The All-Singing All-Dancing REVIEW Revue

SHARE Session 2811

Austin 2009-03-05

Presented by Greg Price

What was REVIEW?

TSO full screen data set browser for 3270 display terminals

Written in System/370 Assembler by Bill Godfrey in 1981

- BPAM/BSAM to access subject data set
- TSO macros to access services (parsing, default, etc.)
- DADSM/CATALOG macros (OBTAIN, LOCATE)
- Basic 3270 data stream to create full screen image
- < 4 KLOC

Could format SMF record type, date and time

Could search for TEXT and SMF record type

Could specify ddname

- Good for temporaries and concatenations

What is REVIEW?

Data utility package to provide services to TSO users on 3270 display terminals

Release 42.2 – ~ 55 KLOC ("terminal" case of creeping featurism)

High Level Assembler – IFOX00 no longer sufficient to assemble

If **&ENV390** in **REVGEN** set to 1 at Assemble time → OS/390 V2 or later MACLIB required

Currently no 64-bit code

Major services are

- Browser / Formatter / Extractor
- Partitioned file utilities
- UNIX directory hierarchy explorer
- Editor which can exploit ESA (data space)
- Held SYSOUT browser (uses FIB commands)
- Full screen TSO HELP (HEL was developed from REVIEW in 1984 by Bruce Leland – retrofitted into REVIEW in 1993)

How is REVIEW invoked?

REVIEW (or **REV** for short) TSO command will

- Browse sequential data set or file
- Display the member list of a PDS or PDSE or file (concatenated or not) thereof
  - Members can be processed by selection codes
- Display a UNIX directory entry list
  - Files can be processed by selection codes
  - Subdirectories can be selected to switch to
  - END to back out to parent directory

How is REVIEW invoked?

REVED TSO command will

- Edit a sequential data set (multivolume ok)
- Process partitioned and UNIX directories as REVIEW except that Edit (instead of Browse) will be the meaning of the **S** selection code (whether typed in or defaulted)

How is REVIEW invoked?

REVOUT TSO command will

- Present a list of jobs returned by the **STATUS** TSO command
  - Operand of REVOUT will be operand of STATUS
  - Jobs can be processed by selection codes

How is REVIEW invoked?

REVVSAM is same as REVIEW but is provided for registering as an APF authorized command

- Can be used to browse BCS and VVDS data sets
- Named REVVSAM for historical reasons
  - Original VSAM access used BSAM which needed APF
  - BSAM with APF still used when dsname is D or I component – looks up VVDS first for KEYLEN and RKP
  - Only works for up to 16 extents
  - REVVSAM not needed for normal VSAM browse since 1992
- Could use almost any other name eg. REVAUTH
- Why not just APF authorize the main name(s)?
  - Because ISPF services could not used, and the TSO subcommand…

REVIEW code contains no MODESETs! Problem state, key 8 all the way!

How is REVIEW invoked?

FSHELP (or **FSH** or **HEL** for short) TSO command will present data from the SYSHELP file

- Provides a HELP member syntax-aware REVIEW session of the help data for the named command
- Allows switching to the help for other commands
- Allows positioning to help for any subcommand
- Suppresses HELP member comments (reduces clutter)
- Resolves HELP member logical inclusions
- Dynamically allocates SYS1.HELP if no SYSHELP file
- Does not run as an ISPF app because of input areas

REVIEW profile

Used to save personal settings such as

- Program Function Key assignments
- Display colours and settings
- Scroll amount
- Editor settings

Currently stored in **ISPPROF($$REVIEW)**

- Optional, use default settings if no ISPPROF file
- Current size is 1600 bytes
- Updated in place if profile settings altered

Browse data set types

The following file types can be browsed:

- Sequential disk data sets including DSNTYPE=LARGE
- Tape data sets (using AVR or TSO MOUNT privilege – REVTAPE CLIST)
- Partitioned data sets (PDS and PDSE) – directories and members
- Direct data sets
- ISAM data sets (index track display may look wacky)
- VSAM data sets (KSDS, ESDS, RRDS, VRRDS clusters, data and index components, paths, alternate indexes)
- UNIX directories and regular files
- VTOCs
- Basic Catalog Structures (with APF)
- VSAM Volume Data Sets (with APF – uses BSAM)
- Subsystem data sets (for example, LAM and PANV)

REVIEW command operands

- First operand is positional – the data entity to be accessed by REVIEW
  - If it starts with a slash then it is a UNIX directory → no other operands
- Other operands may be shortened to their first letter
  [because of (a) TSO parsing, and (b) they all start with different letters]
  - FILE – first operand is a file (DD) name, not a data set name
  - DATA – encoded data not to be interpreted
    - Do not decode picture data
    - Do not format ZIP archive directory
    - Do not show PDS member list – browse directory blocks instead
    - Do not interpret DB2 table data
    - Do not use BPAM with subsystem data set – use BSAM to specific member
    - Do not show KSDS records in key order – show in RBA order instead
    - Do not speed up access to data by calculating address from fixed-length record number
  - QUICK – skip call to TSO default service to add low-level data set name qualifier
  - VOLUME – volume serial of data set – avoid catalog look-up
  - UNIT – unit of volume – default is SYSALLDA so needed if VOLUME is a tape
  - SUBSYS – subsystem name if browsing a subsystem data set
  - TOP – specify the relative block address to be consider top-of-data
  - XISPMODE – do not run as an ISPF application (but can still access ISPF services)

Logical PARMLIB concatenation

Logical PARMLIB concatenation can be accessed by REVIEW with the TSO command

REV PARMLIB F

- System must be OS/390 1.2 or later
- If a DD named PARMLIB is allocated it will processed instead

Browse subcommands

Data positioning control

TOP, BOTTOM, UP, DOWN, LEFT, RIGHT, LOCATE

REVIEW session control

PFK#, RECALL, SWAP, END, CANCEL, EXIT, TSO, MEMBER, DIR, EDIT, BROWSE, VIEW

Screen presentation control

COLOR, DISPLAY, FULL

Data presentation control

HEX, ASCII, SMF, EREP, FORMAT, FMTVAR

Data search

FIND, FINDNOT, FINDSMF, RFIND

Data filtering control

FIND ALL, FIND REST, FINDNOT ALL, FINDNOT REST, RESET

Data extraction control

SUBMIT, COPYOUT, APPEND, RTF, PICDATA

Information display

HELP, SWAP LIST, KEYS, INFO, JPA, TCB

Data positioning

Scroll “as usual”

- **TOP, BOTTOM, UP, DOWN, LEFT, RIGHT**
- **UP** command resets FIND ALL filtering but **TOP** command does not
- **BOTTOM** or **DOWN MAX** resets FIND ALL filtering but **DOWN** (other than DOWN MAX) does not

Override default scroll amount with operand

- **UP, DOWN, LEFT, RIGHT** can have operand
- Operand can be a number, **PAGE, HALF, MAX** or **CSR** - use first letter for short

Nominate top-of-screen record number

- **LOCATE** (or **LOC** or **L** or **LIST**) – specify the record number as the operand

Position to specific data content if not on screen

- **FIND, FINDNOT, FINDSMF** (FINDSMF will not cause left/right scroll)

Session control

Back out one “level” with **END** or **CANCEL**

- Back out of last level to terminate session

CANCEL (or **CAN**) same as **END** but

- “profile changed” flag is reset
- “profile changed” flag can be set again if a profile setting is changed afterwards
- profile on disk only updated if “profile changed” flag set

DIR backs out to member list even if member list not shown before

EXIT or **=X** backs out all levels – terminates session

MEMBER (or **MEM**) switches to the named member (without a LEFT MAX)

SWAP switches to other parallel REVIEW session

PFK# (eg. **PFK11 F ‘A’ 1**) assigns new command to the named PFK

PFK0 resets all PFK assignments to their default values

RECALL retrieves increasingly older previous primary commands for reuse

EDIT, BROWSE and **VIEW** invoke ISPF service for current data set (if ISPF active)

Screen presentation

FULL ON renders text with terminal's primary character set

Only used if manually issued – setting not saved in profile

FULL OFF allows GE to be used – enables use of graphic character set – exact translation controlled by **DISPLAY**

DISPLAY A is equivalent to ISPF 3278A (A for "APL")

DISPLAY T is equivalent to ISPF 3278T (T for "TN/T11 print train" where the T means "text")

DISPLAY T is the default

DISPLAY setting saved in profile

Data presentation - HEX and ASCII

HEX OFF is the default

- One data byte per screen location
- One screen line per file record

HEX ON shows bit settings of each data byte in hexadecimal

- One data byte takes two consecutive screen locations
- One screen line per file record
- Halves the number of data bytes represented on the screen
- Disables other formatting

ASCII OFF is the default – data text shown as EBCDIC

ASCII ON converts characters from ASCII to EBCDIC

- Uses XLATE macro (SVC 103) – same as used by OPTCD=Q
- Translate tables in IGC0010C

Data presentation - Formatting

The following data can be formatted automatically:

- Tape labels (need to use BLP to access correct FSN)
- VTOC entries (Format-1 DSCB data structure) with **FMT ON**
- LOGREC (summary format) (pre-SE BLKSIZE=40 overridden to 1944) with **EREP**
- SMF (handled by REVSMF – header plus pre-coded by type) records in sequential (including pre-SE MANX/MANY where LRECL=1000 overridden to 10000) and VSAM with **SMF ON**
- CESD and IDR data for PDS load modules (scroll right past CESD blocks)
- ZIP archive directory
- PCX (Zsoft Paintbrush) single-plane pictures
- BMP (Windows and OS/2 bitmap) single-plane uncompressed pictures
- Binder API data (from **H** and **M** directory entry selection codes)
- ASCII text can be translated to EBCDIC before display with **ASCII ON**
- Assembler listings (syntax highlighting)

User-supplied (simple) DSECTs can also be formatted with **FMT ON**

Data presentation - SMF

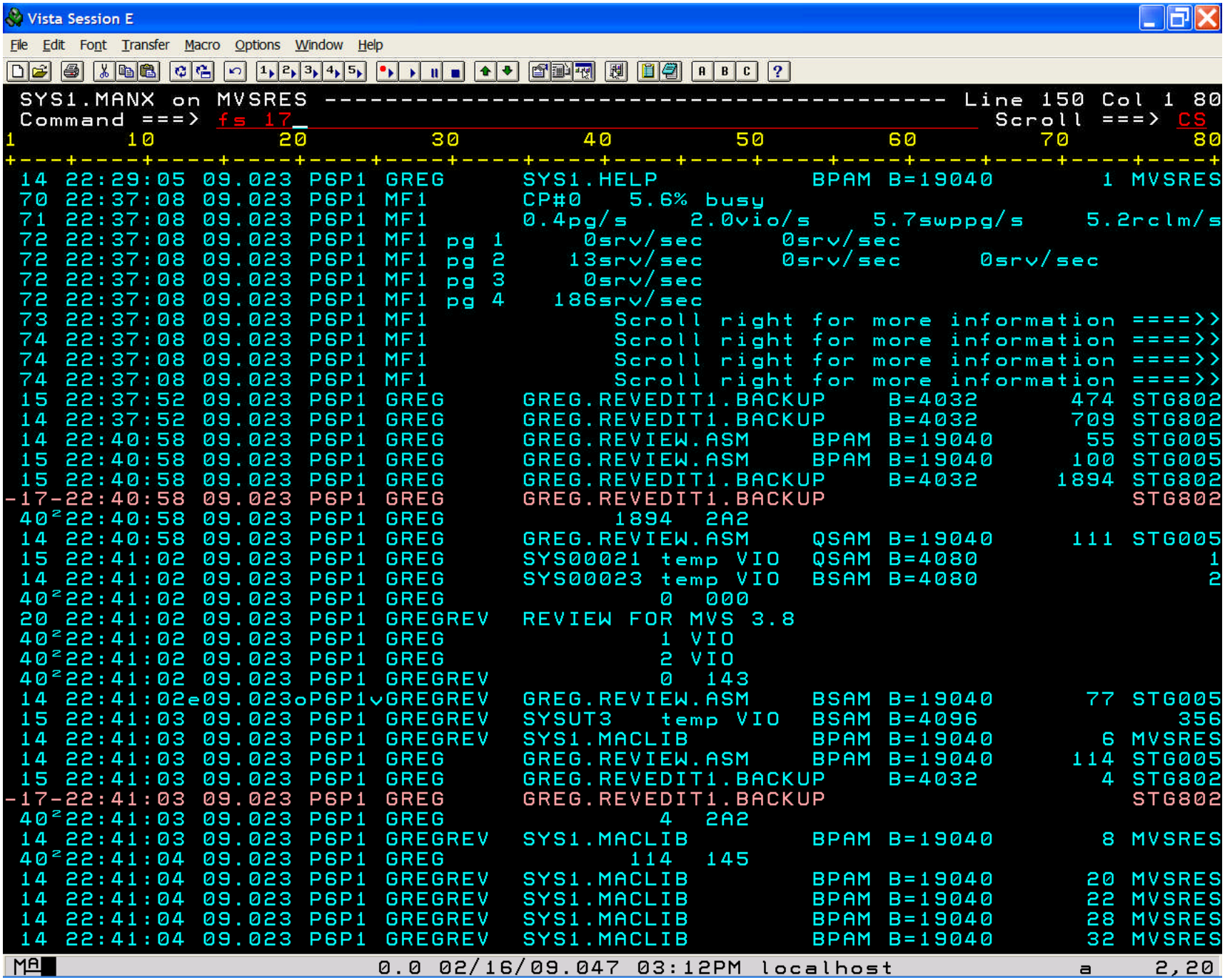
SMF OFF is the default

SMF ON formats each record as though it were an SMF record

- One screen line per file record

SMF record formatting hard-coded in REVSMF

- REVSMF dynamically loaded when first used
- Always shows SMF record type, time, date and system id
- Subtype shown as superscript if < 10
- Other data shown is record type dependent
- Data shown not generally affected by left/right scrolling
- Some records will scroll through sections for each left/right page:
  - SMF record types 8, 30, 41, 42, 70, 72, 73, 74, 89, 100, 101, 102
- Formats SMF records from many different products:
  - MVS, MVS/SE, MVS/XA, MVS/ESA, OS/390, z/OS , F4, MSP, SLSS, TSOMON
- Code donations and test data welcome!


Vista Session E
File Edit Font Transfer Macro Options Window Help
SYS1.MANX on MVSRES ---------- Line 150 Col 1 80
Command ===> fs 17 Scroll ===> CS
1 10 20 30 40 50 60 70 80
14 22:29:05 09.023 P6P1 GREG SYS1.HELP BPAM B=19040 1 MVSRES
70 22:37:08 09.023 P6P1 MF1 CP#0 5.6% busy
71 22:37:08 09.023 P6P1 MF1 0.4pg/s 2.0vio/s 5.7swppg/s 5.2rclm/s
72 22:37:08 09.023 P6P1 MF1 pg 1 0srv/sec 0srv/sec
72 22:37:08 09.023 P6P1 MF1 pg 2 13srv/sec 0srv/sec 0srv/sec
72 22:37:08 09.023 P6P1 MF1 pg 3 0srv/sec
72 22:37:08 09.023 P6P1 MF1 pg 4 186srv/sec
73 22:37:08 09.023 P6P1 MF1 Scroll right for more information ====>>
74 22:37:08 09.023 P6P1 MF1 Scroll right for more information ====>>
74 22:37:08 09.023 P6P1 MF1 Scroll right for more information ====>>
74 22:37:08 09.023 P6P1 MF1 Scroll right for more information ====>>
15 22:37:52 09.023 P6P1 GREG GREG.REVEDIT1.BACKUP B=4032 474 STG802
14 22:37:52 09.023 P6P1 GREG GREG.REVEDIT1.BACKUP B=4032 709 STG802
14 22:40:58 09.023 P6P1 GREG GREG.REVIEW.ASM BPAM B=19040 55 STG005
15 22:40:58 09.023 P6P1 GREG GREG.REVIEW.ASM BPAM B=19040 100 STG005
15 22:40:58 09.023 P6P1 GREG GREG.REVEDIT1.BACKUP B=4032 1894 STG802
-17-22:40:58 09.023 P6P1 GREG GREG.REVEDIT1.BACKUP STG802
40²22:40:58 09.023 P6P1 GREG 1894 2A2
14 22:40:58 09.023 P6P1 GREG GREG.REVIEW.ASM QSAM B=19040 111 STG005
15 22:41:02 09.023 P6P1 GREG SYS00021 temp VIO QSAM B=4080 1
14 22:41:02 09.023 P6P1 GREG SYS00023 temp VIO BSAM B=4080 2
40²22:41:02 09.023 P6P1 GREG 0 000
20 22:41:02 09.023 P6P1 GREGREV REVIEW FOR MVS 3.8
40²22:41:02 09.023 P6P1 GREG 1 VIO
40²22:41:02 09.023 P6P1 GREG 2 VIO
40²22:41:02 09.023 P6P1 GREGREV 0 143
14 22:41:02e09.023oP6P1vGREGREV GREG.REVIEW.ASM BSAM B=19040 77 STG005
15 22:41:03 09.023 P6P1 GREGREV SYSUT3 temp VIO BSAM B=4096 356
14 22:41:03 09.023 P6P1 GREGREV SYS1.MACLIB BPAM B=19040 6 MVSRES
14 22:41:03 09.023 P6P1 GREG GREG.REVIEW.ASM BPAM B=19040 114 STG005
15 22:41:03 09.023 P6P1 GREG GREG.REVEDIT1.BACKUP B=4032 4 STG802
-17-22:41:03 09.023 P6P1 GREG GREG.REVEDIT1.BACKUP STG802
40²22:41:03 09.023 P6P1 GREG 4 2A2
14 22:41:03 09.023 P6P1 GREGREV SYS1.MACLIB BPAM B=19040 8 MVSRES
40²22:41:04 09.023 P6P1 GREG 114 145
14 22:41:04 09.023 P6P1 GREGREV SYS1.MACLIB BPAM B=19040 20 MVSRES
14 22:41:04 09.023 P6P1 GREGREV SYS1.MACLIB BPAM B=19040 22 MVSRES
14 22:41:04 09.023 P6P1 GREGREV SYS1.MACLIB BPAM B=19040 28 MVSRES
14 22:41:04 09.023 P6P1 GREGREV SYS1.MACLIB BPAM B=19040 32 MVSRES
MA 0.0 02/16/09.047 03:12PM localhost a 2,20

Data presentation - EREP

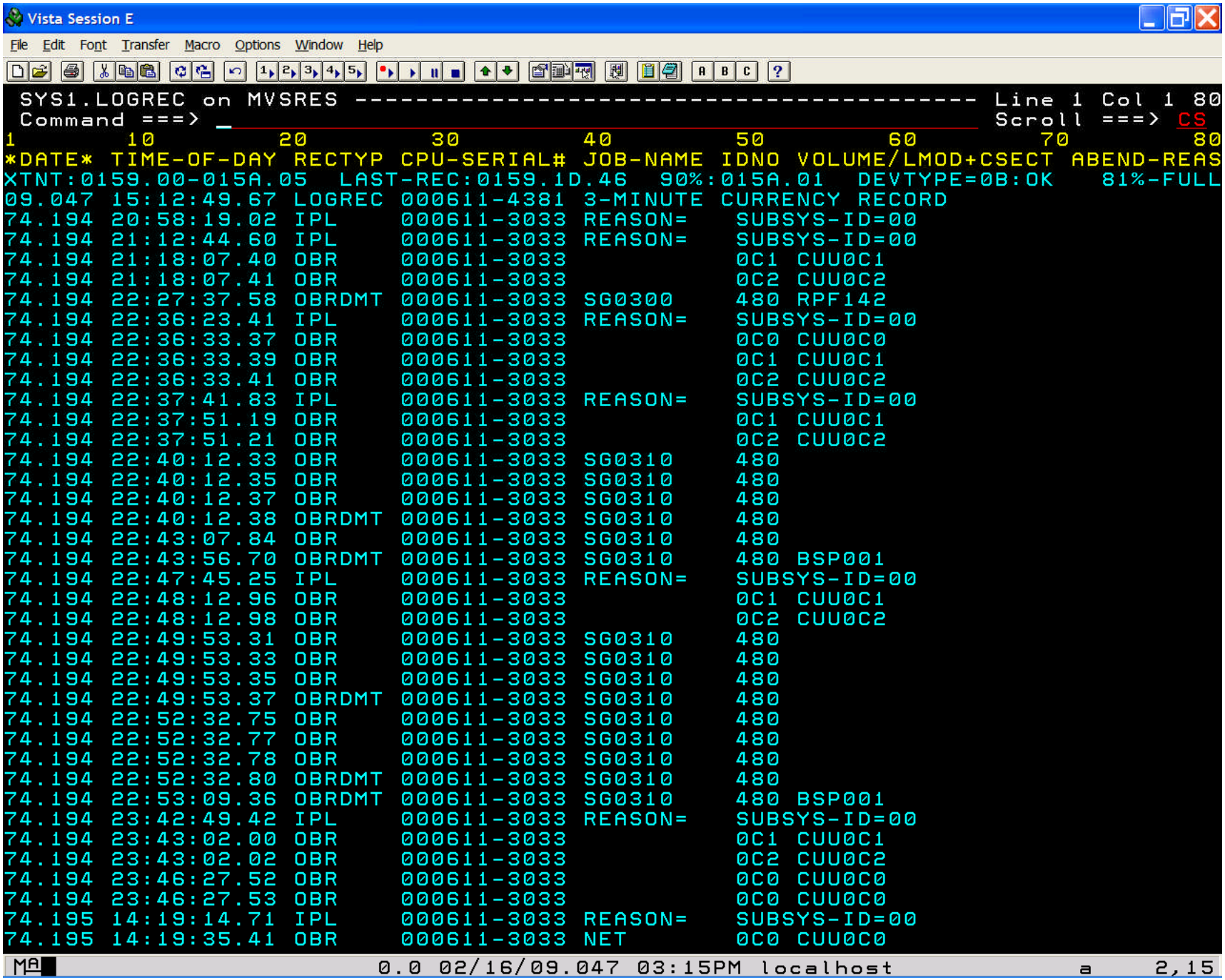
Originally used to check on SYS1.LOGREC:

- How full is SYS1.LOGREC?
- What events are filling it up?
- Did that event just then generate a LOGREC record?
- (Browsing active SMF data sets is even more useful in a similar way)

EREP OFF is the default

EREP ON formats each record as though it were a LOGREC record

- One screen line per file record
- Report record date, time, type and CPU
- Record type code taken from EREP summary report
- If RECFM=U then assume SYS1.LOGREC type data set:
  - Report extent, fullness, currency, device type etc. from first two records
- Show job name and ASID, module and abend code from SDWA if abend


Vista Session E
File Edit Font Transfer Macro Options Window Help
SYS1.LOGREC on MVSRES ---------- Line 1 Col 1 80
Command ===> _ Scroll ===> CS
1 10 20 30 40 50 60 70 80
DATE TIME-OF-DAY RECTYP CPU-SERIAL# JOB-NAME IDNO VOLUME/LMOD+CSECT ABEND-REAS
XTNT:0159.00-015A.05 LAST-REC:0159.1D.46 90%:015A.01 DEVTYPE=0B:OK 81%-FULL
09.047 15:12:49.67 LOGREC 000611-4381 3-MINUTE CURRENCY RECORD
74.194 20:58:19.02 IPL 000611-3033 REASON= SUBSYS-ID=00
74.194 21:12:44.60 IPL 000611-3033 REASON= SUBSYS-ID=00
74.194 21:18:07.40 OBR 000611-3033 0C1 CUU0C1
74.194 21:18:07.41 OBR 000611-3033 0C2 CUU0C2
74.194 22:27:37.58 OBRDMT 000611-3033 SG0300 480 RPF142
74.194 22:36:23.41 IPL 000611-3033 REASON= SUBSYS-ID=00
74.194 22:36:33.37 OBR 000611-3033 0C0 CUU0C0
74.194 22:36:33.39 OBR 000611-3033 0C1 CUU0C1
74.194 22:36:33.41 OBR 000611-3033 0C2 CUU0C2
74.194 22:37:41.83 IPL 000611-3033 REASON= SUBSYS-ID=00
74.194 22:37:51.19 OBR 000611-3033 0C1 CUU0C1
74.194 22:37:51.21 OBR 000611-3033 0C2 CUU0C2
74.194 22:40:12.33 OBR 000611-3033 SG0310 480
74.194 22:40:12.35 OBR 000611-3033 SG0310 480
74.194 22:40:12.37 OBR 000611-3033 SG0310 480
74.194 22:40:12.38 OBRDMT 000611-3033 SG0310 480
74.194 22:43:07.84 OBR 000611-3033 SG0310 480
74.194 22:43:56.70 OBRDMT 000611-3033 SG0310 480 BSP001
74.194 22:47:45.25 IPL 000611-3033 REASON= SUBSYS-ID=00
74.194 22:48:12.96 OBR 000611-3033 0C1 CUU0C1
74.194 22:48:12.98 OBR 000611-3033 0C2 CUU0C2
74.194 22:49:53.31 OBR 000611-3033 SG0310 480
74.194 22:49:53.33 OBR 000611-3033 SG0310 480
74.194 22:49:53.35 OBR 000611-3033 SG0310 480
74.194 22:49:53.37 OBRDMT 000611-3033 SG0310 480
74.194 22:52:32.75 OBR 000611-3033 SG0310 480
74.194 22:52:32.77 OBR 000611-3033 SG0310 480
74.194 22:52:32.78 OBR 000611-3033 SG0310 480
74.194 22:52:32.80 OBRDMT 000611-3033 SG0310 480
74.194 22:53:09.36 OBRDMT 000611-3033 SG0310 480 BSP001
74.194 23:42:49.42 IPL 000611-3033 REASON= SUBSYS-ID=00
74.194 23:43:02.00 OBR 000611-3033 0C1 CUU0C1
74.194 23:43:02.02 OBR 000611-3033 0C2 CUU0C2
74.194 23:46:27.52 OBR 000611-3033 0C0 CUU0C0
74.194 23:46:27.53 OBR 000611-3033 0C0 CUU0C0
74.195 14:19:14.71 IPL 000611-3033 REASON= SUBSYS-ID=00
74.195 14:19:35.41 OBR 000611-3033 NET 0C0 CUU0C0
MA 0.0 02/16/09.047 03:15PM localhost a 2,15

