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What's New in z/OS® DFSMS™ Overview

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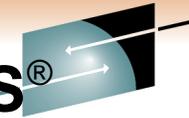
February 28, 2011
Session 8976



Disclaimer

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DFSMStm - Providing System Managed Storage on z/OS[®]



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DFSMS is the standard methodology worldwide for managing enterprise data and storage on the z/OS platform

DFSMS Supports Information Infrastructure Strategy
Innovative, Integrated, Available Today



Information Compliance

- Ability to cope with increased security and compliance requirements



Information Availability

- Improved storage administrator productivity and simplified management of the z/OS environment
- Increased data storage capacity and scalability to cope with explosive growth of data volumes and database sizes
- Seamless, reliable, performance-sensitive data sharing
- Support for deployment of new processors/systems while exploiting their capabilities efficiently
- Point-in-time copy, fast replication, and continuous data mirroring functions while preserving consistency
- High Availability with simpler, faster, and more reliable recovery operations



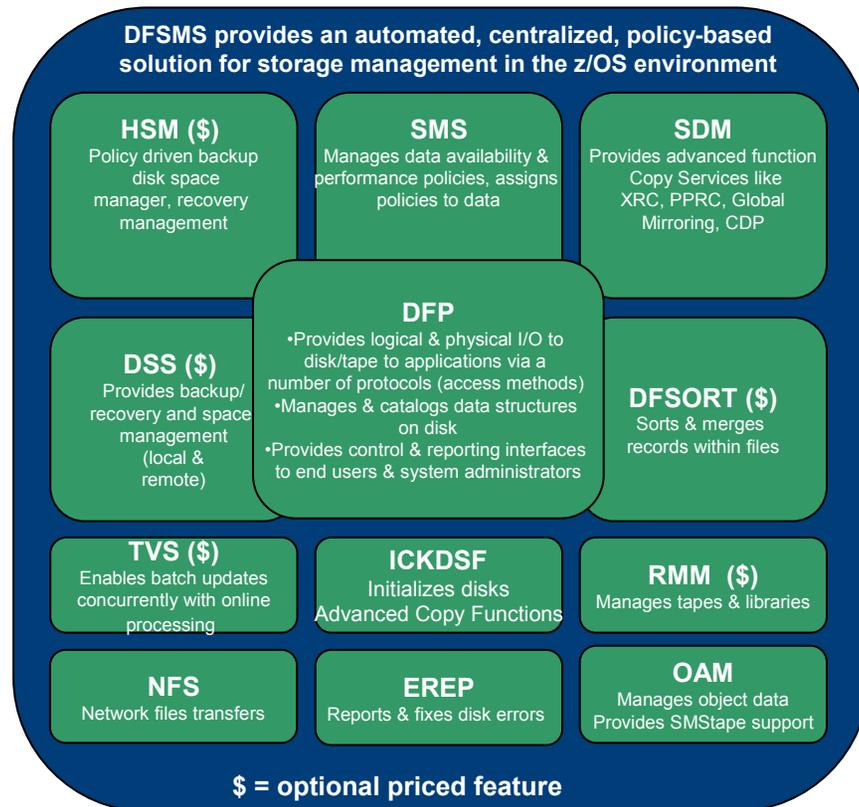
Information Retention

- Data availability at all levels of the storage hierarchy
- Long standing provider of critical data management functions

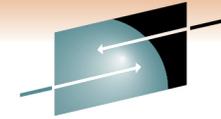


Information Security

- Improved Security with exclusive media encryption capability, integration with z/OS Key Management



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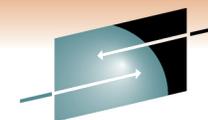
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z/OS® DFSMS™ V1.12 Highlights

(September 2010)

- **Ease of Use**
 - SMS Healthchecker Enhancements
 - DFSORT Enhancements
 - DFSMSrmm Simplified Monitoring & Management
 - ISMF COPY Storage Group Enhancements
 - Catalog Partial Release Enhancements
 - Catalog DEFINE RECATALOG Enhancements
 - PDSE EMPTY Command
 - PDSE Message Enhancements
 - OCE Enhancements
- **Application Integration**
 - SDM Support of ATTREXX Interface
- **Optimization & Management Capabilities**
 - DFSMS IMBED/REPLICATE Removal
 - DFSMS Fast Reverse Restore Enhancements
 - DFSMSrmm TS7700 Reporting Enhancements
 - SMS Storage Group Mgmt & Volume Selection Enhancements
 - IDCAMS DCOLLECT Enhancements
 - IDCAMS GDG Enhancements
 - NFS Enhancements
- **Availability**
 - DFSMSrmm Active and Queued Task Management
- **Scalability, Performance, & Constraint Relief**
 - VSAM KSDS CA Reclaim
 - EAV Additional Data Set Support
 - DFSMSrmm EAV Exploitation
 - DFSORT Memory Object Sorting
 - DFSMS Support for XTLOT and Uncaptured UCBs
 - OAM Enhancements
 - Extended Addressable Catalogs
 - Catalog CAS Contention Detection
 - VSAM RLS Striping
 - BSAM I/O for DUMP output, COPYDUMP, and RESTORE input
 - DFSMSShsm Dump Tape Recovery Enhancements
 - DFSMSShsm Space Management Performance
 - DFSMSShsm Dump Stacking
- **Security**
 - NFS Enhancements

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z/OS® DFSMS™ V1.12 Highlights

(September 2010)

- **DFSMShsm**
 - ★ DFSMS Fast Reverse Restore Enhancements
 - ★ DFSMShsm Dump Tape Recovery Enhancements
 - ★ DFSMShsm Space Management Performance
 - ★ DFSMShsm Dump Stacking
 - ★ DFSMShsm TS7680 ProtecTier Dedup
- **DFSMSrmm**
 - ★ DFSMSrmm Simplified Monitoring & Management
 - ★ DFSMSrmm TS7700 Reporting Enhancements
 - ★ DFSMSrmm Active and Queued Task Management
 - ★ DFSMSrmm EAV Exploitation
- **DFSMSdss**
 - ★ BSAM I/O for DUMP output, COPYDUMP, and RESTORE input
 - ★ DFSMS IMBED/REPLICATE Removal
- **DFSORT**
 - DFSORT Ease of Use Enhancements
 - DFSORT Memory Object Sorting (Performance)
- **SDM**
 - ★ SDM Support of ATTREXX Interface
- **OAM**
 - ★ OAM Enhancements
- **NFS**
 - NFS Enhancements
- **DFSMSdfp**
 - EAV Additional Data Set Support
 - DFSMS Support for XTIOU and Uncaptured UCBs
 - OCE Enhancements
- **VSAM / VSAM RLS**
 - ★ VSAM KSDS CA Reclaim
 - VSAM RLS Striping
- **Catalog**
 - ★ Catalog Partial Release Enhancements
 - ★ Catalog DEFINE RECATALOG Enhancements
 - ★ Catalog CAS Contention Detection
 - ★ Extended Addressable Catalogs
- **IDCAMS**
 - ★ IDCAMS DCOLLECT Enhancements
 - ★ IDCAMS GDG Enhancements
- **SMS / ISMF**
 - SMS Healthchecker Enhancements
 - SMS Storage Group Mgmt & Volume Selection Enhancements
 - ISMF COPY Storage Group Enhancements
- **PDSE**
 - PDSE EMPTY Command
 - PDSE Message Enhancements

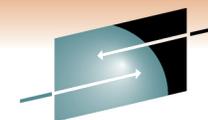
★ For more details on R12 enhancements see sessions:

- 8967 What's New in DFSMSrmm
- 8970 What's New in DFSMShsm
- 8972 What's New in DFSMSdss and SDM
- 8977 What's New with the DFSMS ICF Catalog and IDCAMS
- 9007 Reclaim Those Empty CAs!
- 9009 What's New with OAM Object Support

For more details: DFSMS Using the New Functions (SC26-7473-07)

- <http://publibz.boulder.ibm.com/epubs/pdf/dgt2g570.pdf>

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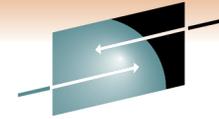
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z/OS® DFSMS™ V1.13 Preview

(September 2011)

