Advanced Technical Support

System z Solutions for Application Abend, Edit, Debug, Testing and Tuning

What's New in Version 7, September 12, 2006

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WebSphere. software

Rational. software

Agenda

Overview of the Application Development Tools

Overview of Problem Determination Tools

- **File Manager V7 – What's New**
- **Fault Analyzer V7 – What's New**
- **Debug Tool UAF V7 – What's New**
- **Application Performance Analyzer V7 – What's New**

Summary of Tools

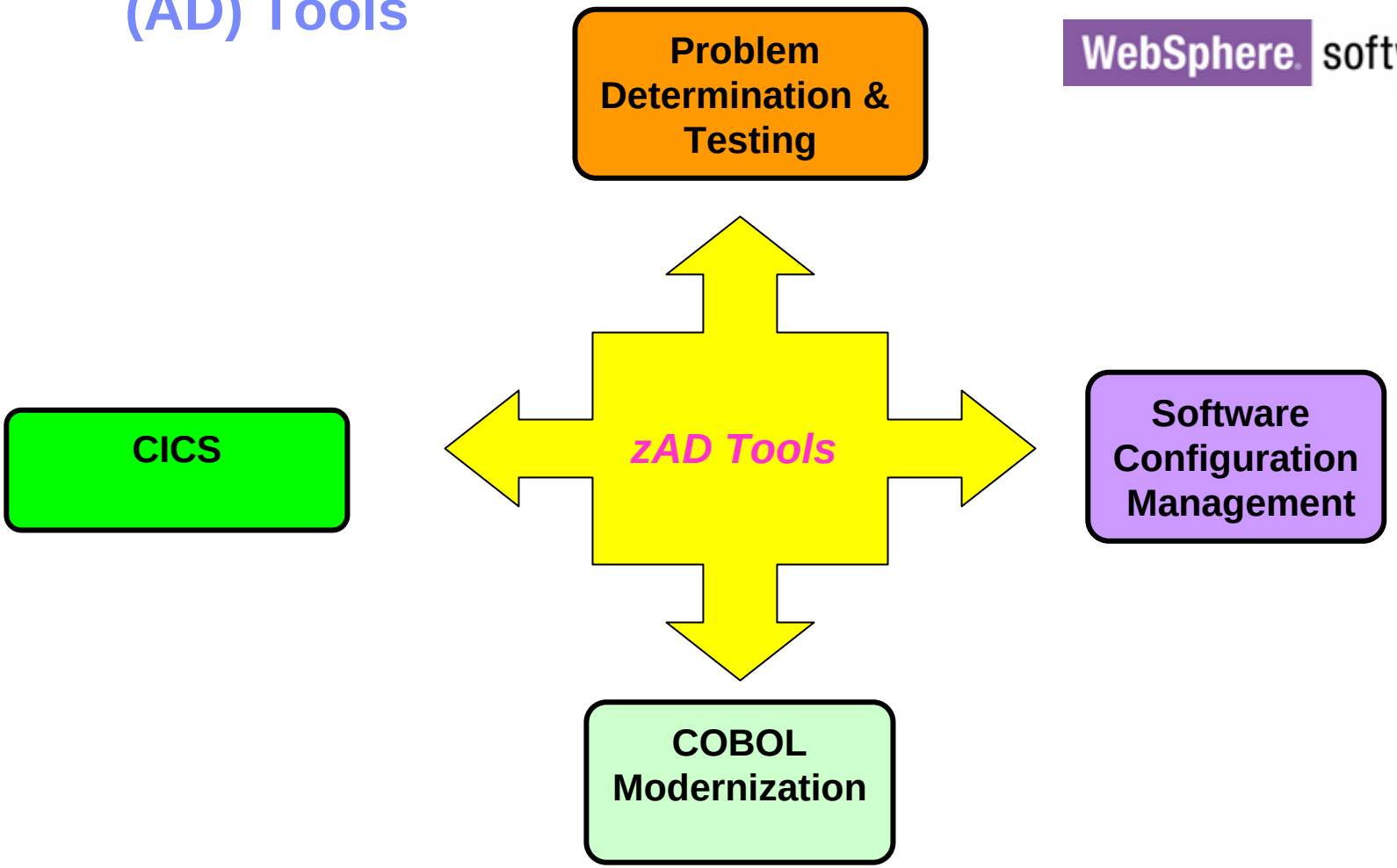
Polling Questions

Question & Answer session

System z IBM Application Development (AD) Tools

Rational. software

WebSphere. software



System z IBM Application Development

Application Reuse / Data Migration

- CICS Business Event Publisher for MQ
- CICS VSAM Transparency

Application / Performance Management

- Application Performance Analyzer
- CICS Performance Analyzer

Operational Efficiency

- CICS OTTO
- IBM Session Manager
- CICS Batch Application Control

Resource Recovery

- CICS VSAM Recovery
- CICS VSAM Copy

COBOL Modernization

- Debug Tool Utilities Adv Funct
- Migration Utility
- IBM Rational COBOL Generation Extension for zSeries
- IBM Rational COBOL Runtime for zSeries

Software Configuration Management

- SCLM Advanced Edition
- Rational ClearCase
- Rational ClearQuest

Test, Deploy, Manage Data Environment

- Fault Analyzer
- File Manager
- File Export
- Debug Tool Utilities Adv Funct
- WDDz
- ISPF Productivity Tool
- Application Time Facility

CICS V2V

- CICS Interdependency Analyzer
- CICS Configuration Analyzer
- CICS Performance Analyzer

Testing

- Workload Simulator
- Rational Performance Tester z/OS
- Rational Functional Tester Terminal Based Apps

Core COBOL, PI1, Assembler, C++, DB2, IMS, CICS, MQ, WASz Applications

IBM Problem Determination and z Rational Tools

File Manager for z/OS

- Data management tool supporting key file structures like VSAM, DB2, CICS, and IMS

Fault Analyzer for z/OS

- Helps you rapidly pinpoint cause of failed application (abends)

Debug Tool Utilities & Advanced Functions for z/OS

- Source code debugging to improve development productivity

Application Performance Analyzer

- Monitor performance at the application level

Workload Simulator for z/OS and OS/390

- Regression and Load testing of interactive z/OS applications

IBM Problem Determination and z Rational Tools

Rational Function Tester Extension

- Workstation-based regression testing of interactive z/OS applications

Rational Performance Tester for z/OS

- Harnesses the power of z/OS to validate web application scalability *before* deployment

File Export for z/OS

- Export and import related sets of DB2, IMS, VSAM and sequential data

Application Time Facility

- Enables date/time simulation in the mainframe environment

IBM ISPF Productivity Tool Version 5.8 (Spiffy)

- Turbo charge ISPF users

PD Tools

IBM 2006 OFFERINGS

IMS V10
DB2 V9
CICS TSV3.1

Fault Analyzer V7

WASz

File Manager V7

File Export

WDDz

Debug Tool Utilities AF V7

COBOL Modernization

Application Time Facility

ISPF Productivity Tool

Workload Simulator
Rational Functional Tester Ext
Rational Performance Tester z/OS

WASz

Application Performance Analyzer (APA) V7

E2E Performance

IBM File Manager

IBM File Manager for z/OS

Use it to:

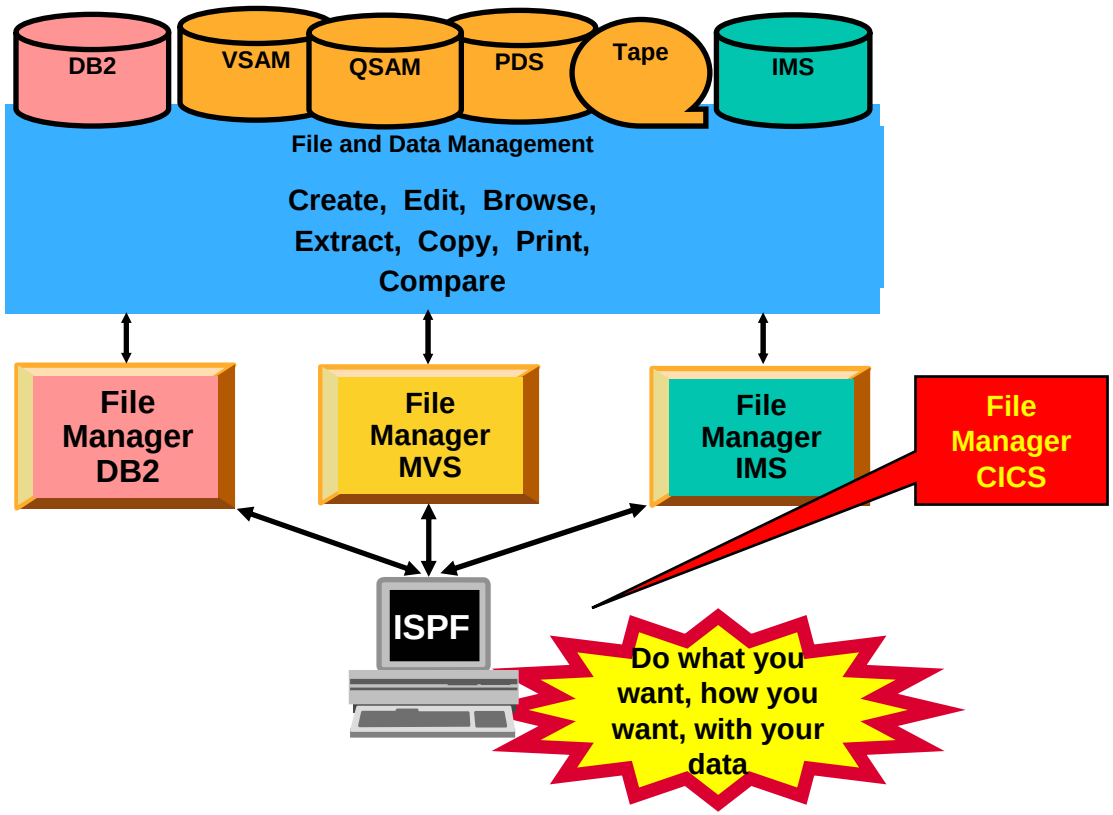
- Work with data in VSAM, QSAM, PDS, DB2, CICS and IMS Browse and edit data directly
- Easily copy, modify, reformat, and compare data
- File Manager CICS Support

Key Features:

- Advanced data Edit and Browse
  - Uses familiar ISPF edit commands
  - Powerful data formatting and selection capabilities
- A robust set of utilities to create, copy, find, compare, and modify data
- Work with data in friendly formats
  - Use a copybook or user-defined “template” to format records

No limit to file size!

File Manager Functional Overview
File Manager is delivered as one product with four components ---- MVS, DB2, IMS and CICS



- **File Manager Features:**
  - Work with data in files, DB2 tables and IMS databases and files open to CICS
  - ISPF-like Panels
  - Full Function Browse And Edit
  - Multiple Modes Of Edit And Browse
    - Table
    - Single
  - Flexible Selection Criteria
  - Copy
  - File Reformatting
  - Global Search And Updated Capability
  - Print
  - Compare
  - No file limit size!

File Manager V7 Key New Functions

FILE MANAGER FOR CICS

- File Manager for CICS provides File Manager access to CICS resources under a CICS transaction. The CICS resources supported for Browse, Edit and certain File Manager utilities are:
  - VSAM files
  - Temporary Storage Queues
  - Transient Data Queues

XML Generation

- File Manager V7 allows the generation of XML data from files. The XML tags are generated based on the field names from the template, and the XML content comes from the data. A number of options are available for the handling of invalid and unprintable data.

File Manager V7 Key New Functions

SUPPORT FOR IBM HARDWARE AND SOFTWARE

- Supports large DASD volumes (of greater than 64K blocks)
- Supports the large block interface (LBI) for tape devices
- Supports extended sequential data sets
- Support for DB2 V9
- Support for IMS V10

File Manager V7 Key New Functions

File Manager MVS edit and browse enhancements

- A new alphanumeric HEX data type (AX), is added to the File Manager Base template support.

File Manager MVS Utility enhancements

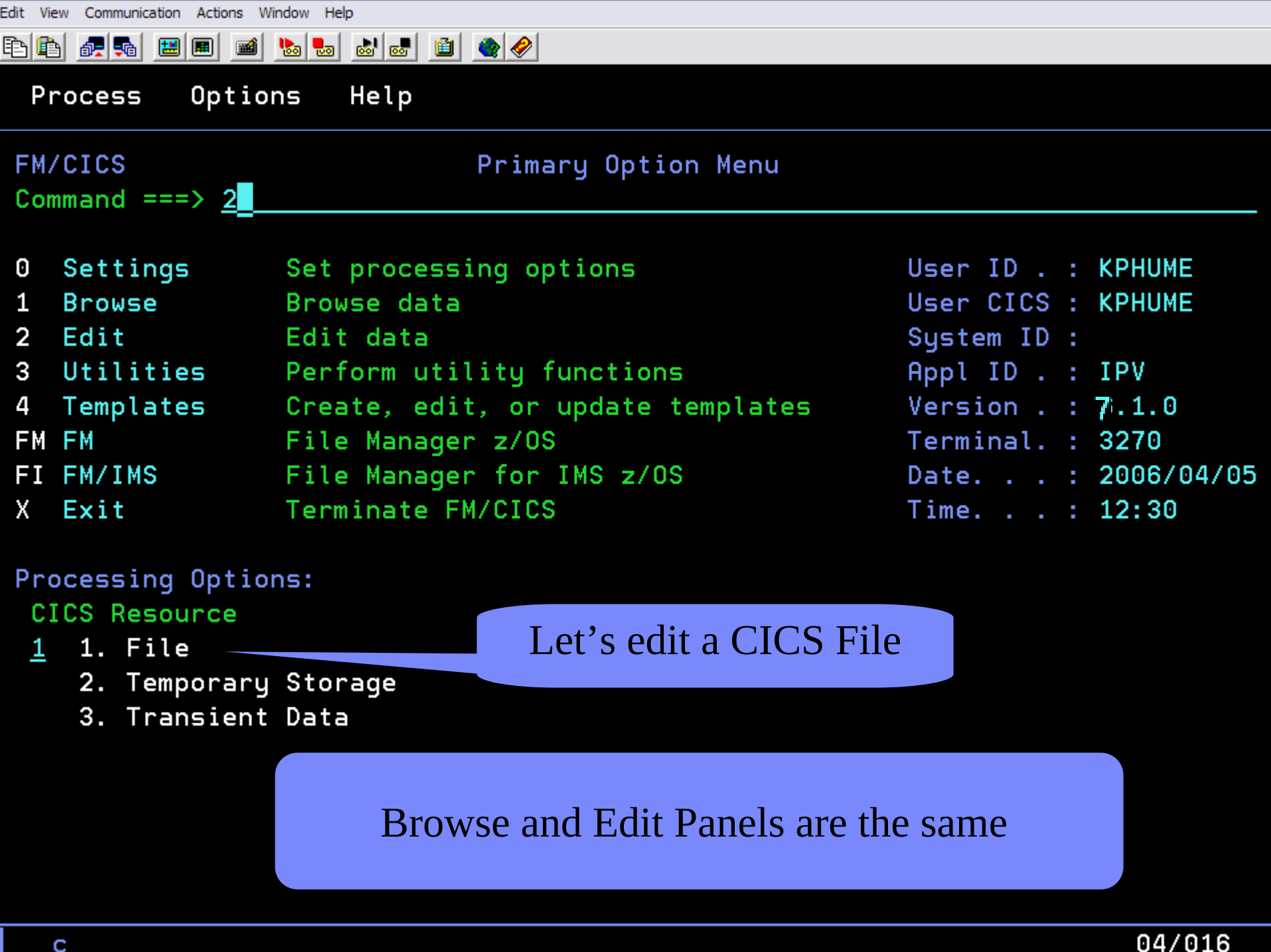
- Data Set Compare (DSM) utility allows records to be written to multiple output data sets and includes an option to stop Compare utility processing after a user specified number of differences is found.
- Catalog Services (SCS) utility panel allows the building of alternate VSAM indexes.

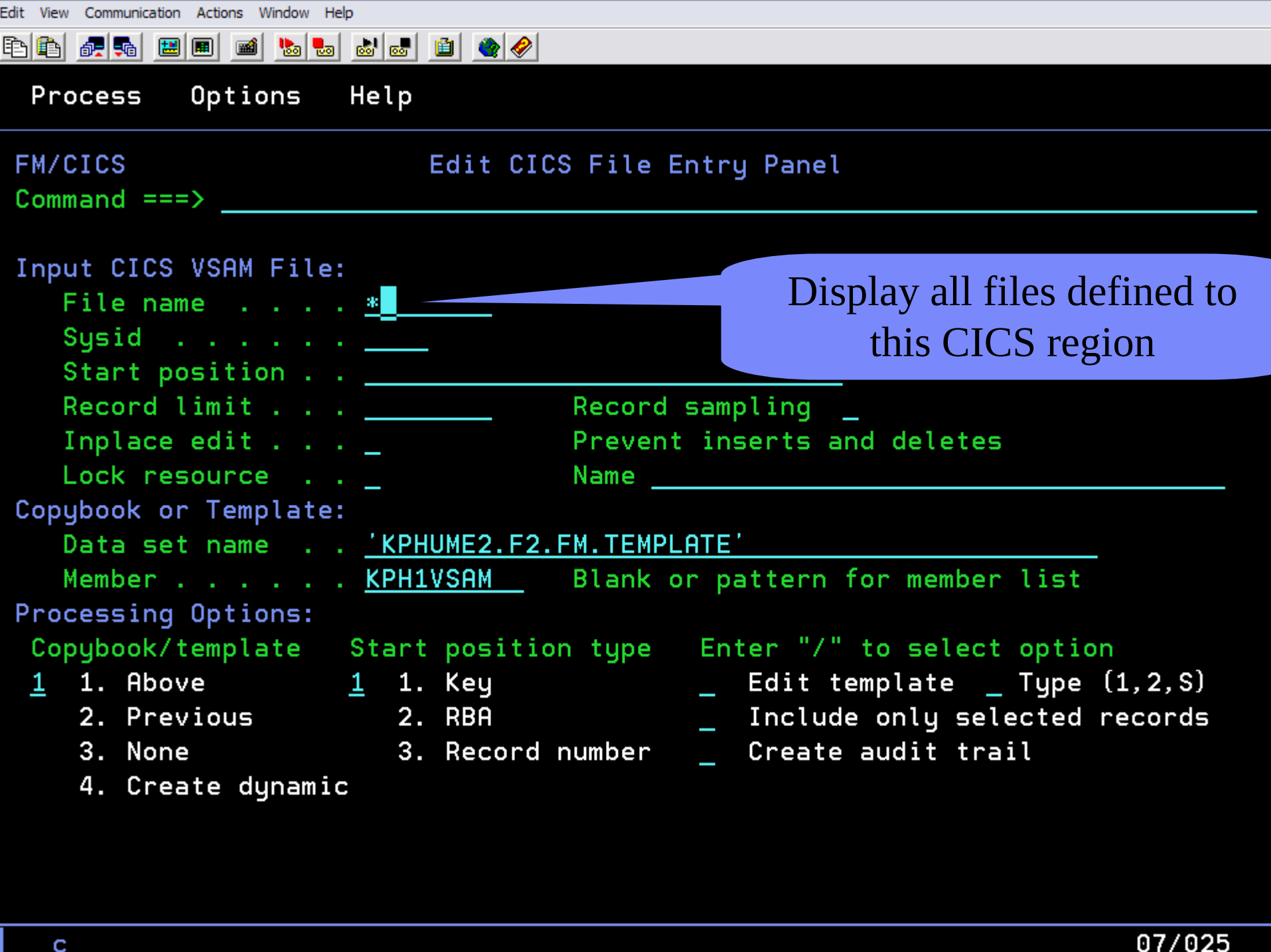
File Manager V7 Key New Functions

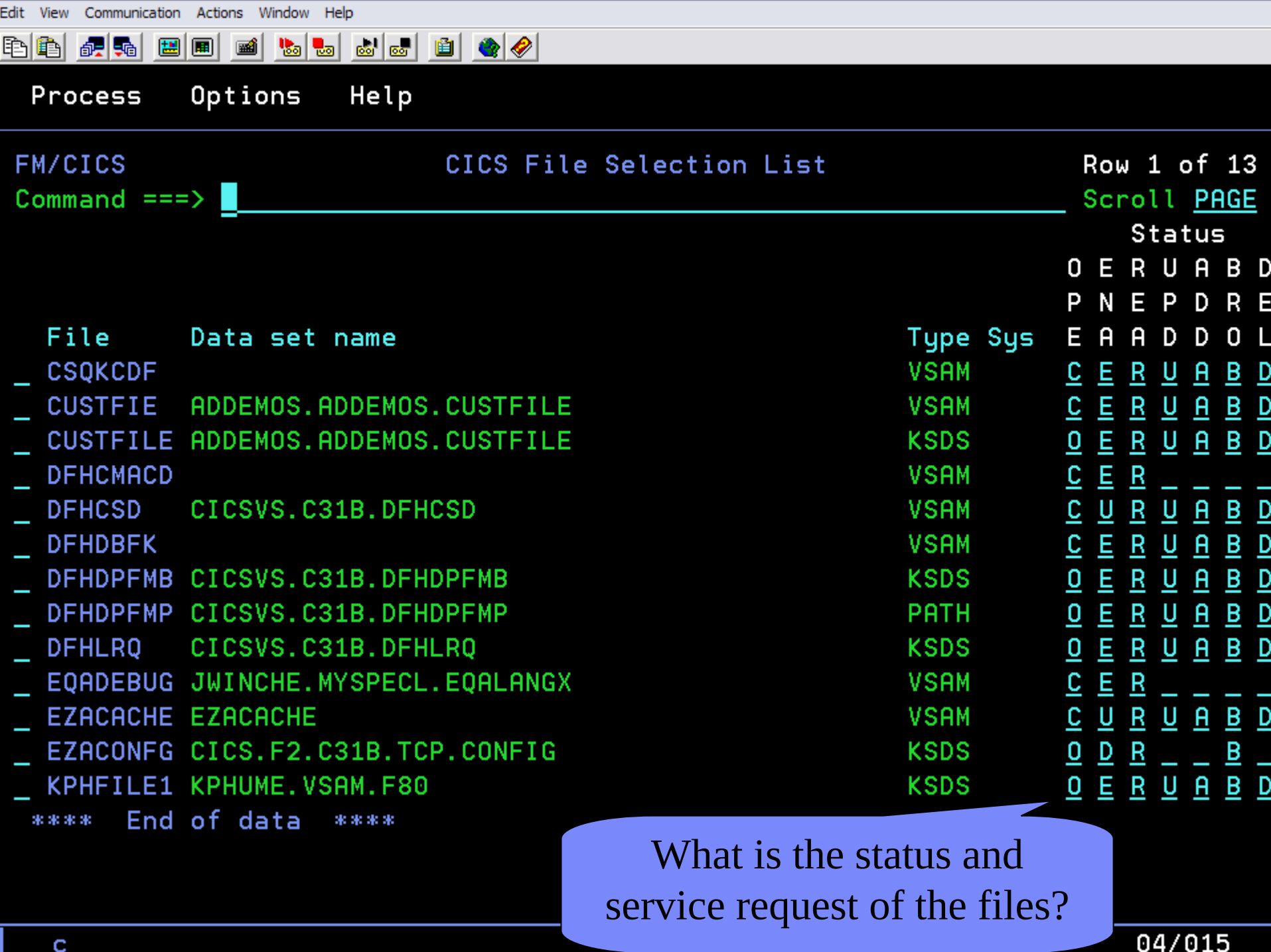
Segmented record support enhancements

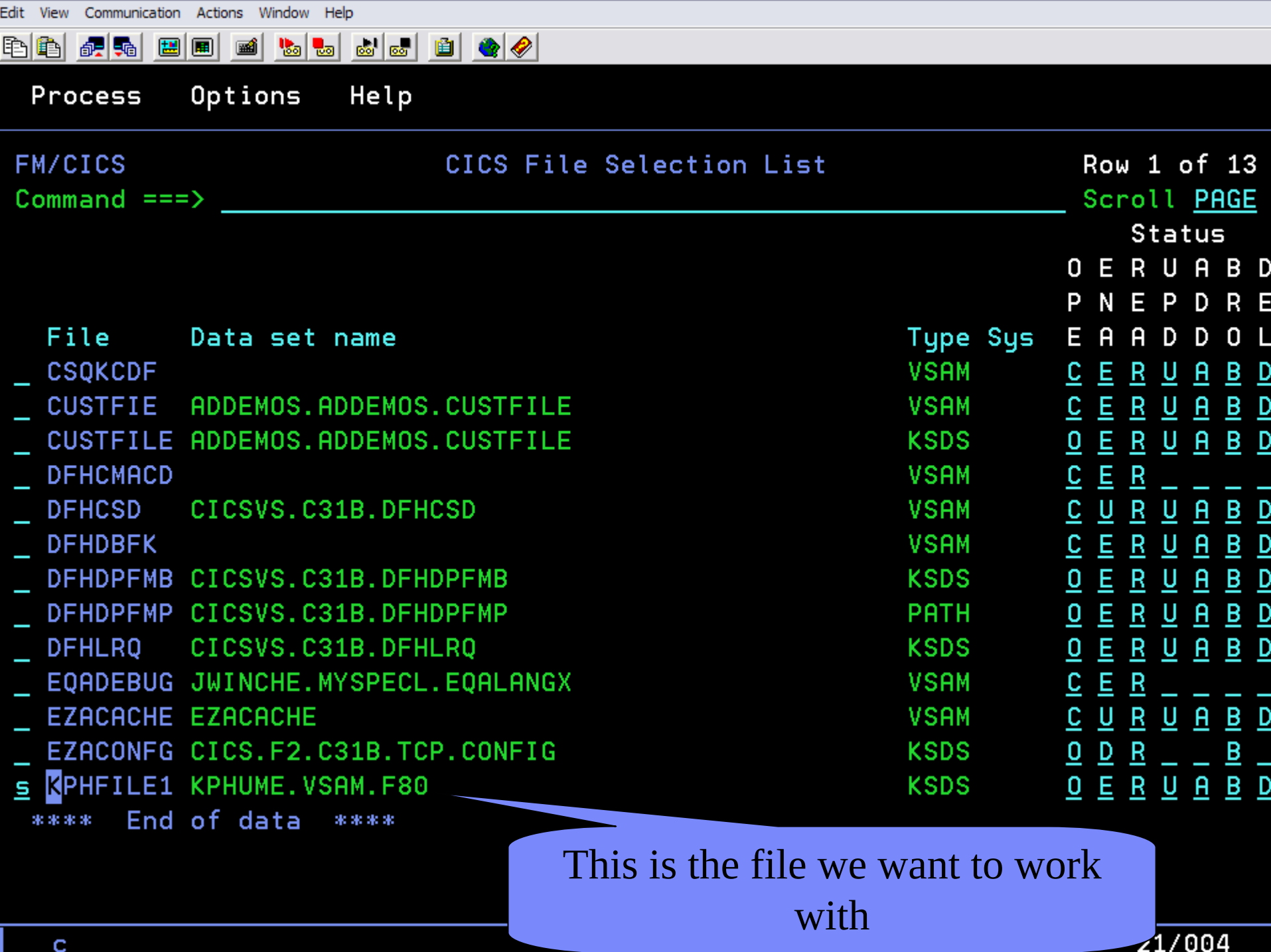
- **Type of a segment can be identified using not only data in the current segment but also using data in segments preceding the current segment in the physical record.**