Data presentation - FORMAT

FORMAT OFF is the default

FORMAT (or **FMT**) **name** will cause a search of file REVFMTS for a member called “name”

The named member is read and parsed for Assembler DC and DS statements

Parsing is primitive but does provide an easy way to encode local record structures

FORMAT ON reactivates most recently read format

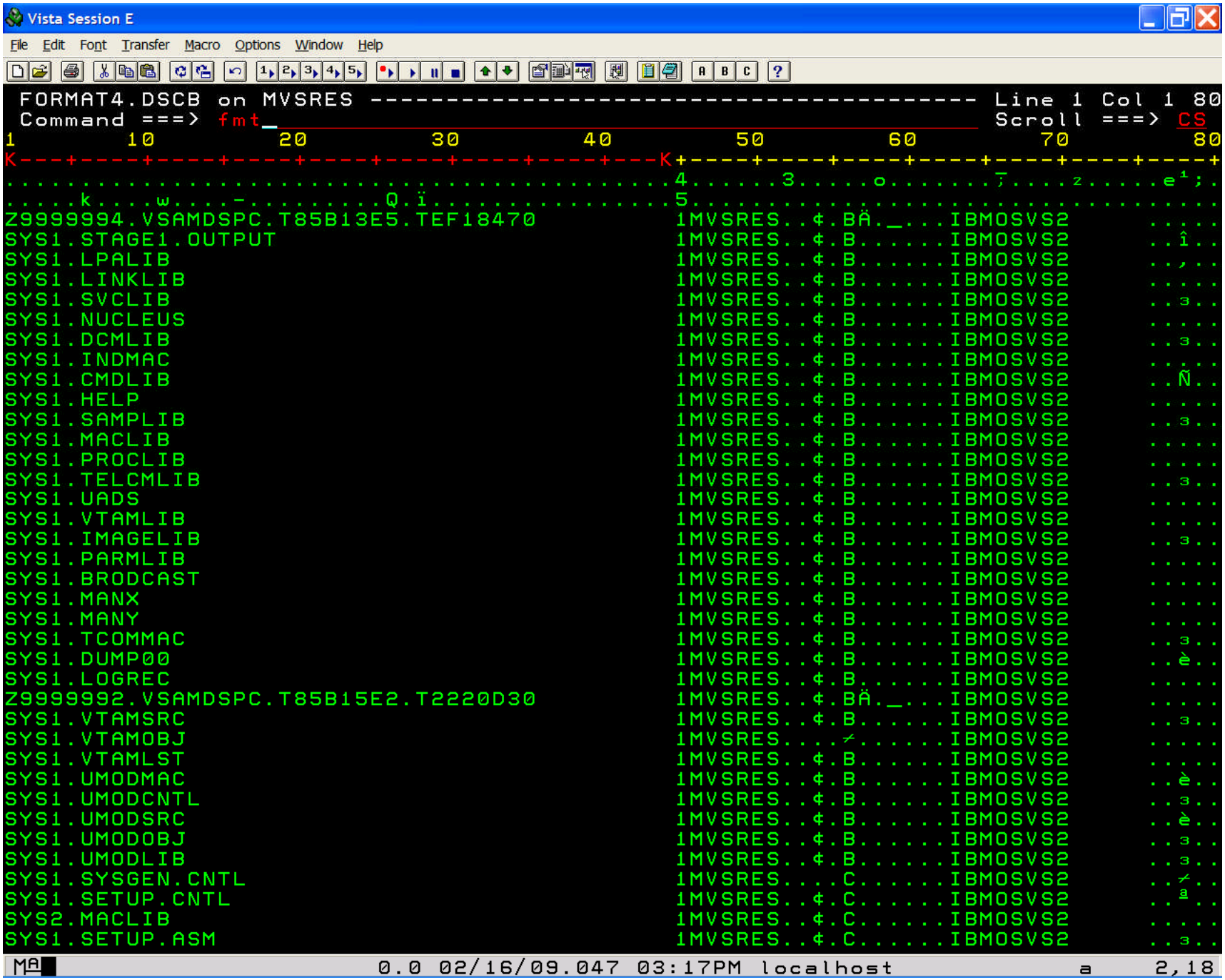
REVFMTS file not required to format VTOC entries

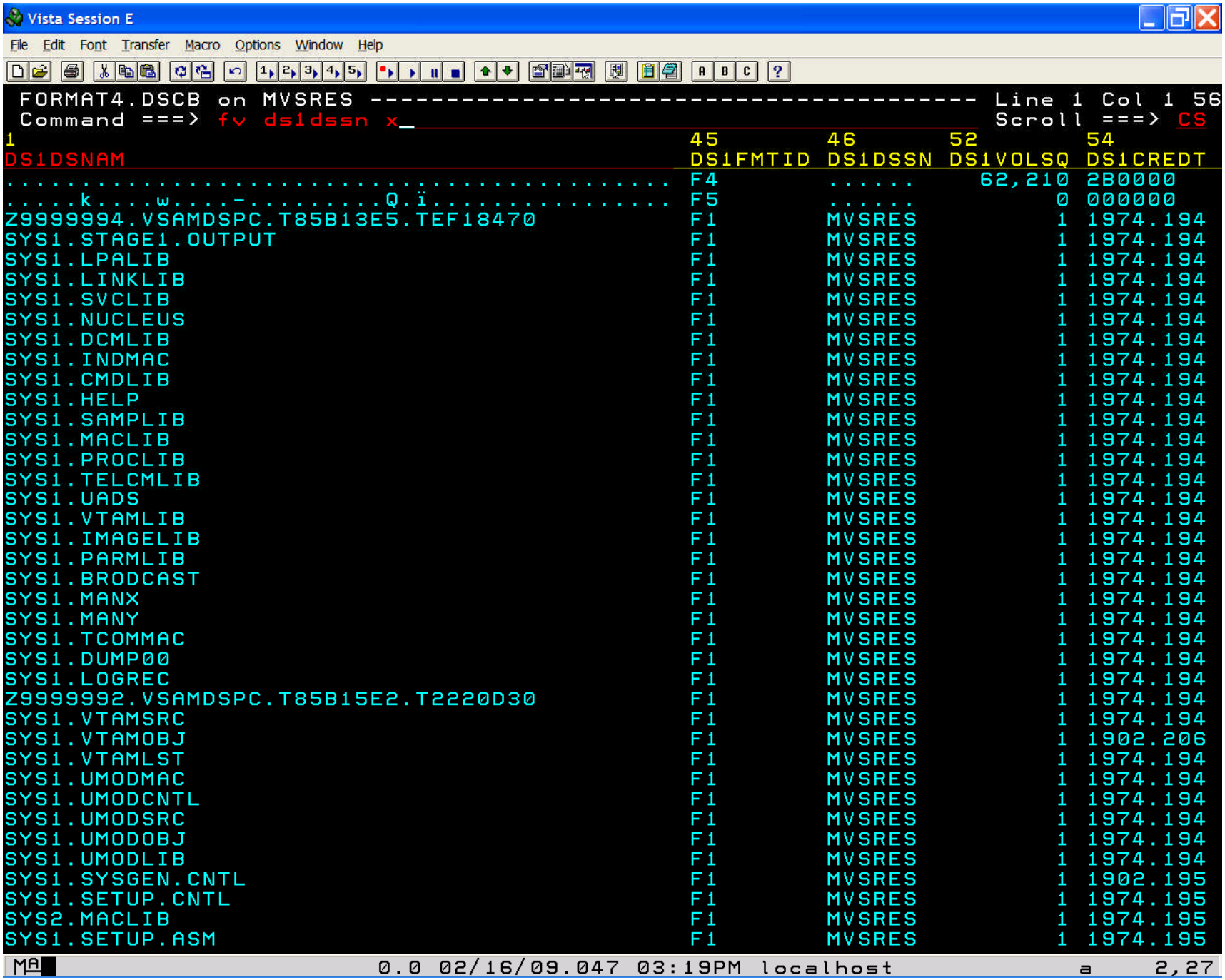
Data presentation - FMTVAR

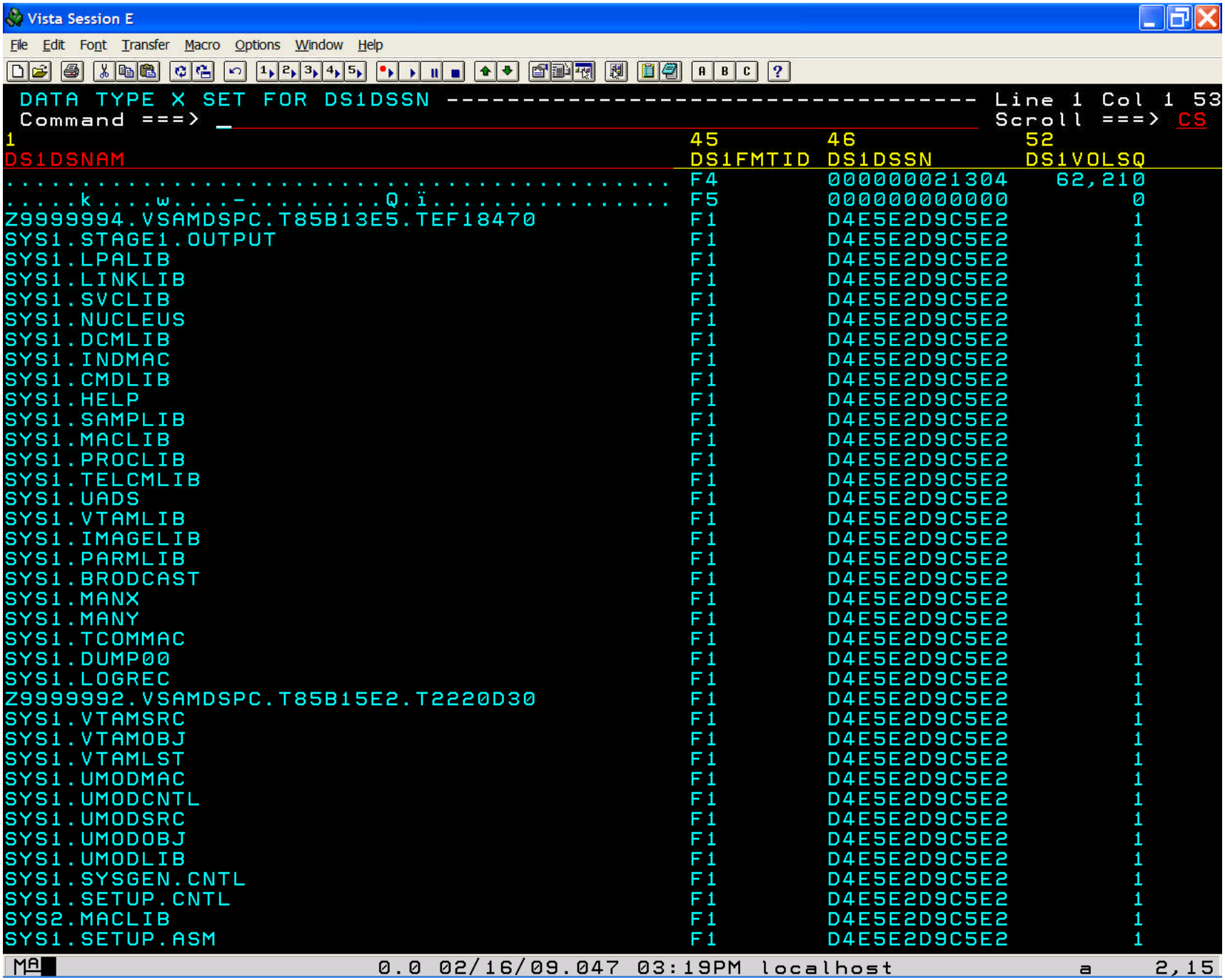
FMTVAR (or **FV** for short) provides a way to override or "correct" the data type of an item

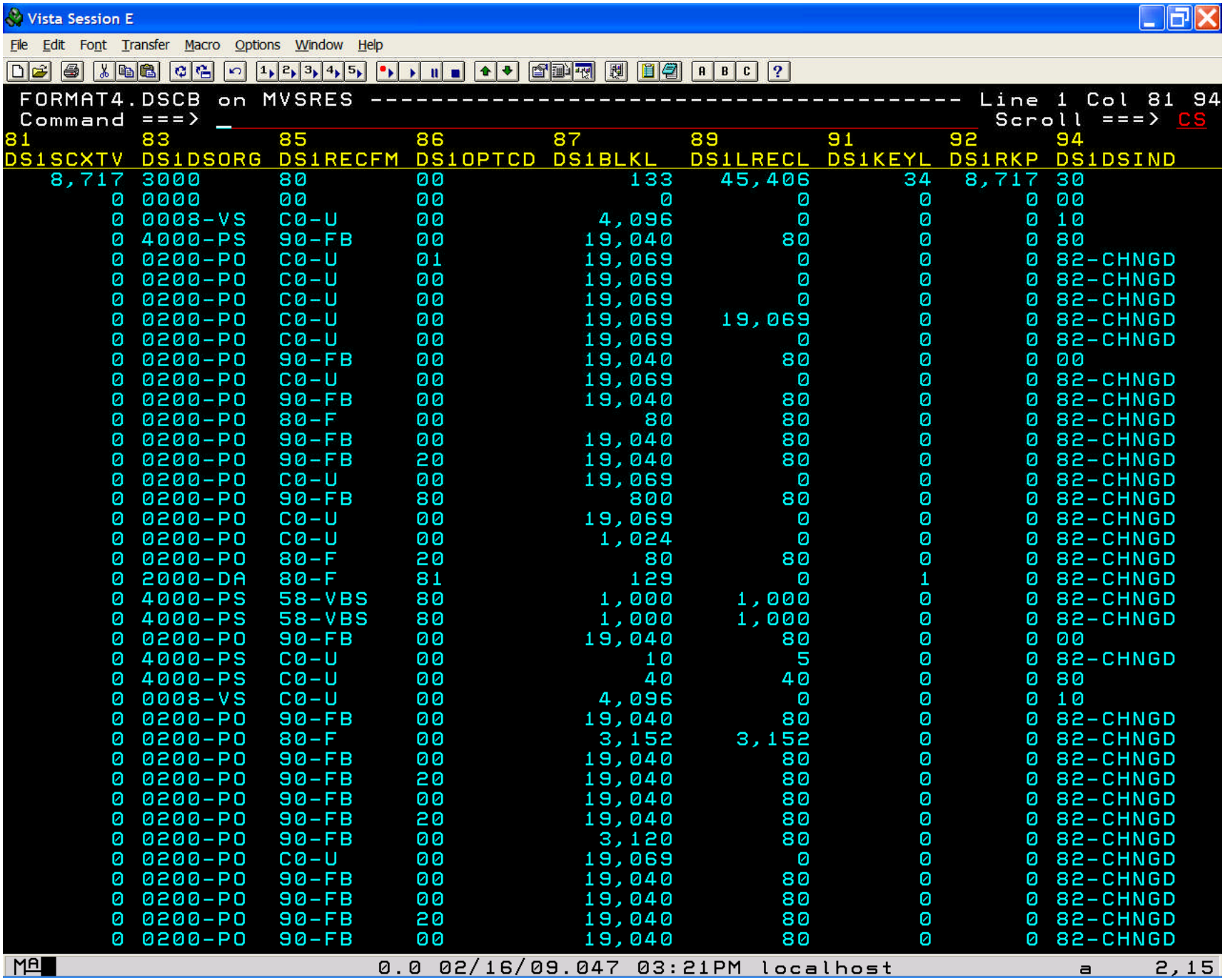
- Allowed data types are:
  - C – character
  - X – hexadecimal
  - Z – zoned decimal
  - P – packed decimal
  - I – signed integer
  - U – unsigned integer
- Useful when
  - Character field has undisplayable code points (show as hex to see the data)
  - Fullword or halfword defined as hexadecimal (would prefer to see decimal)
  - Hexadecimal defined as fullword or halfword (would prefer to see hex)
  - Fullword or halfword contains an unsigned number (sign bit not treated correctly)
- Example:

  fv ds1dssn x


Vista Session E
File Edit Font Transfer Macro Options Window Help
FORMAT4.DSCB on MVSRES ---------- Line 1 Col 1 80
Command ===> fmt_ Scroll ===> CS
1 10 20 30 40 50 60 70 80
Z9999994.VSAMDSPC.T85B13E5.TEF18470
SYS1.STAGE1.OUTPUT
SYS1.LPALIB
SYS1.LINKLIB
SYS1.SVCLIB
SYS1.NUCLEUS
SYS1.DCMLIB
SYS1.INDMAC
SYS1.CMDLIB
SYS1.HELP
SYS1.SAMPLIB
SYS1.MACLIB
SYS1.PROCLIB
SYS1.TELCMLIB
SYS1.UADS
SYS1.VTAMLIB
SYS1.IMAGELIB
SYS1.PARMLIB
SYS1.BRODCAST
SYS1.MANX
SYS1.MANY
SYS1.TCOMMAC
SYS1.DUMP00
SYS1.LOGREC
Z9999992.VSAMDSPC.T85B15E2.T2220D30
SYS1.VTAMSRC
SYS1.VTAMOBJ
SYS1.VTAMLST
SYS1.UMODMAC
SYS1.UMODCNTL
SYS1.UMODSRC
SYS1.UMODOBJ
SYS1.UMODLIB
SYS1.SYSGEN.CNTL
SYS1.SETUP.CNTL
SYS2.MACLIB
SYS1.SETUP.ASM
1MVSRES..¢.BÄ._...IBMOSVS2
1MVSRES..¢.B.....IBMOSVS2
1MVSRES....≠.....IBMOSVS2
1MVSRES..¢.C.....IBMOSVS2
MA
0.0 02/16/09.047 03:17PM localhost a 2,18


Vista Session E
File Edit Font Transfer Macro Options Window Help
FORMAT4.DSCB on MVSRES ---------- Line 1 Col 1 56
Command ===> fv ds1dssn x_ Scroll ===> CS
1 45 46 52 54
DS1DSNAM DS1FMTID DS1DSSN DS1VOLSQ DS1CREDT
..... F4 ..... 62,210 2B0000
.....k....w....-.....Q.i..... F5 ..... 0 000000
Z9999994.VSAMDSPC.T85B13E5.TEF18470 F1 MVSRES 1 1974.194
SYS1.STAGE1.OUTPUT F1 MVSRES 1 1974.194
SYS1.LPALIB F1 MVSRES 1 1974.194
SYS1.LINKLIB F1 MVSRES 1 1974.194
SYS1.SVCLIB F1 MVSRES 1 1974.194
SYS1.NUCLEUS F1 MVSRES 1 1974.194
SYS1.DCMLIB F1 MVSRES 1 1974.194
SYS1.INDMAC F1 MVSRES 1 1974.194
SYS1.CMDLIB F1 MVSRES 1 1974.194
SYS1.HELP F1 MVSRES 1 1974.194
SYS1.SAMPLIB F1 MVSRES 1 1974.194
SYS1.MACLIB F1 MVSRES 1 1974.194
SYS1.PROCLIB F1 MVSRES 1 1974.194
SYS1.TELCMLIB F1 MVSRES 1 1974.194
SYS1.UADS F1 MVSRES 1 1974.194
SYS1.VTAMLIB F1 MVSRES 1 1974.194
SYS1.IMAGELIB F1 MVSRES 1 1974.194
SYS1.PARMLIB F1 MVSRES 1 1974.194
SYS1.BRODCAST F1 MVSRES 1 1974.194
SYS1.MANX F1 MVSRES 1 1974.194
SYS1.MANY F1 MVSRES 1 1974.194
SYS1.TCOMMAC F1 MVSRES 1 1974.194
SYS1.DUMP00 F1 MVSRES 1 1974.194
SYS1.LOGREC F1 MVSRES 1 1974.194
Z9999992.VSAMDSPC.T85B15E2.T2220D30 F1 MVSRES 1 1974.194
SYS1.VTAMSRC F1 MVSRES 1 1974.194
SYS1.VTAMOBJ F1 MVSRES 1 1902.206
SYS1.VTAMLST F1 MVSRES 1 1974.194
SYS1.UMODMAC F1 MVSRES 1 1974.194
SYS1.UMODCNTL F1 MVSRES 1 1974.194
SYS1.UMODSRC F1 MVSRES 1 1974.194
SYS1.UMODOBJ F1 MVSRES 1 1974.194
SYS1.UMODLIB F1 MVSRES 1 1974.194
SYS1.SYSGEN.CNTL F1 MVSRES 1 1902.195
SYS1.SETUP.CNTL F1 MVSRES 1 1974.195
SYS2.MACLIB F1 MVSRES 1 1974.195
SYS1.SETUP.ASM F1 MVSRES 1 1974.195
MA 0.0 02/16/09.047 03:19PM localhost a 2,27


Vista Session E
File Edit Font Transfer Macro Options Window Help
DATA TYPE X SET FOR DS1DSSN
Line 1 Col 1 53
Command ===>
Scroll ===> CS
1 45 46 52
DS1DSNAM DS1FMTID DS1DSSN DS1VOLSQ
F4 000000021304 62,210
F5 000000000000 0
Z9999994.VSAMDSPC.T85B13E5.TEF18470 F1 D4E5E2D9C5E2 1
SYS1.STAGE1.OUTPUT F1 D4E5E2D9C5E2 1
SYS1.LPALIB F1 D4E5E2D9C5E2 1
SYS1.LINKLIB F1 D4E5E2D9C5E2 1
SYS1.SVCLIB F1 D4E5E2D9C5E2 1
SYS1.NUCLEUS F1 D4E5E2D9C5E2 1
SYS1.DCMLIB F1 D4E5E2D9C5E2 1
SYS1.INDMAC F1 D4E5E2D9C5E2 1
SYS1.CMDLIB F1 D4E5E2D9C5E2 1
SYS1.HELP F1 D4E5E2D9C5E2 1
SYS1.SAMPLIB F1 D4E5E2D9C5E2 1
SYS1.MACLIB F1 D4E5E2D9C5E2 1
SYS1.PROCLIB F1 D4E5E2D9C5E2 1
SYS1.TELCMLIB F1 D4E5E2D9C5E2 1
SYS1.UADS F1 D4E5E2D9C5E2 1
SYS1.VTAMLIB F1 D4E5E2D9C5E2 1
SYS1.IMAGELIB F1 D4E5E2D9C5E2 1
SYS1.PARMLIB F1 D4E5E2D9C5E2 1
SYS1.BRODCAST F1 D4E5E2D9C5E2 1
SYS1.MANX F1 D4E5E2D9C5E2 1
SYS1.MANY F1 D4E5E2D9C5E2 1
SYS1.TCOMMAC F1 D4E5E2D9C5E2 1
SYS1.DUMP00 F1 D4E5E2D9C5E2 1
SYS1.LOGREC F1 D4E5E2D9C5E2 1
Z9999992.VSAMDSPC.T85B15E2.T2220D30 F1 D4E5E2D9C5E2 1
SYS1.VTAMSRC F1 D4E5E2D9C5E2 1
SYS1.VTAMOBJ F1 D4E5E2D9C5E2 1
SYS1.VTAMLST F1 D4E5E2D9C5E2 1
SYS1.UMODMAC F1 D4E5E2D9C5E2 1
SYS1.UMODCNTL F1 D4E5E2D9C5E2 1
SYS1.UMODSRC F1 D4E5E2D9C5E2 1
SYS1.UMODOBJ F1 D4E5E2D9C5E2 1
SYS1.UMODLIB F1 D4E5E2D9C5E2 1
SYS1.SYSGEN.CNTL F1 D4E5E2D9C5E2 1
SYS1.SETUP.CNTL F1 D4E5E2D9C5E2 1
SYS2.MACLIB F1 D4E5E2D9C5E2 1
SYS1.SETUP.ASM F1 D4E5E2D9C5E2 1
MA
0.0 02/16/09.047 03:19PM localhost a 2,15


