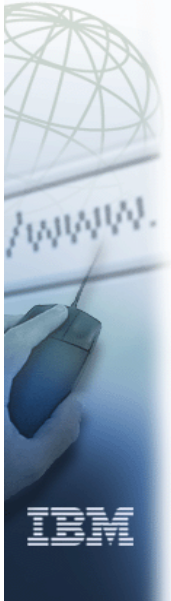


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# Enhancements to Tools and Service Aids with z/OS V1R7



## Redbooks

International Technical Support Organization

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## Enhancements to Tools and Service Aids



- SPZAP
- SADMP
- SDUMP
- System trace
- External traces (GTF and CTRACE)
- SLIP
- IPCS

## SPZAP Enhancement



- Support for large data sets
  - DSNTYPE=LARGE
  - SYSIN and SYSPRINT may be DSNTYPE=LARGE
- No existing functions have been modified



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## IPCS Utility Menu



- New Option 6
  - SADMP dump data set utility
- The panel allows you to clear, define, or reallocate a SADMP dump data set

```
----- IPCS UTILITY MENU -----
OPTION  ===>

1 COPYDDIR   - Copy dump directory data
2 COPYDUMP   - Copy a dump data set
3 COPYTRC    - Copy trace data
4 DSLIST     - Process list of data set names
5 DAE        - Process DAE data
6 SADMP      - SADMP dump data set utility

Enter END command to terminate

*****
* USERID   - ROGERS
* DATE     - 05/08/23
* JULIAN   - 05.235
* TIME     - 12:21
* PREFIX   - ROGERS
* TERMINAL- 3278T
* PF KEYS  - 24
*****
```



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## SADMP Dump Data Set Utility



```
----- SADMP DASD Dump Data Set Utility -----
Command ==>

Enter/verify parameters.
Use ENTER to perform function, END to terminate.

Function ==> R ( C - Clear, D - Define, R - Reallocate)
DSNAME    ==>

Volume serial numbers: (1-32)
  1- 8 VOL001
  9-16
 17-24
 25-32

Unit ==> 9345 (3380, 3390, or 9345)
Cylinders ==> 500 (cylinders per volume)
DSNTYPE(LARGE) ==> N (Y or N)

Optional SMS classes: (May be required by installation ACS routines)
StorClas ==>          DataClas ==>          MgmtClas ==>
```



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## SADMP Analysis



- IPCS analysis of dump in place not recommended for multi-volume dumps to DASD
- IEBGENER and similar programs not recommended for transcription of multi-volume dumps to DASD
- IPCS COPYDUMP recognizes SADMP “striping” and recaptures (most of the) order intended by SADMP – important data first
- Use compressed extended sequential data set as a target - IBM testing has seen roughly 40% saving of DASD for these large data sets



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## SADMP Analysis



- ❑ SADMPs put stress on IPCS dump directory, particularly large SADMPs
- ❑ Ensure large CISIZE for DATA portion
  - V1R7 BLSCDDIR CLIST updated to help
  - VSAM linear data sets with the required CISIZE, should be used - CISIZE is changed to 24 KB
- ❑ Ensure large (but not excessive) BUFSPACE for directory
- ❑ Consider striping
- ❑ Avoid compression because of intensive updating during IPCS analysis



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## IBM Testing Experience



- ❑ 87 gigabyte dump with SADMP unloaded using IEBCGENER
- ❑ SADMP striping is effective for time to capture a dump
- ❑ V1R7 allow truncation and remaining dump accepts IPCS requests better

Dump initialization elapsed Time (minutes)	IPCSDDIR Characteristics
3600	4K CISIZE, V1R6 IPCS
54	24K CISIZE, V1R6 IPCS
36	24K CISIZE, 5 stripes, V1R6 IPCS
24	24K CISIZE, 5 stripes, V1R7 IPCS



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## SADMP Migration Considerations



