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z/OS System Installation

Member of the IBM Academy of Technology



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Small enhancements over the past several z/OS releases

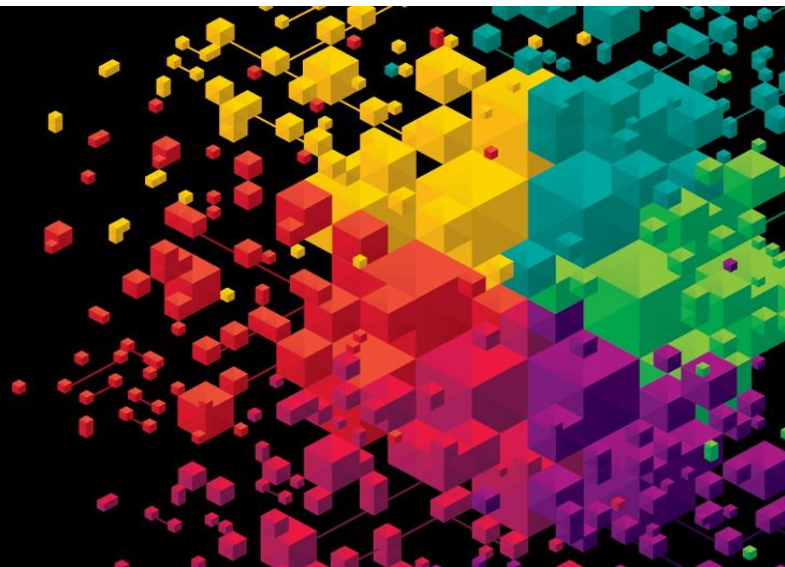
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Small enhancements over the past ... – Edition 2015A

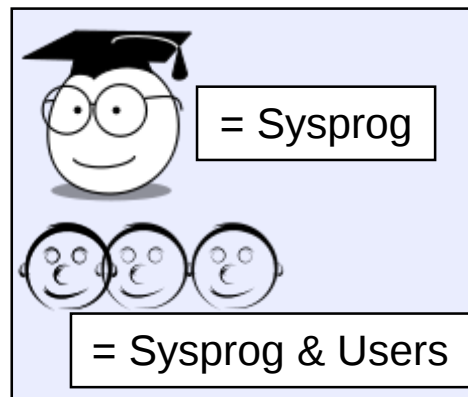
- z/OS V2.2:
 - **DFSMS:** GDG Extended (GDGE)
- z/OS V2.1:
 - **DFSMS:** PDSE V2 member generations
 - **SDSF:** System symbols on Filter
 - **BCP:** Parallel batch recall
 - **Communications Server:** TCP/IP profile syntax check
 - **ISPF:** Configuration Utility new option for keyword file
 - **ISPF:** Swapbar enhancements
- z/OS V1.13:
 - **BCP:** COPYCNT= for printing a lot of copies
 - **z/OS UNIX:** script command
 - **DFSMSdfp:** IGGCATxx parmlib member
 - **DFSMSdss:** Standalone ICKDSF no longer needed...
- z/OS V1.12:
 - **BCP:** ALLOCxx for unique temp data set names
- Older than the hills:
 - **z/OS UNIX:** skulker

z/OS V2R2

Small Enhancements



❖ DFSMS: GDG Extended (GDGE)



DFSMS: GDG Extended (GDGE)



- **What:** Today, the limit on number of GDGs is 255 (1 byte catalog field **GDGLIMIT**): “classic GDG”. Now, you can indicate you want to use GDGE, which supports 999 generations.
 - A new 2 byte catalog field name **GDGLIMTE** is used to hold the new maximum, 1 to 999.
 - Can have one generation for every day of the year, for more than 2 years!
- **How to use:**
 1. Position for exploitation of GDGE.
 2. Ensure capability is enabled.
 3. Define a GDGE and use at will!
- **Considerations:**
 - Use when you are confident there will be no fall back from z/OS V2.2.
 - *GDGEs are not allowed to be accessed pre-z/OS V2.2.*
 - PDSEs can be GDGs since z/OS V2.1 (and GDGEs)

DFSMS: GDG Extended (GDGE)



- **How to use: 1. Position for exploitation of GDGE.**
 - For applications that may have referred to **GDGLIMIT** they now should understand to look at **GDGLIMTE** when GDGEs are in use (or even not in use).
 - Query **GDGATTR** bit (new bit, existing field)*:
 - If set, use **GDGLIMTE** as you have a GDGE. (**GDGLIMIT** will have no value).
 - If not set, use **GDGLIMIT** or **GDGLIMTE**.
 - Generic Tracker can help! Turn it on, and look for instances of using **GDGLIMIT** and not using **GDGLIMTE** on a Catalog Management call.
 - Might indicate that the program cannot understand GDGEs.
 - Instances of interest are those starting with “**GDGLIMIT**”, owner is “**IBMDFSMS**” .

* **GDGATTR** fields are documented in *z/OS DFSMS Managing Catalogs*.

DFSMS: GDG Extended (GDGE)



- **How to use: 2. Ensure capability is enabled.**
 - GDGE use is controlled in IGGCATxx with **GDGEXTENDED (YES | NO)**
 - **F CATALOG,REPORT**

```
*  DEFAULT VVDS SPACE          = ( 10, 10) TRKS                *
*  ENABLED FEATURES            = DSNCHECK DELFORCEWNG SYMREC    *
*  ENABLED FEATURES            = UPDTFAIL GDGEXTENDED           *
*  DISABLED FEATURES           = VVRCHECK AUTOTUNING BSCHECK    *
*  DISABLED FEATURES           = DELRECOVWNG EXTENDEDALIAS      *
*  DISABLED FEATURES           = ECS AUTOADD DUMPON GDGFIFO      *
*  DISABLED FEATURES           = GDGSCRATCH GDGPURGE            *
*  INTERCEPTS                 = (NONE)                         *
*CAS*****
- SY1  IEC352I CATALOG ADDRESS SPACE MODIFY COMMAND COMPLETED
```

- **Considerations:**
 - If you want to dynamically enable GDGE, update your IGGCATxx with **GDGEXTENDED (YES)** then **F CATALOG,RESTART**

DFSMS: GDG Extended (GDGE)



- **How to use: 3. Define a GDGE and use at will!**
 - GDGE has to be defined as **EXTENDED**

```
***** TOP OF DATA *****
IDCAMS  SYSTEM SERVICES                                TIME: 19:39:09

  DEFINE GENERATIONDATAGROUP -                          00040000
    (NAME(MWALLE.DAILY.TPS.REPORTS) -                  00050000
    EMPTY -                                             00060000
    NOSCRATCH -                                         00070000
    EXTENDED -                                          00080000
    LIMIT(365))
IDC0001I FUNCTION COMPLETED, HIGHEST CONDITION CODE WAS 0

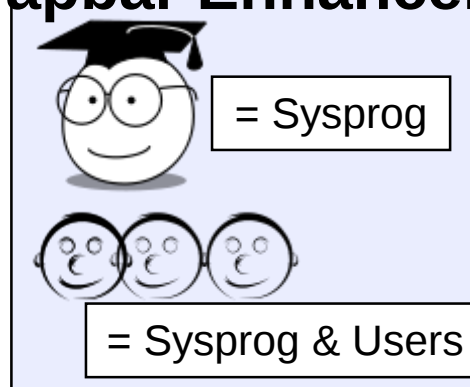
IDC0002I IDCAMS PROCESSING COMPLETE. MAXIMUM CONDITION CODE WAS 0
***** BOTTOM OF DATA *****
```

