Fully Wired Programmer's Free Software Tool Chest

Session 2816

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SHARE 94

MVS/SCP Project

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Trademarks

Session 2816 Abstract

Fully Wired Programmer's Free Software Tool Chest

What's in the fully wired mainframe programmer's tool chest? Come to this session to find out! The speaker will give an introduction to the freeware tools (both system and application) that make his life easier, including tools that help:

- Fix broken data sets
- View storage displays
- Examine load libraries
- Really dig into OS/390

Popular utilities like TASID, LOOK, TAPEMAP, PDS, SHOWMVS, and more will be discussed. Don't forget to bring your tool chest; the speaker has been known to provide tools to take home (tapes, handouts, other goodies).

CBT Tapes will be handed out during the session.

Agenda

- Introduction
- Free Software
- Tools for working with PDS(s)
- System Doctor Tools
- Super Sleuth Tools
- System Information Tools
- Tools for working with TAPE(s)
- Source Code
- Debugging and Performance
- Handout CBT Tapes
- Web Tour
- MVS Freeware
- Internet delivery of software for MVS
- Mailing Lists
- Who me?
- Killing Lawyers
- The End

Why Tools?

The difference between an amateur and a professional is often mastery of the tools of the trade. If you take the time to prepare and grow comfortable with your tools when required you will be able to quickly and efficiently accomplish tasks that others consider impossible or too large to complete in the available time.

"Whatever tools you have, learn to use them. Over and over. Better and better. You'll surprise yourself if you are patient, stick to an organized schedule, and keep working at it." Sam Golob

Free Software

"Sharing of software was not limited to our particular community; it is as old as computers, just as sharing of recipes is as old as cooking. But we did it more than most." Richard Stallman

SHARE: "It's not an acronym. It's what we do."

First a Recipe

My Mom's Home Style Macaroni Casserole

3 T. butter

1 can mushrooms & juice

1/2 # grated mild cheddar cheese

1 cup mayonnaise

1 can mushroom soup

1/3 cup chopped onion

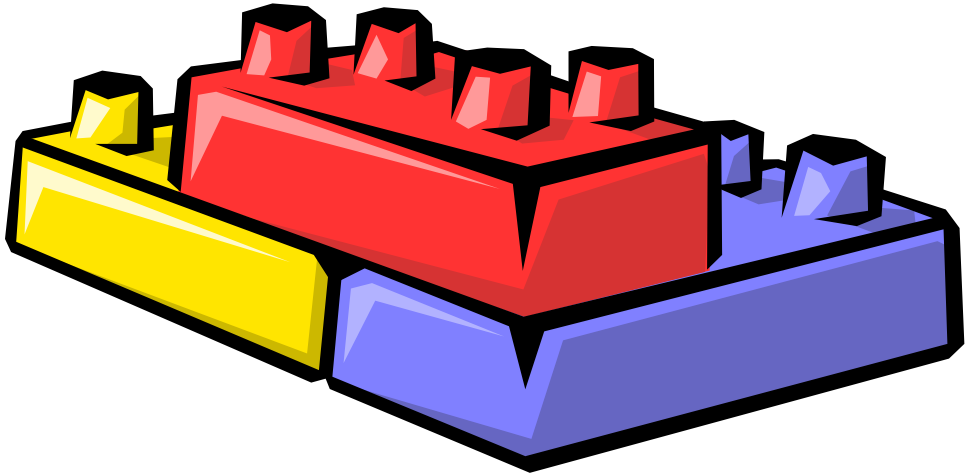
1 # box macaroni

Cook 1 box macaroni and drain off most of the water. Mix the following with the macaroni in a large casserole dish. Bake 20 minutes at 350°

Bring home the Tools!

Take home at least one tool and solve a problem. If you do this someone may actually believe you worked at SHARE. Probably not since everyone at your shop KNOWS that they only reason you come to SHARE is because “THEY HAVE AN 8 HOUR OPEN BAR AT SCIDS EVERY NIGHT!”

Tools for working with PDS(s)



Partitioned Data Set (PDS)

A data set in direct access storage that is divided into partitions, called members, each of which can contain a program, part of a program, or data.

Tools for working with PDS(s)

PDS or Partitioned Data Set is probably the most frequently manipulated type of data set on many OS/390 systems. We store JCL, source code, and system parameters in PDS(s).

ISPF facilities for working with PDS(s) have improved but still lag behind the powerful free tools users have built for themselves.

IBM does not supply an UNDELETE utility for PDS members.

IBM tools are difficult to use to perform complex operations in batch or REXX environments.

IBM tools split the functions required to effectively use PDS(s) into different utilities or multiple steps.

PDS 8.5

PDS was originally written in 1972 at Fireman's Fund Insurance.

Bruce Leland, Steve Smith, and others built PDS into the utility "Battle Wagon" that it is today.

John Kalinich has worked to keep PDS alive and continues to enhance it. PDS 8.5 is the current version of this most popular, free PDS utility.

PDS incorporates functions from IBM ISPF Options 3.2, 3.4 3.14, Utility programs IEBCOPY, IDCAMS, and much, much, more! PDS has been extended to integrate many other free tools such as DSAT, VTOC, MXI, COMPARE, REVIEW, and more.

PDS 8.5 vs. StarTool®

StarTool® is the commercial successor to PDS and now includes many years of additional development in it's feature set.

StarTool® is available from Serena. More information is available at the web site http://www.serena.com

PDS 8.5 is still a great free alternative!

PDS 8.5 MEMLIST

```
CMD ---------------------- MEMLIST Source Member List 1 ----- Row 1 to 16 of 34
 COMMAND ===>                                                  SCROLL ===> CSR
Enter an ISPF command, a PDS subcommand or a special control code:
   8 View log    1 Suspend ISPF    6 MEMLIST all    F Find      R Recall
  LA Lista       4 Sublist =       7 Output table   L Locate   SO Sort
  LV Listv       5 Check aliases   9 Swap panels    O Options   X Above/Below/All
 - DSN=CSSJK.UTIL.CNTL,VOL=SER=LS0008  MEM=CBT/  ------------------------------
 CMD  NAME     DATA     VER.MOD    CREATED   LAST MODIFIED  SIZE  INIT    ID
      CBT$ANY            01.42    95/07/25  00/02/28 10:13   278   208   CSSJK
      CBTAUDIT           01.00    00/02/28  00/02/28 10:46   445   445   CSSJK
      CBTBXMI            01.01    98/10/16  98/10/16 13:36    23    13   CSSJK
      CBTF1              01.09    00/02/28  00/02/28 13:38 38249 38249   CSSJK
```

PDS MEMLIST is where you will probably spend most of your time

PDS 8.5 MEMLIST examples

The example to the right demonstrates some MEMLIST capabilities:

```
 ----------------  MEMLIST Source Member List 1 -
 COMMAND ===>
 Enter an ISPF command, a PDS subcommand or a ...
    8 View log    1 Suspend ISPF    6 MEMLIST all
   LA Lista       4 Sublist =       7 Output tables
   LV Listv       5 Check aliases   9 Swap panels
 - DSN=HABL.LIB.CNTL,VOL=SER=TSO001  MEM=MP/  ----
 CMD  NAME      DATA       ...
 repr SMP       smpold     ...
 del  TEMP02                ...
 x    TEMP03                ...
 alia TESTMAMP  testal     ...
      TESTMP2   *EDIT*     ...
 ren  TEXMP     texmp3     ...
      TEXMP2    *NEWNAME   ...
 com  T888TMP   t888       ...
 end  ZAMP                  ...
 o    ZBMP                  ...
      ZMP       *INVALID   ...
```

create a **backup** ->>
delete a member ->>
drop from display ->>
assign an **alias** ->>
previously edited ->>
rename a member ->>
a new member name ->>
compare members ->>
invalid command ->>
get assistance ->>
previously invalid ->>

Use the PDS On-line Help (PF1)

PDS 8.5 MEMLIST “O”

```
 DSLIST ------------------ PDS o line command selection ----------------
OPTION  ===>

Choose one of the following for member $COMMON
    A     - Attrib              E     - Edit                REP   - Replace
    AL    - Alias               F     - Find                REPR  - Repro
    B     - Browse              FSE   - Fse                 REV   - Review
    COM   - Compare             H     - Help                SUB   - Submit
    COPY  - Copy                L     - List                TSOE  - Tsoedit
    DEL   - Delete              LOG   - Log line            TSOL  - Tsolist
    DCF   - Dcf Script          OUT   - Outcopy             V     - Verify
    DIR   - Direntry            PR    - Printoff            VPS   - Vpsprint
    DSP   - Dsprint             REN   - Rename

 Special line commands:
    X     - remove line from display
    =     - repeat previous line command
    K     - kill and clear all following line commands
    UT    - extended/user/installation utility command panel
```

PDS 8.5 VERIFY finds problems

```
 CMD ---------------------- ISPMODE Session Display 1 ---- Row 91 to 107 of 108
 COMMAND ===>                                                 SCROLL ===> CSR
Enter an ISPF command, a PDS subcommand or a special control code:
   LA Lista      1 Suspend ISPF     9 Swap panels    R Recall
   LV Listv      6 MEMLIST all      F Find           X Above/Below/All
   ML Memlist    7 Output log       O Options        * Memlist *
 - DSN=SYS1.DP.LINKLIB,VOL=SER=CATPAK  MEM=:  --------------------------------
 >verify :

 ** VERIFY   IMS51
 PDS860E MEMBER IS AN ALIAS BUT NO MAIN MEMBER EXISTS
 PDS861E THE ALIAS DIRECTORY ENTRY NOTES THE MAIN ENTRY NAME AS SYSIMS51

 PDS006I END OF DATA SET

 PDS111I     2,087 PHYSICAL BLOCKS WERE INPUT
 PDS112I    32,760 CHARACTERS IN THE LARGEST PHYSICAL BLOCK
 PDS113I     1,625 CHARACTERS PER AVERAGE PHYSICAL BLOCK
 PDS114I         2 TRACKS COULD BE REGAINED BY COMPRESSING THIS DATA SET
 PDS115I       158 MEMBERS WERE CHECKED

 PDS118I 121 MEMBERS RMODE24; SIZE IS 2,397K
 PDS119I 31 MEMBERS RMODEANY; SIZE IS 791K
```

PDS 8.5 LISTF Options

```
 CMD ----------------- Build LISTFILE using VTOC command -------------
OPTION  ===>

Enter volume list for VTOC
VOLUMEs===> LSMS   ===>        ===>

Catalog search for each DSNAME ===> NO  (Yes/No)

Optional filtering:
LEVELs     ===> OMVS                          ===>
More LEVELs===>                  ===>                    ===>
Containing ===>                  ===>                    ===>
Ending     ===>                  ===>                    ===>
```

Strings for the above filtering must conform to dataset naming conventions. The userid will not be appended, do not use quotes.

