



# DFSMS Basics: Advanced Storage Reporting using the Report Generator

## Updated for V2R1

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Session 14092



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# Agenda

The Agenda briefly covers the topics of the previous SHARE presentations on the RMM Report Generator and includes the following NEW items fs

- Prior SHARE Presentations Reporting
- RMM Reporting *New V1R13*
  - REXX REPORT04, REPORT05, REPORT07, REPORT09, **REPORT11**, REPORT12,
  - RETENTION METHODS
    - *EXPDROP, EXPDROPS, VRSRETN, VRSRETNS*
- What's is the RMM Report Generator Review
- Sending your REPORT to DISK *New V1R11*
  - New HELP GUIDANCE Information
- Tips & Tricks
  - ICETOOL
  - DFSORT Reformatting tool
- Inputs for HSM Reports and RMM Reports
- Summary

# Reporting

- Reporting for DFSMSrmm and DFSMSHsm may be accomplished in the following ways:
  - TSO Subcommands
    - *Both RMM and HSM have subcommands that provide information on the health of the products including active tasks and contents of the CONTROL DATASETS*
  - ISPF Dialog for RMM
  - ISPF Based Products for HSM
    - IBM Tivoli Advanced Reporting for DFSMSHsm
    - IBM Tivoli Advanced Audit for DFSMSHsm
    - GUI HSM support: OMEGAMON XE for Storage, CA Vantage, BMC Mainview SRM
  - Standard Reporting programs
    - For RMM:
      - EDGRPTD
      - EDGAUD
      - EDGRRPTE Rexx Execs
      - DFSORTs ICETOOL or SYNCSORTs SYNCTOOL
    - For HSM:
      - DFSORT
      - IDCAMS DCOLLECT
      - IFASMFDP FSR and WWFSR records



# RMM Reporting [www.share.org](http://www.share.org)



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## Content by Source

### Conference Proceedings

Access Specific Conference Proceedings

[2012 - SHARE in Anaheim \(Summer\)](#)

[2012 - SHARE in Atlanta \(Winter\)](#)

[2011 - SHARE in Orlando \(Summer\)](#)

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[2010 - SHARE in Boston \(Summer\)](#)

[2010 - SHARE in Seattle \(Winter\)](#)

[Access Proceedings Prior to 2010](#)

  [12009: DFSMS Basics: Storage Reporting Using the Report Generator](#)

 [DFSMS Basics: Storage Reporting Using the Report Generator Part 1](#)

MVS Storage Management

 [What's New in DFSMSrmm](#)

Complete your sessions evaluation online at [SHARE.org/SFEval](http://SHARE.org/SFEval)



# Reporting

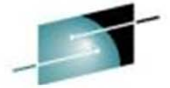


- *What do you want to learn about your product:*
    - *What kind of data is in the CDS*
    - *Different ways of looking at it*
  - *How do you want to collect*
    - *Adhoc*
    - *Regularly scheduled*
  - *Where is the data*
    - *RMM Extract, Activity records*
    - *SMF Records*
    - *DCOLLECT*
- ISPF dialog, TSO Subcommands, graphical BATCH*

# Changes

Session\_9942, What's New in DFSMSrmm

• V1R13



SHARE

IBM

What's new in z/OS DFSMSrmm V1.13

## RETENTIONMETHOD(EXPDT): RMM Parmlib Option (2)

### ▪ VRSEL

- Specify VRSEL to set the default retention method for new tape volume sets to be VRSEL. This option enables DFSMSrmm inventory management to attempt to match data sets and volumes to VRSEs, and if a match is found, to determine if the data set or volumes is to be retained by VRS.
- The VRSEL retention method is controlled by all the other VRS related options in parmlib including OPTION RETAINBY MOVEBY.

### ▪ EXPDT

- Specify EXPDT to set the default retention method for new tape volume sets to be based on EXPDT. Data sets and volumes managed by this retention method are never processed by VRSEL inventory management.
- The EXPDT retention method manages at the volume level: each volume is considered separately for expiration, and each file on a volume can increment the volume expiration date.
- All files of a multi volume data set on a volume set managed by the EXPDT retention method have the same expiration date and time.
- When you specify the EXPDT retention method the DFSMSrmm inventory management EXPROC processing always attempts to return volumes to scratch on the same run as the volume is released (Note: this is as if the SCRATCHIMMEDIATE attribute is set for the volume).

- Default: RETENTIONMETHOD(VRSEL)
- Use parmlib RETENTIONMETHOD(EXPDT) only once you want to switch the default retention method to EXPDT.



# Changes

• V2R1

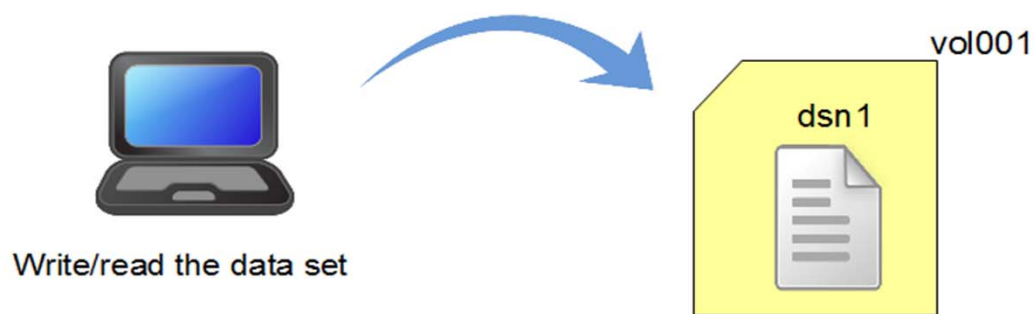


- Expire after days non-usage/Last reference date
- 'Retain by' options for volumes managed by the EXPDT retention method
- Conversion support changes
- Management Class attributes enablement and Management Class expiration attributes processed by DFSMSrmm

