

Creating DFSMShsm[™] reports using DFSMSrmm[™] reporter.

Goals

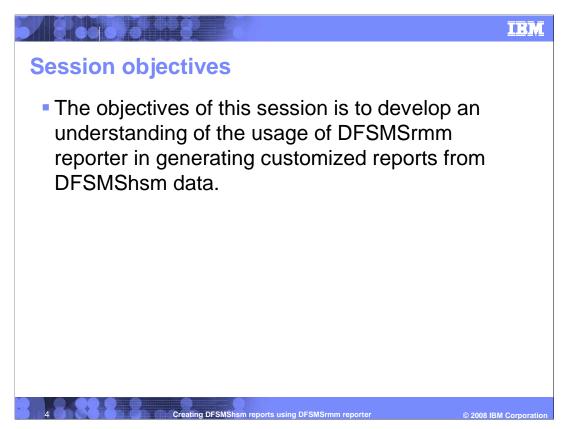
- This presentation will introduce the DFSMShsm user to DFSMSrmm reporter and generating reports on DFSMShsm data.
- After viewing this presentation, you should have a working knowledge of generating DFSMShsm reports with DFSMSrmm reporter.
- A understanding of DFSMShsm and JCL is a prerequisite to understanding the material presented.



This presentation is intended to introduce the DFSMShsm user to the DFSMSrmm reporter and to provide a basic understanding of generating reports about DFSMShsm data. The intended audience is the Storage Administrator and anyone who has a need to run reports on DFSMShsm activities in the storage enterprise. After viewing this presentation, you should have a working knowledge of the methodology of generating DFSMShsm reports using DFSMSrmm reporter. However, before starting you should have a working knowledge of DFSMShsm and JCL to help understand the material presented.

Contents Goals Session objectives Agenda Overview Usage and invocation, tasks, examples Session summary Appendix

This presentation includes the goals of the presentation and its objectives, the agenda, an overview of reporting, details about collecting data and running reports, a final summary, and references.



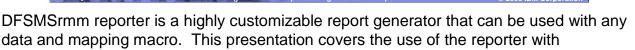
The objective of this session is to develop an understanding of the use of DFSMSrmm reporter to generate customized reports from DFSMShsm data found in SMF records and DCOLLECT output.

Agenda Collecting report data Reporter setup Running reports Creating your own reports Report types

The agenda includes a discussion of two methods of collecting report data, a quick overview of configuring the Reporter through ISMF panels, followed by a step by step illustration of running reports, then a simple demonstration of how to create your own report, and finally some supplementary information about report types and how you can use them.

Overview

- DFSMSrmm reporter is a highly customizable report generator that can be used with any data and mapping macro.
- This presentation discusses the use of the reporter with DFSMShsm reporting data.



DFSMShsm reporting data, which consists of SMF records having ARCFSR and ARCWWFSR data, and DCOLLECT output data extracted from DFSMShsm CDS records.



DFSMShsm reports – Collecting data

- DFSMShsm reports with Report Generator
 - Available in R1.10
 - Generated reports can be used on prior release data
- Reports based on

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- FSR and WWFSR (SMF) data
 - SYS1.MANX/Y (or as defined)
- DFSMShsm CDS data with DCOLLECT
 - OUTDS from IDCAMS DCOLLECT

7 Creating DFSMShsm reports using DFSMSrmm reporter

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DFSMShsm reports can be created using Report Generator and they are available for the first time with release 1.10., but the reports can be run on data from prior releases. In order to run the reports you must have data in the form of ARCFSR and ARCWWFSR records which are part of the SMF data and are usually found in SYS1.MANX or SYS1.MANY datasets or as defined by your installation. DFSMSHSM CDS data is also gathered by IDCAMS DCOLLECT, and its output can be used by the reporter.

