



# VSAM

*z/VSE V5 Update*

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## Agenda



- VSAM V5.1
  - SHOWCB Enhancements
  - IUI improvement for VSAM files
  
- VSAM V5.2
  - IDCAMS Security
  - DLBL CISIZE
  - Catalog Management Trace
  - Additional Enhancements
  
- VSAM Service



## SHOWCB Enhancements 5.1

**ACB, AMBL and AMDSB API are extended in order to enable user to obtain status information for open VSAM datasets.**

9 NEW FIELDS are supported by SHOWCB ACB starting 5.1.  
The following new FIELDS are supported as SHOWCB ACB:

| SHOWCB FIELD | Actual Control Block Field | Control Block | Length | FIELD Description            |
|--------------|----------------------------|---------------|--------|------------------------------|
| IDACB        | ACBID                      | ACB           | 4      | ACB identifier               |
| IDDOS        | ACBDOSID                   | ACB           | 4      | DOS DTF identifier           |
| CDBUF        | AMBDBUF                    | AMBL          | 4      | count of Data Buffers        |
| CIBUF        | AMBIBUF                    | AMBL          | 4      | count of Index Buffers       |
| CNAME        | AMBCNAME                   | AMBL          | 44     | Cluster ID                   |
| CIPCA        | AMDCIPCA                   | AMDSB         | 4      | number of CIs per CA         |
| LNEST        | AMDLNEST                   | AMDSB         | 4      | local number of index levels |
| BFREE        | AMDBFREE                   | AMDSB         | 4      | number of unassigned buffers |
| OPENOBJ      | AMDAMS                     | AMDSB         | 4      | AMS Flag byte                |



## SHOWCB Enhancements 5.1

### SHOWCB Example:

```
SHOWCB  ACB=ACB1,AREA=AREA1,LENGTH=100,FIELDS=(IDACB,IDDOS,      X
        CDBUF,CIBUF,CIPCA,LNEST,BFREE,OPENOBJ,CNAME)
LTR      R15,R15
BNZ      SHOWERR
. . .
AREA1    DS 0F
IDACB    DS F
IDDOS    DS F
CDBUF    DS F
CIBUF    DS F
CIPCA    DS F
LNEST    DS F
BFREE    DS F
OPENOBJ  DS F
CNAME    DS 44CL
```



## SHOWCB Enhancements 5.1

### LSR Matrix

Local Shared Resource (LSR) information is provided within a new SHOWCB matrix that contains the following information about specific VSAM SHR pools:

**For a specified share pool:**

- Share Pool Number,
- Total Number of Strings,
- Number of active Strings,
- Number of free Strings,
- High-water-mark of active Strings

**For each sub-pool:**

- Size of Buffers,
- Type of Buffer,
- Number of Buffers,
- Number of modified Buffers and Number of free Buffers,
- Number of Buffer-reads,
- Number of Retrieval-Requests without I/O,
- Number of User-Initiated writes from Buffer Pool,
- Number of Non-User-Initiated writes from Buffer Pool

**For each cluster the following information will be provided:**

- Number of Active Strings for this Cluster,
- Size of Data Buffers,
- Number of Data Buffers used,
- Size of Index Buffers,
- Number of Index Buffers used



# SHOWCB Enhancements 5.1

## LSR Matrix output ( header):

### Header contains the following information:

- Length of area supplied by User,
- Total length used (required) by VSAM,
- Length of fixed area (Share Pool Statistics Area),
- Number of rows in LSR Pool Buffer Matrix
- Length of rows in LSR Pool Buffer Matrix
- Number of rows in Cluster Matrix
- Length of rows in Cluster Matrix

|                                 |   |                      |  |
|---------------------------------|---|----------------------|--|
| Length of area supplied by User | Total length used (or required) by VSAM | Length of fixed area | Number of rows in LSR Pool Buffer Matrix |
|                                 |   |                      |  |
| 4 bytes                         | 4 bytes                                 | 4 bytes              | 4 bytes                                  |

... continued

|                              |                                  |                                  |            |            |
|------------------------------|----------------------------------|----------------------------------|------------|------------|
| Len of rows in Buffer Matrix | Number of rows in Cluster Matrix | Length of rows in Cluster Matrix | (reserved) | (reserved) |
|                              |                                  |                                  |            |            |
| 2 bytes                      | 4 bytes                          | 2 bytes                          | 4 bytes    | 4 bytes    |



## SHOWCB Enhancements 5.1

### LSR Matrix output (Share Pool Statistics Area, fixed area):

#### For a specified share pool:

- Share Pool Number,
- Total Number of Strings,
- Number of active Strings,
- Number of free Strings,
- High-water-mark of active Strings

| share pool #                      | total # of strings | # of active strings | # of free strings |
|-----------------------------------|--------------------|---------------------|-------------------|
|                                   |                    |                     |                   |
| 2 bytes                           | 2 bytes            | 2 bytes             | 2 bytes           |
| ... continued                     |                    |                     |                   |
| High water mark of active strings | reserved           | reserved            | reserved          |
|                                   |                    |                     |                   |
| 2 bytes                           | 2 bytes            | 2 bytes             | 2 bytes           |