PDS 8.5 LISTF

```
 CMD ---------------------------- List files -------- Row 1 to 17 of 59
 COMMAND ===>                                          SCROLL ===> CSR
Enter an ISPF command or a special control code:
  LV Listv     7 Output table   9 Swap panels   O Options
  ML Memlist   8 View log       F Find          X Above/Below/All
   ------------------------------------------------------------------------
 CMD  C V DATA/MSG DO RECFM LRECL BLKSI VOLUME ---------DATA SET NAME ---
      - Y          HF U         0     0 LSMS02 OMVS.DEV.NFS
      - Y          HF U         0     0 LSMS03 OMVS.DEV.UCD-SNMP.NFS
      - Y          HF U         0     0 LSMS01 OMVS.S390R4.DCEASHFS.USR
      - Y          HF U         0     0 LSMS01 OMVS.S390R4.DFSHFS.GLOBAL
      - Y          HF U         0     0 LSMS01 OMVS.S390R4.DFSHFS.LOCAL
      - Y          HF U         0     0 LSMS01 OMVS.S390R4.ECN.ECN
      - Y          HF U         0     0 LSMS01 OMVS.S390R4.EPH.EPH
      - Y          HF U         0     0 LSMS01 OMVS.S390R4.HFS.DCEBASE
```

PDS 8.5 LISTA

```
 CMD --------------------------- List Allocations ----- Row 1 to 17 of 114
 COMMAND ===>                                              SCROLL ===> CSR
Enter an ISPF command or a special control code:
  LV Listv     7 Output table   9 Swap panels   O Options
  ML Memlist   8 View log       F Find          X Above/Below/All
   ------------------------------------------------------------------------
 CMD  DDNAME   DATA     TYPE O# VOLUME  MEMBER   ------ DATA SET NAME ------
      STEPLIB                  1  LS0008          CSSJK.LOAD
        #    2                 1  LS0016          CSSJK.CBT423.FILE035
      SYSHELP                  0  S3906R          ISP.SISPHELP
        #    2                 0  S3906R          SYS1.HELP
        #    3                 0  S3906R          SYS1.HELPENP
        #    4                 0  CATPAK          LSC.TOOLS.HELP
        #    5                 0  S3903R          REXX.V1R3M0.SEAGHENU
      SYSEXEC                  0  S3906R          ISP.SISPEXEC
        #    2                 0  S3906R          ISF.SISFEXEC
      SYSLBC                   0  S3906D          SYS1.PROD.BRODCAST
      SYSUADS                  0  SYS002          SYS1.UADS
      SYSPRINT           TERM  0                  NULLFILE
      SYSTERM            TERM  0                  NULLFILE
      CONLIB                   0  SYS001          SYS1.ENDVR37.CONLIB
      SORTWK01                 0  WORK52          SYS00063.T084748.RA000.CSSJK.R01
```

What else PDS 8.5 will do!

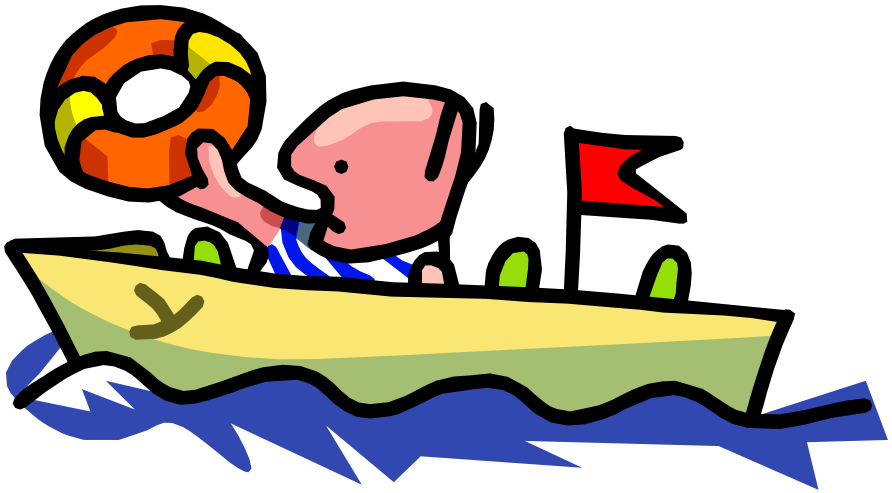
- Use it in Batch
- Use it in a Started Task
  - TSSO + PDS = powerful recovery toolbox
- Display active CATALOG(s)
- It works with Sequential data sets too!
- Quickly clone a data set for testing
- Add or remove ALIAS(s)
- Restore deleted members (more about that later)
- Examine PDS directory entries
- Examine data set DSCB information
- Modify ISPF statistics
- Modify Load module attributes

PDS  SEQ

- OFFLOAD program (from CBT Tape File 093)
- PDSLOAD program from File 093
- LISTPDS (from CBT Tape File 316)
- REVIEW (File 134) subcommand called =OFFLOAD

Many tools exist which allow a PDS to be unloaded to a sequential file which can be manipulated and reloaded. ISPF statistics can be preserved or easily altered in mass. These are just some of the tools that you might examine many other free tools include similar functions. IEBCOPY unloads a PDS but the unloaded format is not one which can easily be modified or processed.

UNDELETE for PDS(s)



- Kimu REVIVE
- PDS

PDS data structure is such that until the PDS is compressed deleted members may be recovered.

Revive!

- It cannot get any easier than this!
- A pleasant ISPF table of all the deleted members with a preview of contents.
- Developed by Tetsuya Kimura (Kimu)

You can find Revive! at Kimu's Home Page
http://home4.highway.ne.jp/kimu/

or File 442 on the CBT Tape (on-line http://www.cbttape.org)

Revive!

```
CMD ve! : Bring Back to PDS Members .. < v0r9m3 > ------------------------
Command ===>                                                Scroll ===> CSR
Ok! member(MYDATA) restored.
 DataSet Name : CSSJK.FTP.PDS                               Vol : LS0014
 Line Command :  B - Browse    S - Show    R - Restore    X - eXtract
  Member   T T R  -- Data ( First 60 Byte ) --                      (1,27)
  +002101  002101 pkzip25 -add cbt001.zip CBT001.XMI -maximum
  +006506  006506 040756,
  +00650C  00650C 121597,
  +00650F  00650F 126593,
  +006601  006601 .\INMR01......&......RANK2......ZMRDS......N2......ZMRDS
  +007109  007109 ************************************************************
  +00CF01  00CF01 .\INMR01......&......RANK2......ZMRDS......N2......
  +00DA09  00DA09 .\INMR01......&......RANK2......ZMRDS......N2......
  +00E306  00E306 .\INMR01......&......RANK2......ZMRDS......N2......
  +011F05  011F05 ++APAR(XSESEED) /*¬....¬..¬.+¬......¬..<.¬¬¬¬..¬<||.
```

PDS 8.5 RESTORE

>restore

PDS101I DELETED MEMBER FOUND AT TTR: 002101

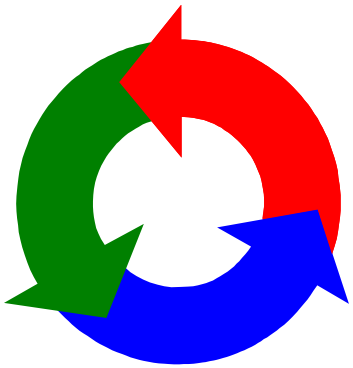
PDS144I DATA LINE 1:
//CSSJK1$$ JOB BATCH),IEFBR14.SAM.KNUTSON,

PDS390A SHOULD THIS MEMBER BE RESTORED (Y/N)?
>y

PDS091I GOODJCL HAS BEEN RESTORED

PDS Search & Replace

Things change… So quickly locating all the members of a PDS that contain a some value or possibly replacing one value with another in all members or a subset is very useful.



• PDS 8.5 from CBT Tape File 182 FIND and REPLACE commands can be used interactively or in batch and PDS is probably my tool of choice for most PDS searches and changes.

• PDSGEN from CBT Tape File 357 allows multiple string substitution

PDS Search & Replace with IPOUPDTE and CPPUPDTE

IBM does not provide a supported PDS Search and Replace utility as part of OS/390 or DFSMS. IBM Service offerings such as IPO and ServerPac have included such utilities for a long time in order to help make the many changes required as part of customization during installation.

You can find documentation on-line for the CPPUPDTE (IPOUPDTE) program here
http://www.s390.ibm.com/os390/installation/cppupdte.html

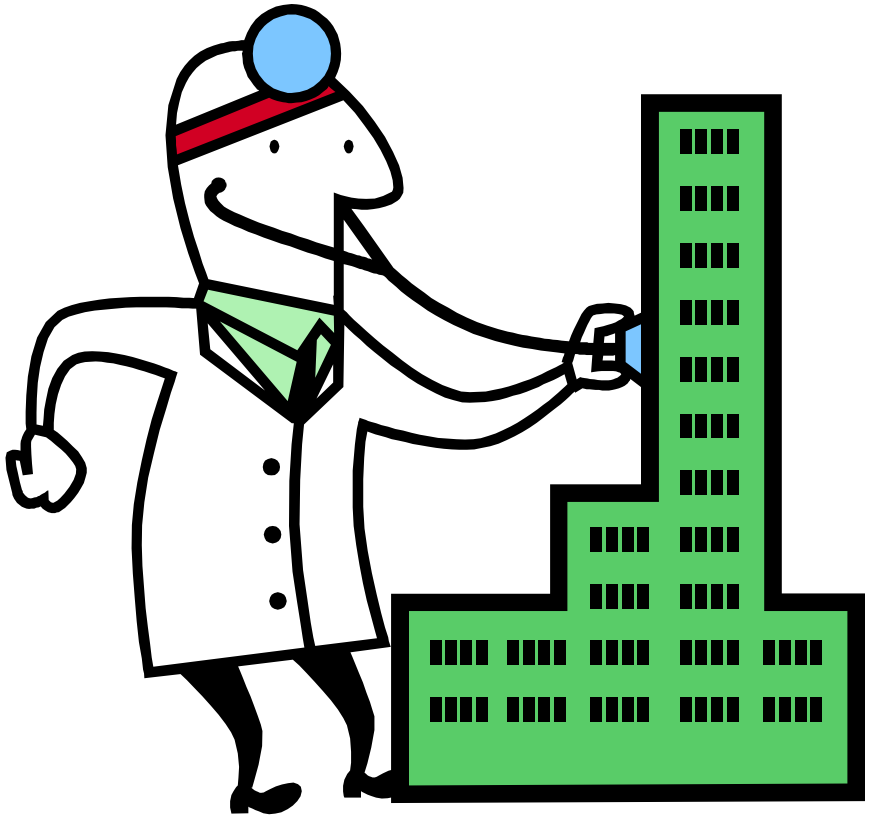
PDS Search & Replace with IPOUPDTE and CPPUPDTE

IPOUPDTE and CPPUPDTE have a requirement that an IBM Copyright Statement member $$$COIBM exists in the PDS you want to use them on. A small modification to remove this requirement is show below. Modification thanks to Sam Golob, J Janco, and Thierry FALISSARD.

```
*
  NAME  CPPUPDTE
  VER  055A 0A12        SVC  18       BLDL OR FIND
  VER  055C 12FF        LTR  15,15     CHECK RETURN
  VER  055E 4780,C56E   BZ               ......  PROCESS
  REP  055E 47F0,C56E   B              FORCE PROCESS......
*
* SPZAP TO REMOVE REQUIREMENT THAT A '$$$COIBM' MEMBER
* BE THE FIRST ONE IN THE PDS TO BE SCANNED.
*    J JANCO   13 MARCH 1986
*
  NAME  IPOUPDTE
  VER  0548 0A12        SVC  18       BLDL OR FIND
  VER  054A 12FF        LTR  15,15     CHECK RETURN
  VER  054C 4780,C55C   BZ               ......  PROCESS
  REP  054C 47F0,C55C   B              FORCE PROCESS......
```

See the same at Thierry's IPOUPDTE page at http://os390-mvs.hypermart.net/ipoupdte.htm

System Doctor Tools



"What are the tools?"

