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DFSMS™: Latest and Greatest The Best of z/OS® R13 → R11

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Backup Information

- Additional DFSMS R13 Information

z/OS® DFSMS™ V1.13 Highlights

(September 2011)



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DFSMSHsm R13

- **DFSMSHsm RAS and Usability Enhancements**

- **QUERY CRQ(RECALL)**

- Common Recall Queue (CRQ) is a single RECALL queue shared by multiple DFSMSHsm hosts. It enables the Recall workload to be distributed across all DFSMSHsm hosts in the sysplex.
 - *A recall request in the CRQ can only be canceled from the originating host. There is no DFSMSHsm command available to help determine which host the recall request initiated from.*
- **New enhancement:** Modified QUERY CRQ command output to include the host id that originated the Recall.

? Why it Matters: User can easily determine the 'originating host ID' should it be necessary to cancel a RECALL request.

DFSMSrmm R13

- **DFSMSrmm Simplified Monitoring & Management**
 - **TVEXTPURGE parmlib option with extra days**
 - If DFSMSshm tapes are expired by the EDGTVEXT HSM exit, extra days for retention can only be defined with an EXTRADAYS VRS.
 - **New enhancement:** With the parmlib option TVEXTPURGE(EXPIRE(days)) a number of extra days can be defined with no additional consideration.
 - *On systems with mixed releases please be aware the TVEXTPURGE(EXPIRE(days)) will only be processed on V1R13, but not on lower releases!*
 - **? Why it Matters:** Avoid having to define and apply a VRS.
- **Expiry Date Set By information**
 - By looking at the expiration date of the volume or data set it is hard to guess who set it – did it come from OCE or from VOLCAT, during conversion or export, ... or did RMM set/changed it according the parmlib OPTIONS.
 - **New enhancement:** DFSMSrmm now also records details of what event caused the EXPDT to be set or changed.
 - **? Why it Matters:** It is now easy to determine the event that caused the expiration date to be set or changed.

DFSMSrmm R13

- **DFSMSrmm Simplified Monitoring & Management**
 - **Retention date in the volume and data set search results**
 - Search results list for volumes or data sets might show retained resources with an expiration date already passed, if the resource is retained by VRS.
 - **New enhancement:** Display the retention date instead of the expiration date in the search results list, when the volume / data set is VRS retained.
 - **? Why it Matters:** Storage administrators can more easily determine from the search results list why a volume is retained, without viewing the volume and data set details.
 - **SEARCHDATASET extensions**
 - The SEARCHDATASET subcommand has limited ability to search through the attributes of data sets.
 - **New enhancement:** Additional operands are added enabling more extensive searches including many on specific date ranges.
 - **? Why it Matters:** Search more efficiently in a large number of data sets.

DFSMSrmm R13

- **DFSMSrmm RAS Enhancements**

- **CANCEL Cleanup**

- When DFRMM is cancelled during ESTAE processing, the cleanup of running and queued requests may not be completed successfully. This potentially leaves users of DFSMSrmm services waiting forever.
- **New enhancement:** DFSMSrmm subsystem interface processing now correctly detects that DFRMM is or has been stopped and fails incomplete requests as EDG2002I 'Cancelled by Operator'.
 - *Requests which abnormally end are failed with EDG2003E 'ABEND During Subsystem Processing'.*

? Why it Matters: DFSMSrmm TSO commands, housekeeping and tools now provide better user feedback in case a subsystem request fails due to RMM being cancelled or the subsystem task has been abended.

- **Selective Volume Movement**

- Automated movement avoids moving logical volumes when stacked volume support is enabled. However, many of our customers have non-IBM virtual tape solutions and need another way to prevent volume movement driven by VRSEs.
- **New enhancement:** If a library/appliance is not able to support movement of volumes it can be specified in parmlib LOCDEF command.
- **? Why it Matters:** Improved control over automatic inventory management driven movement.