# SHOWCB Enhancements 5.1

## LSR Matrix output (LSR Pool Buffer Matrix):

### For each sub-pool:

- Size of Buffers,
- Type of Buffer,
- Number of Buffers,
- Number of modified Buffers and Number of free Buffers,
- Number of Buffer-reads,
- Number of Retrieval-Requests without I/O,
- Number of User-Initiated writes from Buffer Pool,
- Number of Non-User-Initiated writes from Buffer Pool

| Size of buffers        | Type of Buffer ("D" or "I") | Flags                          | Number of buffers | Number of modified buffers             | Number of free buffers                |
|------------------------|-----------------------------|--------------------------------|-------------------|--|---------------------------------------|
| 2 bytes                | 1 byte                      | 1 byte                         | 4 bytes           | 4 bytes                                | 4 bytes                               |
| ... continued          |                             |                                |                   |  |                                       |
| NUMBER OF BUFFER-READS |                             | NUMBER OF RETR-REQ WITHOUT I/O |                   | NUMBER OF USER-INIT IAT WRITES FROM BP | NUMBER OF NON USER-INI WRITES FROM BP |
| 4 bytes                |                             | 4 bytes                        |                   | 4 bytes                                | 4 bytes                               |



## SHOWCB Enhancements 5.1

### LSR Matrix output (Cluster Matrix):

For each cluster the following information will be provided:

- DDNAME of the cluster
- Cluster type ('B' if base cluster)
- Number of Active Strings for this Cluster,
- Size of Data Buffers,
- Number of Data Buffers used,
- Size of Index Buffers,
- Number of Index Buffers used

| DDNAME  | Type of Cluster ('B' if Base Cluster) | Flags  | # of Active Strings for this Cluster | Size of Data Buffers | Number of Data Buffers used | Size of Index Buffers |
|---------|---------------------------------------|--------|--------------------------------------|----------------------|-----------------------------|-----------------------|
| 8 bytes | 1 byte                                | 1 byte | 2 bytes                              | 4 bytes              | 4 bytes                     | 4 bytes               |

... continued

|                              |            |            |
|------------------------------|------------|------------|
| Number of Index Buffers used | (reserved) | (reserved) |
| 4 bytes                      | 4 bytes    | 4 bytes    |



## SHOWCB Enhancements 5.1

### LSR Matrix

The new LSR MATRIX and Extent Information MATRIX can be specified using the SHOWCB macro. The syntax of the SHOWCB macro for LSR matrix is given below:

|                    |                             |   |
|--------------------|-----------------------------|---|
| <i>name</i> SHOWCB | AREA= <i>address</i> ,      | X |
|                    | LENGTH= <i>number</i> ,     | X |
|                    | SHAREPL= <i>number</i> ,    | X |
|                    | FIELDS=( <i>keywords</i> ), | X |
|                    | MF= <i>form</i>             | X |

#### Example of LSR Matrix call:

```
SHOWCB AREA=USER_AREA, LENGTH=100, SHAREPL=6, FIELDS=(LSRINF)
```



## SHOWCB Enhancements 5.1

### Extent Matrix

A second new matrix has been made available by SHOWCB to present information about extents and device characteristics for a specified cluster.

**The physical device characteristics for the indicated Cluster are provided.**

**The data volume information will come first, followed by the index, if applicable:**

- Physical Block Size
- Number of Bytes per Track
- Number of Bytes per Control Area
- Number of Physical Blocks per Control Interval
- Number of Physical Blocks per Track
- Number of Tracks per Control Area
- Number of Tracks per Cylinder
- Number of Physical Blocks per Control Area

**For each extent (data and index) of the specified cluster the following information is provided:**

- Volume Serial Number
- Type of Extent ('D' if Data. "I" if Index)
- Flags
- Low Extent
- High Extent
- Low RBA
- High RBA



## SHOWCB Enhancements 5.1

### Extent Matrix output (header):

#### Header contains the following information:

- Length of area supplied by User,
- Total length used (required) by VSAM,
- Length of fixed area (Physical Device Characteristics Area),
- Number of data extents
- Length of data extents row
- Number of index extents
- Length of index extents row

| Length of area supplied by User | Total length used (or required) by VSAM | Length of fixed area | Number of data extents (AMDNEXT) |
|---------------------------------|---|----------------------|----------------------------------|
| 4 bytes                         | 4 bytes                                 | 4 bytes              | 4 bytes                          |

... continued

| Len of data extents row | Number of index extents (AMDNEXT) | Len of ind extents row | (reserved) | (reserved) |
|-------------------------|-----------------------------------|------------------------|------------|------------|
| 2 bytes                 | 4 bytes                           | 2 bytes                | 4 bytes    | 4 bytes    |



# SHOWCB Enhancements 5.1

## Extent Matrix output (Physical Device Characteristics Area, fixed area):

The physical device characteristics for the indicated Cluster are provided. The data volume information will come first, followed by the index, if applicable:

- Physical Block Size
- Number of Bytes per Track
- Number of Bytes per Control Area
- Number of Physical Blocks per Control Interval
- Number of Physical Blocks per Track
- Number of Tracks per Control Area
- Number of Tracks per Cylinder
- Number of Physical Blocks per Control Area (for FBA only, ignore for ECKD)

| Volume id | Type of extent ('D' if Data. 'I' if Index) | Flags  | Physical Block Size | Number of Bytes per Track | Number of Bytes per Control Area | Number of Physical Blocks per Control Interval |
|-----------|--|--------|---------------------|---------------------------|----------------------------------|--|
| 6 bytes   | 1 byte                                     | 1 byte | 4 bytes             | 4 bytes                   | 4 bytes                          | 4 bytes  |

... continued

| Number of Physical Blocks per Track | Number of Tracks per Control Area | Number of Tracks per Cylinder | Number of Physical Blocks per Control Area | Reserved | Reserved |
|-------------------------------------|-----------------------------------|-------------------------------|--|----------|----------|
| 4 bytes                             | 4 bytes                           | 4 bytes                       | 4 bytes                                    | 4 bytes  | 4 bytes  |



# SHOWCB Enhancements 5.1

## Extent Matrix output (Extent information):

For each extent (data and index) of the specified cluster the following information is provided:

- Volume Serial Number
- Type of Extent ('D' if Data. "I" if Index)
- Flags
- Low Extent
- High Extent
- Low RBA
- High RBA

|               |  |          |                     |            |                      |            |
|---------------|--|----------|---------------------|------------|----------------------|------------|
| Volser        | Type of extent ('D' if Data. "I" if Index) | Flags    | Low Extent (CCCCHH) | (reserved) | High Extent (CCCCHH) | (reserved) |
| 6 bytes       | 1 byte                                     | 1 byte   | 4 bytes             | 4 bytes    | 4 bytes              | 4 bytes    |
| ... continued |  |          |                     |            |                      |            |
| Low RBA       |  | High RBA |                     | (reserved) | (reserved)           |            |
| 8 bytes       |  | 8 bytes  |                     | 4 bytes    | 4 bytes              |            |



## SHOWCB Enhancements 5.1

### Extent Matrix

The syntax of the SHOWCB macro for Extent Information Matrix is given below:

```
name SHOWCB ACB=address,  
             AREA=address,  
             LENGTH=number,  
             FIELDS=(keywords),  
             MF=form
```

#### Example of Extent Matrix call:

```
SHOWCB AREA=USER_AREA, LENGTH=300, ACB=ACb1, FIELDS=(EXTINF)
```





# SHOWCB Enhancements 5.1

## Example of Extent Matrix output:

```

00403CE0                                0000012C  10                                ....
                                         ^=====USER'S AREA=X'12C'=300                                ....
00403D00 000000E0 00000060 00000001 00300000 00010030 00000000 00000000 E5E2C5D9 .....-.....VSER
                                         ^=====VOLID=VSER02
                                         ^=====RESERVED2
                                         ^=====RESERVED1
                                         ^=====LEN OF INDEX EXT ROW
                                         ^=====IND EXTENTS=1
                                         ^=====LEN OF DATA EXT ROW
                                         ^=====DATA EXTENTS=1
                                         ^=====FIXED AREA LEN=96
                                         ^=====VSAM NEEDS=E0=224
00403D20 F0F2C426 00000800 0000A800 0009D800 00000001 00000015 0000000F 0000000F 02D.....y...Q.....
                                         ^=====TRACKS PER CYL=X'F'
                                         ^=====TRACKS PER CA=X'F'
                                         ^=====PHYS BLOCKS PER TRACK=X'15'
                                         ^=====PHYS BLOCKS PER CI=X'1'
                                         ^=====NUM BYTES PER CA=X'9D800'
                                         ^=====NUM BYTES PER TRACK=X'A800'
                                         ^=====PHYS BLOCK SIZE=X'800'
                                         ^=====FLAGS=X'26'
                                         ^=====TYPE OF EXT='D'
00403D40 0000A800 00000000 00000000 E5E2C5D9 F0F2C926 0000E00 0000B600 0000B600 ..y.....VSER02I.....
                                         ^=====NUM BYTES PER CA=X'0000B600'
                                         ^=====NUM BYTES PER TRACK=X'0000B600'
                                         ^=====PHYS BLOCK SIZE=X'E00'
                                         ^=====FLAGS=X'26'
                                         ^=====TYPE OF EXT='I'
                                         ^=====VOLID=VSER02
                                         ^=====RESERVED2
                                         ^=====RESERVED1
                                         ^=====NUM PHYS BLOCKS PER CA(FBA only)
00403D60 00000001 0000000D 00000001 0000000F 0000B600 00000000 00000000 E5E2C5D9 .....VSER
                                         ^=====VOLSER=VSER02
                                         ^=====RESERVED2
                                         ^=====RESERVED1
                                         ^=====NUM PHYS BLOCKS PER CA(FBA only)
                                         ^=====TRACKS PER CYL=X'F'
                                         ^=====TRACKS PER CA=X'1'
                                         ^=====PHYS BLOCKS PER TRACK=D
                                         ^=====PHYS BLOCKS PER CI=X'1'