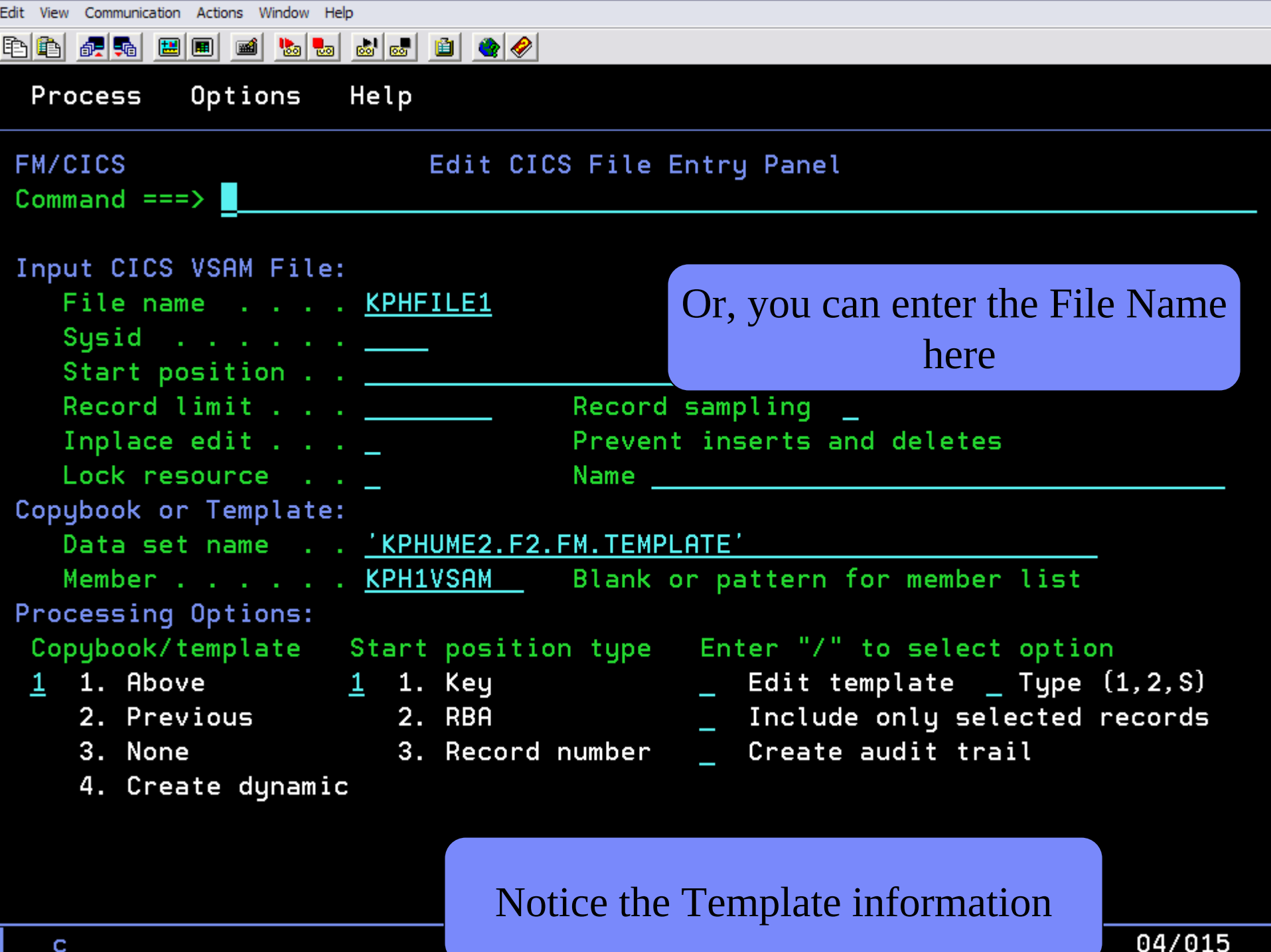
Using IBM File Manager CICS

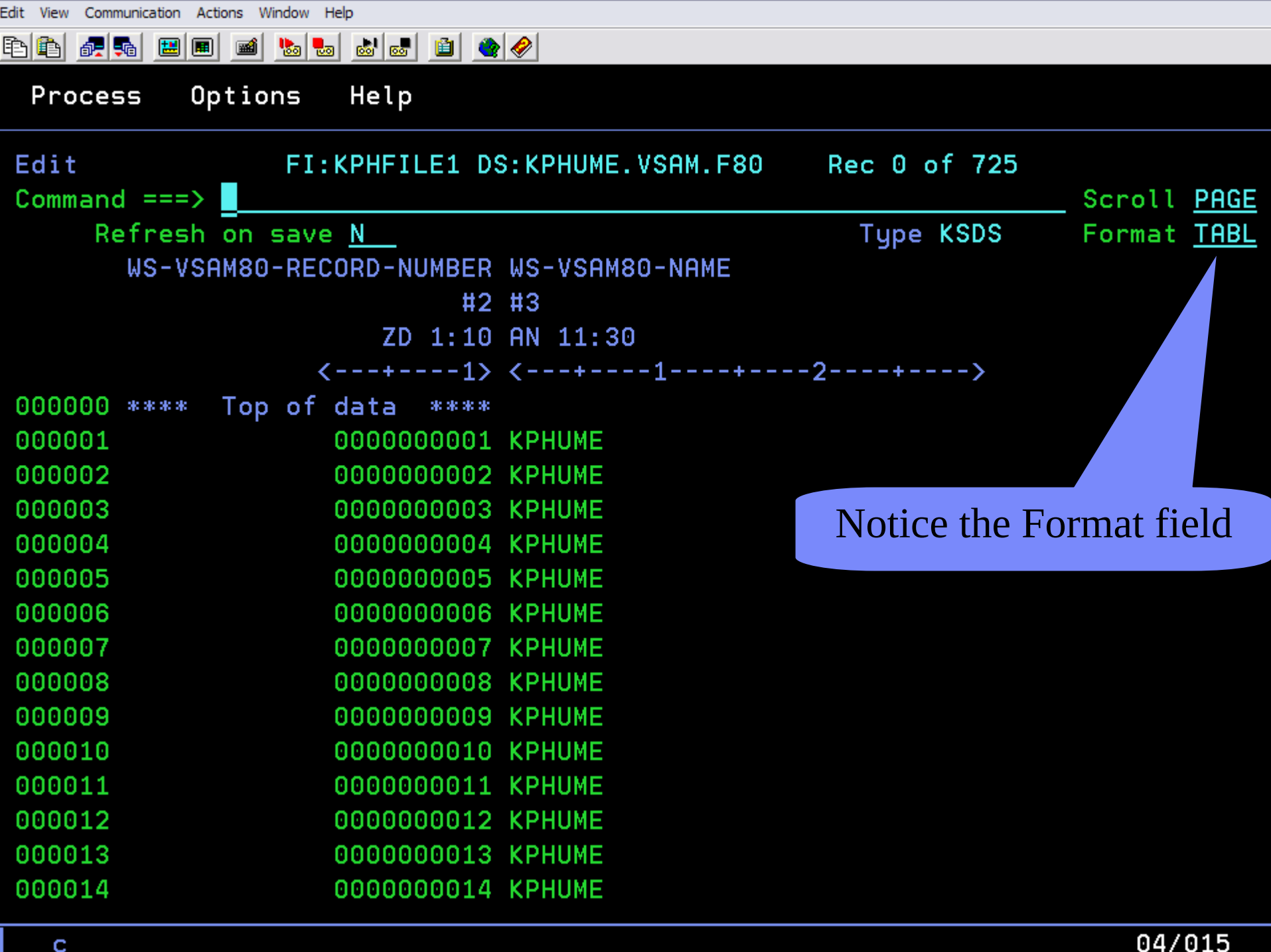

Edit View Communication Actions Window Help
Process Options Help
FM/CICS Primary Option Menu
Command ===> 2
0 Settings Set processing options
1 Browse Browse data
2 Edit Edit data
3 Utilities Perform utility functions
4 Templates Create, edit, or update templates
FM FM File Manager z/OS
FI FM/IMS File Manager for IMS z/OS
X Exit Terminate FM/CICS
User ID . : KPHUME
User CICS : KPHUME
System ID :
Appl ID . : IPV
Version . : 7.1.0
Terminal. : 3270
Date. . . : 2006/04/05
Time. . . : 12:30
Processing Options:
CICS Resource
1 1. File
2. Temporary Storage
3. Transient Data
Let’s edit a CICS File
Browse and Edit Panels are the same
04/016

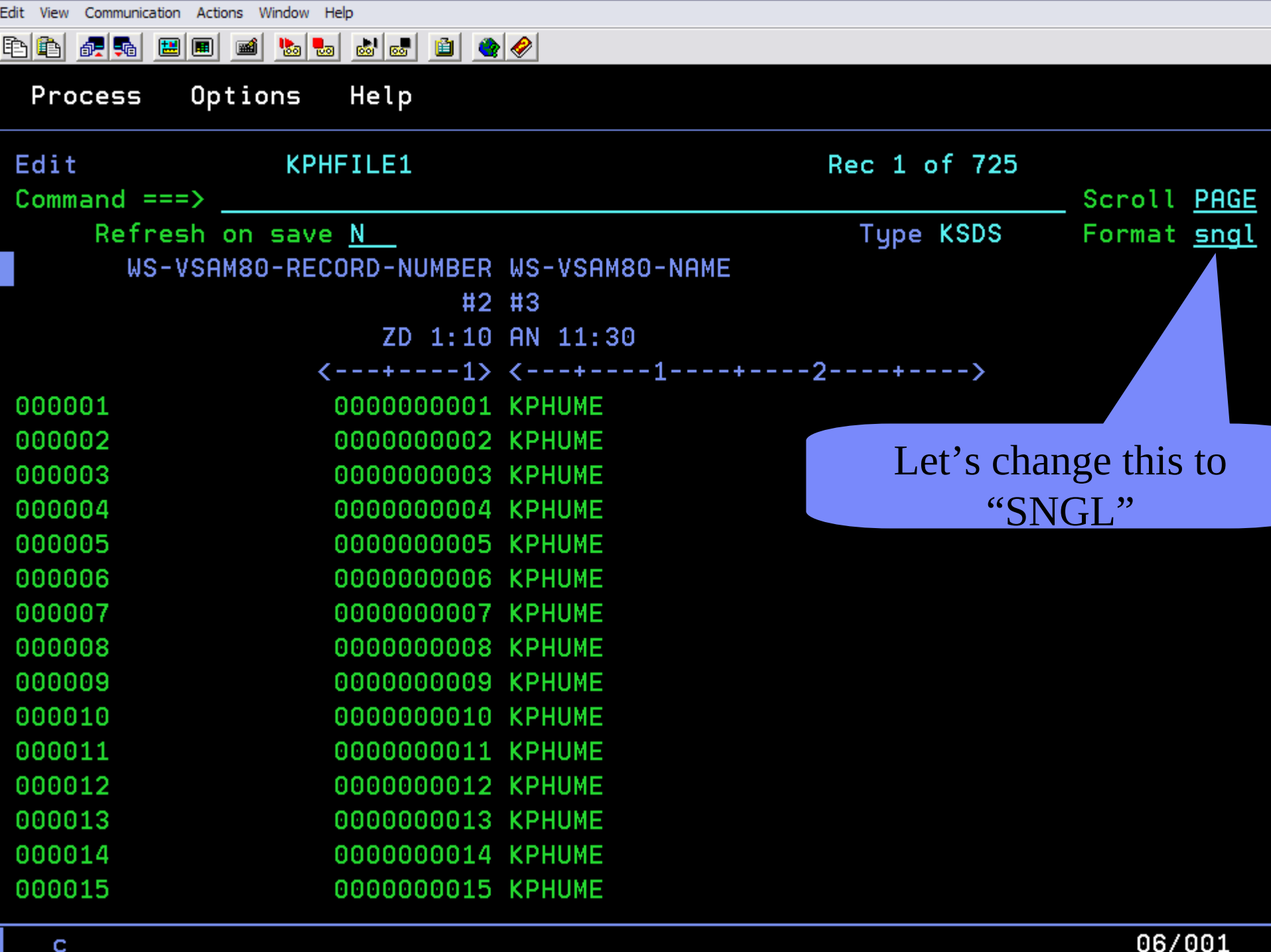

Edit View Communication Actions Window Help
Process Options Help
FM/CICS Edit CICS File Entry Panel
Command ===>
Input CICS VSAM File:
File name . . . . . *
Sysid . . . . . .
Start position . .
Record limit . . .
Record sampling _
Inplace edit . . . _
Prevent inserts and deletes
Lock resource . . _
Name
Copybook or Template:
Data set name . . 'KPHUME2.F2.FM.TEMPLATE'
Member KPH1VSAM
Blank or pattern for member list
Processing Options:
Copybook/template
1 1. Above
2. Previous
3. None
4. Create dynamic
Start position type
1 1. Key
2. RBA
3. Record number
Enter "/" to select option
_ Edit template _ Type (1,2,S)
_ Include only selected records
_ Create audit trail
Display all files defined to this CICS region
07/025

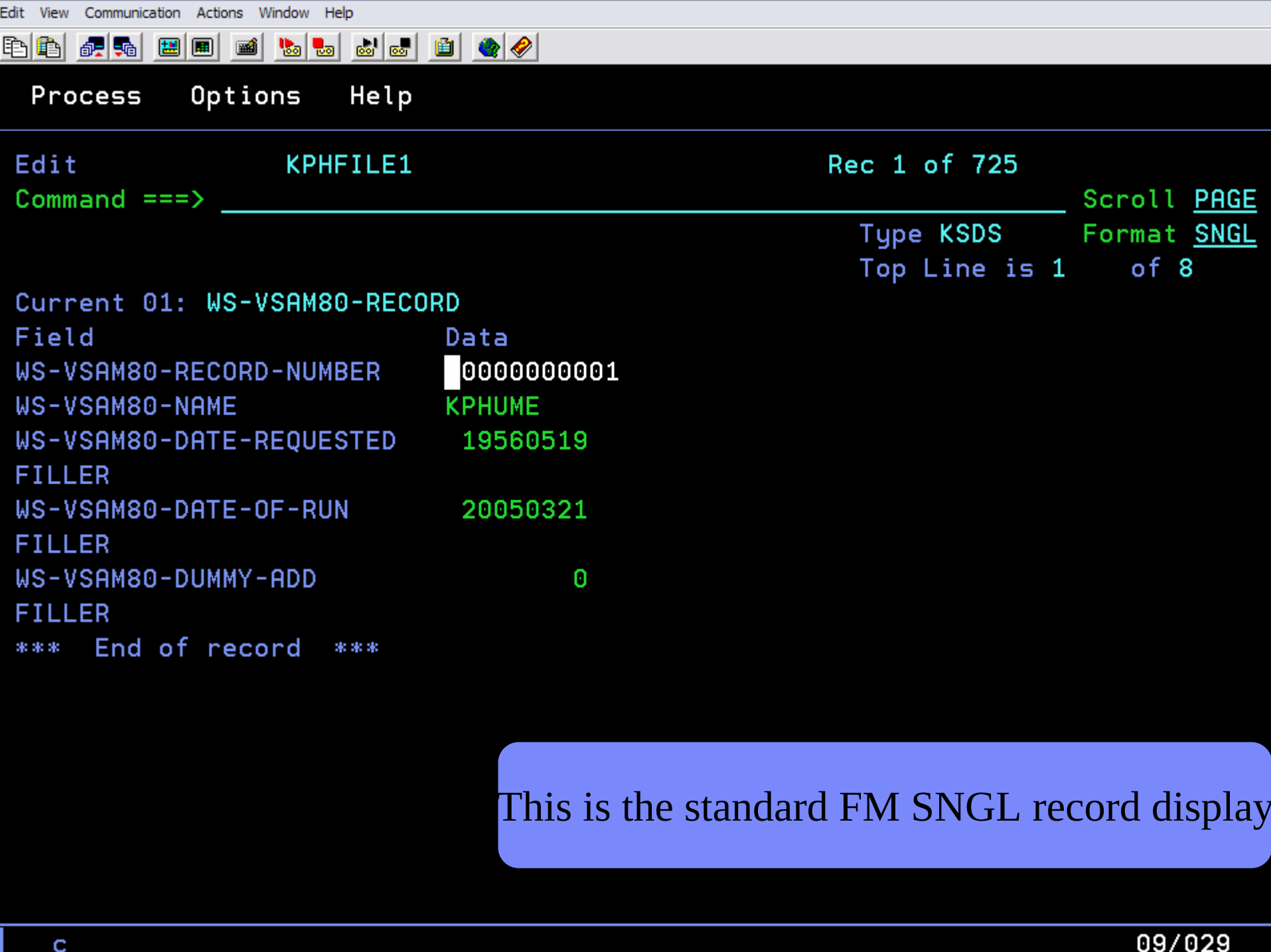

Edit View Communication Actions Window Help
Process Options Help
FM/CICS CICS File Selection List Row 1 of 13
Command ===> Scroll PAGE
Status
O E R U A B D
P N E P D R E
File Data set name Type Sys E A A D D O L
_ CSQKCDF VSAM C E R U A B D
_ CUSTFIE ADDEMOS.ADDEMOS.CUSTFILE VSAM C E R U A B D
_ CUSTFILE ADDEMOS.ADDEMOS.CUSTFILE KSDS O E R U A B D
_ DFHCMACD VSAM C E R _ _ _ _
_ DFHCSD CICSVS.C31B.DFHCSD VSAM C U R U A B D
_ DFHDBFK VSAM C E R U A B D
_ DFHDPFMB CICSVS.C31B.DFHDPFMB KSDS O E R U A B D
_ DFHDPFMP CICSVS.C31B.DFHDPFMP PATH O E R U A B D
_ DFHLRQ CICSVS.C31B.DFHLRQ KSDS O E R U A B D
_ EQADEBUG JWINCHE.MYSPECL.EQALANGX VSAM C E R _ _ _ _
_ EZACACHE EZACACHE VSAM C U R U A B D
_ EZACONFG CICS.F2.C31B.TCP.CONFIG KSDS O D R _ _ B _
_ KPHFILE1 KPHUME.VSAM.F80 KSDS O E R U A B D
**** End of data ****
What is the status and service request of the files?
04/015

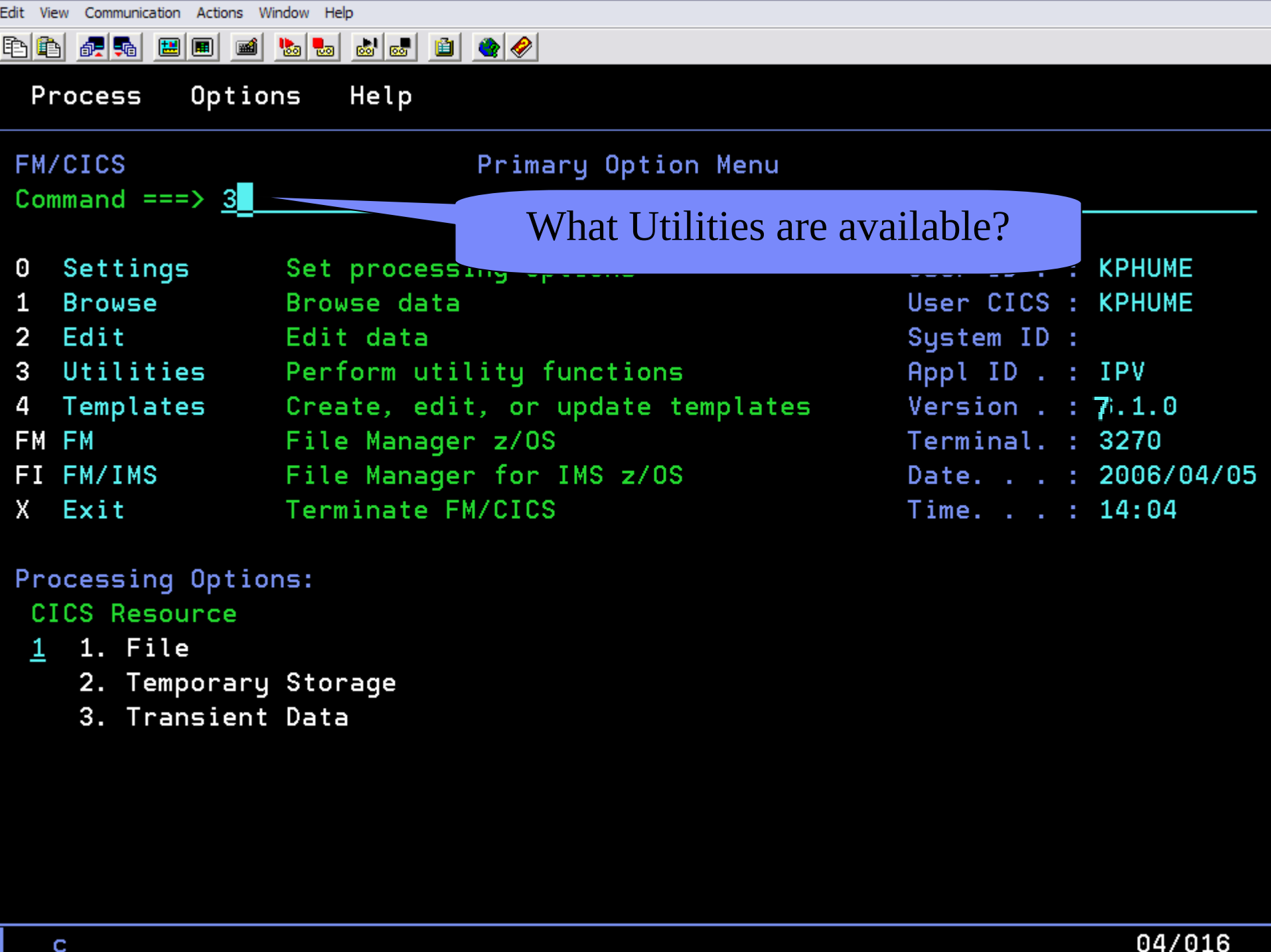

Edit View Communication Actions Window Help
Process Options Help
FM/CICS CICS File Selection List Row 1 of 13
Command ===> Scroll PAGE
Status
O E R U A B D
P N E P D R E
File Data set name Type Sys E A A D D O L
_ CSQKCDF VSAM C E R U A B D
_ CUSTFIE ADDEMOS.ADDEMOS.CUSTFILE VSAM C E R U A B D
_ CUSTFILE ADDEMOS.ADDEMOS.CUSTFILE KSDS O E R U A B D
_ DFHCMACD VSAM C E R _ _ _ _
_ DFHCSD CICSVS.C31B.DFHCSD VSAM C U R U A B D
_ DFHDBFK VSAM C E R U A B D
_ DFHDPFMB CICSVS.C31B.DFHDPFMB KSDS O E R U A B D
_ DFHDPFMP CICSVS.C31B.DFHDPFMP PATH O E R U A B D
_ DFHLRQ CICSVS.C31B.DFHLRQ KSDS O E R U A B D
_ EQADEBUG JWINCHE.MYSPECL.EQALANGX VSAM C E R _ _ _ _
_ EZACACHE EZACACHE VSAM C U R U A B D
_ EZACONFG CICS.F2.C31B.TCP.CONFIG KSDS O D R _ _ B _
s KPHFILE1 KPHUME.VSAM.F80 KSDS O E R U A B D
**** End of data ****
This is the file we want to work with
21/004

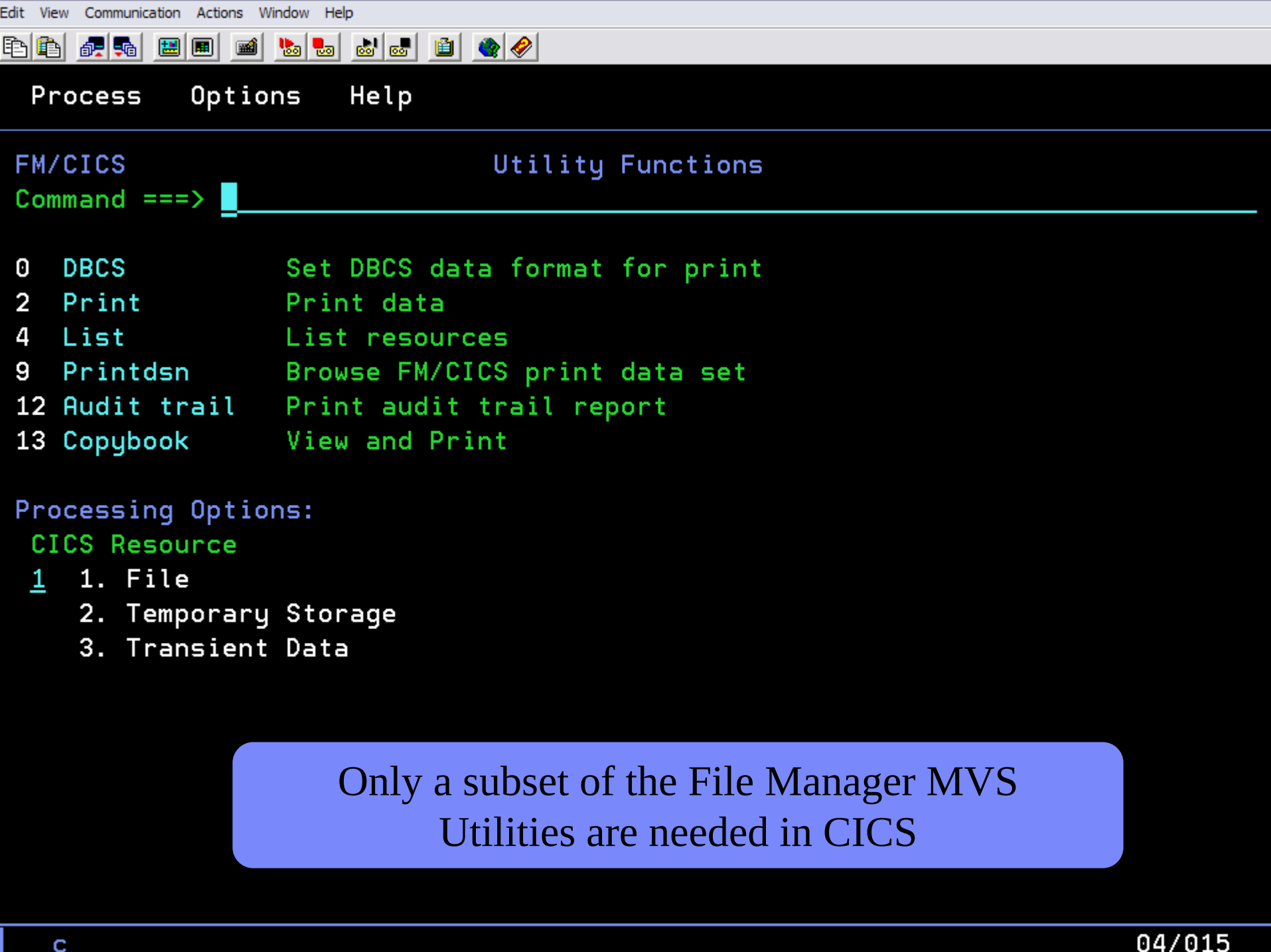

Edit View Communication Actions Window Help
Process Options Help
FM/CICS Edit CICS File Entry Panel
Command ===>
Input CICS VSAM File:
File name KPHFILE1
Sysid . . . . . ____
Start position . . _____
Record limit . . . _____ Record sampling _
Inplace edit . . . _ Prevent inserts and deletes
Lock resource . . _ Name _____
Copybook or Template:
Data set name . . 'KPHUME2.F2.FM.TEMPLATE'
Member . . . . . KPH1VSAM Blank or pattern for member list
Processing Options:
Copybook/template Start position type Enter "/" to select option
1 1. Above 1 1. Key _ Edit template _ Type (1,2,S)
2. Previous 2. RBA _ Include only selected records
3. None 3. Record number _ Create audit trail
4. Create dynamic
Or, you can enter the File Name here
Notice the Template information
04/015

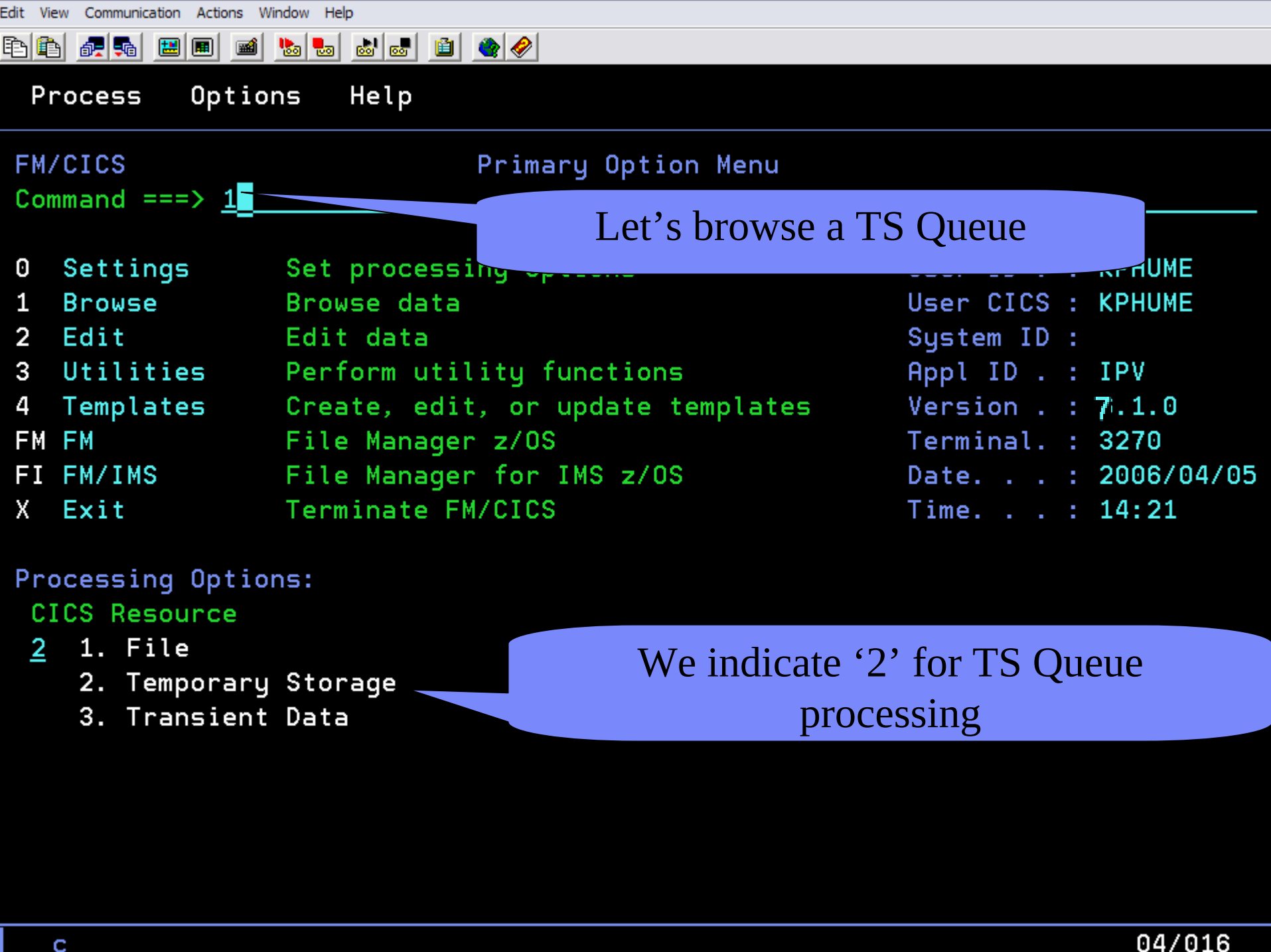

Edit View Communication Actions Window Help
Process Options Help
Edit FI:KPHFILE1 DS:KPHUME.VSAM.F80 Rec 0 of 725
Command ===>
Scroll PAGE
Refresh on save N
Type KSDS
Format TABL
WS-VSAM80-RECORD-NUMBER WS-VSAM80-NAME
#2 #3
ZD 1:10 AN 11:30
<---+----1> <---+----1----+----2----+---->
000000 **** Top of data ****
000001 0000000001 KPHUME
000002 0000000002 KPHUME
000003 0000000003 KPHUME
000004 0000000004 KPHUME
000005 0000000005 KPHUME
000006 0000000006 KPHUME
000007 0000000007 KPHUME
000008 0000000008 KPHUME
000009 0000000009 KPHUME
000010 0000000010 KPHUME
000011 0000000011 KPHUME
000012 0000000012 KPHUME
000013 0000000013 KPHUME
000014 0000000014 KPHUME
Notice the Format field
04/015

