What's new in DFSMSrmm z/OS 1.11 and z/OS 1.12

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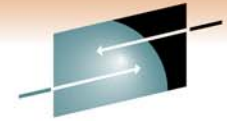
2

What's new with DFSMSrmm

Agenda

- Ease of Use
- Optimization
- Performance and Scalability
- Availability and RAS

DS8700

TS1130
Tape Drive

TS7680
Deduplication
Gateway

TS3500 Library

TS7700
Virtualization
Engine

What's new with DFSMSrmm

Summary of z/OS DFSMSrmm V1R12

Ease of Use
- Retention Limit Reporting (Roll-back to R10 via APAR OA30881)
- Ignore for duplicate volumes
- Automation for WTORs in Production and Parallel Running
- Expiration Override for Volumes
- ISPF Dialog CLIST option to avoid search results list

Optimization
- Copy Export Sample Reports from Export Status and BVIR

Performance and Scalability
- All RMM Data Sets EAS Eligible, 'XTIOT' Support
- IPV6 Support
- Contribution to z/OS Target of 5% improvement / Release

Availability and RAS

- Status Available via Subcommand and API
- STOP/CANCEL Recovery Improvements
- PDA Trace Enhanced to trace outside subsystem address space

What's new with DFSMSrmm

Summary of z/OS DFSMSrmm V1R11

Simplification

- SEARCHVOLUME Subcommand and ISPF dialog supports extended searching
  - Date ranges, actions, options and flag settings
- Report Generator, improving usability, enabling more customization of reports, and simplifying the way that selection information can be specified for DFSMSrmm, DFSMShsm and other DFSMS components.
  - Exploitation of recent changes to DFSORT and ICETOOL
  - Data typing
  - Report type inheritance
- Additional function call based interface will be provided to the DFSMSrmm API
  - supports the return of associated error messages in addition to the error codes.
  - Suitable for high level languages
- VOLUME ADD dialog supports volume type, storage group name, and creation date and time.
- DATASET DISPLAY supports point and shoot to the VRS policies that are being used for the data set
- EDGINERS supports reading and cross-verification of first file label information
- New parmlib options for GDG cycle control and duplicate generation retention
- Sample CBRUXVNL, is enhanced to help avoid customer modification
- Mixed Case Data Set Name Support for Dialog
- No longer a need to redefine VRSes when location definitions are changed

Summary of z/OS DFSMSrmm V1R11…

Open industry standards

CIM agent and providers support CIM level 2.17 and OpenPegasus 2.8.1

Availability and RAS

CDS updates made in test or recovery environments can be repeated against the production RMMplex.

VRSEL(OLD) parmlib option is removed

Scalability and Performance

Callers of DFSMSrmm API can request multiple resources returned in a single API call
Reduces the overhead of API and command processing

Subcommands now limit the number of Rexx special stem variables using .0

Subcommand processing enhanced with improved use of resources

Exploitation of z/OS Dynamic Exit Facility for all installation exits

Migration Health Checks (OA26947)

Support GDG, VRSEL(OLD), and Rexx special stem variable migration tasks

Device Support

TS7700 Copy Export Support (OA24970)

What's new with DFSMSrmm

Summary of z/OS DFSMSrmm V1R12
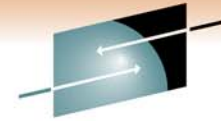
+: Support integrated into release base

z/OS (RMM) release / Function	z/OS V1.12	z/OS V1.11	z/OS V1.10	z/OS V1.9
Retention limit reporting	+	OA30881	OA30881	
Volume Hold	+	OA30436 (Honor Volume Hold)	OA30436 (Honor Volume Hold)	
• EAS Eligibility • OPENRULE IGNORE • IPv6 • AUTOR • Addt. Status commands & RAS enhancements	+			
Option to turn uppercasing on/off	+	OA32661	OA32661	OA32661
TS7700 1.6 Support , Logical WORM	+	OA28637	OA28637	OA28637
• Report generator extensions • Journaling for D/R, EDGUPDT • EDGINERS SCAN	+	+		
Migration checks for z/OS V1.11+ coexistence	+	OA32028	OA26947 OA32028	OA26947 OA32028
z/OS V1.11+ coexistence	+	N/A	OA25714 OA28232	OA25714 OA28232

What's new with DFSMSrmm

Retention Limit Reporting (V1.12 w/rollback to V1.10) Overview

Problem Statement:

- You want to quickly and easily identify what volumes have triggered the EXPDTDROP or VRSRETAIN threshold

Solution:

- Using a combination of ACTIVITY file and Extended EXTRACT file records, sample ICETOOL job EDGJACTP can produce detail and summary reports
  - EXPDROP and EXPDROPS,
  - VRSRETN and VRSRETNS
  - of those volumes affected.

Benefit:

- You will see all affected volume information at a glance

Safety net: EXPDTDROP / VRSDROP / VRSRETAIN
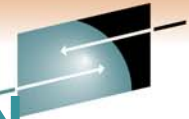
- **VRSDROP** to specifies how many existing VRS-retained volumes may be dropped from vital records retention and the action to be taken by DFSMSrmm.

```
          ┌─PERCENT(10)───┐        ┌─INFO─┐
─VRSDROP(──┤               ├──,──┤      ├──)─
          ├─COUNT(count)──┤        ├─FAIL─┤
          └─PERCENT(%age)─┘        ├─OFF──┤
                                   └─WARN─┘
```

- **VRSRETAIN** specifies how many newly
- assigned volumes are to be retained by vital records retention.
  - A newly assigned volume is one that has a volume assignment time that is higher than the run time of the previous VRSEL processing and that is not VRS-retained.

```
            ┌─PERCENT(80)───┐        ┌─INFO─┐
─VRSRETAIN(──┤               ├──,──┤      ├──)─
            ├─COUNT(count)──┤        ├─FAIL─┤
            └─PERCENT(%age)─┘        ├─OFF──┤
                                     └─WARN─┘
```

- **EXPDTDROP** specifies how many existing expiration date retained volumes may be dropped from retention.
  An EXPDT-retained volume is one that is not VRS-retained and is not newly assigned
  - EXPROC: additional processing may be required

```
           ┌─PERCENT(10)───┐        ┌─INFO─┐
─EXPDTDROP(──┤               ├──,──┤      ├──)─
           ├─COUNT(count)──┤        ├─FAIL─┤
           └─PERCENT(%age)─┘        ├─OFF──┤
                                    └─WARN─┘
```

