Training Manual

Release 3.60

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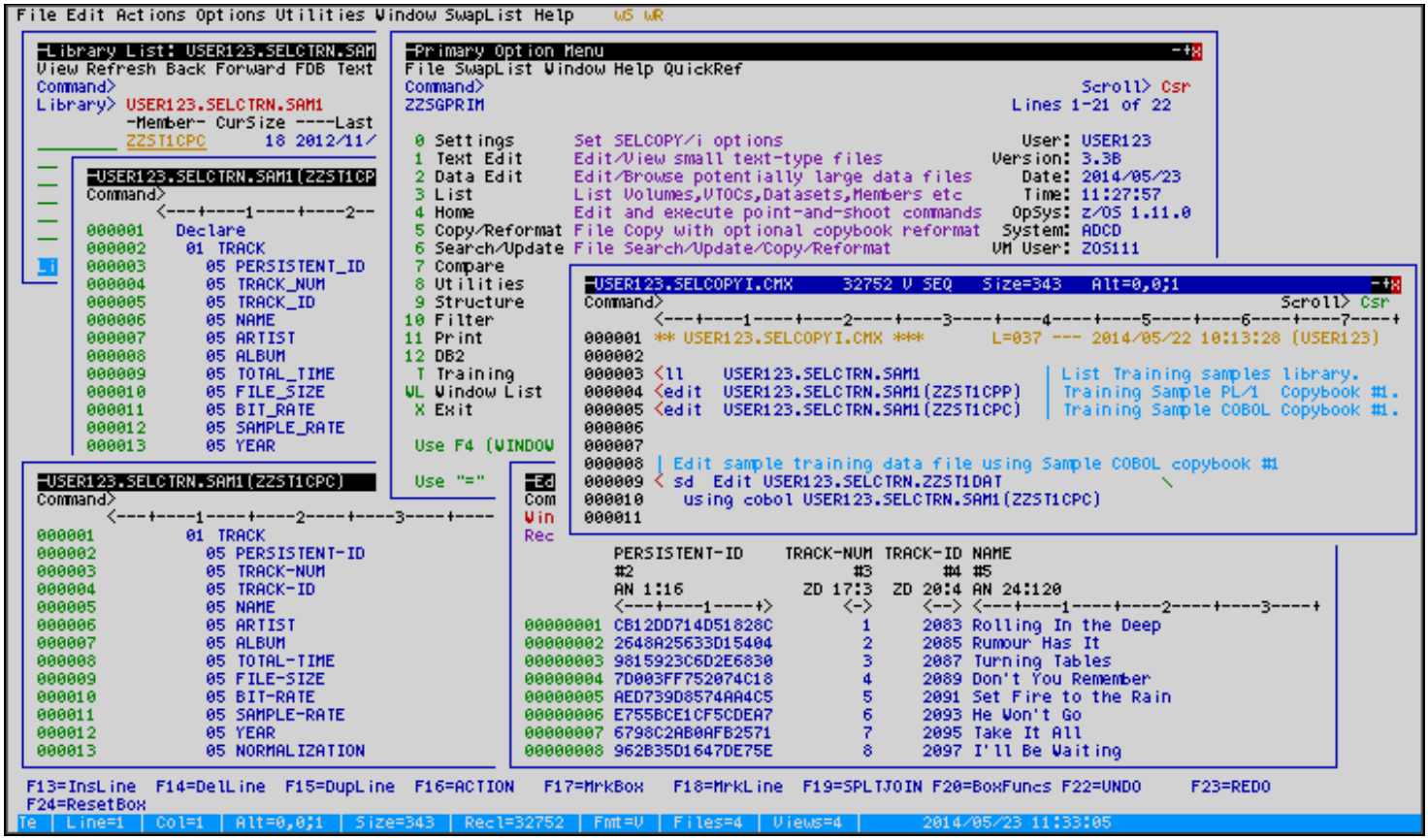
File Edit Actions Options Utilities Window SwapList Help
Library List: USER123.SELCTRN.SAM
View Refresh Back Forward FDB Text
Command>
Library> USER123.SELCTRN.SAM1
-Member- CurSize ----Last
ZZST1CPC 18 2012/11/
USER123.SELCTRN.SAM1(ZZST1CP
Command>
000001 Declare
000002 01 TRACK
000003 05 PERSISTENT_ID
000004 05 TRACK_NUM
000005 05 TRACK_ID
000006 05 NAME
000007 05 ARTIST
000008 05 ALBUM
000009 05 TOTAL_TIME
000010 05 FILE_SIZE
000011 05 BIT_RATE
000012 05 SAMPLE_RATE
000013 05 YEAR
Primary Option Menu
File SwapList Window Help QuickRef
Command>
Scroll> Csr
ZZSGPRIM
Lines 1-21 of 22
0 Settings Set SELCOPY/i options
1 Text Edit Edit/View small text-type files
2 Data Edit Edit/Browse potentially large data files
3 List List Volumes,VTOCs,Datasets,Members etc
4 Home Edit and execute point-and-shoot commands
5 Copy/Reformat File Copy with optional copybook reformat
6 Search/Update File Search/Update/Copy/Reformat
7 Compare
8 Utilities
9 Structure
10 Filter
11 Print
12 DB2
T Training
WL Window List
X Exit
Use F4 (WINDOW
Use "="
User: USER123
Version: 3.3B
Date: 2014/05/23
Time: 11:27:57
OpSys: z/OS 1.11.0
System: ADCD
VM User: ZOS111
USER123.SELCOPYI.CMX 32752 V SEQ Size=343 Alt=0,0;1
Command>
Scroll> Csr
000001 ** USER123.SELCOPYI.CMX *** L=037 --- 2014/05/22 10:13:28 (USER123)
000002
000003 <ll USER123.SELCTRN.SAM1 | List Training samples library.
000004 <edit USER123.SELCTRN.SAM1(ZZST1CPP) | Training Sample PL/1 Copybook #1.
000005 <edit USER123.SELCTRN.SAM1(ZZST1CPC) | Training Sample COBOL Copybook #1.
000006
000007
000008 | Edit sample training data file using Sample COBOL copybook #1
000009 < sd Edit USER123.SELCTRN.ZZST1DAT
000010 using cobol USER123.SELCTRN.SAM1(ZZST1CPC)
000011
USER123.SELCTRN.SAM1(ZZST1CPC)
Command>
000001 01 TRACK
000002 05 PERSISTENT-ID
000003 05 TRACK-NUM
000004 05 TRACK-ID
000005 05 NAME
000006 05 ARTIST
000007 05 ALBUM
000008 05 TOTAL-TIME
000009 05 FILE-SIZE
000010 05 BIT-RATE
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000012 05 YEAR
000013 05 NORMALIZATION
PERSISTENT-ID TRACK-NUM TRACK-ID NAME
00000001 CB12DD714D51828C 1 2083 Rolling In the Deep
00000002 2648A25633D15404 2 2085 Rumour Has It
00000003 9815923C6D2E6830 3 2087 Turning Tables
00000004 7D003FF752074C18 4 2089 Don't You Remember
00000005 AED739D8574AA4C5 5 2091 Set Fire to the Rain
00000006 E755BCE1CF5CDEA7 6 2093 He Won't Go
00000007 6798C2AB0AFB2571 7 2095 Take It All
00000008 962B35D1647DE75E 8 2097 I'll Be Waiting
F13=InsLine F14=DelLine F15=DupLine F16=ACTION F17=MrkBox F18=MrkLine F19=SPLTJOIN F20=BoxFuncs F22=UNDO F23=REDO
F24=ResetBox
Te | Line=1 | Col=1 | Alt=0,0;1 | Size=343 | Recl=32752 | Fmt=V | Files=4 | Views=4 | 2014/05/23 11:33:05

Contents

Contents

Contents

Contents

Documentation Notes

Ninth Edition, August 2017

Information in this document details general features and functionality of the **CBL Product Suite** component, **FileKit**.

CBL Product Suite for z/OS, z/VM (CMS) and z/VSE operating systems, which includes SELCOPY, FileKit and CBLVCAT, is available for download and install from **www.cbl.com/selcdl.php**.

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

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

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

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

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 **FileKit** 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.

Fifth Edition (2014/09/23)

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 (REDIT)*
- ◊ *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*

Eighth Edition (2021/11/01)

SELCOPYi Rel 3.50 (cover change only).

Ninth Edition (2024/04/25)

SELCOPYi Rel 3.60.

Product Rebrand

Starting at release 3.60 (and release 3.50 with PTF RS35003 applied), "**SELCOPYi**" is rebranded as "**FileKit**".

Product materials now have name and/or aliases that reflect the product name change. For example, the FileKit batch executable (ZZSSMAIN) has both alias names **SDEAMAIN** and **FILEKITB**.

Setup Training Material

Sample data files and COBOL/PL1 copybooks are supplied with the FileKit 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 FileKit Primary Option Menu.

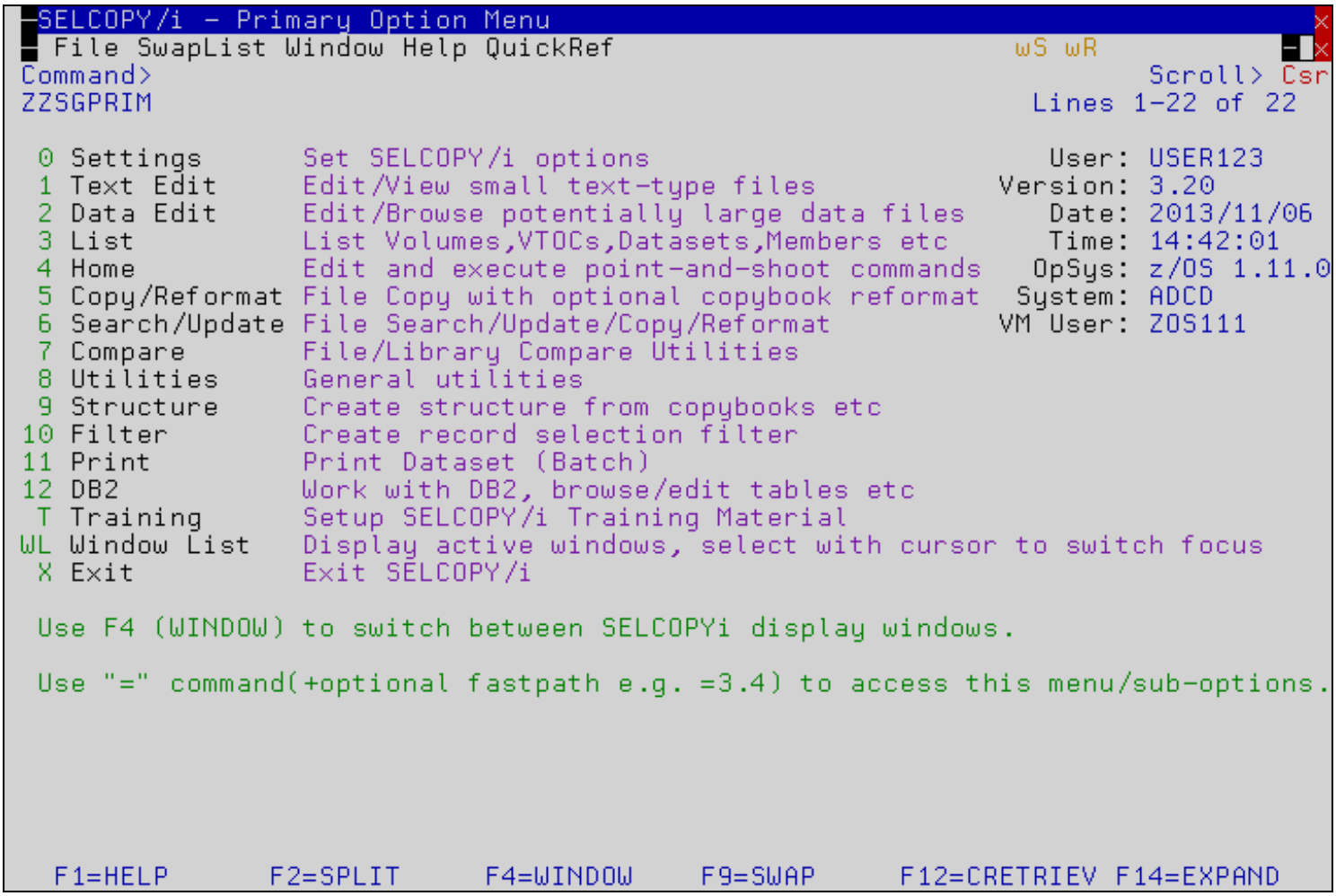


Figure 1. FileKit - Setup FileKit Training Material.

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**:

Model	Rows	Columns
2	24	80
3	32	80
4	43	80
5	27	132

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

FileKit 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 assistence with your setup please contact CBL (support@cbl.com).

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

```
Terminal Characteristics
  Screen format   3  1. Data    2. Std     3. Max     4. Part
```

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, FileKit will operate in "windowed" mode, with its **Primary Options Menu** located centralised at the at the top of the screen by default.

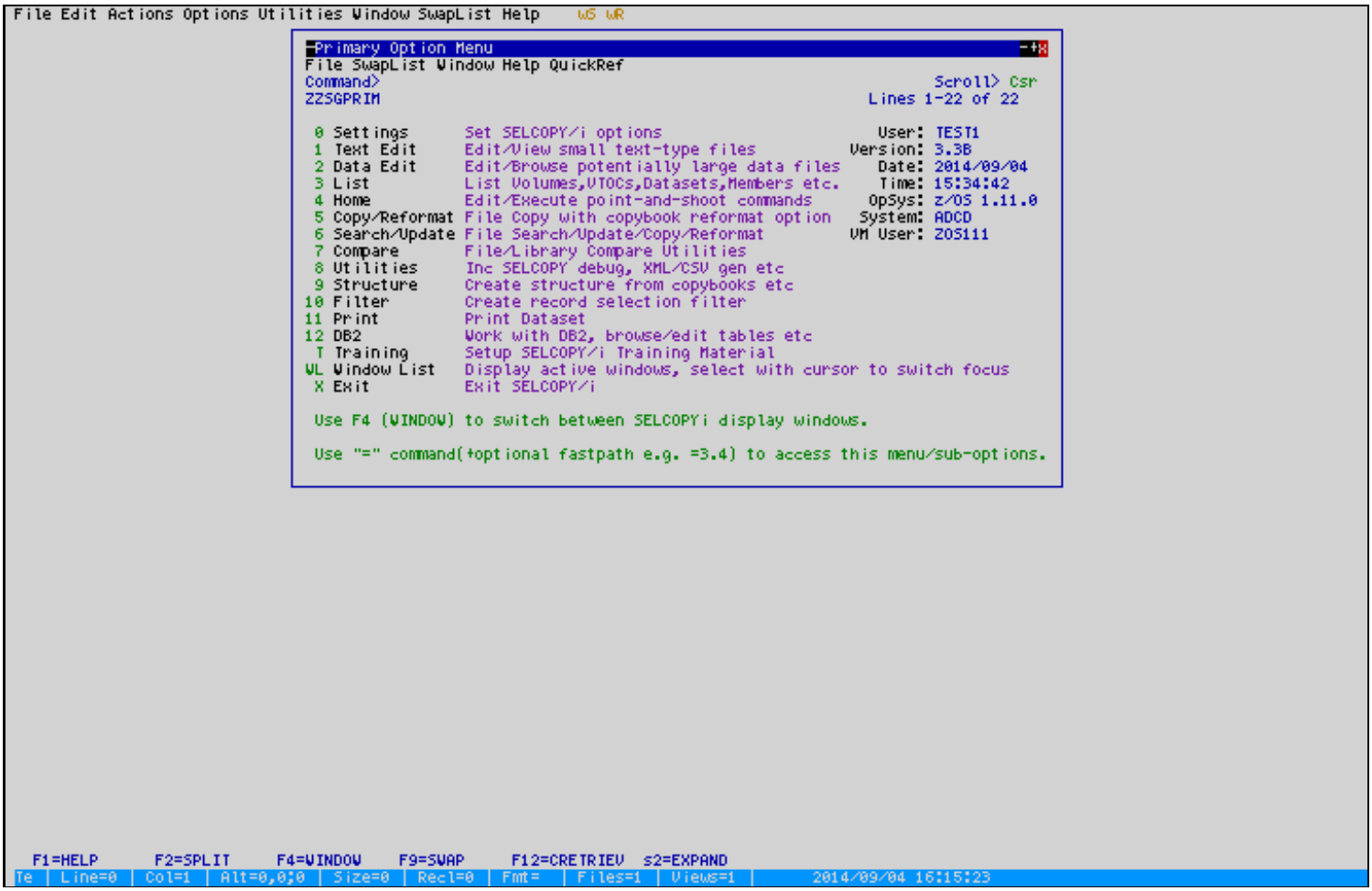


Figure 2. FileKit - POM Window.

Menu/Panel Windows

Select option **1** to open the **Text Edit** panel in a separate window.

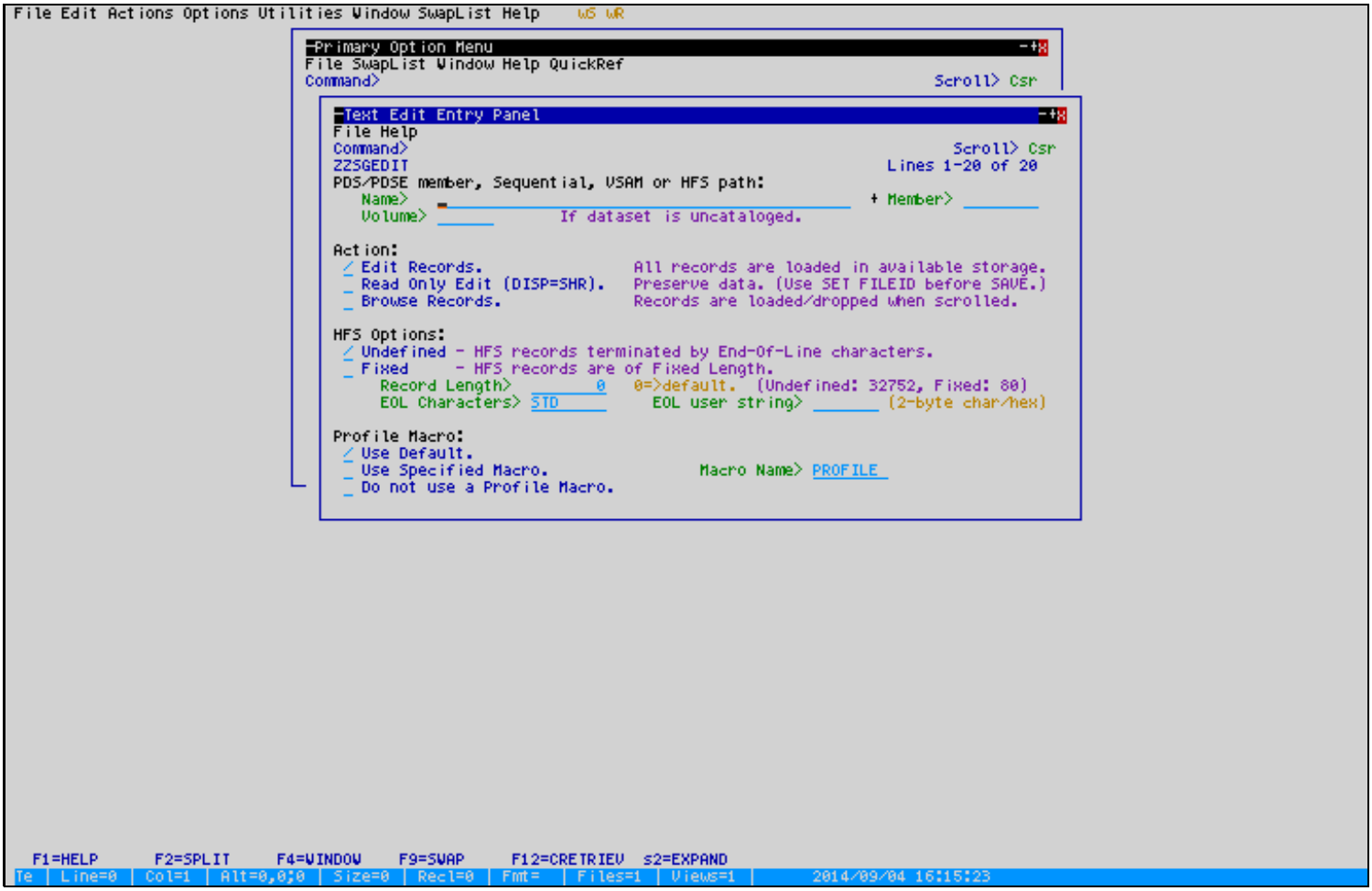


Figure 3. FileKit - Text Edit Panel Window.

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.

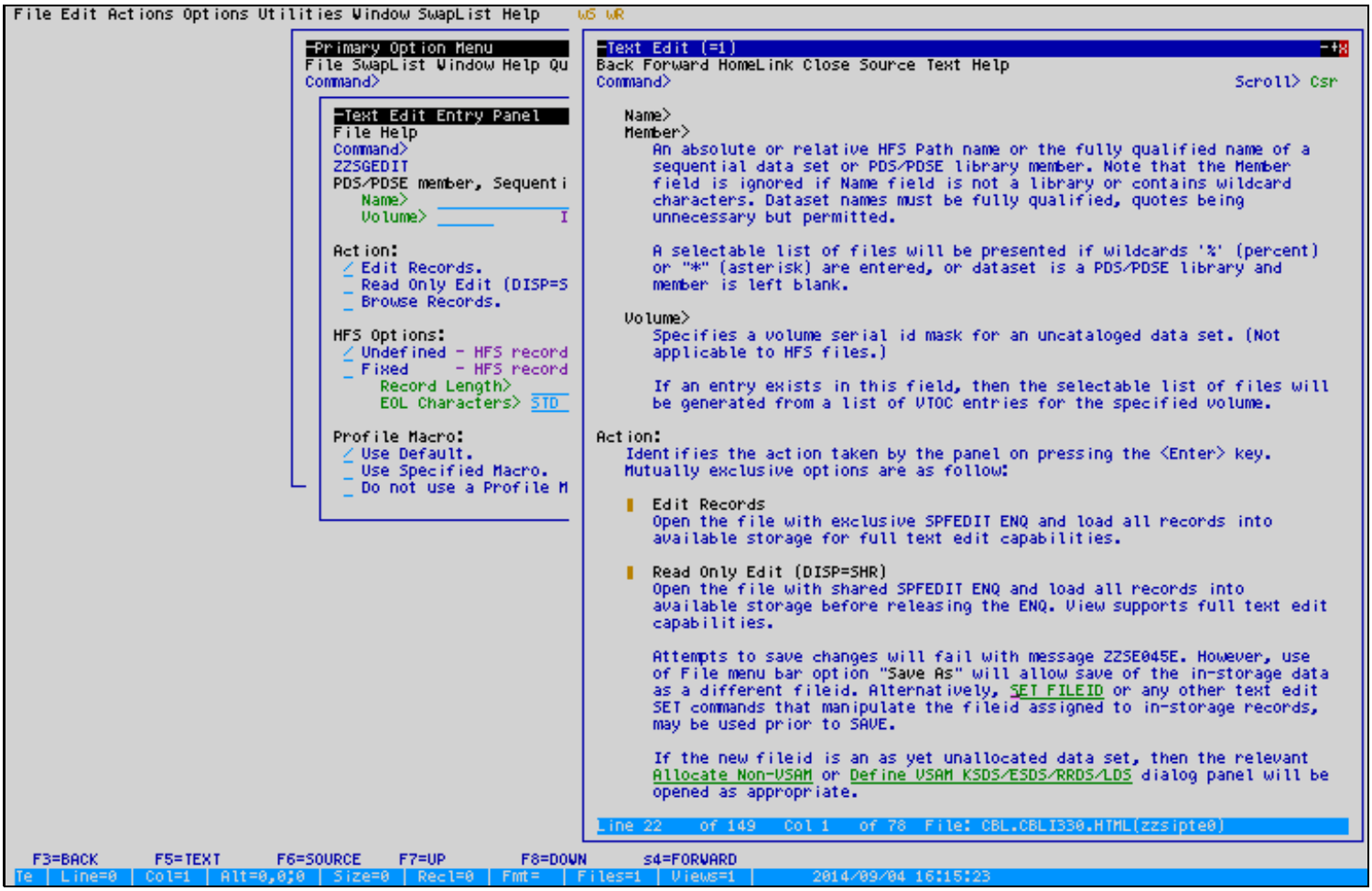


Figure 4. FileKit - Help Window.

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.

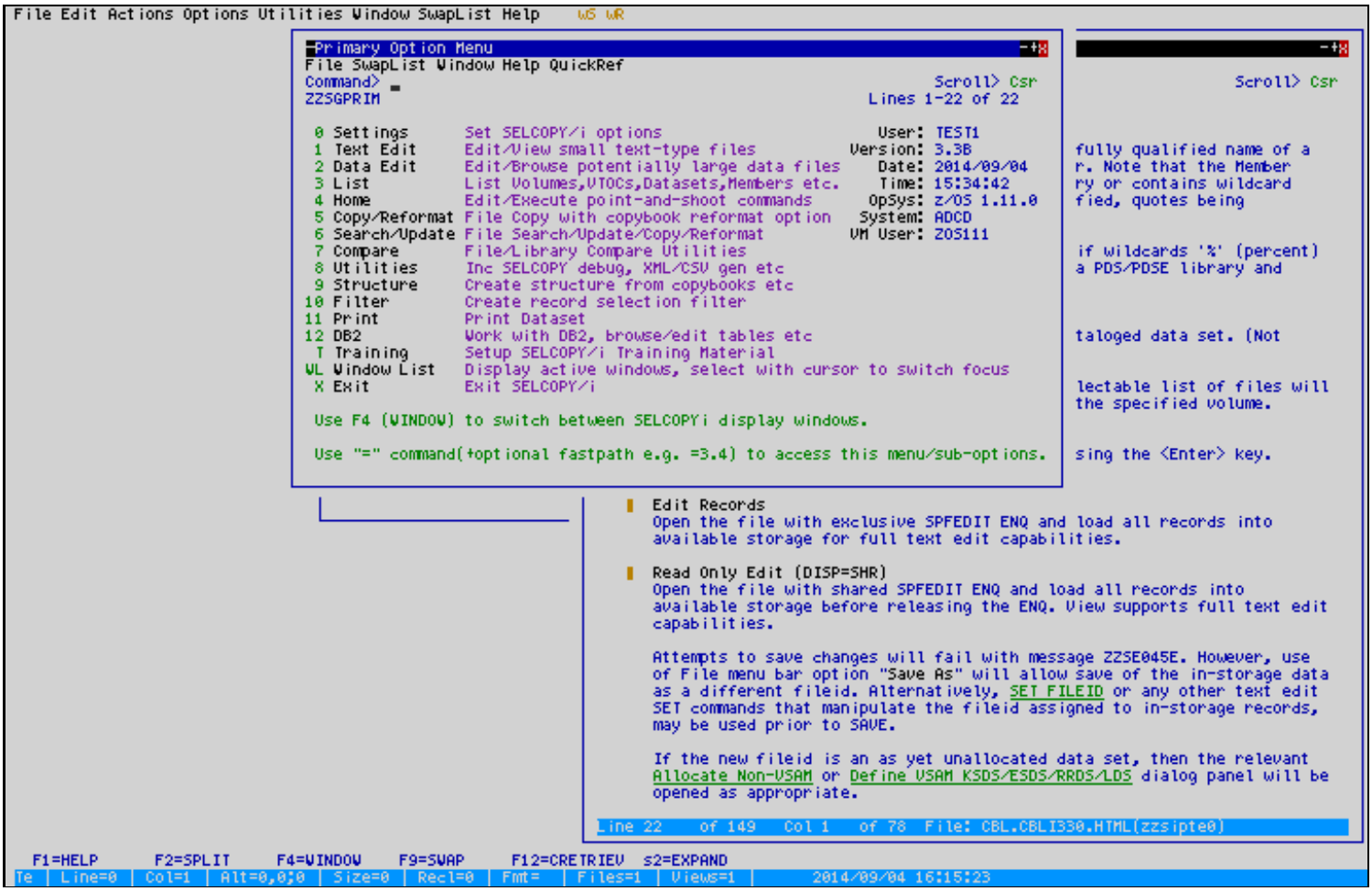
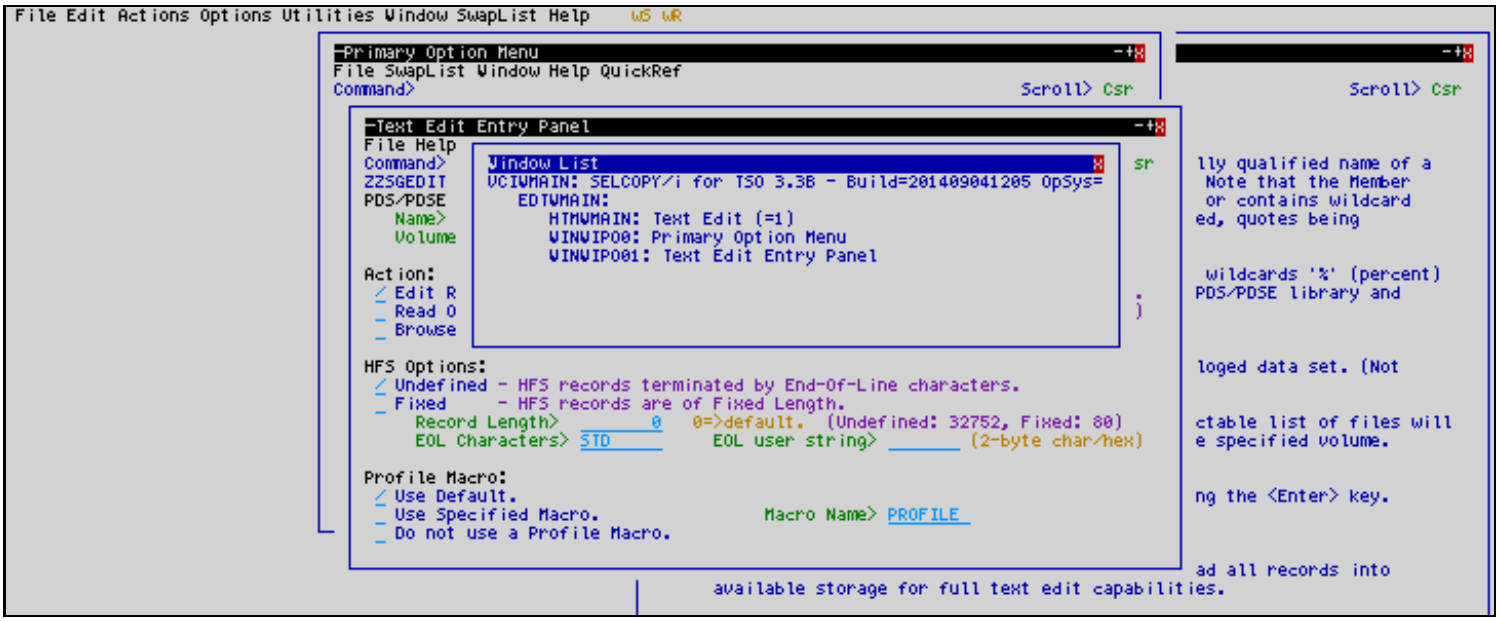


Figure 5. FileKit - Focus Window.

WindowList (WL) Command

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**.



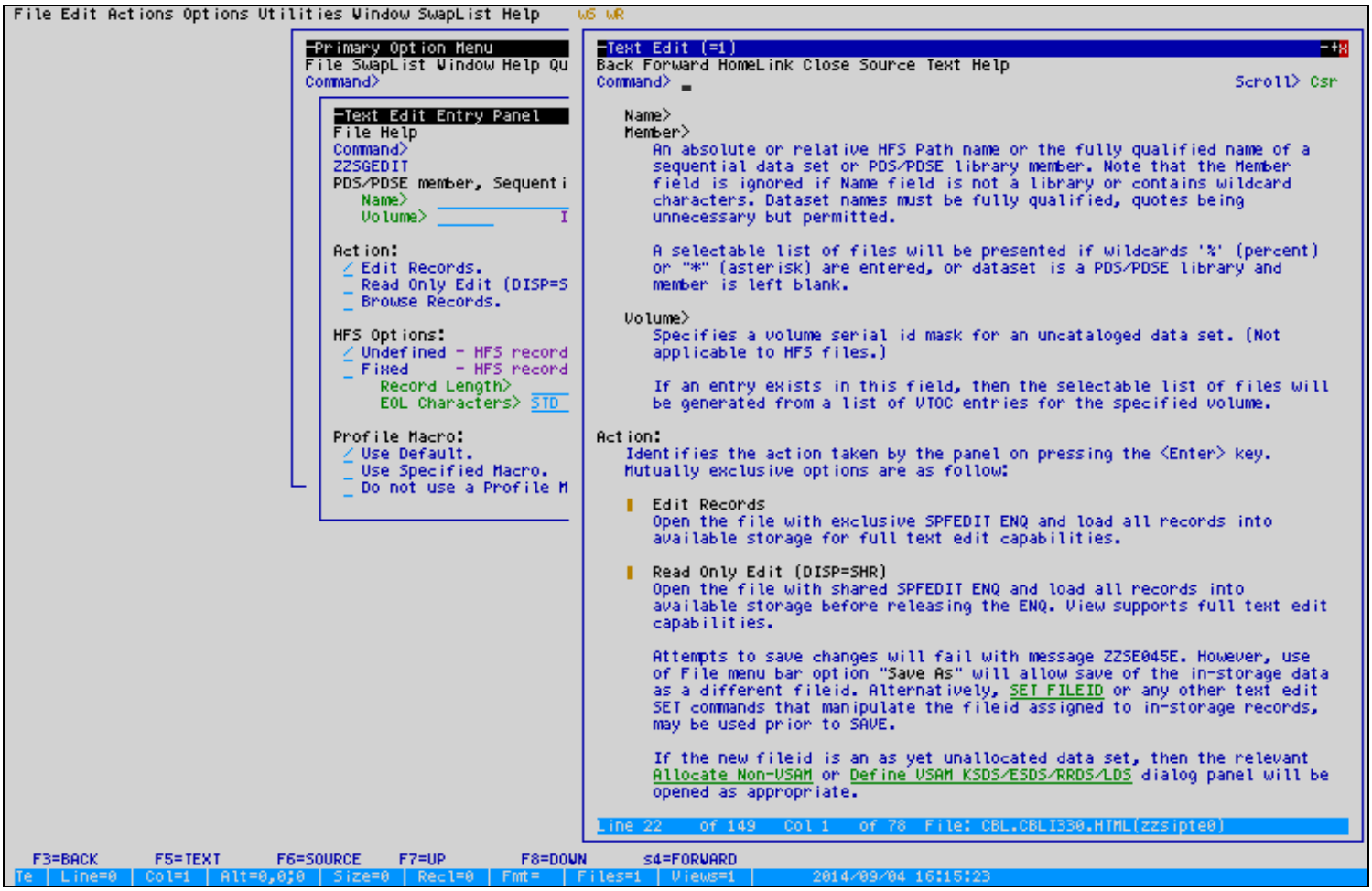


Figure 6. FileKit - Focus Window.

Moving Windows

- Press **F3** to close the HELP window.
- At the **"Text Edit Entry Panel"**, enter the name of a sample file:
  - Type **userpfx.SELCTRN.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.

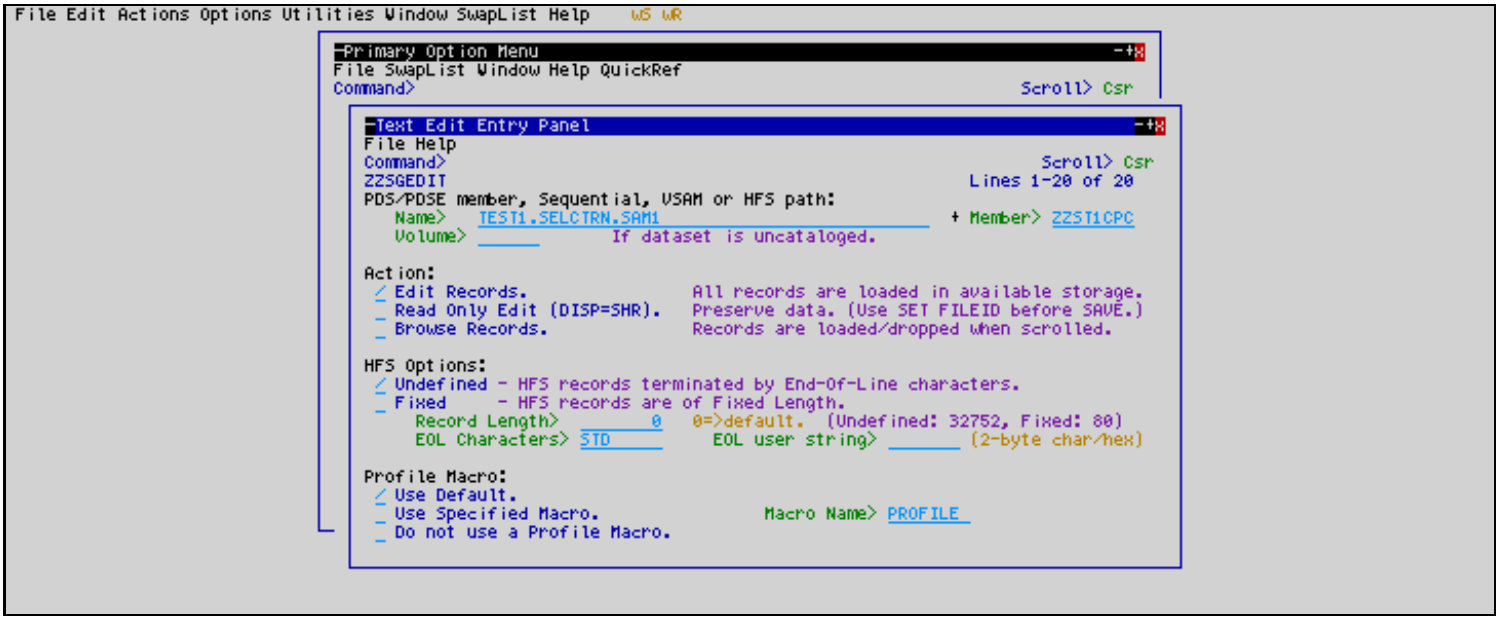


Figure 7. FileKit - Focus Window.

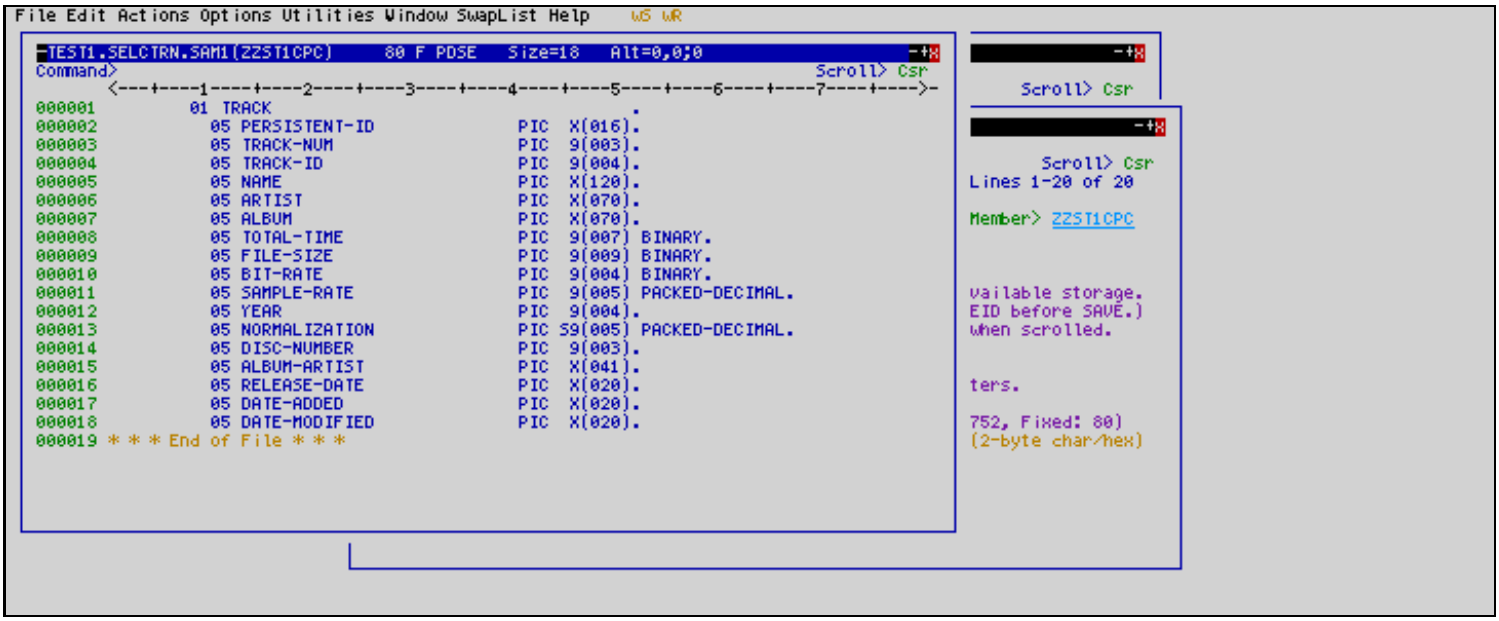


Figure 8. FileKit - Focus Window.

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 will have a an indentifying title e.g. "Primary Option Menu".
- The window title-bar and borders will be hilighted in reverse-video.
- This indicates that the window is in move/resize pending state.
- Move the cursor elsewhere on the FileKit "Desktop", then (and only then!) press **ENTER** again.
- The window will be moved to your desired location.

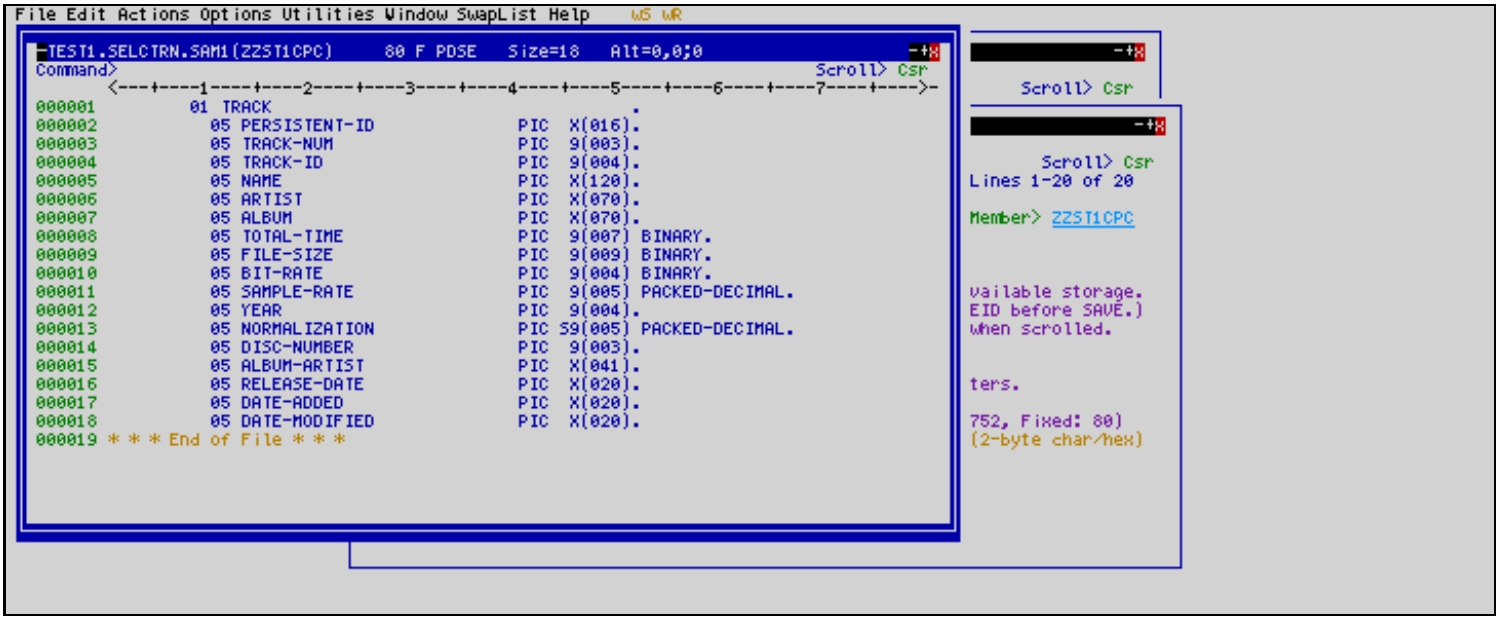


Figure 9. FileKit - Focus Window.

Dragging Windows

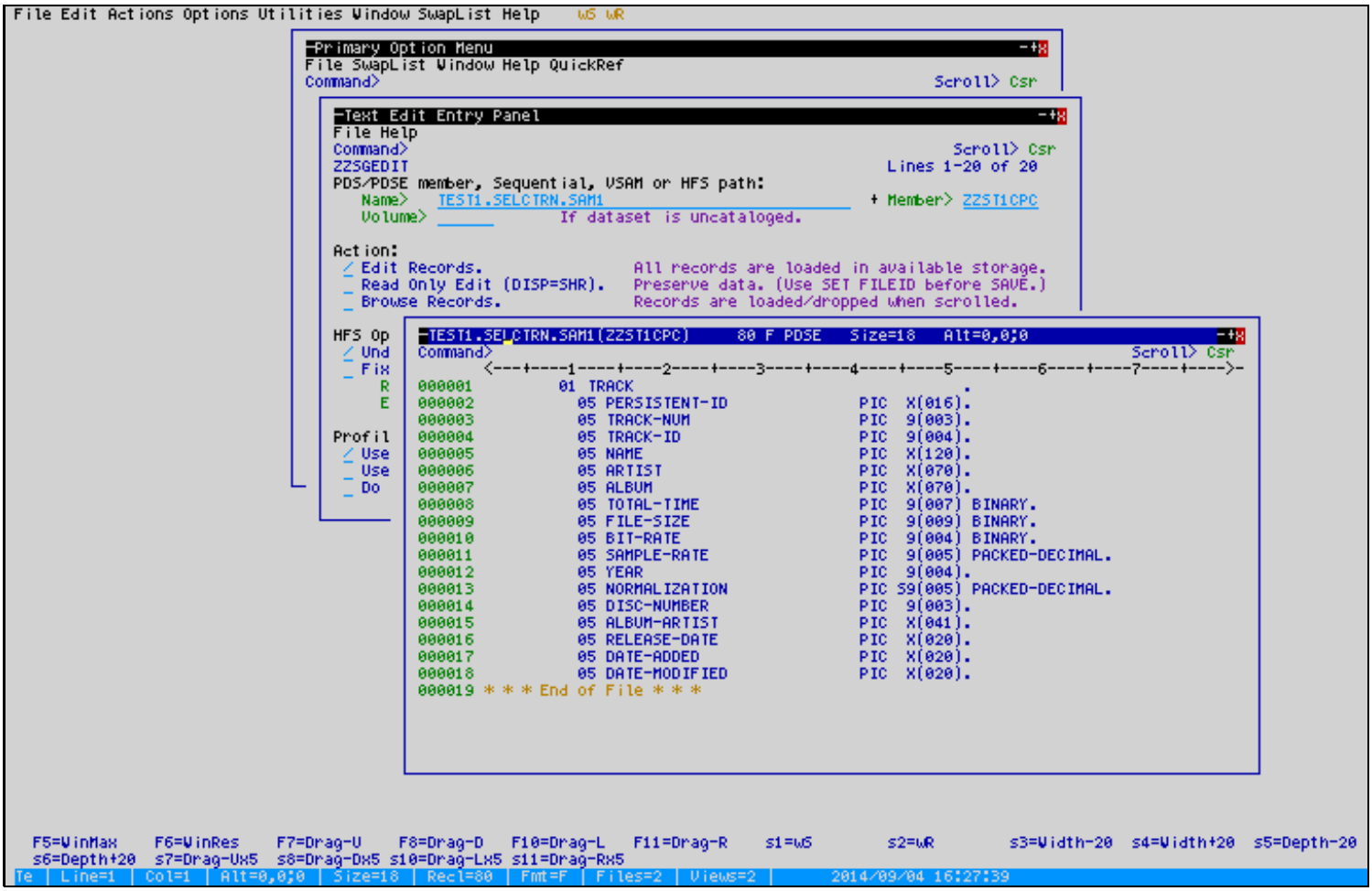


Figure 10. FileKit - Focus Window.

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

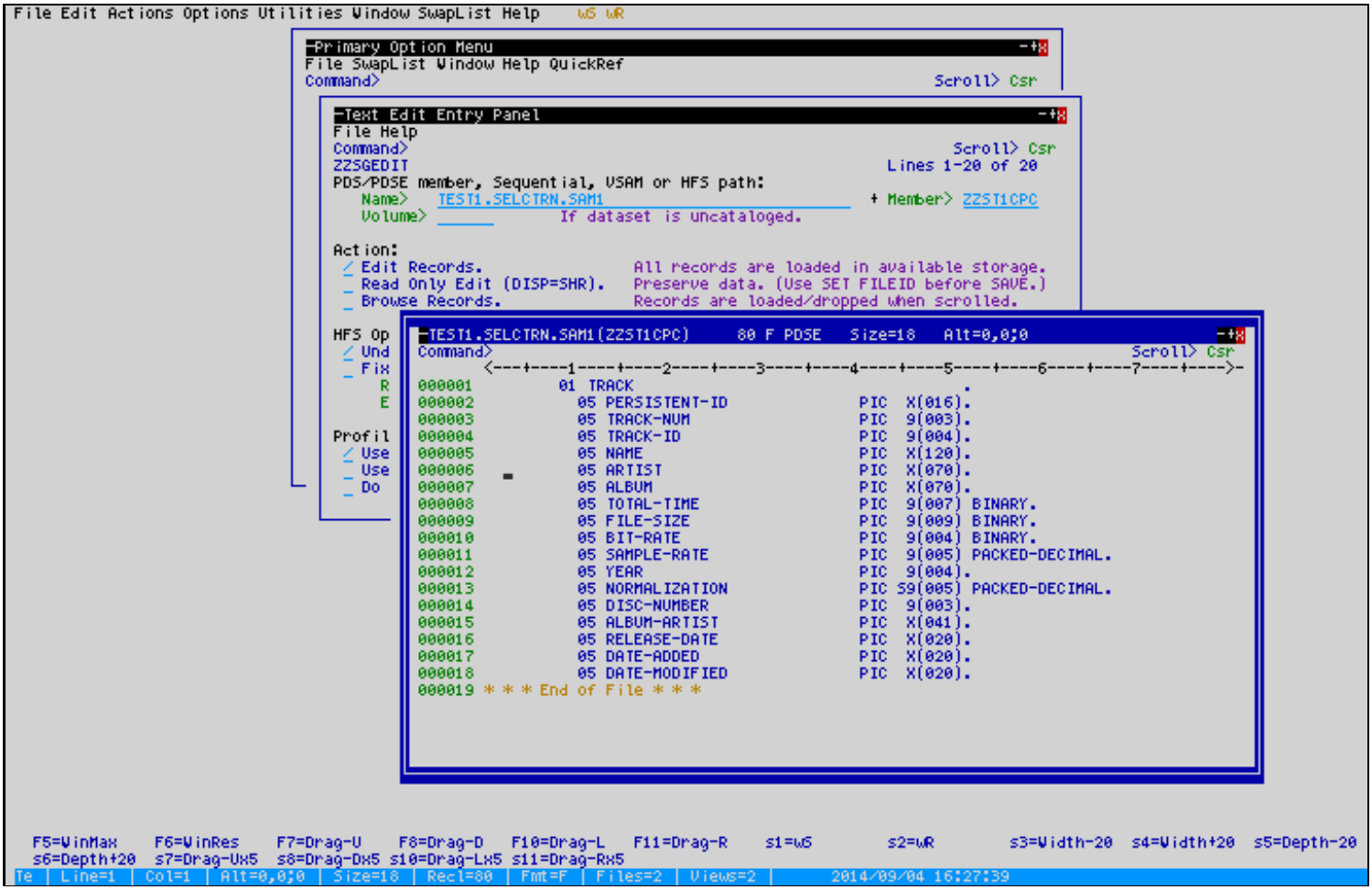


Figure 11. FileKit - Focus Window.

Resizing Windows (2)

- 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**.

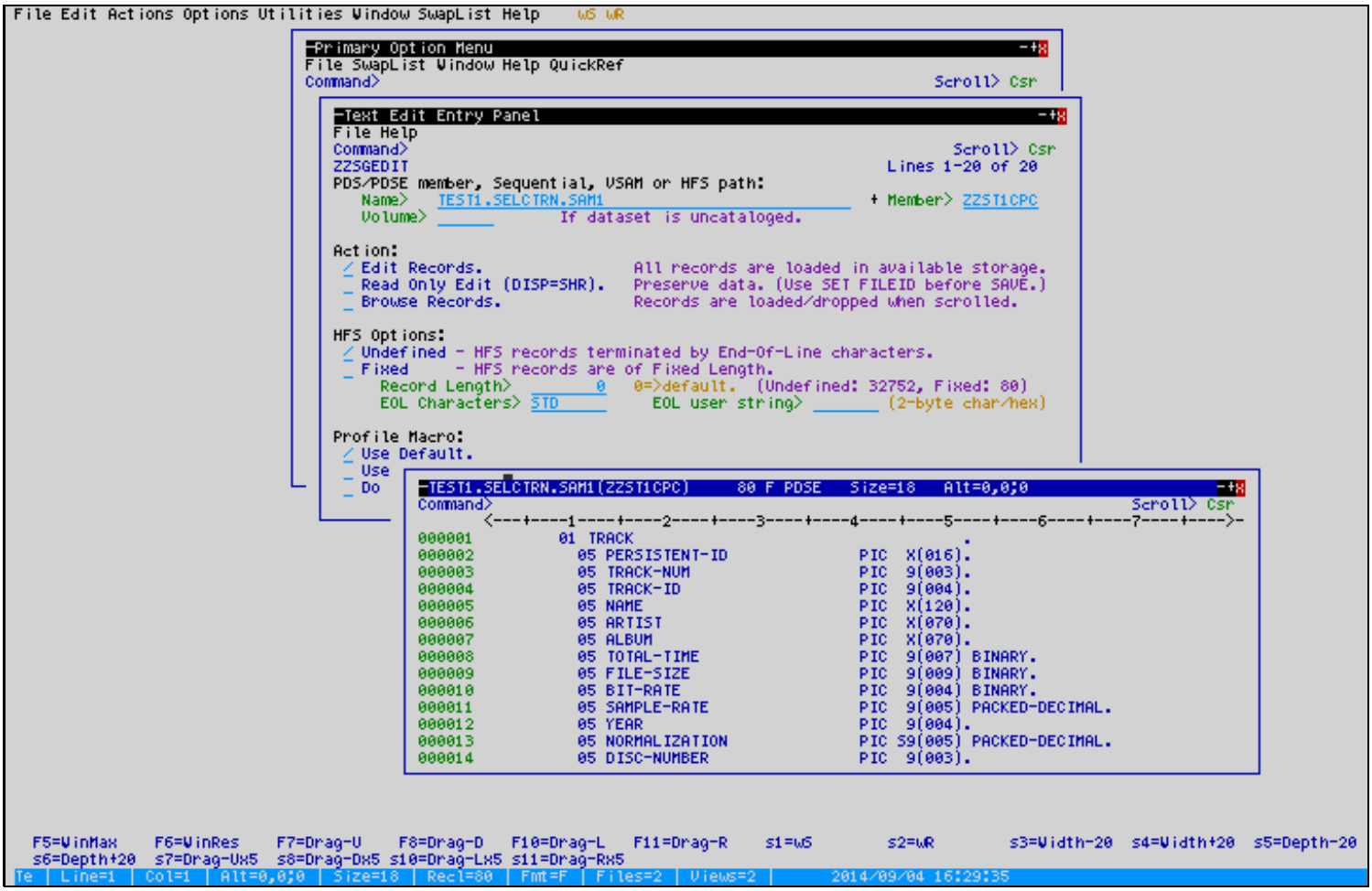


Figure 12. FileKit - Focus Window.

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.

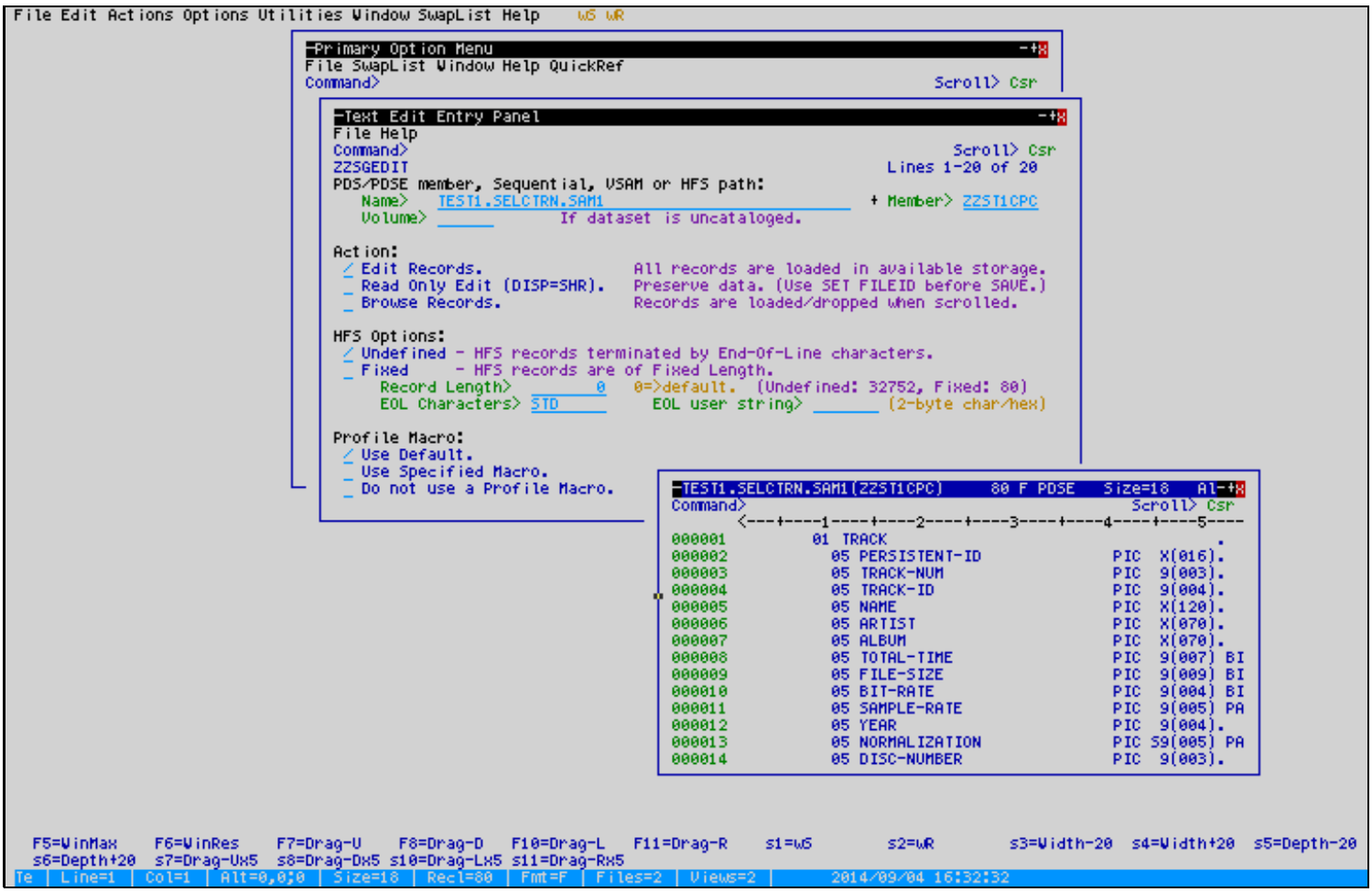


Figure 13. FileKit - Focus Window.

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.

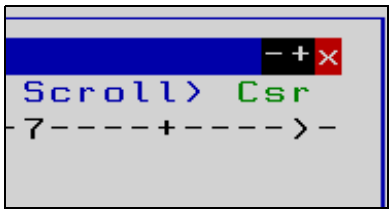


Figure 14. FileKit - Min/Max/Close Buttons.

FileKit 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.

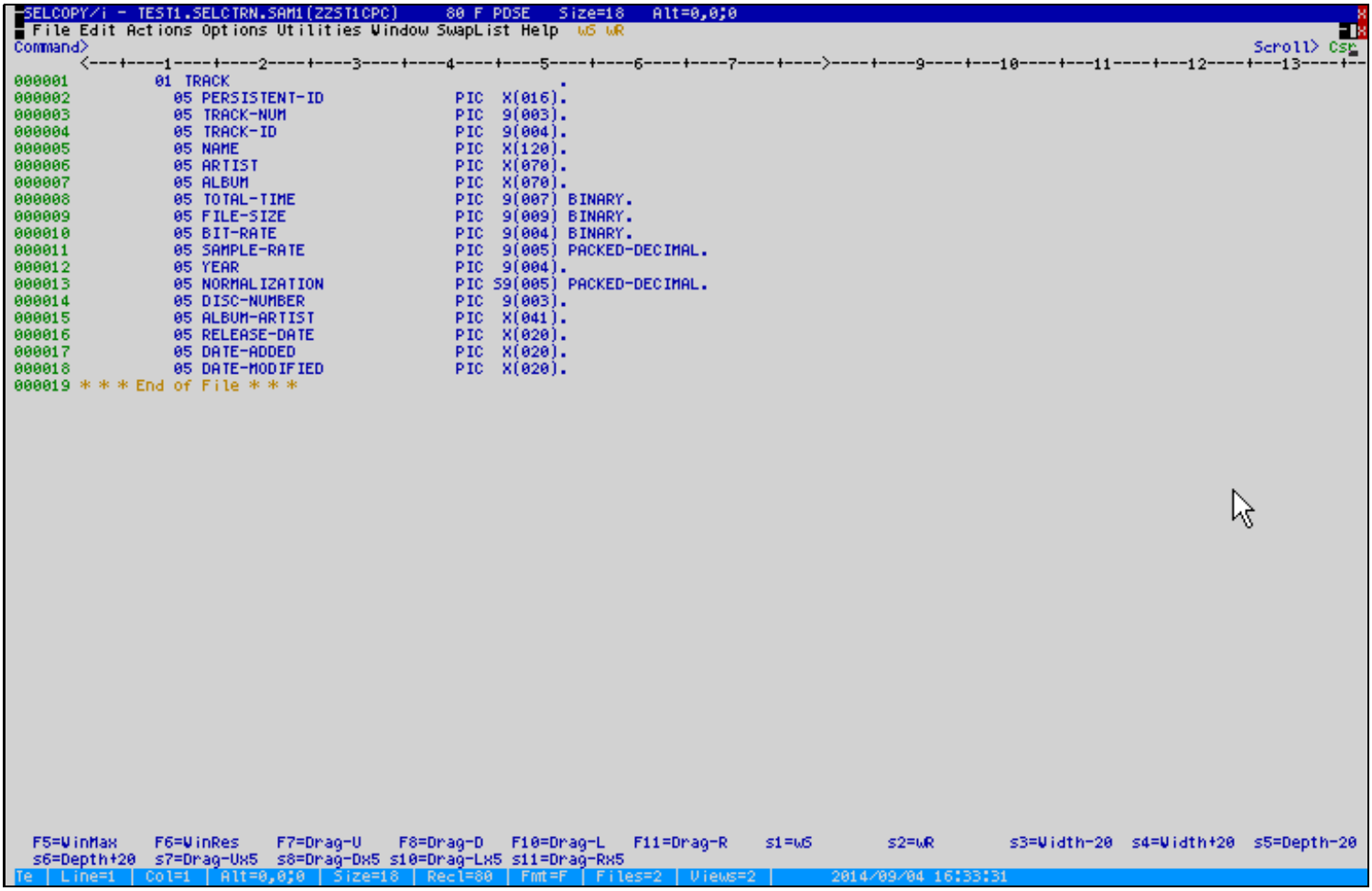


Figure 15. FileKit - Focus Window.

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 FileKit application.

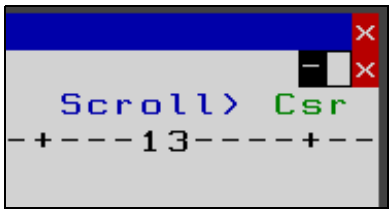


Figure 16. FileKit - Min/Max/Close Buttons.

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

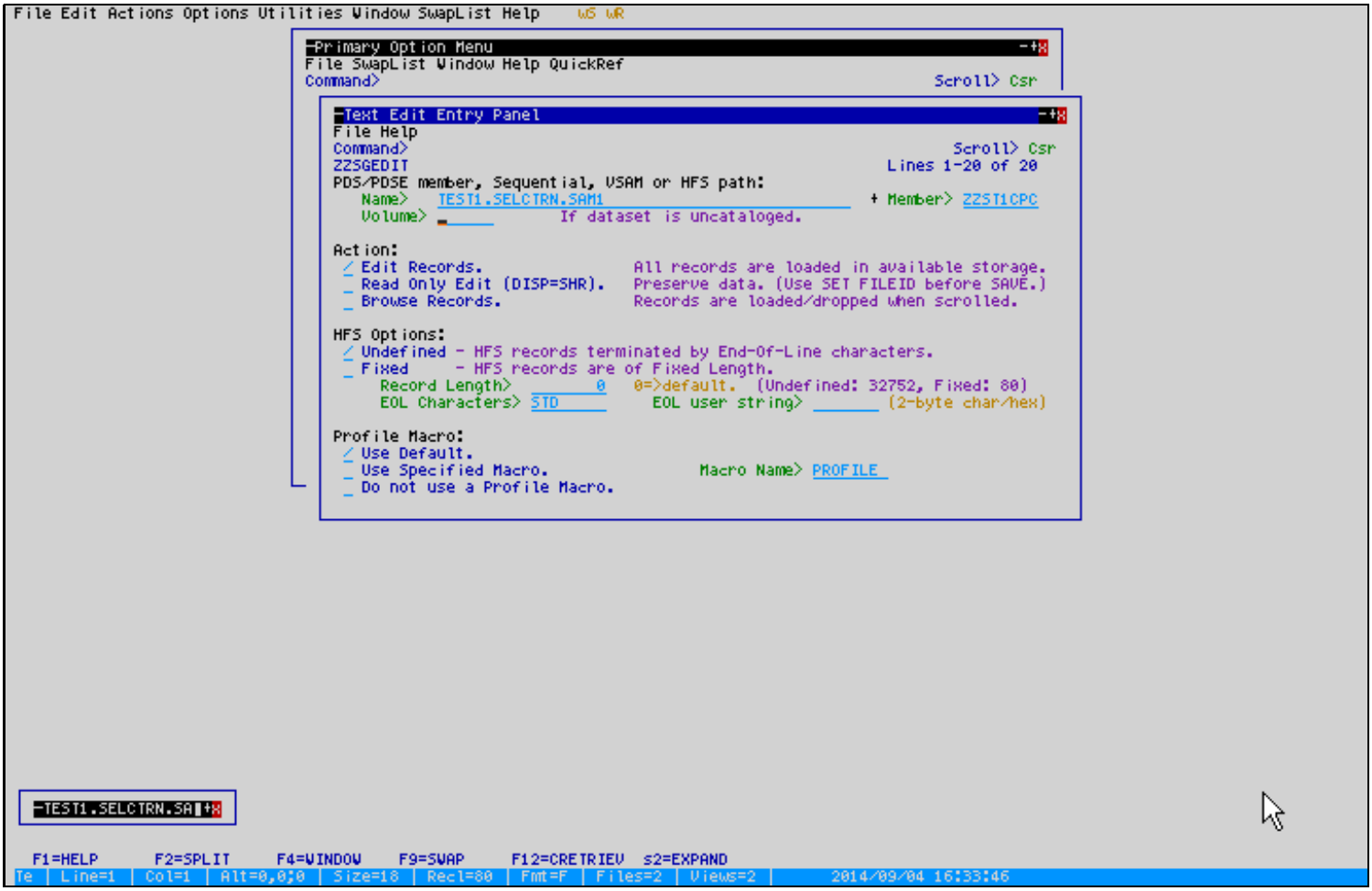


Figure 17. FileKit - Focus Window.

Option 1 - Text Edit

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

The most obvious of these is that it uses the FileKit **"windowed-display"** system providing movable, resizable 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*

Function keys, shortcuts and convenience features

Running on z/OS systems, the FileKit 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.SELCTRN.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.

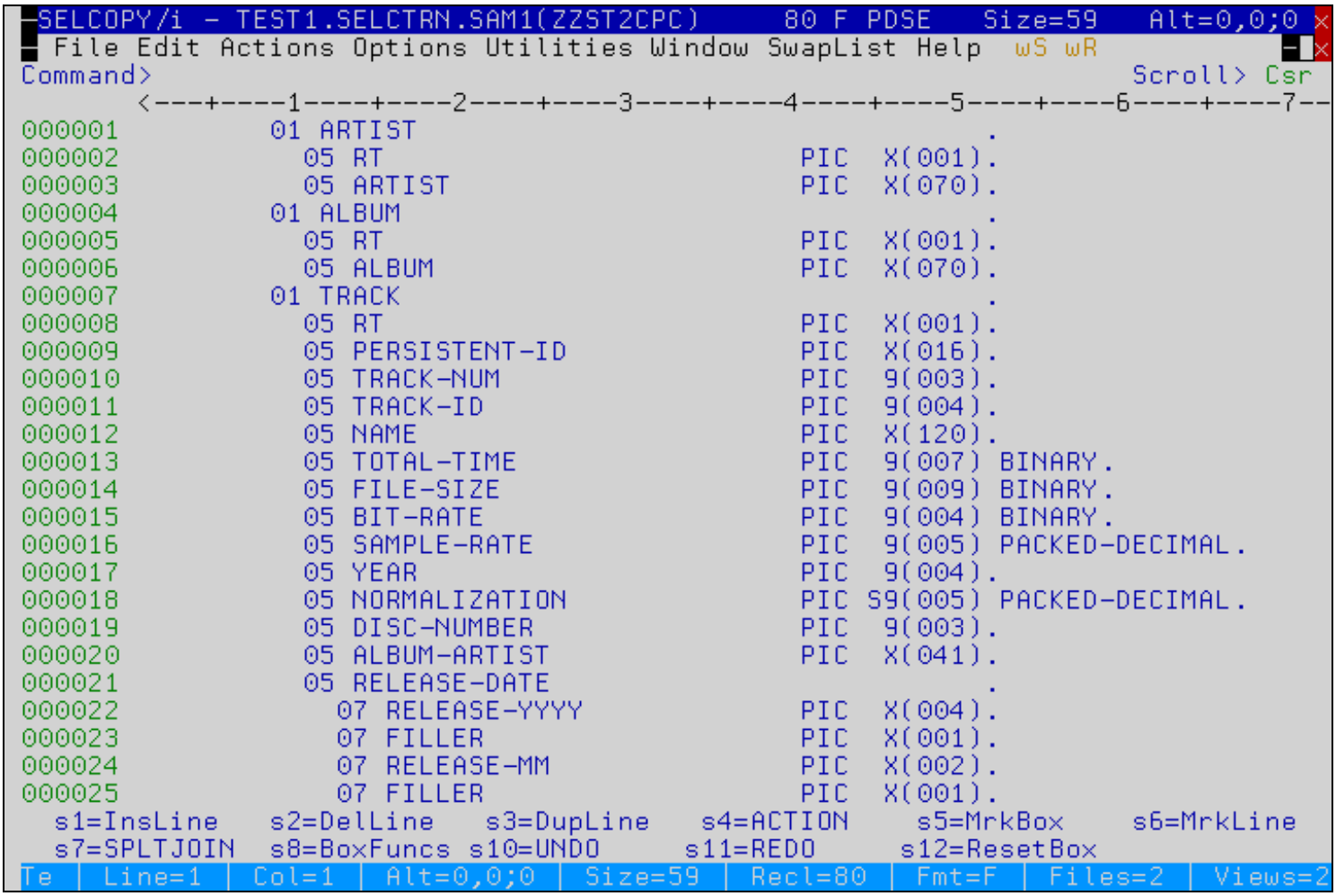


Figure 18. FileKit - POM Window.

Inserting, Deleting, Replicating, Splitting and Joining lines

- By defult, 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 FileKit Text Editor simply inserts a single line.
- Type **"Inn"** (where nn is a number) in the normal was to insert multiple lines at once.
- While you may, of course, use any of the standard line-commands if you prefer, FileKit 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.

Function Key Options

- 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, ysers 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 FileKit utilities have their own indepenent 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

- FileKit 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 excludied 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.

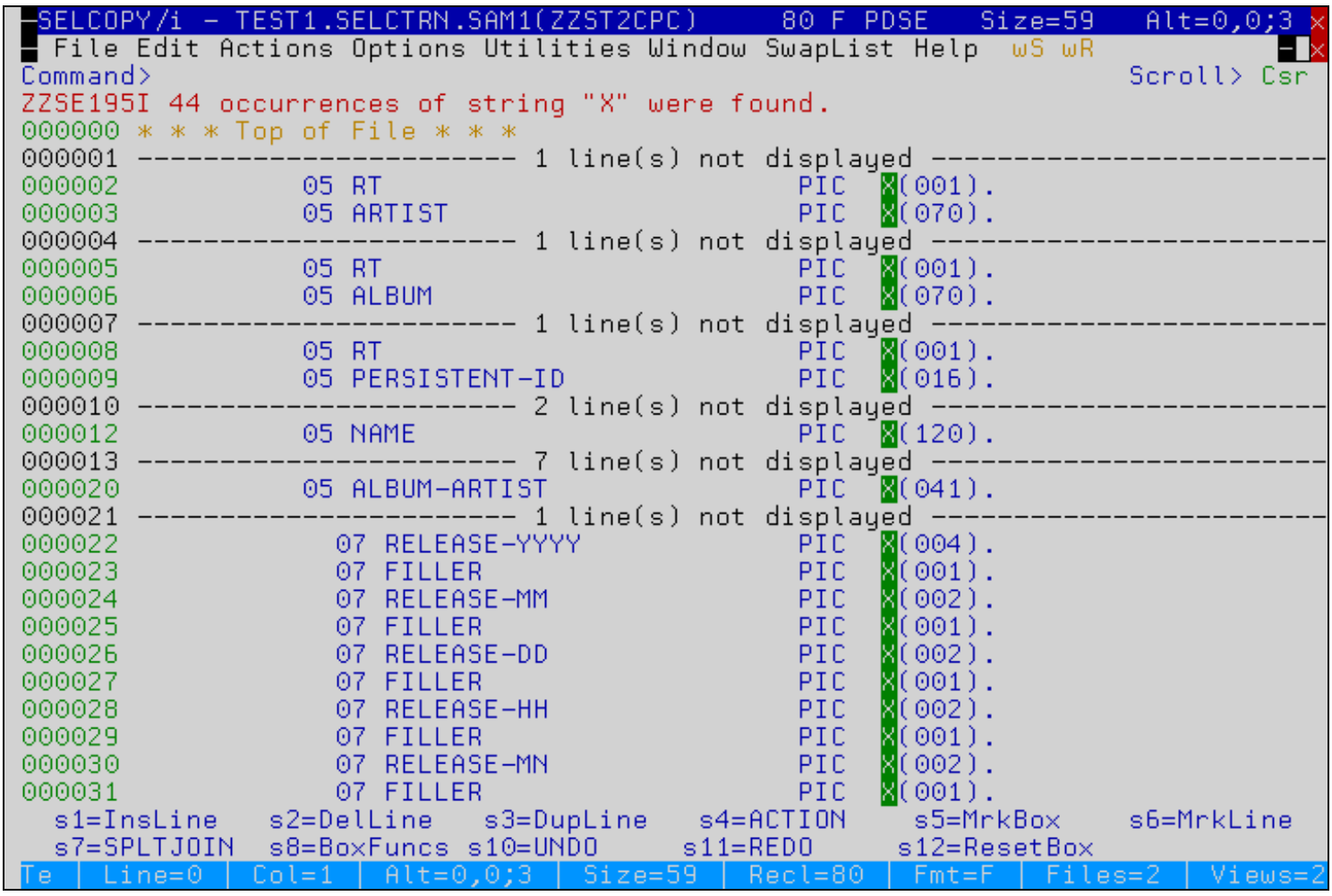


Figure 19. FileKit - Text Edit Panel Window.

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 FileKit 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.

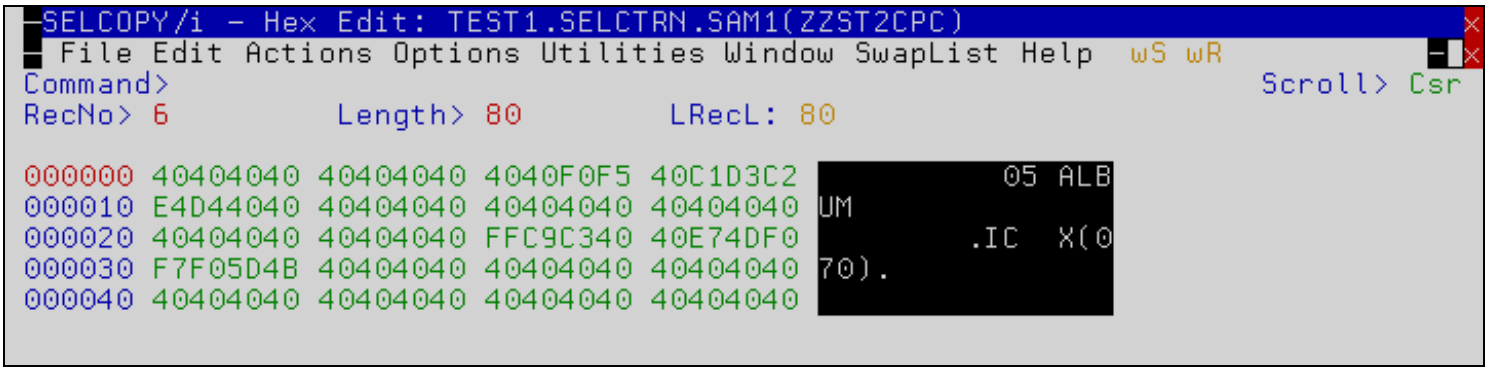


Figure 20. FileKit - Help Window.

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.

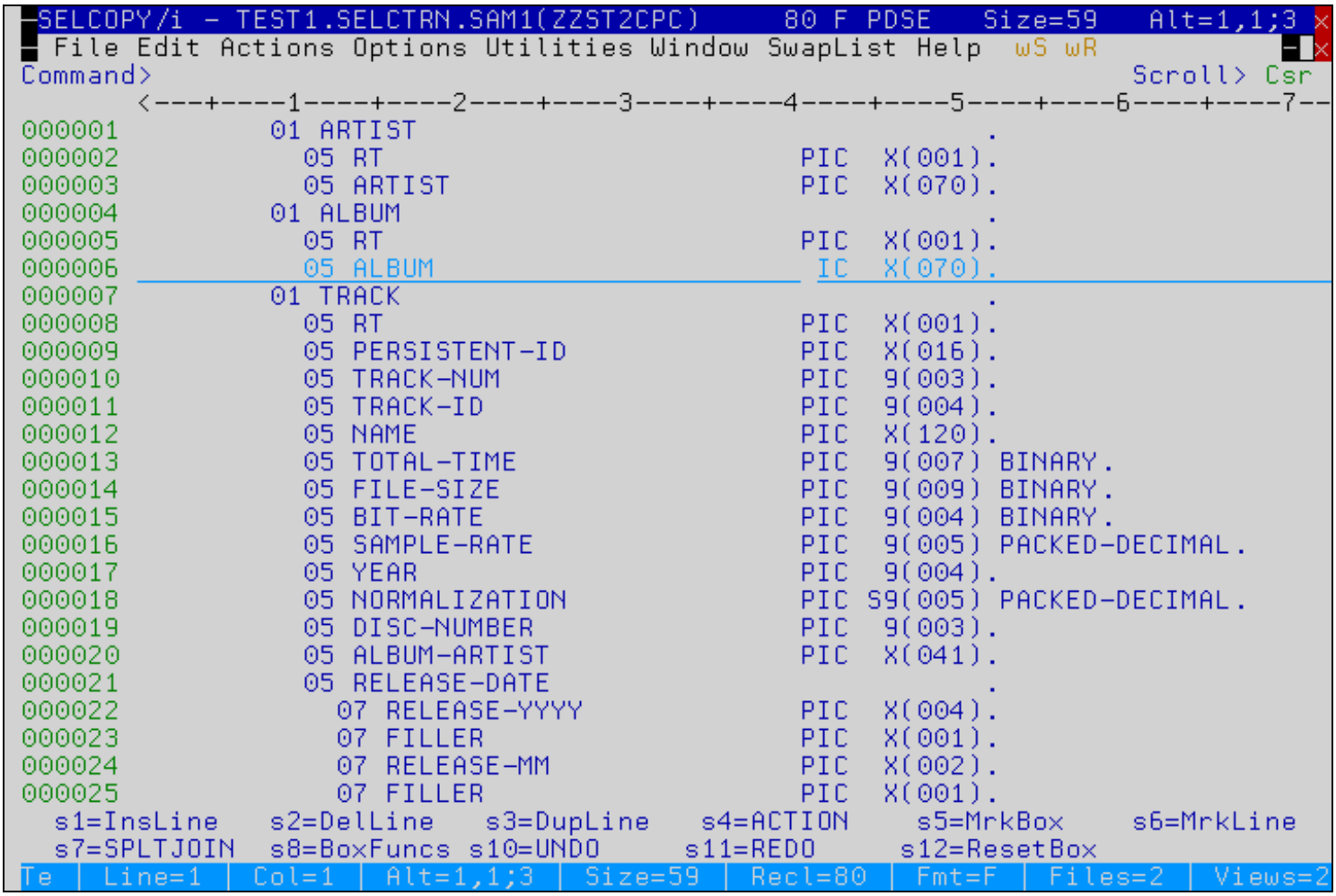


Figure 21. FileKit - Focus Window.

UNDO/REDO

FileKit 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 FileKit 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 FileKit Text-Editor supports multiple views of any edited dataset.

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

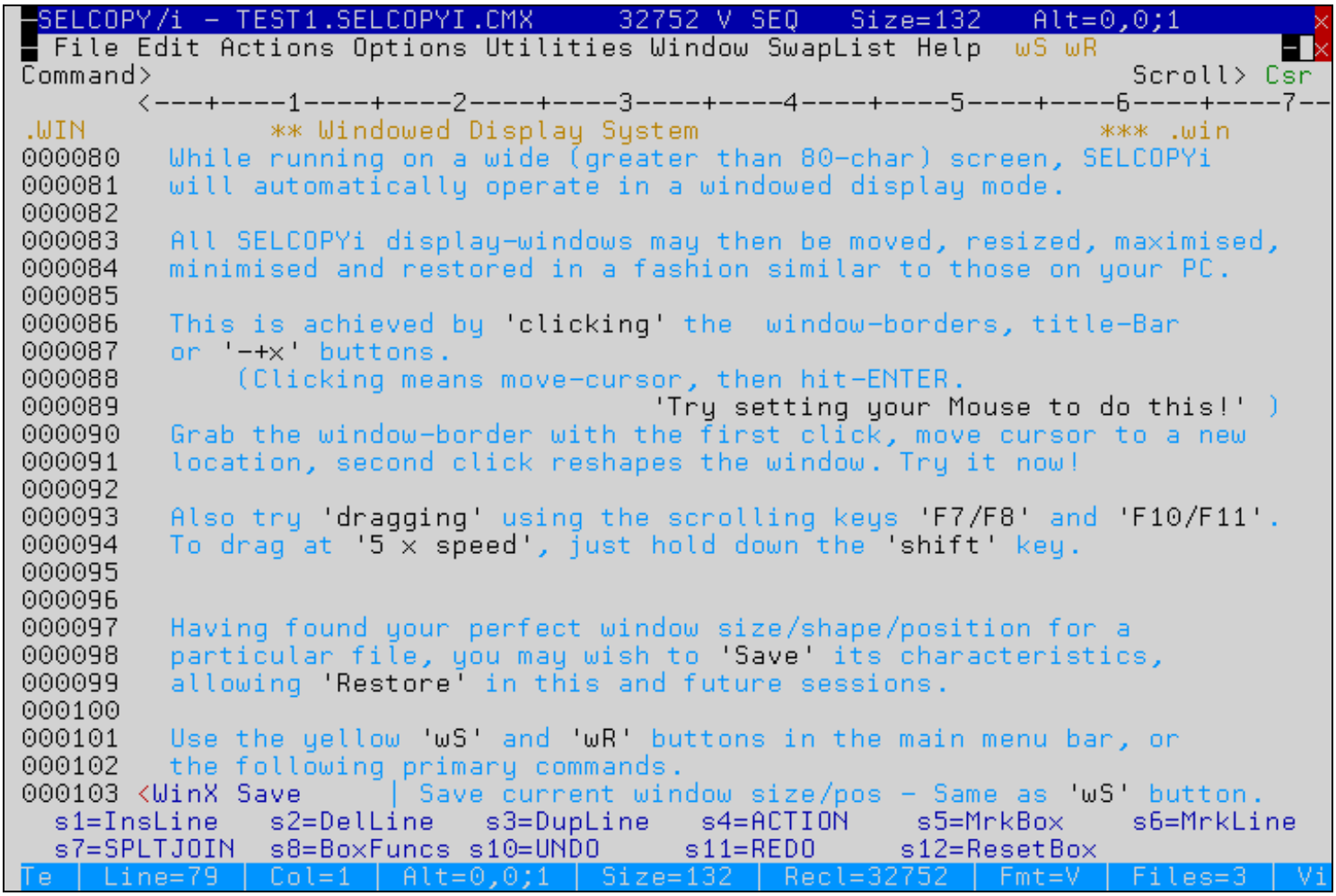
- Type the primary command **"="** to display (or return focus to) the FileKit **Primary Options Menu**.

  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.

  Alternativeley 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 FileKit 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.

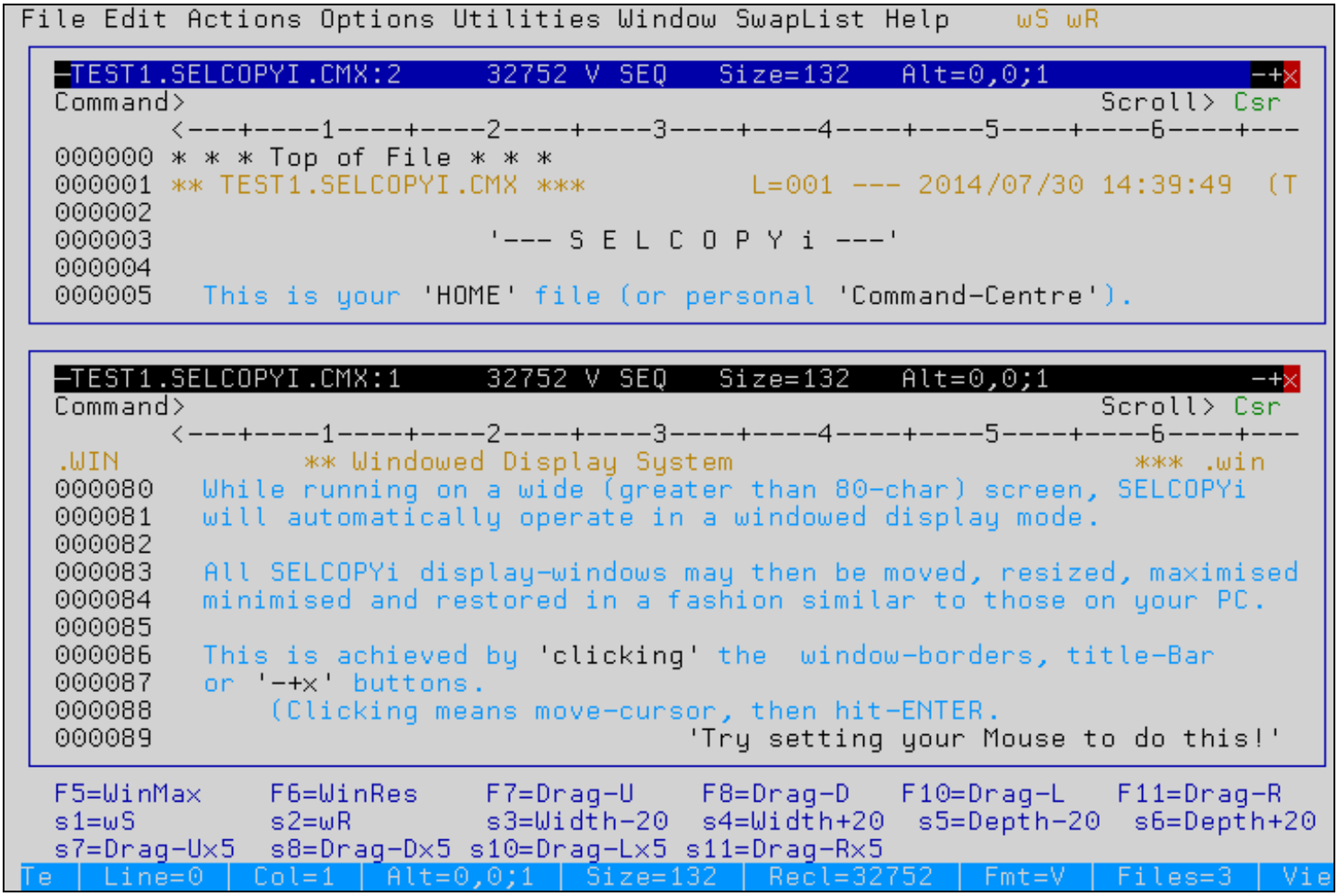


Figure 22. FileKit - Focus Window.

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.

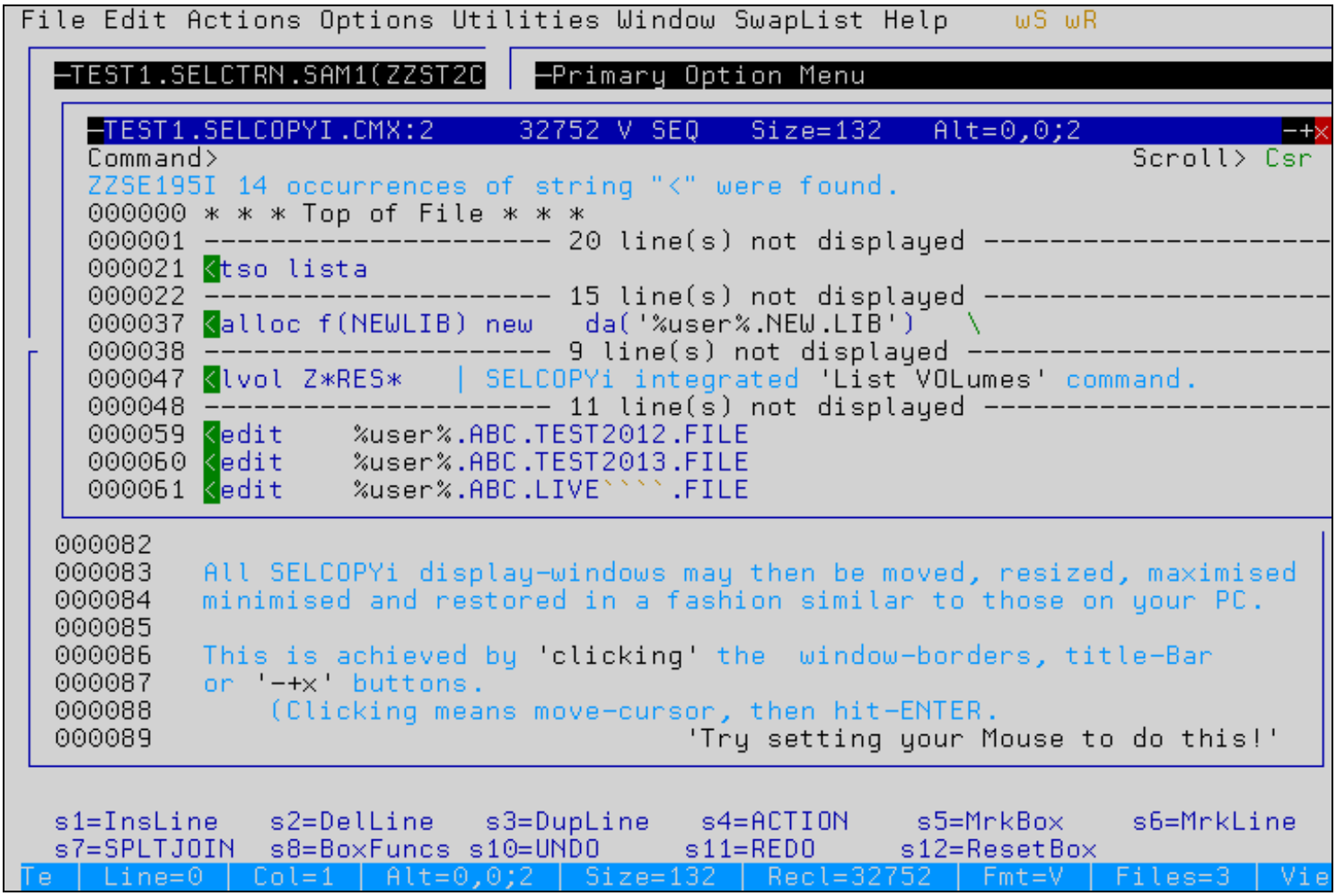


Figure 23. FileKit - Focus Window.

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 **UNDOne/REDOone** in any other view of the same file.

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, **FileKit** 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 FileKit's **clipboard**.
- Moved or copied to another location within the same or any other edited file.
- **Overlayed** on top of data at another location within the same or any other edited file.
- **Filled** with a single propogated 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.**

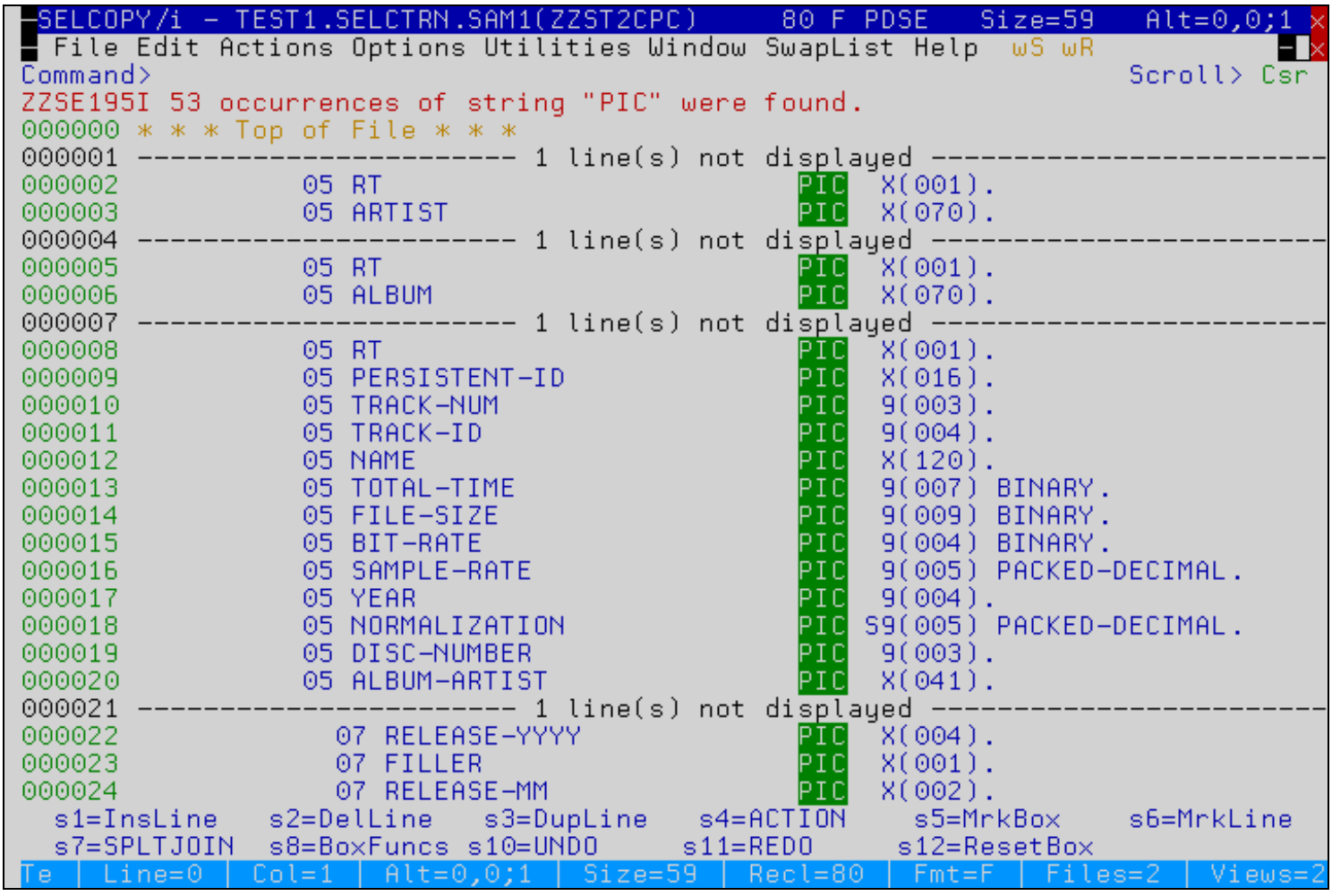


Figure 24. FileKit - Focus Window.