DFSMShsm reports – Collecting data

- Reporting records
- ARCFSR (SYS1.MACLIB)
 - FSR DS records for DFSMShsm in SMF form
 - ▶ Converted inline to ARCFSR2 by ARCGFSRC
- ARCWWFSR (SYS1.MACLIB)
 - WWFSR for ABARS in SMF form.
 - ▶ Converted inline to ARCWFSR2 by ARCGWFSC
- ARCGFSRC / ARCGWFSC
 - ▶ Shipped in SYS1.DGTSLIB

Creating DFSMShsm reports using DFSMSrmm reporter

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The ARCFSR mapping macro can be found in SYS1.MACLIB. This maps the FSR dataset records for DFSMShsm written in SMF form. When the reporter runs, ARCFSR records are converted inline to ARCFSR2 by a routine ARCGFSRC which is shipped in SYS1.DGTSLIB. Likewise ARCWWFSR records are converted inline to ARCWFSR2 by a routine ARCGWFSC which is also shipped in SYS1.DGTSLIB.

DFSMShsm reports – Collecting data

Reporting records continued

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- ARCUTILP (SYS1.MACLIB)
 - Modified with keywords to map each structure
 - ▶ TYPE=ALL | M | B | C | T
 - TYPE=ALL FOR ALL structures
 - TYPE=M FOR MIGRATE
 - TYPE=B FOR BACKUP
 - TYPE=C FOR DASD CAPACITY PLANNING
 - TYPE=T FOR TAPE CAPACITY PLANNING
 - No conversion needed as each type is already written uniquely

9 Creating DFSMShsm reports using DFSMSrmm reporter

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In R1.10 ARCUTILP, which is used by IDCAMS DCOLLECT and the reporter, has been segmented for reporting purposes. Each segment allows mapping of DCOLLECT written records to create reports. There are four records mapped by defining TYPE=ALL, M, B, C, T which then maps the various records as follows:

TYPE=ALL FOR ALL structures

TYPE=M FOR MIGRATE

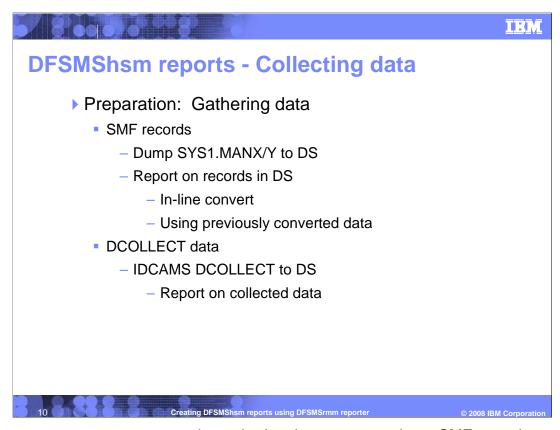
TYPE=B FOR BACKUP

TYPE=C FOR DASD CAPACITY PLANNING

TYPE=T FOR TAPE CAPACITY PLANNING

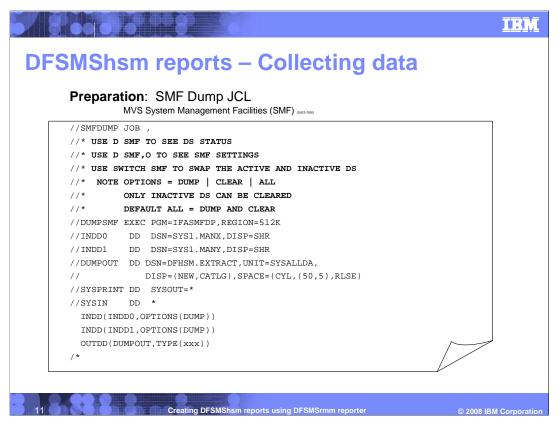
Definition of type is used by reporter when determining which records are selected of the report.

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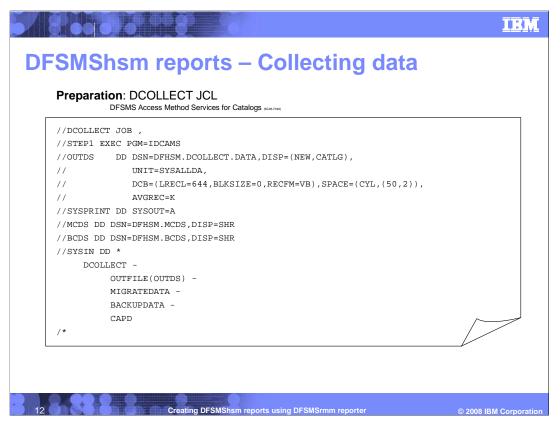


To run reports you must prepare by gathering the necessary data. SMF records are normally dumped from SYS1.MANX and or the SYS1.MANY to a dataset. These records are then converted, in-line, by reporter when running reports. It is possible to convert the data once and then use it for multiple reports.

