTI1.SELECTRN_ARTIST in tablespace TESTI1.SECTINRAR

Command> Scroll> Csr

Table: TESTI1.SELECTRN_ARTIST

ID NAME

<table>
<thead>
<tr>
<th>ID</th>
<th>NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
<td>Bob Dylan</td>
</tr>
</tbody>
</table>

**DB2(Gtk): Edit related Table** TESTI1.SELECTRN_ALBUM in tablespace TESTI1.SECTINRAS

Command> Scroll> Csr

View 1 of 1

Table: TESTI1.SELECTRN_ALBUM Dependent of: TESTI1.SELECTRN_ARTIST Constraint: ALBUMAL(F)

<table>
<thead>
<tr>
<th>ARTIST_ID</th>
<th>ID</th>
<th>NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
<td>Bob Dylan</td>
<td></td>
</tr>
</tbody>
</table>

**DB2 Gtk: DB2 Save SQL Error**

Command> Scroll> Csr

DELETE rule: Restrict

A DELETE operation attempted to delete a specified row and all dependent rows in dependent tables but this relationship's DELETE rule prevented it.

Select *
The `TRACK` table is edited, displaying only rows matching the foreign key for the album "The Essential Bob Dylan" (ALBUM_ID=150).

- Enter D* in the prefix area of the first line to delete all rows.
- Press F3 to exit and save.

No constraint rule is broken so the save will succeed without any drama.

---

**Figure 205. SELCOPY DB2 Figure 28**
Back in the **ALBUM** table, you will then be able to delete "The Essential Bob Dylan", save and exit without errors.

Back in the **ARTIST** table, you will then be able to delete "Bob Dylan" and save without errors.

---

**Figure 206. SELCOPY1 DB2 Figure 29**

<table>
<thead>
<tr>
<th>Track</th>
<th>Artist</th>
<th>Album</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Alabama Shakes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Alabama 3K</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Alanis Morissette</td>
<td></td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>Alex Harvey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>AC/DC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>Bruce Springsteen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>Bruce Springsteen &amp; The Sessions Band</td>
<td></td>
<td></td>
</tr>
<tr>
<td>08</td>
<td>Burt Bacharach &amp; Elvis Costello</td>
<td></td>
<td></td>
</tr>
<tr>
<td>09</td>
<td>Christina Aguilera</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Christina Aguilera &amp; Dave Navarro</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Coldplay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Crash Test Dummies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Damien Rice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>David Gray</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Deep Purple</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Del Amitri</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Duran&lt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>DJ Fresh</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Embrace</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Florence + The Machine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Gretchen Wilson</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Guns N' Roses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Jennifer Hudson</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Jessie J</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>John Mayer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>John Mellencamp</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Journey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Judas Priest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Kaseem</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Led Zeppelin</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Further DB2 specific information is available by pressing the HELP key (F1).