- ★ **NEW z/OSMF Storage Management Application**
- **DFSMShsm**
 - * DFSMShsm CDS Backup Improvements
 - * DFSMShsm “On Demand” Migration
 - * DFSMShsm RAS and Usability Enhancements
- **DFSMSrmm**
 - DFSMSrmm Simplified Monitoring & Management
- **DFSORT**
 - * DFSORT New Enhancements APAR
- **SDM**
 - SDM Support of ATTREXX Interface
- **OAM**
 - * OAM Filesystem Support
 - OAM Usability & Reliability Enhancements
- **NFS**
 - NFS Windows 7 Support
- **DFSMSdfp**
 - * Support for XTIoT and Uncaptured UCBs
 - OCE Enhancements
- **VSAM / VSAM RLS**
 - * VSAM RLS Performance Enhancements
- **Catalog**
 - * Catalog PARMLIB Support
 - * Catalog VVDS Expansion
 - * Catalog Alias Constraint Relief
- **IDCAMS**
 - * IDCAMS LISTCAT LEVEL
 - * IDCAMS DELETE UCAT
- **SMS / ISMF**
 - SMS Best Practices
 - ISMF Space in GB
- **PDSE**
 - IEBCOPY Command
 - Refresh PDSE
 - IEBCOPY Enhancements
- **DADSM / CVAF / Device Services**
 - Update Volume Information
 - DADSM Availability Enhancements

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NEW z/OSMF Storage Management Application

- **z/OSMF DASD Management Task**

- The first phase in simplifying SMS Storage Management focuses on the task of adding storage capacity to an SMS pool storage group through a single user interface.
- Today, the storage administrator must determine when a storage group is near its capacity, identify how much storage to add, and what volumes to add.
- Once determined, multiple steps across various user interfaces are required to make the added capacity available to SMS:
 - ISMF to add volume entries to the storage group definition (update SCDS)
 - ICKDSF to initialize the volumes
 - Operator command to vary the volumes online
 - ISMF to activate the updated SCDS
- The z/OSMF DADS Management task is designed to help the storage administrator by streamlining the process of adding volumes to SMS pool storage groups.
 - It's intended to allow users to perform storage group management tasks from within the application, reducing several manually intensive steps involving multiple applications to a single GUI.

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z/OS[®] DFSMS[™] V1.12 Highlights

(September 2010)

■ DFSMShsm

- DFSMS Fast Reverse Restore Enhancements
- DFSMShsm Dump Tape Recovery Enhancements
- DFSMShsm Dump Stacking
- DFSMShsm Space Management Performance
- DFSMShsm TS7680 ProtecTier Dedup
- 8970 What's New in DFSMShsm, Tuesday 11AM

Optimization & Mgmt Capabilities

DFSMSHsm Fast Replication Enhancements



- **DFSMS Fast Reverse Restore Enhancements**

- Fast replication is an HSM function that manages Point-in-Time copies
 - Combined with DB2 BACKUP SYSTEM, provides non-disruptive backup and recovery to any point in time for DB2 databases and subsystems (SAP) (ie continuous data protection).
 - Recovery at all levels from either disk or tape - entire copy pool, individual volumes and data sets.
- Currently Disk recovery cannot be performed until the physical background copy is complete (hours after the logical backup was created) and disk recovery from a NOCOPY version is not supported.
- **New enhancement:** DFSMSdss and DFSMSHsm will exploit the Fast Reverse Restore feature.
 - Enable DFSMSHsm to flash back for disk recovery even though the background copy has not completed and enable fast replication disk recovery from a NOCOPY version

- *There are some restrictions.*

? Why it Matters: Enables DFSMSHsm to FlashBack for recovery even though the background copy has not completed – could save hours!

- **DFSMSHsm Dump Tape Recovery Enhancements**

- Currently, an entire copy pool can only be recovered from disk. DB2 or native DSS has to be used to recover from tape.
- **New enhancement:** DFSMSHsm will support parallel processing for recovery from dump tape volumes when the dumps reside on multiple tape volumes and multiple tape drives are available.

? Why it Matters: Potentially could save a lot of time in large recoveries.

Performance: DFSMShsm Enhancements



- **DFSMShsm Dump Stacking**

- DFSMShsm DUMP function is used to copy source disk volumes to a target tape volume.
- **New enhancement:** Allow up to 255 source volumes to be dumped to a single tape volume, an increase from the prior limit of 99.
- **? Why it Matters: Allows you take better advantage of large capacity tape cartridges.**

- **DFSMShsm Space Management Performance**

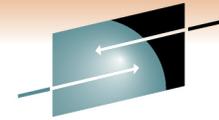
- Primary Space Management (PSM) or Interval Migration (IM) may not finish within expected timeframes.
 - Intended to address performance issues due to vertical growth (increasing the number of data sets on individual disk volumes - EAVs) and horizontal growth (increasing number of data sets across more disk volumes).
- **New enhancement:** New option to allow Primary Space Management, Interval Migration, and the MIGRATE PRIMARY command to overlap volume preprocessing with volume data movement in order to reduce elapsed time.
- **? Why it Matters: Potentially could save a lot of time in large DFSMShsm environments.**

DFSMSHsm TS7680 ProtecTier Dedup



- **TS7680 ProtecTier Deduplication**
 - Virtual Tape Library
 - Inline data deduplication
 - Replication – Only deduplicated data is transmitted
- **DFSMSHsm data**
 - DFSMSHsm ‘wraps’ blocks of native data with meta data, making all blocks unique
 - TS7680 has logic specific for DFSMSHsm blocks so that it can deduplicate them

? Why it Matters: Allows HSM data to be a candidate for deduplication



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DFSMSHsm R13 Preview

- **DFSMSHsm CDS Backup Improvements**

- All DFSMSHsm functions are quiesced throughout the CDS backup function, and this impacts the ability to recall or recover data from DFSMSHsm during this period.
 - CDS Backup window also involves time it takes to ensure the complete physical backup of the HSM journal
 - *HSM does not support a point-in-time (PiT) backup technique for the journal*
- **New enhancement:** CDS backup processing will begin the CDS backup function immediately instead of waiting for DFSMSHsm requests to complete.
 - When you specify that a point-in-time copy technique is to be used, CDS backup will back up the journal with minimum impact to DFSMSHsm request processing.

? **Why it Matters: Improve system responsiveness with less-disruptive DFSMSHsm journal and control data set (CDS) backups.**

- **DFSMSHsm “On Demand” Migration**

- Interval migration -- at the top of every hour, DFSMSHsm performs a space check on every volume that it manages.
 - Causes a spike in DFSMSHsm CPU usage and can consume a lot of wall clock time.
- **New enhancement:** Specify that space management be done when any volume in a storage group for which automigration is enabled exceeds the utilization threshold, rather than waiting for Interval Migration processing.

? **Why it Matters: Make DFSMSHsm space management more responsive when On Demand Migration replaces Interval Migration processing**

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DFSMSHsm R13 Preview

- DFSMSHsm RAS and Usability Enhancements
 - **RELEASE RECALL (DASD)**
 - After a HOLD RECALL command is issued, there is no command to release the tasks recalling from DASD volumes without also releasing the hold on recalls from tape volumes.
 - *If an operator experiences a major problem with a tape subsystem, there is no way to release DASD recalls without issuing a general RELEASE RECALL.*
 - **New enhancement:** A new subparameter for the RELEASE RECALL command you can use to specify that DFSMSHsm avoid recalling data sets from missing or faulty tapes while releasing the hold on recalls from DASD.
 - **Share Requirement MET:** SSMVSS09005
 - *Once a HOLD RECALL command has been issued, there is no way to release DASD recalls without also releasing tape recalls.*
 - **? Why it Matters:** If a tape subsystem will be down for an extended period of time, work can continue for those datasets only migrated to DASD.



z/OS[®] DFSMS[™] V1.12 Highlights

(September 2010)

■ **DFSMSrmm**

- **DFSMSrmm Simplified Monitoring & Management**
- **DFSMSrmm TS7700 Reporting Enhancements**
- **DFSMSrmm Active and Queued Task Management**
- **DFSMSrmm EAV Exploitation**
- **8967 What's New in DFSMSrmm, Tuesday 1:30PM**

Ease of Use: DFSMSrmm Enhancements



- Multiple enhancements provided to support simplified monitoring and management of DFSMSrmm:
 - **Reason why a DFSMSrmm retention limit was reached added to the ACTIVITY file**
 - **New enhancement:** New reports created from the ACTIVITY and extract files will help determine why retention limits were triggered.
 - Available now for z/OS V1.10 and z/OS V1.11 with the PTF for APAR OA30881
 - **Set a volume hold attribute to prevent expiration and to search and report on volumes which have the hold attribute**
 - Difficult to determine how data sets and volumes are retained and changing policies or EXPDT might cause loss of actual retention policy.
 - **New enhancement:** New command prevents a volume being set to pending release and can be changed per TSO command or RMM dialog.
 - *New sample report EDGGAHLD is provided*
 - **? Why it Matters: Adding/updating archival features to z/OS to enable it to meet industry and Legal requirements**
 - **OPENRULE ignore processing available for duplicate tape volumes**
 - DFSMSrmm uses the VOL1 volser and the external / requested volser to select the OPENRULE entry, but which volser should DFSMSrmm take in case of a “duplicate volume“?
 - **New enhancement:** DFSMSrmm uses only the external / requested volser to select the OPENRULE entry
 - **? Why it Matters: Exploitation of OPENRULE IGNORE function for ‘duplicate volumes’**