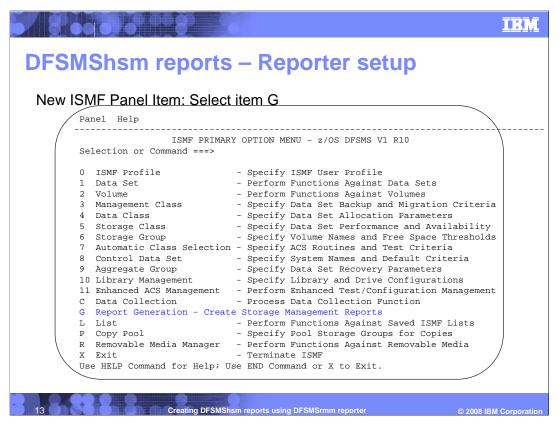
IDCAMS DCOLLECT data is usually sent to a dataset which is then used as input to the reporter without conversion.



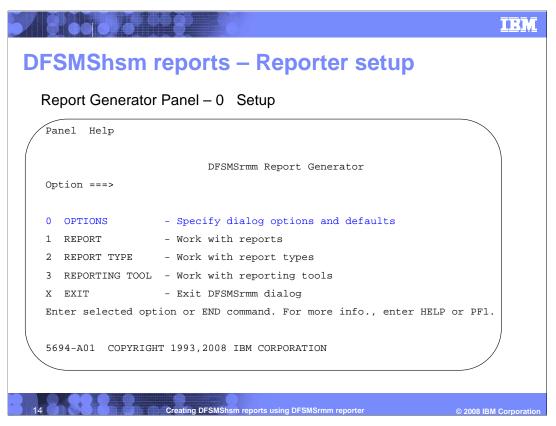
This page provides a sample JCL for extracting DFSMShsm records from SMF. The OUTDD statement will need to be updated with the DFSMShsm SETSYS SMF type to ensure that the correct records are extracted.



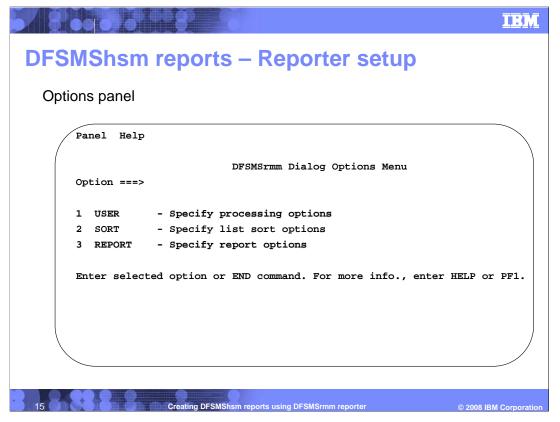
This page provides sample JCL for extracting DFSMShsm data from the CDS files. See DFSMS Access Methods Services for Catalogs for more information about using IDCAMS DCOLLECT.



ISMF Primary panel has a new option in R1.10 G: Report Generation. Select this option to enter the reporter panels.



Select zero, options, to set up report generator.

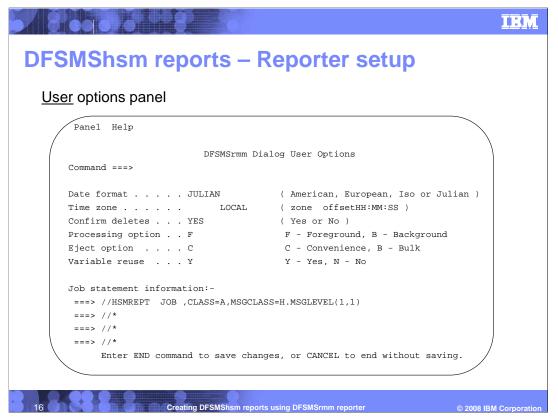


The options menu has 3 selections.