Copying a Line-Block (1)

- 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.

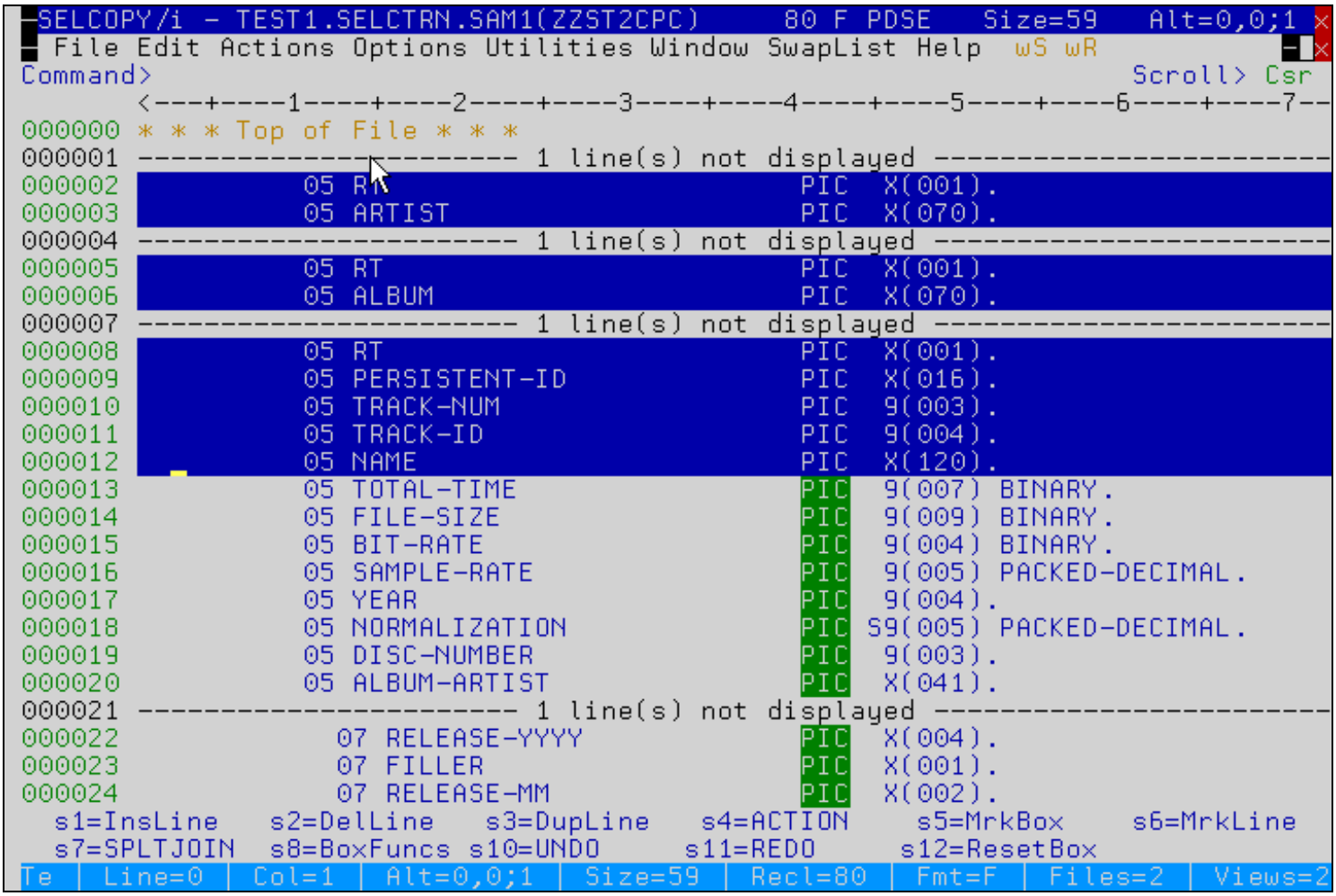


Figure 25. FileKit - Focus Window.

Copying a Line-Block (2)

- Type **HOME** on the command line and press **ENTER**.
  You should then see your HOME command-centre as shown below.

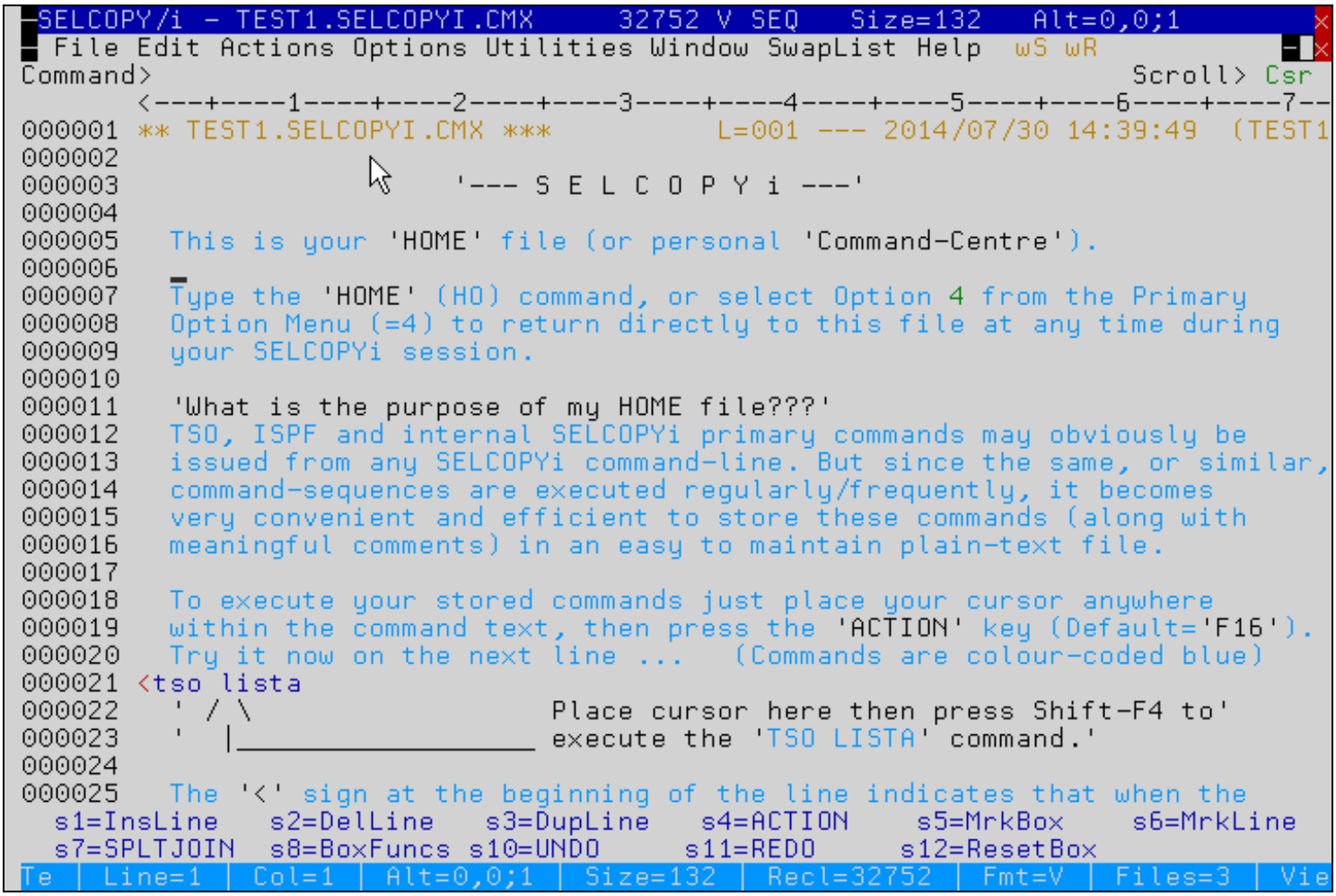


Figure 26. FileKit - Focus Window.

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.

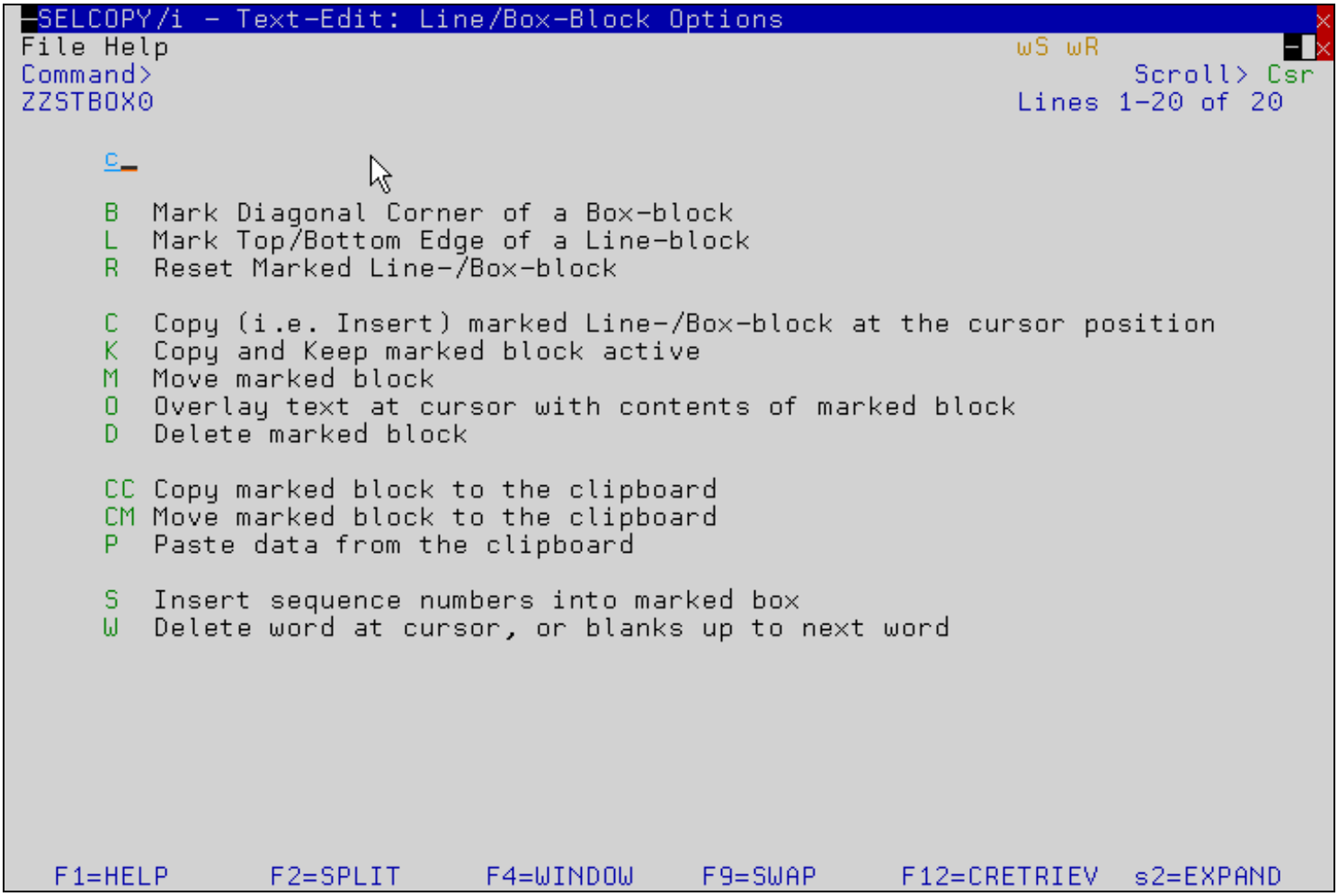


Figure 27. FileKit - Focus Window.

Copying a Line-Block (4)

- 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.

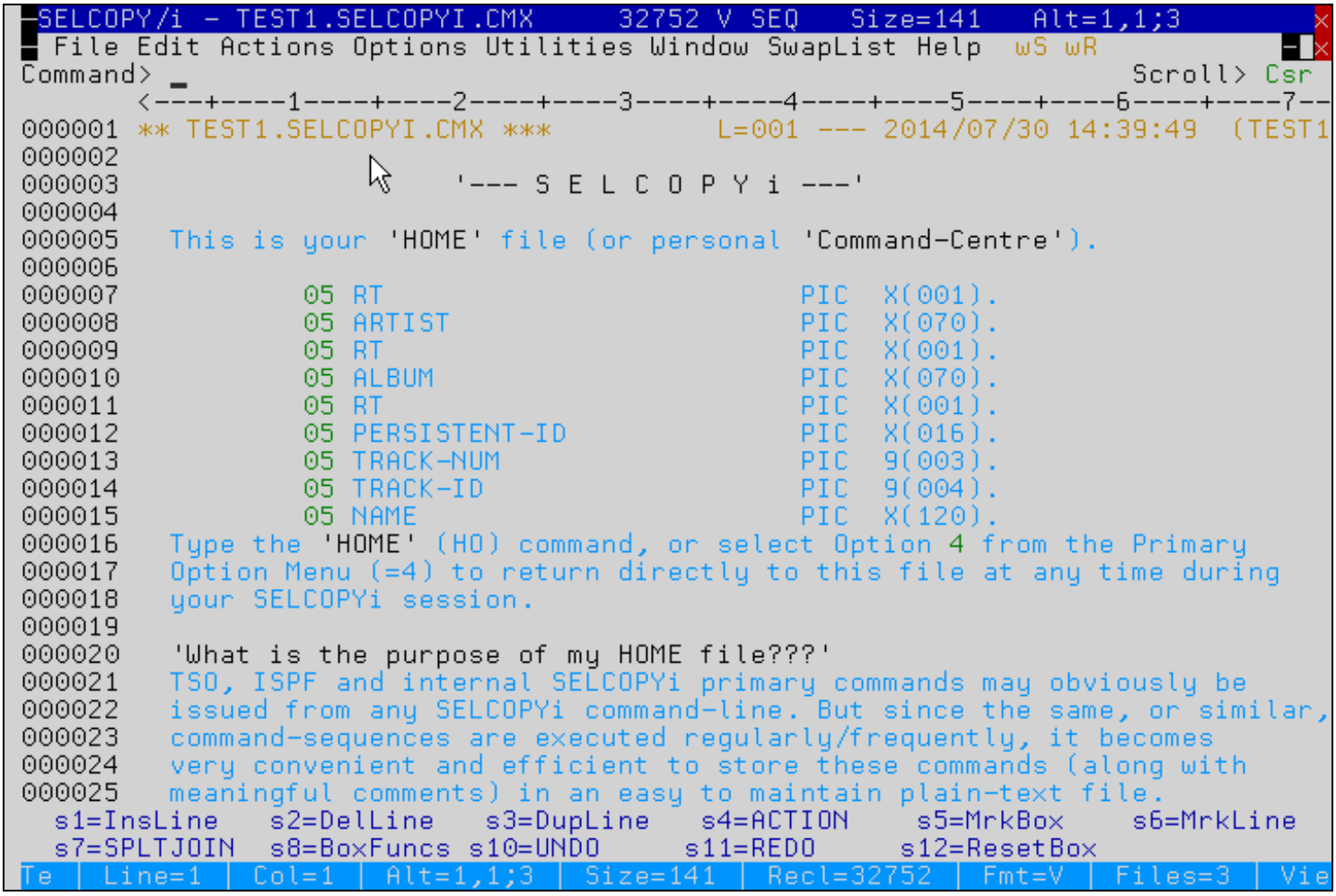


Figure 28. FileKit - Focus Window.

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 hilighted.
- 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 hilighted.

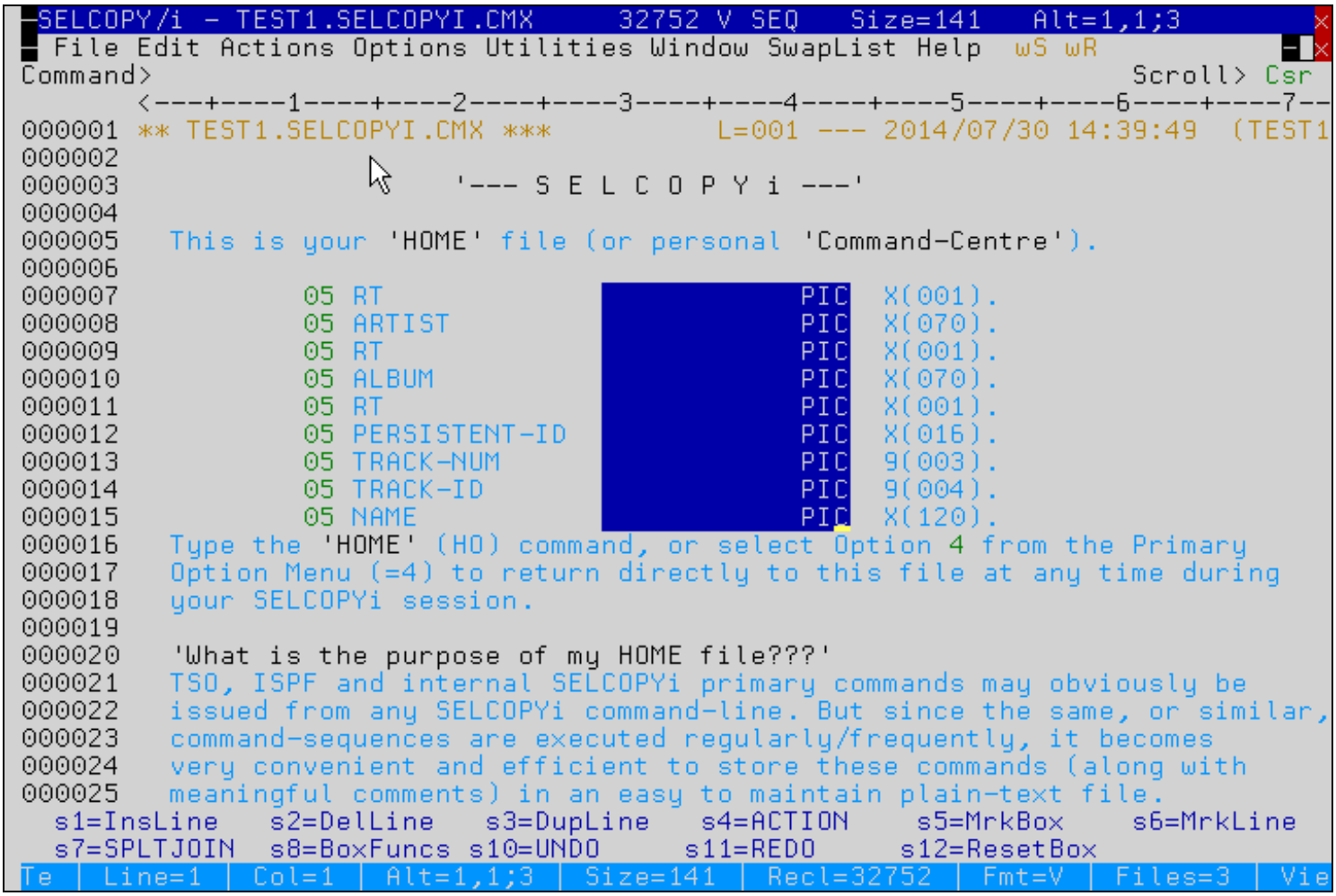


Figure 29. FileKit - Min/Max/Close Buttons.

Deleting a Box-Block (2)

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

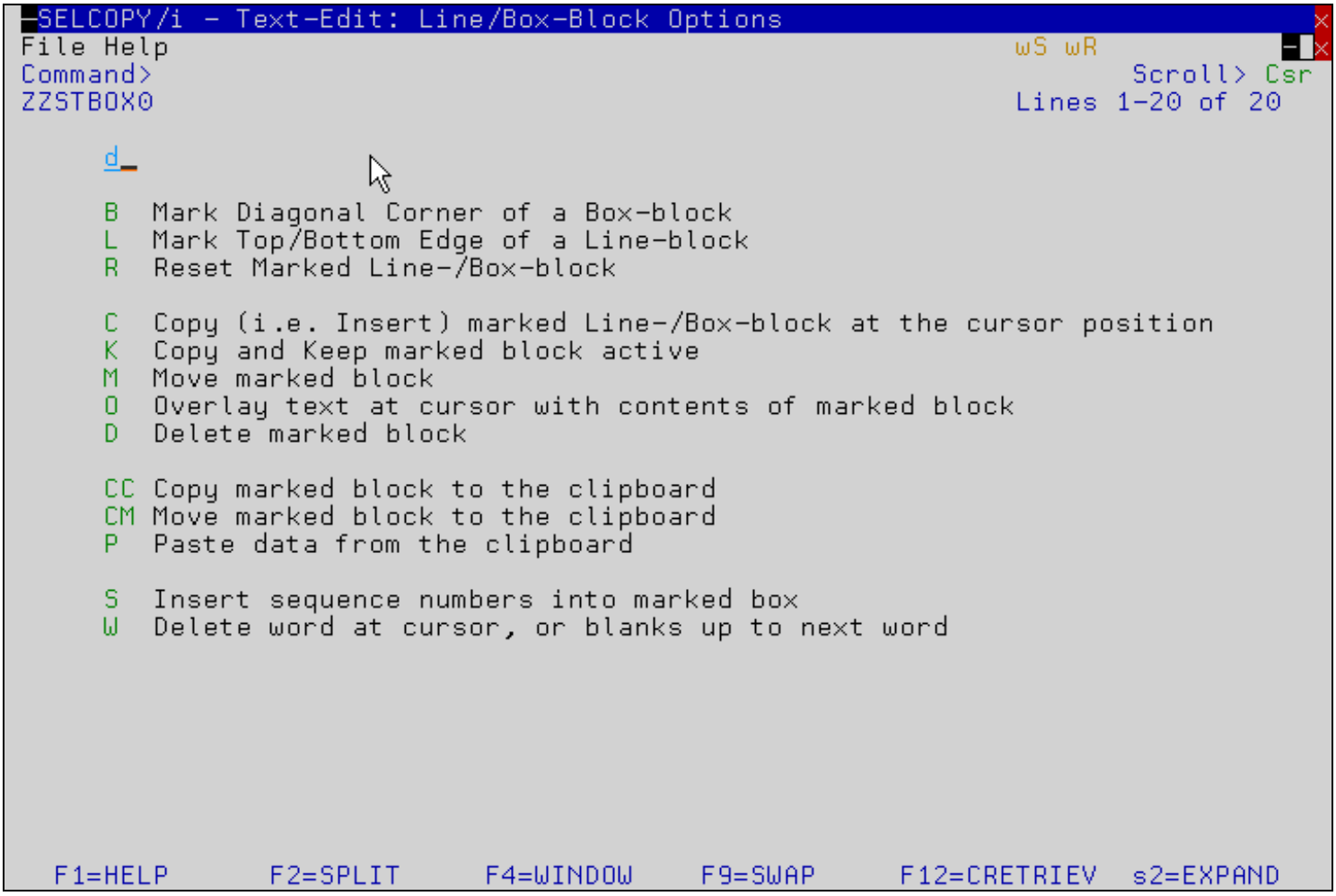


Figure 30. FileKit - Focus Window.

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.

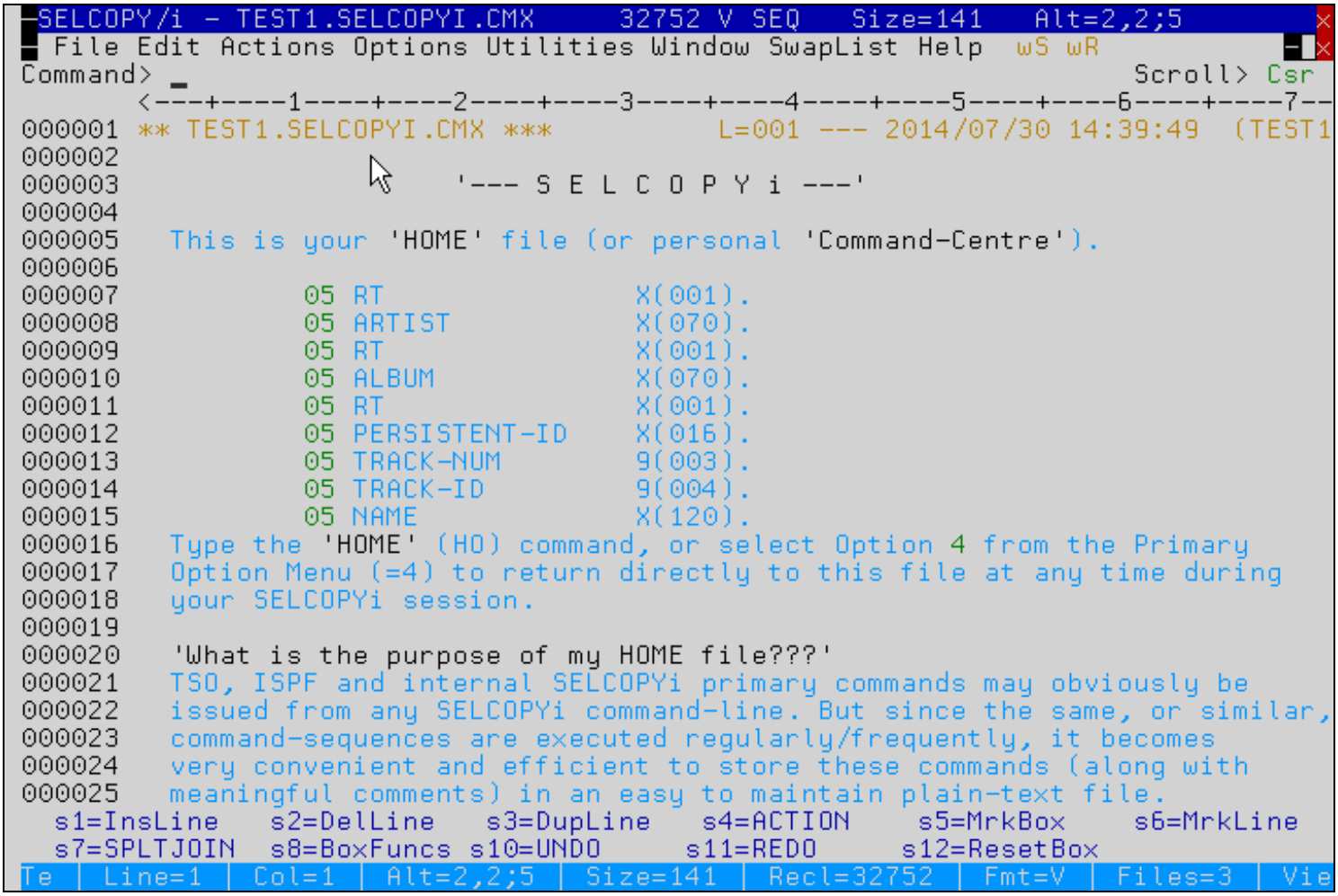


Figure 31. FileKit - Min/Max/Close Buttons.

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 hilighted.
- 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 hilighted.

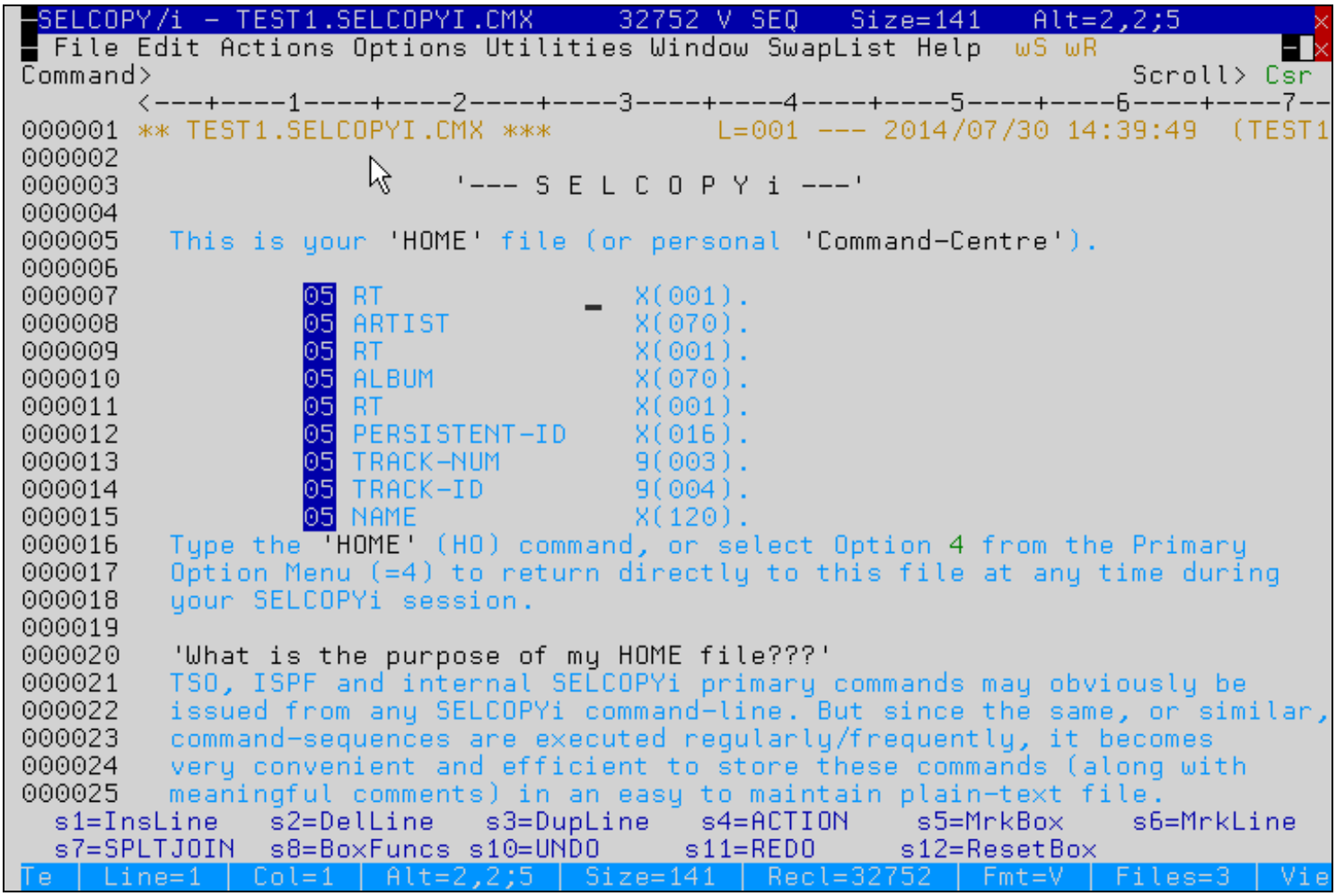


Figure 32. FileKit - Focus Window.

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. FileKit - Focus Window.

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 hilighted.
- Place your at **column 20** of the **first** copied line as shown below.
  We will overlay the marked box onto this location.

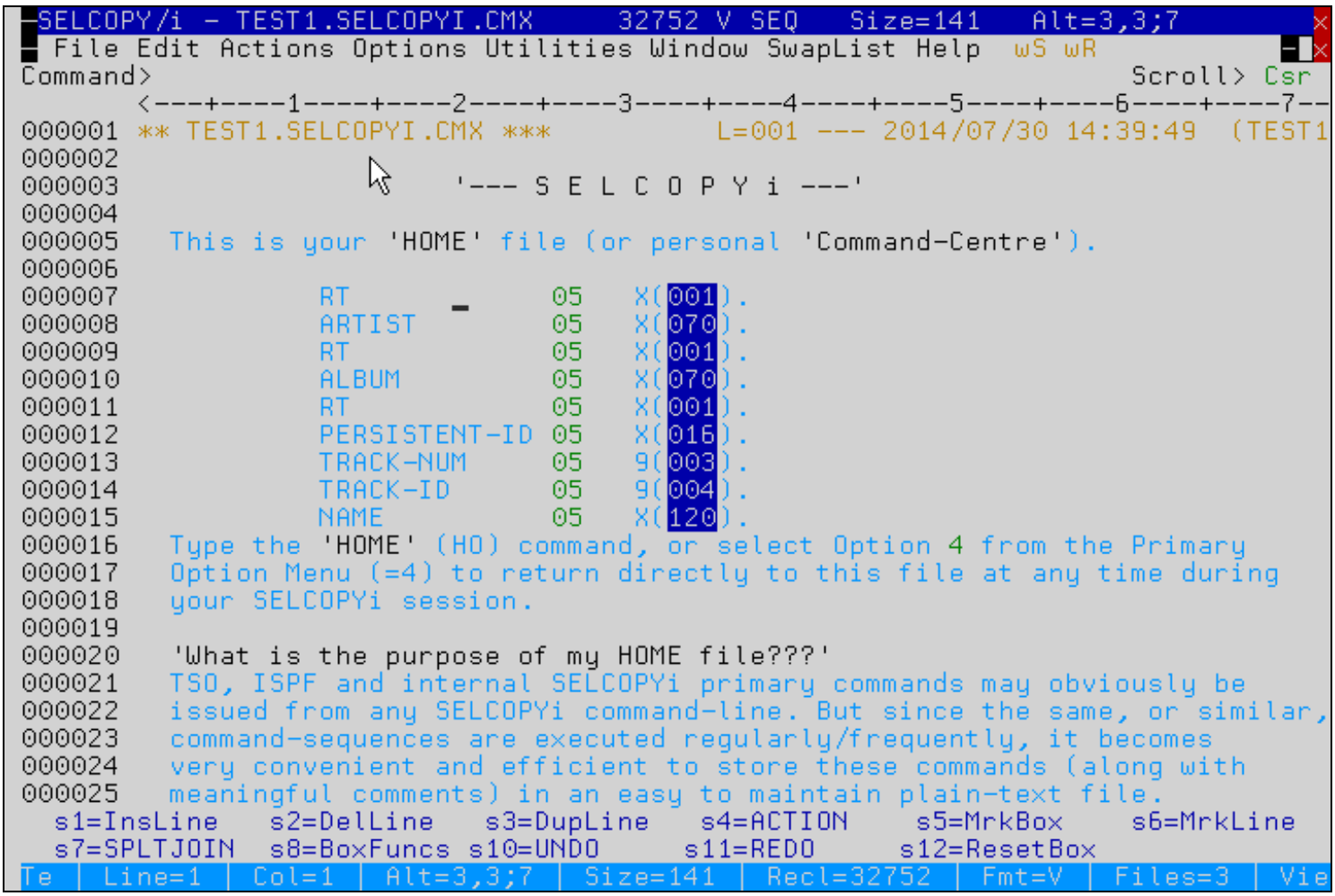


Figure 34. FileKit - Focus Window.

Overlaying a Box-Block (2)

- Press the **"BoxFuncs"** key (**Shift-F8**).

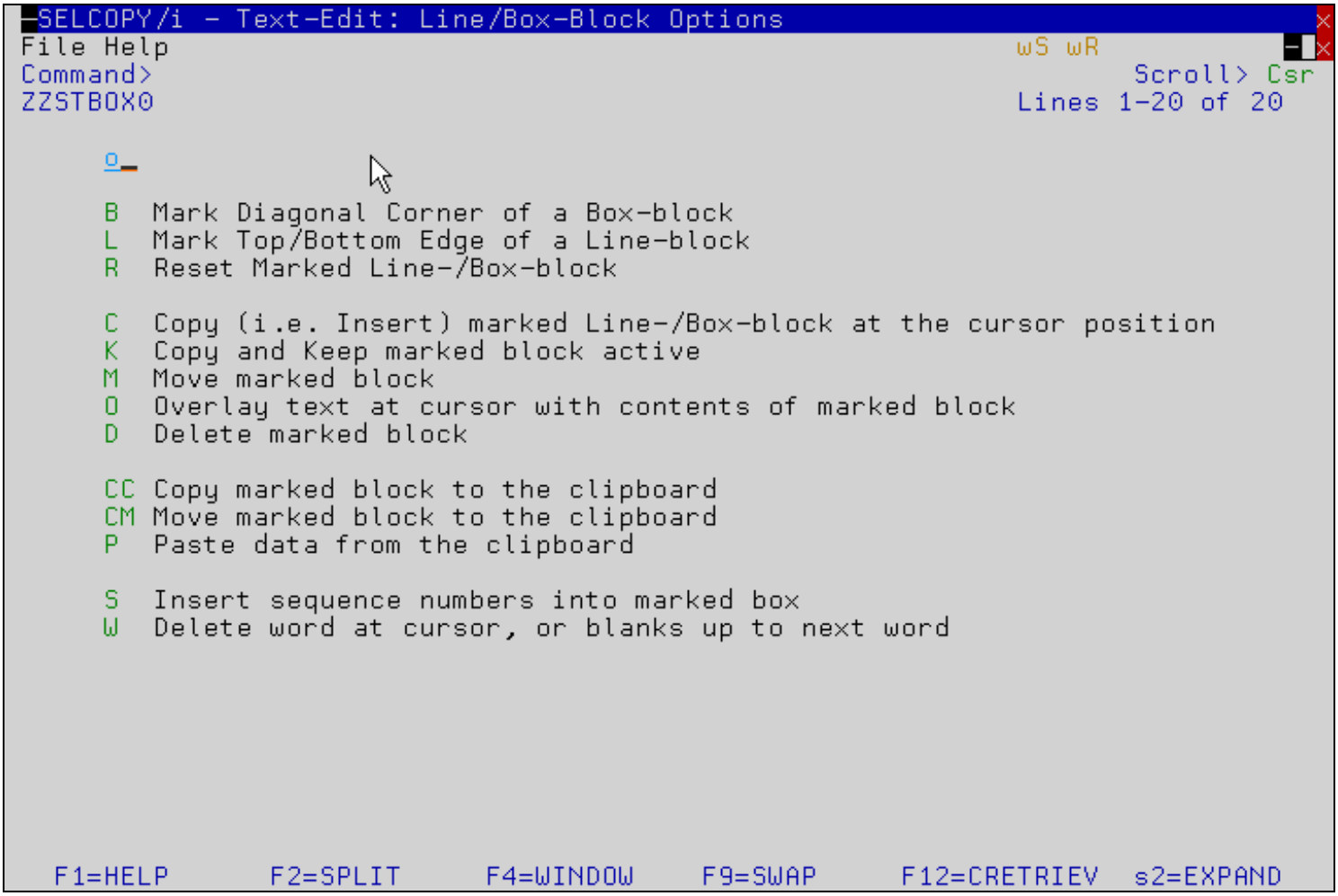


Figure 35. FileKit - Focus Window.

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.

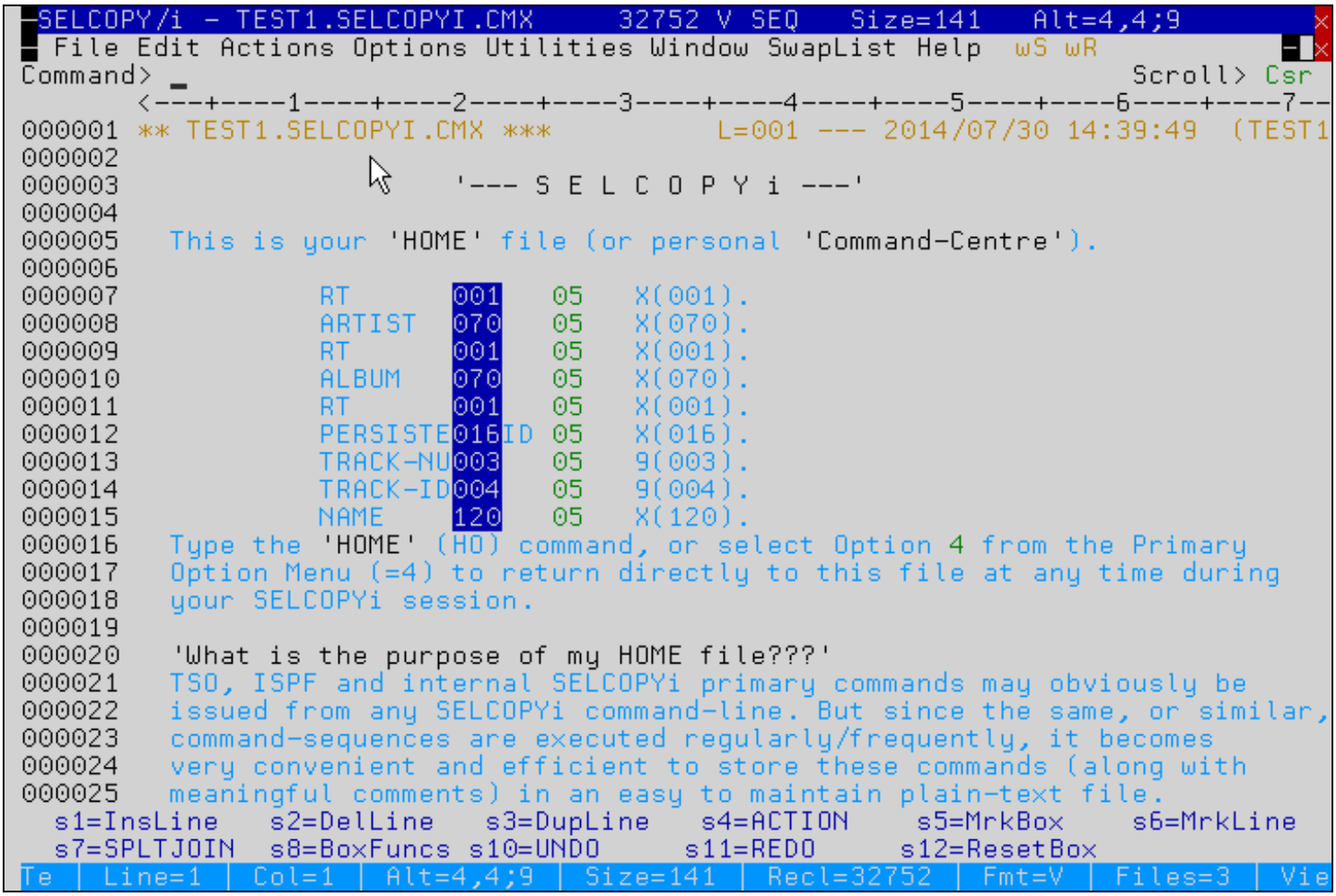


Figure 36. FileKit - Focus Window.

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**.

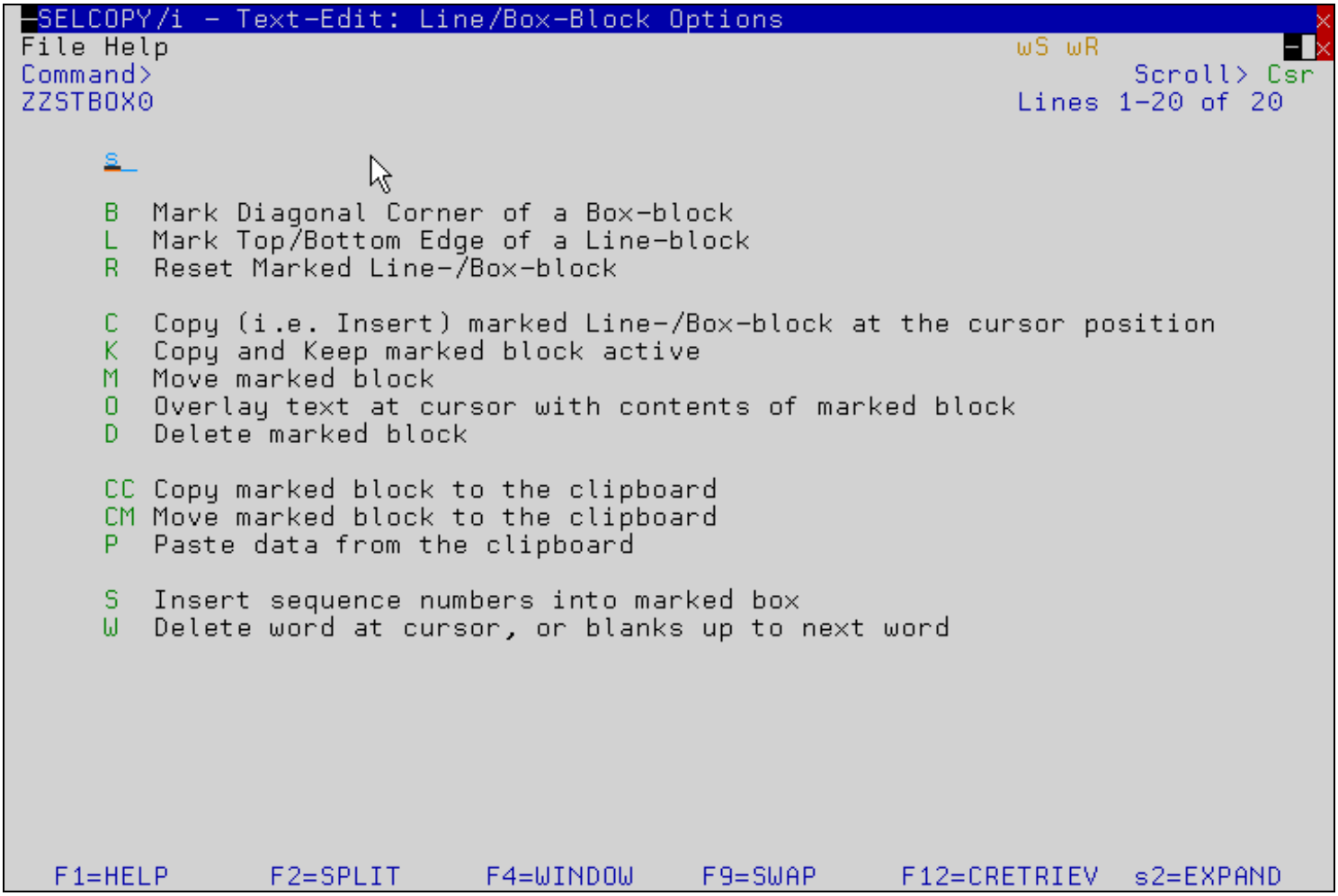


Figure 37. FileKit - Focus Window.

Incremental Sequence Numbers (2)

- 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.

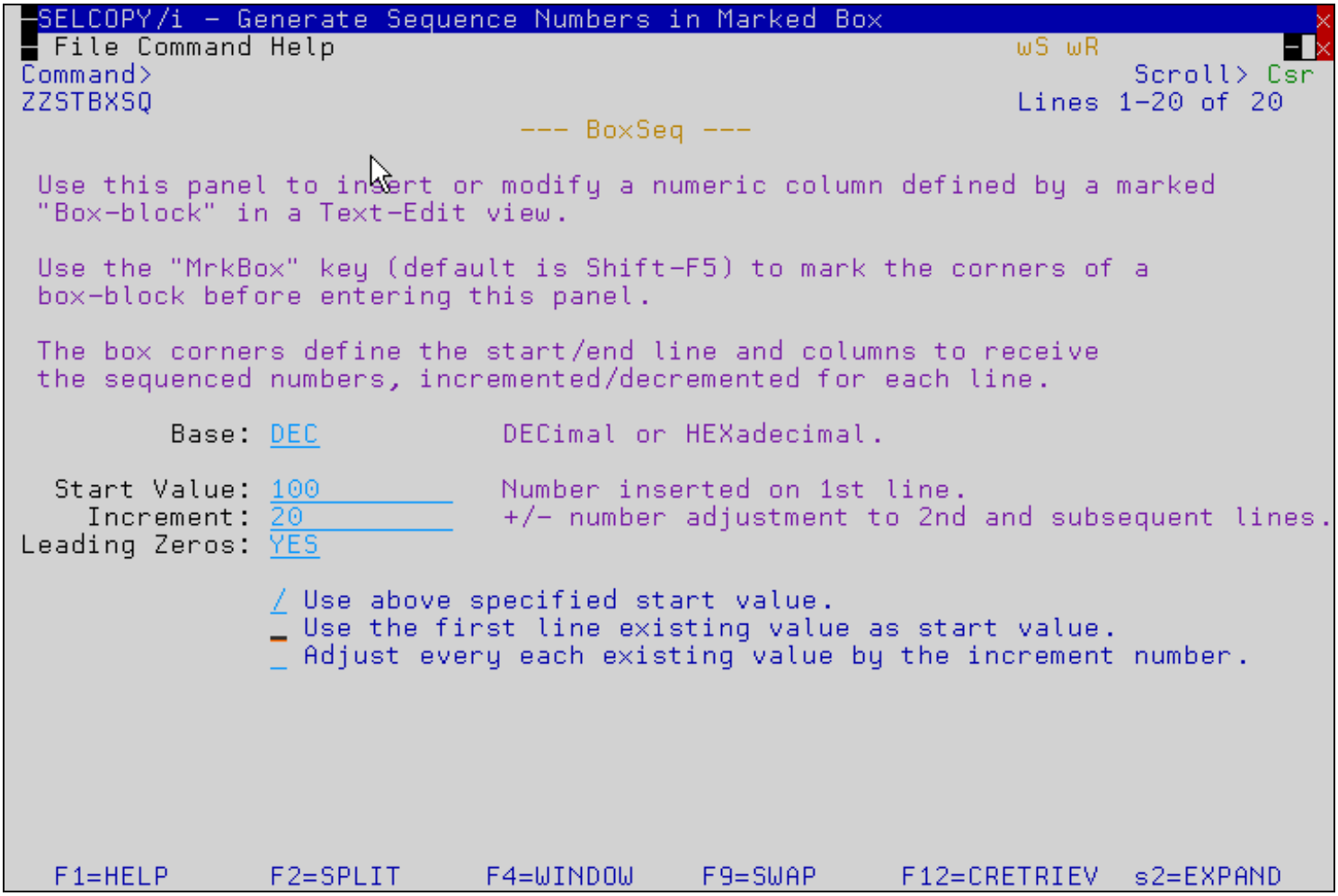


Figure 38. FileKit - Focus Window.

Adjusting Sequence Numbers (1)

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

As an excericse 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"**.

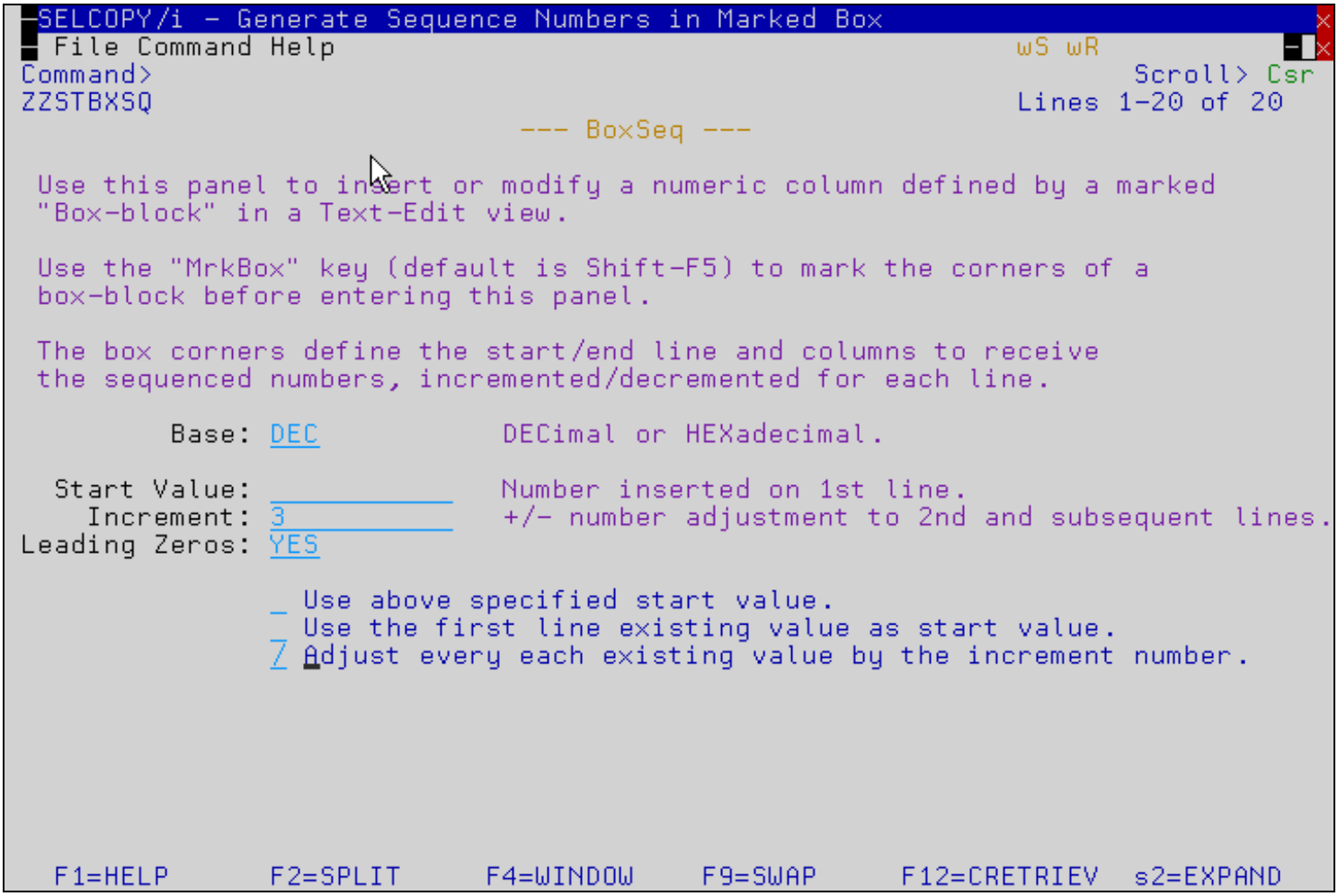


Figure 39. FileKit - Focus Window.

Adjusting Sequence Numbers (2)

Press **ENTER** to update the values.

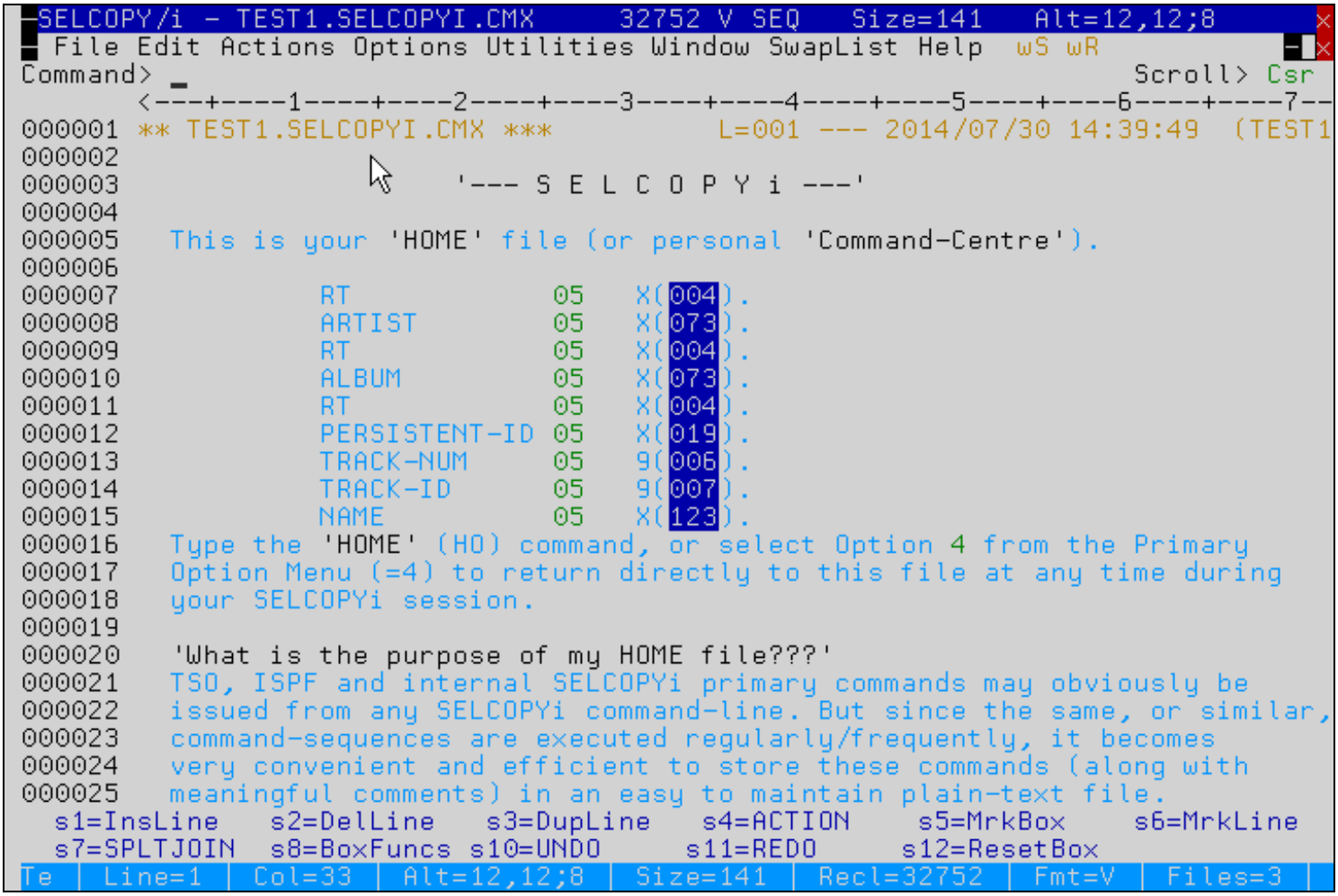


Figure 40. FileKit - Focus Window.

Adjusting Sequence Numbers (3)

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

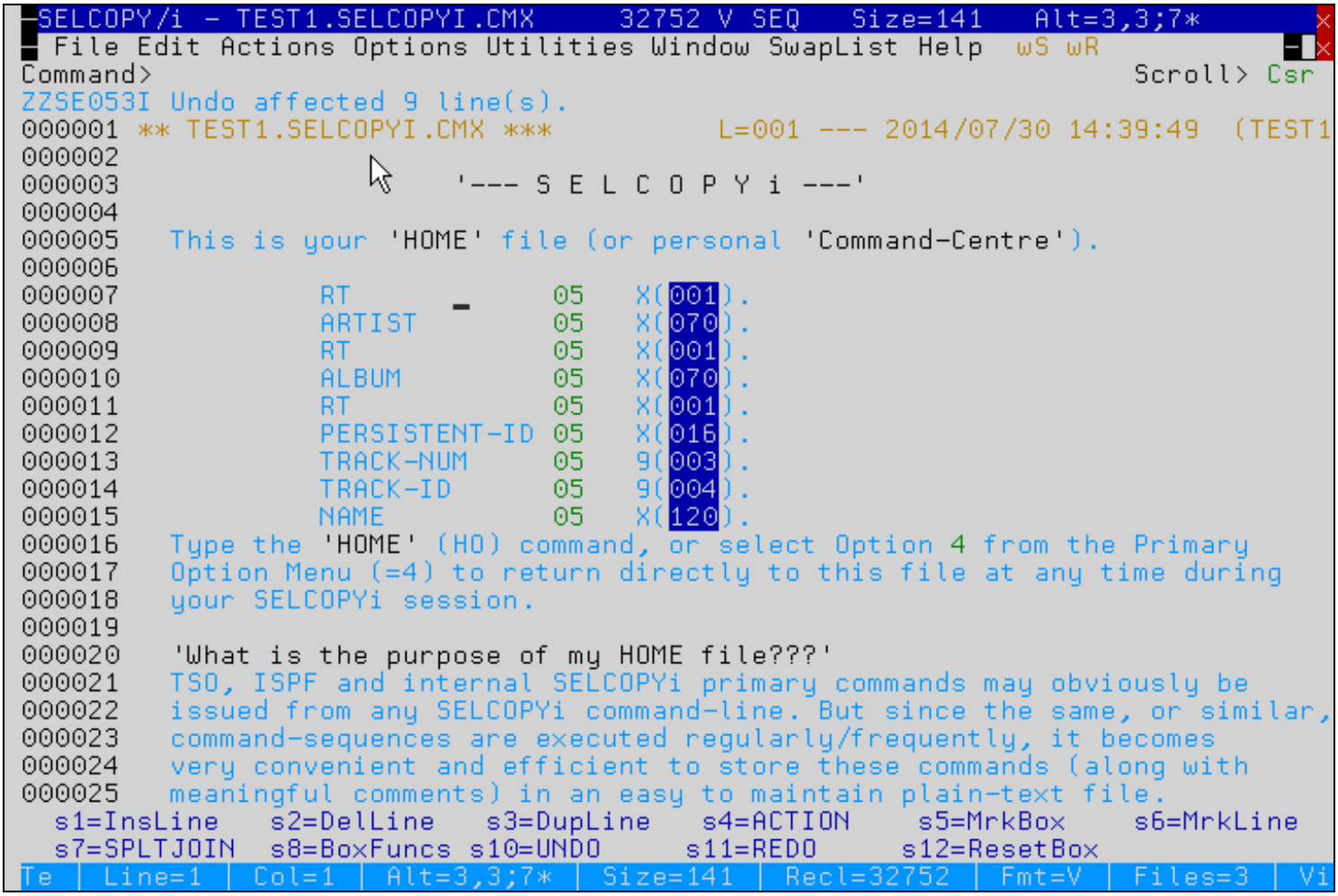


Figure 41. FileKit - Focus Window.

Using the "BOX" Primary Command (1)

Next we'll use the **BOX** primary command to change all occurences 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.

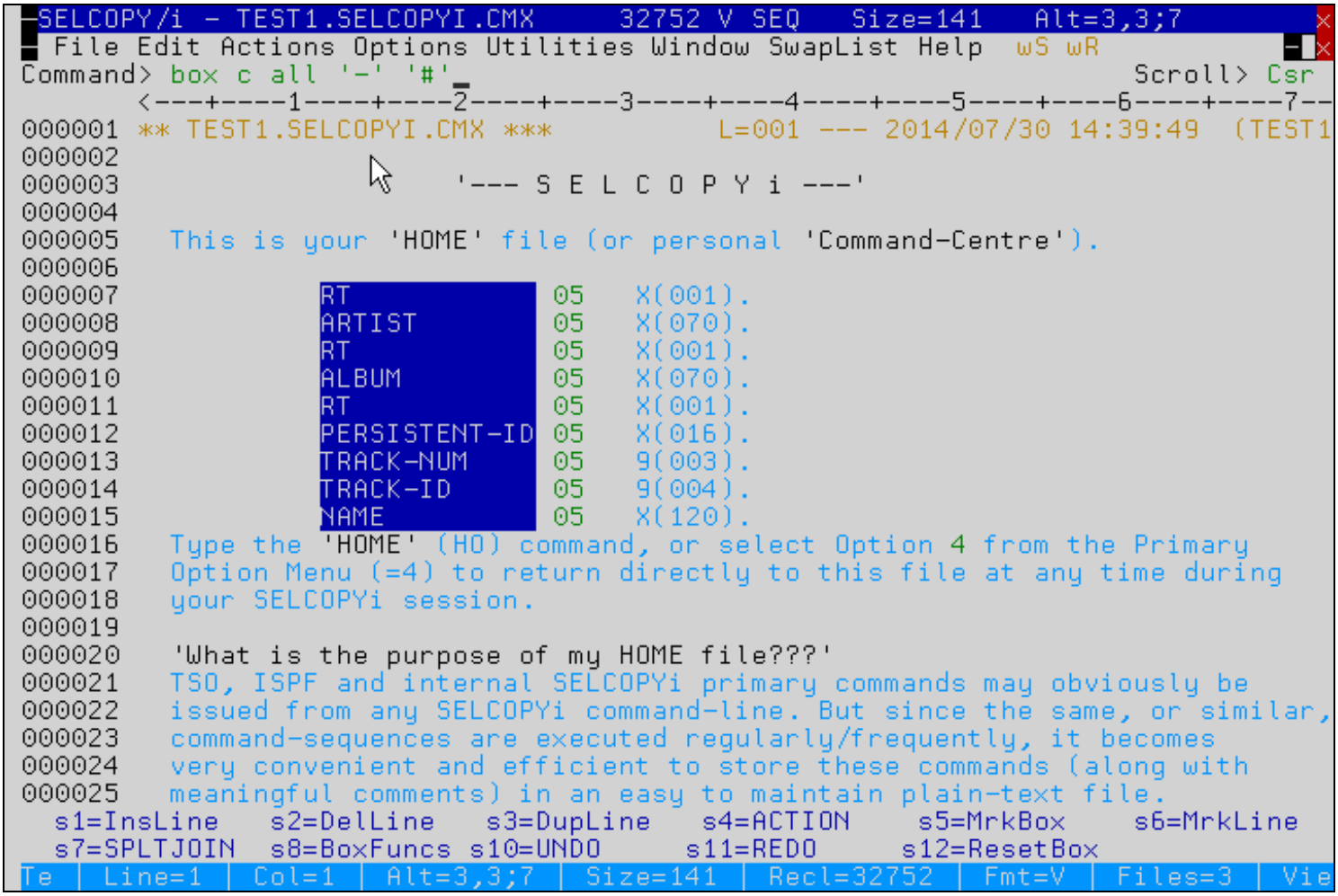


Figure 42. FileKit - Focus Window.

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.

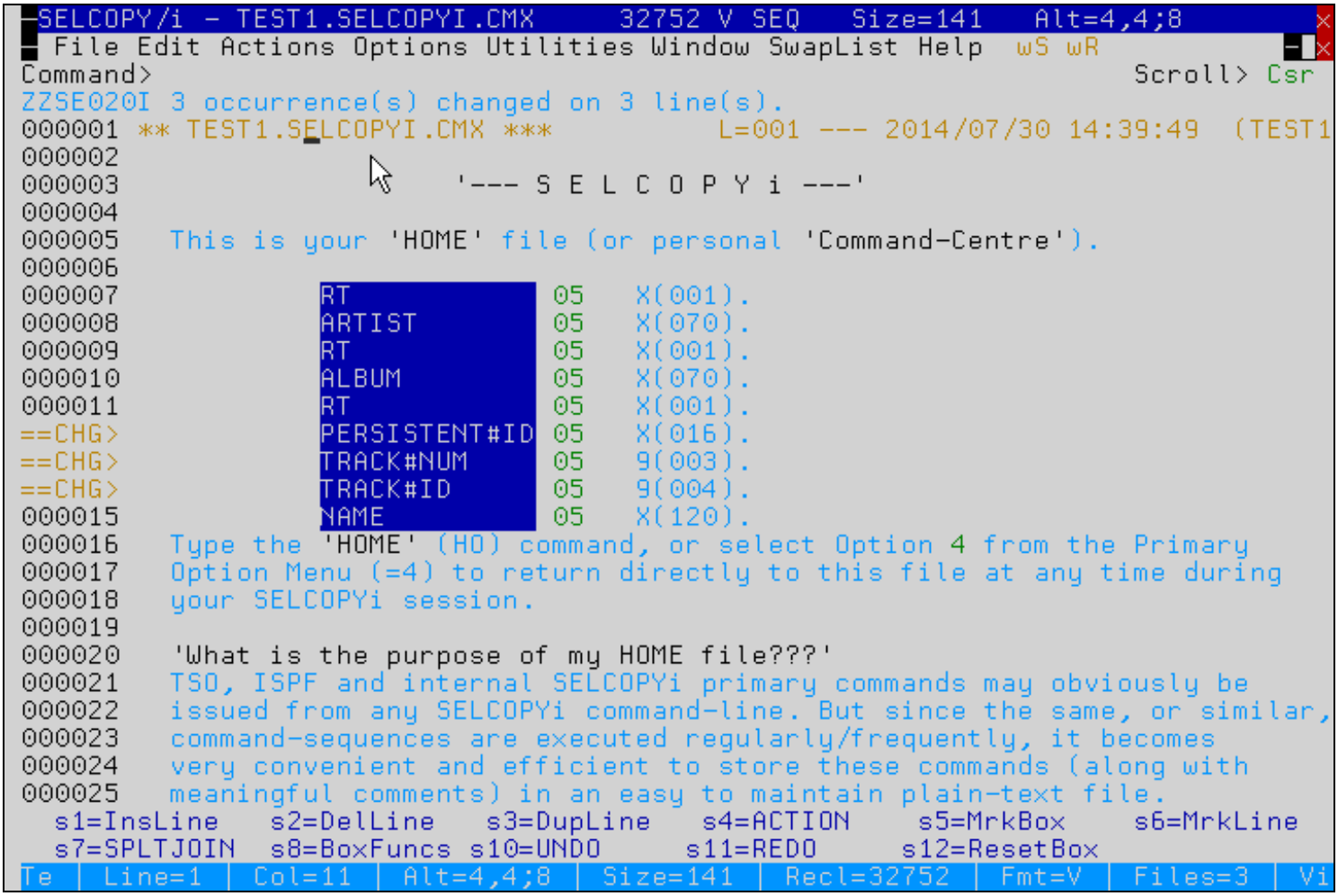


Figure 43. FileKit - Focus Window.

Using the "FILLBOX" Primary Command (1)

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"**.

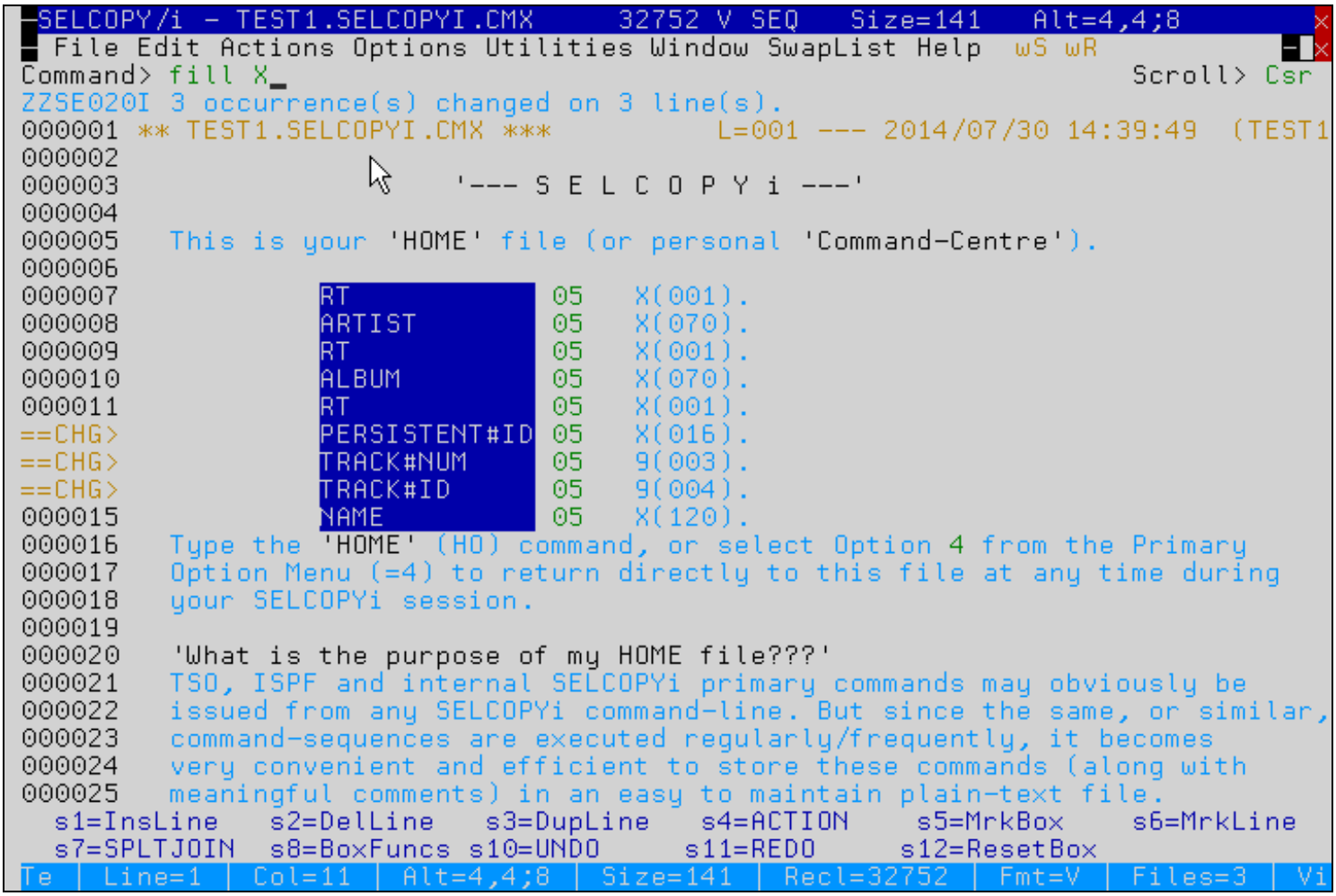


Figure 44. FileKit - Focus Window.

Using the "FILLBOX" Primary Command (2)

Press **ENTER** to set the values.

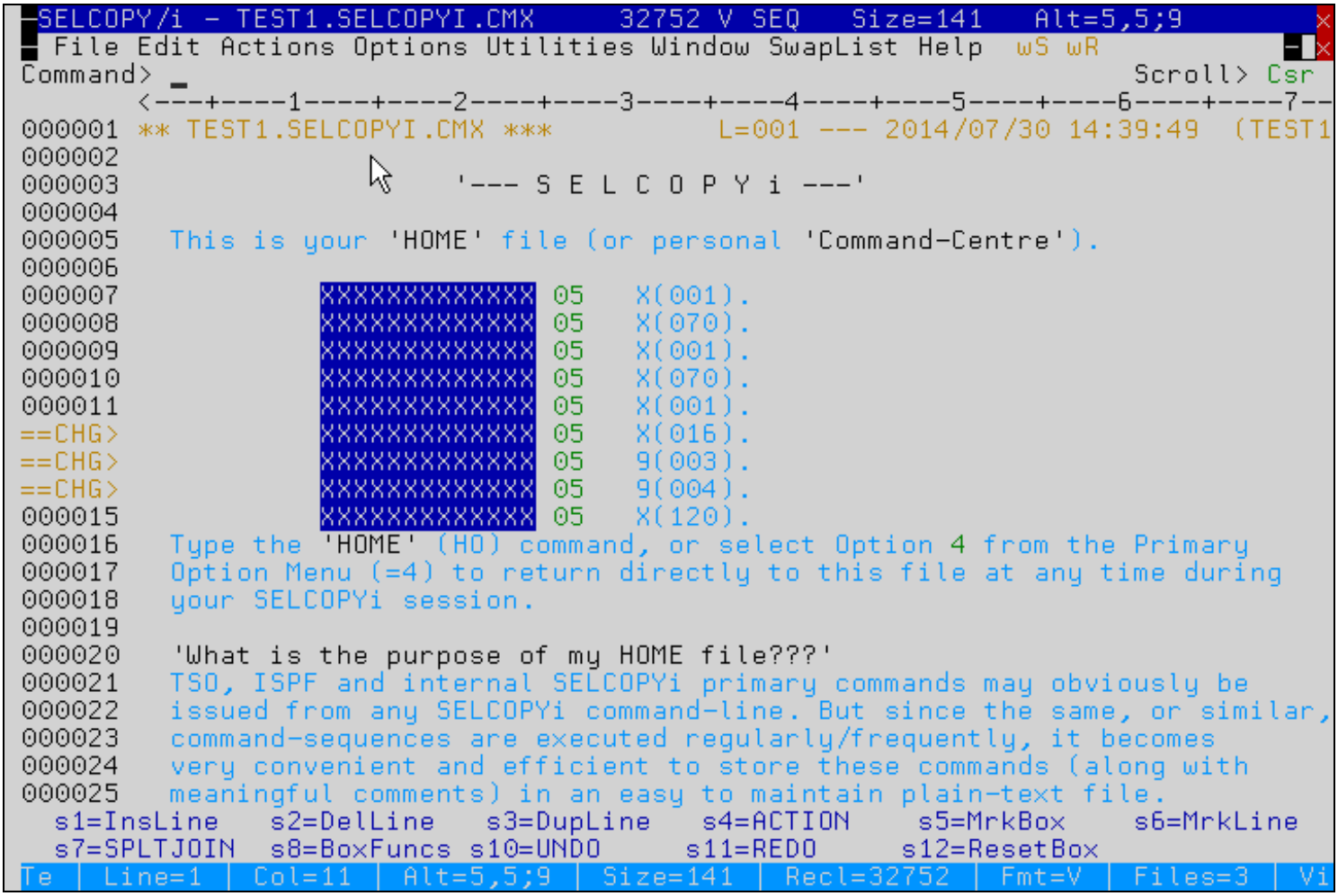


Figure 45. FileKit - Focus Window.

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.

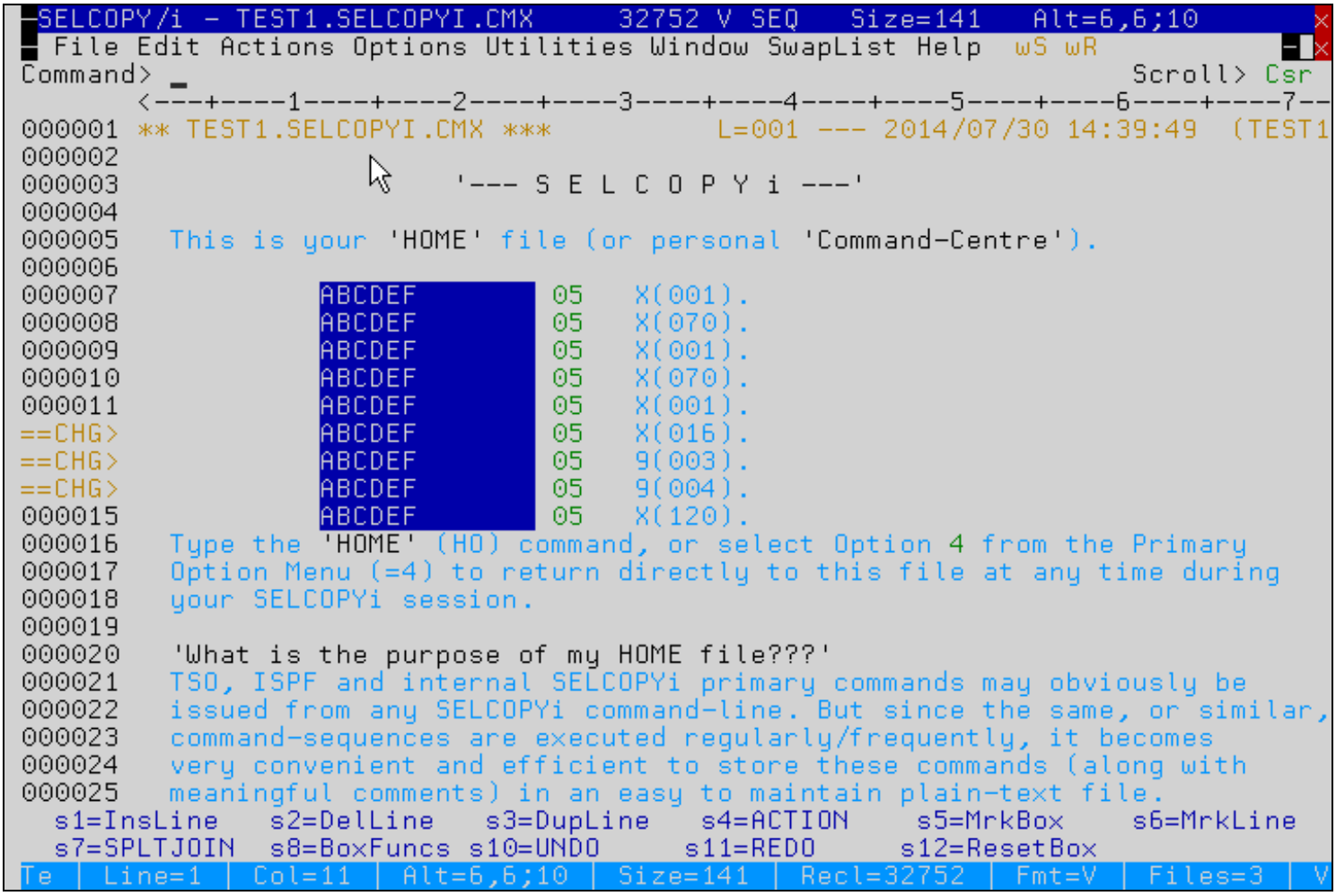


Figure 46. FileKit - Focus Window.

String Coloring

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

In addition, **FileKit** provides the ability to control color hilighting 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.
  This file represents a recorded music collection comprising **"Artist"**, **"Album"** and **"Track"** records.
- Navigate to the artist **"U2"** by typing the primary command **FIND '1U2' 1**.
- Type the primary command **SCOLOR 'World' YELLOW**.
  This will hilight 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 hilight 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 hilighted.
- Type the primary command **BOX LCOLOR '1' G REV**.
  This will hilight all **"Artist"** lines (character **"1"** at **column 1**) in **green reverse-video**.
- Type the primary command **BOX LCOL '2' P REV**.
  This will hilight all **"Album"** lines (character **"2"** at **column 1**) in **pink reverse-video**.

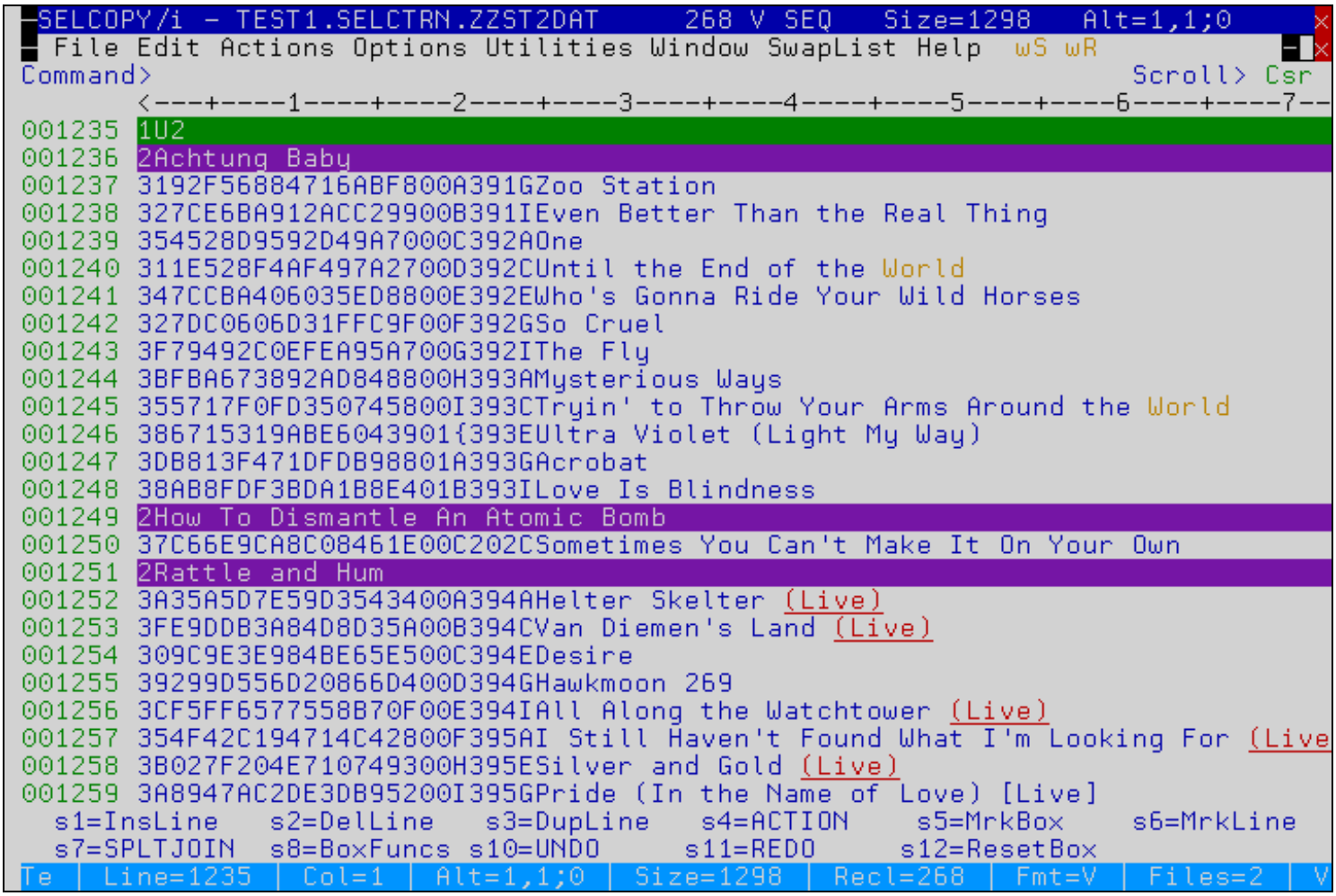


Figure 47. FileKit - SCOLOR/LCOLOR.

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 **FileKit** 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 invidual 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 **FileKit** 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.

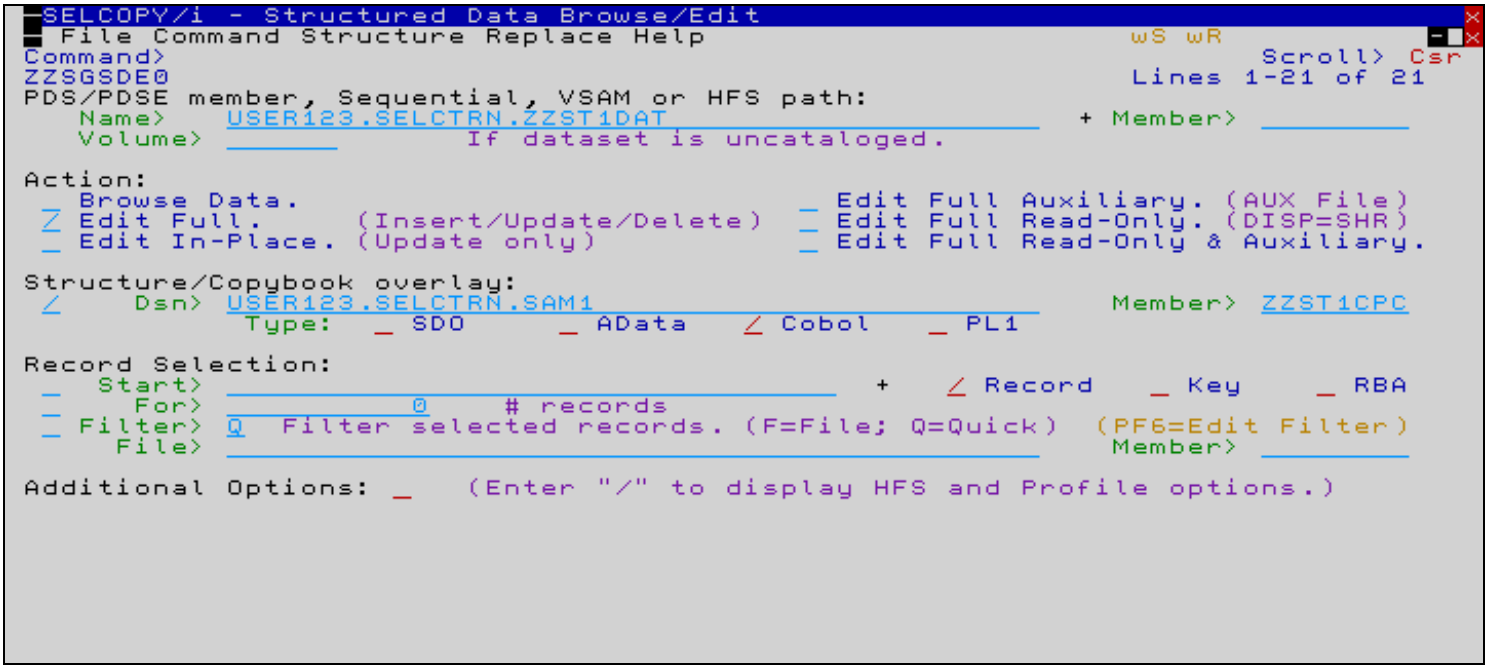


Figure 48. FileKit - Data Edit (SDE) Panel (=2).

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.
- Specify the *Action*:
  - Activate option *Edit Full* by entering a / in the left margin field.
- Specify the *Structure/Copybook overlay*:
  - Activate the option by entering a / in the left margin field. This option is provided so that you may deactivate / reactivate structure formatting without needing to remove / retype the dataset / member name.
  - 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).
    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. Note that FileKit 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**.

Editing Sample Dataset 1

- 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.

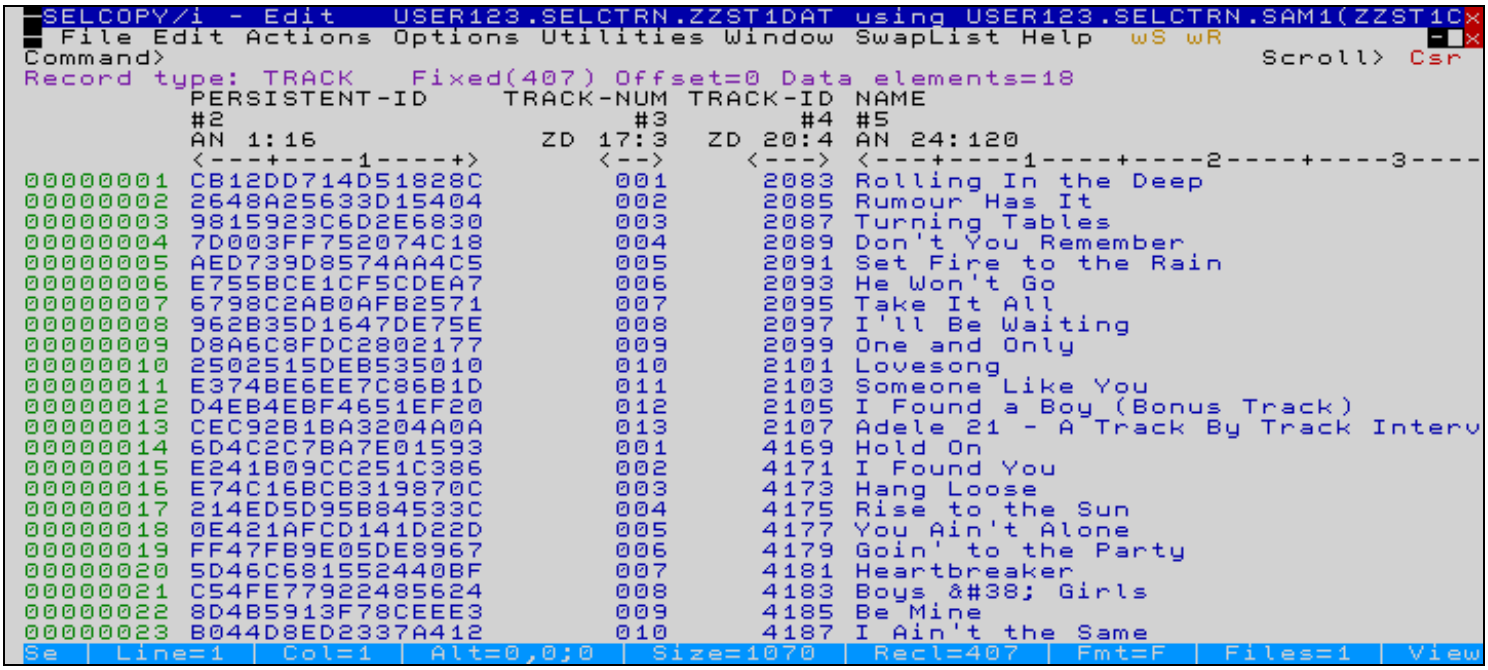


Figure 49. FileKit - SDE Table View.

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**

```
SELCOPY/i - Edit   USER123.SELCTRN.ZZST1DAT using USER123.SELCTRN.SAM1(ZZST1C
 File Edit Actions Options Utilities Window SwapList Help  wS wR
Command>                                                        Scroll> Csr
Record type: TRACK   Fixed(407) Offset=0 Data elements=18
          PERSISTENT-ID     TRACK-NUM TRACK-ID NAME
          #2                    #3        #4 #5
          AN 1:16             ZD 17:3   ZD 20:4 AN 24:120
          <---+----1----+>      <-->     <---> <---+----1----+----2----+----3----
00000001  CB12DD714D51828C        001      2083 Rolling In the Deep
          CCFFCCFFFCFFFFFC        FFC      FFFC D9998984C94A884C8894444444444444444
          3212447144518283        001      2083 96339570950385045570000000000000000

00000002  2648A25633D15404        002      2085 Rumour Has It
          FFFFCFFFFFCFFFFF        FFC      FFFC DA99A94C8A4CA4444444444444444444444
          2648125633415404        002      2085 94464908120930000000000000000000000

00000003  9815923C6D2E6830        003      2087 Turning Tables
          FFFFFFFCFCFCFFFF        FFC      FFFC EA998984E8898A4444444444444444444444
          9815923364256830        003      2087 34959570312352000000000000000000000

00000004  7D003FF752074C18        004      2089 Don't You Remember
          FCFFFCCFFFFFFCFF        FFC      FFFC C997A4E9A4D898988944444444444444444
          7400366752074318        004      2089 465D3086409545425900000000000000000

00000005  AED739D8574AA4C5        005      2091 Set Fire to the Rain
          CCCFFFCFFFFCCFCF        FFC      FFFC E8A4C8984A94A884D8894444444444444444
          1547394857411435        005      2091 25306995036038509195000000000000000

00000006  E755BCE1CF5CDEA7        006      2093 He Won't Go
          CFFFCCCFCCFCCCCF        FFC      FFFC C84E997A4C9444444444444444444444444
          5755235136534517        006      2093 850665D3076000000000000000000000000
Se | Line=1 | Col=1 | Alt=0,0;0 | Size=1070 | Recl=407 | Fmt=F | Files=1 | View
```

Figure 50. FileKit - 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.