OA33526 required
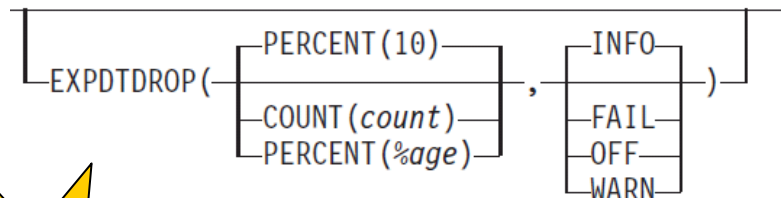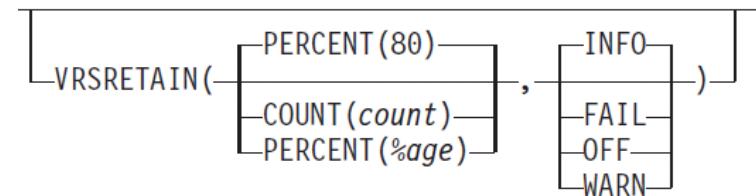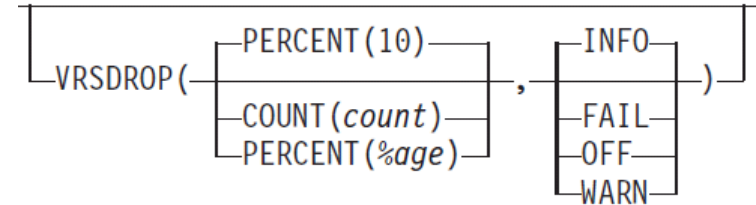
What's new with DFSMSrmm

Updated Activity File

Previous ACTIVITY file records reflect only CDS changes during VRSEL inventory management

New volume ACTIVITY file records

Created only when **VRSRETAIN / EXPDTDROP action is not set to OFF**

Created by VRSEL for newly assigned volumes that are
retained only by a volume VRS, or retained only because
they are in a volume set, another volume in the set is VRS retained by VRSEL
processing, and RETAINBY(SET)

Created by EXPROC for **EXPDT retained volumes** set to *pending release*
because they are expired

Processing the RPTEXT parameter

If during inventory management the threshold for VRSDROP, VRSRETAIN
or EXPDTDROP is reached, and action is set to FAIL then
DFSMSrmm stops VRSEL processing prior to making CDS updates,
any other inventory management processing ends with return code 12,
but the report extract is run if requested

VRSDROP(percent(15),fail)

What's new with DFSMSrmm

Updated Sample Report EDGJACTP (part 1)

- The new report files created for EXPDTDROP retention limit reporting are:
  - EXPDROP
    - EXPDT retained volumes subject to EXPDTDROP
  - EXPDROPS
    - Summary of EXPDT volumes for EXPDTDROP

- The new report files created for VRSRETAIN retention limit reporting are:
  - VRSRETN
    - Newly assigned volume subject to VRSRETAIN
  - VRSRETNS
    - Summary of newly assigned volumes for VRSRETAIN

- Use Existing Report files for VRSDROP retention limit reporting
  - VRS
    - All VRS status changes to data sets
  - VRSS
    - Summary of retained and drop reasons for data sets

Updated Sample Report EDGJACTP (part 2)

- The new sample reports requires that the date formats used for the ACTIVITY file and report extract file are the same, and for correct processing requires either ISO or Julian date format.

- If you did not include RPTEXT, you should create a report extract file with extended records as soon as possible and definitely before any other inventory management functions are used to update the control data set to assure an accurate retention limit reporting.

- EDGJACTP VRSRETN, VRSRETNS, EXPDROP, and EXPDROPS reports provide good analysis of the processing that would have been or is performed, regardless whether:
  - it is a trial run or the retention limit trigger action is FAIL so no updates made to the CDS by inventory management and the report extract file reflects the CDS contents at the start of the run, or
  - the report extract reflects the updates made by the inventory management run.

What's new with DFSMSrmm

Sample EXPDROP Report
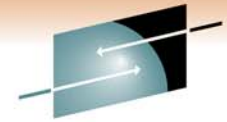
```
EXPDT retained volumes subject to EXPDTDROP          01/20/09          05:55:21          - 1 -

Status: RELEASED


VOLSER  VSEQ  DSNAME              JOBNAME   EXPRSN  ASSIGNED    EXPDT       SR  RETDATE     ACTIONS  LOCATION  HOME    DEST   RLS ACT
A22255   1    NOMATCH.DSN5        SSTEINHA  X       12/12/1999  01/01/2009  N   19/02/2008  S   EN   ROBBIE    ROBBIE         S   EN
A22256   1                                 X       12/12/1999  31/12/2008  N               O        VAULT     SHELF   SHELF  O

Volumes in this status:          2


EXPDT retained volumes subject to EXPDTDROP          01/20/09          05:55:21          - 2 -

Status: NOCHANGE


VOLSER  VSEQ  DSNAME              JOBNAME   EXPRSN  ASSIGNED    EXPDT       SR  RETDATE     ACTIONS  LOCATION  HOME    DEST   RLS ACT
A22257   1    DSN7                SSTEINHA          02/06/1993  PERM        N   12/12/2008           VAULT     ROBBIE         S
A22258   1    DSN7                SSTEINHA          02/06/1993  05/01/1990  Y   12/12/2008           VAULT     ROBBIE         S

Volumes in this status:          2
```

```
Summary of EXPDT retained volumes for EXPDTDROP          01/20/09          05:55:21          - 1 -


Status              VOLUME COUNT
NOCHANGE                  2
RELEASED                  2
```

What's new with DFSMSrmm
Sample VRSRETAIN Report
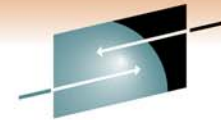
```
Newly assigned volumes subject to VRSRETAIN                                        01/20/09        05:55:21        - 1 -

Status: RETAINED
D A T A   S E T                                    D A T A   S E T  V R S                              V O L U M E
                                                                DROP   REASON                    VRS          RETAIN      FILE    IN
VOLSER    FSEQ   DSNAME              JOBNAME    RETAINED  PRIM   2nd.    PRIMARY VRS       JOB MASK  TYPE  VRS   REASON      COUNT   SET
--------  -----  -----------------   --------   --------  ----   ------  --------------    --------  ----  ----  ---------   -----   ---
VOL1        1    RMMUSER.DSN11                  Y                        RMMUSER.*                   D            DATASET       3     N
VOL1        2    RMMUSER.DSN12                  N        W               RMMUSER.*                   D            IMPLICIT      3     N
VOL1        3    RMMUSER.DSN13                  Y                        RMMUSER.*                   D            DATASET       3     N
VOL2        1    D046059.DSN21                  N        W               D046059.*                   D     VOL2   VOLUME       2     N
VOL2        2    D010155.DSN22                                                                             VOL2   VOLUME       2     N
VOL6        1    D046059.DSN61                  N        D               D046059.*                   D            SET          1     Y
VOL7        1    D077077.DSN71                                                                       D            IMPLICIT     2     Y
VOL7        2    D077077.DSN72                  Y                        D077077.DSN72               D            DATASET      2     Y

data sets in this status:        8

Newly assigned volumes subject to VRSRETAIN                                        01/20/09        05:55:21        - 2 -

Status: NOTRETAINED
D A T A   S E T                                    D A T A   S E T  V R S                              V O L U M E
                                                                DROP   REASON                    VRS          RETAIN      FILE    IN
VOLSER    FSEQ   DSNAME              JOBNAME    RETAINED  PRIM   2nd.    PRIMARY VRS       JOB MASK  TYPE  VRS   REASON      COUNT   SET
--------  -----  -----------------   --------   --------  ----   ------  --------------    --------  ----  ----  ---------   -----   ---
VOL3        1    RMMUSER.DSN31       STEINHA    N        W               RMMUSER.*                   D                         1     Y
VOL4        1    D010155.DSN41                                                                                                2     Y
VOL4        2    RMMUSER.DSN42                  N        W               RMMUSER.*                   D                         2     Y
VOL5        1    D010155.DSN51                                                                                                3     N
VOL5        1    D010155.DSN52                                                                                                3     N
VOL5        1    D010155.DSN53                                                                                                3     N

data sets in this status:        6
```

```
Summary of newly assigned volumes for VRSRETAIN        01/20/09        05:55:21        - 1 -


Status           VOLUME COUNT
---------------  ---------------
RETAINED                    4
NOTRETAINED                 3
```