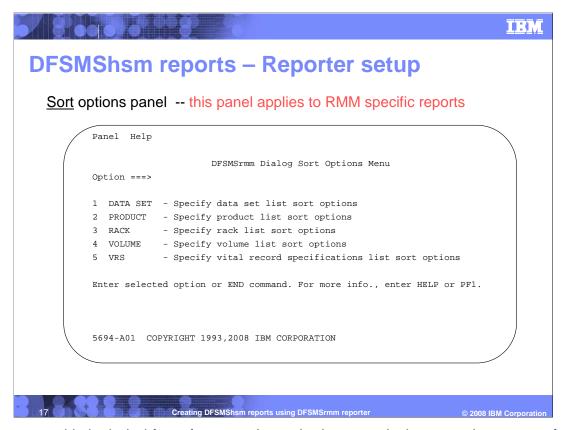
Option 1 Sets up basics and must be done by all users at least one first time.

Option 2 Specifies sort information for RMM report users.

Option 3 Specifies Report options.



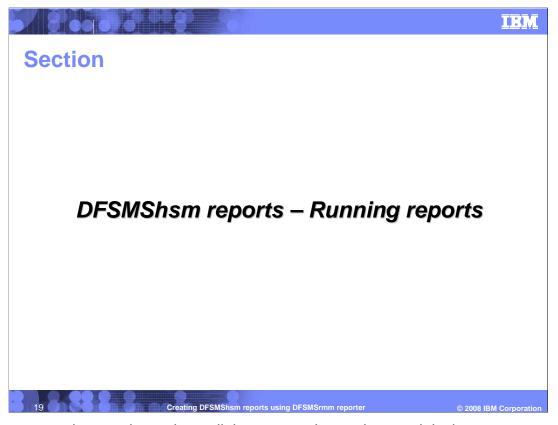
On the USER options panel, at a minimum add a JCL job card in the "Job statement information" field. This will be used by all jobs created and submitted by the report generator. If you do not provide the job card, reporter generator will provide a default job card when reports are generated.



The sort panel is included for reference. It can be bypassed when creating reports for DFSMShsm. It is used when generating reports for DFSMSrmm. Running reports on DFSMSrmm is similar to running reports for DFSMShsm but is not covered in this presentation.



On the Report Options panel, add the names of libraries containing reports and the target datasets for the JCL. The dataset name entries, except for installation, will be filled in by reporter and allocated if they do not exist. Installation reports are those created locally and provided to the user.



Reports – now that you have done all the preparation and setup, it is time to run some reports.

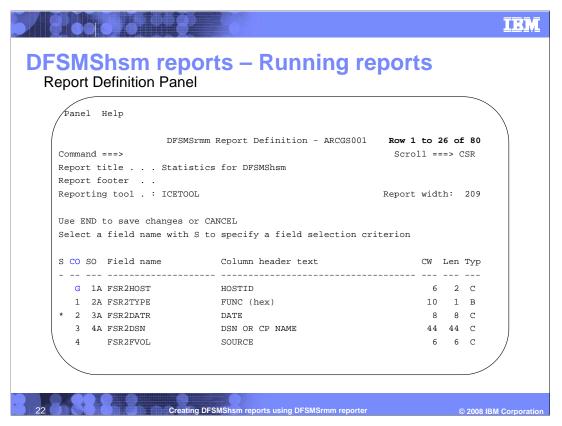


The main feature is 1, Report, where sample reports can be viewed, modified, and created.



Notice there are two WWFSR reports for ABARS, four DCOLLECT reports, and ten FSR reports provided. These can be used as the foundation for custom user reports or run as is. ARCGS004 was modified slightly to create ARCGC010, which demonstrates how easily new reports can be created.

Enter S by any report to view or modify the contents.



After entering S on the previous panel by a given report, the report definition panel is displayed.