–Use a GDGE as you would a classic GDG, but more of them now!

z/OS V2R1

Small Enhancements

-  ❖ **DFSMS:** PDSE V2 member generations
-  ❖ **SDSF:** System symbols on Filter
-  ❖ **BCP:** Parallel Batch Recall
-  ❖ **CommServer:** TCP/IP Profile Syntax Check
-  ❖ **ISPF:** Configuration Utility new option for keyword file
-  ❖ **ISPF:** Swapbar Enhancements



DFSMS: PDSE V2 member generations



- **What:** You can have multiple levels (generations) of a PDSE V2 member. Nice for saving archives of members, or recovering a member when needed.
- **How to use:**
 1. Ensure capability is enabled.
 2. Indicate on allocation you want to use member generations.
 3. Save, delete, recall, ... the member generation you want.
- **Considerations:**
 - Current is always generation “0” = “primary generation”

Example:	Absolute	Relative
Current	0	0
One before	3	-1
Two before	2	-2
Three before	1	-3

DFSMS: PDSE V2 member generations



How to use: 1. Ensure capability is enabled.

- In IGDSMSxx, ensure that **MAXGENS_LIMIT** is greater than 0 (default). Can have two billion generations! If you use the default, you cannot use PDSE V2 member generations.

```
Allocate New Data Set                                     Value out of range
Command ==>
Secondary quantity      15                               (In above units)
Directory blocks      . 10                               (Zero for sequential data set) *
Record format      . . FB
Record length      . . 80
Block size      . . . 32720
Data set name type    LIBRARY                             (LIBRARY, HFS, PDSE, LARGE, BASIC, *
Data set version      : 2                               EXTREQ, EXTPR, or blank)
Num of generations    : 15
Extended Attributes
Expiration date      .
Enter "/" to select
Allocate Multiple
```

More: -

Number of generations value must range from 0 to the current system defined maximum of 0

or blank)

- Make sure you are allocating a PDSE V2, either by default in IGDSMSxx with **PDSE_LEVEL(2)** (default is 1).

■ Considerations:

- PDSE V2 can be only be created on z/OS V2.1. Lower systems can read and write them, they cannot allocate them though.

DFSMS: PDSE V2 member generations



How to use: 2. Indicate on allocation you want to use member generations.

- In JCL:

```
***** ***** Top of Data *****
000001 //MWALLEMG JOB 'PDSE MEM GEN','ALLOC JOB',
000002 //          MSGLEVEL=(1,1),CLASS=U,MSGCLASS=H,NOTIFY=MWALLE
000003 //TPSRPT EXEC PGM=IEFBR14
000004 //ALLOC DD DISP=(NEW,CATLG),DSN=MWALLE.TPS.REPORTS,
000005 //          LRECL=80,BLKSIZE=0,RECFM=FB,
000006 //          VOL=SER=SL360C,UNIT=SYSDA,SPACE=(CYL,(50,50,1)),
000007 //          DSNTYPE=(LIBRARY,2),MAXGENS=3
***** ***** Bottom of Data *****
```

- In ISPF 3.2 allocation:

```
Block size . . . . .
Data set name type LIBRARY (LIBRARY, HFS, PDS, LARGE, BASIC, *
Data set version . : 2 EXTREQ, EXTPREF or blank)
Num of generations : 3
Extended Attributes (NO, OPT or blank)
```

- With TSO:

Enter TSO or Workstation commands below:

```
==> alloc f(pdsev2) da('mwalle.tps.reports') new lrecl(80) recfm(f b) space(50
50) cyl dsorg(po) dsntype(library 2) maxgens(3)_
```

How to use: 3. Save, delete, recall, ... the member generation you want.

- ```

EDIT MWALLE.TPS.REPORTS(JANUARY) - 01.07 Member JANUARY saved
Command ==> _ Scroll ==> HALF
***** ***** Top of Data *****
000001 JANUARY 8, 2015 EIGHTH REPORT:
000010
000100 | Release | Modification | Division | Division
000200 | Number | Level | Acronym | Number
000300 |-----|-----|-----|-----|
000400 | 9 | 0 | DSD | 26
000500 |-----|-----|-----|-----|
000600
000700
000800 | Program Type | PPL | Distributed By
000900 |-----|-----|-----|
001000 | SP | PP | PO | PRPQ | SIPO|CPO (SPC| ISMD|SPC| ISMD | SPC | Vendor*

```
- Member JANUARY, generation 0, saved in MWALLE.TPS.REPORTS, NEWGEN parameter was used for SAVE.

- ```

EDIT                               MWALLE.TPS.REPORTS                               Row 0000001 of 0000001
Command ==>                               Scroll ==> HALF
      Name      Prompt      Size   Created      Changed      ID
s_____ JANUARY  /_      17    2015/01/24  2015/01/24 21:05:28  MWALLE
      **End**

```

DFSMS: PDSE V2 member generations



Continued:

- Then say which generation you want (either absolute or relative):

```
S      Object Name:
      'MWALLE.TPS.REPORTS(JANUARY)'
      * No workstation connection
      Initial Macro . .
      PDSE Generation. . -1_
      Line Command Table
      Profile Name . . . (Blank defaults to Type)
      Format Name . . .
      Panel Name . . . . (Leave blank for default)
```

- You'll see a warning indicating you are not in the primary generation:

```
EDIT      MWALLE.TPS.REPORTS(JANUARY) - 01.06      Columns 00001 00072
Command ==> _      Scroll ==> HALF
***** ***** Top of Data *****
==MSG> -CAUTION- Edit session has been invoked for generation 10
==MSG>           High generation number is currently 11
000001      JANUARY 7, 2015 SEVENTH REPORT:
000010
000100      Release      Modification      Division      Division
000200      Number      Level      Acronym      Number
000300      _____      _____      _____      _____
000400      9              0              DSD              26
```

DFSMS: PDSE V2 member generations



Usage considerations:

- Having generations mean you need more space in the PDSE.
- Deleting a member from ISPF, means deleting all its generations too.
- `tso delete 'mwalle.tps.reports(january)'` will delete the primary generation, and leave the other generations orphaned and non-retrievable with ISPF.
- IEBCOPY and IDCAMS REPO only copy primary generation (no other generations). DFSMSdss dump and restore, and copy will keep all member generations (includes DFSMSHsm backups) - install OA43729.
- More can be found on TechDocs: [WP102465](http://www.ibm.com/techdocs/watson/102465)



DFSMS: PDSE V2 member generations

Suggestion!