```



# SHOWCB Enhancements 5.1

## Example of Extent Matrix output:

```

00403D80 F0F2C415 00070000 00000000 0009000E 00000000 00000000 00000000 00000000 02D.....
      |      |      |      |      |      |      |      |      |      ^=====HIGH RBA=X'001D87FF'=1935359
      |      |      |      |      |      |      |      |      |      ^=====LOW RBA=0
      |      |      |      |      |      |      |      |      |      ^=====HIGH EXTENT=X'0009000E'
      |      |      |      |      |      |      |      |      |      ^=====LOW EXTENT=X'00070000'
      |      |      |      |      |      |      |      |      |      ^=====FLAGS=X'15'
      |      |      |      |      |      |      |      |      |      ^=====TYPE OF EXT='D'
00403DA0 001D87FF 00000000 00000000 E5E2C5D9 F0F2C915 000A0000 00000000 000A000E ..g.....VSER02I.....
      |      |      |      |      |      |      |      |      |      ^=====HIGH EXT=X'000A000E'
      |      |      |      |      |      |      |      |      |      ^=====LOW EXT=X'000A0000'
      |      |      |      |      |      |      |      |      |      ^=====FLAGS=X'15'
      |      |      |      |      |      |      |      |      |      ^=====TYPE OF EXT='I'
      |      |      |      |      |      |      |      |      |      ^=====VOLSER=VSER02
      |      |      |      |      |      |      |      |      |      ^=====RESERVED2
      |      |      |      |      |      |      |      |      |      ^=====RESERVED1
00403DC0 00000000 00000000 00000000 00000000 000AA9FF 00000000 00000000 00000000 .....z.....
      |      |      |      |      |      |      |      |      |      ^=====RESERVED2
      |      |      |      |      |      |      |      |      |      ^=====RESERVED1
      |      |      |      |      |      |      |      |      |      ^=====HIGH RBA=X'000AA9FF'=698879
      |      |      |      |      |      |      |      |      |      ^=====LOW RBA = 0

```



## IUI improvements on the VSAM-related panels FILFL1 and FILFL2

- VSAM Addressing Mode listed in IUI
  - Standard or XXL

```

D - VSE-IUI-SP8 - [24 x 80]
File Edit View Communication Actions Window Help
IESFILFL1 DISPLAY OR PROCESS A FILE Page 1 of 1
CATALOG: VSAM.MASTER.CATALOG IJYSCT
OPTIONS: 1 = SHOW 2 = SORT 3 = PRINT 4 = COPY 5 = DELETE
          6 = VERIFY 7 = LOAD
OPT FILE ID FILE NAME FILE TYPE
VSAM.COMPRESS.CONTROL *NONE* B
VSE.CRYPTO.LIBRARY CRYPTO B
VSE.MESSAGES.ONLINE IESMSGs B
VSE.PRD1.LIBRARY PRD1 B
VSE.PRD2.LIBRARY PRD2 B
XXL.FILE.KSDS.ONLY MYKSDS B
PF1=HELP 2=REFRESH 3=END 4=RETURN
          9=PREFIX
LOCATE FILE ID ==>
M& d 14/003
Connected to remote server/host.boevmspb.boeblingen.de.ibm.com using port 23
Print to Disk - Append

```



# 1. Old View Of The Panel FILFL1

- In z/VSE 4.3 and before the panel FILFL1 looked like:

IESFILFL1 DISPLAY OR PROCESS A FILE Page 1 of 1  
CATALOG: VSAM.MASTER.CATALOG IJSYSCT

OPTIONS: 1 = SHOW 2 = SORT 3 = PRINT 4 = COPY 5 = DELETE  
6 = VERIFY 7 = LOAD

| OPT | FILE ID               | FILE NAME | FILE TYPE |
|-----|-----------------------|-----------|-----------|
|     | VSAM.COMPRESS.CONTROL | *NONE*    | B         |
|     | VSE.CRYPTO.LIBRARY    | CRYPTO    | B         |
|     | VSE.MESSAGES.ONLINE   | IESMSG    | B         |
|     | VSE.PRD1.LIBRARY      | PRD1      | B         |
|     | VSE.PRD2.LIBRARY      | PRD2      | B         |
|     | XXL.FILE.KSDS.ONLY    | MYKSDS    | B         |

PF1=HELP 2=REFRESH 3=END 4=RETURN  
9=PREFIX

LOCATE FILE ID ==>

MA d 14/003

Connected to remote server/host boevmspb.boeblingen.de.ibm.com using port 23 Print to Disk - Append

Before at the dataset  
XXL.FILE.KSDS.ONLY  
we can not see the XXL  
addressing on the panel.