What's new with DFSMSrmm

OPENRULE IGNORE (V1.12)

- Ignore processing for specific volser request (read and write)
  - The external/vision volser is used to identify the mounted volume

Library	OPENRULE for		Result in	
	requested volser	VOL1 volser	V1R11	V1R12
Non-system managed (SHELF)	IGNORE	ACCEPT	requested volser ignored (at file validation)	requested volser ignored (at mount verification)
	ACCEPT	IGNORE	VOL1 volser ignored, LBL ERR VOL1	accepted
System managed (ATL)	IGNORE	ACCEPT	requested volser ignored (at file validation)	requested volser ignored (at mount verification)
	ACCEPT	IGNORE	VOL1 volser ignored, 613-1C requested volser	accepted

What's new with DFSMSrmm
WTOR Automation

- Problem addressed:
  - Missing or incorrect operator replies
    - Impact production tape processing

- Solution
  - Exploit new Automated Reply Support in PARMLIB
    - AUTOR00
      - *Includes a subset of key WTOR Replies for RMM*
    - AUTORRM
      - *Includes Suggested replies for Production use*
    - AUTORRP
      - *Includes Suggested replies for Parallel Running Keep RMM Running while migrating to RMM*

What's new with DFSMSrmm
WTOR Automation …
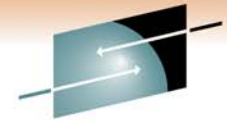
- Example

```
/*----------------------------------------------------------------*/
/* EDG2103D PERMANENT JOURNAL ERROR - REPLY "R" TO RETRY, "I" TO   */
/* IGNORE, "D" TO DISABLE OR "L" TO LOCK                           */
/* reply "DISABLE" and notify Tech Support to run EDGHSKP BACKUP   */
/* to re-enable the journal.                                       */
  MSGID(EDG2103D) DELAY(30s) REPLY(L)
/*----------------------------------------------------------------*/
/* EDG2106D JOURNAL AND CONTROL DATASET DO NOT MATCH - REPLY "C" TO */
/* CANCEL, "D" TO DISABLE OR "L" TO LOCK                           */
/* reply LOCK and notify Tech Support to run EDGHSKP BACKUP        */
/* to re-enable the journal.                                       */
  MSGID(EDG2106D) DELAY(30s) REPLY(L)
/*----------------------------------------------------------------*/
/* EDG2120D ALLOCATED JOURNAL IS TOO BIG - REPLY "C" TO CANCEL,    */
/* "D" TO DISABLE OR "U" TO USE MAXIMUM ALLOWED SIZE              */
/* reply "U" to use maximum allowable size                        */
  MSGID(EDG2120D) DELAY(30s) REPLY(U)
```

Expiration Override

- Problem
  - Difficult to determine how data sets and volumes are retained
  - Setting EXPDT(99365) might not force retention
  - Changing policies or EXPDT causes loss of actual retention policy

- Solution
  - New Subcommand to prevent expiration
  - Existing policy and retention is unchanged

Expiration Override…

- Subcommand Changes:

```
  ──CV────────volser────────────────────────────────────────────►
                        ┌──────────────┐
                        │    NOHOLD    │
                        ├──────────────┤
                        └─── HOLD ─────┘

  ──SV──────────────────────────────────────────────────────────►
                        ┌──────────────┐
                        │──── HOLD ────│
                        └─── NOHOLD ───┘
```
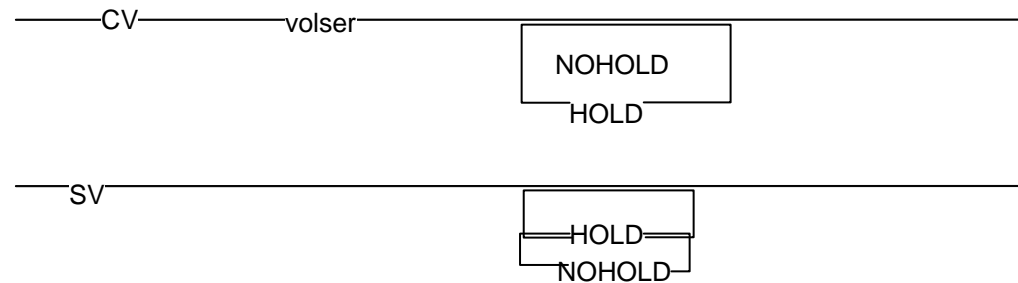
- Setting using the dialog
  - New 'HY' and 'HN' line commands
- When HOLD attribute is set:
  - Unable to RELEASE the volume
  - EXPROC prevents expiration

What's new with DFSMSrmm

New Report Generator Sample EDGGAHLD

```
Held Volumes by Volume Serial                         - 1 -          2009/10/20

Extract file was created on 2009/10/20 at 052041

Volume    Dataset name                                    Vol    DSN    Creating
                                                          seq    seq    jobname
------    ----------------------------------------------  ----   -----  --------
A06933    USER1.DATASET1                                     1      1    RMMUSER
A06934    USER1.DATASET2                                     1      1    RMMUSER
A06935    USER1.DATASET3                                     1      1    RMMUSER

Removable Media Manager
```

```
   05:20:49



DSN date      DSN time    Vol exp      Vol date     Vol date     Retention Volume     Location
created       created     date         read         write        date      Status
----------    ----------  ----------   ----------   ----------   ---------- ------     -------
2009/12/01    043425      2009/12/01   2009/10/20   2009/10/20              MASTER     SHELF
2009/12/01    043425      2009/12/01   2009/10/20   2009/10/20              MASTER     SHELF
2009/12/01    043425      2009/12/01   2009/10/20   2009/10/20              MASTER     SHELF
```

What's new with DFSMSrmm

Authorization

Define the resource	To Control the
STGADMIN.EDG.CV.HOLD.*volser* STGADMIN.EDG.CV.NOHOLD.*volser*	Use of the CHANGEVOLUME with HOLD/NOHOLD