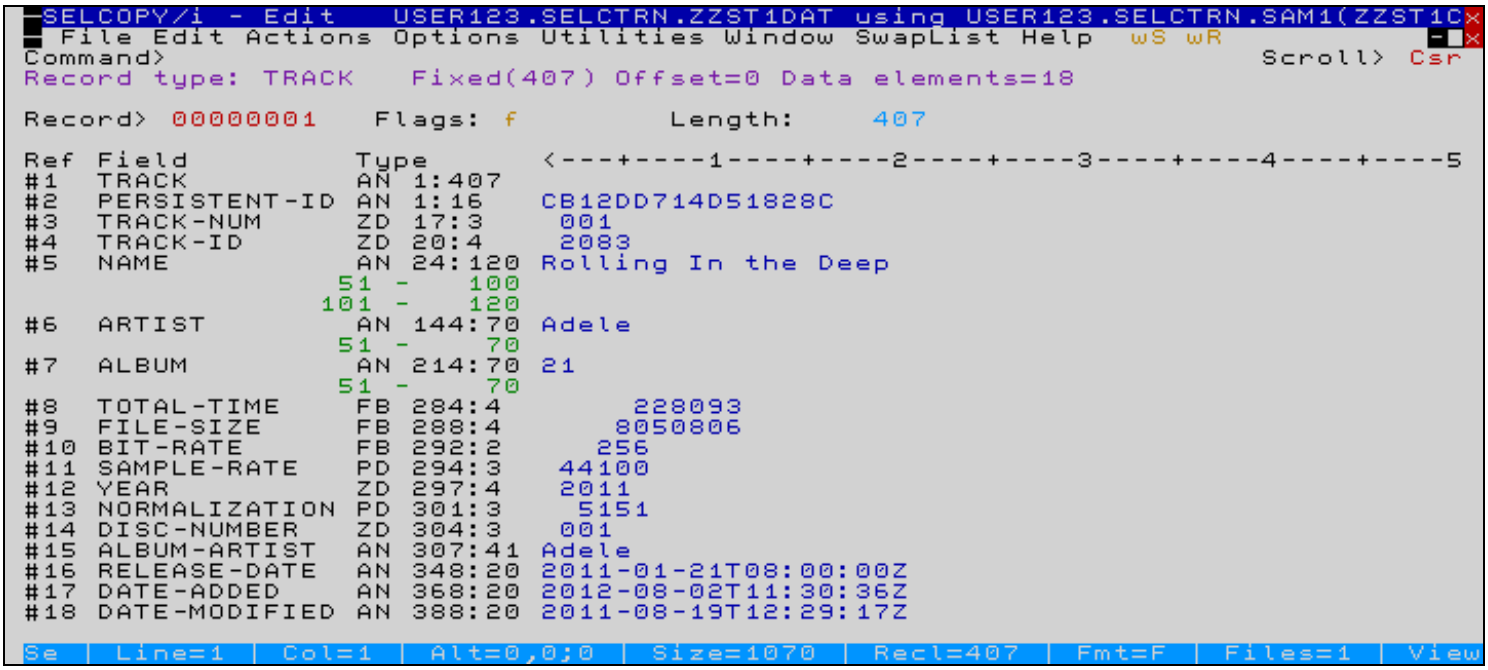


Figure 51. FileKit - SDE MAP/FMT.

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 physcial record to which it belongs.
- Type **HEX** to toggle hexadecimal display on/off.

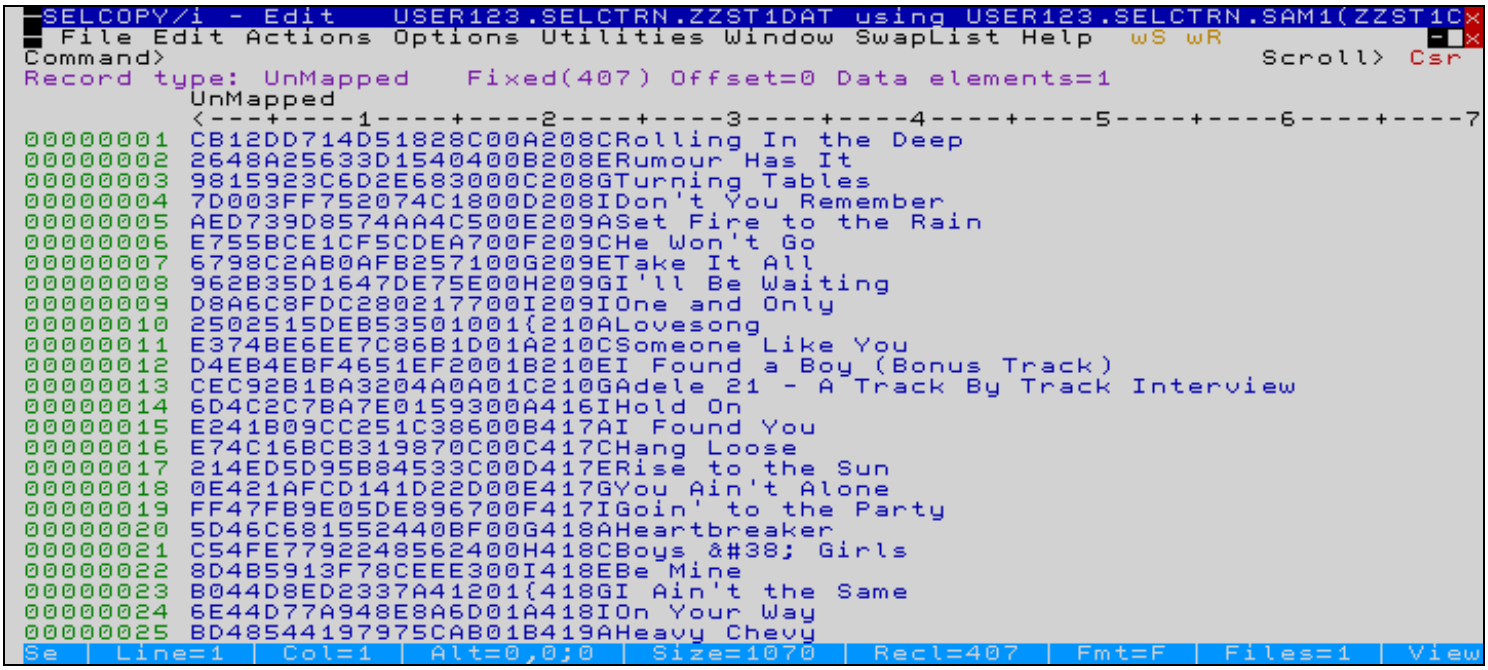


Figure 52. FileKit - SDE CHAR.

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 **FileKit** 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 single 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.

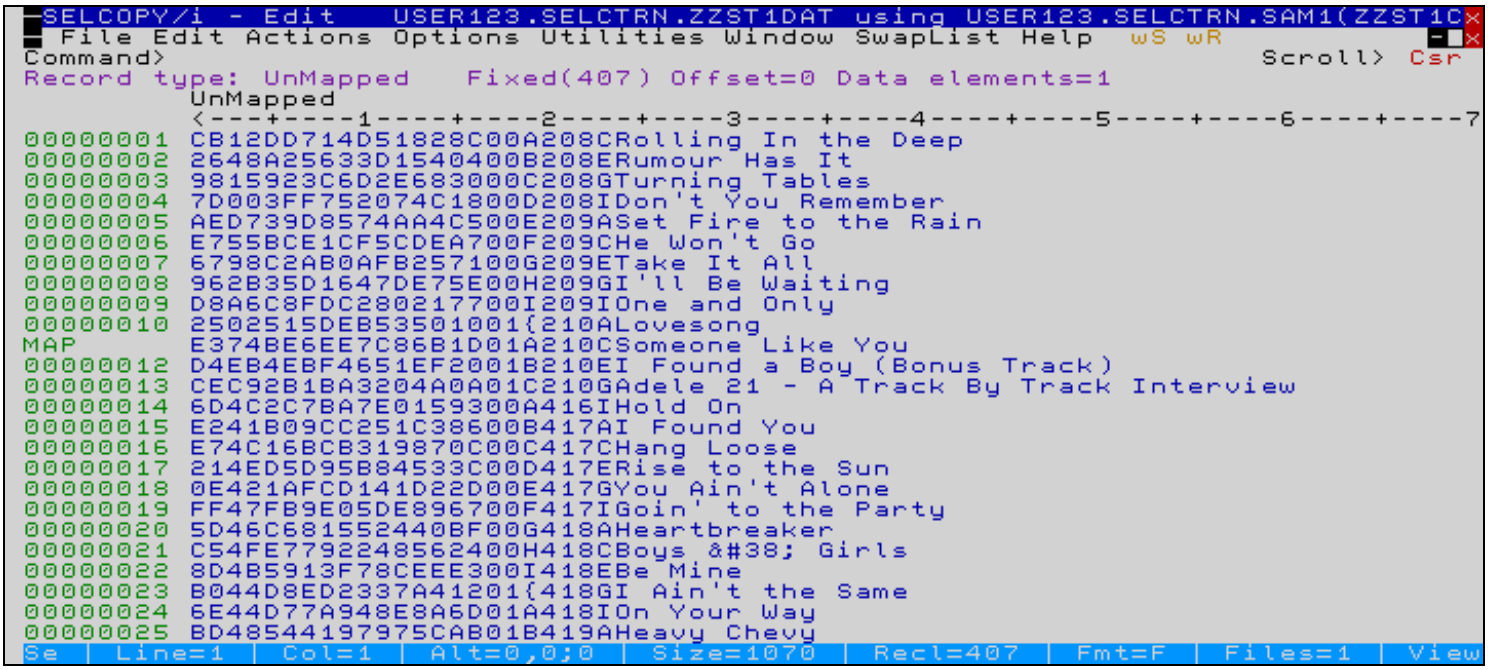


Figure 53. FileKit - SDE MAP Line-Command.

Figure 54. FileKit - SDE ZOOM.

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.

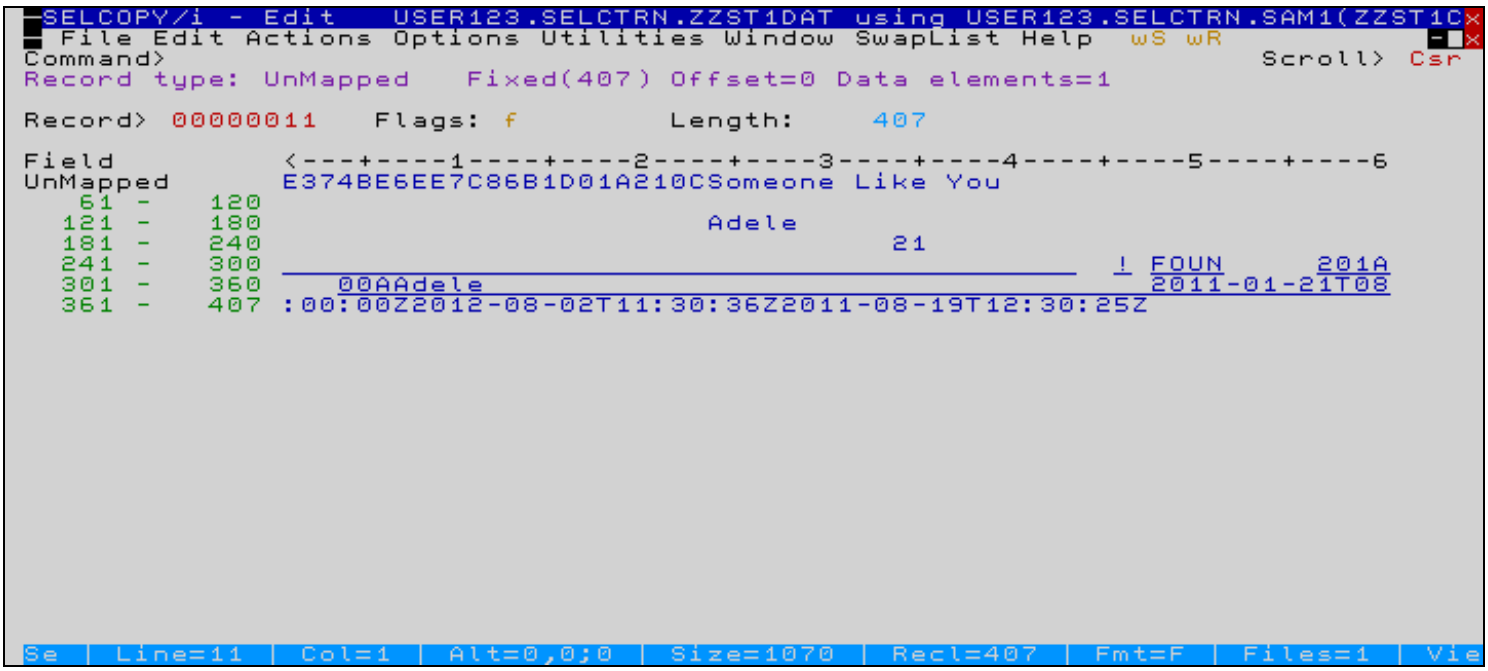


Figure 55. FileKit - SDE UNFMT.

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.

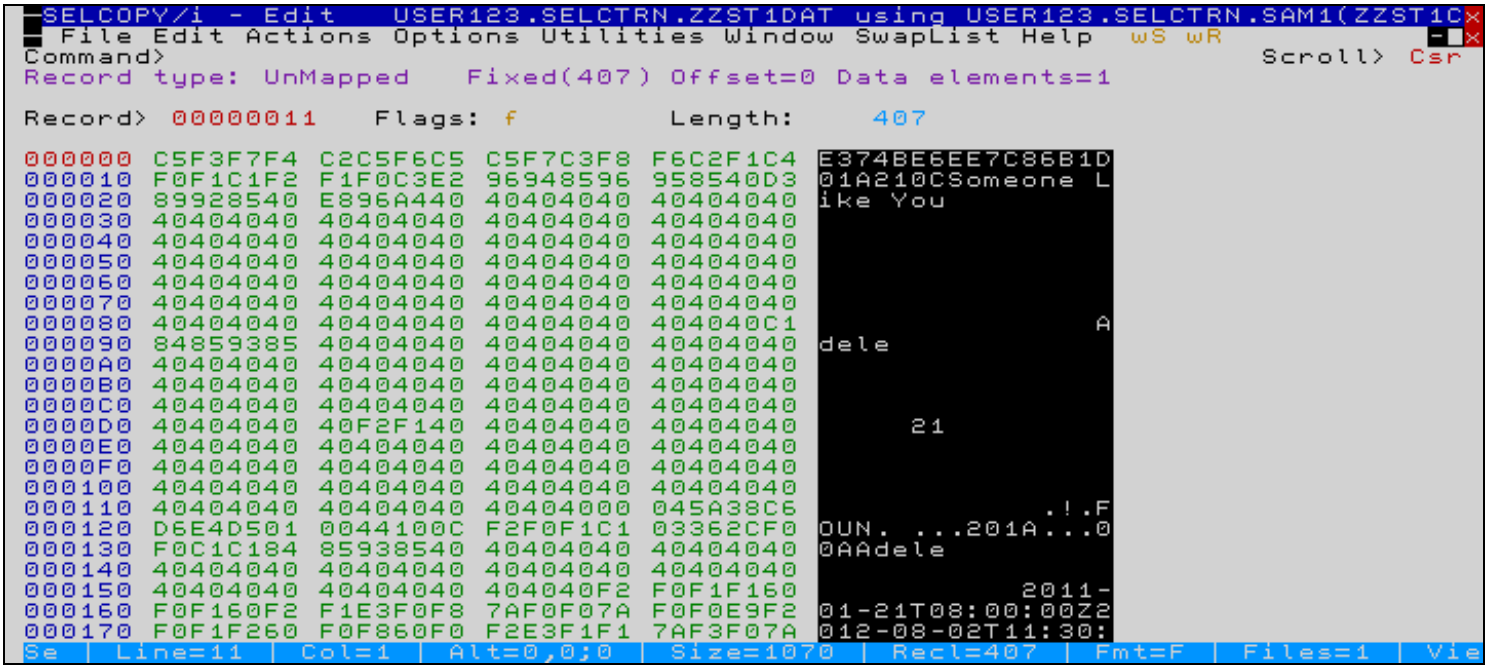


Figure 56. FileKit - SDE HEXD.

Formatted Multi-Record (VFMT) Display Mode

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

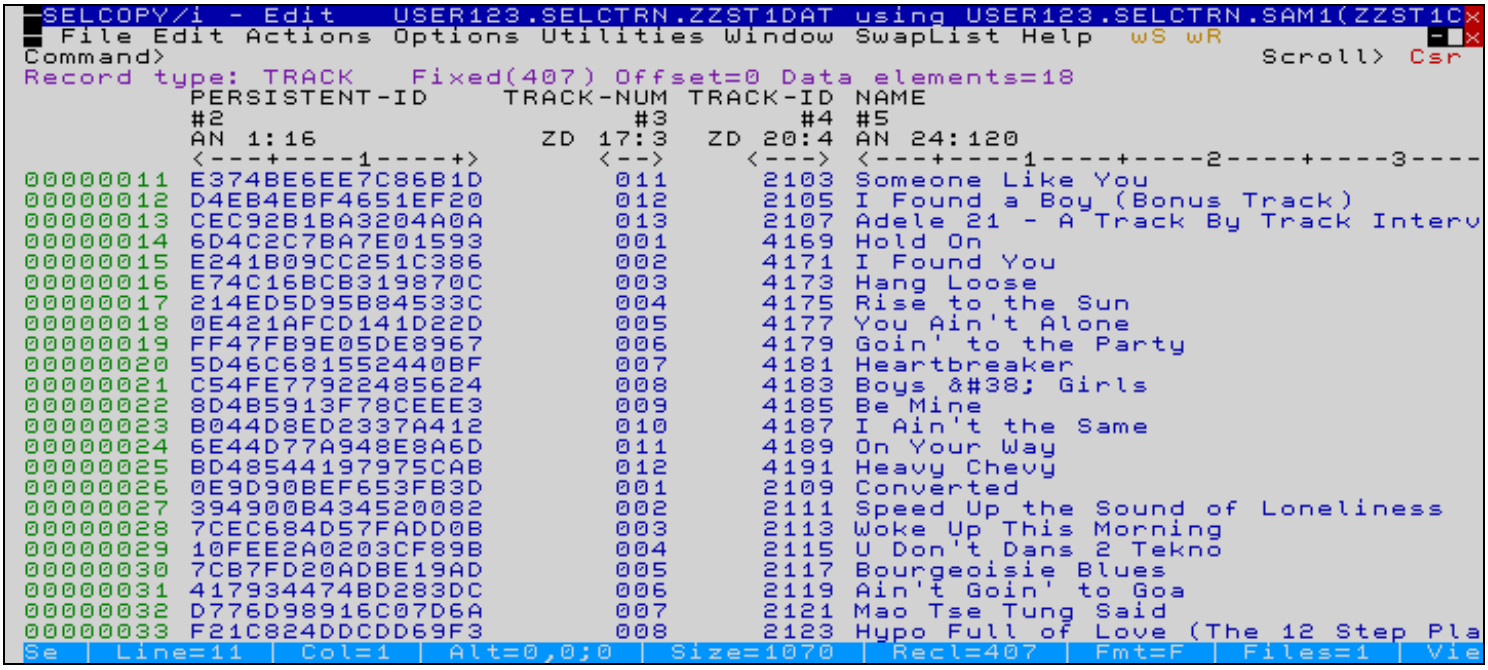


Figure 57. FileKit - SDE VFMT.

Controlling Table Headings

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

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

- 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.

Item	Description	Primary Commands
Field Number	Displays the field reference number **(#n)**.	REF ON REF OFF
Data Type	Optionally displays one of the following: 1. A combination field of the format **data-type position:length**. e.g. **AN 111:30** 2. A combination field of the format **length/format**. e.g. **30/CHAR** 3. The position or offset defining the field's location within the record. e.g. **111** 4. The field's **picture string.** **e.g. X(30)**	TYPE ON TYPE OFF TYPE FMT TYPE OFFSET TYPE PIC
Scale	Displays the scale. Use command **OFST X** to display a hexadecimal offset scale.	SCALE ON SCALE OFF OFST P OFST X

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.

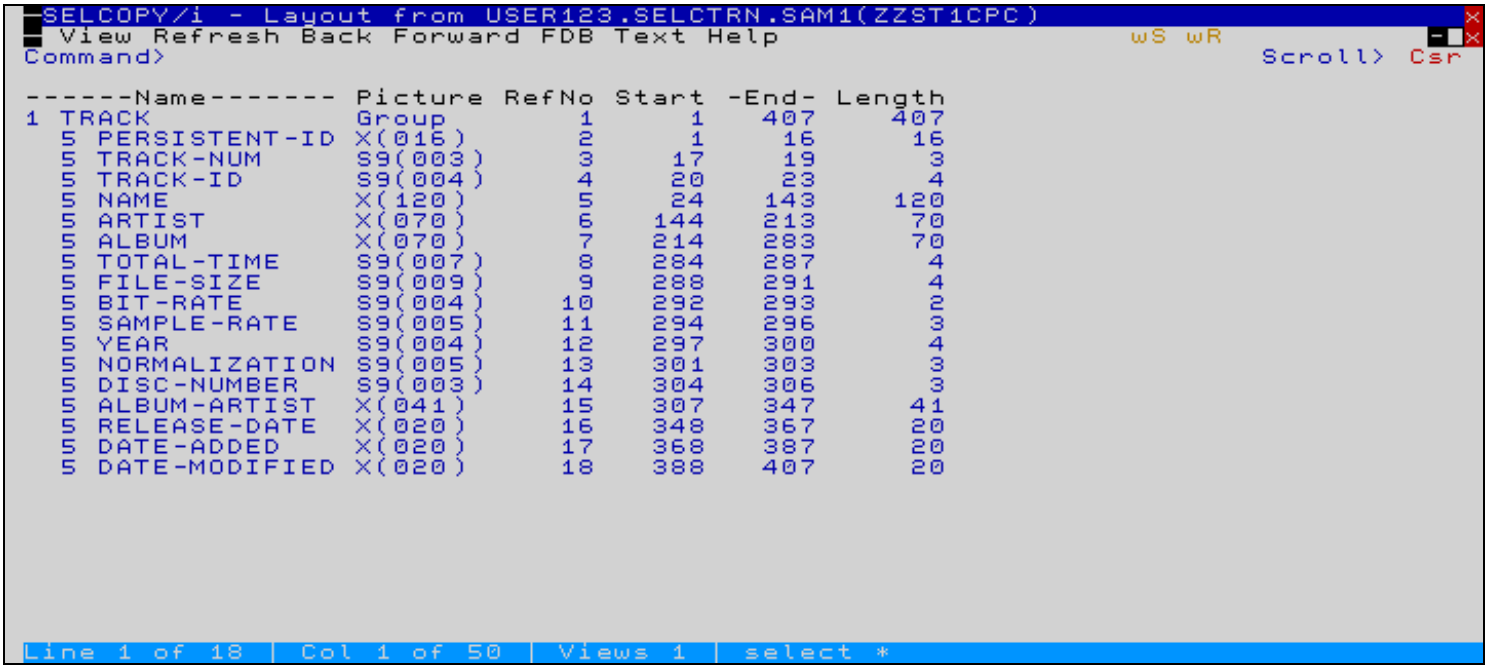


Figure 58. FileKit - SDE VFMT.

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.

```
SELCOPY/i - Edit   USER123.SELCTRN.ZZST1DAT using USER123.SELCTRN.SAM1(ZZST1C
 File Edit Actions Options Utilities Window SwapList Help  wS wR
Command>                                                    Scroll> Csr
Record type: TRACK   Fixed(407) Offset=0 Data elements=18
         SAMPLE-RATE      YEAR NORMALIZATION DISC-NUMBER ALBUM-ARTIST
                #11        #12           #13         #14 #15
            PD 294:3 ZD 297:4       PD 301:3     ZD 304:3 AN 307:41
              <---+>    <--->         <---+>       <--> <---+----1----+----2---
00000001        44100     2011          5151         001 Adele
00000002        44100     2011          7474         001 Adele
00000003        44100     2011          6529         001 Adele
00000004        44100     2011          5189         001 Adele
00000005        44100     2011          9255         001 Adele
00000006        44100     2011          3374         001 Adele
00000007        44100     2011          3615         001 Adele
00000008        44100     2011         10626         001 Adele
00000009        44100     2011          4629         001 Adele
00000010        44100     2011          2020         001 Adele
00000011        44100     2011          3362         001 Adele
00000012        44100     2011          3893         001 Adele
00000013            0     2011             0         000 Adele
00000014        44100     2012          4808         001 Alabama Shakes
00000015        44100     2012          6070         001 Alabama Shakes
00000016        44100     2012          5761         001 Alabama Shakes
00000017        44100     2012          7294         001 Alabama Shakes
00000018        44100     2012          7353         001 Alabama Shakes
00000019        44100     2012          2058         001 Alabama Shakes
00000020        44100     2012          9197         001 Alabama Shakes
00000021        44100     2012          1145         001 Alabama Shakes
00000022        44100     2012          6287         001 Alabama Shakes
00000023        44100     2012          8411         001 Alabama Shakes
Se | Line=1 | Col=1 | Alt=0,0;0 | Size=1070 | Recl=407 | Fmt=F | Files=1 | View
```

Figure 59. FileKit - 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.

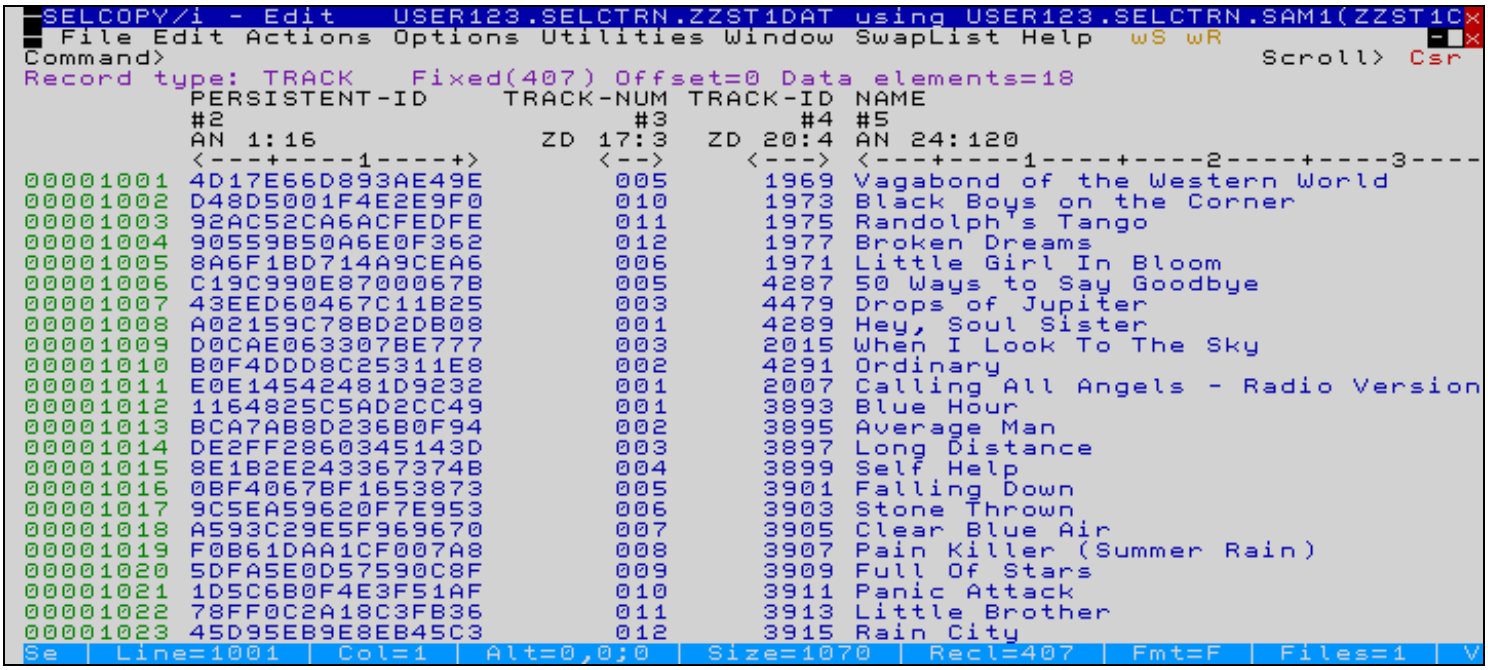


Figure 60. FileKit - SDE LOCATE record.

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**

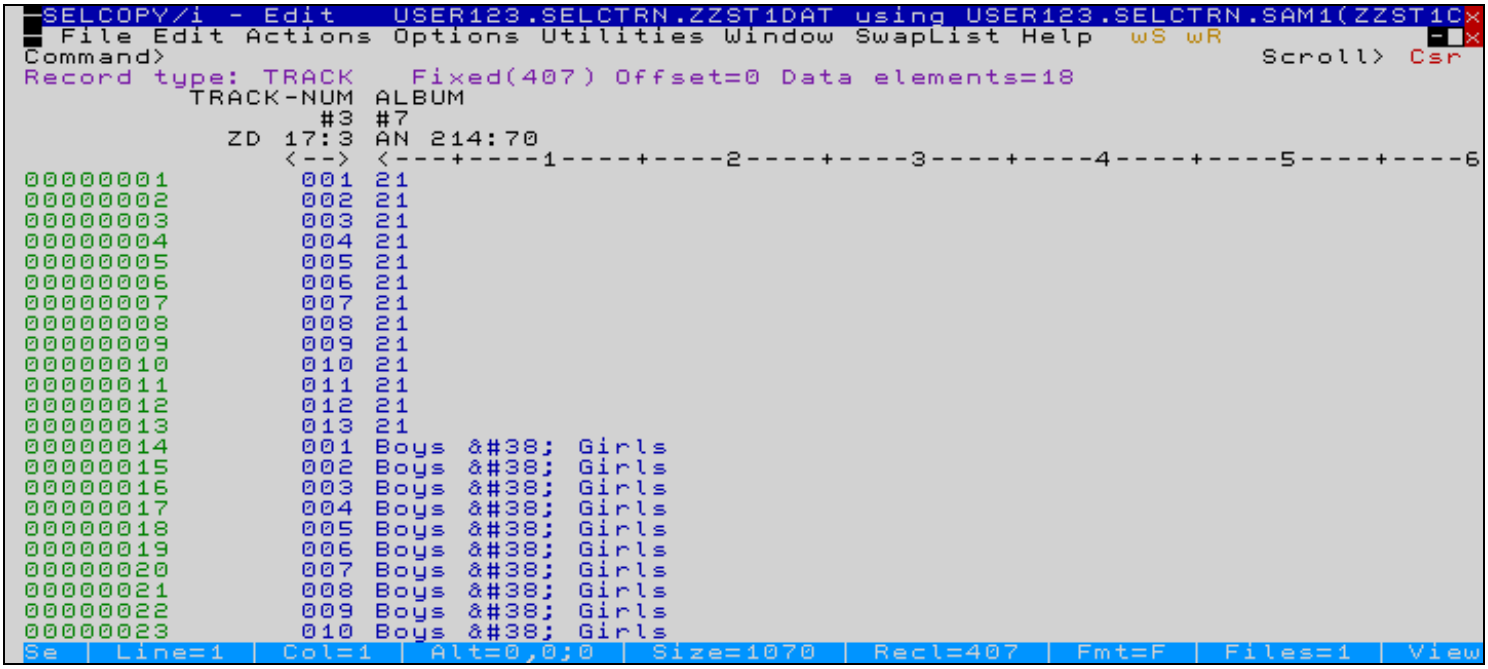


Figure 61. FileKit - SDE SELECT 1.

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

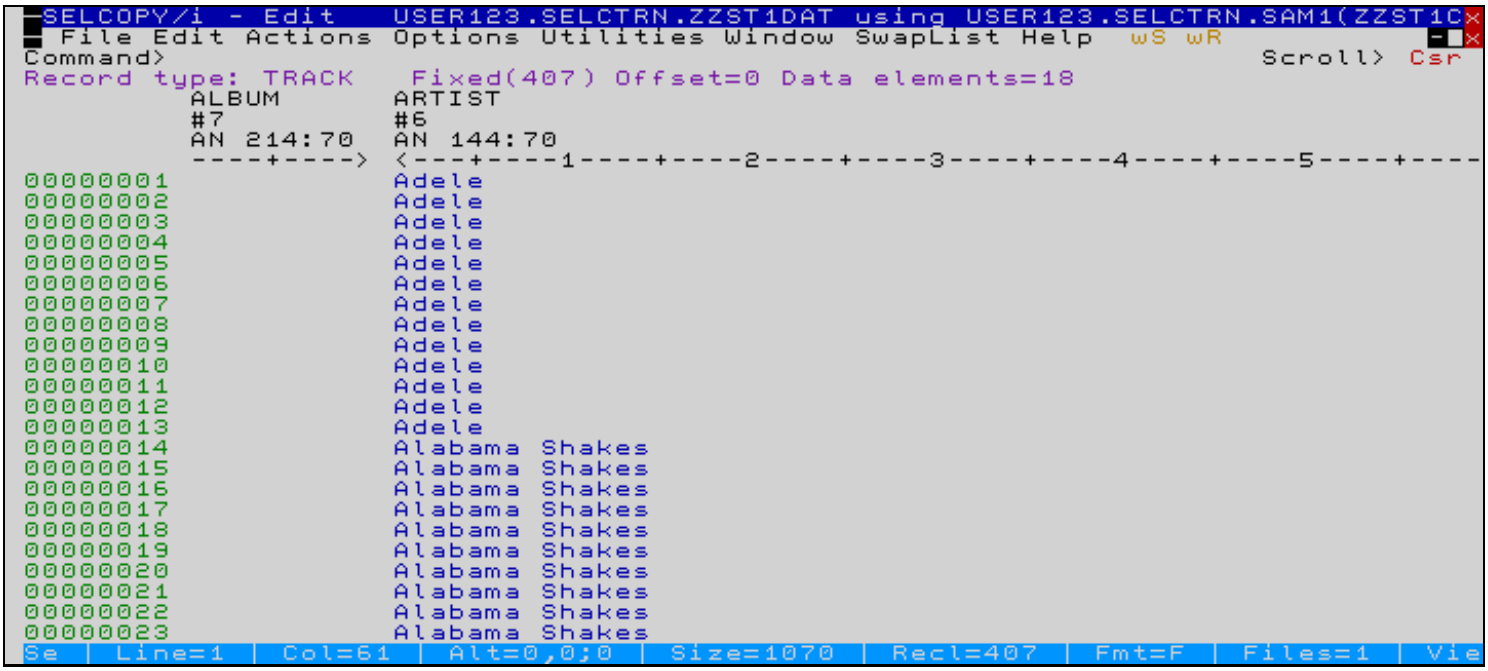


Figure 62. FileKit - SDE SELECT 2.

- 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 hilighted in a different colour.
  Type **Help COLour** for full information.

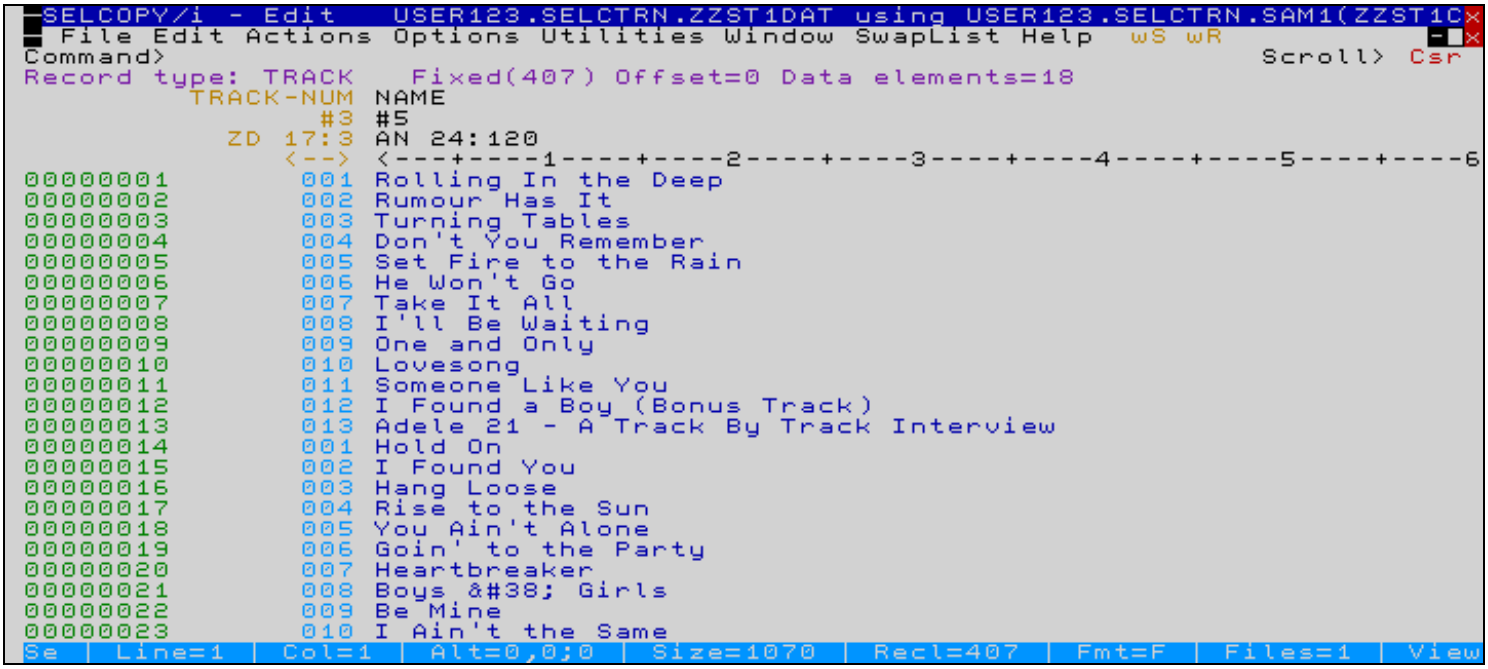


Figure 63. FileKit - SDE SELECT 3.

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,*

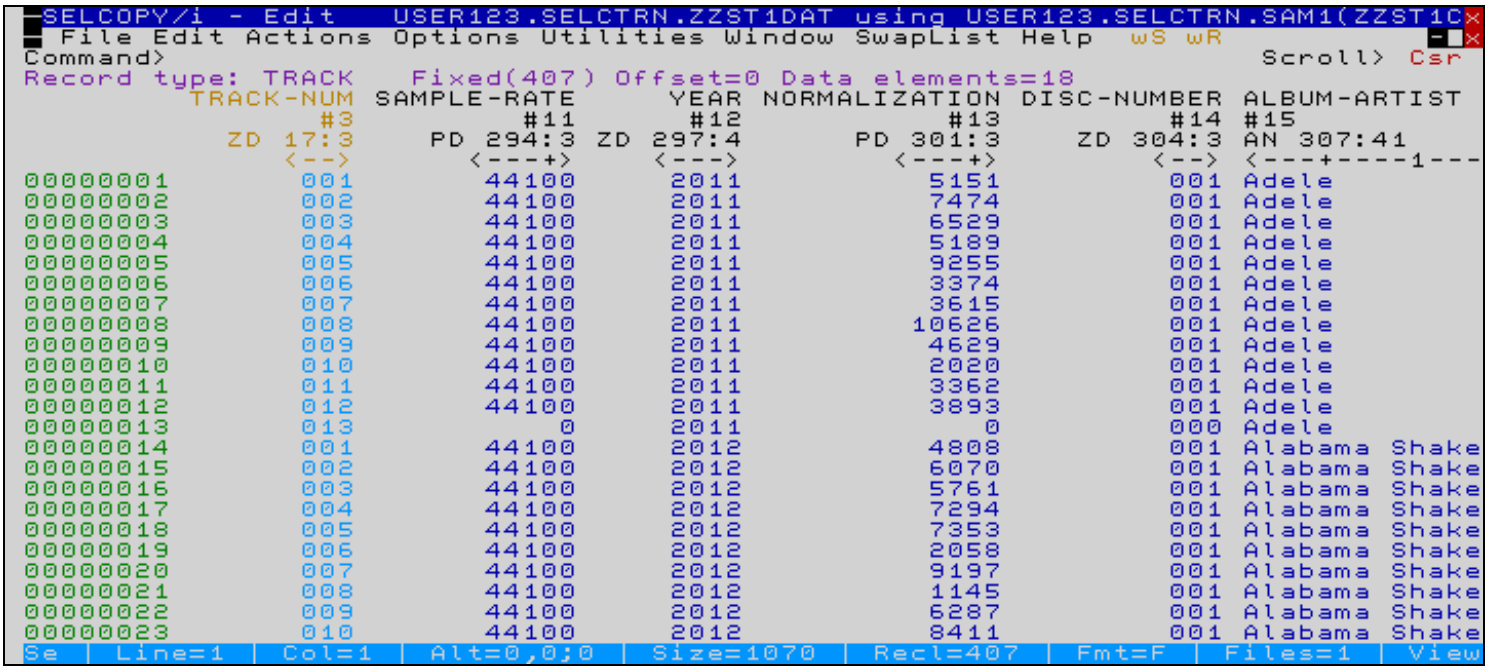


Figure 64. FileKit - SDE SELECT 4.

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**

```
SELCOPY/i - Edit   USER123.SELCTRN.ZZST1DAT using USER123.SELCTRN.SAM1(ZZST1C
 File Edit Actions Options Utilities Window SwapList Help  wS wR
Command>                                                    Scroll> Csr
Record type: TRACK   Fixed(407) Offset=0 Data elements=18
        TRACK-NUM NAME                    ALBUM                 ARTIST
            #3 #5                         #7                    #6
         ZD 17:3 AN 24:120                AN 214:70             AN 144:70
            <--> <---+----1----+----> <---+----1----+----> <---+----1----+-->
00000001        001 Rolling In the Deep   21                    Adele
00000002        002 Rumour Has It         21                    Adele
00000003        003 Turning Tables        21                    Adele
00000004        004 Don't You Remember    21                    Adele
00000005        005 Set Fire to the Rain  21                    Adele
00000006        006 He Won't Go           21                    Adele
00000007        007 Take It All           21                    Adele
00000008        008 I'll Be Waiting       21                    Adele
00000009        009 One and Only          21                    Adele
00000010        010 Lovesong              21                    Adele
00000011        011 Someone Like You      21                    Adele
00000012        012 I Found a Boy (Bonus  21                    Adele
00000013        013 Adele 21 - A Track B  21                    Adele
00000014        001 Hold On               Boys &#38; Girls      Alabama Shakes
00000015        002 I Found You           Boys &#38; Girls      Alabama Shakes
00000016        003 Hang Loose            Boys &#38; Girls      Alabama Shakes
00000017        004 Rise to the Sun       Boys &#38; Girls      Alabama Shakes
00000018        005 You Ain't Alone       Boys &#38; Girls      Alabama Shakes
00000019        006 Goin' to the Party    Boys &#38; Girls      Alabama Shakes
00000020        007 Heartbreaker          Boys &#38; Girls      Alabama Shakes
00000021        008 Boys &#38; Girls      Boys &#38; Girls      Alabama Shakes
00000022        009 Be Mine               Boys &#38; Girls      Alabama Shakes
00000023        010 I Ain't the Same      Boys &#38; Girls      Alabama Shakes
Se | Line=1 | Col=1 | Alt=0,0;0 | Size=1070 | Recl=407 | Fmt=F | Files=1 | View
```

Figure 65. FileKit - SDE VFMT.

After pressing **F11** the display will be updated as follows.

```
SELCOPY/i - Edit   USER123.SELCTRN.ZZST1DAT using USER123.SELCTRN.SAM1(ZZST1C
 File Edit Actions Options Utilities Window SwapList Help  wS wR
Command>                                                    Scroll> Csr
Record type: TRACK   Fixed(407) Offset=0 Data elements=18
        TRACK-NUM NAME                    PERSISTENT-ID     TRACK-ID  TOTAL-TIME
            #3 #5                         #2                    #4          #8
         ZD 17:3 AN 24:120                AN 1:16            ZD 20:4    FB 284:4
            <--> <---+----1----+----> <---+----1----+> <---> <---+----1>
00000001        001 Rolling In the Deep   CB12DD714D51828C      2083      228093
00000002        002 Rumour Has It         2648A25633D15404      2085      223266
00000003        003 Turning Tables        9815923C6D2E6830      2087      250000
00000004        004 Don't You Remember    7D003FF752074C18      2089      243200
00000005        005 Set Fire to the Rain  AED739D8574AA4C5      2091      242973
00000006        006 He Won't Go           E755BCE1CF5CDEA7      2093      278040
00000007        007 Take It All           6798C2AB0AFB2571      2095      228293
00000008        008 I'll Be Waiting       962B35D1647DE75E      2097      241351
00000009        009 One and Only          D8A6C8FDC2802177      2099      348226
00000010        010 Lovesong              2502515DEB535010      2101      316240
00000011        011 Someone Like You      E374BE6EE7C86B1D      2103      285240
00000012        012 I Found a Boy (Bonus  D4EB4EBF4651EF20      2105      217338
00000013        013 Adele 21 - A Track B  CEC92B1BA3204A0A      2107      875000
00000014        001 Hold On               6D4C2C7BA7E01593      4169      226186
00000015        002 I Found You           E241B09CC251C386      4171      179653
00000016        003 Hang Loose            E74C16BCB319870C      4173      144200
00000017        004 Rise to the Sun       214ED5D95B84533C      4175      188613
00000018        005 You Ain't Alone       0E421AFCD141D22D      4177      284600
00000019        006 Goin' to the Party    FF47FB9E05DE8967      4179      105653
00000020        007 Heartbreaker          5D46C681552440BF      4181      227440
00000021        008 Boys &#38; Girls      C54FE77922485624      4183      205986
00000022        009 Be Mine               8D4B5913F78CEEE3      4185      254760
00000023        010 I Ain't the Same      B044D8ED2337A412      4187      175800
Se | Line=1 | Col=1 | Alt=0,0;0 | Size=1070 | Recl=407 | Fmt=F | Files=1 | View
```

Figure 66. FileKit - SDE VFMT.

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.

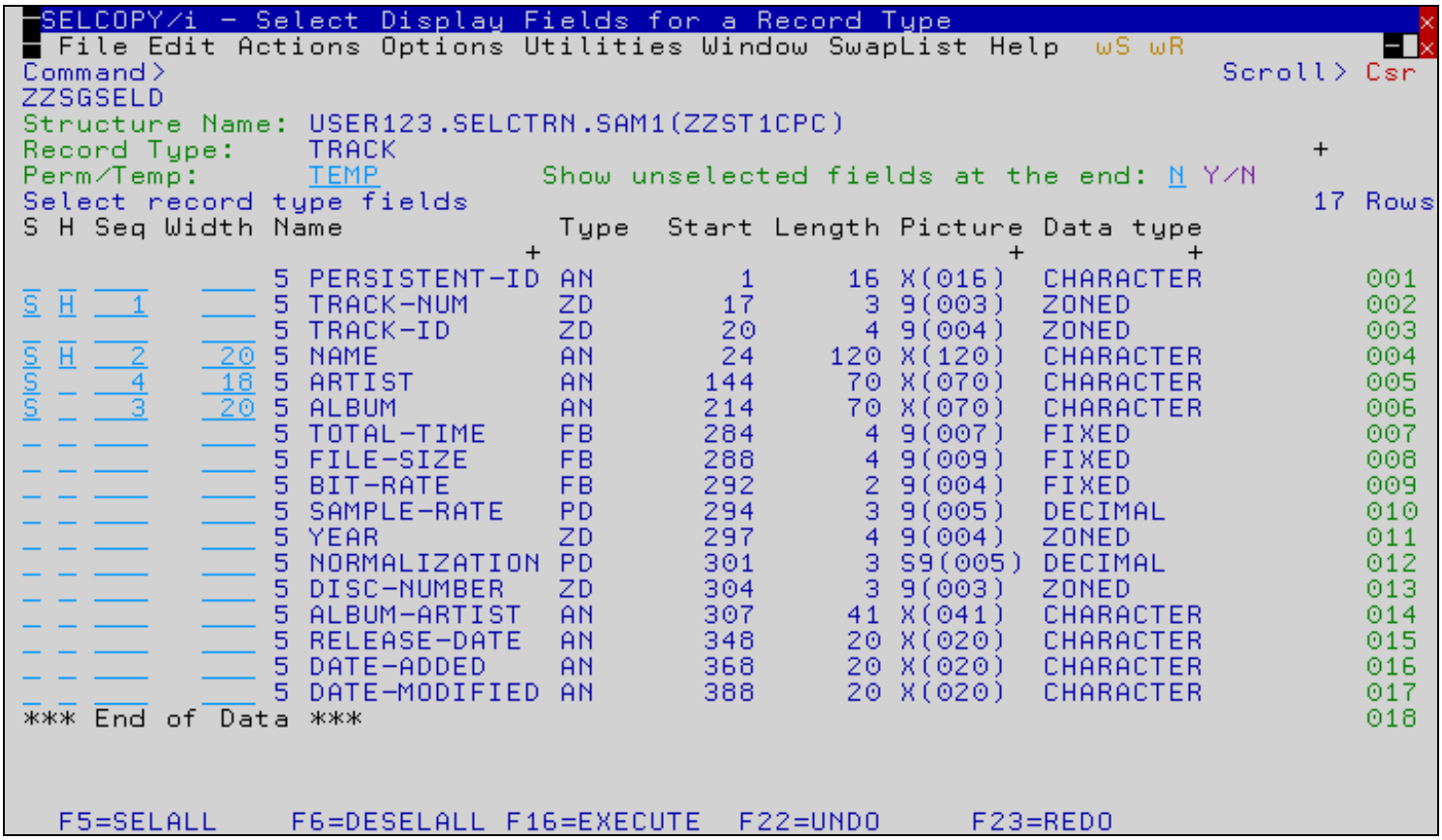


Figure 67. FileKit - SDE SELECT panel.

- 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 partiularly 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 appliy are simultaneously visible.

Using FIND, EXCLUDE and ONLY commands

Searching for Data (FIND/F)

Type the following commands to produce the results displayed below.

- **SEL ***
- **L 1**
- **F HEART**

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

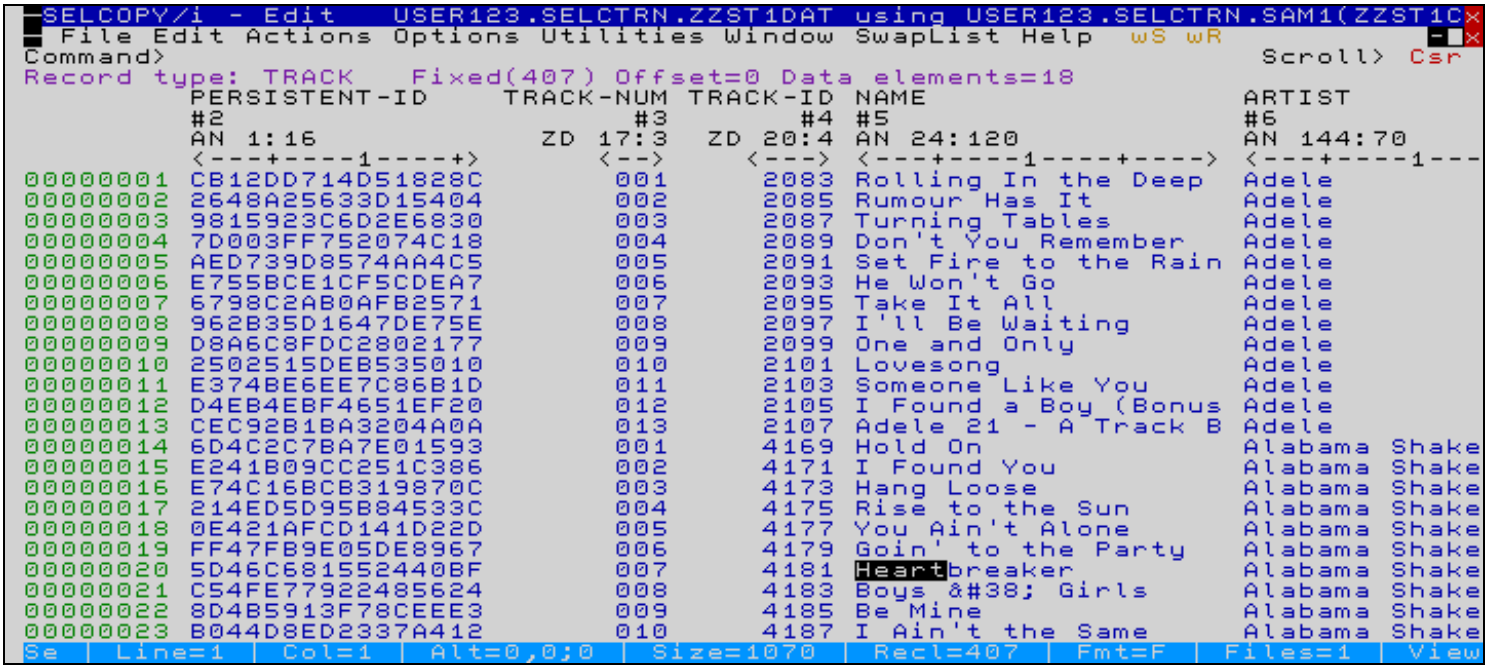


Figure 68. FileKit - SDE FIND 1.

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.

```
SELCOPY/i - Edit   USER123.SELCTRN.ZZST1DAT using USER123.SELCTRN.SAM1(ZZST1C
 File Edit Actions Options Utilities Window SwapList Help  wS wR
Command>                                                        Scroll> Csr
Record type: TRACK   Fixed(407) Offset=0 Data elements=18
          PERSISTENT-ID     TRACK-NUM TRACK-ID NAME                      ARTIST
          #2                      #3       #4 #5                       #6
          AN 1:16               ZD 17:3  ZD 20:4 AN 24:120              AN 144:70
          <---+----1----+>        <-->     <---> <---+----1----+----> <---+----1---
00000653  7A380D28DA910A7B          001      3363 Sweet Home Alabama    Lynyrd Skynyr
00000654  FA976D14F7EEF623          002      3339 I Ain't the One       Lynyrd Skynyr
00000655  7D828FF66DE1B03D          002      3365 Crossroads            Lynyrd Skynyr
00000656  8FE27D812957B9A5          003      3341 Saturday Night Speci  Lynyrd Skynyr
00000657  6BC665A35BDB5475          003      3367 Free Bird (Undubbed)  Lynyrd Skynyr
00000658  25533C315171FCE5          004      3343 Searching             Lynyrd Skynyr
00000659  F06C5E8FF9E73897          004      3369 Introduction By Alex  Lynyrd Skynyr
00000660  F6775CC2575D9F02          005      3371 I Ain't the One (Alt  Lynyrd Skynyr
00000661  8F12ADFE0A2D3C4B          005      3345 Travellin' Man        Lynyrd Skynyr
00000662  1C83C54551DA904B          006      3373 Searchin' (Alternate  Lynyrd Skynyr
00000663  3A8D35D8E4E94317          006      3347 Simple Man            Lynyrd Skynyr
00000664  AF1B4500D8892FE5          007      3375 Gimme Three Steps     Lynyrd Skynyr
00000665  90B364BC56E5D4D9          007      3349 Whiskey Rock-A-Rolle  Lynyrd Skynyr
00000666  FB62E8C234527D6E          008      3351 The Needle and the S  Lynyrd Skynyr
00000667  94627829ECA49843          008      3377 Call Me the Breeze    Lynyrd Skynyr
00000668  458342D207B0BC77          009      3353 Gimme Back My Bullet  Lynyrd Skynyr
00000669  8D0B7C18B78DE112          009      3379 Sweet Home Alabama (  Lynyrd Skynyr
00000670  867C61A98F5AC380          010      3381 Crossroads (Alternat  Lynyrd Skynyr
00000671  94EE123CE522DEF4          010      3355 Tuesday's Gone        Lynyrd Skynyr
00000672  4F8AF925660E6850          011      3357 Gimme Three Steps     Lynyrd Skynyr
00000673  30956502EC125D30          011      3383 Free Bird             Lynyrd Skynyr
00000674  3B3298C3172E369E          012      3359 Call Me the Breeze    Lynyrd Skynyr
00000675  3CF5025D22F1607E          013      3361 T for Texas (Blue Yo  Lynyrd Skynyr
Se | Line=653 | Col=1 | Alt=0,0;0 | Size=1070 | Recl=407 | Fmt=F | Files=1 | Vi
```

Figure 69. FileKit - 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)**

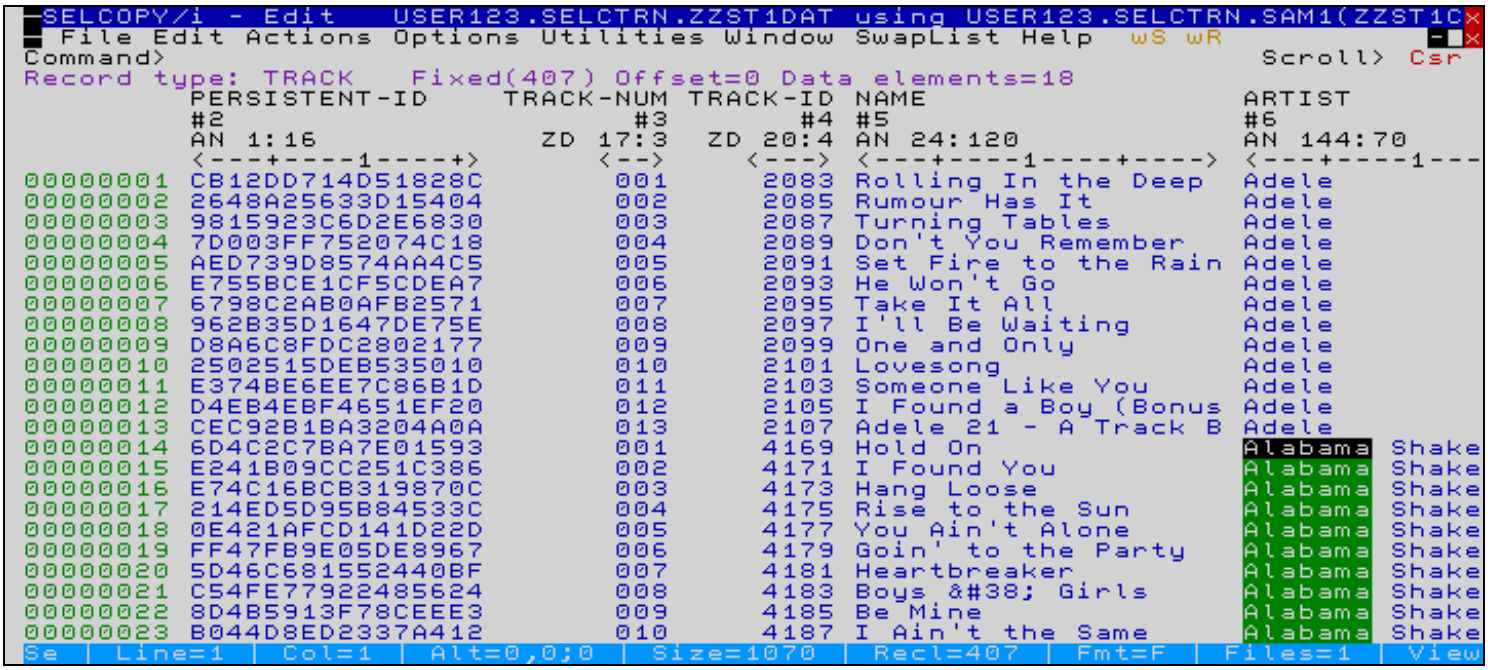


Figure 70. FileKit - SDE FIND 3.

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.

Excluding Records Based on Field Content (EXCLUDE/X)

- The **EXCLUDE** command takes the same parameters as **FIND** e.g.
  - **X ALL ALABAMA #5,#6**

```
SELCOPY/i - Edit   USER123.SELCTRN.ZZST1DAT using USER123.SELCTRN.SAM1(ZZST1C
 File Edit Actions Options Utilities Window SwapList Help  wS wR
Command>                                                      Scroll> Csr
ZZSD187I 27 lines of record type TRACK containing string "alabama" were
 excluded.
          #2                          #3         #4 #5                        #6
          AN 1:16                ZD 17:3   ZD 20:4 AN 24:120                 AN 144:70
          <---+----1----+>          <-->      <---> <---+----1----+----+----> <---+----1---
00000001 CB12DD714D51828C            001       2083 Rolling In the Deep      Adele
00000002 2648A25633D15404            002       2085 Rumour Has It            Adele
00000003 9815923C6D2E6830            003       2087 Turning Tables           Adele
00000004 7D003FF752074C18            004       2089 Don't You Remember       Adele
00000005 AED739D8574AA4C5            005       2091 Set Fire to the Rain     Adele
00000006 E755BCE1CF5CDEA7            006       2093 He Won't Go              Adele
00000007 6798C2AB0AFB2571            007       2095 Take It All              Adele
00000008 962B35D1647DE75E            008       2097 I'll Be Waiting          Adele
00000009 D8A6C8FDC2802177            009       2099 One and Only             Adele
00000010 2502515DEB535010            010       2101 Lovesong                 Adele
00000011 E374BE6EE7C86B1D            011       2103 Someone Like You         Adele
00000012 D4EB4EBF4651EF20            012       2105 I Found a Boy (Bonus     Adele
00000013 CEC92B1BA3204A0A            013       2107 Adele 21 - A Track B     Adele
00000014 --------- 24 line(s) excluded:   record  type TRACK ----------------
00000038 3042FAD7E89FCDF3            016       2133 Uninvited                Alanis Moriss
00000039 D1EF53B14D5A4790            001       2135 All I Really Want        Alanis Moriss
00000040 02EACE532929B38F            002       2137 You Oughta Know          Alanis Moriss
00000041 C63A3B24DB37898D            003       2139 Perfect                  Alanis Moriss
00000042 B26EEC33174DCC60            004       2141 Hand In My Pocket        Alanis Moriss
00000043 8276C65D2939EE3B            005       2143 Right Through You        Alanis Moriss
00000044 74E398087479A309            006       2145 Forgiven                 Alanis Moriss
00000045 D6876CE5B59004CF            007       2147 You Learn                Alanis Moriss
00000046 AF138361B3B3E268            008       2149 Head Over Feet           Alanis Moriss
Se | Line=1 | Col=1 | Alt=0,0;0 | Size=1070 | Recl=407 | Fmt=F | Files=1 | View
```

Figure 71. FileKit - SDE EXCLUDE.

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.

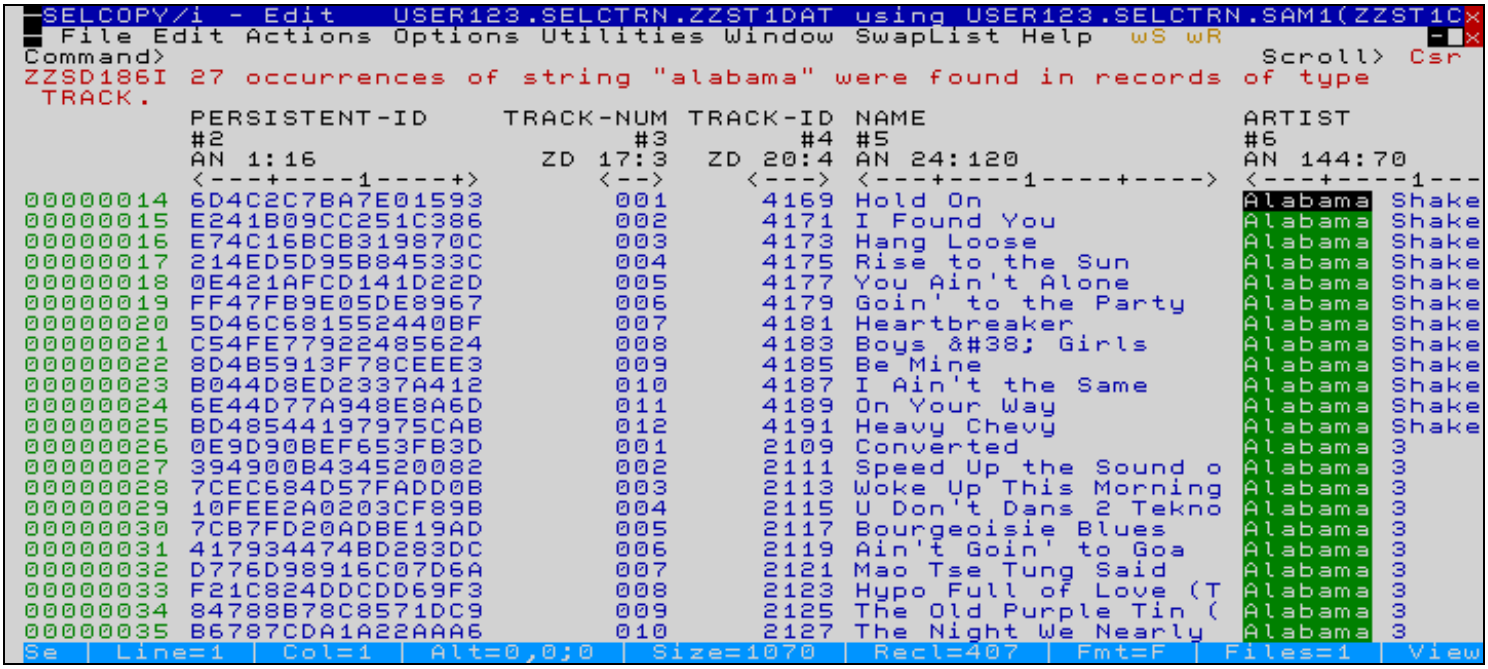


Figure 72. FileKit - SDE ONLY 1.

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** resume display of shadow records.

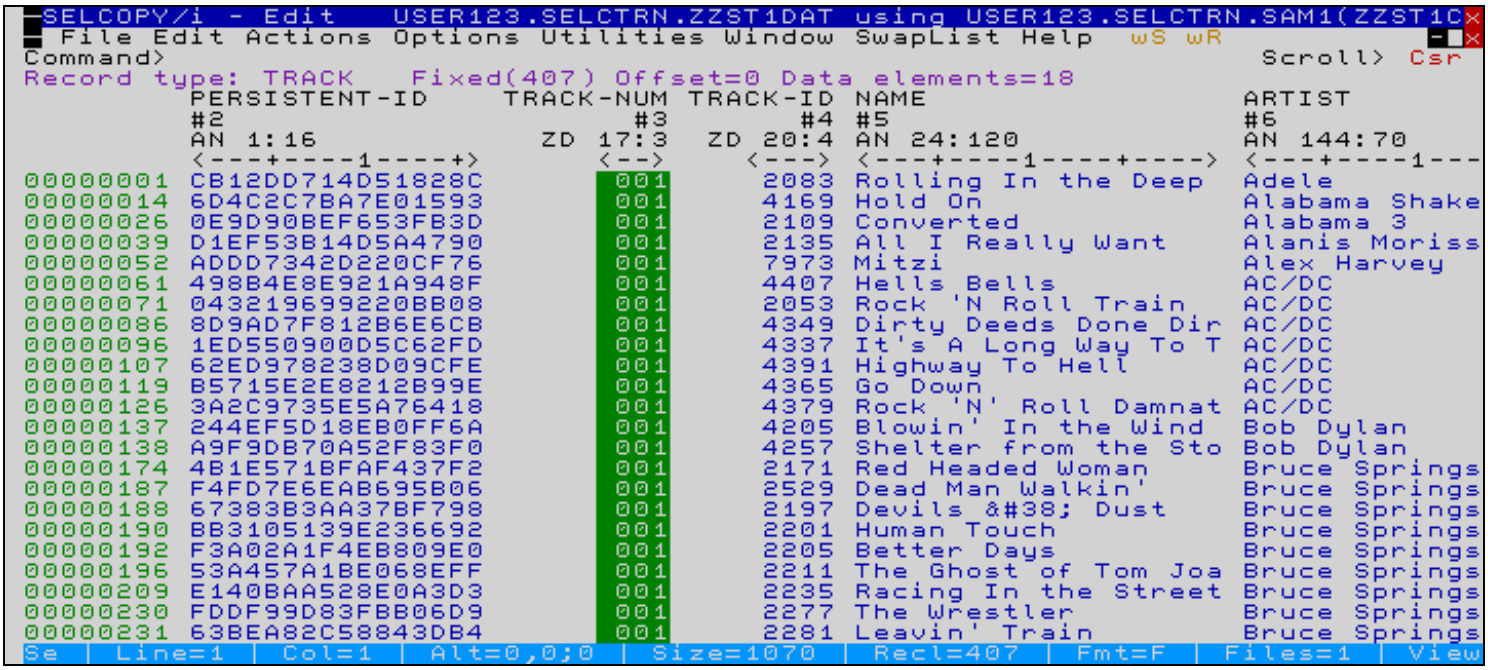


Figure 73. FileKit - SDE ONLY 2.

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:

Operator	Description
EQ	Data must be equal to *value*. (Default)
NE	Data must be not equal to *value*.
GT	Data must be greater than *value*.
GE	Data must be greater than or equal to *value*.
LT	Data must be less than *value*.
LE	Data must be less than or equal to *value*.

- 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)**

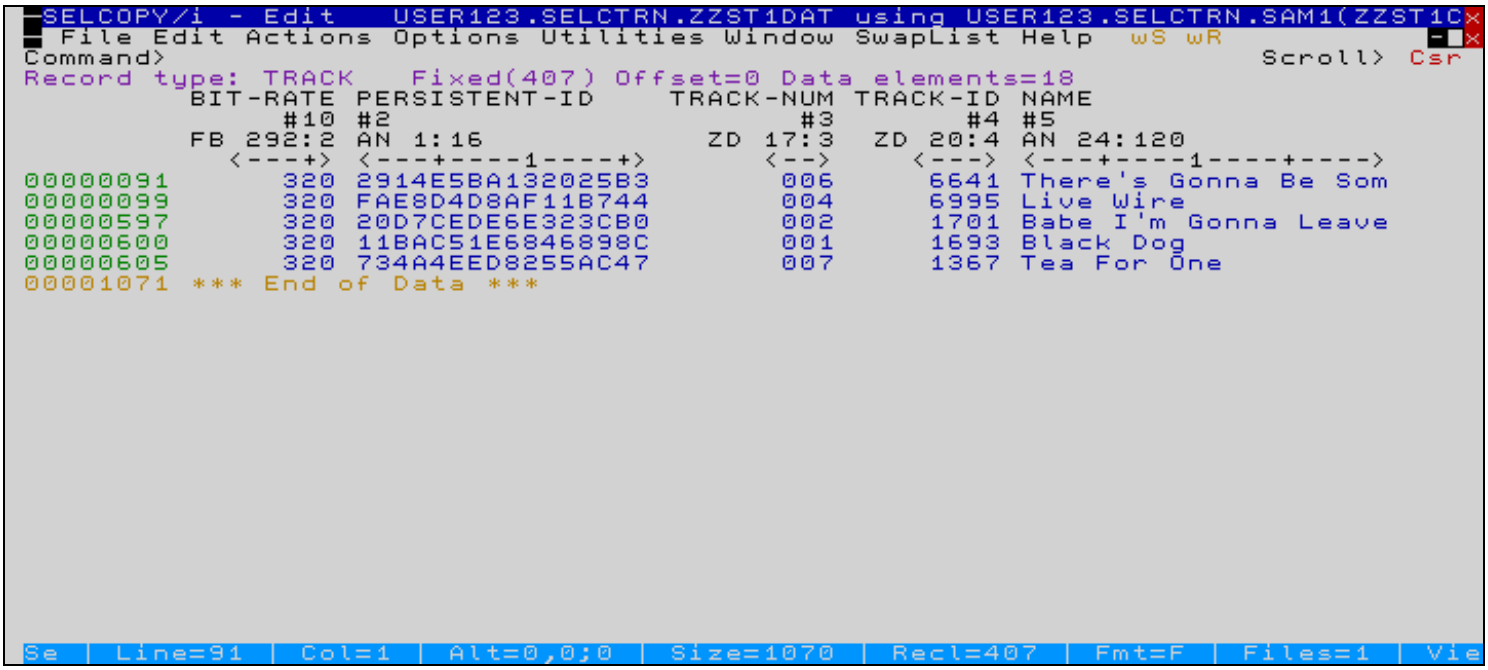


Figure 74. FileKit - SDE ONLY 3.

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.SELCTRN.ZZST1DAT using USER123.SELCTRN.SAM1(ZZST1C
 File Edit Actions Options Utilities Window SwapList Help  wS wR
Command>                                                        Scroll> Csr
Record type: TRACK   Fixed(407) Offset=0 Data elements=18
          SAMPLE-RATE NORMALIZATION PERSISTENT-ID     TRACK-NUM TRACK-ID
                  #11           #13 #2                      #3        #4
               PD 294:3      PD 301:3 AN 1:16              ZD 17:3  ZD 20:4
                 <---+>        <---+> <---+----1----+>       <-->     <--->
00000208          ******           0 BCE177B1DB2B983A          016      1383
                     400         000 CCCFFFCFCCFCFFFC          FFC      FFFC
                     800         00C 2351772142229831          016      1383

00000551           44100      ****** 58CF2C29F7A472F0          003      3147
                     410         139 FFCCFCFFCFCFFFCF          FFC      FFFC
                     40C         0EC 5836232967147260          003      3147

00000703          ******           0 67BCBC8407B6204C          018      3441
                     410         000 FFCCCCFFFFCFFFFC          FFC      FFFC
                     400         00C 6723238407262043          018      3441

00000769           44100      ****** 43444409245FB890          003      4069
                     410         076 FFFFFFFFFFFCCFFF          FFC      FFFC
                     40C         A0C 4344440924562890          003      4069

00000966          ******           0 99D68F50F8BC243F          023      3821
                     410         000 FFCFFCFFCFCCFFFC          FFC      FFFC
                     400         00C 9946865068232436          023      3821

00001007           44100        4923 43EED60467C11B25          003      4479
                     410         093 FFCCCFFFFFCFFCFF          FFC      FFFC
                     40C         42C 4355460467311225          003      4479
Se | Line=208 | Col=1 | Alt=0,0;0 | Size=1070 | Recl=407 | Fmt=F | Files=1 | Vi
```

Figure 75. FileKit - 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 **FileKit** 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.

```
SELCOPY/i - Edit   USER123.SELCTRN.ZZST1DAT using USER123.SELCTRN.SAM1(ZZST1C
 File Edit Actions Options Utilities Window SwapList Help  wS wR
Command>                                                        Scroll> Csr
Record type: TRACK   Fixed(407) Offset=0 Data elements=18
        TRACK-NUM  NAME                      ALBUM                    ARTIST
                #3 #5                       #7                       #6
             ZD 17:3 AN 24:120              AN 214:70                AN 144:70
                <--> <---+----1----+----> <---+----1----+----> <---+----1----+-->
00000001         001 Rolling In the Deep   21                       Adele
00000002         002 Rumour Has It         21                       Adele
00000003         003 Turning Tables        21                       Adele
00000004         004 Don't You Remember    21                       Adele
00000005         005 Set Fire to the Rain  21                       Adele
00000006         006 He Won't Go           21                       Adele
00000007         007 Take It All           21                       Adele
00000008         008 I'll Be Waiting       21                       Adele
00000009         009 One and Only          21                       Adele
00000010         010 Lovesong              21                       Adele
00000011         011 Someone Like You      21                       Adele
00000012         012 I Found a Boy (Bonus  21                       Adele
00000013         013 Adele 21 - A Track B  21                       Adele
==CHG>           001 Hold On               Boys & Girls             Alabama Shakes
==CHG>           002 I Found You           Boys & Girls             Alabama Shakes
==CHG>           003 Hang Loose            Boys & Girls             Alabama Shakes
==CHG>           004 Rise to the Sun       Boys & Girls             Alabama Shakes
00000018         005 You Ain't Alone       Boys &#38; Girls         Alabama Shakes
00000019         006 Goin' to the Party    Boys &#38; Girls         Alabama Shakes
00000020         007 Heartbreaker          Boys &#38; Girls         Alabama Shakes
00000021         008 Boys &#38; Girls      Boys &#38; Girls         Alabama Shakes
00000022         009 Be Mine               Boys &#38; Girls         Alabama Shakes
00000023         010 I Ain't the Same      Boys &#38; Girls         Alabama Shakes
Se | Line=1 | Col=1 | Alt=4,4;4 | Size=1070 | Recl=407 | Fmt=F | Files=1 | View
```

Figure 76. FileKit - SDE CHANGE 1.

UNDO / 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.

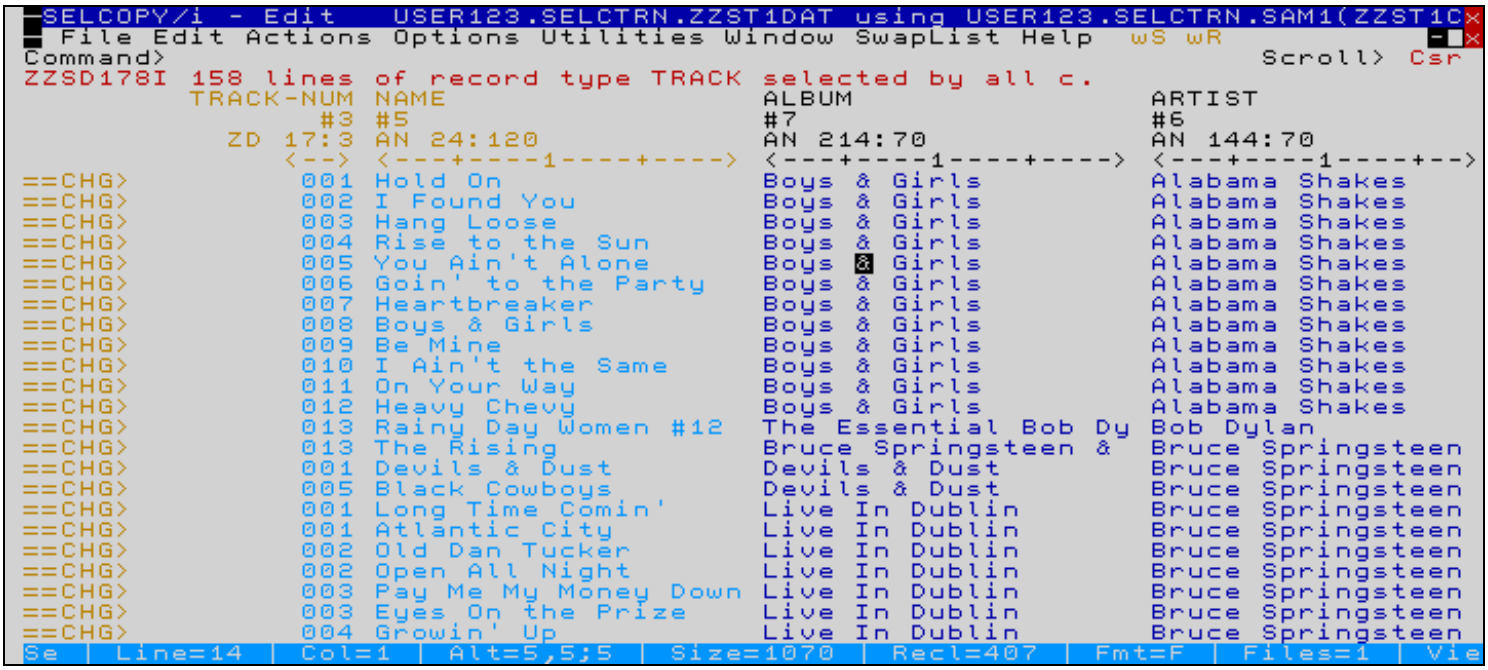


Figure 77. FileKit - SDE ALL CHANGED.

Restricting the CHANGE to Specific Fields

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

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

```
SELCOPY/i - Edit   USER123.SELCTRN.ZZST1DAT using USER123.SELCTRN.SAM1(ZZST1C
 File Edit Actions Options Utilities Window SwapList Help  wS wR
Command> c all '21' 'Twenty-One' (Name)                        Scroll> Csr
00000000 *** Top of Data ***
Record type: TRACK   Fixed(407) Offset=0 Data elements=18
         TRACK-NUM NAME                      ALBUM                    ARTIST
                #3 #5                        #7                       #6
            ZD 17:3 AN 24:120                AN 214:70                AN 144:70
               <--> <---+----1----+----> <---+----1----+----> <---+----1----+-->
00000001        001 Rolling In the Deep  21                       Adele
00000002        002 Rumour Has It        21                       Adele
00000003        003 Turning Tables       21                       Adele
00000004        004 Don't You Remember   21                       Adele
00000005        005 Set Fire to the Rain 21                       Adele
00000006        006 He Won't Go          21                       Adele
00000007        007 Take It All          21                       Adele
00000008        008 I'll Be Waiting      21                       Adele
00000009        009 One and Only         21                       Adele
00000010        010 Lovesong             21                       Adele
00000011        011 Someone Like You     21                       Adele
00000012        012 I Found a Boy (Bonus 21                       Adele
==CHG>          013 Adele Twenty-One - A 21                       Adele
00000014        001 Hold On              Boys & Girls             Alabama Shakes
00000015        002 I Found You          Boys & Girls             Alabama Shakes
00000016        003 Hang Loose           Boys & Girls             Alabama Shakes
00000017        004 Rise to the Sun      Boys & Girls             Alabama Shakes
00000018        005 You Ain't Alone      Boys & Girls             Alabama Shakes
00000019        006 Goin' to the Party   Boys & Girls             Alabama Shakes
00000020        007 Heartbreaker         Boys & Girls             Alabama Shakes
00000021        008 Boys & Girls         Boys & Girls             Alabama Shakes
00000022        009 Be Mine              Boys & Girls             Alabama Shakes
Se | Line=0 | Col=1 | Alt=6,6;6 | Size=1070 | Recl=407 | Fmt=F | Files=1 | View
```

Figure 78. FileKit - SDE CHANGE 2.

CHANGEing Numeric Data-Type Fields

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**

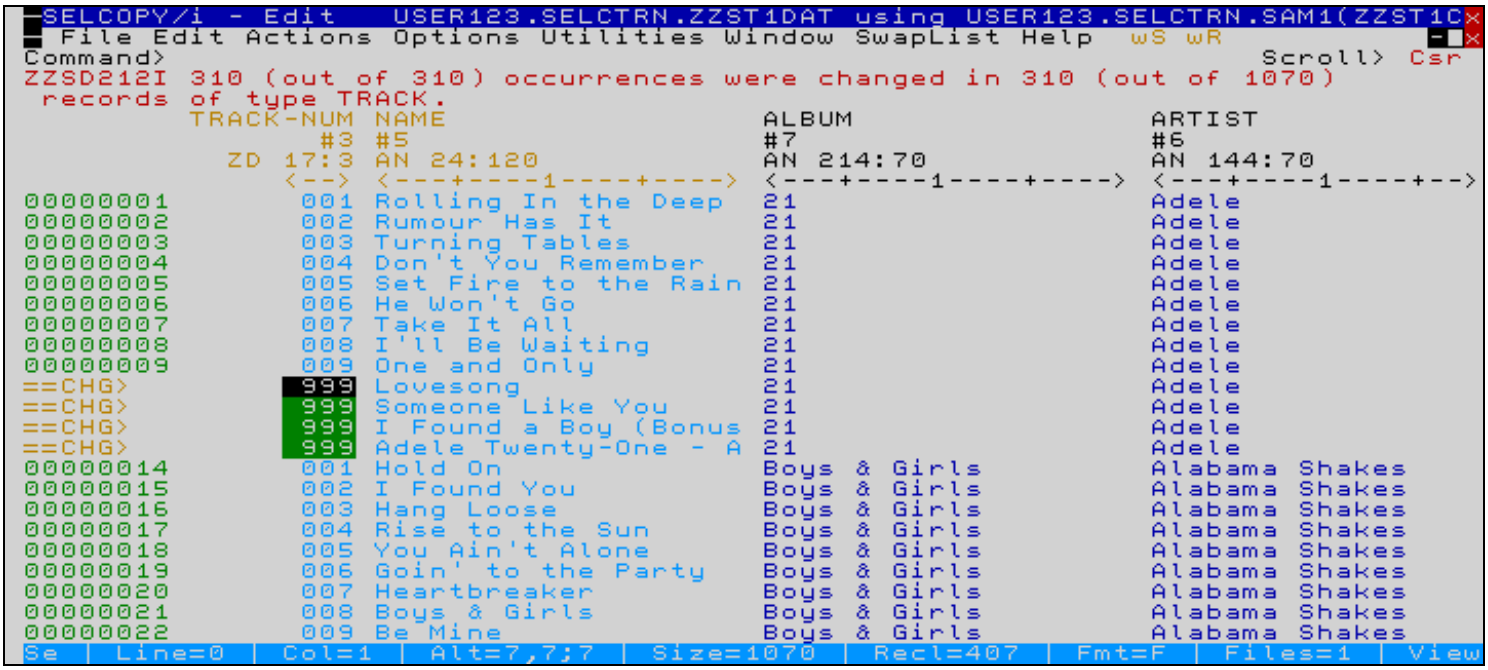


Figure 79. FileKit - SDE CHANGE 3.

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**

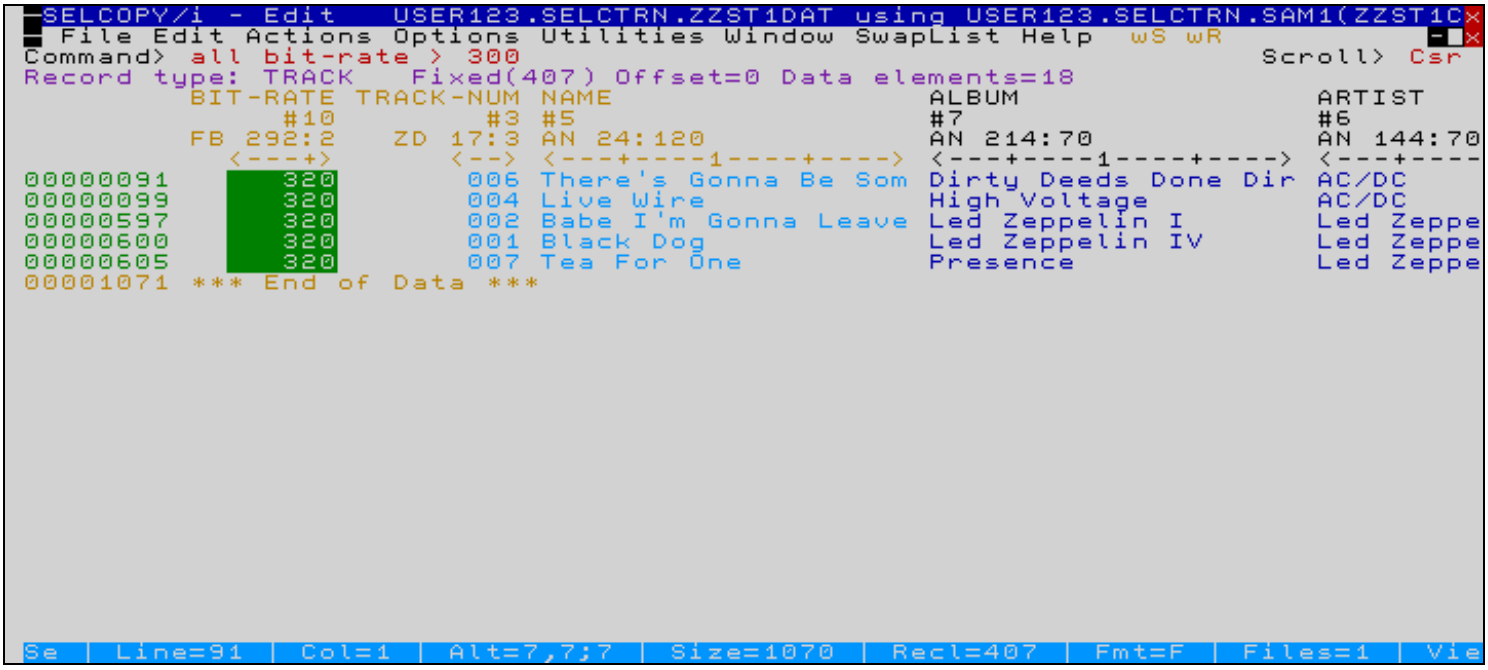


Figure 80. FileKit - SDE ALL 1.

Using Multiple Selection Criteria

Selection criteria expressions may specify multiple conditions.

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

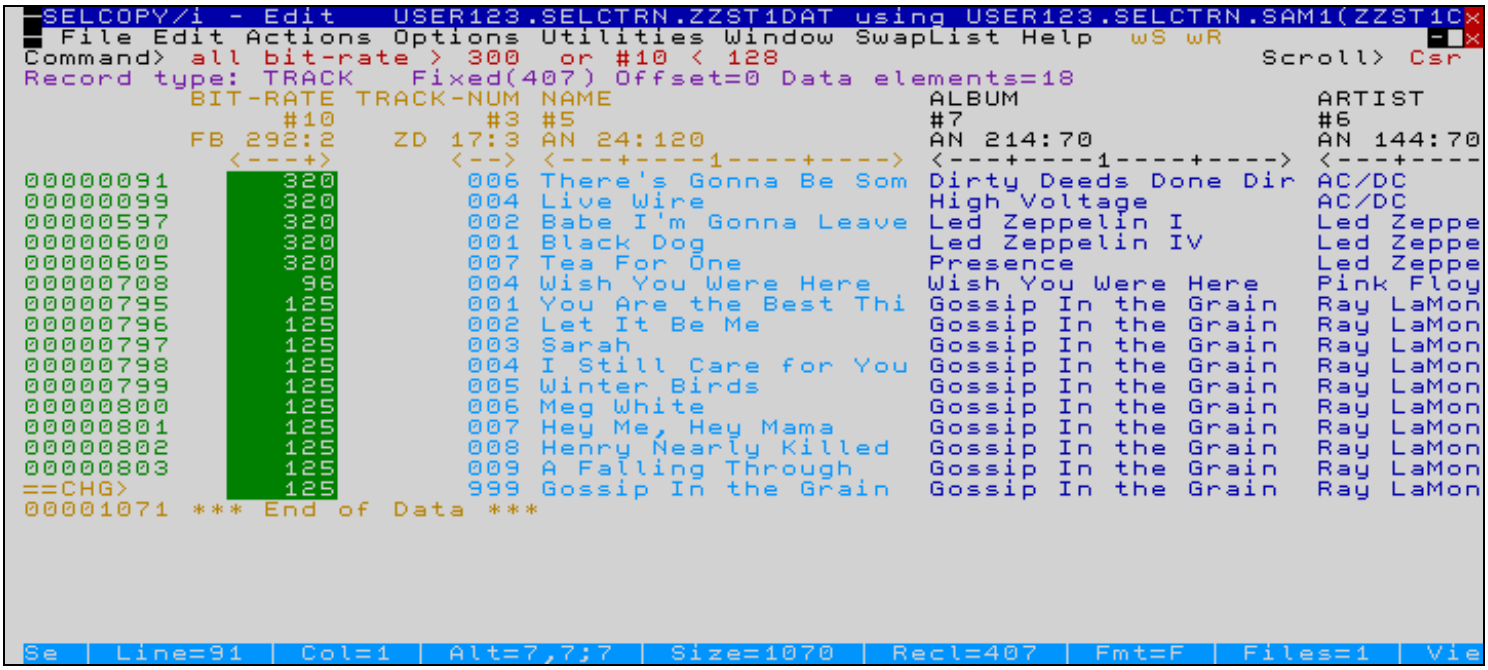


Figure 81. FileKit - SDE ALL 2.

Increasing the size of the Command Input Area

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

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

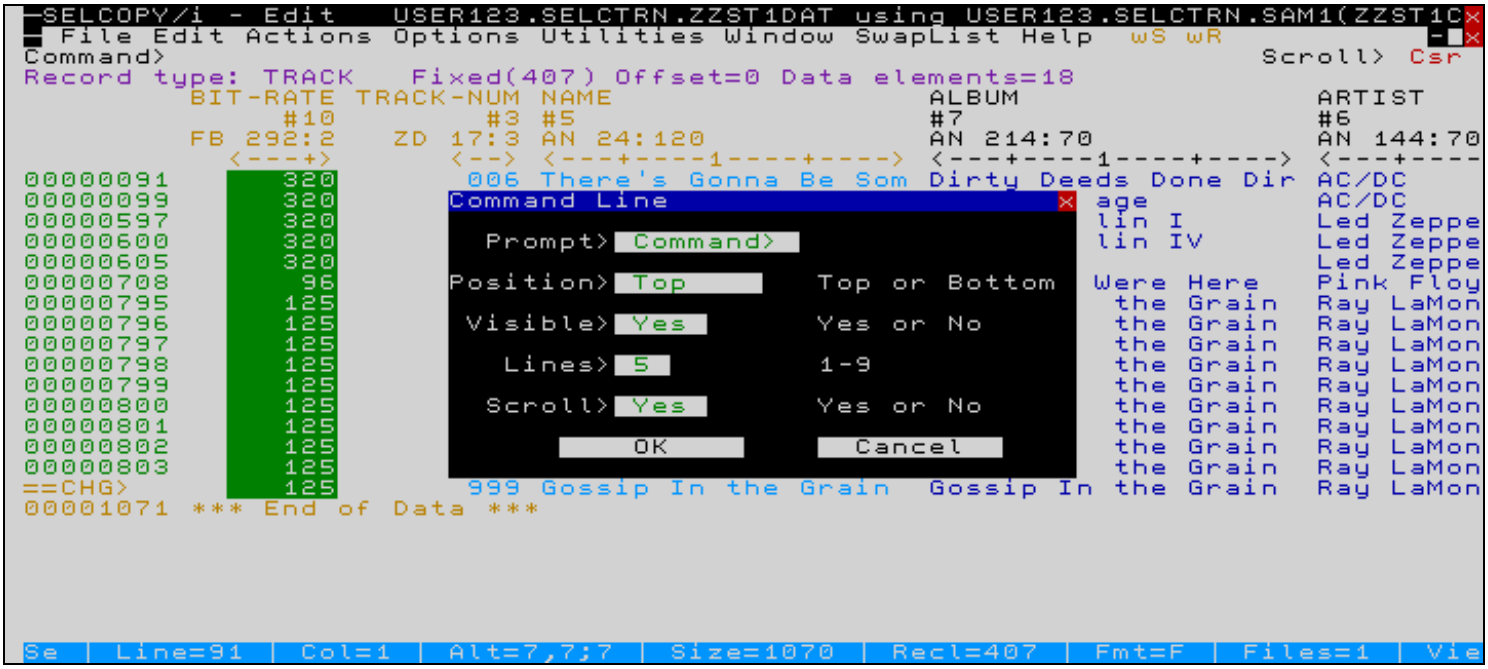


Figure 82. FileKit - SDE Command Line Options.

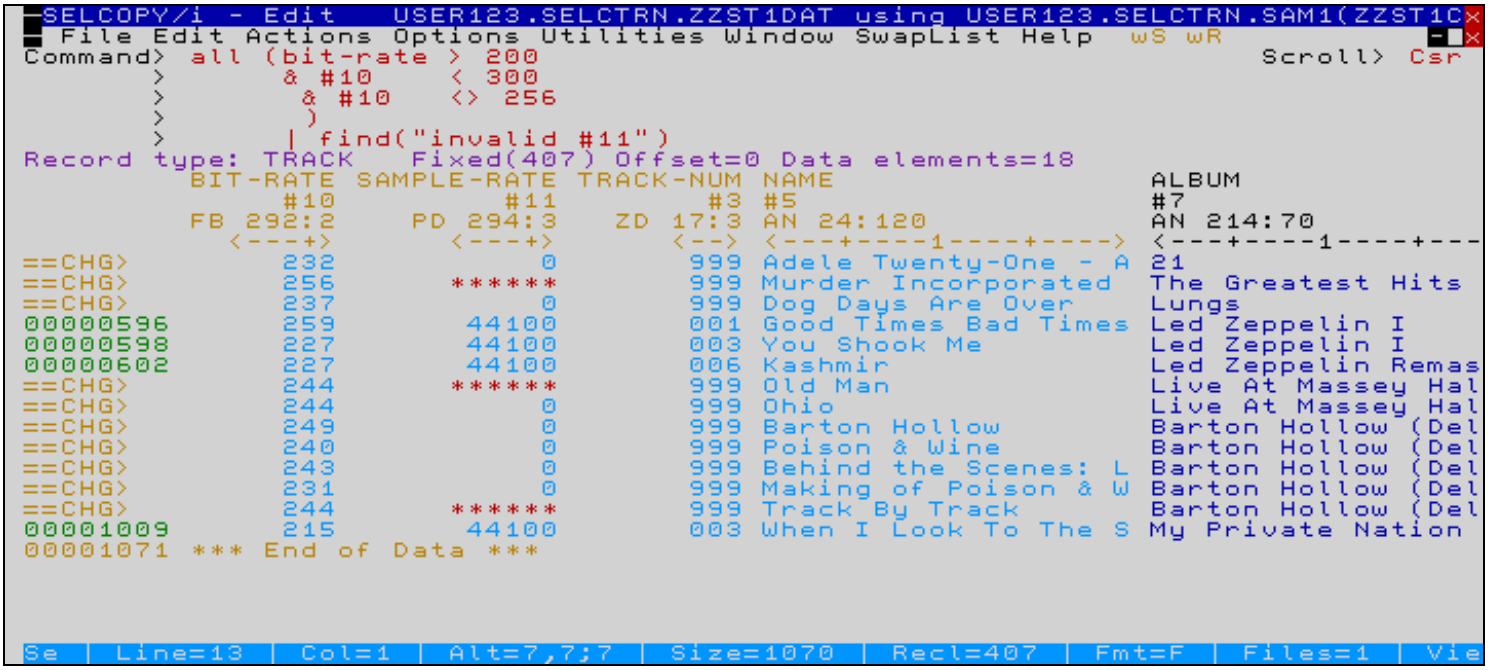


Figure 83. FileKit - SDE ALL 3.

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 **FileKit** 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.

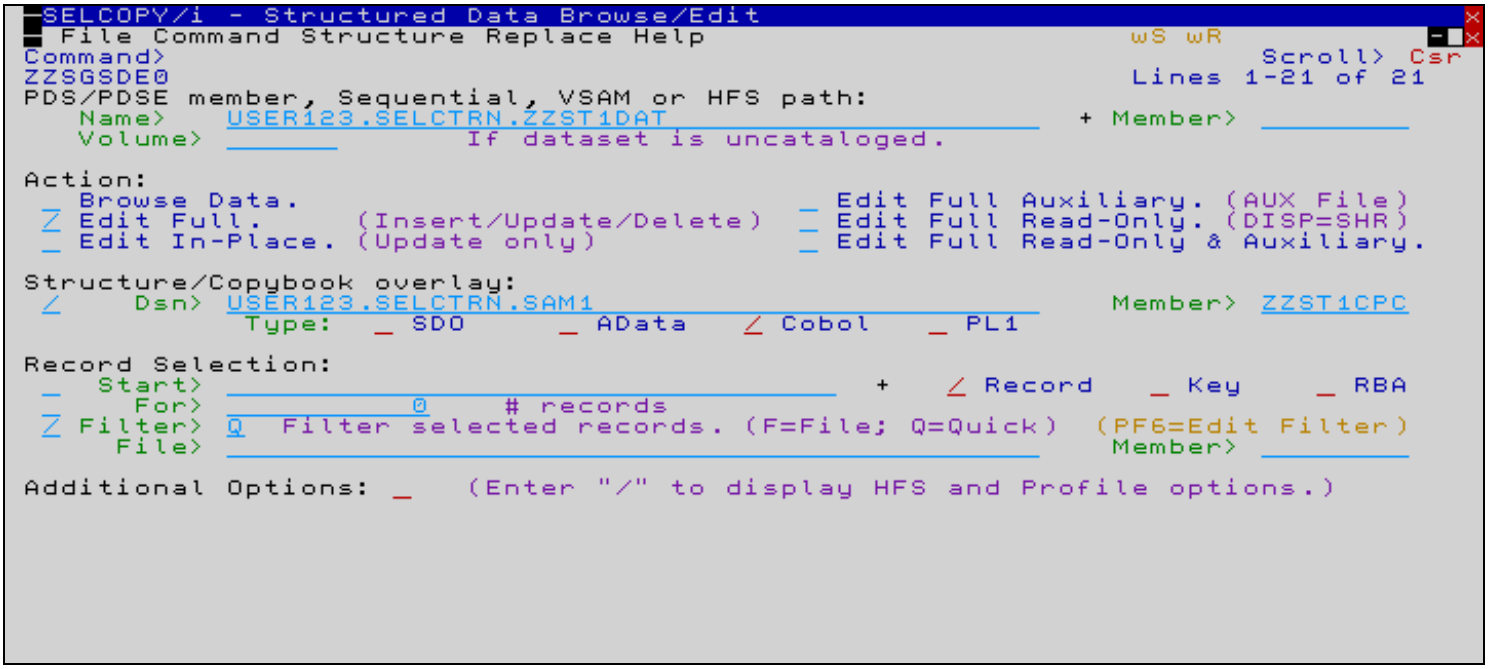


Figure 84. FileKit - SDE Quick FIlter 1.

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.
- Replicate table entry line 1 by typing **R** 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.

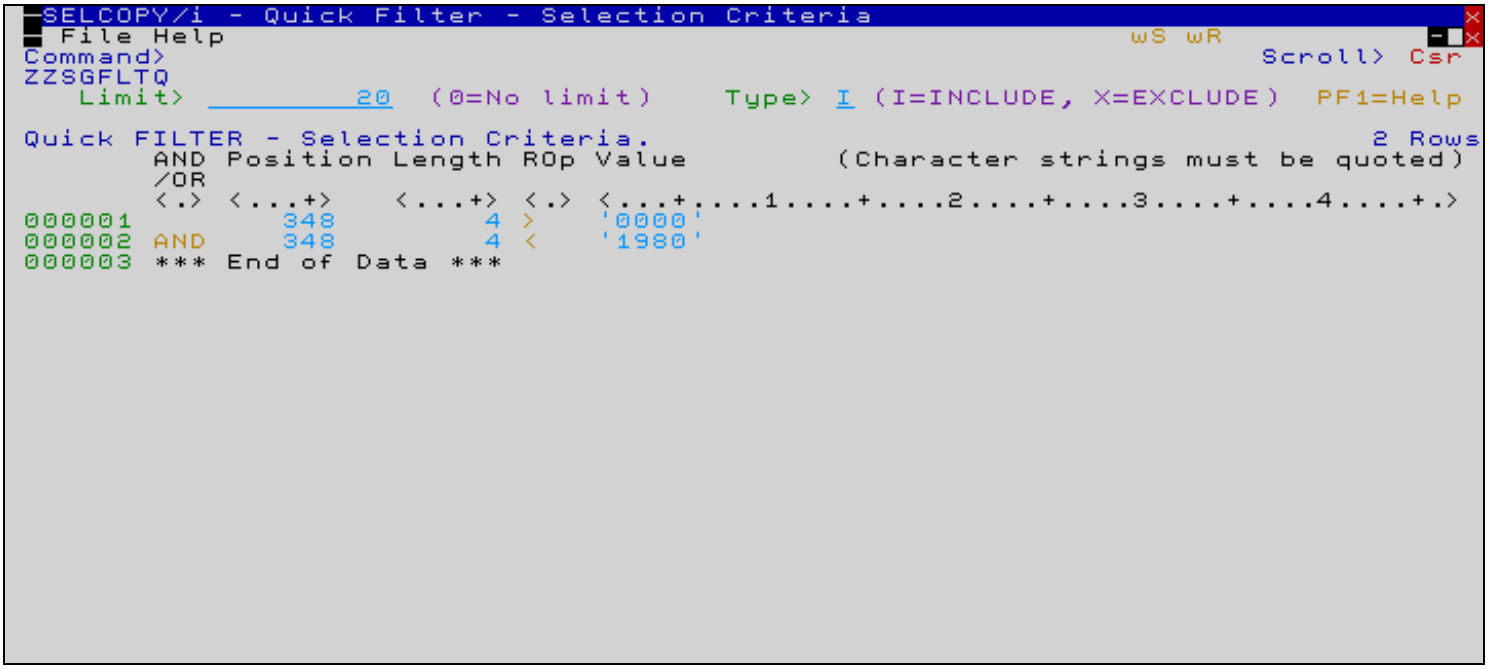


Figure 85. FileKit - SDE Quick Filter 2.

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 **FileKit** Primary Option Menu.
    2. At the SDE Edit / Browse Entry Panel, specify filter type **F**, enter the saved filter dataset/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.

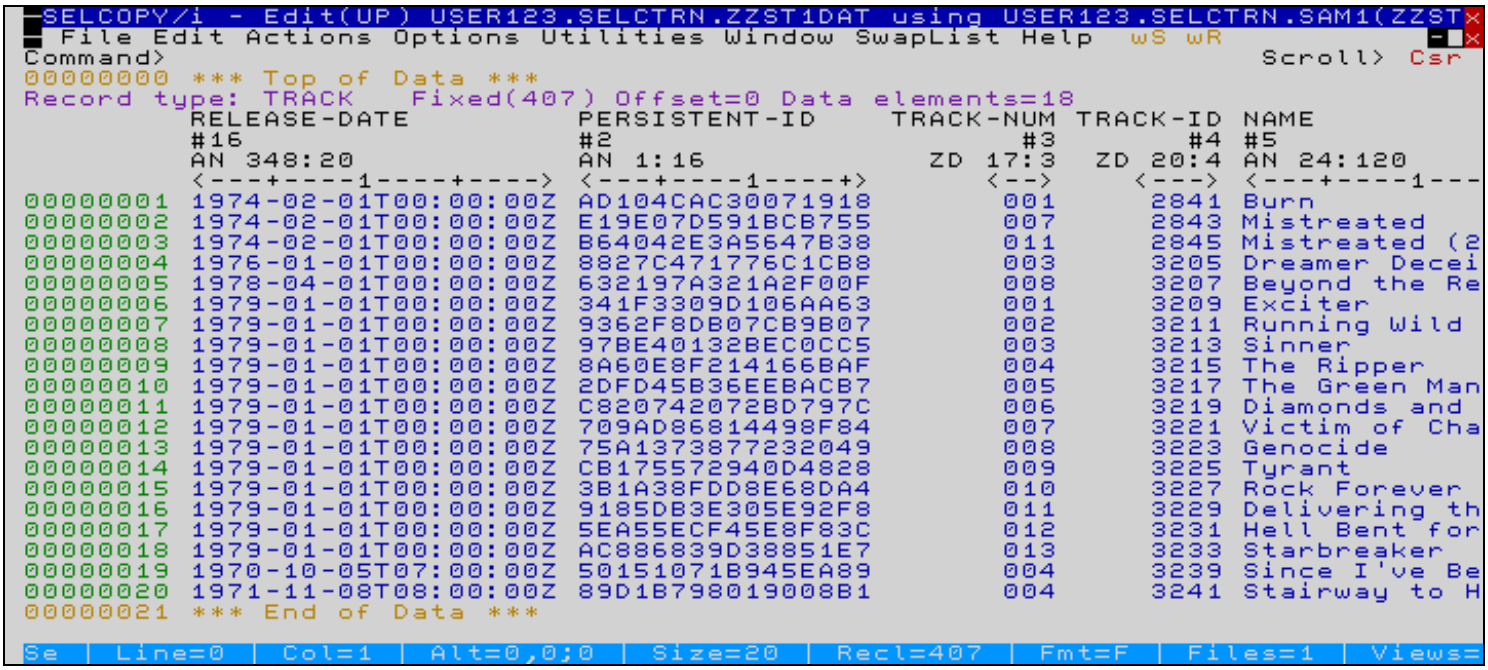


Figure 86. FileKit - SDE Quick Filter 3.

Working with Multiple Record-Types

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 **FileKit 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.SELCTRN.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.SELCTRN.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 reactivate 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.