DFSMSrmm R13

- **DFSMSrmm RAS Enhancements**
 - **Last Change Details**
 - Customer requirement to provide an easy way to audit changed media, where ever possible without running EDGAUD audit reports.
 - **New enhancement:** Last change information is added to all list command outputs and to the dialog for all resources stored in the RMM CDS.
 - **? Why it Matters:** Reduced need to run EDGAUD audit reports.
 - **Display Navigation Enhancements**
 - No fast path command exists to display multi-volume and multi-file lists. Only very few Point-and-Shoot fields exist in the RMM dialog.
 - **New enhancement:** Specific to multi-volume and multi-file lists, 16 Point-and-Shoot fields on Volume display, and 5 Point-and-Shoot fields on Data set display are implemented.
 - **? Why it Matters:** Quicker and easier navigation in the RMM dialog.

SDM R13

- **SDM RAS Enhancements**

- **XQUERY FILTER**

- The STA() parameter on the XQUERY command filters the query output so that only volumes in the specified status are included in the report.
 - *STA(BLK) includes volumes which are in a “blocked” state, which includes device blocking and long busy. The purpose of filtering on blocked devices is to identify sources of application impact, since blocking works by slowing down application writes on a volume.*
 - *The existing filter is insufficient to meet customer needs because not all volumes which are contributing to high residual counts and application impact are identified.*
- **New enhancement:** Provide filtering for high-activity volumes that are not being blocked or paced.
 - *Invoked with the STA(BK2) parameter.*
 - *Used by the XRC Performance Monitor (XPM). XPM changes are in APAR OA35078. After applying the XPM APAR, APAR OA33140 allows XPM to work on pre-R13 systems.*
- **? Why it Matters:** New parameter can be used to balance volumes across controllers.

SDM R13

- **SDM RAS Enhancements**

- **Concurrent Copy PARMLIB**

- Customer requirement to simplify tuning changes for Concurrent Copy.
 - *Concurrent Copy jobs have utilized hardcoded tuning parameters since initial shipment.*
 - *Often times these values have required modification for a particular system. This could be done using AMASZAP, SDM PATCH command but are not easy.*
 - **New enhancement:** Provide SYS1.PARMLIB(ANTMIN00) keywords and Operator Modify Command keywords to adjust tuning values for CC.
 - **CC Attention Throttling**
 - *During times of high update activity, multiple CC SRBs could be scheduled for each control unit. This could result in contention for both Main Storage and Auxillary Storage, results in slowing the cache offload process.*
 - *SDM can limit parallel attention processing to the number of parallel processes allowed at the controller level.*
 - **CC Read Ahead**
 - *Sets the number of Read Track Image CCWs SDM will build over the actual count of CCWs needed to drain the controller cache sidefile.*
 - *This value allows SDM to read additional data from the cache during peak update periods.*

? Why it Matters: Allow supported tuning value adjustments for individual system optimization

OAM R13

- **OAM Usability and Reliability Enhancements**

- **Wildcard in F OAM,S,STORGRP Command**

- Operators had to enter command for each object and/or object backup storage group he wanted OAM to process.
- **New enhancement:** The MODIFY OAM,S,STORGRP,groupname command has been enhanced to support a single asterisk wildcard in the groupname.

? Why it Matters: OAM command simplification.

- **Extend Object Expiration Beyond 27 Years**

- Prior to this support, the maximum expiration criteria specified via SMS management class definition (other than NOLIMIT) is 9999 days (roughly 27 years).
- **New enhancement:** Objects can still be retained FOREVER (or NOLIMIT) however the 9999 day maximum associated with management class Retention Limit, Expire after Date/Days, and Expire after Days Non-usage has been expanded to 93000 days.
 - *The maximum number of days specified via the RETPD and EVENTEXP keywords on the OSREQ API has also been expanded to 93000.*

? Why it Matters: Extended expiration support which may help assist with compliance regulations.

OAM R13

- **OAM Usability and Reliability Enhancements**
 - **Dynamic Update of SETOAM Keywords**
 - In order to change the distribution of tape drives allocated for OAM object and object backup storage groups, installations had to modify values in the CBROAMxx Parmlib member and restart OAM.
 - **New enhancement:** Values specified for the SETOAM keywords are dynamically changeable via the F OAM,UPDATE,SETOAM operator command. No restart of the OAM address space is required.
 - *SGMAXTAPESTORETASKS and SGMAXTAPERETRIEVETASKS (storage group level)*
 - **? Why it Matters:** Distribution of tape resource can be biased towards object or object backup storage groups as required.