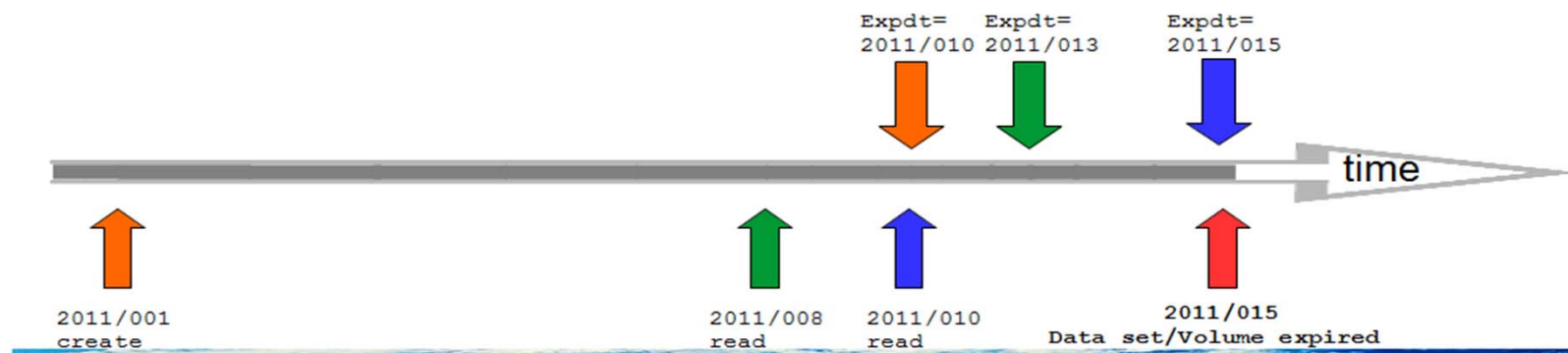
# Changes

• V2R1

new attribute, **LASTREF** extra days is added to the data set record for data sets on volumes managed by the **EXPDT** retention method.



- |                            |                             |                             |
|----------------------------|-----------------------------|-----------------------------|
| • Creation date = 2011/001 | • Last Read date = 2011/008 | • Last Read date = 2011/010 |
| • Expdt = 2011/010         | • Expdt = 2011/013          | • Expdt = 2011/015          |
| • LASTREF = 5              | • LASTREF = 5               | • LASTREF = 5               |



# Changes

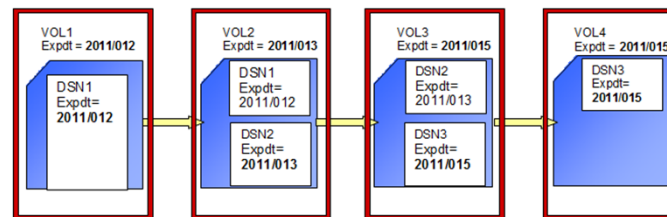
•V2R1



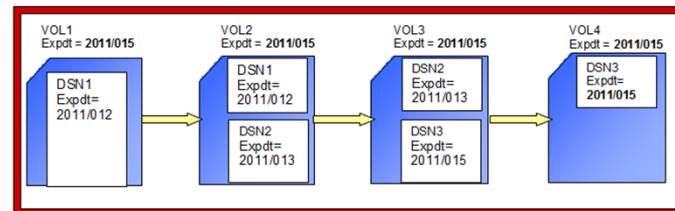
new attribute, **RETAINBY** is added to the volume record for volumes managed by the EXPDT retention method. Possible values for RETAINBY attribute are VOLUME, FIRSTFILE and SET.

A new sub-parameter RETAINBY for the **EXPDT** retention method is added to the DFSMSrmm parmlib member to specify a system wide default.

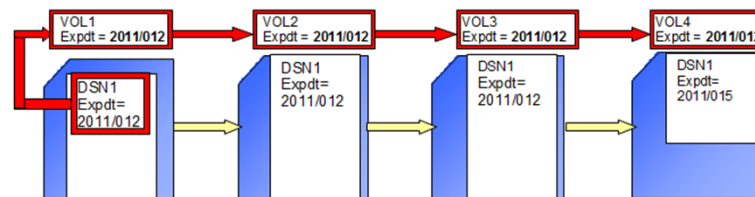
**RETAINBY(VOLUME)**



**RETAINBY(SET)**



**RETAINBY(FIRSTFILE)**



# Changes

• V2R1



Continue the moving DFSMSrmm **expiration and retention decisions** outside VRSEL inventory management, and enable the use of **DFSMS Management Class** attributes for tape data sets.

use the benefits of the EXPDT retention method, but has to assign the expiration date and Last reference days to each data set explicitly by the JCL, DataClass

## New RMM parmlib option MCATTR

When you enable the use of Management Class attributes by DFSMSrmm the Management Class expiration attributes (in this release without the Management Class Expiration attribute Retention Limit) are retrieved by DFSMSrmm during **OPEN for output** and used to set the expiration date and the LASTREF extra days for the tape data set.

# New Reports in support of RetentionMethod



EDGRRPTE

SYS1.SAMPLIB(EDGRPTD)

REPORT01 Pull list for SCRATCH tapes sorted by volume serial

REPORT02 Pull list for SCRATCH tapes sorted by data set name

REPORT03 Inventory list by volume serial number

REPORT04 Inventory list by data set name

REPORT05 Inventory of data sets including used kilobytes

REPORT06 Inventory of volume serial number by location

REPORT07 Inventory of data set names by location

REPORT08 Inventory of BIN numbers by location

REPORT09 List all data set names on LOAN

REPORT10 List all volume serial numbers on LOAN

REPORT11 List all multi volumes / multi data sets

REPORT12 Movement report including the first data set name

REPORT13 Movement report sorted by storage location BIN number

REPORT14 Movement report including the first DSN on a volume

REPORT15 Inventory list by volume serial number incl. volume cnt

REPORT16 Inventory list of duplicate volumes

REPORT17 Inventory of stacked datasets by percent Active

**REPORT18 Inventory of datasets by volume retention method**

# New Reports in support of RetentionMethod



```
DFSMSrmm TEST OF REPORT 18
EDGRPT18
```

```
Inventory of Data Set Names by Volume Retention Method EXPDT
```

Volume Serial	Vol- Seq.	DSN- Seq.	Creating Jobname	Create Date	Create Time	Volume Exp. Date	DSN Exp. Date
006142	1	1	TAPETSTP	2013/021	010359	1999/365	1999/365

```
End of Report. 1 Entries listed
```

```
Inventory of Data Set Names by Volume Retention Method VRSEL
```

Volume Serial	Vol- Seq.	DSN- Seq.	Creating Jobname	Create Date	Create Time	Volume Ret. Date	DSN Ret. Date
265791	1	4	ABDATBAK	1994/235	161300	WHILECATLG	WHILECATLG