- IBM Data Set Commander for z/OS V8.1 and APAR OA45103 (formerly known as IBM ISPF Productivity Tool for z/OS) contains more enhancements for PDSE member generations!
- Including the very nice ability to display all member generations, which is not in ISPF.

```
-DSC--VIEW L1----- MWALLE.TPS.REPORTS -----ROW 00001 OF 00004
COMMAND  ==>                                SCROLL ==> HALF
HOTBAR?

      *SORT*SHOW*                                ON VOLUME: SL1A18
NAME    RENAME    LIB VV.MM    CHANGED    SIZE  INIT  MOD USERID  GENER
JANUARY                1 01.07 2015/01/24 21:44    17   17    1 MWALLE    0
JANUARY                1 01.07 2015/01/24 21:44    17   17    1 MWALLE   -1
JANUARY                1 01.06 2015/01/24 21:34    17   17    1 MWALLE   -2
JANUARY                1 01.08 2015/01/24 21:32    17   17    1 MWALLE   -3
--END--
```

SDSF: System symbols on Filter



- **What:** You can add dynamic and static system symbols on the filtering ability. Particularly useful when you have values you want to filter on consistently, and those values change: today's date, system you are logged on, ...
- **How to use:**
 - **FILTER** ? pop-up lets you set the filters and their values.
 - Press PF4 on the value column, and you can see the system symbols and their current value. Select one that fits your fancy! (You can concatenate the symbols too.)
- **Considerations:**
 - As always, careful with the date when filtering. "EQ" may not give you what you want, but "GE" probably will.

SDSF: System symbols on Filter



My goal: On my held jobs, I only want to see jobs I own (MWALLE), and jobs that were created today (22 Jan 2015).

```

Session C - [24 x 80]
File Edit View Communication Actions Window Help
Display Filter View Print Options Search Help
-----
SDSF HELD OUTPUT DISPLAY ALL CLASSES LINES 168,121,167 CHARS 'MWALLE' FOUND
COMMAND INPUT ==> filter ?_ SCROLL ==> HALF
PREFIX=* DEST=(ALL) OWNER=* SYSNAME=
NP  JOBNAME  JobID  Owner  Prty C ODisp Dest  Tot-Rec  Tot-
MWALLEC  JOB25348 MWALLE  7 H HOLD LOCAL  86
MWALLEC  JOB25396 MWALLE  7 H HOLD LOCAL  73
SRV1131  JOB25305 SRVLIB  7 H HOLD LOCAL 1,975
SRV1132  JOB25310 SRVLIB  7 H HOLD LOCAL 1,604
SRV113H  JOB25320 SRVLIB  7 H HOLD LOCAL  540
SRV113C  JOB25452 SRVLIB  7 H HOLD LOCAL 6,335
SRV113  JOB25454 SRVLIB  7 H HOLD LOCAL 1,514
SRV13FXA JOB25456 SRVLIB  7 H HOLD LOCAL 1,220
SRV13FXB JOB25457 SRVLIB  7 H HOLD LOCAL  461
SRV13FXD JOB25458 SRVLIB  7 H HOLD LOCAL  446
DMPHCR1  JOB25460 G788742  7 H HOLD LOCAL  352
DMPHCR2  JOB25462 G788742  7 H HOLD LOCAL  475
SRV13FXE JOB25459 SRVLIB  7 H HOLD LOCAL 67,751
SRV13FXH JOB25470 SRVLIB  7 H HOLD LOCAL 6,804
FIXPKGRP JOB25468 SRVLIB  7 H HOLD LOCAL 9,196
SMFDRS   STC25479 SMFDRS  7 H HOLD LOCAL  341

-ISFPCU4 *ISFPCU4
MA C
Connected to remote server/host plpsc.pok.ibm.com using lu/pool M05TC234 and port uspok136-A59-01-710-Poughkeepsie on uspok158
  
```

No filter on yet...

04/029

SDSF: System symbols on Filter



Pre-V2.1: I had to set today's date every day on my filter.

```
Session C - [24 x 80]
File Edit View Communication Actions Window Help

Displa
-----
SDSF HEL
COMMAND
PREFIX=*
NP      JOB
      MWA
      MWA
      SRV
      SRV
      SRV
      SRV
      SRV
      SRV
      SRV
      SRV
      SRV
      DMP
      DMP
      SRV
      SRV
      FIX
      SMF

Filter
Row 1 to 8 of 25

Command ==>

Type filter criteria. Press F4/16 in the Column or Oper
field for values, or in the Value field for system symbols.
Press F11/23 to clear all filter criteria.

Filtering is OFF

AND/OR between columns  AND  (AND/OR)
AND/OR within a column OR   (AND/OR)

Column      Oper  Value (may include * and %)
OWNER       EQ    MWALLE
CRDATE      GT    01/22/2015

- ISFPCU4 *ISFAFIL

MA  C
Connected to remote server/host plpsc.pok.ibm.com using lu/pool M05TC234 and port uspokl58-A39-01-710-Poughkeepsie on uspokl58
```





As of V2.1 with symbols! I just use system symbols for today's date.



SDSF: System symbols on Filter



Just as I like it. Set it and forget it.

Session C - [24 x 80]

File Edit View Communication Actions Window Help

Display Filter View Print Options Search Help

SDSF HELD OUTPUT DISPLAY ALL CLASSES LINES 502 LINE 1-5 (5)

COMMAND INPUT ==> SCROLL ==> HALF

PREFIX=* DEST=(ALL) OWNER=* SYSNAME= FILTERS=2

NP JOBNAME OGID1 OGID2 JP CrDate OHR Output-Hold-Text

MWALLELC	1	1	1	01/22/2015	
AMBLIST1	1	1	1	01/22/2015	
MWALLEA	1	1	1	01/22/2015	
ZFSDEF	1	1	1	01/22/2015	
ZFSDEF	1	1	1	01/22/2015	

-ISFPCU4 *ISFPCU4

MA C 04/021

Connected to remote server/host plpsc.pok.ibm.com using lu/pool M05TC234 and port uspok158-A39-01-710-Poughkeepsie on uspok158

SDSF: System symbols on Filter



How to concatenate system symbols within the pop-up. PF4 in the Value field...

Session C - [24 x 80]

File Edit View Communication Actions Window Help

Displa

SDSF HEL

COMMAND

PREFIX=*

NP JOB

MWA

AMB

MWA

ZFS

ZFS

Filter

Row 1 to 8 of 25

ALF

Command ==>

Type filter criteria. Press F4/16 in the Column or Oper field for values, or in the Value field for system symbols. Press F11/23 to clear all filter criteria.

Filtering is ON

AND/OR between columns AND (AND/OR)

AND/OR within a column OR (AND/OR)

Column Oper Value (may include * and %)

OWNER EQ MWALLE

CRDATE GT -

PF4

-ISFPCU4 *ISFAFIL

MA C

16/038

Connected to remote server/host plpsc.pok.ibm.com using lu/pool M05TC234 and port uspokl58-A39-01-710-Poughkeepsie on uspokl58



z/OS V2R1 Enhancements

SDSF: System symbols on Filter

All the system symbols, and their current value are shown.
I want mm/dd/yyyy format, so I first pick &MON.

```
Session C - [24 x 80]
File Edit View Communication Actions Window Help

Displa
-----
SDSF HEL
COMMAND
PREFIX=*
NP JOB
MWA
AMB
MWA
ZFS
ZFS

Filter
-----
System Symbols
Row 13 to 24 of 43

Command ==>
The values may change. Use them only as examples.
Selection: 20_
Symbol Value
13. &JOBNAME. MWALLE
14. &LHHMMSS. 153009
15. &LHR. 15
16. &LJDAY. 022
17. &LOGCLASS. K
18. &LYYMMDD. 150122
19. &MIN. 30
20. &MON. 01
21. &NATPK. NATPK2
22. &OVFPK. OVFPKB
23. &OV2PK. OV2PKB
24. &PAGING. AQTS

- ISFPCU4 *ISFASYM
MA C
09/030
Connected to remote server/host plpsc.pok.ibm.com using lu/pool M05TC234 and port uspokl58-A39-01-710-Poughkeepsie on uspokl58
```