OAM R13

- **OAM Usability and Reliability Enhancements**

- **Improved Media Migration**

- When processing volumes with a large number of collections, a significant amount of time could elapse between the time the MOVEVOL command is issued and the time of the first write to a new volume.
 - *Running MOVEVOL on one member of an OAMplex resulted in measurable CPU usage on 'idle' members in the OAMplex in reaction to XCF messages broadcast by the 'active' member.*
- **New enhancement:** OAM's media migration utility, MOVEVOL, is changed to no longer process objects on a collection boundary.
 - *With this support, the frequency of the broadcast messages relating to all tape reads and writes (not just MOVEVOL) from the 'active' member will be significantly reduced potentially resulting in much lower CPU usage on the 'idle' systems.*

? Why it Matters: This new algorithm should result in a better performance when moving objects from a source volume that contains a large number of OAM collections.

OAM R13

- **OAM Usability and Reliability Enhancements**

- **SMF Counter Scalability**

- Some 4 byte counter fields in SMF Type 85, subtypes 32-35 and 87 containing kilobyte values potentially could overflow as workloads and tape capacity increase.
- **New enhancement:** New 8 byte counter fields have been added to SMF Type 85, subtypes 32-35 and 87 to protect against potential overflow.
 - *The new 8 byte counters contain values in bytes and provide more granularity.*
- **? Why it Matters:** Avoids inaccuracies due to counter overflow (the 4 byte counters will contain X'FFFFFFFF' if overflow condition is detected).

- **RECYCLE Candidates Display**

- When an F OAM,START,RECYCLE command is issued, the Recycle Candidates display message, CBR9875I, followed by a list of up to 40 volumes that have met the criteria specified by the RECYCLE command is generated and sent to hard copy SYSLOG.
 - *The total number of volumes that meet the criteria for the RECYCLE command is **not** displayed.*
- **New enhancement:** The message line that is displayed at the end of the Recycle Candidates display is updated to show a count of the total number of volumes that met the criteria specified in the RECYCLE command.
- **? Why it Matters:** Improved OAM monitoring and reporting.

NFS R13

- **NFS Windows 7 Support**

- ***New enhancement:*** NFS supports 32- and 64-bit versions of Microsoft Windows 7 Professional Edition with Open Text NFS Client or Open Text NFS Server installed.

? Why it Matters: Continued currency support.

OCE R13

- **OCE Support for XTIOT and Uncaptured UCBs**

- aka “Support for subsystem and spooled data sets using XTIOT and DSAB above the line”
- OCE XTIOT support for BAM DCBs was added in z/OS V1R12 but did not include subsystem DCBs and ACBs.
- **New enhancement:** XTIOT support for subsystem ACBs and DCBs
 - OPEN will accept subsystem DCBs with associated XTIOTs if the subsystem supports it.
 - As with XTIOT support for DASD and tape, the system programmer must set NON_VSAM_XTIOT=YES in the DEVSUPxx member of PARMLIB and the user's DCBE macro must have LOC=ANY.

? Why it Matters: Help provide virtual storage constraint relief for address spaces that allocate a large number of data sets.

- **OCE Tape Error Recovery for missing and out of sequence volumes**

- For multi-volume data sets error conditions can be detected during OCE input processing, there are ignore (default) or abend options available for these anomalies, but NO recovery option.
- **New enhancement:** OCE detects the anomaly and passes control to the LABAN exit. RMM exercises the recovery option and will attempt to return the corrected list. OCE processes the RMM volume list and returns a new message:
 - IEC716I ddnamexx: TAPE MULTIVOLUME LIST CORRECTED
 - Note: Not available when you specify OPTCD=B, which bypasses label anomaly processing.

? Why it Matters: *Automatic* recovery for missing or out-of-sequence tape volumes.

OCE R13

- **OCE RAS Enhancements**

- **RACF Return and Reason Codes**

- ***New enhancement:*** On return from a call made to RACF from OCE, when the return or reason code is nonzero, save the information and make it available in a dump associated with the RACF failure during OCE processing.
 - **? Why it Matters:** Improved first time data capture.