# New Reports in support of RetentionMethod



SYS1.SAMPLIB(EDGJACTP)

**FORMAT** the RMM Activity file that is updated with changes to RMM records during inventory management.

This sample JCL provides pairs of datasets: detailed and summary (counts)

VRS	VRS retained status changes
VRSS	
RETDTE	Dataset Retention changes
RETDS	
MATCHVRS	VRS' that match to datasets
MATCHVS	
SUBCHN	Chains of VRS applied to datasets
SUBCHNS	
<b>VRSRETN</b>	Volumes retained during VRSEL processing
<b>VRSRETNS</b>	
<b>EXPDROP</b>	Volumes Dropped from VRS' during VRSEL processing
<b>EXPDROPS</b>	

# New Reports in support of RetentionMethod

Activity Records



**FORMAT** the RMM Activity file that is updated with changes to RMM records during inventory management.

**VRSRETN** Volumes retained during VRSEL processing

```
Newly assigned volumes subject to VRSRETAIN          10/01/12          15:38

Status:  RETAINED

D A T A S E T                                         D
                                                    V
VOLSER  FSEQ  DSNAME                                JOBNAME  X RE
---+---1---+---2---+---3---+---4---+---5---+---6---+---7---
-----
S01249      1  MVSS.RSRFMT.0013113.SS2196.COMP.SS2096N2      VSSS2196  N Y
S01793      1  MVSPRD.MVBT.ARCHIV1.E13031.T0814566.B0029370  VSMaster  N Y
S01913      1  MVSPRD.MVVR.ARCHIV1.E13031.T0856506.B0046261  VSMaster  N Y
S01977      1  MVSPRD.MVRC.ARCHIV2.E13031.T0858388.B0003662  VSMASRR   N Y
S02315      1  MVSW.PRODUCT.SYSA.INC.OFSITE.BKUP.G6402V00      VSOFFSIT  N Y
S02315      2  MVSW.PRODUCT.SYSC.INC.OFSITE.BKUP.G6401V00      VSOFFSIT  N Y
S02315      3  MVSW.ENDEVOR.SYSD.INC.OFSITE.BKUP.G6401V00      VSOFFSIT  N Y
```



# New Reports in support of RetentionMethod



Activity Records

**FORMAT** the RMM Activity file that is updated with changes to RMM records during inventory management.

**VRSRETNS** Summary of Volumes retained during VRSEL processing

```
Summary of newly assigned volumes for VRSRETAIN      10/01/12

Status          VOLUME COUNT
-----          -
NOTRETAINED          34
RETAINED             840
```

# New Reports in support of RetentionMethod



Activity Records

**FORMAT** the RMM Activity file that is updated with changes to RMM records during inventory management.

**EXPDROP** Volumes Dropped from VRS' during VRSEL processing

```
EXPDT retained volumes subject to EXPDTRDP          10/01/12          15:38

Status:  NOCHANGE

VOLSER   VSEQ   DSNAME                                          JOBNAME
-----  -
S03189    2     DOPRD1.VGL2035.C2000111                       DOPR1PST
S07564    1     DOPRD1.VGS1119.C1002742                       DOPR3PHP
S08782    1     DOPRD1.VGS1119.C1002743                       DOPR3PHP
S11985    1     SYS3.TSM2D.DBB                                 TSM2
S12244    2     SAMPLE.MPM.IRISG.BACKUP.G0096V00              SMPWKFG
S17125    2     SAMPLE.MPM.IRISC.BACKUP.G0039V00              SMPWKFC
S17479    2     SAMPLE.MPM.IRISE.BACKUP.G1199V00              SMPWKFE
S19147    1     DB2BIC.ICOPY.DCXPRTB.DCBS80TS.D2013030        DB2BXPRT
S19711    2     SAMPLE.MPM.IRISD.BACKUP.G1109V00              SMPWKFD
```

# New Reports in support of RetentionMethod



SYS1.SAMPLIB(EDGJACTP)

**FORMAT** the RMM Activity file that is updated with changes to RMM records during inventory management.

**EXPDROPS** Summary of Volumes Dropped from VRS' during VRSEL processing

```
Summary of EXPDT retained volumes for EXPDTRDP      10/01/12
Status          VOLUME COUNT
-----
NOCHANGE                57
```



# SMF Records RMM

DFSORT ICETOOL

Add 5 to the positions for mapping macros

OR

Use [DFSORT SYMBOLS](#) See [RMM REPORTING Appendix A](#)

Appendix A. DFSORT symbols for use with DFSMSrmm

<http://www.ibm.com/storage/dfsor>

DFSORT ICETOOL PAPERS and Examples

<http://www-01.ibm.com/support/docview.wss?rs=114&uid=isg3T7000097>

# SMF Records HSM

FSR TYPE 241

See the report Generator

## DFSORT: ICETOOL Mini-User Guide

Document Number GC27-1997-00

March, 2004  
October, 2010

# RMM SAMPLE REPORTS using ICETOOL

## SYS1.SAMPLIB

**Weekly and Monthly reports on actions on volumes from create to delete**

EDGJAUDM

EDGJAUDW

**Volumes returned to scratch**

EDGJNSCR

**List of volumes by Owner**

EDGJROWN

**Volume Records**

EDGJRVOL

**Volumes In Storage Locations and moving to Storage Locations**

EDGJVLT

EDGJVLTM

# RMM REPORTS using REXX Execs

## Date Format

- SYSAUTH.EDGDATE must be set to a valid date format

## Stem Variables

- Stem Variable .0 could Indicate a count or how many
- Stem Variable .1 + volser
- Double Stem Variables may exist for sub parameters like  
RMM LC CNTL

## REXX VARIABLES

# RMM SAMPLE REPORTS using REXX

## SYS1.SAMPLIB

**List All volumes in a Multi volume chain**

EDGXMP1

**List ALL datasets on volume**

EDGXMP2

**Sample REXX exec**

EDGXMP3

## Introducing the RMM Report Generator

- The RMM Report Generator is an easy to use ISPF application which simplifies the process of creating and managing RMM and HSM reports.
- Mapping macros are supplied for
  - RMM
    - extract dataset, SMF records, and ACTIVITY Records
  - HSM
    - FSR, WFSR, and DCOLLECT
  - SMS
    - DCOLLECT
- You can also provide your own Macros to map non-RMM, non-DFSMS data