William S. Mosteller

The Systems Programmers Problem Solver

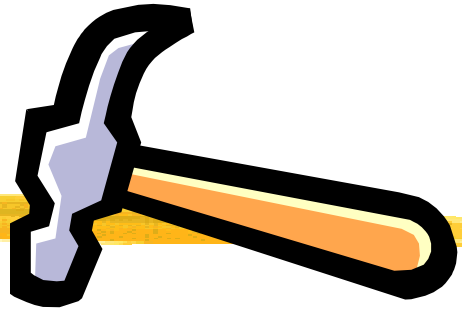
ISBN 0-89435-271-7

CDSCB

```
EDIT E    CSSJK.IDCAMS.CNTL                                  Browse substituted
Command ===>                                                   Scroll ===>
CSR
   Name                  Size     TTR   Alias-of AC  AM  RM  ----
Attributes ----
. DEFALIAB             00069F03 000021                24  24           NX
. DEFALIAS             00069F03 00000E                24  24           NX
. DEFNVSAM             00069F03 00001B                24  24           NX
. DEFUCAT              00069F03 000105                24  24           NX
. DELDEFNV             00069F03 000017                24  24           NX
. EXPORT               00069F03 000025                24  24           NX
. LISTBKUP             00069F03 000012                24  24           NX
. LISTC                00069F03 00000C                24  24           NX
. LISTDATA             00069F03 000103                24 ANY           NX
. MERGECAT             00069F03 000010                24  24           NX
. REPROSEQ             00069F03 000023                24  24           NX
. SETCAOFF             00069F03 000101                24  24           NX
. WTOENROL             00000090 000107          01    31 ANY      RN RU    TS
```

Someone has accidentally linked a load module into his JCL PDS… changing the attributes of the PDS itself.

CDSCB



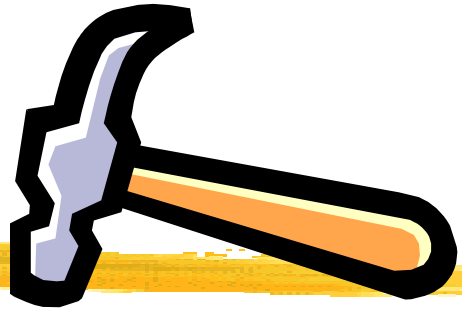
The CDSCB (change DSCB) command modifies a data set's Format-1 DSCB in a VTOC.

Since the Format-1 DSCB contains information crucial to a data sets' security and integrity, (and in fact to the whole system's security and integrity), this command Must be restricted to systems support personnel.

CDSCB 'DSNAME' EXPDT(DATE) SHR VOL(VOLUME) UNIT(UNIT)
CREATE(DATE) REFDT(DATE)
DSORG(XX) RECFM(XX) LRECL(XX) BLKSIZE(XX)
ALLOC(TR/CYL/BL) SPACE(SECONDARY-AMOUNT)
PWR/PWW/NOP/RACF/NORACF
ZAP(OFFSET VERDATA REPDATA)

REQUIRED - 'DSNAME'
DEFAULTS - NOTHING WILL HAPPEN IF NO CHANGES ARE SPECIFIED

CDSCB



```
CDSCB CSSJK.IDCAMS.CNTL RECFM(FB) LRECL(80)
CHANGED
```

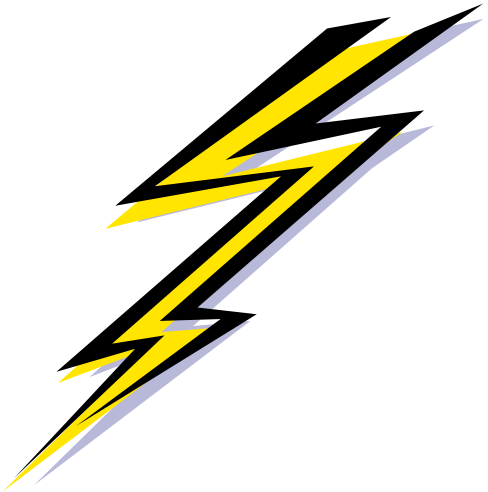
Fixed!

- CDSCB can be used to quickly repair data set attributes which users have unintentionally altered.

- CDSCB is found on CBT Tape File 300. A version modified my Michael Cleary to use RACF instead of an internal userid table is on CBT Tape File 301 or his web page.

Full Screen ZAP data sets

The ZAP command is used to examine, dump, and modify any type of sequential, partitioned, or direct access dataset. Any RECFM is accepted. This command is the TSO interactive equivalent of IBM's service aid 'IMASPZAP' or 'SUPERZAP'. ZAP is found on CBT Tape files 134 (source) and 135 (load).



ZAP 'dsname' VOLUME('serial') CRT NOT3270
TERSE/VERBOSE BLKSIZE('blksize')
NOLOG/LOG
FULLVOL

REQUIRED: 'dsname'
DEFAULTS: TERSE, NOLOG
No volume implies a cataloged dataset.

NOTE: VOLUME keyword is required if dataset is not cataloged or if it is 'FORMAT4.DSCB'.

Full Screen ZAP Volumes

The ZAP command ZAP 'FORMAT4.DSCB' VOLUME(DEVL51) FULLVOL allows me to inspect and modify any location on the volume DEVL51.

```
                                    Z  A  P

 ENTER VALID COMMAND ABOVE OR ? FOR HELP          VERSION=3.2K 04JAN99


 00000  >C9D7 D3F1  0008 0000   8000 015A  0600 4A98   |IPL1.......!..¢q|
 00010   6000 0060  0800 4A98   0000 0000              |-..-..¢q....    |

 OFF: 0000 (     0) ADDR: 00000 (       0) DSN:   VOLUME DEVL51
 LEN: 001C (    28) BASE: 00000 (       0) CCHHR: 0000000001 TTR:  000001
```

- ZAP can help you understand the formats of data sets by eliminating any formatting imposed by other viewers
- On-line help available by pressing "?" is enough to get you started
- Sam Golob's columns on ZAP (CBT Tape file 120 or on-line) very helpful

Bypassing Enqueue

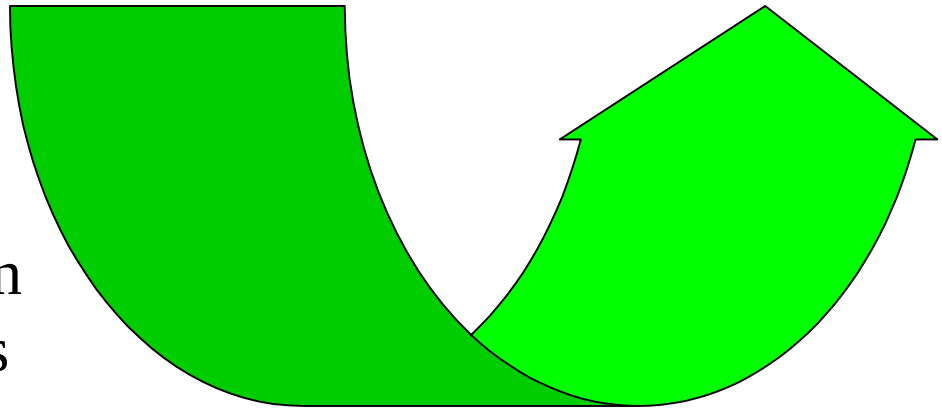
- IBM ENQUEUE serializes data sets by name not by instance (dsname/volume)
- More and more installations are running multiple systems
- Systems programmers sometimes need to make changes to data sets which are serialized by GRS

BYPASSNQ is a driver that allows you to run any utility program (such as IEHPROGM or IDCAMS) and bypass the data set name enqueue that is normally performed by the DYNALLOC, SCRATCH and RENAME SVC(s). This technique allows data sets to be deleted or renamed using standard MVS services and is fully compatible with indexed VTOCs and SMS.

When you use BYPASSNQ you must be sure that the instance of the data set (dsname/volume) is really not in use since you are bypassing the safety mechanisms put in place by MVS!

Bypassing Enqueue

```
//GO       EXEC PGM=BYPASSNQ,PARM=IEHPROGM
//SYSIN     DD *
  SCRATCH VOL=3390=SYS006,DSNAME=SYS1.SYS522.LOGR.COUPLE
/*
//SYSPRINT DD SYSOUT=*
//DD1       DD UNIT=SYSDA,VOL=SER=SYS006,DISP=OLD
//ABNLTERM DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
```



BYPASSNQ is one of many useful utility programs written by Gilbert St. Fleur available in CBT Tape File 183 or from his web site http://members.home.net/gsf/

CALLRTM

CALLRTM is the system macro used to terminate a TCB or an address space. It is used by the operating system CANCEL and FORCE commands and by OEM MVS Monitors.

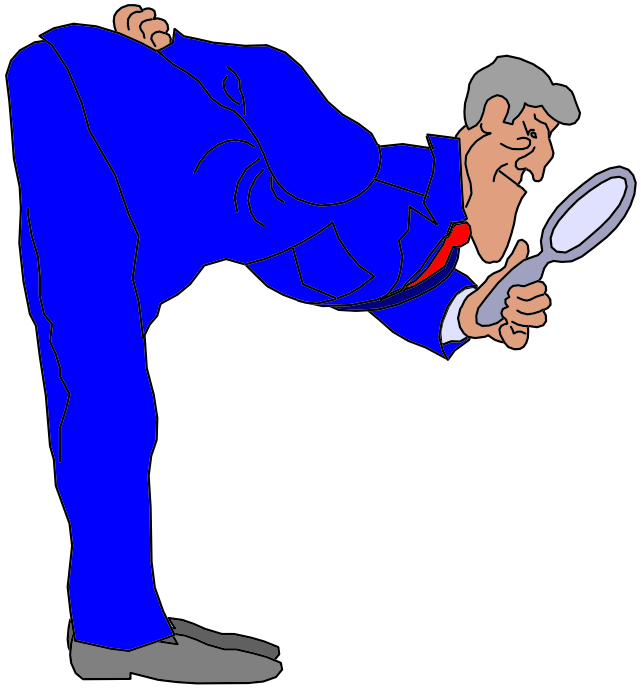
It's just an authorized macro and you can use it too!

A sample CALLRTM program may be obtained from IBM RTM Level 2 or you may write you own.

An older sample of CALLRTM TYPE=MEMTERM is on CBT Tape file 352

A nicely written CALLRTM package would be a great addition to the CBT Tape and the MVS Freeware community.

Super Sleuth Tools



Who deleted my data set?

Where is this data set cataloged?

How does this Control Block work?

REVIEW

- REVIEW is a Quick Viewer for almost any type of data on OS/390
- REVIEW provides optionally formatted displays for SMF, LOGREC, VTOC, and more

- REVIEW is a TSO command processor and does not need ISPF
- REVIEW source code is in CBT Tape File 134 and a ready to use load module is in CBT Tape File 135. Greg Price regularly updates REVIEW and has a great collection of other useful tools as well which can be found in the same files.