Vista Session E
File Edit Font Transfer Macro Options Window Help
FORMAT4.DSCB on MVSRES ---------- Line 1 Col 81 94
Command ===> _ Scroll ===> CS
81 83 85 86 87 89 91 92 94
DS1SCXTV DS1DSORG DS1RECFM DS1OPTCD DS1BLKL DS1LRECL DS1KEYL DS1RKP DS1DSIND
8,717 3000 80 00 133 45,406 34 8,717 30
0 0000 00 00 0 0 0 0 00
0 0008-VS C0-U 00 4,096 0 0 0 10
0 4000-PS 90-FB 00 19,040 80 0 0 80
0 0200-PO C0-U 01 19,069 0 0 0 82-CHNGD
0 0200-PO C0-U 00 19,069 0 0 0 82-CHNGD
0 0200-PO C0-U 00 19,069 0 0 0 82-CHNGD
0 0200-PO C0-U 00 19,069 19,069 0 0 82-CHNGD
0 0200-PO C0-U 00 19,069 0 0 0 82-CHNGD
0 0200-PO 90-FB 00 19,040 80 0 0 00
0 0200-PO C0-U 00 19,069 0 0 0 82-CHNGD
0 0200-PO 90-FB 00 19,040 80 0 0 82-CHNGD
0 0200-PO 80-F 00 80 80 0 0 82-CHNGD
0 0200-PO 90-FB 00 19,040 80 0 0 82-CHNGD
0 0200-PO 90-FB 20 19,040 80 0 0 82-CHNGD
0 0200-PO C0-U 00 19,069 0 0 0 82-CHNGD
0 0200-PO 90-FB 80 800 80 0 0 82-CHNGD
0 0200-PO C0-U 00 19,069 0 0 0 82-CHNGD
0 0200-PO C0-U 00 1,024 0 0 0 82-CHNGD
0 0200-PO 80-F 20 80 80 0 0 82-CHNGD
0 2000-DA 80-F 81 129 0 1 0 82-CHNGD
0 4000-PS 58-VBS 80 1,000 1,000 0 0 82-CHNGD
0 4000-PS 58-VBS 80 1,000 1,000 0 0 82-CHNGD
0 0200-PO 90-FB 00 19,040 80 0 0 00
0 4000-PS C0-U 00 10 5 0 0 82-CHNGD
0 4000-PS C0-U 00 40 40 0 0 80
0 0008-VS C0-U 00 4,096 0 0 0 10
0 0200-PO 90-FB 00 19,040 80 0 0 82-CHNGD
0 0200-PO 80-F 00 3,152 3,152 0 0 82-CHNGD
0 0200-PO 90-FB 00 19,040 80 0 0 82-CHNGD
0 0200-PO 90-FB 20 19,040 80 0 0 82-CHNGD
0 0200-PO 90-FB 00 19,040 80 0 0 82-CHNGD
0 0200-PO 90-FB 20 19,040 80 0 0 82-CHNGD
0 0200-PO 90-FB 00 3,120 80 0 0 82-CHNGD
0 0200-PO C0-U 00 19,069 0 0 0 82-CHNGD
0 0200-PO 90-FB 00 19,040 80 0 0 82-CHNGD
0 0200-PO 90-FB 00 19,040 80 0 0 82-CHNGD
0 0200-PO 90-FB 20 19,040 80 0 0 82-CHNGD
0 0200-PO 90-FB 00 19,040 80 0 0 82-CHNGD
MA 0.0 02/16/09.047 03:21PM localhost a 2,15

Data search

First operand of all REVIEW “FIND” commands is always the search argument. *Interrupted search shows data at search location.*

FIND or **F** will search for a match of the specified data

- Can indicate direction and start location: FIRST, NEXT, PREV, LAST
- Can indicate search column (1 number) or range (2 numbers)
- Can indicate case sensitive/insensitive or hexadecimal or picture: C, T, X, P
- Can indicate word, word start or word end: WORD, PREFIX, SUFFIX

FINDNOT or **FN** will search for a mismatch – same operands

FINDSMF or **FS** will search for a specific byte value at the SMFTYPE byte offset in the record – for example **fs 30** to find a type 30

- Can also specify subtype as second operand if type has subtypes eg. **fs 30 4**
- Will stop at SMFEOFMARK – formatted CI without SMF records

RFIND will repeat the previous search operation (no operands)

Data filtering

Only display records with (or without) specific data (perhaps in a specific column (record type?) or column range)

(Anyone remember the FALL subcommand of QUEUE?)

Activate filtering with **ALL** or **REST** operand of a “FIND” command

“REST is to ALL as NEXT is to FIRST”

ALL commences filtering scan from top of data

REST commences filter scan from top of screen

Implemented after experiencing scanning large files half-way with individual searches and then deciding that ALL is a good idea but not wanting to redo scan from the start

Interrupted search shows unfiltered data at search location

RESET or **RES** will deactivate record filtering

Data extraction - SUBMIT

SUBMIT or **SUB** will submit the file contents to the internal reader

- Browsed data set must have certain DCB attributes (which TSO SUBMIT checks anyway):
  - DSORG of PS or PO
  - Fixed-length 80-byte records

Data extraction – copying records

Copy records being browsed to an output data set

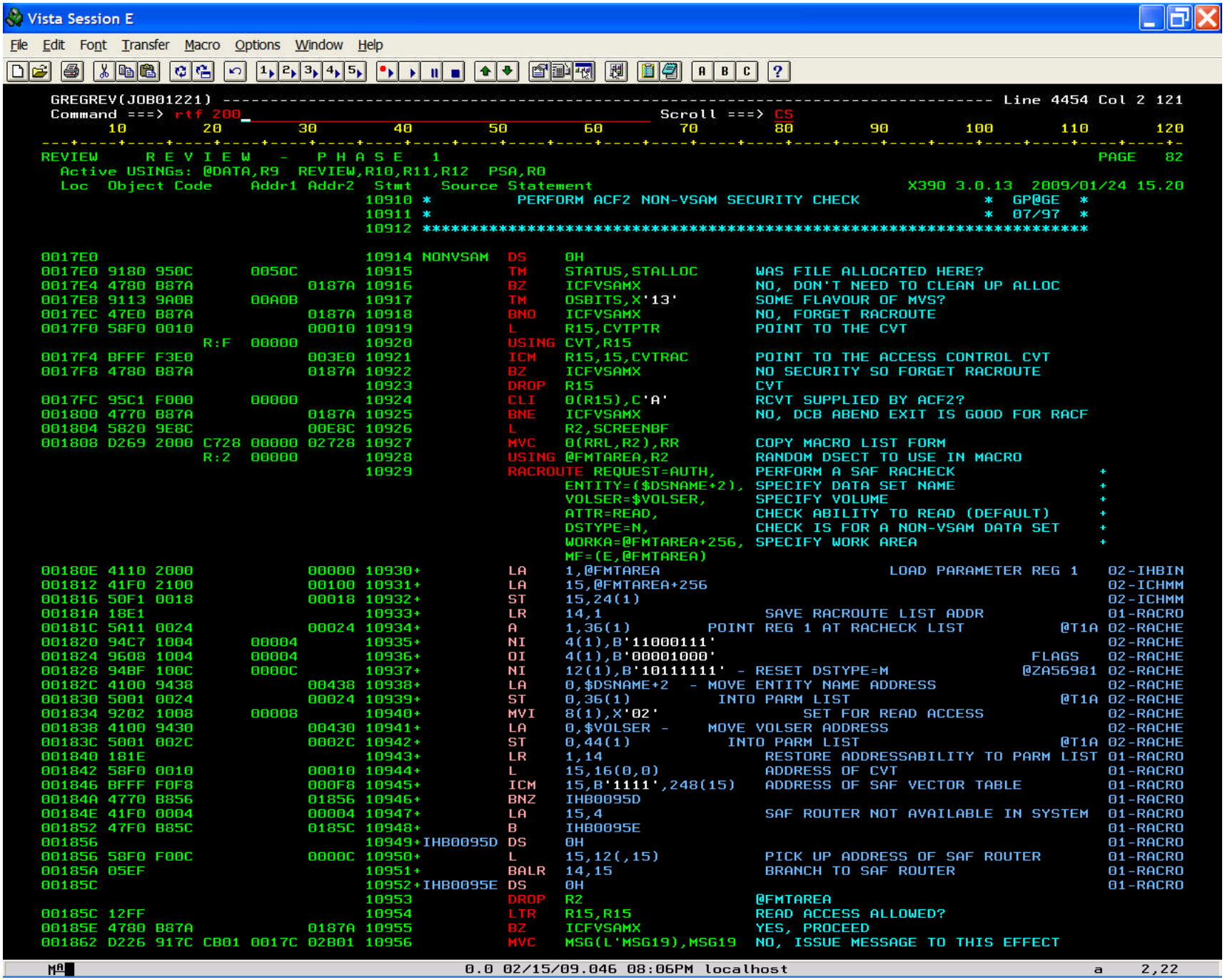
- **COPYOUT** opens target for OUTPUT
- **APPEND** opens target for EXTEND – no good for PDS member
- Operand specifies number of records to copy
- Copying starts from current top-of-screen
- If no operand copy continues to end-of-file
- User is prompted for output data set name
- As of R42.2 output RECFM will be either FB or VB

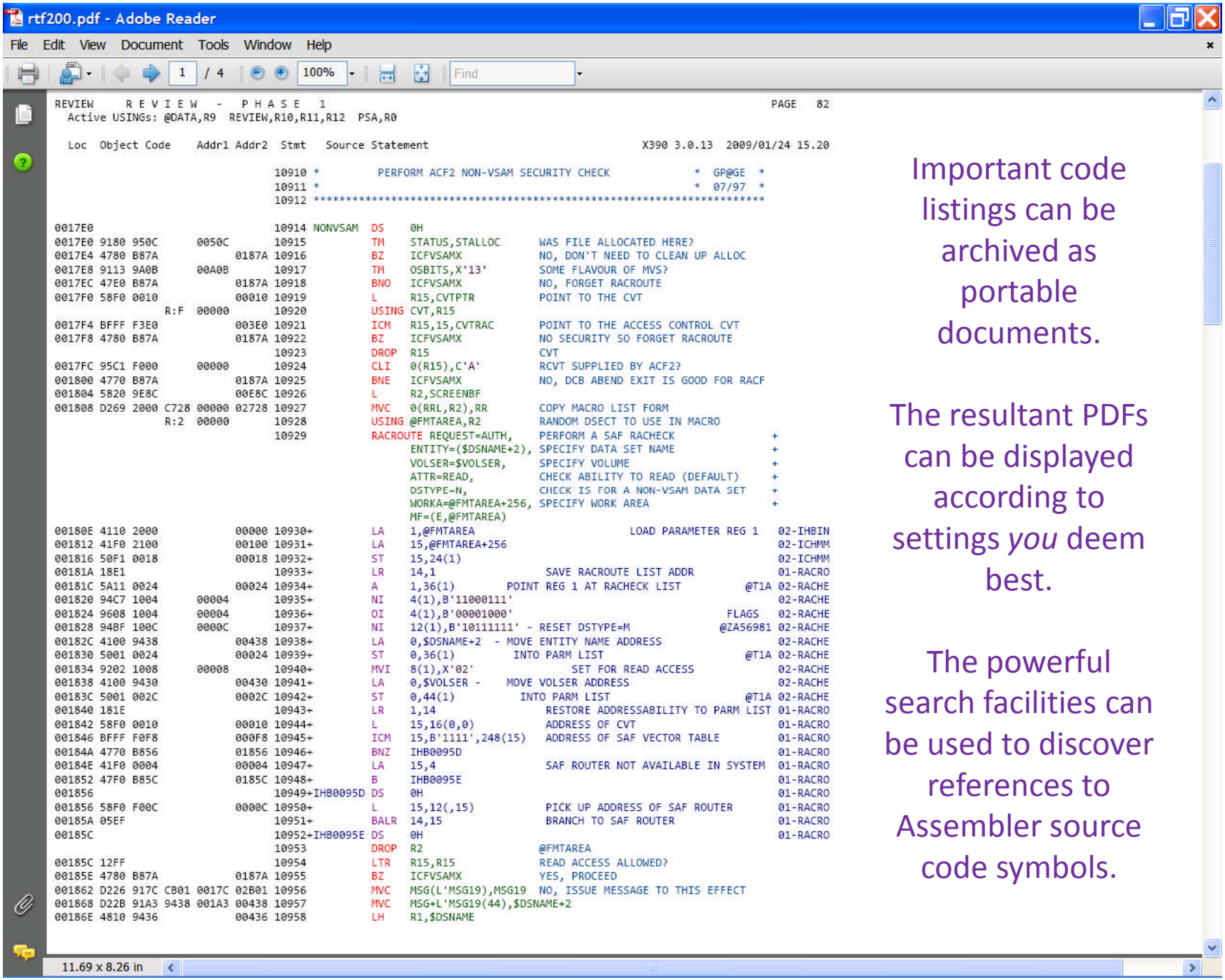
  (previously RECFM was copied from source → was always U for VSAM)
- Output data will be translated from ASCII if **ASCII ON**
- Output records subject to record filtering → "record harvesting"

Data extraction – Rich Text Format

RTF command produces “coloured printout”

- Internally the same as COPYOUT except that RTF control sequences are used to colour and highlight the text
- Only allowed if under **REVOUT** or RECFM has A or M
- Only allowed if LRECL<256
- User is prompted for output data set name
- Result can be transferred to PC and printed (to PDF)
  - Transfer file as text to translate EBCDIC to ASCII
- Colouring done by message id recognition and by applying Assembler syntax highlighting to Assembler listings
  - It will be a print version of what is shown on the 3270 terminal


Vista Session E
File Edit Font Transfer Macro Options Window Help
GREGREV(JOB01221) Line 4454 Col 2 121
Command ===> rtf 200 Scroll ===> CS
REVIEW R E V I E W - P H A S E 1 PAGE 82
Active USINGs: @DATA,R9 REVIEW,R10,R11,R12 PSA,R0
Loc Object Code Addr1 Addr2 Stmt Source Statement X390 3.0.13 2009/01/24 15.20
10910 * PERFORM ACF2 NON-VSAM SECURITY CHECK * GP@GE *
10911 * * 07/97 *
10912 **
0017E0 10914 NONVSAM DS 0H
0017E0 9180 950C 0050C 10915 TM STATUS,STALLOC WAS FILE ALLOCATED HERE?
0017E4 4780 B87A 0187A 10916 BZ ICFVSAMX NO, DON'T NEED TO CLEAN UP ALLOC
0017E8 9113 9A0B 00A0B 10917 TM OSBITS,X'13' SOME FLAVOUR OF MVS?
0017EC 47E0 B87A 0187A 10918 BNO ICFVSAMX NO, FORGET RACROUTE
0017F0 58F0 0010 00010 10919 L R15,CVTPTR POINT TO THE CVT
R:F 00000 10920 USING CVT,R15
0017F4 BFFF F3E0 003E0 10921 ICM R15,15,CVTRAC POINT TO THE ACCESS CONTROL CVT
0017F8 4780 B87A 0187A 10922 BZ ICFVSAMX NO SECURITY SO FORGET RACROUTE
10923 DROP R15 CVT
0017FC 95C1 F000 00000 10924 CLI 0(R15),C'A' RCVT SUPPLIED BY ACF2?
001800 4770 B87A 0187A 10925 BNE ICFVSAMX NO, DCB ABEND EXIT IS GOOD FOR RACF
001804 5820 9E8C 00E8C 10926 L R2,SCREENBF
001808 D269 2000 C728 00000 02728 10927 MVC 0(RRL,R2),RR COPY MACRO LIST FORM
R:2 00000 10928 USING @FMTAREA,R2 RANDOM DSECT TO USE IN MACRO
10929 RACROUTE REQUEST=AUTH, PERFORM A SAF RACHECK +
ENTITY=($DSNAME+2), SPECIFY DATA SET NAME +
VOLSER=$VOLSER, SPECIFY VOLUME +
ATTR=READ, CHECK ABILITY TO READ (DEFAULT) +
DSTYPE=N, CHECK IS FOR A NON-VSAM DATA SET +
WORKA=@FMTAREA+256, SPECIFY WORK AREA +
MF=(E,@FMTAREA)
00180E 4110 2000 00000 10930+ LA 1,@FMTAREA LOAD PARAMETER REG 1 02-IHBIN
001812 41F0 2100 00100 10931+ LA 15,@FMTAREA+256 02-ICHMM
001816 50F1 0018 00018 10932+ ST 15,24(1) 02-ICHMM
00181A 18E1 10933+ LR 14,1 SAVE RACROUTE LIST ADDR 01-RACRO
00181C 5A11 0024 00024 10934+ A 1,36(1) POINT REG 1 AT RACHECK LIST @T1A 02-RACHE
001820 94C7 1004 00004 10935+ NI 4(1),B'11000111' 02-RACHE
001824 9608 1004 00004 10936+ OI 4(1),B'00001000' FLAGS 02-RACHE
001828 94BF 100C 0000C 10937+ NI 12(1),B'10111111' - RESET DSTYPE=M @ZA56981 02-RACHE
00182C 4100 9438 00438 10938+ LA 0,$DSNAME+2 - MOVE ENTITY NAME ADDRESS 02-RACHE
001830 5001 0024 00024 10939+ ST 0,36(1) INTO PARM LIST @T1A 02-RACHE
001834 9202 1008 00008 10940+ MVI 8(1),X'02' SET FOR READ ACCESS 02-RACHE
001838 4100 9430 00430 10941+ LA 0,$VOLSER - MOVE VOLSER ADDRESS 02-RACHE
00183C 5001 002C 0002C 10942+ ST 0,44(1) INTO PARM LIST @T1A 02-RACHE
001840 181E 10943+ LR 1,14 RESTORE ADDRESSABILITY TO PARM LIST 01-RACRO
001842 58F0 0010 00010 10944+ L 15,16(0,0) ADDRESS OF CVT 01-RACRO
001846 BFFF F0F8 000F8 10945+ ICM 15,B'1111',248(15) ADDRESS OF SAF VECTOR TABLE 01-RACRO
00184A 4770 B856 01856 10946+ BNZ IHB0095D 01-RACRO
00184E 41F0 0004 00004 10947+ LA 15,4 SAF ROUTER NOT AVAILABLE IN SYSTEM 01-RACRO
001852 47F0 B85C 0185C 10948+ B IHB0095E 01-RACRO
001856 10949+IHB0095D DS 0H 01-RACRO
001856 58F0 F00C 0000C 10950+ L 15,12(,15) PICK UP ADDRESS OF SAF ROUTER 01-RACRO
00185A 05EF 10951+ BALR 14,15 BRANCH TO SAF ROUTER 01-RACRO
00185C 10952+IHB0095E DS 0H 01-RACRO
10953 DROP R2 @FMTAREA
00185C 12FF 10954 LTR R15,R15 READ ACCESS ALLOWED?
00185E 4780 B87A 0187A 10955 BZ ICFVSAMX YES, PROCEED
001862 D226 917C CB01 0017C 02B01 10956 MVC MSG(L'MSG19),MSG19 NO, ISSUE MESSAGE TO THIS EFFECT
0.0 02/15/09.046 08:06PM localhost a 2,22



Important code listings can be archived as portable documents.

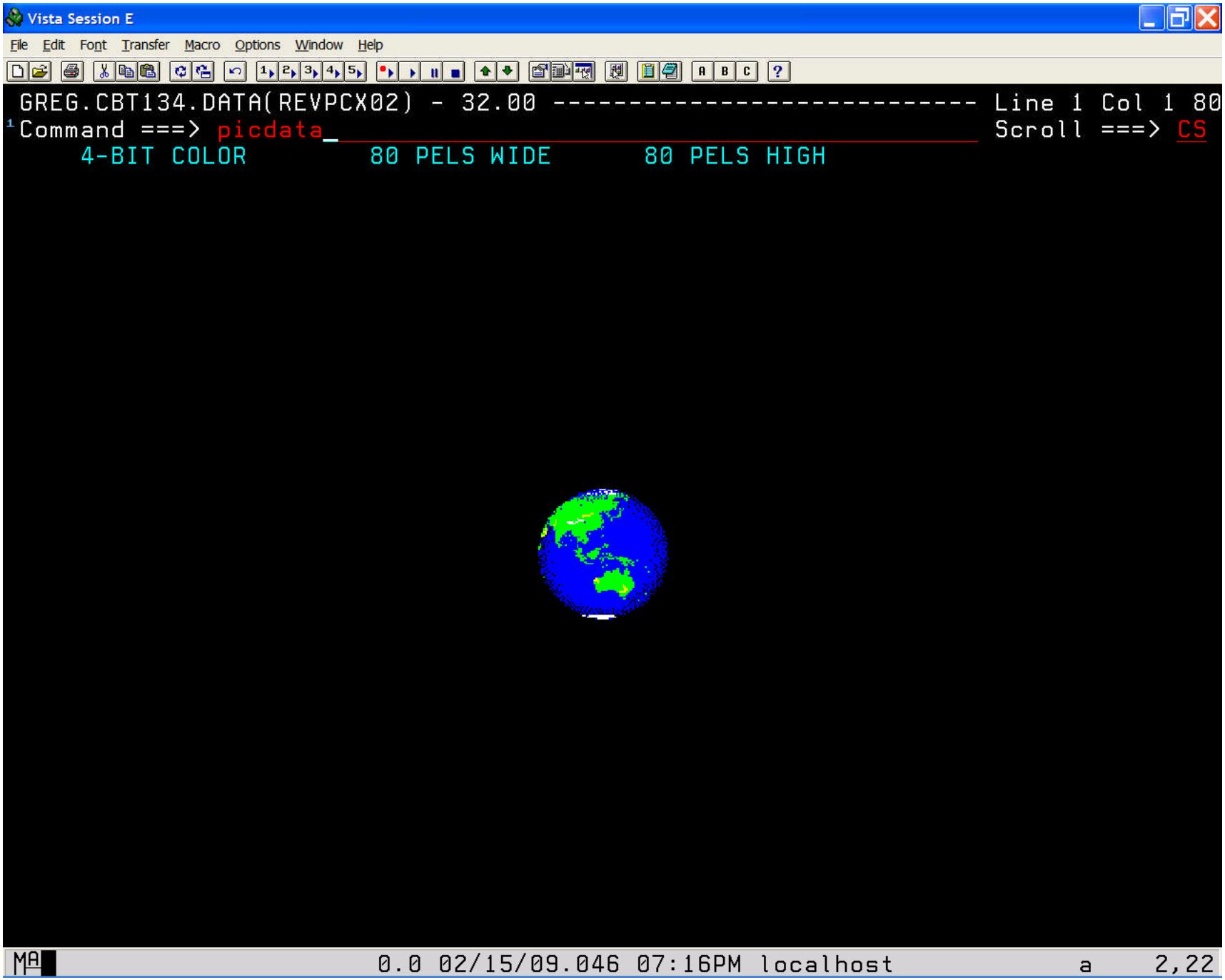
The resultant PDFs can be displayed according to settings *you* deem best.