# Introducing the RMM Report Generator

- Terminology
  - **Reporting Tool:** A reporting utility such as DFSORT's ICETOOL
  - **Report Definition:** Defines the report layout including column order and sort preferences
  - **Report Type:** Defines the type of record being used and how it is mapped
  - **Selection Criteria:** Defines which records will be selected for reporting
  - **Product Library:** DFSMS supplied sample reports, default is SYS1.SAMPLIB
  - **Installation Library:** Customized installation-wide report definition library
  - **User Libraries:** End User report definition and JCL libraries

# Introducing the RMM Report Generator

- Starting the Report Generator application
  - Using option 'G' from ISMF *when RMM is not installed.*

```
ISMF PRIMARY OPTION MENU - z/OS DFSMS V1 R13
```

```
G Report Generation - Create Storage Management Reports
```

- Using option 'R' from the RMM User or Librarian menus will take you directly to the Report Definition Search panel

```
DFSMSrmm User Menu - z/OS V1R13
```

```
R REPORT - Work with reports
```

- Option 'R' from the RMM Commands menu takes you to the main Report Generator panel

```
DFSMSrmm Command Menu - z/OS V1R13
```

```
R REPORT - Report generator
```

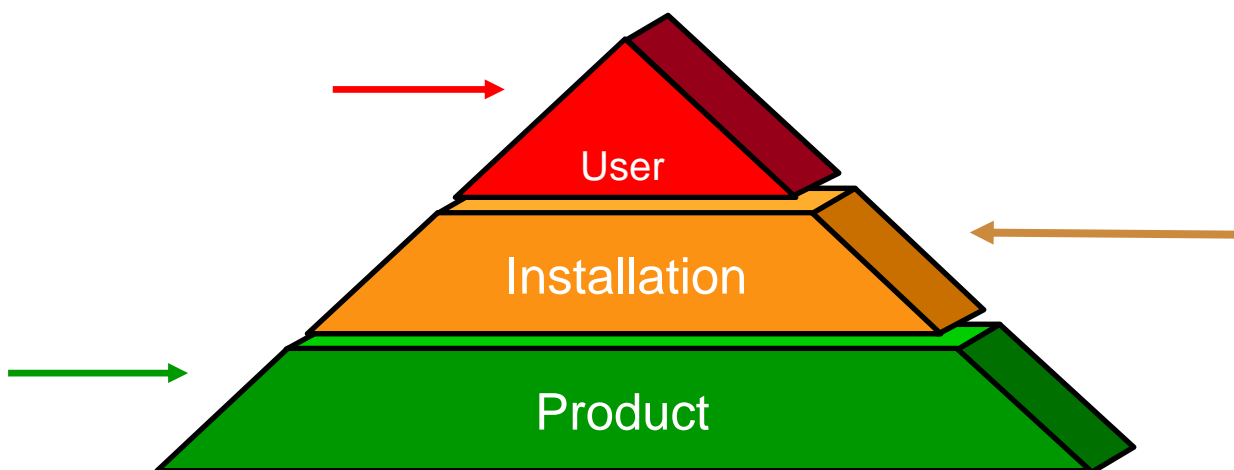
- The 'REPORT' **fastpath** command also takes you to the main Report Generator panel and can be used from any other RMM panel

## Setting up Installation Wide Options

- **Optionally** customize dataset names in the EDGRMAIN REXX EXEC
- Use the Report Options panel to define the Installation Library; user library and product library default
- Default space is 10 tracks primary and secondary and 50 directory blocks
- Set up appropriate security access for installation library and RMM extract data set
- Create customized Report Types and Report Definitions and store in installation library

# Setting up Installation Wide Options

- Library Concatenation



# Setting up Installation Wide Options

```
Panel Help
-----
REMOVABLE MEDIA MANAGER (DFSMSrmm) - z/OS V1R13
Option ==>
0  OPTIONS      - Specify dialog options and defaults
1  USER        - General user facilities
2  LIBRARIAN    - Librarian functions
3  ADMINISTRATOR - Administrator functions
4  SUPPORT      - System support facilities
5  COMMANDS     - Full DFSMSrmm structured dialog
6  LOCAL        - Installation defined dialog
X  EXIT         - Exit DFSMSrmm Dialog

Enter selected option or END command. For more info., enter HELP or PF1.

5694-A01  COPYRIGHT 1993,2011 IBM CORPORATION
```

# Setting up Installation Wide Options

```
Panel Help
-----
DFSMSrmm Report Generator                               Enter option
Option ==> _____
0  OPTIONS          - Specify dialog options and defaults
1  REPORT           - Work with reports
2  REPORT TYPE     - Work with report types
3  REPORTING TOOL  - Work with reporting tools
4  MIGRATION       - Migration tasks for reporting

Enter selected option or END command. For more info., enter HELP or PF1.

5694-A01  COPYRIGHT 1993,2011 IBM CORPORATION
```

# Setting up Installation Wide Options

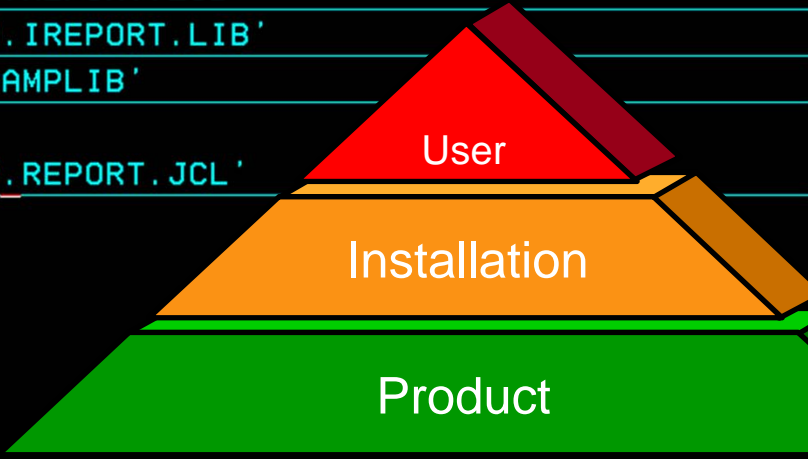
```
Panel  Help
-----
                                DFSMSrmm Dialog Options Menu
Option ==> _____
1  USER      - Specify processing options
2  SORT      - Specify list sort options
3  REPORT    - Specify report options

Enter selected option or END command. For more info., enter HELP or PF1.

5694-A01  COPYRIGHT 1993,2011 IBM CORPORATION
```

# Setting up Installation Wide Options

```
Panel Help
DFSMSrmm Report Options
Command ==>
Report definition libraries:
User . . . . . 'USERID.REPORT.LIB'
Installation . . . . . 'SYSTEM.IREPORT.LIB'
Product . . . . . 'SYS1.SAMPLIB'
User report JCL library . . . . . 'USERID.REPORT.JCL'
```



DFSMSrmm allocates user libraries if they do not exist.