<table>
<thead>
<tr>
<th>Table: TESTI</th>
<th>SELCTR</th>
<th>ARIST</th>
<th>in</th>
<th>tablespace</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>NME</td>
<td>#2</td>
<td>SHINT</td>
<td>VARCHAR(70)</td>
</tr>
<tr>
<td>00000000</td>
<td><em><strong>Top of Data</strong></em></td>
<td>00000001</td>
<td>10</td>
<td>Adele&lt;</td>
</tr>
<tr>
<td>00000002</td>
<td>Alabama Shakes&lt;</td>
<td>00000003</td>
<td>20</td>
<td>Alabama 3&lt;</td>
</tr>
<tr>
<td>00000004</td>
<td>Alanhis Morisette&lt;</td>
<td>00000005</td>
<td>40</td>
<td>Alex Harvey&lt;</td>
</tr>
<tr>
<td>00000006</td>
<td>AC/DC&lt;</td>
<td>00000007</td>
<td>60</td>
<td>Bruce Springsteen&lt;</td>
</tr>
<tr>
<td>00000008</td>
<td>Bruce Springeen &amp; the Sessions Band&lt;</td>
<td>00000009</td>
<td>80</td>
<td>Burt Bacharach &amp; Elvis Costello&lt;</td>
</tr>
<tr>
<td>0000010</td>
<td>Christina Aguiler&lt;</td>
<td>0000011</td>
<td>90</td>
<td>Christina Aguiler &amp; Dave Navarro&lt;</td>
</tr>
<tr>
<td>0000012</td>
<td>Coldplay&lt;</td>
<td>0000013</td>
<td>110</td>
<td>Crash Test Dummies&lt;</td>
</tr>
<tr>
<td>0000014</td>
<td>Damien Rice&lt;</td>
<td>0000015</td>
<td>120</td>
<td>David Gray&lt;</td>
</tr>
<tr>
<td>0000016</td>
<td>Deep Purple&lt;</td>
<td>0000017</td>
<td>130</td>
<td>Del Amitri&lt;</td>
</tr>
<tr>
<td>0000018</td>
<td>Duff&lt;</td>
<td>0000019</td>
<td>140</td>
<td>DJ Fresh&lt;</td>
</tr>
<tr>
<td>0000020</td>
<td>Embrace&lt;</td>
<td>0000021</td>
<td>150</td>
<td>Florence &amp; The Machine&lt;</td>
</tr>
<tr>
<td>0000022</td>
<td>Gretchen Wilson&lt;</td>
<td>0000023</td>
<td>160</td>
<td>Guns N' Roses&lt;</td>
</tr>
<tr>
<td>0000024</td>
<td>Jennifer Hudson&lt;</td>
<td>0000025</td>
<td>170</td>
<td>Jessie J&lt;</td>
</tr>
<tr>
<td>0000026</td>
<td>John Mayer&lt;</td>
<td>0000027</td>
<td>180</td>
<td>John Mellencamp&lt;</td>
</tr>
<tr>
<td>0000028</td>
<td>Journey&lt;</td>
<td>0000029</td>
<td>190</td>
<td>Judas Priest&lt;</td>
</tr>
<tr>
<td>0000030</td>
<td>Koshi&lt;</td>
<td>0000031</td>
<td>200</td>
<td>Led Zeppelin&lt;</td>
</tr>
</tbody>
</table>

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 which 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.
- Defining a structure to use with DB2 tables.
- How DB2 rows are saved.
- Dealing with save errors.
- Handling 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.sysin/tables
```

will open a structured browse view and load all the rows of the table SYSEXISTS 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

```
s line 1 of 289 lot 1 or 78 file: CBL/CBL1550.MM1(zzzdb2e)
```
Related Tables Help

The hyperlink for "Editing or browsing related tables" provides some handy background and tips.

Figure 208. SELCOPY1 DB2 Figure 31
In the ARTIST table scroll down to "Ray Lamontagne" (ID=480), and notice we also have an entry for "Ray LaMontagne" (ID=490).

We'll consolidate these two, then remove (ID=490).

- Enter "RE" in the prefix area for artist ID=490.
A separate edit window will display only the **ALBUM** rows for *(ARTIST_ID=490)*.

Type primary command "**CHANGE ALL 490 480 #3**", then exit and save changes.

---

### Figure 210: SELCOPY

```
EDIT Example (2)

**DB2(RG): Edit table TEST1.SELECTN_ARTIST in tablespace TEST1.SELECTN
Command>  *(Row 47 of 72)*
Table: TEST1.SELECTN_ARTIST
ID NAME  \_1 M2
SHINT VARCHAR(70)

00000047 490 Ray Lamontagne<
00000049 490 Ray Lamontagne<

**DB2(RG): Edit related table TEST1.SELECTN_ALBUM in tablespace TEST1.SELECTN
Command>  *(Row 47 of 72)*
Table: TEST1.SELECTN_ALBUM
ARTIST_ID  ID NAME  \_1 M2
SHINT VARCHAR(30)

00000000 *** Top of Data ***

00000004 ==CH> 400 1050 Jolene (Live from Union Chapel) - Single<
00000006 ==CH> 400 1100 Raycharles Lamontagne<
00000008 ==CH> 400 1110 Till the Sun Turns Black<
00000006 ==CH> 400 1120 Trouble<
00000004 ==CH> 400 1130 Trouble - Live Session (Live at The Chapel, London) - EP<

00000007 *** End of Data ***

**Note:**
- PE: DENAME -TSNAME -DBID -OBID -COILCOUNT EDPROC UA
- TEST1 SELECTN 473 8 3
- TEST1 SELECTN 473 14 16
- END OF PAGE 14 TRIM+2
```

---

*Figure 210: SELCOPY*
We can now delete (ARTIST_ID=490), save and exit without error.