Ease of Use: DFSMSrmm Enhancements

- Multiple enhancements provided to support simplified monitoring and management of DFSMSrmm:
 - **DFSMSrmm ISPF dialog search results can be bypassed when using the CLIST option**
 - Sometimes when a user gets large search results these results can't be displayed due to memory limitations.
 - **New enhancement:** Write the results to a CLIST dataset and use a new input field, NOLIST, to skip the display of the search results.
 - **SHARE Requirement MET:** SSMVSS09006
 - *Implement NOLIST option for RMM CLIST commands in dialog*
 - **? Why it Matters: Bypasses system memory size limitations and reduces the run time**
 - **RMM exploitation of a new Timed Auto Reply Function**
 - DFSMSrmm issues several messages requiring operator intervention.
 - *In case of missing or incorrect operator replies there could be an impact on production tape processing*
 - **New enhancement:** Provide an additional way for the system to respond automatically to write to operator with reply (WTOR) messages.
 - **SHARE Requirement MET:** SSMVSS09007
 - *Prevent RMM impact when issuing WTOR in parallel*
 - **? Why it Matters: Can define autoreplies to DFSMSrmm messages to minimize the risk of operator intervention**

Optimization & Mgmt Capabilities:

DFSMSrmm Enhancements

- **DFSMSrmm TS7700 Reporting Enhancements**
 - The TS7700 library provides information about copy exported data based on volume serial numbers only.
 - There is no information regarding the exported data sets.
 - ***New enhancement:*** DFSMSrmm will help with reporting of data sets and logical volumes which are copy exported from a TS7700 virtualization engine.
 - Reports can be created either from the export list file of up to three copy exports, or from the information created from the TS7700 Bulk Volume Information Retrieval Function (BVIR).
 - *Sample report job located in SYS1.SAMPLIB(EDGJCEXP)*
- **? Why it Matters: Quick and easy way to create a list of data sets on the volumes copy exported.**

Availability: DFSMSrmm Enhancements

- **DFSMSrmm Active and Queued Task Management**
 - There was no way to retrieve information about the DFSMSrmm subsystem requests and task status except the MODIFY operator command
 - **New enhancement:** New TSO subcommand, RMM LC STATUS
 - Provides information about the DFSMSrmm subsystem, subsystem requests, and task status
 - *The information returned is very similar to the results of the operator QUERY ACTIVE command*
 - Issued using TSO, the RMM API, HLL API, and the Web Service
 - RMM dialog panel EDGPCC00 can be used to view RMM status and to use Hold, Release and Cancel commands against tasks.

? Why it Matters: Enables storage applications to monitor and act on the available information.



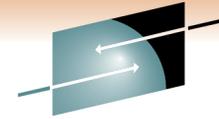
z/OS[®] DFSMS[™] V1.12 Highlights

(September 2010)

■ DFSMSdss

- **BSAM I/O for DUMP output, COPYDUMP, and RESTORE input**
- **DFSMS IMBED/REPLICATE Removal**
- **8972 What's New in DFSMSdss and SDM, Thursday 8AM**

Performance: DFSMSdss Enhancements



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- **BSAM I/O for DUMP output, COPYDUMP, and RESTORE input**
 - **New enhancement:** DFSMSdss will use larger blocks when possible for DUMP, COPYDUMP, and RESTORE operations, and to support Extended Format Sequential dump data sets on DASD for DUMP, RESTORE, and COPYDUMP.
 - Create copy and restore backups on tape with larger than 65520 byte blocks
 - Create copy and restore backups in the extended format on DASD
 - Fallback to the old method of EXCP instead of BSAM at the JOB, application or installation level
 - The use of larger block sizes is intended to provide
 - Increased flexibility for dump data set types
 - Faster throughput, shorten batch window for backups
 - Backups greater than 4GB, SMS compression, striped backups (ie support
 - DFSMSHsm functions that will exploit this enhancement
 - BACKVOL/FRBACKUP DUMP
 - AUTOMATIC DUMP
 - RECOVER/FRRECOV FROMDUMP

? Why it Matters: Improve DFSMSdss performance, elapsed time improvement up to 36% (average~20-30%)

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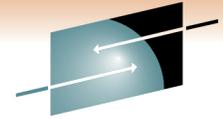
Optimization & Mgmt Capabilities:

DFSMSdss Enhancements



- **DFSMSdss IMBED/REPLICATE Removal**
 - The creation of new VSAM data sets with IMBED and REPLICATE attributes has been unsupported since z/OS V1.3.
 - Customers have requested assistance in identifying and converting these data sets.
 - **New enhancement:** DFSMSdss will generate new messages identifying indexed VSAM data sets with these attributes and will convert some data sets automatically.
 - Convert any indexed VSAM data set with the IMBED or REPLICATE attribute to a data set without these attributes when they are restored using logical data set restore.

? Why it Matters: Reduces customers effort to remove these obsolete attributes.



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z/OS[®] DFSMS[™] V1.12 Highlights

(September 2010)

■ DFSORT

- DFSORT Ease of Use Enhancements
- DFSORT Memory Object Sorting (Performance)

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Ease of Use: DFSORT Enhancements



- **Provide VSAM Work Space Estimates**

- DFSORT needs a good file size estimate to adequately allocate work space to successfully sort input records.
 - When VSAM data sets are not closed after updating them (ie when a job ends abnormally), the information stored about their sizes is often incorrect.
 - DFSORT would issue a warning message and fail with ICE046A or ICE083A if the catalog statistics are bad.
- **New enhancement:** DFSORT will use an alternate method to determine the file size and calculate the workspace needed.
- Existing ICE255I message is changed to be issued only for a SORT application.
- New message ICE264I is issued for a COPY operation if the VSAM dataset is “broken”.
 - The COPY operation will complete successfully. This message is issued only so the user is aware that they may want to fix the statistics.

? Why it Matters: Users can now run jobs to sort “broken” VSAM data sets and are less likely to receive abends.

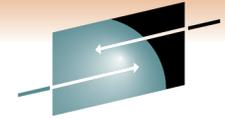
Ease of Use: DFSORT Enhancements



- **Dynamic Allocation Improvements**

- DFSORT's dynamic allocation of work data sets provided limited capability to react to unexpected increases in disk work space requirements
 - File size larger than expected
 - Central storage resources becoming constrained
- **New enhancement:** DFSORT will provide the capability for dynamic allocation of additional work data sets that are only used if needed
 - Controlled by new DYNAPCT installation default and run time option
 - *Does not increase total space allocated*
 - *Additional work data sets are allocated with zero space*
- New DFSORT messages
 - ICE236I shows DYNAPCT value in effect
 - ICE278I indicates if additional work data sets were required to complete a sort
- If additional work data set allocations are a concern, DYNAPCT=OLD will force dynamic allocation to function the same as it did prior to this line item

? Why it Matters: Expected to reduce sort failures that occur due to insufficient work space



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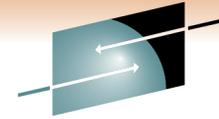
Ease of Use: DFSORT Enhancements

- **Provide Additional Diagnostics**

- Not enough information was provided to diagnose why message ICE083A (Resources Unavailable for Dynamic Allocation) message was issued.
- **New enhancement:** DFSORT will issue new messages in addition to the ICE083A message
 - Additional messages provide information about how much space DFSORT was attempting to allocate and how much of that it was able to allocate
 - Message also includes the number of volumes to help the user determine if the space amount is too large or if it needs to be spread across more volumes
- Enables users to
 - Determine possible causes of ICE083A
 - Calculate required work space and number of work volumes for failed sort
 - Take corrective action to resolve or prevent failures

? Why it Matters: Easier correction or prevention of errors, improved first failure data capture, and reduced PMRs

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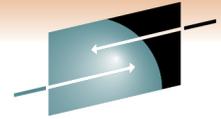
Ease of Use: DFSORT Enhancements