## Customizing for Personal Use

- The Report Options panel can also be used to designate end user Report Definition and JCL libraries
- The default library names of <userid>.REPORT.LIB and <userid>.REPORT.JCL are allocated and used if a preallocated library name is not supplied
- Use the RMM Dialog User Options panel to supply JOBCARD information

# Customizing for Personal Use

```
Panel Help
-----
                                DFSMSrmm Dialog Options Menu
Option ==> 1
-----
1  USER      - Specify processing options
2  SORT      - Specify list sort options
3  REPORT    - Specify report options

Enter selected option or END command. For more info., enter HELP or PF1.
```

# Customizing for Personal Use

```

Panel  Help
-----
                                DFSMSrmm Dialog User Options

Command ==> _____

Date format . . . . . AMERICAN      ( American, European, Iso or Julian )
Time zone   . . . . . LOCAL         ( zone offsetHH:MM:SS )

Confirm deletes . . . . YES         ( Yes or No )

Processing option . . . F           F - Foreground, B - Background
DSNAME case option . . U           M - Mixed, U - Upper
Eject option . . . . . C           C - Convenience, B - Bulk

Variable reuse . . . . . Y         Y - Yes, N - No

Job statement information:-

==> //RPTGEN01 JOB (ACCNTG), 'RMM RPT GEN', CLASS=A, MSGCLASS=X,
==> //          MSGLEVEL=(1,1), REGION=256M, NOTIFY=&SYSUID
==> // *
==> // *

Enter END command to save changes, or CANCEL to end without saving.

```

# Working with Predefined Reports

- The Report Generator comes with sample reports which can be used 'as is' or customized to your specifications
- Before you run your first report, there are a few things you will need to know:
- What type of records your report needs: **HSM,RMM or User Input**
- The name of the **RMM Extract dataset** or other data file **SMF** or **DCOLLECT**
- The date format used to create the extract
- What SORT product your installation uses
- You will use these when generating your report JCL

# Working with Predefined Reports

```
Panel  Help
-----
                                DFSMSrmm Report Generator
Option ==> 1
-----
0  OPTIONS          - Specify dialog options and defaults
1  REPORT           - Work with reports
2  REPORT TYPE      - Work with report types
3  REPORTING TOOL   - Work with reporting tools
4  MIGRATION        - Migration tasks for reporting

Enter selected option or END command. For more info., enter HELP or PF1.

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```

# Working with Predefined Reports

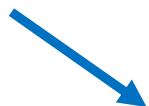
```
Panel  Help
-----
                        DFSMSrmm Report Definition Search
Command ==> _____

Report name . . _____ May be generic. Leave blank for all reports.

User id . . . . _____ Leave blank for all user ids.

Select one or more library. Default is all defined libraries.
Libraries (enter S):      Currently defined libraries:
  S  User
  _  Installation
  S  Product

The following line commands will be available when the list is displayed:
A - Add a new report definition      D - Delete a report definition
G - Generate and save the JCL        H - View the report help information
J - Edit and submit the JCL          L - List macro assembly results
M - Browse macros for the report      N - Copy a report definition
S - Display/change the report         T - Select a reporting tool
```



# Working with Predefined Reports

```

Panel  Help
-----
                                DFSMSrmm Report Definitions                                Row 1 to 15 of 43
Command ==> _____ Scroll ==> CSR

The following line commands are valid: A,D,G,H,J,L,M,N,S, and T

S Name      Report title                                Report type                                User id
-----
  ARCGDB01  DCOLLECT BACKUP DATA                        DFSMSHsm DCOLLECT BACKUP                  HSM
  ARCGDM01  DCOLLECT MIGRATION DATA                    DFSMSHsm DCOLLECT MIGRATION              HSM
  ARCGS002  Statistics for Backup                        DFSMSHsm FSR-SMF Records                 HSM
  ARCGS003  Statistics for Migration                    DFSMSHsm FSR-SMF Records                 HSM
  EDGGAHLD  Held Volumes by Volume Serial, Extended    Extended Extract Records                  RMM
  EDGGAUD1  SMF Audit of Volumes by Volser             SMF Records for Volumes                  RMM
  EDGGAUD2  SMF Audit of Volume by Rack                SMF Records for Volumes                  RMM
  EDGGAUD3  SMF42 Audit of Volumes by Vols             SMF42 Records for Volumes                RMM
  EDGGDCDS  Data Sets by Storage Group                  DFSMS DCOLLECT for Data Sets              RMM
  EDGGR01  Scratch tapes by volume serial              Extended Extract Records                  RMM
  EDGGR03  Inventory List by Volume Serial             Extended Extract Records                  RMM
  EDGGR06  Inventory of Volumes by Location           Extended Extract Records                  RMM
  EDGGR14  Movement Report by Volume Serial           Extended Extract Records                  RMM
  EDGGSEC2  SMF42 Report of Accesses to Security       SMF42 Security Records                   RMM
  HWDCACCT  VOLUME ACCOUNTING REPORT                   Extended Extract Records                  RMM
  
```

# Working with Predefined Reports

```
Panel Help
-----
Panel Help
-----
DFSMSrmm JCL Help for EDGGR03
Command ==> _____ Scroll ==> CSR
Help information for the generation of the report JCL.