REVIEW a volumes VVDS

```
 SYS1.VVDS.VUSER05 ON USER05 ---------------------------------- LINE 1 COL 1 80
 COMMAND ===>                                                   SCROLL ===> CS
1       10        20        30        40        50        60        70        80
+---+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+
.8..VVCR..............CATALOG.LSC.AUX                                .....
....Z .....SYS1.VVDS.VUSER05 .SYS1.VVDS.VUSER05 ..SYS1.VVDS.VUSER05 ... 0.....
.1.~Q......NVPLV012.TDVRAZ.VNVGCNTL.INDEX..NVPLV012.TDVRAZ.VNVGCNTL..CATALOG.TSO
.$..Z......SYS1.IODF84.WORK..SYS1.IODF84.WORK.CLUSTER..CATALOG.S39024.MASTER.SYS
.h..Q......INFO.V3.DICT.INDEX..INFO.V3.DICT..CATALOG.VTSOPAK.INFO.V3.DICT.....
.j.÷Q......INFO.V3.RPANELS.INDEX..INFO.V3.RPANELS..CATALOG.VTSOPAK.INFO.V3.RPANE
.?..Z......SYS1.IODF82.WORK..SYS1.IODF82.WORK.CLUSTER..CATALOG.S39013.MASTER.SYS
....Z......TMON.CICS322.DFHXRCTL.DATA..TMON.CICS322.DFHXRCTL..CATALOG.VTSOPAK.TM
....Z......TMON.CICS322.DFHXRMSG.DATA..TMON.CICS322.DFHXRMSG..CATALOG.VTSOPAK.TM
```

Update IKJSTO00 to make REVIEW authorized and it can quickly examine a VVDS instead of running Batch IDCAMS PRINT

REVIEW on-line SMF data

```
 SYS1.PROD.MAN2 ON S3906R ---------------------------------- LINE 475 COL 1 80
 COMMAND ===>                                                 SCROLL ===> CS
1        10         20         30         40         50         60         70         80
+---+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+
 75 14:45:01 00.063 PROD RMF 143E PAGE.VPAGE12.PROD.LOCA     1.1io/s    6.0xfr/s
 78 14:45:01 00.063 PROD RMF      subtype       2
 15 14:45:01 00.063 PROD CSSJW    CSSJW.PS9932G.INSTLIB   B=6320        1 LS0022
 77 14:45:01 00.063 PROD RMF      subtype       1
 72 14:45:01 00.063 PROD RMF pg 0  1167srv/sec
 72 14:45:01 00.063 PROD RMF pg20   618srv/sec   129srv/sec   347srv/sec
 30214:45:06 00.063 PROD RMF      STC04053 IEFPROC  CPU-00:00:02 I/O-----------2
 14 14:45:09 00.063 PROD CSSJW    CSSJW.PS9932G.INSTLIB   B=6320        3 LS0022
 30214:45:10 00.063 PROD FARLG    TSU04109 $TSFACCS CPU-00:00:05 I/O--------1027
 80 14:45:12 00.063 PROD CSABS    CSABS    TSOHOLD  TPXGR244
 62014:45:45 00.063 PROD CSSJK    SYS1.PROD.MAN1                          S3906R
```

REVIEW formats useful SMF information for a quick review of recent past

DAF Dataset Audit Facility

• DAF is the Dataset Audit Facility an SMF post processor for data set activity

• Reads standard IBM and some ISV SMF records, and based upon user supplied selection criteria, generates detailed data set audit trail reports

• Found on CBT Tape File 094 or Mike Cleary's Web Page
http://home.pacbell.net/mcleary/freeware.html

* Information on DAF is taken from the DAF source code and "DAF, GRS, and LPALNK" Session 2895 SHARE Conference - Winter 1998 by Michael Cleary

DAF Supported SMF Records:

014 - INPUT or RDBACK Data Set Activity
015 - OUTPUT UPDAT INOUT or OUTIN Data Set Activity
016 - DFSORT Statistics
017 - Scratch Data Set Status
018 - Rename Data Set Status
022 - Configuration
024 - JES2 Spool Offload
036 - Integrated Catalog Facility Catalog
042 - DFSMS Statistics and Configuration
059 - MVS/BDT File-to-File Transmission
060 - VSAM Volume Data Set Updated
061 - Integrated Catalog Facility Define Activity
062 - VSAM Component or Cluster Opened
063 - VSAM Catalog Entry Defined
064 - VSAM Component or Cluster Status
065 - Integrated Catalog Facility Delete Activity
066 - Integrated Catalog Facility Alter Activity
067 - VSAM Catalog Entry Deleted
068 - VSAM Catalog Entry Renamed
069 - VSAM Data Space Defined Extended or Deleted
073 - RMF Channel Path Activity
074 - RMF Device/XCF/OMVS/CF/Cache Activity
075 - RMF Page/Swap Data Set Activity
077 - RMF Enqueue Activity
080 - RACF Processing
081 - RACF Initialization
082 - ICSF/MVS Record
083 - RACF Audit Record for Data Sets
090 - System Status
092 - USS File System Activity
118 - TCPIP Statistics
170 - File-AID
201 - SRS
241 - DFHSM

Reporting from 34 different SMF record types!

DAF control statements

- Catalog name
- Dataset name
- Date (YYYYDDD)
- Data definition name
- Execute Channel Program
- Group Identification
- Job name
- Logical Record Length
- Major enqueue name
- Member name
- Minor enqueue name
- Record type
- System identification
- Time - HH.MM.SS.HH
- User identification
- Volume serial
- VSAM volume dataset name
- Wait Time Max

• Like control statements utilize OR logic

DSN EQ A with DSN EQ B

Would find all data sets that begin with A or B

• Unlike control statements utilize AND logic

DSN EQ A with JOB EQ B

Would find all data sets that begin with A and from JOB B

Operators

- EQ, GE, GT, LE, LT, NE

DAF Examples

- What happened to that darn payroll file ?

  DSN EQ PROD.PAYROLL.CLUSTER

- What was locking up the system at lunch time ?

  TIME EQ 12

- What data sets were accessed on volume USER05 ?

  VOLUME EQ USER05

- What data sets are blocked poorly ?

  BLKSIZ LT 4096

- Did the special job run on New Year’s Day ?

  JOB EQ SPECIAL

  DATE EQ 2000001

DAF Reports

```
        Dataset Audit Facility (DAF) - Level 2.0.6(20000306)

Date    Time         SID  Job      User     RTY
CSSJK3.ISPF.ISPPROF
2000066 01.41.29.96 PROD CSSJK             014

VOLUME=LS0003 DD=ISP16383 OPE=01.41.29.83 CRDT=00066 XPDT=00000
DISP=Shr BUFNO=1 DSORG=PS RECFM=FB BLKSIZE=256 LRECL=256 NVOL=1
EXCP=46 CTRI=ABSTR NTU=00002D00 NEX=1 NTA=4

2000066 01.41.34.48 PROD CSSJK             017 VOLUME=LS0003 NVL=1
```

DAF Reports can quickly answer questions about data set activity. DAF also generates detail logs and statistics about it's processing and the SMF data analyzed.

LOOK

- TSO command to display virtual storage
- Optionally run APF authorized and display storage in any address space!
- Optionally customize (through DSECT assemblies) to format any control block
- Supports indirect addressing
- LOOK source is on File 264 of the CBT Tape and a pre-assembled load module is on File 035.

```
The valid commands are:
Iexp  24 bit indirect                    | Jexp  31 bit indirect
>     Forward                            | <     Backward
=sym  Define current address as "sym"    | ,sym  Redisplay core at "sym"
M0/M1 Flip between top and center        | Lname Indirect thru control block field
Ocb   Format as "cb" control block       | R     Refresh displayed storage
      "cb" may be NULL to show as hex    |

where 'exp' is of the form:
    <+/->hhhh<+/-hhhh<+/-hhhh...>>
and 'hhhh' is a 1 to 8 digit hex number.
```

LOOK

```
 LOOK COMMAND - DISPLAY VIRTUAL MEMORY      DISPLAY ASID= 0024
ENTER CMD -
LAST CMD  - I006000

54C9E340   >D4C9E340  C8C1E2D7  D5E4C340  D6E240F2 *>MIT HASPNUC OS 2*
54C9E350    4BF54BF0  40404040  40404040  40404040  *.5.0            *
54C9E360    40404040  01D10050  F6200000  C8D1C5F6  *    .J.&6...HJE6*
54C9E370    F6F0F540  F0F261F2  F761F9F8  F1F14BF0  *605 02/27/9811.0*
54C9E380    F80096E0  0000F418  0000F6C0  0000F6E0  *8.....4...6...6.*
54C9E390    E2D740F5  4BF34BF0  40404040  40404040  *SP 5.3.0        *
54C9E3A0    F6000000  000E58D0  0B001FD8  0AC5AFE0  *6.........Q.E..*
54C9E3B0    0B001FA0  00B3E6E0  01800000  000081A2  *......W........*
54C9E3C0    01800000  0000C14E  01800000  0000C1B6  *......A+......A.*
54C9E3D0    00000000  00009250  000092D8  0000D680  *.......&...Q..O.*
54C9E3E0    0000D874  0000CD6A  000EBB18  000EBB18  *..Q............*
54C9E3F0    000EBB5E  000EBBA4  0008F444  0000B482  *...;......4.....*

1= HELP      2=           3= END        4=           5= REPEAT  6=
7= BACKWARD  8= FORWARD   9= HIST BWD  10= HIST FWD 11=        12=
```

TASID as a storage browser

```
                                Storage View Facility
Command ===>                                                  Scroll ===> CSR
 Base address     ===> 00FD0BC0                 Alignment .. HWORD
 Offset from base ===>          (optional)     Location ... R/W Nucleus
 Find string      ===>                         Last block .
 Address fields are Point & Shoot

 00FD0BC0     +0          4          8          C          e 0   4   8   C
          +0   00000218   00FDC560   00FD0B3C   00FD11A8   e .....ÙE-.Ù...Ù.y
         +10   00000000   00FF8874   00FF5156   00FE7378   e ......hÈ..éî.ÚËÌ
         +20   00FE71AC   01648DA0   812A4900   00FEC398   e .ÚÉÐ.Àýµa.ñ..ÚCq
         +30   00F43858   00FE65B0   0100069F   00FD11D0   e .4.ì.ÚÁ^...¤.Ù.}
         +40   00F3A000   00FF9958   00FDC788   00000000   e .3µ...rì.ÙGh....
         +50   0A0307FE   00FD0B44   00FD0990   00000000   e ...Ú.Ù.à.Ù.°....
         +60   40C3E5E3   00FD1D20   00FE99AA   00FE99CA   e  CVT.Ù...Úr¡.Úr-
         +70   00F48DD8   9BFD60B0   00000000   00FDC9F0   e .4ýQºÙ-^.....ÙI0
         +80   00000000   8160FC50   00FECC80   01657A10   e ....a-Ü&.ÚöØ.Á:.
         +90   838BD000   00FD11D0   00FEF510   00991A00   e c»}..Ù.}.Ú5..r..
         +A0   00000000   7FFFFFFF   00000000   00000000   e ...."..........

Current address: 00FD0BC0
Limits:  Top - 00FBF000,  Bot - 017F0FFF,  Size - 00832000
```

MXI as a storage browser

```
MXI - PROD - Control Block Mapping (00FD0BC0,CVT,R/W Nuc) ---------------------
Command ===> MEM @CVT MAP(CVT)                                Scroll ===> PAGE

Offset    Field         Hex                                   EBCDIC
Dec  Hex  Name      Len Value                                 Value
0    0000 CVTTCBP     4 00000218                            | ....            |
4    0004 CVT0EF00    4 00FDC560                            | ..E-            |
8    0008 CVTLINK     4 00FD0B3C                            | ....            |
12   000C CVTAUSCB    4 00FD11A8                            | ...y            |
16   0010 CVTBUF      4 00000000                            | ....            |
20   0014 CVTXAPG     4 00FF8874                            | ..hÈ            |
24   0018 CVT0VL00    4 00FF5156                            | ..éî            |
28   001C CVTPCNVT    4 00FE7378                            | ..ËÌ            |
32   0020 CVTPRLTV    4 00FE71AC                            | ..ÉÐ            |
36   0024 CVTLLCB     4 01648DA0                            | .Àýµ            |
40   0028 CVTLLTRM    4 812A4900                            | a.ñ.            |
44   002C CVTXTLER    4 00FEC398                            | ..Cq            |
48   0030 CVTSYSAD    4 00F43858                            | .4.ì            |
52   0034 CVTBTERM    4 00FE65B0                            | ..Á^            |
56   0038 CVTDATE     4 0100065F                            | ...¬            |
60   003C CVTMSLT     4 00FD11D0                            | ...}            |
64   0040 CVTZDTAB    4 00F3A000                            | .3µ.            |
68   0044 CVTXITP     4 00FF9958                            | ..rì            |
72   0048 CVT0EF01    4 00FDC788                            | ..Gh            |
```

System Information Tools

Several tools provide so much information they let you quickly map out an OS/390 system.