When you define	With Access	Then
STGADMIN.EDG.CV.*hold.volser* Note: RACF profile must not contain generic characters prior to 'hold.volser'	Entity not defined	CONTROL access to STGADMIN.EDG.MASTER is required
	NONE	No authority is granted to use CV HOLD/NOHOLD
	UPDATE	You are permitted to set and reset the volume HOLD attribute

What's new with DFSMSrmm

Dialog CLIST Option

```
EDGP@CLS                        DFSMSrmm CLIST Processing
Command ===>


Enter optional prefix and suffix values
Prefix . . . . . . . 'RMM LV '
Returned text depending on resource being searched
Suffix . . . . . . . ' ALL'


Enter optional fully qualified or partial data set information for
CLIST
Data set name  . . . .
Expected data set size              records
Extend existing CLIST               YES, NO or blank


View search results    NO    new    YES, NO or blank


Press ENTER to CONTINUE, or END to RETURN.
```

If you choose **View search results: NO**   (which is the default),
the search result list is <u>not</u> displayed

What's new with DFSMSrmm

EDGINERS SCAN (V1.11)

- **Problem Statement / Need Addressed:**
- The DFSMSrmm tape utility EDGINERS performs initialization and erasure of tapes. For tape label read and display another utility like
  DITTO / File Manager has to be used.

- **Solution**
- EDGINERS is updated to support the reading of tape label information and cross-verification with the records defined in the DFSMSrmm control data set.

- **Benefit**
- New function SCAN helps with identifying and managing tapes, that come from other systems or are in a problem state.

- A single utility fulfills your needs around tape labeling.

What's new with DFSMSrmm

Tape Label Scan

SCAN is a new SYSIN command for EDGINERS manual processing.

JCL Job step to scan a tape label :

```
//SCAN      EXEC PGM=EDGINERS
//SYSPRINT DD SYSOUT=*
//TAPE      DD UNIT=(unit,,DEFER)
//SYSIN     DD *
  SCAN VOLUME(A22201)
```

SYSIN command
Syntax:

```
►►────── SCAN ──────────── VOLUME ( volser ) ──────────►◄
```

VOLUME is the only valid operand and is required.

What's new with DFSMSrmm

Tape Label Scan Output

Message EDG6679I and EDG6683I in SYSPRINT file:

```
EDG6679I SCAN RESULTS:
      * * * * Device 1B30, TAPE, VOLSER=A22203
           VOL1 label =           VOL1A22203                                                  3
      ------------------------------------------------------------------------------------------
      Data set 0001              1...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80
           HDR1 label =          HDR1G.H1234567.J12345A2220300010001000100008297000000 000000IBMZLA
           HDR2 label =          HDR2F000800008000SSTEINHA/WRITE3        B         00
                    * Tape mark
```

```
           LBL volser Dsname                              Vsq Dseq Crdate   Jobname  Step    RECF LRECL BLKSZ
      On volume AL   A22203                        G.H1234567.J12345 001 00001 2008/297 SSTEINHA WRITE3  FB      80    80
              Mismatch(*)                                                       *
      RMM data  AL   A22203 D046059.LONG.AL44.DSN3.NOGDG.H1234567.J12345 001 00001 2008/001 SSTEINHA WRITE3  FB      80    80

      EDG6683I MISMATCH ON Crdate
```

The display of the **label information** is almost the same as DITTO/File Manager tape scan output up to first tape mark.

What's new with DFSMSrmm

Tape Label Scan Output

```
EDG6679I SCAN RESULTS:
  * * * * Device 1B30, TAPE, VOLSER=A22203
      VOL1 label =            VOL1A22203                                                                      3
--------------------------------------------------------------------------------------------------------------
Data set 0001               1...5...10...15...20...25...30...35...40...45...50...55...60...65...70...75...80
      HDR1 label =           HDR1G.H1234567.J12345A2220300010001000100008297000000 000000IBMZLA
      HDR2 label =           HDR2F000800008000SSTEINHA/WRITE3          B         00
               * Tape mark
--------------------------------------------------------------------------------------------------------------
           LBL volser Dsname                                   Vsq Dseq Crdate   Jobname  Step    RECF LRECL BLKSZ
On volume  AL  A22203                            G.H1234567.J12345 001 00001 2008/297 SSTEINHA WRITE3  FB     80    80
           Mismatch(*)                                                     *
RMM data   AL  A22203 DO46059.LONG.AL44.DSN3.NOGDG.H1234567.J12345 001 00001 2008/001 SSTEINHA WRITE3  FB     80    80
```

- **Summary information** enables the label information and DFSMSrmm information to be compared
  - Displayed for SL, AL or RMNL labels (standard labels)
  - RMM volser is RVVOLSER or for duplicate volumes RVVOL1
  - Differences are highlighted by an *
  - Label contains only last 17 characters of data set name

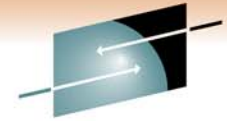# What's new with DFSMSrmm

Tape Label Output on the console

Operator will see partial results:
Multi-line message EDG6682I on console
and system log

```
07.15.50 STC00038  EDG6682I SCAN RESULTS (TRUNCATED): FOR FULL DETAILS –
 REFER TO SYSPRINT
 * * * * Device 1B30, TAPE, VOLSER=A22203
VOL1A22203
--------------------------------------------------------------------------------
1...5...10...15...20...25...30...35...40...45...50...55...60...65...70.
HDR1G.H1234567.J12345A222030001000100010000B297000000 000000IBMZLA
HDR2F000800008000SSTEINHA/WRITE3         B           00
                * Tape mark
--------------------------------------------------------------------------------
LBL volser Dsname                                     Vsq Dseq  Crdat
AL  A22203                          G.H1234567.J12345 001 00001 2008/
    Mismatch(*)                                                     *
AL  A22203 D046059.LONG.AL44.DSN3.NOGDG.H1234567.J12345 001 00001 2008/

07.15.50 STC00038  EDG6683I MISMATCH ON Crdate
```

WTOR Scan command produces a **truncated output** because of the console
message length limits,
the complete output is available via EDG6679I in SYSPRINT file.