- **Issue Diagnostic Messages Automatically**
 - DFSORT diagnostic messages are not issued unless the SORTDIAG DD is coded or installation default DIAGSIM=YES is in effect.
 - When users report problems, often have to rerun the job, with the SORTDIAG DD coded, to collect documentation.
 - **New enhancement:** In error situations, issue DFSORT messages without the need to specify a SORTDIAG DD statement or the DIAGSIM=YES installation option
 - Diagnostic messages (ICE75x, ICE8xx and ICE9xx) are issued for all error situations that result in ICExxxA messages
 - Additional messages are only for diagnosis and are intended only for use by L2, L3 and development and will **not** be documented
 - Users still need to code the SORTDIAG DD or DIAGSIM=YES to cause DFSORT to issue diagnostic messages when DFSORT completes successfully
- **? Why it Matters: Improved first failure data capture and reduced frequency of requests to recreate customer problems**

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Scalability & Constraint Relief:

DFSORT Enhancements



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- **Memory Object Sorting**

- Preferred path is memory object (storage above the bar) sorting which sorts all records in this storage
 - Only limited by central storage (uses more CPU)
- Second in preference is to use hiperspace sorting which writes sets of sorted records to hiperspace storage (intermediate work space) then merges the sets of records
 - Capacity is limited to 32G (uses less CPU)
- ***New enhancement:*** The hiperspace path will now be preferred
 - Path modified to use memory objects or hiperspace as workspace
 - Default is to use memory objects (central storage limit is 64GB)
 - New DFSORT messages indicate whether memory object storage was used as main storage or work storage

? Why it Matters: Reduced DFSORT CPU time and contention and better balancing of central storage usage across concurrent sorts.

DFSORT R13 Preview

- **DFSORT New Enhancements APAR**

- Available with PTFs UK90025 for z/OS V1.10 / z/OS V1.11 and UK90026 for z/OS V1.12
 - Includes a variety of new functions for
 - *Translating ASCII, EBCDIC, hex, and binary characters*
 - *Changing output record lengths via a new RESIZE operator for ICETOOL*
 - *Processing subsets of output records via a new ACCEPT option for the OUTFIL statement*
 - *Supporting SET and PROC symbol substitution in control statements*
 - *Providing more information in reports*
 - *Date field arithmetic operations*
 - *Grouping function based on key changes*
- For more information about these new functions, see User Guide for DFSORT PTFs UK90025 and UK90026 at
 - <http://www.ibm.com/support/docview.wss?rs=114&uid=isg3T7000242>

? Why it Matters: Provide new functions and improved flexibility and help simplify the use of DFSORT



z/OS[®] DFSMS[™] V1.12 Highlights

(September 2010)

■ SDM

- **SDM Support of ATTREXX Interface**
- **8972 What's New in DFSMSdss and SDM, Thursday 8AM**

Application Integration:

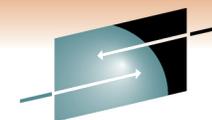
SDM Enhancements



- **SDM Support of ATTREXX Interface**

- SDM has an unsupported REXX interface
 - Used as a test tool for the ANTRQST API and by a small set of customers.
- **New enhancement:** Provide a REXX interface for many of the functions of the SDM programming interface (ANTRQST).
 - Provides interfaces to FlashCopy®, Global Mirror, z/OS Global Mirror (XRC), Metro Mirror (PPRC), and other misc. SDM services.
 - CLISTs will be provided in SYS1.SAMPLIB for the invocation of ANTTREXX.
 - Results from ANTTREXX will be in the form of messages indicating the success or failure of the request.
 - Complete documentation provided in z/OS V1R11.0 DFSMS Advanced Copy Services (SC35-0428-16).
- **SHARE Requirement MET:** SSMVSS07014
 - Provide a supported REXX interface for the System Data Mover

? Why it Matters: Provides advanced users with a better programming interface.



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z/OS[®] DFSMS[™] V1.12 Highlights

(September 2010)

■ OAM

- OAM Enhancements
- 9009 What's New with OAM Object Support, Monday 4:30PM

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Performance: OAM Enhancements



- **OAM Object Storage & Retrieval (OSR) Enhancements**

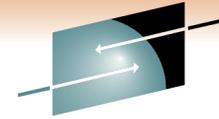
- **New enhancement:** OAM will provide API support for the Object Storage and Retrieval function (OSR) to run in a CICS threadsafe environment
 - Reduces the number of 'task switches' for CICS applications that invoke the OAM OSREQ API
 - Intended to allow exploiters to take advantage of the improved multitasking and throughput capabilities provided by threadsafe programming.
 - Both CICS threadsafe and non-threadsafe applications will benefit

? Why it Matters: Reduced CPU time and increased application throughput

- **Volume Recovery Improvements**

- **New enhancement:** Improved performance with the Volume Recovery utility in certain situations when recovering object data stored on optical and tape media.
 - Utility redesigned to more efficiently access object information.
- Improvements most noticeable when recovering a backup volume containing objects with primary copies in a large number of different collections on a large number of different volumes.
- Statistics displayed now include the count of objects remaining on the recovered volume (i.e. that were NOT recovered)

? Why it Matters: Improved performance when recovering objects.



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Ease of Use: OAM Enhancements

- **Display OSMC Command Output Updates**
 - The MODIFY OAM,D,OSMC command does not include 'Immediate Backup' and 'Recall to DB2' queue statistics
 - **New enhancement:** Include the number of Immediate Backup and Recall to DB2 tasks currently processing and queued to process
 - **? Why it Matters:** Immediate Backup and Recall to DB2 task counts are easily displayed
- **Storage Group Multi-System Enablement**
 - OAM processing restricts a Storage Group to be enabled only to a single system in a non-OAMplex environment
 - **New enhancement:** Allow Object and Object Backup Storage Groups to be enabled to more than one system in a non-OAMplex environment
 - **? Why it Matters:** Allows installations who use standalone (non-OAMplex) instances of OAM on multiple systems in an SMSplex but desire to use a common object or object backup storage group name across systems.

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Ease of Use: OAM Enhancements



- **Start DB2 Indications**

- OAM only issues message CBR7530E once if DB2 goes down.
 - If the operator clears that message from the screen, it is not obvious later on why OAM commands do not work.
- ***New enhancement:*** OAM will now reissue CBR7530E after every subsequent OAM operator command entered until DB2 is brought back up or OAM is cancelled.

? Why it Matters: Provides Better communication to operator about why OAM commands are not working.

OAM R13 Preview

- **OAM Filesystem Support**

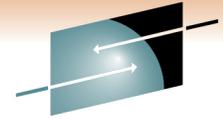
- OAM's storage hierarchy supports disk, tape, and optical storage levels.
- **New enhancement:** OAM adds support for file systems to the disk level for zSeries File System (zFS) and Network File System (NFS) file systems, in addition to the existing support for DB2-backed object storage.
 - Support of file systems for primary OAM object storage allows z/OS UNIX file systems to store, retrieve, and delete objects, and to move objects between file systems and other locations in the OAM hierarchy.

? Why it Matters: Provides new, more flexible ways to configure OAM storage hierarchy.

- For more details see Session **9007 DFSMS Object Support: Data Archiving with OAM**, Wednesday 1:30PM

z/OS[®] DFSMS[™] V1.12 Highlights

(September 2010)



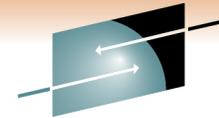
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■ NFS

- NFS Enhancements

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Optimization & Mgmt Capabilities:

NFS Enhancements

- **NFS Server SMF Records for File Operations**
 - NFS Server needs to provide an additional SMF record for auditing and security reasons
 - An audit trail is required specifying the user who created, removed, or renamed the file on the NFS mounted file system
 - An audit trail is required for the creation, deletion, and renaming of MVS datasets and members
 - ***New enhancement:*** New SMF record: type 42 subtype 26 used to provide additional SMF recording for every CREATE/REMOVE/RENAME NFS operation in z/OS NFS server
 - SMF record will include Client information, the type of operation (create, remove, rename), and object descriptive information
 - For z/OS Unix objects, the filesystem name, device number, object name, inode, and parent inode information will be saved.
 - For MVS objects, the volume name, full dataset name, and member name (if appropriate) will be saved.

? Why it Matters: Provides customer the audit capability and enhances NFS serviceability

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Optimization & Mgmt Capabilities:

NFS Enhancements

- **NFS Server Cache Monitoring and Reporting**

- NFS Server needs to provide an additional SMF record for auditing and security reasons
 - Issue messages to the console to warn of impending legacy data buffer shortage problems, before the server cache is exhausted and an error is generated.
- ***New enhancement:*** New console messages to warn about z/OS Network File System Server legacy data buffers shortage.
- New console commands available which provide the ability to
 - Track current legacy data buffers utilization
 - Change maximum legacy data buffers pool size and warning thresholds from the console
- If monitoring is enabled, messages are issued:
 - When buffer utilization exceeds the alert threshold, as it approaches the maximum allowed, and when it falls below the threshold.