SDSF: System symbols on Filter



I add the /, and then move onto the next system symbol, with another PF4.

```
Session C - [24 x 80]
File Edit View Communication Actions Window Help
Displa
-----
SDSF HEL
COMMAND
PREFIX=*
NP      JOB
      MWA
      AMB
      MWA
      ZFS
      ZFS

Filter                                Row 1 to 8 of 25
Command ==>
Type filter criteria. Press F4/16 in the Column or Oper
field for values, or in the Value field for system symbols.
Press F11/23 to clear all filter criteria.

Filtering is ON

AND/OR between columns  AND  (AND/OR)
AND/OR within a column OR   (AND/OR)

Column      Oper  Value (may include * and %)
OWNER       EQ    MWALLE
CRDATE      GT    &MON./_

PF4

- ISFPCU4 *ISFAFIL
MA  C 16/044
Connected to remote server/host plpsc.pok.ibm.com using lu/pool M05TC234 and port uspokl58-A39-01-710-Poughkeepsie on uspokl58
```

SDSF: System symbols on Filter



Now onto the day, &DAY. ...and so on. Until I've built up &MON./&DAY./&YR4.

```
Session C - [24 x 80]
File Edit View Communication Actions Window Help
Displa
-----
SDSF HEL C
COMMAND
PREFIX=* T
NP JOB f
MWA P
AMB
MWA F
ZFS
ZFS A
A
C
O
C

Filter Row 1 to 8 of 25
System Symbols Row 1 to 12 of 43 F

Command ==>
The values may change. Use them only as examples.
Selection: 22_
Symbol Value
1. &CMD. XX
2. &CNMSDOM. M05A0
3. &CNMTCPN. TCPIP
4. &COMPK. COMPKB
5. &COUPL. TT
6. &DAY. 22
7. &DLBPR. DLBPRB
8. &HHMMSS. 203537
9. &HR. 20
10. &HSM. 1Y
11. &JDAY. 022
12. &JESCMD. TJ

-ISFPCU4 *ISFASYM
MA C
09/030
Connected to remote server/host plpsc.pok.ibm.com using lu/pool M05TC234 and port uspokl58-A39-01-710-Poughkeepsie on uspokl58
```

SDSF: System symbols on Filter



My next goal: In OPERLOG, I only want to see today's information on the system I'm logged onto.

```

Session B - [24 x 80]
File Edit View Communication Actions Window Help
Display Filter View Print Options Search Help
-----
SDSF OPERLOG  SYSB      01/21/2015      OW      COLUMNS 02- 81
COMMAND INPUT  ==> _      SCROLL ==> HALF
N 0000000 SYSC      15021 23:57:55.74      00000200 BPXI073I DATA SET OMVS.J
N 0000000 SYSC      15021 23:57:55.77      00000200 IEF196I IEF285I  SYS1.P
N 0000000 SYSC      15021 23:57:55.77      00000200 IEF196I IEF285I  VOL SE
N 0000000 SYSC      15021 23:57:55.77      00000200 IEF196I IEF285I  SYS1.P
N 0000000 SYSC      15021 23:57:55.77      00000200 IEF196I IEF285I  VOL SE
M 4040000 SYSC      15021 23:57:55.77 STC15952 00000000 HZS0001I CHECK(IBMUSS,US
E                               374 00000000 BPXH046E Syntax error(s)
M 4000000 SYSC      15021 23:59:05.00 STC15993 00000000 +CSQX004I +MQS3 CSQXSPRM
E                               375 00000000 storage, 1553 MB are fr
M 4040000 SYSA      15022 00:02:57.33 STC16007 00000000 HZS0002E CHECK(IBM CNZ,CN
D                               322 00000000 CNZHF0010E System consol
E                               322 00000000 mode.
M 4040000 SYSA      15022 00:02:58.01 STC16007 00000000 HZS0002E CHECK(IBM XCF,XC
D                               323 00000000 IXCH0446E System SYSA ha
E                               323 00000000 path to coupling facilit
M 0000000 SYSA      15022 00:02:58.49 STC16007 00000200 HZS0004I CHECK(IBM XCF,XC
E                               324 00000200 IXCH0242E One or more co
M 4040000 SYSA      15022 00:03:03.87 STC16007 00000000 HZS0002E CHECK(IBMUSS,US

*ISFPCU4 -ISFPCU4 CMD
MA B
Connected to remote server/host 9.82.24.151 using lu/pool TCP15119 and port 23
04/021

```

No filter on yet ...

SDSF: System symbols on Filter



As of V2.1 with symbols! I just use system symbols for today's date and current system.

```
Session B - [24 x 80]
File Edit View Communication Actions Window Help
Displa
-----
SDSF OPE
COMMAND
M 4040000
D
D
E
M 4040000
D
E
M 4040000
D
E
M 0000000
E
M 4040000
D
D
E
N 0000000
N 0000000

Filter
Row 1 to 8 of 25
-----
Command ==>
Type filter criteria. Press F4/16 in the Column or Oper
field for values, or in the Value field for system symbols.
Press F11/23 to clear all filter criteria.
Filtering is ON
AND/OR between columns AND (AND/OR)
AND/OR within a column OR (AND/OR)
Column Oper Value (may include * and %)
SYSDATE EQ &SYSDATE.
DATETIME GE &MON./&DAY./&YR2.
mm/dd/yy
*ISFAFIL -ISFPCU4 CMD
MA B X
Connected to remote server/host 9.82.24.151 using lu/pool TCP15119 and port 23
```

Verify APAR PI33423 is on



z/OS V2R1 Enhancements

SDSF: System symbols on Filter

Only my system (SYSB), and today (1/22/15, aka 15022).

```
Session B - [24 x 80]
File Edit View Communication Actions Window Help
Display Filter View Print Options Search Help
-----
SDSF OPERLOG SYSB      01/22/2015      0W      2 FILTERS      COLUMNS 02- 81
COMMAND INPUT ==> _      SCROLL ==> HALF
***** TOP OF DATA *****
M 4040000 SYSB      15022 00:09:41.07 STC16471 00000000 HZS0002E CHECK(IBMVSM,VS
D      953 00000000 IGVB100E ESQA has exceed
D      953 00000000 Current allocation is 88
E      953 00000000 Unallocated amount is 49
M 4040000 SYSB      15022 00:24:35.36 STC16471 00000000 HZS0002E CHECK(IBM CNZ,CN
D      954 00000000 CNZHF0010E System consol
E      954 00000000 mode.
M 4040000 SYSB      15022 00:24:35.89 STC16471 00000000 HZS0002E CHECK(IBM XCF,XC
D      955 00000000 IXCH0446E System SYSB ha
E      955 00000000 path to coupling facilit
M 0000000 SYSB      15022 00:24:36.11 STC16471 00000200 HZS0004I CHECK(IBM XCF,XC
E      956 00000200 IXCH0242E One or more co
M 4040000 SYSB      15022 00:24:41.08 STC16471 00000000 HZS0002E CHECK(IBMVSM,VS
D      957 00000000 IGVB100E ESQA has exceed
D      957 00000000 Current allocation is 88
E      957 00000000 Unallocated amount is 49
N 0000000 SYSB      15022 00:24:51.36      00000200 IEE252I MEMBER BPXPRM21

*ISFPCU4 -ISFPCU4 CMD
MA B
04/021
Connected to remote server/host 9.82.24.151 using lu/pool TCP15119 and port 23
```

SDSF: System symbols on Filter



Advice: OPERLOG and dates are interesting. Use the SET DATE format when trying to match OPERLOG date filters, not what you see in the panel. **SET DATE ?**

Session B - [24 x 80]

File Edit View Communication Actions Window Help

Display Filter View Print Options Search Help

HQX7790 ----- S
COMMAND INPUT ==> SET DATE

DA Active users
I Input queue
O Output queue
H Held output queue
ST Status of jobs

LOG System log
SR System requests
JC Job classes
SE Scheduling environment
RES WLM resources
ENC Enclaves

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Set Date Format

Select the order.