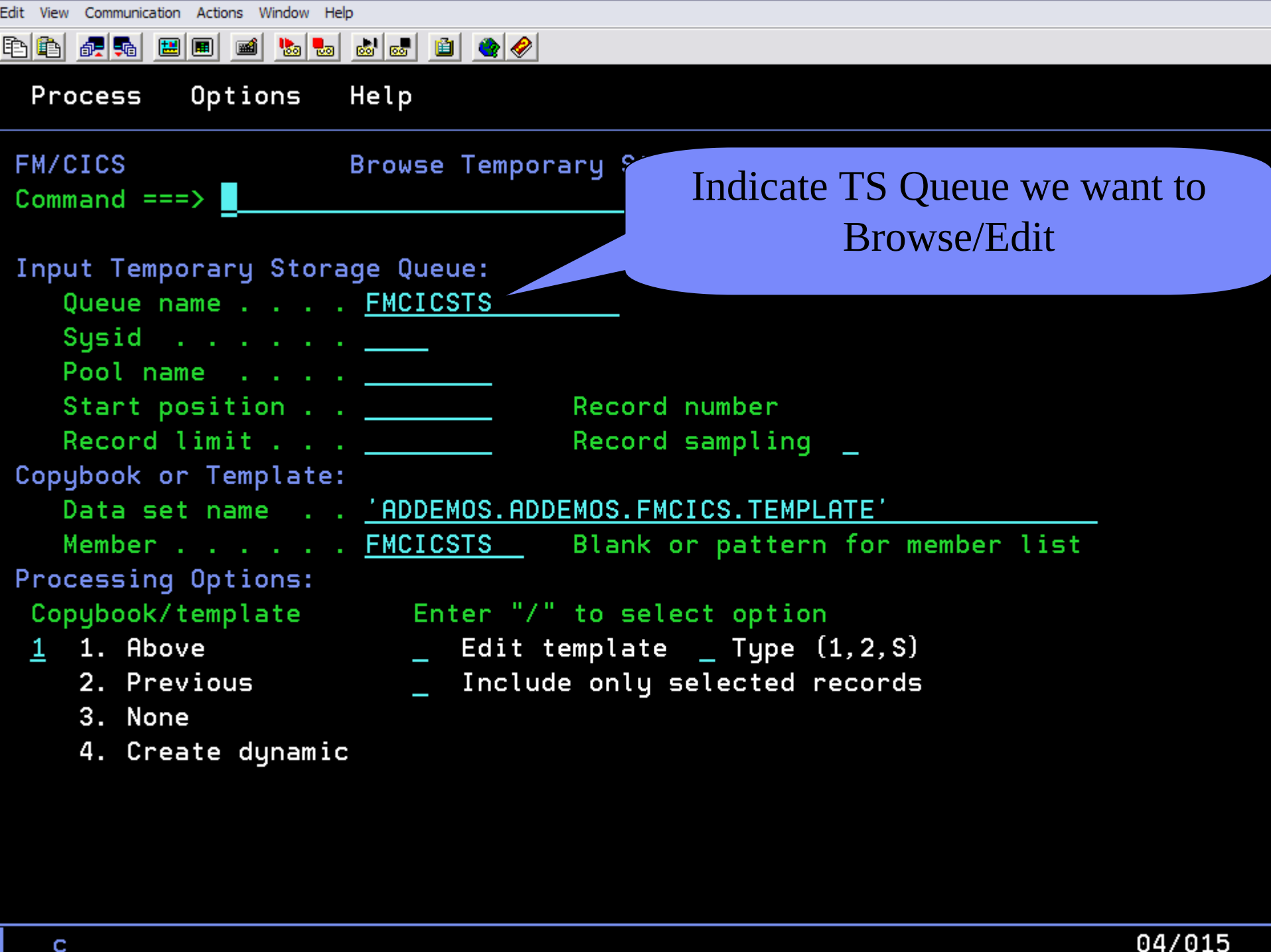

Edit View Communication Actions Window Help
Process Options Help
Edit KPHFILE1 Rec 1 of 725
Command ===>
Scroll PAGE
Refresh on save N
Type KSDS
Format sngl
WS-VSAM80-RECORD-NUMBER WS-VSAM80-NAME
#2 #3
ZD 1:10 AN 11:30
<---+----1> <---+----1----+----2----+---->
000001 0000000001 KPHUME
000002 0000000002 KPHUME
000003 0000000003 KPHUME
000004 0000000004 KPHUME
000005 0000000005 KPHUME
000006 0000000006 KPHUME
000007 0000000007 KPHUME
000008 0000000008 KPHUME
000009 0000000009 KPHUME
000010 0000000010 KPHUME
000011 0000000011 KPHUME
000012 0000000012 KPHUME
000013 0000000013 KPHUME
000014 0000000014 KPHUME
000015 0000000015 KPHUME
Let’s change this to “SNGL”
06/001

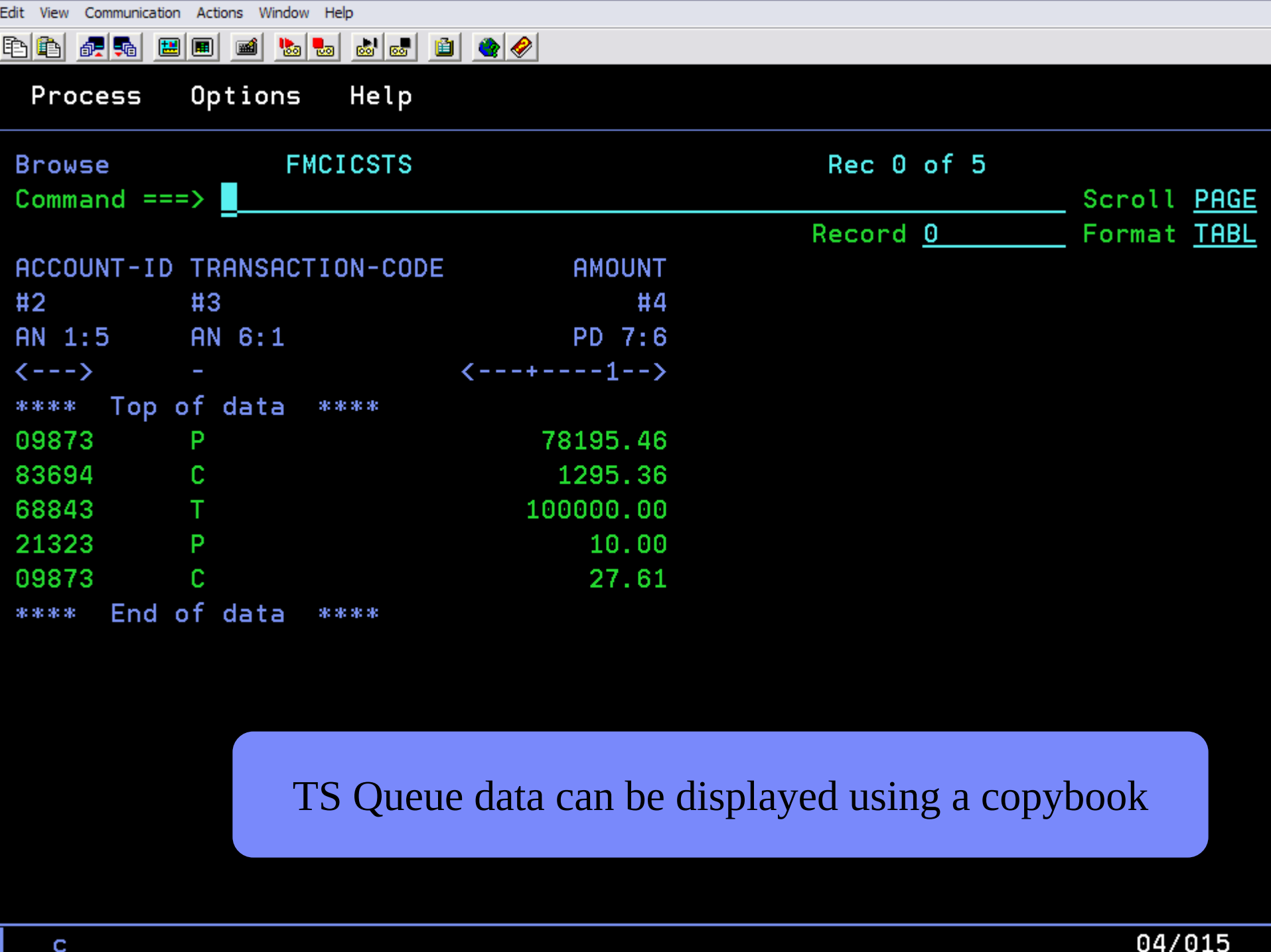

Edit View Communication Actions Window Help
Process Options Help
Edit KPHFILE1 Rec 1 of 725
Command ===>
Scroll PAGE
Type KSDS Format SNGL
Top Line is 1 of 8
Current 01: WS-VSAM80-RECORD
Field Data
WS-VSAM80-RECORD-NUMBER 0000000001
WS-VSAM80-NAME KPHUME
WS-VSAM80-DATE-REQUESTED 19560519
FILLER
WS-VSAM80-DATE-OF-RUN 20050321
FILLER
WS-VSAM80-DUMMY-ADD 0
FILLER
*** End of record ***
This is the standard FM SNGL record display
c
09/029

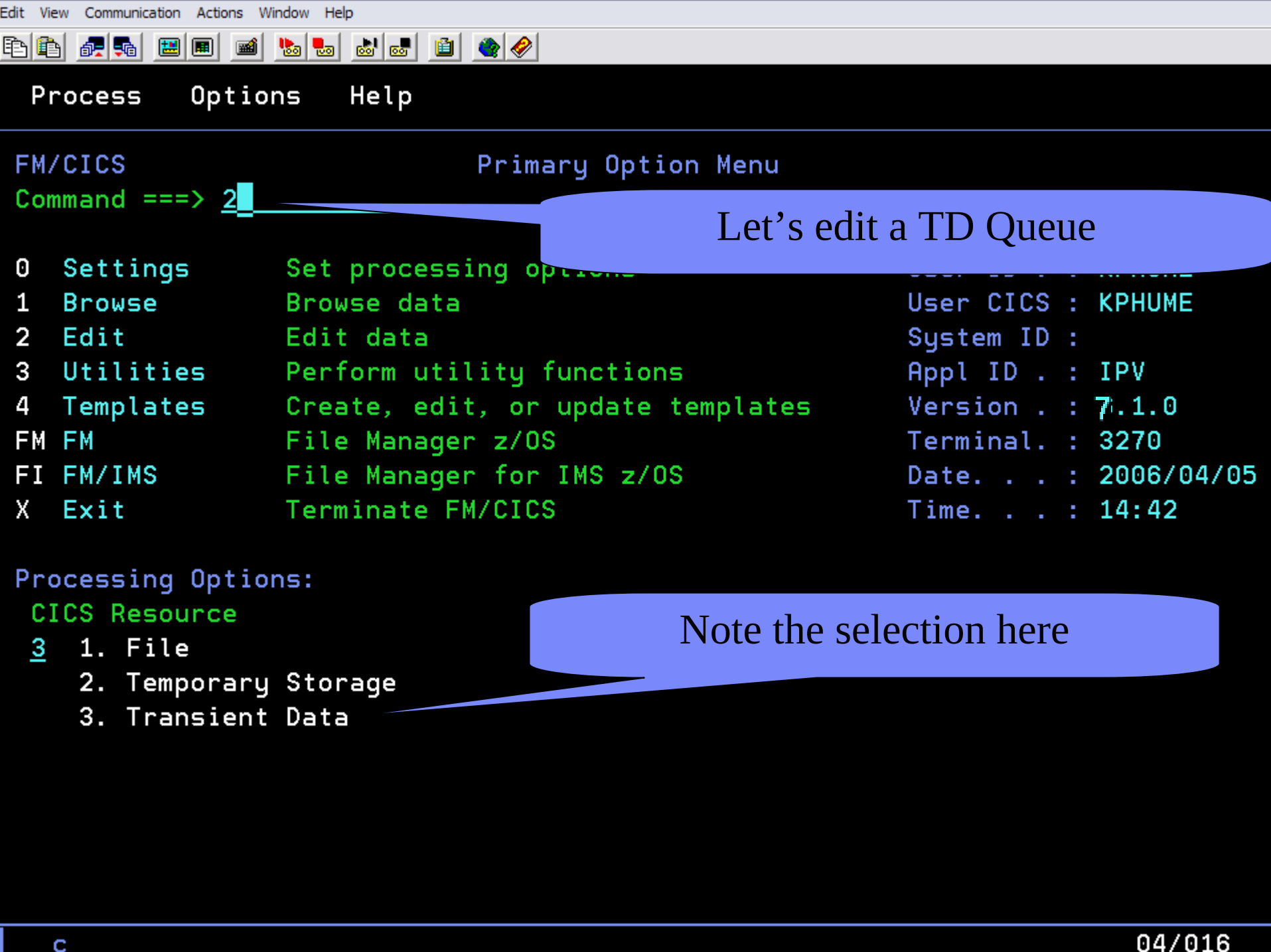

Edit View Communication Actions Window Help
Process Options Help
FM/CICS Primary Option Menu
Command ===> 3
What Utilities are available?
0 Settings Set processing options
1 Browse Browse data
2 Edit Edit data
3 Utilities Perform utility functions
4 Templates Create, edit, or update templates
FM FM File Manager z/OS
FI FM/IMS File Manager for IMS z/OS
X Exit Terminate FM/CICS
User ID . : KPHUME
User CICS : KPHUME
System ID :
Appl ID . : IPV
Version . : 7.1.0
Terminal. : 3270
Date. . . : 2006/04/05
Time. . . : 14:04
Processing Options:
CICS Resource
1 1. File
2. Temporary Storage
3. Transient Data
04/016

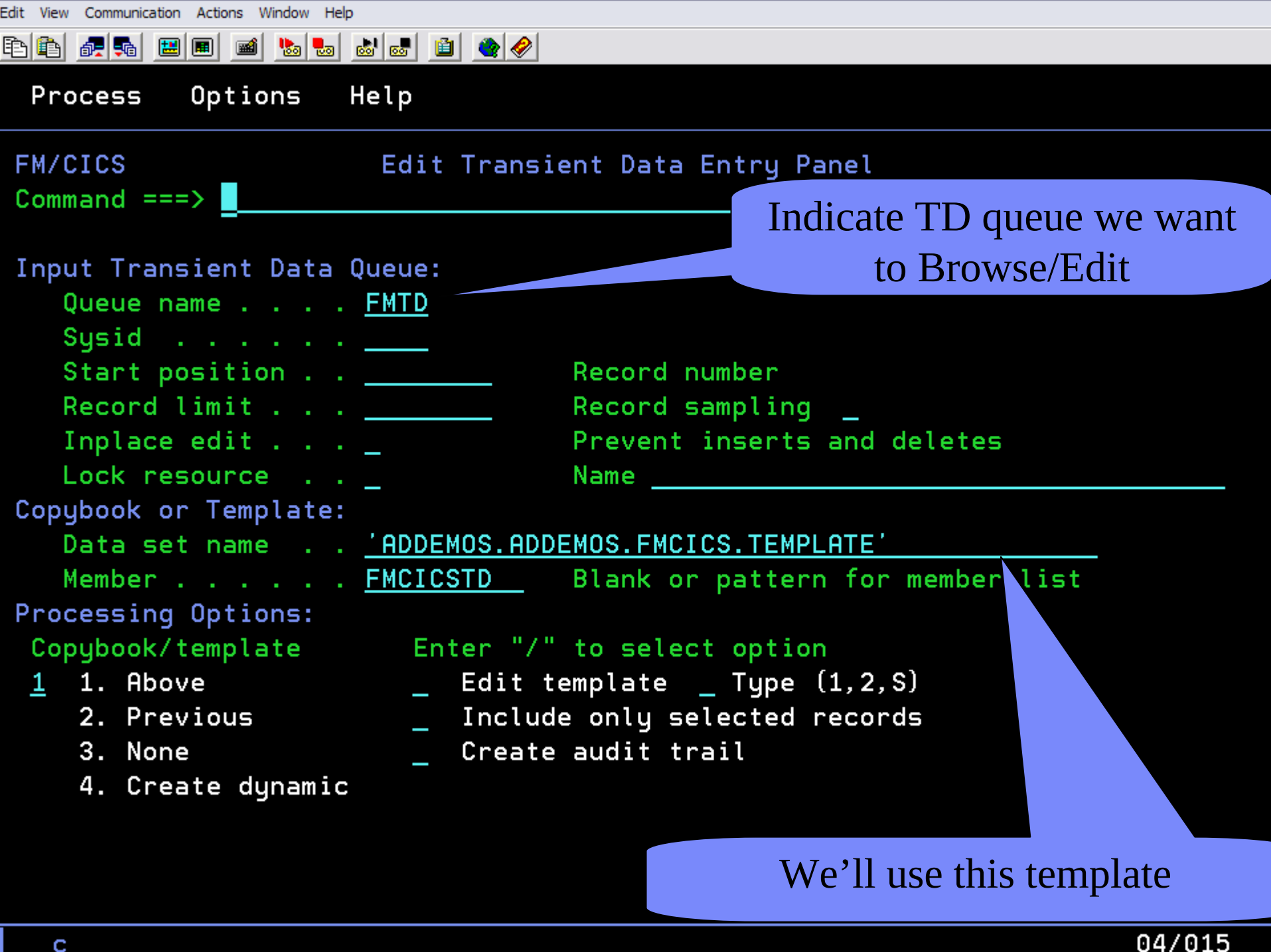

Edit View Communication Actions Window Help
Process Options Help
FM/CICS Utility Functions
Command ===>
0 DBCS Set DBCS data format for print
2 Print Print data
4 List List resources
9 Printdsn Browse FM/CICS print data set
12 Audit trail Print audit trail report
13 Copybook View and Print
Processing Options:
CICS Resource
1 1. File
2. Temporary Storage
3. Transient Data
Only a subset of the File Manager MVS Utilities are needed in CICS
04/015

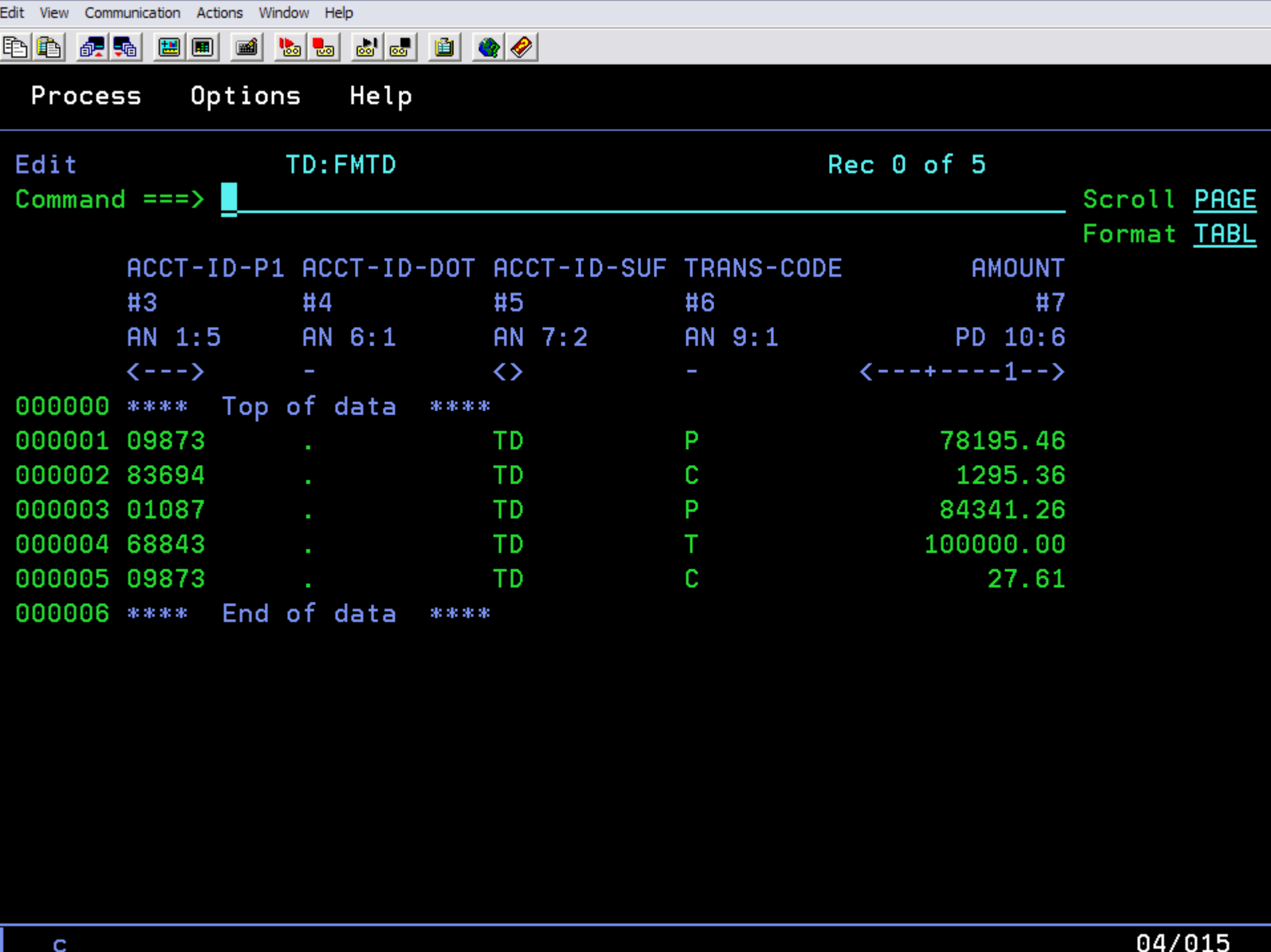

Edit View Communication Actions Window Help
Process Options Help
FM/CICS Primary Option Menu
Command ===> 1
Let's browse a TS Queue
0 Settings Set processing options
1 Browse Browse data
2 Edit Edit data
3 Utilities Perform utility functions
4 Templates Create, edit, or update templates
FM FM File Manager z/OS
FI FM/IMS File Manager for IMS z/OS
X Exit Terminate FM/CICS
User CICS : KPHUME
System ID :
Appl ID . : IPV
Version . : 7.1.0
Terminal. : 3270
Date. . . : 2006/04/05
Time. . . : 14:21
Processing Options:
CICS Resource
2 1. File
2. Temporary Storage
3. Transient Data
We indicate '2' for TS Queue processing
04/016

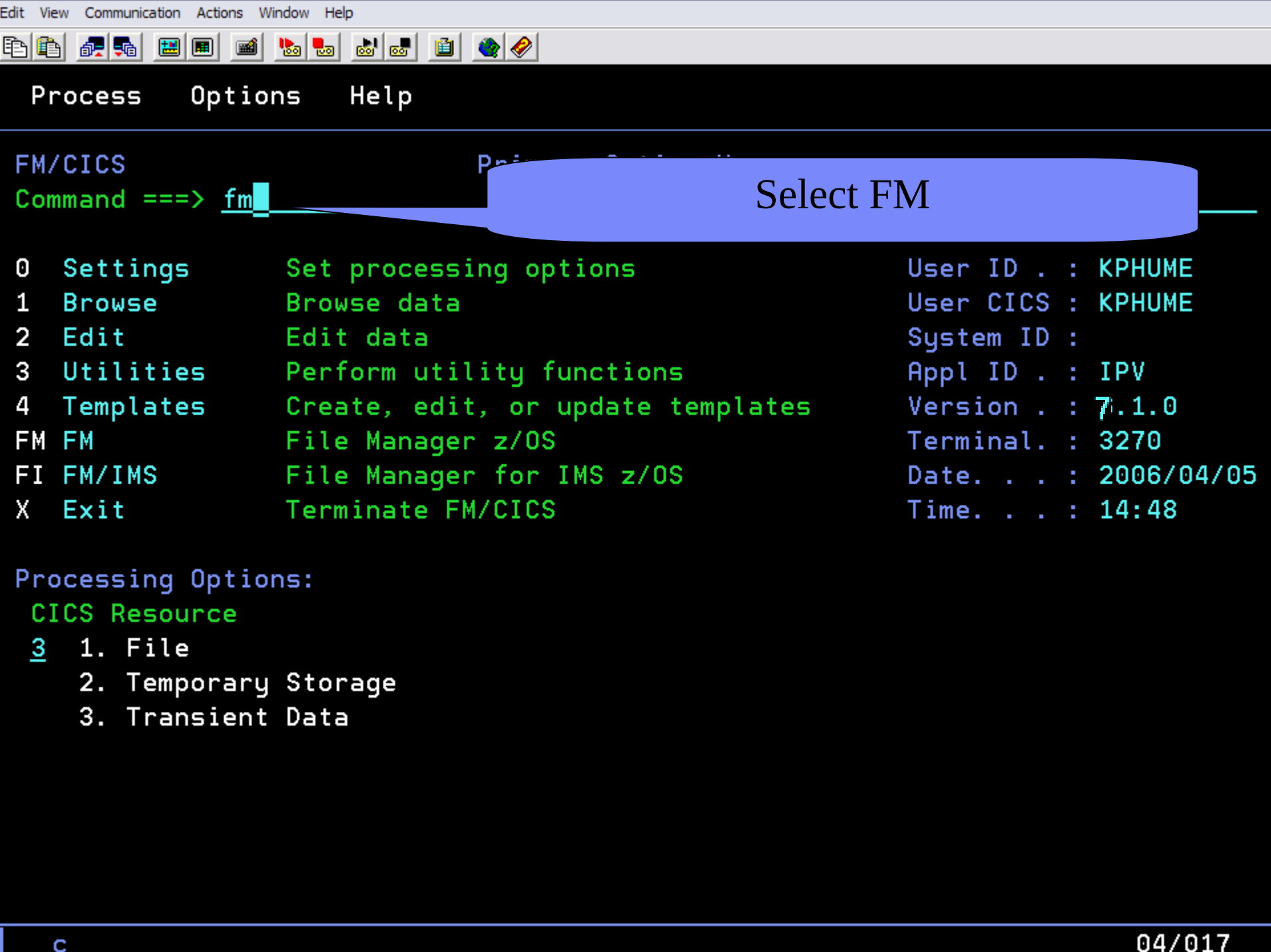

Edit View Communication Actions Window Help
Process Options Help
FM/CICS Browse Temporary
Command ===>
Input Temporary Storage Queue:
Queue name . . . . FMCICSTS
Sysid . . . . . ____
Pool name . . . . ________
Start position . . ________ Record number
Record limit . . . ________ Record sampling _
Copybook or Template:
Data set name . . 'ADDEMOS.ADDEMOS.FMCICS.TEMPLATE'
Member . . . . . FMCICSTS Blank or pattern for member list
Processing Options:
Copybook/template Enter "/" to select option
1 1. Above _ Edit template _ Type (1,2,S)
2. Previous _ Include only selected records
3. None
4. Create dynamic
Indicate TS Queue we want to Browse/Edit
04/015