? Why it Matters: Easier to tune z/OS Network File System Server attributes for current workload.

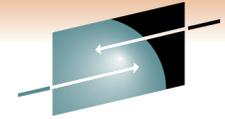
Optimization & Mgmt Capabilities:

NFS Enhancements



- **Display the Accounting Statistics in the NFS Server**
 - Current nfsstat program displays the z/OS NFS Client RPC and NFS accounting statistics.
 - Need accounting statistics to provide insight to the interactions between Client(s) and Server(s)
 - ***New enhancement:*** NFS provides accounting statistics of all NFS Servers in an LPAR.
 - The accounting statistics are
 - The number of received Remote Procedure Calls (RPC),
 - The number of the received Network File System (NFS) Version2, or Version3 procedures, or Version4 operations

? Why it Matters: Easier to tune and debug server/client interactions.



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Security: NFS Enhancements

- **NFS Password Phrase Support**

- In SAF or SAFEXP mode, client users are required to issue an mvlogin with the RACF User Id and the password.
 - NFS Server has 8 characters limit on password for the RACF users.
- **New enhancement:** NFS Server supports password phrases up to 100 characters in length for mvlogin, in addition to existing support for passwords up to 8 characters long
 - Requires password phrase support from RACF, or another external security manager.
 - User can authenticate with either password or password phrase.
 - New message is posted on the user console when user tries to change from current password to new password phrase and vice versa, which is not supported by RACF.

? Why it Matters: Allows migration to password phrases, which offer a much larger name space than passwords.

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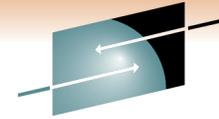


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(September 2010)

■ DFSMSdfp

- EAV Additional Data Set Support
- DFSMS Support for XTIO and Uncaptured UCBs
- OCE Enhancements



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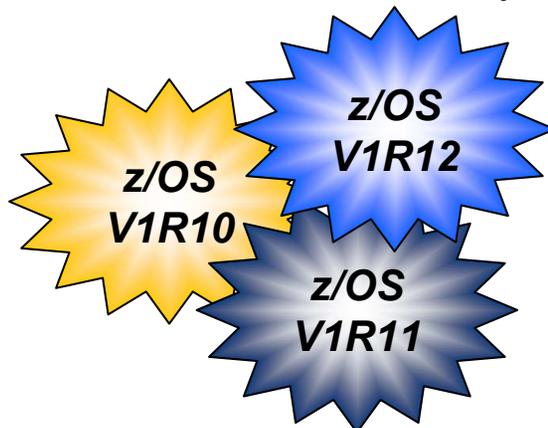
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Scalability: What is an EAV?

- **What is an Extended Address Volume (EAV)?**
 - A volume with more than 65,520 cylinders
 - Size limited to 223 GB (262,668 Max cylinders)
 - Supported in z/OS V1R10 and higher
- **What is EAS Eligible?**
 - A data set on an EAV that is eligible to have extents in the extended addressing space and described by extended attribute DSCBs (format 8/9)
 - Can reside in track or cylinder-managed space
 - SMS-managed or non-SMS managed
 - Any data set type can reside in track-managed space



Breaking the 65,520 cylinder limit



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EAS Eligible data set sets in z/OS

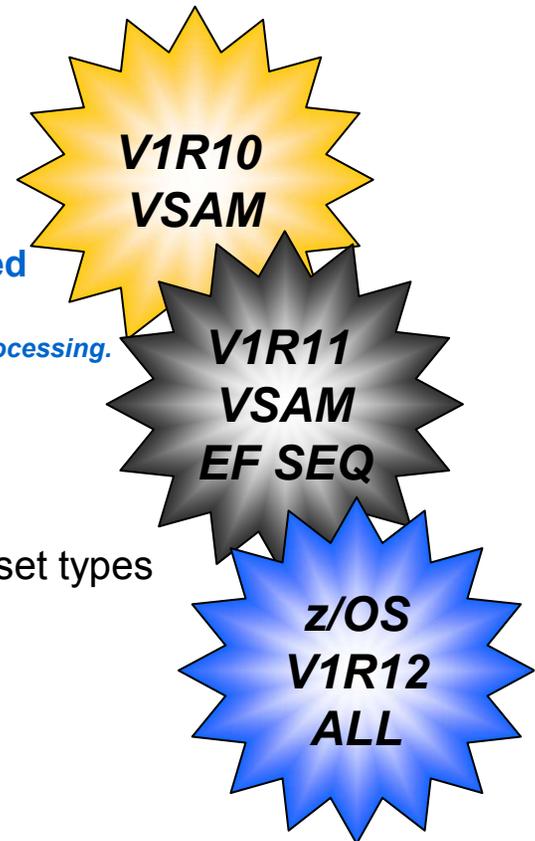


- **Data set types supported**

- **VSAM data types (KSDS, RRDS, ESDS and linear)**
- **Sequential (Extended Format)**
- **Sequential (Basic and Large Format)**
- **Direct (BDAM)**
- **Partitioned (PDS, PDSE)**
- **Catalog (VVDS and BCS)**
- **All data sets used by DFSMSrmm (journal and dynamically allocated temporary files)**
 - *Except the RMM CLIST data set when created automatically by SEARCH subcommand processing.*

- **z/OS R13 Exploitation**

- Communications Server FTP, which already supports SMS-managed extended format sequential data sets, supports these additional data set types when they reside in the extended addressing space(EAS) of an EAV:
 - SMS-managed and non-SMS-managed physical sequential
 - Basic and large format data sets
 - PDS and PDSE data sets
 - GDG data sets.



? **Why it Matters: Scalability for customers constrained by 4 character UCB's**

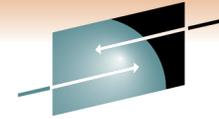
Scalability & Constraint Relief:

XTIOT and Uncaptured UCBs

- **DFSMS Support for XTIOT and Uncaptured UCBs**
 - In many z/OS environments, some workloads require an increasing number of open data sets.
 - **New enhancement:** Support the use of an extended task I/O table (XTIOT) with uncaptured UCBs and data set association blocks (DSABs) above the 16 MB line for BSAM, QSAM, and BPAM (basic and queued sequential, and basic partitioned access methods), OPEN/CLOSE/EOV, CVAF, DADSM, EXCP, and RACF processing.
 - Exploiters include:
 - SNAP/SNAPX services and dump processing (including that for SVC, SYSABEND, SYMDUMP, and SYSUDUMP)
 - AMASPZAP
 - The Program Management Binder
 - TSO/E
 - DFSORT
 - **z/OS R13 allow**
 - *Subsystems to use BAM DCBs and ACBs with XTIOT*
 - *Unauthorized programs to use XTIOTs when a captured UCB is not requested*

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

Ease of Use: OCE Enhancements

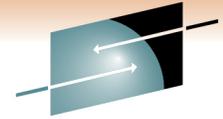


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- **New DCB abend exit option when exit sets IGNORE option**
 - When an OCE determinant ABEND is detected and DCB ABEND exit selects the ignore option, the associated ABEND message is issued even though there is no abnormal termination of the task
 - Provide a new DCB ABEND exit ignore option to additionally bypass the associated determinant ABEND message
 - Eliminates the contradiction of externalizing an ABEND when the task does not actually abnormally terminate
- **Recovery for SMS DASD input when missing last volume externalized via IEC710I**
 - When reading an SMS DASD data set and message “IEC710I another volume expected” is issued, the job completes successfully even though not all the data is read
 - Recover by locating the next volume via the catalog to read. If recovery is not possible, then ABEND the task with ABEND 637-BC
 - Maintain data integrity by ensuring all data is read
- **New reason codes when FREE=CLOSE is not honored in IEC988I message**
 - FREE=CLOSE is requested (unallocate when the data set is closed) but is then bypassed for expected reasons which are not externalized
 - Provide a new message IEC988I to externalize the reason for not honoring the FREE=CLOSE request
 - Simplifies diagnosis of FREE=CLOSE failures
- **New reason codes for ABEND 413 and 637 when detected for missing or out of order tape volumes of a multivolume tape data set**
 - When the label anomaly installation exit requests an ABEND due to a missing or out sequence volume condition when reading a multivolume tape data set, there is no specific reason code that describes the anomaly
 - Provide a new ABEND reason code for each anomaly and provide a recovery option via a DCB ABEND exit
 - Provides better control at both the installation and application levels when missing or out of order tape volume conditions are detected when reading

? Why it Matters: Improved first failure data capture and diagnostics

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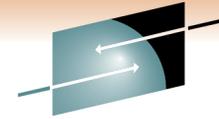
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z/OS[®] DFSMS[™] V1.12 Highlights