1 1. mm/dd/yyyy
2. dd/mm/yyyy
3. yyyy/mm/d

Select the separator.

1 1. /
2. -
3. .

F1=Help F12=Cancel

PARMS
CROLL ==> HALF

ns

BCP: Parallel Batch Recall



- **What:** The ability to recall all migrated data sets in the job step in parallel.
 - Legacy behavior is to recall any migrated data sets *serially* at the job step.
 - By recalling the data sets in parallel, you can reduce the delay for other jobs to use that initiator. This allows better parallelism of batch execution.

- **How to use:**
 - `SETALLOC SYSTEM,BATCH_RCLMIGDS=PARALLEL`
 - `PARALLEL` or `SERIAL` are the options.
 - `SERIAL` is the legacy option, for data set-by-data set recall, the default.
 - `ALLOCxx` parmlib member: `SYSTEM BATCH_RCLMIGDS (PARALLEL)`

- **Considerations:**
 - May dynamically change this system-wide setting.
 - Notice the syntax structure difference between the command = and the statement ().
 - Notice that you may (or may not) send many recall requests in bursts. SYSZTIOT contention is not impacted.

Harden used
values !



1

D ALLOC,OPTIONS

IEFA003I 14.09.47 ALLOC OPTIONS 068

...

```
SYSTEM          IEFBR14_DELMIGDS: LEGACY
                 TAPELIB_PREF:      EQUAL
                 REMIND_INTV:       90
                 VERIFY_UNCAT:      FAIL
                 TEMPDSFORMAT:      INCLUDELABEL
                 MEMDSENQMGMT:      DISABLE
                 BATCH_RCLMIGDS:      SERIAL
                 OPTCDB_SPLIT:      EXPLICIT
```

3

D ALLOC,OPTIONS

IEFA003I 14.13.39 ALLOC OPTIONS 072

...

```
SYSTEM          IEFBR14_DELMIGDS: LEGACY
                 TAPELIB_PREF:      EQUAL
                 REMIND_INTV:       90
                 VERIFY_UNCAT:      FAIL
                 TEMPDSFORMAT:      INCLUDELABEL
                 MEMDSENQMGMT:      DISABLE
                 BATCH_RCLMIGDS:      PARALLEL
                 OPTCDB_SPLIT:      EXPLICIT
```

2

SETALLOC SYSTEM,BATCH_RCLMIGDS=PARALLEL

IEFA010I SETALLOC COMMAND SUCCESSFUL 070

BATCH_RCLMIGDS SET TO PARALLEL.

4

EDIT SYS1.PARMLIB.POK(ALLOCMW) - 01.00

Command ==>

***** Top of Data ****

000100 SYSTEM BATCH_RCLMIGDS(PARALLEL)

***** Bottom of Data **



CommServer: TCP/IP Profile Syntax Check

- **What:** Verify the syntax of profile configuration statements without affecting system.
 - You can use this command on any TCP/IP stack that is the same release as the profile statements in the profile data set for consistency, without regard to what is currently in use on that stack.
 - That stack doesn't necessarily have to be the one that will use the profile. But, if you are verifying system symbols, direct the command to the stack that you intended to use for consistent resolution.
 - Use this before activating the TCP/IP profile, or using the `VARY TCPIP, , OBEYFILE` command.
- **How to use:**
 - `VARY TCPIP, , SYNTAXCHECK, dsname`
 - Can direct the command to specific TCP/IP address space with:
`VARY TCPIP, procname, SYNTAXCHECK, dsname`
 - *dsname* must be a cataloged sequential data set or PDS(E) member
 - Need CONTROL access to `MVS.VARY.TCPIP.SYNTAXCHECK` in class OPERCMDS
- **Considerations:** Because no updates are done, the command cannot detect or report conflicts with what is currently in use.
 - Duplicate interfaces or deleting a non-existent interface cannot be detected.
 - Keep running the syntax check until it has a clean result, as it may stop after the first syntax error.



VARY TCPIP,,SYNTAXCHECK,SYS1.TCPPARMS (PROFSYSB)

EZZ0060I PROCESSING COMMAND: VARY

TCPIP,,SYNTAXCHECK,SYS1.TCPPARMS (PROFSYSB)

EZZ0061I VARY SYNTAXCHECK COMMAND BEGINNING

EZZ0300I OPENED INCLUDE FILE 'SYS1.TCPPARMS (IPSECPRB) '

EZZ0300I OPENED SYNTAXCHECK FILE 'SYS1.TCPPARMS (PROFSYSB) '

EZZ0309I PROFILE PROCESSING BEGINNING FOR 'SYS1.TCPPARMS (PROFSYSB) '

EZZ0401I SYNTAX ERROR IN FILE: 'SYS1.TCPPARMS (PROFSYSB) ' ON LINE: 38

AT: 'TCPCONFIG6'

EZZ0324I UNRECOGNIZED STATEMENT TCPCONFIG6 FOUND ON LINE 38

EZZ0309I PROFILE PROCESSING BEGINNING FOR SYS1.TCPPARMS (IPSECPRB)

EZZ0316I PROFILE PROCESSING COMPLETE FOR FILE 'SYS1.TCPPARMS (IPSECPRB) '

EZZ0304I RESUMING PROCESSING OF FILE 'SYS1.TCPPARMS (PROFSYSB) '

EZZ0318I TCP WAS FOUND ON LINE 131 AND NUMBER OF PORTS WAS EXPECTED

EZZ0316I PROFILE PROCESSING COMPLETE FOR FILE 'SYS1.TCPPARMS (PROFSYSB) '

EZZ0064I VARY SYNTAXCHECK FOUND ERRORS: SEE PREVIOUS MESSAGES

EZZ0065I VARY SYNTAXCHECK COMMAND COMPLETE



ISPF: Configuration Utility new option for keyword file

- **What:** A new ISPF Configuration Utility option to create a new keyword file from a configuration table module.
- This provides an easy way to recover a missing keyword source file from your active in-storage copy!
- **How to use:** TSO ISPCCONF new option 7:

```
ISPF Configuration Utility

Option ==> 7_

More: +

1 Create/Modify Settings and Regenerate Keyword File
2 Edit Keyword File Configuration Table
3 Verify Keyword Table Contents
4 Build Configuration Table Load Module
5 Convert Assembler Configuration Table to Keyword File
6 Build SMP/E USERMOD
7 Convert Configuration Table Loadmod to Keyword File
```

Keyword File Data Set

Data Set . . . 'MY.ISPCCONF.RECOVERY.FILE'

Member . . . INUSE

Where to store the output file

ISPF: Configuration Utility new option for keyword file



Specify Input

Command ==> _____

Input Data Set Name

Input Member

Leave empty to create a
keyword file from the module
that is currently in use.