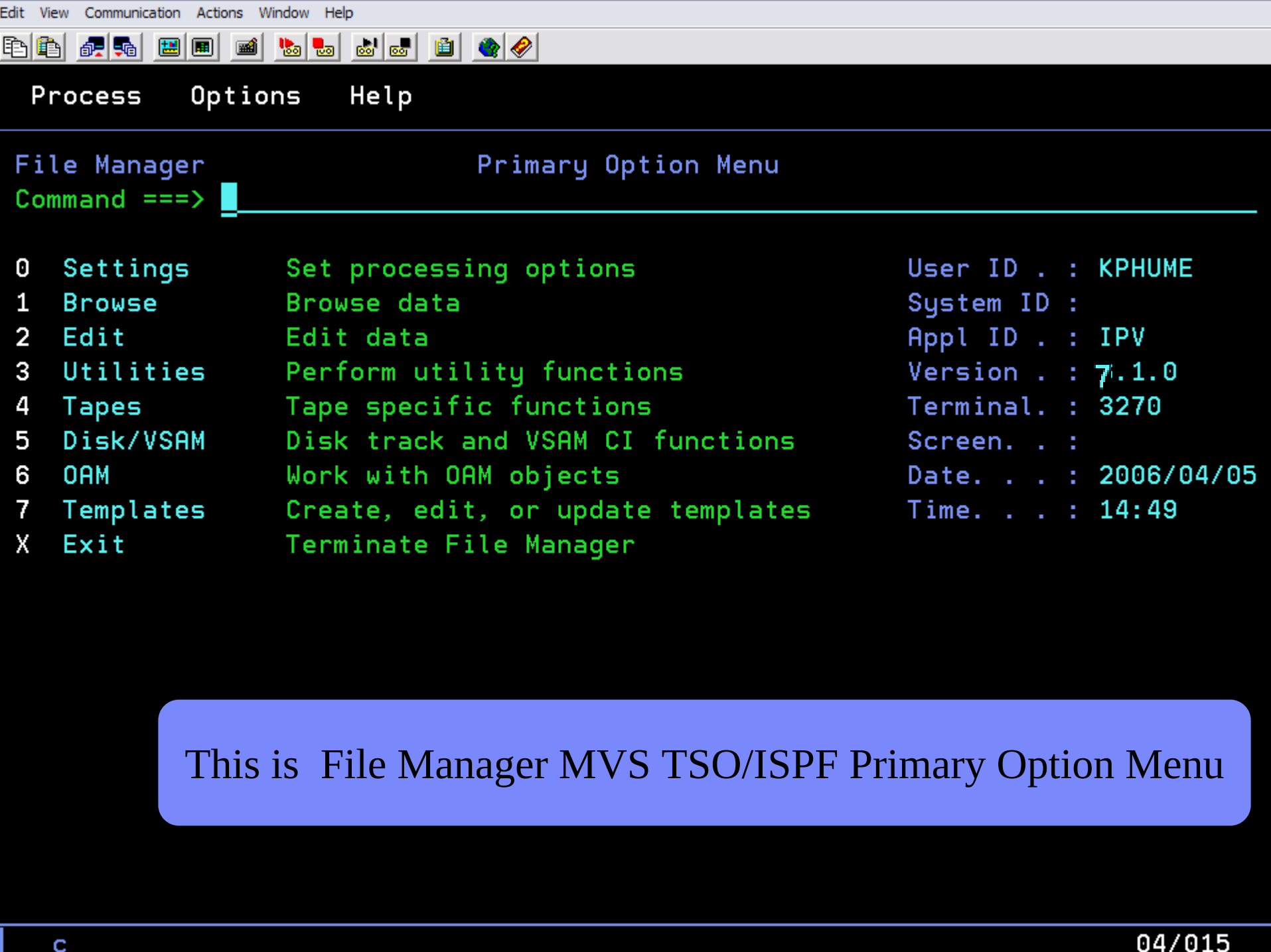

Edit View Communication Actions Window Help
Process Options Help
Browse FMCICSTS Rec 0 of 5
Command ===>
Scroll PAGE
Record 0
Format TABL
ACCOUNT-ID TRANSACTION-CODE AMOUNT
#2 #3 #4
AN 1:5 AN 6:1 PD 7:6
<---> - <---+----1-->
**** Top of data ****
09873 P 78195.46
83694 C 1295.36
68843 T 100000.00
21323 P 10.00
09873 C 27.61
**** End of data ****
TS Queue data can be displayed using a copybook
04/015

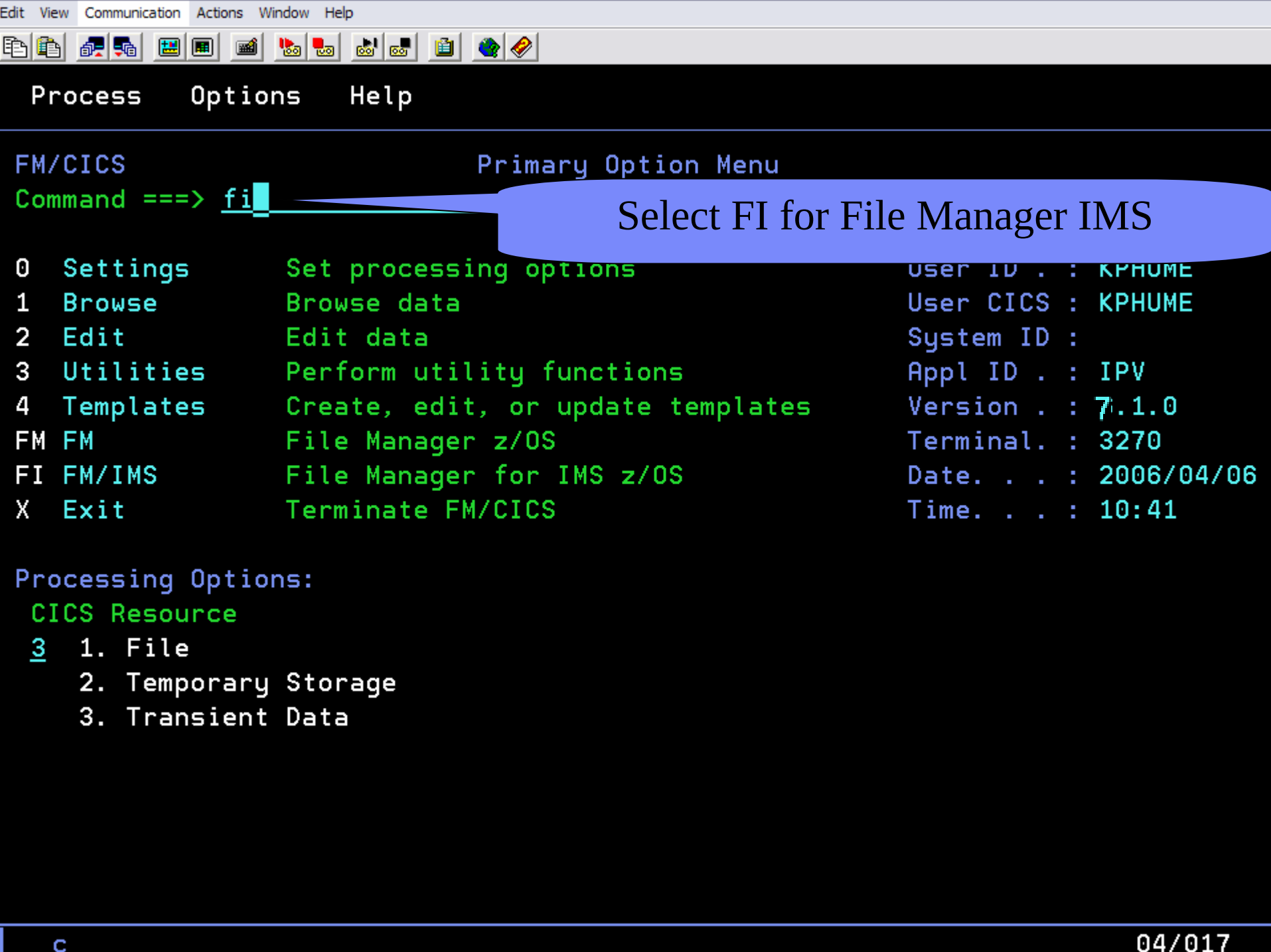

Edit View Communication Actions Window Help
Process Options Help
FM/CICS Primary Option Menu
Command ===> 2
Let’s edit a TD Queue
0 Settings Set processing options
1 Browse Browse data
2 Edit Edit data
3 Utilities Perform utility functions
4 Templates Create, edit, or update templates
FM FM File Manager z/OS
FI FM/IMS File Manager for IMS z/OS
X Exit Terminate FM/CICS
User CICS : KPHUME
System ID :
Appl ID . : IPV
Version . : 7.1.0
Terminal. : 3270
Date. . . : 2006/04/05
Time. . . : 14:42
Processing Options:
CICS Resource
3 1. File
2. Temporary Storage
3. Transient Data
Note the selection here
04/016

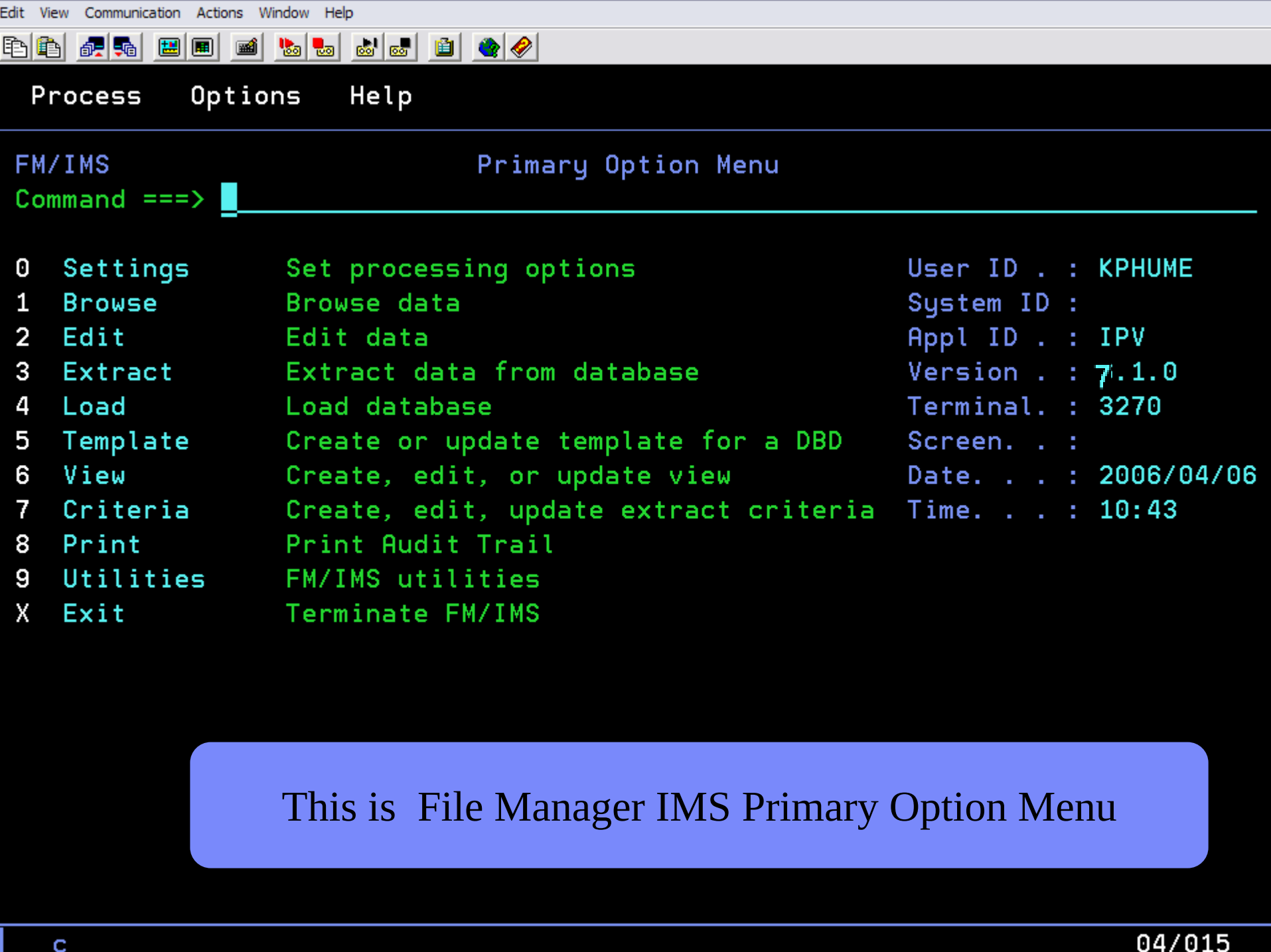

Edit View Communication Actions Window Help
Process Options Help
FM/CICS Edit Transient Data Entry Panel
Command ===>
Input Transient Data Queue:
Queue name . . . . FMTD
Sysid . . . . . ____
Start position . . _____ Record number
Record limit . . . _____ Record sampling _
Inplace edit . . . _ Prevent inserts and deletes
Lock resource . . _ Name _____
Copybook or Template:
Data set name . . 'ADDEMOS.ADDEMOS.FMCICS.TEMPLATE'
Member . . . . . FMCICSTD Blank or pattern for member list
Processing Options:
Copybook/template Enter "/" to select option
1 1. Above _ Edit template _ Type (1,2,S)
2. Previous _ Include only selected records
3. None _ Create audit trail
4. Create dynamic
Indicate TD queue we want to Browse/Edit
We'll use this template
04/015


Edit View Communication Actions Window Help
Process Options Help
Edit TD:FMTD Rec 0 of 5
Command ===>
Scroll PAGE
Format TABL
ACCT-ID-P1 ACCT-ID-DOT ACCT-ID-SUF TRANS-CODE AMOUNT
#3 #4 #5 #6 #7
AN 1:5 AN 6:1 AN 7:2 AN 9:1 PD 10:6
<---> - <> - <---+----1-->
000000 **** Top of data ****
000001 09873 . TD P 78195.46
000002 83694 . TD C 1295.36
000003 01087 . TD P 84341.26
000004 68843 . TD T 100000.00
000005 09873 . TD C 27.61
000006 **** End of data ****
c
04/015


Edit View Communication Actions Window Help
Process Options Help
FM/CICS
Command ===> fm
Select FM
0 Settings Set processing options
1 Browse Browse data
2 Edit Edit data
3 Utilities Perform utility functions
4 Templates Create, edit, or update templates
FM FM File Manager z/OS
FI FM/IMS File Manager for IMS z/OS
X Exit Terminate FM/CICS
User ID . : KPHUME
User CICS : KPHUME
System ID :
Appl ID . : IPV
Version . : 7.1.0
Terminal. : 3270
Date. . . : 2006/04/05
Time. . . : 14:48
Processing Options:
CICS Resource
3 1. File
2. Temporary Storage
3. Transient Data
04/017


Edit View Communication Actions Window Help
Process Options Help
File Manager Primary Option Menu
Command ===>
0 Settings Set processing options
1 Browse Browse data
2 Edit Edit data
3 Utilities Perform utility functions
4 Tapes Tape specific functions
5 Disk/VSAM Disk track and VSAM CI functions
6 OAM Work with OAM objects
7 Templates Create, edit, or update templates
X Exit Terminate File Manager
User ID . : KPHUME
System ID :
Appl ID . : IPV
Version . : 7.1.0
Terminal. : 3270
Screen. . :
Date. . . : 2006/04/05
Time. . . : 14:49
This is File Manager MVS TSO/ISPF Primary Option Menu
04/015


Edit View Communication Actions Window Help
Process Options Help
FM/CICS Primary Option Menu
Command ===> fi
Select FI for File Manager IMS
0 Settings Set processing options
1 Browse Browse data
2 Edit Edit data
3 Utilities Perform utility functions
4 Templates Create, edit, or update templates
FM FM File Manager z/OS
FI FM/IMS File Manager for IMS z/OS
X Exit Terminate FM/CICS
User ID . : KPHUME
User CICS : KPHUME
System ID :
Appl ID . : IPV
Version . : 7.1.0
Terminal. : 3270
Date. . . : 2006/04/06
Time. . . : 10:41
Processing Options:
CICS Resource
3 1. File
2. Temporary Storage
3. Transient Data
04/017


Edit View Communication Actions Window Help
Process Options Help
FM/IMS Primary Option Menu
Command ===>
0 Settings Set processing options
1 Browse Browse data
2 Edit Edit data
3 Extract Extract data from database
4 Load Load database
5 Template Create or update template for a DBD
6 View Create, edit, or update view
7 Criteria Create, edit, update extract criteria
8 Print Print Audit Trail
9 Utilities FM/IMS utilities
X Exit Terminate FM/IMS
User ID . : KPHUME
System ID :
Appl ID . : IPV
Version . : 7.1.0
Terminal. : 3270
Screen. . :
Date. . . : 2006/04/06
Time. . . : 10:43
This is File Manager IMS Primary Option Menu
04/015

IBM Fault Analyzer

IBM Fault Analyzer for z/OS

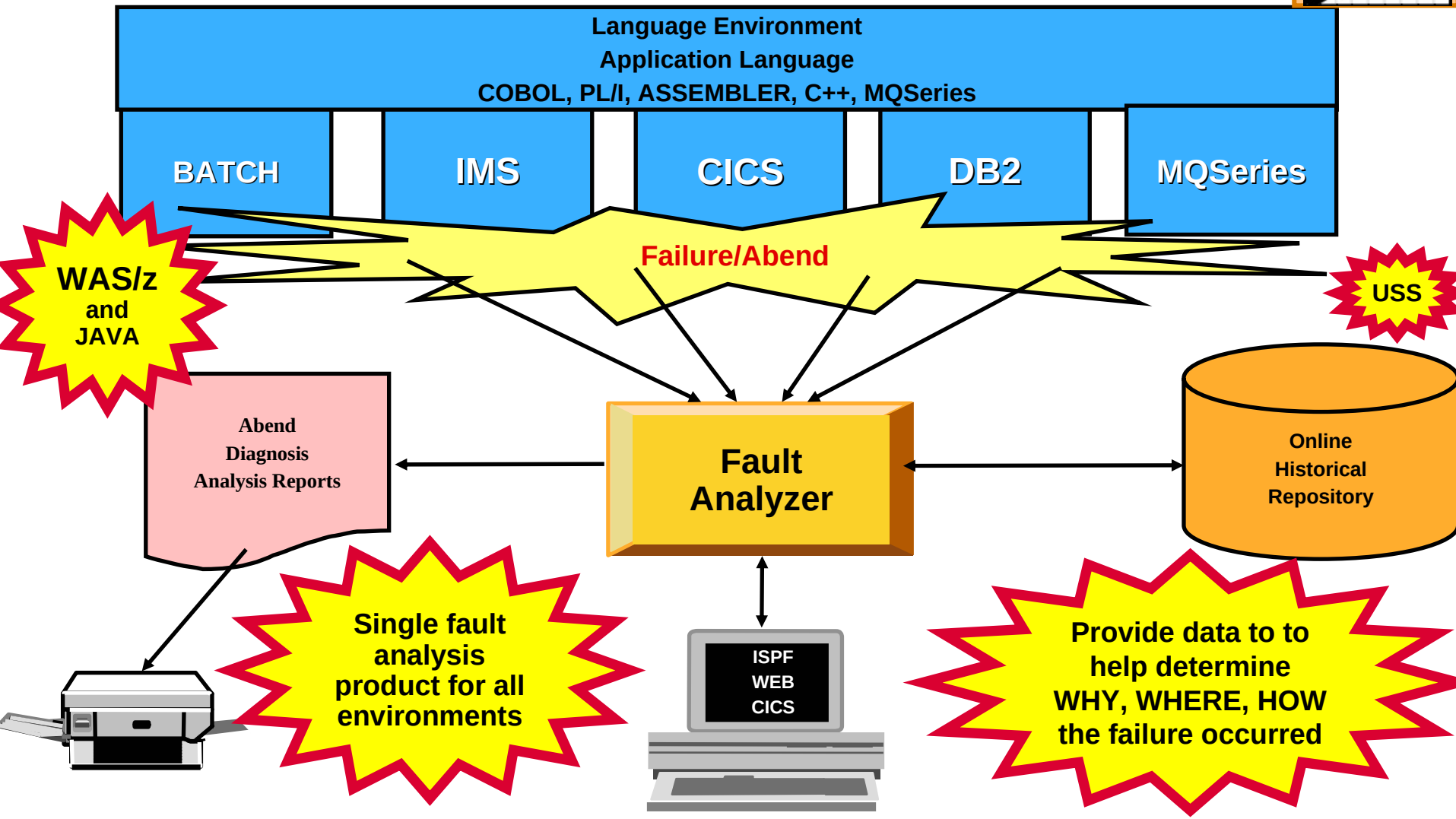
Use it to:

- Understand why an application abended
- Get information you need to diagnose and fix a problem

Key Features:

- Automatic real-time capture of diagnostic information
- Automatic analysis and reporting of application abends
  - FA can pinpoint an abend to the program and source statement
- Interactive, point-and-shoot navigation of abend information
  - Quickly navigate to information you need, even in large, complex applications

Fault Analyzer - *Helps you rapidly pinpoint why and where an enterprise application failed - and offers suggestions on how to resolve*



Fault Analyzer V7 Key New Functions

CICS terminal access for FA interactive analysis

- The Fault Analyzer functions available from ISPF under TSO can also be used with CICS as the terminal manager. The ISPF look and feel is maintained in this CICS transaction based environment permitting the review and analysis of fault entries in history files without the need for a TSO logon.

Java support currency

- Ongoing support for the new versions of WebSphere and Java is provided.

Fault Analyzer V7 Key New Functions

MQ Series Application PD Enhancements

- MQSeries enhancements to improve API information and MQ Series return code diagnostics.

Assembler DSECT mapping to the assembler support

- Assembler language support now includes DSECT variable mapping of storage areas in an abend when the assembler side-files are available.

USABILITY

- Interactive reanalysis menus have been re-structured to improve accessibility to frequently used data and facilitate faster navigation around the analysis information.

Fault Analyzer V7 Key New Functions

CICS System Dump (additional domains)

- For CICS system programmers the system dump formatting now has additional CICS domains available to enhance debugging of CICS system problems.

CICS Storage Violation Analysis improvements

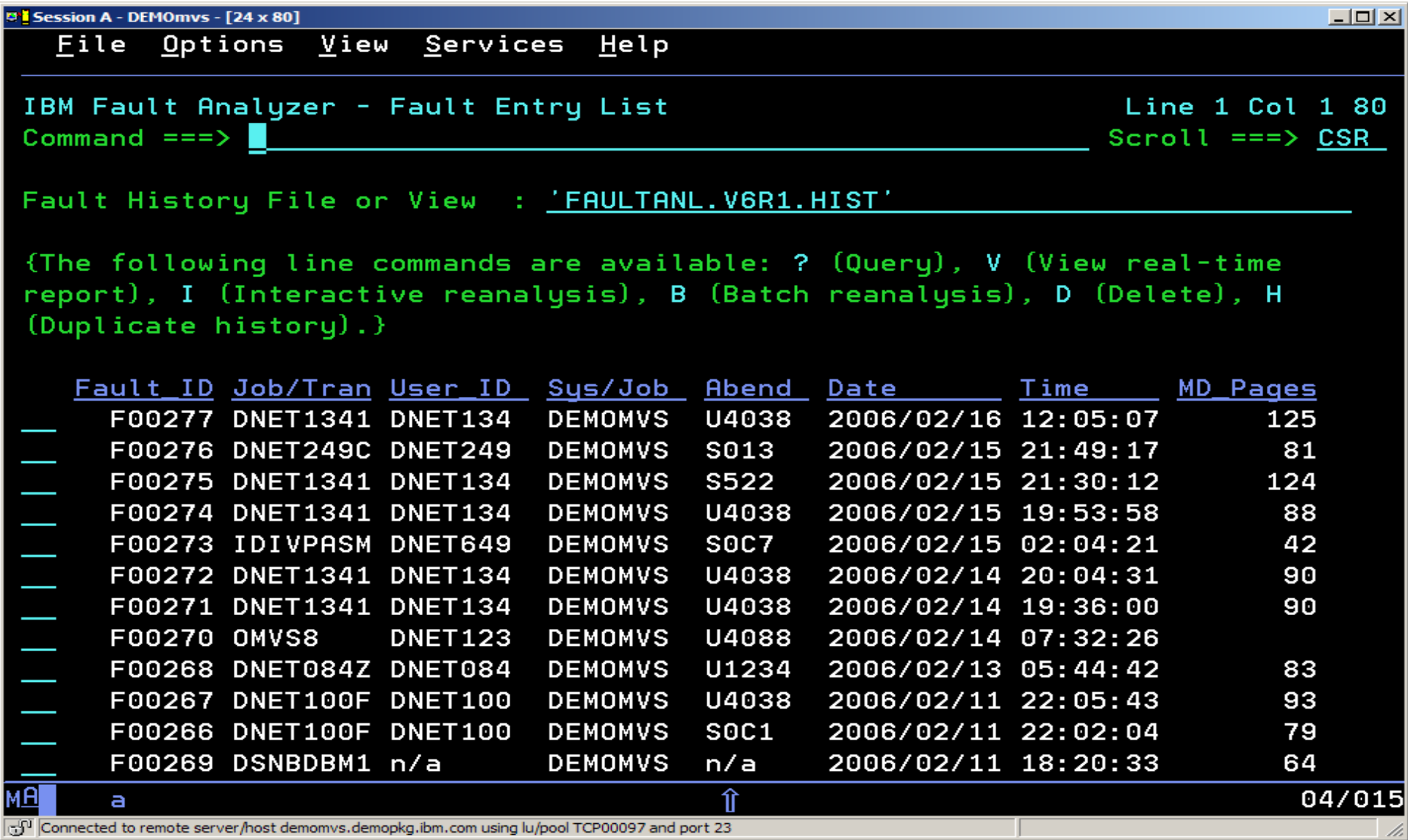
- Improved logic to detect and analyze CICS storage violations.

Improved side file match checking

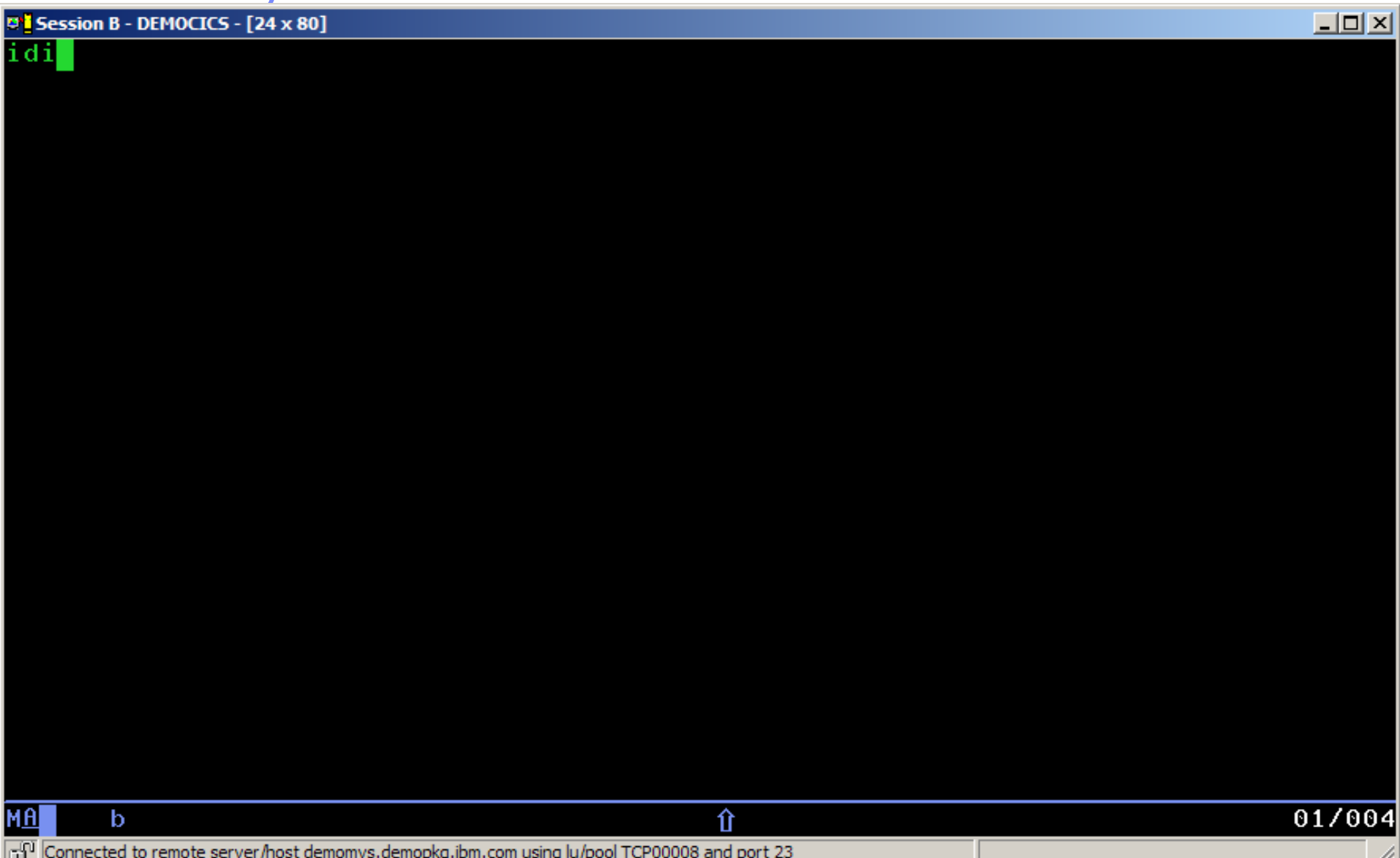
- Additional checking of program data to ensure the compile listing or sidefile being used to provide source code information, is a valid match for the abend.