(September 2010)

- **VSAM / VSAM RLS**
 - **VSAM KSDS CA Reclaim**
 - **VSAM RLS Striping**

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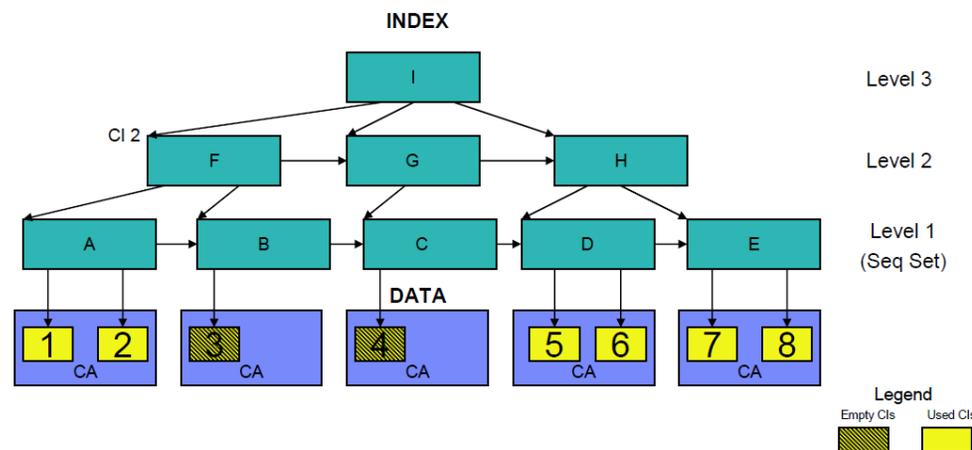
Performance: VSAM KSDS CA Reclaim

- **24/7 Availability**

- CA Reclaim circumvents VSAM KSDS files from being taken offline to reclaim unused space.
 - When records are erased from a VSAM KSDS, the empty CAs are not often reused, resulting in a “fragmented” data set
- Applications that use VSAM key-sequenced data sets (KSDS) can benefit from improved performance, minimized space utilization, and improved application availability.
 - For example, IBM system tests indicate performance of dedicated VSAM workload could improve by up to 44%, in addition to helping avoid outages that used to be required to defragment and reorganize this data.
 - Performance improvements are anticipated for many applications using CICS®, VSAM, VSAM RLS, IMS™ VSAM, and Catalog processing.

? Why it Matters: Avoids planned down time for VSAM KSDS reorgs

- *For more details see Session 9007 Reclaim Those empty CAs!, Friday 11AM*

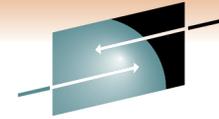


Performance: VSAM RLS Striping

- **VSAM RLS Striping**

- Previously striped data sets were only supported via base VSAM.
- **New enhancement:** VSAM record level sharing (RLS) will support striped data sets.
 - Allows single application requests for records in multiple tracks or control intervals (CIs) to be satisfied by concurrent I/O requests to multiple volumes.
 - Using striped data sets can result in improved performance by transferring data at rates greater than can be achieved using single I/O paths.

? Why it Matters: Performance improvement



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VSAM RLS R13 Preview

- **Performance Enhancements**

- RLS spheres remain connected for a short period of time after the data set is last closed in the system.
- **New enhancement:** Support a new storage class (STORCLAS) attribute to specify whether VSAM RLS buffers and the associated resources are retained for a period of time after a VSAM RLS data set has been closed.
 - For data sets intended to reopen quickly release of resources can be delayed
 - For data sets not to be reopened in a few minutes, eliminate the time delay in releasing valuable buffer storage
 - 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.

? Why it Matters: Help improve performance when processing large VSAM RLS data sets.

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z/OS[®] DFSMS[™] V1.12 Highlights

(September 2010)

■ Catalog

- Catalog Partial Release Enhancements
- Catalog DEFINE RECATALOG Enhancements
- Extended Addressable Catalogs
- Catalog CAS Contention Detection

Ease of Use: Catalog Enhancements

- **Catalog Partial Release Enhancements**
 - Currently VSAM partial release, only releases space on volumes where the high-used RBA (HURBA) and the high-allocated RBA (HARBA) are on the same volume, **NOT** space which spans multiple volumes.
 - **New enhancement:** VSAM partial release will release unused volumes in addition to releasing space on the last volume of a multi-volume VSAM data set that contains data.
- **SHARE Requirement Partially Addressed:** SSMVSS08002
 - Space Release Will not Release Over-Allocated Space for Multi-Volume Files
 - **Note:** This line item only addresses SMS, Extended Format (EF) datasets.

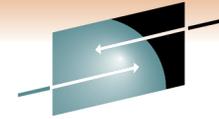
? Why it Matters: More efficient use of storage resources

Ease of Use: Catalog Enhancements

- **Catalog DEFINE RECATALOG Enhancements**

- On Define Recatalog currently volumes are in entry order which can cause problems for VSAM extent constraint relief.
- ***New enhancement:*** Regardless of input order, prime volumes are sorted in ascending RBA order and stored in the catalog that way for all components.
 - Automatically create catalog entries with correctly ordered volume lists, while eliminating any duplicate volumes that might have been specified.
 - Makes it easier to recatalog multivolume and striped VSAM data sets.
- Addresses FIN APAR closure for OA24010

? Why it Matters: Saves administration time, helps avoid errors



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Scalability: Extended Addressable Catalogs

- **Catalog Size Relief**

- Catalogs are limited to 4 GB in size which affects the scalability needed as volumes grow and the number of data sets increases.
- **New enhancement:** DFSMS will allow catalogs to be defined with extended addressability (EA)
 - This will make it possible to define and use Integrated Catalog Facility (ICF) Basic Catalog Structures (BCS) with EA, allowing catalogs larger than 4 GB.
- **SHARE Requirement MET:** SSMVSS08006
 - DFSMS – ICF Catalog Size Relief

? Why it Matters: Allow more data sets in a single catalog

- **Catalog CAS Contention Detection**

- **New enhancement:** The Catalog address space (CAS) will be designed to check for SYSZTIOT enqueue contention periodically.
 - Based on an interval users specify and the reason for contention, CAS will write a logrec record and a notification message when tasks have waited longer than the specified interval .
 - A new MODIFY CATALOG,CONTENTION command will allow you to specify a different interval than the 10-minute default or to disable CAS contention detection.
- Intended to warn about tasks that take excessive time to complete, or never complete, from affecting Catalog performance.

? Why it Matters: More efficient use of storage resources; better diagnostics

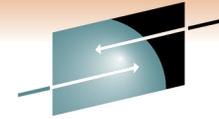
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Catalog R13 Preview

- **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.
- **New enhancement:** A new parmlib member, IGGCATxx, allows users to specify a number of Catalog system parameters.
- A new CATALOG parameter in IEASYSxx allows users to specify one or more IGGCATxx members where users can specify
 - Max number of Catalog Address Space (CAS) user service tasks
 - Threshold value for how full a catalog can be made before a warning message is issued
 - Whether functions that can be controlled using the ENABLE and DISABLE keywords of the MODIFY CATALOG command should be active
 - Amount of primary and secondary space to be allocated for implicitly defined VSAM volume data sets (VVDSs).

? Why it Matters: Make it easier to maintain those catalog parameters that are not needed very early during the IPL process.