Instructions:

Press Enter to perform conversion against the in-storage
configuration module.

Alternatively enter a fully qualified data set name and member name.
The member name defaults to ISPCFIGU if not entered.

ISPF: Configuration Utility new option for keyword file



```
EDIT          MY.ISPCONF.RECOVERY.FILE(INUSE) - 01.00          Columns 00001 00072
Command ==> _                                         Scroll ==> PAGE
***** Top of Data *****
=NOTE=      THIS IS AN EDIT SESSION.
=NOTE=      PRESS PF3 TO SAVE THE FILE.
000001 /*                                           */
000002 /* SOURCE DETAILS :                           */
000003 /* KEYWORD FILE :                               */
000004 /* MY.ISPCONF.FILE(STANDARD)                     */
000005 /* IDENTIFIER . : ISPCFIGU                       LEVEL . . . : 01
000006 /* COMPILE DATE : 2015/01/28                   COMPILE TIME . . . :
000007 /*                                           */
000008 /*                                           */
000009 /* CONVERSION DATE/TIME : 2015/01/28
000010 /* OUTPUT FILE :
000011 /* 'MY.ISPCONF.RECOVERY.FILE(INUS
000012 /*                                           */
000013 /*                                           */
000014 ACTION_BAR_SELECTED_CHOICE = 600
000015 ACTION_BAR_SEPARATOR_LINE = 100
000016 ACTION_BAR_UNSELECTED_CHOICE = 720
```

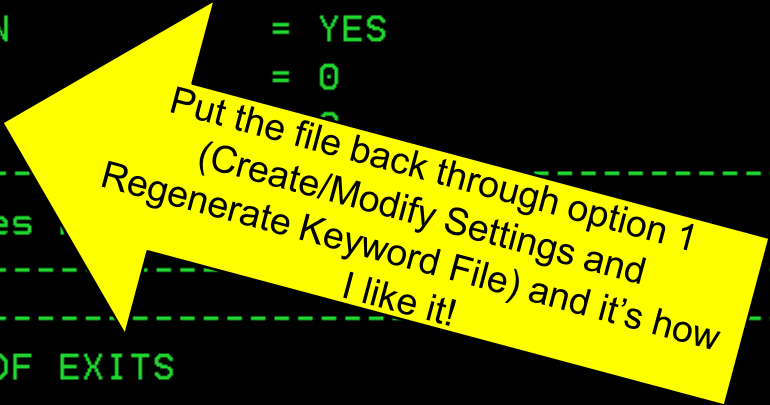
Voila!

Options are alphabetized; can't see what are defaults. Not like my original source keyword file. However...

ISPF: Configuration Utility new option for keyword file



```
VIEW          MY.ISPCONF.RECOVERY.FILE(INUSE) - 01.00          Columns 00001 00072
Command ==> _____ Scroll ==> PAGE
***** ***** Top of Data *****
000001 /* ISPF Configuration table definition.  Generated by REXX *SP MOD */
000002 /* Created 20:47:37 on 28 Jan 2015 */
000003 /* by user IBMUSER. */
000004 /* Defaults were included as comments. */
000005 /*
000006 LOG_DATA_SET_DISPOSITION              = D
000007 LIST_DATA_SET_DISPOSITION              = D
000008 DISPLAY_EMPTY_MEMBER_LIST              = YES
000009 DISPLAY_EMPTY_MEMBER_LIST_PATTERN       = YES
000010 LOG_DATA_SET_BLOCK_SIZE                  = 0
000011 ISPCTLO_BLOCK_SIZE                      = 0
000012 /*-----*/
000013 /* The following values are the current values of the */
000014 /*-----*/
000015 /*-----*/
000016 /* PDF EXITS */
000017 /*-----*/
000018 /*DATA_SET_ALLOCATION_PROGRAM_EXIT        = NONE
. . . . .
```



ISPF: Swapbar enhancements



- **What:** Swapbar (since z/OS R10) is nice for point-and-shoot session navigation, however it can get “lost” on a busy panel. z/OS V2.1 allows you to customize the swapbar so you can make it easier to notice, with:
 - a divider line
 - session coloring and highlighting, for current and other sessions
- **How to use:**
 - `swapbar /` gives you the tailoring displays
- **Considerations:** current session can be customized differently from the other sessions. Settings are saved in the user’s profile.
 - Remember: * means current, and – means alternate.

Before z/OS V2.1:

```
Specify the name of the CSI that contains the global zone:
  SMPCSI DATA SET  ==> 'MVSBUILD.ZOS21.CSI'
(Leave blank for a list of SMPCSI data set names.)

ISR@PRIM UDLIST    *GIM@PRI -DSL1ST

MA  B 02/007
Connected to remote server/host plpsc.pok.ibm.com using lu/pool M05TC1uspokI58-A39-01-710-Poughkeepsie on uspokI58
```



With z/OS V2.1: **swapbar /**

—— **ISPF Settings** ——
Tailor SWAPBAR Display

- Show SWAPBAR divider line (enter "/" to select)
- S to update SWAPBAR, C for current session,
D to clear current session
- Enter first letter of color and hilite to set
color (Blue,Red,Pink,Green,Turquoise,Yellow,White)
- hilite (None,Blink,Reverse,Underscore)

S: the whole swapbar to use the settings

C: only the current screen to use the settings

D: delete the settings for the entire swapbar

Then, color and highlighting are what to use for the S or C selection.



I want to:

- 1 use a dividing line
- 2 make non-current sessions yellow, no highlighting
- 3 make current session pink, with underline.

Then exit to save after 2

ISPF Settings Tailor SWAPBAR Display

1 / Show SWAPBAR divider line (enter "/" to select)
S S to update SWAPBAR, C for current session,
D to clear current session
2 Enter first letter of color and hilite to set
Y color (Blue,Red,Pink,Green,Turquoise,Yellow,White)
N hilite (None,Blink,Reverse,Underscore)

ISPF Settings Tailor SWAPBAR Display

/ Show SWAPBAR divider line (enter "/" to select)
C S to update SWAPBAR, C for current session,
D to clear current session
3 Enter first letter of color and hilite to set
P color (Blue,Red,Pink,Green,Turquoise,Yellow,White)
U hilite (None,Blink,Reverse,Underscore)

Then exit to save after 3

Specify the name of the CSI that contains the global zone:
SMPCSI DATA SET ==> 'MVSBUILD.ZOS21.CSI'
(Leave blank for a list of SMPCSI data set names.)

ISR@PRIM UDLIST *GIM@PRI -DSL1ST

z/OS R13

Small Enhancements

-  ❖ **BCP: COPYCNT=** for printing lots of copies
-  ❖ **z/OS UNIX:** script command
-  ❖ **DFSMSdfp:** IGGCATxx parmlib member
-  ❖ **DFSMSdss:** Standalone ICKDSF no longer needed for initialization on RESTOREs

BCP: COPYCNT= for printing a lot of copies



■ What:

- If you wanted a lot of sysout data set copies printed, the **COPIES=** parm on the **OUTPUT** JCL statement was limited to 255.
- For 5,100 copies, you might create 20 **OUTPUT** statements!
- Use the new parameter, **COPYCNT=**. You can specify 0-2,147,483,647 copies of output to be produced.