What's new with DFSMSrmm

Agenda

- Ease of Use
- Optimization
- Performance and Scalability
- Availability and RAS

DS8700

TS1130
Tape Drive

TS7680
Deduplication
Gateway

TS3500 Library

TS7700
Virtualization
Engine

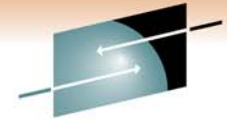# What's new with DFSMSrmm

Copy Export processing (V1.12)

- Use EDGJCEXP sample job to generate reports about copy exported data combining information from
  - TS7700 library
    - BVIR or Export status file
  - DFSMSrmm extended extract records

TS7700 Virtualization Engine

- Reports are provided sorted
  1. by data set name
  2. by logical volume serial number
  3. by stacked volume serial number

What's new with DFSMSrmm

Copy Export Reporting Overview

- Export Status File

Stacked Volume
Serial Number

Logical Volume
Serial Number

Date / Time
of Copy Export

```
******************** Top of Data ********************
EXPORT STATUS 02
HYD861 A02085, 00,                    , 00000007, 00000007
HYD863 A02081, 00,                    , 00000004, 00000004
HYD864 A02082, 00,                    , 00000005, 00000005
HYD865 A02082, 00,                    , 00000006, 00000006
HYD866 A02083, 00,                    , 00000008, 00000008
HYD867 A02084, 00,                    , 0000000A, 0000000A
HYD868 A02085, 00,                    , 0000000B, 0000000B
HYD869 A02085, 00,                    , 00000009, 00000009
PHYSICAL VOLUMES WITH EXPORTED STATUS 01
#VOL   POOL FM   MBYTES   %UTL MED COPY EXPORTED TIME
A02075  12   5       0       0   5  2009-10-29-07.04.44
A02076  12   5       0       0   5  2009-10-29-07.38.39
A02077  12   5       0       0   5  2009-10-29-07.47.21
A02078  12   5       0       0   5  2009-11-02-00.19.02
A02082  12   5       0       0   5  2009-11-02-04.29.54
A02080  12   5       0       0   5  2009-11-02-04.46.11
A02081  12   5       0       0   5  2009-11-02-05.04.28
A02083  12   5       0       0   5  2009-11-02-06.09.16
A02084  12   5       0       0   5  2009-11-02-06.29.02
A02085  12   5       1    1000   5  2009-11-03-07.39.13
******************** Bottom of Data **************
```

What's new with DFSMSrmm

Overview

- BVIR – Volume map

Stacked Volume
Serial Number

Logical Volume
Serial Number

```
******************************* Top of Data ****
VTS BULK VOLUME DATA REQUEST
VOLUME MAP
11/03/2009 03:22:06 VERSION 02
S/N: 3484G  LIB ID: 3484A


PHYSICAL   LOGICAL P/B  ORDER    PART         SIZE
A02032     HYD869  B   000001 1 OF 1         0.00 M
A02032     HYD880  B   000002 1 OF 1         0.00 M
A02037     HYD864  B   000001 1 OF 1         0.00 M
A02037     HYD865  B   000002 1 OF 1         0.00 M
A02037     HYD862  B   000003 1 OF 1         0.00 M
A02037     HYD866  B   000004 1 OF 1         0.00 M
A02037     HYD868  B   000005 1 OF 1         2.35 M
A02037     HYD867  B   000006 1 OF 1         0.00 M
A02037     HYD861  B   000007 1 OF 1         0.00 M
A02037     HYD880  B   000002 1 OF 1         1.00 M
A02073     HYD697  P   000001 1 OF 1       237.86 M
A02073     HYD511  P   000002 1 OF 1         0.00 M
A02073     HYD504  P   000003 1 OF 1       313.75 M
A02073     HYD804  P   000004 1 OF 1         0.00 M
A02073     HYD711  P   000005 1 OF 1        24.15 M
A02073     HYD713  P   000006 1 OF 1        24.15 M
A02073     HYD715  P   000007 1 OF 1        24.16 M
```

What's new with DFSMSrmm

Overview

- BVIR – Physical Volume Status Pool xx

Stacked Volume
Serial Number

Volume
status

```
******************** Top of Data ********************
VTS BULK VOLUME DATA REQUEST
PHYSICAL VOLUME STATUS POOL 12
10/30/2009 01:26:27 VERSION 02
S/N: 3484G  LIB ID: 3484A

A02075,12,EMPTY, COPY_EXPORTED 1970-01-01-00.00.00.000000, 2009-10-29-16.50.05.000
A02076,12,EMPTY, COPY_EXPORTED 1970-01-01-00.00.00.000000, 2009-10-29-16.50.05.000
A02077,12,FULL, COPY_EXPORTED, 1970-01-01-00.00.00.000000, 2009-10-28-16.50.06.0000
A02078,12,FILLING, READ-WRITE, 1970-01-01-00.00.00.000000, 2009-10-28-16.50.06.0000
A02079,12,EMPTY, READ-WRITE, 1970-01-01-00.00.00.000000, 2009-10-29-16.50.05.000000
A02080,12,EMPTY, READ-WRITE, 1970-01-01-00.00.00.000000, 2009-10-29-16.50.05.000000
A02081,12,EMPTY, READ-WRITE, 1970-01-01-00.00.00.000000, 2009-10-29-16.50.05.000000
*************** Bottom of Data ***************
```

What's new with DFSMSrmm

Overview

- EDGJCEXP Report – sorted by dataset

```
Copy Exported Data Sets                              - 1 -        12/08/2009        03:30:21

based on Bulk Volume Information Retrieval data

DATA SET INFORMATION
                                      CREATE    CREATE REC  BLK   RETENTION   EXPIRATION PHYSICAL V
DATA SET NAME                         DATE      TIME   FM   SIZE  DATE        DATE       FILE SEQ R
-----------------------------------   --------  ------ ---  ----  ----------  ---------- -------- -
BERNDS.EXPIRED.HYD868                 2009/338  082750 F     80   2009/353    2009/341       1    Y
BERNDS.EXPIRED.HYD880                 2009/337  150732 F     80   2009/352    2009/340       1    Y
BERNDS.MULTI.VOLUME.DS1               2009/338  082524 FB    80   2009/353    2009/341       1    Y
BERNDS.MULTI.VOLUME.DS1               2009/338  082524 FB    80   2009/353    2009/341       1    Y

           LOGICAL VOLUME INFO              STACKED VOLUME   INFO                           COPY EXPORT INFO
                   REQUIRED EXPIRATION              CURRENT  DESTI    IN   RETENTION   V EXPORT        EXPORT
           VOLSER  VOLSEQ LOCATION DATE     VOLSER  LOCATION NATION   TRAN DATE        R DATE          TIME
           ------- ------ -------- ------   ------- -------- -------- ---- ---------- - ----------- ------
           HYD868  1      MAZ2     2009/341  A02039 ATL3484F MAZ1     Y    2020/001   Y 2009/338    083938
           HYD880  1      MAZ2     2009/341  A02039 ATL3484F MAZ1     Y    2020/001   Y 2009/338    083938
           HYD862  1      MAZ2     2009/341  A02039 ATL3484F MAZ1     Y    2020/001   Y 2009/338    083938
           HYD861  1      MAZ2     2009/341  A02039 ATL3484F MAZ1     Y    2020/001   Y 2009/338    083938
```