Fault Analyzer CICS

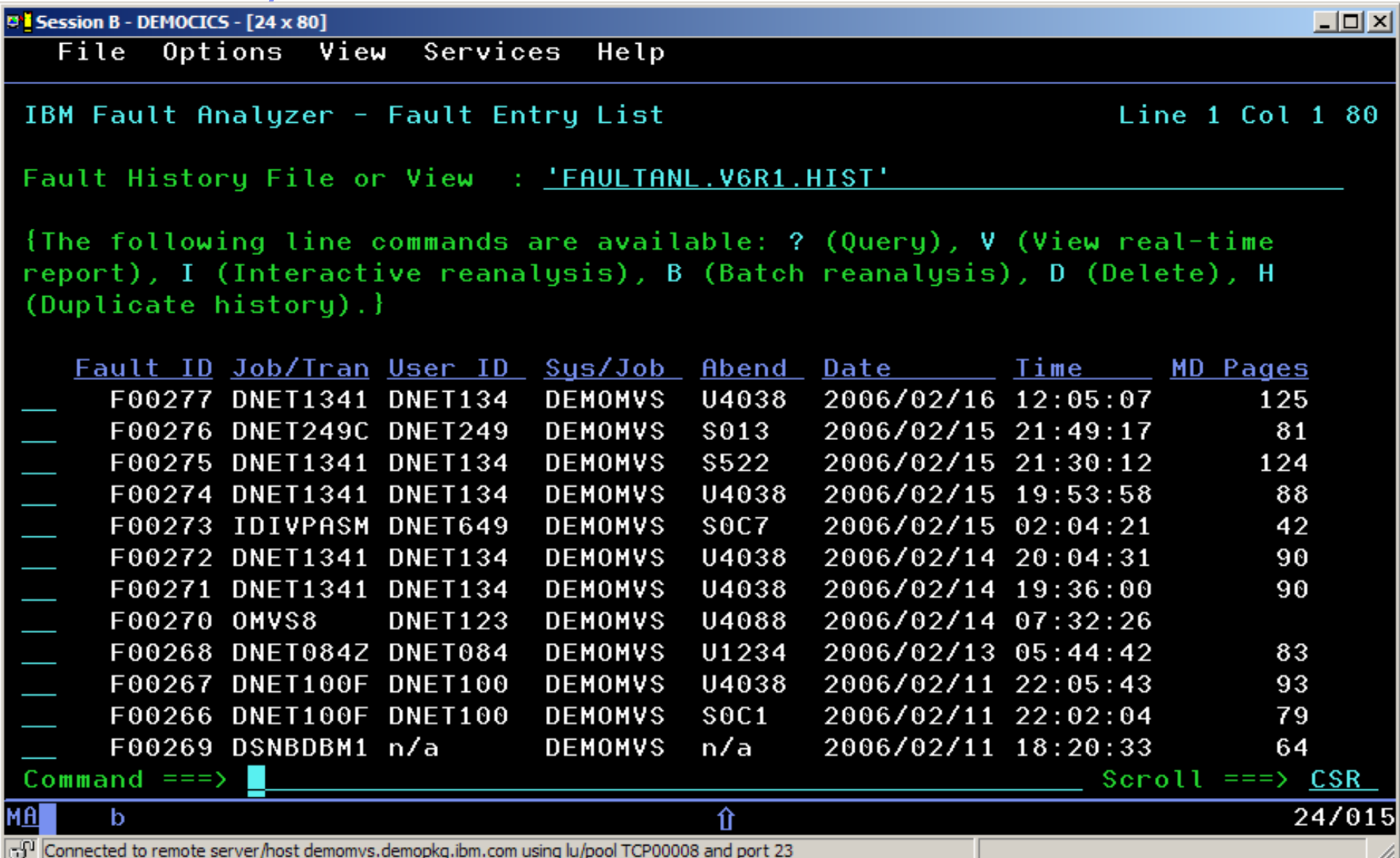
Fault Analyzer – ISPF menu



Fault Analyzer – CICS Interface – IDI Transaction

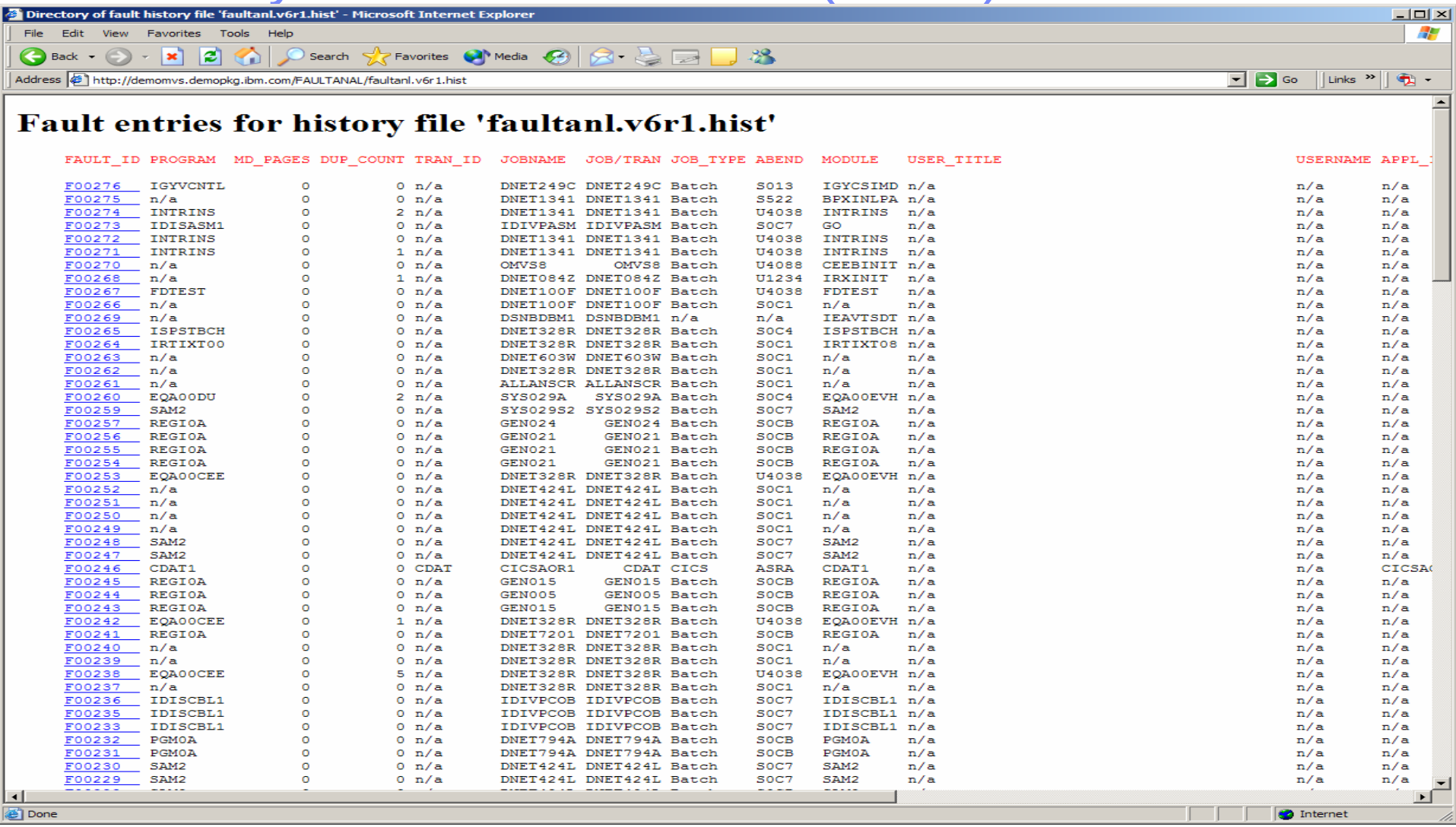


Fault Analyzer – CICS menu



Fault Analyzer WEB interface (VIEW)

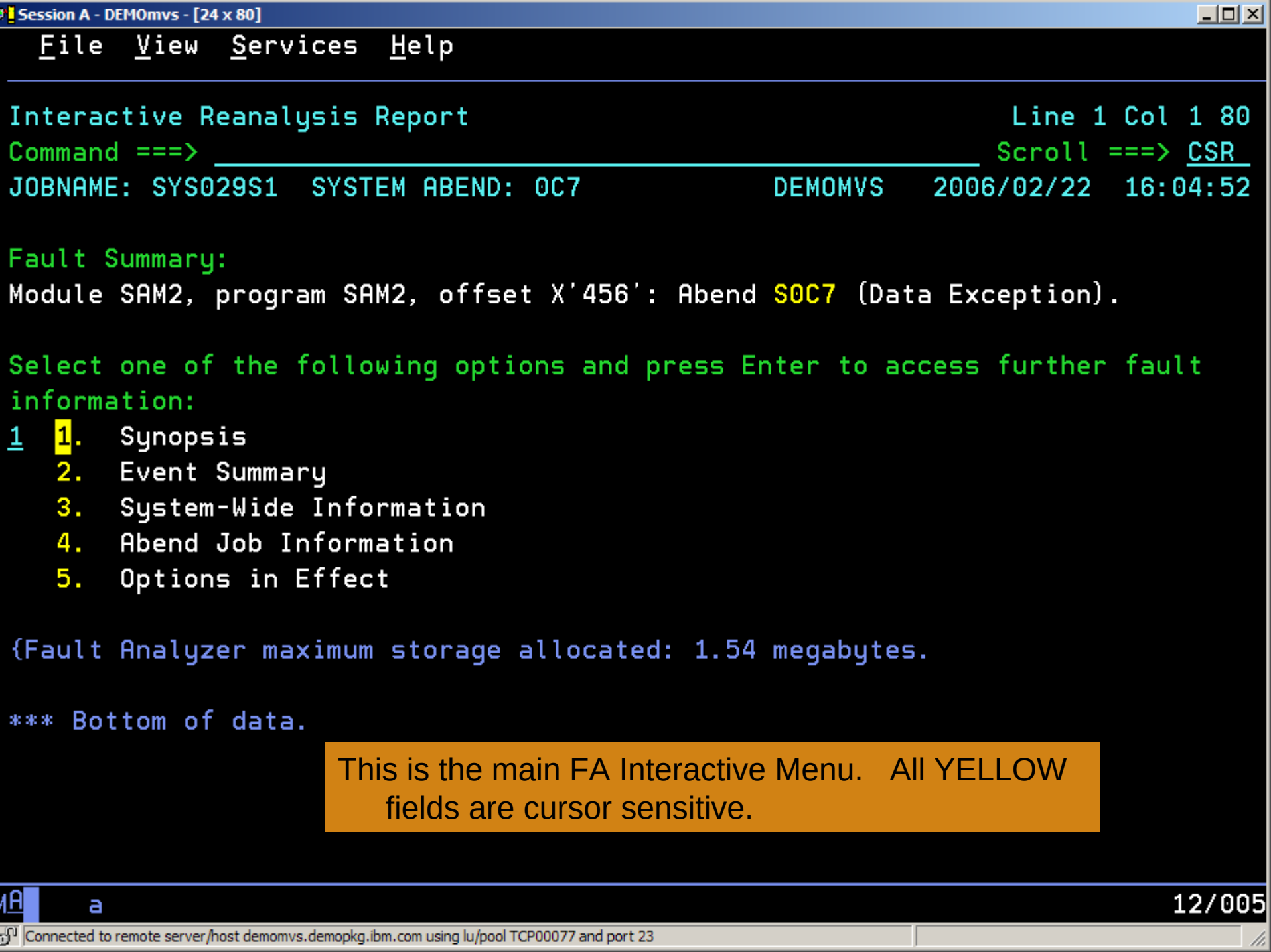
Fault Analyzer – WEB interface (VIEW)

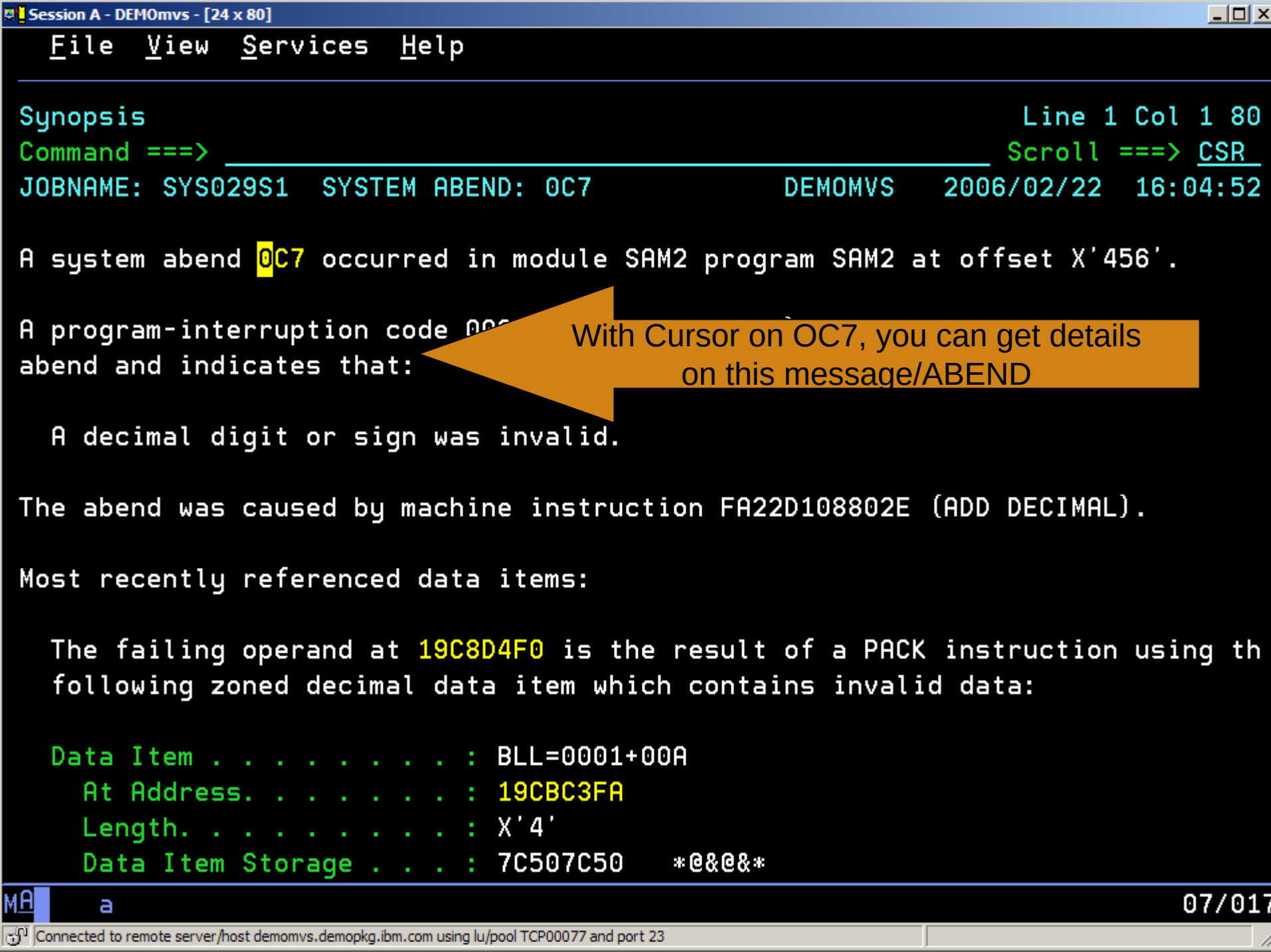


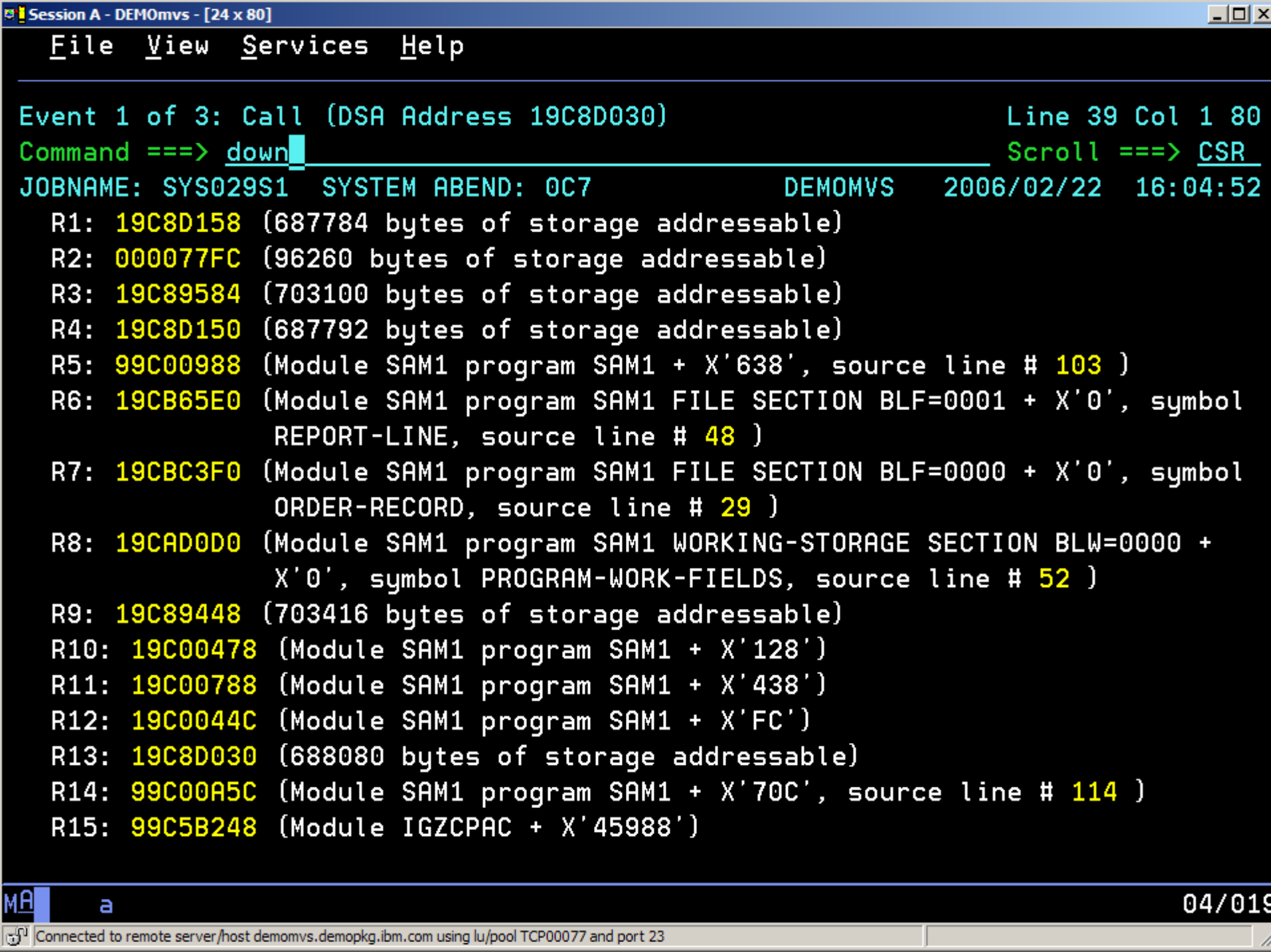
Fault entries for history file 'faultanl.v6r1.hist'

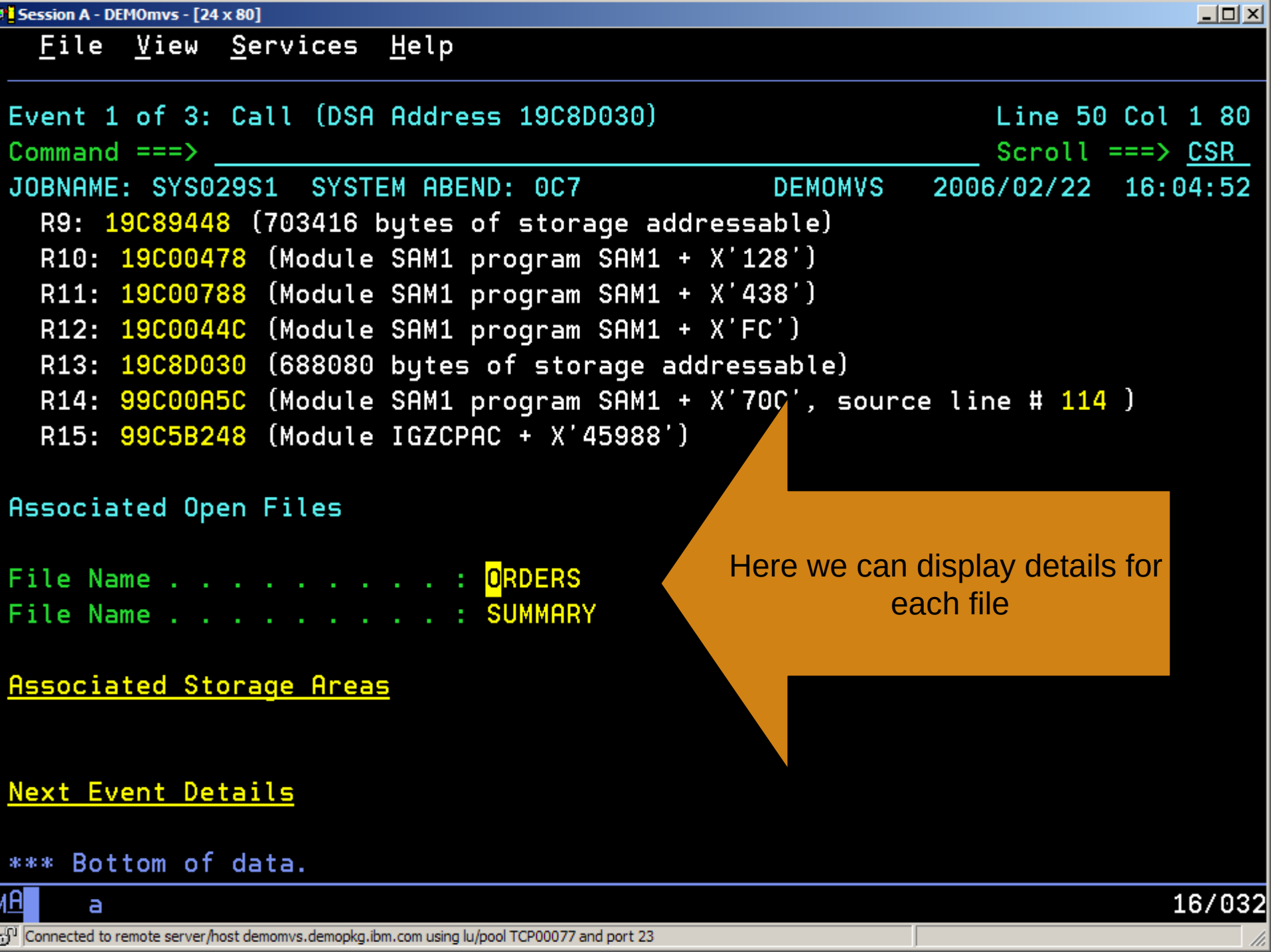
FAULT_ID	PROGRAM	MD_PAGES	DUP_COUNT	TRAN_ID	JOBNAME	JOB/TRAN	JOB_TYPE	ABEND	MODULE	USER_TITLE	USERNAME	APPL_
F00276	IGYVCNTL	0	0	n/a	DNET249C	DNET249C	Batch	S013	IGYCSIMD	n/a	n/a	n/a
F00275	n/a	0	0	n/a	DNET1341	DNET1341	Batch	S522	BPXINLPA	n/a	n/a	n/a
F00274	INTRINS	0	2	n/a	DNET1341	DNET1341	Batch	U4038	INTRINS	n/a	n/a	n/a
F00273	IDISASM1	0	0	n/a	IDIVPASM	IDIVPASM	Batch	S0C7	GO	n/a	n/a	n/a
F00272	INTRINS	0	0	n/a	DNET1341	DNET1341	Batch	U4038	INTRINS	n/a	n/a	n/a
F00271	INTRINS	0	1	n/a	DNET1341	DNET1341	Batch	U4038	INTRINS	n/a	n/a	n/a
F00270	n/a	0	0	n/a	OMVS8	OMVS8	Batch	U4088	CEEBINIT	n/a	n/a	n/a
F00268	n/a	0	1	n/a	DNET084Z	DNET084Z	Batch	U1234	IRXINIT	n/a	n/a	n/a
F00267	FDTEST	0	0	n/a	DNET100F	DNET100F	Batch	U4038	FDTEST	n/a	n/a	n/a
F00266	n/a	0	0	n/a	DNET100F	DNET100F	Batch	S0C1	n/a	n/a	n/a	n/a
F00269	n/a	0	0	n/a	DSNBDBM1	DSNBDBM1	n/a	n/a	IEAVTSDT	n/a	n/a	n/a
F00265	ISPSTBCH	0	0	n/a	DNET328R	DNET328R	Batch	S0C4	ISPSTBCH	n/a	n/a	n/a
F00264	IRTIXT00	0	0	n/a	DNET328R	DNET328R	Batch	S0C1	IRTIXT08	n/a	n/a	n/a
F00263	n/a	0	0	n/a	DNET603W	DNET603W	Batch	S0C1	n/a	n/a	n/a	n/a
F00262	n/a	0	0	n/a	DNET328R	DNET328R	Batch	S0C1	n/a	n/a	n/a	n/a
F00261	n/a	0	0	n/a	ALLANSCR	ALLANSCR	Batch	S0C1	n/a	n/a	n/a	n/a
F00260	EQA00DU	0	2	n/a	SYS029A	SYS029A	Batch	S0C4	EQA00EVH	n/a	n/a	n/a
F00259	SAM2	0	0	n/a	SYS029S2	SYS029S2	Batch	S0C7	SAM2	n/a	n/a	n/a
F00257	REGI0A	0	0	n/a	GEN024	GEN024	Batch	S0CB	REGI0A	n/a	n/a	n/a
F00256	REGI0A	0	0	n/a	GEN021	GEN021	Batch	S0CB	REGI0A	n/a	n/a	n/a
F00255	REGI0A	0	0	n/a	GEN021	GEN021	Batch	S0CB	REGI0A	n/a	n/a	n/a
F00254	REGI0A	0	0	n/a	GEN021	GEN021	Batch	S0CB	REGI0A	n/a	n/a	n/a
F00253	EQA00CEE	0	0	n/a	DNET328R	DNET328R	Batch	U4038	EQA00EVH	n/a	n/a	n/a
F00252	n/a	0	0	n/a	DNET424L	DNET424L	Batch	S0C1	n/a	n/a	n/a	n/a
F00251	n/a	0	0	n/a	DNET424L	DNET424L	Batch	S0C1	n/a	n/a	n/a	n/a
F00250	n/a	0	0	n/a	DNET424L	DNET424L	Batch	S0C1	n/a	n/a	n/a	n/a
F00249	n/a	0	0	n/a	DNET424L	DNET424L	Batch	S0C1	n/a	n/a	n/a	n/a
F00248	SAM2	0	0	n/a	DNET424L	DNET424L	Batch	S0C7	SAM2	n/a	n/a	n/a
F00247	SAM2	0	0	n/a	DNET424L	DNET424L	Batch	S0C7	SAM2	n/a	n/a	n/a
F00246	CDAT1	0	0	CDAT	CICSAOR1	CDAT	CICS	ASRA	CDAT1	n/a	n/a	CICSA
F00245	REGI0A	0	0	n/a	GEN015	GEN015	Batch	S0CB	REGI0A	n/a	n/a	n/a
F00244	REGI0A	0	0	n/a	GEN005	GEN005	Batch	S0CB	REGI0A	n/a	n/a	n/a
F00243	REGI0A	0	0	n/a	GEN015	GEN015	Batch	S0CB	REGI0A	n/a	n/a	n/a
F00242	EQA00CEE	0	1	n/a	DNET328R	DNET328R	Batch	U4038	EQA00EVH	n/a	n/a	n/a
F00241	REGI0A	0	0	n/a	DNET7201	DNET7201	Batch	S0CB	REGI0A	n/a	n/a	n/a
F00240	n/a	0	0	n/a	DNET328R	DNET328R	Batch	S0C1	n/a	n/a	n/a	n/a
F00239	n/a	0	0	n/a	DNET328R	DNET328R	Batch	S0C1	n/a	n/a	n/a	n/a
F00238	EQA00CEE	0	5	n/a	DNET328R	DNET328R	Batch	U4038	EQA00EVH	n/a	n/a	n/a
F00237	n/a	0	0	n/a	DNET328R	DNET328R	Batch	S0C1	n/a	n/a	n/a	n/a
F00236	IDISCBL1	0	0	n/a	IDIVPCOB	IDIVPCOB	Batch	S0C7	IDISCBL1	n/a	n/a	n/a
F00235	IDISCBL1	0	0	n/a	IDIVPCOB	IDIVPCOB	Batch	S0C7	IDISCBL1	n/a	n/a	n/a
F00233	IDISCBL1	0	0	n/a	IDIVPCOB	IDIVPCOB	Batch	S0C7	IDISCBL1	n/a	n/a	n/a
F00232	PGM0A	0	0	n/a	DNET794A	DNET794A	Batch	S0CB	PGM0A	n/a	n/a	n/a
F00231	PGM0A	0	0	n/a	DNET794A	DNET794A	Batch	S0CB	PGM0A	n/a	n/a	n/a
F00230	SAM2	0	0	n/a	DNET424L	DNET424L	Batch	S0C7	SAM2	n/a	n/a	n/a
F00229	SAM2	0	0	n/a	DNET424L	DNET424L	Batch	S0C7	SAM2	n/a	n/a	n/a