This screen shows the fields selected for this report in the CO column. This column also sets the order displayed in the report.

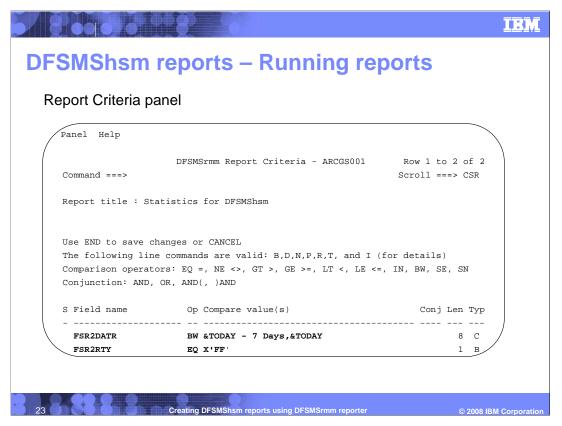
Additionally, a field may create a grouping as shown here by entering 'G' under CO. Each data group will be separated by the unique value found in a 'G' field.

The search criteria column S indicates fields which must have a given value before the record is selected. The next slide has more on defining search criteria.

Finally the sorted order is defined under SO.

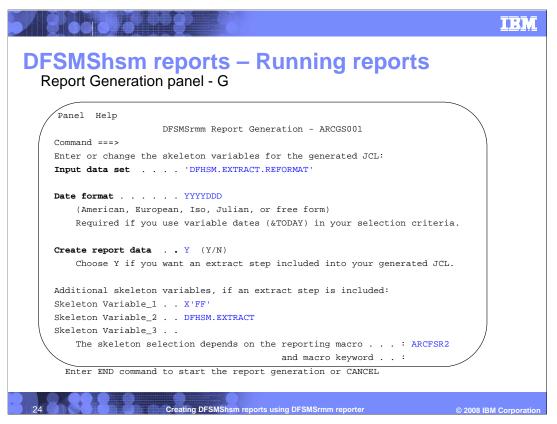
As already mention, these reports may be changed to create custom reports.

Note the macro ARCFSR2 has 80 fields but only 15 are used for this report.



After entering S on the previous panel in the "S" column by any field, the report criteria panel is displayed.

The search criteria, in this case, is SMF records of type x'FF' (which may be different for your DFSMShsm), and records created between today and 7 days ago. This will then create a report which includes all DFSMShsm records created in the last week. You will now exit this panel and the previous panel, so you can return to the Report Definitions Panel to continue creating a report.



Having selected reporting data and selection criteria, you will enter "G" on the Report Definitions panel which causes the report generation panel to be displayed. This panel is key in generating the correct jcl for your report.

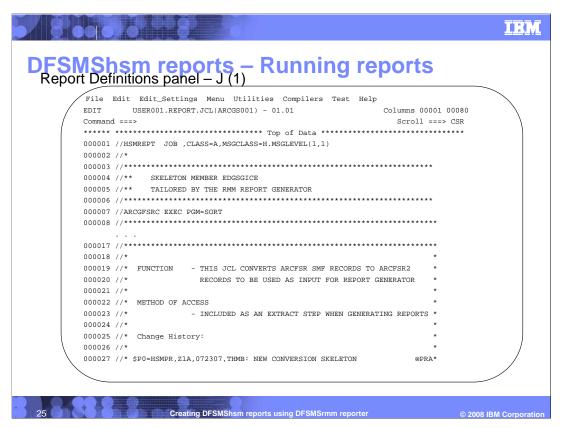
Input data set is the source of records for the report and must be made up of ARCFSR2, or ARCWFSR2 records previously converted, or ARCUTILP records created by DCOLLECT.

Date format YYYYDDD is specific to HSM FSR and WWFSR records and must be added.

Create report data: When 'Y' tells Reporter that Skeleton_Variable_2 has source data ARCFSR or ARCWWFSR that must be converted to ARCFSR2 or ARCWFSR2. If this is true, the Skeleton_Variable_1 must provide the SMF record type as defined in DFSMShsm command SETSYS SMF. This step will create the temporary dataset named in Input data set. This can be changed to a non temporary dataset by modifying the generated JCL. Using a non temporary dataset allows preserving input dataset for other reports and avoiding the conversion step.