What's new with DFSMSrmm

Overview

- EDGJCEXP Report – sorted logical volume

```
Copy Exported Data Sets By Logical Volume              - 1 -      12/08/2009      03:30:22

based on Bulk Volume Information Retrieval data

Logical Volume Info:  HYD861    1 MAZ2    2009/341

DATA SET INFORMATION
                                     CREATE    CREATE REC  BLK   RETENTION  EXPIRATION PHYSICAL V
DATA SET NAME                        DATE      TIME   FM   SIZE  DATE       DATE       FILE SEQ R
-----------------------------------  --------- ------ ---- ----- ---------- ---------- -------- -
BERNDS.MULTI.VOLUME.DS1              2009/338  082524 FB     80  2009/353   2009/341          1 Y
BERNDS.SEC14.HYD861                  2009/338  082527 F      80  2009/353   2009/341          2 Y
BERNDS.SEC14.HYD861                  2009/338  082638 F      80  2009/353   2009/341          3 Y
BERNDS.SEC14.HYD861                  2009/338  082749 F      80  2009/353   2009/341          4 Y


          STACKED VOLUME   INFO                 COPY EXPORT INFO
                  CURRENT  DESTI    IN RETENTION  V EXPORT      EXPORT
          VOLSER  LOCATION NATION  TRAN DATE      R DATE        TIME

          A02039  ATL3484F MAZ1     Y  2020/001   Y 2009/338    083938
          A02039  ATL3484F MAZ1     Y  2020/001   Y 2009/338    083938
          A02039  ATL3484F MAZ1     Y  2020/001   Y 2009/338    083938
          A02039  ATL3484F MAZ1     Y  2020/001   Y 2009/338    083938
```

What's new with DFSMSrmm

Overview

- EDGJCEXP Report – sorted stacked volume

```
Copy Exported Data Sets By Stacked Volume           - 1 -        12/08/2009        03:30:22

based on Bulk Volume Information Retrieval data

Stacked Volume Info:  A02039 ATL3484F MAZ1        Y 2020/001    Y 2009/338    083938


        LOGICAL VOLUME INFO
                          REQUIRED EXPIRATION
        VOLSER   VOLSEQ LOCATION DATE

        HYD861     1     MAZ2     2009/341
        HYD861     1     MAZ2     2009/341
        HYD861     1     MAZ2     2009/341
        HYD861     1     MAZ2     2009/341


    DATA SET INFORMATION
                                            CREATE      CREATE REC  BLK    RETENTION   EXPIRATION PHYSICAL V
    DATA SET NAME                           DATE        TIME   FM   SIZE   DATE        DATE       FILE SEQ R
    ------------------------------------    ----------  ------ ---- -----  ----------  ---------- -------- -
    BERNDS.MULTI.VOLUME.DS1                 2009/338    082524 FB     80   2009/353    2009/341      1     Y
    BERNDS.SEC14.HYD861                     2009/338    082527 F      80   2009/353    2009/341      2     Y
    BERNDS.SEC14.HYD861                     2009/338    082638 F      80   2009/353    2009/341      3     Y
    BERNDS.SEC14.HYD861                     2009/338    082749 F      80   2009/353    2009/341      4     Y
```
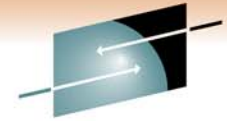
What's new with DFSMSrmm

Agenda

- Ease of Use
- Optimization
- Performance and Scalability
- Availability and RAS

DS8700

TS1130
Tape Drive

TS7680
Deduplication
Gateway

TS3500 Library

TS7700
Virtualization
Engine

What's new with DFSMSrmm

EAV and XTIOT Support (V1.12)

- Prior to z/OS V1.12:

    - The DFSMSrmm journal is not EAS eligible
    - Only the DFSMSrmm CDS is EAS eligble
    - No XTIOT, uncaptured UCB, DSAB above support

- With z/OS V1.12 and above:

    - Any of the data sets used by or created by DFSMSrmm processing can be in EAS
        - Exception: 'prefix.EXEC.RMM.CLIST' when created automatically by SEARCH subcommand processing
    - DFSMSrmm journal is now EAS eligible
        - Only when not shared with a z/OS release below z/OS V1R12
    - Support for dynamically allocated files with XTIOT, uncaptured UCB, DSAB above

What's new with DFSMSrmm

IPV6 Support for Client Server (V1.12)

- DFSMSrmm prior to V1R12 release is an IPV4 enabled application

- DFSMSrmm on V1R12 and later releases is an *IPV6 enabled* application and supports both IPV4 and IPV6 sockets
  - Continue to use IPV4 on all systems, or
  - Run a mixed environment with one or more V1R12 systems running IPV6 and lower supported releases using IPV4
    - Once all systems are V1R12 you have the choice to move all systems to IPV6
    - In a mixed environment dual-mode IP stacks are required

- *Some customers using client/server configuration experienced observed a problem that RMM startup failed without a message*
  - *Root cause is a TCP/IP configuration problem, such that getHostname cannot return a valid local host name.*
  - *OA35102 provides a fix for the "missing" message.*

What's new with DFSMSrmm
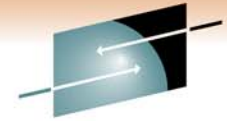
Agenda

- Ease of Use
- Optimization
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TS7700
Virtualization
Engine

TS1130
Tape Drive

DS8700

TS3500 Library

TS7680
Deduplication
Gateway

What's new with DFSMSrmm

Test and Recovery with Production CDS (V1.11)

Test Cycle

Production

CDS1

CDS1

Production

CDS1

CDS1

Production

CDS1

Test

CDS2

CDS2

CDS2
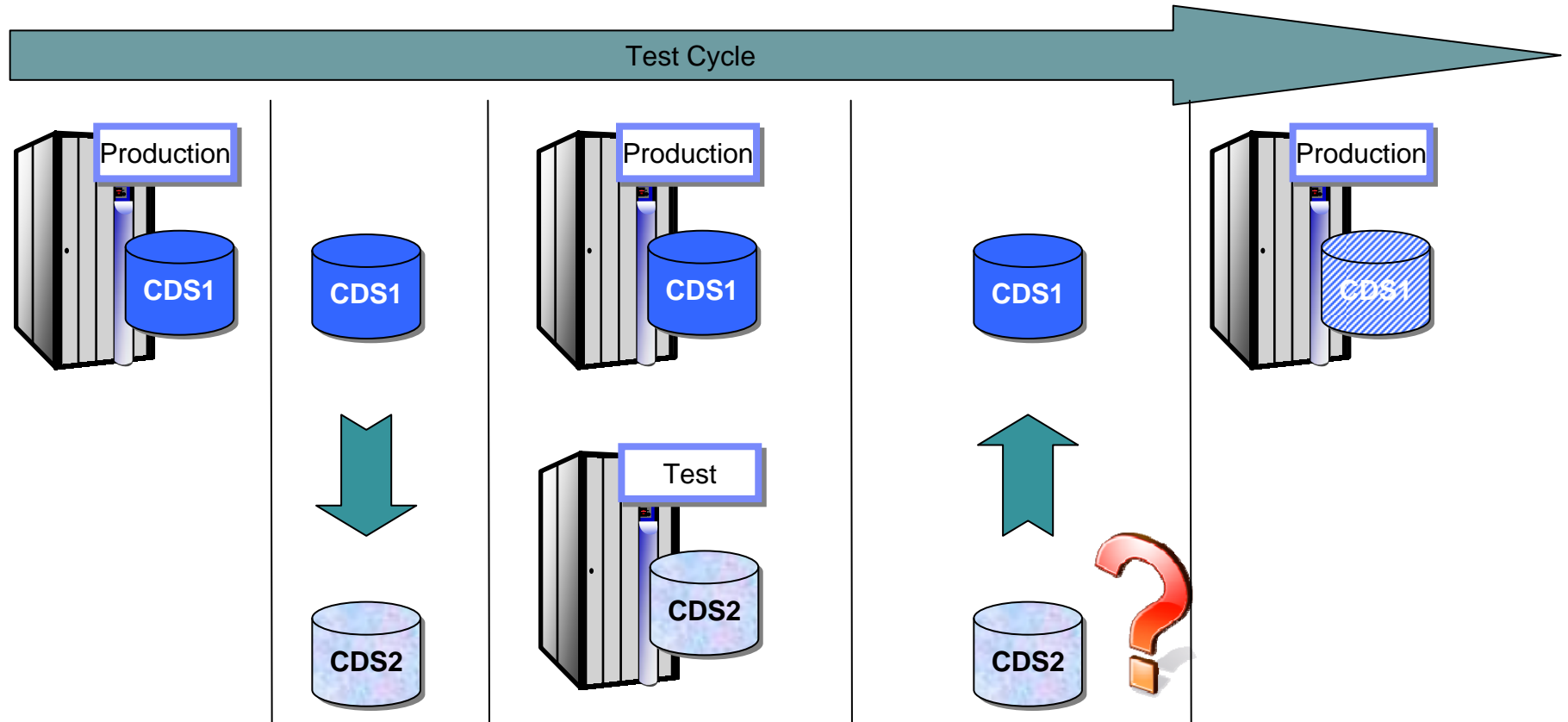
Problem: When a copy or backup of the CDS is used in a test or recovery environment there is no way to easily reflect the changes made to the records in the CDS back to the original CDS.