If during the report generation an extract step is requested:
- Create report data . . Y (Y/N)
then a DFSMSrmm Inventory Management step is included.
The specified parameter for the Input data set of the report
is the output data set of the Inventory management step, and
must be pre-allocated.
```



# Working with Predefined Reports

## RMM Example Generate

```
Panel Help
DFSMSrmm Report Generation - EDGGR03
Command ==>
Enter or change the skeleton variables for the generated JCL:
Input data set . . . . 'RMM.EXTRACT'
Date format . . . . . AMERICAN
(American, European, Iso, Julian, or free form)
Required if you use variable dates (&TODAY) in your selection criteria.
Create report data . . N (Y/N)
Choose Y if you want an extract step included into your generated JCL.
Additional skeleton variables, for example if an extract step is included:
Skeleton Variable_1 . . DATEFORM(A)
Skeleton Variable_2 . . 'USERID.RMMHSKP.MESSAGE'
Skeleton Variable_3 . .
The skeleton selection depends on the reporting macro . . . : EDGRXEXT
and macro keyword . . . :
Enter END command to start the report generation or CANCEL
```

# Working with Predefined Reports

## HSM Example Generate

```

Panel  Help
-----
DFSMSrmm Report Generation - ARCGS003

Command ==> _____

Enter or change the skeleton variables for the generated JCL:
OUTPUT
Input data set . . . . 'USERID.HSMSMF.ALTERED.DSN'
Date format . . . . . YYYYYDD
(American, European, Iso, Julian, or free form)
Required if you use variable dates (&TODAY) in your selection criteria.
Create report data . . . Y (Y/N)
Choose Y if you want an extract step included into your generated JCL.

Additional skeleton variables, for example if an extract step is included:
Skeleton Variable_1 . . X'F1' ← SETSYS SMF(xx) value
Skeleton Variable_2 . . USERID.SMFREC.INPUT
Skeleton Variable_3 . . _____

The skeleton selection depends on the reporting macro . . . : ARCFSR2
and macro keyword . . . :
Enter END command to start the report generation or CANCEL
  
```

INPUT  
→

# Working with Predefined Reports

## Considerations for HSM Reporting

The RMM Report Generator cannot process DFSMSHsm's ARCFSR and ARCWWFSR records.

ARCFSR and ARCWWFSR records are converted to ARCGFSC and ARCGWFSC while running the DFSMSrmm Report Generator. [Specify Y in the Create Report Data Field](#)

Date format must be set to [YYYYDDD](#) for DFSMSHsm FSR records.

The Actual INPUT Dataset is specified in Skeleton Variable 2

The reformatted FSR and WWFSR records are in the [Input Data set](#)

# Working with Predefined Reports

```

Panel  Help
-----
DFSMSrmm Report Definitions                               Row 1 to 15 of 43
Command ==> _____ Scroll ==> CSR

The following line commands are valid: A,D,G,H,J,L,M,N,S, and T

S Name      Report title                                     Report type                                     User id
-----
ARCGDB01    DCOLLECT BACKUP DATA                            DFSMSHsm DCOLLECT BACKUP                       HSM
ARCGDM01    DCOLLECT MIGRATION DATA                         DFSMSHsm DCOLLECT MIGRATION                     HSM
ARCGS002    Statistics for Backup                             DFSMSHsm FSR-SMF Records                        HSM
ARCGS003    Statistics for Migration                         DFSMSHsm FSR-SMF Records                        HSM
EDGGAHLD    Held Volumes by Volume Serial, Extended Extract  DFSMSHsm Extended Extract Records              HSM
EDGGAUD1    SMF Audit of Volumes by Volser                   SMF Records for Volumes                        RMM
EDGGAUD2    SMF Audit of Volume by Rack                     SMF Records for Volumes                        RMM
EDGGAUD3    SMF42 Audit of Volumes by Vols                   SMF42 Records for Volumes                      RMM
EDGGDCDS    Data Sets by Storage Group                       DFSMS DCOLLECT for Data Sets                    RMM
EDGGR01    Scratch tapes by volume serial                   DFSMSHsm Extended Extract Records              RMM
J EDGGR03    Inventory List by Volume Serial                   DFSMSHsm Extended Extract Records              RMM
EDGGR06    _____                                       _____                                       _____   ds RMM
EDGGR14    Report JCL ARCGS003 stored or 'USERID.REPORT.JCL' ds RMM
EDGGSEC2    _____                                       _____                                       _____   ds RMM
HWDCACCT    VOLUME ACCOUNTING REPORT                         Extended Extract Records                        RMM
  
```

# Working with Predefined Reports RMM Example SUB

```

File Edit Edit_Settings Menu Utilities Compilers Test Help
PROFILE      USERID.REPORT.JCL (EDGGR03) - 01.00      Columns 00001 00072
Command ==>  Scroll ==> CSR
***** Top of Data *****
000001 //RPTGEN01 JOB (ACCNTG), 'RMM RPT GEN', CLASS=A, MSGCLASS=X,
000002 //          MSGLEVEL=(1,1), REGION=256M, NOTIFY=&SYSUID
000003 //*
000004 //*
000005 //*
000006 //*****
000007 /**      SKELETON MEMBER EDGSGICE
000008 /**      TAILORED BY THE RMM REPORT GENERATOR FOR REPORT EDGGR03
000009 //*****
000010 //*****
000011 /**      STEPS TO SOLVE TITLE VARIABLES @N2A
000012 //*****
000013 //TITVAR1 EXEC PGM=IDCAMS
000014 //SYSPRINT DD SYSOUT=*
000015 //SYSIN DD *
000016 REPRO INFILE(TTINDD) OUTFILE(TTOUTDD) SKIP(0) COUNT(1)
000017 //TTINDD DD DSN=RMM.EXTRACT,
000018 //          DISP=SHR
000019 //TTOUTDD DD DSN=&VTIT, UNIT=SYSALLDA, SPACE=(TRK,1), DISP=(,PASS),

```

# Working with Predefined Reports

```

File Edit Edit_Settings Menu Utilities Compilers Test Help
PROFILE      USERID.REPORT.JCL(ARCGS003) - 01.00      Columns 00001 00072
Command ==>  _____ Scroll ==> CSR
000001 //RPTGEN01 JOB (ACNTG), 'RMM RPT GEN', CLASS=A, MSGCLASS=X,
000002 //          MSGLEVEL=(1,1), REGION=256M, NOTIFY=&SYSUID
000003 //*****
000004 //**      SKELETON MEMBER EDGSGICE
000005 //**      TAILORED BY THE RMM REPORT GENERATOR FOR REPORT ARCGS003
000006 //*****
000007 //ARCGFSRC EXEC PGM=SORT
000008 //*****
000009 //*  FUNCTION      - THIS JCL CONVERTS ARCF SR SMF RECORDS TO ARCF SR
000010 //*                      RECORDS TO BE USED AS INPUT FOR REPORT GENERATOR
000011 //*****
000012 //SYSPRINT DD  SYSOUT=*
000013 //SORTIN  DD  DISP=SHR,
000014 //          DSN=USERID.SMFREC.INPUT
000015 //SORTOUT DD  DISP=(NEW,PASS),
000016 //          UNIT=SYSALLDA,
000017 //          LIKE=USERID.SMFREC.INPUT,
000018 //          DSN=USERID.HSMSMF.ALTERED.DSN
000019 //MSGOUT1 DD  SYSOUT=*

```

## Creating New Reports

- The Report Generator provides several ways of creating new reports:
  - Start from scratch by adding a new report
  - Create a new report based on an existing Report Definition
  - Create a new report based on an existing Report Type
  - Select a predefined sample report and modify it, saving changes in your own personal report definition library

# Altering Reports

