

z/OS V2.5 IBM Education Assistant

Solution Name: DFSMS Enhancements:

DFSMS Customer Requirements: Catalog/IDCAMS Customer Requests

DFSMS Customer Requirements: DFSMSHsm V2R5 Minor Enhancements

DFSMSHsm USS File Level Backup Enhancements

Solution Element(s): Catalog/IDCAMS; DFSMSHsm

July 2021



Agenda

- Trademarks
- Objectives
- *For each DFSMS Component*
 - Overview
 - Usage & Invocation
 - Interactions & Dependencies
 - Upgrade & Coexistence Considerations
 - Installation & Configuration
 - Summary
 - Appendix

Trademarks

- See url <http://www.ibm.com/legal/copytrade.shtml> for a list of trademarks.
- Additional Trademarks:
 - If you need to list any that aren't included on the website above, please do so here. If not, remove the text in this bullet and just say “None”.

Objectives

Describe z/OS DFSMS V2R5 and continuous delivery enhancements

- Catalog/IDCAMS Customer Requests
- DFSMSHsm V2R5 Minor Enhancements
- DFSMSHsm USS File Level Backup Enhancements

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Solution Name: DFSMS Customer Requirements: Catalog/IDCAMS Customer Requests

Solution Element(s): Catalog/IDCAMS



Overview: New Catalog and IDCAMS Support

- New IDCAMS DELETE MASK parameters
- Change the master catalog with a CAS Restart
- Added IDCAMS support for KEYLABEL in DEFINE CLUSTER MODEL
- Cleanup IDCAMS LISTCAT LVL output when no matches found
- Move IDCAMS REPRO buffers above the 31-bit line
- Enhance IDCAMS DIAGNOSE to detect Rename-in-progress indicator
- Allow comments on MODIFY CATALOG commands

Overview: New AMS DELETE MASK Parameters

- Who (Audience)
 - General Users
- What (Solution)
 - Add the EXCLUDE parameter that specifies up to 100 entry names or mask keys to be excluded from the list of entries produced by the MASK parameter of DELETE.
 - Add the TEST parameter that returns object names but does not delete
 - TEST and EXCLUDE can both be used in the same command to test exclusions.
- Wow (Benefit / Value, Need Addressed)
 - EXCLUDE allows the user to make exceptions to the delete mask provided
 - TEST prevents accidental deletions

Usage & Invocation

```
DELETE SMS.MASK.** MASK TEST

IDC0556I ENTRY (A) SMS.MASK.GDG.G0001V00 WILL BE DELETED

IDC0556I ENTRY (D) SMS.MASK.KSDS1.DATA WILL BE DELETED

IDC0556I ENTRY (I) SMS.MASK.KSDS1.INDEX WILL BE DELETED

IDC0556I ENTRY (R) SMS.MASK.XPATH2 WILL BE DELETED

IDC0556I ENTRY (C) SMS.MASK.KSDS1 WILL BE DELETED

IDC0556I ENTRY (D) SMS.MASK.KSDS2.DATA WILL BE DELETED

IDC0556I ENTRY (I) SMS.MASK.KSDS2.INDEX WILL BE DELETED

IDC0556I ENTRY (G) SMS.MASK.XAIX1 WILL BE DELETED

IDC0556I ENTRY (C) SMS.MASK.KSDS2 WILL BE DELETED

IDC0556I ENTRY (X) SMS.MASK.ALIAS1 WILL BE DELETED

IDC0556I ENTRY (A) SMS.MASK.NONVSAM1 WILL BE DELETED

IDC0556I ENTRY (A) SMS.MASK.NONVSAM2 WILL BE DELETED

IDC0556I ENTRY (A) SMS.MASK.NONVSAM3 WILL BE DELETED

IDC0001I FUNCTION COMPLETED, HIGHEST CONDITION CODE WAS 0
```

```
DELETE SMS.MASK.** MASK TEST -

      EXCLUDE(SMS.MASK.KSDS%, SMS.MASK.NONVSAM1)

IDC0556I ENTRY (A) SMS.MASK.GDG.G0001V00 WILL BE DELETED

IDC0556I ENTRY (R) SMS.MASK.XPATH2 WILL BE DELETED

IDC0556I ENTRY (G) SMS.MASK.XAIX1 WILL BE DELETED

IDC0556I ENTRY (X) SMS.MASK.ALIAS1 WILL BE DELETED

IDC0556I ENTRY (A) SMS.MASK.NONVSAM2 WILL BE DELETED

IDC0556I ENTRY (A) SMS.MASK.NONVSAM3 WILL BE DELETED

IDC0001I FUNCTION COMPLETED, HIGHEST CONDITION CODE WAS 0
```