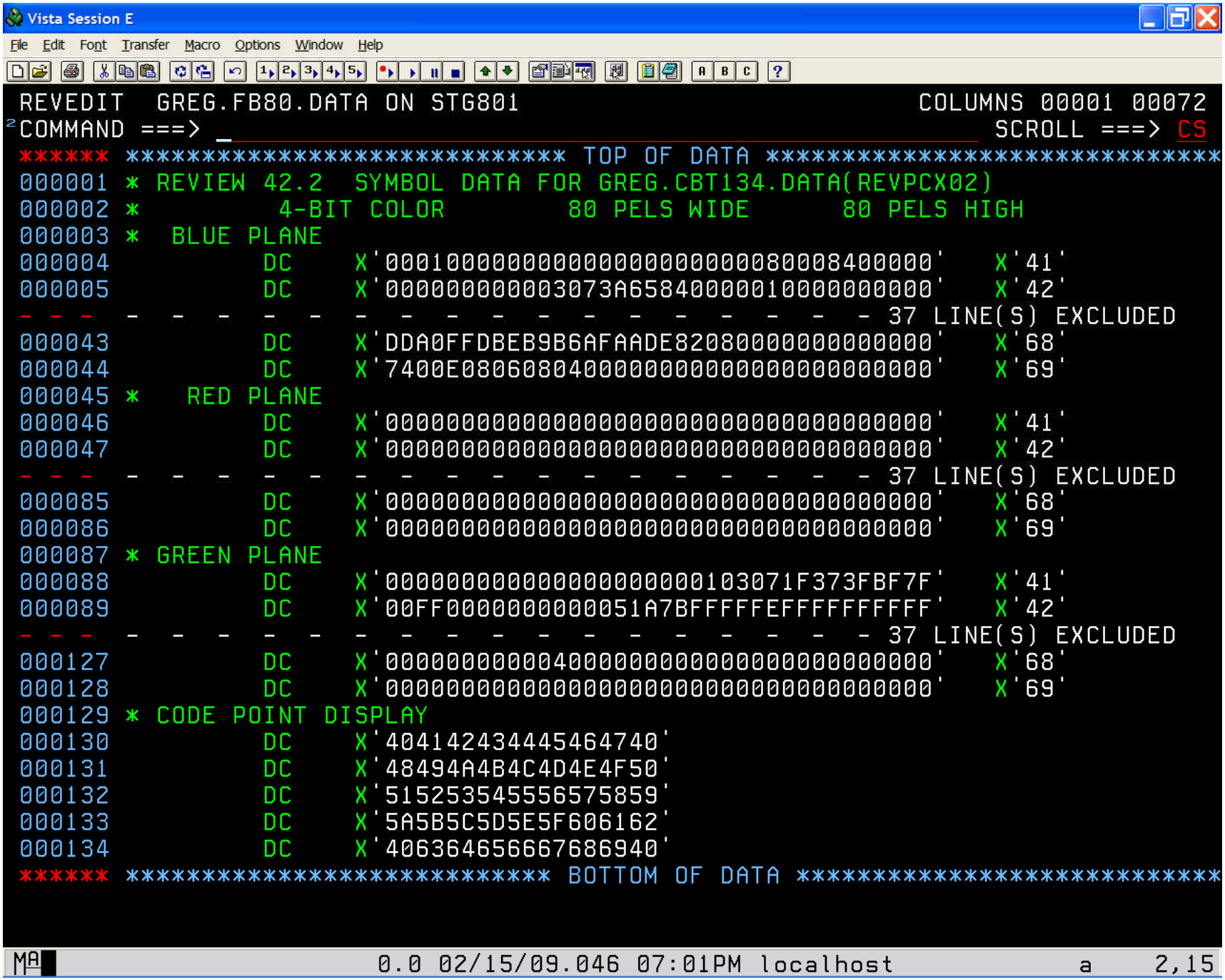
The powerful search facilities can be used to discover references to Assembler source code symbols.

Data extraction – picture source

PICDATA will output the Assembler source code for the picture being displayed

- Can be used to port picture to a 3270 full screen app
- No operands – user prompted for output data set name
- Picture can be monochrome or colour (to some extent)
- Output Assembler source depends on 3270 graphics type
  - For programmed symbols the output has two parts:
    1. The bit pattern data to load into the symbol set(s).
    2. The code point array used to display the picture.
  - For vector graphics the bitmaps by colour plane will be output.


Vista Session E
File Edit Font Transfer Macro Options Window Help
GREG.CBT134.DATA(REVPCX02) - 32.00 ---------- Line 1 Col 1 80
Command ===> picdata
Scroll ===> CS
4-BIT COLOR 80 PELS WIDE 80 PELS HIGH
MA
0.0 02/15/09.046 07:16PM localhost a 2,22


Vista Session E
File Edit Font Transfer Macro Options Window Help
REVEDIT GREG.FB80.DATA ON STG801 COLUMNS 00001 00072
COMMAND ===> SCROLL ===> CS
****** ******************************** TOP OF DATA ********************************
000001 * REVIEW 42.2 SYMBOL DATA FOR GREG.CBT134.DATA(REVPCX02)
000002 * 4-BIT COLOR 80 PELS WIDE 80 PELS HIGH
000003 * BLUE PLANE
000004 DC X'00010000000000000000000080008400000' X'41'
000005 DC X'00000000003073A6584000001000000000' X'42'
- 37 LINE(S) EXCLUDED
000043 DC X'DDA0FFDBEB9B6AFAADE8208000000000000' X'68'
000044 DC X'7400E0806080400000000000000000000000' X'69'
000045 * RED PLANE
000046 DC X'00000000000000000000000000000000000' X'41'
000047 DC X'00000000000000000000000000000000000' X'42'
- 37 LINE(S) EXCLUDED
000085 DC X'00000000000000000000000000000000000' X'68'
000086 DC X'00000000000000000000000000000000000' X'69'
000087 * GREEN PLANE
000088 DC X'00000000000000000000103071F373FBF7F' X'41'
000089 DC X'00FF000000000051A7BFFFFEFFFFFFFFF' X'42'
- 37 LINE(S) EXCLUDED
000127 DC X'00000000004000000000000000000000000' X'68'
000128 DC X'00000000000000000000000000000000000' X'69'
000129 * CODE POINT DISPLAY
000130 DC X'4041424344454647 40'
000131 DC X'48494A4B4C4D4E4F50'
000132 DC X'5152535455565758 59'
000133 DC X'5A5B5C5D5E5F6061 62'
000134 DC X'4063646566676869 40'
****** ******************************** BOTTOM OF DATA ********************************
MA 0.0 02/15/09.046 07:01PM localhost a 2,15

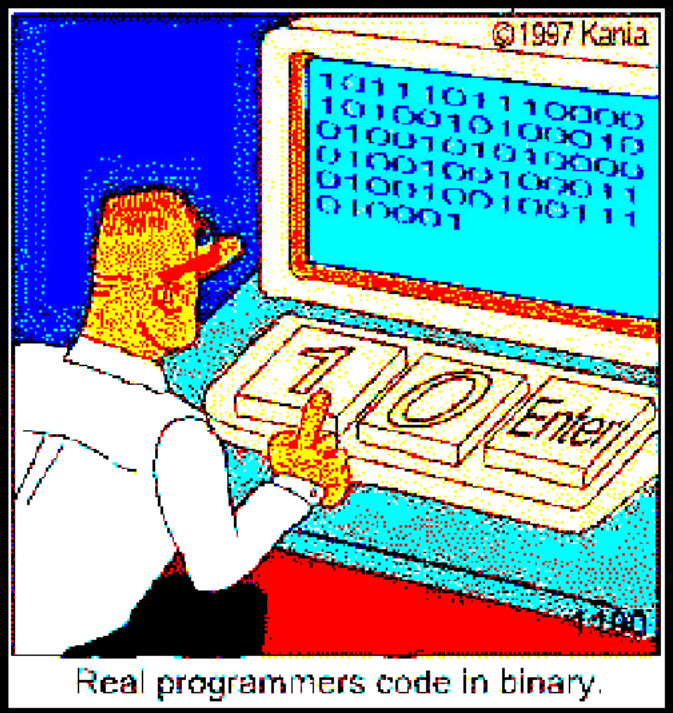
Vista Session E

File Edit Font Transfer Macro Options Window Help

GREG.CBT134.DATA(REVPCX06) - 32.00 ---------- Line 284 Col 1 80

Command ===> _ Scroll ===> CS

4-BIT COLOR 277 PELS WIDE 300 PELS HIGH



Real programmers code in binary.

How does this man relax when the coding is done?

MA 0.1 02/15/09.046 07:08PM localhost a 2,15

Vista Session E

File Edit Font Transfer Macro Options Window Help

GREG.CBT182.DATA($$DRK) - 01.01 ---------- Line 657 Col 1 80

Command ===> _ Scroll ===> CS

8-BIT COLOR 256 PELS WIDE 192 PELS HIGH

MA 0.1 02/15/09.046 07:06PM localhost a 2,15

Information – data details

Byte count in *bottom-of-data* line only counts data bytes

- The count does not include BDW, RDW, CIDF, RDF or new line control bytes

Record's block address shown when display of record's data leaves at least 40 unused columns on the screen line

- Address shown is hexadecimal of data returned by NOTE for non-VSAM
- For spanned records the address is for the last segment of the record
- For OS DASD data set without DSNTYPE=LARGE 6 hex digits represent TTR
- For DSNTYPE=LARGE 8 hex digits represent TTTR
- For tape data sets 8 hex digits represent block id
- Address shown is RBA (Relative Byte Address) for each VSAM or UNIX record
- Force display for all records with the following command sequence:

```
HEX ON
RIGHT MAX
HEX OFF
```

Information – HELP

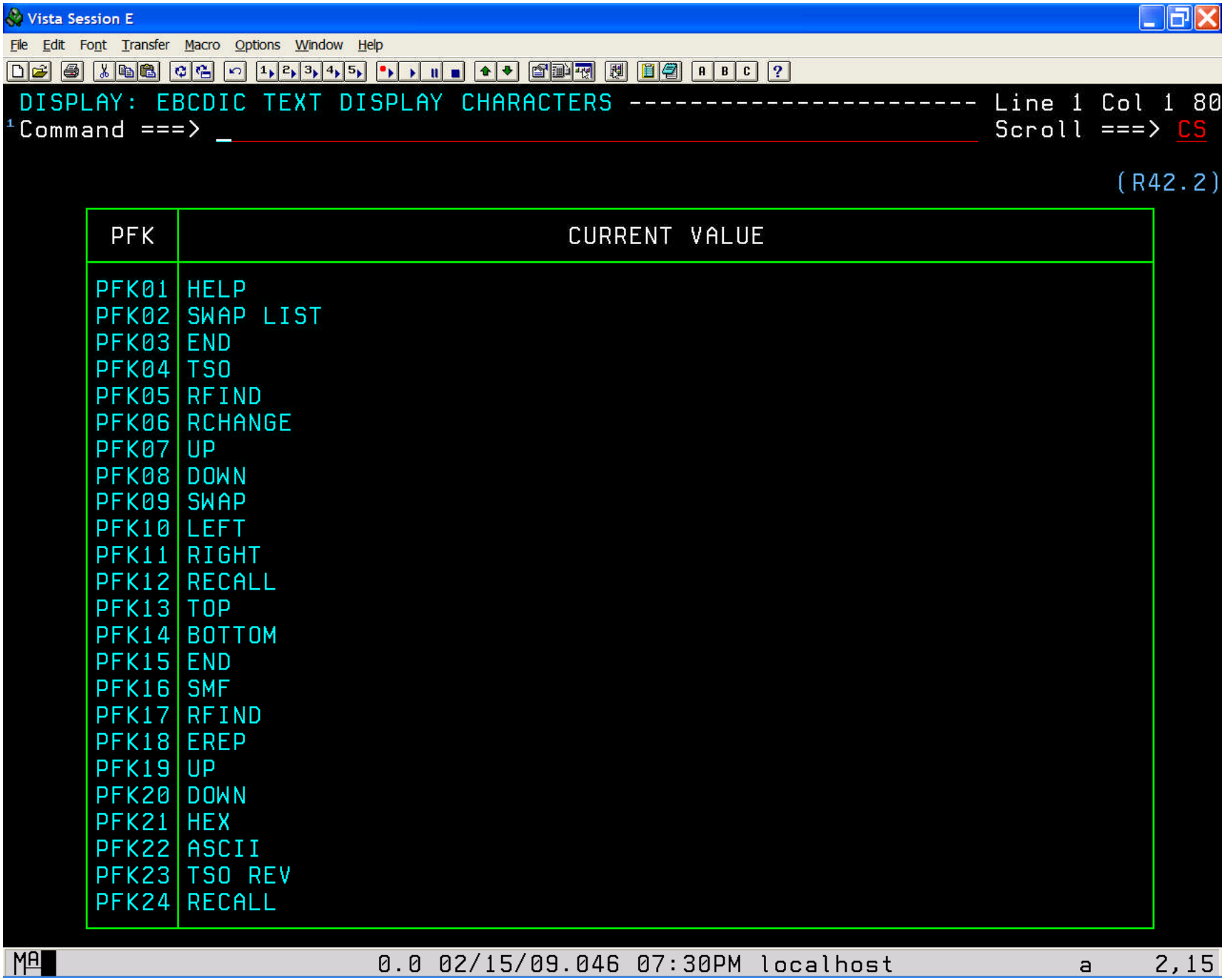
HELP or **HEL** or **FSHELP** or **FSH** will give access to the appropriate TSO HELP data (if installed)

- Optional operand can name the subcommand of interest
- **END** out of HELP to return to REVIEW session
- **SWAP** back to REVIEW session to keep HELP session accessible via SWAP

Information – KEYS

KEYS or **?** will show the current assignments of the 24 program function keys

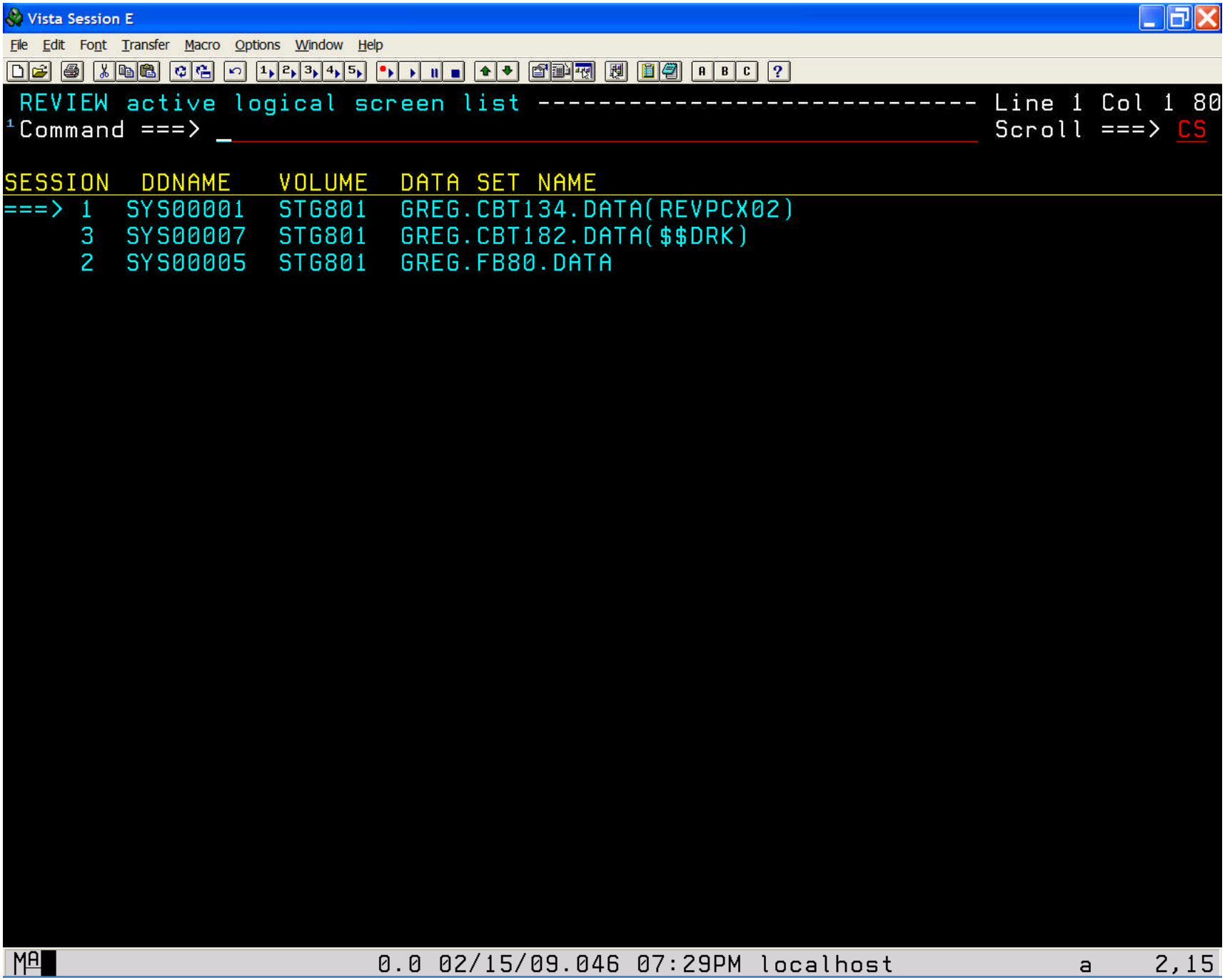
The REVIEW release number is also shown in parentheses – this is probably the easiest way to verify the release you are running when it comes time to test a new release or make a bug report.


Vista Session E
File Edit Font Transfer Macro Options Window Help
DISPLAY: EBCDIC TEXT DISPLAY CHARACTERS ---------- Line 1 Col 1 80
Command ===> _ Scroll ===> CS
(R42.2)
PFK CURRENT VALUE
PFK01 HELP
PFK02 SWAP LIST
PFK03 END
PFK04 TSO
PFK05 RFIND
PFK06 RCHANGE
PFK07 UP
PFK08 DOWN
PFK09 SWAP
PFK10 LEFT
PFK11 RIGHT
PFK12 RECALL
PFK13 TOP
PFK14 BOTTOM
PFK15 END
PFK16 SMF
PFK17 RFIND
PFK18 EREP
PFK19 UP
PFK20 DOWN
PFK21 HEX
PFK22 ASCII
PFK23 TSO REV
PFK24 RECALL
MA 0.0 02/15/09.046 07:30PM localhost a 2,15

Information – SWAP LIST

SWAP LIST shows a numbered list of all of the concurrent or “parallel” REVIEW sessions

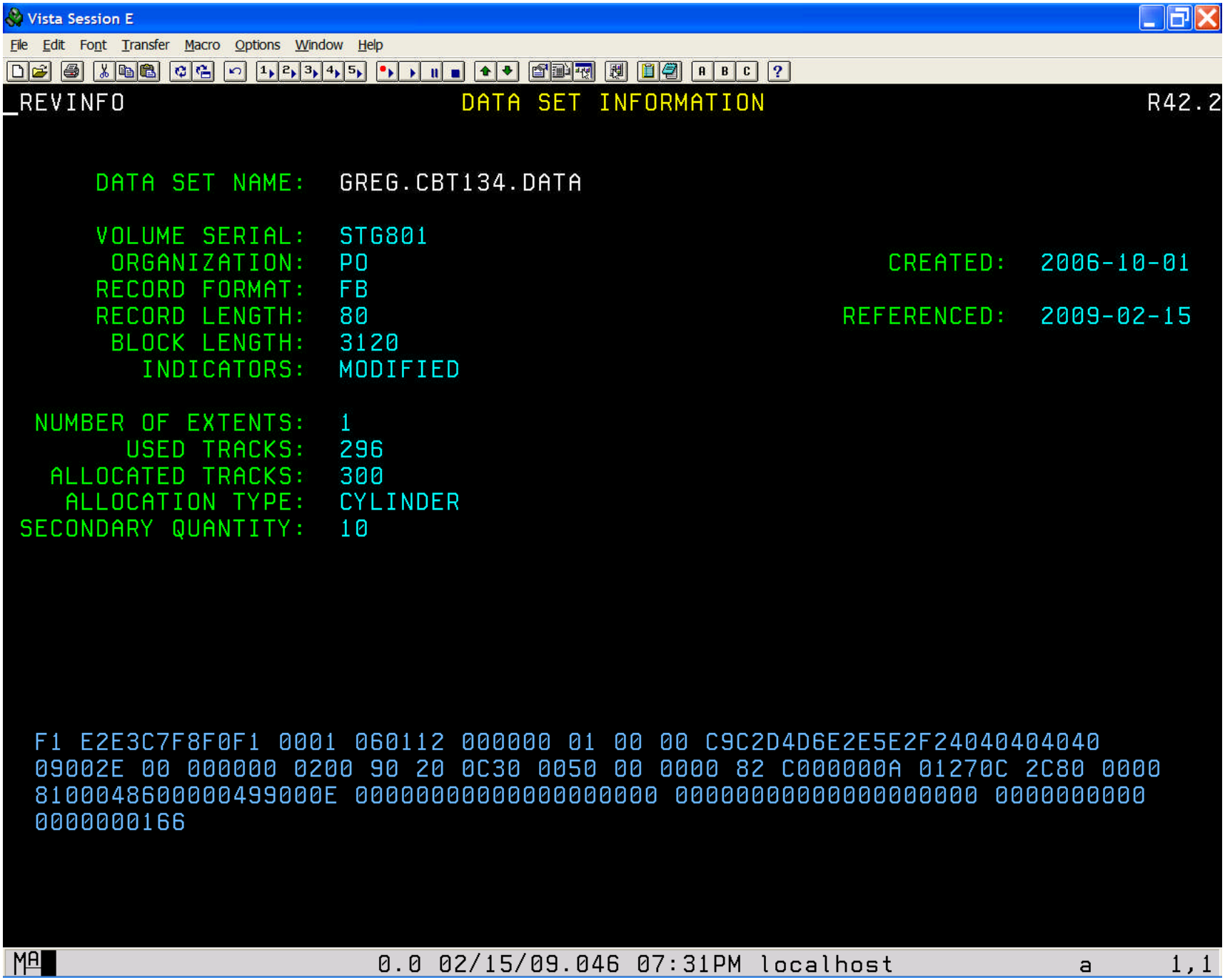
- Specify the relevant number on the **SWAP** command to swap to that session (Example: **SWAP 5**)
- **SWAP** without an operand swaps between the two most recently accessed sessions
- Current maximum is 8 parallel sessions
- A parallel session is created by invoking the REVIEW load module from the REVIEW load module (via a TSO or HELP subcommand), or, in MVS terms, when the current RB and its calling RB under the current task are both executing the same program. The TSO subcommand will normally ATTACH a new task, but for REVIEW it does a LINK instead.
- Current session number shown in column 1 of line 2 as a superscript digit when more than one parallel session is active


Vista Session E
File Edit Font Transfer Macro Options Window Help
REVIEW active logical screen list ---------- Line 1 Col 1 80
Command ===> _ Scroll ===> CS
SESSION DDNAME VOLUME DATA SET NAME
===> 1 SYS00001 STG801 GREG.CBT134.DATA(REVPCX02)
3 SYS00007 STG801 GREG.CBT182.DATA($$DRK)
2 SYS00005 STG801 GREG.FB80.DATA
MA 0.0 02/15/09.046 07:29PM localhost a 2,15

Information – INFO

INFO will display some status information about the data set being browsed

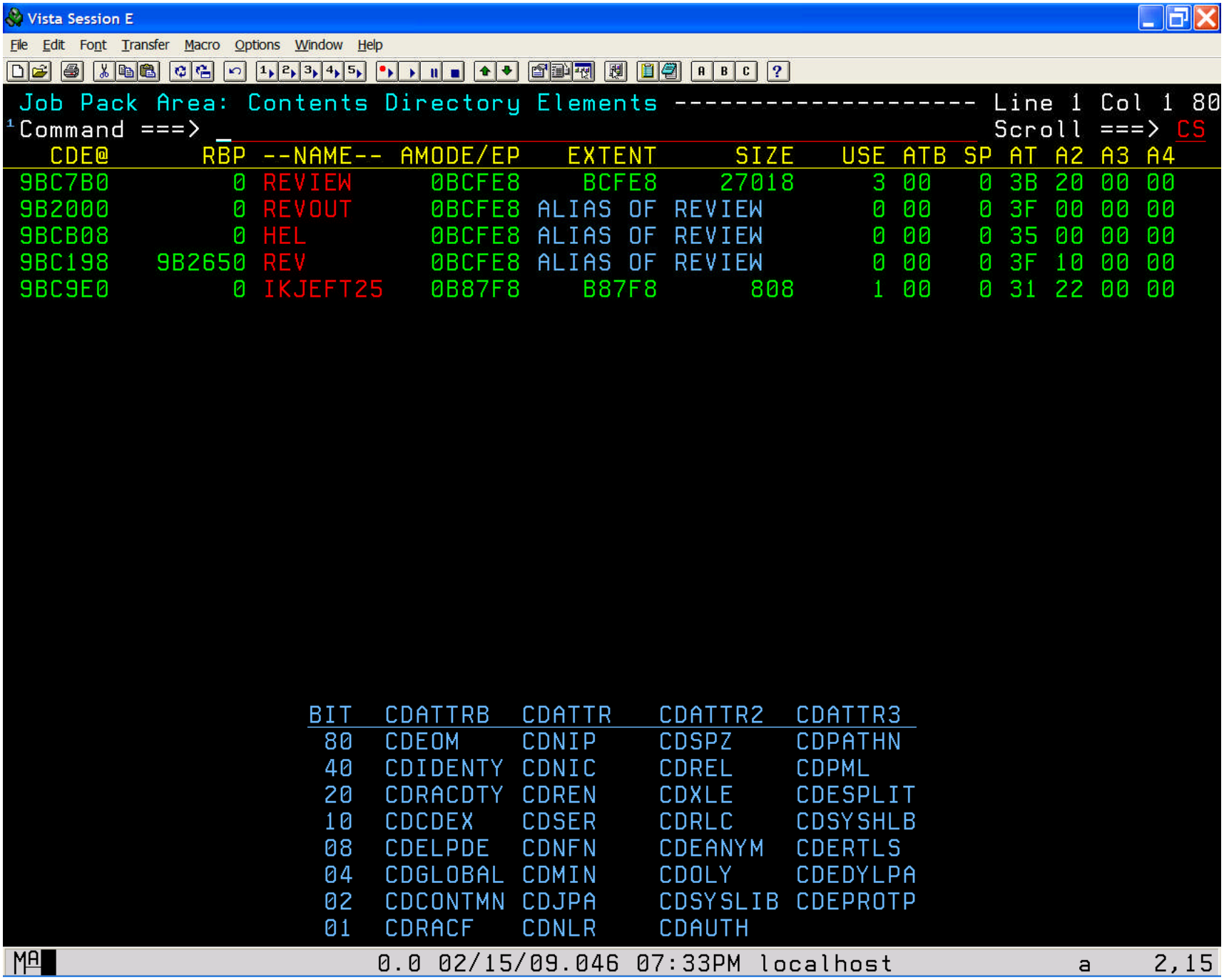
- Currently no SMS data is displayed
- On screens with more than 24 lines the DSCB contents are shown in hexadecimal
- One use of this display may be to help determine whether a PDS needs to be compressed or not
- **INFO** is currently not formally documented