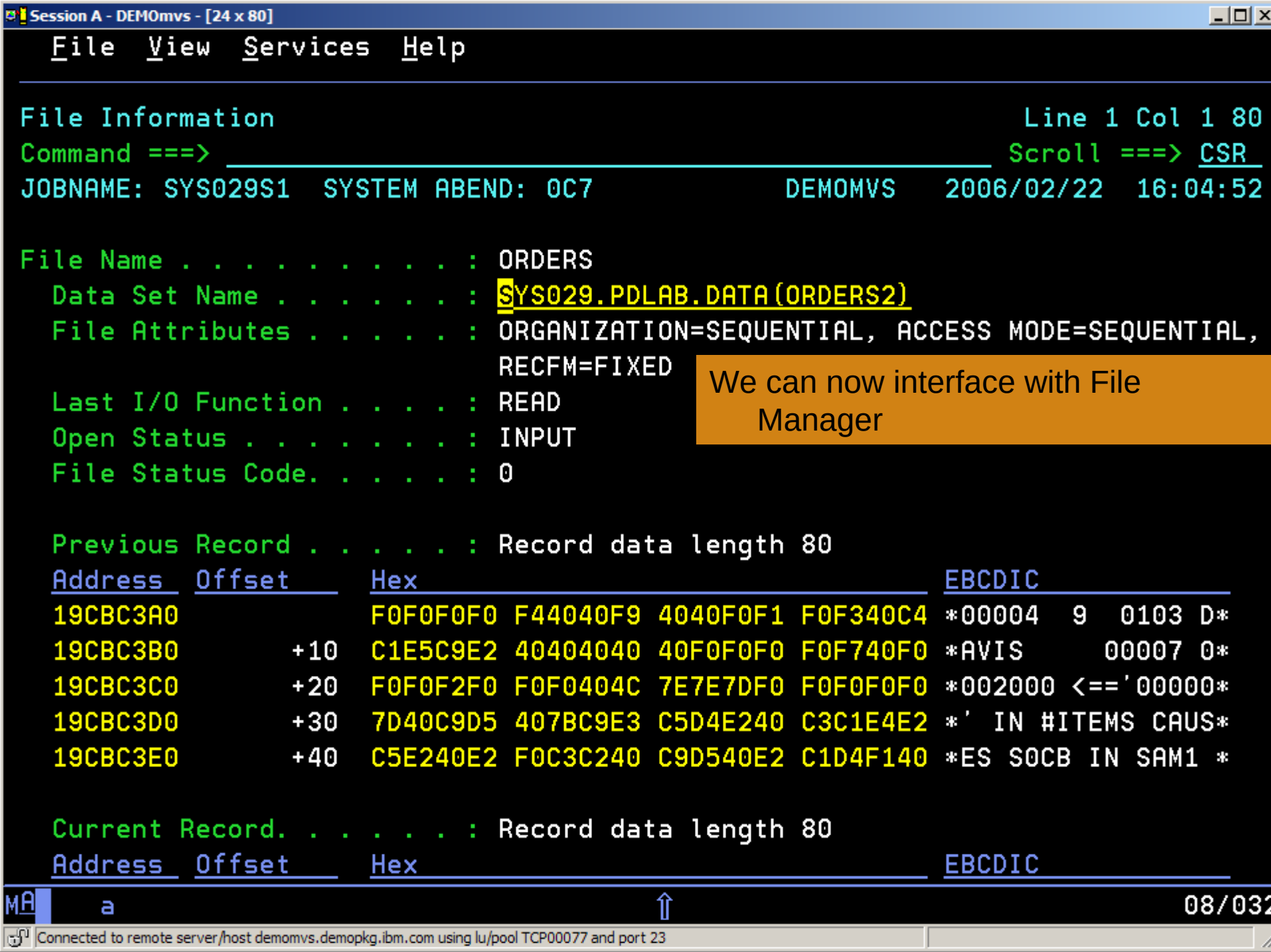
An example of a Fault Analyzer Report

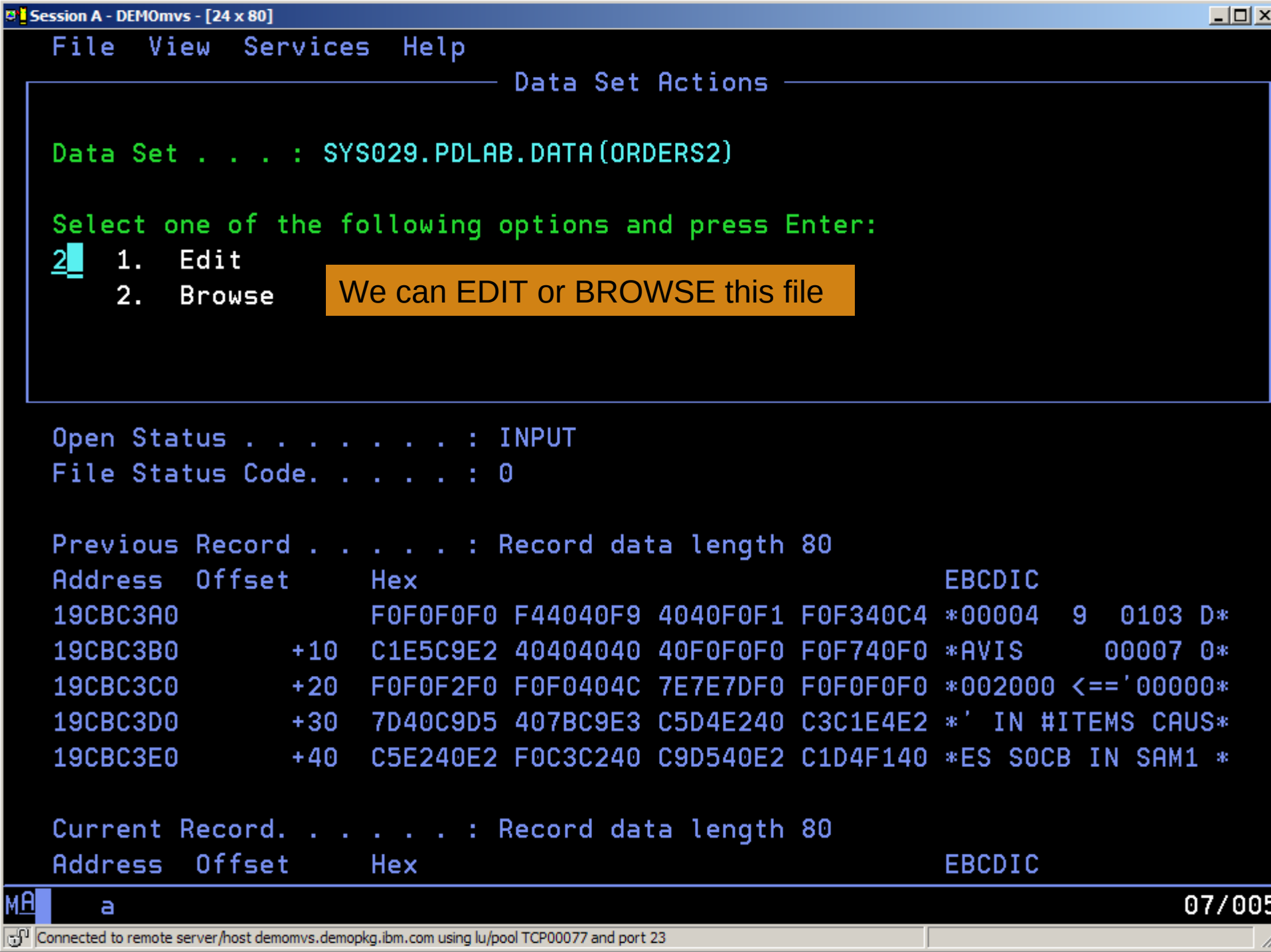

Session A - DEMOmvs - [24 x 80]
File View Services Help
Interactive Reanalysis Report
Line 1 Col 1 80
Command ===>
Scroll ===> CSR
JOBNAME: SYS029S1 SYSTEM ABEND: 0C7 DEMOMVS 2006/02/22 16:04:52
Fault Summary:
Module SAM2, program SAM2, offset X'456': Abend S0C7 (Data Exception).
Select one of the following options and press Enter to access further fault information:
1 1. Synopsis
2. Event Summary
3. System-Wide Information
4. Abend Job Information
5. Options in Effect
{Fault Analyzer maximum storage allocated: 1.54 megabytes.
*** Bottom of data.
This is the main FA Interactive Menu. All YELLOW fields are cursor sensitive.
a
12/005
Connected to remote server/host demomvs.demopkg.ibm.com using lu/pool TCP00077 and port 23

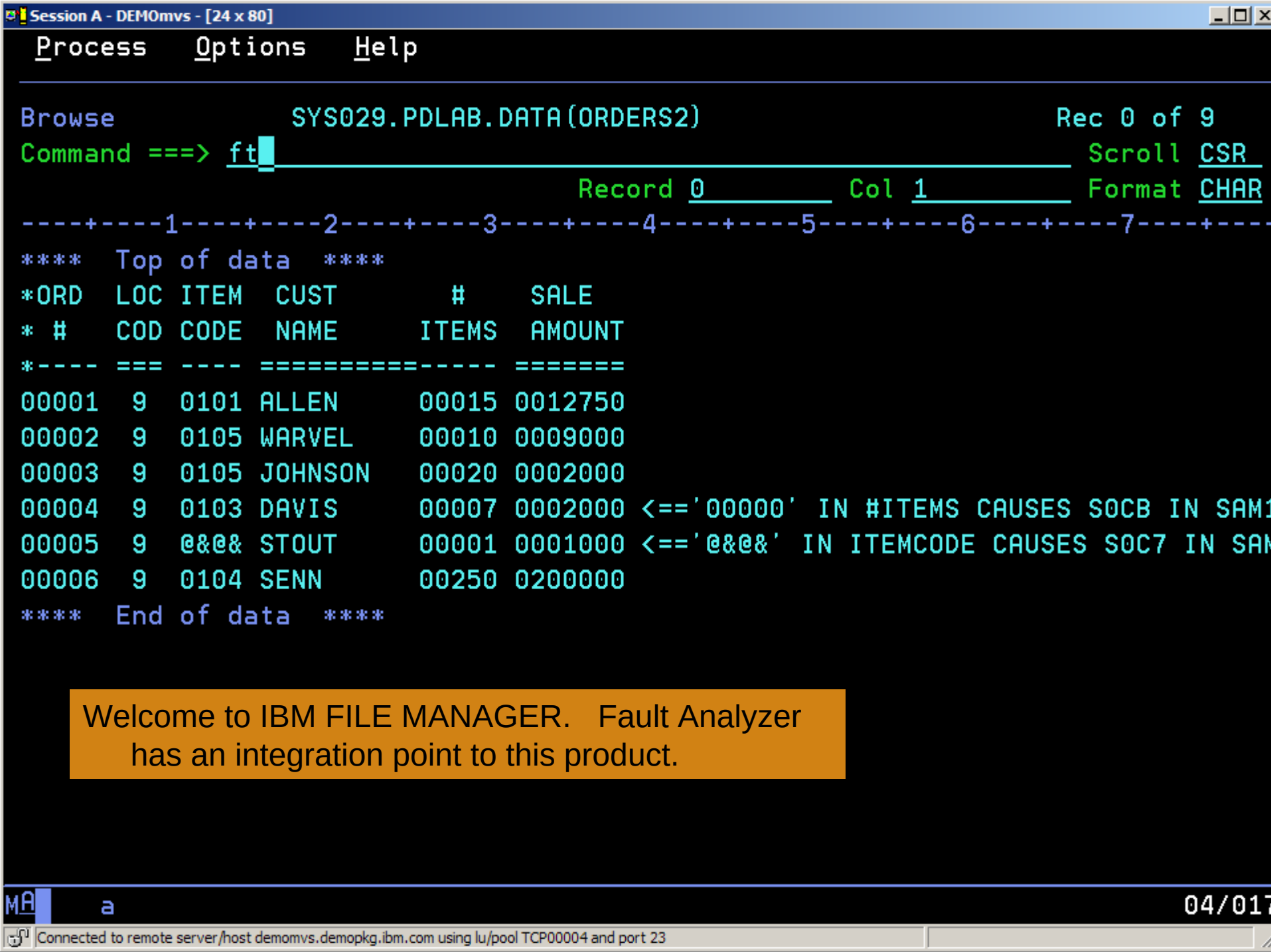

Session A - DEMOmvs - [24 x 80]
File View Services Help
Synopsis
Line 1 Col 1 80
Command ===>
Scroll ===> CSR
JOBNAME: SYS029S1 SYSTEM ABEND: 0C7 DEMOMVS 2006/02/22 16:04:52
A system abend 0C7 occurred in module SAM2 program SAM2 at offset X'456'.
A program-interruption code
abend and indicates that:
With Cursor on OC7, you can get details on this message/ABEND
A decimal digit or sign was invalid.
The abend was caused by machine instruction FA22D108802E (ADD DECIMAL).
Most recently referenced data items:
The failing operand at 19C8D4F0 is the result of a PACK instruction using th
following zoned decimal data item which contains invalid data:
Data Item . . . . . : BLL=0001+00A
At Address. . . . . : 19CBC3FA
Length. . . . . : X'4'
Data Item Storage . . . : 7C507C50 *@&@&*
MA a
07/017
Connected to remote server/host demomvs.demopkg.ibm.com using lu/pool TCP00077 and port 23


Session A - DEMOmvs - [24 x 80]
File View Services Help
Event 1 of 3: Call (DSA Address 19C8D030) Line 39 Col 1 80
Command ===> down Scroll ===> CSR
JOBNAME: SYS029S1 SYSTEM ABEND: 0C7 DEMOMVS 2006/02/22 16:04:52
R1: 19C8D158 (687784 bytes of storage addressable)
R2: 000077FC (96260 bytes of storage addressable)
R3: 19C89584 (703100 bytes of storage addressable)
R4: 19C8D150 (687792 bytes of storage addressable)
R5: 99C00988 (Module SAM1 program SAM1 + X'638', source line # 103)
R6: 19CB65E0 (Module SAM1 program SAM1 FILE SECTION BLF=0001 + X'0', symbol REPORT-LINE, source line # 48)
R7: 19CBC3F0 (Module SAM1 program SAM1 FILE SECTION BLF=0000 + X'0', symbol ORDER-RECORD, source line # 29)
R8: 19CAD0D0 (Module SAM1 program SAM1 WORKING-STORAGE SECTION BLW=0000 + X'0', symbol PROGRAM-WORK-FIELDS, source line # 52)
R9: 19C89448 (703416 bytes of storage addressable)
R10: 19C00478 (Module SAM1 program SAM1 + X'128')
R11: 19C00788 (Module SAM1 program SAM1 + X'438')
R12: 19C0044C (Module SAM1 program SAM1 + X'FC')
R13: 19C8D030 (688080 bytes of storage addressable)
R14: 99C00A5C (Module SAM1 program SAM1 + X'70C', source line # 114)
R15: 99C5B248 (Module IGZCPAC + X'45988')
MA a 04/019
Connected to remote server/host demomvs.demopkg.ibm.com using lu/pool TCP00077 and port 23


Session A - DEMOmvs - [24 x 80]
File View Services Help
Event 1 of 3: Call (DSA Address 19C8D030) Line 50 Col 1 80
Command ===> Scroll ===> CSR
JOBNAME: SYS029S1 SYSTEM ABEND: 0C7 DEMOMVS 2006/02/22 16:04:52
R9: 19C89448 (703416 bytes of storage addressable)
R10: 19C00478 (Module SAM1 program SAM1 + X'128')
R11: 19C00788 (Module SAM1 program SAM1 + X'438')
R12: 19C0044C (Module SAM1 program SAM1 + X'FC')
R13: 19C8D030 (688080 bytes of storage addressable)
R14: 99C00A5C (Module SAM1 program SAM1 + X'70C', source line # 114)
R15: 99C5B248 (Module IGZCPAC + X'45988')
Associated Open Files
File Name . . . . . : ORDERS
File Name . . . . . : SUMMARY
Associated Storage Areas
Next Event Details
*** Bottom of data.
Here we can display details for each file
16/032
Connected to remote server/host demomvs.demopkg.ibm.com using lu/pool TCP00077 and port 23

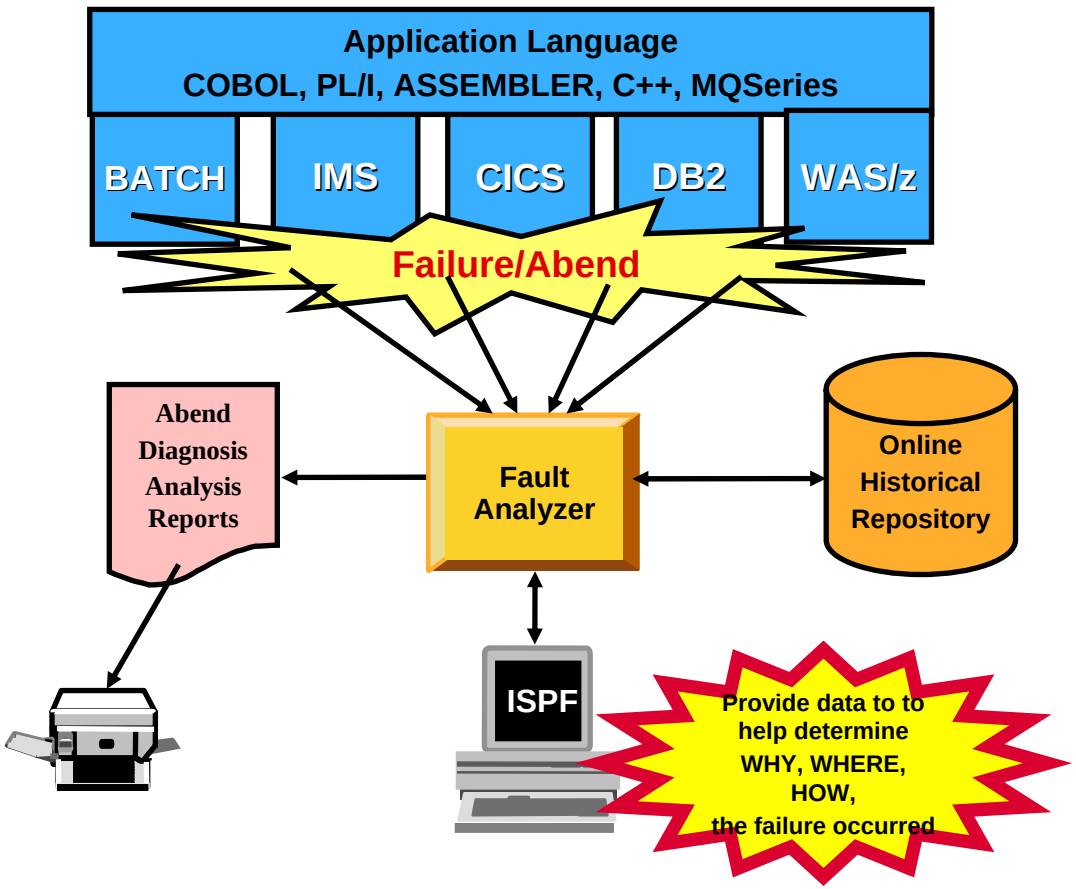

Session A - DEMOmvs - [24 x 80]
File View Services Help
File Information
Line 1 Col 1 80
Command ===>
Scroll ===> CSR
JOBNAME: SYS029S1 SYSTEM ABEND: 0C7
DEMOMVS 2006/02/22 16:04:52
File Name . . . . . : ORDERS
Data Set Name . . . . . : SYS029.PDLAB.DATA(ORDERS2)
File Attributes . . . . . : ORGANIZATION=SEQUENTIAL, ACCESS MODE=SEQUENTIAL,
RECFM=FIXED
Last I/O Function . . . . : READ
Open Status . . . . . : INPUT
File Status Code. . . . . : 0
We can now interface with File Manager
Previous Record . . . . . : Record data length 80
Address Offset Hex EBCDIC
19CBC3A0 F0F0F0F0 F44040F9 4040F0F1 F0F340C4 *00004 9 0103 D*
19CBC3B0 +10 C1E5C9E2 40404040 40F0F0F0 F0F740F0 *AVIS 00007 0*
19CBC3C0 +20 F0F0F2F0 F0F0404C 7E7E7DF0 F0F0F0F0 *002000 <==’00000*
19CBC3D0 +30 7D40C9D5 407BC9E3 C5D4E240 C3C1E4E2 *’ IN #ITEMS CAUS*
19CBC3E0 +40 C5E240E2 F0C3C240 C9D540E2 C1D4F140 *ES SOCB IN SAM1 *
Current Record. . . . . : Record data length 80
Address Offset Hex EBCDIC
MA a
08/032
Connected to remote server/host demomvs.demopkg.ibm.com using lu/pool TCP00077 and port 23


Session A - DEMOmvs - [24 x 80]
File View Services Help
Data Set Actions
Data Set . . . : SYS029.PDLAB.DATA(ORDERS2)
Select one of the following options and press Enter:
2 1. Edit
2. Browse
We can EDIT or BROWSE this file
Open Status . . . . . : INPUT
File Status Code. . . . . : 0
Previous Record . . . . . : Record data length 80
Address Offset Hex EBCDIC
19CBC3A0 F0F0F0F0 F44040F9 4040F0F1 F0F340C4 *00004 9 0103 D*
19CBC3B0 +10 C1E5C9E2 40404040 40F0F0F0 F0F740F0 *AVIS 00007 0*
19CBC3C0 +20 F0F0F2F0 F0F0404C 7E7E7DF0 F0F0F0F0 *002000 <==' 00000*
19CBC3D0 +30 7D40C9D5 407BC9E3 C5D4E240 C3C1E4E2 *' IN #ITEMS CAUS*
19CBC3E0 +40 C5E240E2 F0C3C240 C9D540E2 C1D4F140 *ES S0CB IN SAM1 *
Current Record. . . . . : Record data length 80
Address Offset Hex EBCDIC
MA a
07/005
Connected to remote server/host demomvs.demopkg.ibm.com using lu/pool TCP00077 and port 23


Session A - DEMOmvs - [24 x 80]
Process Options Help
Browse SYS029.PDLAB.DATA(ORDERS2) Rec 0 of 9
Command ===> ft Scroll CSR
Record 0 Col 1 Format CHAR
----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----
**** Top of data ****
*ORD LOC ITEM CUST # SALE
* # COD CODE NAME ITEMS AMOUNT
*---- === ---- ============== =======
00001 9 0101 ALLEN 00015 0012750
00002 9 0105 WARVEL 00010 0009000
00003 9 0105 JOHNSON 00020 0002000
00004 9 0103 DAVIS 00007 0002000 <=='00000' IN #ITEMS CAUSES S0CB IN SAM1
00005 9 @&@& STOUT 00001 0001000 <=='@&@&' IN ITEMCODE CAUSES S0C7 IN SAM
00006 9 0104 SENN 00250 0200000
**** End of data ****
Welcome to IBM FILE MANAGER. Fault Analyzer has an integration point to this product.
MA a 04/017
Connected to remote server/host demomvs.demopkg.ibm.com using lu/pool TCP00004 and port 23

Fault Analyzer Summary

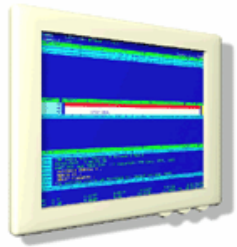
Helps you rapidly pinpoint why and where an enterprise application abended and offers suggestions on how to resolve



- **Single Fault Analysis Product For All Environments**
  - Analysis At Application Level
  - Information Gathered At Time Of Abend
  - Translates Low-level "Dump" Information Into Application-level Information
  - Expands Abend Code And Message Descriptions
  - No Recompile Of Applications
  - No JCL Changes
  - No Performance Overhead
  - ISPF Fault History Log Facility
- **Consistent Across Languages**
  - COBOL, C, C++, PL/I, Assembler, LE
- **Environments Supported**
  - CICS, TSO, JES/Batch, IMS, DB2, Unix System Services, MQSeries

IBM Debug Tool Utilities and Advanced Functions

What is Debug Tool Utilities and Advanced Functions ?



- A tool that helps you test programs, and monitor and control the execution of programs
- An interactive, source level debugger
- A set of utilities:
  - *Load Module Analyzer*
  - *COBOL Modernization Utility*
  - *Code Coverage Utility*

IBM Debug Tool and Advanced Functions for z/OS

Use it to:

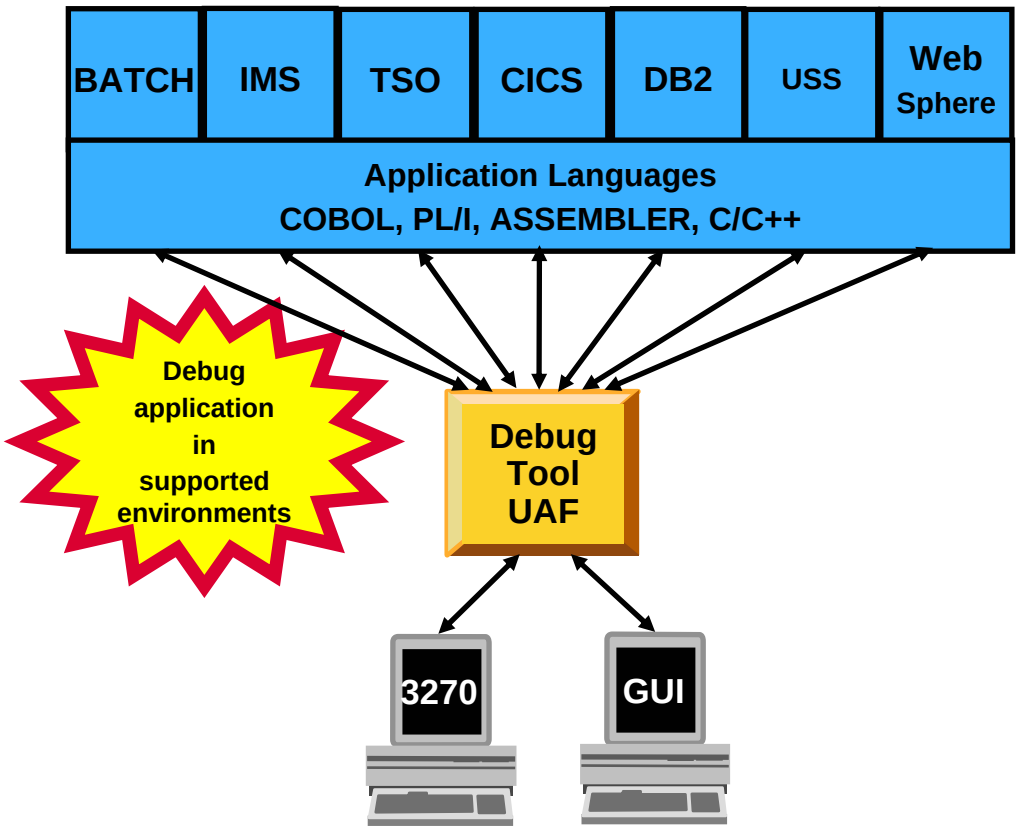
- Interactively debug an application program while it runs
  - Step through source statements, set “breakpoints” and run, monitor and change program variables
- Modernize COBOL programs written for older compilers

Key Features:

- Debug COBOL, PLI, C, C++, and Assembler programs
- Support for batch, CICS, IMS, DB2, and DB2 stored procedure programs
- Set conditional or unconditional breakpoints; or run a script at a breakpoint
- Gives you the ability to trap and repair abends
- Optional intuitive GUI interface using WDDZ or WDz
- COBOL Conversion Utility for OS/VS Cobol programs

Debug Tool UAF Functional Overview

Provides debugging of enterprise applications



- **Features:**
  - Playback support
  - Automonitor support for COBOL and PL/I programs
  - An interface to the Fault Analyzer tool
  - A code coverage tool
  - Support for identifying and converting OS/VS COBOL source programs to ANSI 85 standard COBOL
  - Preparation and compile facilities for programs
  - Commands to query, allocate, and free files
- **Consistent Across Languages**
  - COBOL, C, C++, PL/I, Assembler
- **Environments Supported**
  - CICS, TSO, JES/Batch, IMS Including IMS/TM, DB2 Including Stored Procedures
  - Uses the GUI debug interface built into products such as:
    - *Websphere Developer for zSeries (WDz)*
    - *Websphere Dev. Debugger for zSeries (WDDz)*

Debug Tool V7 Key New Functions

Monitor and Automonitor enhancements.