- ❑ The AMDSADDD REXX exec is moved from SAMPLIB to ABLSCLI0
  - Update any procedures that reference it
- ❑ Most IPCS subcommands that support ASID selection criteria
  - Defaults for address space selection have been changed from both CURRENT and ERROR criteria to solely CURRENT
    - Allows many IPCS problem screening and component analysis functions to run much faster in z/OS V1R7

## SADMP Migration Considerations



- ❑ Many IPCS problem screening and component analysis functions run faster in z/OS V1R7
  - Defaults for address space selection has been changed from both CURRENT and ERROR criteria to solely the CURRENT criterion
    - Experience with IPCS users have revealed that the use of the ERROR selection criterion rarely adds value to dump analysis, and it requires a broad survey of all ASIDs in the system to assess
  - ERROR is eliminated as a default - still kept
    - For IPCS users with specific procedures where use of ERROR criterion to select ASIDs remains valuable, update those procedures to use option

## SDUMP Enhancements

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- ❑ Dumps requested with SUSPEND SUMMARY option and holding locks (often DB2 invoker) capture system trace table earlier in R7
- ❑ GETMAINed pages in ranges of interest and in first reference status are distinguished from virtual storage that is not valid in R7
  - Similar “zerodef” records to those used by SADMP for many years are used rather than dumping full pages

## SDUMP Enhancements

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- ❑ RTCTSDSU indicates the amount of storage available for SUMMARY dumping so sophisticated (e.g. DB2) programs can prioritize what goes into their SUMMARY dumping requests
- ❑ SDUMP monitors the time spent in its data collection phases and adds the information to the dump data set
  - Format using the following IPCS subcommand
    - VERBEXIT IEAVTSFS /\* Format statistics \*/

## System Trace



- ❑ zSeries processors support a TRACE instruction but a TRACG instruction to record entries in the system trace table
- ❑ A recognized need to increase the amount of information each GPR could place in a trace entry and to increase the precision time stamps recorded in new entries
- ❑ User trace entries are the first that can exploit the TRACG instruction by having an application request TRACEMODE=TRACG on a PTRACE macro
  - TRACG instruction used to capture user trace entry
    - More data per GPR
    - More precise time stamp

## External Traces



- ❑ Common support for external traces in GTF, CTRACE, and IPCS enhanced to support VSAM linear data sets with CISIZE of 32K
  - Performance addressed
    - Large unit of data transfer
    - Striping support
    - Writer code compresses
    - IPCS decompresses for trace processing subcommands
  - Scaling addressed by allowing VSAM extended addressing option
  - COPYTRC subcommand may be used to create traditional trace for programs written to directly process that format

## SLIP Enhancements



- ❑ SLIP allows more accurate recognition of entry points loaded from HFS paths, increasing the number of characters allowed in a comparison to 80
  - PVTMOD=(name,[start[,end]])
- ❑ SLIP allows message identifiers to be placed in apostrophes where special characters employed by some products may be designated
  - Quoted message identifiers do not need to be terminated by a blank
  - MSGID='a-msgid'

## SLIP Enhancements



- ❑ SLIP supports a BEAR symbolic that is valid in the PER, RTM1 and RTM2 environments and yields zero elsewhere
  - BEAR holds the most recent branch-from address for a successful branch prior to the event that triggered entry into slip - following example employs BEAR:
    - SLIP SET,ERRTYP=PROG,TRDATA=(BEAR?+4,+B),A=TRACE,E
- ❑ The trap tells SLIP that when an erroneous program check occurs (e.g. branch to low storage) this trap will match
  - Assuming GTF is active, the contents of +4 to +B from the last successful branch is recorded in the trace



# IPCS Enhancements

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- ❑ **DSNTYPE=LARGE supported**
  - Dumps
  - Traces
  - Other data sets viewed via RBA or BLOCK(n)
  - Print file
  - Table of contents file
- ❑ **Growth and complexity makes performance more a concern**
  - Dumps and traces blocked, compressed, and striped
  - Dump directory with large CISIZE, large BUFSPACE, and striped