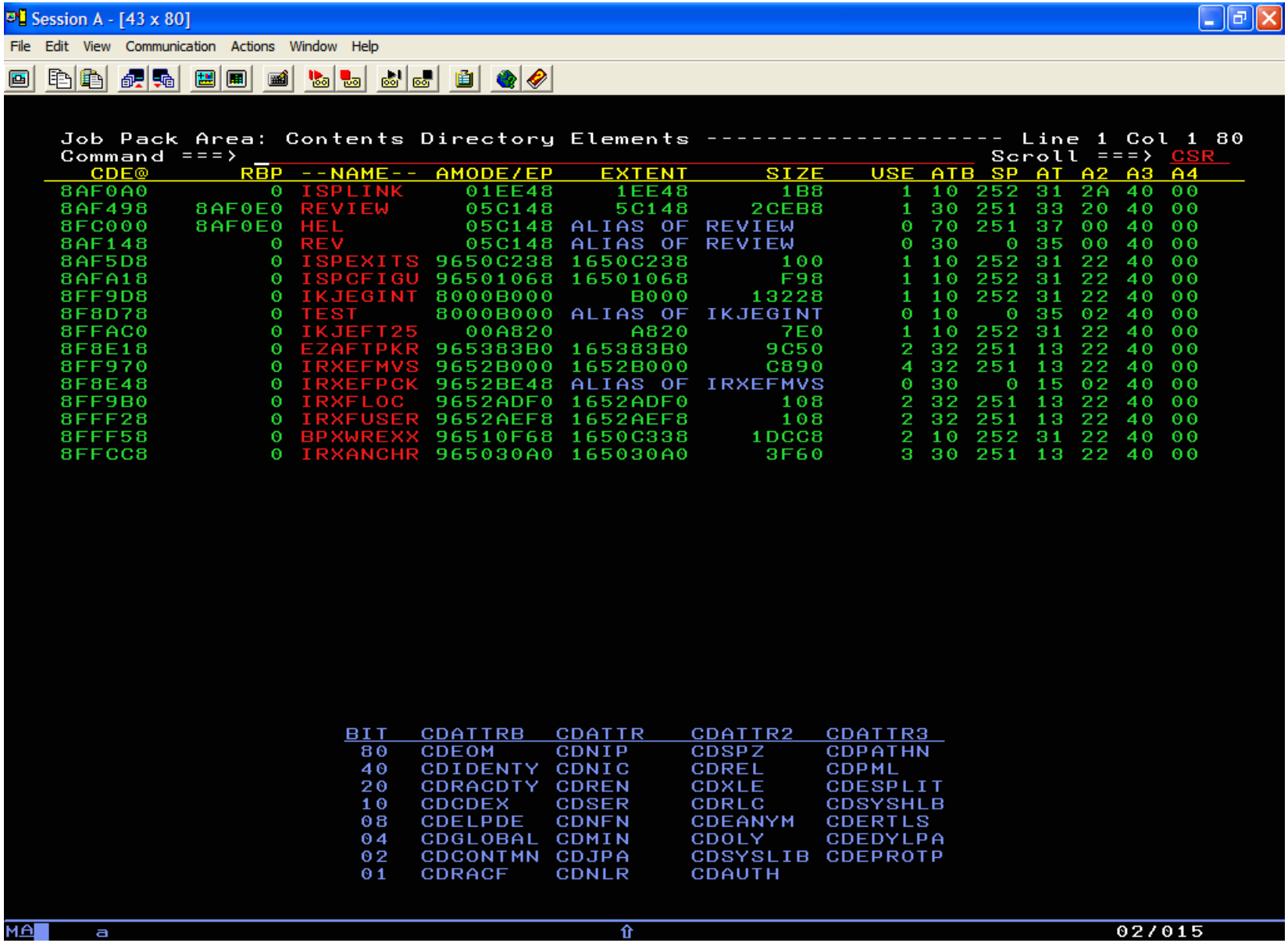

Vista Session E
File Edit Font Transfer Macro Options Window Help
REVINFO DATA SET INFORMATION R42.2
DATA SET NAME: GREG.CBT134.DATA
VOLUME SERIAL: STG801
ORGANIZATION: PO
RECORD FORMAT: FB
RECORD LENGTH: 80
BLOCK LENGTH: 3120
INDICATORS: MODIFIED
CREATED: 2006-10-01
REFERENCED: 2009-02-15
NUMBER OF EXTENTS: 1
USED TRACKS: 296
ALLOCATED TRACKS: 300
ALLOCATION TYPE: CYLINDER
SECONDARY QUANTITY: 10
F1 E2E3C7F8F0F1 0001 060112 000000 01 00 00 C9C2D4D6E2E5E2F24040404040
09002E 00 000000 0200 90 20 0C30 0050 00 0000 82 C000000A 01270C 2C80 0000
8100048600000499000E 0000000000000000000 0000000000000000000 0000000000
0000000166
MA 0.0 02/15/09.046 07:31PM localhost a 1,1

Information – JPA

JPA or **CDE** will show a list of the Contents Directory Elements for the programs loaded into the Job Pack Area

JPA is currently not formally documented


Vista Session E
File Edit Font Transfer Macro Options Window Help
Job Pack Area: Contents Directory Elements ---------- Line 1 Col 1 80
Command ===> _ Scroll ===> CS
CDE@ RBP --NAME-- AMODE/EP EXTENT SIZE USE ATB SP AT A2 A3 A4
9BC7B0 0 REVIEW 0BCFE8 BCFE8 27018 3 00 0 3B 20 00 00
9B2000 0 REVOUT 0BCFE8 ALIAS OF REVIEW 0 00 0 3F 00 00 00
9BCB08 0 HEL 0BCFE8 ALIAS OF REVIEW 0 00 0 35 00 00 00
9BC198 9B2650 REV 0BCFE8 ALIAS OF REVIEW 0 00 0 3F 10 00 00
9BC9E0 0 IKJEFT25 0B87F8 B87F8 808 1 00 0 31 22 00 00
BIT CDATTRB CDATTR CDATTR2 CDATTR3
80 CDEOM CDNIP CDSPZ CDPATHN
40 CDIDENTY CDNIC CDREL CDPML
20 CDRACDTY CDREN CDXLE CDESPLIT
10 CDCDEX CDSER CDRLC CDSYSHLB
08 CDELPDE CDNFN CDEANYM CDERTLS
04 CDGLOBAL CDMIN CDOLY CDEDYLPA
02 CDCONTMN CDJPA CDSYSLIB CDEPROTP
01 CDRACF CDNLR CDAUTH
MA 0.0 02/15/09.046 07:33PM localhost a 2,15


Session A - [43 x 80]
File Edit View Communication Actions Window Help
Job Pack Area: Contents Directory Elements ---------- Line 1 Col 1 80
Command ===> Scroll ===> CSR
CDE@ RBP --NAME-- AMODE/EP EXTENT SIZE USE ATB SP AT A2 A3 A4
8AF0A0 0 ISPLINK 01EE48 1EE48 1B8 1 10 252 31 2A 40 00
8AF498 8AF0E0 REVIEW 05C148 5C148 2CEB8 1 30 251 33 20 40 00
8FC000 8AF0E0 HEL 05C148 ALIAS OF REVIEW 0 70 251 37 00 40 00
8AF148 0 REV 05C148 ALIAS OF REVIEW 0 30 0 35 00 40 00
8AF5D8 0 ISPEXITS 9650C238 1650C238 100 1 10 252 31 22 40 00
8AFA18 0 ISPCFIGU 96501068 16501068 F98 1 10 252 31 22 40 00
8FF9D8 0 IKJEGINT 8000B000 B000 13228 1 10 252 31 22 40 00
8F8D78 0 TEST 8000B000 ALIAS OF IKJEGINT 0 10 0 35 02 40 00
8FFAC0 0 IKJEFT25 00A820 A820 7E0 1 10 252 31 22 40 00
8F8E18 0 EZAFTPKR 965383B0 165383B0 9C50 2 32 251 13 22 40 00
8FF970 0 IRXEFMVS 9652B000 1652B000 C890 4 32 251 13 22 40 00
8F8E48 0 IRXEFPCK 9652BE48 ALIAS OF IRXEFMVS 0 30 0 15 02 40 00
8FF9B0 0 IRXFLOC 9652ADF0 1652ADF0 108 2 32 251 13 22 40 00
8FFF28 0 IRXFUSER 9652AEF8 1652AEF8 108 2 32 251 13 22 40 00
8FFF58 0 BPXWREXX 96510F68 1650C338 1DCC8 2 10 252 31 22 40 00
8FFCC8 0 IRXANCHR 965030A0 165030A0 3F60 3 30 251 13 22 40 00
BIT CDATTRB CDATTR CDATTR2 CDATTR3
80 CDEOM CDNIP CDSPZ CDPATHN
40 CDIDENTY CDNIC CDREL CDPML
20 CDRACDTY CDREN CDXLE CDESPLIT
10 CDCDEX CDSER CDRLC CDSYSHLB
08 CDELPDE CDNFN CDEANYM CDERTLS
04 CDGLOBAL CDMIN CDOLY CDEDYLPA
02 CDCONTMN CDJPA CDSYSLIB CDEPROTP
01 CDRACF CDNLR CDAUTH
MA a 02/015

Information – TCB

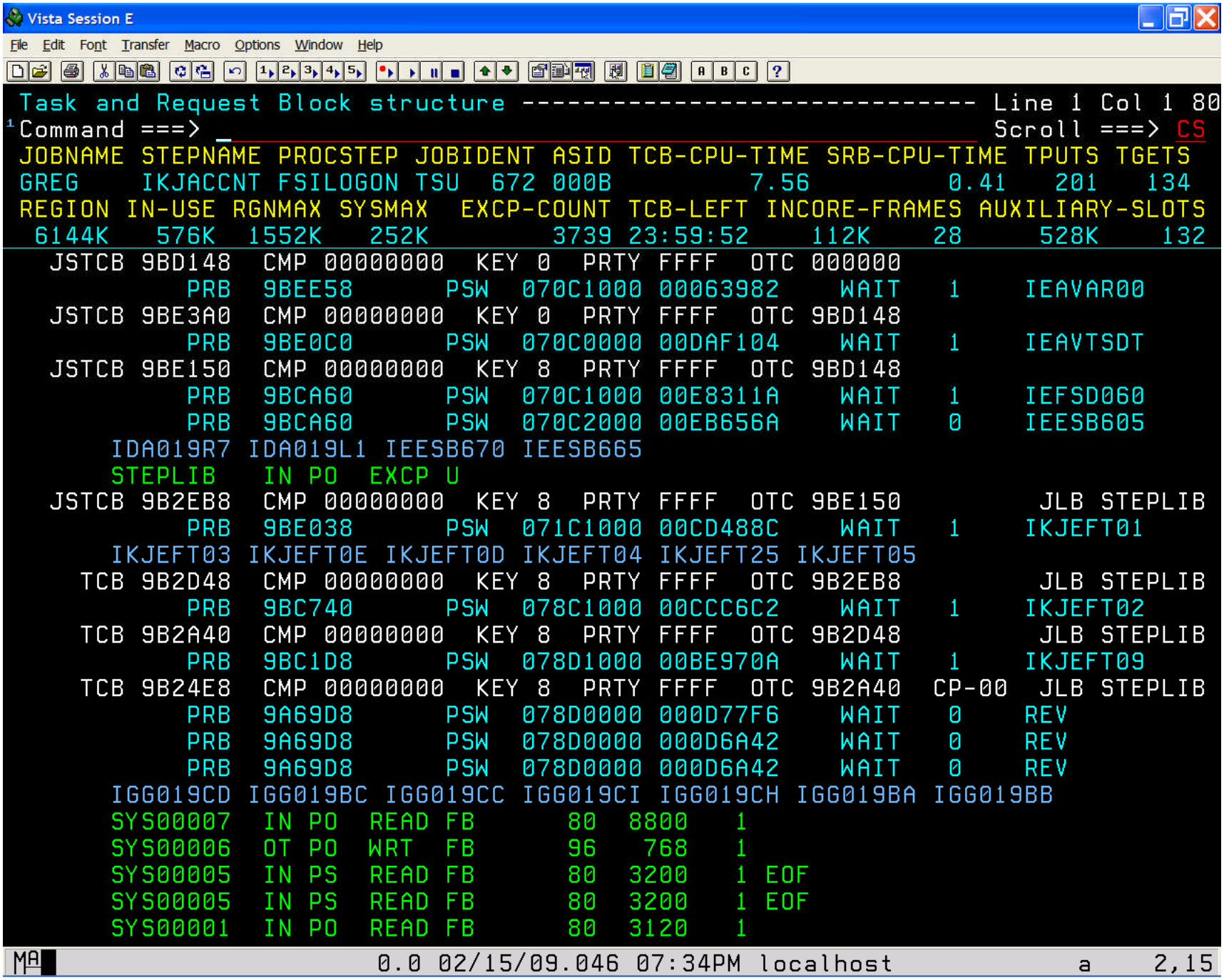
TCB or **RB** will show address space and task details

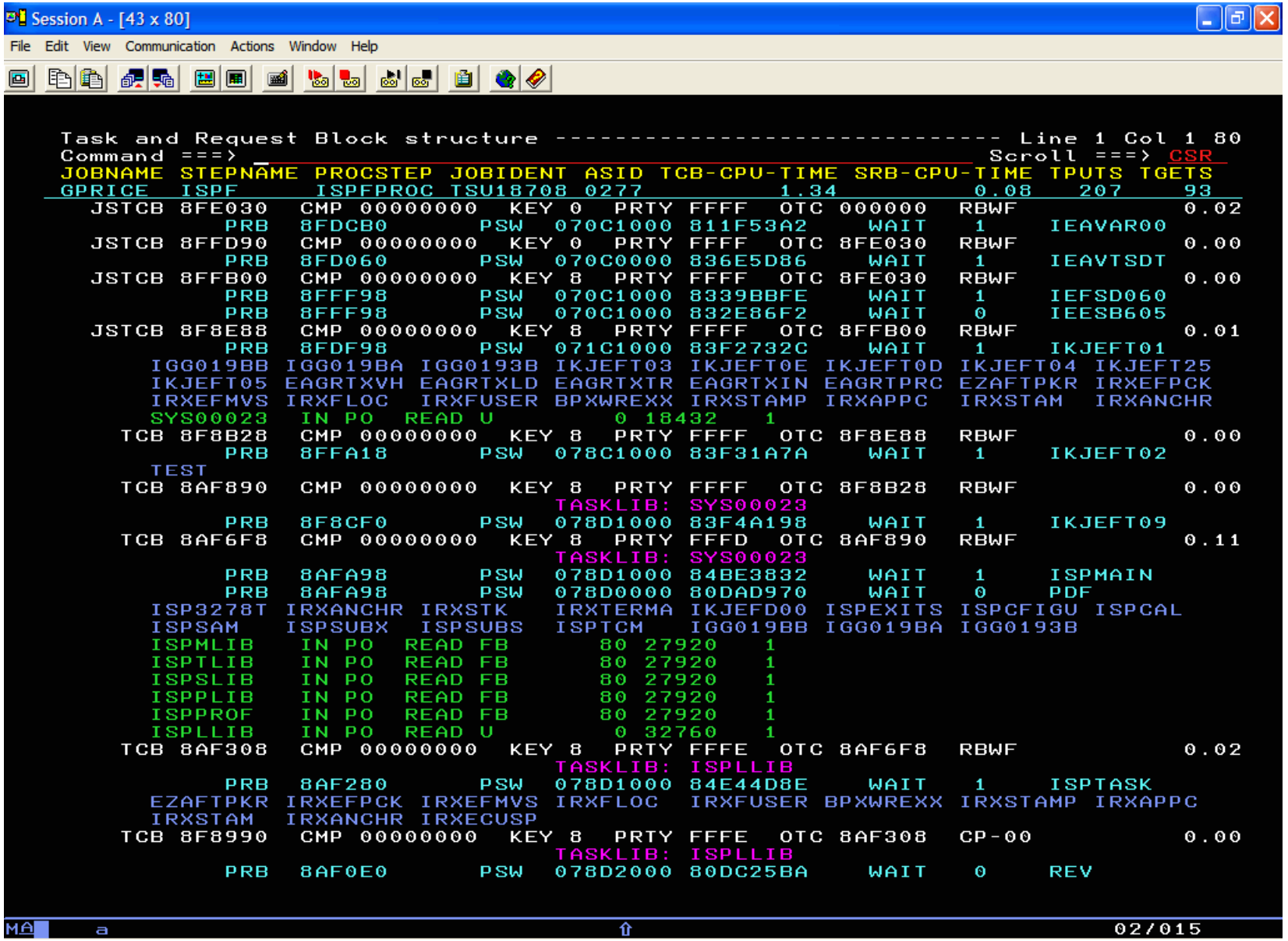
After a couple of lines showing address space details, a list of the Task Control Blocks in the address space is shown

For each task, the following data items are also listed:

- The task library ddname, if any
- The Request Block chain – one RB per screen line
- A list of program names loaded by the task, shown in blue
- A list of files opened by the task (one per line), shown in green

TCB is currently not formally documented


Vista Session E
File Edit Font Transfer Macro Options Window Help
Task and Request Block structure ---------- Line 1 Col 1 80
Command ===> Scroll ===> CS
JOBNAME STEPNAME PROCSTEP JOBIDENT ASID TCB-CPU-TIME SRB-CPU-TIME TPUTS TGETS
GREG IKJACCNT FSILOGON TSU 672 000B 7.56 0.41 201 134
REGION IN-USE RGNMAX SYSMAX EXCP-COUNT TCB-LEFT INCORE-FRAMES AUXILIARY-SLOTS
6144K 576K 1552K 252K 3739 23:59:52 112K 28 528K 132
JSTCB 9BD148 CMP 00000000 KEY 0 PRTY FFFF OTC 000000
PRB 9BEE58 PSW 070C1000 00063982 WAIT 1 IEAVAR00
JSTCB 9BE3A0 CMP 00000000 KEY 0 PRTY FFFF OTC 9BD148
PRB 9BE0C0 PSW 070C0000 00DAF104 WAIT 1 IEAVTSDT
JSTCB 9BE150 CMP 00000000 KEY 8 PRTY FFFF OTC 9BD148
PRB 9BCA60 PSW 070C1000 00E8311A WAIT 1 IEFSD060
PRB 9BCA60 PSW 070C2000 00EB656A WAIT 0 IEESB605
IDA019R7 IDA019L1 IEESB670 IEESB665
STEPLIB IN PO EXCP U
JSTCB 9B2EB8 CMP 00000000 KEY 8 PRTY FFFF OTC 9BE150 JLB STEPLIB
PRB 9BE038 PSW 071C1000 00CD488C WAIT 1 IKJEFT01
IKJEFT03 IKJEFT0E IKJEFT0D IKJEFT04 IKJEFT25 IKJEFT05
TCB 9B2D48 CMP 00000000 KEY 8 PRTY FFFF OTC 9B2EB8 JLB STEPLIB
PRB 9BC740 PSW 078C1000 00CCC6C2 WAIT 1 IKJEFT02
TCB 9B2A40 CMP 00000000 KEY 8 PRTY FFFF OTC 9B2D48 JLB STEPLIB
PRB 9BC1D8 PSW 078D1000 00BE970A WAIT 1 IKJEFT09
TCB 9B24E8 CMP 00000000 KEY 8 PRTY FFFF OTC 9B2A40 CP-00 JLB STEPLIB
PRB 9A69D8 PSW 078D0000 000D77F6 WAIT 0 REV
PRB 9A69D8 PSW 078D0000 000D6A42 WAIT 0 REV
PRB 9A69D8 PSW 078D0000 000D6A42 WAIT 0 REV
IGG019CD IGG019BC IGG019CC IGG019CI IGG019CH IGG019BA IGG019BB
SYS00007 IN PO READ FB 80 8800 1
SYS00006 OT PO WRT FB 96 768 1
SYS00005 IN PS READ FB 80 3200 1 EOF
SYS00005 IN PS READ FB 80 3200 1 EOF
SYS00001 IN PO READ FB 80 3120 1
MA
0.0 02/15/09.046 07:34PM localhost a 2,15


Session A - [43 x 80]
File Edit View Communication Actions Window Help
Task and Request Block structure ---------- Line 1 Col 1 80
Command ===> Scroll ===> CSR
JOBNAME STEPNAME PROCSTEP JOBIDENT ASID TCB-CPU-TIME SRB-CPU-TIME TPUTS TGETS
GPRICE ISPF ISPFPROC TSU18708 0277 1.34 0.08 207 93
JSTCB 8FE030 CMP 00000000 KEY 0 PRTY FFFF OTC 000000 RBWF 0.02
PRB 8FDCB0 PSW 070C1000 811F53A2 WAIT 1 IEAVAR00
JSTCB 8FFD90 CMP 00000000 KEY 0 PRTY FFFF OTC 8FE030 RBWF 0.00
PRB 8FD060 PSW 070C0000 836E5D86 WAIT 1 IEAVTSDT
JSTCB 8FFB00 CMP 00000000 KEY 8 PRTY FFFF OTC 8FE030 RBWF 0.00
PRB 8FFF98 PSW 070C1000 8339BBFE WAIT 1 IEFSD060
PRB 8FFF98 PSW 070C1000 832E86F2 WAIT 0 IEESB605
JSTCB 8F8E88 CMP 00000000 KEY 8 PRTY FFFF OTC 8FFB00 RBWF 0.01
PRB 8FDF98 PSW 071C1000 83F2732C WAIT 1 IKJEFT01
IGG019BB IGG019BA IGG0193B IKJEFT03 IKJEFT0E IKJEFT0D IKJEFT04 IKJEFT25
IKJEFT05 EAGRTXVH EAGRTXLD EAGRTXTR EAGRTXIN EAGRTPRC EZAFTPKR IRXEFPCK
IRXEFMVS IRXFLOC IRXFUSER BPXWREXX IRXSTAMP IRXAPPC IRXSTAM IRXANCHR
SYS00023 IN PO READ V 0 18432 1
TCB 8F8B28 CMP 00000000 KEY 8 PRTY FFFF OTC 8F8E88 RBWF 0.00
PRB 8FFA18 PSW 078C1000 83F31A7A WAIT 1 IKJEFT02
TEST
TCB 8AF890 CMP 00000000 KEY 8 PRTY FFFF OTC 8F8B28 RBWF 0.00
TASKLIB: SYS00023
PRB 8F8CF0 PSW 078D1000 83F4A198 WAIT 1 IKJEFT09
TCB 8AF6F8 CMP 00000000 KEY 8 PRTY FFFD OTC 8AF890 RBWF 0.11
TASKLIB: SYS00023
PRB 8AFA98 PSW 078D1000 84BE3832 WAIT 1 ISPMAIN
PRB 8AFA98 PSW 078D0000 80DAD970 WAIT 0 PDF
ISP3278T IRXANCHR IRXSTK IRXTERMA IKJEFD00 ISPEXITS ISPCFIGU ISPCAL
ISPSAM ISPSUBX ISPSUBS ISPTCM IGG019BB IGG019BA IGG0193B
ISPMLIB IN PO READ FB 80 27920 1
ISPTLIB IN PO READ FB 80 27920 1
ISPSLIB IN PO READ FB 80 27920 1
ISPPLIB IN PO READ FB 80 27920 1
ISPPROF IN PO READ FB 80 27920 1
ISPLLIB IN PO READ V 0 32760 1
TCB 8AF308 CMP 00000000 KEY 8 PRTY FFFE OTC 8AF6F8 RBWF 0.02
TASKLIB: ISPLLIB
PRB 8AF280 PSW 078D1000 84E44D8E WAIT 1 ISPTASK
EZAFTPKR IRXEFPCK IRXEFMVS IRXFLOC IRXFUSER BPXWREXX IRXSTAMP IRXAPPC
IRXSTAM IRXANCHR IRXECUSP
TCB 8F8990 CMP 00000000 KEY 8 PRTY FFFE OTC 8AF308 CP-00 0.00
TASKLIB: ISPLLIB
PRB 8AF0E0 PSW 078D2000 80DC25BA WAIT 0 REV
MA a 02/015