■ Considerations:

- **COPYCNT=** takes precedence over **COPIES=** if both are specified.
- **COPIES= (nn, (xx, yy, ...))** has the option for **group numbers** that **COPYCNT=** doesn't have. This allows you print some pages multiple times. **COPYCNT=** is best for “simple” copies.

BCP: COPYCNT= for printing a lot of copies



- How to use: Replace COPYCNT= instead of COPIES= .
Clean out any extraneous OUTPUTs.

```
000009 //OUT1  OUTPUT  COPYCNT=5100
000010 //SYSUT2 DD SYSOUT=C,OUTPUT=(*,OUT1)
```

- See it in SDSF:

```
-----
SDSF JOB DATA SET DISPLAY - JOB BIGPRINT (JOB00034)      LINE 1-5 (5)
COMMAND INPUT ==> _                                     SCROLL ==> HALF
NP  DDNAME    -Time TRd-Date TSt-Time TSt-Date RecFM W  OCopyCnt LRecL StepNum
JESMSG LG 00:00 1900.000 0:00:00 1900.000 UA NO 133
JESJCL 00:00 1900.000 0:00:00 1900.000 V NO 132
JESYSMSG 00:00 1900.000 0:00:00 1900.000 VA NO 133
SYSPRINT 00:00 1900.000 0:00:00 1900.000 FBA NO 121 1
SYSUT2 00:00 1900.000 0:00:00 1900.000 FB NO 5100 80 1
```

z/OS UNIX: **script** for command



- **What:** A shell command for keeping track in a file of what has been displayed on a terminal.
- Excellent for logging what has occurred during an interactive configuration (like z/OSMF's izusetup) for later review!
- **How to use:** `script [-aq] [file]`
 - Where `-a` will append to the file, `-q` will not add diagnostic message. The default file name is `typescript` in the current directory.
 - Use `exit` to stop the recording into the file.
- **Considerations:**
 - Commands that modify the terminal (like full screen editors) might produce unexpected data.
 - Don't access the script file while recording to it.
 - If you can see the data on the terminal, you can see the data in the file. Be aware of file permissions on the script file!

z/OS UNIX: script for command



```
[/u/mwalle] script /u/mwalle/zosmf.script  
Script command is started. The file is /u/mwalle/zosmf.script.  
[/u/mwalle] ./izusetup.sh -file /etc/zosmf/aqhozosmf.cfg -finish
```

Contents of the script file:

```
Script command is started on Thu Jan 29 14:57:25 2015.  
[/u/mwalle]./izusetup.sh -file /etc/zosmf/aqhozosmf.cfg -finish
```

```
IZUG090I: Environment variable "IZU_CODE_ROOT" has been set to the default value "/usr/lpp/zosmf/V  
IZUG091I: Environment variable PATH is set to the value "/u/mwalle:/bin:/usr/sbin:/usr/lpp/java/J6.0/b  
IZUG091I: Environment variable _BPX_SHAREAS is set to the value "YES".  
  
IZUG090I: Environment variable "JAVA_HOME" has been set to the default value "/usr/lpp/java/J7.0_64"
```

...and the bottom of the file:

```
IZUG023W: An unexpected error has occurred while attempting to verify plug-in: "Incident Log".  
IZUG223I: For more information, review log file "/var/zosmf/configuration/logs/izusetup_finish.01.29  
  
IZUG011I: Completed z/OSMF setup procedure on Thu Jan 29 15:01:16 EST 2015.  
  
IZUG210I: The script "./izusetup.sh" has completed.  
[/u/mwalle]:>exit  
Script command is complete on Thu Jan 29 15:01:29 2015.
```

DFSMSdfp: IGGCATxx parmlib member



- **What:** Specify catalog options in a parmlib member
 - Allows more catalog options to be specified than LOADxx (only have 72 columns there!)
 - Relief from having to do an F CATALOG after IPL
 - If used, then parameters have precedence over LOADxx and SYSCATxx
 - Default is IGGCAT00.

- **How to use:**
 - `IEASYSxx CATALOG=(xx,yy,...)` will indicate which IGGCATxx parmlib members to use
 - `/* comments */` are allowed between parameters
 - If duplicate parameters are given, last one will be used, in the later member.

- **Considerations:**
 - Defaults are used if no catalog specifications are given.
 - Parmlib members will be used if doing a CAS restart (except for TASKMAX)
 - If `IEASYSxx CATALOG=` isn't specified, IGGCAT00 will be used. If IGGCAT00 cannot be found, then this message will appear at IPL:
 - `IEA301I IGGCAT00 NOT FOUND IN PARMLIB`

Avoid message by using
parmlib member

LOADxx SYSCAT statement:

Column Contents

1-6 SYSCAT

10-15 The volume serial of the device that contains the master catalog.

16 If SYS% to SYS1 conversion is active → SYS%

17 Alias name level of qualification → ALIASLEVEL

18-19 CAS service task lower limit → TASKMIN(nnn)

20-63 The 44-byte data set name of the master catalog.

64-71 HLQ of the tape volume catalog → TAPEHLQ

72 Enable AUTOADD → AUTOADD



IGGCATxx has so much
more than LOADxx!

IGGCATxx parameters:

<i>resource(minutes,action)</i> ALIASLEVEL(n) AUTOADD(ON OFF) CATMAX(nnnn) DELFORCEWNG(YES NO) DELRECOVWNG(YES NO)	DSNCHECK(YES NO) DUMP(ON OFF) DUMPON(rc,rsn,mod) DUMPON(rc,rsn,mod,cnt) EXTENDEDALIAS(YES NO) GDGFIFOENABLE(YES NO)	NOTIFYEXTENT(percent) SYMREC(YES NO) SYS%(ON OFF) TAPEHLQ(name) TASKMAX(nn) TASKMIN(nnn)	TASKTABLESIZE(nnn) UPDTFAIL(YES NO) VVDSSPACE(primary,secondary) VVRCHECK(YES NO)
---	--	--	--

DFSMSdss: Standalone ICKDSF no longer needed for initialization on RESTORES



- **What:** Previously, for a "very first environment" (for DR, new systems,...) you might have had a tape with:

- *File 1:* Standalone ICKDSF, to initialize the volumes to be restored.
- *File 2:* Standalone DFSMSdss, to restore the volumes needed to IPL

First step: IPL standalone ICKDSF and initialize the volumes to be restored.

Second step: IPL standalone DFSMSdss

Third step: Restore the volumes needed to IPL z/OS.

Fourth step: IPL z/OS and run remaining RESTORES in batch, in parallel

- As of z/OS R13, standalone DFSMSdss no longer requires a prior initialization of the volumes (the First Step)
- You can specify NOVERIFY on RESTORE to tell Standalone DFSMSdss not to read the volume label
- Therefore, ICKDSF no longer needs to be used ahead of time to initialize the volume!

DFSMSdss: Standalone ICKDSF no longer needed for initialization on RESTOREs



■ **How to use:**

- Standalone DFSMSdss (at or above the z/OS R13 level) can be File 1.
- Don't necessarily need Standalone ICKDSF. Only need Standalone ICKDSF if you don't want to use NOVERIFY, and want have the target volume verified.