- Displays variable values in columnar format. This includes members of an array or structure.
- Provides a new command, Set Monitor Column, to direct Debug Tool to format the monitor window display in column format.
- Provides a new command, Set Monitor Wrap, to direct Debug Tool to display the value of a monitored or automonitored variable either wrapped in the monitor window or on a single scrollable line.
- Provides a new command, Set Monitor Datatype, to direct Debug Tool to display the datatype of a variable for monitored and automonitor variables.

Debug Tool V7 Key New Functions

The Debug Tool Coverage Utility (DTCU) is updated to help you ensure that the SVC numbers that you choose to use for the DTCU breakpoint SVCs do not conflict with another product's SVC numbers.

- **The Coverage Utility Annotated Listing report is updated to be an HTML version that contains colored lines indicating statements not executed and recomputed statistics based on the annotations in the listing instead of the raw coverage data.**
  - **Option to the Debug Tool Utilities and Advanced Functions primary panel is added to invoke File Manager base function.**

Debug Tool V7 Key New Functions

- **The user can display the source for a compile unit (CU) prior to the loading of the load module containing the CU and/or prior to execution of a COBOL CU. When a source is displayed in this situation, the user can then examine existing breakpoints, set new breakpoints, etc. These breakpoints will then be applied when the CU becomes active.**

Debug Tool V7 Key New Functions

New variable display enhancements.

- Displays output in one line, and does not overlap across several lines.
- Provides a ruler to indicate offset from start of display to current cursor position.
- Allows for scroll left and right of the monitor value area for large values.
- Allows for update of large variables directly in the monitor window.
- Includes the HEX prefix command that can now apply to only one member of an array or a sublevel of a structure and not to the entire array or structure.

Debug Tool Utilities and Advanced Functions Summary:

- **Common User Interface Across Systems And Subsystems**
- **Consistent Across Languages**
  - COBOL, C/C++, PL/I, Assembler
- **Environments Supported**
  - CICS
  - TSO
  - JES/Batch
  - IMS Including IMS/TM
  - DB2 Including Stored Procedures
  - Unix System Services (USS)
  - MQSeries

- **Debug Tool Utilities and Advanced Functions Features:**:
  - **Source-level Debugging**
  - **Step mode debugging**
  - **Multiple Breakpoints**
    - **at program statements**
    - **at change of storage / variable**
    - **at subroutine call / entry**
  - **Recovery of program ABENDS**
  - **Step Mode Debugging**
  - **Dynamic Program Patching**
  - **Statement Frequency Counter**
  - **Enhancements for Interactive Debugging**
  - **“disassembly” interactive debug support**
  - **An interface to the Fault Analyzer tool**
  - **Code coverage tool for unit and regression testing**
  - **COBOL modernization utilities**
  - **Support for OS/VS COBOL source programs**
- **For More Information:**
  http://www-306.ibm.com/software/awdtools/debugtool/

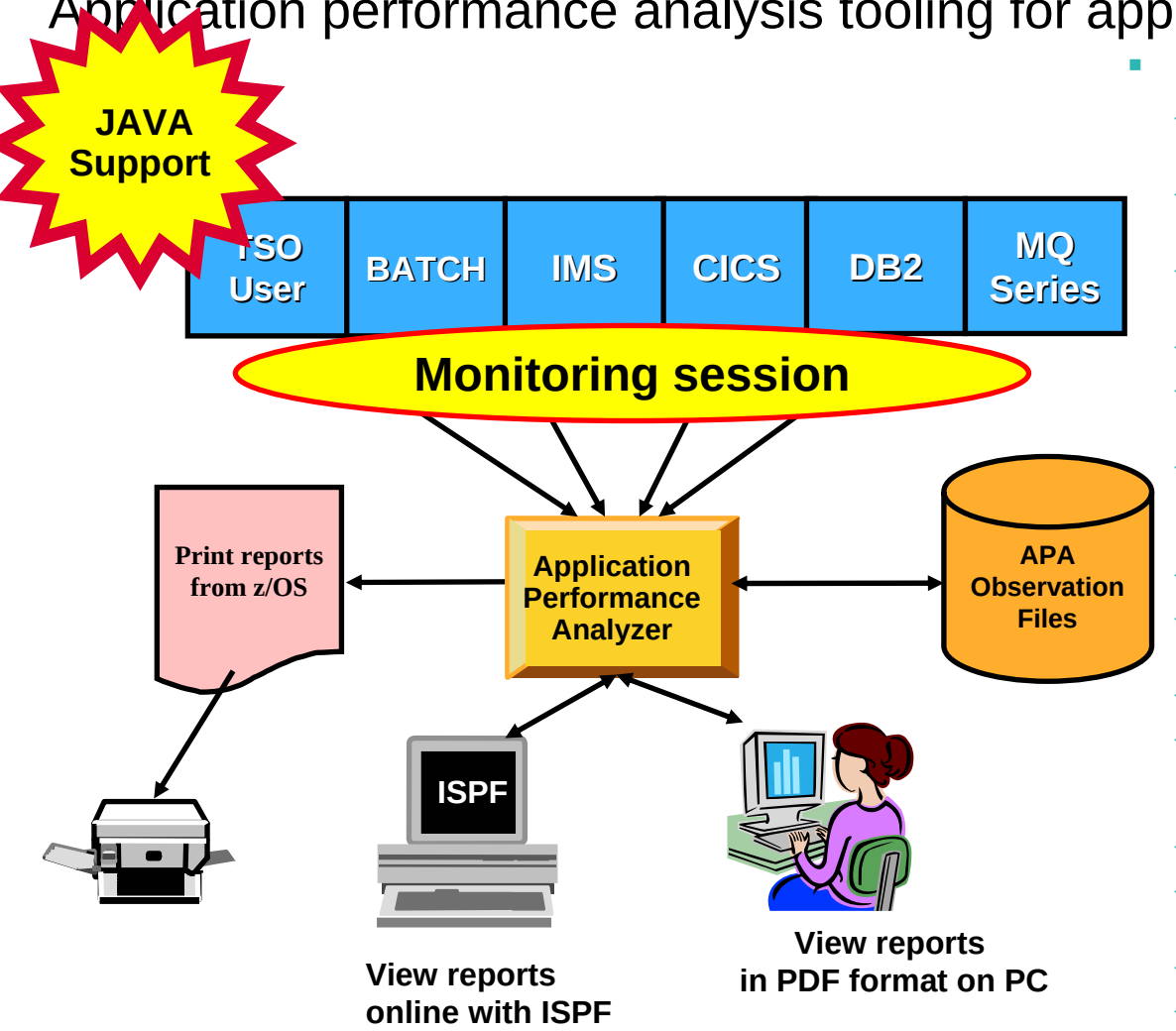
IBM Application Performance Analyzer

What is Application Performance Analyzer ?

- A performance analyzer for application programs
  - **A tool that shows resources used by an application**
  - **so you can identify the cause of performance problems**
- Delivers information about an application, to help answer:
  - **What programs are running?**
  - **What percentage of time is spent in each program?**
  - **Which lines of code are using the most time?**
  - **What files and databases are being used?**
  - **Why is the application waiting?**

Application Performance Analyzer Functional Overview

Application performance analysis tooling for application developers



- **Features:**
  - Summary/Profile Reports with drill down into detailed levels via an ISPF interface or PDF hardcopy
  - CPU, Load Module, and CSECT Analysis of all modules in the address space
  - Source Statement (COBOL or PL1) or Instruction utilization in each CSECT
  - Supports Fault Analyzer / Debug Tool Sidefiles
  - Wait Time Analysis by Category, Task/Module, or Attribution
  - DASD I/O Analysis by Device, DD Name, Dataset and Dataset Attributes, EXCP's, VSAM with Buffer Pool, I/O Wait, Over Time
  - Sysplex Coupling Facility Reports
  - DB2 SQL Analysis – Static and Dynamic – Service Times
  - DB2 Analysis by DBRM, Statement, and Plan
  - CICS Session Statistics, Transaction Analysis by CPU Usage, Mean and Total Service Time, and Waits by Transaction
  - IMS CPU and Service Time Analysis
  - MQ Series Analysis by Queue, Request, and Transaction
  - Interval Reporting
  - Adjustable Sampling Rate
  - Repeated Observation Sessions
  - Internal (APA) and External (RACF, etc) Security

Application Performance Analyzer

- **Get information about application performance:**
  - Interactively monitor a running application
  - Schedule monitoring for an application that will run later
- **Support for application running in:**
  - Batch jobs
  - CICS transactions
  - IMS transactions
  - TSO

APA V7 Key New Functions

NEW FUNCTION

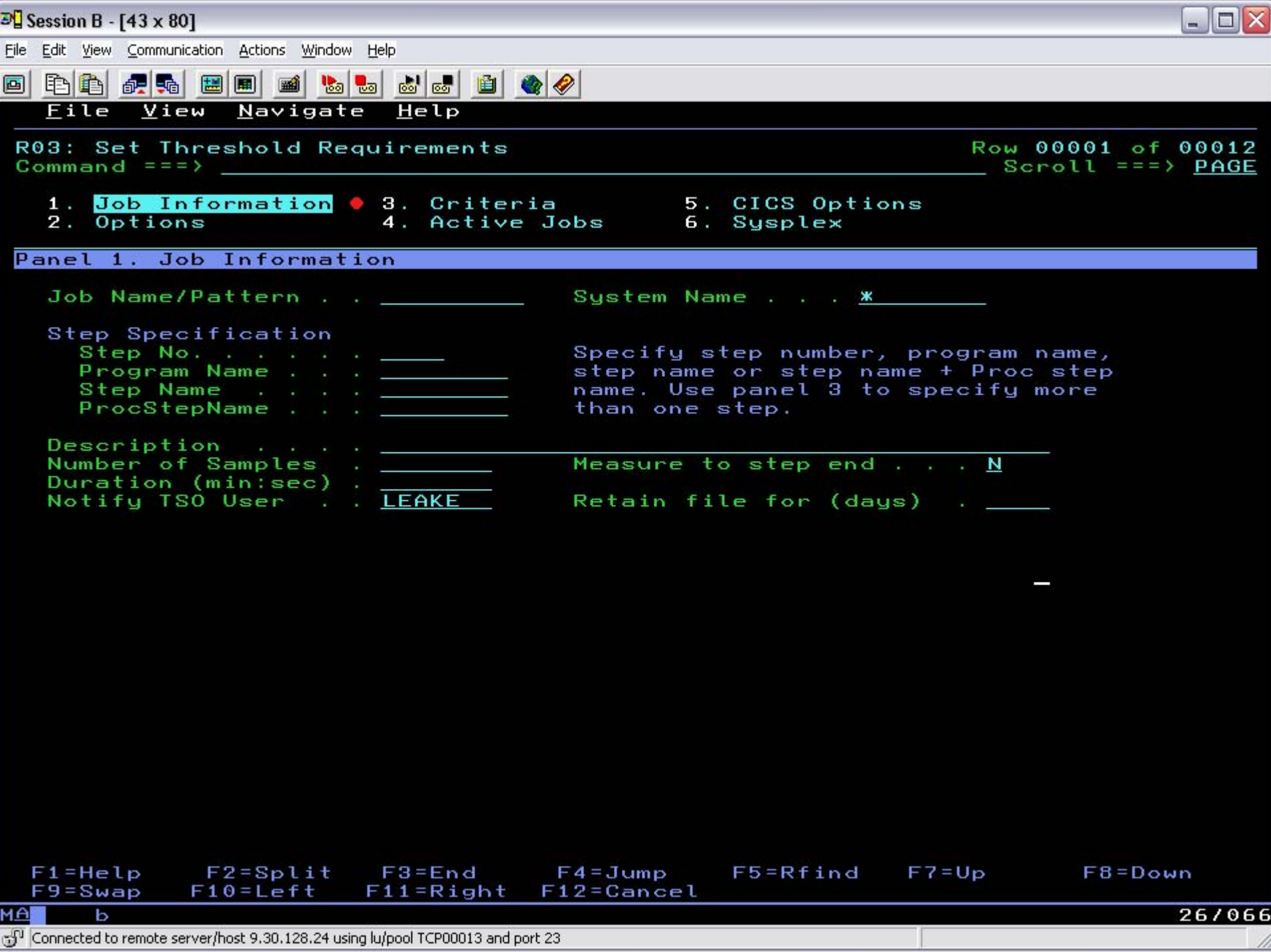
- As a companion function to threshold monitoring, Application Performance Analyzer now permits comparison of two observation reports to show the relevant differences.
- Workload Manager (WLM) influence on performance of applications by showing its impact on the application can be supported.
- Host variable support for SQL reports is included.
- Application Performance Analyzer now provides support for DB2 V9. In addition, APA provides support for Stored Procedures written in Java.

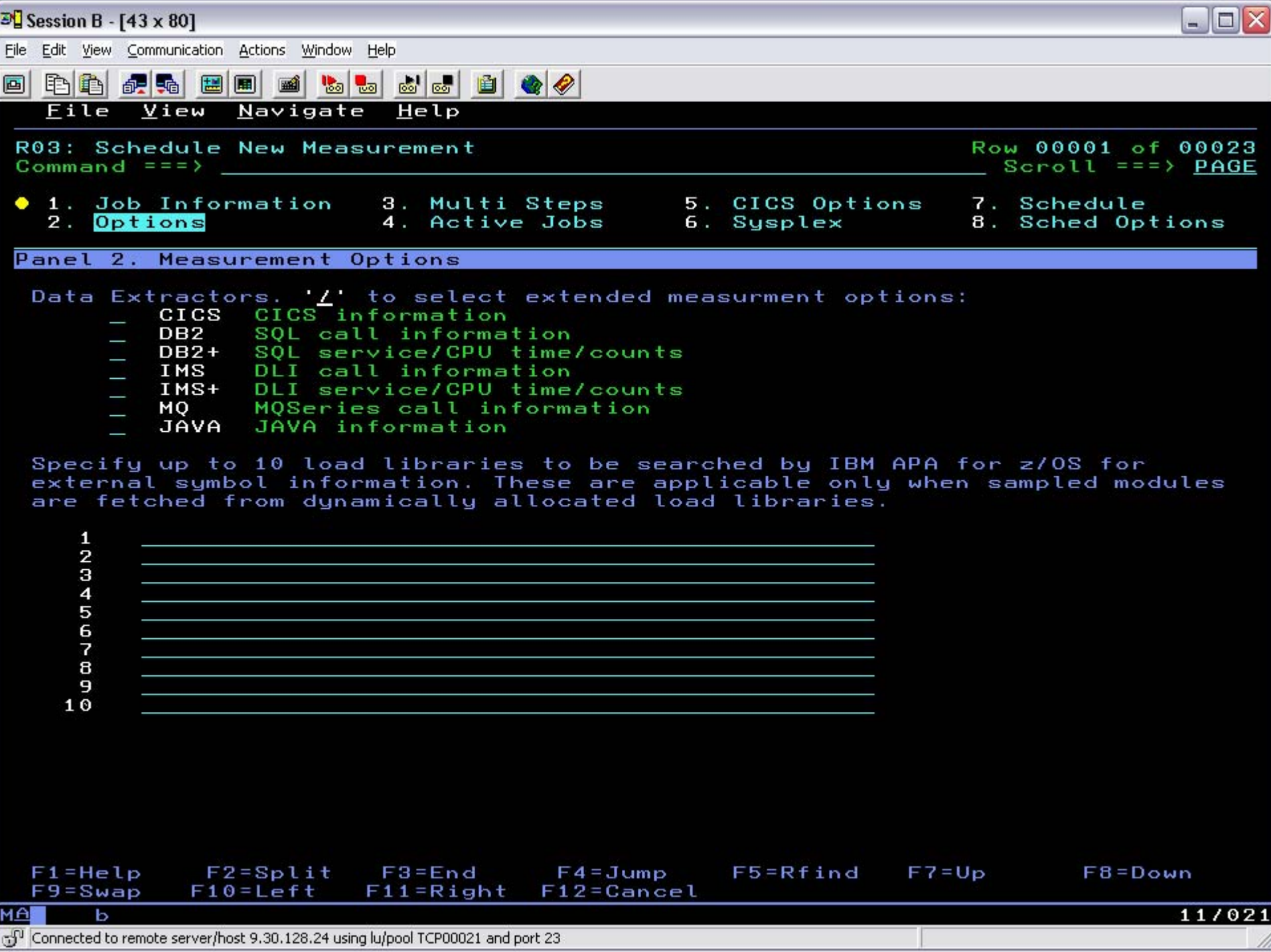
APA V7 Key New Functions

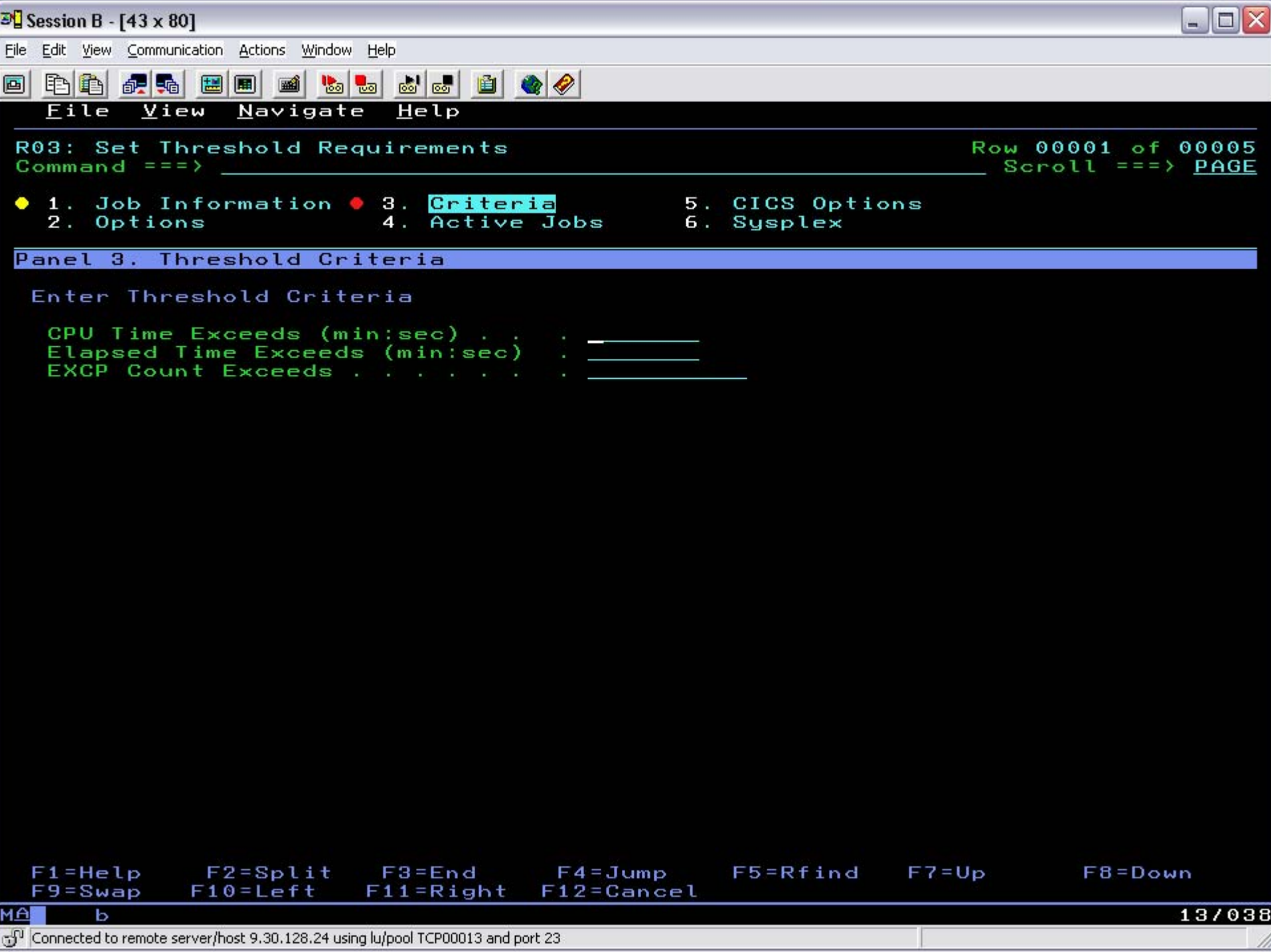
NEW FUNCTION (cont.)

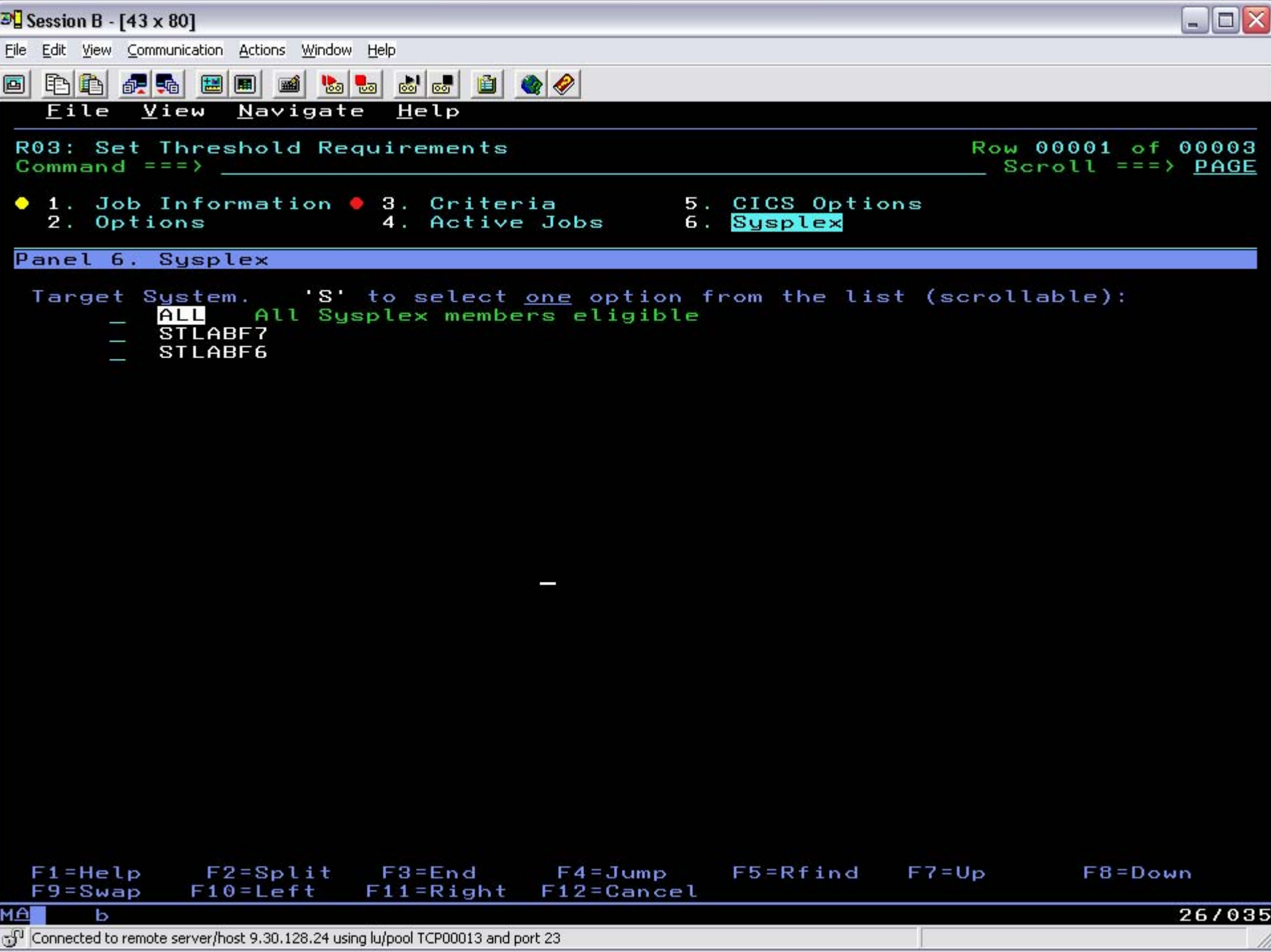
- Users can now select observations in CICS by termID selection which provides another powerful way to isolate transactions to monitor in CICS.
- Source mapping C/C++ support is delivered so that C and/or C++ applications that run in the z/OS address space may be monitored by APA.
- Application Performance Analyzer for IMS has been significantly enhanced to support IMS transactions. As a result the number of IMS reports is now 21 which greatly improves the ability to analyze the influences of IMS on application performance. 64-bit memory use is now reported in APA.