PDS member list - commands

The member list display allows the following commands:

- Vertical scrolling – TOP, BOTTOM, UP, DOWN, LOCATE
- Session control – PFK#, CANCEL, END, EXIT, SWAP, RECALL, TSO
- Primary input selection – SELECT, EDIT, BROWSE, UPDATE, VIEW
- OFFLOAD – sequentialize member data with ./ control statements
  - Reload with IEBUPDTE – SSI will be restored
  - Reload with PDSLOAD – SSI and ISPF statistics will be restored
  - Reload with REVLMOD – load modules (not OVERLAY) restored exactly
- SEQLOAD – sequentialize member data without control statements
- PDSLOAD – dynamically invoke PDSLOAD or REVLMOD to reload data
- DELINK – dynamically invoke DELINKI to extract object deck(s)
  - Not SCATTER, not OVERLAY, not Program Objects
- FIND – initiate search dialog for file including concatenations
- TAGFLIP – toggle each member's tag status
- RFIND – locate member list display to next tagged member
- RESET – untag every member
- REFRESH – get latest member list details from disk

PDS member list - SORT

The member list can be sorted into one of several sort orders

A sort of the member list can be triggered by:

- A SORT command with an operand indicating the sort field
- Placing the cursor on an underscored column heading, then <enter>
- A re-sort after the member list was refreshed
- A REVIEW of a concatenated library (to sort into name order)

Sort into TTR order before an **OFFLOAD** to get **./ ALIAS** control statements produced (to allow the reload of those aliases)

See the underscored column headings for available sort orders (or look at the REVPDS HELP member)

Directory sort can be interrupted before complete

PDS member selection codes

S – select a member to be browsed (REVIEW) or edited (REVED)

- Can also leave cursor on selection dot and press <enter> to select member

/ – select a member to REVIEW as if the **DATA** operand was used

E – select a member to be edited by ISPF (if active) or REVEDIT

B – select a member to be browsed by ISPF (if active) or REVIEW

V – select a member to be viewed by ISPF (if active) or REVEDIT

U – select a member to be edited by REVEDIT (even if ISPF is active)

D – delete a PDS (not a PDSE) member (not in a concatenated file)

T – tag a member (handy to manage large member lists)

R – restore a member deleted by **D** or reset the tag status of a member

H – show program history (really just **S** and scroll right)

- Code implemented to allow compatibility with PDSE member list selections

PDS – member tagging

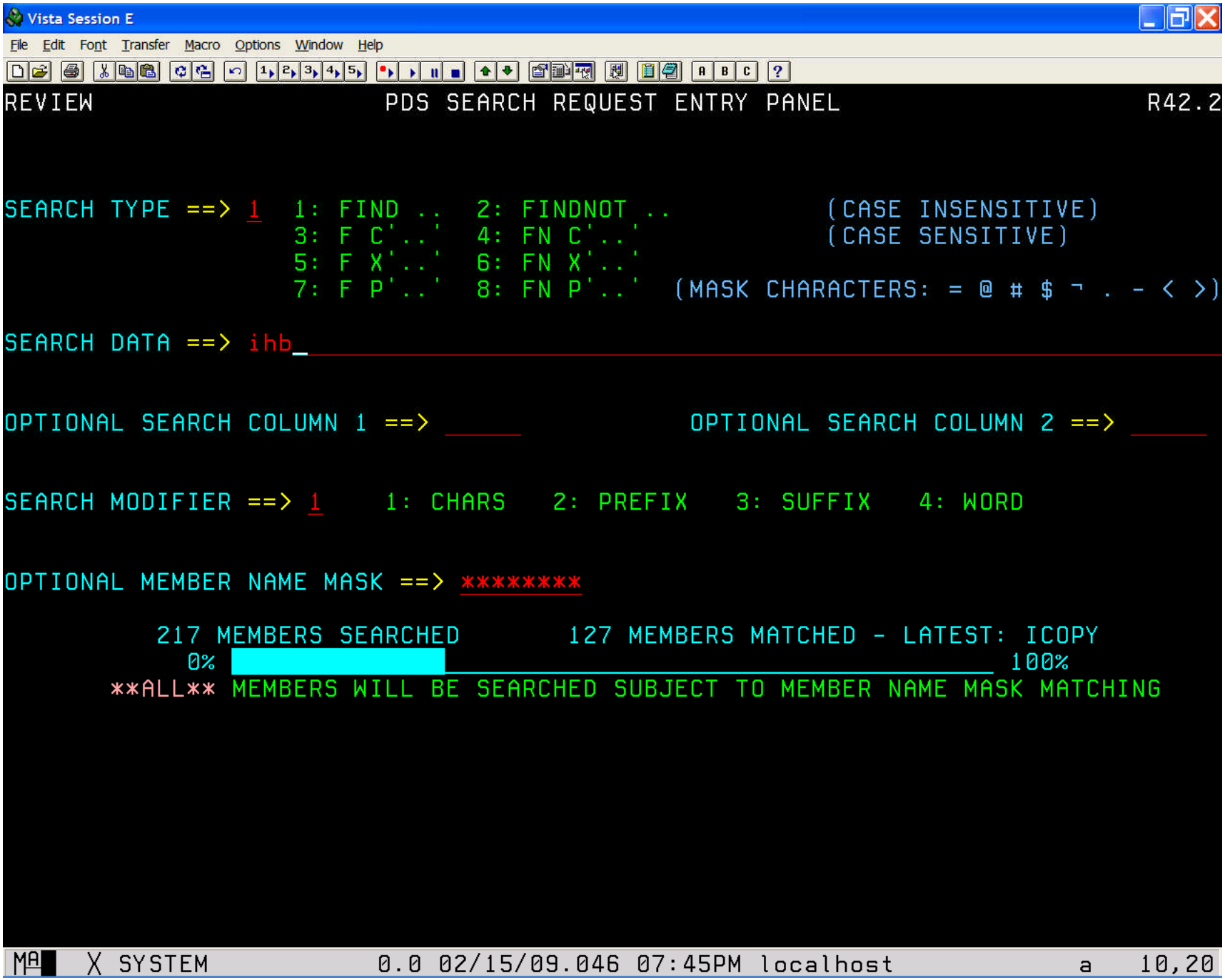
Tagged members have their names displayed in reverse video

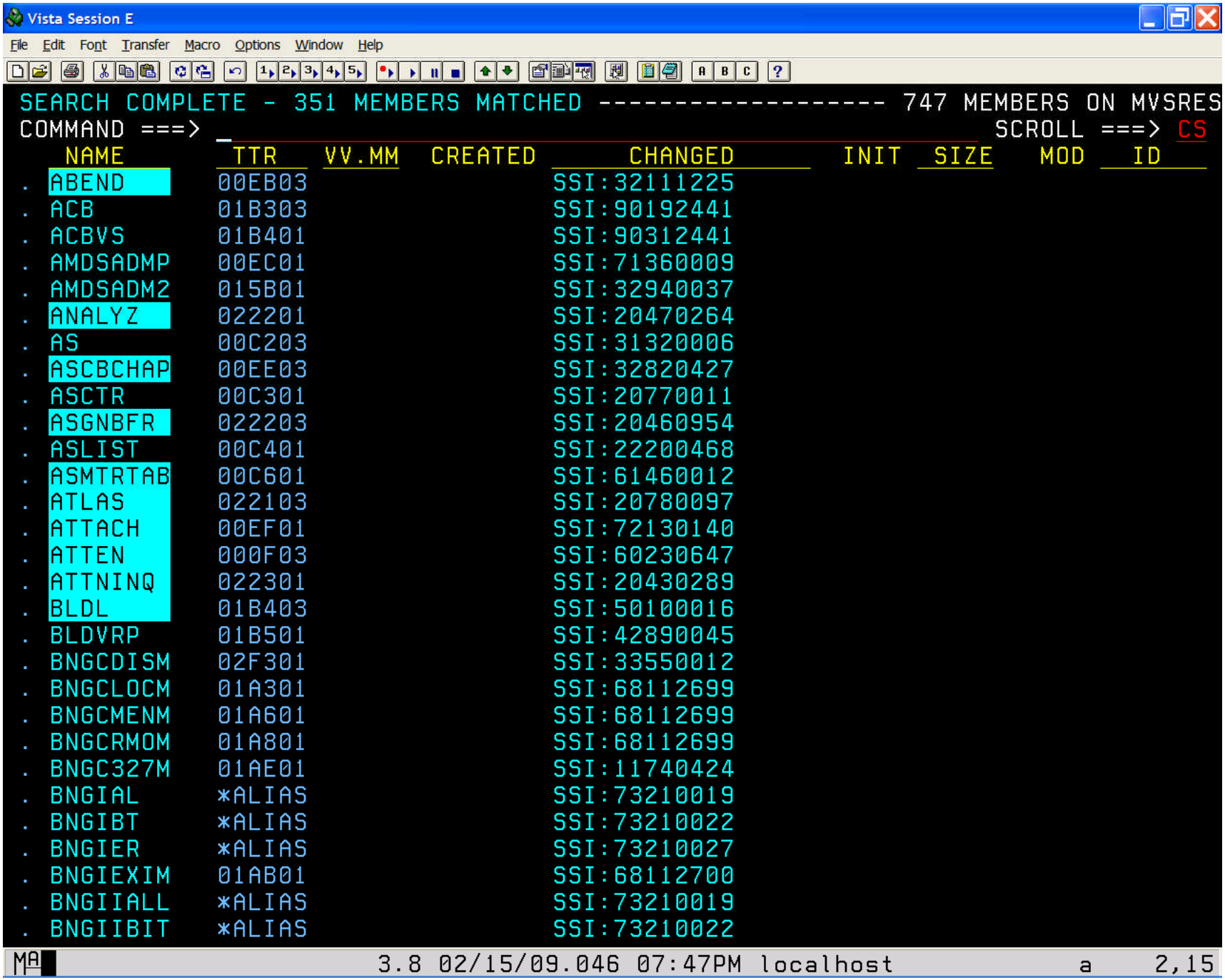
- A member can be tagged manually by:
  - The **TAGFLIP** or **TF** primary command
  - The **T** member selection code
- A member can be untagged manually by:
  - The **TAGFLIP** or **TF** primary command
  - The **RESET** or **RES** primary command
  - The **R** member selection code
- A library search triggered by **FIND** or **F** will
  - Tag a member when a search match is found in its data
  - Untag a member when no search match is found in its data
- If any member is tagged, only tagged members are processed by:
  - **OFFLOAD** or **OFF**
  - **SEQLOAD** or **SEQ**
  - **DELINK**
  - **FIND** or **F**

Library search

FIND or **F** requests the search of a partitioned file

- Can be a single data set or concatenated file
- Allowed search specifications are
  - FIND or FINDNOT search type
  - Case insensitive
  - Case sensitive
  - Hexadecimal
  - Picture mask
  - Word part: whole word, prefix, suffix
  - Column range
  - Member name mask can be supplied to further limit members searched
- Progress bar % display based on member count (not records)
- Counts and latest matching member name shown as search progresses
- Search can be interrupted


Vista Session E
File Edit Font Transfer Macro Options Window Help
REVIEW PDS SEARCH REQUEST ENTRY PANEL R42.2
SEARCH TYPE ==> 1 1: FIND .. 2: FINDNOT .. (CASE INSENSITIVE)
3: F C'..' 4: FN C'..' (CASE SENSITIVE)
5: F X'..' 6: FN X'..'
7: F P'..' 8: FN P'..' (MASK CHARACTERS: = @ # $ ¬ . - < >)
SEARCH DATA ==> ihb
OPTIONAL SEARCH COLUMN 1 ==>
OPTIONAL SEARCH COLUMN 2 ==>
SEARCH MODIFIER ==> 1 1: CHARS 2: PREFIX 3: SUFFIX 4: WORD
OPTIONAL MEMBER NAME MASK ==> ********
217 MEMBERS SEARCHED 127 MEMBERS MATCHED - LATEST: ICOPY
0% 100%
ALL MEMBERS WILL BE SEARCHED SUBJECT TO MEMBER NAME MASK MATCHING
MA X SYSTEM 0.0 02/15/09.046 07:45PM localhost a 10,20


Vista Session E
File Edit Font Transfer Macro Options Window Help
SEARCH COMPLETE - 351 MEMBERS MATCHED ---------- 747 MEMBERS ON MVSRES
COMMAND ===>
SCROLL ===> CS
NAME TTR VV.MM CREATED CHANGED INIT SIZE MOD ID
. ABEND 00EB03 SSI:32111225
. ACB 01B303 SSI:90192441
. ACBVS 01B401 SSI:90312441
. AMDSADMP 00EC01 SSI:71360009
. AMDSADM2 015B01 SSI:32940037
. ANALYZ 022201 SSI:20470264
. AS 00C203 SSI:31320006
. ASCBCHAP 00EE03 SSI:32820427
. ASCTR 00C301 SSI:20770011
. ASGNBFR 022203 SSI:20460954
. ASLIST 00C401 SSI:22200468
. ASMTRTAB 00C601 SSI:61460012
. ATLAS 022103 SSI:20780097
. ATTACH 00EF01 SSI:72130140
. ATTEN 000F03 SSI:60230647
. ATTNINQ 022301 SSI:20430289
. BLDL 01B403 SSI:50100016
. BLDVRP 01B501 SSI:42890045
. BNGCDISM 02F301 SSI:33550012
. BNGCLOCM 01A301 SSI:68112699
. BNGCMENM 01A601 SSI:68112699
. BNGCRMOM 01A801 SSI:68112699
. BNGC327M 01AE01 SSI:11740424
. BNGIAL *ALIAS SSI:73210019
. BNGIBT *ALIAS SSI:73210022
. BNGIER *ALIAS SSI:73210027
. BNGIEXIM 01AB01 SSI:68112700
. BNGIIALL *ALIAS SSI:73210019
. BNGIIBIT *ALIAS SSI:73210022
MA
3.8 02/15/09.046 07:47PM localhost a 2,15

PDSE member list - commands

This directory display is only used when the file is a single program PDSE

[That is, the file is not concatenated, and the PDSE is not a data PDSE.]

The member list display allows the following commands:

- Vertical scrolling – TOP, BOTTOM, UP, DOWN, LOCATE
- Session control – PFK#, CANCEL, END, EXIT, SWAP, RECALL, TSO
- Primary input selection – SELECT, BROWSE
- FIND – initiate search dialog
- TAGFLIP – toggle each member's tag status
- RFIND – locate member list display to next tagged member
- RESET – untag every member
- REFRESH – get latest member list details from disk

PDSE member list - SORT

The member list can be sorted into one of several sort orders

A sort of the member list can be triggered by:

- A SORT command with an operand indicating the sort field
- Placing the cursor on an underscored column heading, then <enter>
- A re-sort after the member list was refreshed
- A REVIEW of a concatenated library (to sort into name order)

See the underscored column headings for available sort orders
(or look at the REVPDSE HELP member)

Directory sort can be interrupted before complete

PDSE member selection codes

S – select a member to be browsed (REVIEW)

- Can also leave cursor on selection dot and press <enter> to select member

/ – select a member to REVIEW as if the **DATA** operand was used

B – select a member to be browsed by ISPF (if active) or REVIEW

T – tag a member (handy to manage large member lists)

R – reset the tag status of a member

H – show program history

- Invoke Binder API to access Binder IDR classes [4 types: Language, User, Zap, Bind]
- Returned data stored in region and formatted and displayed by REVIEW

M – show program map

- Invoke Binder API to access B_ESD class (PO1) or B_MAP class (PO2,3,4,etc.)
- Returned data stored in region and formatted and displayed by REVIEW

(Program Management manuals seem to use “POn” and “PMn” interchangeably)

Program Object format levels

IEBCOPY PDS load module to a PDSE

- The result is a format level 1 program object – “PO1” or “PM1”

Biggest jump between format levels was from PM1 to PM2

- Later PM levels support newer features
  - For example, AMODE=64 requires at least PM4
- PM1 supports all load module features except SCATTER
- PM1 is the only format that allows overlay segments
- PM1 saves all DS (as opposed to DC) space as zeros – later PMs do not
- PM1 does not support multiple text classes – later PMs do
- PM1 ESD class SD (Section Definition) records specify offset and length
- PM2 and later allow multiple elements per section – offset and length in ED
- PM1 SD implies LD (Label Definition) at offset zero – LD needed for entry point
- Binder FDA (Fast Data API) only supports IEWBUFF VERSION=1 for PM1
- For some classes, data returned changes depending on buffer version used in API call
- Some API buffer versions cannot be used to extract data for some PM formats

(PO format level versus PM API version: reminiscent of SPLEVEL versus SP product version?)

PDSEs: PDS 8.6 vs REVIEW

- PDS 8.6 **HISTORY** subcommand and REVPDSE **H** selection code
  - Both use VERSION=3 buffers for the 4 **IDR** classes
  - Both can display the details for all PM format levels

    because IDR API buffers have the same structure for all PM API versions
- PDS 8.6 **MAP** subcommand and REVPDSE **M** selection code
  - PDS 8.6 MAP uses VERSION=1 for **ESD** API data

  so PDS 8.6 **MAP** can only map PM1 program objects
  - REVPDSE handler uses VERSION=1 for **ESD** API data *if member is PM1*
  - REVPDSE handler uses VERSION=3 for **MAP** API data otherwise

  so REVIEW can show MAP data for all PM format levels

    While the MAP class is not as “nice” as the ESD class for extracting the information probably of most interest, the MAP class was new in version 2 and has not changed since, whereas the ESD class changed in versions 2 (a lot), 3 and 5.

  Solution: more sophisticated code in PDS (and REVIEW) – “SMOP “

PDSEs: PDS 8.6 vs REVIEW

PDS 8.6 MEMLIST : NOLKEDDATE is fast (seconds) but

PDS 8.6 MEMLIST : LKEDDATE is slow (minutes) – Why?

Because the link or bind date must be fetched from member contents!

And for a PDSE, this means cranking up the Binder API for each member!

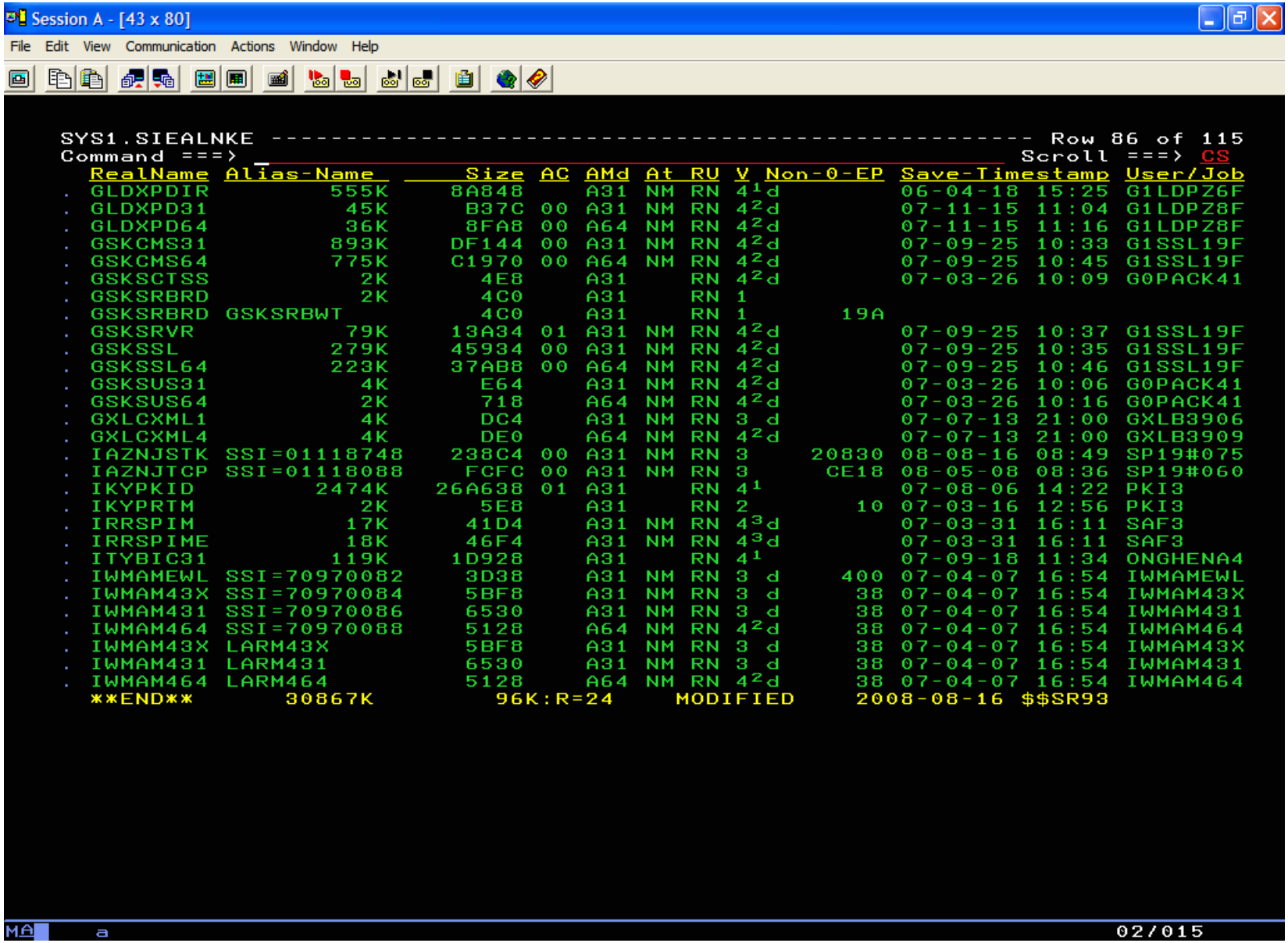
But a REVIEW to show the member list of the same PDSE

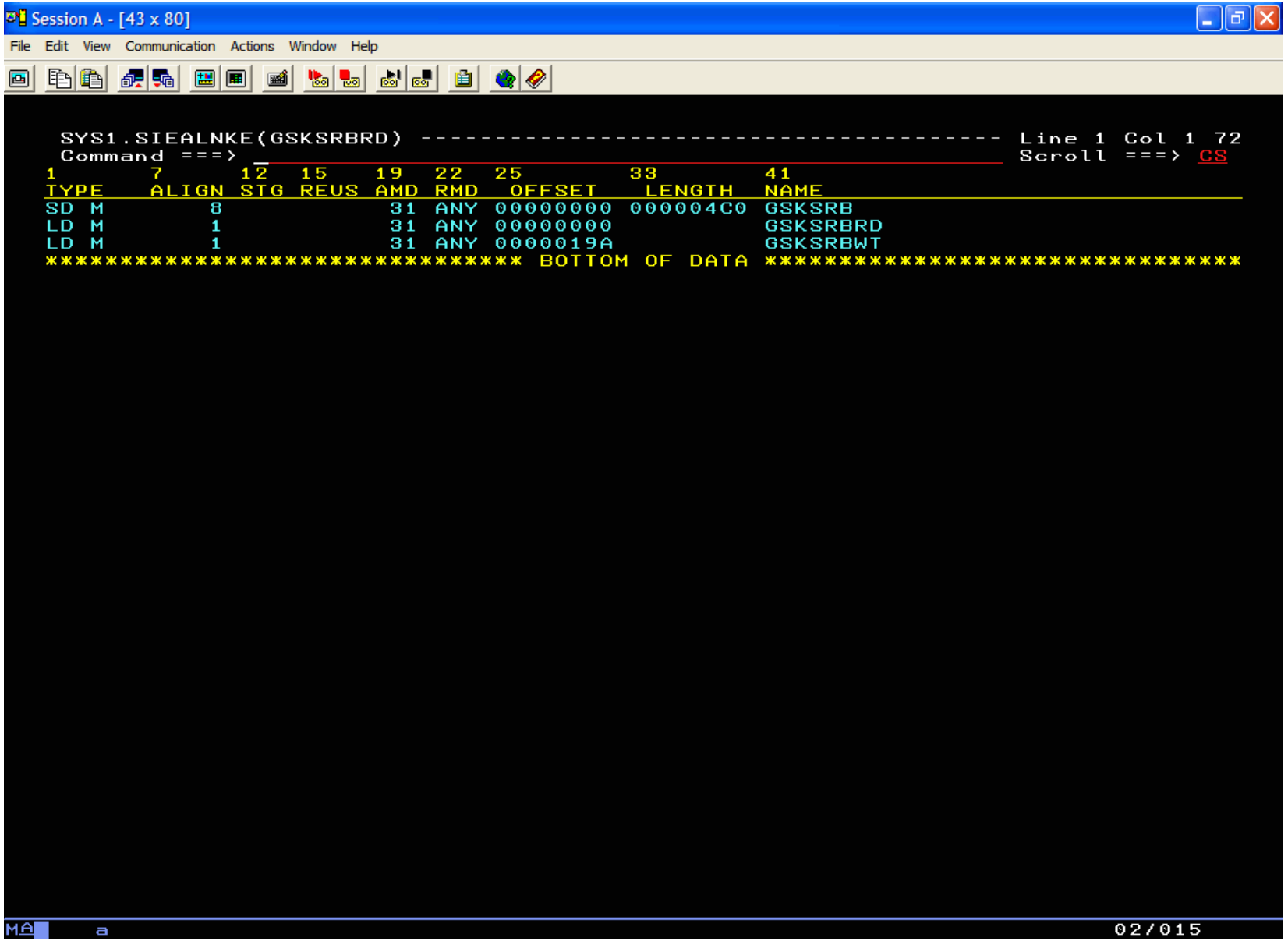
- is fast (seconds) *and*
- also shows the link or bind date, time and job name (unless PM1).