## 2. New Field 'FILE ADDR' On The Panel FILFL1 – Part 1

- Starting z/VSE 5.1 to show addressing of datasets the panel FILFL1 looks like:

IESFILFL1 DISPLAY OR PROCESS A FILE Page 1 of 1  
CATALOG: VSAM.MASTER.CATALOG IJSYSCT

OPTIONS: 1 = SHOW 2 = SORT 3 = PRINT 4 = COPY 5 = DELETE  
6 = VERIFY 7 = LOAD

| OPT | FILE ID               | FILE NAME | FILE TYPE | FILE ADDR |
|-----|-----------------------|-----------|-----------|-----------|
|     | VSAM.COMPRESS.CONTROL | *NONE*    | B         | 1         |
|     | VSE.CRYPTO.LIBRARY    | CRYPTO    | B         | 1         |
|     | VSE.DUMP.LIBRARY      | SYSDUMP   | B         | 1         |
|     | VSE.MESSAGES.ONLINE   | IESMSG    | B         | 1         |
|     | VSE.PRD1.LIBRARY      | PRD1      | B         | 1         |
|     | VSE.PRD2.LIBRARY      | PRD2      | B         | 1         |
|     | XXL.FILE.KSDS.ONLY    | MYKSDS    | B         | 2         |

PF1=HELP 2=REFRESH 3=END 4=RETURN  
9=PREFIX

LOCATE FILE ID ==>

MA d 15/003

Connected to remote server/host boevmspb.boeblingen.de.ibm.com using port 23 Print to Disk - Append

Now the dataset  
XXL.FILE.KSDS.ONLY  
shows its 2=XXL  
addressing on the panel.



## 2. New Field 'FILE ADDR' On The Panel FILFL1 – Part 2

- Starting from z/VSE 5.1 the new column 'FILE ADDR' is added to show the corresponded VSAM file addressing:
  - 1 – used for the default addressing,
  - 2 – for XXL addressing (KSDS only).
  
- Look at the dataset XXL.FILE.KSDS.ONLY to see the XXL addressing samples.
  
- To accept the new column 'FILE ADDR', the panel FILFL1 was re-organized a bit: it contains the same data as before but the existing field 'FILE ID' is shifted to the left; the captions of the columns 'FILE NAME' and 'FILE TYPE' are re-formatted to be more compact on the panel.



### 3. New Field 'FILE ADDR' On The Panel FILFL2 – Part 1

- The similar changes were done on the panel FILFL2:

The screenshot shows the IESFILFL2 panel with the following content:

```
IESFILFL2          DEFINE AN ALTERNATE INDEX OR NAME          Page 1 of 1
CATALOG:          VSAM.MASTER.CATALOG          IJSYSCT

OPTIONS:          1 = DEFINE ALTERNATE INDEX          Move cursor to the base file
                  2 = DEFINE ALTERNATE NAME

OPT      FILE ID          FILE NAME          FILE TYPE          FILE ADDR
-----  -
VSAM.COMPRESS.CONTROL  *NONE*          B          1
VSE.CRYPTO.LIBRARY    CRYPTO          B          1
VSE.DUMP.LIBRARY      SYSDUMP         B          1
VSE.MESSAGES.ONLINE  IESMSGs         B          1
VSE.PRd1.LIBRARY      PRD1            B          1
VSE.PRd2.LIBRARY      PRD2            B          1
XXL.FILE.KSDS.ONLY    MYKSDS          B          2
XXL.FILE.KSDS.ONLY.AIX  MYAIX          A          1
```

PF1=HELP 2=REFRESH 3=END 4=RETURN  
9=PREFIX

LOCATE FILE ID ==>

Mâ d 16/003

Connected to remote server/host boevmspb.boeblingen.de.ibm.com using port 23

Print to Disk - Append

The addressing for an AIX itself can not be 2=XXL!  
It can be 1=Default only!



### 3. New Field 'FILE ADDR' On The Panel FILFL2 – Part 2

- To accept the new column 'FILE ADDR', the panel FILFL2 was re-organized like the panel FILFL1: the layout of the panel was re-formatted to show more content.
- Look at the dataset `XXL.FILE.KSDS.ONLY` for the sample of an XXL dataset on the panel FILFL2.
- NOTE that the addressing for AIXes themselves must have the type 1=Default only for z/VSE 5.1! See for the sample of an AIX addressing at `XXL.FILE.KSDS.ONLY.AIX` on the panel FILFL2.





## z/VSE V5.2: IDCAMS Command security WAVV201108

- IDCAMS tool provides a number of cluster management and catalog maintenance commands which can be destructive to data
  - To prevent data destruction, system administrators can restrict the usage of IDCAMS commands
- The administrator can control access to IDCAMS commands by using the 'IDCAMS.GENERAL' BSM resource profile of the resource class FACILITY
  - IDCAMS commands access control is designed for batch processing only
  - If batch security is not active (SYS SEC=NO) or IDCAMS function is executed in ICCF pseudo partition, then no security checks are performed
- The JCL sample below shows how to use BSTADMIN utility for defining the IDCAMS.GENERAL resource profile in BSM

```
// EXEC BSTADMIN
  ADD FACILITY IDCAMS.GENERAL UAC(READ)
  PERMIT FACILITY IDCAMS.GENERAL ID(USR1) ACCESS(UPD)
  PERMIT FACILITY IDCAMS.GENERAL ID(USR2) ACCESS(ALT)
  PERFORM DATASPACE REFRESH
  LIST FACILITY IDCAMS.GENERAL
/*
```

```
IESADMBSLE          MAINTAIN SECURITY PROFILES
BSM RESOURCE CLASS: FACILITY      (START is Case Sensitive)      STATUS: ACTIVE
START... DFHRCF.RSL24
OPTIONS:  1 = ADD          2 = CHANGE          5 = DELETE          6 = ACCESS LIST
```