SHOWMVS

- One Stop shopping for system configuration information. The format allows you to quickly review everything on-line or in Batch.
- CBT Tape file 183 or GSF Web Site
http://members.home.net/gsf/
- The Source code for SHOWMVS can teach you a lot! STRING macro is EXCELLENT formatting tool for assembler programs.
- Sample output on Gilbert's Web Site
- Future enhancements to SHOWMVS may include a TCP/IP client/server version, more USS information and much more!

SHOWMVS (Short)

```
Operating System:

  OS/390 02.06.00          CVTOSLVL: FF FF F0 00 00 00 00 00

  DFSMS/MVS 1.4.0          Dynamic Linklist is supported
                           Dynamic LPA is available
                           DFSMS Loader Fork Exit is present

  JES2 Level: OS 2.5.0     NJE Node: JES2MVS     DSNID: 01

Last IPL:

  Date: Monday 2000-02-07 (25 days ago)    Time: 19.23    Julian:
2000.038
  From: S3906R/1209    NUC Id: 1    Type: Cold Start    CVTUSER: 00000000
  SYSPLEX name: DEVL52    SYSPLEX ID: OD  OpenMVS available: YES
  Timezone: W 05.00.00
```

SHOWMVS

SHOWMVS displays two different types of data:

- Data related to the MVS operating system
  - Operating System Release and status, Subsystems, XCF, GRS, DAE, DASD, Linkage Index (LX) Table, more...
- Data related to the current address space
  - TCB Tree, TSO Information, REXX Environment, more..

SHOWMVS can be invoked as a program, as a TSO command, or as an edit macro and can run authorized or non-authorized. Some of the displays are only produced when SHOWMVS runs authorized.

SHOWMVS many displays!

MVS LEVEL, DFP LEVEL, OSLVL FLAGS, JES2 LEVEL
IPL DATE, TIME, VOLSER, NUC-ID, CLPA, CVTUSER
Date and time of last CLPA (auth)
Time Zone, Primary sub-system name and type
Software Level: TSO/E, ISPF, DSS, HSM, RACF, VTAM, SORT,
DSF, DB2, CICS, MQ Series
Run-time Environments (CBL, PLI, FORTRAN, C/370, LE)
SMF Information: SID, JWT, data sets, exits
SMS Configuration: SCDS, system names, last update
GRS Configuration
XCF Configuration (auth)
PATH data
Coupling Facility Data
External Time Reference (ETR)
Hardware configuration
  Central Processing Complex Node Description (CPC ND)
  On-line CPUs and storage
  Performance (SU/sec, estimated MIPS)
  Service Processor data
  I/O configuration Definition (IODF)
  LPAR configuration
VM host information (auth)
VIRTUAL STORAGE MAP (CSA, SQA, LPA, etc)
SRM data (IPS/ICS/OPT, APG, etc)
WLM data (MODE, ETC)
Resource Recovery Manager (RRS)
Automatic Restart Manager (ARM)
OPEN catalogs
PAGE data sets in use
Dump data sets status and dump options
Dump data sets date, time and title (auth)
Automatically-allocated dump data sets (auth)
DAE Parameters (auth)
GTF status and options
Initialization Parameters (IPA)
Master JCL (IEEMSJCL)
Sub-system vector table with functions processed
Primary Sub-system JCL (auth)
TSO PARMLIB data (IKJTSOxx)
TSO Exits and Tables
TCAS parameters (auth)

RACF options, data sets and tables
Address space usage:
  Batch Jobs
  TSO users
  Started tasks
JES2 Initiators and corresponding jobs
Link-list data sets, with creation date
LPA-list data sets, with creation date
List of authorized libraries
Dynamic Exit Facility
Static system symbols
LLA parameters and managed libraries (auth)
ACTIVE LPA QUEUE
SVC Table with name of the corresponding module
T1, T2, T3 and T6 ESR tables
Linkage Index (LX) Table (auth)
Program Properties Table (PPT) (auth)
I/O Appendage Table
Resource Manager List (IEAVTRML)
Device Classes and corresponding unit names
On-line devices, with unit-name, VOLSER, owning j
ob,use attribute, storage group
System consoles, with status & Routcde list
Message Processing Facility (MPF)
Command Prefix Table (CPFT)
Device Allocation Defaults (ALLOCxx)
Addresses of selected global control blocks
JCL information for current JOB/STEP
RACF profile (from ACEE)
TSO profile (from PSCB & UPT)
REXX environments, host cmd tables and func pkg
directories
Allocated Data sets (from TIOT, SWA, TCT)
TCB tree and PRB chain
Attention Routines
Enhanced view of the JPAQ and Load-lists
Recovery exits and timers
Addresses of selected local control blocks

MXI

• MXI (MVS eXtended Information) is an ISPF-based application that enables the MVS Systems Programmer to display important configuration information about the active MVS system.
• Although primarily used online, MXI can be run in batch and also has a REXX interface.
• Most of the displays can be filtered using ISPF-like masking characters and many display fields are 'point-and-shoot'.
• Some displays only available if MXI is authorized
• MXI is very easy to install

Where to get it?

CBT Tape Files 409, 410 (Rob also has MORE utilities on file 411) or
SEC web site (Home Page for Rob & MXI) at
http://www.secltd.co.uk

OCO - MXI does not include source

MXI Options screen 1 of 2

```
MXI - PROD - MVS Extended Information Primary Option Menu ---Row 1 of 34
Command ===>                                                Scroll ===> PAGE
AGRP SMS Aggregate Group Information    NET  VTAM Major Node Information
APF  APF List Dataset Information       NTOK System Name/Token Information
ASID Address Space Usage Information    NUC  Display System Nucleus Modules
CAT  Catalog Information                PAGE Page Dataset Information
CA1  CA-1 Configuration Information     PARM Active PARMLIB Information
CDE  JPAQ and TCB loaded modules        PC   PC Routine Information
CF   Coupling Facility Information      PLEX Display Sysplex Information
CPU  CPU and LPAR Information           PPT  Program Properties Information
CS   Common Storage Usage               RS   Real Storage Usage Information
CSR  Common Storage Remaining           SCLS SMS Storage Class Information
DA   Active Address Space Information   SGRP SMS Storage Group Information
DASD Online DASD Information            SMF  SMF General Information
DCLS SMS Data Class Information         SMFD SMF Dataset Information
DDNS Allocated Dataset Information      SMS  SMS Configuration Information
DYNX Dynamic Exit Information           SMSM SMS Module Map
EDT  Display EDT Information            SP   Common Storage Subpool Usage
ENQ  Display ENQ Information            SPD  Subpool Definitions
ENQC Display ENQ Contention             SSI  Subsystem Information
EXC  System Exceptions                  STOR System Storage Information
GRS  GRS Resource Name Lists            SVC  SVC Information
HSMQ HSM Request Queue Information      SYM  Static System Symbols
```

MXI Options screen 2 of 2

```
MXI - PROD - MVS Extended Information Primary Option Menu -------- Row 22 of 34
Command ===>                                                 Scroll ===> PAGE

IPL  IPL and Load Information                SYSX System Exit Information
LINK Linklist Dataset Information            TAPE Online TAPE Information
LLS  Linklist Set Information                TCB  TCB and RB Information
LLSU Linklist Set Usage Information          UCB  UCB Information
LPA  LPA List Dataset Information            UIC  UIC Information
LPD  Link Pack Directory Entries             USP  User Subpool Information
MCLS SMS Management Class Information        VMAP Display Virtual Storage Map
MEM  Display Memory                          XCFM Display XCF Members
MPF  MPF Information                         XCFS Display XCF Structures

                                             MXI Version 2.1e
                                             (c) Scott Enterprise Consultancy Ltd
                                             http://www.secltd.co.uk
```

MXI Allocated Dataset Info

```
MXI - PROD - Allocated Dataset Information: JES2 -------- Row 1 of 13
Command ===>                                              Scroll ===> PAGE

DD       Cat      Volume     EXCP Dataset
Name     Seq Unit Serial    Count Name
STEPLIB  +00 1209 S3906R         0 SYS1.V2R5M0.SHASLINK
PROC00   +00 122A S3906T       460 SYS4.PROD.PROCLIB
PROC00   +01 1209 S3906R        14 SYS1.PROCLIB
PROC00   +02 1209 S3906R         0 CPAC.PROCLIB
PROC00   +03 1209 S3906R         0 SYS1.IBM.PROCLIB
PROC02   +00 1C4B CATPAK       288 SYS1.PRODPK.PROCLIB
PRT1     +00 050F                0 SYS00062.T090946.RA000.JES2.R0116242
ALTPARM  +00 1209 S3906R         0 SYS1.PROD.PARMLIB.NEW
SYS00001 +00 122A S3906T    192747 SYS1.PROD.HASPCKPT
$SPOOL1  +00 141A SPOOL1         0 SYS1.PROD.HASPACE
```

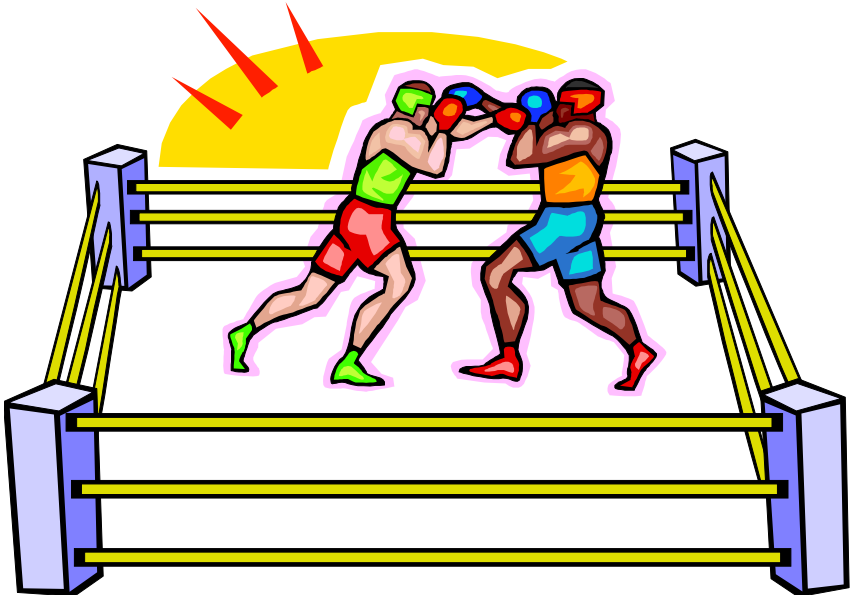
- Peek into other ASID(s) and look at I/O same as OEM MVS Monitors
- Displays the current allocated DDNAMEs and their associated data sets.
- Command Syntax DDNS dd-mask JOB(jobname) ASID(asid)

MXI Common Storage Usage

```
MXI - PROD - Common Storage Usage ------------------------------- Row 1 of 69
Command ===>                                                    Scroll ===> PAGE

Active   JES2     ----Job Started---- -----------Storage Allocated-----------
Jobname  JobID    Date       Time           CSA     E-CSA       SQA     E-SQA
*TOTAL*                                  326080  26169032    369752   7806880
*MASTER*          2000/02/07 19.25.27     94792    841704     55656    907208
*SYSTEM*                                  62520  10851000    259552   4662408
DSN6MSTR STC09981 2000/02/07 19.25.57     32704   1534800       896      4848
RACF              2000/02/07 19.25.27     31912     51776        64       416
JES2                                      27992   3270120        64      1584
CPTCECSM STC09970 2000/02/07 19.25.53     12952    132624      4072       768
CPTMVTAM STC09972 2000/02/07 19.25.53     11144    175184      4616       384
NET      STC09945 2000/02/07 19.25.25      9976   3124488         0       352
CATALOG                                    8464     32144      2816     41904
TPX      STC03114 2000/02/12 18.05.47      7056     22840      9664       352
```

- Uses IBM Common Storage Tracking Data (PARMLIB DIAGxx)
- Same information as RMF III and OEM MVS Monitors

SHOWMVS vs. MXI



- Different but both have unique strengths. I use both!
- Both are updated frequently so stay current to have access to the latest features and information specific to the most recent OS/390 releases.