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Catalog R13 Preview

- **Catalog VSAM Volume Data set (VVDS) Expansion**
 - The max of x'FFFF' CI's in a VVDS is the limiting factor for the number of VSAM data sets or number of data sets on an SMS managed volume.
 - **New enhancement:** Increase the max usable size of the VVDS
 - Increases the architectural maximum number of SMS-managed and VSAM data sets that can reside on a single volume by a factor of 16.
 - For most data set types, this is expected to be an increase from hundreds of thousands of data sets to millions of data sets per volume.
 - **? Why it Matters: Allows the number of data sets per volume to scale with extended address volume (EAV) sizes.**
- **Catalog Alias Constraint Relief**
 - Approximately 3500 catalog aliases are allowed per user catalog.
 - In order to have more aliases, additional catalogs must be defined.
 - **New enhancement:** Increase the number of aliases defined for a user catalog.
 - For example, if the master catalog is defined with the default record size, the maximum will be increased to approximately 250,000 or more single-level aliases per user catalog.
 - Actual maximums vary with the lengths of the aliases defined.
 - **? Why it Matters: Scalability; reduces the number of user catalogs to be defined and managed.**

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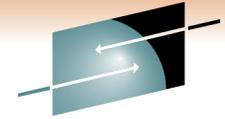


z/OS[®] DFSMS[™] V1.12 Highlights

(September 2010)

■ IDCAMS

- IDCAMS DCOLLECT Enhancements
- IDCAMS GDG Enhancements



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Optimization & Mgmt Capabilities:

IDCAMS DCOLLECT Enhancements

- ***New enhancement:*** DCOLLECT data class (DC) records will be updated to include information about all data class attributes:
 - VSAM SPEED and REUSE
 - Tailored Compression
 - CICSVR Forward Log
 - RLS Greater Than 4K Cache
 - Block Size Limit SPE
 - Dynamic Volume Count
 - RLS 64 Bits Virtual
 - Scaling Constants for Tape Support use
 - Tape Control Unit Performance Segmentation
 - SMB VSP
 - Tape Encryption
 - CA Reclaim

Optimization & Mgmt Capabilities:

IDCAMS DCOLLECT Enhancements (con't)

- **Data set (D) records will be updated to include job names:**
 - In z/OS V1R11, new fields in the Format 9 DSCB added for the job name, step name and time of data set creation in mapping macro IECSDSL1.
 - **SHARE Requirement MET:** SSMVSS064955 - DFSMS: Add Jobname to Catalog Record When Data Sets Are Created.
- **Storage group (SG) records will be updated**
 - Include information about OAM Protect Retention and Protect Deletion settings provided in z/OS V1R11
- **SHARE Requirement MET:** SSMVSS053125 - DFSMS: DCOLLECT Needs to Include More Fields

? Why it Matters: Ensure Data Class information is captured and available

Optimization & Mgmt Capabilities:

IDCAMS GDG Enhancements

- Currently, IDCAMS, when deleting entire generation data groups (GDGs), invokes DFSMSHsm recalls for any generation data sets that are migrated.
 - ***New enhancement:*** IDCAMS will call DFSMSHsm to delete such data sets without recalling them
 - Expected to reduce processing time, particularly when one or more generation data sets have been migrated to tape.
 - ***SHARE Requirement MET:*** SSMVSS064933
 - Catalog Support of HDELETE for DELETE GDG FORCE
- ? Why it Matters: Potentially saves lots of time / avoids wasted recalls.**

AMS R13 Preview

- **IDCAMS LISTCAT LEVEL**

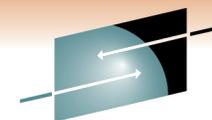
- With LISTCAT, the implied settings are the CTGCDI value will be OFF when doing a LISTCAT of a LVL or will be ON when doing either a LISTCAT of an ENT or a LISTCAT of a Catalog.
- **New enhancement:** New option for the LISTCAT LEVEL.
 - Specify whether related component names be listed when a data set entry is listed based on the pattern specified by LEVEL.
 - For example, if a cluster name is listed, the new option allows users to specify whether the DATA and INDEX entries are also listed.

? Why it Matters: Make it easier to customize LISTCAT output and reduce unwanted or unneeded LISTCAT data.

- **IDCAMS DELETE UCAT**

- When DELETE User-catalog with FORCE option is issued, IDCAMS issues a WTOR warning message to confirm the deletion.
- **New enhancement:** Issue an operator message that requires a response before allowing a user catalog to be deleted when RECOVERY is specified.
 - Enabled using new operands of the MODIFY CATALOG command

? Why it Matters: Help prevent inadvertent deletion of user catalogs in batch jobs using IDCAMS.



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(September 2010)

■ SMS / ISMF

- SMS Healthchecker Enhancements
- SMS Storage Group Mgmt & Volume Selection Enhancements
- ISMF COPY Storage Group Enhancements

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Ease of Use:

SMS Healthchecker Enhancements



- ***New enhancement:*** SMS health checks for the communications and active configuration data sets (COMMDS and ACDS)
 - One new check is designed to alert you that the COMMDS and ACDS are on the same volume.
 - As a best practice, an ACDS/COMMDS must be accessible from all systems in the SMS complex; however, to ease recovery in case of failure, the ACDS should reside on a different volume than the COMMDS.
 - The other is intended to identify COMMDS and ACDS data sets that were defined without the REUSE attribute, which is recommended.
 - It's a best practice to specify the REUSE option to avoid running into space problems (SMS reason code 6068) as result of subsequent ACDS updates, or IMPORT/EXPORT functions.

? Why it Matters: Helps ensure that your SMS DSN's are allocated correctly according to best practices.

Optimization & Mgmt Capabilities:

SMS Enhancements



- **SMS Storage Group Mgmt & Volume Selection Enhancements**
 - Currently the HIGH Allocation/Migration Threshold value is 1-99%
 - Optimal value depends on the user's specific requirements; however, default value is 85%.
 - Best practices suggest a value for HIGH Threshold below 90%.
 - As volume sizes increase, one percent of a volume represents an increasingly large amount of storage. For example, on a 223 GB volume, 1% is over 2 GB of storage.
 - **New enhancement:** Increase HIGH Allocation/Migration Threshold max to 100%
 - The 100% specification is intended to be used to make more storage capacity available for storage groups that hold static data.
 - Large installations frequently have thousands of volumes and the candidate Storage Groups for a single allocation may also have hundreds if not thousands of volumes.
 - **New enhancement:** SMS processing of volume lists will be changed in a way intended to improve allocation performance for large volume lists.
- ? Why it Matters: With the new 223GB EAV size volumes, getting that last 1% is worthwhile! Also large volume list processing is improved.**

Ease of Use: ISMF Enhancements

- **ISMF COPY Storage Group Enhancements**

- Currently installations can copy storage group definitions from one control data set (CDS) to another.
 - However, the volumes defined in the storage groups cannot be copied. The Storage administrator will have to manually add volumes to the storage groups.
- ***New enhancement:*** Specify that the volume list for pool-type storage groups be copied at the same time.
 - This allows you to copy entire storage groups from one configuration to another without having to add their volumes to the destination CDS afterward.

? Why it Matters: Saves (potentially much) time and effort



z/OS[®] DFSMS[™] V1.12 Highlights

(September 2010)

- **PDSE**
 - **PDSE EMPTY Command**
 - **PDSE Message Enhancements**

Ease of Use: PDS/PDSE EMPTY Command

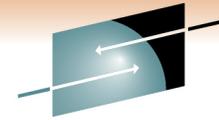
- Currently, IDCAMS DELETE can only delete one specific member in a PDS or PDSE by specifying the member name in parenthesis.
 - Wildcards are not allowed for member names.
- **New enhancement:** DELETE all members of a partitioned data set in a single operation
 - Specifying a wildcard character (*) as the member name for a data set when using the DELETE command
- **SHARE Requirement MET:** SSMVSS063069/70
 - DFSMS – Method to Empty a PDS/PDSE

? Why it Matters: Allows you to remove all members of a PDS or PDSE data set in a single command

Ease of Use: PDSE Message Enhancements

- **Identify Corrupt PDSE in LNKLST**
 - Currently, when a corrupt PDSE is detected in the link list during IPL, the system often enters a wait state.
 - **New enhancement:** Attempt to issue a message identifying the corrupt PDSE and continue the IPL without placing that PDSE into the link list.
 - *Success message (IGW700I): If the PDSE validation tool is not able to find anything wrong with a data set, and the exploiting application chooses to, a message indicating that no problems were found is printed on the console.*
 - *Global Errors (IGW701I): This message is issued when the PDSE validation finds an error with the overall structure of the data (i.e. a missing or doubly allocated page).*
 - Allows the user to attempt to restore the corrupt PDSE, re-IPL the system and avoid taking a standalone dump to debug the problem.