```
SELCOPY/i - Browse USER123.SELCTRN.ZZST2DAT     268 V SEQ
 File Edit Actions Options Utilities Window SwapList Help  wS wR
Command>                                                  Scroll> Csr
Record type: UnMapped   Variable(0,268) Offset=0 Data elements=1
         Length UnMapped
                <---+----1----+----2----+----3----+----4----+----5----+----6---
00000001     71 1Adele
00000002     71 221
00000003    268 3CB12DD714D51828C00A208CRolling In the Deep
00000004    268 32648A25633D1540400B208ERumour Has It
00000005    268 39815923C6D2E683000C208GTurning Tables
00000006    268 37D003FF752074C1800D208IDon't You Remember
00000007    268 3AED739D8574AA4C500E209ASet Fire to the Rain
00000008    268 3E755BCE1CF5CDEA700F209CHe Won't Go
00000009    268 36798C2AB0AFB257100G209ETake It All
00000010    268 3962B35D1647DE75E00H209GI'll Be Waiting
00000011    268 3D8A6C8FDC280217700I209IOne and Only
00000012    268 32502515DEB53501001{210ALovesong
00000013    268 3E374BE6EE7C86B1D01A210CSomeone Like You
00000014    268 3D4EB4EBF4651EF2001B210EI Found a Boy (Bonus Track)
00000015    268 3CEC92B1BA3204A0A01C210GAdele 21 - A Track By Track Interview
00000016     71 1Alabama Shakes
00000017     71 2Boys &#38; Girls
00000018    268 36D4C2C7BA7E0159300A416IHold On
00000019    268 3E241B09CC251C38600B417AI Found You
00000020    268 3E74C16BCB319870C00C417CHang Loose
00000021    268 3214ED5D95B84533C00D417ERise to the Sun
00000022    268 30E421AFCD141D22D00E417GYou Ain't Alone
00000023    268 3FF47FB9E05DE896700F417IGoin' to the Party
00000024    268 35D46C681552440BF00G418AHeartbreaker
00000025    268 3C54FE7792248562400H418CBoys &#38; Girls
Se | Line=1 | Col=1 | Alt=0,0;0 | Size>228 | Recl=268 | Fmt=V | Files=1 | Views
```

Figure 87. FileKit - 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 **userpfx.SELCTRN.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 FileKit 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, **FileKit** 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 **FileKit** 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).

```
SELCOPY/i - Browse USER123.SELCTRN.ZZST2DAT using USER123.SELCTRN.SAM1(ZZST2C
 File Edit Actions Options Utilities Window SwapList Help  wS wR
Command>                                                        Scroll> Csr
00000000         *** Top of Data ***
Record type: ARTIST   Fixed(71) Offset=0 Data elements=3
          Length RT      ARTIST
                 #2      #3
                 AN 1:1  AN 2:70
                 >       <---+----1----+----2----+----3----+----4----+----5----+-
00000001      71 1       Adele
00000002      71 2       21

Record type: TRACK   Fixed(268) Offset=0 Data elements=53
          Length RT      PERSISTENT-ID     TRACK-NUM TRACK-ID NAME
                 #2      #3                      #4       #5 #6
                 AN 1:1  AN 2:16               ZD 18:3  ZD 21:4 AN 25:120
                 >       <---+----1----+>        <->      <--> <---+----1----+----2
00000003     268 3       CB12DD714D51828C        001      2083 Rolling In the Deep
00000004     268 3       2648A25633D15404        002      2085 Rumour Has It
00000005     268 3       9815923C6D2E6830        003      2087 Turning Tables
00000006     268 3       7D003FF752074C18        004      2089 Don't You Remember
00000007     268 3       AED739D8574AA4C5        005      2091 Set Fire to the Rain
00000008     268 3       E755BCE1CF5CDEA7        006      2093 He Won't Go
00000009     268 3       6798C2AB0AFB2571        007      2095 Take It All
00000010     268 3       962B35D1647DE75E        008      2097 I'll Be Waiting
00000011     268 3       D8A6C8FDC2802177        009      2099 One and Only
00000012     268 3       2502515DEB535010        010      2101 Lovesong
00000013     268 3       E374BE6EE7C86B1D        011      2103 Someone Like You
00000014     268 3       D4EB4EBF4651EF20        012      2105 I Found a Boy (Bonus
00000015     268 3       CEC92B1BA3204A0A        013      2107 Adele 21 - A Track B

Se | Line=0 | Col=1 | Alt=0,0;0 | Size>228 | Recl=268 | Fmt=V | Files=1 | Views
```

Figure 88. FileKit - SDE Automatic Record-Type Id.

Record-Identification Criteria (for Direct Copybook Overlay)

When it isn't possible to automatically infer the correct record-type assocation 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 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'**

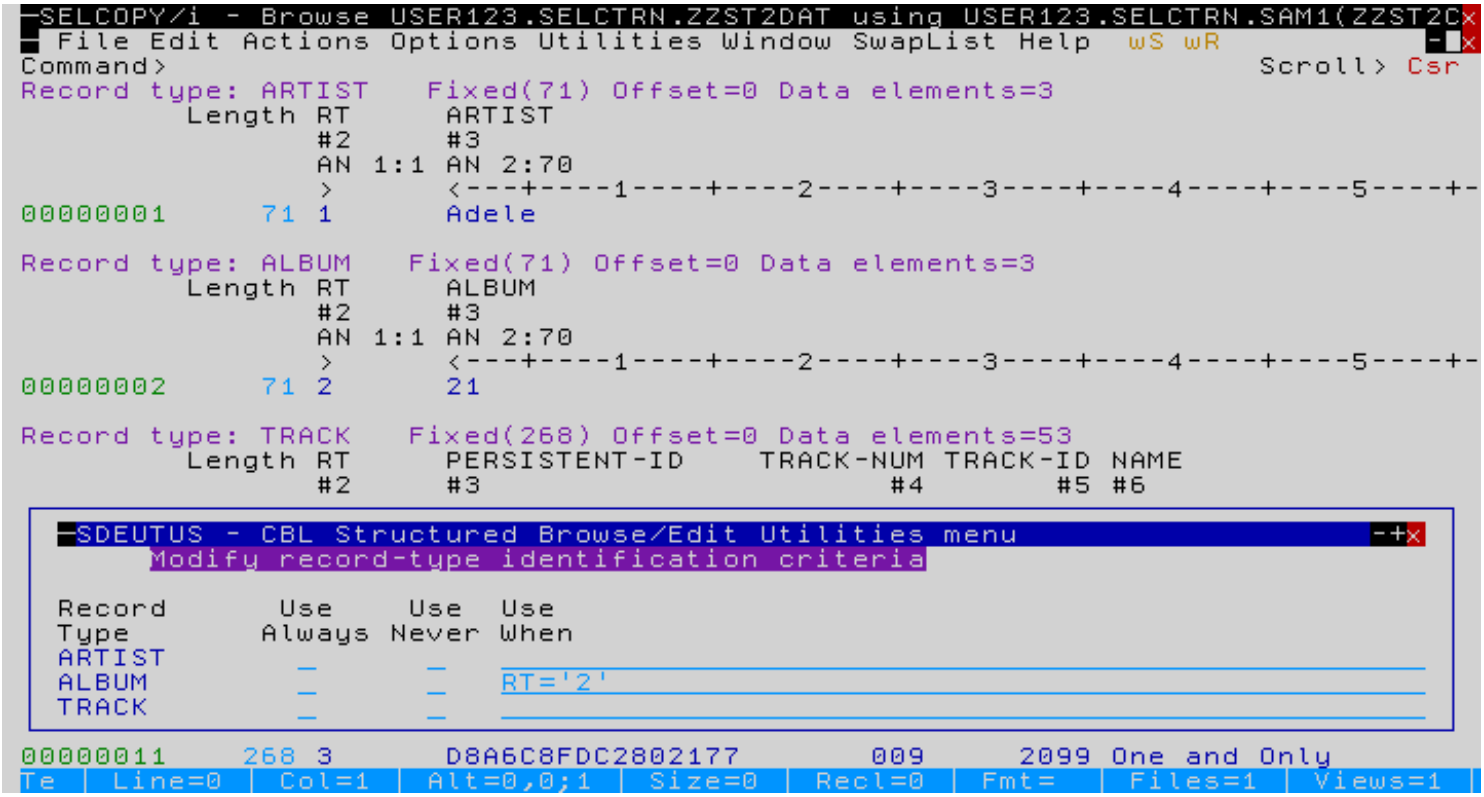


Figure 89. FileKit - SDE Explicit Record-Identification.

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

A **FileKit 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 **FileKit** Structured Data components that are capabale 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 **FileKit** 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.

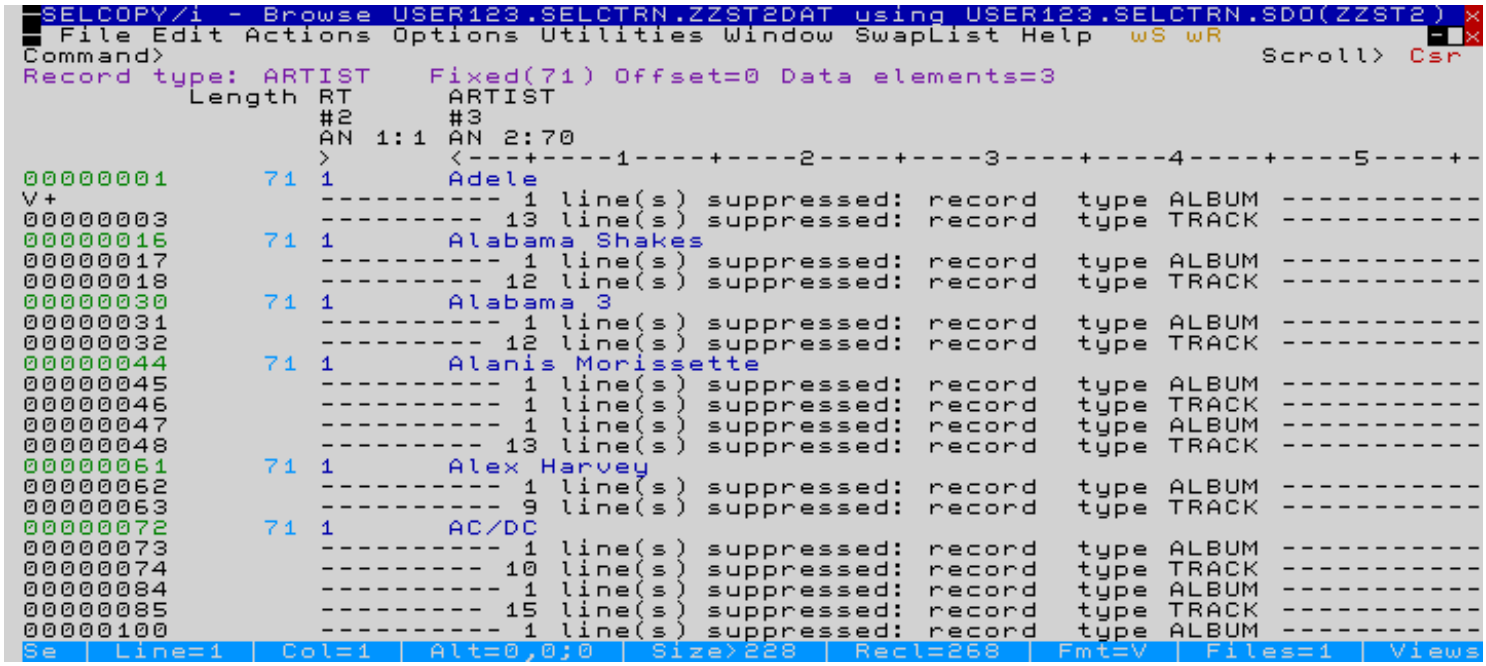


Figure 90. FileKit - SDE Select Visible Record-Types.

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 **FileKit** 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.SELCTRN.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.
    FileKit 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)

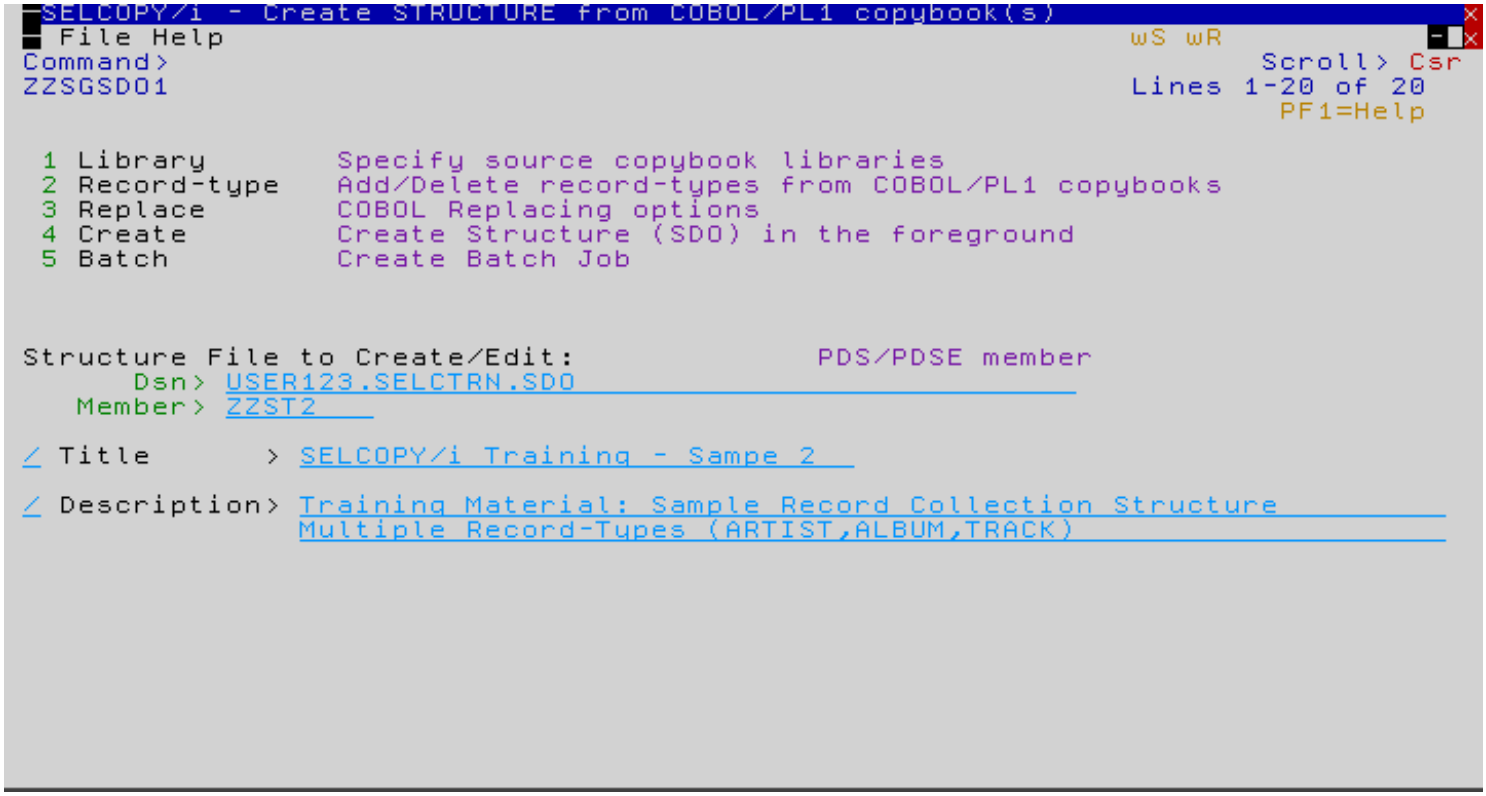


Figure 91. FileKit - SDE Main Panel 1.

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.

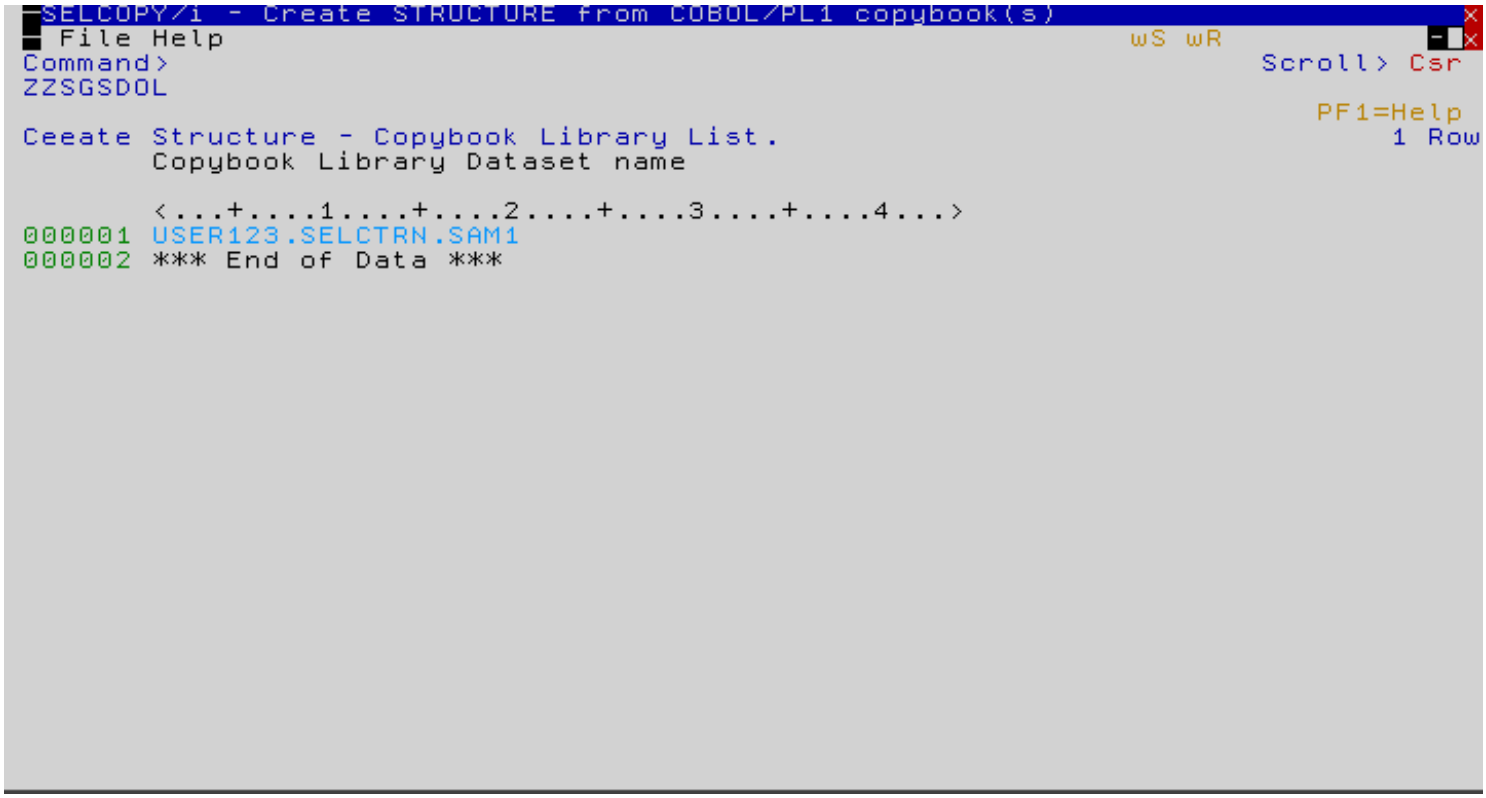


Figure 92. FileKit - SDE Copybook Libraries Panel.

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 begining 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. FileKit - SDE Define Record-Types 1.

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.

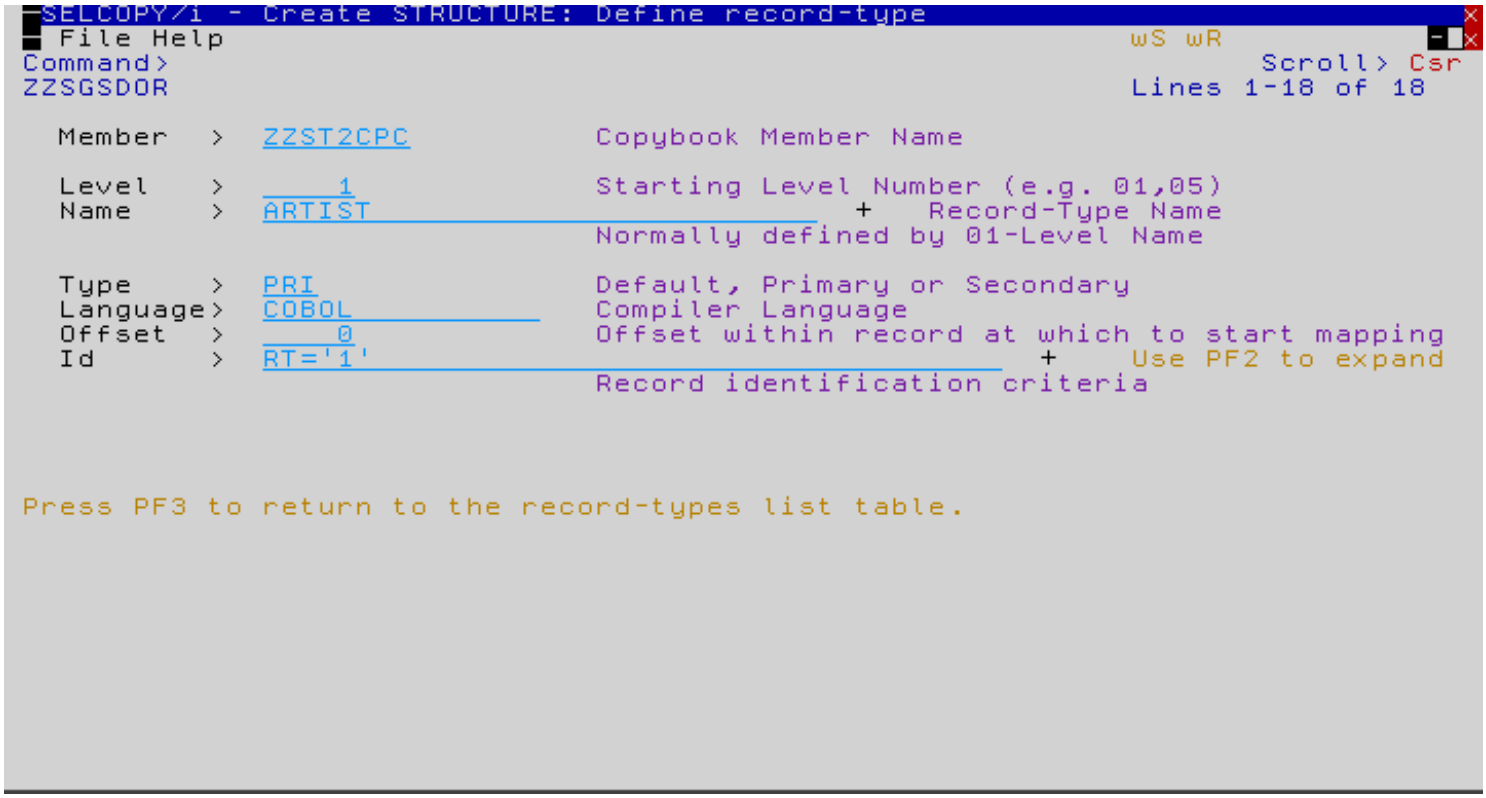


Figure 94. FileKit - SDE Define Record-Type Identification Criteria.

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'**

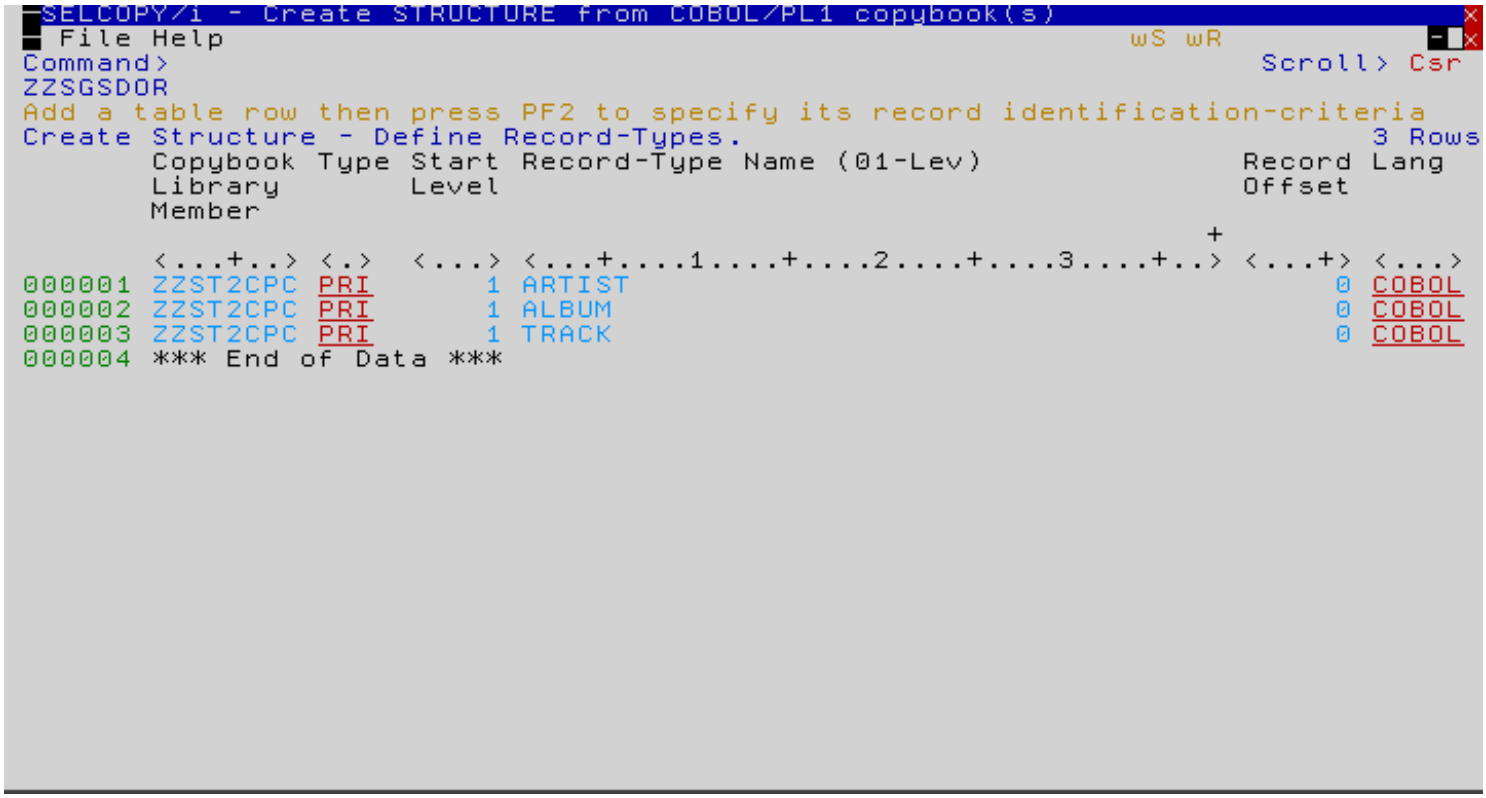


Figure 95. FileKit - SDO Define Record-Types 2.

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 **FileKit**, 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:

```
ZZSD145I Structure USER123.SELCTRN.SDO(ZZST2) created with 3 record type(s).
Maximum record length 268, minimum record length 71.
```

- Generated batch job displayed below.

```
SELCOPY/i - USER123.SELCOPYI.SQL.D2012325.T1119177.JCL      80 F SEQ   Size=43
 File Edit Actions Options Utilities Window SwapList Help  wS wR
Command>                                                        Scroll> Csr
      <---+----1----+----2----+----3----+----4----+----5----+----6----+----7---
00001 //USER123S JOB ,,CLASS=A,MSGCLASS=X,MSGLEVEL=(1,1),NOTIFY=&SYSUID
00002 //*
00003 //* SELCOPY/i 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 //SELC0001 EXEC PGM=SDEAMAIN,REGION=0M
00008 //STEPLIB  DD DISP=SHR,DSN=CBL.CBLI320.EXE
00009 //         DD DISP=SHR,DSN=CBL.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 " SELCOPY/i Training - Sampe 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(
Te | Line=1 | Col=1 | Alt=0,0;0 | Size=43 | Recl=80 | Fmt=F | Files=2 | Views=2
```

Figure 96. FileKit - 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 FileKit 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.

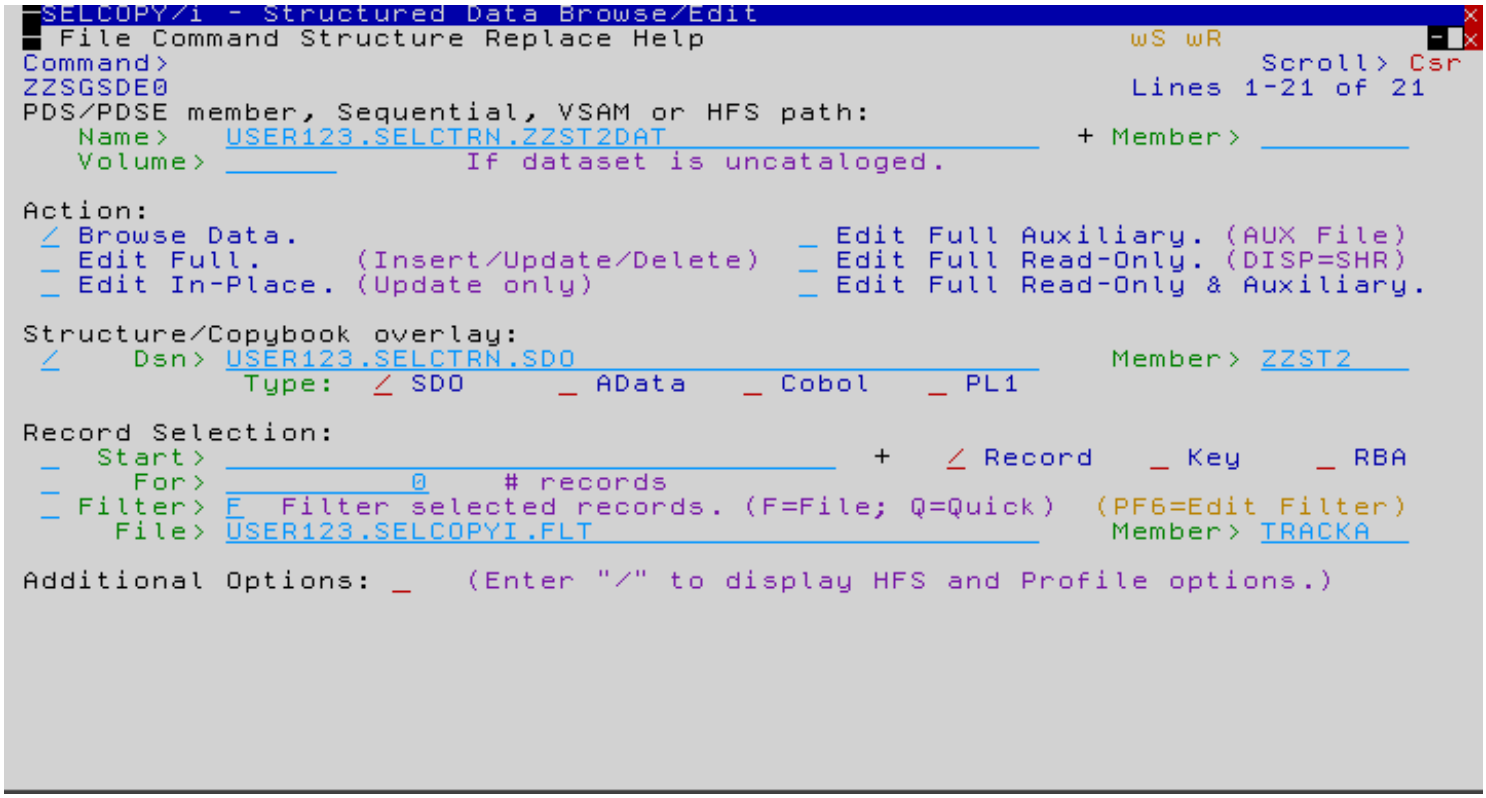


Figure 97. FileKit - SDO Browse/Edit using an SDO.

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**:
    - Type **I ALBUM**
    - 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,
    - Overtype the current *Length* value.

  - Using the shift-left / right line-commands:
    - **(nn** or **((nn-((** to shift-left.
    - **)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 PL1 major/minor structure).

Segmented records begin with a single primary (base) segment immediately followed by any number of non-overlapping, secondary segments. A secondary segment may have the same or different segment record-type (RTO) mapping as other secondary segments in the record. 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.SELCTRN.ZZST3DAT** in the *Name* field, where *userpfx* is your own user prefix.
- Deactivate the *Structure/Copybook overlay*:
  - Uncheck the option by removing the /.

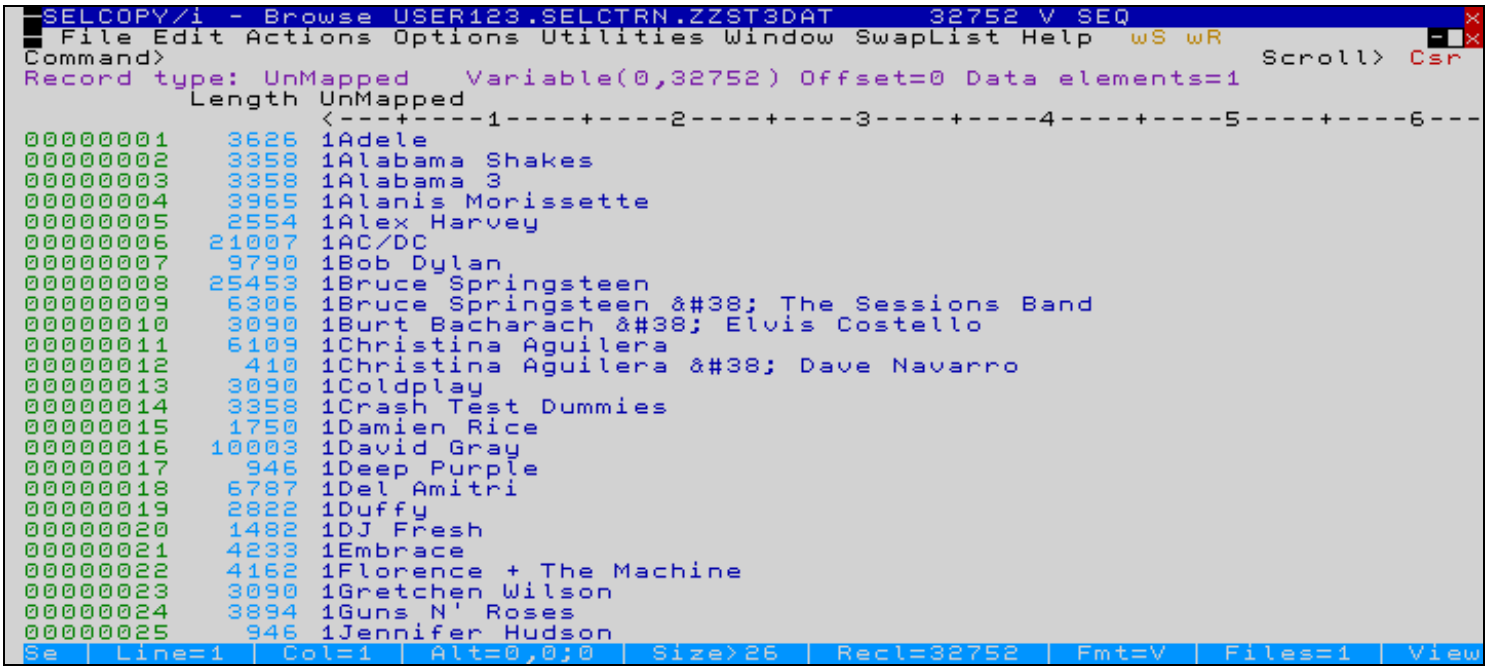


Figure 98. FileKit - SDE Sample Dataset 3.

Creating an SDO defining Segmented Record-Types

Files with segmented record-types should be mapped by a **FileKit 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.

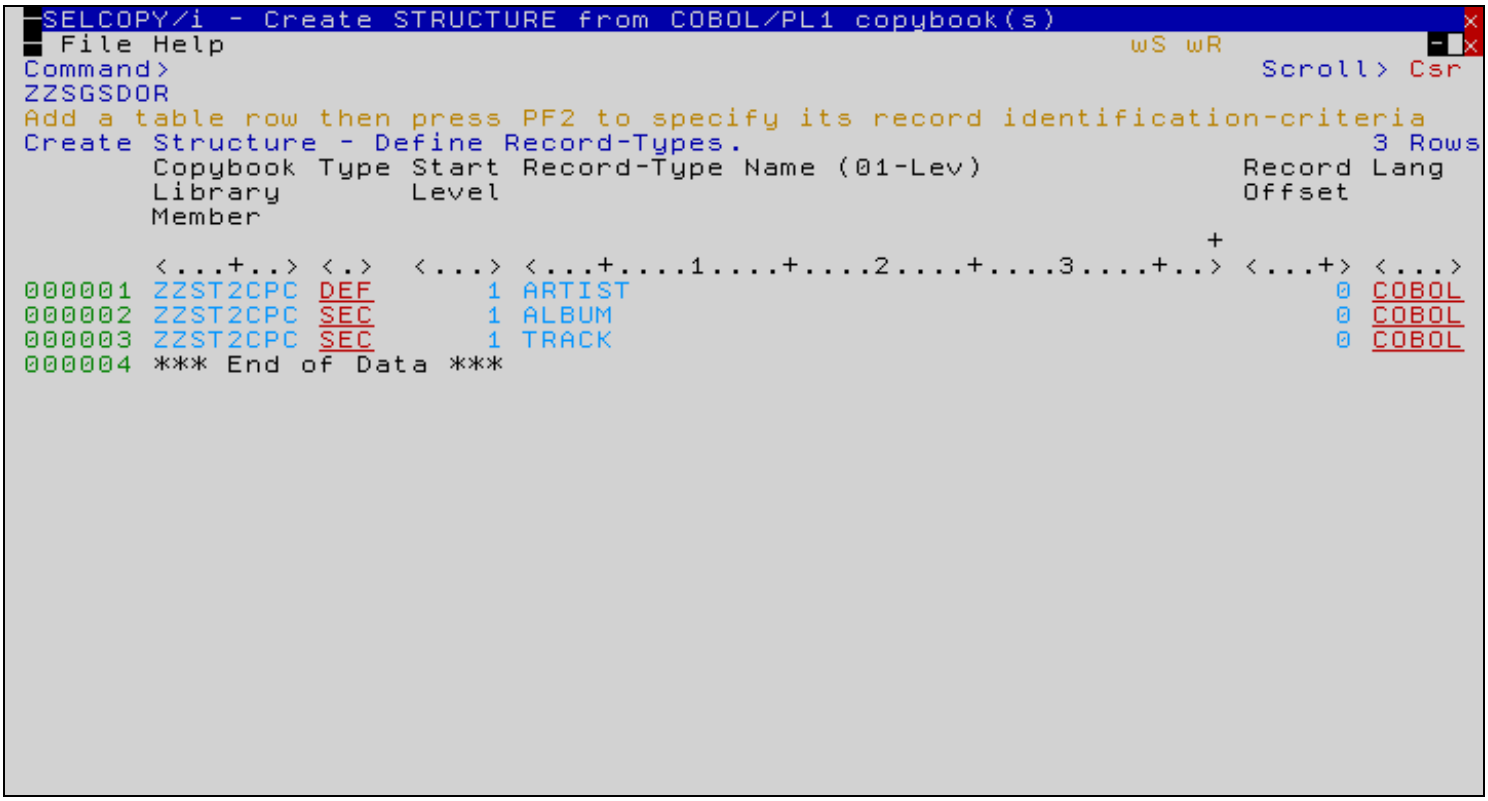


Figure 99. FileKit - SDO Create Segmented Structure.

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 FileKit 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.

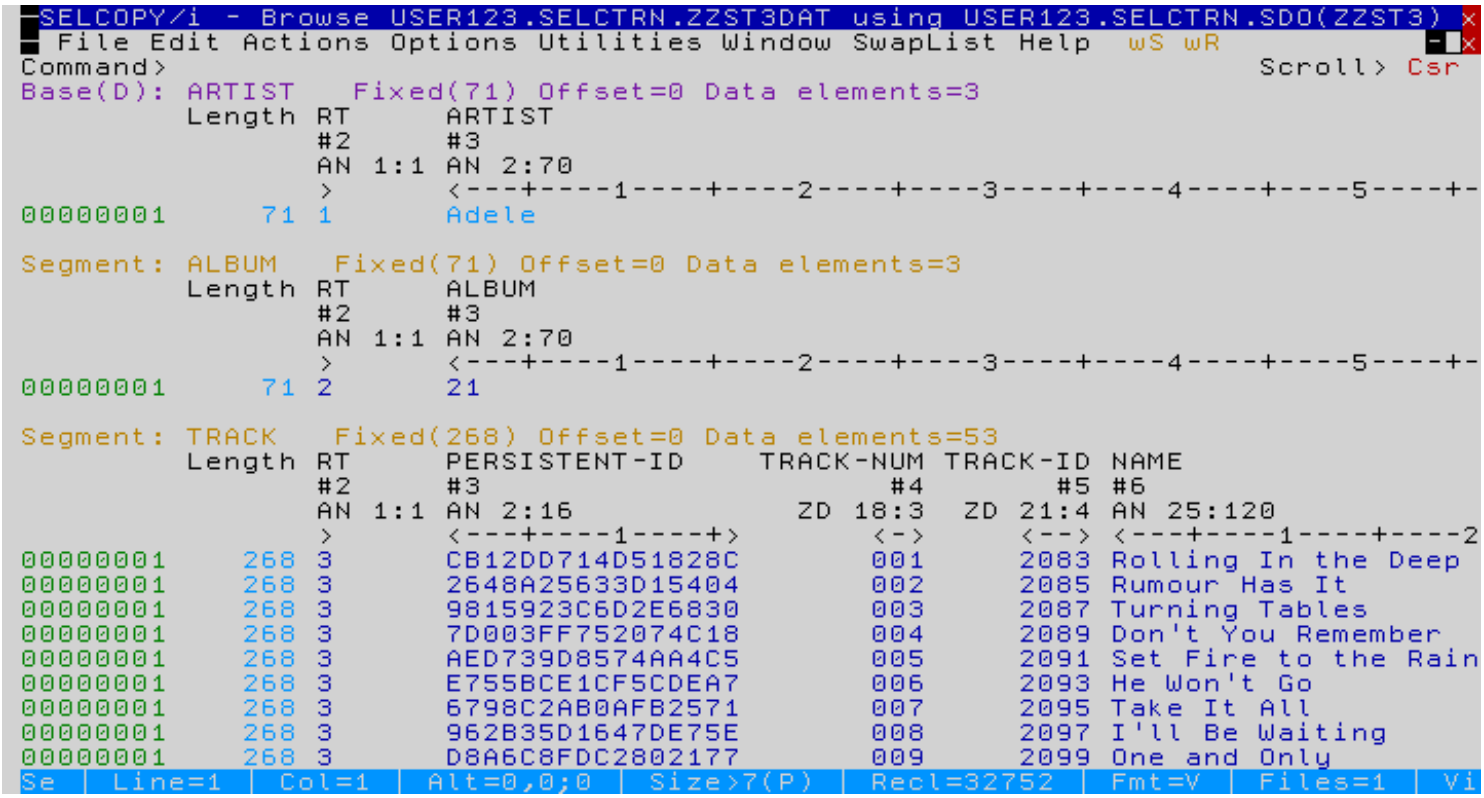


Figure 100. FileKit - SDO Browse/Edit using a Segmented SDO.

Notes:

- By default, the prefix area indicates the **physical record number** to which each segment is attached.
- Type **PREFix LOGical** to display indiviudal 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).

PREFIX Mode	Display
PHYSICAL	**Segment>** ppppppp / llllll ♦ **"ppppppp"** denotes the physical record number. ♦ **"llllll"** denotes the logical segment number within that physical record.
LOGICAL	**Segment>** ssssssss ♦ **"ssssssss"** indicates the logical segment number within the whole file.

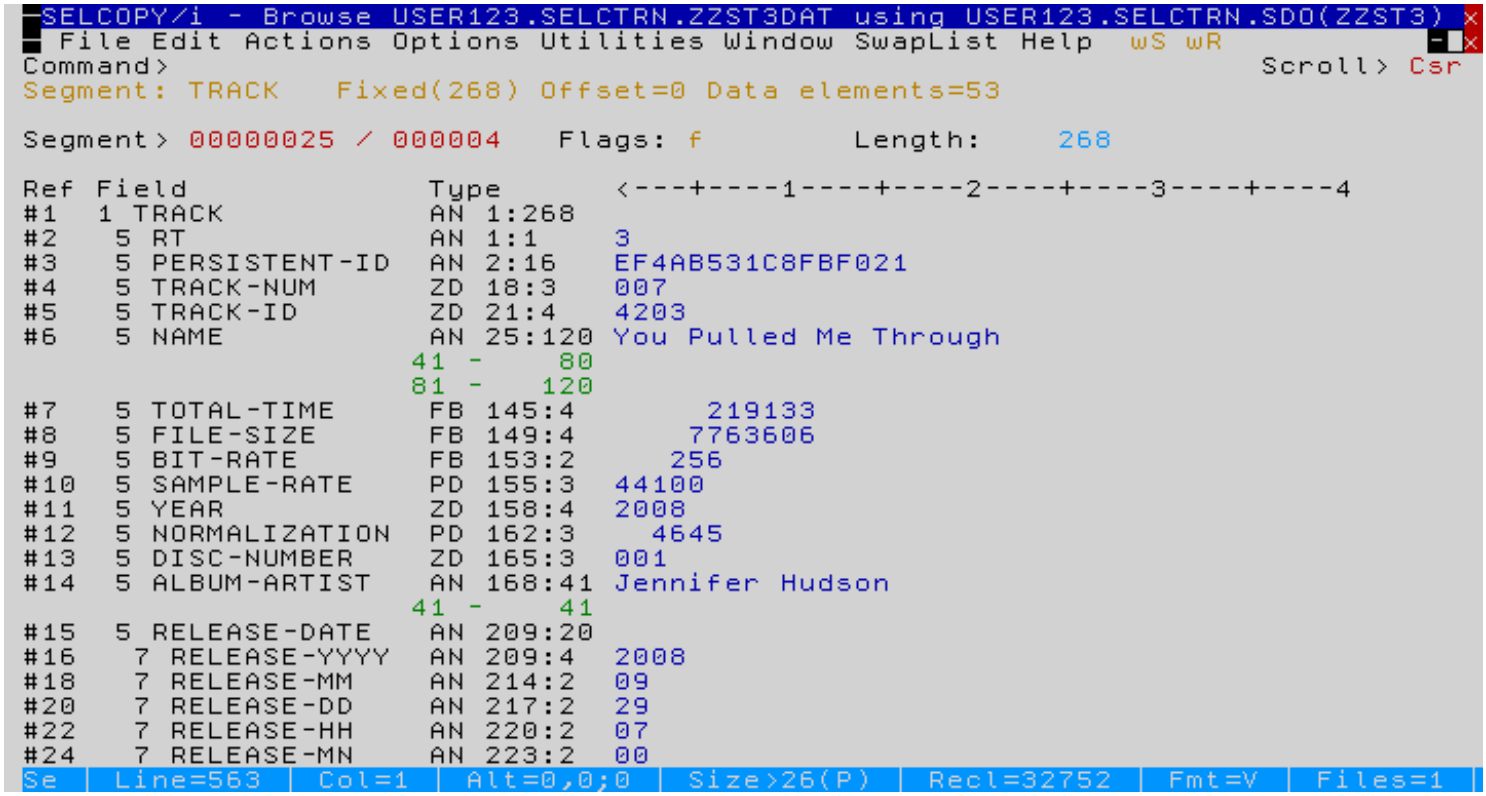


Figure 101. FileKit - SDE Formatted Single-Segment Dsiplay Mode (FMT/MAP).

- 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.
      In multi-segment (VFMT / CHAR) display modes focus is defined by the cursor position.
  - 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

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 FileKit 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 datset
- a VSAM KSDS, ESDS, RRDS/VRDS.
- a Hierarchical File Ststem (HFS/ZFS) file.

The input may similary 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 handly 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 File Copy/Reformat (FCOPY) Panel

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

- Select option **5** from the **FileKit** 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

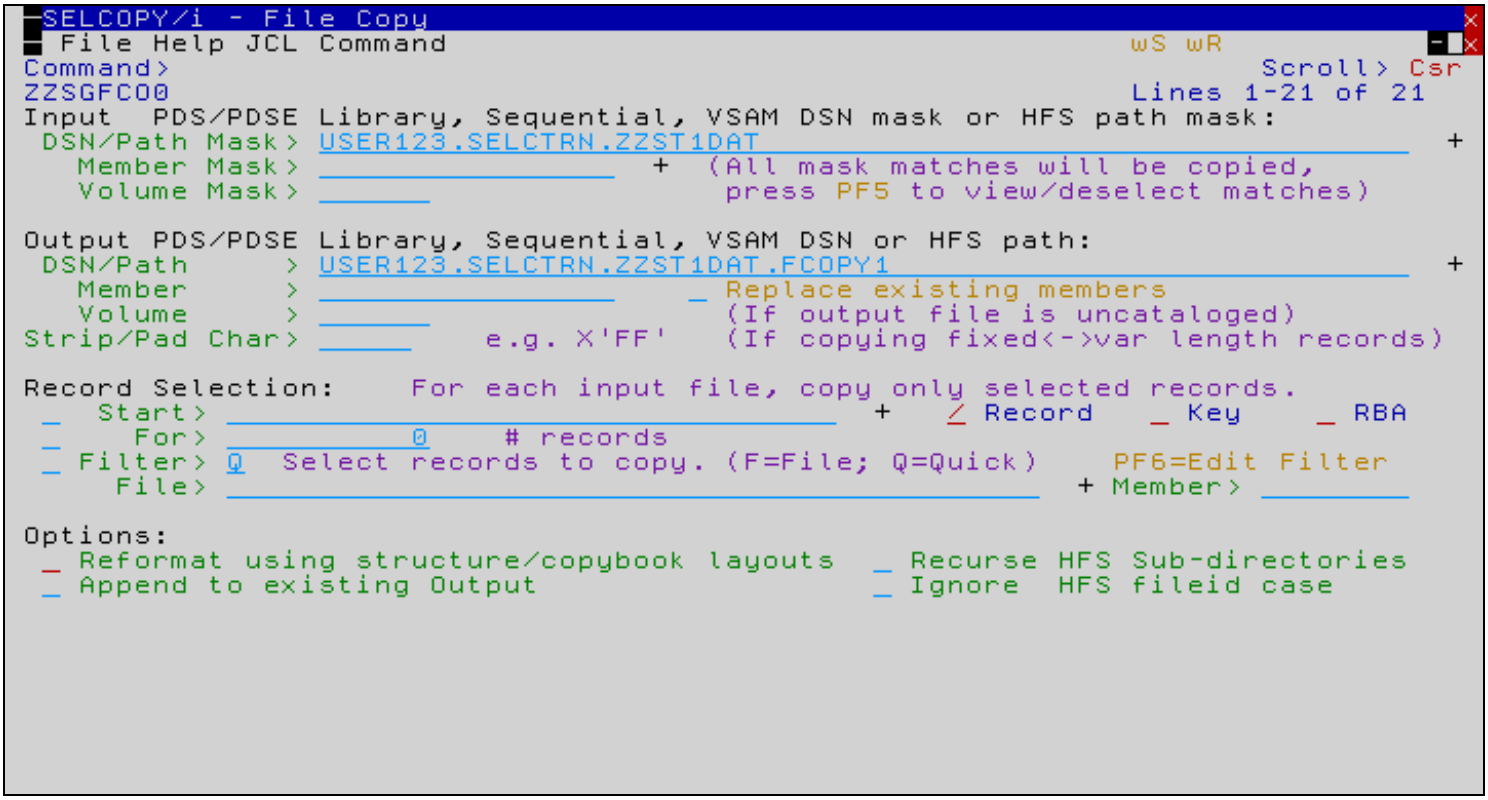


Figure 102. FileKit - File Copy/Reformat (FCOPY) Panel (=5).

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

    Press **F3** to return to the FCOPY panel once all input selections have been confirmed.
  - The *Member Mask* field should be left blank in this case, otherwise the dataset list will be restricted to PDS/PDSE libraries only.
  - The *Volume Mask* field should be left blank in this case, otherwise the dataset list will be restricted to files residing on matching volumes only.
- 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.
  - If the name name entered is for a dataset that does not yet exist, then you will be prompted to create it.
  - The *Member* field should be left blank. otherwise the dataset list will be restricted to PDS/PDSE libraries only.
  - The *Volume* field should be left blank.
- Press **ENTER** to continue.

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:

Option	Description
L	To allocate a new PDS/PDSE library.
N	To allocate a new standard sequential (Non-VSAM) file.
K	To define a new VSAM KSDS.
E	To define a new VSAM ESDS.
R	To define a new VSAM RRDS.

- Press **ENTER** or select the **OK** button to continue.

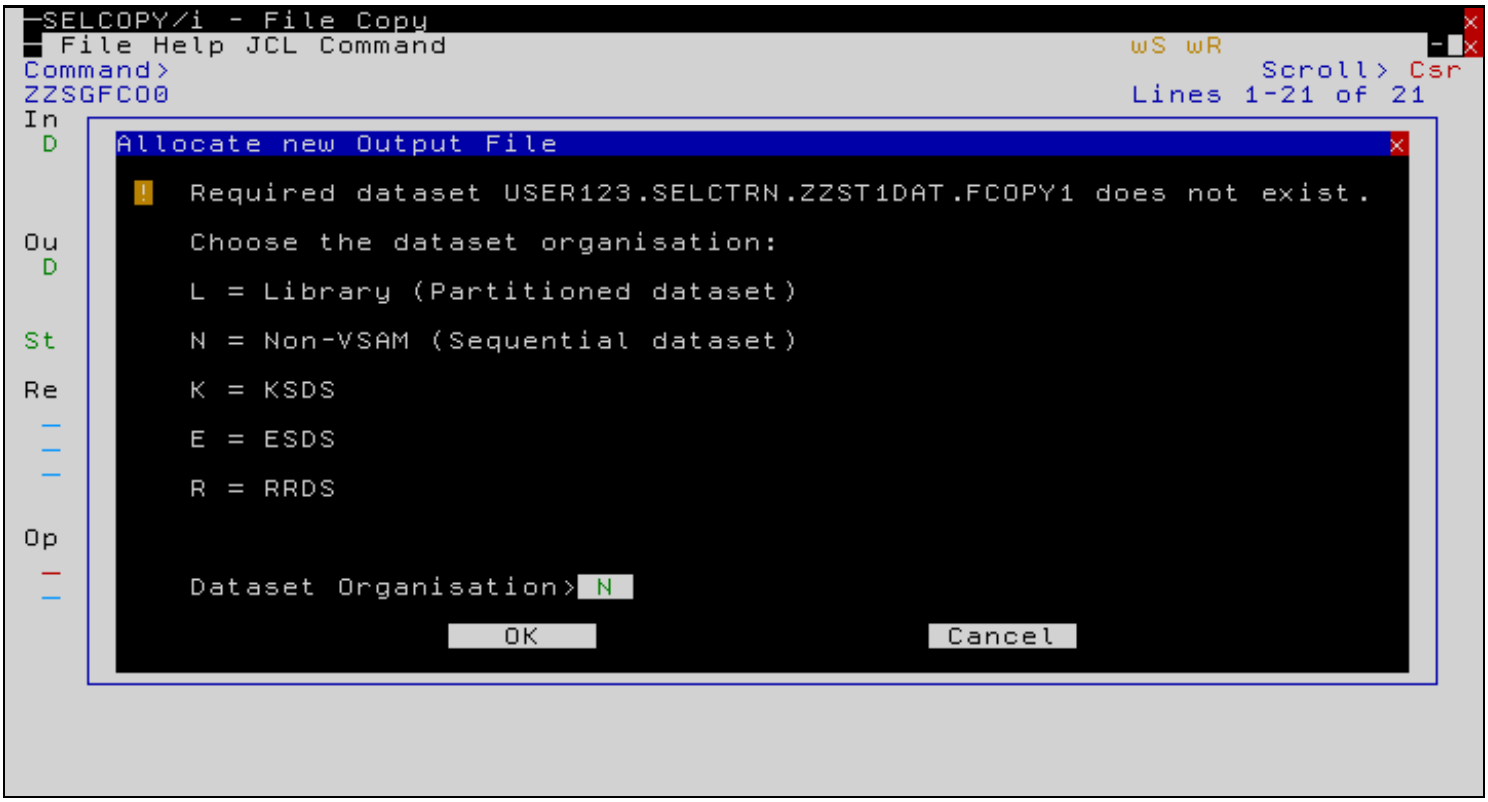


Figure 103. FileKit - Choose new Output file Access Method.

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.

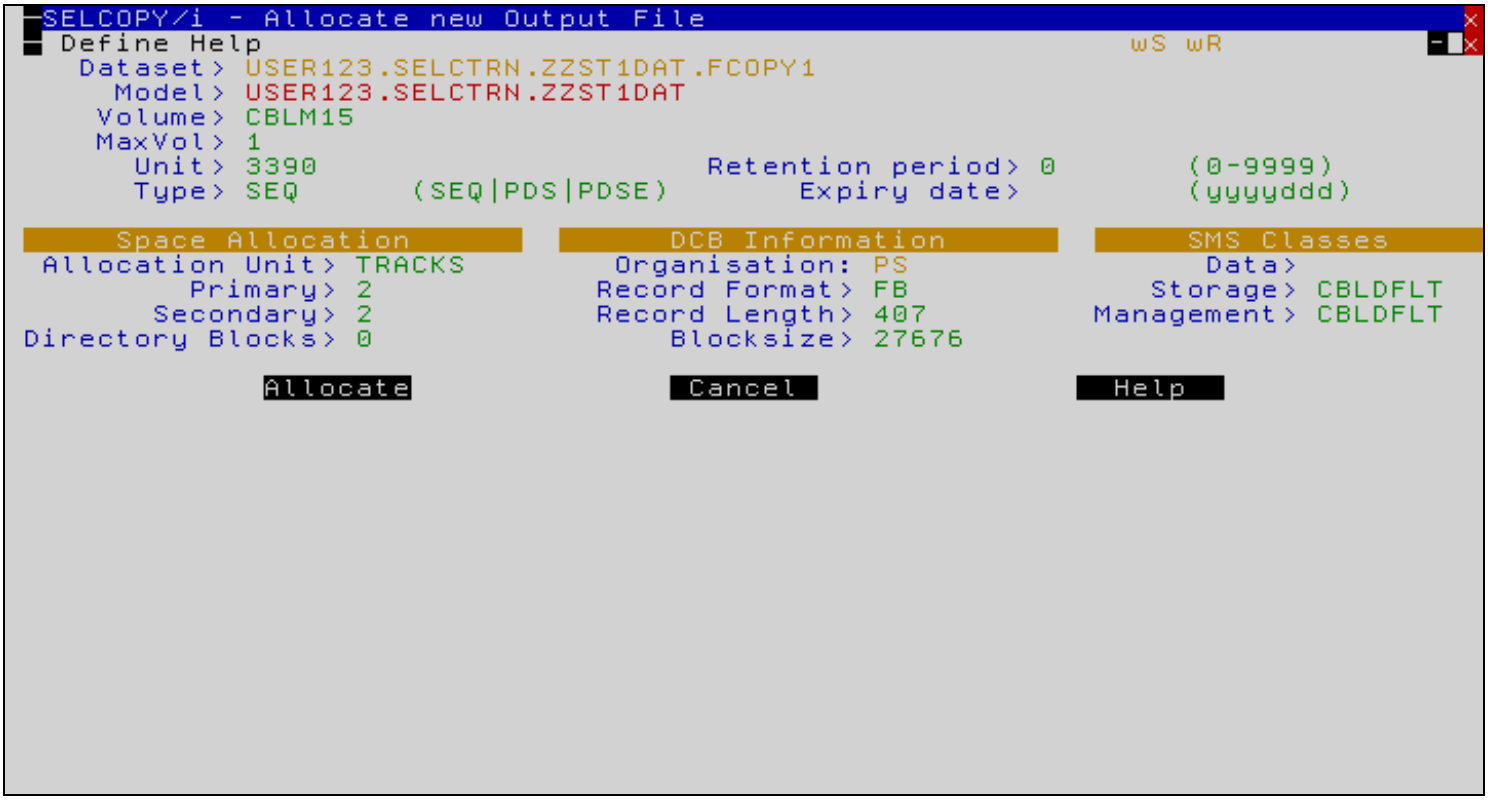


Figure 104. FileKit - Allocate new Non-VSAM file.

Copying PDS/PDSE Library members

- Specify the *Input File*:
  - Type **userpfx.SELCTRN.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.SELCTRN.ZZST5DAT.FCOPY1** in the *DSN/Path* field.
- Press **ENTER** to continue.

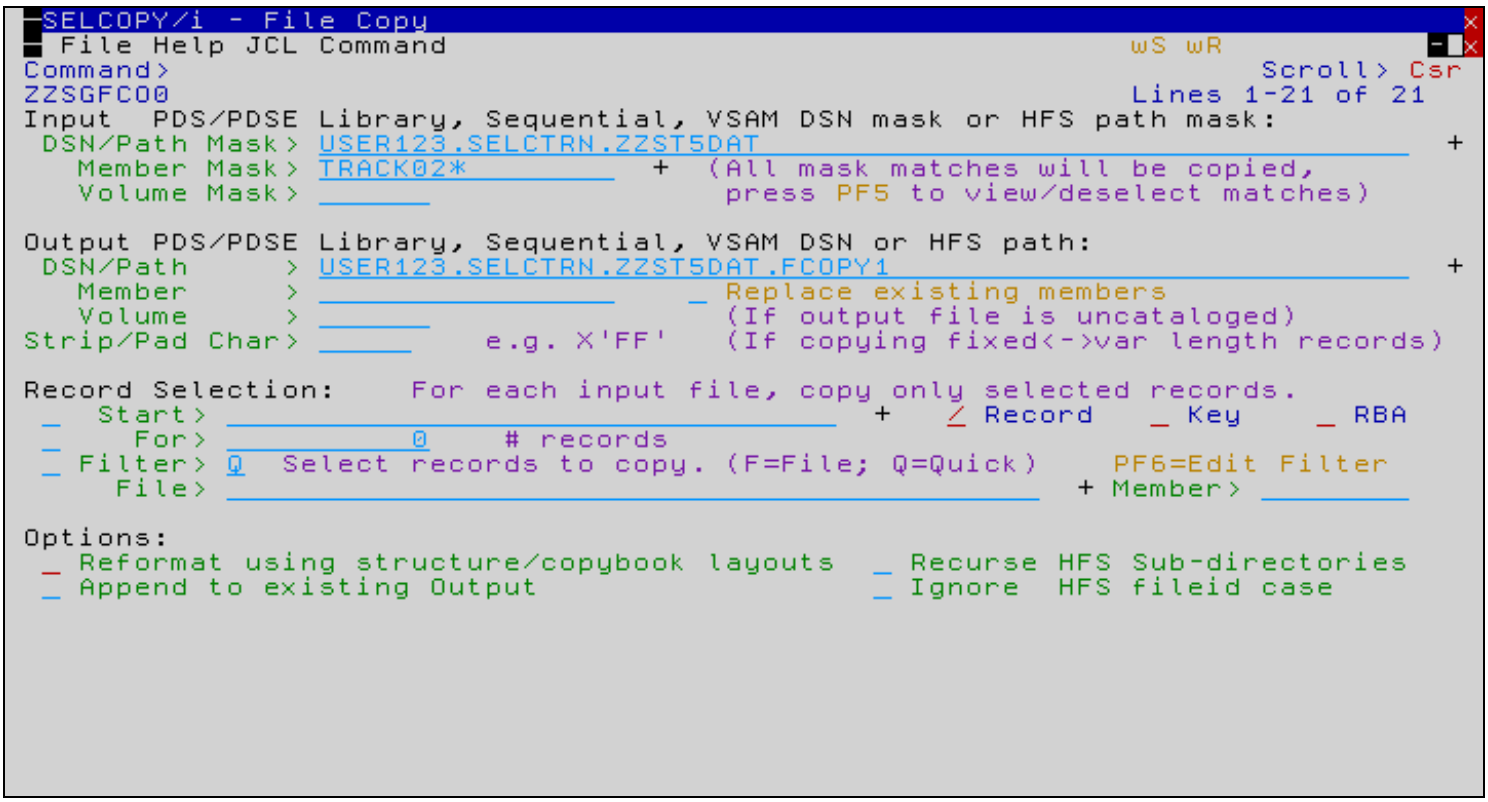


Figure 105. FileKit - COPY Library Members.

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 invidually 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.

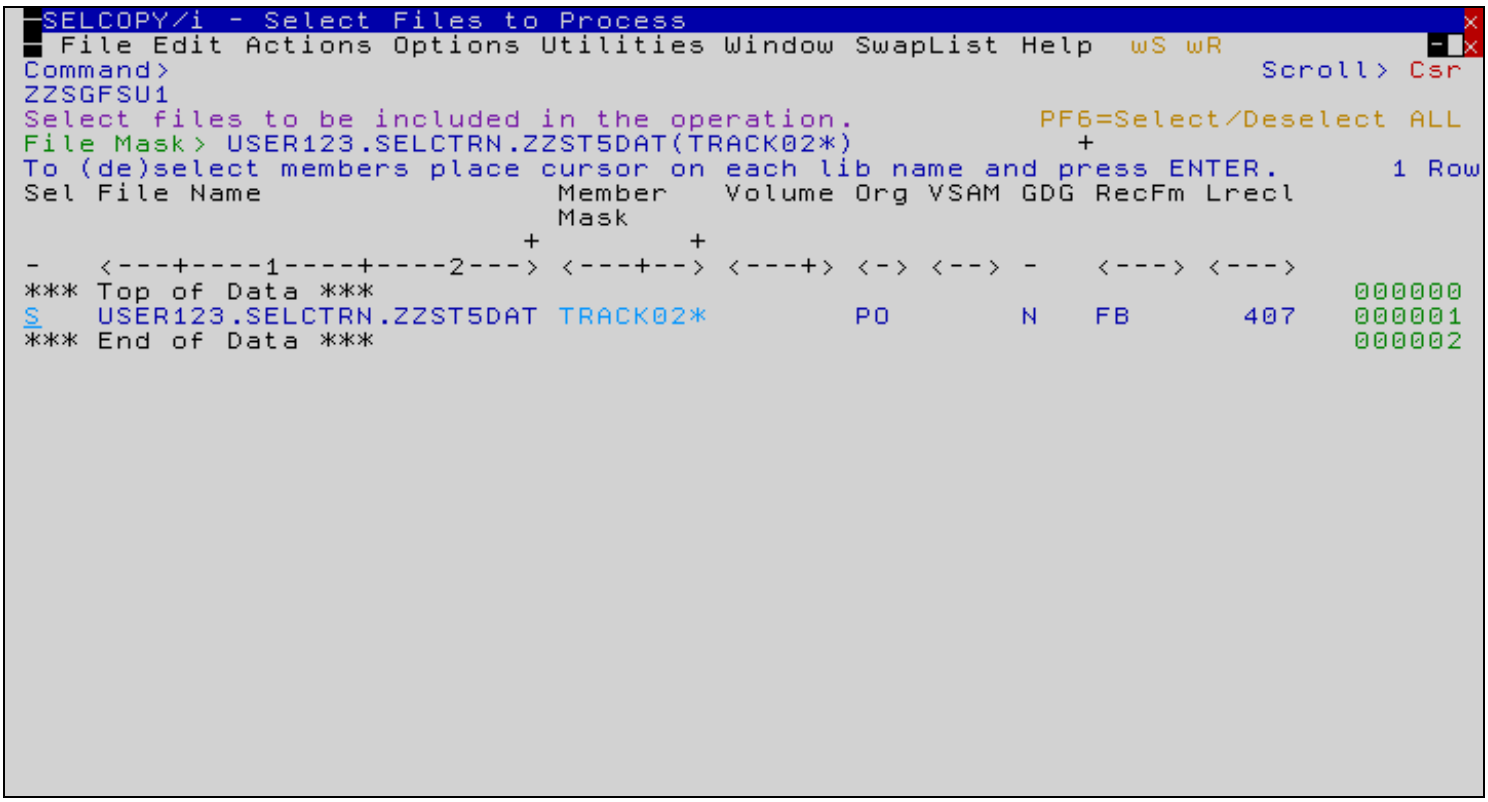


Figure 106. FileKit - Select Input Library.

Select input Members

- Individual members may be selected/deselected for copy from this screen.
- Inititially **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.

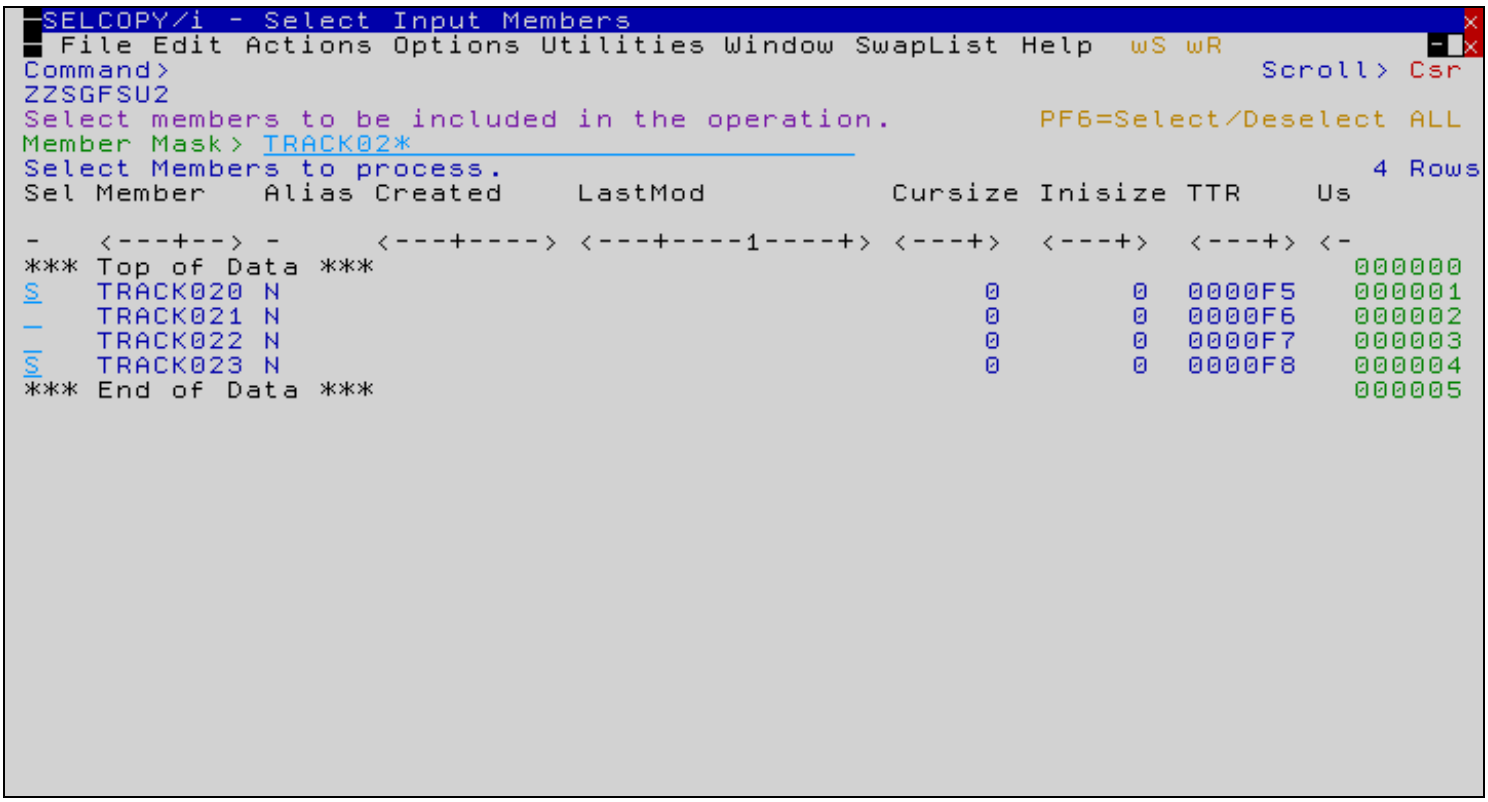


Figure 107. FileKit - Select Input Members.

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.

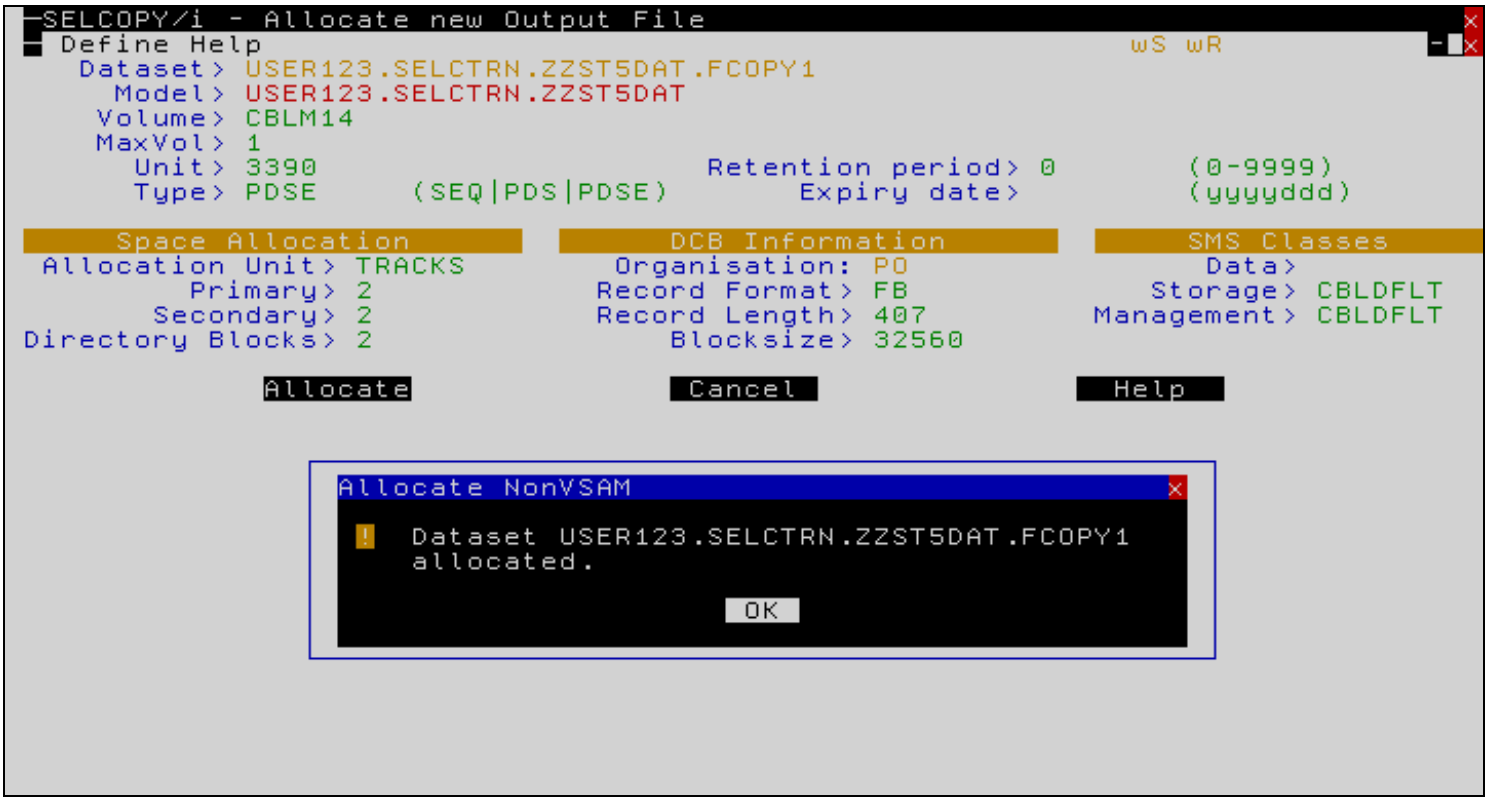


Figure 108. FileKit - Allocate New Output Library.

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:

Action	Meaning
Copied	The member was copied to the output library.
Replaced	The member replaced an existing version in the output library.
*NoRepl	The member already existed in the output library, and the *Replace existing members* option was not selected.

- 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.

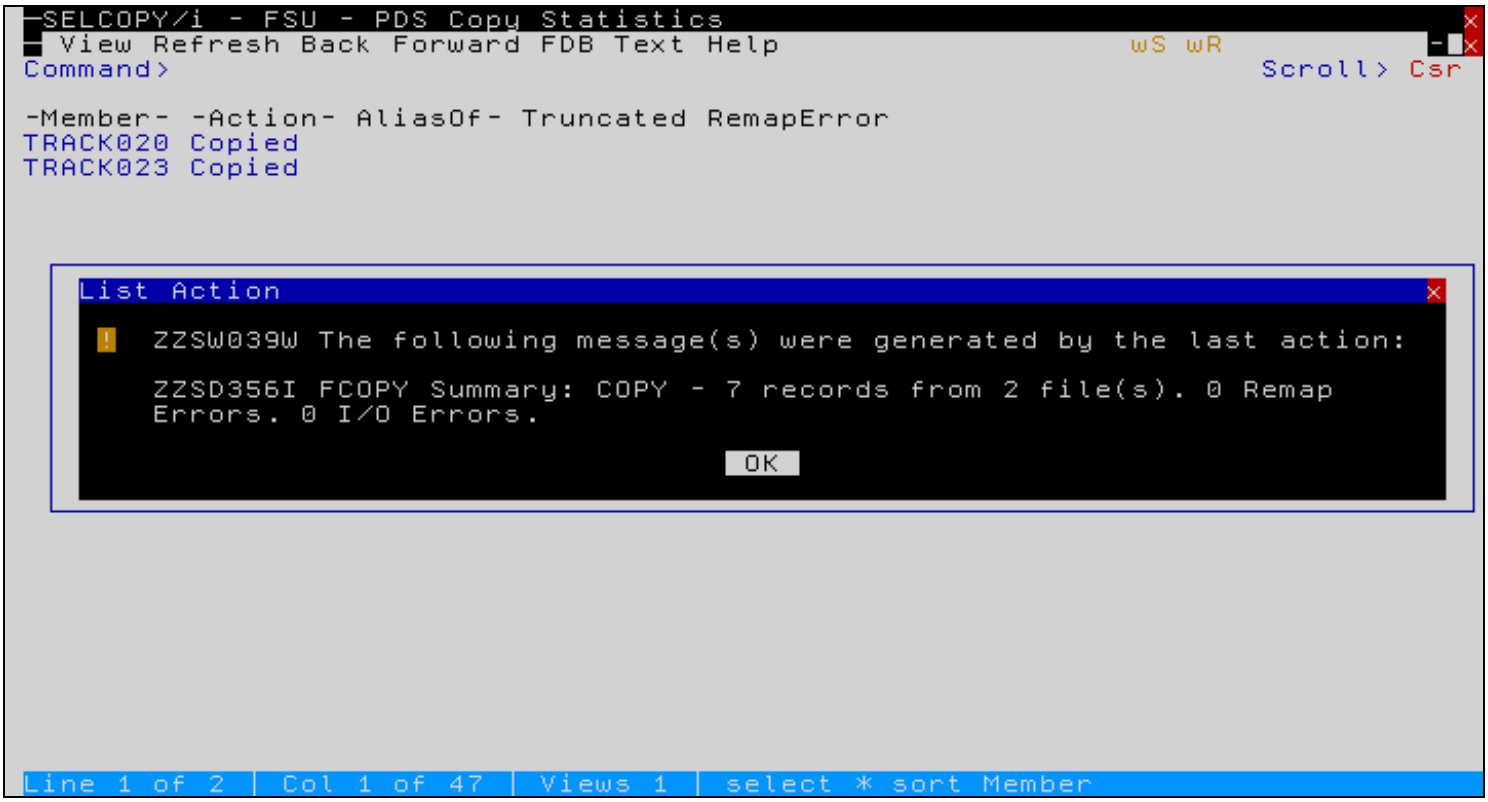


Figure 109. FileKit - PDS Copy Statistics.

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.

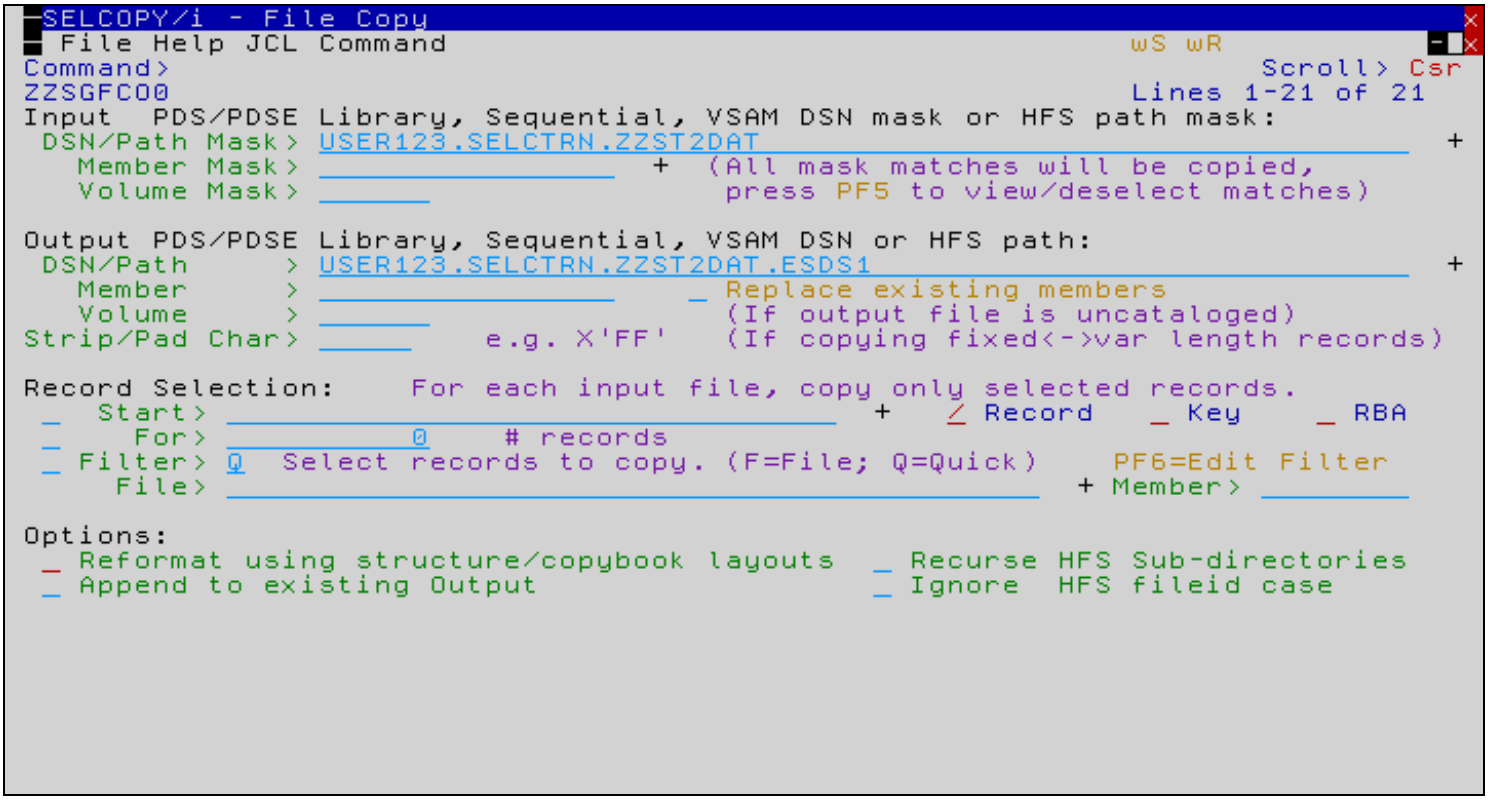


Figure 110. FileKit - Record Selection Intro.

Browse Input File

- In order to assist with record selection its 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.

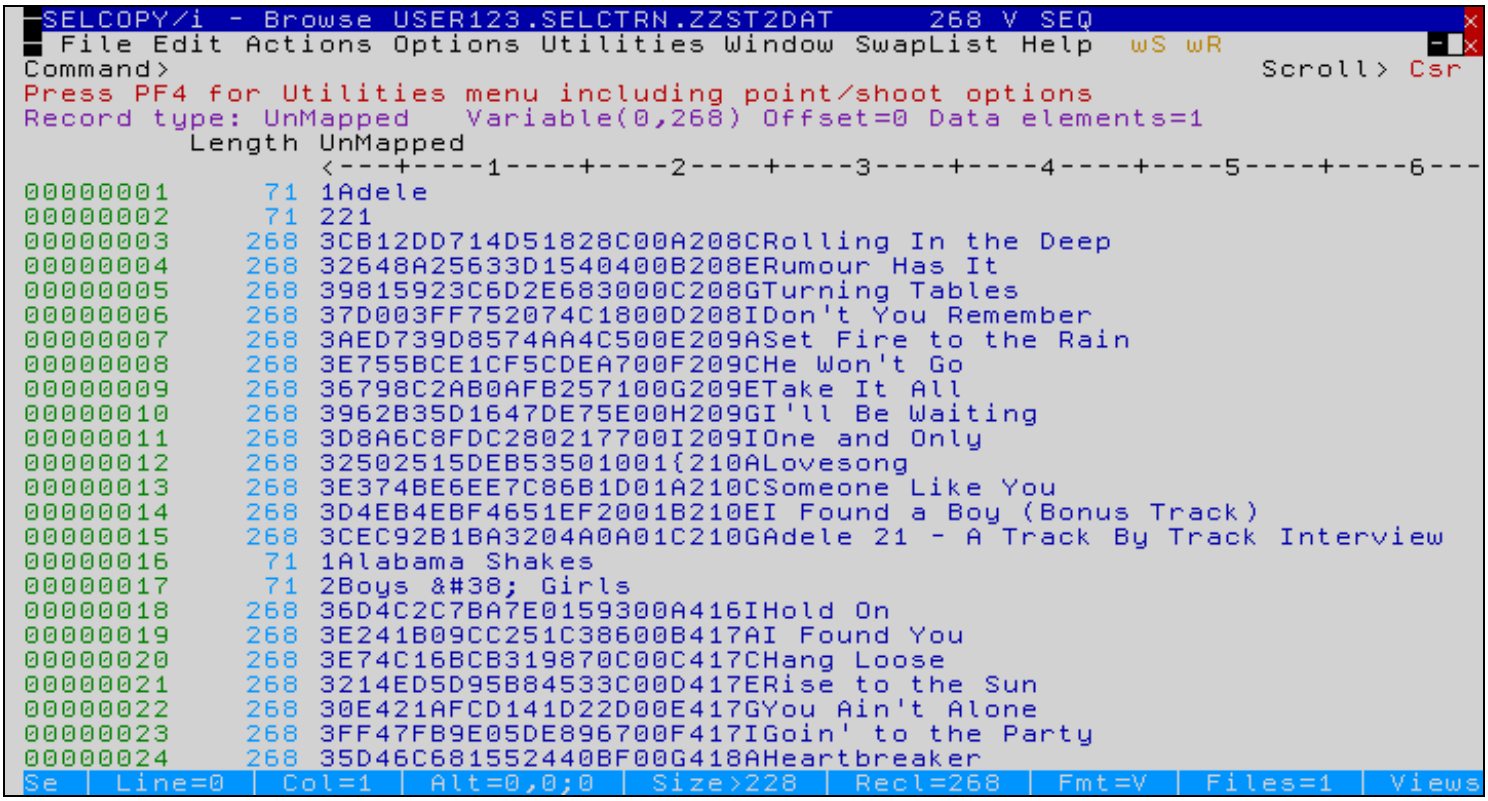


Figure 111. FileKit - Browse Input File.

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.

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

- 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.

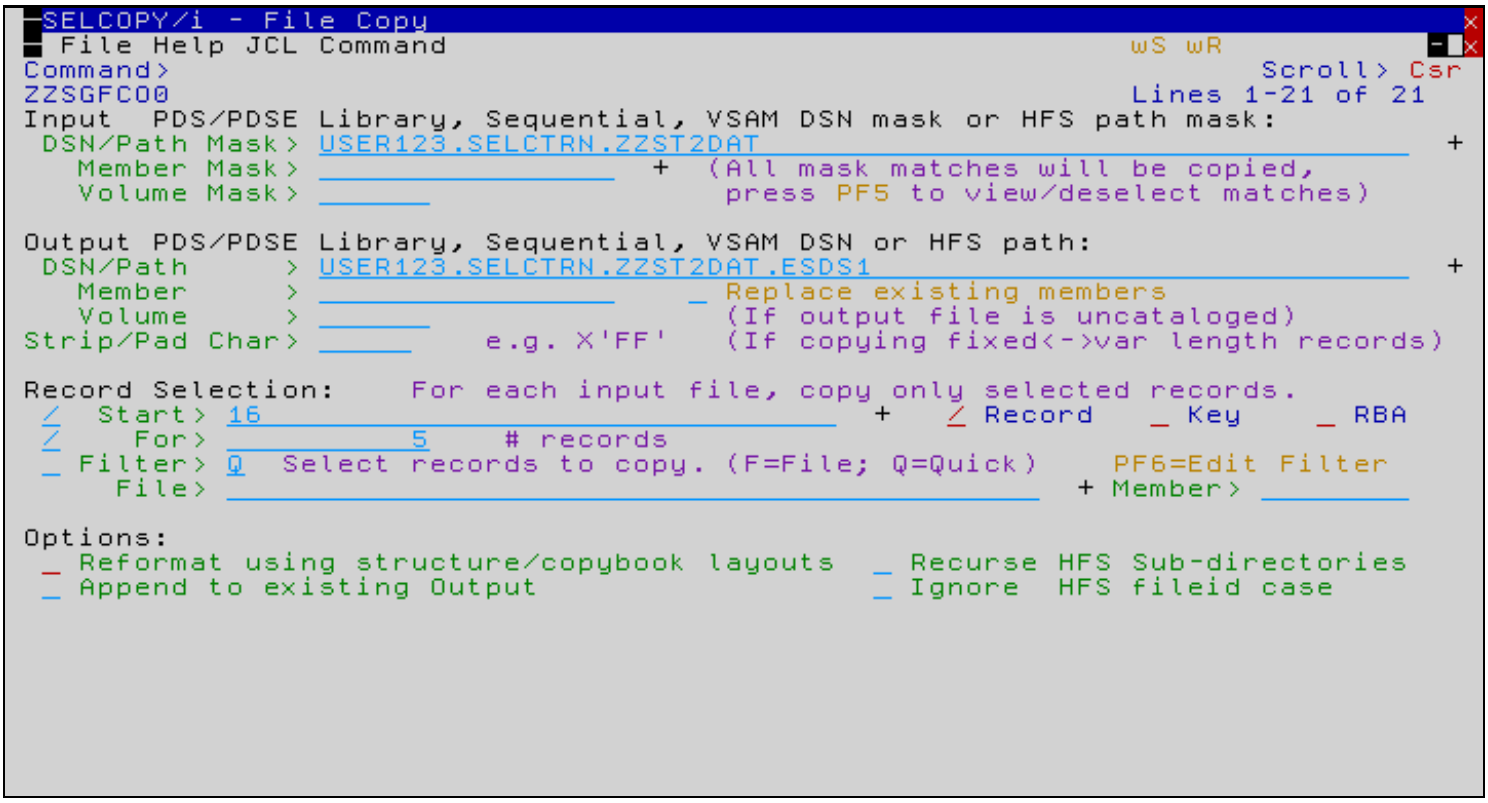


Figure 112. FileKit - Start Record/For.

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.

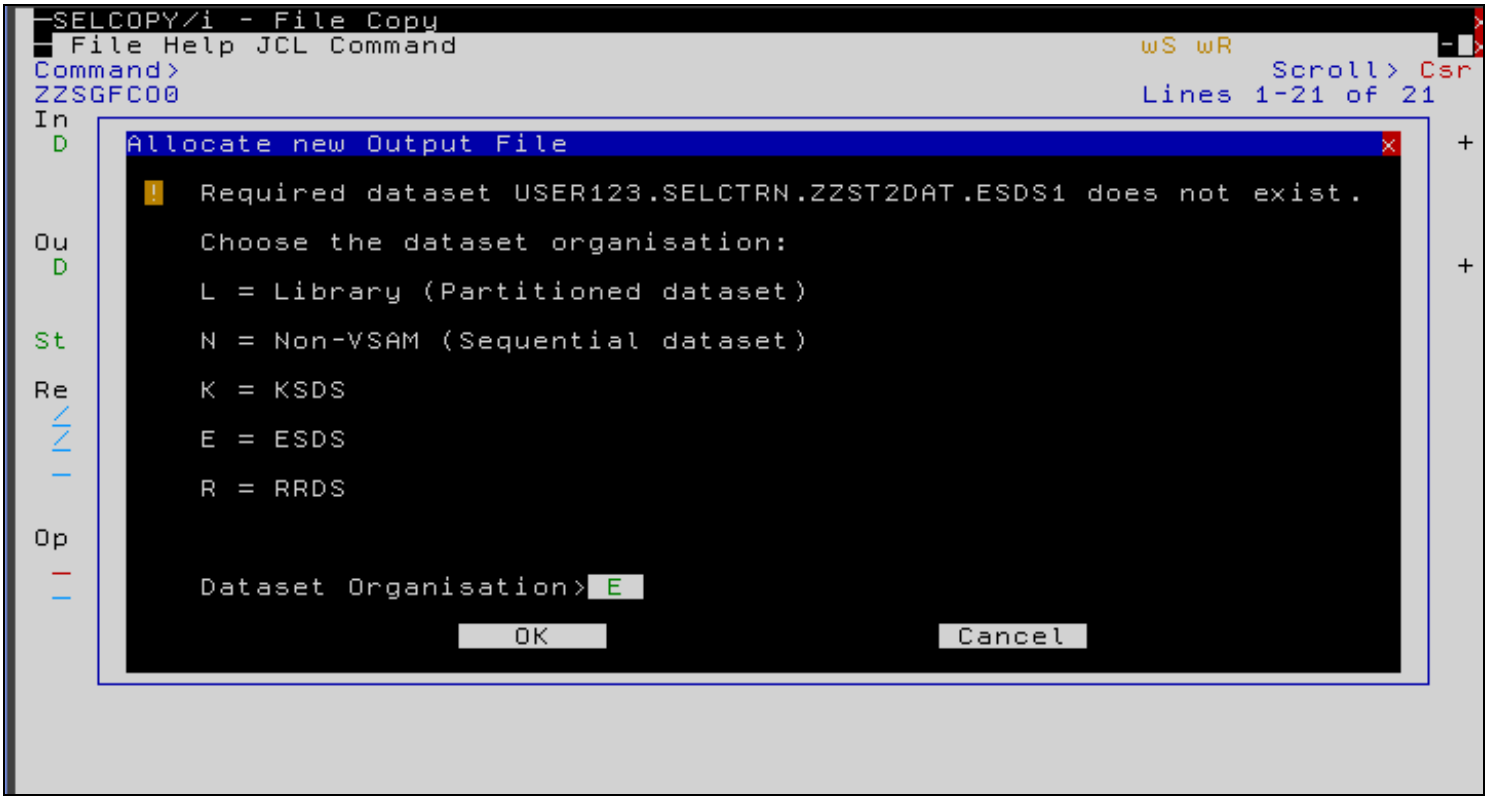


Figure 113. FileKit - SDE LOCATE field.

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.

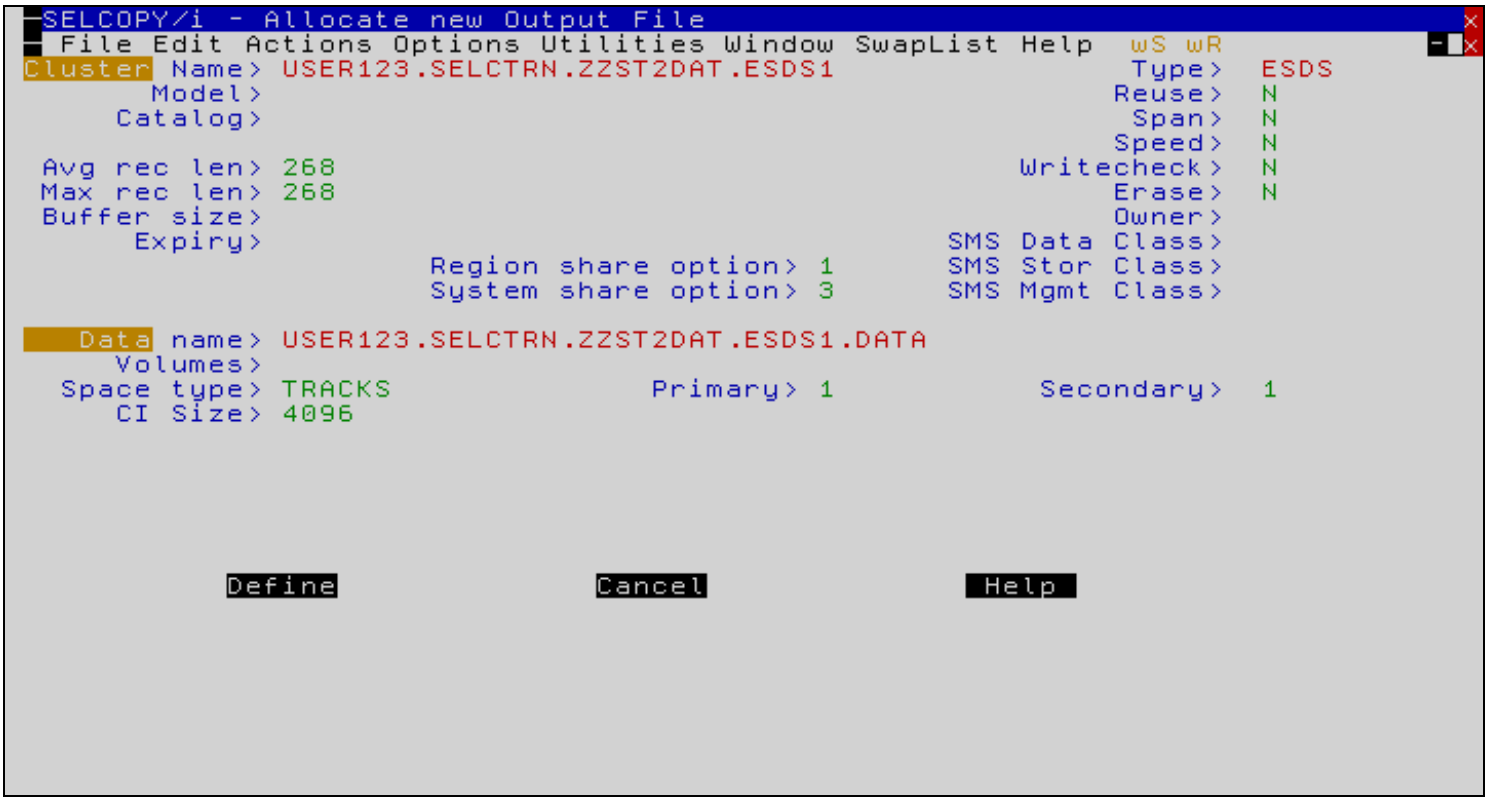


Figure 114. FileKit - Define ESDS.

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.

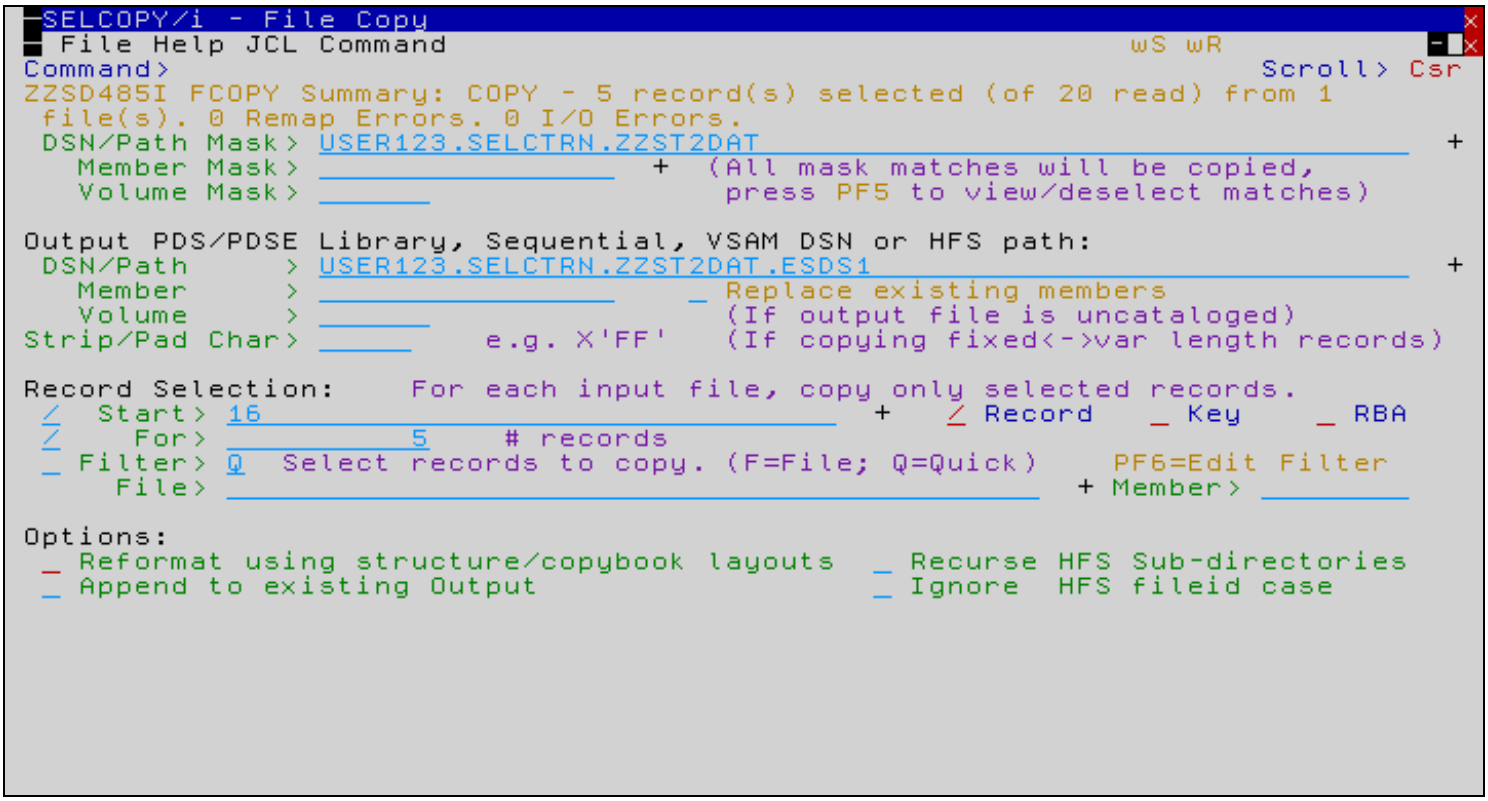


Figure 115. FileKit - Summary message.

Browse the Output File (F20)

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

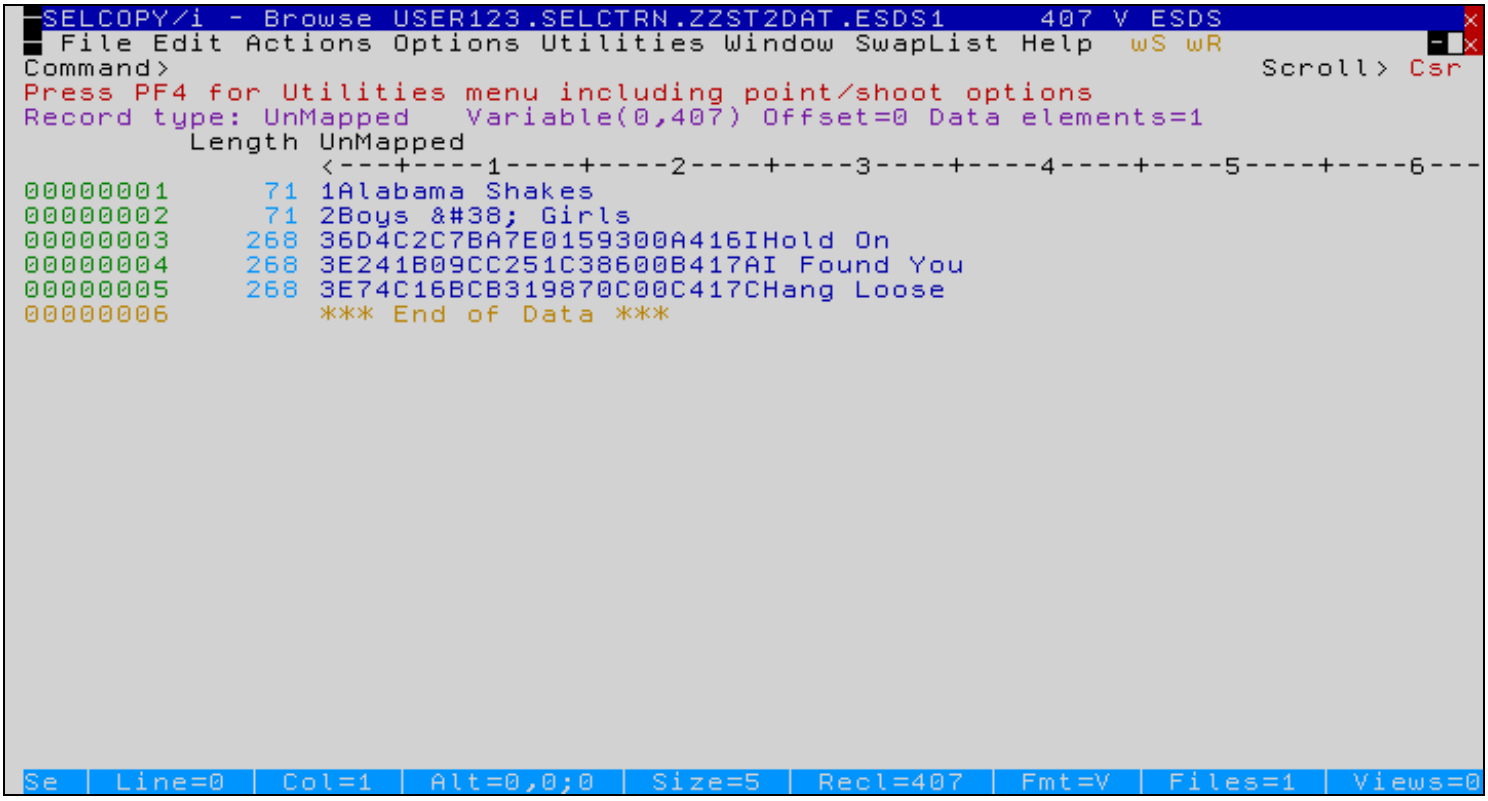


Figure 116. FileKit - Browse Output File (F20).

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.SELCTRN.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.

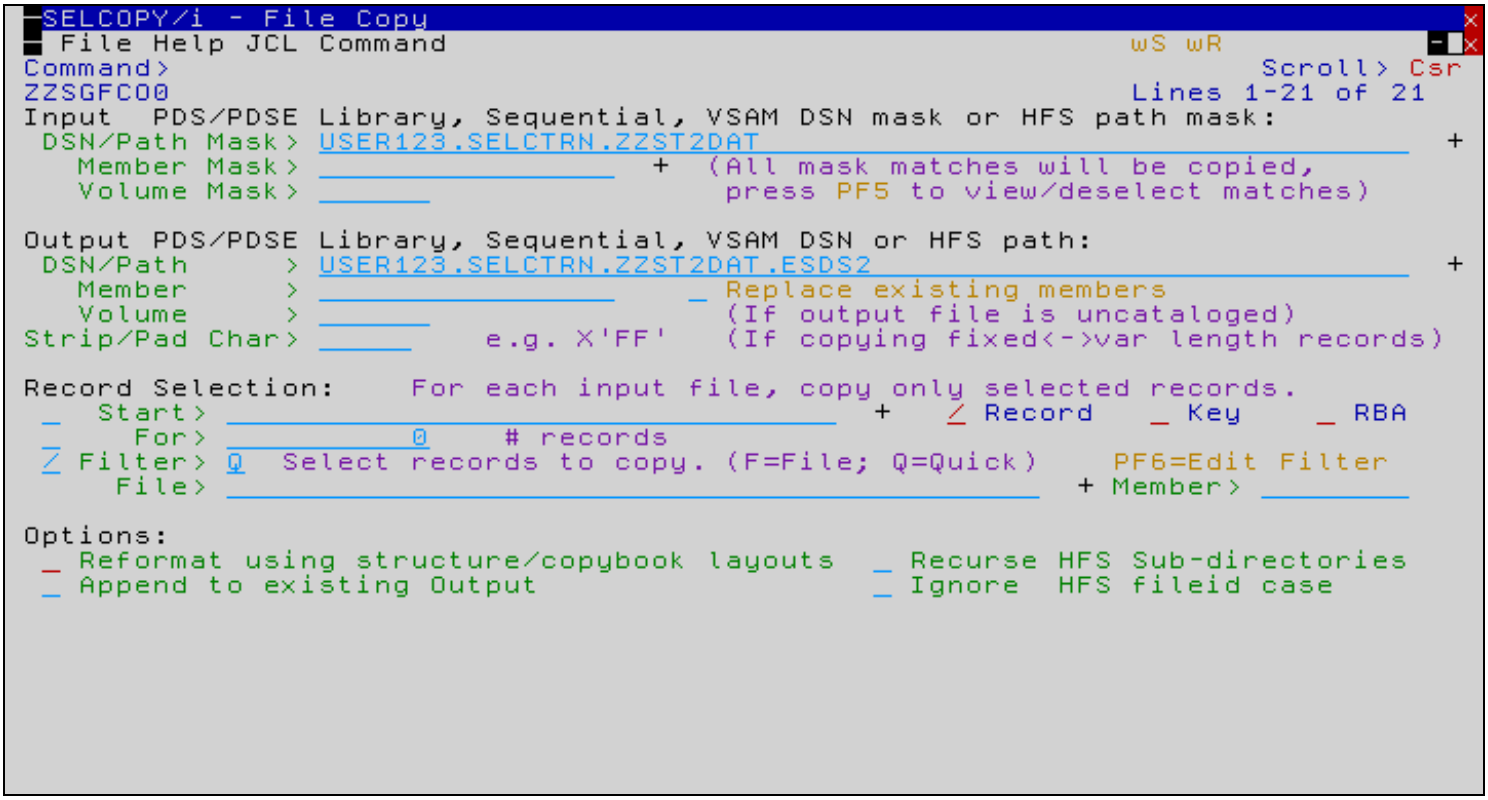


Figure 117. FileKit - Specify Quick FIlter.

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.

Figure 118. FileKit - 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.

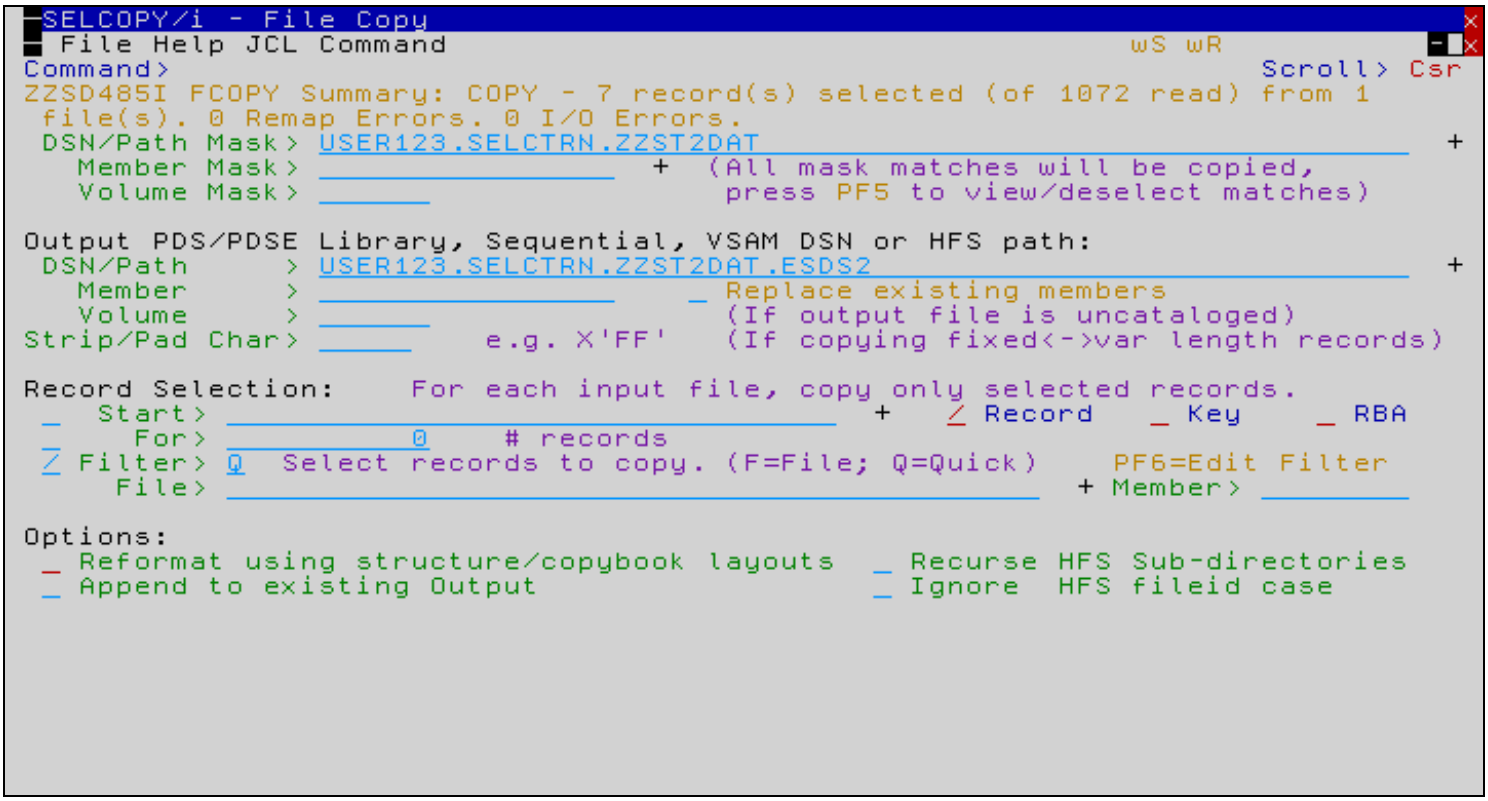


Figure 119. FileKit - Filtered Copy Summary Message.

Browse Output File

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

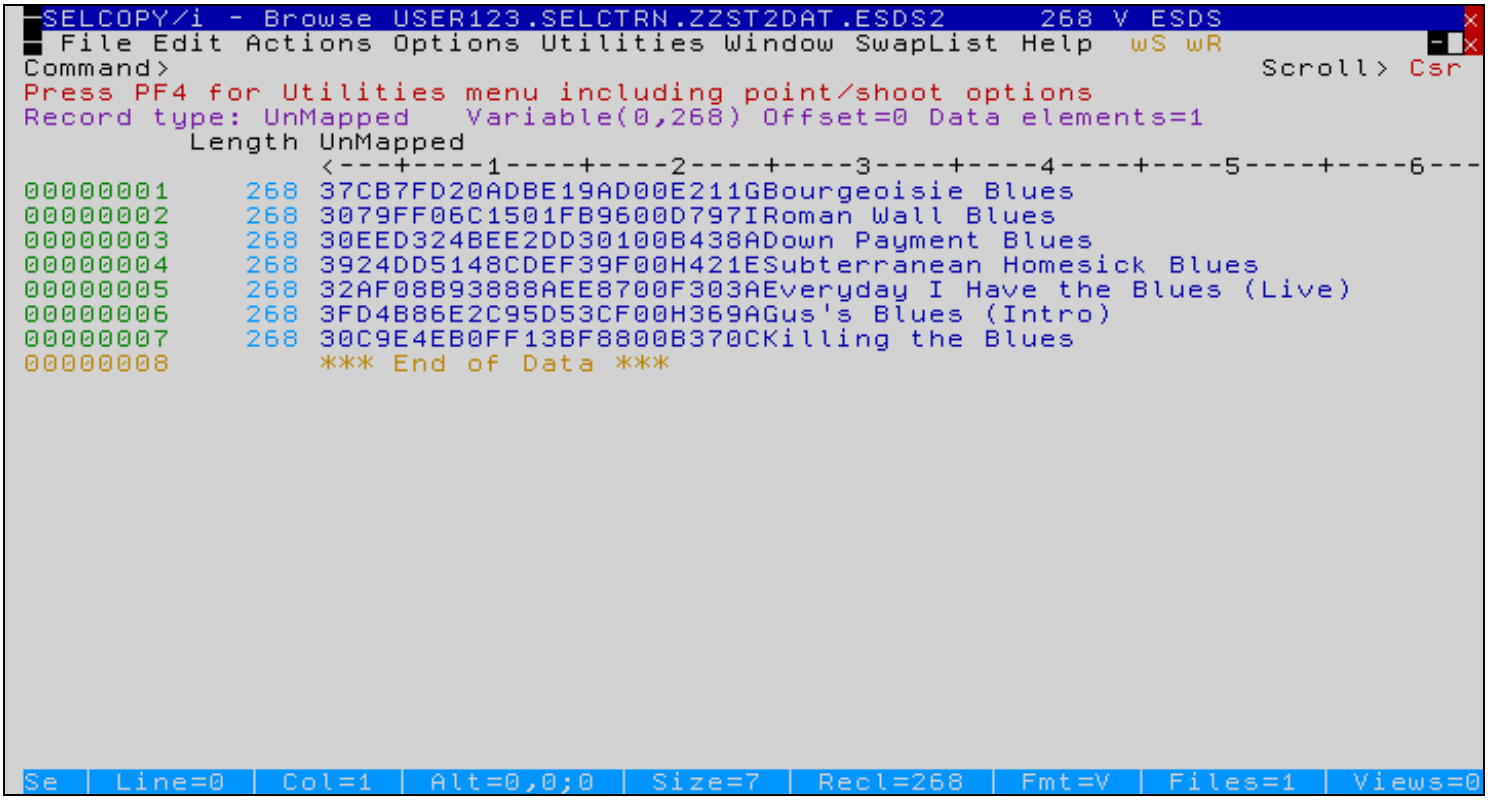


Figure 120. FileKit - Browse Output File.

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:

```
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 **userpfx.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.

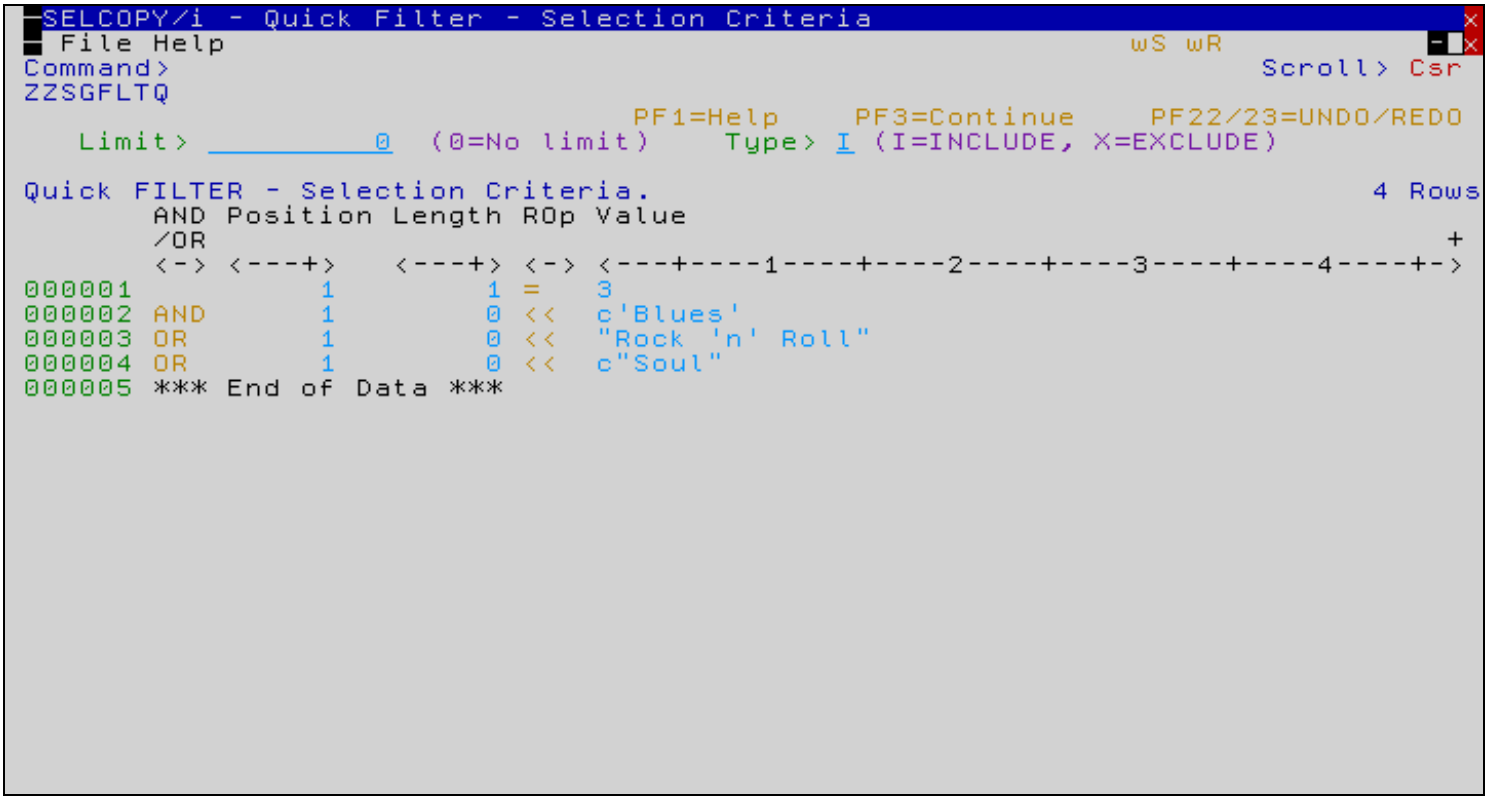


Figure 121. FileKit - Filter: Multiple Selection Criteria.

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).

Figure 122. FileKit - Generated Command.

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 taked 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.

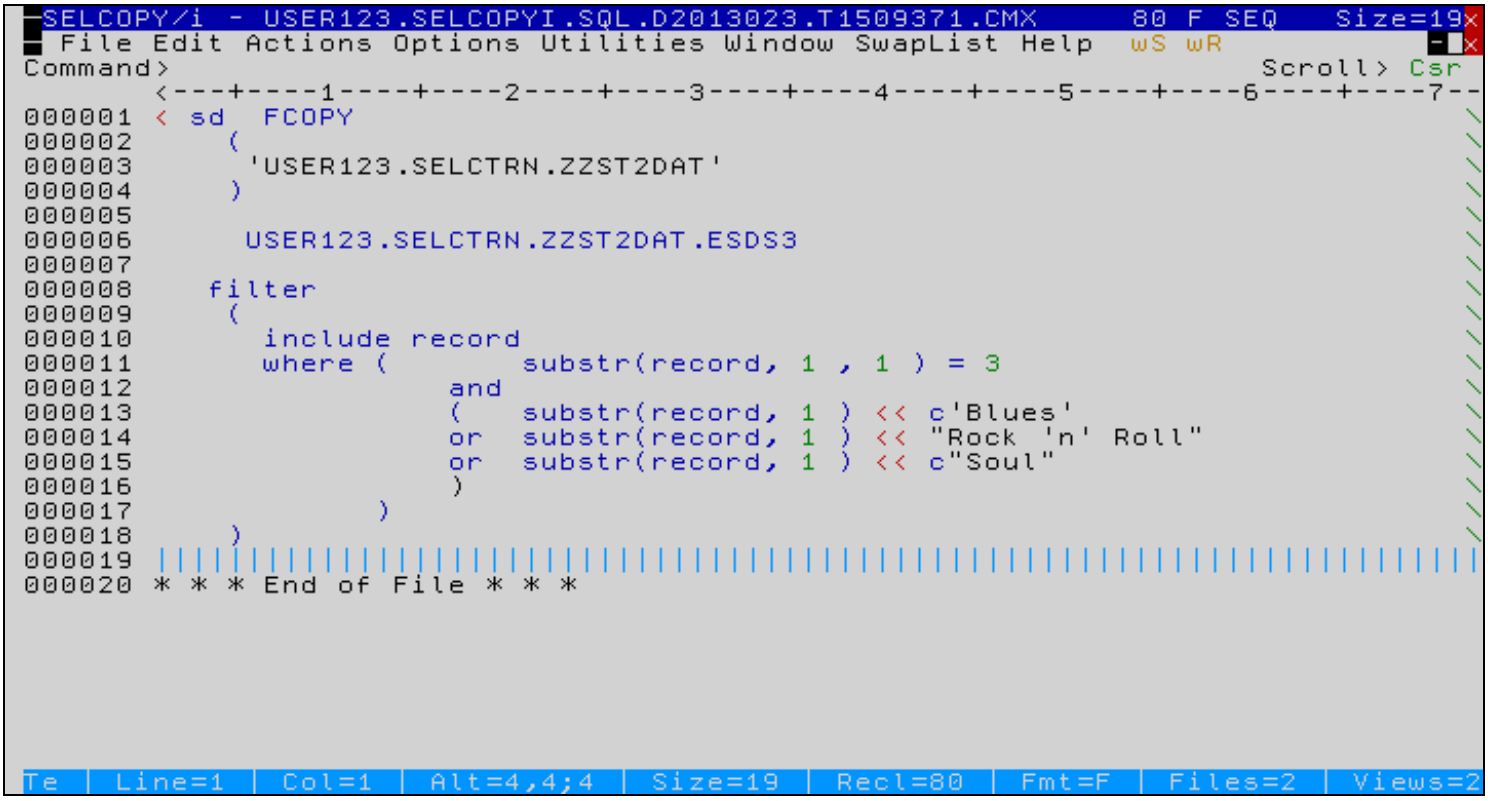


Figure 123. FileKit - Modified Command.

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 **B**rowse option) to get a drop-down list of available utility functions including edit, delete and rename.

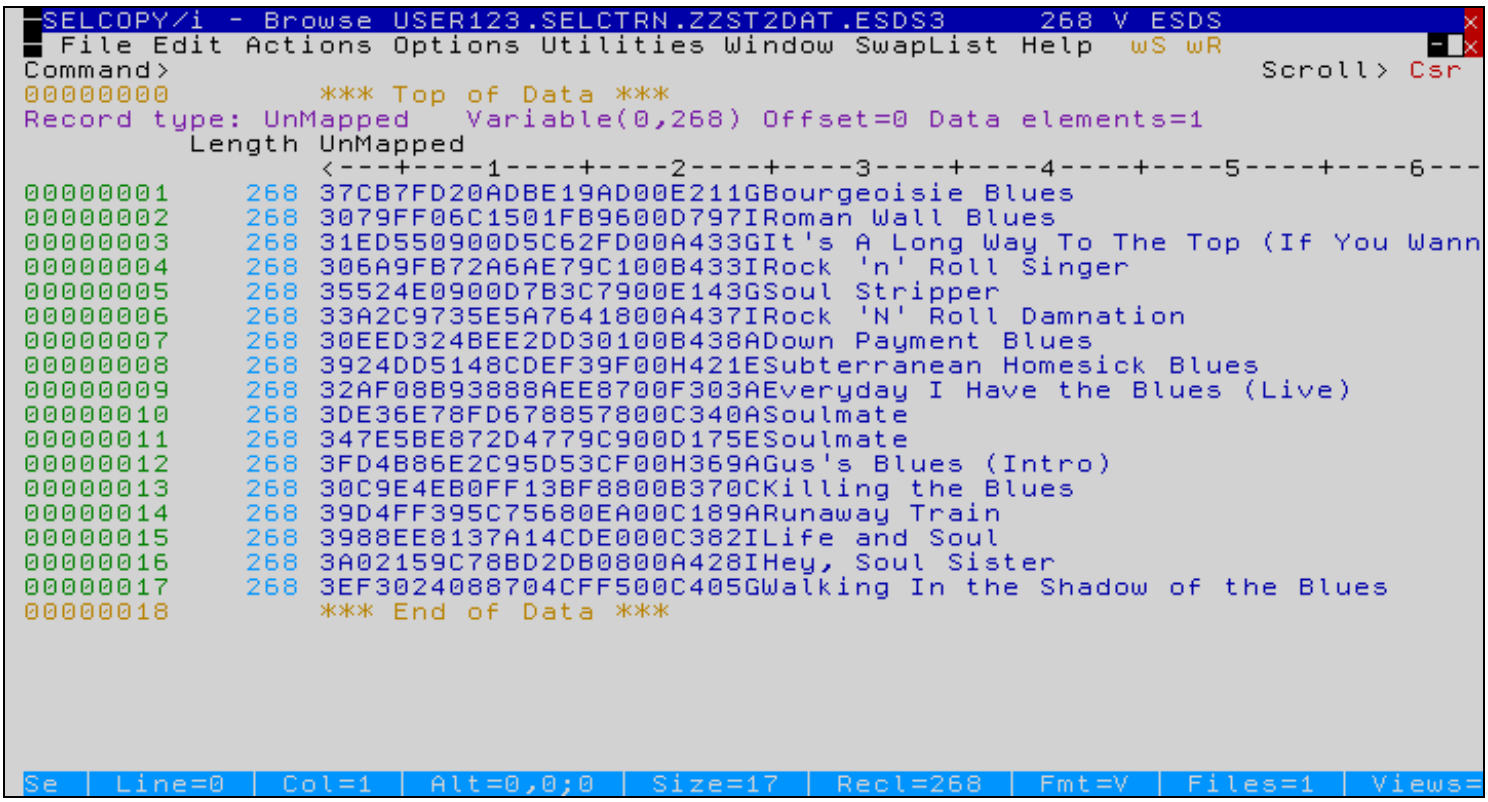


Figure 124. FileKit - Browse Filtered Output File.

Reformat

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.SELCTRN.ZZST1DAT** in the *DSN/Path Mask* field, where *userpfx* is your own user prefix.
- Specify the *Output File*:
  - Type **userpfx.SELCTRN.ZZST1DAT.FCOPY2** in the *DSN/Path* field.
- Select *Reformat using structure/copybook layouts* from the **Options** section of the FCOPY panel.

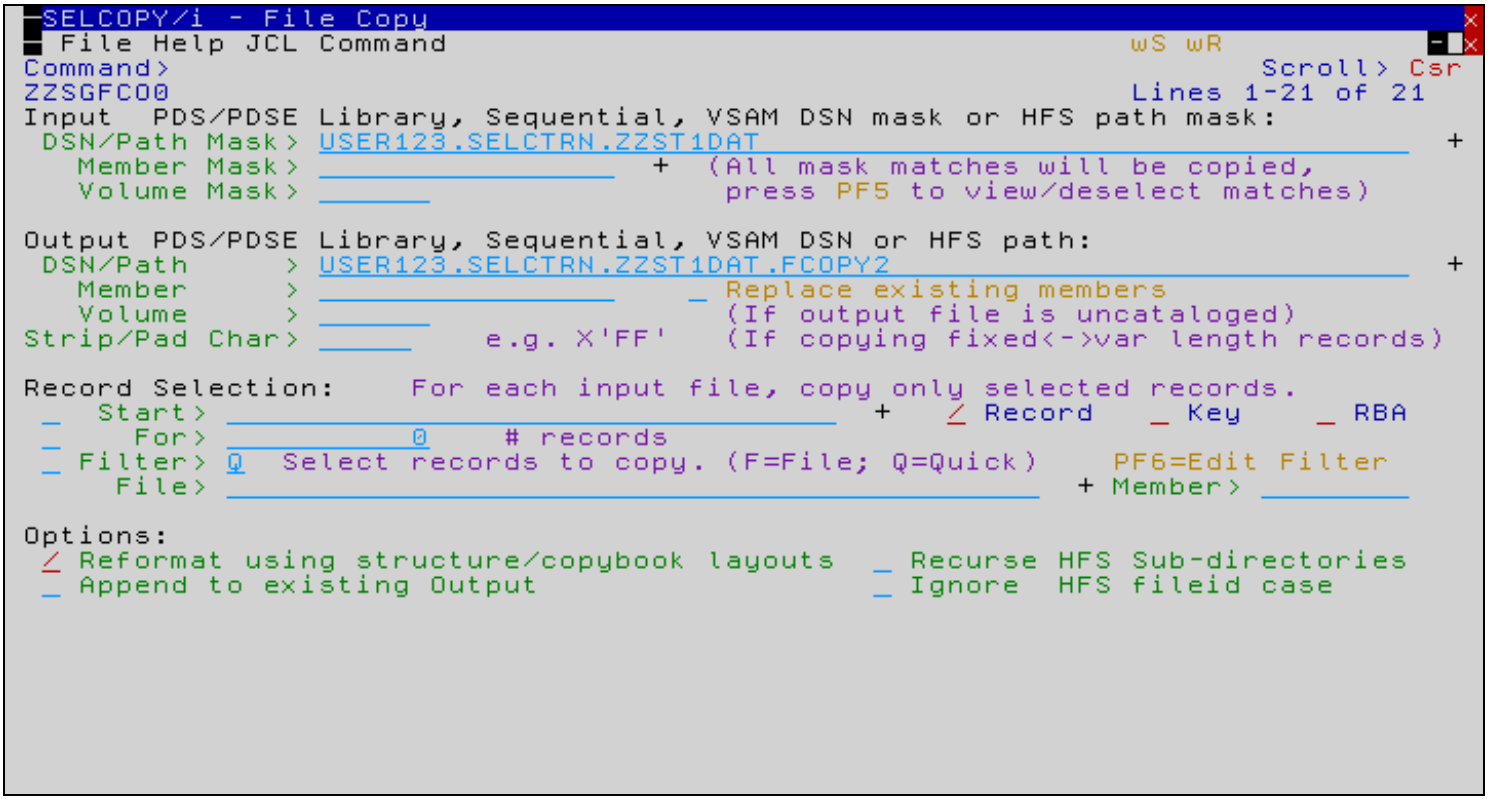


Figure 125. FileKit - Reformat 1.

Specify Input Copybook

- Press **ENTER** to proceed to the **File Reformat** panel.
- Specify the *Input Structure/Copybook File*:
  - 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).
    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!

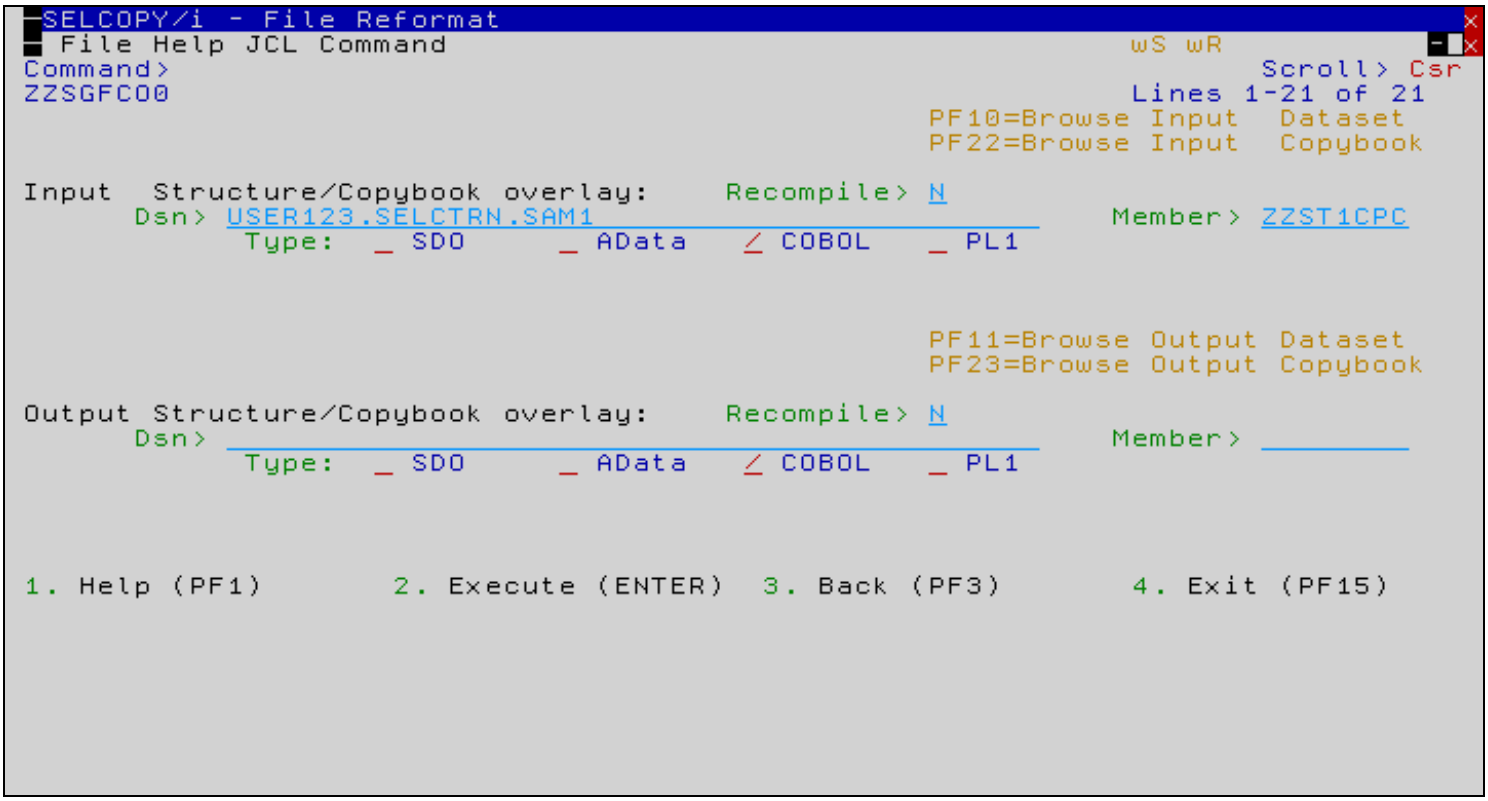


Figure 126. FileKit - Input Copybook.

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.

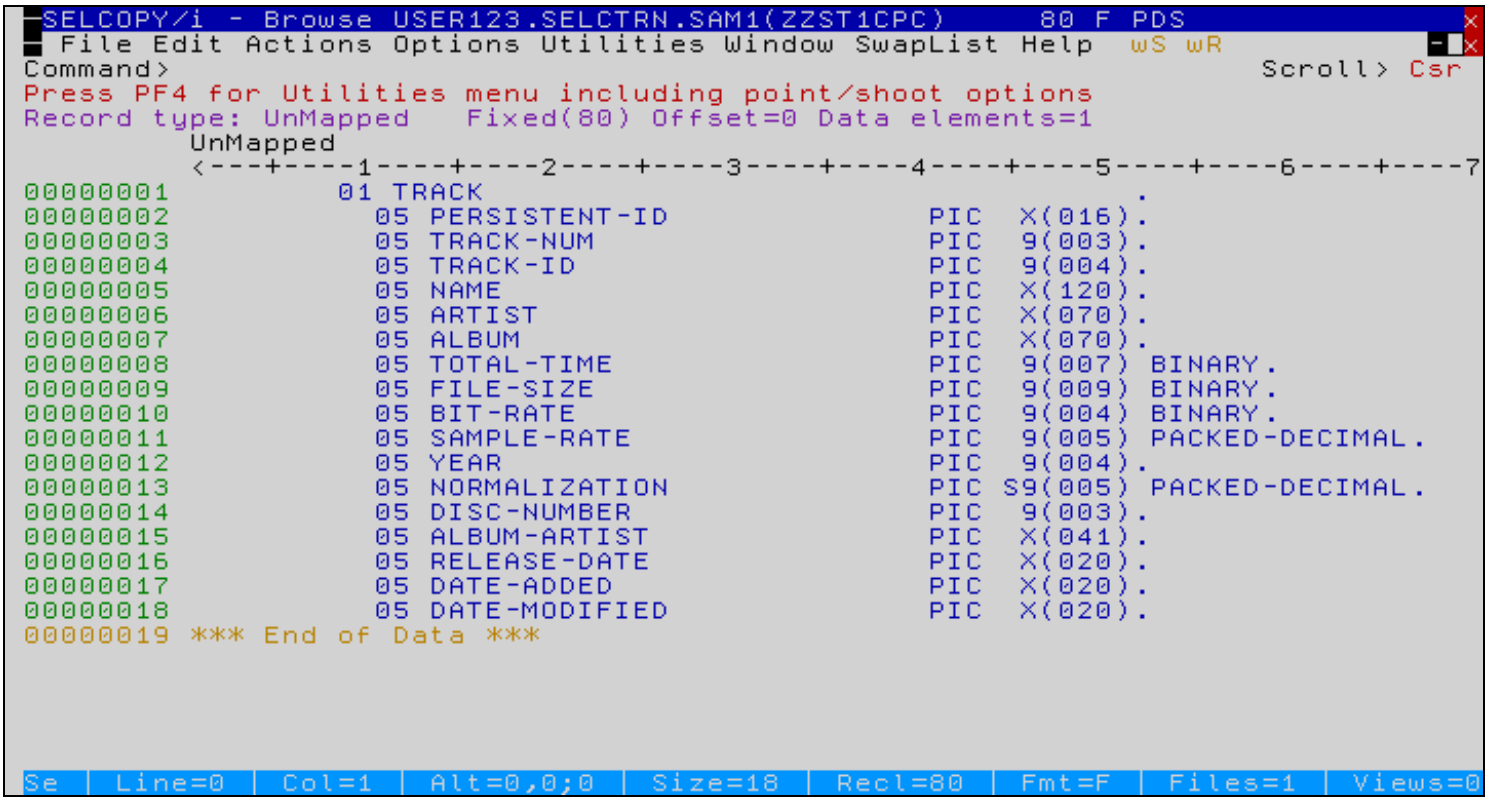


Figure 127. FileKit - Browse Input Copybook.

Create Output 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.

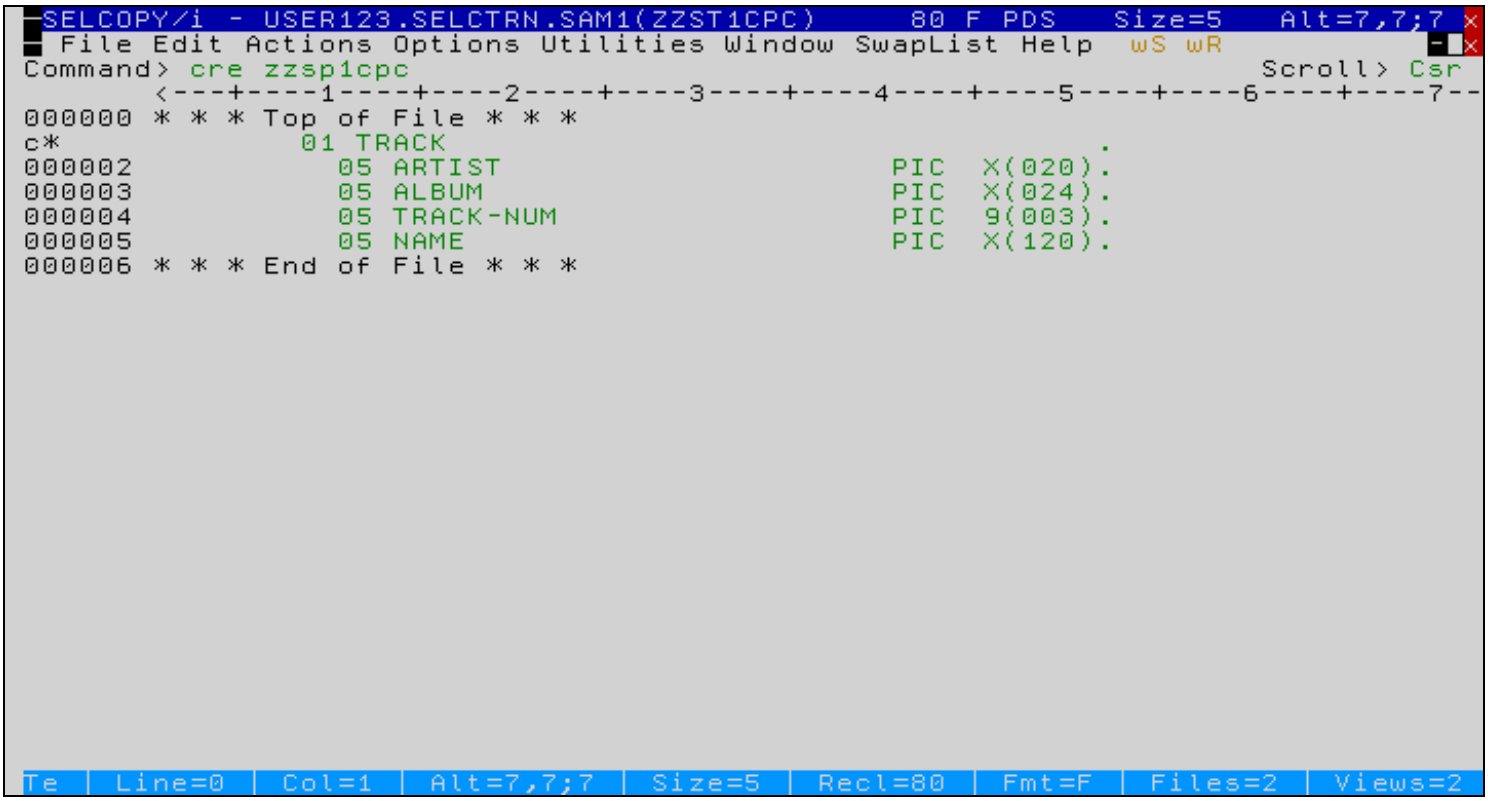


Figure 128. FileKit - Create Output Copybook.

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.SELCTRN.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.

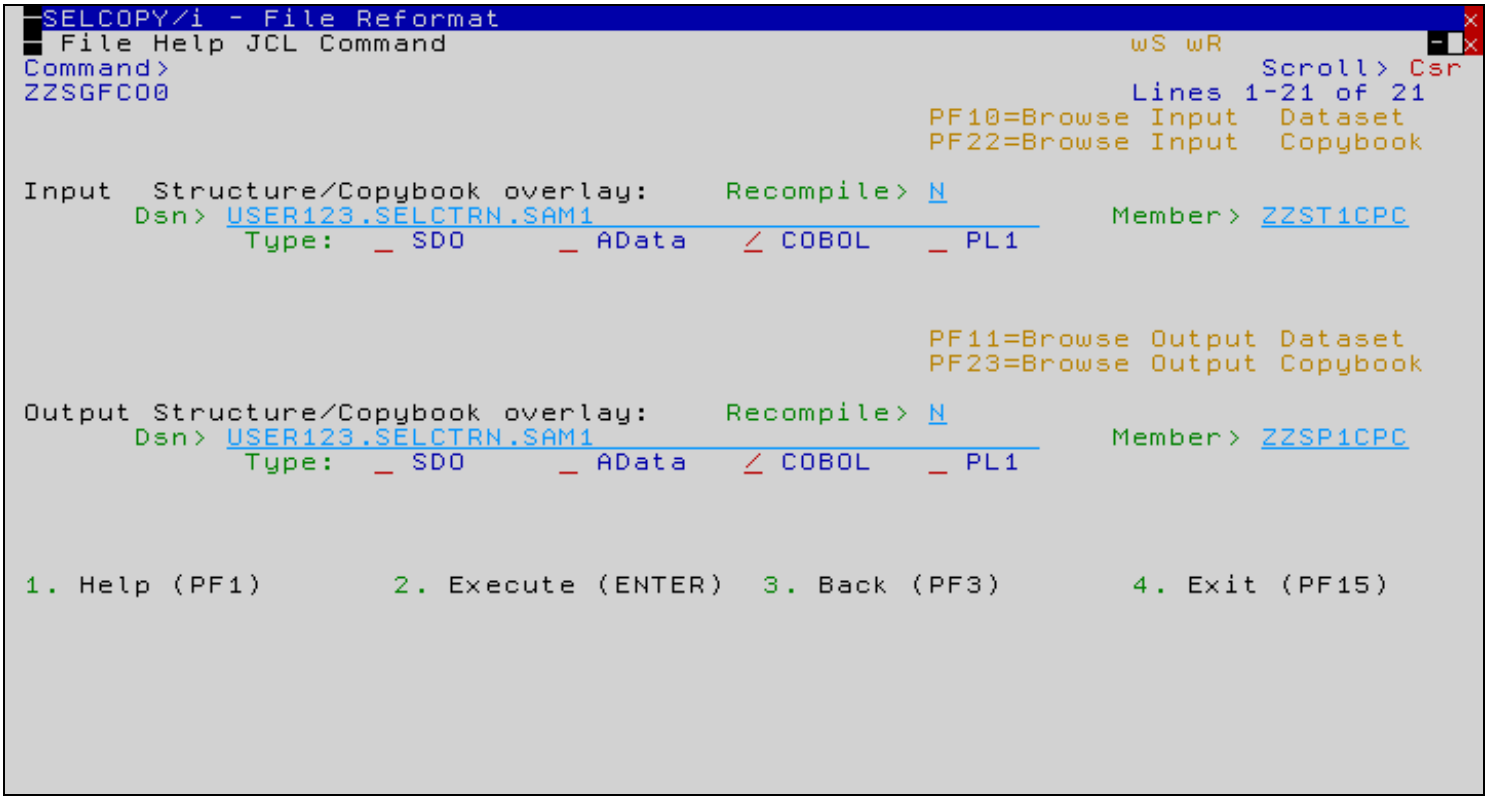


Figure 129. FileKit - Specify Output Copybook.

Execute Reformat

- Press **ENTER** to execute the reformat.
- You will be prompted to create you 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.

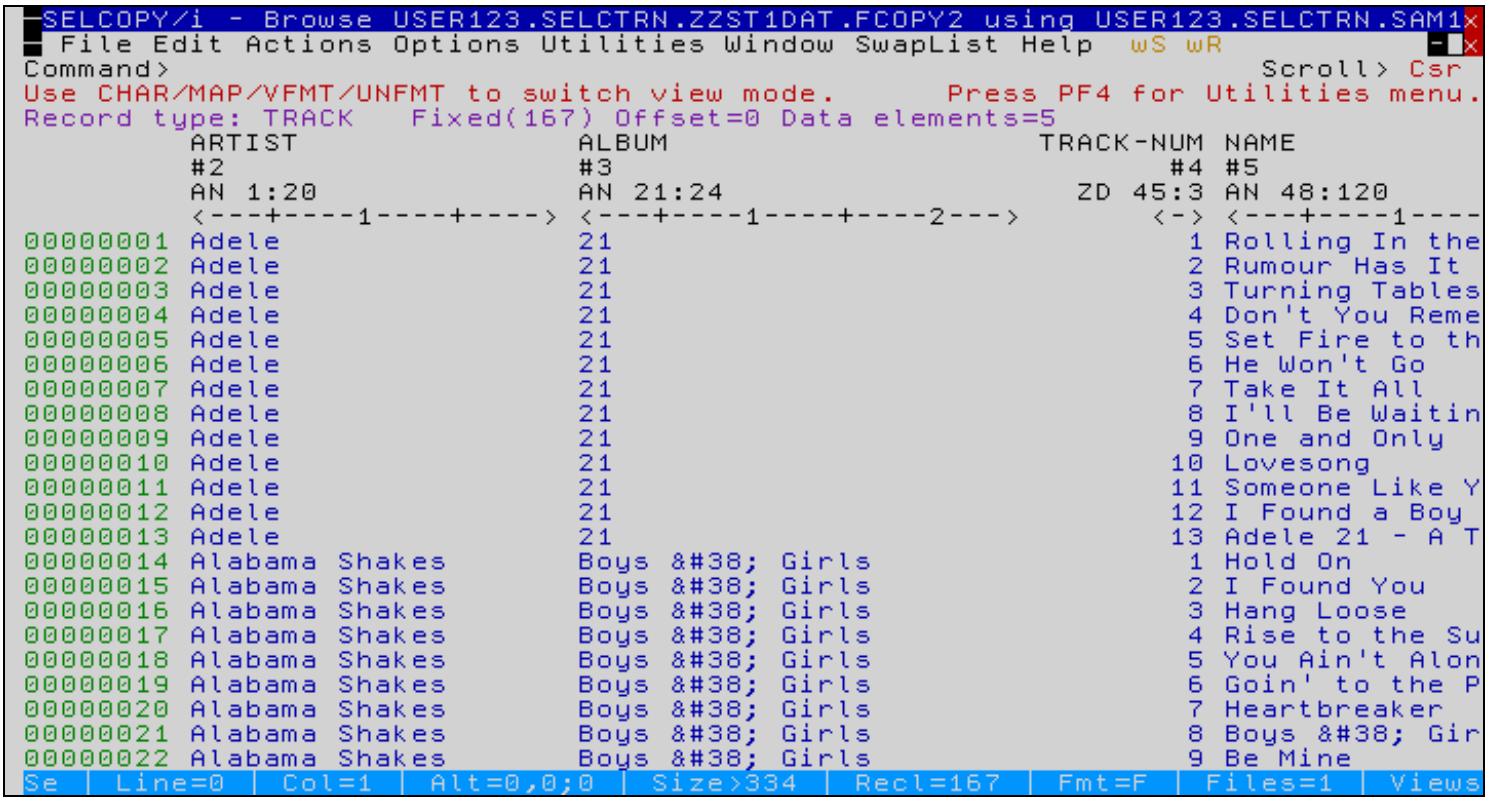


Figure 130. FileKit - Browse Formatted Output.

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.

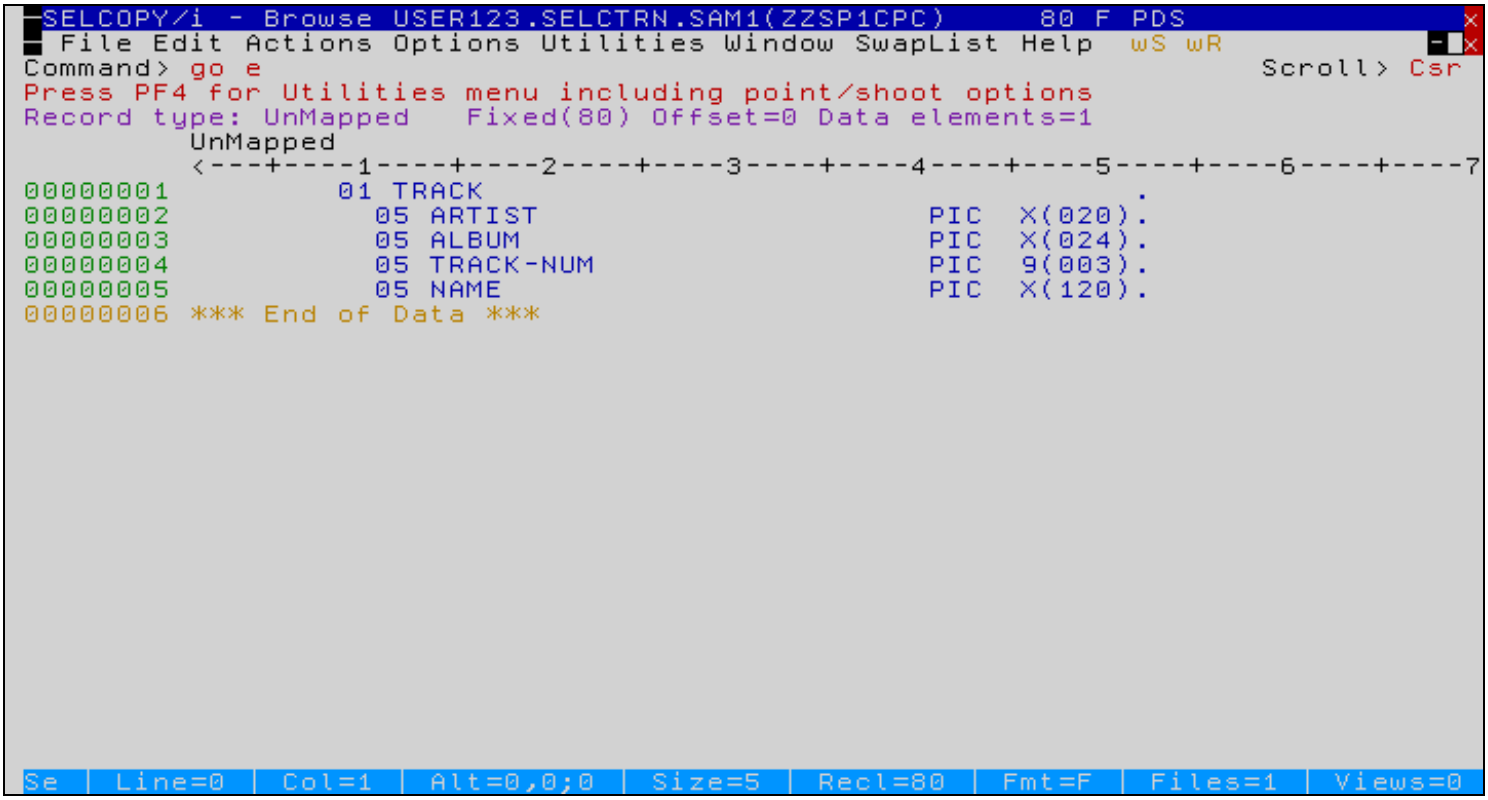


Figure 131. FileKit - Browse Output Copybook.

Updating the Output Copybook (2)

- 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.

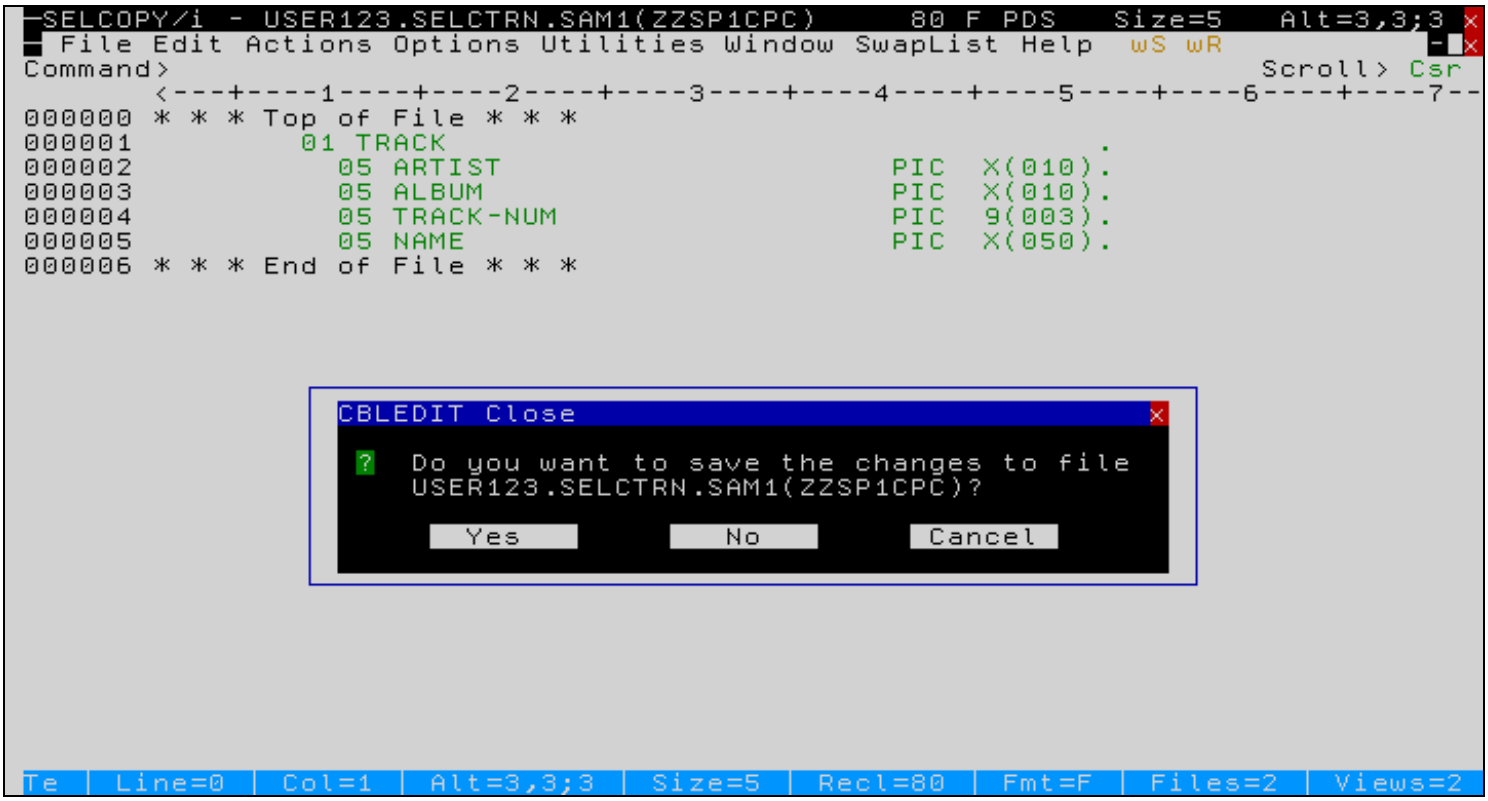


Figure 132. FileKit - Update Output Copybook.

Force Recompile of Updated Output Copybook (1)

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 FileKit's own internal structure (SDO) format.

A temporary SDO will be created, lasting the duration of the FileKit 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.

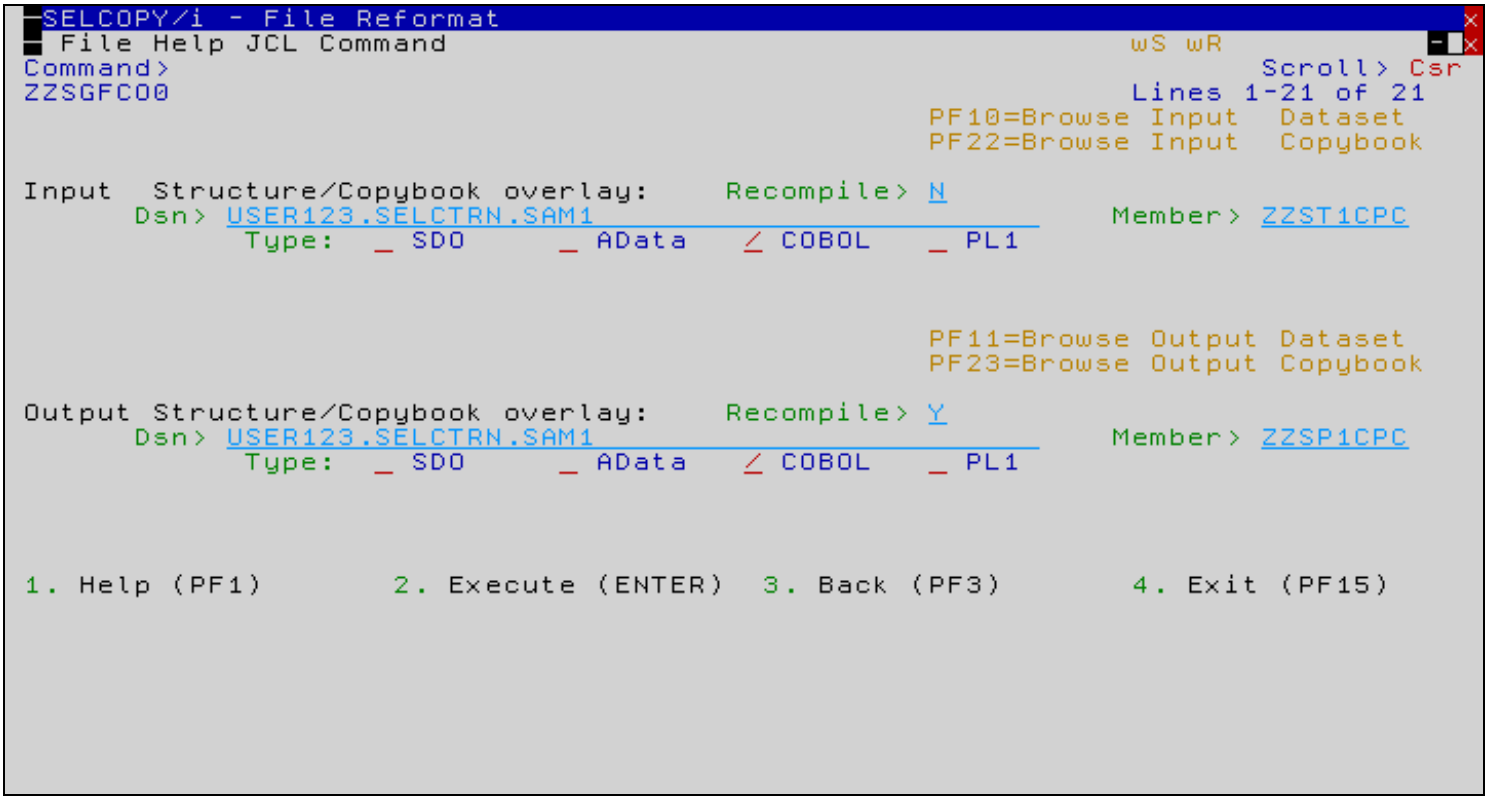


Figure 133. FileKit - Recompile=YES.

Force Recompile of Updated Output Copybook (2)

- 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).

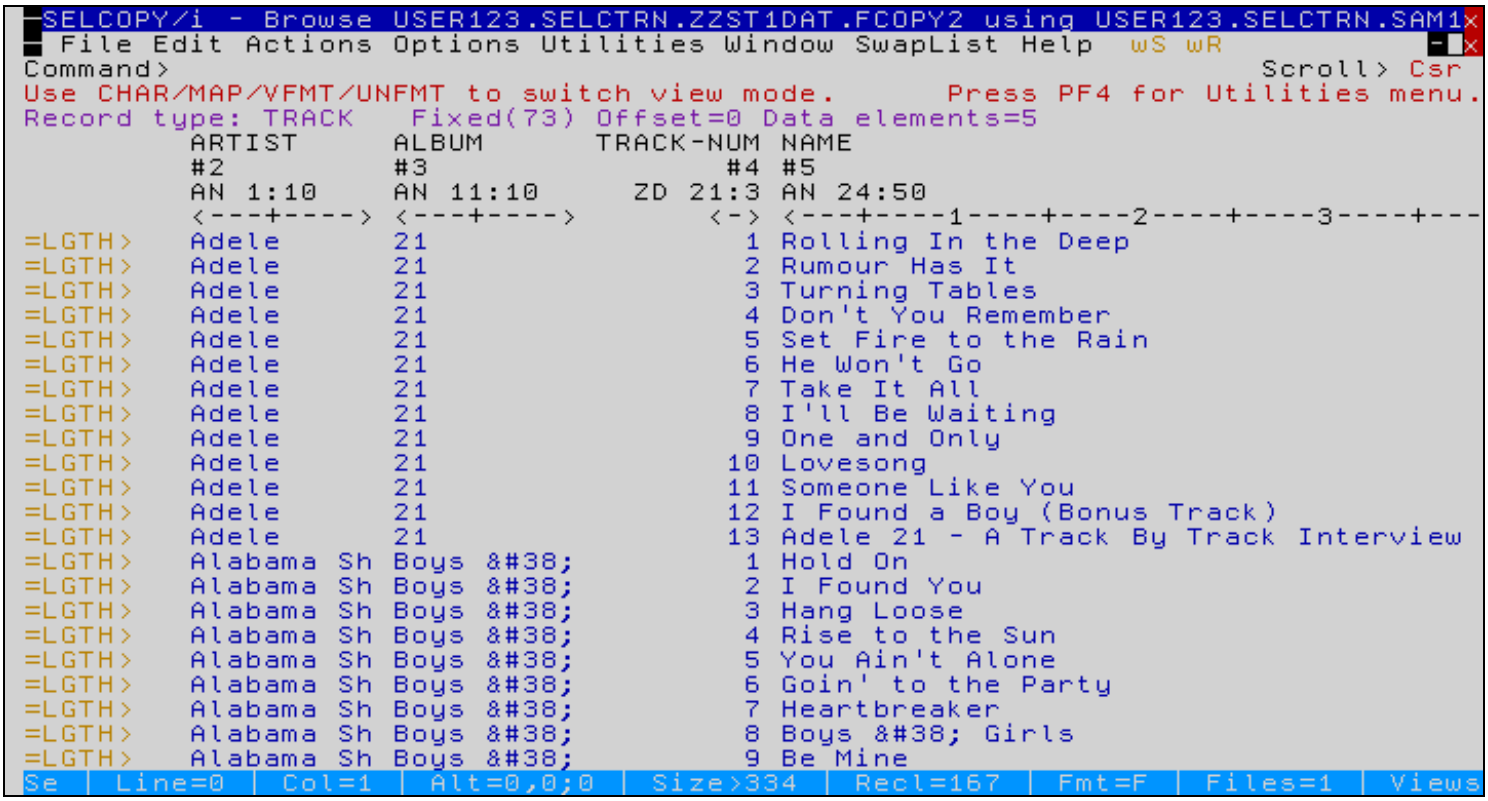


Figure 134. FileKit - Browse Formatted Output 2.

Running File Copy/Reformat in Batch

- 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 FileKit to automatically guide you into SDSF (starting a new ISPF split screen) in order to view the output.

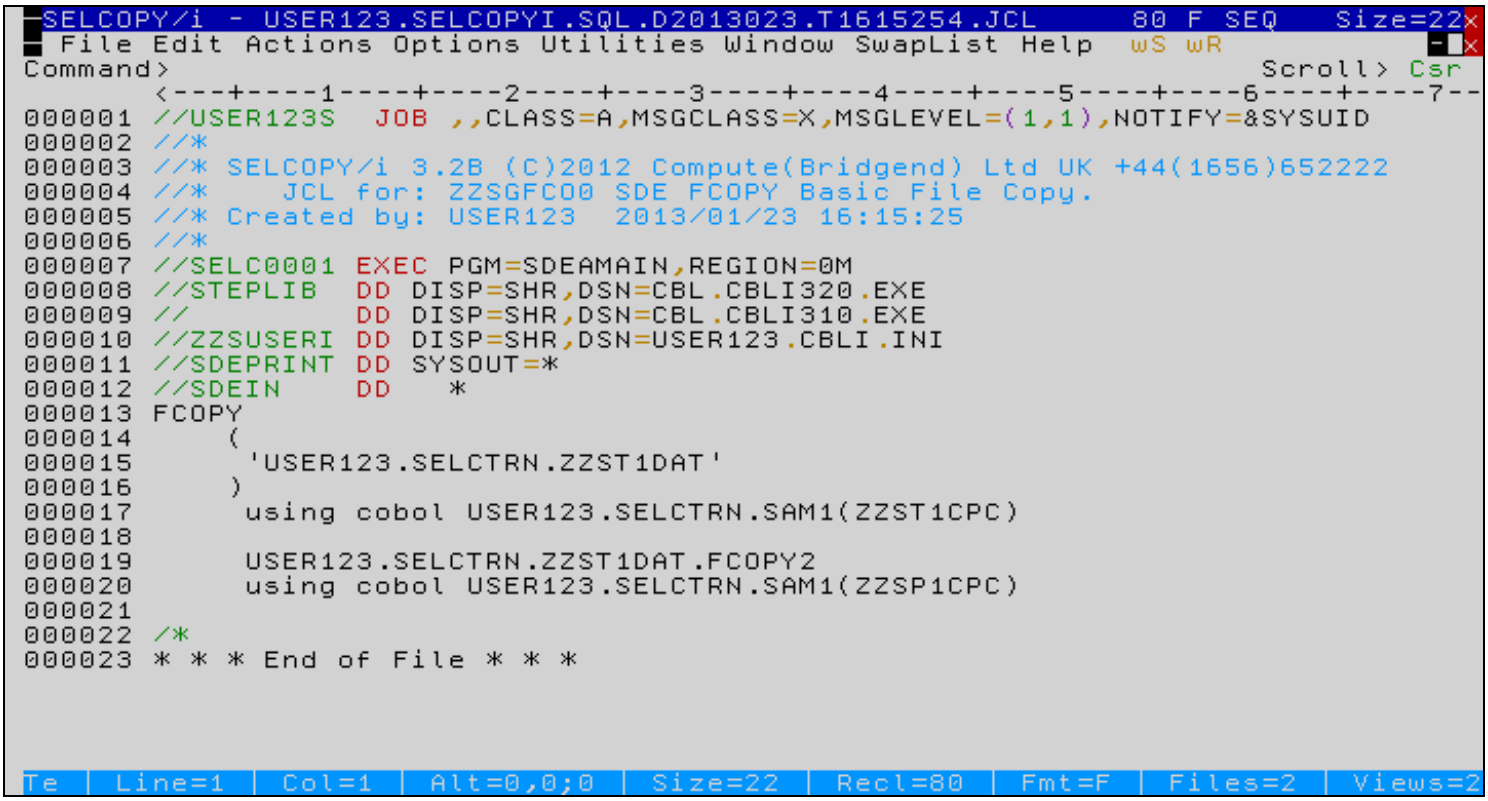


Figure 135. FileKit - Generated Batch Job.

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 satistying 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 selction 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 withing 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 **FileKit** 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

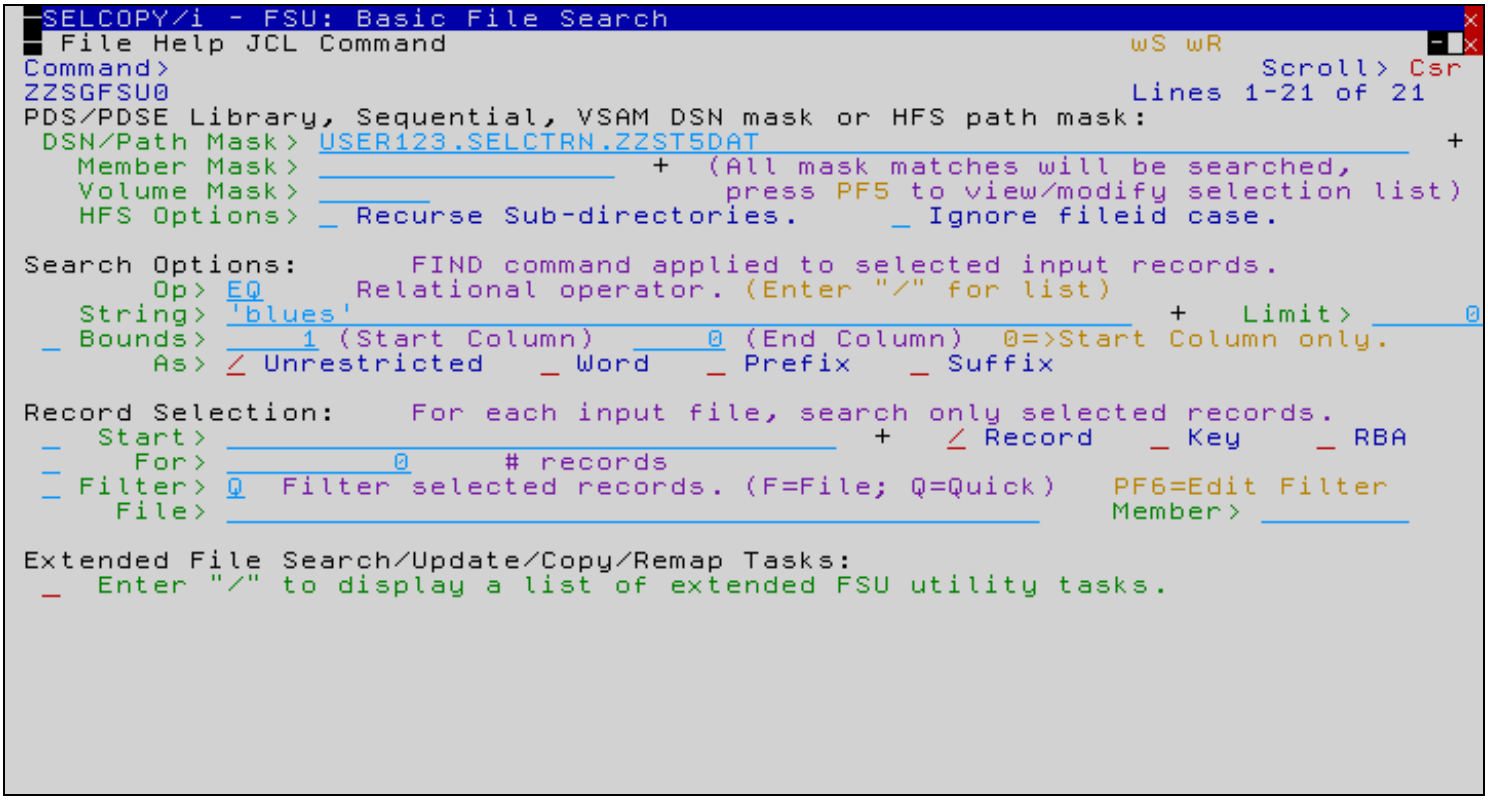


Figure 136. FSU - File Search/Update (FSU) Panel (=5)

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:

Field	Description
Timestamp	The date/time of execution.
Command	The FSU primary command generated by the panel.

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

Field	Description
RecordsTot	The number of records processed.
FilesTot	The number of files/members processed.
Hits	The number of occurrences of the search value encountered.
RecordsHit	The number of records encountered with at least once occurrence of the search value.
FilesHit	The number of files/members encountered with at least once occurrence of the search value.

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

Field	Description
zMember	The name of the hit library member. zMember is a **held field**, meaning it will remain visible when the display is scrolled right.
zRecord	The contents of the hit record.

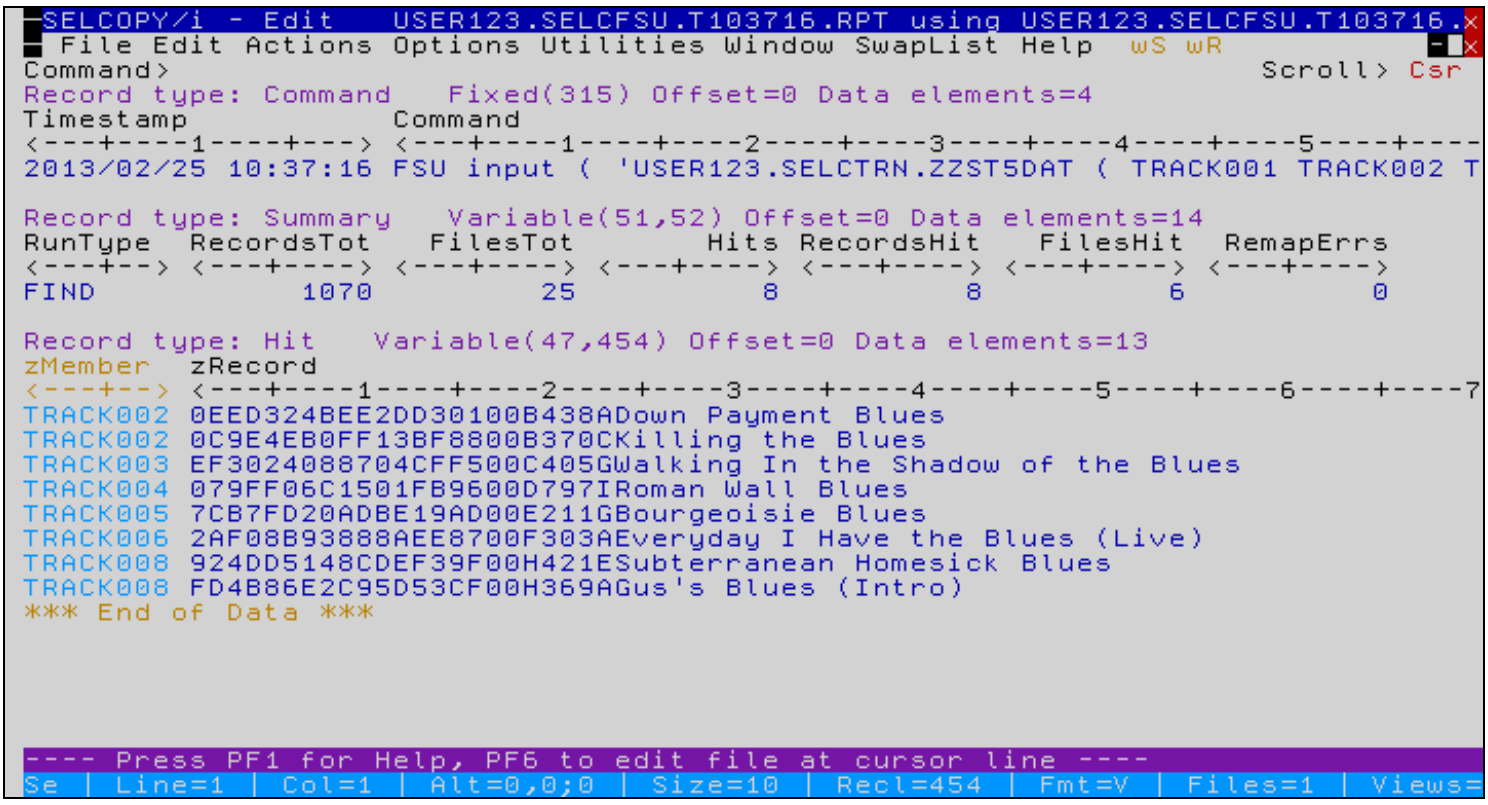


Figure 137. FSU - Search Report

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.