OCE R13

- **OCE RAS Enhancements**

- **Allow DCBE to be either in key8 or key9**

- Today, key 8 callers of OPEN are allowed to provide DCBs located in key-9 storage; however, OPEN does not allow DCBEs also to be in key-9 storage.
- **New enhancement:** Allow both DCB and DCBE to be in only key 9 storage.
- **? Why it Matters:** No longer need to copy Key 9 DCBEs to Key 8 storage before OPEN.

- **MULTSDN**

- QSAM uses the MULTSDN value to calculate a better BUFNO value for tape and specific types of DASD data sets. The BUFNO is calculated based on the first data set in the concatenation.
 - *When going to the next data set in the concatenation an out of storage condition can occur when EOVS getmains a large amount of storage based on the BUFNO and BLOCKSIZE when the blocksize of the next data set is much larger than the current data set.*
- **New enhancement:** Dynamically recalculate the BUFNO value when switching to the next concatenated data set when QSAM with MULTSDN is specified.
- **? Why it Matters:** Avoid potential out-of-space conditions due to incorrect BUFNO values for concatenated data sets.

VSAM RLS R13

- **VSAM RLS Buffer Enhancements**

- RLS spheres remain connected for a short period of time after the data set is last closed in the system.
- **New enhancement:** New Storage Class attribute allows the buffers and its resources for a data set be released sooner when the data set is last closed in the system.
 - Disconnect Sphere at CLOSE N (Y or N)
 - Beneficial to environment with applications that do not quickly re-open the same data sets and environment that is often short of buffer pool space.
 - *Not intended for data sets that are being re-open quickly as BMF will have to re-prime all the buffers it needs when reopening the same data sets. In this case, turning on this feature might even degrade the performance*
 - IDCAMS DCOLLECT will be designed to include information about this new attribute in storage class (type SC) records.
- **New enhancement:** Provide enhancements to VSAM RLS buffer management algorithms to improve processing of "aged" buffers.
 - Expected to help improve performance when processing large RLS data sets with large buffer pools.
- **? Why it Matters:** Help improve performance when processing large VSAM RLS data sets.

BAM R13

- **BAM RAS Enhancements**

- **Improved tracing**

- Today, for some extended format SAM errors, the user has to recreate the problem in order to gather diagnostic information.
- **New enhancement:** Diagnostic enhancements designed to reduce problem recreates and problem determination efforts.
 - *Provide a SAM internal trace facility designed to trace at the DCB level without GTF. Trace table entries created until the DCB is closed. Will help to determine the code path leading to the failure rather than working on complex and case specific slips.*
 - *Enabled via DCB=DIAG=TRACE.*
 - *Trace table records are found in the formatted area of the storage dump.*
 - *Also DESERV enhanced to use existing interface to the SSF CTRACE component to create trace records which can be formatted by IPCS.*
 - *Enabled via TRACE CT,2M,COMP=SYSSMS, OPTIONS=(ENTRY,EXIT,EXITA,COMP=(AMA)),END*
 - *SSF Ctrace added to key DESERV module entry and exit points.*
 - *Ctrace records automatically saved in Ctrace buffers and are formatted with IPCS*

? Why it Matters: Improved diagnostics and first time data capture.

Catalog R13

- **Catalog PARMLIB Support**

- Users can customize the Catalog environment via SYS1.NUCLEUS (SYSCATxx) or SYS1.PARMLIB (LOADxx).
 - However, only one line (80 characters) is available for parameters and that line has long been filled preventing any new parameters from being added. Also, It prevents customers from changing these parameters once the system has been IPL'ed.
- **New enhancement:** A new parmlib member, IGGCATxx, allows users to specify a number of Catalog system parameters. Default is IGGCAT00
 - VVDS space defaults
 - Catalog utilization warning message threshold
 - Limit on CAS service tasks (overrides any specification in SYSCATxx)
 - Whether to enable extension records for user catalog aliases
 - A number of other things you also specify using MODIFY CATALOG
 - Some keywords inadvertently omitted from R13 Init & Tuning draft:
 - *EXTENDEDALIAS(YES/NO), DELFORCEWNG(YES/NO), DSNCHECK(YES/NO), SYMREC(YES/NO), UPDTFAIL(YES/NO), VVRCHECK(YES/NO), DELRECOVWNG(YES/NO)*

? Why it Matters: Customers can now create their own Catalog parmlib member(s) to customize their Catalog environment; the parameters can be changed by doing an IPL or a simple restart of the Catalog address space.