TASID System Information and more

TASID (pronounced tas-eye-dee) is a program that provides, among other things, information on system configuration, what is running on an OS/390 system (jobs, users, tasks, etc), ENQ contention information, current ENQs, Initiator information (JES2 only), DASD Space information, Allocated DD names, and storage displays. It is one of the most requested tools available on IBM's internal MVSTOOLS repository.
It is a free tool supplied by IBM in **OCO** format.

TASID is very easy to install.

The most current copy of TASID is always available through the web at
http://www.mindspring.com/~somebody/

TASID

```
File  Navigate  Settings
------------------------------------------------------------------------------
                                TASID option menu              Limited ENQ data
Option  ===>

   Select one of the following options:                      Version 5.06c
       1 - Address space list          5 - Miscellaneous displays
       2 - System ENQ contention       6 - Current dataset allocations
       3 - Total system ENQ status     7 - Storage View Facility
       4 - Initiator Status List       8 - Snapshot
                                                                  More:     +
  +---------------------------------------+------------------------------+
  |   Current time  15:40 on 2000/03/07   |   TSO users            47    |
  |   Last IPL time 19:23 on 2000/02/07   |   Started tasks        34    |
  |   IPL Parameters 1C4B PT   1          |   Jobs                  3    |
  |   OS/390   02.06.00 JES version JES2  |   System addrs         25    |
  |   SMF ID   PROD     JES level   2.5.0 |   Free initiators       9    |
  |   User ID  CSSJK    RACF level  2.6.0 |------------------------------|
  |   Node     JES2MVS  TSO version 2.6.0 |   Total               118    |
  |   VTAM Adr TPXGR206 VTAM Level  4.5   |------------------------------|
  |   Proc     $SJKTEST DFSMS level 1.4.0 |   CPU utilization 27%        |
  |   Region   255000K  DSS Level   1.4.0 |   CPU 9672-R44   (  2 CPUs)  |
  |   RACF Grp TSOHOLD  DSF  level  1.16.  |   ENQ Contention  None       |
(c) Copyright IBM Corp, 1993, 1998. All Rights Reserved.
```

TASID Current Dataset Allocations

- Compares to PDS LISTA screen but with less commands
- Detects common problem of mixed DSORG(s) under one ddname
- Provides a few basic commands to Browse, Edit, Compress, Free or perform some other simple functions with data sets already allocated to your session
- APF, LINK LIST, and LPA LIST libraries can can be added to this list by command
- Data sets can be searched for members and the search can be restricted to a ddname

```
                    Current Dataset Allocations    Line 6 of 115
 Command ===>                                      Scroll ===> CSR

Blksz Lrecl RCFM Org   Cmd DDname   Data set Name (Line commands: E,B,C,F,V,I,Q)
 23200    80 U    PO  >    ISPLLIB  CSSJK.LOAD
 23200    80 U    PO  >             LSC.TOOLS.ISPLLIB
  6144    ** U    PO  >             EOY.SEOYLPA
 32760    ** U    PO  >             SYS1.SCBDHENU
  6320    80 FB   PO  >    ISPMLIB  CSSJK.ISPF.PANELS
  8800    80 FB   PO  >             ISP.SISPMENU
```

TASID can be run in Batch

```
//TSO      EXEC PGM=IKJEFT01,DYNAMNBR=1600
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSTSPRT DD SYSOUT=*
//ISPLIST   DD DUMMY
//ISPLOG    DD DUMMY
//ISPPLIB   DD DISP=SHR,DSN=ISP.SISPPENU
//ISPSLIB   DD DISP=SHR,DSN=ISP.SISPSENU
//ISPTLIB   DD DISP=SHR,DSN=ISP.SISPTENU
//ISPMLIB   DD DISP=SHR,DSN=ISP.SISPMENU
//ISPPROF   DD DSN=&&PROF,
//       DISP=(NEW,DELETE,DELETE),
//       UNIT=SYSALLDA,LRECL=80,RECFM=FB,DSORG=PO,
//       SPACE=(TRK,(5,1,5))
//SYSTSIN  DD *
 PROFILE NOPREFIX
 PROFILE MSGID
 ISPSTART PGM(TASID) PARM(8)
```

Tools for working with TAPE(s)

- Duplicate
- Examine Data
- Map Contents
- File Manipulation

TAPEMAP

The tape mapping program called TAPEMAP supplied as source on file 299 of the CBT tape, is widely used. It includes special support for mapping the CBT Tape and other common file formats.

Does not require BLP but BLP allows you to analyze a volume without changes to JCL or any prior knowledge of that tape volume.

```
//TAPEMAP  EXEC PGM=TAPEMAP,REGION=6M
//SYSUDUMP DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//SYSPRNT2 DD SYSOUT=*
//SYSUT1   DD DISP=OLD,
//             DSN=MOUNT.TAPE,
//           LABEL=(,BLP,EXPDT=98000),
//             UNIT=3490,
//             VOL=SER=(TAPEIN)
```

Leonard Woren's web page
http://www.best.com/~ldw/mvs

has his original version of TAPEMAP which is **OCO**.

TAPEMAP sample output

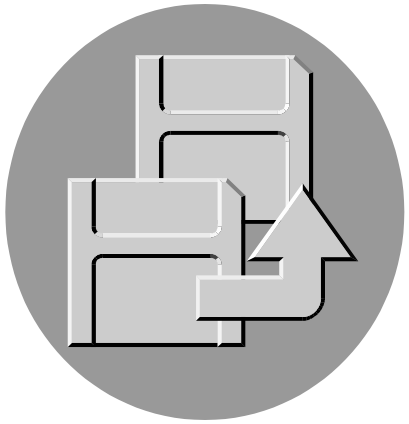
```
1VOL=OS360S                    CART ANALYSIS PROGRAM   (T A P E M A P)  V2.1          TUESDAY    NOV 03, 1998  (98.307)  14:14:03

 ------------------------------------------------------------------------------------------------------------------------------------
 RELOAD   FILE                    PSWD                    INFO                  BLOCK   BLOCK           LNTH  TOTL  CREATOR
 FORMAT   SEQ#  DATASET NAME      REQD  C-DATE  E-DATE  SOURCE  RECFM  LRECL    SIZE    COUNT  DEN  TRT (FT)  LNTH  JOBNAME/STEPNAME
 ------------------------------------------------------------------------------------------------------------------------------------
0           1  O360S001                98.012  00.000  LABELS  VB        94  32716     107  N/A                   SBGOLOB6/STEPYYY
 CBT973     2                                          SCAN    V             32716     107  N/A          8     8
 
            2  O360S002                98.012  00.000  LABELS  VB        94  32716     107  N/A                   SBGOLOB6/STEPYYY
 CBT973     5                                          SCAN    V             32716     107  N/A          8    17
 
            3  O360S003                98.012  00.000  LABELS  VB        94  32716      26  N/A                   SBGOLOB6/STEPYYY
 CBT973     8                                          SCAN    V             32714      26  N/A          2    19

EOV ***
0NOTE:  LENGTH(S) ARE COMPUTED, (BASED ON BLKSIZE, BLKCOUNT, AND DENSITY), AND ARE THEREFORE ONLY APPROXIMATE.
1VOL=OS360S                    CART ANALYSIS PROGRAM   (T A P E M A P)  V2.1          TUESDAY    NOV 03, 1998  (98.307)  14:14:03
 ------------------------------------------------------------------------------------------------------------------------------------
-O360S001          (FILE 0001) IS A CBT973 COMPRESSED FILE:   A-ADD   C-CHANGE   R-REPLACE   > = SUBORDINATE NAME
0               FOLLOWING MEMBERS UNLOADED:
0               A-IEMAA    A-IEMAB    A-IEMAC    A-IEMAD    A-IEMAE    A-IEMAG    A-IEMAH    A-IEMAI    A-IEMAJ    A-IEMAK
                A-IEMAL    A-IEMAM    A-IEMAN    A-IEMAP    A-IEMAS    A-IEMAT    A-IEMAV    A-IEMBC    A-IEMBE    A-IEMBF
                A-IEMBG    A-IEMBI    A-IEMBJ    A-IEMBM    A-IEMBN    A-IEMBO    A-IEMBP    A-IEMBR    A-IEMBS    A-IEMBT
                A-IEMBU    A-IEMBV    A-IEMBW    A-IEMBX    A-IEMCA    A-IEMCC    A-IEMCE    A-IEMCG    A-IEMCI    A-IEMCK
                A-IEMCL    A-IEMCM    A-IEMCN    A-IEMCO    A-IEMCP    A-IEMCR    A-IEMCS    A-IEMCT    A-IEMCV    A-IEMCW
                A-IEMED    A-IEMEF    A-IEMEG    A-IEMEH    A-IEMEI    A-IEMEJ    A-IEMEK    A-IEMEL    A-IEMEM
```

COPYMODS

The tape copying program called "COPYMODS" on file 229 of the CBT tape, is useful for making byte-for-byte copies of the CBT tape, and other tapes. Up to 10 copies may be made at one time.

COPYMODS is very reliable and is the recommended program for making copies of the CBT Tape.

Normal use requires BLP privileges.



COPYMODS JCL

```
//*
//*  COPYMODS IS A FREEWARE TAPE COPIER WHICH CAN CREATE
//*  MULTIPLE COPIES OF A TAPE IN A SINGLE PASS.  IT CAN USE
//*  UNLIKE DRIVES FOR INPUT AND OUTPUT E.G. 3480 <<-->> 3490
//*
//*  WARNING!!!! THIS WILL OVERWRITE ANYTHING YOU PUT IN THE
//*  OUTPUT DRIVE.
//*
//COPY  EXEC  PGM=COPYMODS,REGION=6M
//STEPLIB   DD  DISP=SHR,DSN=IBMUSER.LOAD
//SYSPRINT  DD  SYSOUT=*
//IN  DD  DSN=IBMUSER.INPUT.TAPE,DISP=OLD,LABEL=(,BLP),UNIT=3490,
//     VOL=SER=INPUT
//OUT1 DD  DSN=IBMUSER.WRITE.TAPE1,UNIT=3480,VOL=SER=OUTPU1,
//  LABEL=(,BLP,EXPDT=98000),DCB=TRTCH=COMP
//OUT2 DD  DSN=IBMUSER.WRITE.TAPE2,UNIT=3480,VOL=SER=OUTPU2,
//  LABEL=(,BLP,EXPDT=98000),DCB=TRTCH=COMP
```

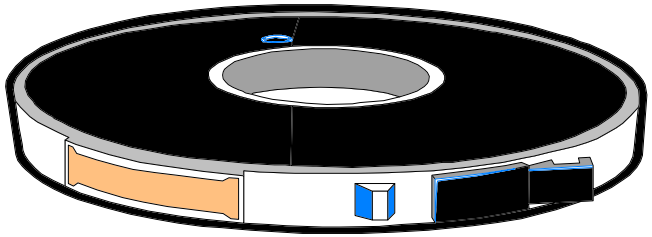
TAPESCAN Tape Analysis and Copying Program

TAPESCAN is found on CBT Tape File 102 with a load module on File 035.