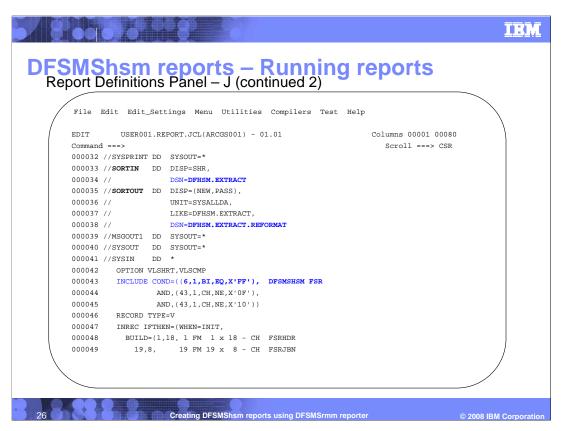
Create report data: When 'N' tells Reporter to use the dataset named in 'Input data set' without conversion. For example DCOLLECT data does not need conversion.

Once this page is completed you will return to the report definitions panel to enter a command to view the generated JCL.



On the report definitions panel we entered J by a given report, and the generated JCL is opened for edit.

Notice that the report JCL has the job card we defined previously. The conversion JCL will also be visible if it was selected at generation time.



Scrolling through the JCL you can see that the datasets named as Input data set and Skeleton_Variable_2 previously are source and target ds of the conversion part of the JCL.

Also note the 'DISP=(NEW,PASS)' can be changed here to create a non temporary DS, if you want to save the converted output.

Finally, note that the include statement has the x'value' from Skeleton_Variable_1 which should match your HSM SETSYS SMF.



Continuing to Scroll through the JCL, note the date form in the sample report and the selection criteria are part of the generated JCL.



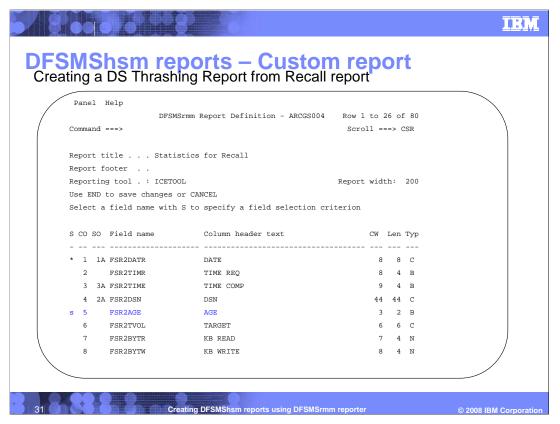
Finally as you Scroll through the JCL you see the Input data set, whether created as a temporary dataset by the conversion JCL or is a pre-existing dataset, is used by the reporter when extracting data for the report. The OUTDD card can optionally be changed to a dataset to save the report. For further changes see the DFSMSrmm Reporting. When satisfied with the JCL, submit the job and view the output. A sample report output is not provided in this presentation, but is left as an exercise.

DFSMShsm reports – Running reports Summary Running report Issue SUB from J – Edit and manually submit Issue SUB from RG JCL library View report SDSF Output DS

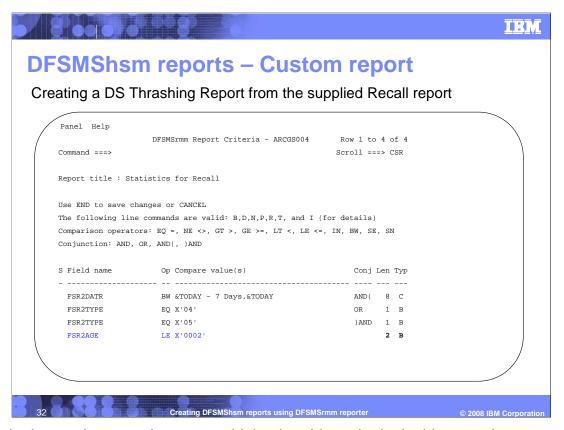
In summary, the report can by run by issuing SUB after the line command "J" displays the JCL in edit, or the JCL can be submitted from the reporter JCL library as defined in the setup panels. The report can be viewed in the output of the JCL or in an output dataset if one was defined.