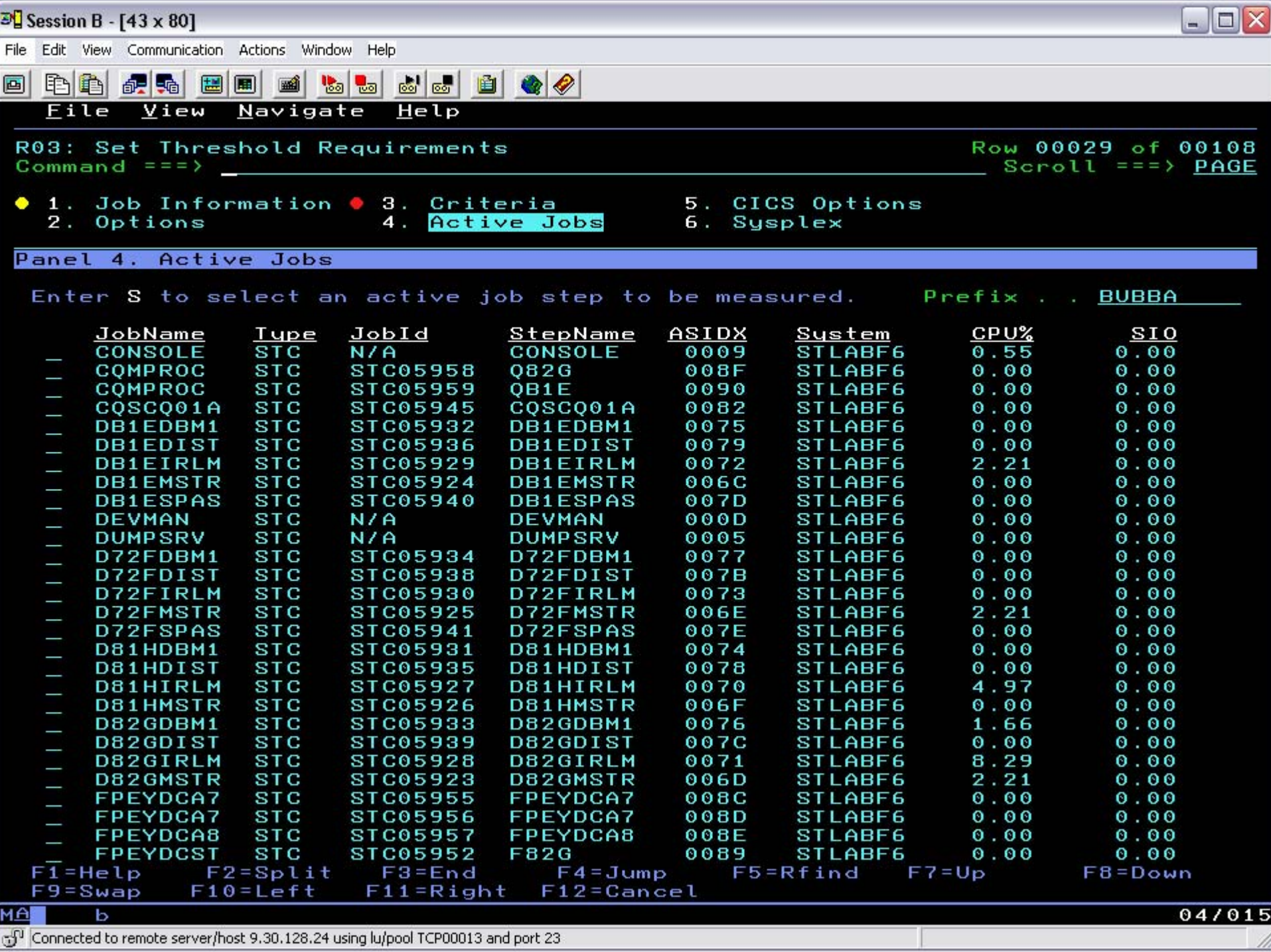
APA V7 Threshold Monitoring

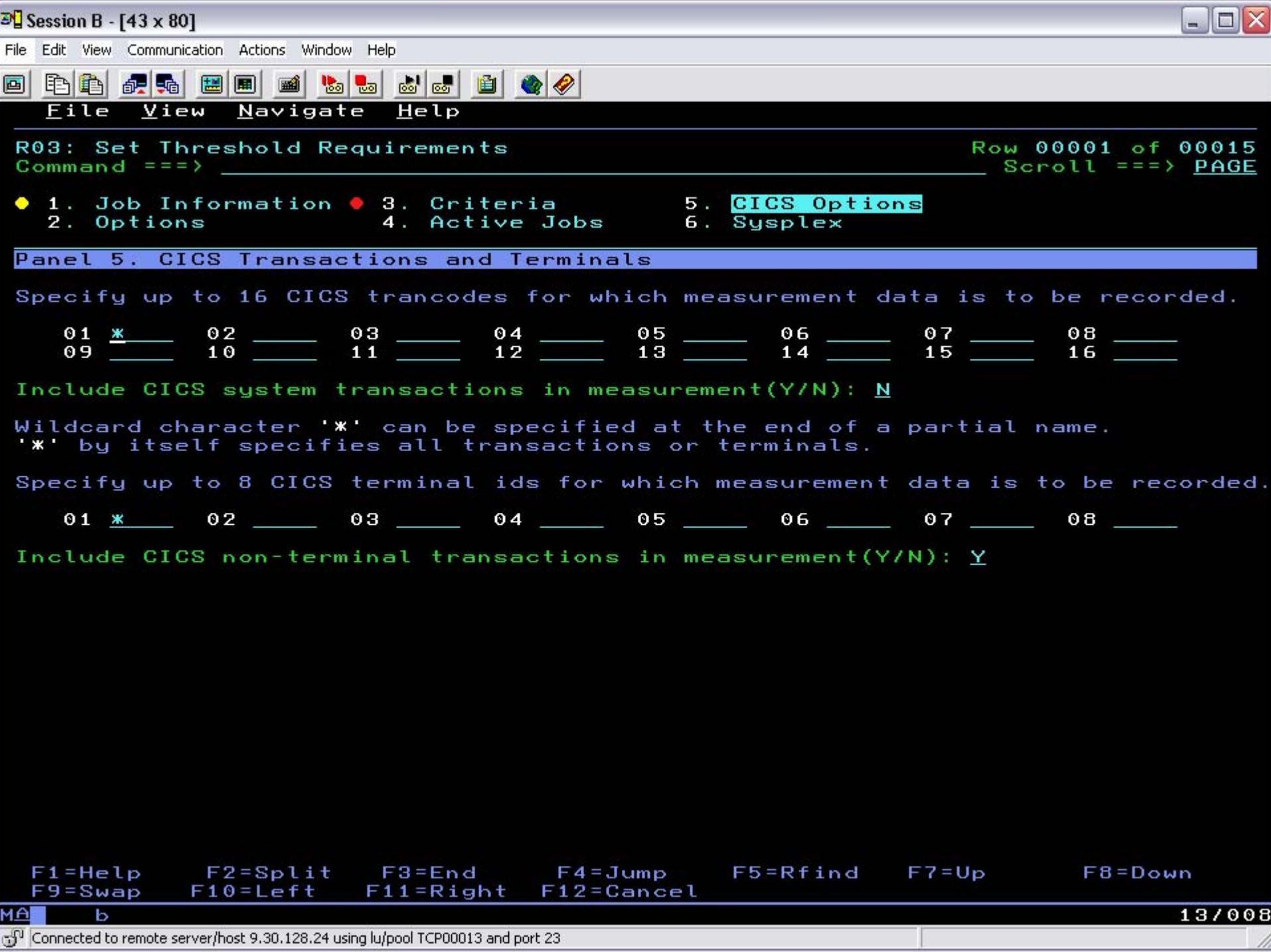

Session B - [43 x 80]
File Edit View Communication Actions Window Help
File View Navigate Help
R03: Set Threshold Requirements
Row 00001 of 00012
Command ===>
Scroll ===> PAGE
1. Job Information
2. Options
3. Criteria
4. Active Jobs
5. CICS Options
6. Sysplex
Panel 1. Job Information
Job Name/Pattern . . _____
System Name . . . *_____
Step Specification
Step No. . . . . _____
Program Name . . . _____
Step Name . . . . _____
ProcStepName . . . _____
Specify step number, program name, step name or step name + Proc step name. Use panel 3 to specify more than one step.
Description . . . . _____
Number of Samples . _____
Duration (min:sec) . _____
Measure to step end . . . N
Notify TSO User . . LEAKE
Retain file for (days) . _____
F1=Help F2=Split F3=End F4=Jump F5=Rfind F7=Up F8=Down
F9=Swap F10=Left F11=Right F12=Cancel
MA b
26/066
Connected to remote server/host 9.30.128.24 using lu/pool TCP00013 and port 23


Session B - [43 x 80]
File Edit View Communication Actions Window Help
File View Navigate Help
R03: Schedule New Measurement
Row 00001 of 00023
Command ===>
Scroll ===> PAGE
1. Job Information
2. Options
3. Multi Steps
4. Active Jobs
5. CICS Options
6. Sysplex
7. Schedule
8. Sched Options
Panel 2. Measurement Options
Data Extractors. '/' to select extended measurment options:
_ CICS CICS information
_ DB2 SQL call information
_ DB2+ SQL service/CPU time/counts
_ IMS DLI call information
_ IMS+ DLI service/CPU time/counts
_ MQ MQSeries call information
_ JAVA JAVA information
Specify up to 10 load libraries to be searched by IBM APA for z/OS for external symbol information. These are applicable only when sampled modules are fetched from dynamically allocated load libraries.
1
2
3
4
5
6
7
8
9
10
F1=Help F2=Split F3=End F4=Jump F5=Rfind F7=Up F8=Down
F9=Swap F10=Left F11=Right F12=Cancel
MA b
11/021
Connected to remote server/host 9.30.128.24 using lu/pool TCP00021 and port 23


Session B - [43 x 80]
File Edit View Communication Actions Window Help
File View Navigate Help
R03: Set Threshold Requirements
Row 00001 of 00005
Command ===>
Scroll ===> PAGE
1. Job Information
2. Options
3. Criteria
4. Active Jobs
5. CICS Options
6. Sysplex
Panel 3. Threshold Criteria
Enter Threshold Criteria
CPU Time Exceeds (min:sec) . . .
Elapsed Time Exceeds (min:sec) .
EXCP Count Exceeds . . . . . .
F1=Help F2=Split F3=End F4=Jump F5=Rfind F7=Up F8=Down
F9=Swap F10=Left F11=Right F12=Cancel
MA b
13/038
Connected to remote server/host 9.30.128.24 using lu/pool TCP00013 and port 23


Session B - [43 x 80]
File Edit View Communication Actions Window Help
File View Navigate Help
R03: Set Threshold Requirements
Row 00001 of 00003
Command ===>
Scroll ===> PAGE
1. Job Information
2. Options
3. Criteria
4. Active Jobs
5. CICS Options
6. Sysplex
Panel 6. Sysplex
Target System. 'S' to select one option from the list (scrollable):
ALL All Sysplex members eligible
STLABF7
STLABF6
F1=Help F2=Split F3=End F4=Jump F5=Rfind F7=Up F8=Down
F9=Swap F10=Left F11=Right F12=Cancel
MA b
26/035
Connected to remote server/host 9.30.128.24 using lu/pool TCP00013 and port 23


Session B - [43 x 80]
File Edit View Communication Actions Window Help
File View Navigate Help
R03: Set Threshold Requirements
Row 00029 of 00108
Command ===>
Scroll ===> PAGE
1. Job Information
2. Options
3. Criteria
4. Active Jobs
5. CICS Options
6. Sysplex
Panel 4. Active Jobs
Enter S to select an active job step to be measured.
Prefix . . BUBBA
JobName Type JobId StepName ASIDX System CPU% SIO
CONSOLE STC N/A CONSOLE 0009 STLABF6 0.55 0.00
CQMPROC STC STC05958 Q82G 008F STLABF6 0.00 0.00
CQMPROC STC STC05959 QB1E 0090 STLABF6 0.00 0.00
CQSCQ01A STC STC05945 CQSCQ01A 0082 STLABF6 0.00 0.00
DB1EDBM1 STC STC05932 DB1EDBM1 0075 STLABF6 0.00 0.00
DB1EDIST STC STC05936 DB1EDIST 0079 STLABF6 0.00 0.00
DB1EIRLM STC STC05929 DB1EIRLM 0072 STLABF6 2.21 0.00
DB1EMSTR STC STC05924 DB1EMSTR 006C STLABF6 0.00 0.00
DB1ESPAS STC STC05940 DB1ESPAS 007D STLABF6 0.00 0.00
DEVMAN STC N/A DEVMAN 000D STLABF6 0.00 0.00
DUMPSRV STC N/A DUMPSRV 0005 STLABF6 0.00 0.00
D72FDBM1 STC STC05934 D72FDBM1 0077 STLABF6 0.00 0.00
D72FDIST STC STC05938 D72FDIST 007B STLABF6 0.00 0.00
D72FIRLM STC STC05930 D72FIRLM 0073 STLABF6 0.00 0.00
D72FMSTR STC STC05925 D72FMSTR 006E STLABF6 2.21 0.00
D72FSPAS STC STC05941 D72FSPAS 007E STLABF6 0.00 0.00
D81HDBM1 STC STC05931 D81HDBM1 0074 STLABF6 0.00 0.00
D81HDIST STC STC05935 D81HDIST 0078 STLABF6 0.00 0.00
D81HIRLM STC STC05927 D81HIRLM 0070 STLABF6 4.97 0.00
D81HMSTR STC STC05926 D81HMSTR 006F STLABF6 0.00 0.00
D82GDBM1 STC STC05933 D82GDBM1 0076 STLABF6 1.66 0.00
D82GDIST STC STC05939 D82GDIST 007C STLABF6 0.00 0.00
D82GIRLM STC STC05928 D82GIRLM 0071 STLABF6 8.29 0.00
D82GMSTR STC STC05923 D82GMSTR 006D STLABF6 2.21 0.00
FPEYDCA7 STC STC05955 FPEYDCA7 008C STLABF6 0.00 0.00
FPEYDCA7 STC STC05956 FPEYDCA7 008D STLABF6 0.00 0.00
FPEYDCA8 STC STC05957 FPEYDCA8 008E STLABF6 0.00 0.00
FPEYDCST STC STC05952 F82G 0089 STLABF6 0.00 0.00
F1=Help F2=Split F3=End F4=Jump F5=Rfind F7=Up F8=Down
F9=Swap F10=Left F11=Right F12=Cancel
MA b
04/015
Connected to remote server/host 9.30.128.24 using lu/pool TCP00013 and port 23


Session B - [43 x 80]
File Edit View Communication Actions Window Help
File View Navigate Help
R03: Set Threshold Requirements
Row 00001 of 00015
Command ===>
Scroll ===> PAGE
1. Job Information
2. Options
3. Criteria
4. Active Jobs
5. CICS Options
6. Sysplex
Panel 5. CICS Transactions and Terminals
Specify up to 16 CICS trancodes for which measurement data is to be recorded.
01 * 02 03 04 05 06 07 08
09 10 11 12 13 14 15 16
Include CICS system transactions in measurement(Y/N): N
Wildcard character '*' can be specified at the end of a partial name.
'*' by itself specifies all transactions or terminals.
Specify up to 8 CICS terminal ids for which measurement data is to be recorded.
01 * 02 03 04 05 06 07 08
Include CICS non-terminal transactions in measurement(Y/N): Y
F1=Help F2=Split F3=End F4=Jump F5=Rfind F7=Up F8=Down
F9=Swap F10=Left F11=Right F12=Cancel
MA b
13/008
Connected to remote server/host 9.30.128.24 using lu/pool TCP00013 and port 23

Application Performance Analyzer Partial Report Summary – Over 90 reports provided

CICS
Session Statistics
CPU Usage by Txn
Mean Service Time by Txn
Total Service Time by Txn
Service Time by Task Id
Wait Time by Txn

Storage & Statistics
Measurement Profile
Load Module Attributes
Load Module Summary
TCB Summary
Memory Usage Timeline
Data Space Usage Timeline
TCB Execution Summary
Processor Utilization Summary

DB2
Measurement Profile
SQL Wait Time by Statement
SQL Activity Timeline
SQL Wait Time by Plan
SQL Activity by DBRM
SQL CPU/Svc Time by DBRM
SQL Activity by Statement
SQL CPU/Svc Time by Stmt
SQL Activity by Plan
SQL CPU/Svc Time by Plan
SQL Statement Attributes
SQL Threads Analysis
SQL Wait Time by DBRM
CPU by Plan/Stored Proc

Wait
Time by Task/Category
Time by Task/Module
Time Referred Attribution

CPU
Usage by Category
Usage by Procedure
Usage by Module
Referred Attribution
Usage by Code Slice
Usage Timeline
Usage Task/Category
Usage Task/Module

MQSeries
Activity Summary
Serv Time by Txn
CPU Usage by Queue
Wait Time by Queue
CPU Usage by Request
Wait Time by Reque
CPU Usage by Txn
Wait Time by Txn
Serv Time by Queue
Serv Time by Request

DASD
Usage by Device
Activity Timeline
Usage by DDNAME
I/O Wait Time
Usage by Dataset
VSAM Buffer Pool Usag
Dataset Attributes
Summary
D06 DASD VSAM Statistics

IMS
DL/I Call CPU Time
DL/I Call Service Time

Coupling Facility
Summary
Mean Times
Facility Total Times

IBM Application Performance Analyzer Summary

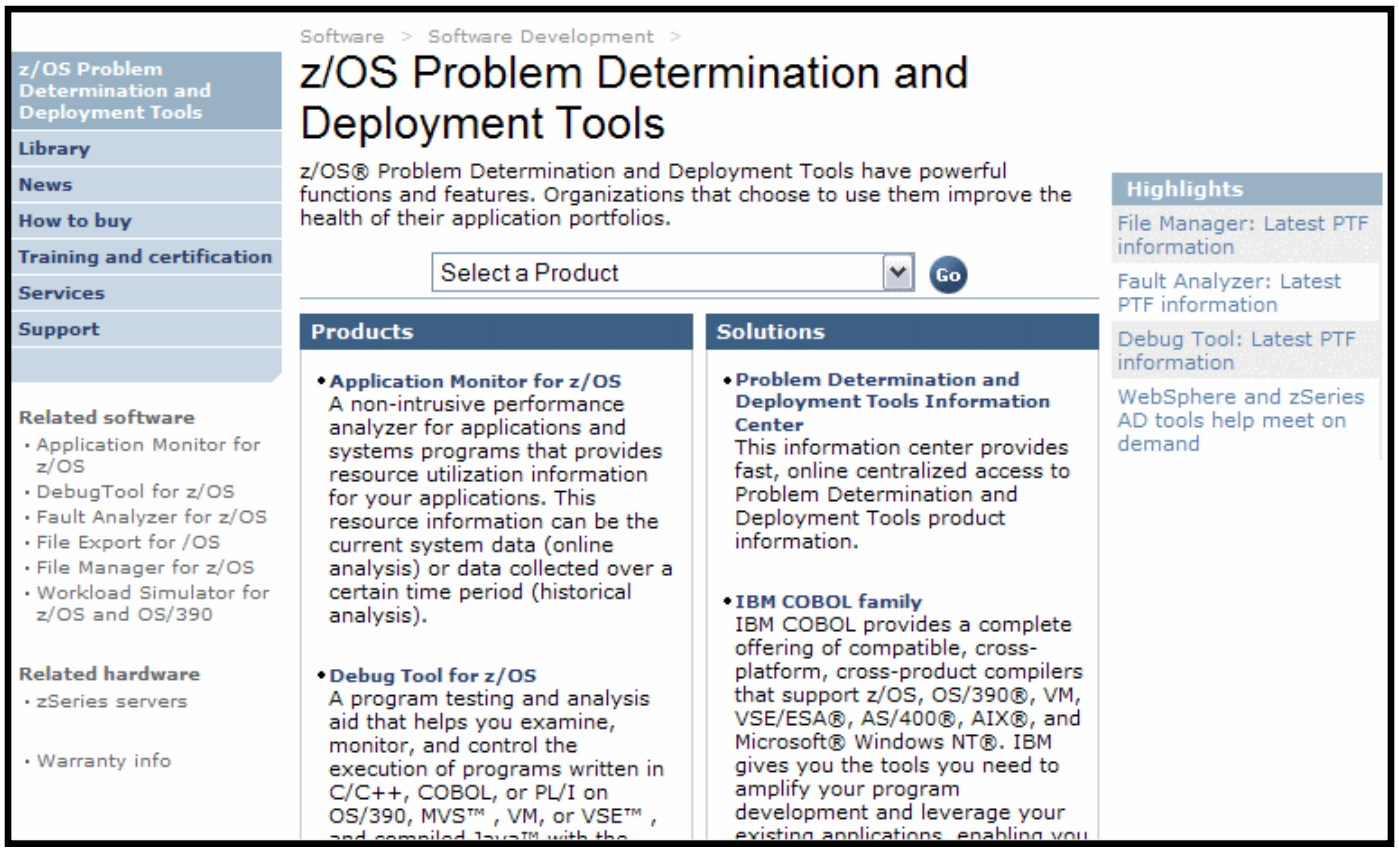
- **Non-intrusive Performance Analyzer for Applications and Systems Programs to**
  - Improve response time in online applications
  - Improve batch turn around time
  - Identify excessive I/O activity
  - Identify excessive CPU usage
  - Test the effects of increasing workload
  - Isolate performance problems in new and existing applications
- **Types of Observation Sessions**
  - Real-Time
  - Scheduled
  - Via Batch Submission
- **Environments Supported**
  - CICS, DB2, IMS, JES/Batch, Sysplex, MQ Series, Java

- **Application Performance Analyzer Features:**
  - Summary/Profile Repots with drill down into detailed levels via an ISPF interface or PDF hardcopy
  - CPU, Load Module, and CSECT Analysis of all modules in the address space
  - Source Statement (COBOL or PL1) or Instruction utilization in each CSECT
  - Supports Fault Analyzer / Debug Tool Sidefiles
  - Wait Time Analysis by Category, Task/Module, or Attribution
  - DASD I/O Analysis by Device, DD Name, Dataset and Dataset Attributes, EXCP's, VSAM with Buffer Pool, I/O Wait, Over Time
  - Sysplex Coupling Facility Reports
  - DB2 SQL Analysis – Static and Dynamic – Service Times
  - DB2 Analysis by DBRM, Statement, and Plan
  - CICS Session Statistics, Transaction Analysis by CPU Usage, Mean and Total Service Time, and Waits by Transaction
  - IMS CPU and Service Time Analysis
  - MQ Series Analysis by Queue, Request, and Transaction
  - Adjustable Sampling Rate
  - Repeated Observation Sessions
- **Information Available At:**

  www.ibm.com/software/awdtools/deployment

Get more information about these tools at:

www.ibm.com/software/awdtools/deployment



For more information

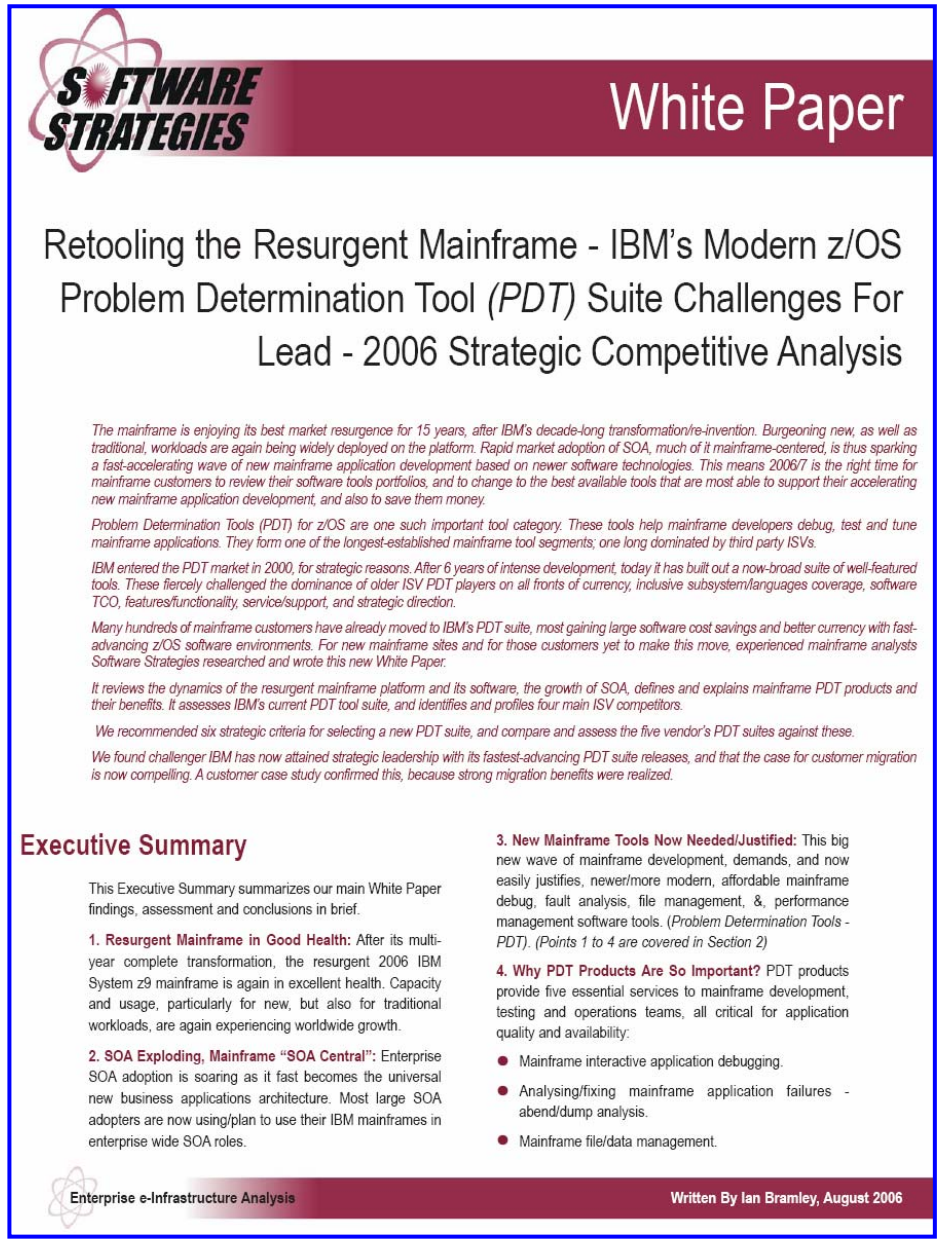
- z/OS Problem Determination and Deployment Tools
  - www.ibm.com/software/awdtools/deployment
  - www.ibm.com/software/awdtools/faultanalyzer
  - www.ibm.com/software/awdtools/filemanager
  - www.ibm.com/software/awdtools/debugtool
  - www.ibm.com/software/awdtools/apa
  - www.ibm.com/software/awdtools/migration
  - www.ibm.com/software/awdtools/tictoc/
  - www.ibm.com/software/awdtools/ispfproductivitytool
  - www.ibm.com/software/awdtools/fileexport
  - zSeries Application Development Tools information center
  - Introduction to the IBM Application Development Tools on z/OS Redbook

IBM PD / Rational Tools Product Identification

- **Fault Analyzer for z/OS (5655-P16)**
- **File Manager for z/OS (5655-P17)**
- **Debug Tool Utilities and Advanced Functions for z/OS (5655-P15)**
- **Application Performance Analyzer for z/OS (5697-N37)**
- **Workload Simulator for z/OS & OS/390 (5655-I39)**
- **Migration Utility (5697-I89)**
- **Application Time Facility (5697-N42)**
- **ISPF Productivity Tool (5698-A81)**
- **File Export Utility (5697-I12)**
- **Rational Functional Tester Extension, Terminal Based Apps (5724-J07)**
- **Rational Performance Tester for z/OS (5724-J96)**

SUMMARY

- **IBM's Problem Determination Tools have just released V7**
- **Financially Attractive**
- **Technically excelling**
- **Many more customers have gone into production.**
- **Analyst are acknowledging IBM's progress.**



SOFTWARE STRATEGIES

White Paper

Retooling the Resurgent Mainframe - IBM's Modern z/OS Problem Determination Tool *(PDT)* Suite Challenges For Lead - 2006 Strategic Competitive Analysis

The mainframe is enjoying its best market resurgence for 15 years, after IBM's decade-long transformation/re-invention. Burgeoning new, as well as traditional, workloads are again being widely deployed on the platform. Rapid market adoption of SOA, much of it mainframe-centered, is thus sparking a fast-accelerating wave of new mainframe application development based on newer software technologies. This means 2006/7 is the right time for mainframe customers to review their software tools portfolios, and to change to the best available tools that are most able to support their accelerating new mainframe application development, and also to save them money.

Problem Determination Tools (PDT) for z/OS are one such important tool category. These tools help mainframe developers debug, test and tune mainframe applications. They form one of the longest-established mainframe tool segments; one long dominated by third party ISVs.

IBM entered the PDT market in 2000, for strategic reasons. After 6 years of intense development, today it has built out a now-broad suite of well-featured tools. These fiercely challenged the dominance of older ISV PDT players on all fronts of currency, inclusive subsystem/languages coverage, software TCO, features/functionality, service/support, and strategic direction.

Many hundreds of mainframe customers have already moved to IBM's PDT suite, most gaining large software cost savings and better currency with fast-advancing z/OS software environments. For new mainframe sites and for those customers yet to make this move, experienced mainframe analysts Software Strategies researched and wrote this new White Paper.

It reviews the dynamics of the resurgent mainframe platform and its software, the growth of SOA, defines and explains mainframe PDT products and their benefits. It assesses IBM's current PDT tool suite, and identifies and profiles four main ISV competitors.

We recommended six strategic criteria for selecting a new PDT suite, and compare and assess the five vendor's PDT suites against these.

We found challenger IBM has now attained strategic leadership with its fastest-advancing PDT suite releases, and that the case for customer migration is now compelling. A customer case study confirmed this, because strong migration benefits were realized.

Executive Summary

This Executive Summary summarizes our main White Paper findings, assessment and conclusions in brief.

1. Resurgent Mainframe in Good Health: After its multi-year complete transformation, the resurgent 2006 IBM System z9 mainframe is again in excellent health. Capacity and usage, particularly for new, but also for traditional workloads, are again experiencing worldwide growth.

2. SOA Exploding, Mainframe "SOA Central": Enterprise SOA adoption is soaring as it fast becomes the universal new business applications architecture. Most large SOA adopters are now using/plan to use their IBM mainframes in enterprise wide SOA roles.

3. New Mainframe Tools Now Needed/Justified: This big new wave of mainframe development, demands, and now easily justifies, newer/more modern, affordable mainframe debug, fault analysis, file management, &, performance management software tools. (*Problem Determination Tools - PDT). (Points 1 to 4 are covered in Section 2)*

4. Why PDT Products Are So Important? PDT products provide five essential services to mainframe development, testing and operations teams, all critical for application quality and availability:

- Mainframe interactive application debugging.
- Analysing/fixing mainframe application failures - abend/dump analysis.
- Mainframe file/data management.

Enterprise e-Infrastructure Analysis

Written By Ian Bramley, August 2006

Polling Questions

- Would you like more information on IBM's Problem Determination tools?
  - 1 – Yes
  - 2 – No
- Are you considering switching ISVs and going with IBM's PD Tools?
  - 1 – Yes
  - 2 – No
- Would you like a copy of the Software Strategies White Paper?
  - 1 – Yes
  - 2 – No

Question and Answer

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