Catalog R13

- **Catalog Search Interface Redrive**
 - Due to the increased usage of Generic Filter Locate (GFL) via the Catalog Search Interface (CSI), more and more requests are not redriven successfully in the event of a CAS RESTART (return code 246 and reason code 0).
 - When a restart problem is detected, a return code of 246, reason code 0 is returned to the caller.
 - **New enhancement:** Redrive the CSI request in the event of a return code 246 reason code.
 - **? Why it Matters:** More requests complete normally (ie redrives are successful).

Catalog R13

- **Replace Catalog Pseudo-Close with VSAM Close**
 - Today, Catalog Management invokes VSAM Open, which writes out SMF62 records. Catalog Management did a pseudo-close which does not issue a real VSAM Close, and no SMF64 records are written out.
 - ***New enhancement:*** Replace Catalog pseudo-close with VSAM Close.
 - 2 SMF64 records written out: one for DATA and one for INDEX.
 - **? Why it Matters:** Improved problem diagnostics in case of error and improved reporting.

AMS R13

- **IDCAMS LISTCAT LEVEL**

- Ordinary LISTCAT with LVL sometimes does not list all dependent objects for a CLUSTER or an AIX. This is because the LVL pattern for the DATA and the INDEX objects does not match the generic pattern expressed.
- **New enhancement:** With a CDILVL option to a LISTCAT LVL, you are able to see the other dependent objects, so long as the pattern matches the main CLUSTER or AIX object.
 - Specify whether related component names be listed when a data set entry is listed based on the pattern specified by LEVEL.
 - *Default is NOCDILVL, so you must specify CDILVL to get the extra set of dependent objects.*
 - CDILVL specification is only for LVL and is used with GFL listings only. Any use of LVL without GFL will be valid, but the parameter will be ignored.
- **? Why it Matters:** See more in a LISTCAT LVL listing than merely what matches the LVL pattern, necessarily.

ISMF R13

- **ISMF Sort Capability**

- Customer requirement to sort saved volume lists (using NaviQuest) by column.
- **New enhancement:** Added sort capability for volume list.
- **? Why it Matters: Makes ISMF easier to use.**

- **ISMF Space in GB**

- **New enhancement:** Add function to ISMF to display space information in GB units and support a new display for pool storage groups.
 - Added the Display function for POOL type SG.
 - User can request space information be displayed in GB.
- **? Why it Matters: Makes ISMF easier to use.**

SMS R13

- **SMS Support for Increased Retention Period**

- Currently the maximum data set retention period is limited to 9999 days after creation, which is about 27 years.
 - In many instances, this is insufficient due to various reasons such as legal requirements that require documents be kept for longer than 27 years.
- **New enhancement:** New design limit is 93,000 days (a bit over 254 years).
 - Specified via:
 - *JCL keyword – REPTD= nnnnn (0 – 93000)*
 - *IDCAMS DEFINE CLUSTER keyword – FOR(days) (0-93000)*
 - *Data class definition RETPD attribute - 0-93000*
 - Due to other system restrictions, the maximum date a data set can be retained is to the end of year 2155.
 - 99000 and 99366 remain as “never expire” dates no matter how derived.
 - The coexistence PTFs for lower level systems will continue to enforce the maximum retention period of 9999 days.
- **? Why it Matters:** Legal requirements and compliance regarding document retention can be met more easily.

SMS R13

- **SMS RAS Enhancements**

- **CDS Linear Data Set Check**

- SMS requires the CDS to be a linear data set and will issue a dump with unclear message that prevents the user from diagnosing the problem.
 - **New enhancement:** SMS determines if the CDS is a VSAM linear data set and will issue a clear message to indicate the error.
 - *IGD090I if the CDS is not a VSAM linear data set*

? Why it Matters: Improved SMS diagnostics.