Field	Description
zDsn	The library dataset name.
zRecNo	The hit record number.
zHitNo	The hit record number within the file/member.
zLrecl	The logical record length of the hit record.
zHits	The number search value occurrences within this hit record.

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

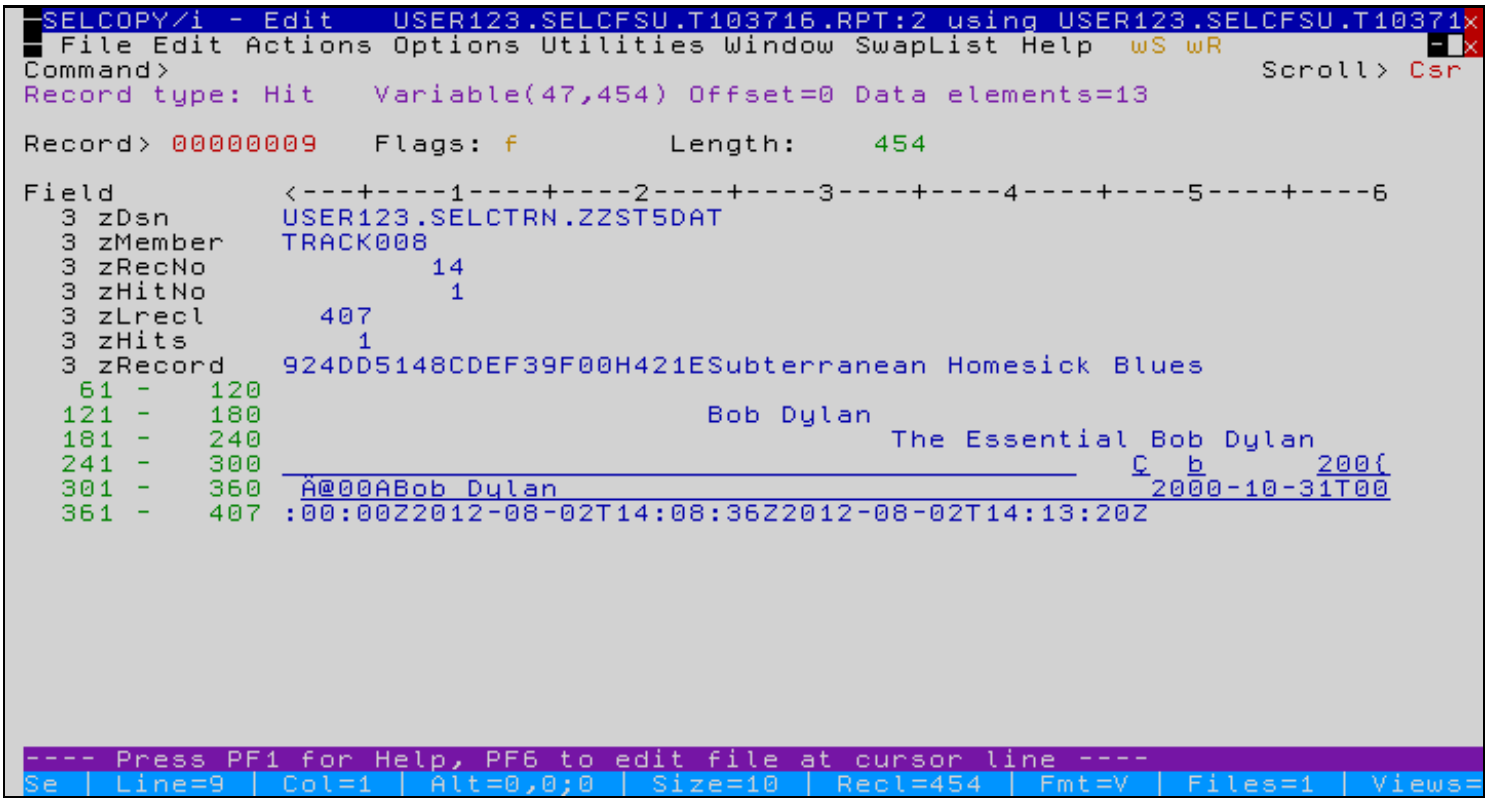


Figure 138. FSU - Search Report (Zoomed)

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:

Option	Action
Edit	Text Editor (Edit)
View	Text Editor (Read-only)
Browse	Data Editor (read-only)
SDE	Data Editor (Full Edit)
SDEU	Data Editor (Update-in-place)
None	No Action

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

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.

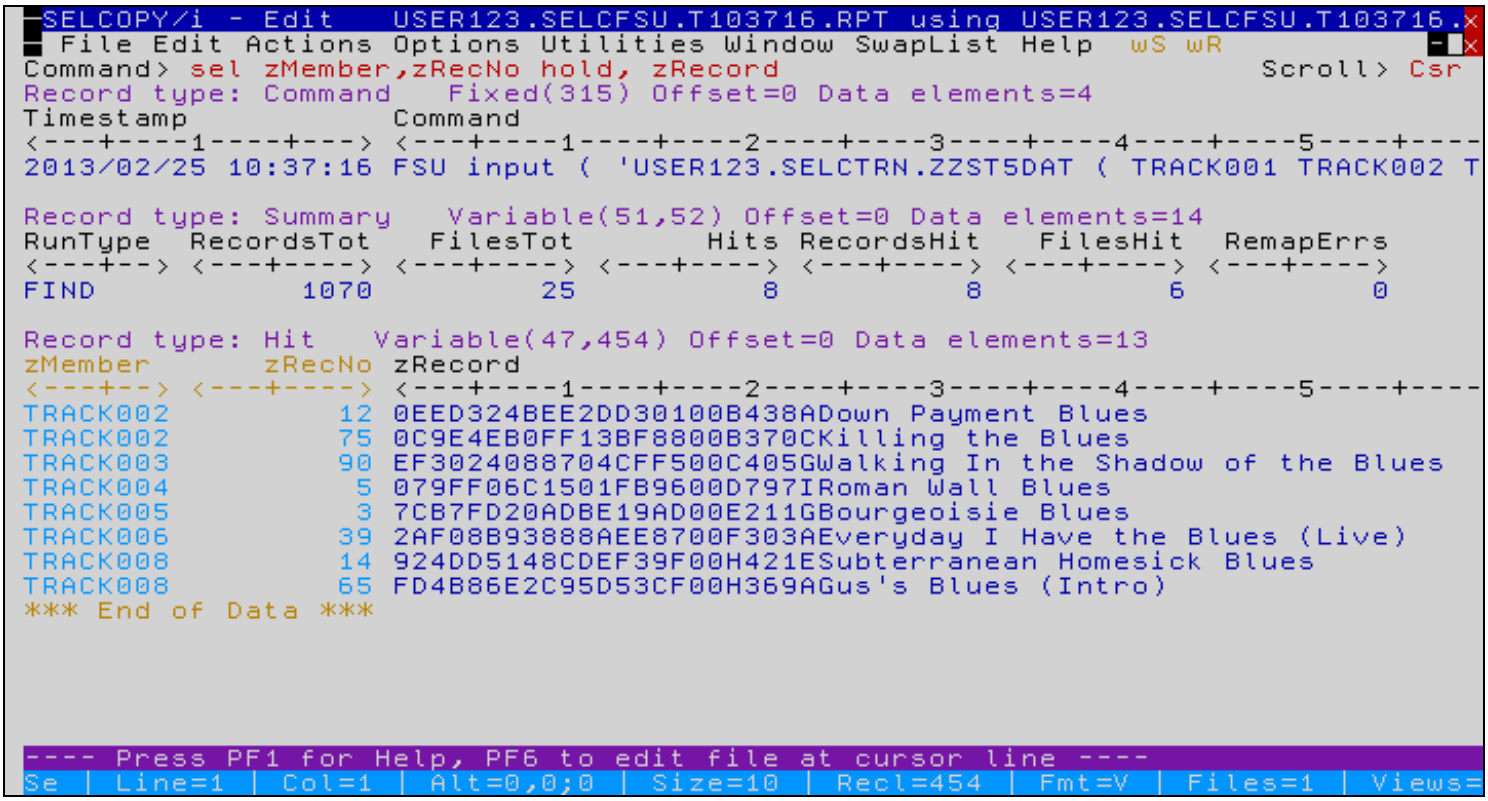


Figure 140. FSU - Report with Tailored SELECT

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 charcaters, 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.

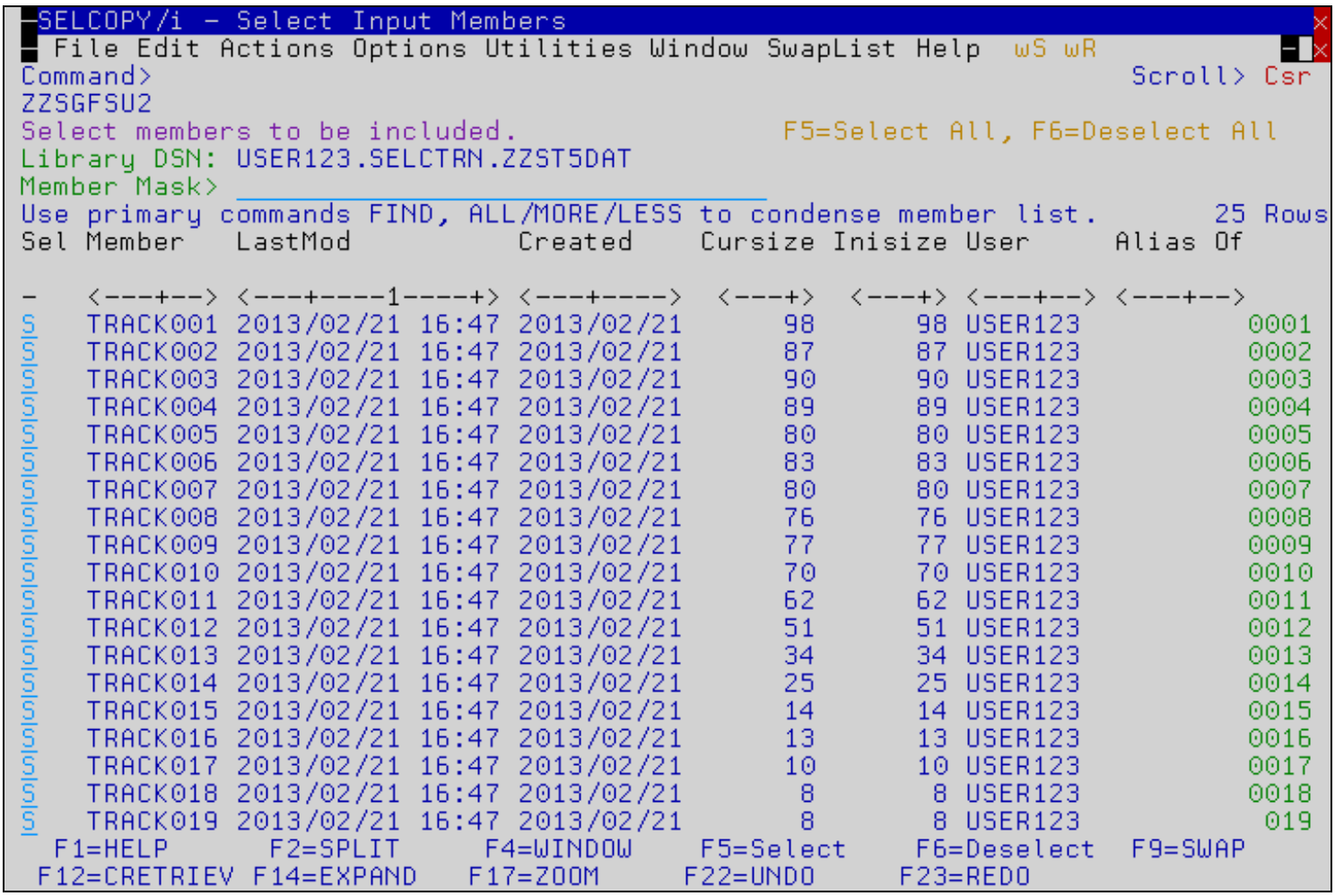


Figure 141. FSU - Member Selection List

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**.

Option	Action
ALL	Includes only entries satisfying the expression.
MORE	Additionally includes entries satisfying the expression.
LESS	Excludes entries satisfying the expression.

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

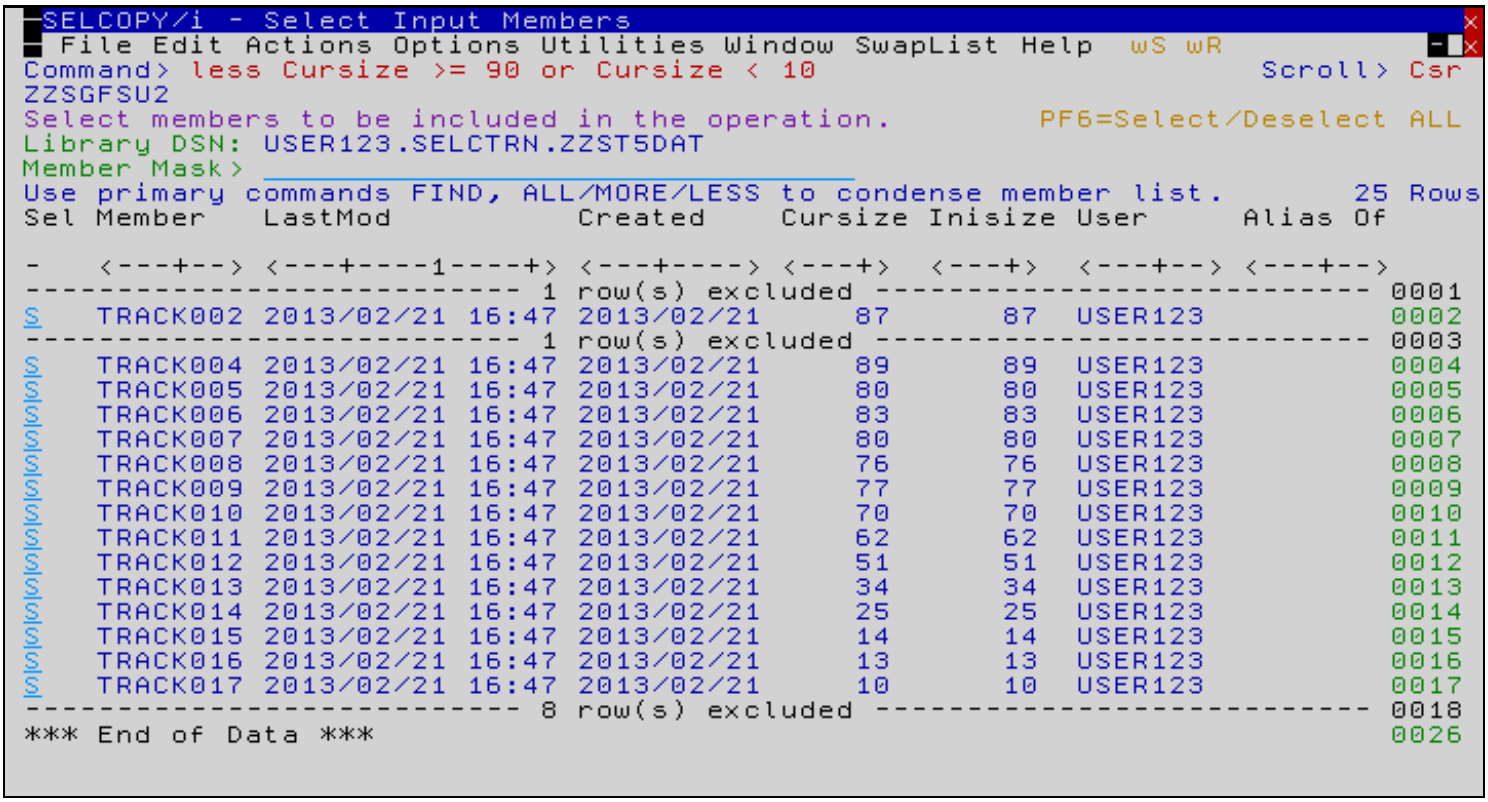


Figure 142. FSU - Member Selection (ALL/MORE/LESS)

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.

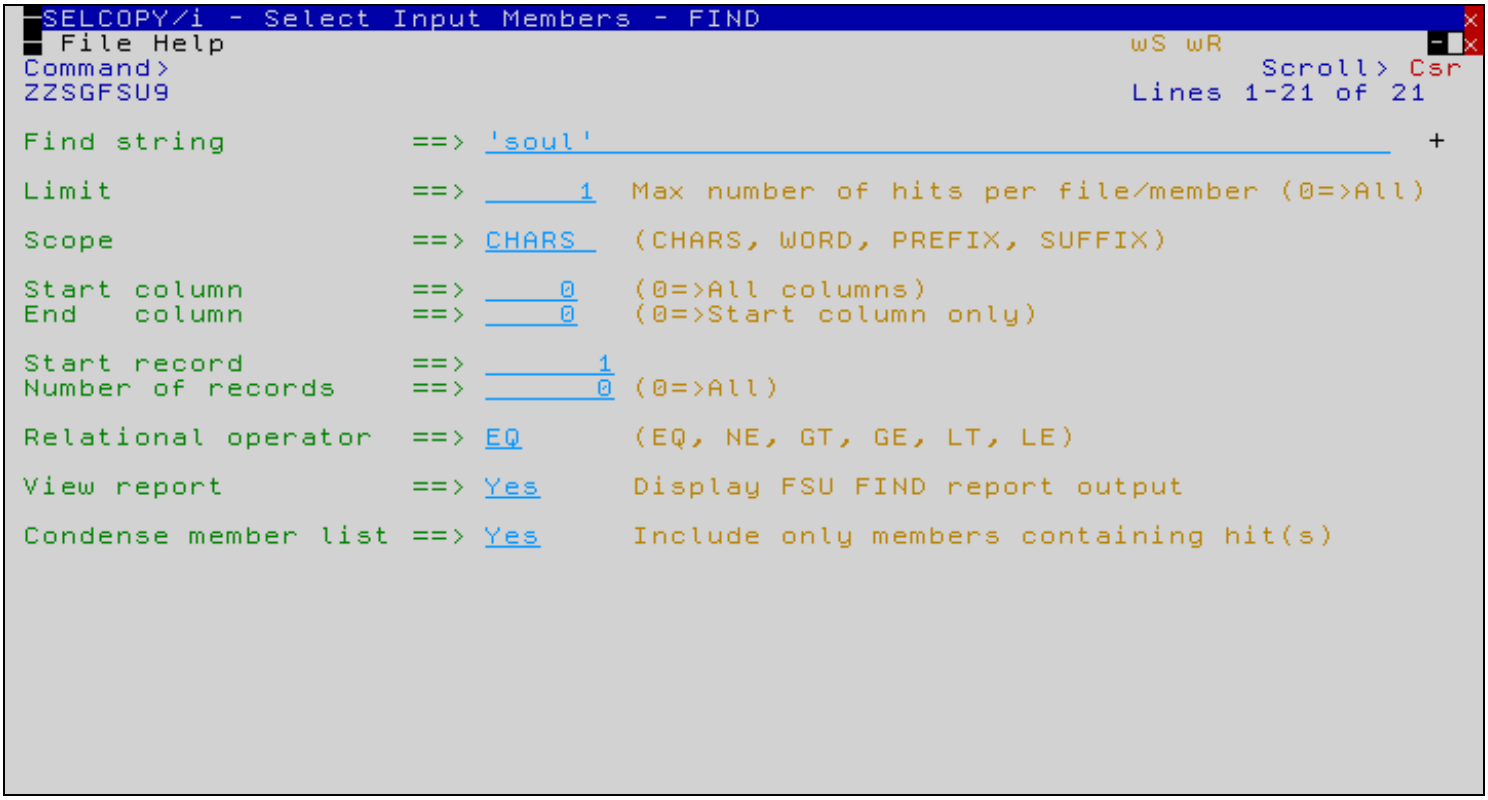


Figure 143. FSU - Member Selection (FIND)

Condensed Member Selection List

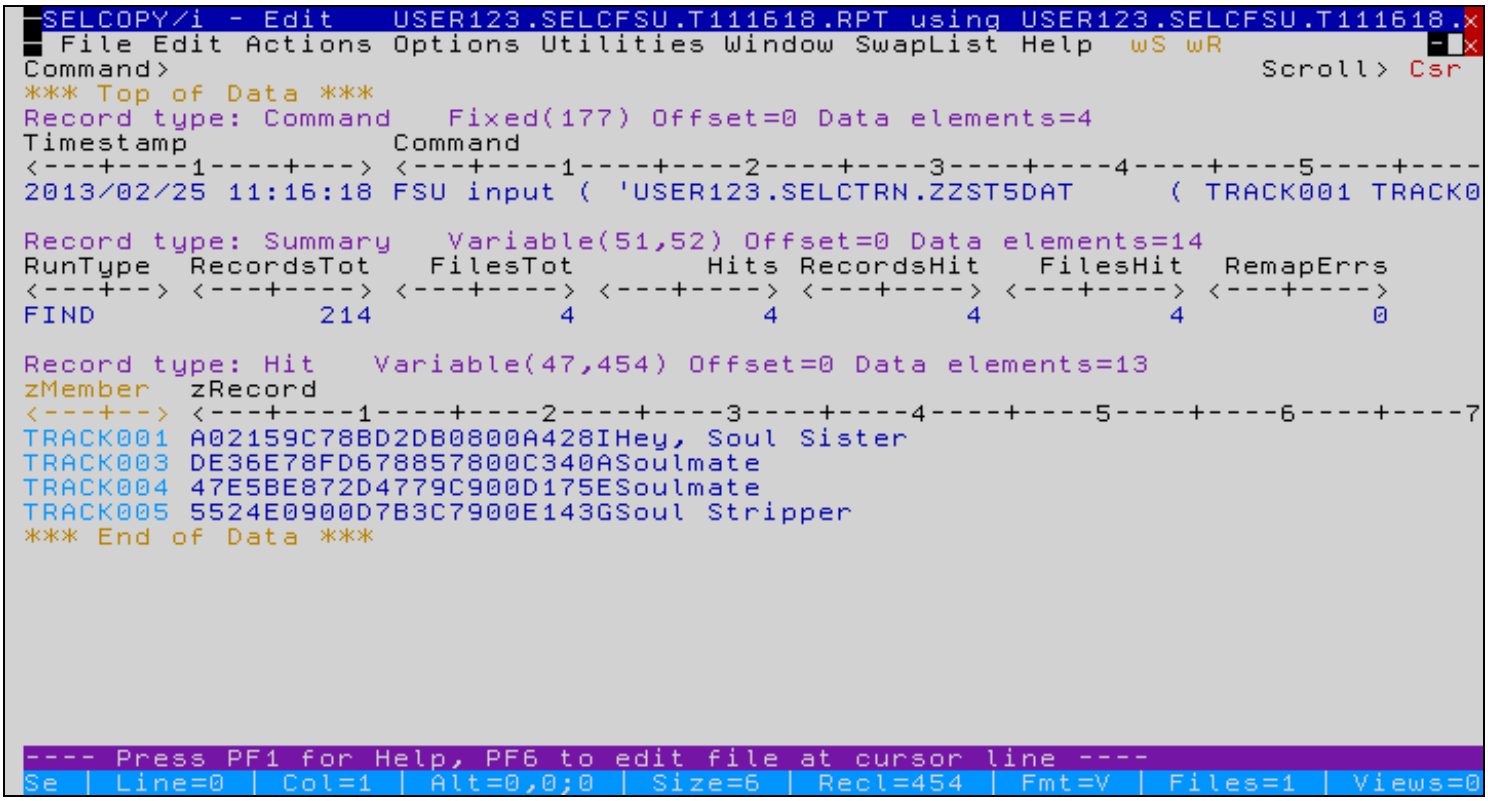


Figure 144. FSU - FIND Report with LIMIT=1

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.**

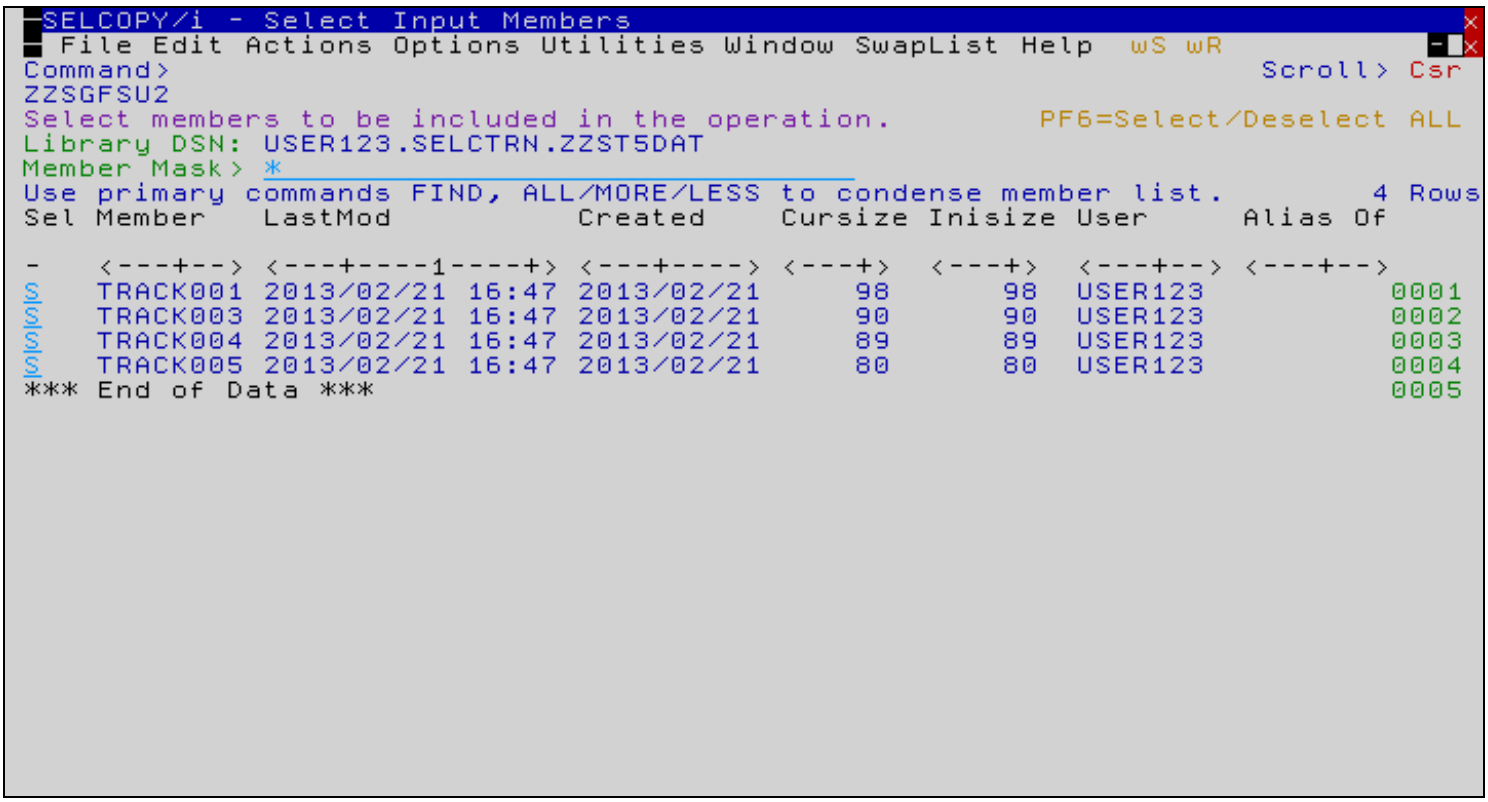


Figure 145. FSU - Condensed Member Selection List

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.

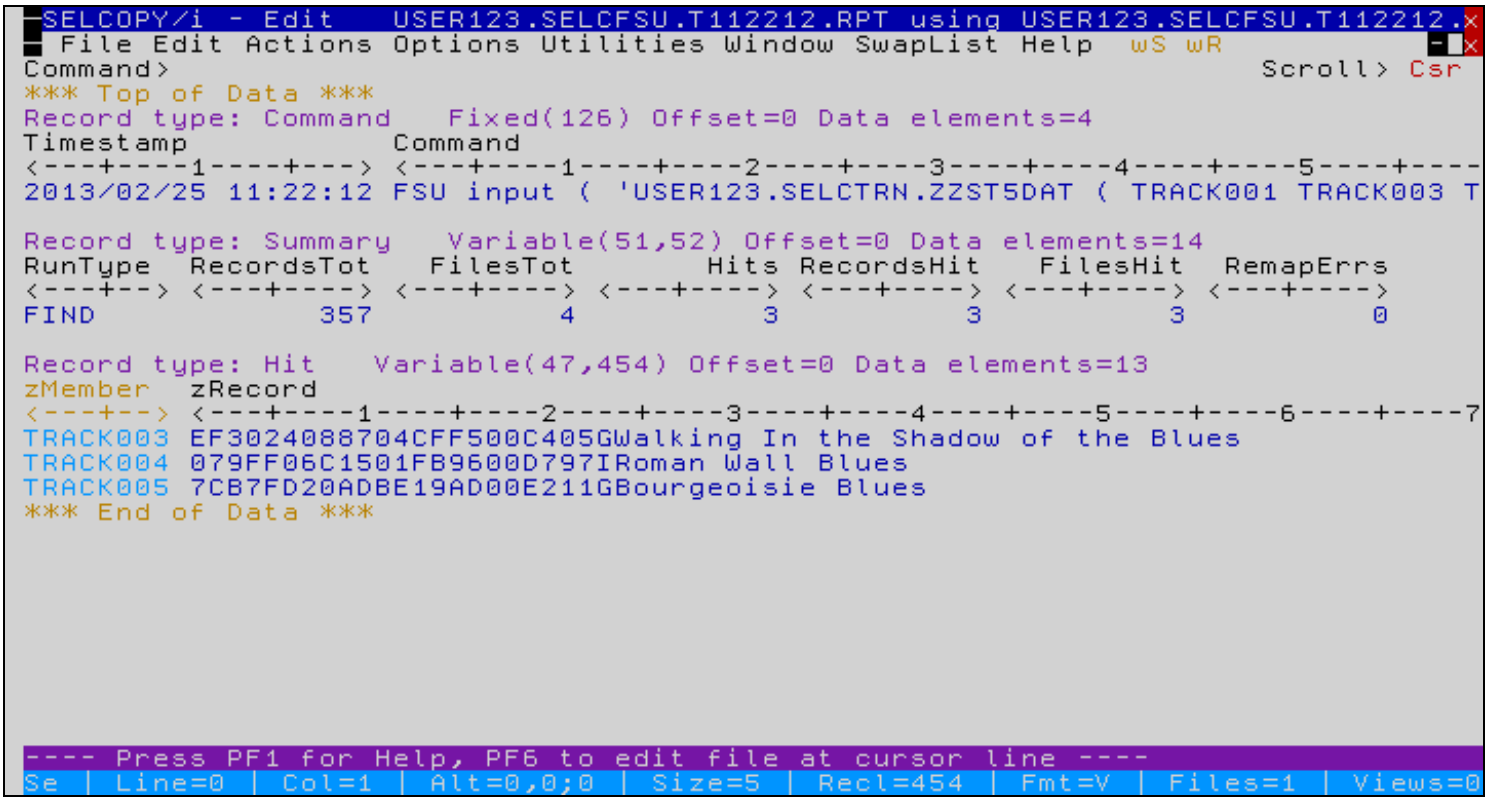


Figure 146. FSU - Condensed Member Search Results"

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 FileKit.
  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 responsibilty 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 FileKit **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**.

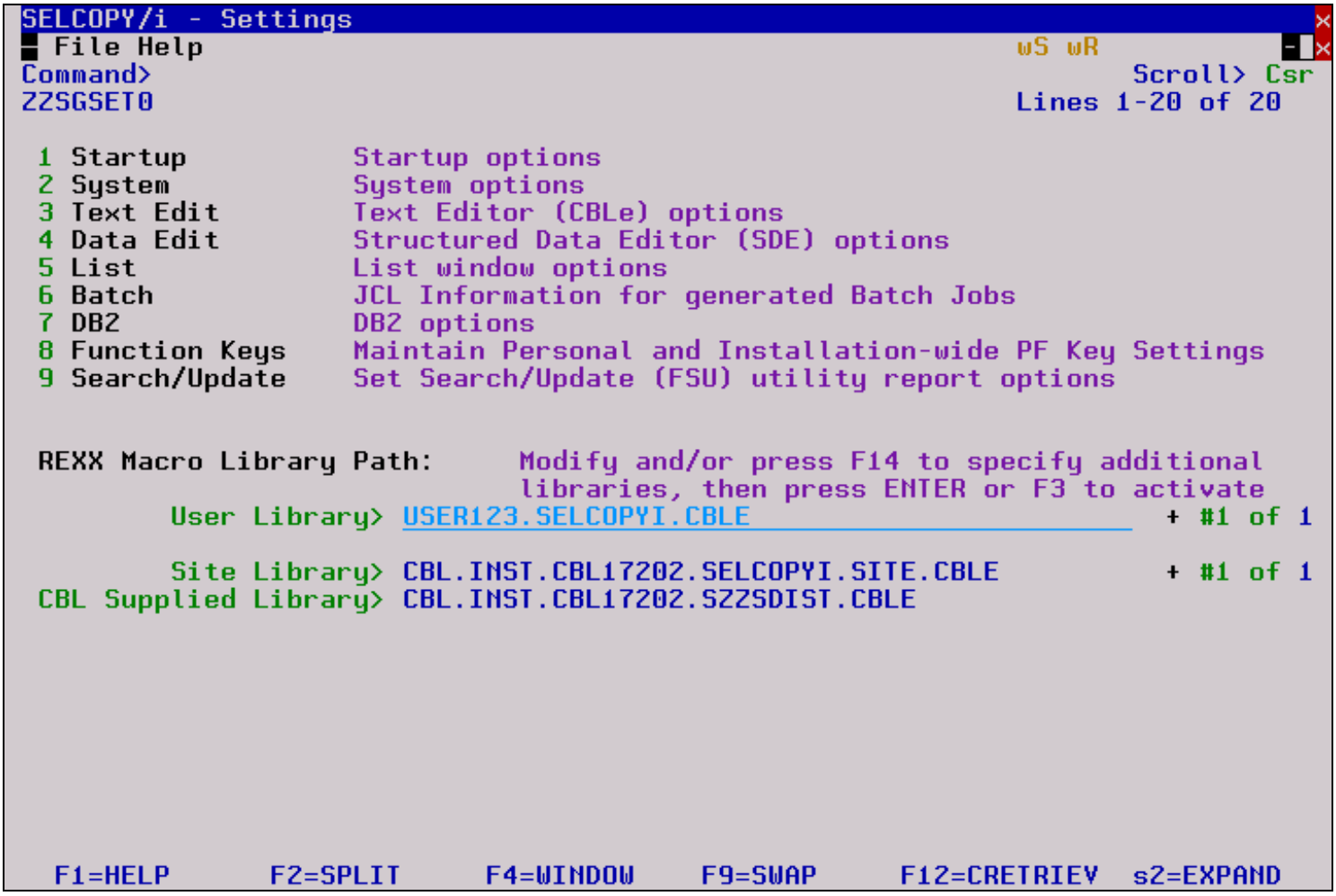


Figure 147. 01 SELCOPY/debug Menu (=8.1)

List the sample JCL library

Now type in the primary command: **LL *SiteHLQ*.INIT.JCL**

A Library List will be displayed as shown below.

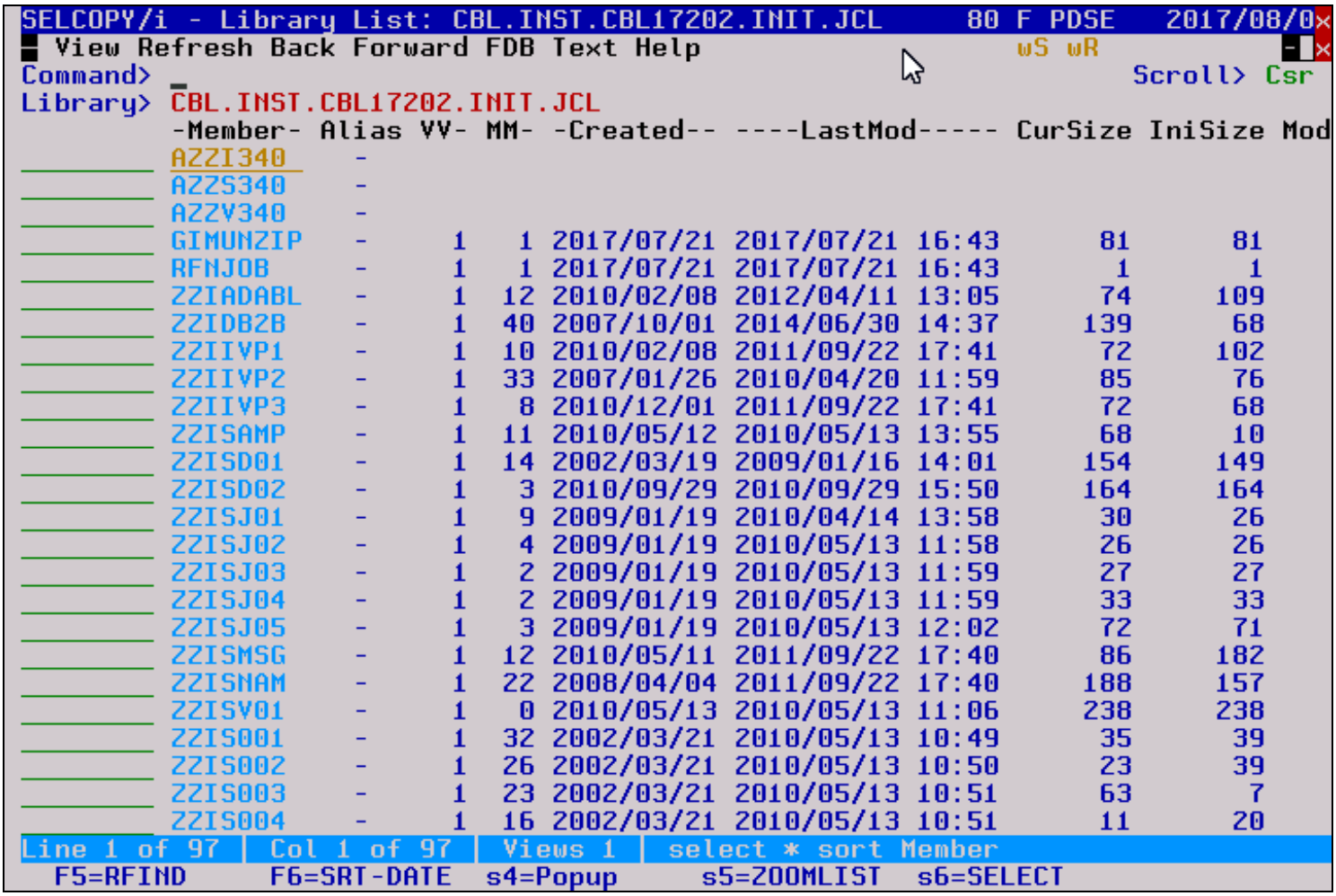


Figure 148. 02 SELCOPY/debug Menu (=8.1)

Copy the Sample Job to a personal library

From the Library List, locate member **ZZSSDB1** and use the FileKit Text-Editor to edit it.

This sample job uses SELCOPY to selectively read members of the FileKit 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

```
<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:

```
CREATE userpfx.SELCTRN.JCL(ZZSSDB1)
```

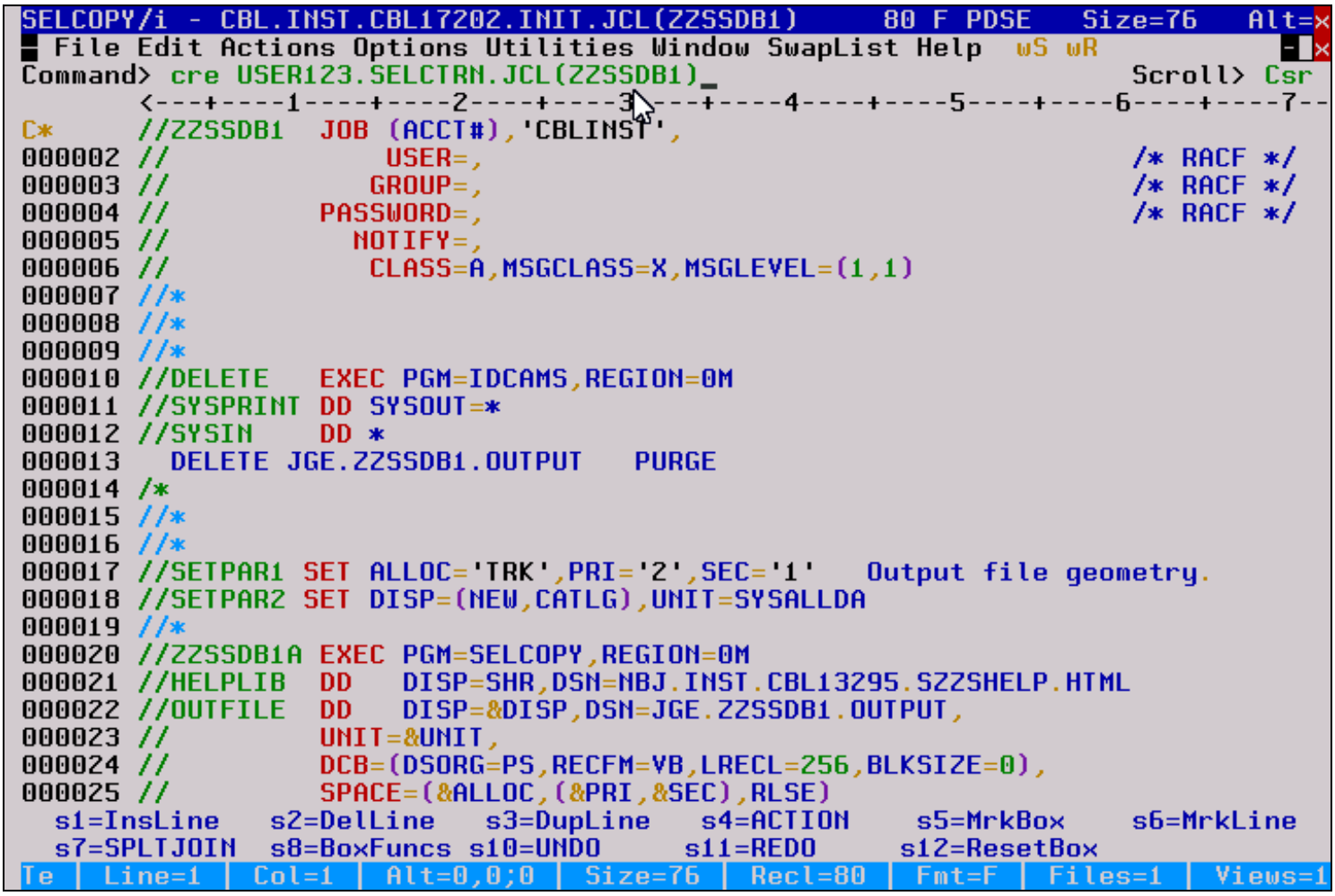


Figure 149. 03 SELCOPY/debug Menu (=8.1)

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.

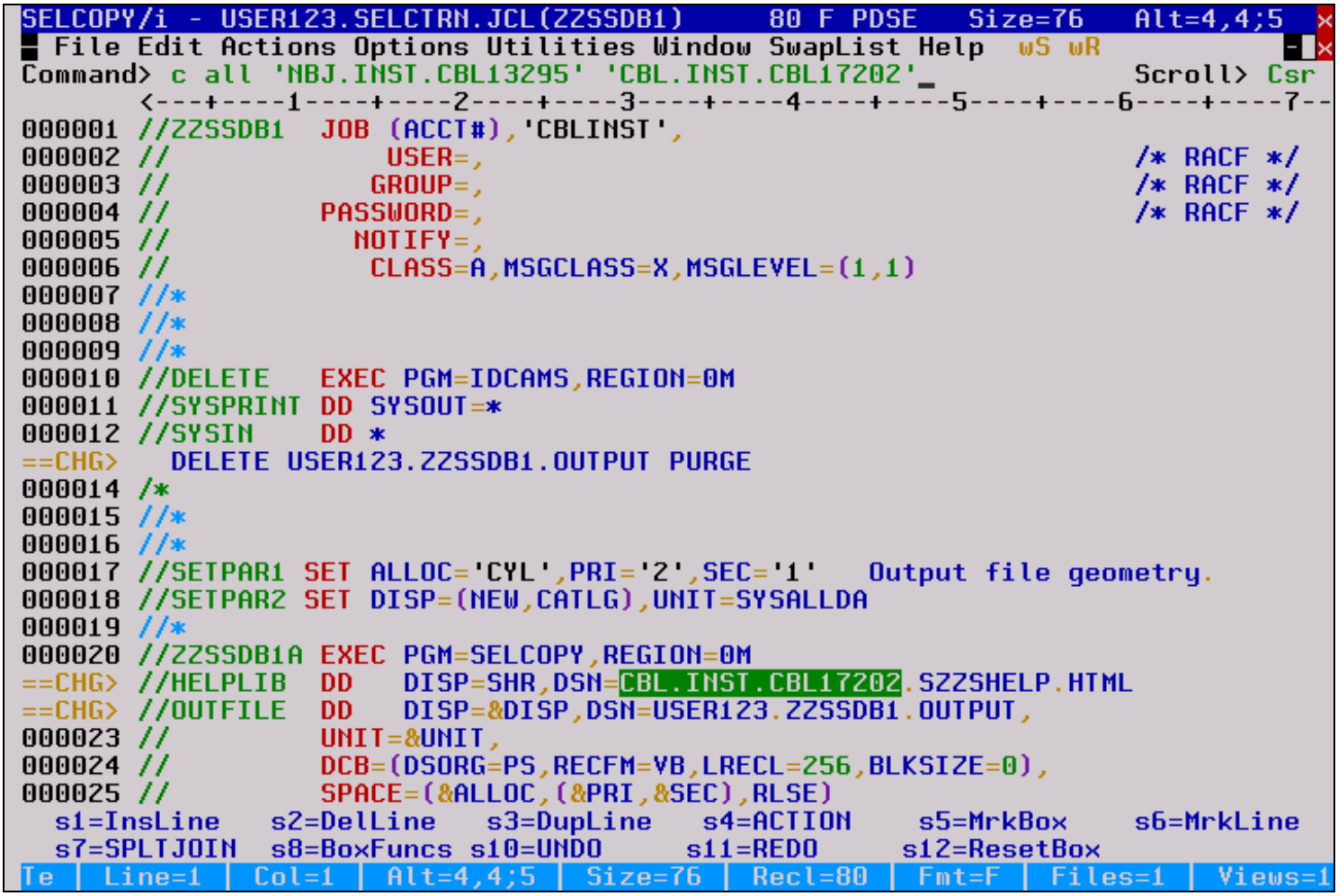


Figure 150. 04 SELCOPY/debug Menu (=8.1)

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.

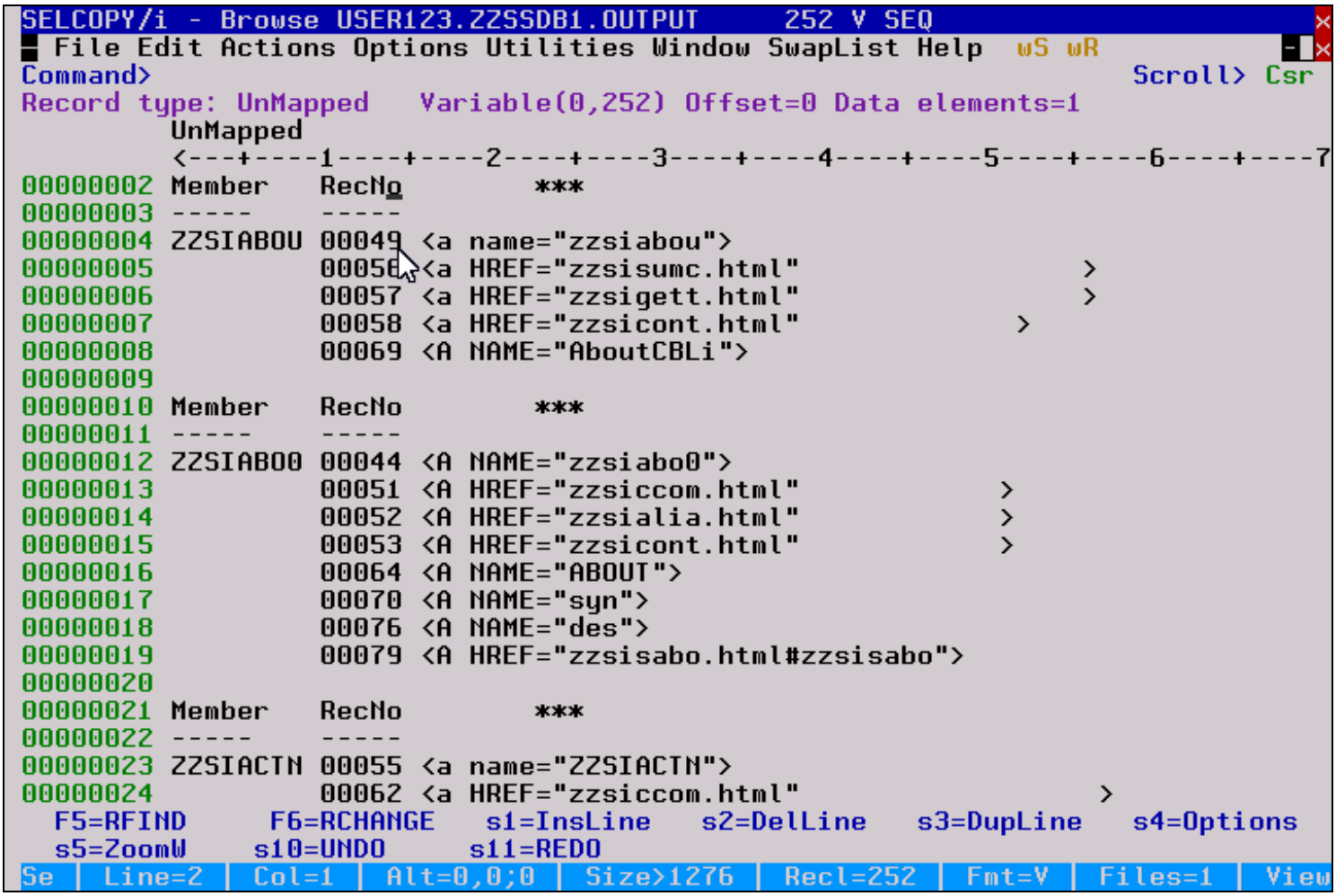


Figure 151. 05 SELCOPY/debug Menu (=8.1)

Cross-Check the Report (optional)

If you like, you can cross-check the results by editing member **SiteHLQ.SZZSHELP.HTML(ZZSIABOU).**

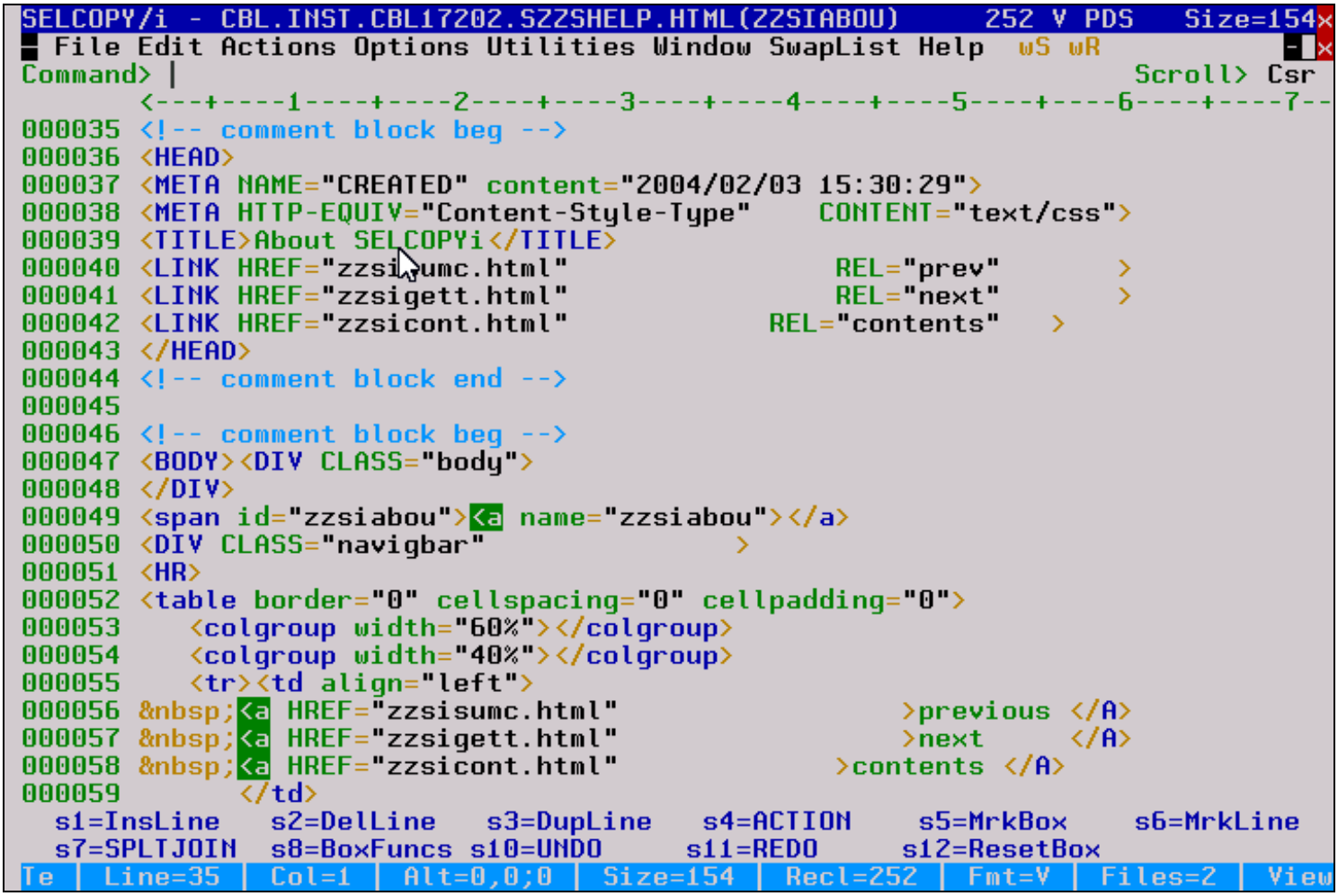


Figure 152. 06 SELCOPY/debug Menu (=8.1)

The SELCOPY/debug Menu

The SELCOPY/debug menu panel may be accessed using any of the following methods:

- Select option **8** from the FileKit **Primary Option Menu** (=) to access the **Utilities menu** then select option **1.**.
- At any primary command prompt type **=8.1**.
- At any primary command prompt type **SELCOPY (SELC)**.

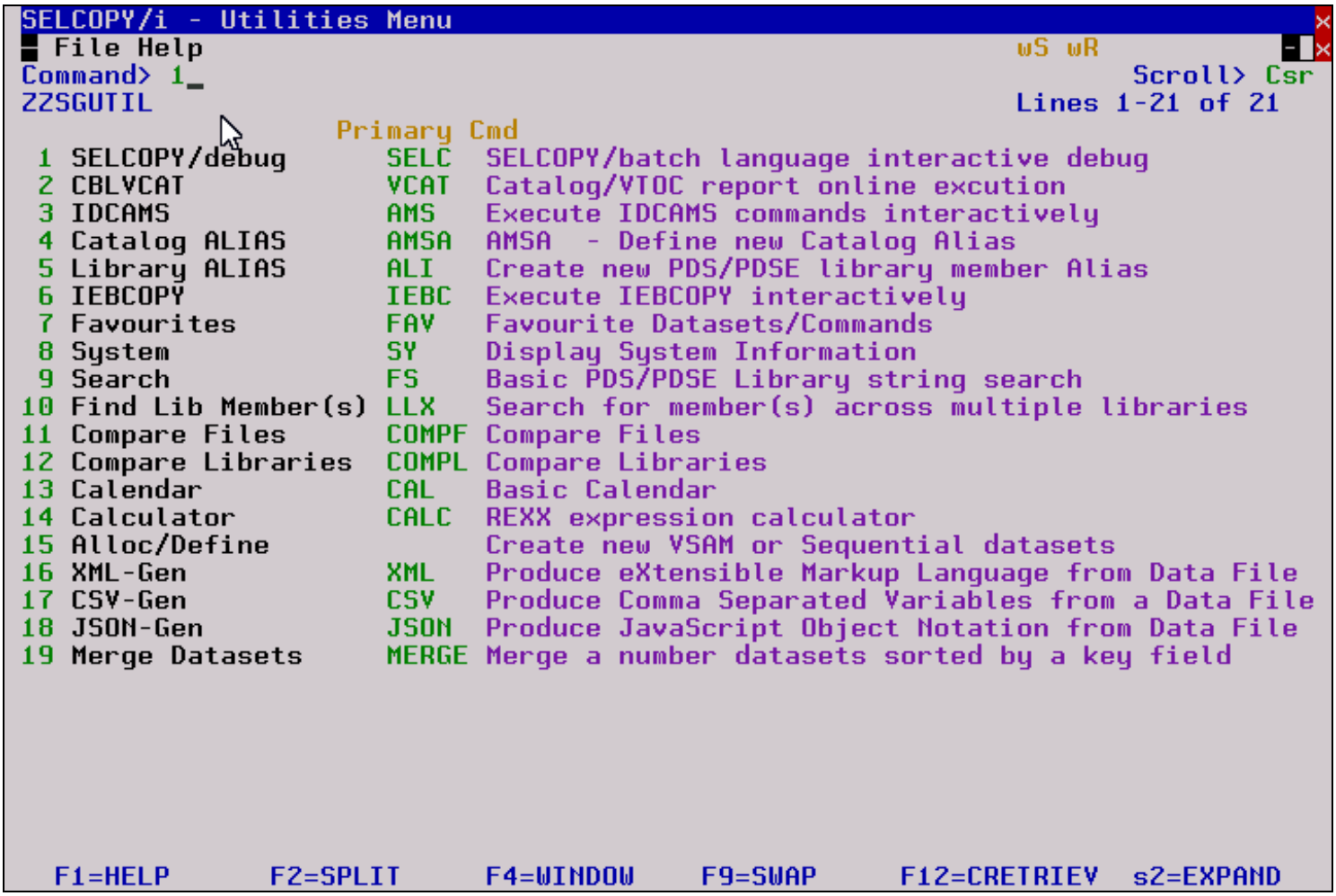


Figure 153. 07 SELCOPY/debug Menu (=8.1)

Select option to supply JCL

Since we have an existing batch job, select option 1 to **"Supply JCL"**.

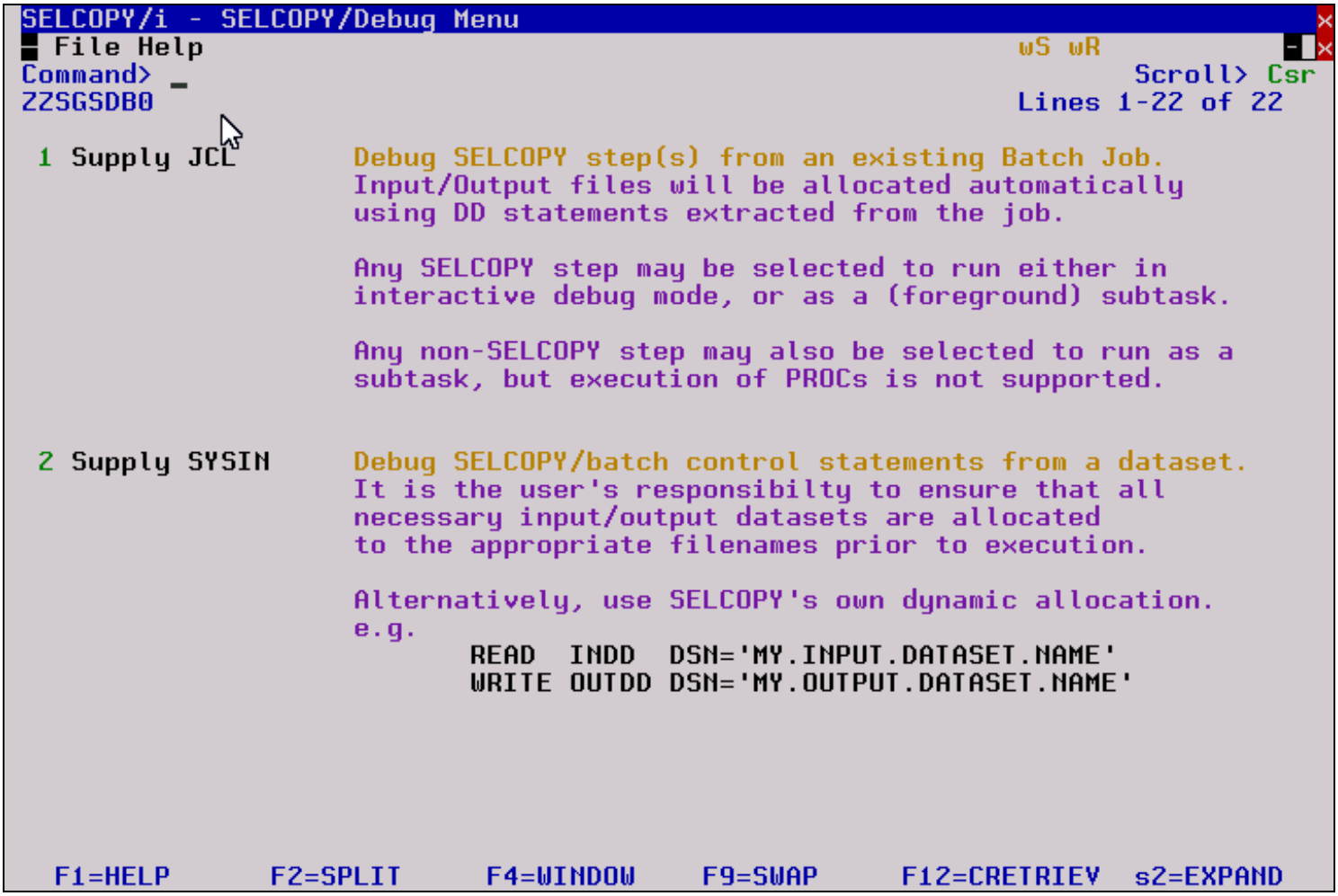


Figure 154. 08 SELCOPY/debug Menu (=8.1)

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.

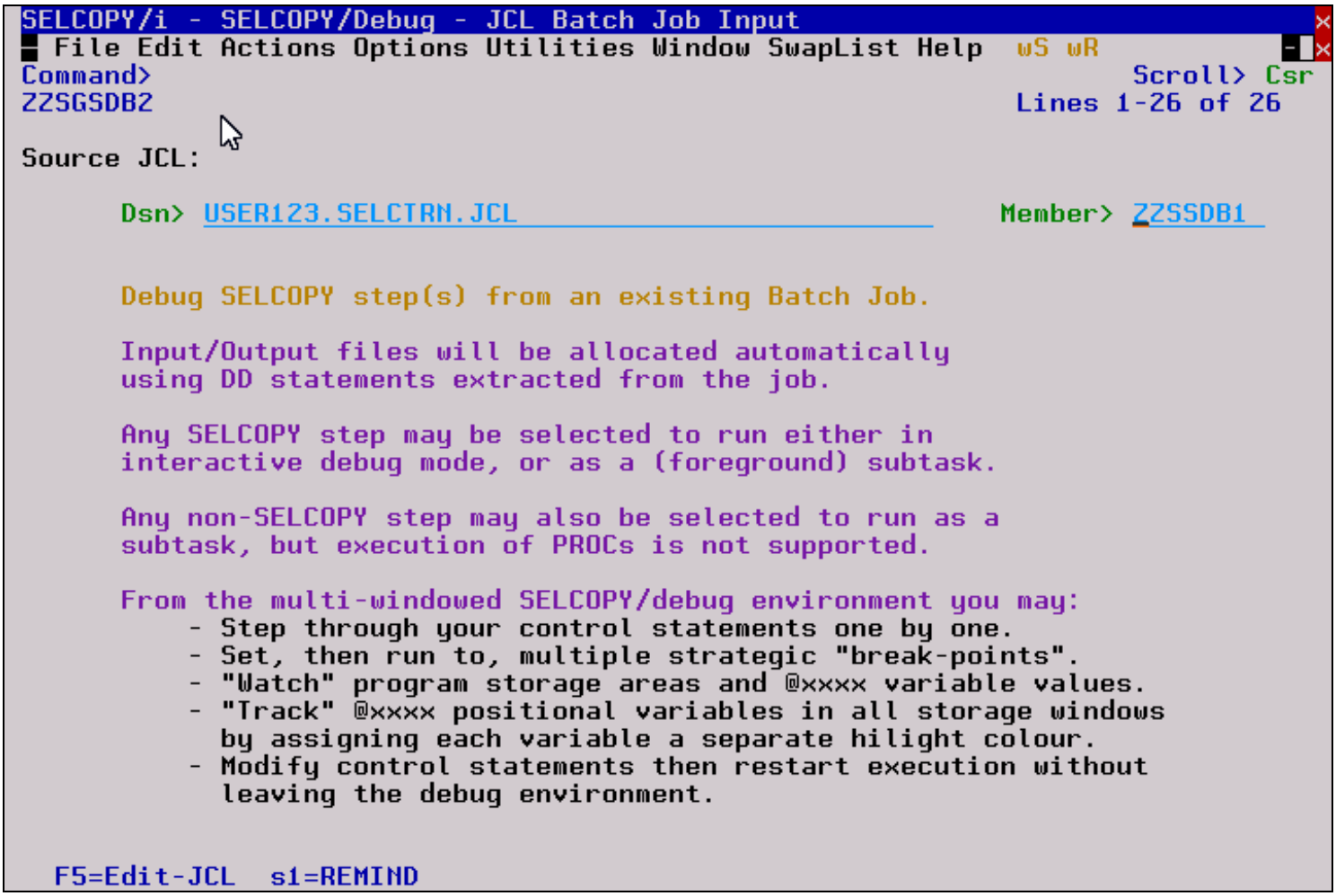


Figure 155. 09 SELCOPY/debug Menu (=8.1)

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.

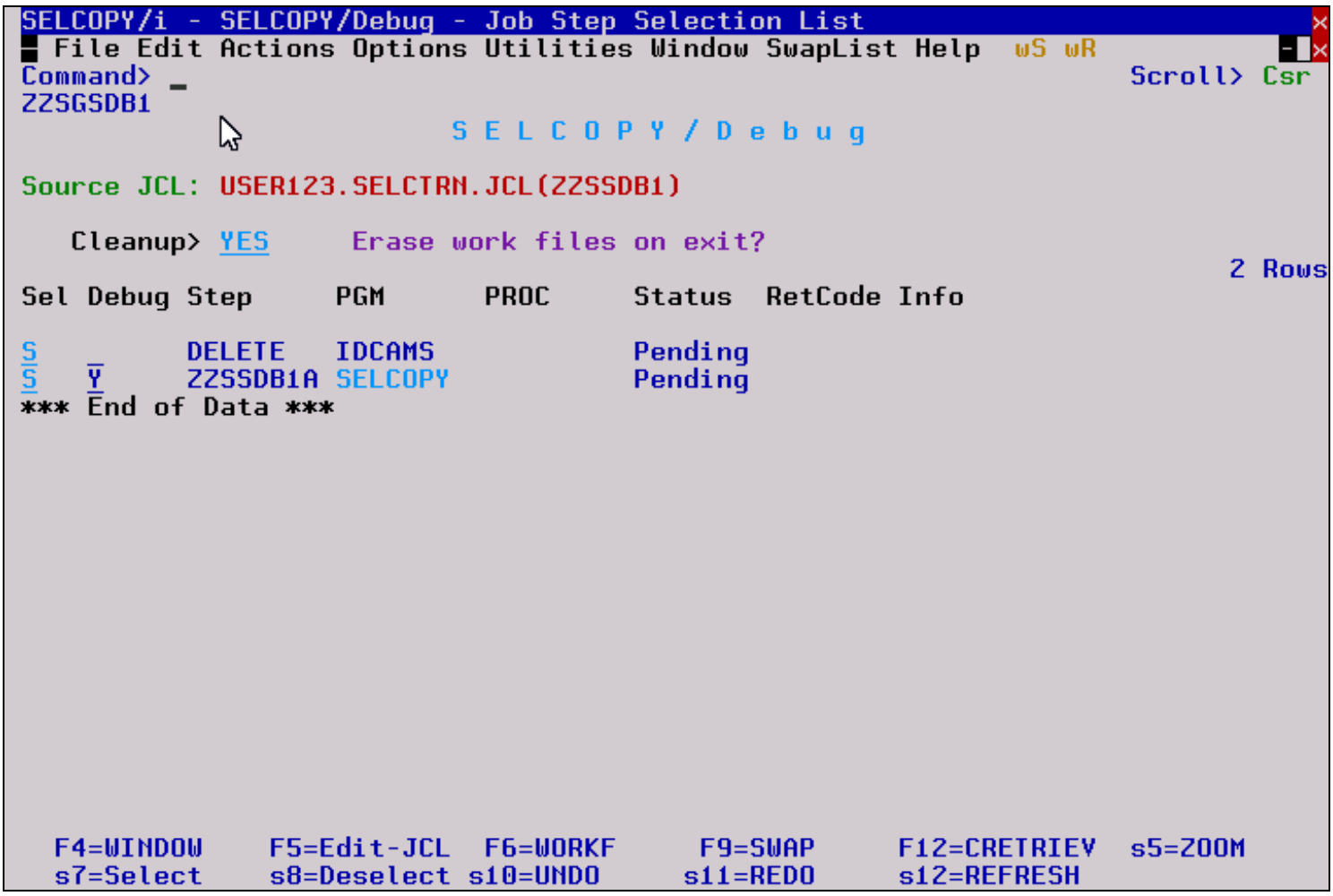


Figure 156. 10 SELCOPY/debug Menu (=8.1)

Non-windowed Display Mode for Standard Screen Sizes

Although not recommended, the SELCOPY/debug application may be used on a 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.

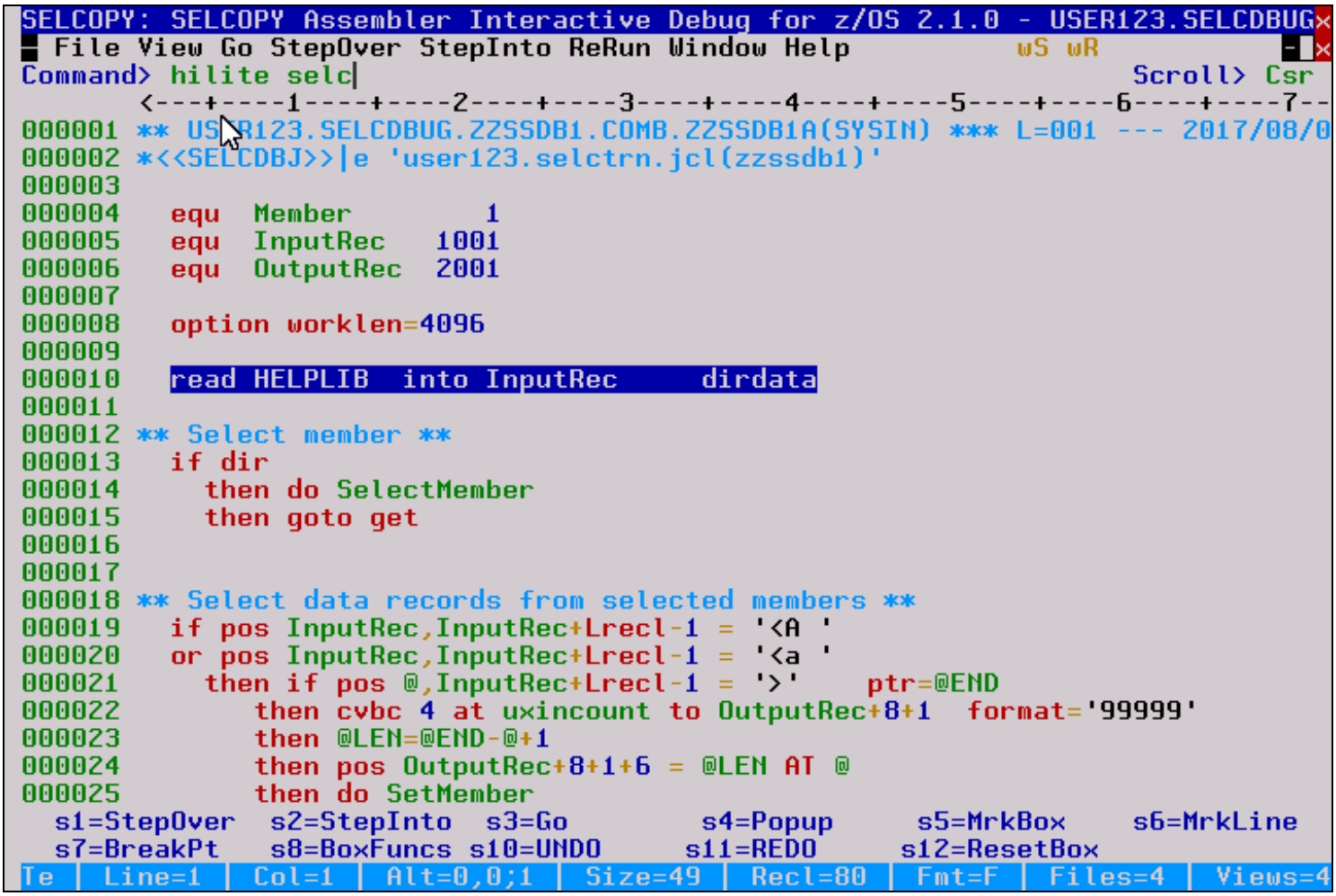


Figure 157. 11 SELCOPY/debug Menu (=8.1)

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 hilighted in **blue reverse-video**.

  The screen shots that follow were recorded with **"HILITE SELCOPY"** activated to provide **syntax hilighting** for SELCOPY control statements. This is not set on by default and is not always desirable as too much colour hilighting 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.

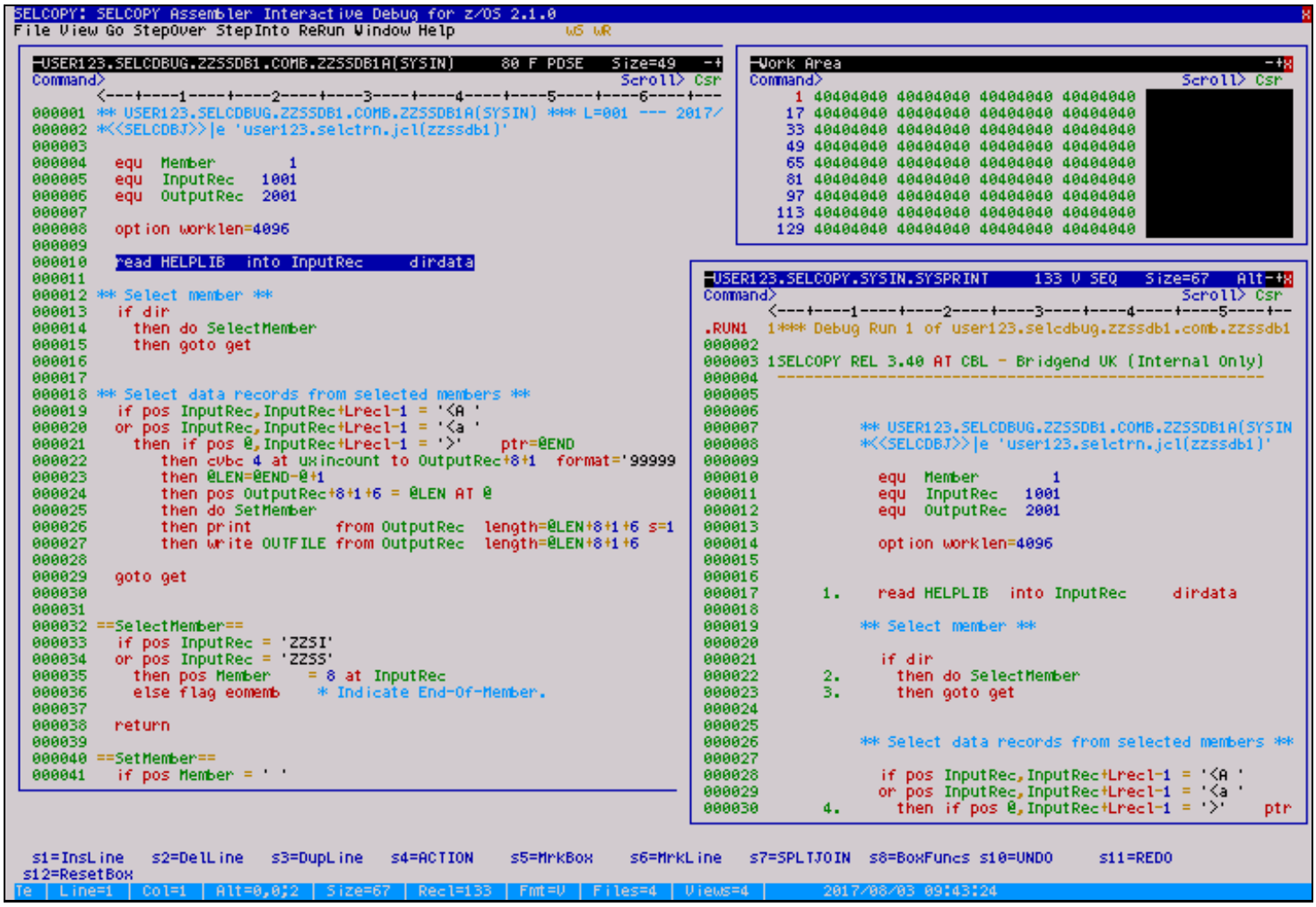


Figure 158. 12 SELCOPY/debug Windowed

Customisable Window Locations

- All debug windows may be moved and resized in the standard fashion.

  Any customsed window locations will be **preserved across debug sessions**.

- Recommended layout for standard initial windows shown below.

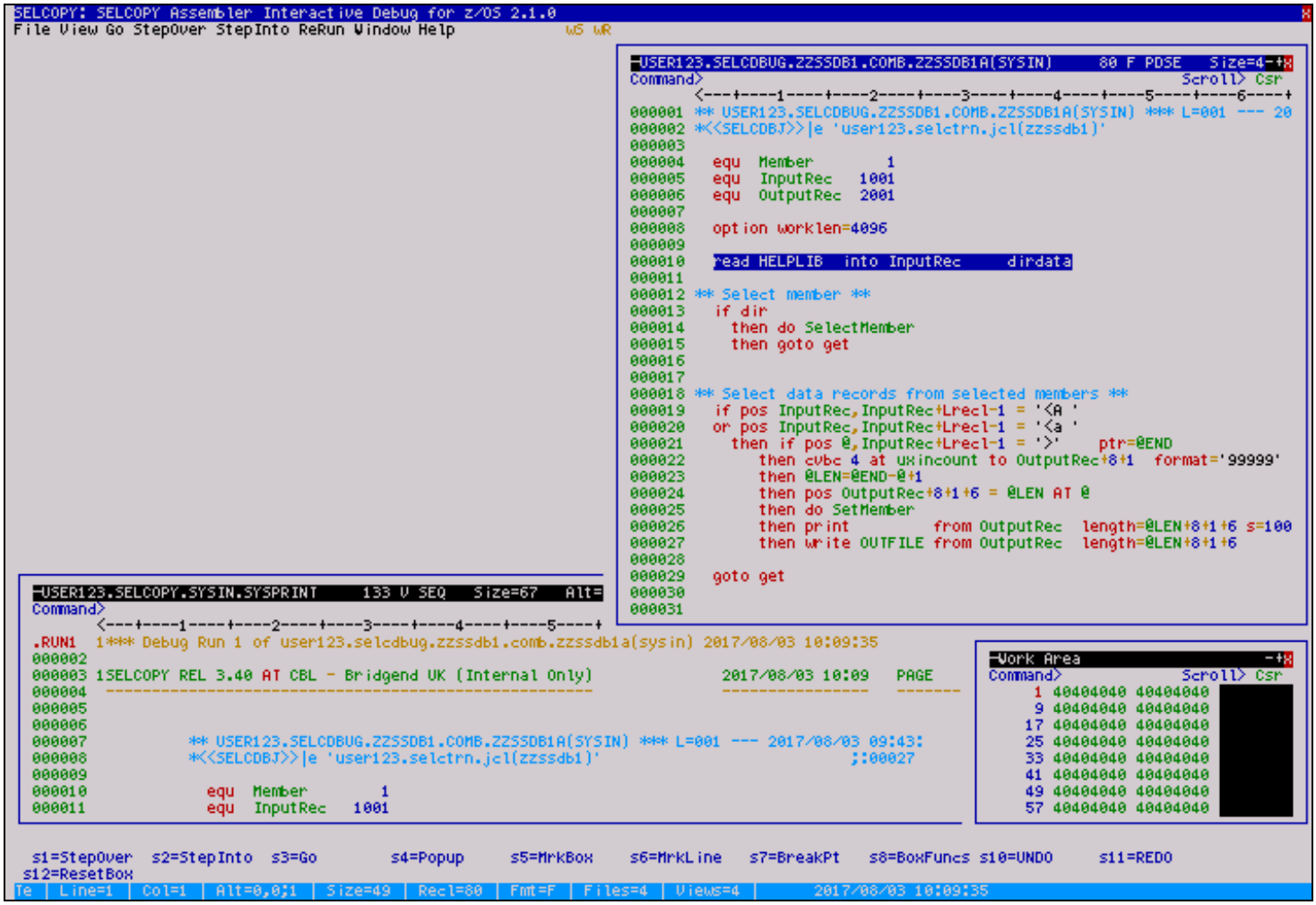


Figure 159. 13 SELCOPY/debug Windowed

Stepping through Control Statements (1)

- 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.

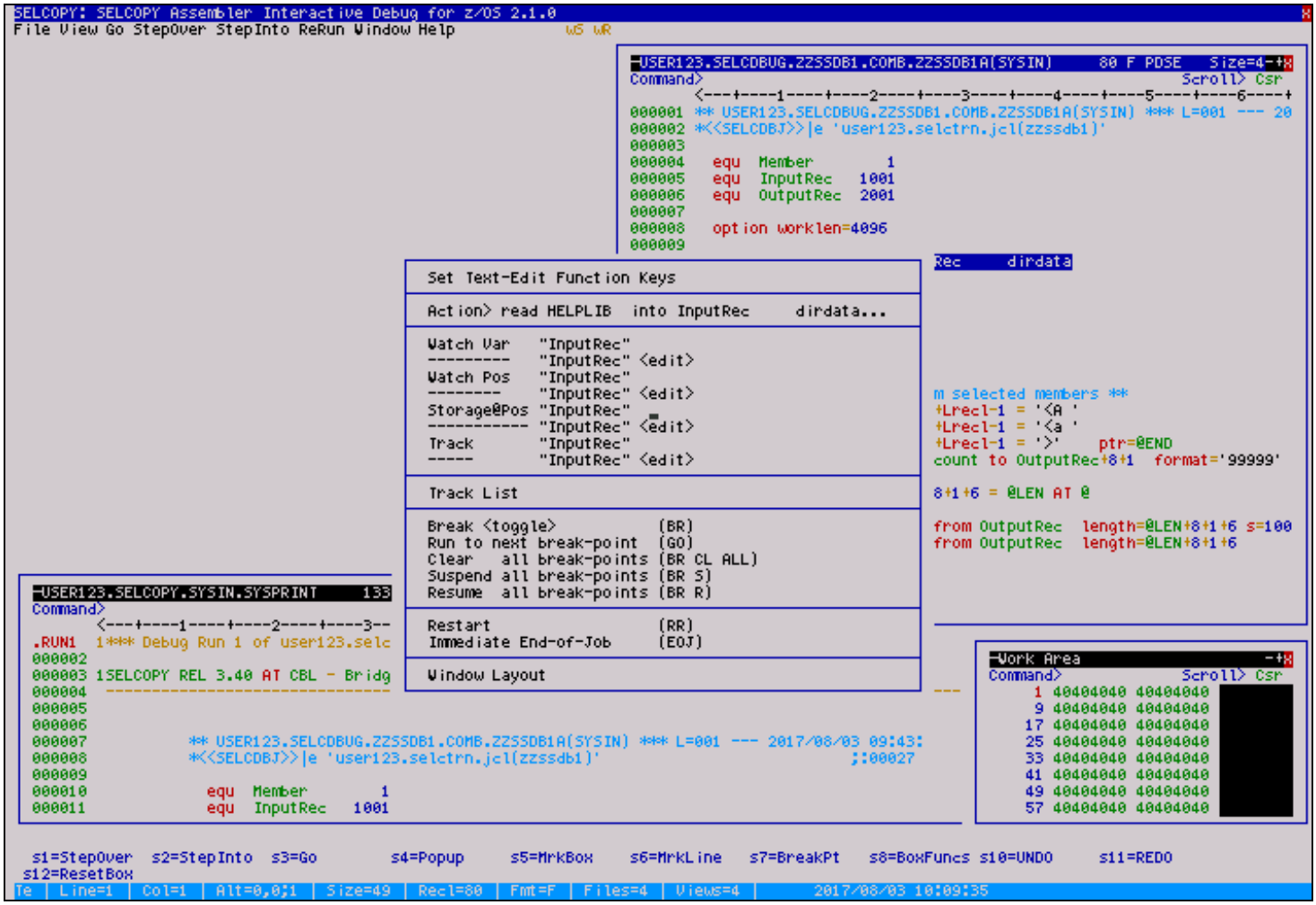


Figure 160. 14 SELCOPY/debug Windowed

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 hilighted.

  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.

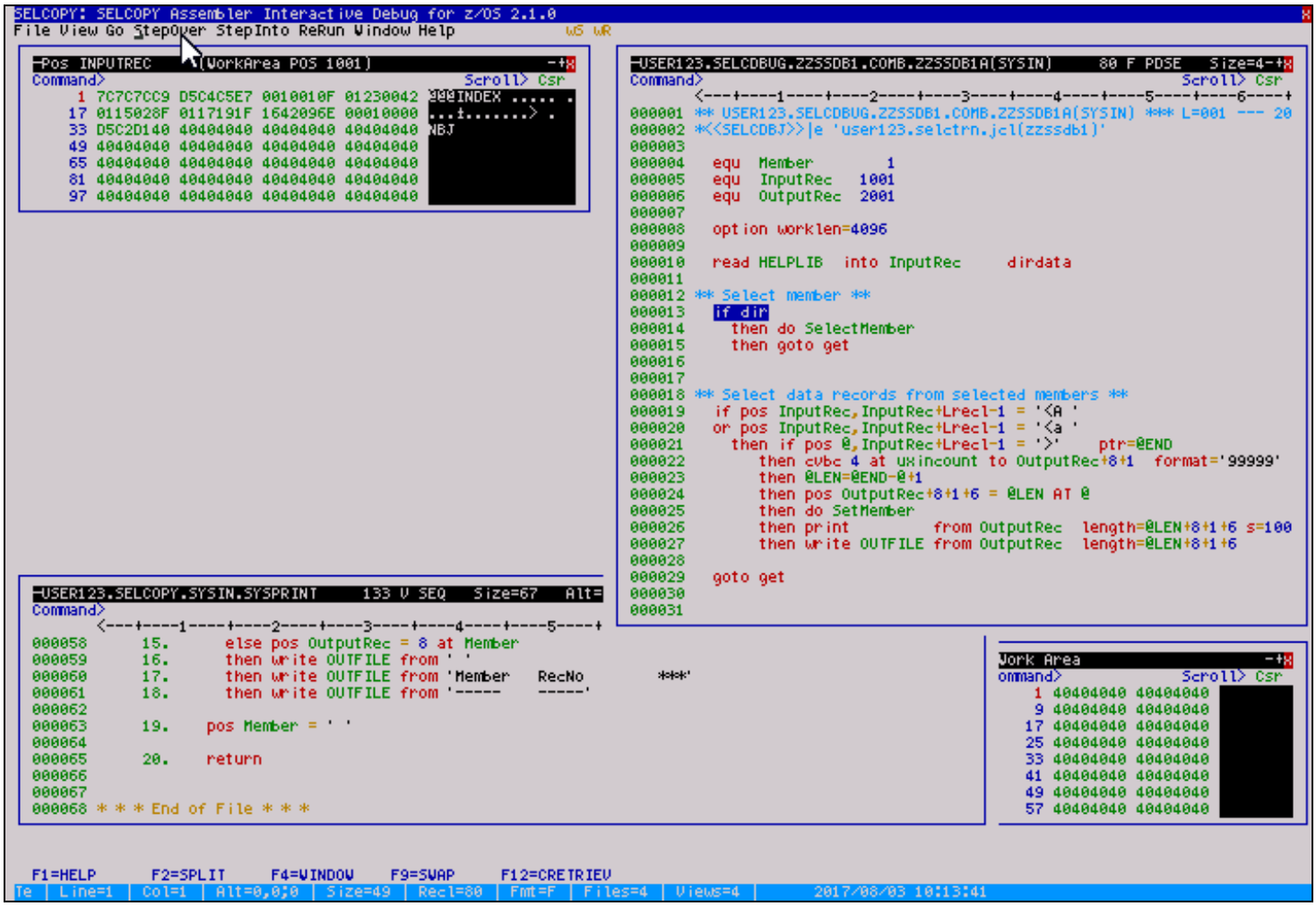


Figure 161. 15 SELCOPY/debug Windowed

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 hilighted.

- 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 inividual 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 absolutley clear, if you choose **StepOver**, the statements within the performed sub-routine are still executed, it's just that the debbuger will not **break** on each one.

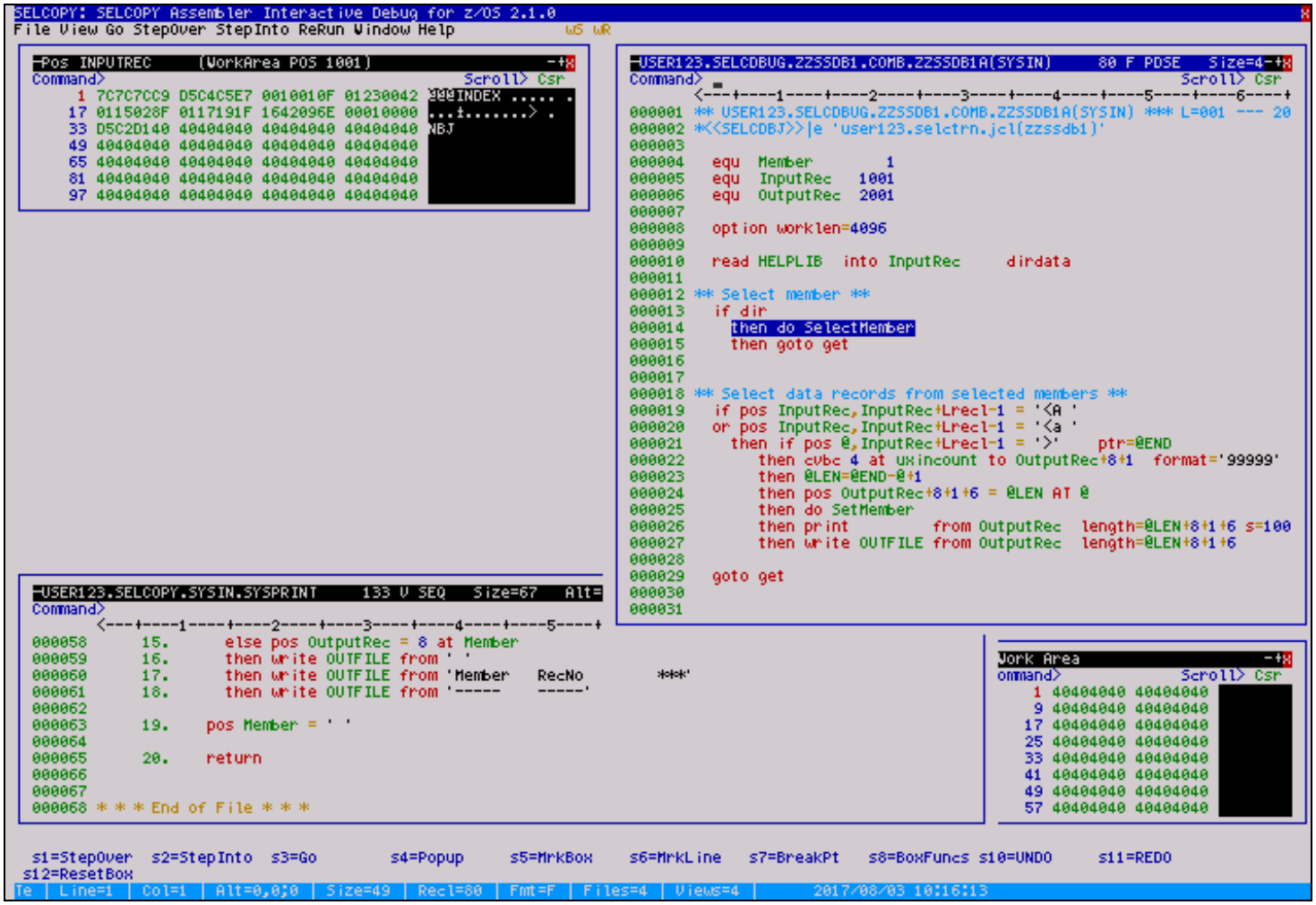


Figure 162. 16 SELCOPY/debug Windowed

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 preceeding **"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 oppurtunity 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 hilighted in **red reverse-video**.

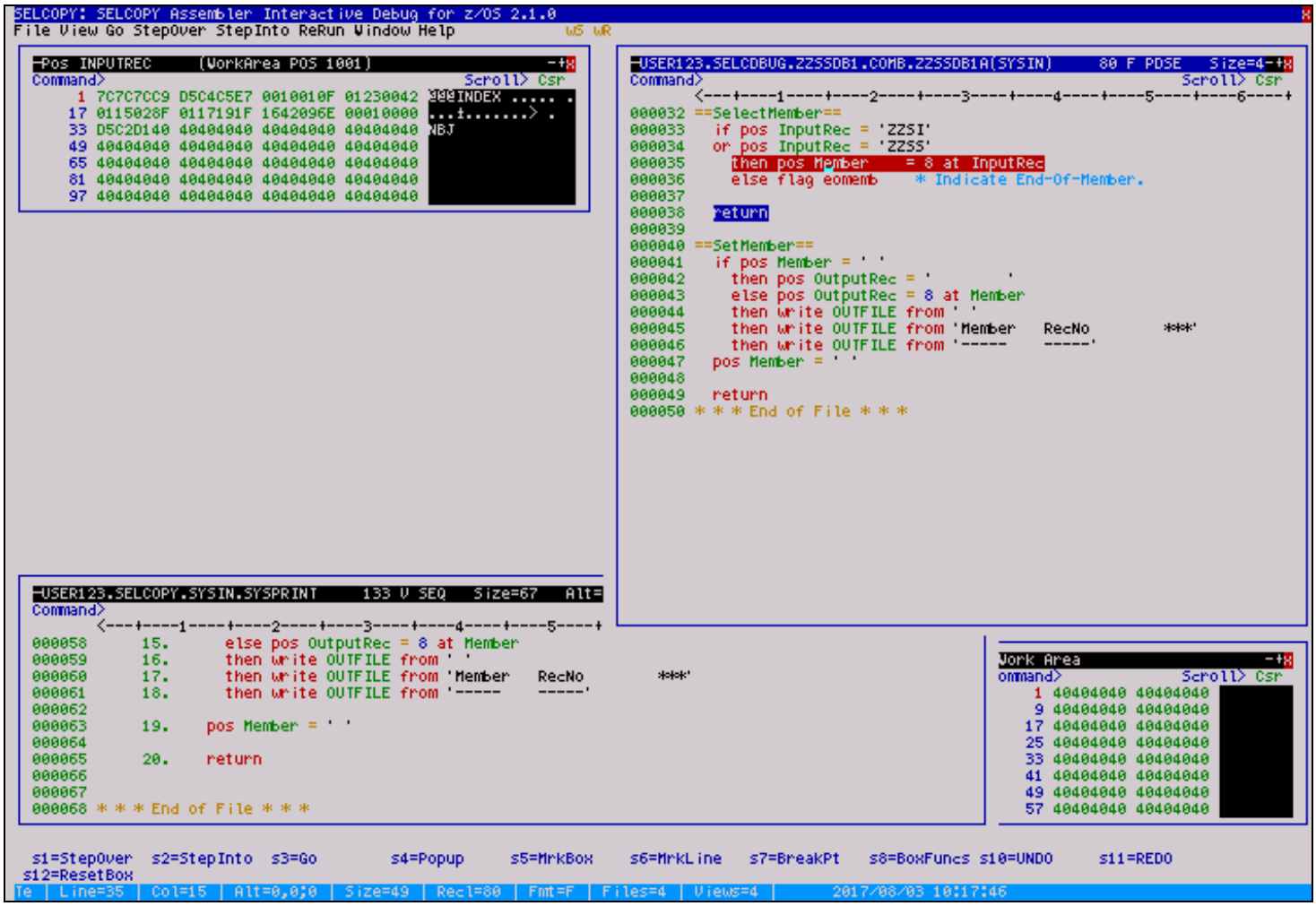


Figure 163. 17 SELCOPY/debug Windowed

WATCH List (1)

- 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 occurence 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.

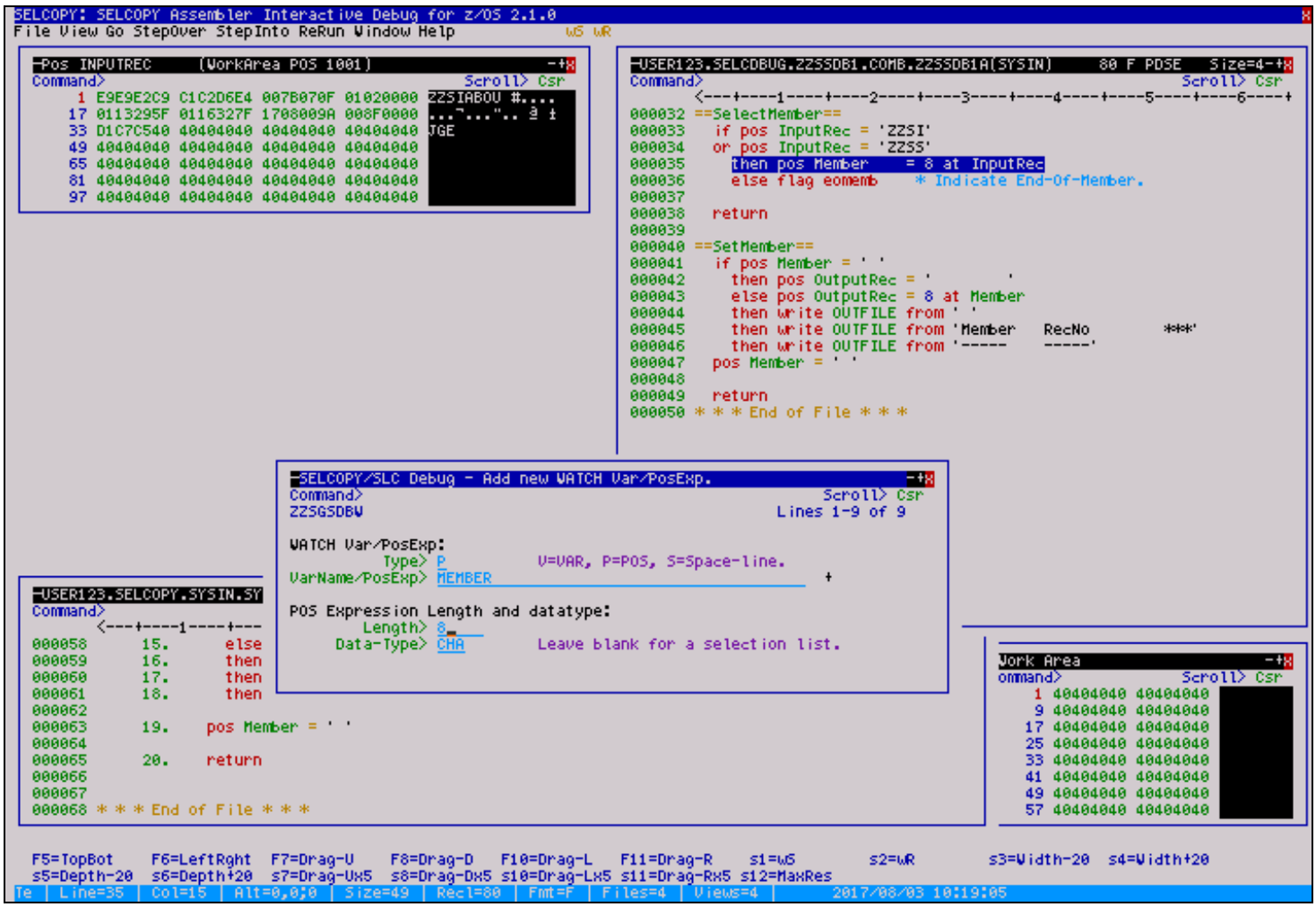


Figure 164. 18 SELCOPY/debug Windowed

WATCH List (2)

- 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 automtically 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.

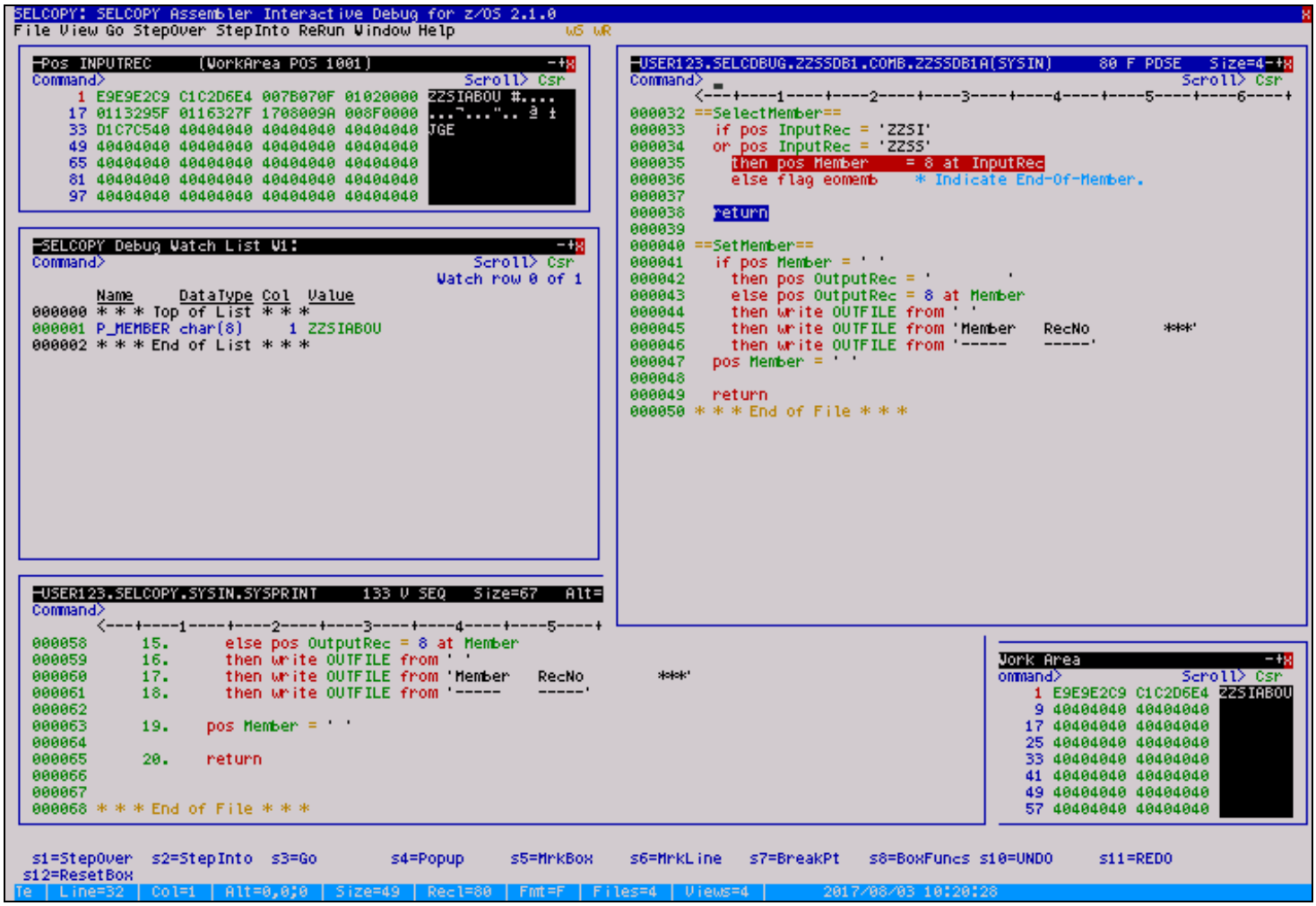


Figure 165. 19 SELCOPY/debug Windowed

Setting a second run BREAK point

- 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"** sttement 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 hilighted in **red reverse-video**.

- Press the **"GO"** function key **Shift-F3 (F15)** to run to the next break-point.

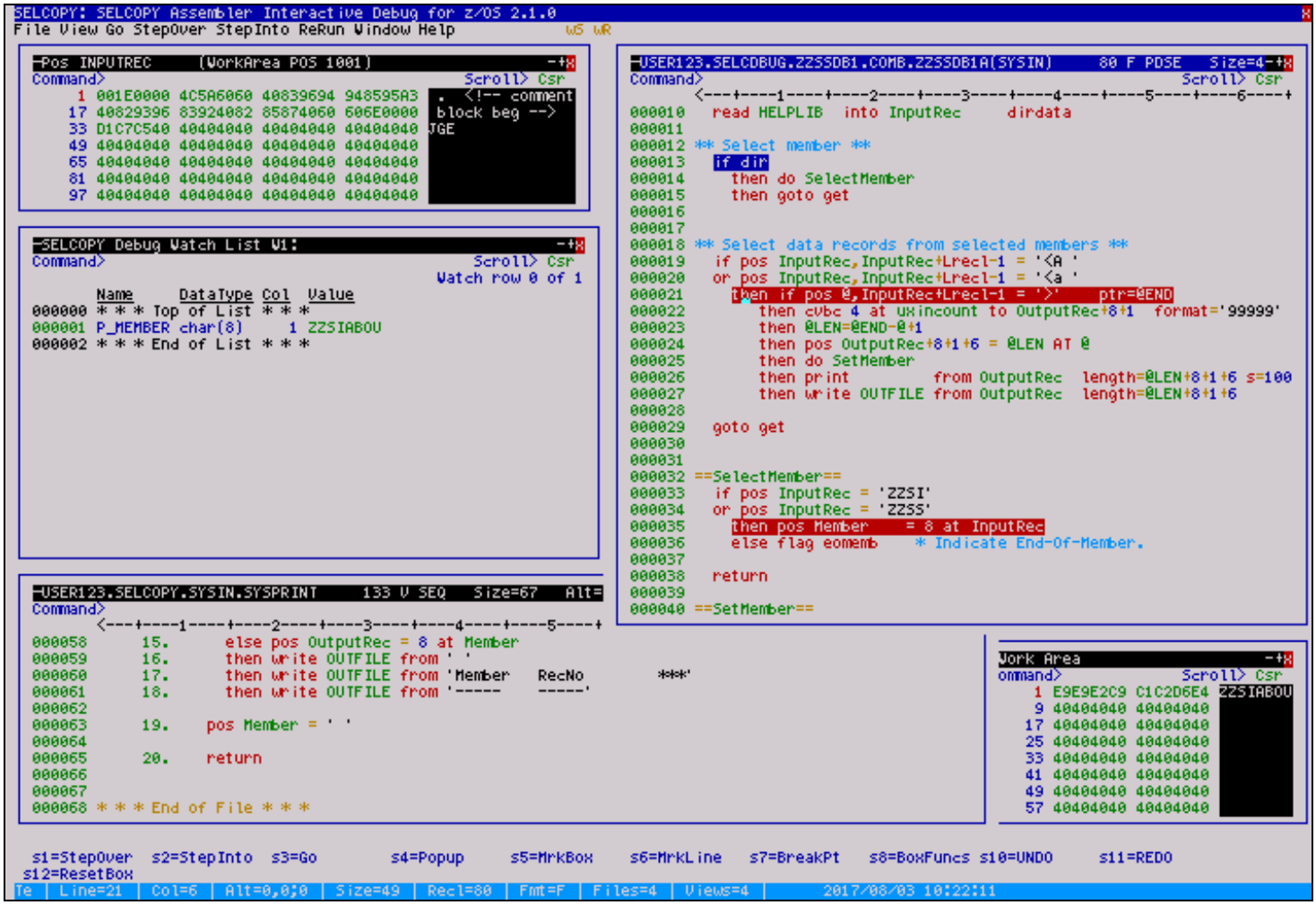


Figure 166. 20 SELCOPY/debug Windowed

Tracking a @xxx "pointer" location (1)

- 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 hilight 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.

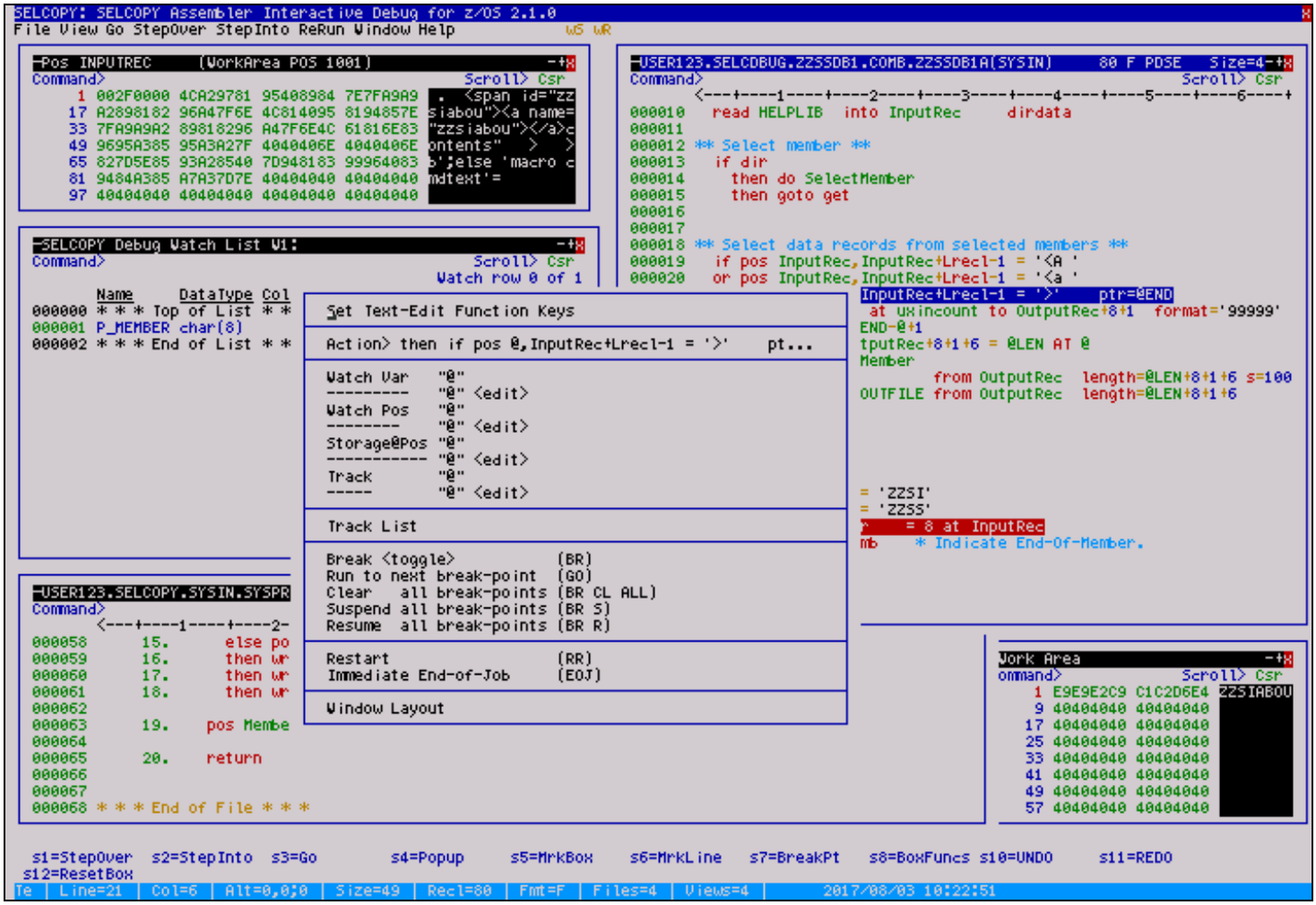


Figure 167. 21 SELCOPY/debug Windowed

Tracking a @xxx "pointer" location (2)

- From the popup menu, select item **Track "@"** to display a selectable hilight colour list.

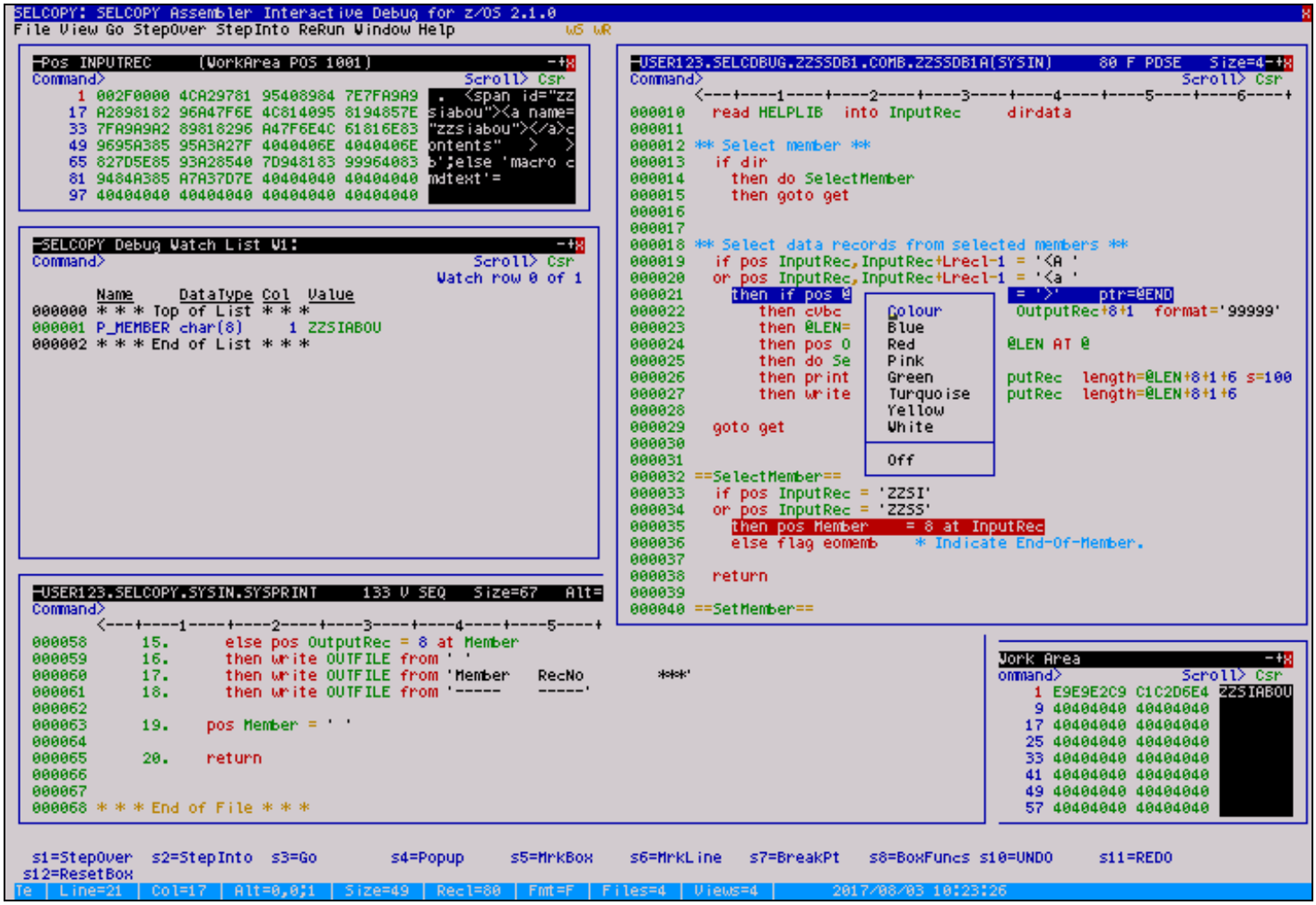


Figure 168. 22 SELCOPY/debug Windowed

Adding further WATCH list items (1)

- Select **Green** from the list of colours.

  The location of the pointer variable @ will now be hilighted 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 occurence 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.

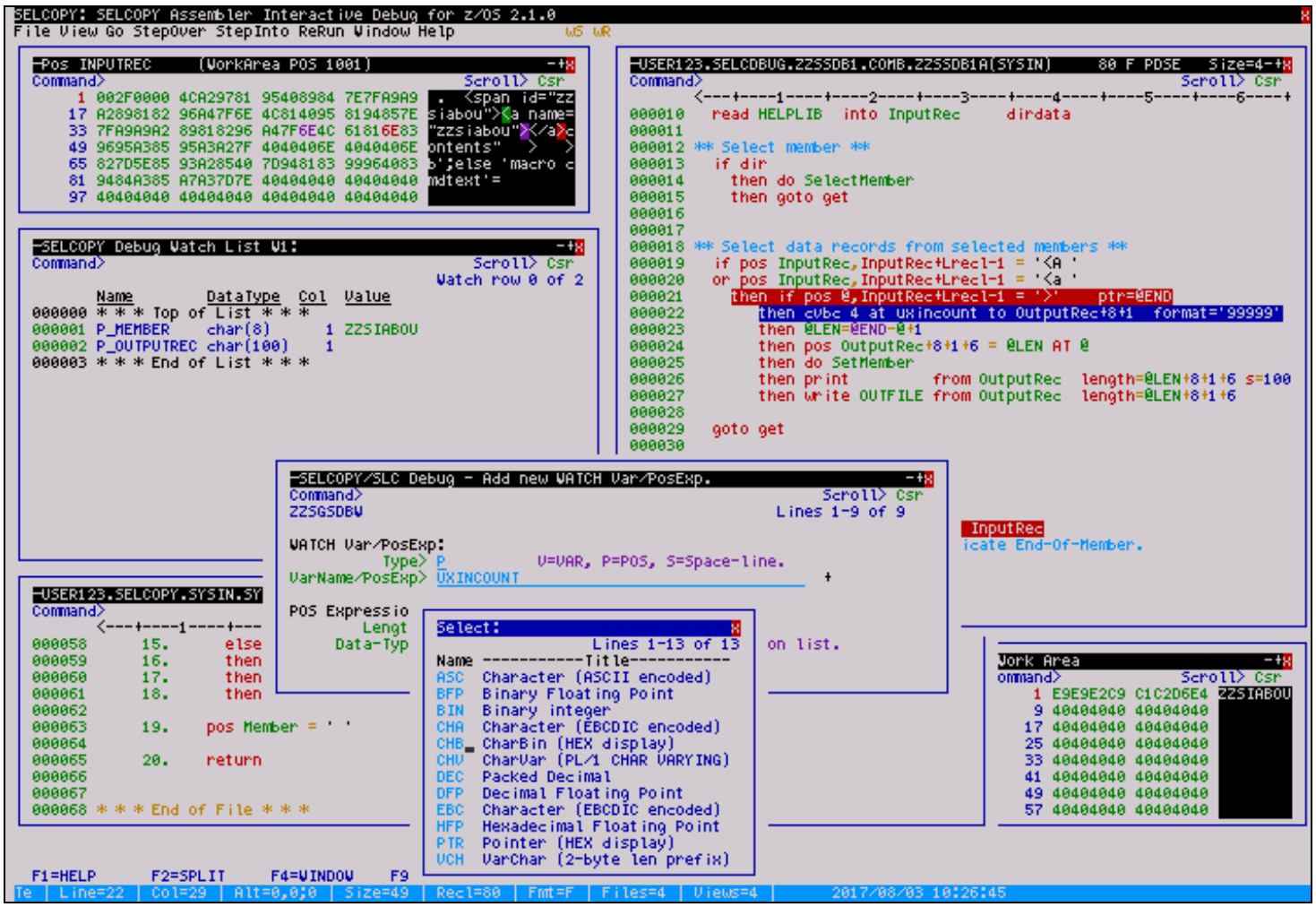


Figure 169. 22 SELCOPY/debug Windowed

Adding further WATCH list items (2)

- 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 occurence 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.

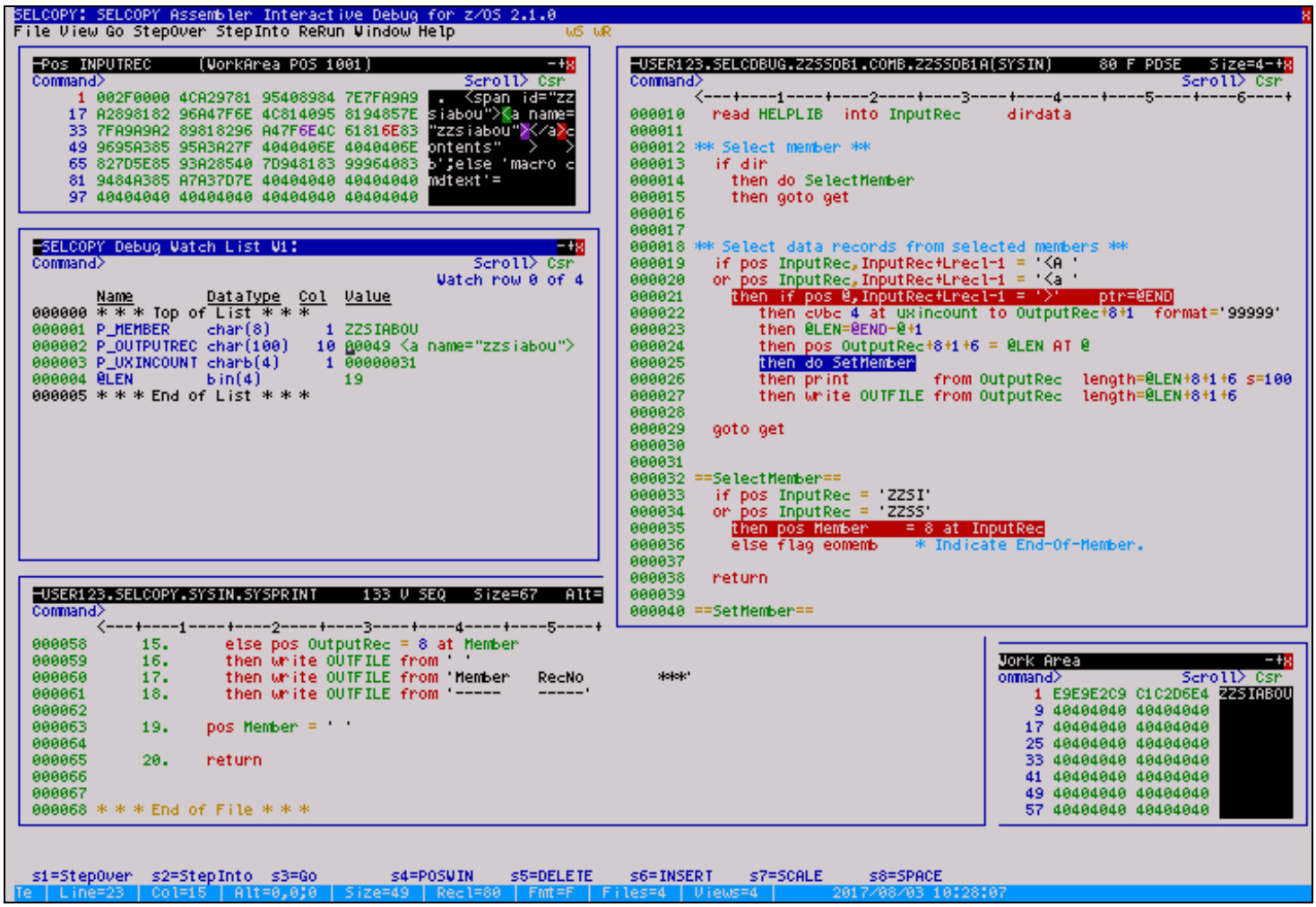


Figure 170. 23 SELCOPY/debug Windowed

Adding further WATCH list items (3)

- 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.

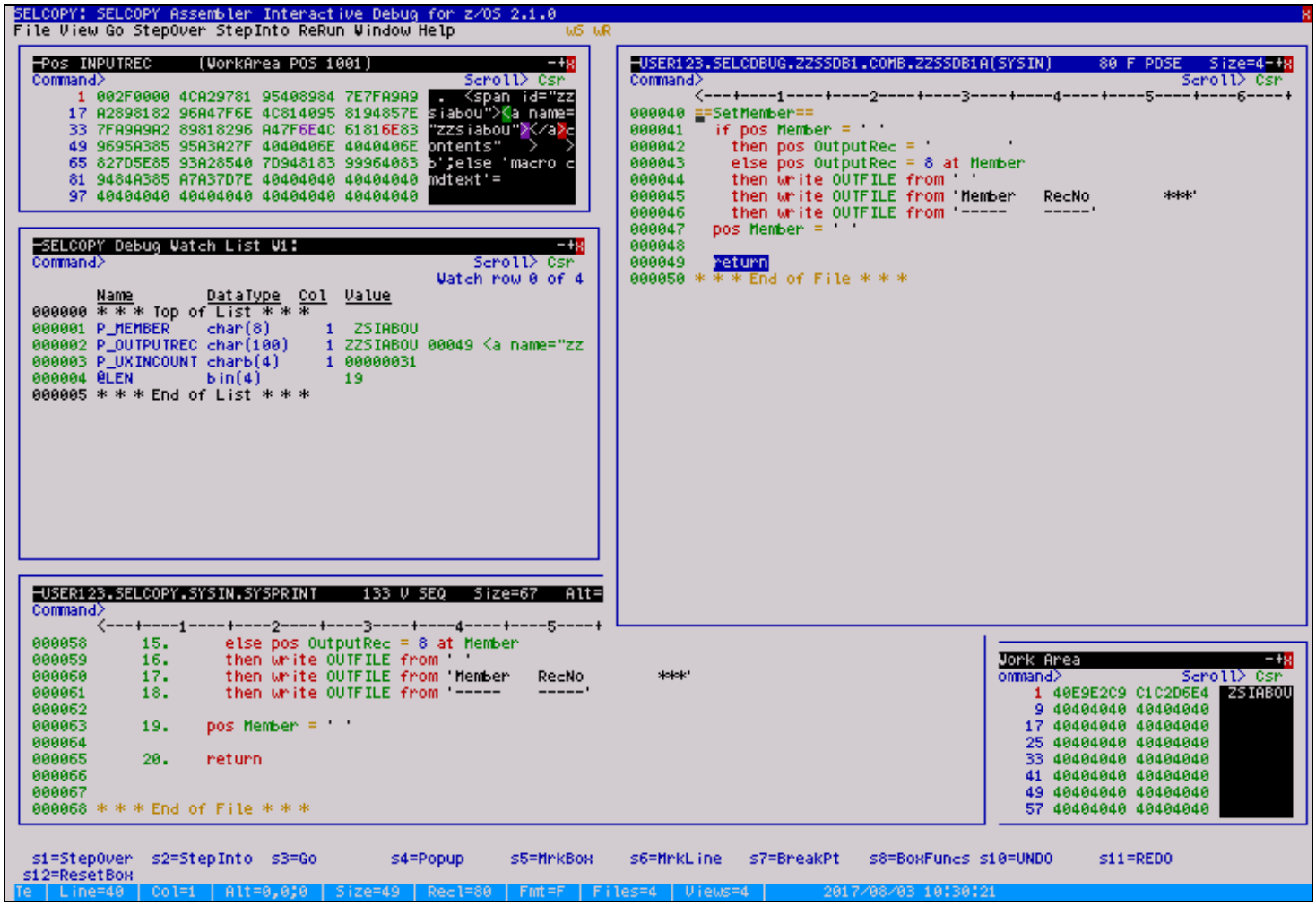


Figure 171. 24 SELCOPY/debug Windowed

The SYSPRINT window

- Continue stepping through and past the **PRINT** statement on **line 26**.
- The **SYSPRINT** window will **automatically update** to display the printed output.

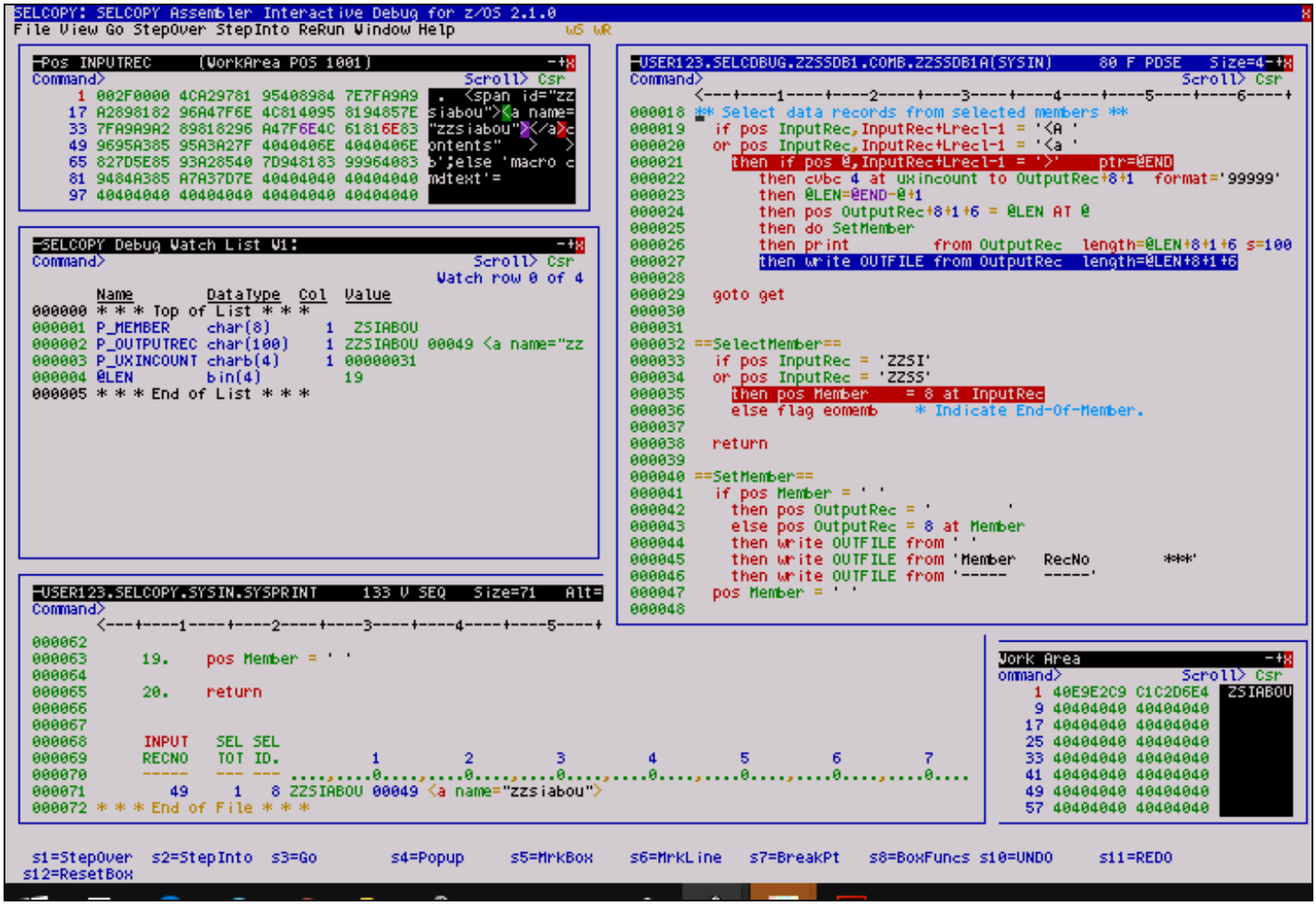


Figure 172. 25 SELCOPY/debug Windowed

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 hilighting for the SELCOPY language)

  ... making it 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**.

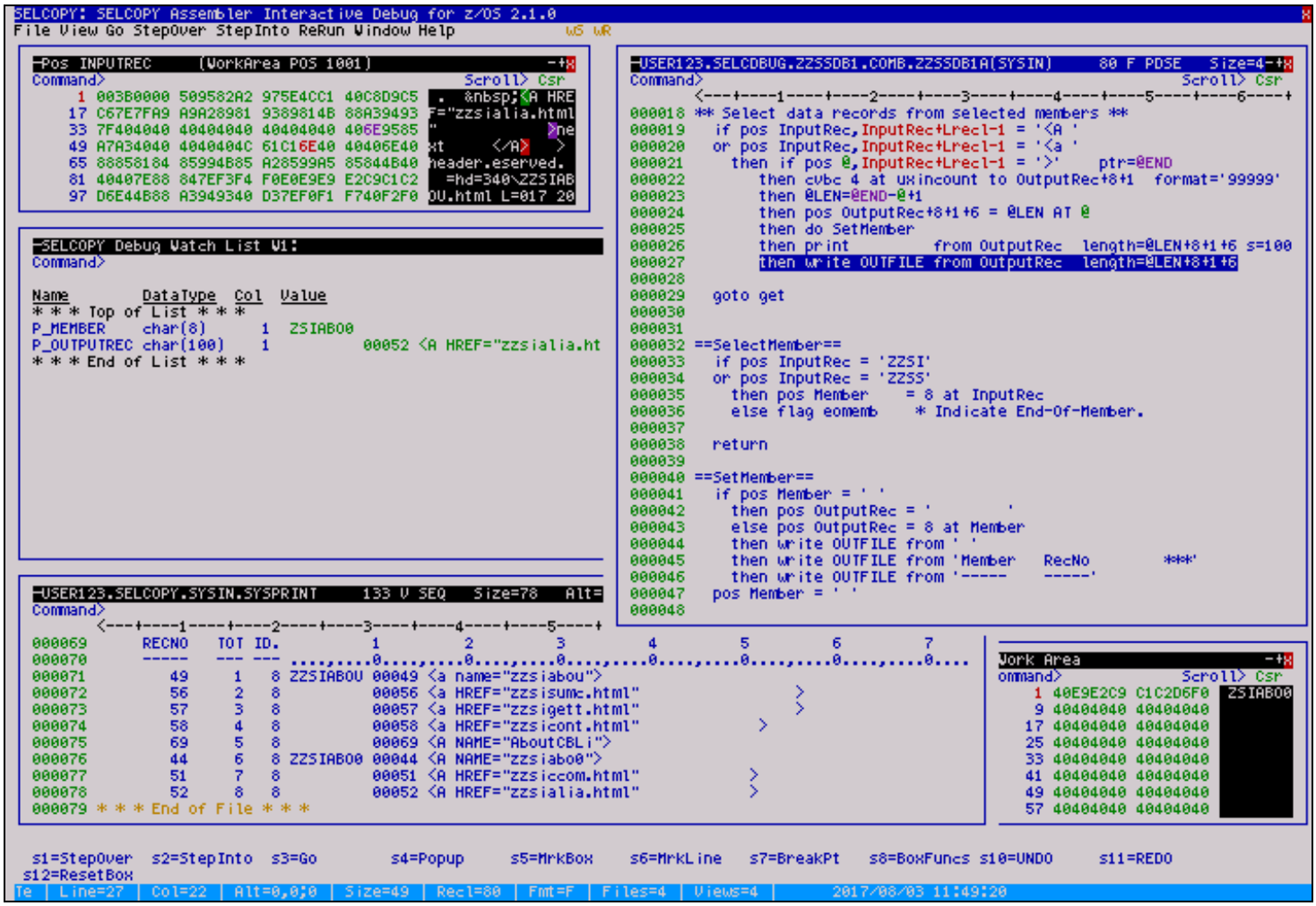


Figure 173. 26 SELCOPY/debug Windowed

WATCH List Options

- 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.

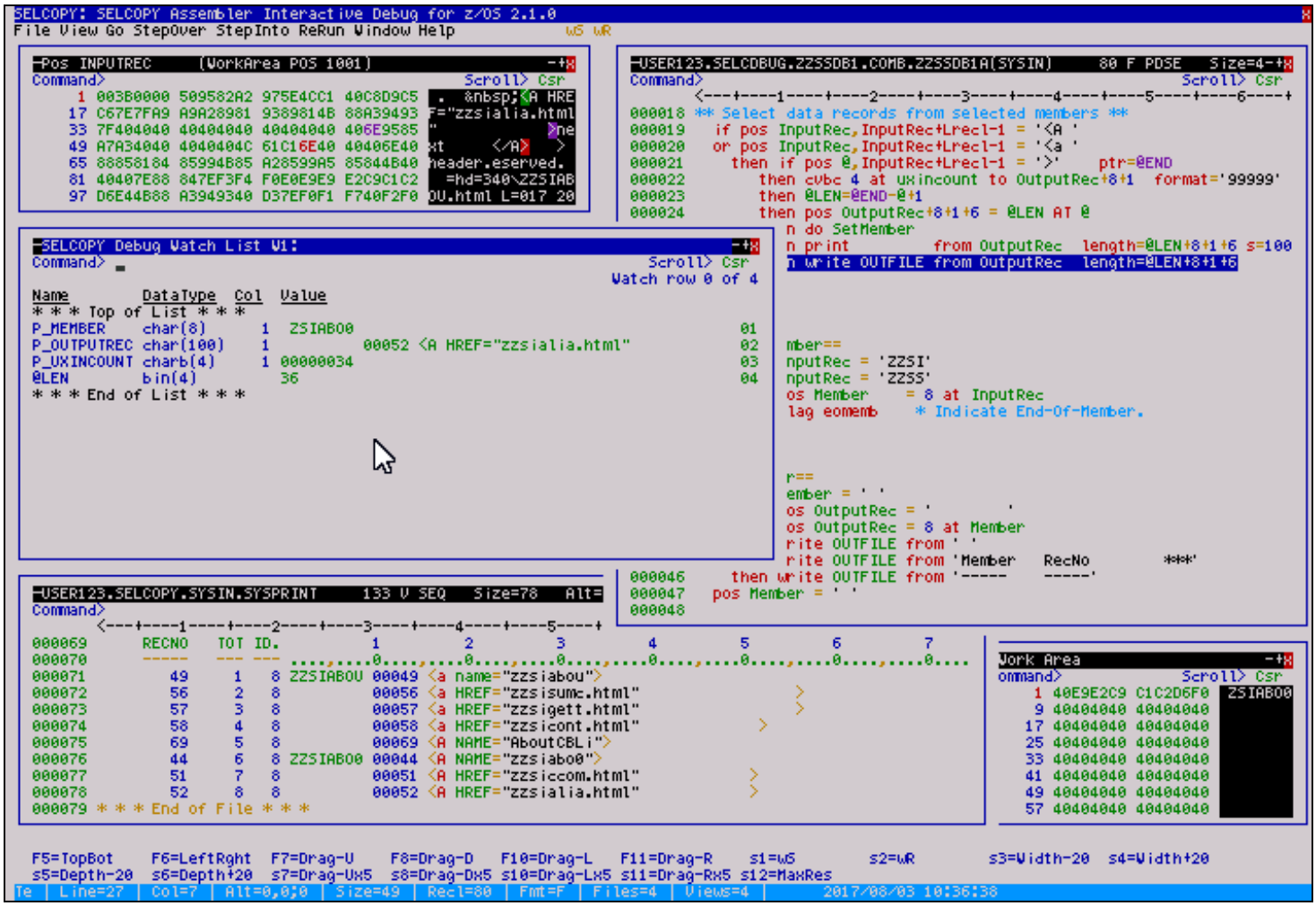


Figure 174. 27 SELCOPY/debug Windowed

Automatic BREAKIN threshhold

- 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 defualt is 10,000 statements, but this may be overridden by typing **"SET BREAKIN nnn"** from the command-line of the SYSIN window.

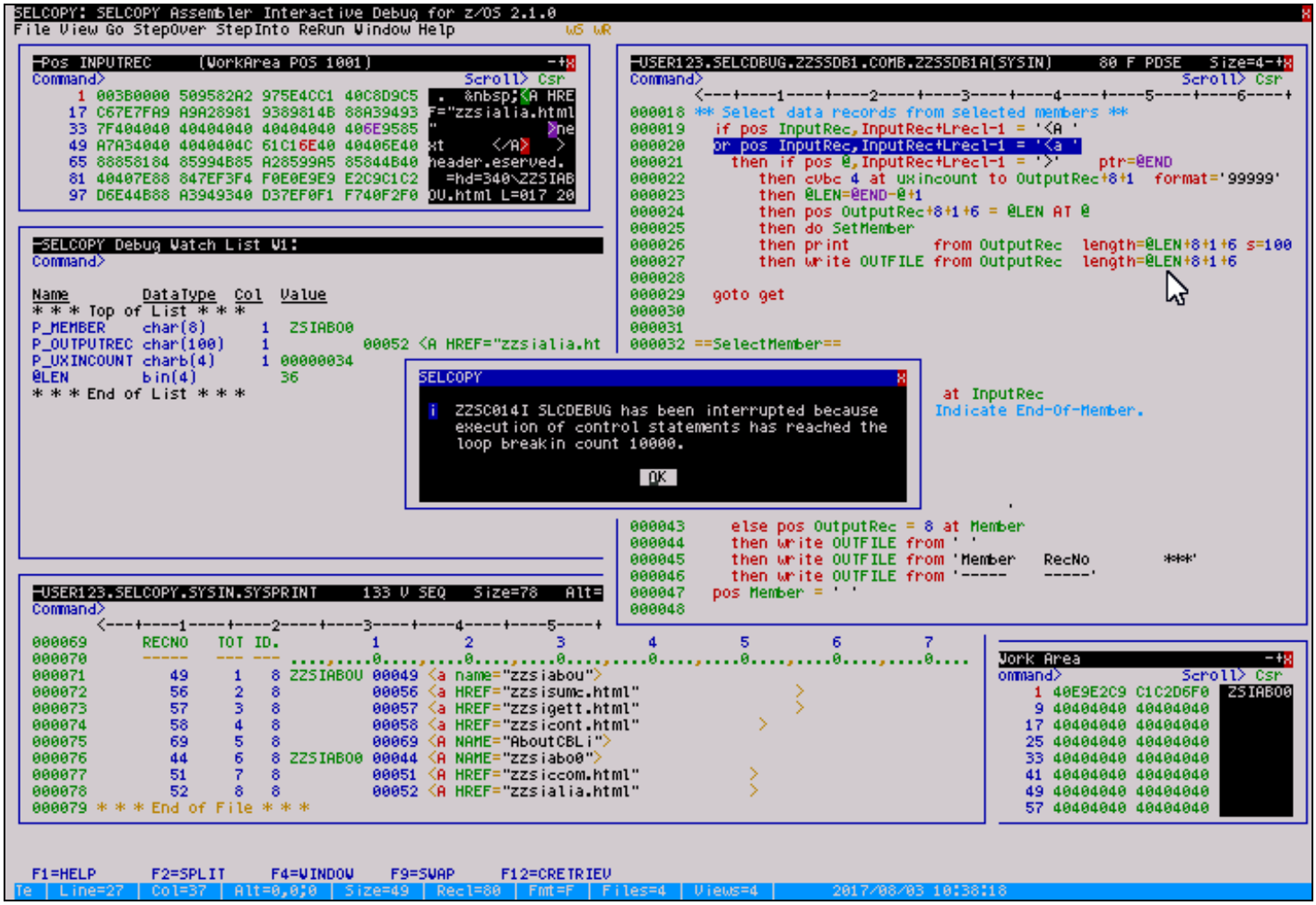


Figure 175. 28 SELCOPY/debug Windowed

EOJ/RERUN

- 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 begining 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.

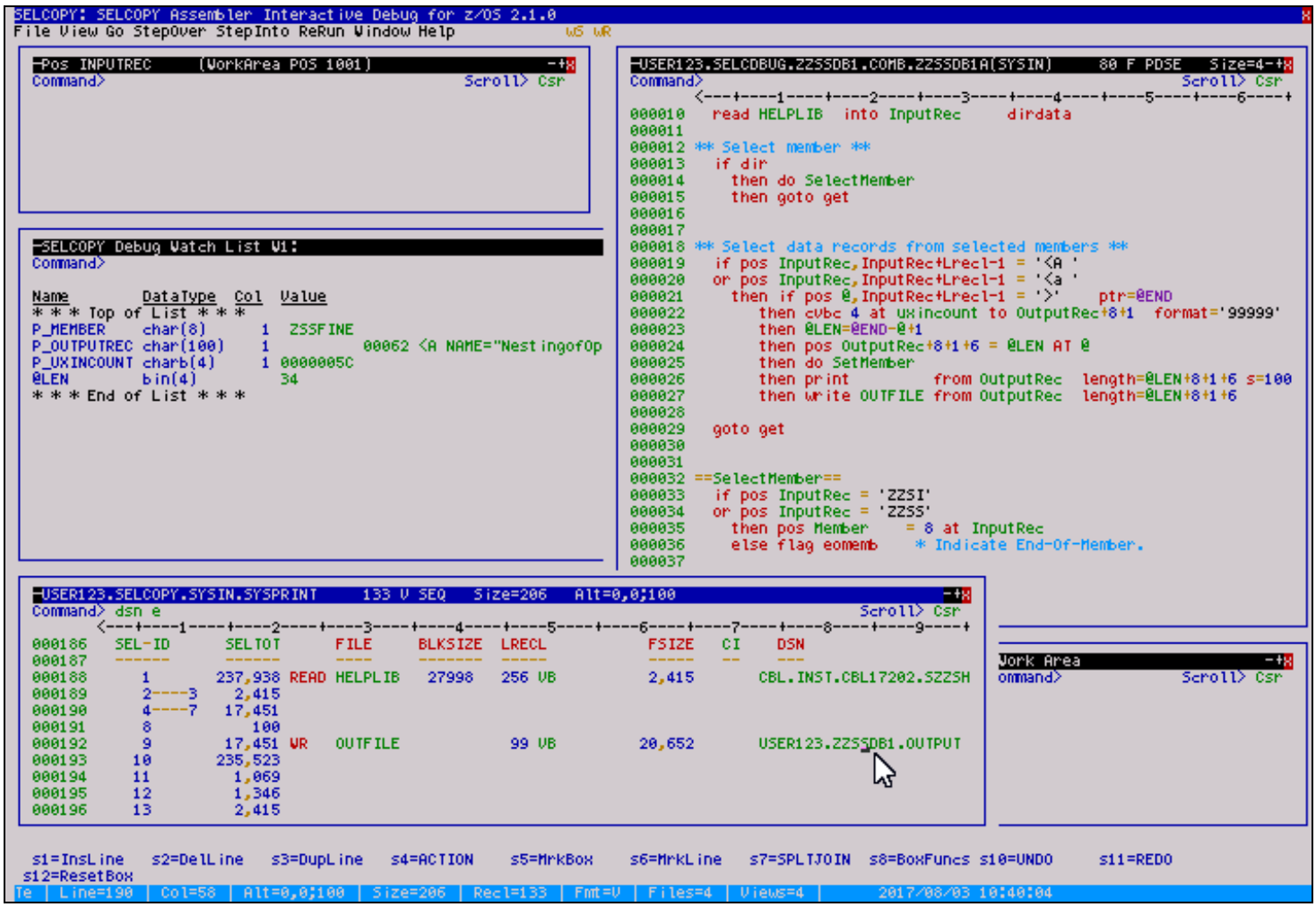


Figure 176. 29 SELCOPY/debug Windowed

View Output file(s) from debug environment

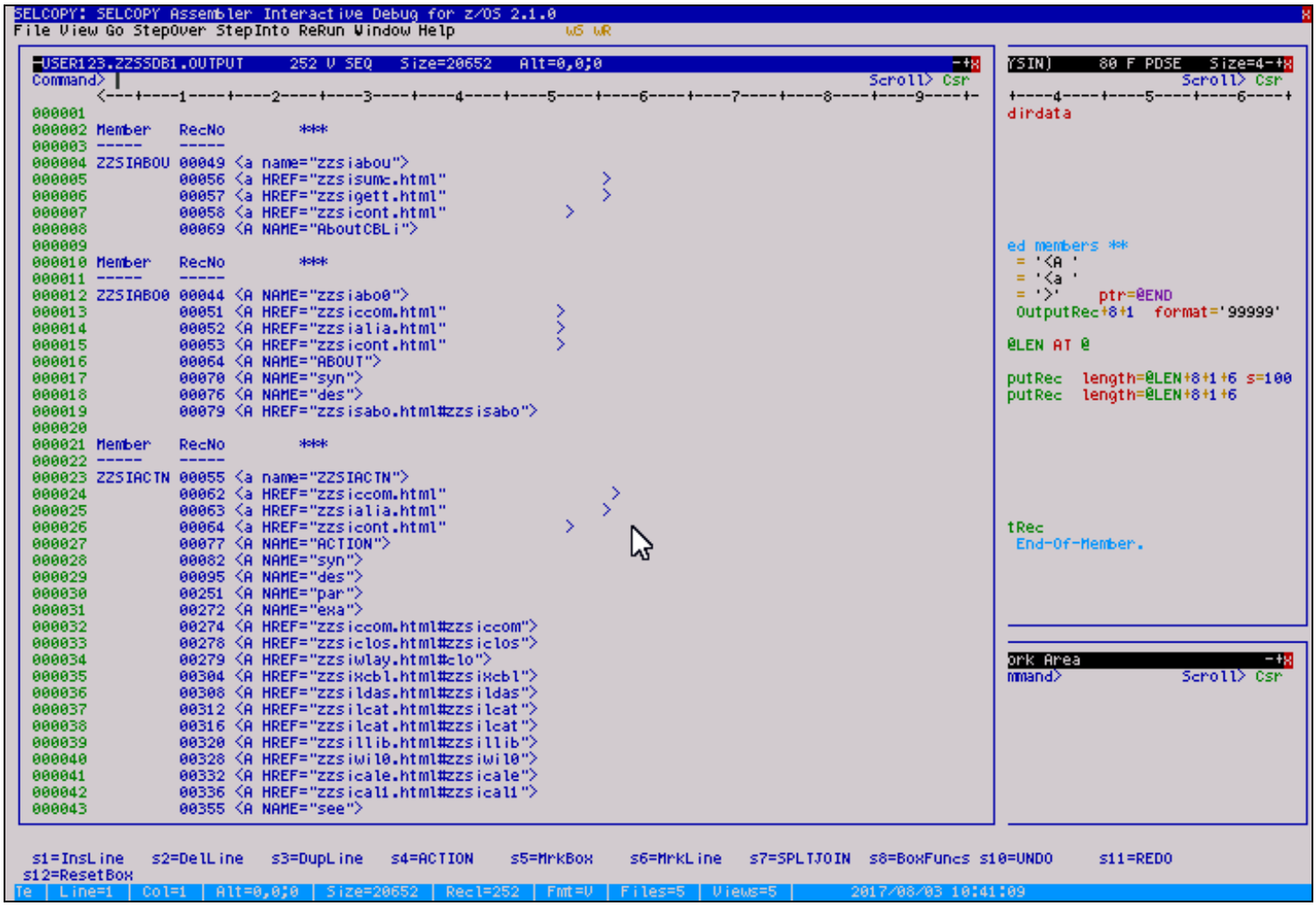


Figure 177. 30 SELCOPY/debug Windowed

Option 12 - DB2

DB2 support is included as a standard component of the FileKit program. i.e. it is not a separately licensable product.

As well as browsing and editing DB2 tables, FileKit 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

FileKit will create some sample DB2 Tables for you.

The table data will be copied from your own FileKit 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 FileKit 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 FileKit 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.

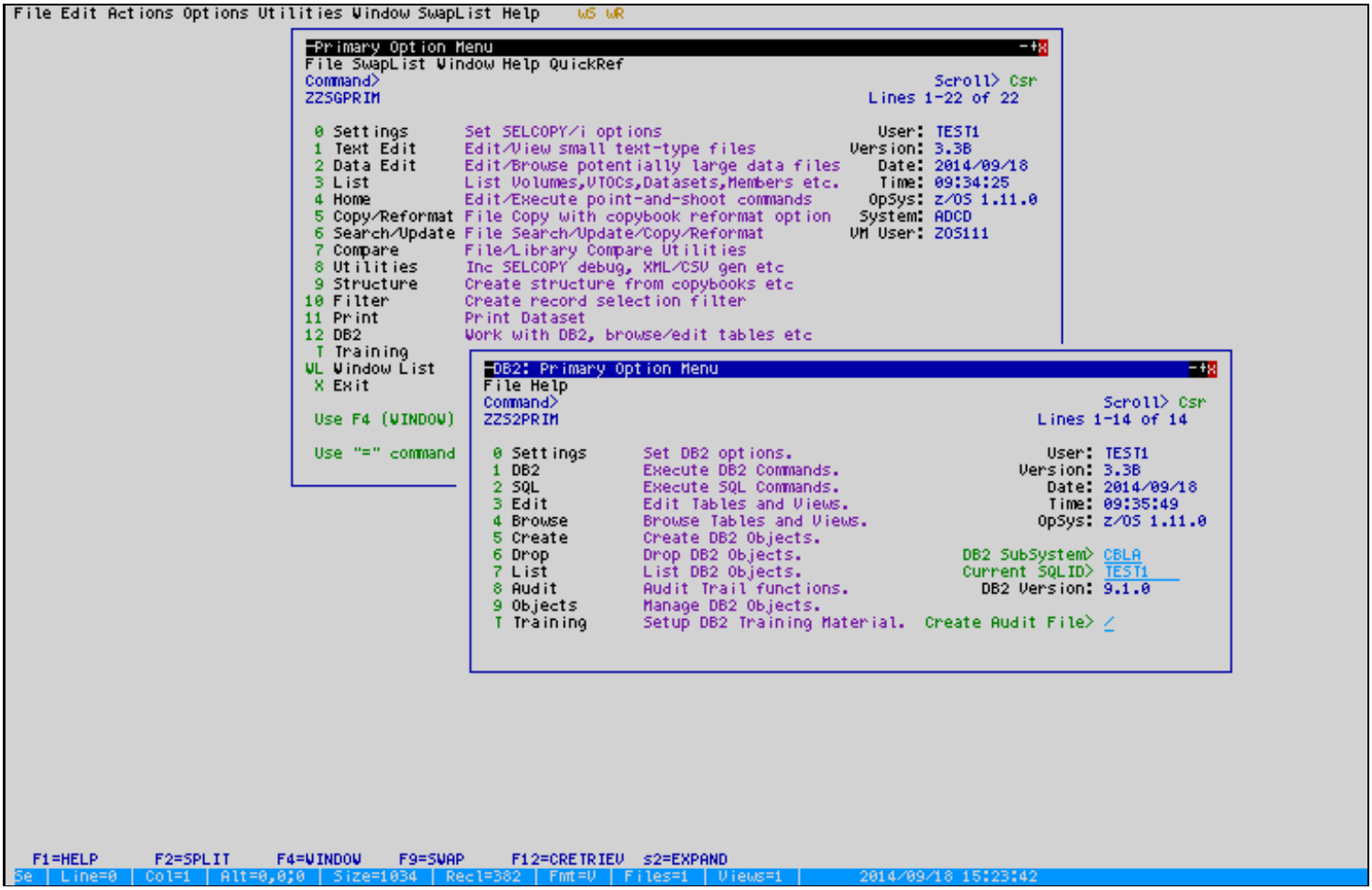


Figure 178. FileKit DB2 Figure 01

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.

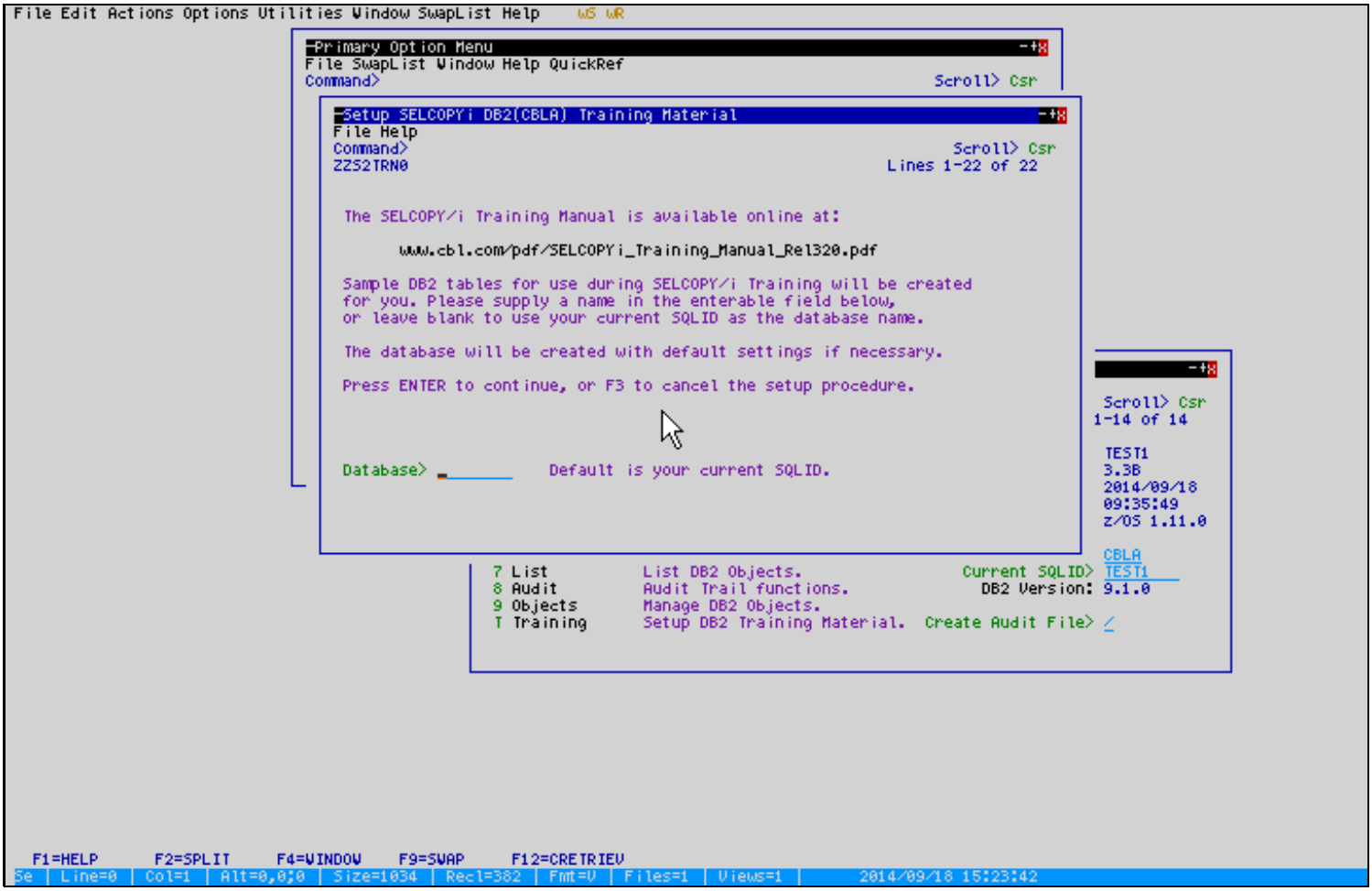


Figure 179. FileKit DB2 Figure 02

- Eventually, provided no serious errors occur, you should expect to see the following message box.