```

PROFILE                DFSMSrmm Report Definition - EDGGR03          Row 1 to 7 of 212
Command ==> _____ Scroll ==> CSR

Report title . . . Inventory List by Volume Serial,                +
Report footer . . Removable Media Manager
Reporting tool . : ICETOOL                      Report width:  248
Enter "/" to select option
_ Edit the help information for this report

Use END to save changes or CANCEL
The following line commands are valid: S, and R

S CO S0  Field name                Column header text                CW  Len Typ
-----
  1  1A  XVVOLSER                    Volume                          6   6  C
  2      XDDSNAME                    Dataset name                     44  44  C
  3      XVVOLSEQ                    Volseq                            6   4  C
  4  2A  XDDSNSEQ                    DSNseq                            6   5  C
  5      XDCRTJBN                    Creating jobname                 16   8  C
  6      XDCRDATE                    DSN date created                 16  10  C
  7      XDCRTIME                    DSN time Created                 16   6  C
  
```



# Altering Reports

```

Panel  Help
-----
PROFILE          DFSMSrmm Report Definition - EDGGR03      Row 1 to 7 of 212
Command ==>      Scroll ==> CSR
Report title . . . Inventory List by Volume Serial,      +
Report footer . . with shorter column headers
Reporting tool . : ICETOOL                               Report width: 232
Enter "/" to select option
_ Edit the help information for this report

Use END to save changes or CANCEL
The following line commands are valid: S, and R

S CO SO  Field name      Column header text      CW  Len Typ
-----
  1  1A  XVVOLSER         Volume                  6   6  C
  2      XDDSNAME         Dataset name            44  44  C
  3      XVVOLSEQ         Volveq                  6   4  C
  4  2A  XDDSSEQ         DSNseq                  6   5  C
  5      XDCRTJBN         Create job               10   8  C
  6      XDCRDATE         Create Date              11  10  C
  7      XDCRTIME         Create time              11   6  C

```

## Selecting a Reporting Tool

- The RMM Report Generator uses ICETOOL as it's default reporting tool
- If your installation does not use DFSORT, you'll have to select a different tool
- The Report Generator can be customized to use other reporting tools
- Use option 'T' to change the tool currently assigned to your report definition

# Selecting a Reporting Tool

```

PROFILE                               DFSMSrmm Report Definitions                               Row 28 to 41 of 43
Command ==                               SR
The follow
S Name                                     DCIBMU1          Select Reporting T      Enter required field
-----                                     Command ===>     _____          Scroll ===> CSR          id
EDGGR02                                     S Reporting tool
EDGGR03                                     - - - - -
EDGGR04                                     DFSORT
EDGGR06                                     ICETOOL
EDGGR07                                     SYNCTOOL
EDGGR08                                     ***** Bottom of data *****
EDGGR09
EDGGR10
EDGGR11
EDGGR12
EDGGR13
EDGGR14                                     MU1
EDGGR15
EDGGR15                                     MU1
EDGGSEC1

```

## Using Titles, Headers and Footers

- A Title and Footer can be added to each page of your report from the Report Definition panel
- Column headers can be customized for each data field included in your report
- Report width is automatically calculated based on the length of currently selected fields
- Column width is based on the longer of the header text or the actual data length
- Default column headings are very descriptive, but should be shortened to reduce overall report width

# Using Titles, Headers and Footers

```

Panel  Help
-----
DCIBMU1          DFSMSrmm Report Definition - EDGGR03          Row 1 to 7 of 212
Command ==> _____ Scroll ==> CSR

Report title . . . Inventory List by Volume Serial,          +
Report footer . . . with shorter column headers
Reporting tool . : ICETOOL                                Report width: 232
Enter "/" to select option
_ Edit the help information for this report

Use END to save changes or CANCEL
The following line commands are valid: S, and R