Provides useful measure of “Total Bytes Read”

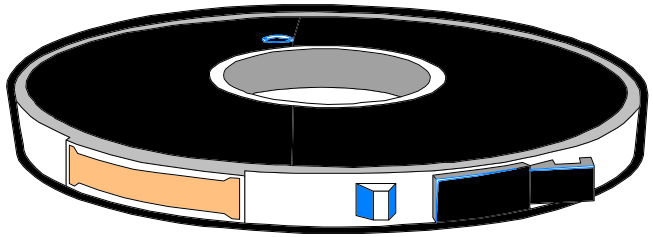
Map of contents

LIST parameter includes preview of each file in output



SS0104 SYSTEM SUPPORT UTILITIES - TAPE MAP PROGRAM

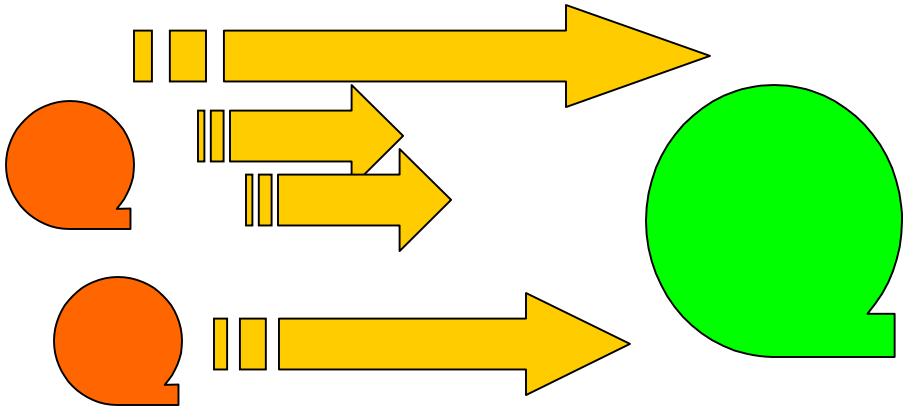
- SS0104 is found on CBT Tape File 266 with a load module on File 035.
- Provides consistent measure of files footage.
- Caveat: Like most tape utility program originally designed for REEL tapes, however, still useful.



```
//TESTA    EXEC PGM=SS0104
//SYSPRINT DD   SYSOUT=*
//SYSABEND DD   SYSOUT=*
//TAPE     DD   UNIT=3480,VOL=(PRIVATE,RETAIN,,,SER=(MYVOL)),
//              DISP=SHR,LABEL=(1,BLP,EXPDT=98000),FREE=CLOSE
```

COPYFILE

```
//COPYSTEP EXEC PGM=COPYFILE,REGION=4000K,PARM='TAPEL'
//MSG      DD SYSOUT=*
//TAPELOUT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//IN       DD DSN=INPUT.FILE,UNIT=TAPE,DISP=SHR,LABEL=EXPDT=98000,
//            VOL=SER=vvvvvv
//TAPELIN  DD DSN=OUTPUT.FILE,
//            UNIT=(&UN2,,DEFER),VOL=(,RETAIN,SER=vvvvvv),
//            DISP=(NEW,KEEP),LABEL=EXPDT=98000,DCB=TRTCH=COMP
```



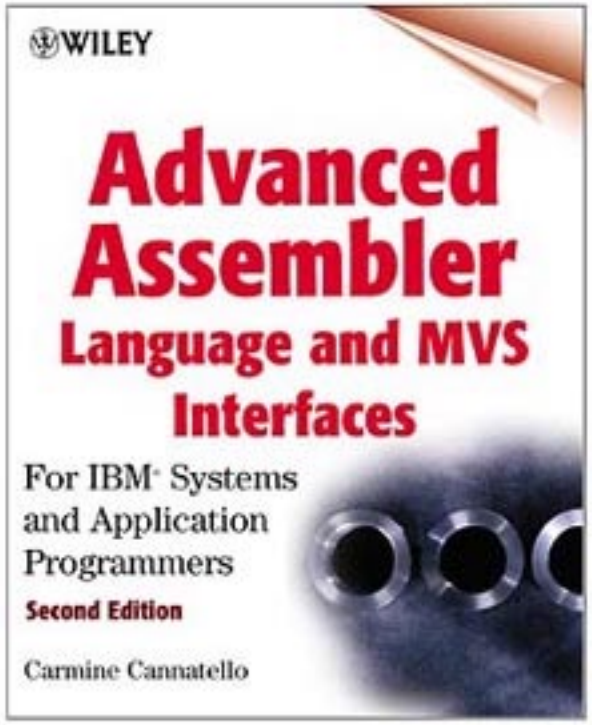
- Copy and reorder files
- Used as part of the process to create a new CBT Tape
- Found on CBT Tape File 316 in source and a load module on CBT Tape File 35

Source Code

“Nobody should ever have to solve a problem twice.”,

Eric Steven Raymond

Advanced Assembler Source



Advanced Assembler Language and MVS Interfaces: For IBM Systems and Application Programmers, Second Edition

by Carmine A. Cannatello

ISBN 0471361763
848 pages

Source Code on CBT Tape File 69

Where to buy the book?	SHARE Book Store or….
• Fat Brain.com	http://www.fatbrain.com
• Amazon	http://www.amazon.com
• Barnes & Noble	http://bn.com

Debugging RACF with RACTRACE

RACTRACE is a free IBM diagnostic tool for RACF which can help you understand how many aspects of security work.

ftp://www.redbooks.ibm.com/redbooks/GG243984

OCO - does not include source

CBT Tapes

CBT Tape Version 423

Getting started with the CBT Tape

JCL to unload File 1 (Documentation) or File 3 (Unload JCL)

```
//COPY     EXEC PGM=IEBGENER
//SYSPRINT DD  SYSOUT=*
//SYSUDUMP DD  SYSOUT=*
//SYSUT1   DD  DSN=FX,DISP=OLD,UNIT=uuuu,
//         DCB=(RECFM=FB,LRECL=80,BLKSIZE=32720),
//         VOL=SER=CBT423,LABEL=(n,NL,EXPDT=98000)
//SYSUT2   DD  DSN=userid.CBT422.FILEn,
//     DISP=(NEW,CATLG,DELETE),UNIT=SYSDA,VOL=SER=vvvvvv,
//         SPACE=(TRK,(5,5),RLSE),
//         DCB=(RECFM=FB,LRECL=80,BLKSIZE=6320)
//SYSIN    DD  DUMMY
```

Handouts CBT Tape

- CBT Tape on 3480 tape cartridge w/ IDRC
  - Unload File 1 using IEBGENER for documentation on the contents and advice on getting started finding useful tools on the tape.
  - http://www.cbttape.org for updates or if you did not get a tape
  - Explore File 1 possibly use CBTUPDTE program to break it up into a PDS of smaller members

CBT Tape Labels

Labels created using Netc Label System software
http://www.netcllc.com

Thanks to Cartagena Software
http://www.cartagena.com/

Web Tour

http://www.sdsusa.com/techsupt/tsmag.htm

Free Archives with 13 years of NaSPA's Technical Support® Magazine

http://www.esj.com

Free access to current and back issues of Enterprise Systems Journal. Subscribe Free to the printed magazine on-line.

Web Tour

http://www.performancedoctor.com

Free Advice on Performance and Tuning problems

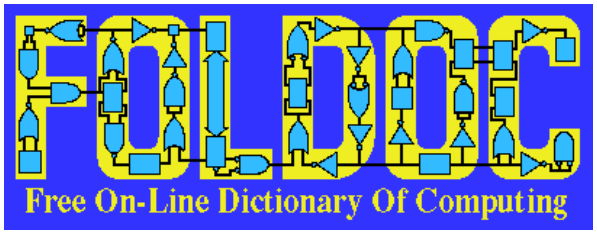
http://www.xephon.com

Free backs issues of Xephon MVS, DB2, RACF, CICS, and other Update publications from prior to 1998

On-Line Computing Dictionary

- Dictionary of Computing

http://www.networking.ibm.com/nsg/nsgmain.htm



- Free On-Line Dictionary of Computing

http://foldoc.doc.ic.ac.uk/foldoc/index.html

Freeware Formats and Sources

- Many traditional distribution channels for the exchange for free software are no longer being maintained.
- Free software updates now must also be obtained from the Internet.
- Formats for software delivery on the Internet vary from those which long time users of S/390 free software may be familiar.

Internet Formats

- ZIP
- ZIP is standard for compression in most of the non-unix world
- Commercial ZIP utilities on PC such as PKZIP http://www.pkware.com or WinZIP http://www.winzip.com
- Info-ZIP is a freeware utility available at http://www.cdrom.com/pub/infozip/Zip.html for a large number of platforms including native OS/390 and OS/390 USS
- XMIT
- Using the TSO XMIT command is a convenient way to package data into standard FB records for safe transmission of the internet
- XMIT + ZIP
- XMIT packaged data sets which are then compressed with a ZIP utility such as PKZIP work especially well and are becoming a popular choice to distribute MVS software over the internet
- ASCII vs. EBCIDIC

How to download and restore typical XMIT + ZIP

Frequently files are packaged on MVS for transfer using the TSO transmit (XMIT) command to transmit them into a data set. This is done to turn PDS(s) and other odd files into nice FB 80 files which will FTP nicely to PC and UNIX systems. These files are downloaded to a PC and then compressed with PKZIP to reduce the size since disk space is limited and most people have limited bandwidth to download. The convention of files suffixed .XMI packaged in XMIT format is becoming common.

Download *name.ZIP* file to PC using your web browser or an FTP client.

Extract *name.XMI* or *name.DAT* file from *name.ZIP* file on PC . You will need a small utility program to do this. I recommend PKZIP or WinZIP.

How to download and restore typical XMIT + ZIP

Upload *name.XMI* files to MVS using a binary file transfer method (no CRLF or ASCII translation) and that the MVS dataset created is LRECL=80,RECFM=F,DSORG=PS Note that you can upload into a PDS if you want as long as it is FB80.

Receive the *name.XMI* file on MVS

Issue command: TSO **RECEIVE INDATASET(*name.XMI*)**

When prompted by message "INMR906A Enter restore parameters or 'DELETE' or 'END' +":

Enter: DA(*name.of.your.library*) UNIT(*unit*) VOLUME(*volume*)

Note: The UNIT() and VOLUME() operands are optional but shown in case your installation puts RECEIVE files on work packs by default like mine does

Trouble Downloading

- If you are having trouble downloading try to find out if you are behind a firewall. If you are behind a firewall and you cannot get your network folks to configure it to allow you to download using a web browser try getting an FTP client like WS_FTP that has a few firewall friendly options (PASV mode) that might help. Failing that download from home and email yourself the files or bring them in on a floppy as most are not that large.

Where to get FREE software?