```
+-------------------------------------------------------------------+
| FileKit DB2 Training - Initial Setup Complete                  x  |
|                                                                   |
|  The DB2 Training Material sample database and tables have been   |
|  successfully created.                                            |
|                                                                   |
|  Press PF3 to view the tables in a list window.                   |
|                                                                   |
|  The FileKit Training Manual is available online at               |
|                                                                   |
|  www.cbl.com/pdf/FileKit_3.40_Training_Manual.pdf                 |
|                                                                   |
|                                OK                                 |
|                                                                   |
+-------------------------------------------------------------------+
```

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.

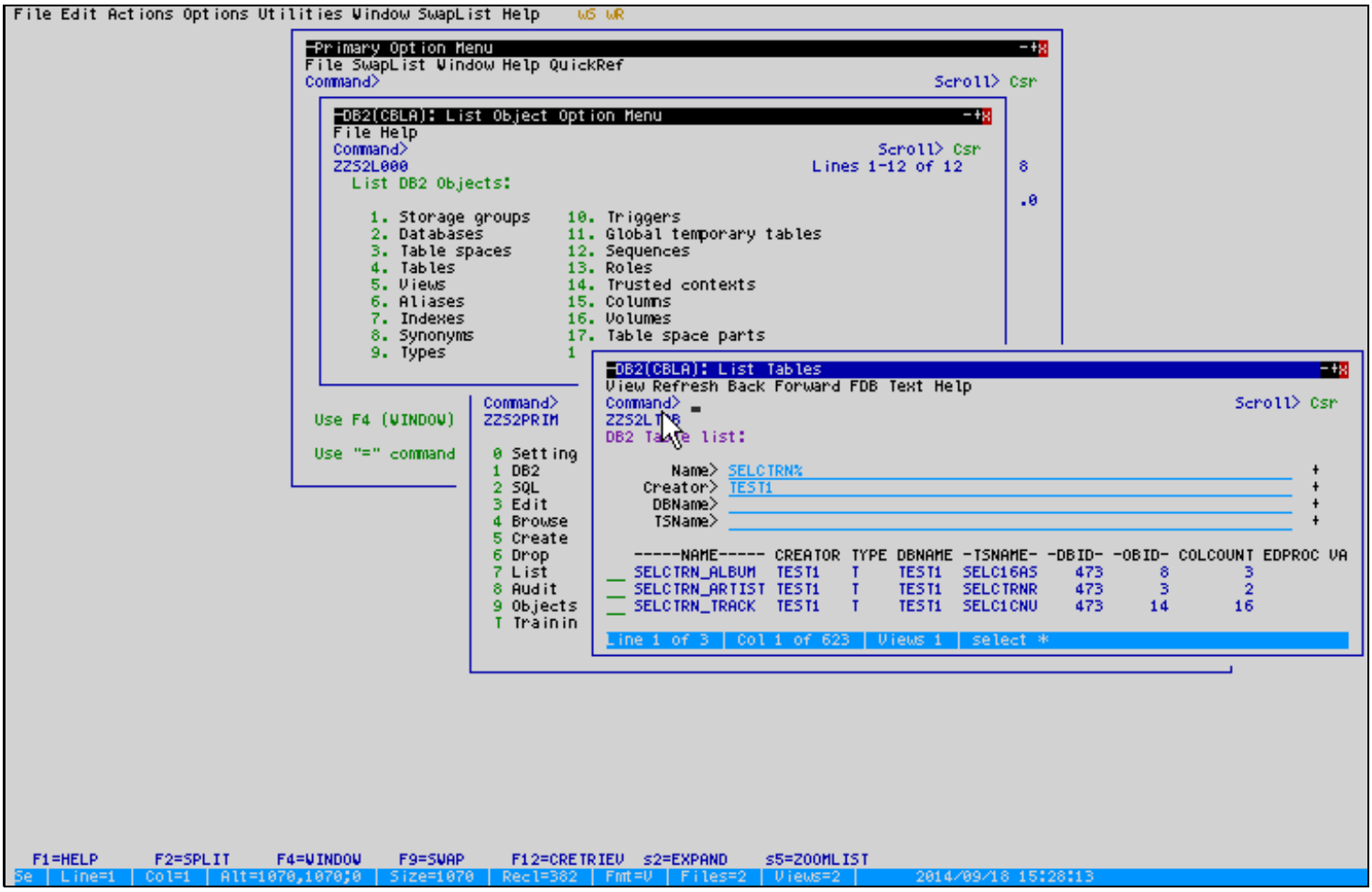


Figure 180. FileKit DB2 Figure 03

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**.

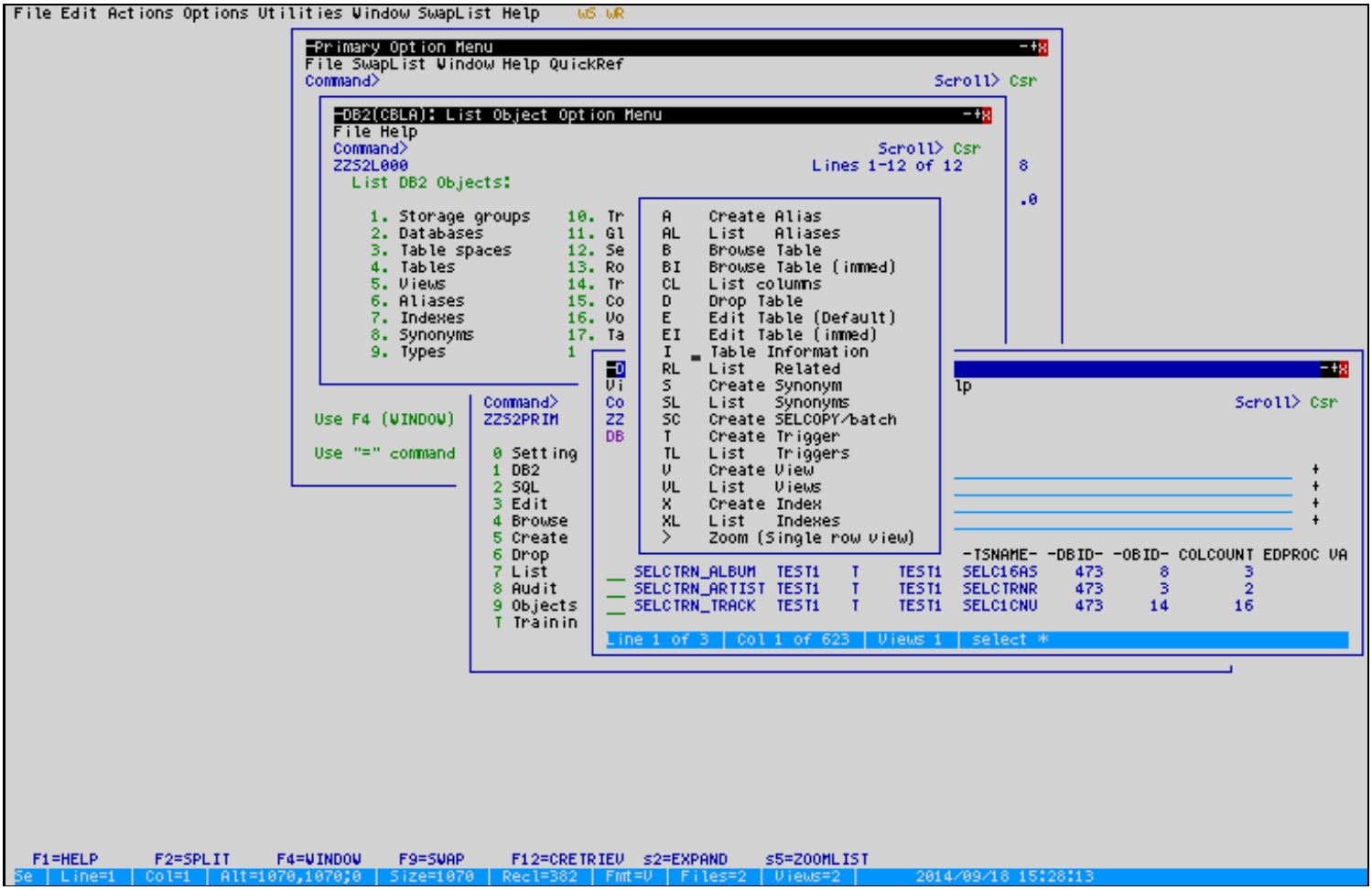


Figure 181. FileKit DB2 Figure 04

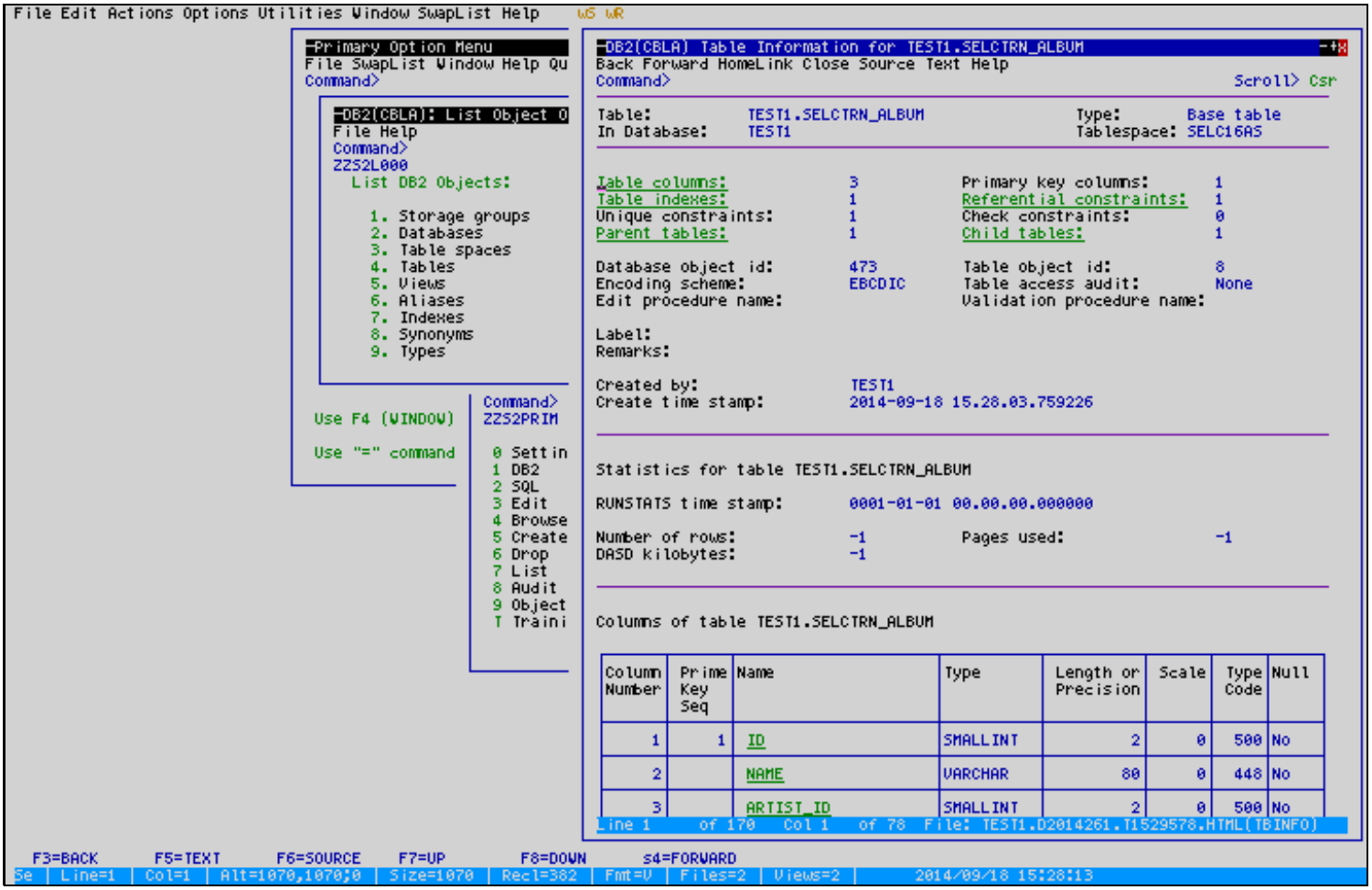
DB2 Table Information (2)

- 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 (3)

- 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.

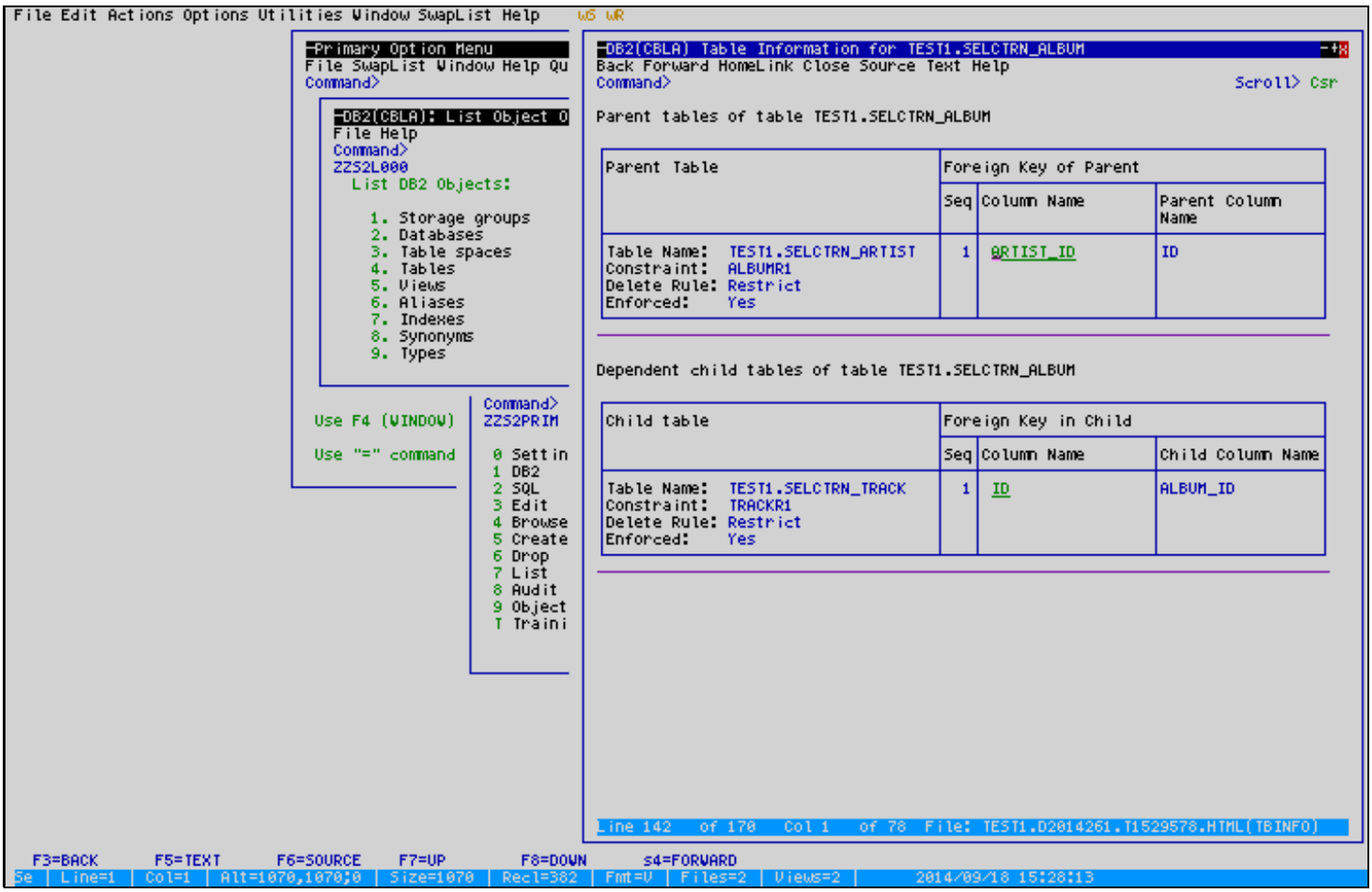


Figure 182. FileKit DB2 Figure 05

DB2 Table Edit

- In the prefix area for table **SELCTRN_TRACK** enter the line-ccommand **"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.

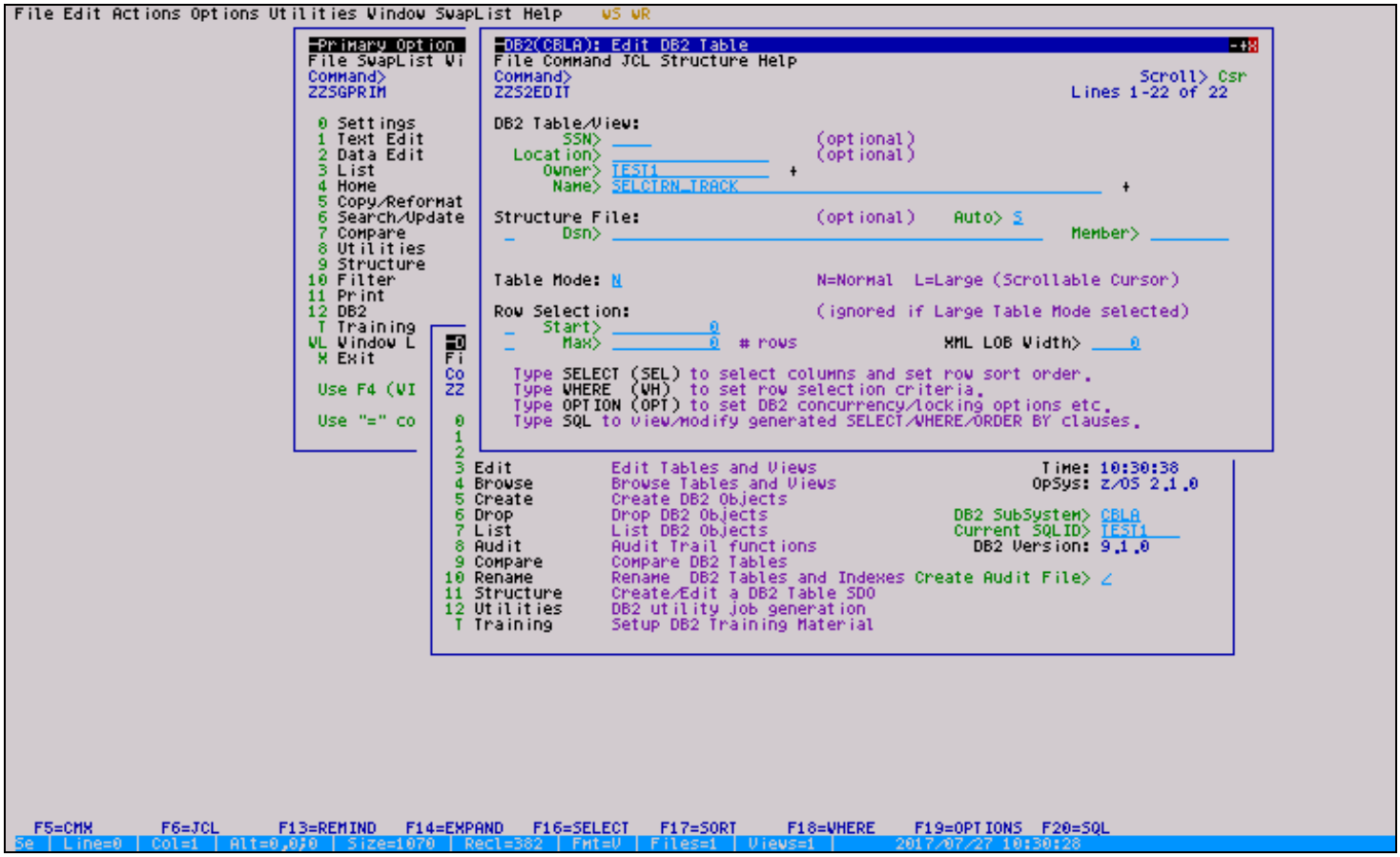


Figure 183. FileKit DB2 Figure 06

DB2 Table Edit (2)

- 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.

  Scroll up/down using **F7/8** to view and edit further rows.
  Scroll left/right using **F10/F11** to view and edit further columns.
- Type the **INFO** primary command to display detailed information about the currently edited DB2 table.
- All the power of the FileKit **Data-Editor** is now at your finger tips.

  e.g. to open another separately scrollable view of te same table just type the primary command **WIN NEW** or **WW**.

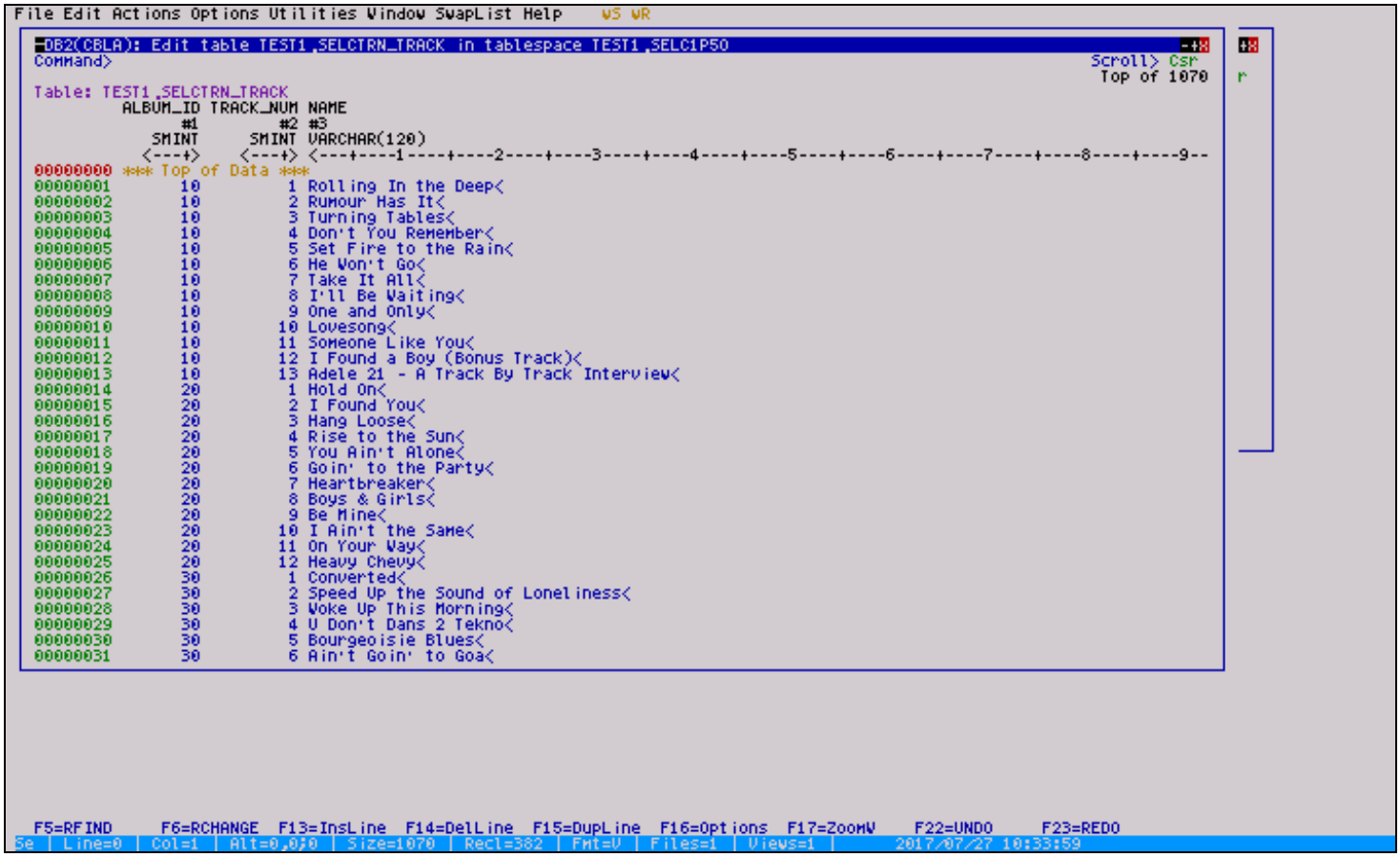


Figure 184. FileKit DB2 Figure 07

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.

  Type primary command **"HELP COLATTR"** (H COLA) for more details on the content of these columns.
- 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.

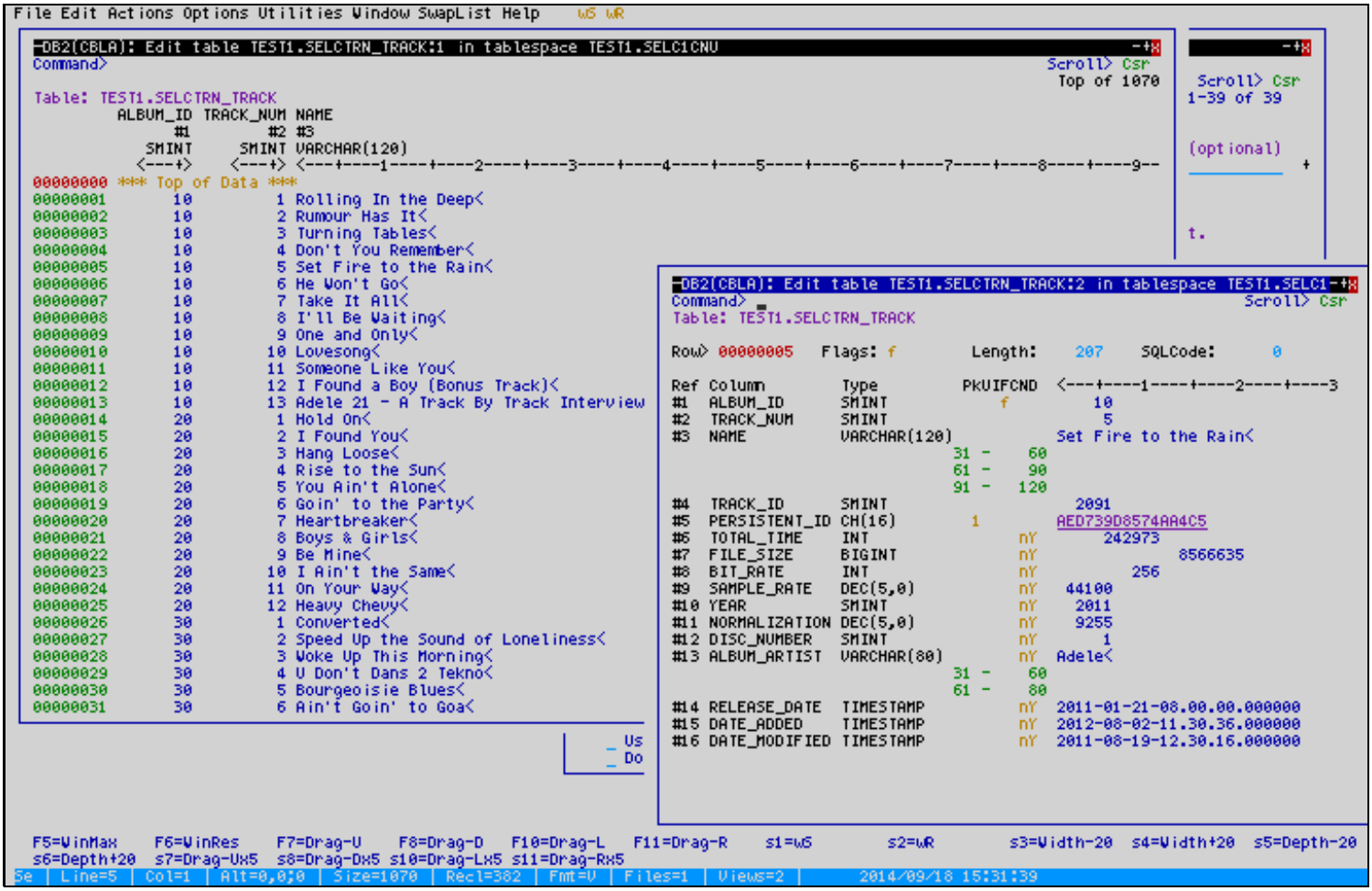


Figure 185. FileKit DB2 Figure 08

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.

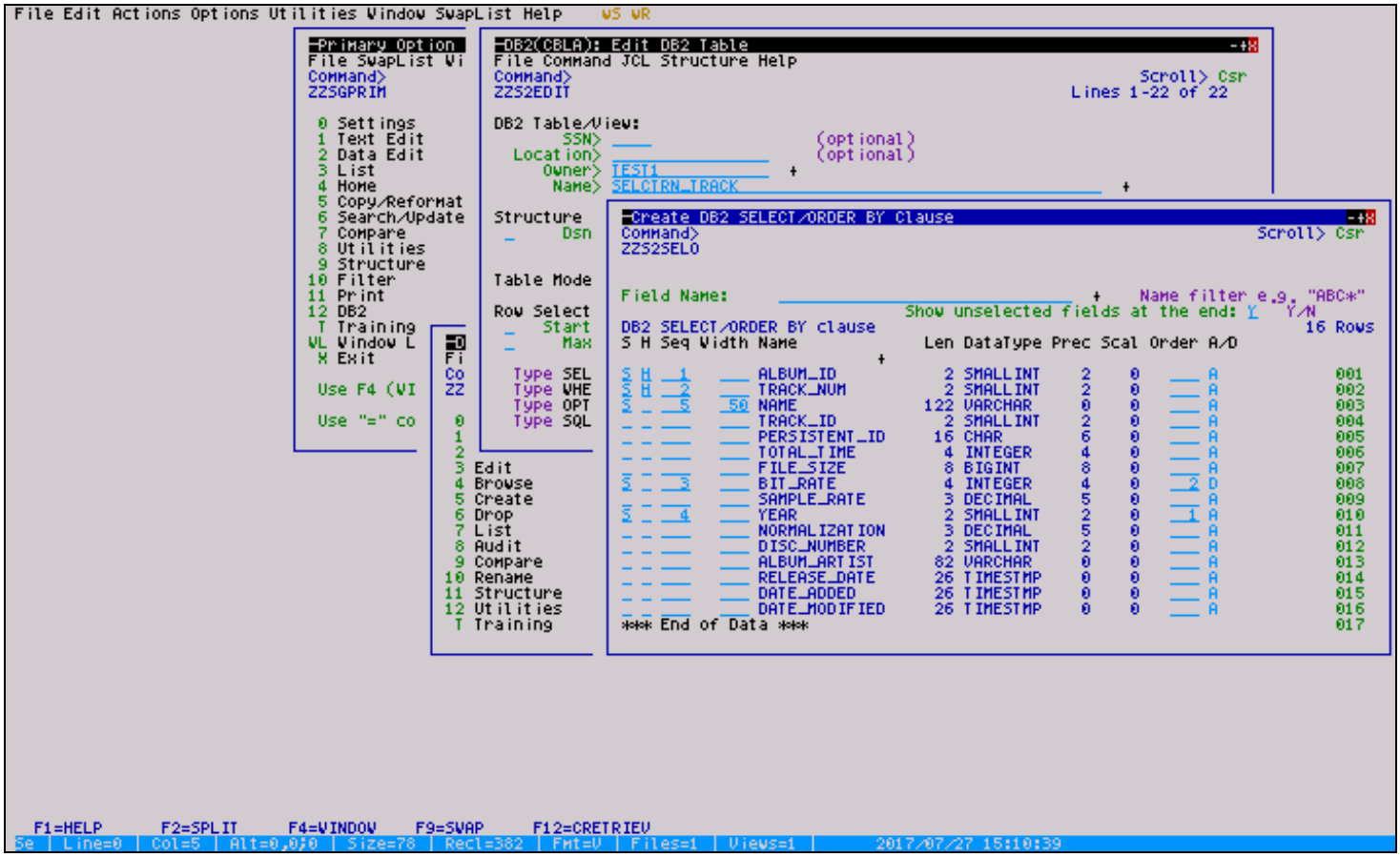


Figure 186. FileKit DB2 Figure 09

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 excersise 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, FileKit 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.

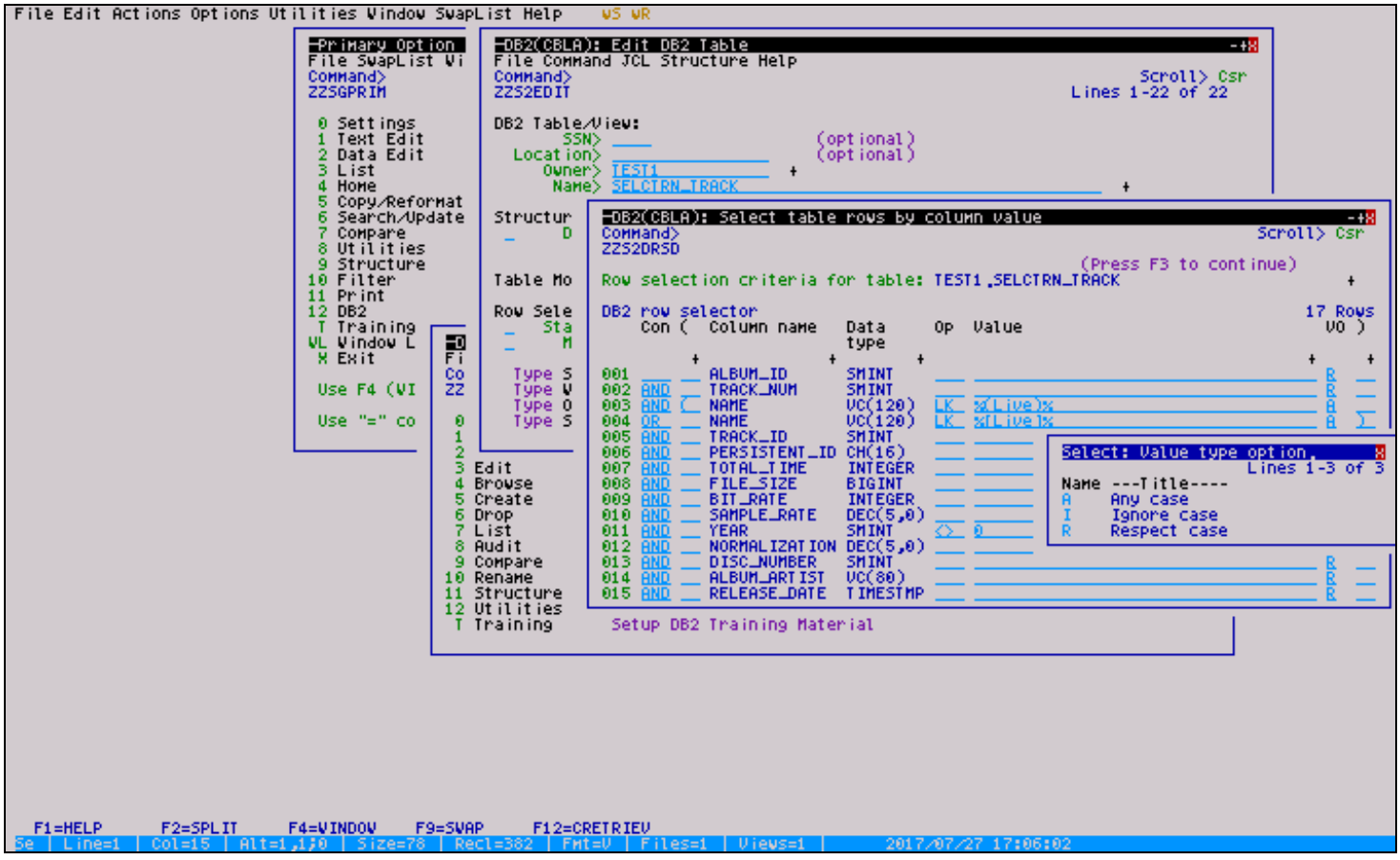


Figure 187. FileKit DB2 Figure 10

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.

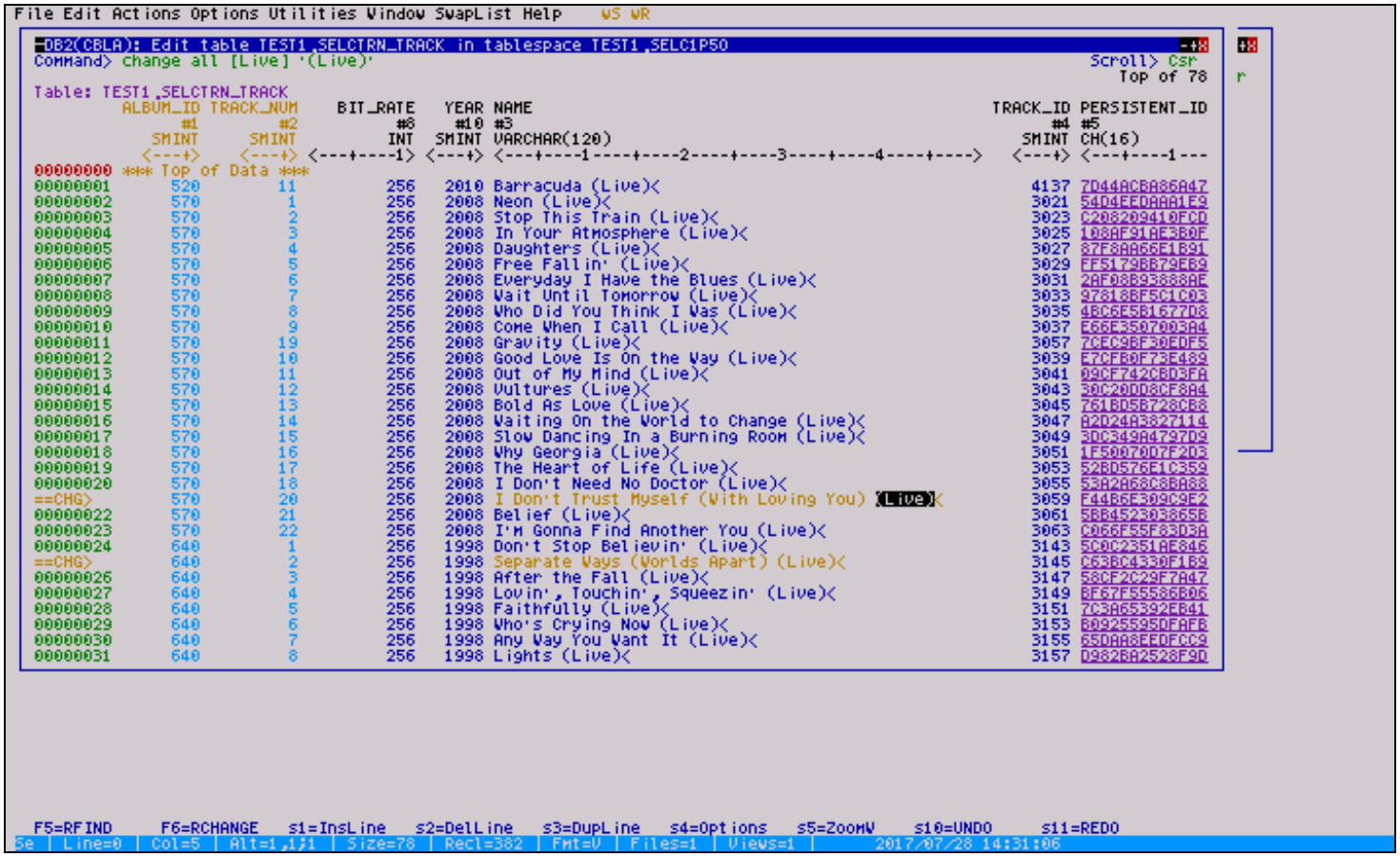


Figure 188. FileKit DB2 Figure 11

Editing Related Tables (REDIT)

- At the **"List Tables"** window, enter **"EI"** (Edit Immediate) in the prefix area for table ***sqlid*.SELCTRN_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.

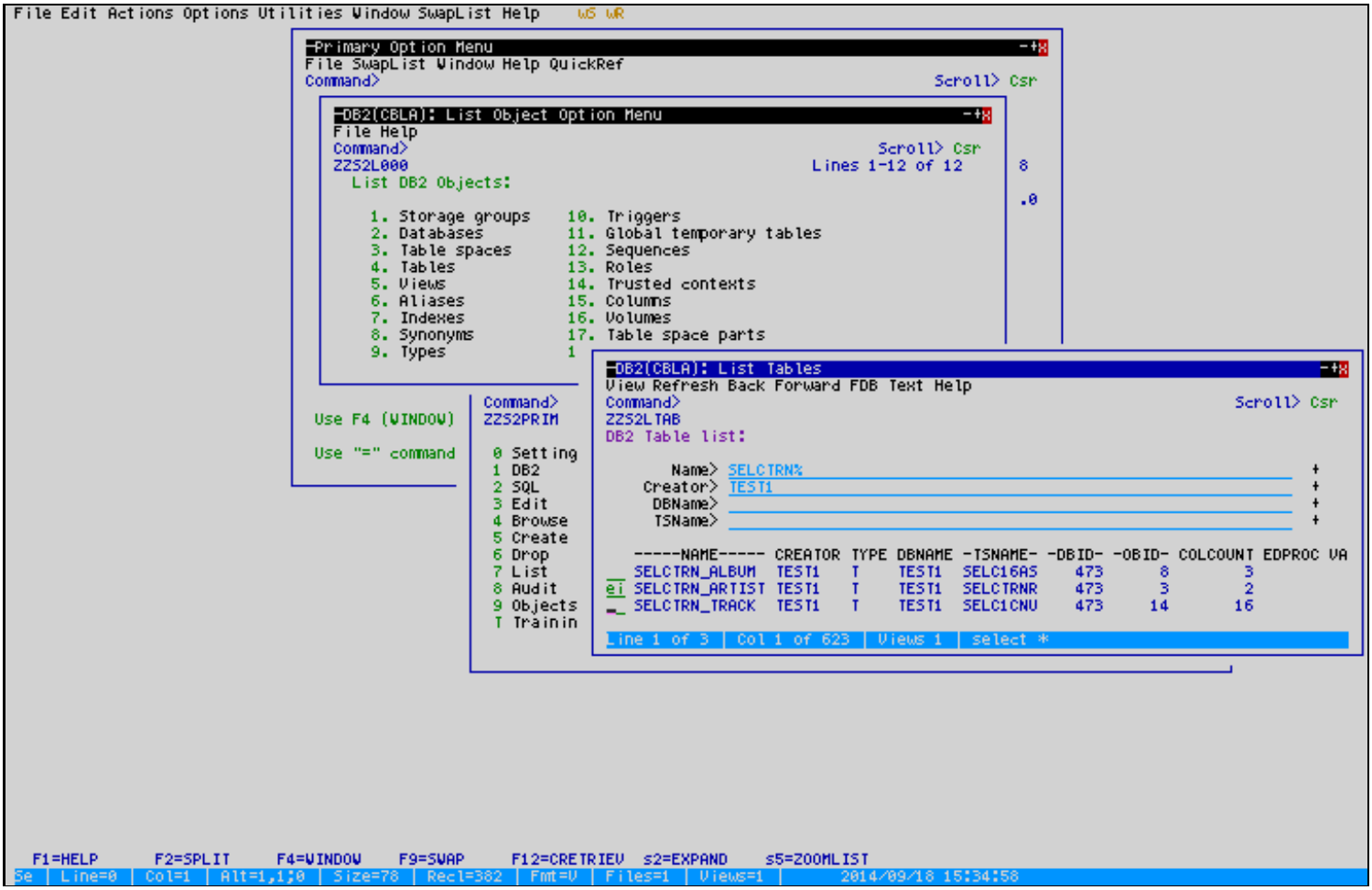


Figure 189. FileKit DB2 Figure 12

The "RE" line-command

- To explore the Artist **"Alanis Morrisette"** enter **"RE"** in the prefix area.

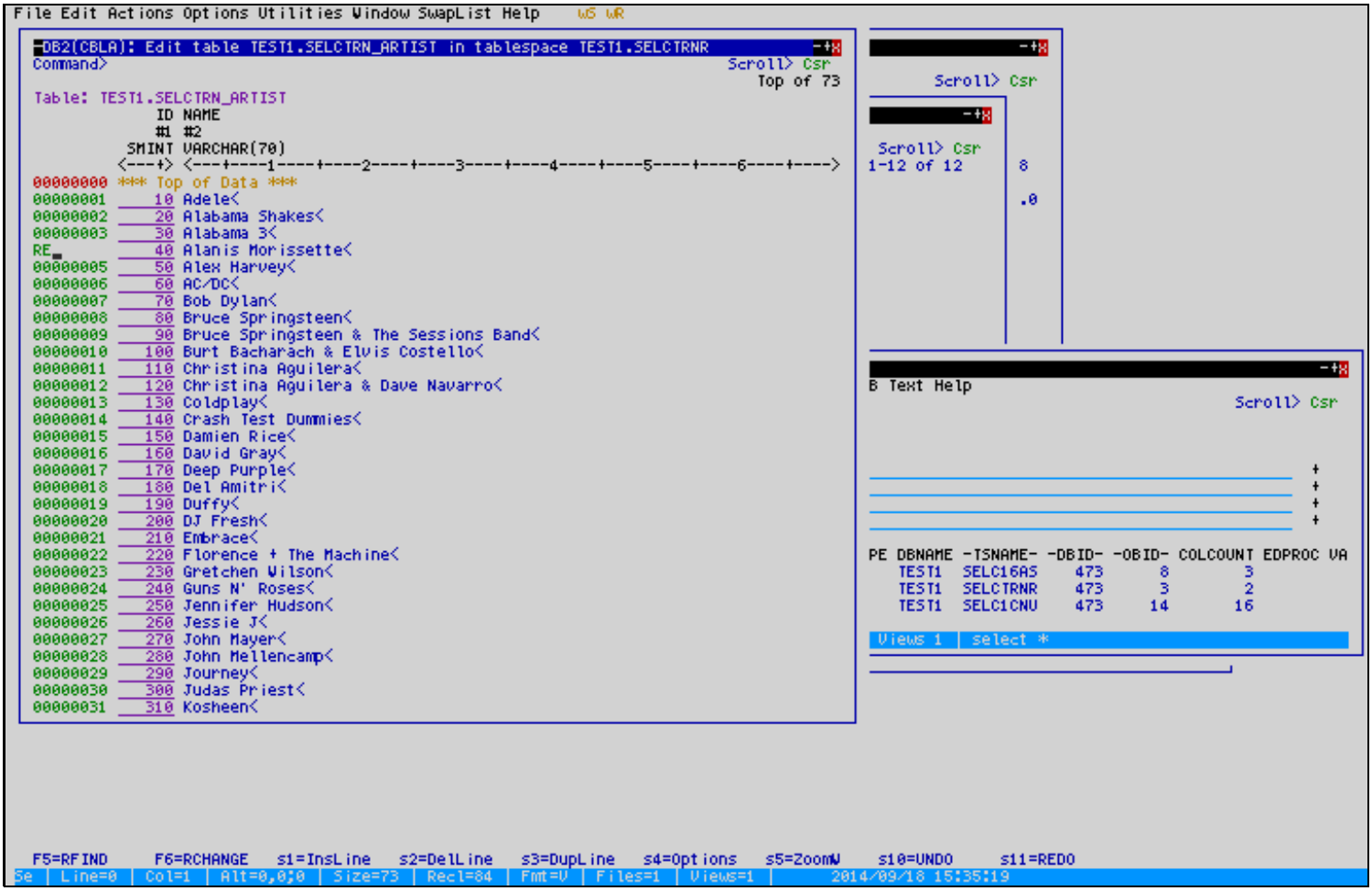


Figure 190. FileKit DB2 Figure 13

The Related Tables List

- A separate window will appear listing the 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).

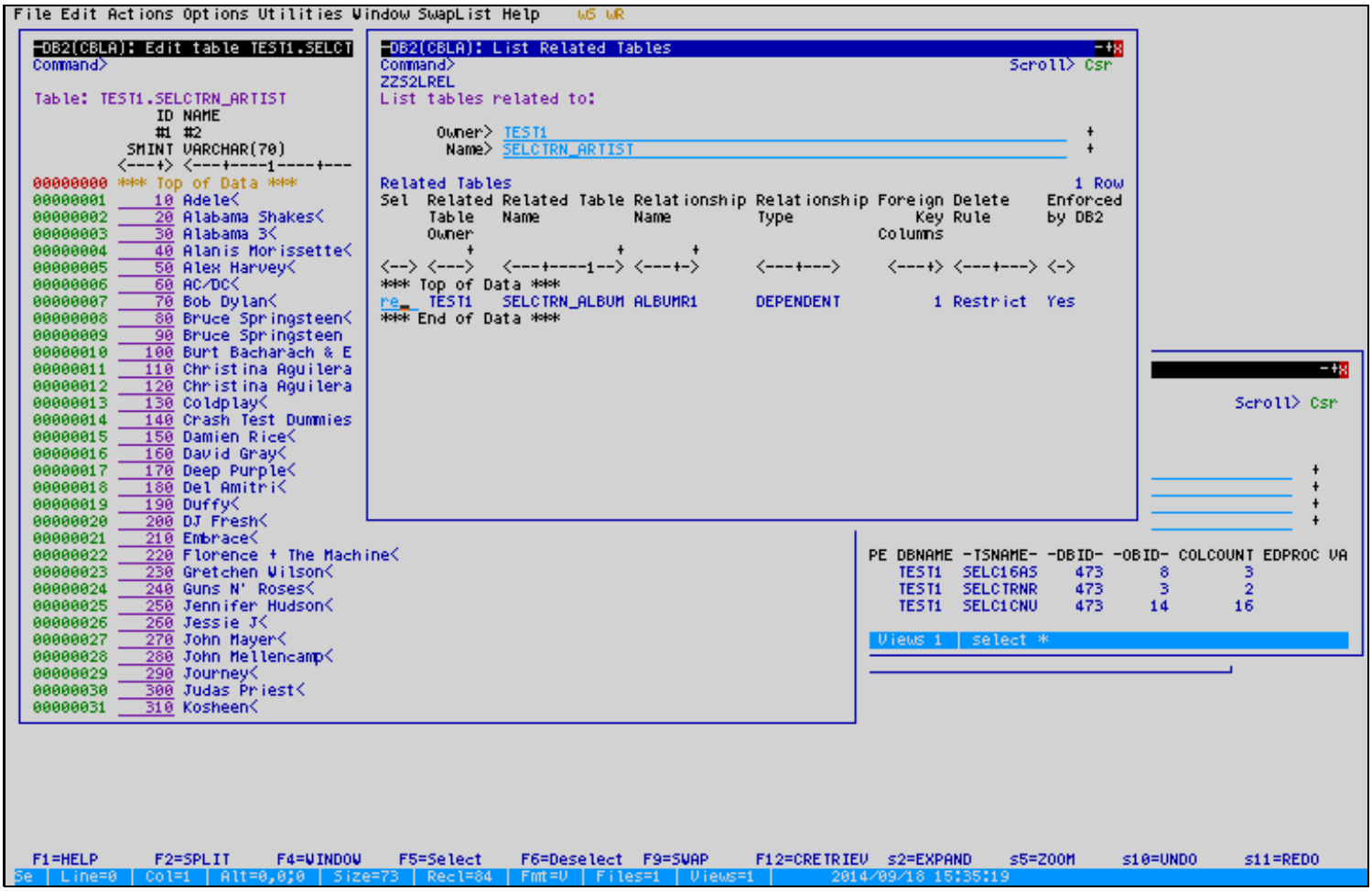


Figure 191. FileKit DB2 Figure 14

Related Table Edit Window (1)

- 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.

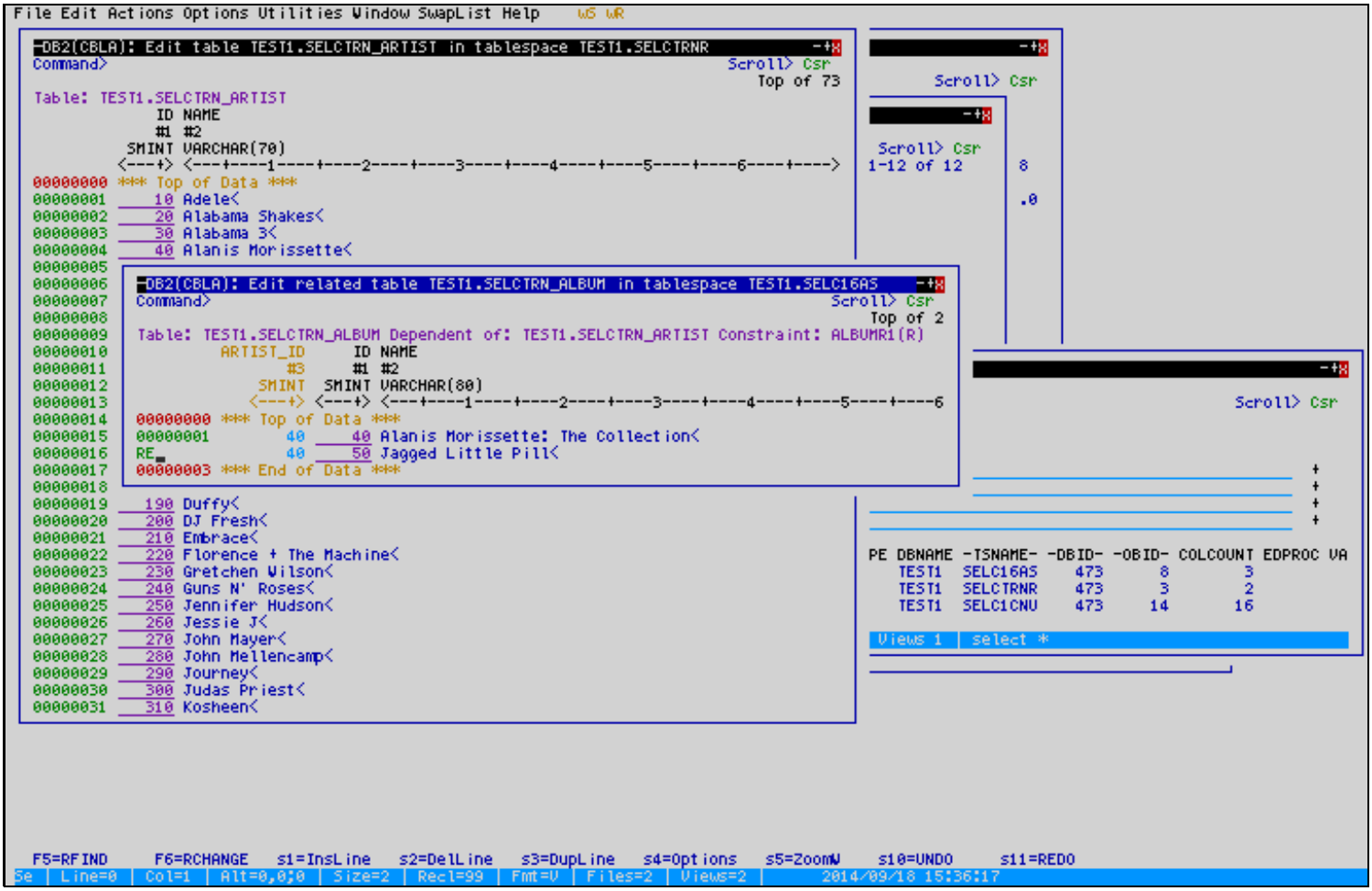


Figure 192. FileKit DB2 Figure 15

Related Table Edit Window (2)

- A separate window will once again appear listing the all 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).

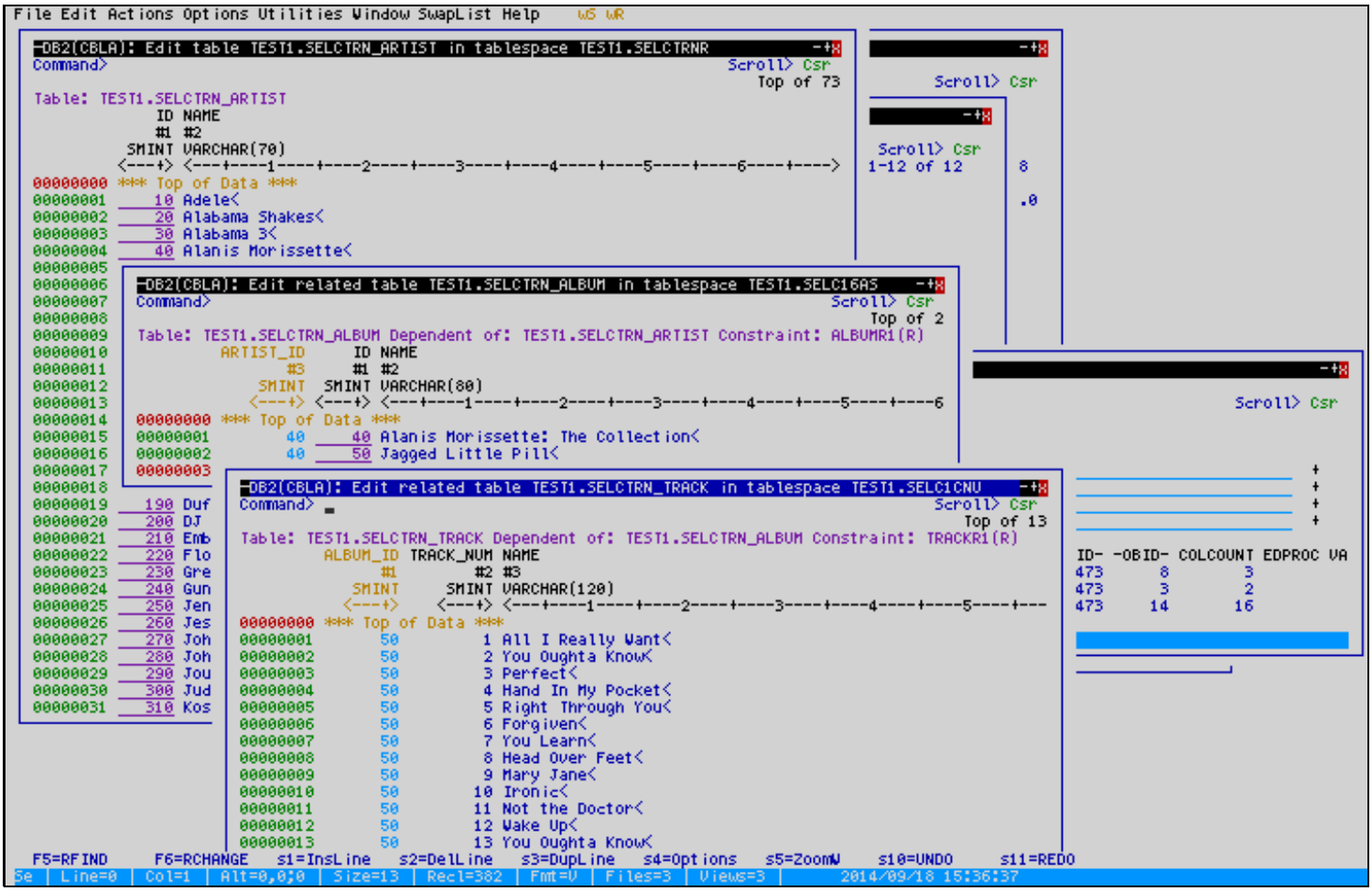


Figure 193. FileKit DB2 Figure 16

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.

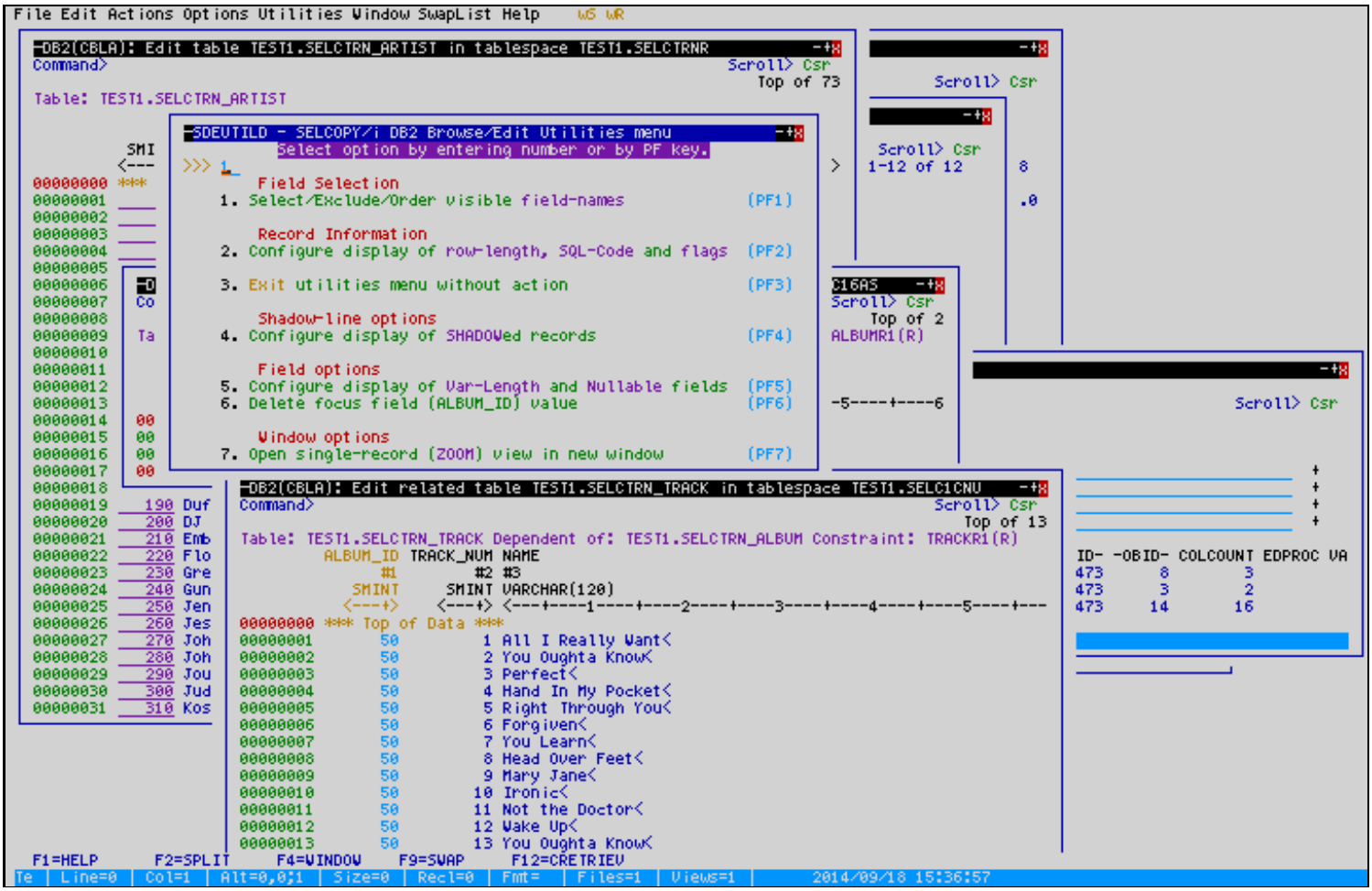


Figure 194. FileKit DB2 Figure 17

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.

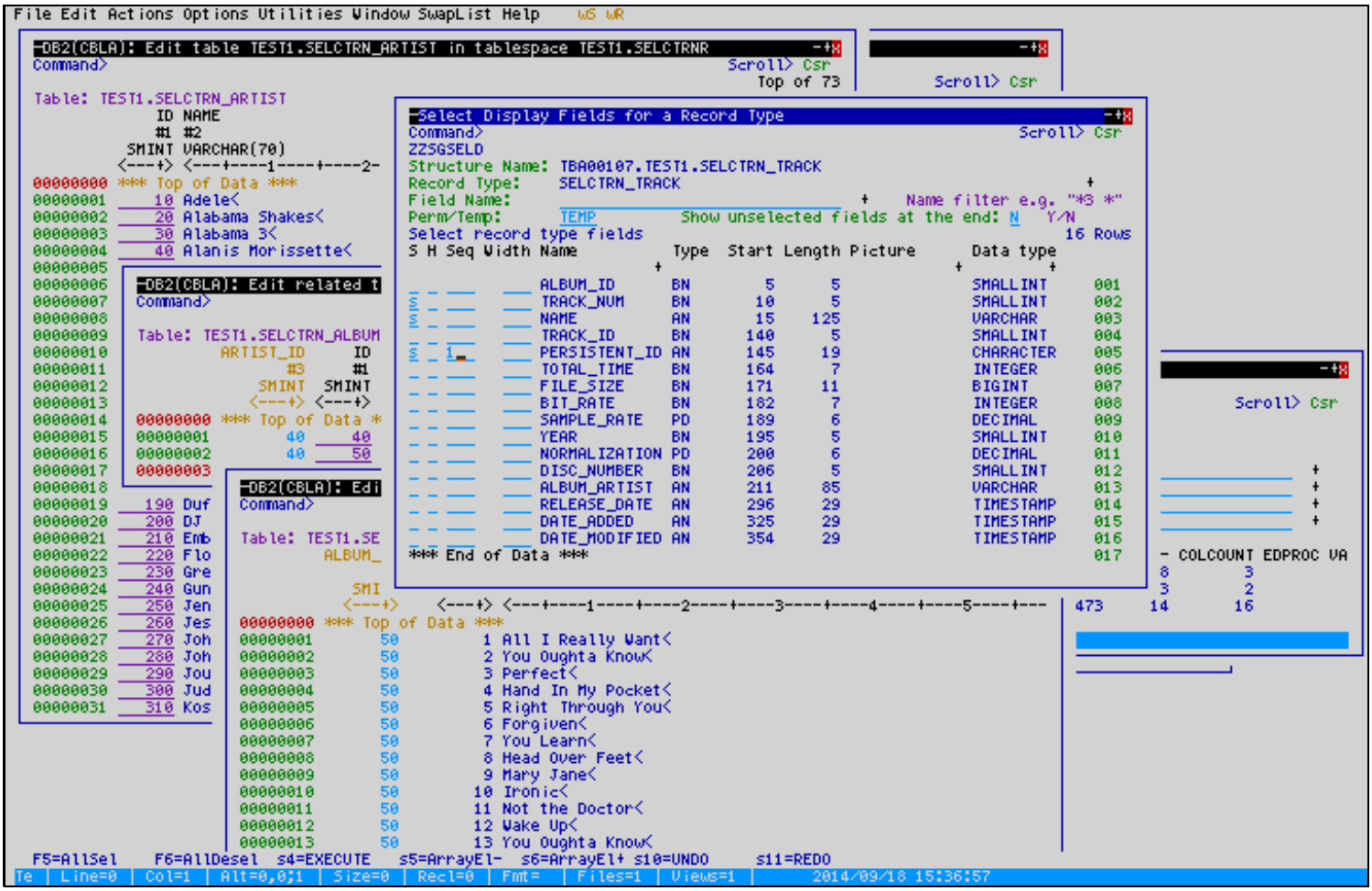


Figure 195. FileKit DB2 Figure 18

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>**.FILEKIT.CSV(PILL)**

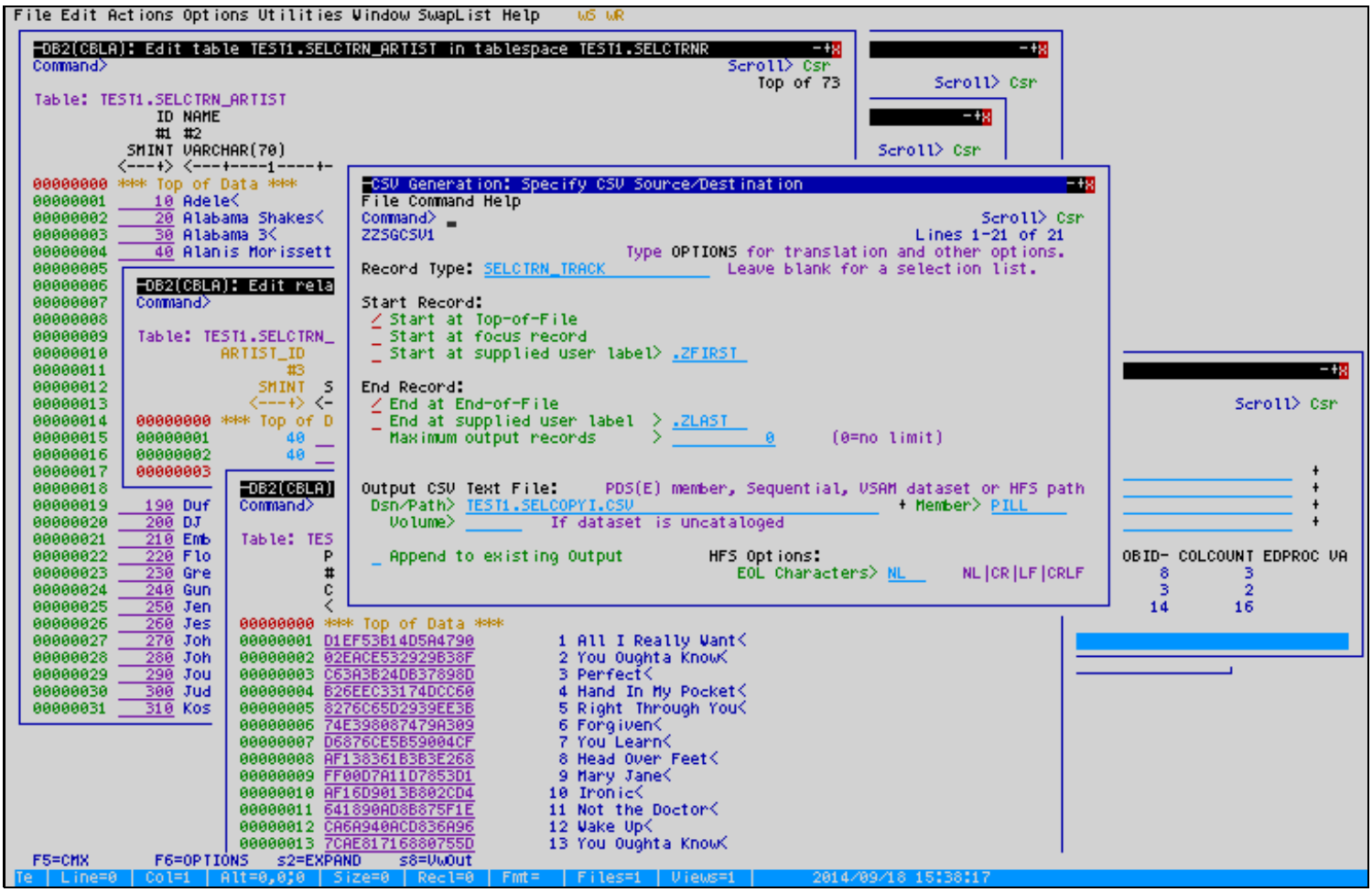


Figure 196. FileKit DB2 Figure 19

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.

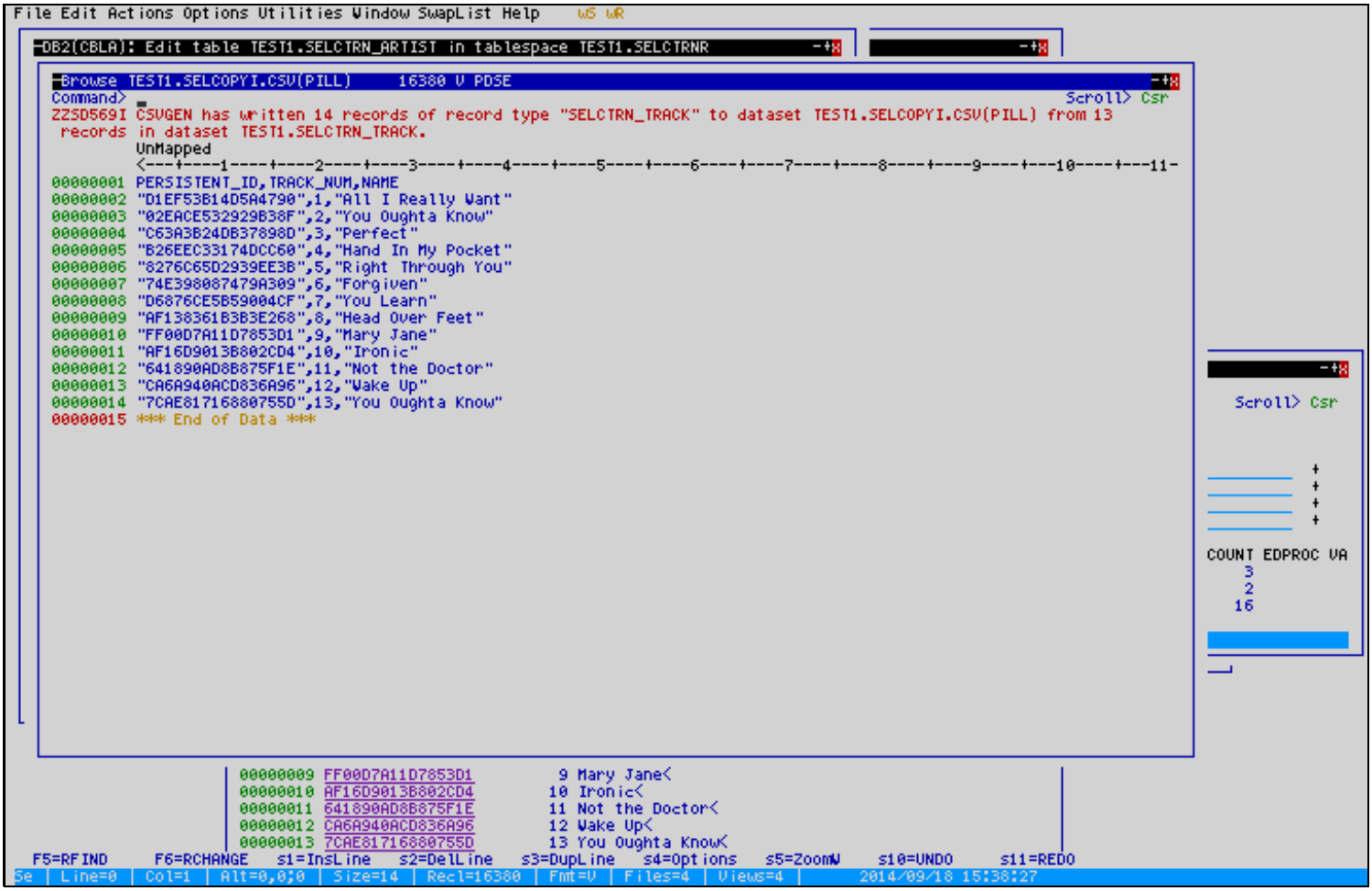


Figure 197. FileKit DB2 Figure 20

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>**.FILEKIT.XML(PILL)**

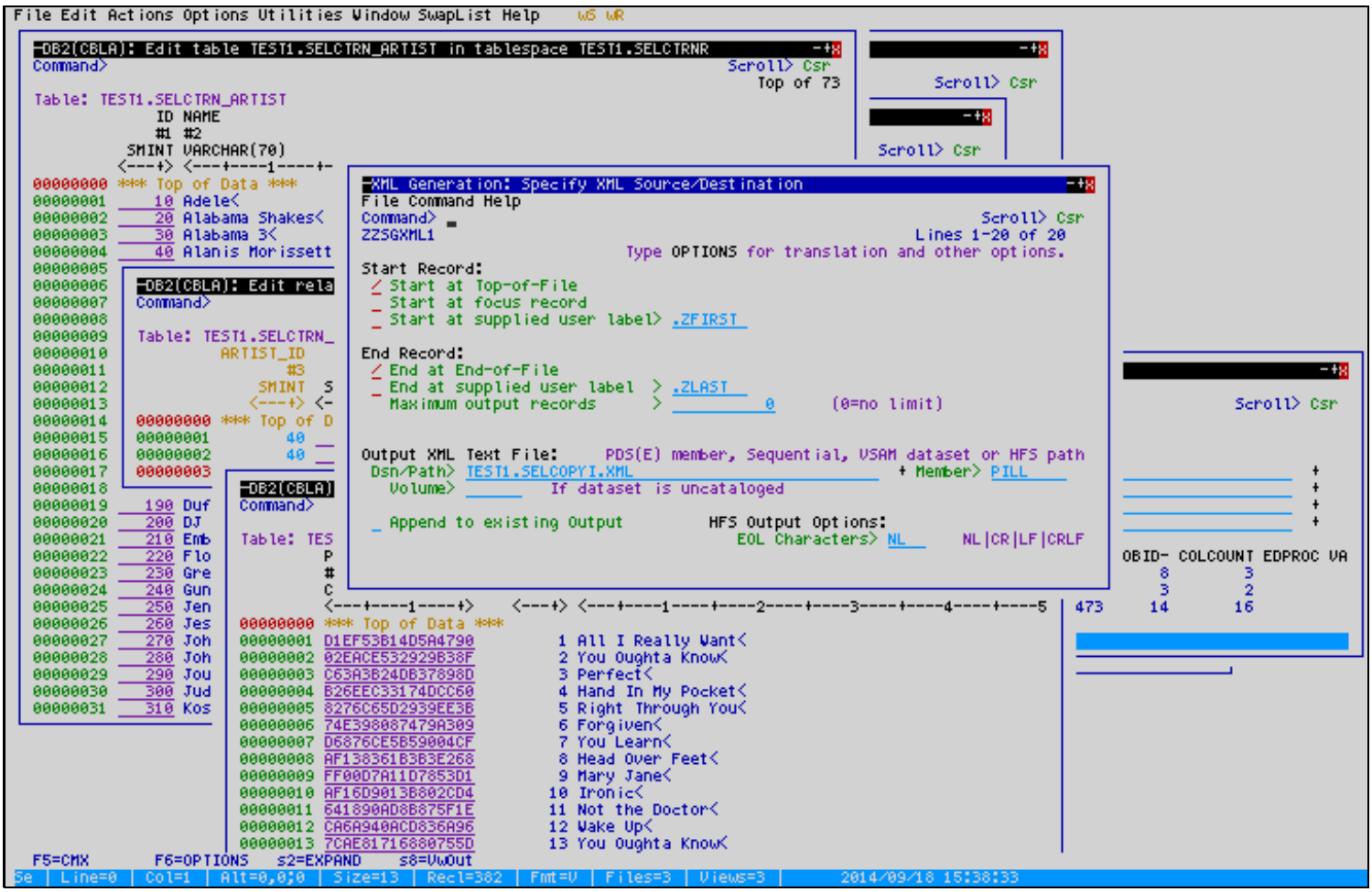


Figure 198. FileKit DB2 Figure 21

Sample "XMLGEN" output

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.

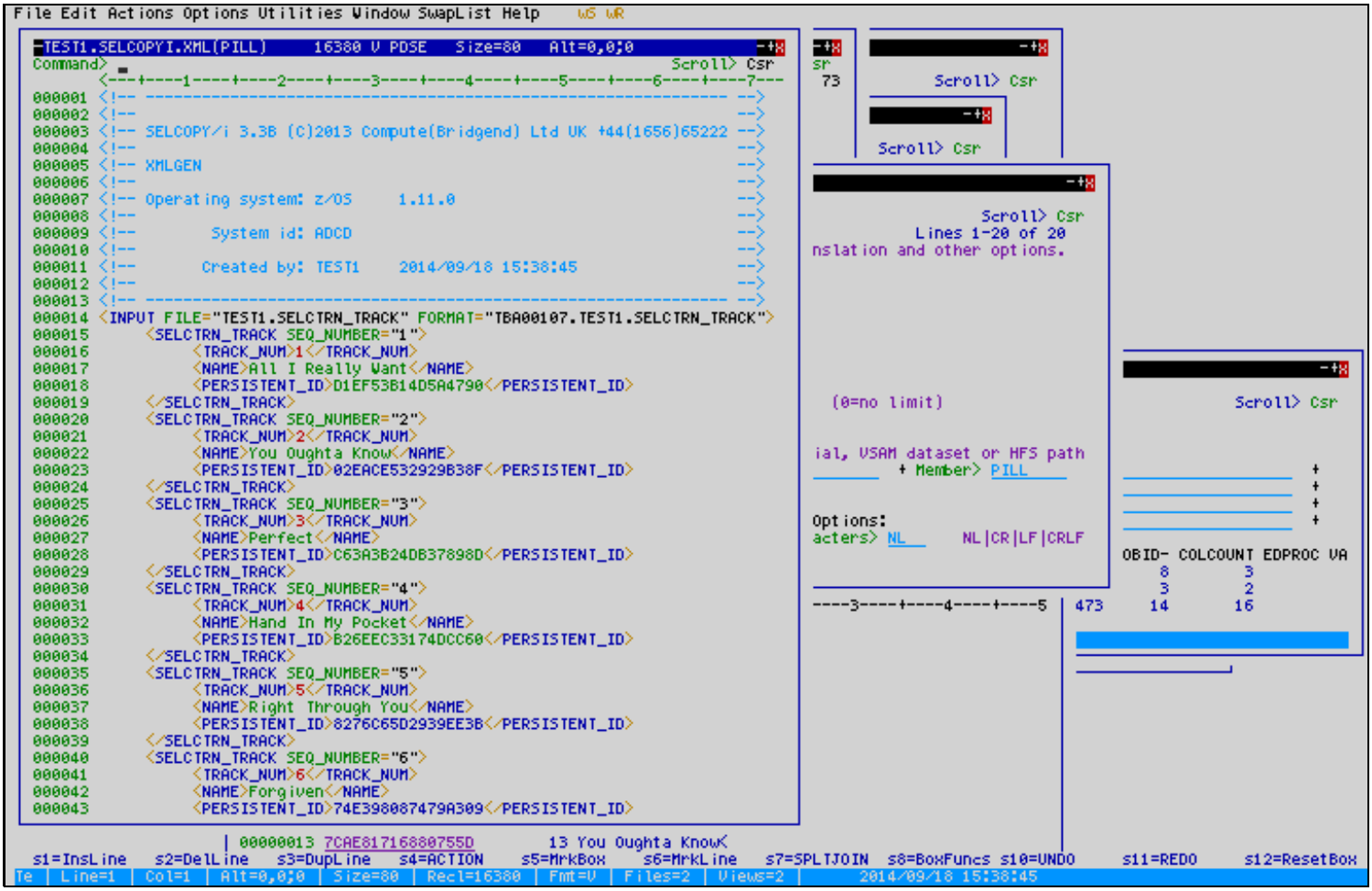


Figure 199. FileKit DB2 Figure 22

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 excerise, 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 FileKit, 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.

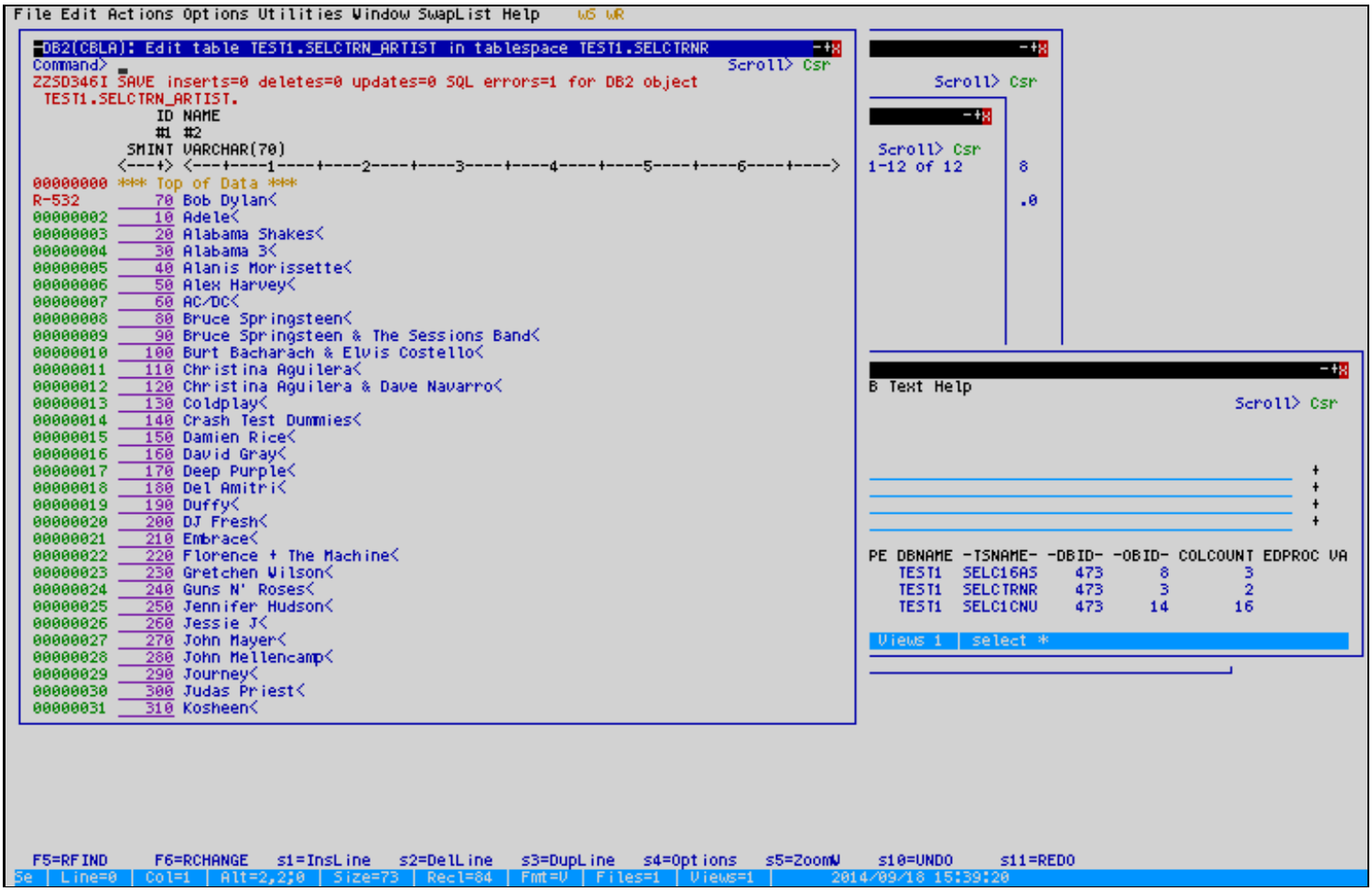


Figure 200. FileKit DB2 Figure 23

The "E" edit line-command

Enter **"E"** in the prefix area to display the **"DB2 Save SQL Error"** dialog.

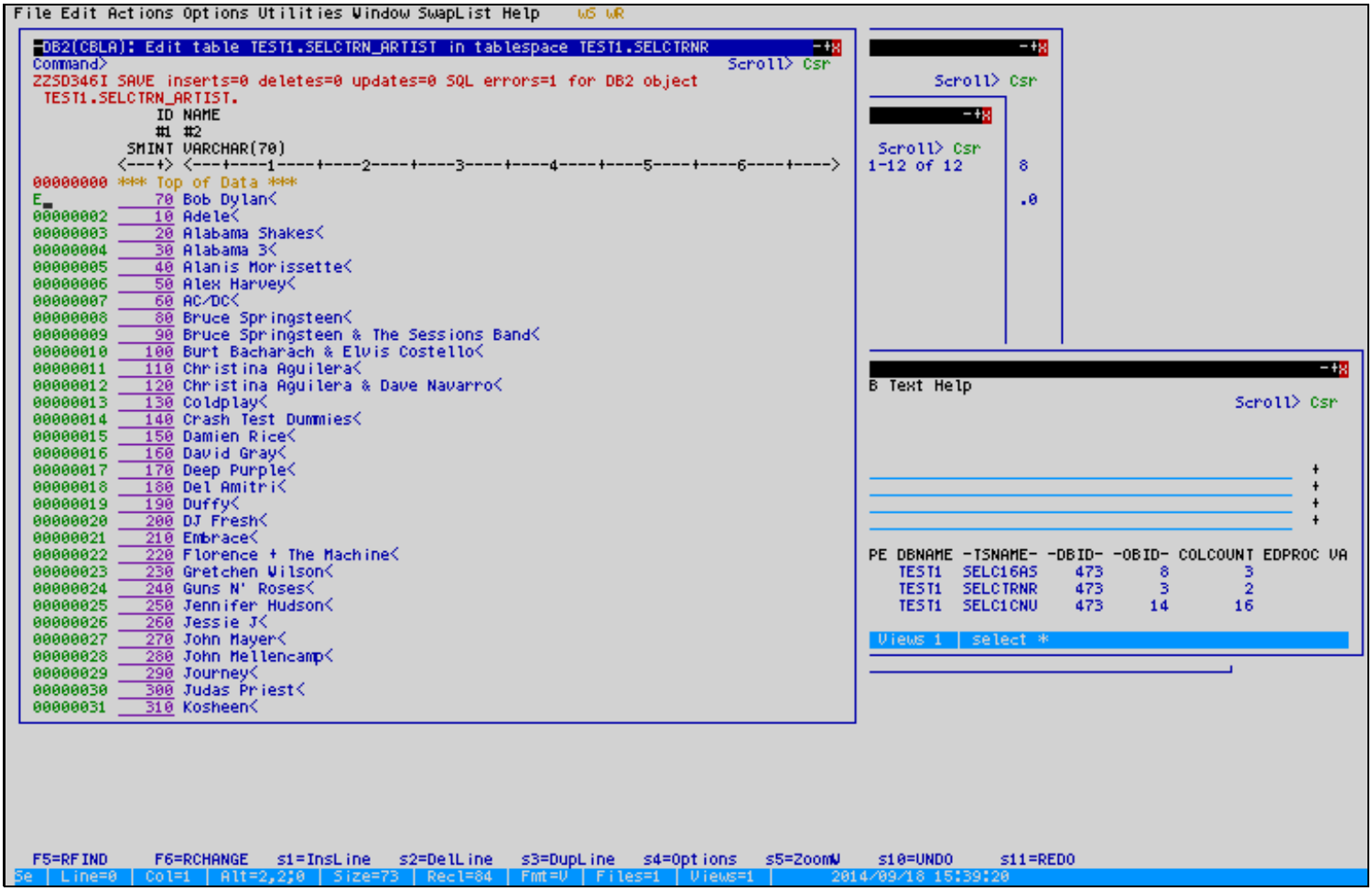


Figure 201. FileKit DB2 Figure 24

The "DB2 Save SQL Error" dialog

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 oppurtunity to correct the violation using the **Related Table Edit (REDIT)** feature.

- Enter **"R"** in the **"Action>"** field to start **Related Table edit**.

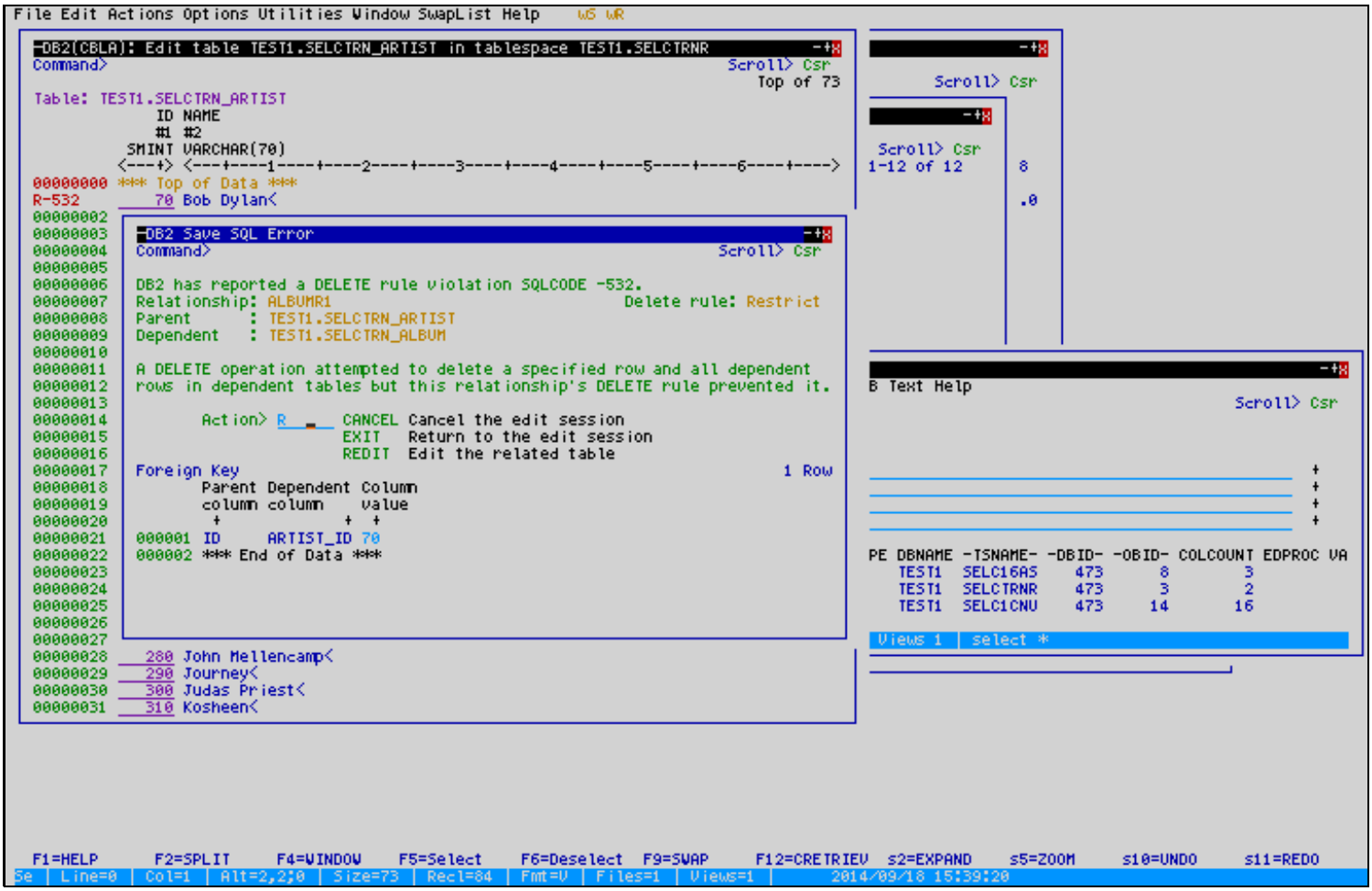


Figure 202. FileKit DB2 Figure 25

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"**.

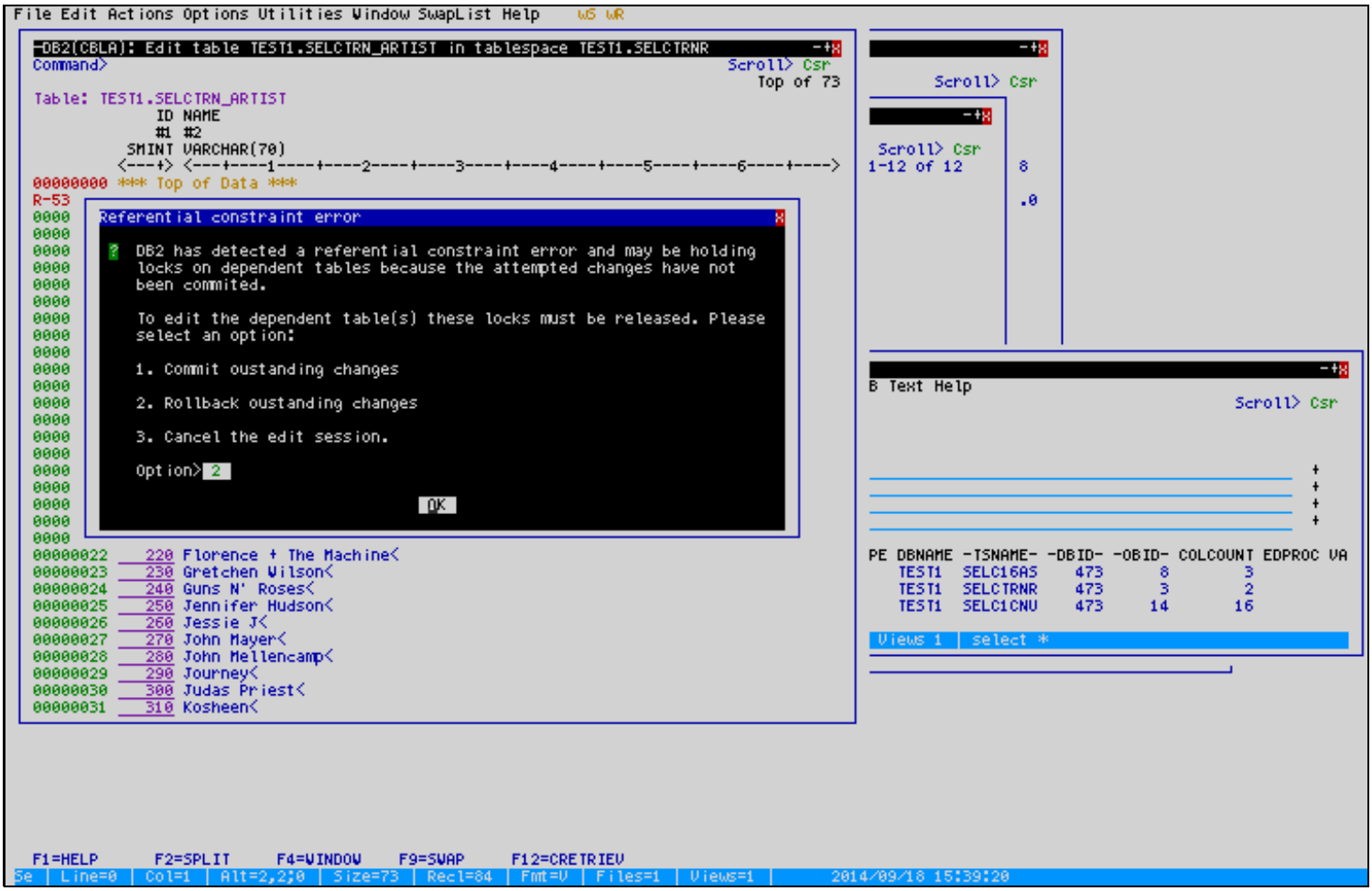


Figure 203. FileKit DB2 Figure 26

Edit Dependent Table (1)

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 existance 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 **"Action>"** field to start **Related Table edit**.

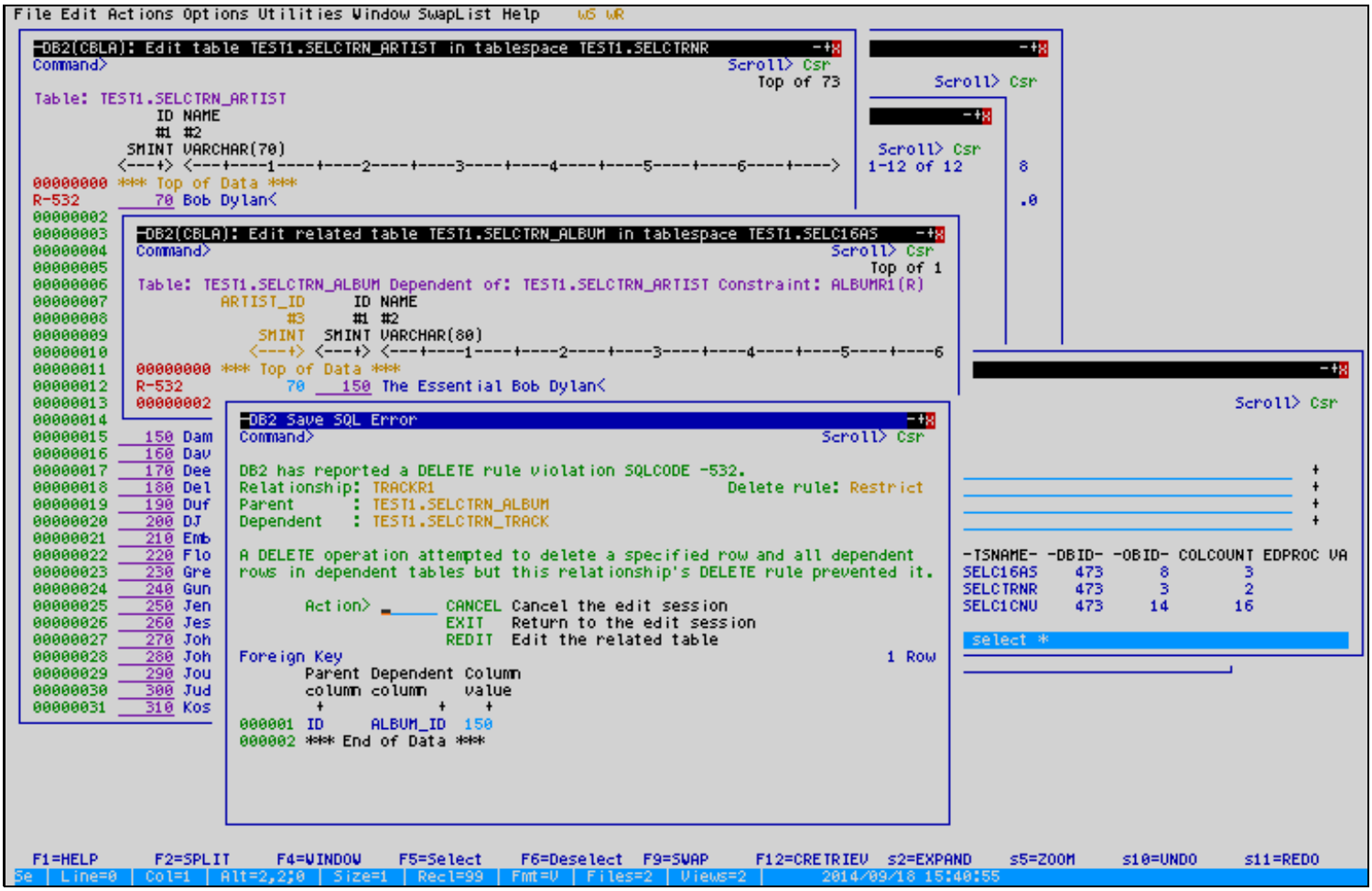


Figure 204. FileKit DB2 Figure 27

Edit Dependent Table (2)

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.

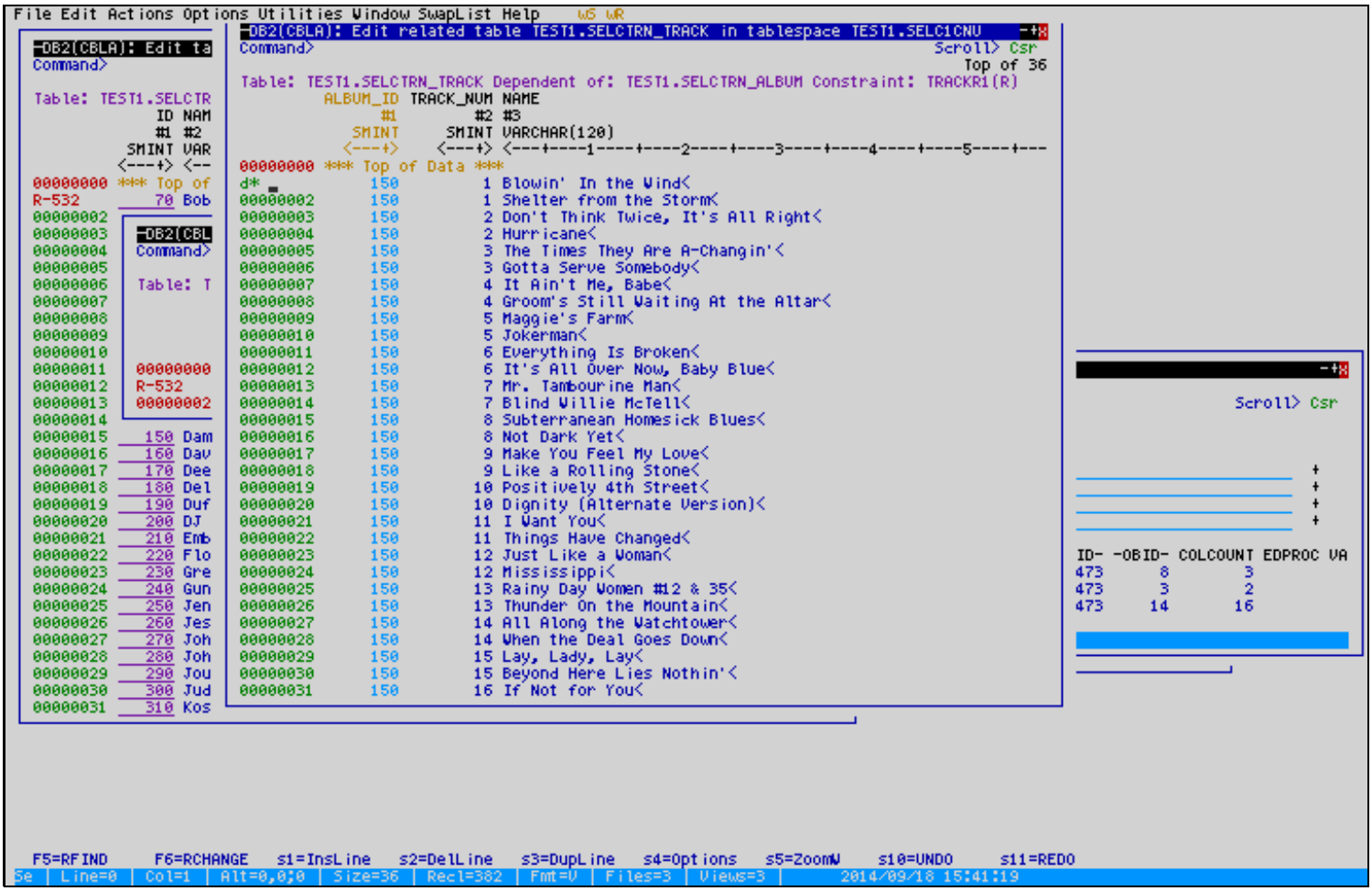


Figure 205. FileKit DB2 Figure 28

Edit Dependent Table (3)

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.

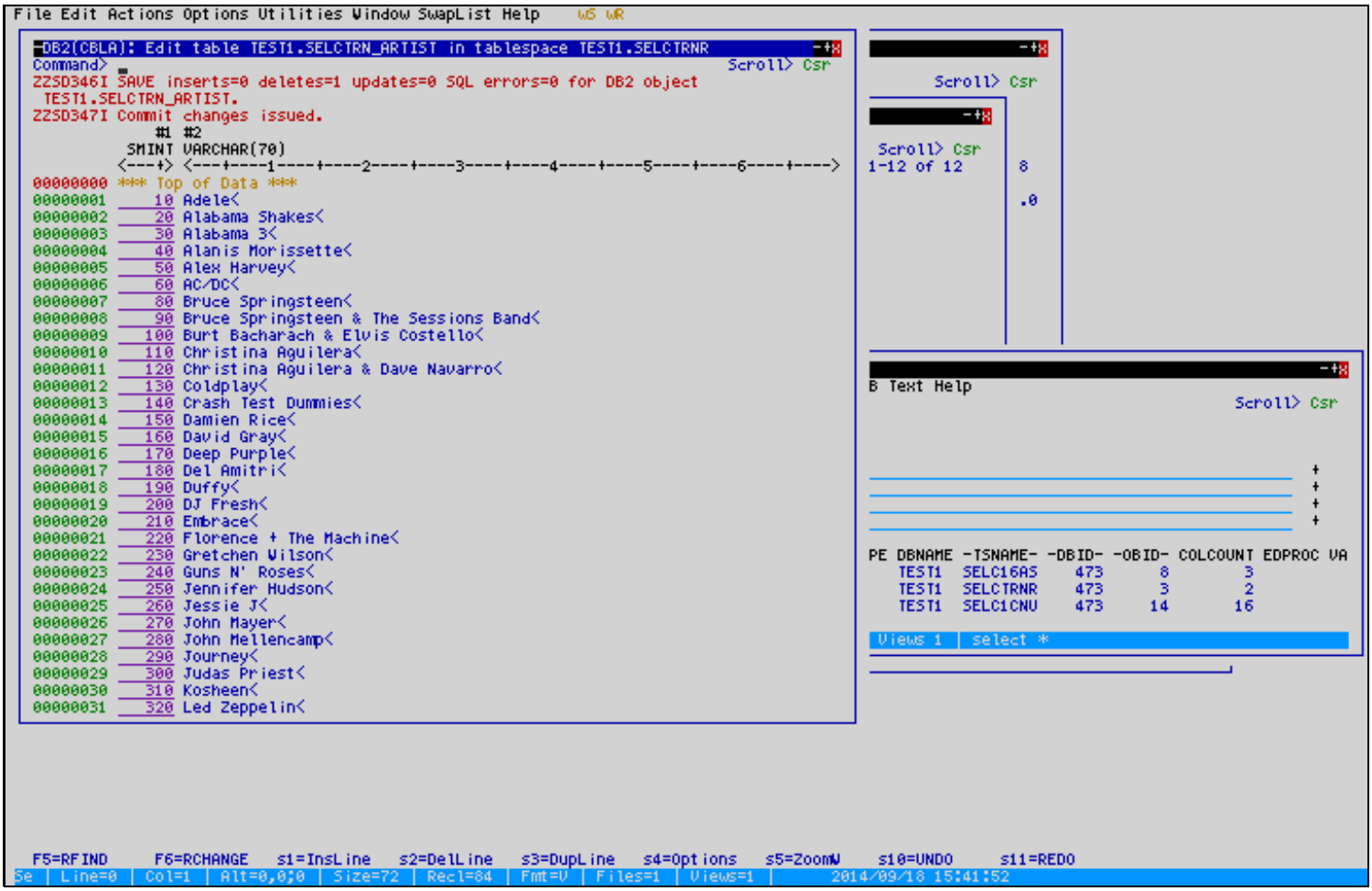


Figure 206. FileKit DB2 Figure 29

DB2 Help Pages

Further DB2 specific information is available by pressing the **HELP** key (**F1**).

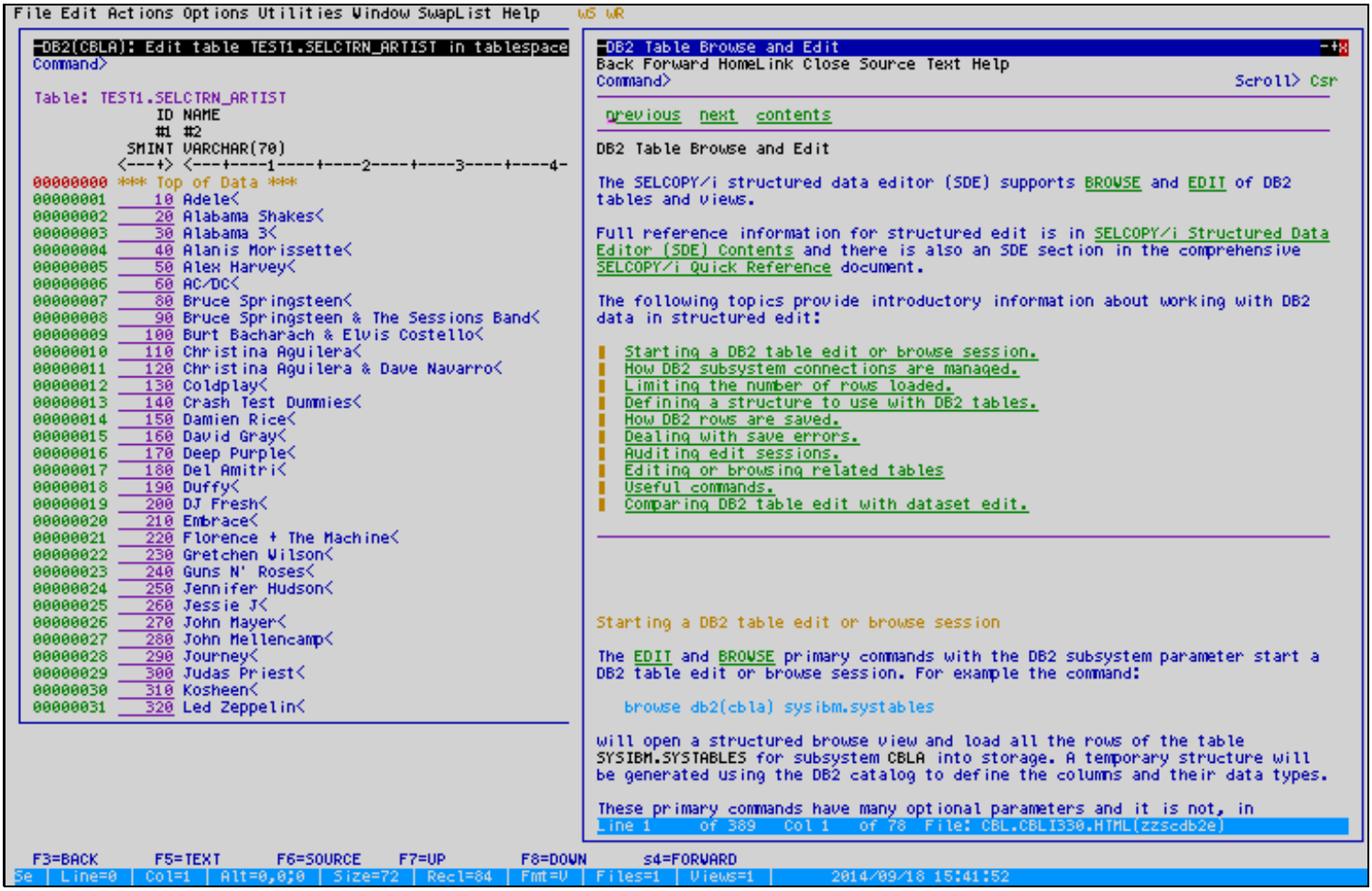


Figure 207. FileKit DB2 Figure 30

Related Tables Help

The hyperlink for **"Editing or browsing related tables"** provides some handy background and tips.

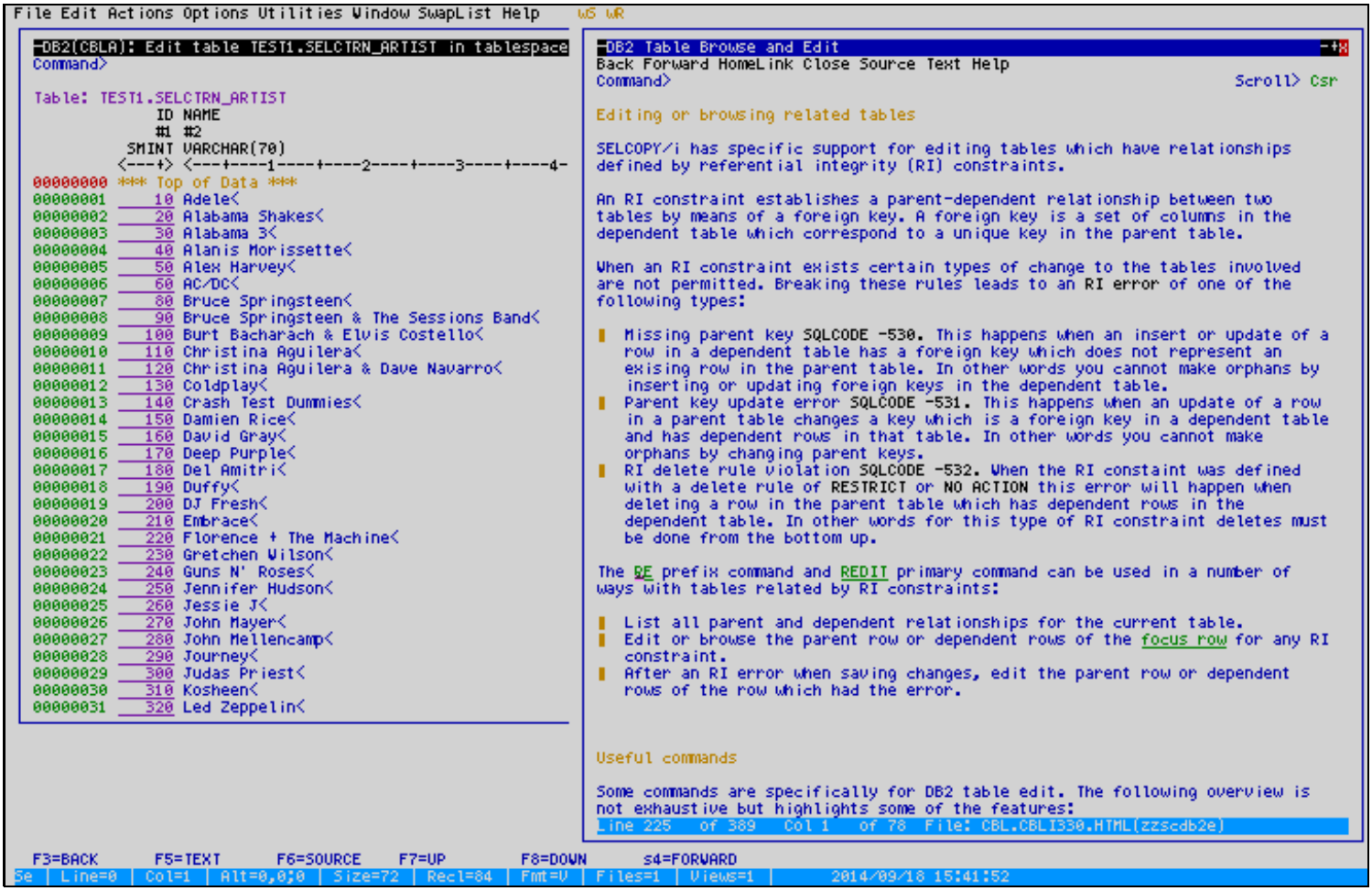


Figure 208. FileKit DB2 Figure 31

REDIT Example (1)

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**.

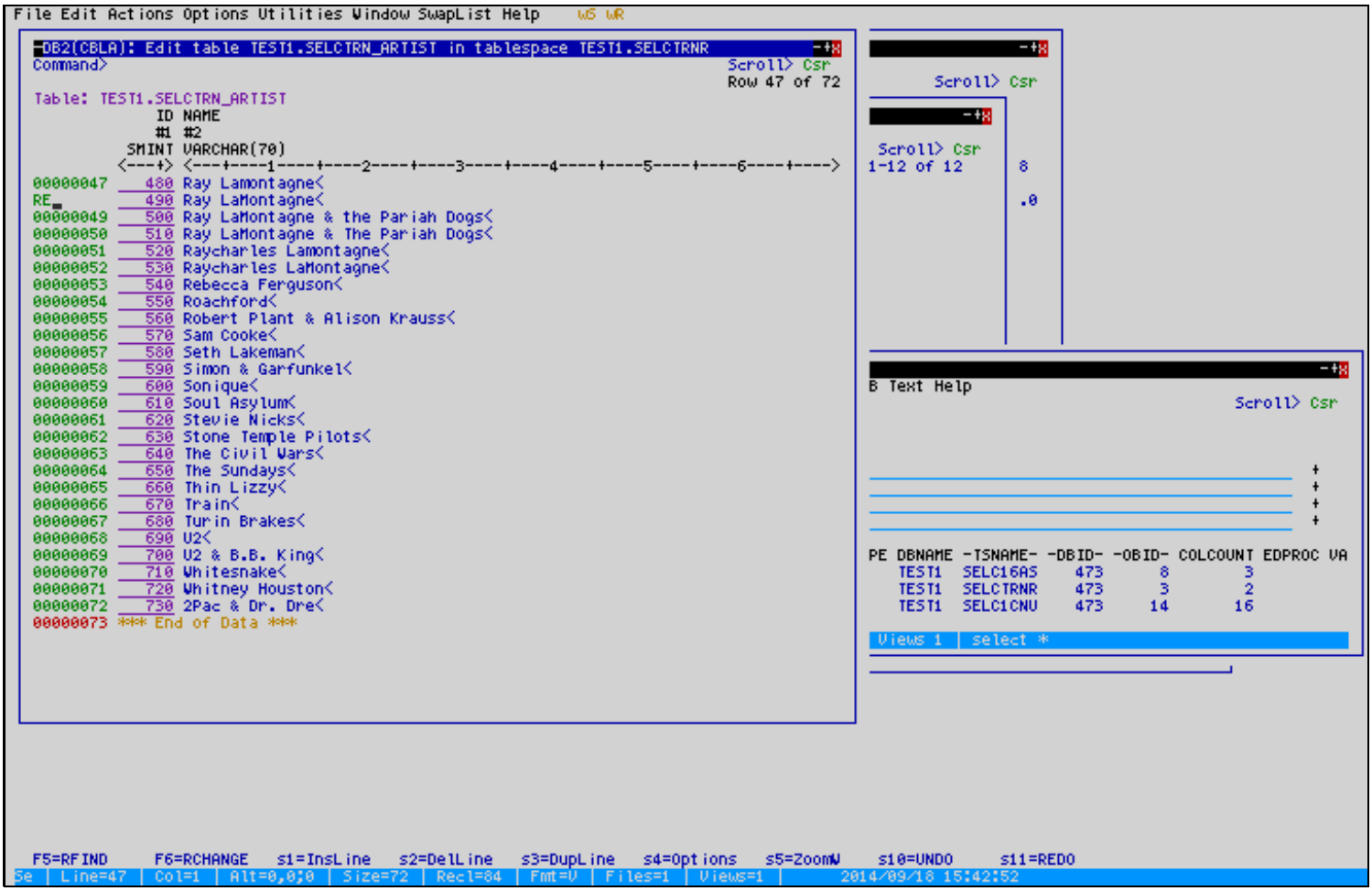


Figure 209. FileKit DB2 Figure 32

REDIT Example (2)

- 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.

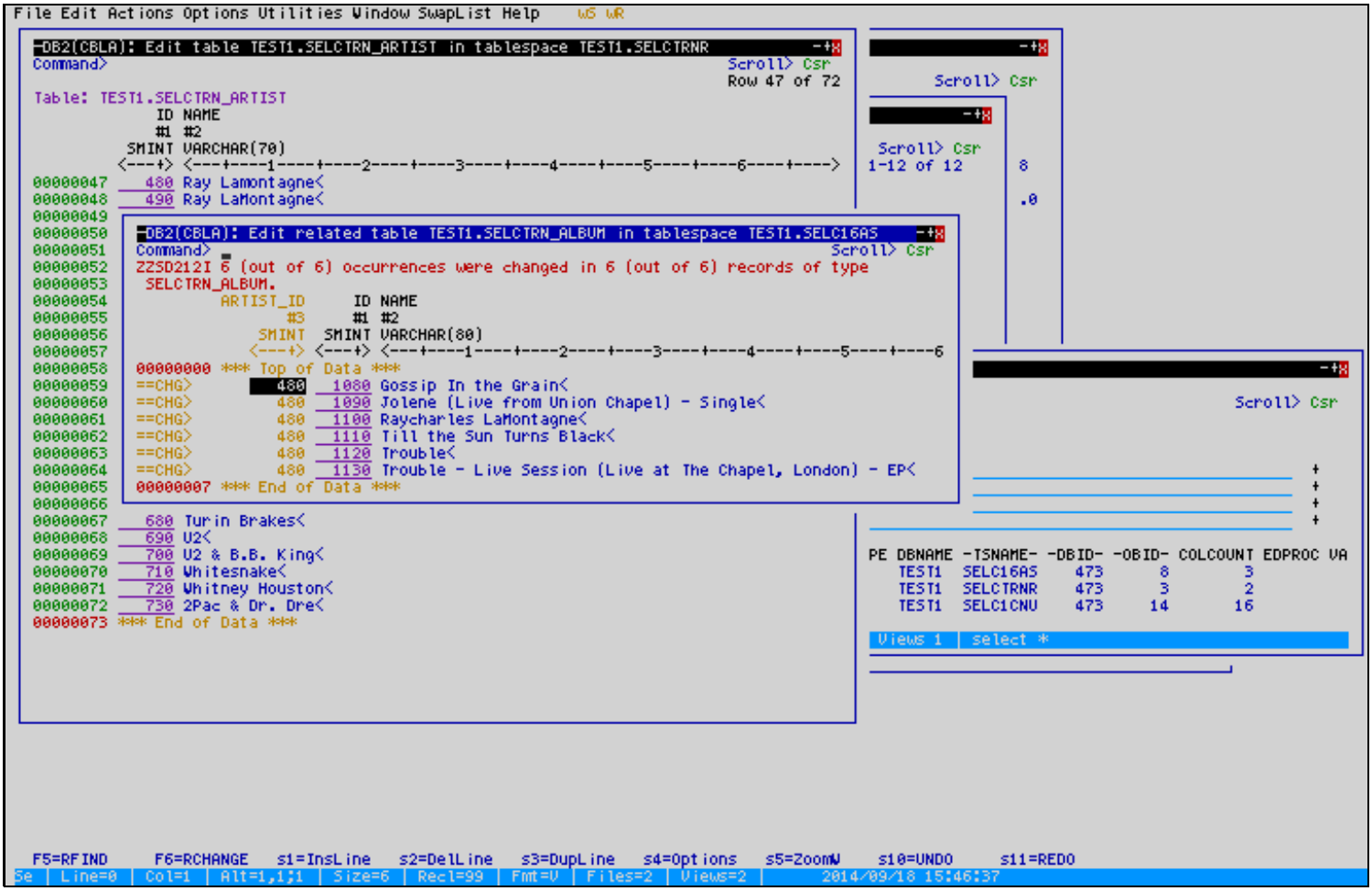


Figure 210. FileKit DB2 Figure 33

REDIT Example (3)

We can now delete **(ARTIST_ID=490)**, save and exit without error.

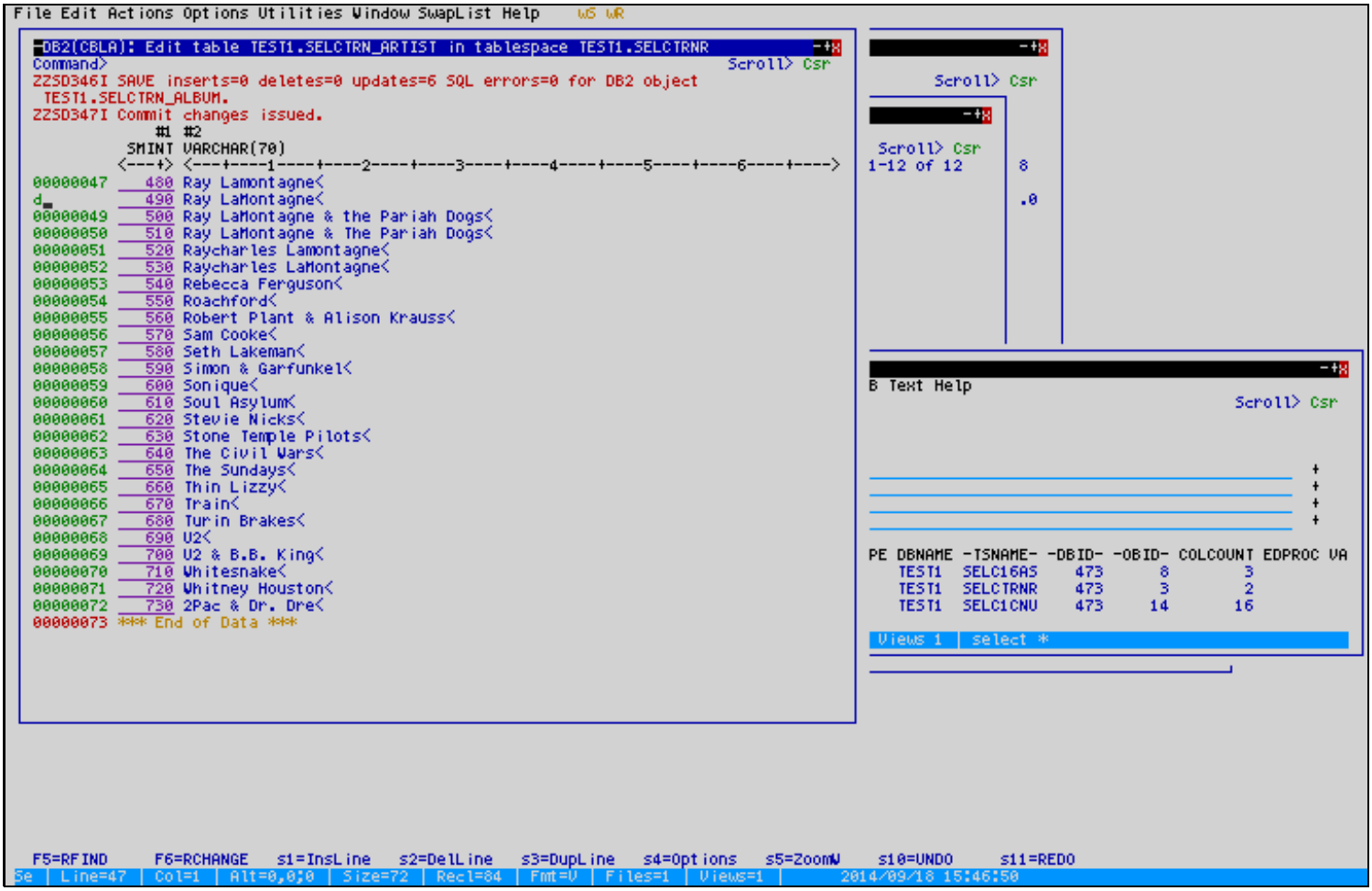


Figure 211. FileKit DB2 Figure 34