| OPT      | PROFILE NAME               | DESCRIPTION | UNIVERSAL ACCESS | AUDIT VALUE |
|----------|----------------------------|-------------|------------------|-------------|
| —        | DFHRCF.RSL24               | >           |                  | 12          |
| —        | IBMVSE.JCL.ASSGN.PERM      |             |                  | 12          |
| —        | IBMVSE.JCL.LIBDEF.PERM     |             |                  | 12          |
| —        | IBMVSE.JCL.LIBDROP.PERM    |             |                  | 12          |
| —        | IBMVSE.JCL.OPTION.PARSTD   |             |                  | 12          |
| —        | IBMVSE.JCL.OPTION.STDLABEL |             |                  | 12          |
| <u>6</u> | *IDCAMS.GENERAL            |             | 2                | 12          |



## z/VSE V5.2: IDCAMS Command Security

### What is needed to turn on VSAM IDCAMS Security ?

- a) Batch security is active
- b) The corresponding IDCAMS.GENERAL profile is defined,
- c) An ID statement is supplied within the job to authenticate a user.

### Decisions and Messages

If user's authorization level for the IDCAMS.GENERAL profile is high enough

 then the command is executed without any extra messages.

If user's authorization level for the IDCAMS.GENERAL profile is **not high** enough

 the IDCAMS command will be interrupted and the following messages displayed

```
IDC32240I RACROUTE (AUTH) FAILED WITH RETURN CODE 8 REASON 0
```

```
IDC32241I SAF RETURN CODE 8 FOR RACROUTE (AUTH)
```

```
BG 0000 BST120I USER(OPER )
```

```
        BST120I IDCAMS.GENERAL CL(FACILITY)
```

```
        BST120I INSUFFICIENT ACCESS AUTHORITY
```

```
        BST120I FROM IDCAMS.GENERAL
```

```
        BST120I ACCESS INTENT(UPDATE ) ACCESS ALLOWED(READ )
```

Note: The Job is NOT cancelled, IDCAMS processing continues with the next command specified.



## z/VS V5.2: IDCAMS Command security

- **Users having *Read* authorization level are permitted to perform the following set of IDCAMS commands:**
  - LISTCAT - lists entries contained in a catalog
  - PRINT - lists a part or the whole VSAM file
  - BACKUP - produces a backup copy of one or more VSAM objects
  
- **Users having *Alter* authorization level are permitted to perform commands:**
  - DEFINE MASTERCATALOG|USERCATALOG|SPACE - defines master catalog, user catalog, or space
  - DELETE MASTERCATALOG|USERCATALOG|SPACE - deletes master catalog, user catalog, or space
  - IMPORT CONNECT - disconnects user catalog from master catalog
  - EXPORT DISCONNECT - connects user catalog to master catalog
  - ALTER - changes attributes of catalog entries



## z/VS V5.2: IDCAMS Command security

- **Users having *Update* authorization level are permitted to perform commands:**
  - DEFINE CLUSTER|AIX|PATH|NONVSAM - defines cluster, alternate index or path
  - DELETE CLUSTER|AIX|PATH|NONVSAM - deletes cluster, alternate index or path
  - EXPORT/IMPORT - exports/imports cluster or alternate index
  - REPRO - copies data from one dataset to another
  - RESTORE - defines cluster (if required) and fills it with the data from the backup medium
  - BLDINDEX - builds one or more alternate indexes
  - VERIFY - verifies and corrects (if required) end-of-file information

### **Note:**

1. The scope of using of the DEFINE and DELETE commands is limited to cluster, alternate index, path and non-VSAM object.
2. EXPORT DISCONNECT and IMPORT CONNECT are not allowed for this authorization level.



# IDCAMS Security – IDCAMS.GENERAL Profile Setup in UI

- Adding new IDCAMS.GENERAL resource profile of the class FACILITY (fastpath 2819)

```

IESADMBSLE                MAINTAIN SECURITY PROFILES
BSM RESOURCE CLASS: FACILITY      (START is Case Sensitive)      STATUS: ACTIVE
START....
OPTIONS:  1 = ADD              2 = CHANGE              5 = DELETE              6 = ACCESS LIST

  OPT  PROFILE NAME                DESCRIPTION                UNIVERSAL AUDIT
      >                                ACCESS VALUE
  =    DFHRCF.BRSLPU                >                                12
  -    DFHRCF.BRSL00                >                                12
  -    DFHRCF.BRSL01                >                                12
  -    DFHRCF.BRSL02                >                                12

```

```

IESADMBSAE                MAINTAIN SECURITY PROFILES
BSM RESOURCE CLASS: FACILITY

Add Profile:

PREFIX..... _____ CICS region

RESOURCE NAME..... Maximum length is 39 characters.
..... IDCAMS.GENERAL

GENERIC..... 1 (1=yes, 2=no)

UNIVERSAL ACCESS... 2 (=_None, 2=Read, 3=Update, 4=Alter)

AUDIT-LEVEL 1 ..... (=_None, 1=Failure, 2=Success, 3=All)
ACCESS-LEVEL 1 ..... (2=Read, 3=Update, 4=Alter, _=default)

AUDIT-LEVEL 2 ..... (=_None, 1=Failure, 2=Success, 3=All)
ACCESS-LEVEL 2 ..... (2=Read, 3=Update, 4=Alter, _=default)
DESCRIPTION..... Optional remark
PF1=HELP 3=END 5=UPDATE

RESOURCE NAME FIELD IS CASE SENSITIVE. ENTER DATA AS REQUIRED.