S CO SO  Field name          Column header text          CW  Len  Typ
- - - - -
 1  1A  XVVOLSER             Volume                      6   6   C
 2      XDDSNAME            Dataset name                 44  44   C
 3      XVVOLSEQ            Volseq                       6   4   C
 4  2A  XDDSNSEQ            DSNseq                      6   5   C
 5      XDCRTJBN            Create job                   10  8   C
 6      XDCRDATE            Create Date                   11 10   C
 7      XDCRTIME            Create time                   11  6   C
  
```

# Selection Criteria, Sorting and Grouping

- The Report Definition panel is also used to control which data fields are selected and how they appear on the report
  - The **CO** column is used to define the column order of the fields
    - Fields are selected by placing a number in the CO column
    - Selected fields move to the top of the list for easy viewing
    - Numbers can be overtyped if you change your mind and the selected fields will be automatically re-sequenced
  - The **SO** column indicates the sequence and direction of sort fields
    - Sort fields do not have to appear on the report
    - Use A for Ascending and D for Descending
    - Numbers can be overtyped and will be automatically re-sequenced
  - The **S** column is used to define Selection Criteria

# Selection Criteria, Sorting and Grouping

- Compare value is case sensitive
- Conjunctions:
  - AND condition
  - OR condition
  - AND( beginning of a nested conjunction
  - AND) end of a nested conjunction
- Substring Position
  - Starting position of field
- Substring Length
  - Data length to be compared

# z/OS V1.10 Changes

- RMM Changes
  - Support Macro Keywords
    - Limit the fields processed
    - New line commands 'M' and 'L' to view Macros and Listings
  - Support Multiple Macro Libraries
  - Supports ARCG\* SAMPLIB members
  - ISPF Skeleton supports DCOLLECT
- HSM Changes
  - Generate reports of DFSMSHsm functions and inventory using DFSMSrmm Report Generator
  - New FSR and WFSR records for reporting
    - FSR/WFSR SMF records reformatted prior to reporting
  - New Samples Shipped
    - Report Types
    - Reports for:
      - *ABARS, DCOLLECT, HSM Stats*
- ISMF Change
  - New Selection option for
    - *G Report Generation - Create Storage Management Reports*



# z/OS V1.10 Changes

- Reporting Records
  - **ARCFSR** (SYS1.MACLIB)
    - FSR for DFSMSHsm in SMF form
    - Converted inline to **ARCFSR2** by ARCGFSRC
  - **ARCWWFSR** (SYS1.MACLIB)
    - WWFSR for ABARS in SMF form
    - Converted inline to **ARCWWFSR2** by ARCGWFSC
  - **ARCUTILP** (SYS1.MACLIB)
    - Modified with keywords to map each structure
    - TYPE=ALL | M | B | C | T
      - ALL for all structures
      - M for Migrate
      - B for Backup
      - C for DASD Capacity Planning
      - T for Tape Capacity Planning
- ARCGFSRC & ARCGWFSC are shipped in SYS1.DGTSLIB

# z/OS V1.11 Changes

- RMM Changes
  - Report Migration tasks
  - Creating a Dataset instead of a report
  - Report type inheritance
  - Report Totals now can exclude fields
  - List of possible values for fields
  - Use Substrings for field selection
  - Include the date and time the RMM Report Extract was created in the report(s)
  - Use Assembler equates for field selection comparisons
  - Override default ICETOOL processing
  - Improved generated JCL with HELP information
  - Reformat records with DFSORT
  - Reporting Tool REXX variables have been updated
  - Updated RMM mapping macros

# z/OS V1.12 Changes

- RMM Changes
  - Additional Report Definitions now available
    - VRSRETN
    - VRSRETNS
    - EXPDROP
    - EXPDROPS
    - Copy Exported Reports
  - Additional Sample Reporting jobs in SYS1.SAMPLIB & SYS1.SEDGEXE1
  - Updated RMM mapping macros
    - EDGACXSY combined Activity/Extended Extract record symbol mapping
    - EDGACTSY Activity file symbols
    - EDGEXTSY Extract data set symbols
    - EDGSRCSY SMF record symbols

# z/OS V1.13 Changes

- RMM Changes
  - Additional Report Definitions now available
    - Report18 inventory of Datasets by volume Retention Method
    - EXPDROP Report
    - VRSRETN Report

Dotted Decimal syntax diagrams

- Additional Sample Reporting jobs in SYS1.SAMPLIB & SYS1.SEDGEXE1
- Updated RMM mapping macros

See DFSMSrmm Reporting Appendix B Mapping macros

EDGACTRC, EDGSAREC, EDGCDREC, EDGCLREC, EDGRDEXT, EDGRHEXT,  
EDGRKEXT, EDGROEXT, EDGRPEXT, EDGRREXT, EDGRSEXT, EDGRVEXT, EDGRXEXT,  
EDGSDREC, EDGSKREC, EDGMSFAR, EDGSMFSR, EDGSOREC, EDGSPREC,  
EDGSRREC, EDGSSREC and EDGSVREC

# Collecting Data

- DCOLLECT

```
//DCOLLECT JOB
//*
//STEP1 EXEC PGM=IDCAMS
//OUTDS DD DSN=DFHSM.DCOLLECT.DATA,DISP=(NEW,CATLG),
//      UNIT=SYSALLDA, SPACE=(CYL,(50,2)),
//      DCB=(LRECL=644,BLKSIZE=0,RECFM=VB),
//      AVGREC=K
//SYSPRINT DD SYSOUT=A
//MCDS DD DSN=DFHSM.MCDS,DISP=SHR
//BCDS DD DSN=DFHSM.BCDS,DISP=SHR
//SYSIN DD *
DCOLLECT -
OUTFILE(OUTDS) -
MIGRATEDATA -
BACKUPDATA -
CAPD
```

# Collecting Data

- SMF

```
//SMFDUMP JOB
//*
//DUMPSMF EXEC PGM=IFASMFDP,REGION=512K
//INDD0 DD DSN=SYS1.MAN1,DISP=SHR
//INDD1 DD DSN=SYS1.MAN2,DISP=SHR
//DUMPOUT DD DSN=HLQ.SMFREC.HSM,DISP=(,CATLG,DELETE),
//      SPACE=(CYL,(100,50),RLSE)
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
INDD(INDD0,OPTIONS(DUMP))
INDD(INDD1,OPTIONS(DUMP))
OUTDD(DUMPOUT,TYPE(240))
```

# Collecting Data

- RMM REPORT EXTRACT

```
//RPTEXT JOB
```

```
//*
```

```
//EXTRACT EXEC PGM=EDGHSKP,PARM='RPTEXT,DATEFORM(A)'
```

```
//MESSAGE DD DISP=SHR,DSN=RMM.MESSAGE.DSN
```

```
//XREPTEXT DD DISP=SHR,DSN=RMM.REPORT.CDS.EXTRACT
```

```
//SYSIN DD *
```

```
RPTEXT RECORDS(X)
```

## Reference Material V1R13

- RMM

DFSMSrmm Reporting SC26-7406-09 Chapter 2

- HSM

DFSMSHsm Storage Administration SC35-0421-11 Chapter 14 Page 589

DFSMSHsm Diagnosis GC52-1083-06 Chapter 11

DFSMSHsm Data Areas n/a

<http://publibz.boulder.ibm.com/zoslib/pdf/hsmr12da.pdf>

- DCOLLECT

DFSMS Access Method Services for Catalogs SC26-7394-11 Chapter 11



# Summary

- The RMM Report Generator is a full featured tool that can help simplify the process of creating and managing 'AdHoc' reports
- It has many supplied samples and offers several ways to customize the product to meet your needs
- Includes RMM, HSM, and SMS Report Types and Sample Reports
- It can also be used to report on almost any data
- Context sensitive help screens provide useful information to assist you when generating reports
- The RMM Report Generator is documented in "DFSMSrmm Reporting" "Chapter 2. Using the DFSMSrmm Report Generator"
- Continues to be Enhanced to enable more flexible reporting and processing