- New sequence could then be:

First step: IPL standalone DFSMSdss (File 1)

Second step:

RESTORE FRMDV(TAPE) FRMADR(nnn) TOADR(nnn) NOVERIFY

Repeat as needed

Third step: IPL your z/OS system from the restored volumes

■ **Considerations:**

- R13 Standalone DFSMSdss can be used to RESTORE dumps taken with lower levels of DFSMSdss

Small Enhancements



❖ **BCP:** **ALLOCxx** for unique temp data set
name



BCP: ALLOCxx for unique temp data set name

- **What:** It might be possible for jobs executing at the same time with the same jobname (when JES allows it) fail allocation with a duplicate data set name error.
- To avoid this possibility, use the ALLOCxx **TEMPDSFORMAT=UNIQUE** option.
 - Ensures that jobs with the same jobname running simultaneously do not create temporary data sets with the same names.
 - The previous behavior is **INCLUDELABEL**, and is the default.
 - Can change dynamically with **SETALLOC**
- Temporary data set names will change when using the **UNIQUE** option, *only if* you had specified a dsn label (e.g. &&MWTEMP).
 - In the JCL, all references to the dsn label would correctly refer to the same data set.



BCP: ALLOCxx for unique temp data set name

- **The naming convention:**

- As always, under any option, all temporary data set names start with: **SYSyyddd.Thhmmss.RA000.jjobname**

- If you do not specify a data set name, or **TEMPDSFORMAT (UNIQUE)** is in effect, the full format of the temporary data set name is:

SYSyyddd.Thhmmss.RA000.jjobname.Rggnnnn

- If you do specify a data set name and **TEMPDSFORMAT (INCLUDELABEL)** is in effect, the full format of the temporary data set name is:

SYSyyddd.Thhmmss.RA000.jjobname.dsetname.Hgg



BCP: ALLOCxx for unique temp data set name

```
000004 /* TEMPORARY DSN WITH A LABEL
000005 //DD1      DD   DSN=&&MWTEMP,DISP=(NEW,PASS),

000010 /* TEMPORARY DSN WITHOUT A LABEL
000011 //DD2      DD   DISP=(NEW,PASS),
```

- Default, old way, INCLUDELABEL:

- With dsn: SYS15029.T210214.RA000.IBMUSER.MWTEMP.H01
 - This is the case that is affected when changing this option. The dsn (&&MWTEMP) is not present when moving to UNIQUE.
- Without dsn: SYS15029.T210214.RA000.IBMUSER.R0100011
 - Same as with UNIQUE. No change here.

- New way, UNIQUE:

- With dsn: SYS15029.T214532.RA000.IBMUSER.R0100014
 - Note, all references to "&&MWTEMP" work fine. No JCL changes were done!
- Without dsn: SYS15029.T214532.RA000.IBMUSER.R0100015
 - Same as with INCLUDELABEL. No change here.

Older than dirt on potatoes

Small Enhancements

🤪🤪🤪 ❖ z/OS UNIX: skulker



Older than the hills:

z/OS UNIX: skulker

- **What:** Allows you to clean out old files in a directory, based on last access time and location.
 - skulker is a sample shell script provided in /samples/.
 - You may copy it to /bin, /usr/bin, /usr/sbin/ ... and modify it as you see fit.
 - /tmp/ is an ideal location to use skulker on
- **How to use:**
 - `/samples/skulker -i -l /u/mwalle/myskul.log -R /u/mwalle/tmp/ 365`where some of the options are:
 - `-i` interactively ask about files or directories that will be deleted.
 - `-l` log the deleted files, warning, errors
 - `-R` recursively moves through dirs and delete dirs and files, `-r` recursively moves through dir and deletes files
- **Considerations:** skulker with cron is a great combination!
 - Don't use `-i` from cron. If used from cron, nothing will be deleted.



Older than the hills:

z/OS UNIX: skulker example

```
EDIT          /AQTTS/var/spool/cron/crontabs/MWALLE          Columns 00004 00075
Command ==> _          Scroll ==> HALF
***** ***** Top of Data *****
- - - - - 5 Line(s) not Displayed
000006 Clean out all 3 day old stuff in /u/mwalle/tmp daily at 15:00
000007 15 * * * /samples/skulker -l /u/mwalle/myskul.log -R /u/mwalle/tmp/ 3
***** ***** Bottom of Data *****
```

- Clean out /u/mwalle/tmp/ every day at 3pm, with files and dirs that are at least three days old.
- Put what is deleted into the file myskulk.log:

```
BROWSE        /u/mwalle/myskul.log          Line 00000011 Col 001 059
Command ==> _          Scroll ==> HALF
'/u/mwalle/tmp/junkdir/junkdir2/run2'
'/u/mwalle/tmp/junk2'
'/u/mwalle/tmp/run'
skulker run on Sat Jul 12 15:00:01 EDT 2014
No files found older than specified date.  Nothing removed.
skulker run on Sun Jul 13 15:00:01 EDT 2014
No files found older than specified date.  Nothing removed.
skulker run on Mon Jul 14 15:00:01 EDT 2014
No files found older than specified date.  Nothing removed.
skulker run on Tue Jul 15 15:00:01 EDT 2014
Files removed on Tue Jul 15 15:00:01 EDT 2014:
'/u/mwalle/tmp/run'
'/u/mwalle/tmp/junkdir/junkdir2/run2'
skulker run on Wed Jul 16 15:00:01 EDT 2014
No files found older than specified date.  Nothing removed.
skulker run on Thu Jul 17 15:00:00 EDT 2014
No files found older than specified date.  Nothing removed.
***** ***** Bottom of Data *****
```

Summary of What We Might Want to Share with Our User Community:



- System Programmer & User Items:

- **DFSMS (V2.2):** GDG Extended (GDGE)
- **DFSMS (V2.1):** PDSE V2 member generations
- **SDSF (V2.1):** System symbols on Filter
- **ISPF (V2.1):** Swapbar enhancements
- **BCP (R13):** COPYCNT= for printing lots of copies
- **z/OS UNIX (R13):** script command
- **z/OS UNIX (old):** skulker

- System Programmers' Items:

- **ISPF (V2.1):** : Configuration Utility new option for keyword file
- **BCP (V2.1):** Parallel Batch Recall
- **CommServer (V2.1):** TCP/IP Profile syntax check
- **DFSMS (R13):** IGGCATxx parmlib member
- **DFSMS (R13):** Standalone ICKDSF not needed for s/a restores
- **BCP:** ALLOCxx for unique temp data set name



Small enhancements over the past... Summary

- z/OS V2.2:
 - **DFSMS:** GDG Extended (GDGE) Can have 999
- z/OS V2.1:
 - **DFSMS:** PDSE V2 member generations Very handy.
 - **SDSF:** System symbols on Filter Use the pop-up for symbol names
 - **BCP:** Parallel batch recall Speed up those batch jobs.
 - **Communications Server:** TCP/IP profile syntax check For every update.
 - **ISPF:** Configuration Utility new option for keyword file Nice option.
 - **ISPF:** Swapbar enhancements Pretty it up.
- z/OS V1.13:
 - **BCP:** COPYCNT= for printing a lot of copies For >255 copies.
 - **z/OS UNIX:** script command Save it for review later.
 - **DFSMSdftp:** IGGCATxx parmlib member Very convenient and maintainable.
 - **DFSMSdss:** Standalone ICKDSF no longer needed... One less thing to do.
- z/OS V1.12:
 - **BCP:** ALLOCxx for unique temp data set names You might need this one day.
- Older than the hills:
 - **z/OS UNIX:** skulker Keep a tidy file system.