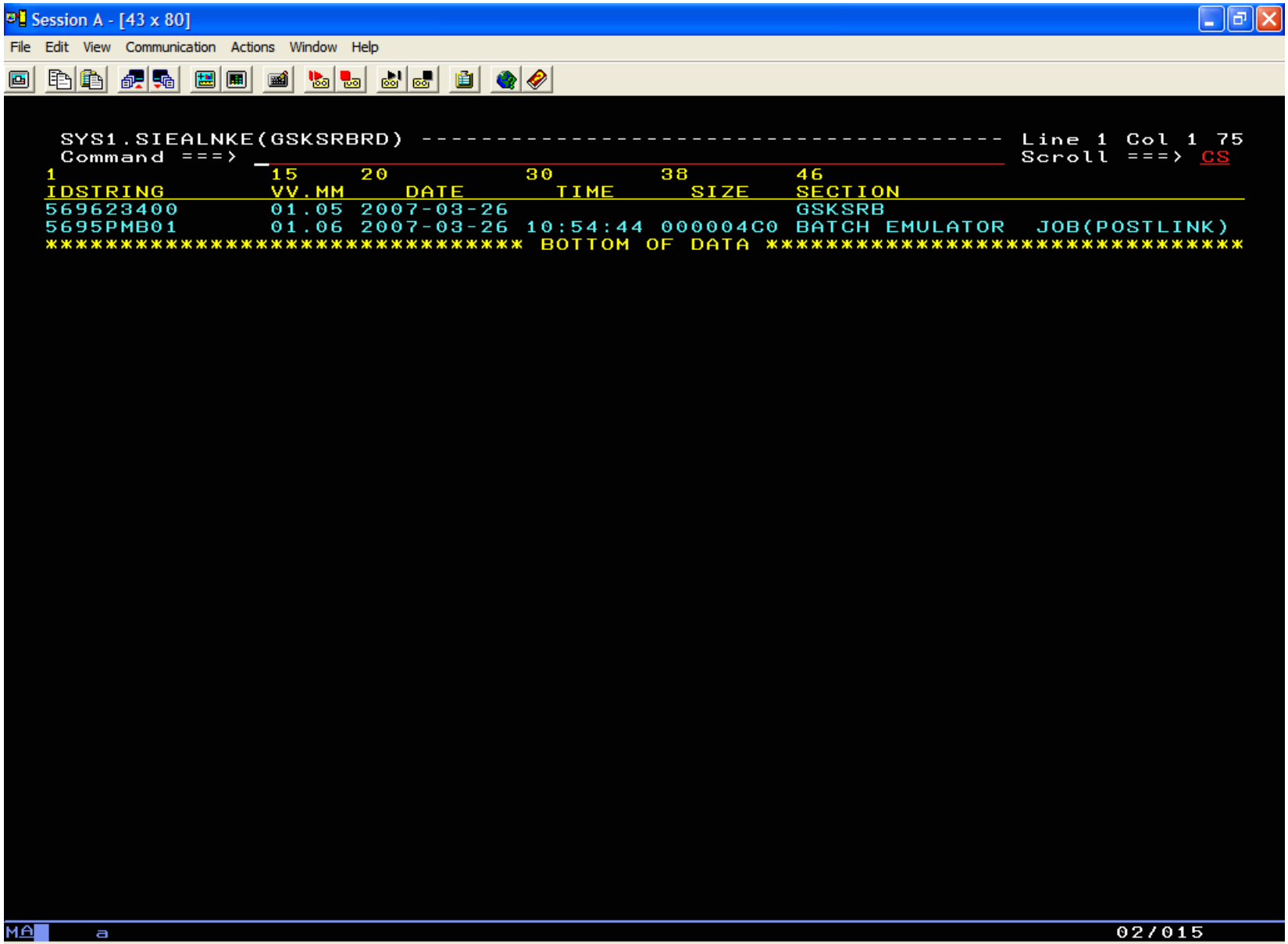
How is this done so quickly?

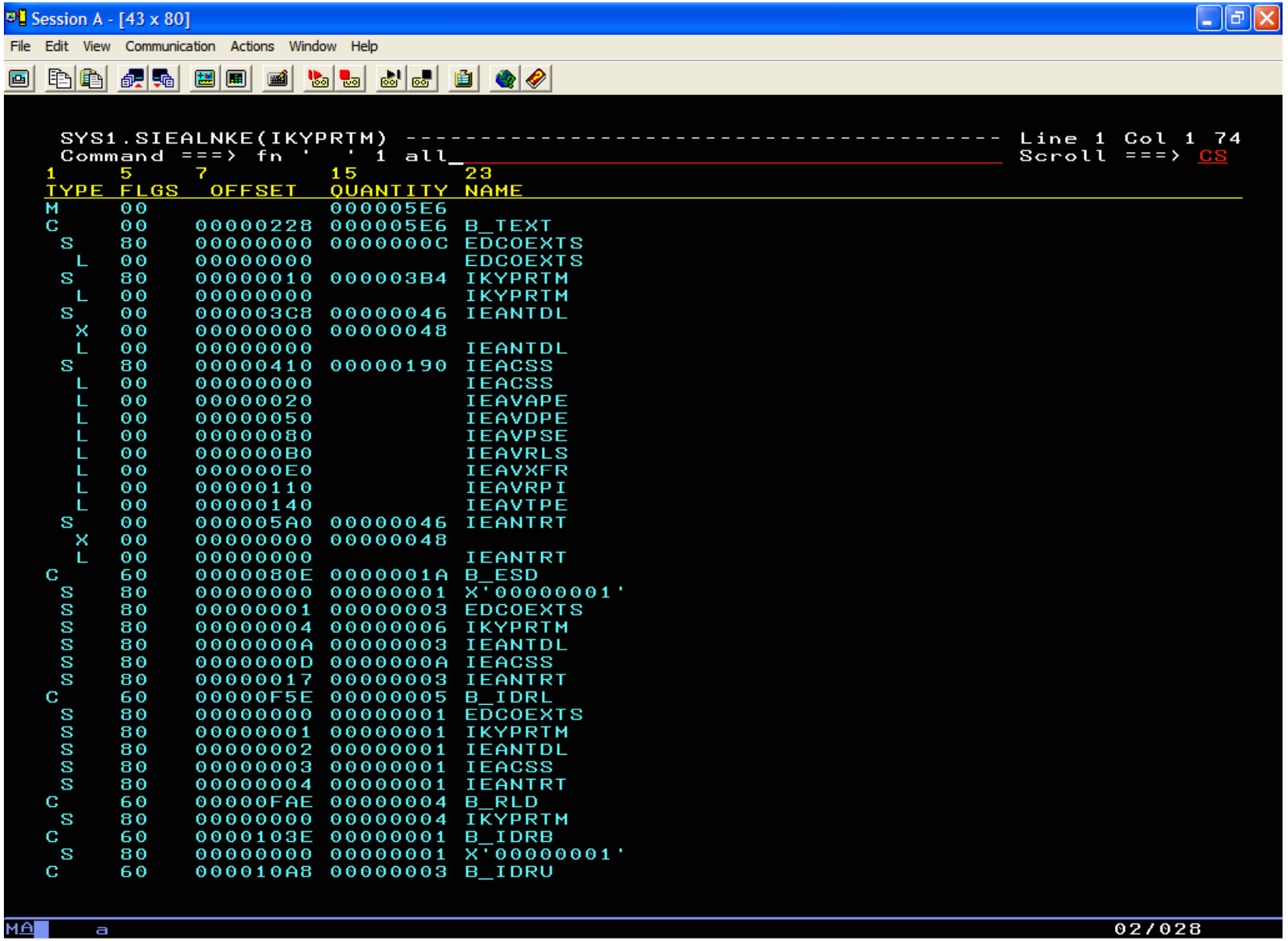
Because the timestamp and job data is not fetched from the member contents but from directory information!

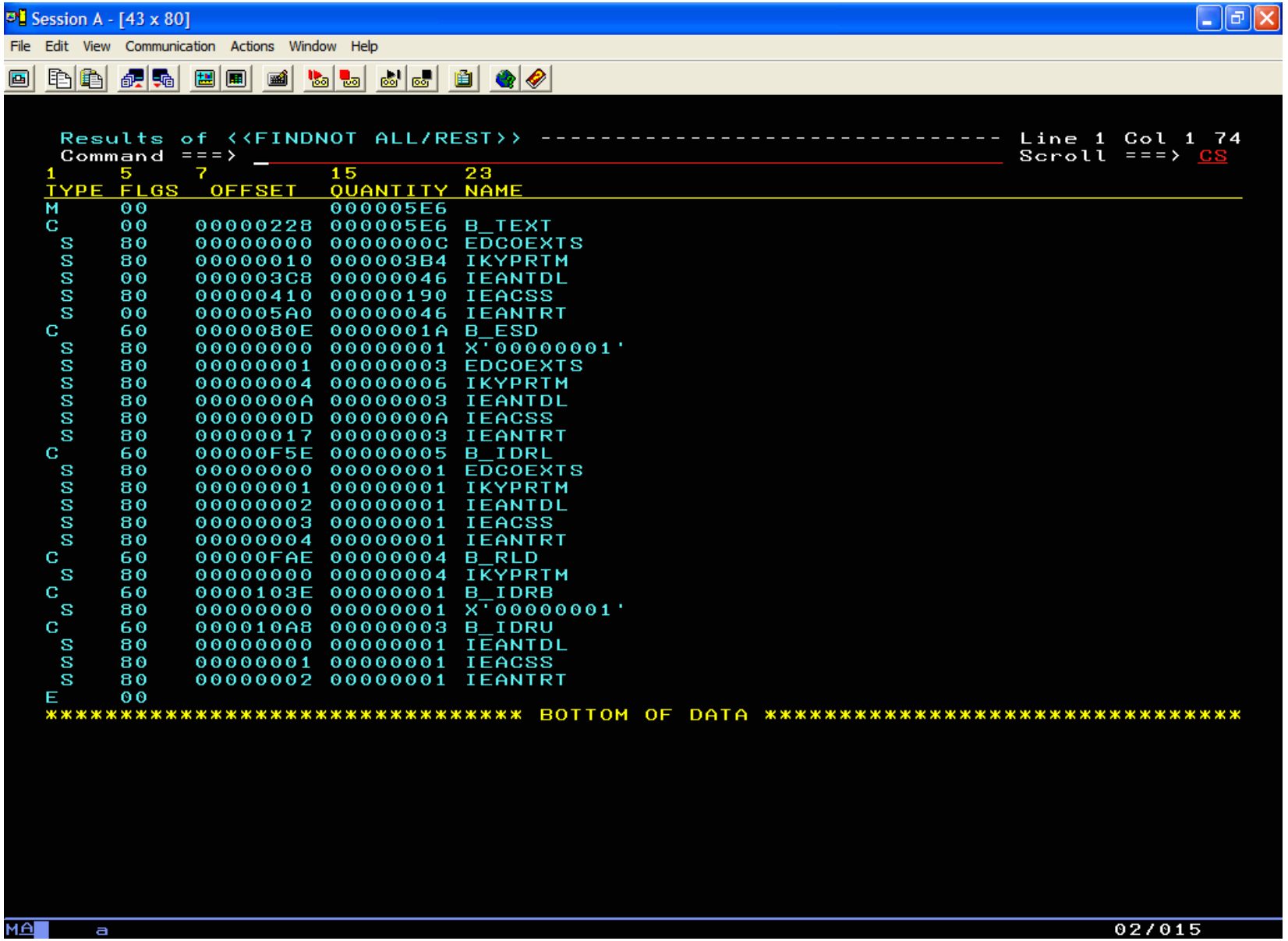
REVIEW reads the PDSE directory with DESERV FUNC=GET_ALL to get SMDE and PMAR structures not available by reading the (system-simulated) directory blocks nor from BLDL

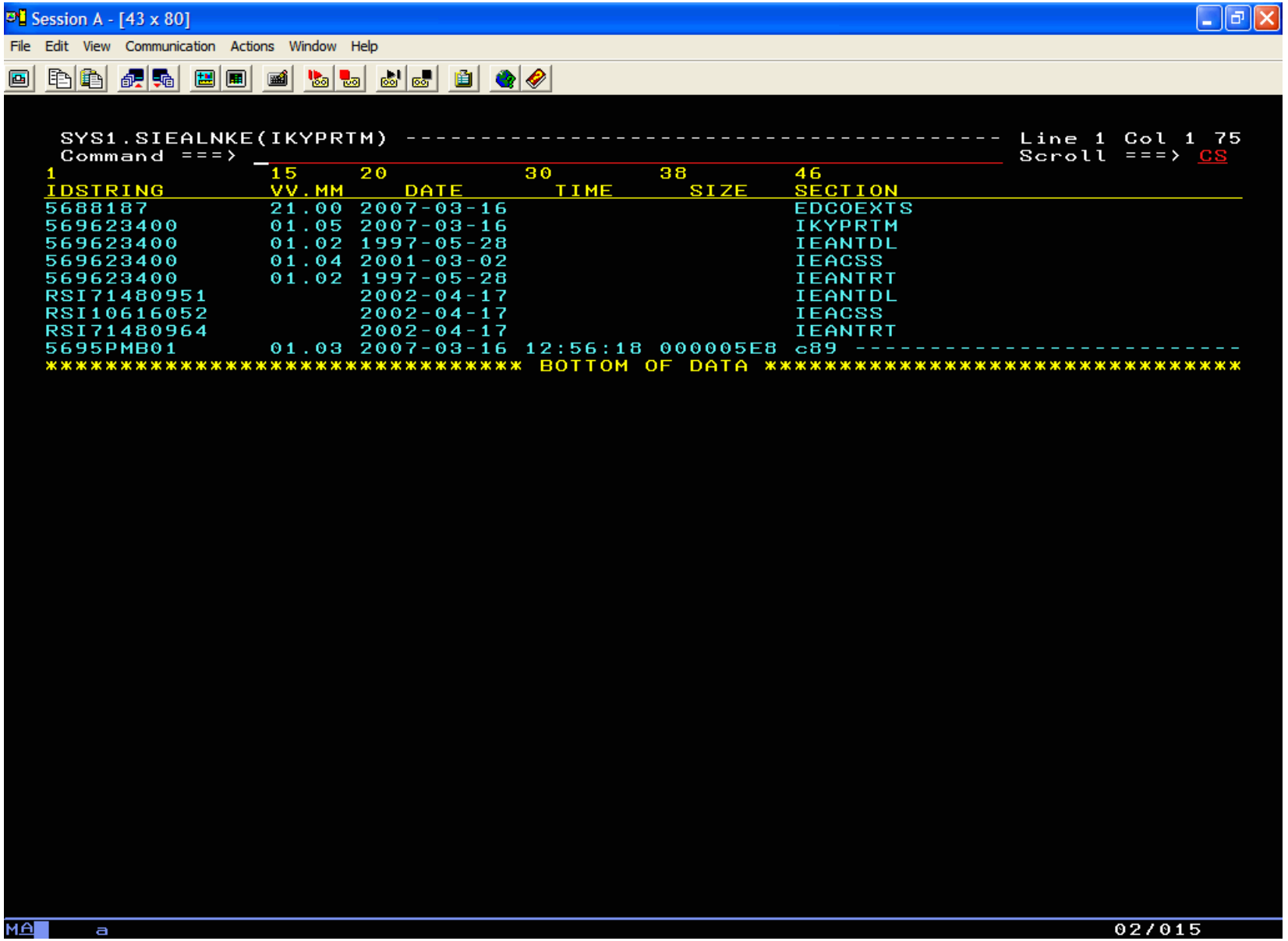

Session A - [43 x 80]
File Edit View Communication Actions Window Help
SYS1.SIEALNKE ---------- Row 86 of 115
Command ===> _ Scroll ===> CS
RealName Alias-Name Size AC AMd At RU V Non-0-EP Save-Timestamp User/Job
. GLDXPDIR 555K 8A848 A31 NM RN 4 1 d 06-04-18 15:25 G1LDPZ6F
. GLDXPD31 45K B37C 00 A31 NM RN 4 2 d 07-11-15 11:04 G1LDPZ8F
. GLDXPD64 36K 8FA8 00 A64 NM RN 4 2 d 07-11-15 11:16 G1LDPZ8F
. GSKCMS31 893K DF144 00 A31 NM RN 4 2 d 07-09-25 10:33 G1SSL19F
. GSKCMS64 775K C1970 00 A64 NM RN 4 2 d 07-09-25 10:45 G1SSL19F
. GSKSCTSS 2K 4E8 A31 RN 4 2 d 07-03-26 10:09 G0PACK41
. GSKSRBRD 2K 4C0 A31 RN 1
. GSKSRBRD GSKSRBWT 4C0 A31 RN 1 19A
. GSKSRVR 79K 13A34 01 A31 NM RN 4 2 d 07-09-25 10:37 G1SSL19F
. GSKSSL 279K 45934 00 A31 NM RN 4 2 d 07-09-25 10:35 G1SSL19F
. GSKSSL64 223K 37AB8 00 A64 NM RN 4 2 d 07-09-25 10:46 G1SSL19F
. GSKSUS31 4K E64 A31 NM RN 4 2 d 07-03-26 10:06 G0PACK41
. GSKSUS64 2K 718 A64 NM RN 4 2 d 07-03-26 10:16 G0PACK41
. GXLCXML1 4K DC4 A31 NM RN 3 d 07-07-13 21:00 GXLB3906
. GXLCXML4 4K DE0 A64 NM RN 4 2 d 07-07-13 21:00 GXLB3909
. IAZNJSTK SSI=01118748 238C4 00 A31 NM RN 3 20830 08-08-16 08:49 SP19#075
. IAZNJTCP SSI=01118088 FCFC 00 A31 NM RN 3 CE18 08-05-08 08:36 SP19#060
. IKYPKID 2474K 26A638 01 A31 RN 4 1 07-08-06 14:22 PKI3
. IKYPRTM 2K 5E8 A31 RN 2 10 07-03-16 12:56 PKI3
. IRRSPIM 17K 41D4 A31 NM RN 4 3 d 07-03-31 16:11 SAF3
. IRRSPIME 18K 46F4 A31 NM RN 4 3 d 07-03-31 16:11 SAF3
. ITYBIC31 119K 1D928 A31 RN 4 1 07-09-18 11:34 ONGHENA4
. IWMAMEWL SSI=70970082 3D38 A31 NM RN 3 d 400 07-04-07 16:54 IWMAMEWL
. IWMAM43X SSI=70970084 5BF8 A31 NM RN 3 d 38 07-04-07 16:54 IWMAM43X
. IWMAM431 SSI=70970086 6530 A31 NM RN 3 d 38 07-04-07 16:54 IWMAM431
. IWMAM464 SSI=70970088 5128 A64 NM RN 4 2 d 38 07-04-07 16:54 IWMAM464
. IWMAM43X LARM43X 5BF8 A31 NM RN 3 d 38 07-04-07 16:54 IWMAM43X
. IWMAM431 LARM431 6530 A31 NM RN 3 d 38 07-04-07 16:54 IWMAM431
. IWMAM464 LARM464 5128 A64 NM RN 4 2 d 38 07-04-07 16:54 IWMAM464
END 30867K 96K:R=24 MODIFIED 2008-08-16 $$SR93
MA a 02/015


Session A - [43 x 80]
File Edit View Communication Actions Window Help
SYS1.SIEALNKE(GSKSRBRD) ---------- Line 1 Col 1 72
Command ===> Scroll ===> CS
1 7 12 15 19 22 25 33 41
TYPE ALIGN STG REUS AMD RMD OFFSET LENGTH NAME
SD M 8 31 ANY 00000000 000004C0 GSKSRB
LD M 1 31 ANY 00000000 GSKSRBRD
LD M 1 31 ANY 0000019A GSKSRBWT
********** BOTTOM OF DATA **********
MA a 02/015


Session A - [43 x 80]
File Edit View Communication Actions Window Help
SYS1.SIEALNKE(GSKSRBRD) ---------- Line 1 Col 1 75
Command ===> _ Scroll ===> CS
1 15 20 30 38 46
IDSTRING VV.MM DATE TIME SIZE SECTION
569623400 01.05 2007-03-26 GSKSRB
5695PMB01 01.06 2007-03-26 10:54:44 000004C0 BATCH EMULATOR JOB(POSTLINK)
********** BOTTOM OF DATA **********
MA a 02/015


Session A - [43 x 80]
File Edit View Communication Actions Window Help
SYS1.SIEALNKE(IKYPRTM) ---------- Line 1 Col 1 74
Command ===> fn ' ' 1 all Scroll ===> CS
1 5 7 15 23
TYPE FLGS OFFSET QUANTITY NAME
M 00 000005E6
C 00 00000228 000005E6 B_TEXT
S 80 00000000 0000000C EDCOEXTS
L 00 00000000 EDCOEXTS
S 80 00000010 000003B4 IKYPRTM
L 00 00000000 IKYPRTM
S 00 000003C8 00000046 IEANTDL
X 00 00000000 00000048
L 00 00000000 IEANTDL
S 80 00000410 00000190 IEACSS
L 00 00000000 IEACSS
L 00 00000020 IEAVAPE
L 00 00000050 IEAVDPE
L 00 00000080 IEAVPSE
L 00 000000B0 IEAVRLS
L 00 000000E0 IEAVXFR
L 00 00000110 IEAVRPI
L 00 00000140 IEAVTPE
S 00 000005A0 00000046 IEANTRT
X 00 00000000 00000048
L 00 00000000 IEANTRT
C 60 0000080E 0000001A B_ESD
S 80 00000000 00000001 X'00000001'
S 80 00000001 00000003 EDCOEXTS
S 80 00000004 00000006 IKYPRTM
S 80 0000000A 00000003 IEANTDL
S 80 0000000D 0000000A IEACSS
S 80 00000017 00000003 IEANTRT
C 60 00000F5E 00000005 B_IDRL
S 80 00000000 00000001 EDCOEXTS
S 80 00000001 00000001 IKYPRTM
S 80 00000002 00000001 IEANTDL
S 80 00000003 00000001 IEACSS
S 80 00000004 00000001 IEANTRT
C 60 00000FAE 00000004 B_RLD
S 80 00000000 00000004 IKYPRTM
C 60 0000103E 00000001 B_IDRB
S 80 00000000 00000001 X'00000001'
C 60 000010A8 00000003 B_IDRU
MA a 02/028


Session A - [43 x 80]
File Edit View Communication Actions Window Help
Results of <<FINDNOT ALL/REST>> ---------- Line 1 Col 1 74
Command ===> _ Scroll ===> CS
1 5 7 15 23
TYPE FLGS OFFSET QUANTITY NAME
M 00 000005E6
C 00 00000228 000005E6 B_TEXT
S 80 00000000 0000000C EDCOEXTS
S 80 00000010 000003B4 IKYPRTM
S 00 000003C8 00000046 IEANTDL
S 80 00000410 00000190 IEACSS
S 00 000005A0 00000046 IEANTRT
C 60 0000080E 0000001A B_ESD
S 80 00000000 00000001 X'00000001'
S 80 00000001 00000003 EDCOEXTS
S 80 00000004 00000006 IKYPRTM
S 80 0000000A 00000003 IEANTDL
S 80 0000000D 0000000A IEACSS
S 80 00000017 00000003 IEANTRT
C 60 00000F5E 00000005 B_IDRL
S 80 00000000 00000001 EDCOEXTS
S 80 00000001 00000001 IKYPRTM
S 80 00000002 00000001 IEANTDL
S 80 00000003 00000001 IEACSS
S 80 00000004 00000001 IEANTRT
C 60 00000FAE 00000004 B_RLD
S 80 00000000 00000004 IKYPRTM
C 60 0000103E 00000001 B_IDRB
S 80 00000000 00000001 X'00000001'
C 60 000010A8 00000003 B_IDRU
S 80 00000000 00000001 IEANTDL
S 80 00000001 00000001 IEACSS
S 80 00000002 00000001 IEANTRT
E 00
********** BOTTOM OF DATA **********
MA a 02/015