```



## IDCAMS Security – IDCAMS.GENERAL Profile Setup in UI

- Configuring IDCAMS.GENERAL resource profile access list (fastpath 2819)

```

IESADMBSLE                                MAINTAIN SECURITY PROFILES
BSM RESOURCE CLASS: FACILITY              (START is Case Sensitive)      STATUS: ACTIVE
START... DFHRCF.RSL24
OPTIONS:  1 = ADD                        2 = CHANGE                    5 = DELETE                    6 = ACCESS LIST

  OPT  PROFILE NAME                                DESCRIPTION                                UNIVERSAL AUDIT
  --   -
  --   DFHRCF.RSL24                                >
  --   IBMVSE.JCL.ASSGN.PERM                        ACCESS VALUE
  --   IBMVSE.JCL.LIBDEF.PERM                        12
  --   IBMVSE.JCL.LIBDROP.PERM                       12
  --   IBMVSE.JCL.OPTION.PARSTD                       12
  --   IBMVSE.JCL.OPTION.STDLABEL                     12
  --   *IDCAMS.GENERAL                                2 12
  6
  
```

```

IESADMBSLA                                MAINTAIN ACCESS LIST
BSM CLASS: FACILITY
PROFILE: *IDCAMS.GENERAL
START...
OPTIONS:  1 = ADD                        2 = CHANGE                    5 = DELETE
          NUMBER OF ENTRIES ON LIST: 00000

  OPT  NAME  ACC
  1
  
```

```

IESADMBSAA                                MAINTAIN ACCESS LIST
BSM CLASS: FACILITY
PROFILE: *IDCAMS.GENERAL

Add Userid or Groupid:

  NAME..... USR1                                Userid or Groupid
  ACCESS..... 3                                (_=None,
                                                2=Read, 3=Update, 4=Alter)
  
```



## IDCAMS Security – IDCAMS.GENERAL Profile Setup in UI

- Rebuilding BSM Security Information (fastpath 283)

```
IESADMSL.IESEBSEC          SECURITY MAINTENANCE          APPLID: DBDCCICS
Enter the number of your selection and press the ENTER key:

  1 BSM Resource Profile Maintenance
  2 BSM Group Maintenance
  3 BSM Security Rebuild
  4 Maintain Certificate - User ID List
  5 Define Transaction Security (DTSECTXN)
  6 BSM Cross Reference Report
  7 Unified BSM Resource Profile Maintenance

PF1=HELP          3=END          4=RETURN          6=ESCAPE (U)
                  9=Escape (m)
SECURITY INFORMATION WAS SUCCESSFULLY REBUILT.
==> 3_          Path: 28
```



## IDCAMS Security – IDCAMS.GENERAL Profile Setup in Batch

The JCL sample below shows how to use BSTADMIN utility for defining the IDCAMS.GENERAL resource profile in BSM.

This profile setup allows everyone to use the 'read-only' commands and grants user USR1 **update** authorization level and user USR2 **alter** authorization level to the IDCAMS.GENERAL profile.

```
// EXEC BSTADMIN
  ADD FACILITY IDCAMS.GENERAL UAC(READ)
  PERMIT FACILITY IDCAMS.GENERAL ID(USR1) ACCESS(UPD)
  PERMIT FACILITY IDCAMS.GENERAL ID(USR2) ACCESS(ALT)
  PERFORM DATASPACE REFRESH
  LIST FACILITY IDCAMS.GENERAL
```

/\*

BSTADMIN LIST command output in SYSLST:

```
FACILITY    IDCAMS.GENERAL
UNIVERSAL ACCESS
-----
          READ

INSTALLATION DATA
-----
          NONE

AUDITING
-----
FAILURES(READ)

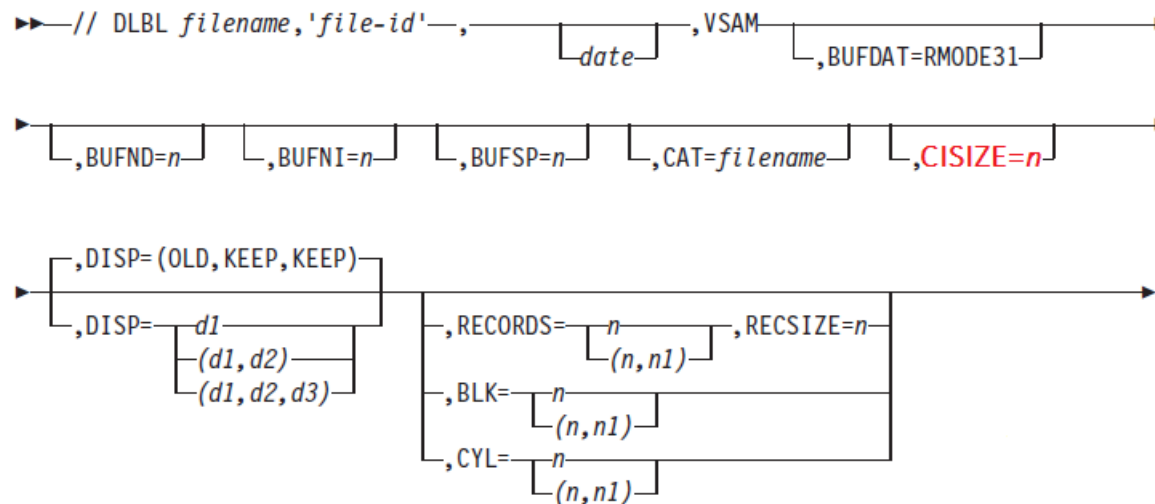
USER        ACCESS
-----
USR1        UPDATE
USR2        ALTER
```