- **SMS PARMLIB parameter and Command**

- Typically, error messages generated during SMS processing are passed back to the caller who is responsible for externalizing these messages.
 - *For DELETE/RENAME processing, SMS will externalize its own error messages to the hardcopy log and the joblog.*
 - **New enhancement:** SMS provides the user with an option to control the issuance of these DELETE/RENAME messages via a new PARMLIB parameter and operator command.
 - *New parameter for member IGDSMSxx: SUPPRESS_DRMSGS (YES|NO)*
 - *New operator command: SETSMS SUPPRESS_DRMSGS(YES|NO)*

? Why it Matters: SMS users can specify whether or not to have messages displayed in the hardcopy log and joblog.

SMS R13

- **SMS RAS Enhancements**

- **Space Requests Greater than '7FFFFFFF'X kilobytes**

- Current space definitions in internal control blocks and internal logic in SMS limit the size of data sets that can be handled to '7FFFFFFF'X KiloBytes. This computes to roughly 39 million tracks or 2.5 million cylinders for a 3390 device.
 - *Other components have similar restrictions but in most cases their limits are higher, e.g. MVS Allocation has a limit in the neighborhood of 16 million cylinders.*
 - **New enhancement:** SMS will support a much higher data set size. The new limit will be '7FFFFFFF'X Megabytes or higher (greater than 2500 million cylinders).

? Why it Matters: Improved scalability for SMS (ie EAV).

- **Include CDS level in the output of D SMS command**

- Currently, the D SMS command generates the IGD002I message. This message will list information that is extracted from the IGDSMSxx member and stored in the IGDSSIVT.
 - *One piece of information that is not displayed is the level of the currently active configuration. .*
 - **New enhancement:** SMS enhances the D SMS command to put out the level of the configuration in addition to all currently displayed fields.
 - *The level represents the level of DFSMS at which the configuration was created.*
 - *ACDS LEVEL = z/OS Vn.nn|UNAVAIL*

? Why it Matters: Improved SMS reporting.

PDSE R13

- **Refresh PDSE**

- When a PDSE error has occurred, the installation needs to access what is affected by the error and may need to refresh the in-storage copy of the data set.
- **New enhancement:** PDSE support is enhanced with two new commands to simplify the identification of and recovery from some PDSE problems.
 - Display all users of a specified PDSE, and discard stale pages from PDSE directory cache.
 - The **CONNECTIONS command** is useful in determining which jobs are affected when an error occurs associated with a PDSE. The installation can then determine if a reIPL or restart of the PDSE address space must be done immediately.
 - *D SMS,PDSE<1>,CONNECTIONS,DSN(pdsename)<,>,VOL(volser)>*
 - The **REFRESH command** is useful in discarding what may be bad data for a PDSE after an error.
 - *V SMS,PDSE<1>,REFRESH,DSN(pdsename)<,>,VOL(volser)>*

? Why it matters: Simplified error detection and recovery for PDSE.

DADSM / CVAF R13

- **DADSM Availability Enhancements**

- **Dynamic Exit**

- **New enhancement:** Provide Dynamic Exit support for both the preprocessing exit (IGGPRES00) and the postprocessing exit (IGGPOST0).
 - *Provides ability to change exits without interrupting the operation of the system AND to run multiple exit routines in the order specified without having to integrate exits from multiple sources and vendors.*
 - *All DADSM functions (create, extend, rename, partial release, and scratch) support dynamic exits.*

? Why it Matters: Help improve system and application availability.

DADSM / CVAF / Device Services R13

- **Update Volume Information**

- ***New enhancement:*** Update volume information across a Parallel Sysplex when DFSMSdss or DFSMSHsm Fast Replication Backup and Recovery processing complete successfully, and the volume serial or VTOC location, or both, have been changed.
 - Designed to issue VARY automatically on sharing systems when these operations change volume serial, VTOC pointer.
 - Controlled via a new REFUCB keyword is specified in a DEVSUPxx member of parmlib.

? Why it Matters: Eliminate the requirement to issue VARY commands on sharing systems in the sysplex when volume information has been updated by these functions.

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