Session A - [43 x 80]
File Edit View Communication Actions Window Help
SYS1.SIEALNKE(IKYPRTM) ---------- Line 1 Col 1 75
Command ===> _ Scroll ===> CS
1 15 20 30 38 46
IDSTRING VV.MM DATE TIME SIZE SECTION
5688187 21.00 2007-03-16 EDCOEXTS
569623400 01.05 2007-03-16 IKYPRTM
569623400 01.02 1997-05-28 IEANTDL
569623400 01.04 2001-03-02 IEACSS
569623400 01.02 1997-05-28 IEANTRT
RSI71480951 2002-04-17 IEANTDL
RSI10616052 2002-04-17 IEACSS
RSI71480964 2002-04-17 IEANTRT
5695PMB01 01.03 2007-03-16 12:56:18 000005E8 c89 ----------
********** BOTTOM OF DATA **********
MA a 02/015

z/OS UNIX – explore directories

- Quickest way in is **REV /**
- Screen display management the same as for OS data sets
  - Scrolling and global commands the same as for the rest of REVIEW
- Navigate in explorer-like fashion
- Directory entries colour coded similar to Linux **ls** command
- Permissions formatted in **rwxrwxrwx** format
- Various SORT orders available – see REVUNIX help member
- Entry tagging available – similar to PDS/PDSE
- Wide screens increase columns for name – similar to PDSE
- **FIND** or **F** triggers (non-recursive) search – similar to PDS/PDSE
  - Only regular files are searched

UNIX entry selection codes

S – select a file to be browsed by REVIEW or select a new directory

- Can also leave cursor on selection dot and press <enter> to select member

/ – select a file to REVIEW as if the **DATA** operand was used

S or **/**: EBCDIC NL character triggers a new line for EBCDIC text files

A – select a file to be browsed and translated from ASCII by REVIEW

A: ASCII LF or CRLF triggers a new line for ASCII text files

E – select a member to be edited by ISPF (if active)

B – select a member to be browsed by ISPF (if active)

T – tag a directory entry (handy to manage lists with many entries)

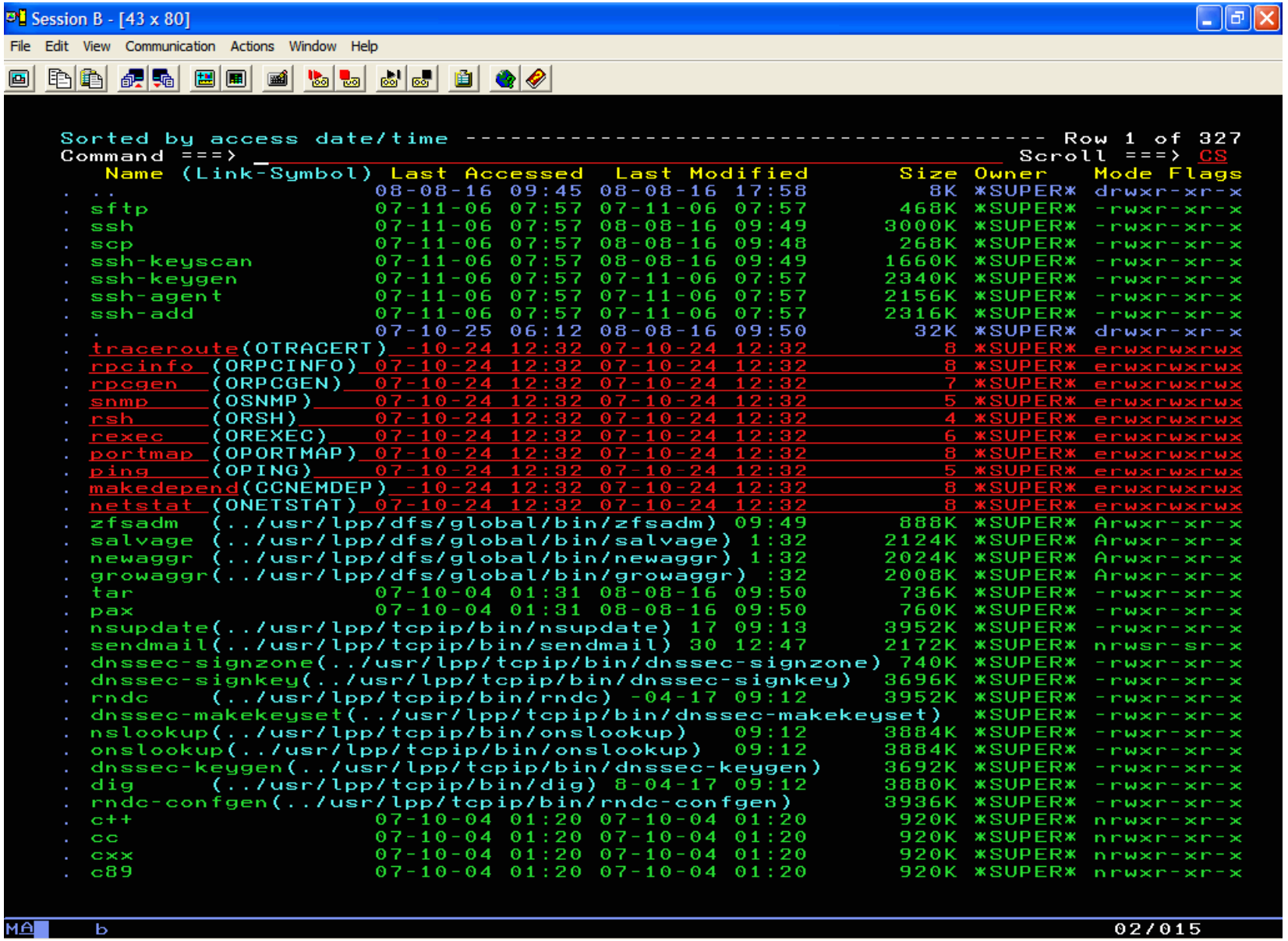
R – reset the tag status of a directory entry

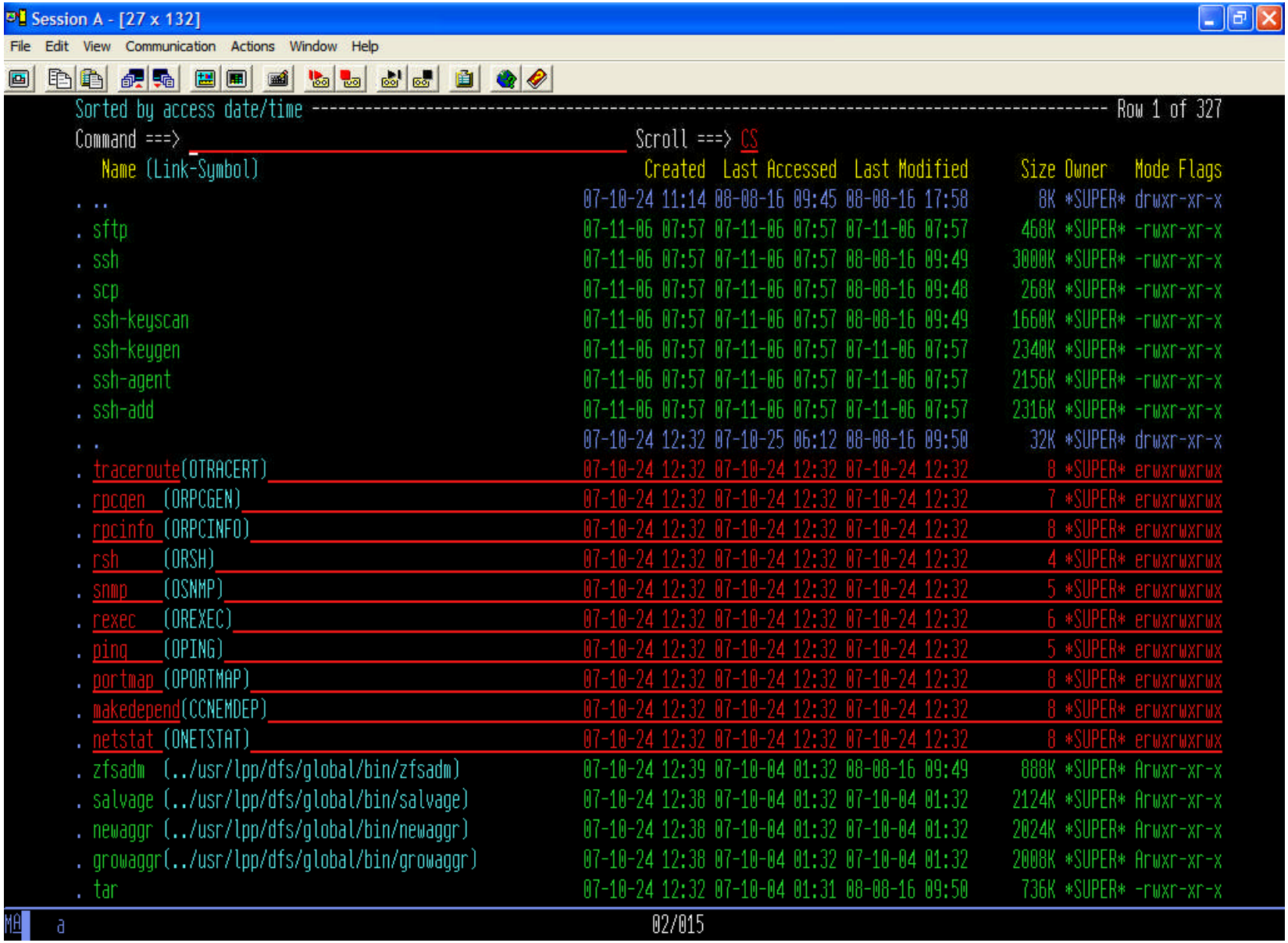
H – show program history (use Binder API)

M – show program map (use Binder API – assume that it is not PM1)

The Binder API call code was added to REVIEW in 2000 before FDA was available for HFS files, so REVIEW uses full Binder dialog calls for UNIX programs.

REVIEW will switch to uid 0 for browse if (a) uid not 0, (b) not user's file, and (c) allowed to


Session B - [43 x 80]
File Edit View Communication Actions Window Help
Sorted by access date/time ---------- Row 1 of 327
Command ===> _ Scroll ===> CS
Name (Link-Symbol) Last Accessed Last Modified Size Owner Mode Flags
. .. 08-08-16 09:45 08-08-16 17:58 8K *SUPER* drwxr-xr-x
. sftp 07-11-06 07:57 07-11-06 07:57 468K *SUPER* -rwxr-xr-x
. ssh 07-11-06 07:57 08-08-16 09:49 3000K *SUPER* -rwxr-xr-x
. scp 07-11-06 07:57 08-08-16 09:48 268K *SUPER* -rwxr-xr-x
. ssh-keyscan 07-11-06 07:57 08-08-16 09:49 1660K *SUPER* -rwxr-xr-x
. ssh-keygen 07-11-06 07:57 07-11-06 07:57 2340K *SUPER* -rwxr-xr-x
. ssh-agent 07-11-06 07:57 07-11-06 07:57 2156K *SUPER* -rwxr-xr-x
. ssh-add 07-11-06 07:57 07-11-06 07:57 2316K *SUPER* -rwxr-xr-x
. . 07-10-25 06:12 08-08-16 09:50 32K *SUPER* drwxr-xr-x
. traceroute(OTRACERT) -10-24 12:32 07-10-24 12:32 8 *SUPER* erwxrwxrwx
. rpcinfo (ORPCINFO) 07-10-24 12:32 07-10-24 12:32 8 *SUPER* erwxrwxrwx
. rpcgen (ORPCGEN) 07-10-24 12:32 07-10-24 12:32 7 *SUPER* erwxrwxrwx
. snmp (OSNMP) 07-10-24 12:32 07-10-24 12:32 5 *SUPER* erwxrwxrwx
. rsh (ORSH) 07-10-24 12:32 07-10-24 12:32 4 *SUPER* erwxrwxrwx
. rexec (OREXEC) 07-10-24 12:32 07-10-24 12:32 6 *SUPER* erwxrwxrwx
. portmap (OPORTMAP) 07-10-24 12:32 07-10-24 12:32 8 *SUPER* erwxrwxrwx
. ping (OPING) 07-10-24 12:32 07-10-24 12:32 5 *SUPER* erwxrwxrwx
. makedepend(CCNEMDEP) -10-24 12:32 07-10-24 12:32 8 *SUPER* erwxrwxrwx
. netstat (ONETSTAT) 07-10-24 12:32 07-10-24 12:32 8 *SUPER* erwxrwxrwx
. zfsadm (../usr/lpp/dfs/global/bin/zfsadm) 09:49 888K *SUPER* Arwxr-xr-x
. salvage (../usr/lpp/dfs/global/bin/salvage) 1:32 2124K *SUPER* Arwxr-xr-x
. newaggr (../usr/lpp/dfs/global/bin/newaggr) 1:32 2024K *SUPER* Arwxr-xr-x
. growaggr(../usr/lpp/dfs/global/bin/growaggr) :32 2008K *SUPER* Arwxr-xr-x
. tar 07-10-04 01:31 08-08-16 09:50 736K *SUPER* -rwxr-xr-x
. pax 07-10-04 01:31 08-08-16 09:50 760K *SUPER* -rwxr-xr-x
. nsupdate(../usr/lpp/tcpip/bin/nsupdate) 17 09:13 3952K *SUPER* -rwxr-xr-x
. sendmail(../usr/lpp/tcpip/bin/sendmail) 30 12:47 2172K *SUPER* nrwsr-sr-x
. dnssec-signzone(../usr/lpp/tcpip/bin/dnssec-signzone) 740K *SUPER* -rwxr-xr-x
. dnssec-signkey(../usr/lpp/tcpip/bin/dnssec-signkey) 3696K *SUPER* -rwxr-xr-x
. rndc (../usr/lpp/tcpip/bin/rndc) -04-17 09:12 3952K *SUPER* -rwxr-xr-x
. dnssec-makekeyset(../usr/lpp/tcpip/bin/dnssec-makekeyset) *SUPER* -rwxr-xr-x
. nslookup(../usr/lpp/tcpip/bin/onslookup) 09:12 3884K *SUPER* -rwxr-xr-x
. onslookup(../usr/lpp/tcpip/bin/onslookup) 09:12 3884K *SUPER* -rwxr-xr-x
. dnssec-keygen(../usr/lpp/tcpip/bin/dnssec-keygen) 3692K *SUPER* -rwxr-xr-x
. dig (../usr/lpp/tcpip/bin/dig) 8-04-17 09:12 3880K *SUPER* -rwxr-xr-x
. rndc-confgen(../usr/lpp/tcpip/bin/rndc-confgen) 3936K *SUPER* -rwxr-xr-x
. c++ 07-10-04 01:20 07-10-04 01:20 920K *SUPER* nrwxr-xr-x
. cc 07-10-04 01:20 07-10-04 01:20 920K *SUPER* nrwxr-xr-x
. cxx 07-10-04 01:20 07-10-04 01:20 920K *SUPER* nrwxr-xr-x
. c89 07-10-04 01:20 07-10-04 01:20 920K *SUPER* nrwxr-xr-x
MA b 02/015


Session A - [27 x 132]
File Edit View Communication Actions Window Help
Sorted by access date/time ---------- Row 1 of 327
Command ===> Scroll ===> CS
Name (Link-Symbol) Created Last Accessed Last Modified Size Owner Mode Flags
. .. 07-10-24 11:14 08-08-16 09:45 08-08-16 17:58 8K *SUPER* drwxr-xr-x
. sftp 07-11-06 07:57 07-11-06 07:57 07-11-06 07:57 468K *SUPER* -rwxr-xr-x
. ssh 07-11-06 07:57 07-11-06 07:57 08-08-16 09:49 3000K *SUPER* -rwxr-xr-x
. scp 07-11-06 07:57 07-11-06 07:57 08-08-16 09:48 268K *SUPER* -rwxr-xr-x
. ssh-keyscan 07-11-06 07:57 07-11-06 07:57 08-08-16 09:49 1660K *SUPER* -rwxr-xr-x
. ssh-keygen 07-11-06 07:57 07-11-06 07:57 07-11-06 07:57 2340K *SUPER* -rwxr-xr-x
. ssh-agent 07-11-06 07:57 07-11-06 07:57 07-11-06 07:57 2156K *SUPER* -rwxr-xr-x
. ssh-add 07-11-06 07:57 07-11-06 07:57 07-11-06 07:57 2316K *SUPER* -rwxr-xr-x
. . 07-10-24 12:32 07-10-25 06:12 08-08-16 09:50 32K *SUPER* drwxr-xr-x
. traceroute(OTRACERT) 07-10-24 12:32 07-10-24 12:32 07-10-24 12:32 8 *SUPER* erwxrwxrwx
. rpcgen (ORPCGEN) 07-10-24 12:32 07-10-24 12:32 07-10-24 12:32 7 *SUPER* erwxrwxrwx
. rpcinfo (ORPCINFO) 07-10-24 12:32 07-10-24 12:32 07-10-24 12:32 8 *SUPER* erwxrwxrwx
. rsh (ORSH) 07-10-24 12:32 07-10-24 12:32 07-10-24 12:32 4 *SUPER* erwxrwxrwx
. snmp (OSNMP) 07-10-24 12:32 07-10-24 12:32 07-10-24 12:32 5 *SUPER* erwxrwxrwx
. rexec (OREXEC) 07-10-24 12:32 07-10-24 12:32 07-10-24 12:32 6 *SUPER* erwxrwxrwx
. ping (OPING) 07-10-24 12:32 07-10-24 12:32 07-10-24 12:32 5 *SUPER* erwxrwxrwx
. portmap (OPORTMAP) 07-10-24 12:32 07-10-24 12:32 07-10-24 12:32 8 *SUPER* erwxrwxrwx
. makedepend(CCNEMDEP) 07-10-24 12:32 07-10-24 12:32 07-10-24 12:32 8 *SUPER* erwxrwxrwx
. netstat (ONETSTAT) 07-10-24 12:32 07-10-24 12:32 07-10-24 12:32 8 *SUPER* erwxrwxrwx
. zfsadm (../usr/lpp/dfs/global/bin/zfsadm) 07-10-24 12:39 07-10-04 01:32 08-08-16 09:49 888K *SUPER* Arwxr-xr-x
. salvage (../usr/lpp/dfs/global/bin/salvage) 07-10-24 12:38 07-10-04 01:32 07-10-04 01:32 2124K *SUPER* Arwxr-xr-x
. newaggr (../usr/lpp/dfs/global/bin/newaggr) 07-10-24 12:38 07-10-04 01:32 07-10-04 01:32 2024K *SUPER* Arwxr-xr-x
. growaggr(../usr/lpp/dfs/global/bin/growaggr) 07-10-24 12:38 07-10-04 01:32 07-10-04 01:32 2008K *SUPER* Arwxr-xr-x
. tar 07-10-24 12:32 07-10-04 01:31 08-08-16 09:50 736K *SUPER* -rwxr-xr-x
MA a 02/015

Edit/View subcommands

Scrolling

TOP, BOTTOM, UP, DOWN, LEFT, RIGHT, LOCATE

REVIEW session control

PFK#, RECALL, SWAP, END, CANCEL, EXIT, TSO

Edit session control

PROFILE, ZAP, SAVE, CAPS, NUMBER, RENUMBER, UNNUMBER, STATS, VERSION, LEVEL, UNDO, REDO

Data extract and import

COPY, CREATE, REPLACE, SUBMIT

Data presentation control

HEX, HILITE, COLS

Data search and filter

FIND, FINDNOT, EXCLUDE, EXNOT, RFIND, CHANGE, RCHANGE, DELETE

Information display

HELP, SWAP LIST, KEYS, JPA, TCB

REVEDIT feature notes

- **VIEW** mode – which displays the line numbers in blue – does not allow the data to be saved, but the data can be copied with **CREATE** and **REPLACE**
- Line numbers shown are in turquoise for lines changed since the last save
- As well as the “usual” non-numeric operands allowed by **LOCATE** (COMMAND, CHANGE, ERROR), UPDATE can be used to locate changed data lines – FIRST, LAST, NEXT, PREV can be used with these
- First operand of **FIND**, **EXCLUDE** and **CHANGE** subcommand family is always the search argument
- **<**, **>** and **=** are the only three picture mask characters that are recognized in **CHANGE** replacement picture string processing

Edit data management

- **ZAP ON** causes fixed-length record PDS members to be saved in place when the record count is unchanged
    - Can reduce PDS compress frequency
    - Setting saved in profile
    - Setting ignored for PDSE because zapping a PDSE is only an illusion, and is slower
- If **&ENVESA** in **REVGEN** set to 1 at Assemble time REVEDIT will back data in a SCOPE=SINGLE data space instead of the region
- Region storage for edited data acquired in 64KB chunks
- Data space storage for edited data acquired in 1MB chunks
- **PROF ON** will show storage acquired to back edited data
- Data space could grow to 2GB if no site limits such as IEFUSI

Edit Recover and Undo file

RECOVER/UNDO file is called **prefix.REVEDITn.BACKUP** where **n** is the REVIEW session number

- File is not allocated if record count is greater than 65,535
- Edit session proceeds without the file with a message if it cannot be allocated
- Recovery file is a cataloged 100 cylinder PDS with 2 directory blocks and up to 1 member
- The member is rewritten in total after each input cycle which changes the data
- REVEDIT remembers TTRs of old members for **UNDO** and **REDO**
- **REDO** can undo an **UNDO**
- Maximum **UNDO** depth is 31 → up to 32 versions of the data accessible
- **UNDO** is recycled when the PDS fills up (EOV ABEND trapped by DCB exit)
- TSO profile set to NOWTPMSG during write to suppress TPUT of IEC031I (still on log)
- Recovery after memory termination is a manual process but fairly straightforward

Edit recovery process

1. Rename the relevant **REVEDITn.BACKUP** data set
2. Edit the member **UNDOMEMn** in that data set
3. Shift the data left 12 columns
4. End the edit session saving the data
5. Edit the data set being edited at failure time
6. Delete all records
7. Copy data from old recover data set
8. Complete the edit
9. Delete the renamed recover data set

Edit/View – syntax highlighting

Currently only done for 80-byte records:

- JCL – check statement labels, statement verbs, REGION= (check 370 vs XA with OS), DSNAME= (underscore if cataloged, blue if not), colour comments and quoted strings, show disk device type of VOL=SER= in line number if pre-XA, flag bad or missing continuation, flag bad characters, flag unbalanced parentheses
- ASM – full syntax checking, standard column usage assumed
- PL/I – colour preprocessor statements, colour comments, colour quoted strings, colour source text by character set code point, flag unbalanced parentheses
- CLIST – /* … */ comments coloured, comments end at end of line, colour quoted strings
- Other – colour /* … */ comments and quoted strings

Browsing SYSOUT - REVOUT

- Initial job search set from optional REVOUT operand
- Use **STATUS** or **ST** REVOUT subcommand to change job search
- Uses **REVOUTJB** CLIST to invoke TSO STATUS and trap response
    - Usermods can extend default search range of TSO STATUS
- Can scroll job list with UP, DOWN, TOP, BOTTOM, LOCATE
- Can process jobs with selection codes:
  - **C** = CANCEL, **O** = RELEASE, **P** = PURGE, **S** = BROWSE
- Uses TSO FIB commands so
  - Can only look at held SYSOUT files – not as good as SDSF et al
  - Works for every release of JES2 and JES3
- Uses REVIEW to browse data set created by TSO OUTPUT
  - SYSOUT data coloured by
    - Message identifier recognition
    - Assembler listing syntax parsing

Running as an ISPF application

Prerequisites for ISPF dialog operations are

- REVPANEL in ISPPLIB file or equivalent
  - Tutorial panels may also be handy
- REVPROF in ISPPROF file
- In an ISPF environment (not at the READY prompt)

Even if not an ISPF app accesses ISPF variables

- To ascertain terminal characteristics (saves a Query)
- To ascertain data set name for “point and shoot”

Use **X** operand to force Query and suppress ISPF dialog

- If under ISPF, **X** (short for **XISPMODE**) is necessary to display pictures
- Easy way to tell if ISPF is if scroll amount input area is 4 characters
- If an ISPF application use **?** to show REVIEW release
  - KEYS, HELP, SWAP, TSO will be processed by ISPF → no *REVIEW* parallel sessions

Programs used by REVIEW

- **REVLMOD** – reloads load modules from sequential input
  - Batch offloading counterpart is **OFFLMOD**
- **PDSLOAD** – reloads data members from sequential input
  - Batch offloading counterpart is **OFFLOAD**
- **DELINKI** – David Noon's delinker written in PL/I
  - Needs BPAM support module **DWNSPDSR**
- **MINIUNZ** – unzip program written in C
  - Zipping counterpart is **MINIZIP**
  - These C programs must have STDOUT pre-allocated
  - Run as TSO commands without operands for help to STDOUT
  - REVIEW allocates STDOUT to DUMMY for unzip if not pre-allocated

These programs can be run in batch without REVIEW!

REVIEW on the web

REVIEW home page

http://www.prycroft6.com.au/REVIEW/

has links for reference and download:

- Installation convenience pack
- Source code
- Release notes
- FAQ
- MVS/370 executable – http://www.prycroft6.com.au/vs2sw/
- CBT files 134 (source) and 135 (executables)

The End