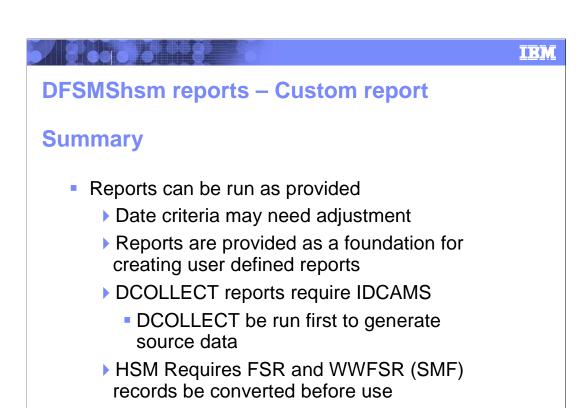
Now that you have run a report, how do you change a report to create a custom user report?



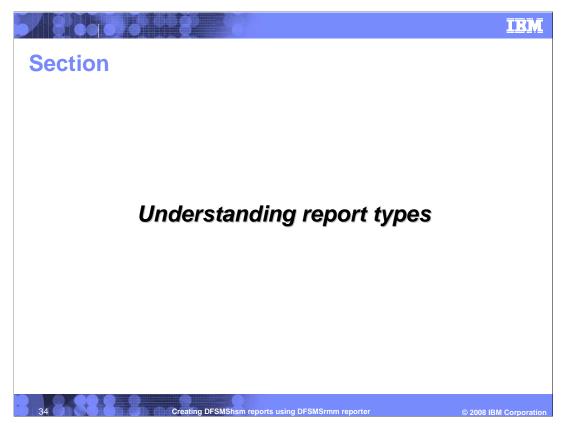
ARCGS010, a thrashing report, was created from ARCGS004 by adding a new selection criteria. Report definition ARCGS004 was selected, and a new criteria added by entering line command "S" by FSR2AGE.



The criteria panel opens where you add the thrashing criteria, in this case datasets recalled two days or less after migrate. So any recall occurring within two days of migration will be included in the report. Datasets will show up in the report multiple times, if recalled multiple times.



Reports can be run as provided, but date criteria most likely will need adjustment. Reports are provided as a foundation for creating user defined reports. DCOLLECT reports require IDCAMS DCOLLECT be run first to generate source data and HSM Requires FSR and WWFSR records be converted before use, but the conversion is easily done inline.



Another area worth mentioning is Report Types. Report types are the foundation or the outline of the records used in creating reports.



Reports types supplied by DFSMShsm

Name	Description
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ARCGWFSR DFSMShsm ABARS Report

ARCGDBCK DFSMShsm DCOLLECT BACKUP
 ARCGDDSD DFSMShsm DCOLLECT DASD CAP
 ARCGDMIG DFSMShsm DCOLLECT MIGRATION

ARCGDTAP DFSMShsm DCOLLECT TAPE CAP

ARCGFSR2 DFSMShsm FSR-SMF Records

35 Creating DFSMShsm reports using DFSMSrmm reporter © 2008 IBM Corporation
Report Types provided by DFSMShsm as the outline of for creating reports are