## DLBL CISIZE parameter for SAM-ESDS Implicit Definition (MR0529076422)

Existing DLBL **CISIZE** parameter now allowed not only for SD files but also for VSAM files.



### CISIZE=n

For VSE/VSAM this parameter specifies a control interval size for SAM-ESDS dataset. The size overrides that specified (or defaulted) in the respective DTF macro.



## Catalog Management Trace

Catalog Management Trace was enhanced to support the investigation and resolution of Catalog Management problems

```
IDC3009I ** VSAM CATALOG RETURN CODE IS 8 - REASON CODE IS IGG0CLBN-6
4228I FILE DFHTEMP      OPEN  ERROR X'B4'(180) CAT=VSESPUC ( 4,AH, 10)
```

Existing Catalog Management SNAP TRACE 001 in IKQVEDA tool has been enhanced.

**New DUMP parameter was added,**

IKQVEDA SNAP 001 trace command format is shown below:

```
ENABLE SNAP=001,PART=partition,DUMP=(return_code,module_id,reason_code)
```

**PART=*partition*** specifies partition in which the specified SNAP001 trace is enabled.

**DUMP=(*return\_code,module\_id,reason\_code*)** specifies the *return\_code*, *module\_id*, and *reason code* combination which is to cause SDUMP.

Sample of the IKQVEDA SNAP command:

```
// EXEC IKQVEDA,PARM='SYSIPT'
      ENABLE SNAP=001,PART=F8,DUMP=(4,AH,10)
```



## Additional Enhancement for VSAM within z/VSE V5.2

- Deletion of the KSDS cluster with ERASE attribute after unsuccessful RESTORE

When KSDS cluster cannot be extended on the RESTORE, then there might be an error during follow on deletion attempt if that cluster has been defined with ERASE attribute.

```
IDC01304I SUCCESSFUL DEFINITION OF TEST.CLUSTER
IDC31338I CANNOT EXTEND TEST.CLUSTER
IDC31334I CANNOT DELETE OLD VERSION OR ASSOCIATION OF TEST.CLUSTER
IDC31316I ** VSAM CATALOG RETURN CODE IS 250 - REASON CODE IS IGG0CLGB-52
```

- DEFINE SPACE CANDIDATE on FBA/SCSI or FAT disks.

An attempt to define data space with CANDIDATE option on FBA/SCSI or FAT device ended up with the following error:

```
IDC0511I SPACE ALLOCATION STATUS FOR VOLUME SCSI00 IS 68
IDC3020I INSUFFICIENT SPACE ON USER VOLUME
```

- Remove duplicate VOLSERS during DEFINE CLUSTER

In previous releases IDCAMS permitted the definition of a cluster with duplicate Volser's:

```
VOLUMES(SYSWK2,SYSWK2,SYSWK3,SYSWK3,SYSWK3)
```

However that could lead to the following error if this volume ever needs to be removed (via ALTER REMOVEVOLUME) :

```
IDC3012I ENTRY TEST.KSDS1.DATA NOT FOUND
IDC3009I ** VSAM CATALOG RETURN CODE IS 8 - REASON CODE IS IGG0CLBN-6
IDC3003I FUNCTION TERMINATED. CONDITION CODE IS 12
```

**NOW VSAM automatically eliminates duplicate Volser's for  
DEFINE CLUSTER and DEFINE ALTERNATEINDEX,**



## Service for VSAM in z/VSE V5

- **PTF UD53714**

- RECOVERABLE CATALOGs automatic conversion (DY47322 same as 4.3)
- SHOWCB correction only regarding the new 5.1 fields (DY47290)

Watch out for future VSAM PTFs at: <http://www.ibm.com/zvse/support/vsam.html>



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- **March 2014**
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- **November 2013**
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- **October 2013**
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- **September 2013**
  - z/VSE CMT and SCRT Update
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  - z/VSE Security Overview and Update
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For more information, please see the z/VSE web site:

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**z/VSE V5.1 - Additional enhancements are available**

### IBM z/VSE V5.1 - Additional enhancements

Additional enhancements announced on April 2nd, 2013. In addition to function already available with z/VSE V5.1, you get supplemental enhancements that are designed to:

- Support innovative IBM zEnterprise EC12 technology
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# Questions



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