SHARE - http://www.share.org

- The SHARE web site requires a userid and password to access the members only area. If you do not know the userid for your installation contact SHARE headquarters. The CBT tape and archives from the many SHARE projects are available to download. Archives from a number of popular mailings lists are available to search.

- The CBT Tape contents will shortly be moved to the public side of the SHARE web site so you will NOT need a userid and password to download.

- SHARE members will shortly receive individual userids

Where to get FREE software?

CBT Tape Home Page http://www.cbttape.org

- Download CBT Tape, CBT Overflow Tape, Pending updates to the CBT tape and other freeware collections. The files are stored primarily as XMIT + ZIP and when restored properly preserve all the original MVS attributes. No special user id's or memberships are required to download or to upload contributions.

- Free email list you can sign up for to receive notifications about updates to the CBT Tape and other interesting MVS Freeware.

Where to get FREE software?

NaSPA - http://www.naspa.net

- Membership in NaSPA is required to access the download area. NaSPA members receive a CD-ROM annually which normally includes the current CBT Tape when the CD-ROM is prepared.

NaSPA: World-wide not-for-profit Network and Systems Professionals Association for enterprise computing professionals; publishers of Technical Support Magazine.

Freeware Potpourri

- This list is a subset of the on-line list of MVS Freeware links at: http://www.cbttape.org/links
- Gilbert Saint-Flour's Tools http://members.home.net/gsf/
- Dave's MVS page http://users.ticnet.com/davea/mvs/
- IBM TASID http://somebody.home.mindspring.com
- Mike Cleary http://home.pacbell.net/mcleary/freeware.html
- Mark Zelden's MVS Utilities http://www.flash.net/~mzelden/mvsutil.html
- Info-ZIP Home Page http://www.cdrom.com/pub/infozip/Zip.html

Freeware Potpourri (cont)

- Lionel Dyck's OS/390 Freeware including tools to make using FTP, Email easier, and ISPF OEM product installation less painful http://homepages.go.com/~lbdyck/index.html
- Doug Nadel's OS/390 Tools and Toys including the latest version of TASID, Query Enq REXX function, ISRDDN documentation, much, much, more... http://www.mindspring.com/~somebody/tasid.htm
- David McRitchie's REXX Macros Toolbox Over 160 Edit Macros for use with ISPF and SPF/PC http://members.aol.com/dmcritchie/nclist.htm
- Michael A. Newell's PDS2PDS (PDS to PDS) is an IBM MVS ISPF utility that lets you display the members of two partitioned datasets side-by-side on the same screen. http://wb4huc.home.texas.net/pds2pds/

S/390 Information Potpourri

- Sam Knutson's S/390 Home Page
  http://www.his.com/~dragon/s390.htm
  - All the web links included in this document and many more are available through my S/390 Home Page.
- Eric Loriaux http://www.loriaux.com/s390
- IBM Home Page http://www.ibm.com
- Balbir Oberoi's
  http://www.geocities.com/~oberoi/mainfrme.html
- Washington System Center Flashes and documents
  http://www.ibm.com/support/techdocs/wsc
- Chuck Hopf http://www.chopf.com/geekland.shtml

S/390 Information Potpourri (cont)

- Rock Painter's Links and Rexx Examples
  http://www.texasrock.com/
- IBM Catalog and VSAM Knowledge Base
  http://knowledge.storage.ibm.com/
- Linux on S/390 http://linux390.org
- Linux/VM Project http://linuxvm.org

VM & VSE Sites of interest

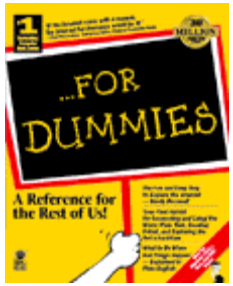
- The VM Home Page is located at http://www.vm.ibm.com
- The VM Workshop Tools at http://ukcc.uky.edu/~tools
- WAVE User Group at http://www.wavv.org
- VMESA-L Archives http://listserv.uark.edu/archives/vmesa-l.html
- VSE-L Home http://www.lehigh.edu/~wsm0/vse-l/vse-l_archives.shtml

Mail Lists

"If you're really looking for community online forget the Web. What you want is a mailing list. **Lists are to chat rooms as a dinner party is to a singles bar** -- quiet enough that you can hear yourself think, generally fairly decorous and often quite engaging." E-LIFE By Elizabeth Weise from USA Today Wednesday, August 25, 1999

What is a mailing list and how do I find mailing lists?

- A mailing list is a free service you subscribe to that allows you to exchange email with others on a topic of mutual interest. For more information see the tutorial in Session 2816 from SHARE 93 in Chicago, IL or check out popular resources like Internet For Dummies® ISBN: 0-7645-0700-1.



- There are several catalogs of lists available on the web.
  - My list http://www.his.com/~dragon/internet.htm
  - Catalog of LISTSERV lists http://www.lsoft.com/lists/listref.html
  - Catalog of many lists including some other list servers i.e. majodomo, listproc, and listserv. http://www.liszt.com

IBM-MAIN

- Topic: IBM S/390 Computing almost anything
  Name: IBM-MAIN
  Type: LISTSERV
  Listserv: LISTSERV@bama.ua.edu
  List: IBM-MAIN@bama.ua.edu
  Web: http://bama.ua.edu/archives/ibm-main.html
  News: bit.listserv.ibm-main
  Weekday Message Volume: 100 - 200 (High consider setting DIGEST option)
  More information: My IBM-MAIN Page
  http://www.his.com/~dragon/ibm-main.htm
  David Alcock Unofficial IBM-MAIN FAQ
  http://users.ticnet.com/davea/IBM-MAIN/start.htm
- Notes: 20% - 40% off topic posts are not unusual i.e. high signal to noise ratio, however, the remaining content is great!

MVS-OE

- Topic: IBM's UNIX on MVS a.k.a OpenEdition a.k.a USS a.k.a. OE a.k.a OS390 Unix System Services
  Porting to OS390, Utilities, Shell, C, Perl, Domino Go Webserver, Security, misc.
  Name: MVS-OE
  Type: LISTSERV
  Listserv: listserv@listserv.georgetown.edu

  List: MVS-OE@LISTSERV.GEORGETOWN.EDU
  Web: http://listserv.georgetown.edu/archives/mvs-oe.html
  News: n/a
  Weekday Message Volume: 20 - 50
  More information: n/a
  Notes:

DB2-L

Topic: IBM DB/2 database
Name: DB2-L
Type: LISTSERV
Listserv: LISTSERV@RYCI.COM
List: DB2-L@RYCI.COM
Web: http://jupiter.ryci.com/archives/db2-l.html
News: bit.listserv.db2-l
Weekday Message Volume: 25 - 75
More information: http://www.ryci.com/db2-l (FAQ)
Notes: DB2 Freeware Archives for the list
http://jupiter.ryci.com/archives/db2-l-documents.html

ASSEMBLER-L

- Topic: Assembler programming on S/390
  Name: ASSEMBLER-L
  Type: LISTSERV
  Listserv: LISTSERV@LISTSERV.UGA.EDU
  List: ASSEMBLER-L@LISTSERV.UGA.EDU
  Web: n/a
  News: comp.lang.asm370 (same topic different messages)
  Weekday Message Volume: 5 - 20
  More information: Dave's unofficial HLASM web page
  http://users.ticnet.com/davea/mvs/hlasm/start.htm

  Notes:

CICS-L

- Topic: IBM CICS
  Name: CICS-L
  Type: LISTSERV
  Listserv: listserv@vm.marist.edu
  List: CICS-L@VM.MARIST.EDU
  Web: http://www.marist.edu/htbin/wlvindex?CICS-L
  News: bit.listserv.cicsl-l
  Weekday Message Volume: 15 - 45
  More information: n/a
  Notes:

Deja™ and RemarQ™

Deja™ and RemarQ™ are web sites which allows you to read newsgroups with a web browser instead of using special newsreader software and finding a news server.

Deja™ http://www.deja.com

RemarQ™ http://www.remarq.com

In order to post messages to the list through these sites you still need to subscribe to the mail list and set to “nomail” if you don’t want email.

Common abbreviations

- IIRC – If I remember correctly
- AFAIK – As Far As I Know
- YMMV – Your Mileage May Vary
- IMHO – In My Humble Opinion
- RTFM – Read the manual – you could have and should have looked it up yourself
- OTOH – On The Other Hand
- BTW – By The Way
- TIA – Thanks in advance
- FWIW - For What Its Worth
- ISTR - I Seem To Remember

Ms. Manners on “Netiquette”

- Mailing lists just like any other social organization have an etiquette all their own. You will pick it up pretty quickly but here are a few tips.

- DO read others posts for a week or two to get the flavor of the list before trying to post anything yourself. The list got along fine for years without your help it can get along for at least another week.

- DON’T ever send an attachment to the list.

- DON’T forward off-topic email like jokes or the latest hoax email chain letter to the list i.e. WARNING DO NOT OPEN ANY EMAIL WITH THE SUBJECT _____

Ms. Manners on “Netiquette”

- DON’T send commands for the LISTSERV to the list. Be sure you send SET xxxx, SIGNOFF xxxx to LISTSERV@listaddress

- DON’T respond to inappropriate messages i.e. listserv commands and all the others things you know better than to send to the list. The only thing worse than reading a useless post is reading a useless post and 20 replies. The list manager will take care of this type of thing if it is really a problem. If you absolutely have to say something respond to the person’s private email not to the list.

- DO send PLAIN text email to the list not Rich Text or HTML. Many people use email programs which don’t display this type of content and it appears as useless attachments or garbage to them. Microsoft Outlook and Microsoft Exchange are two programs which frequently send Rich Text mail without the sender being aware.

OCO Freeware?

Free Software is often confused with Open Source Software. Free Software without source has limitations that Open Source Software does not. You should carefully evaluate any **OCO** (Object Code Only) Free Software and determine your own needs and comfort level with the supplier.

Who me? Contribute to the CBT Tape? Why not!

Send contributions to the CBT Tape to Sam Golob and call or email him.

Most contributions are now made via email over the Internet. To contribute, it is preferred that you make a PDS on an MVS system, including documentation member(s), put the pds into TSO XMIT OUTDSN format, download it in binary to the PC (if you need to), and attach it to an email to Sam at: sbgolob@attglobal.net

If the file is large, you can PKZIP it on the PC, before attaching it to the email. That's all there is to it!

If you want to send anything any other way, Sam Golob's address is:

Sam Golob, P.O. Box 906, Tallman, NY 10982-0906 USA

Phone: 914-362-1996 Fax: 914-362-5843

LICENSE to code

"First thing that we do let's kill all the lawyers,”

Shakespeare's King Henry VI

LICENSE to code

A license protects the software author, his employer, and consumers of the freeware application.

Good open source licenses include GPL (GNU Public License). Learn more at http://www.opensource.org

MVS freeware has generally not included a license or has included kind hearted but non binding statements i.e. “Property of the free world”. There are good reasons to encourage freeware developers to adopt an open source license.

UCITA and other legislation may impact liability and the stronger open source licenses are currently the best protection and likely to be heavily defended if ever challenged. Read more about why UCITA may be bad for the Freeware community at http://www.4cite.org

LICENSE to code

OPENSOURCES: Voices from the Open Source Revolution
1st Edition January 1999
ISBN 1-56592-582-3
280 pages, $24.95

Read it on-line at

http://www.oreilly.com/catalog/opensources/book/toc.html

Errata and more information after SHARE

- The foils from this presentation as well as any additions or corrections will be posted at my web site following the SHARE conference.

- http://www.his.com/~dragon/share94.htm

- Feel free to call me at (703) 464-1615 or email me at sknutson@landmark.com

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Thank You

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THE END