? Why it Matters: Better problem determination and error recovery

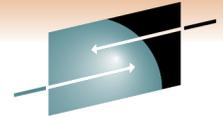


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Sources for more information

- Information about [DFSMS](#) and components
 - <http://www-03.ibm.com/systems/storage/software/sms/index.html>
- Information about [DFSORT](#)
 - <http://www-01.ibm.com/support/docview.wss?rs=0&uid=isg3T7000077>
- Information about [IBM TotalStorage Productivity Center for Replication](#)
 - <http://www-03.ibm.com/systems/z/advantages/resiliency/eventdriven/tpc.html>
- Information about [IBM System Storage Disk](#) systems
 - <http://www-03.ibm.com/systems/storage/disk/enterprise/index.html>
- Information about [IBM System Storage Tape](#) systems
 - http://www-03.ibm.com/systems/storage/tape/?cm_re=masthead-_-products-_-stg-tape
- Additional Information
 - [Redbooks](#)
 - <http://www.redbooks.ibm.com/>
 - z/OS V1R8 DFSMS Technical Update (SG24-7435-00)
 - [Techdocs](#)
 - <http://www-03.ibm.com/support/techdocs/atmastr.nsf/Web/TechDocs>

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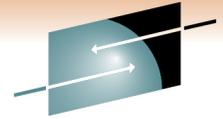


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Additional Material



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OAM D-APAR Enhancements

- **OA29425 - HASH Table Performance (March 2010)**
 - Converts internal OAM volume search routines to hash algorithms
 - Potentially provides performance improvements for installations that have large number of tape and/or optical volumes managed by OAM object support
 - Volumes defined in OAM's TAPEVOL and VOLUME tables in DB2
- **OA25408 - OAM OSREQ QUERY Wildcard Enhancement (April 2009)**
 - REQ# MR0602084143
 - New wildcard characters '%' and '_' are added to OAM's OSREQ Query function
 - Support enhances the generic search (wildcard) support for OSREQ QUERY requests
 - new
 - DB2 cursor is added to take advantage of the following DB2 wildcard characters using the "LIKE" predicate as described in the DB2 SQL reference SC18-9854-xx
 - NOTE: new OSREQ wildcards will not work with the OSREQ TSO/E command processor (OAM IVP TSO interface)
- **OA25463 - OSREQ Update Collection Enhancement (Feb 2009)**
 - REQ#MR0602083050
 - Previous to this support, in order to change the default storage class and management class names associated with an OAM collection, installations need to run a manual procedure
 - With this support, OAM provides a utility that will change the management class
 - and/or storage class defaults associated with a given collection.
- *For more details see Session 9009 What's New With OAM Object Support*

SDM RAS Enhancements

- The following RAS line items are included in the R12 changes to SDM:
 - **Service Virtual Machine (SVM) enhancements**
 - From a serviceability and new function perspective, need to document how to build SVM, to create new executables that match the source, to correct several known defects and deficiencies (one of which prevents ASID reuse), and to address FIN APAR KFI0535/OA26336, which causes a rare ABEND66D.
 - **Allow XRC address space IDs (ASIDs) to be reusable**
 - This enhancement, which is dependant on the SVM change noted above, will enable ASID reuse for the ANTAS000, ANTAS0xx and ANTCL0xx (but not ANTMMAIN) address spaces.
 - **Add TERTIARY parameter to the XRECOVER command**
 - This capability is being provided to enhance usability for customers and to prevents the customer from mistakenly recovering from the original secondaries and destroying the mirror that they belong to.
 - **KFI0490/OA04021 High CPU usage in sessions with large number of PND/CPY volumes**
 - This enhancement will reduce CPU utilization for environments with large numbers (e.g. 1000s) of volumes in CPY and PND state
- *For more details see Session 8972 What's New in DFSMSdss and System Data Mover*

DFSMStrmm R13 Preview

- **DFSMStrmm Simplified Monitoring & Management Enhancements**
 - ***New enhancement:* System automatically corrects the volume list for multivolume tape data sets**
 - In many cases a volume list does not include all necessary volumes or the volumes are specified out of order.
 - Helps to avoid problems when processing multivolume tape data sets ensuring all the data associated with them is available to be read.
 - ***New enhancement:* Specify whether data sets are managed by expiration date or Vital Record Specifications (VRS) policy when created**
 - Helps to simplify retention policies, helps avoid batch VRS policy management, and to determine how long a tape data set will be retained at the time it is created.
 - ***New enhancement:* Facilitate tape copy applications copy and restack tape data sets**
 - Includes retaining and preventing incorrect settings for data set attributes.
 - Helps to simplify moving and copying tape data, particularly when implementing new tape technologies and replacing older media.

DFSMSrmm R13 Preview

- **DFSMSrmm Simplified Monitoring & Management Enhancements**
 - ***New enhancement:* Enhanced SEARCHDATASET command**
 - Allow a more efficient search of tape data set metadata based on date ranges, including relative values, SMS constructs, and catalog status.
 - Helps to identify data sets that meet those criteria.
 - ***New enhancement:* More control over automatic inventory management driven volume movement**
 - Specify locations that are not eligible for automated movement during inventory management processing (ie those that might otherwise be moved based on VRS).
 - VRS dialog and commands will support searching by last reference and change dates to help find unused VRS policies, and DFSMSrmm will support listing last changed information for all resources managed using its control data set.
 - ***New enhancement:* Expand DATASET and VOLUME display panels**
 - Add ISPF point-and-shoot fields to simplify dialog navigation and a new CHAIN primary command to provide quick access to multivolume and multi-file search results lists.

OAM R13 Preview

- **OAM Usability and Reliability Enhancements**
 - Several *new enhancements* to
 - Add wildcard support for the MODIFY OAM,START,STORGRP command to initiate OSMC storage group processing for multiple object and object backup storage groups in single commands.
 - Provide dynamic update capabilities to change the maximum number of tape drives OAM will allocate to a given object or object backup storage group without restarting OAM.
 - Enhance OAM media migration utility, MOVEVOL, to improve performance when moving objects from a source volume that contains a large number of OAM collections.
 - Ship OAM component trace member, CTICBR00, in the parmlib data set in order to use parmlib concatenation to avoid having to copy it from the samplib data set to parmlib during migration to new releases of z/OS.
 - Enhance SMF Type 85 records to add counter fields with higher maximum values, in addition to the existing fields in KB.

NFS R13 Preview

- **NFS Windows 7 Support**

- ***New enhancement:*** NFS will support for the 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: Maintaining currency for NFS servers and clients.

OCE R13 Preview

- **OCE Enhancements**

- Allow a new keyword in a DEVSUPxx member of parmlib to specify that descriptive text, in addition to abend codes and return codes, be provided for many Open, Close, and End of Volume errors.
 - ? **Why it Matters: Easier to determine the reason for these errors quickly without having to look up the messages and return codes.**
- Recalculate the buffer size needed for each data set in a concatenation when accessed using QSAM.
 - ? **Why it Matters: Avoid out of storage conditions for concatenated data sets having different block sizes when MULTSDN is specified.**
- Reduce tape movement for tapes having ISO/ANSI Version 4 labels.
 - ? **Why it Matters: Improve tape processing performance without requiring any application changes.**
- New FREEVOL=EOV keyword on the JCL DD statement to specify that each volume of a multivolume tape data set being read be made available for other processing once processing for that volume is finished.
 - ? **Why it Matters: This is intended to allow overlapped processing for multivolume data sets, which can speed batch processing.**

SMS & ISMF R13 Preview

- **SMS Best Practices**

- R13 added new SMS health checks for the communications and active configuration data sets (COMMDS and ACDS)
 - Best practice to specify the REUSE option to avoid running into space problems (SMS reason code 6068) as result of subsequent ACDS updates, or IMPORT/EXPORT functions.
- **New enhancement:** SMS determines whether the configuration data set (CDS) has the REUSE attribute, and if not changes it to REUSE automatically during activation.

? Why it Matters: Avoid out of space conditions for SMS CDS.

- **ISMF Space in GB**

- **New enhancement:** Add function to ISMF to sort saved volume lists (using NaviQuest) by column and display space information in GB units and support a new display for pool storage groups.

? Why it Matters: Make ISMF easier to use.

PDSE R13 Preview

- **IEBPDSE Command**

- **New enhancement:** A new utility, IEBPDSE, will verify the structure of a PDSE is valid
 - New programming services will be designed to perform similar checking to help programs verify the state of a PDSE before and after critical operations.

? Why it Matters: Help detect errors in PDSE structures that might otherwise go undetected.

- **Refresh PDSE**

- **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 to discard stale pages from PDSE directory cache.

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

- **IEBCOPY Enhancements**

- **New enhancement:** Enhancements for the IEBCOPY utility to improve performance when copying a partitioned data set (PDS) to another PDS.
 - IEBCOPY will exploit 31-bit storage for track buffers
 - Removes the current requirement for APF authorization

? Why it Matters: Improved performance and usability for IEBCOPY.

DADSM / CVAF / Device Services R13 Preview

- **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.
 - 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.

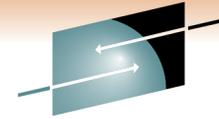
DADSM / CVAF / Device Services R13 Preview

- **DADSM Availability Enhancements**

- **New enhancement:** Provide Dynamic Exit support for both the preprocessing exit (IGGPRES0) 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.
- **New enhancement:** DADSM and CVAF components will support concurrent service.
 - Allow users to dynamically update their programs without IPL.
- **New enhancement:** DEVMAN address space is planned to be marked reusable
 - Restarting it does not subtract from the system's maximum number of address spaces or from the system's reserve of non-restartable address spaces when REUSASID(YES) is specified in DIAGxx.

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

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