What's new with DFSMSrmm

PARMLIB Option Changes

```
►►── OPTION ─────────────────────────────────────────────────────────►
                                              ┌── NO ──┐
                         └─ JRNLTRAN ( ──────┴── YES ──┴──── )──┘
```
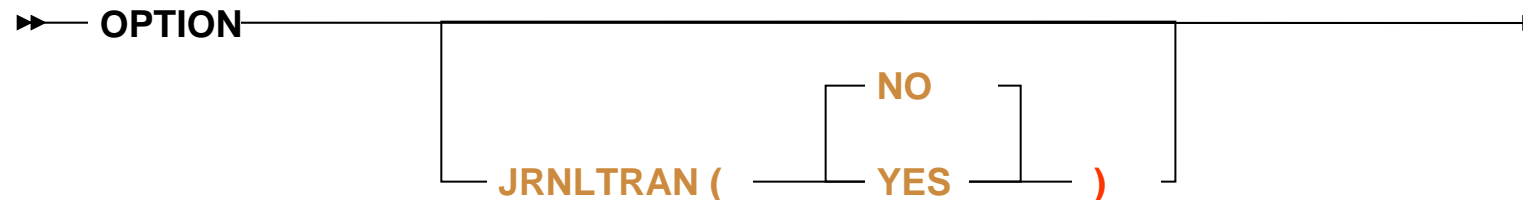
JRNLTRAN(NO|YES)

   Use the JRNLTRAN operand to specify whether the unchanged copy of a record is
   journalled as well as the updated copy.

- When JRNLTRAN(YES) is specified additional journal records are written to the
   journal file. The additional record is a pre-update copy of the record being updated.
- You should only set this option on a test or recovery system when you plan to exploit
   the EDGUPDT utility to duplicate record updates back in the production CDS.
- As a result of using this option you should plan on providing up to 30% more journal
   data set space to accommodate the additional records.

   The default is JRNLTRAN(NO).

What's new with DFSMSrmm

EDGUPDT invocation
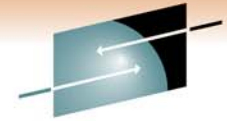
Sample JCL **:**

```
//UPDATE    EXEC PGM=EDGUPDT,PARM=UPDATE
//SYSPRINT DD SYSOUT=*
//JOURNAL   DD DISP=SHR,DSN=TEST.SYSTEM.JRNL
```

Sample JCL including target date and time **:**

```
//UPDATE    EXEC PGM=EDGUPDT,PARM=UPDATE
//SYSPRINT DD SYSOUT=*
//JOURNAL   DD DISP=SHR,DSN=TEST.SYSTEM.JRNL
//          DD DISP=SHR,DSN=TEST.JRNL(0)
//SYSIN     DD *
UPDATE TARGETDATE(2009/123,12:30:00)
/*
```
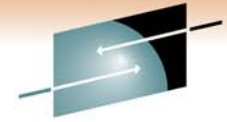
What's new with DFSMSrmm
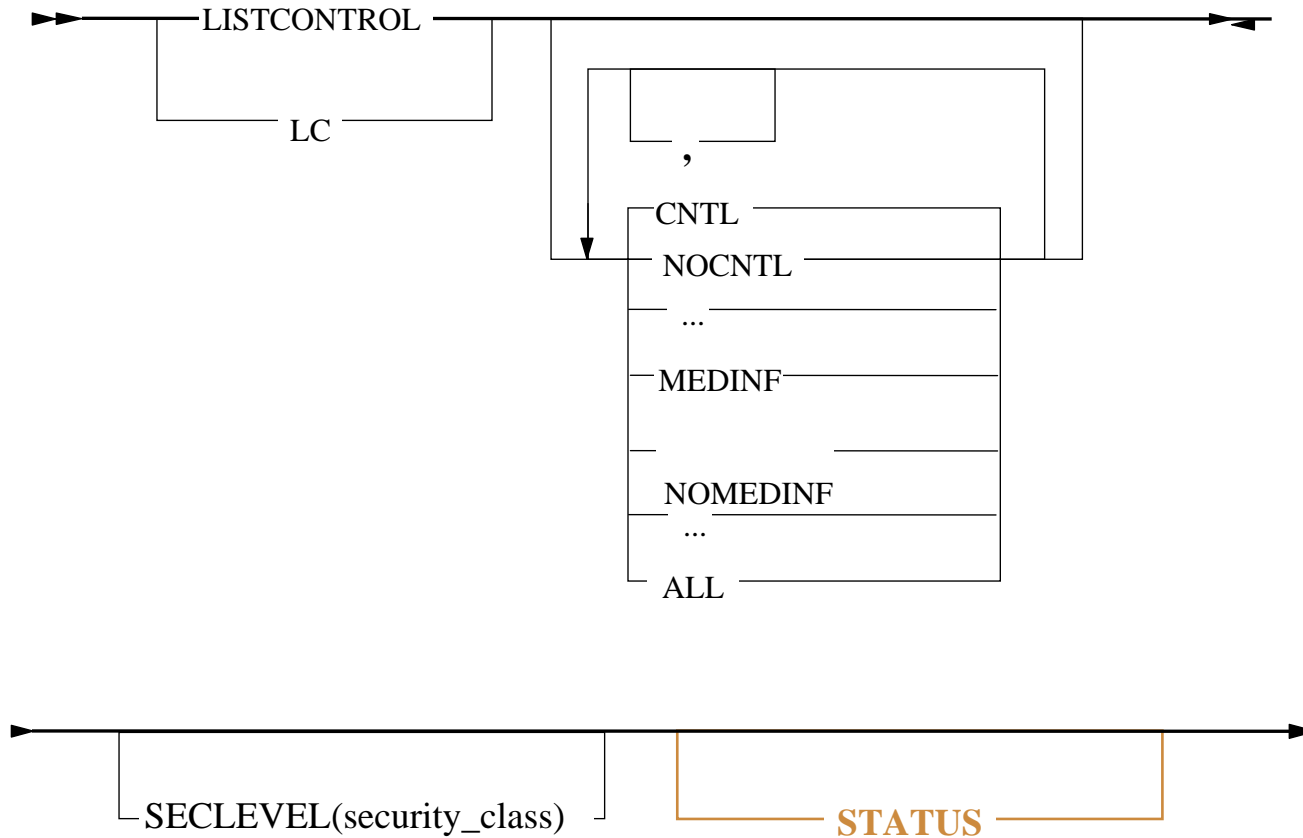
Status available via subcommand and API