Overview: Change the MCAT On a CAS Restart

- Who (Audience)
 - System Administrators
- What (Solution)
 - Use the F CATALOG,RESTART command to change the master catalog
- Wow (Benefit / Value, Need Addressed)
 - No IPL required to change the master catalog

Usage & Invocation

- MODIFY CATALOG,RESTART(new-mcat-name)
- Requires an alternate master catalog be available
- New Master Catalog can NOT be:
 - RLS-eligible
 - Locked
 - Suspended
 - On a read-only volume

Interactions & Dependencies

- Software Dependencies: *None*
- Hardware Dependencies: *None*
- Exploiters: *None*

Upgrade & Coexistence Considerations

- To exploit this solution, all systems in the Sysplex must be at the new z/OS level: *No*
- List any toleration/coexistence APARs/PTFs: *None*
- List anything that doesn't work the same anymore:
 - *DIAGNOSE may report errors now when it didn't before*
 - *When no matches found for IDCAMS LISTCAT LVL, the empty page previously output has been removed*

Installation & Configuration

- Planning Considerations:
 - For Changing the MCAT on a CAS restart, You should have an alternate MCAT standing by.

Summary

- New IDCAMS DELETE MASK parameters
- Change the master catalog with a CAS Restart
- Added IDCAMS support for KEYLABEL in DEFINE CLUSTER MODEL
- Cleanup IDCAMS LISTCAT LVL output when no matches found
- Move IDCAMS REPRO buffers above the 31-bit line
- Enhance IDCAMS DIAGNOSE to detect Rename-in-progress indicator
- Allow comments on MODIFY CATALOG commands

Appendix

- IDCAMS
 - Manual: *DFSMS Access Method Services Commands*
- Catalog
 - Manual: *DFSMS Managing Catalogs*

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Solution Name:

DFSMS Customer Requirements: DFSMSHsm V2R5 Minor Enhancements

DFSMSHsm USS File Level Backup Enhancements

Solution Element(s): DFSMSHsm



Overview – DFSMSHsm Minor

- Who (Audience)
 - Storage administrator
- What (Solution)
 - Add source data set compression information to DFSMSHsm SMF record
 - Issue ARC1141I to console, in addition to TSO
- Wow (Benefit / Value, Need Addressed)
 - Clients exploring the benefits of utilizing zEDC for DFSMSHsm migration data can more accurately the actual benefits
 - Storage administrations can monitor for ARC1141I messages

Usage & Invocation – DFSMShsm Minor

- When OA57834 (V2R3 and higher) is applied, DFSMShsm stores in the FSR record primary data set compression information at the time of data set migration
 - This data can be used to better calculate the savings achieved by enabling zEDC for DFSMShsm migration information by knowing which data is already compressed at the time of migration
 - RFE 131787
- Specific fields
 - FSRF_COMP – Data set already compressed at the time of migration
 - FSRF_ZEDC – HSM zEDC compressed at time of migration
 - FSR_USER_DATASIZE – Uncompressed size
 - FSR_COMP_DATASIZE – Compressed size
 - FSR_ZEDC_COMPRESS_PRCNT – zEDC percent savings at time of migration

Usage & Invocation – DFSSMShsm Minor

- ARC1141I indicates that a Recall failed in a way that storage administrator cleanup may be required
- Prior to this support, ARC1141I was only issued to TSO
- This enhancement additionally issues the message to the Console so that automation can capture the message
- RFE 59740

Overview – DFSMSHsm UNIX

- Who (Audience)
 - Storage administrator and UNIX Users
- What (Solution)
 - The ability to specify a different target directory when recovering files.
 - The ability to request Exclude Criteria to be applied to the UNIX files being backed up or recovered.
 - Allow a special DFSMSHsm address space to be started on an LPAR that processes UNIX files exclusively. (DFSMSHsm Filemode Host)
- Wow (Benefit / Value, Need Addressed)
 - It is important to have the ability to recover a file (or directory sub-tree) to a temporary location so that differences between the current and backed up files can be examined.
 - CPU usage can be reduced by not making backups of log files or other files that are not necessary to back up.
 - Clients can take advantage of the new UNIX file backup support without impacting their existing DFSMSHsm environment and processing windows.