ARCGWFSR DFSMShsm ABARS Report

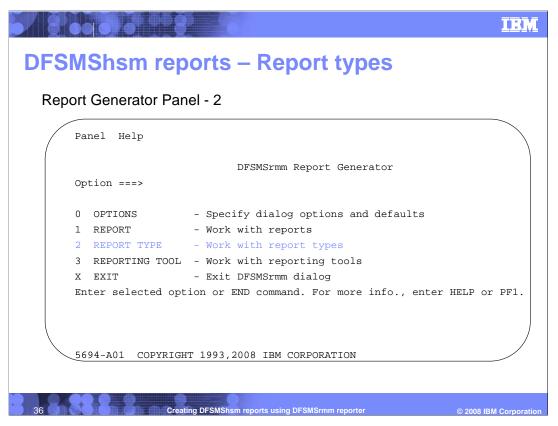
ARCGDBCK DFSMShsm DCOLLECT BACKUP

ARCGDDSD DFSMShsm DCOLLECT DASD CAPACITY

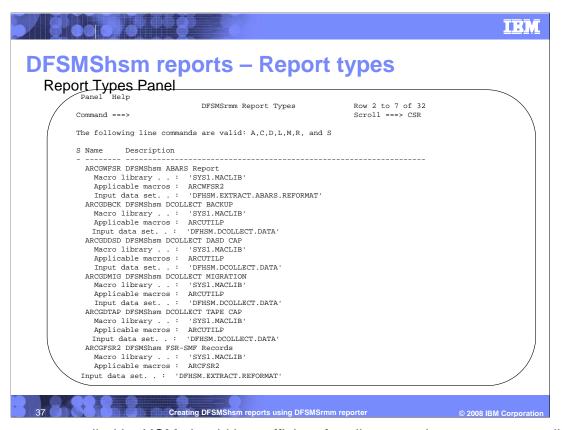
ARCGDMIG DFSMShsm DCOLLECT MIGRATION

ARCGDTAP DFSMShsm DCOLLECT TAPE CAPACITY

ARCGFSR2 DFSMShsm FSR-SMF Records



Report Type has predefined types based on the macros supplied in SYS1.MACLIB so that you can build new and different reports.



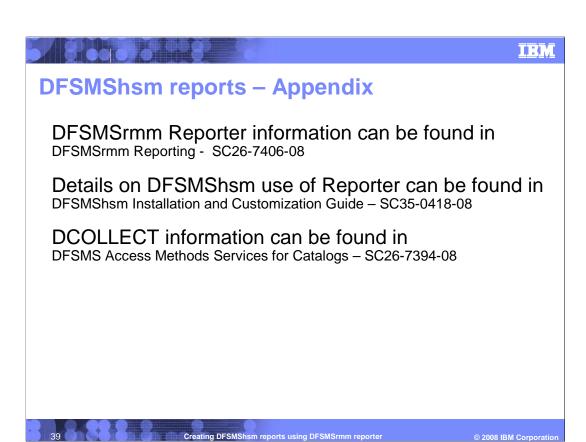
Report types supplied by HSM should be sufficient for all reports, but users can modify or add their own. HSM has supplied types for all currently provided macros. Line commands M and L are new to R1.10 and allow viewing the source macros and the results of assembly for troubleshooting.



DFSMShsm reports – Session summary

- Reports can run using the supplied examples use generate, edit, submit
- Supplied examples can be modified to create new reports
- Entirely new reports can be created based on the supplied report types

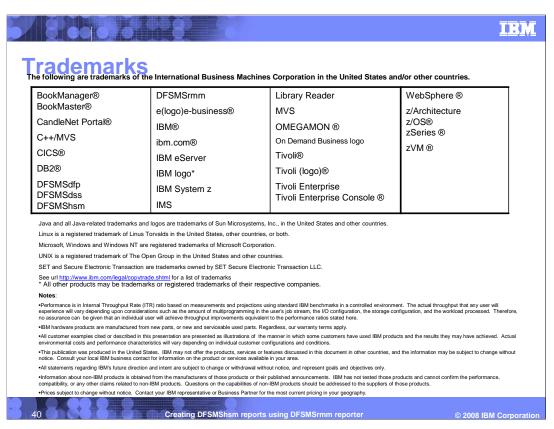
Finally in summary: Reports are run using the supplied examples by using generate, edit, and submit. Supplied examples can be modified to create new reports for your installation, and entirely new reports can be created based on the supplied report types



DFSMSrmm Reporter information can be found in DFSMSrmm Reporting - SC26-7406-08

Details on DFSMShsm use of Reporter can be found in DFSMShsm Installation and Customization Guide – SC35-0418-08

IDCAMS DCOLLECT information can be found in DFSMS Access Methods Services for Catalogs – SC26-7394-08



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