- In addition to the MODIFY operator command you can now use
  - RMM LC STATUS subcommand
  - new ISPF panel to retrieve information about the DFSMSrmm subsystem requests, and task status
    - The information returned is very similar to the results of the operator QUERY ACTIVE command.

- RMM LC STATUS can be issued
  - using TSO
  - The RMM API, HLL API
  - Web service
  - Using CIM clients

- Use the CONTROL STATUS fastpath command in the rmm dialog to view rmm status
  - Enables simple use of Hold, Release and Cancel operator commands to change task status

What's new with DFSMSrmm

RMM LC STATUS

```
>>──┬── LISTCONTROL ──┬──────────────────────────────────────────────────>><
    │                 │    ┌─────── , ───────┐
    └───── LC ────────┘    │                 │
                           │   ┌─── CNTL ────┤
                           └───┤   NOCNTL    │
                               │    ...      │
                               │   MEDINF    │
                               │             │
                               │   NOMEDINF  │
                               │    ...      │
                               └─── ALL ─────┘
```

```
>──┬──────────────────────────────┬──┬─────────────┬──────────────>
   └── SECLEVEL(security_class) ───┘  └── STATUS ───┘
```

What's new with DFSMSrmm

"Control Status" Panel

EDGPC00 Panel:
Allows to Hold, Release and Cancel

```
 Panel   Help
 ------------------------------------------------------------------------
 EDGPCC00                      DFSMSrmm Status                  Row 1 to 2 of 2
 Command ===>                                                   Scroll ===> CSR

 DFSMSrmm status . . ACTIVE    Journal ENABLED   Server listener . . ACTIVE
                                                                 Task Commands
 Local tasks . . . . 5         Active    2       Held 3          Active . .
 Server tasks . . . 2          Active    2       Held 0          HSKP . . .
 Queued requests . . 0         Nowait    0       Catalog 0       New . . .
 Debug . . . . . . . DISABLED  PDA trace level 1,2,3,4
 Last reserve . . . 06:16:45   Outstanding Y                     New held :

 The following commands are valid: C,H, and R or 'ENTER' to refresh

 S Function System     Task Name     Started  Token     S IP Status
 - -------- --------   ---- -------- -------- --------   - ----------------
 R ADD      EZU34      JOB  RMMUSERS 06:15:49 0060000B H Read  < 06:17:09
 H HSKP                JOB  RMMHSKP  04:23:22 00200003
```

What's new with DFSMSrmm

Stop/Cancel Improvements (V1.12)

- **Previously:**
  - When DFRMM STOP/shutdown processing is delayed
    - EDG0154I SHUTDOWN OF DFSMSrmm DELAYED BY ANOTHER ADDRESS SPACE
      - *is issued and DFRMM waits for those users to complete their processing. The operator must use the D GRS command to determine the users which cause the delay*
  - 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

- **With V1.12:**
  - DFRMM shutdown now issues an additional message to list the job names of the address spaces preventing shutdown
  - DFSMSrmm subsystem interface processing now correctly detects that DFRMM is or has been stopped
    - Fails incomplete and unprocessed requests for the reason 'DFSMSrmm is not active'

```
EDG0154I SHUTDOWN OF DFSMSrmm DELAYED BY ANOTHER ADDRESS SPACE
EDG0155I ADDRESS SPACE LIST BY JOBNAME:
         jobname1 job2    job3    j4       mikesj

         NUMBER OF JOBNAMES DELAYING SHUTDOWN =    5
```

What's new with DFSMSrmm

PDA Trace Record

```
TIME    USECS   ID AS/TCB         MOD    LOGIC CALLER  ARCPRPDO LEVEL=        -OW1
     96319-------------------------------------------------------------------------
     121050.389472  01 D18E15            OCEOV ENTR    OCEXT
         +R13ADDR=       +0  06447000                        |................|
         ASID/JOB=       +0  0240C4C6 D9D4D4F1 C1            |..DFRMM1........|
         DATA=           +0  D3D6C3D2 60                     |LOCK-..........|
```

AS/TCB value   D18E15

D1   indicates it is a trace record from a JOB
E3   TSU address space
E2   STC
x'00'   for RMM Subsystem address space

ASID/JOB=   0240C4C6D9D4D4F1C1   *..DFRMM1...........*

shows the 2 byte ASID and the 8 character job name

What's new with DFSMSrmm

Important APAR and Enhancements Provided
In the Service Stream

- OA34036
  - The "volume hold" flag –newly introduced with z/OS V1.12- will be honored on R10, R11
- OA31661
  - Additional option to control uppercasing of dataset names. The default is to convert to upper case (R9-R11)
- OA32754, OA33498
  - In a client/server configuration the client may hang after a network error (R9-R12)
  - Or a loop issuing EDG0356E SERVER COMMUNICATION ERROR messages may occur
- OA33876 (currently open, R11)
  - TS7700 COPY EXPORT related fixes and documentation updates
  - Fixes to address problems until microcode fix level is available
  - Refer to updated documentation:
    http://publibz.boulder.ibm.com/zoslib/pdf/OA33876.pdf

What's new with DFSMSrmm

Thank you!
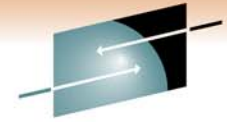
धन्यवाद
Hindi

多謝
Traditional Chinese

ขอบคุณ
Thai

Спасибо
Russian

Gracias
Spanish

Thank You
English

Obrigado
Brazilian Portuguese

شكراً
Arabic

多谢
Simplified Chinese

Danke
German

Bedankt
Dutch

Grazie
Italian

Merci
French

நன்றி
Tamil

ありがとうございました
Japanese

감사합니다
Korean