Usage & Invocation – DFSShsm UNIX NEWDIR

- RECOVER and HRECOVER commands have new NEWDIR keyword.
 - RECOVER '/u/ibmuser/appdir/' NEWDIR('/u/ibmuser/tmp/appdir/') RECURSE
 - The new directory must exist.
- UNIX hrecover command has new -N option
 - hrecover -oX -N /u/ibmuser/tmp/appdir/ /u/ibmuser/appdir/
 - hrecover -oX -N tmp/appdir/ appdir/
- NewDir directory name must end in a forward slash (/)
- User must have search and write permission for target directory

Usage & Invocation – DFSMShsm UNIX EXCLUDE

- BACKDS, HBACKDS, RECOVER, and HRECOVER have new EXCLUDE keyword
 - BACKDS '/u/ibmuser/' RECURSE EXCLUDE('logs/,*.log,*.tmp,a??B.java,/u/ibmuser/app/logs/')
 - Exclude criteria is a comma separated list, enclosed in single quotes.
 - Wildcards of *, and ? Can be specified in the filename pattern. Applied to all files seen
 - Directory name can be relative, but only to the starting directory. (Not to any sub-directory)
 - Directory name can be absolute.
- UNIX hbackup and hrecover have new -e option
 - hrecover -voX -e 'logs/,*.log,*.tmp,a??B.java,/u/ibmuser/app/logs/' /u/ibmuser/

Usage & Invocation – DFSMShsm Filemode Host

- Needs new/separate CDSs (MCDS, BCDS, OCDS), and Journal, as well as Logs, and PDAs per host.
- SYS1.PROCLIB(DFHSMFM)
 - Specify HOSTTYPE=FILE in Filemode host PARM stmt (or ARCSTRxx member). (Requires existing DFSMShsm host to specify HOSTTYPE=CLASSIC.)
 - Requires RNAMEDSN=YES in PARM stmt.
- SYS1.PARMLIB(ARCCMDFM)
 - Migration and Daily spill volumes cannot be shared with CLASSIC host
 - SETSYS PLEXNAME must be different from CLASSIC host. (ARCFIL0 is default name)
 - Consider using different SMF(xx) value so you can differentiate between Classic and Filemode SMF records
 - AUTOBACKUPSTART is allowed, but no automatic backup of UNIX files is done. (Other phases are done, such as: Movement of Backups from DASD ML1 volumes to Daily Spill volumes.

DFSMShsm Filemode Host (cont)

- Most Functions are HELD permanently:
 - Migration
 - Automigration
 - Recall
 - Dump
 - Auto Dump
 - Fast Replication Backup and Recover
 - ABARS
- QUERY STARTUP to see the HOSTTYPE requested
- QUERY IMAGE to see all the DFSMSHsm hosts on system (Classic, Full, Filemode, AUX)

DFSMShsm Filemode Host (cont)

- All UNIX commands (hbackup, hrecover, hlist, hbdelete) automatically directed to the host that can process files (Filemode or Full)
- New Commands
 - HALTERU
 - HBACKDSU
 - HBDELETU
 - HCANCELU
 - HLISTU
 - **HSENDU**
 - HQUERYU
 - HRECOVU

Interactions & Dependencies

- Software Dependencies
 - None
- Hardware Dependencies
 - None
- Exploiters
 - None

Upgrade & Coexistence Considerations

- To exploit this solution, all systems in the Plex must be at the new z/OS level:
No
- List any toleration/coexistence APARs/PTFs.
None
- List anything that doesn't work the same anymore.
N/A
- Upgrade involves only those actions required to make the new system behave as the old one did.
N/A
- Coexistence applies to lower level systems which coexist (share resources) with latest z/OS systems.
N/A

Installation & Configuration

- List anything that a client needs to be aware of during installation and include **examples** where appropriate - clients appreciate these:
 - OA57834 is available on z/OS V2R3 and higher
 - OA58612 – Recover NEWDIR support (z/OS V2R3 and higher)
 - OA57868 – Backup/Recover Exclude criteria support (z/OS V2R3 and higher)
 - OA58870 – DFSMSHsm Filemode host support (z/OS V2R3 and higher)

Appendix

- DFSMSHsm UNIX support all changes:
<http://publibz.boulder.ibm.com/zoslib/pdf/OA52703.pdf>
- z/OS DFSMSHsm Implementation and Customization Guide
- z/OS DFSMSHsm Managing Your Own Data
- z/OS DFSMSHsm Storage Administration