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A User's experience with the Installation, Configuration, and Features of DTS's Space Recovery System (SRS)

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Session Number 11997



The Agenda

- Introduction
 - Recovery functions of SRS
- Installation – Easy – download
 - Installation Support - Excellent
 - DTS software Digest Maintenance Emails
 - *How DTS Software keeps you informed of needed service*
- SRS STC
- RACF Requirements
- SMF recovery analysis report (SRSSMF)

The Agenda (continued)

- SMF Analysis Program (the free monitoring tool)
 - FirstBank's Statistics
- The new Mon-Explorer GUI
- The SRS Rules
- Commonly used SRS commands
- Setting up a Trial
- Additional Documentation shown on the Web
- Our Shop & SRS/SMS
- Wrap up and Questions

The **SMF recovery analysis report (SRSSMF)** formats SMF records produced by SRS and provides totals for the successful and unsuccessful recoveries performed by SRS.



TOYOTA's Supplemental Restraint System



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Oops, the wrong SRS!

Introduction

- The Space Recovery System (SRS) dynamically recovers disk space allocation failures. When SRS intercepts a space failure, the installation rules are used to determine the recovery options. If the rules allow recovery, SRS forces the operating system to get the required disk space, and the job runs to completion.

```
BROWSE - MESSAGES * - Page 1 Line 1 Cols 1-80
COMMAND ==> SCROLL ==> CURSOR
***** Top of Data *****
ICHT70001I DON LAST ACCESS AT 12:09:48 ON THURSDAY, FEBRUARY 10, 2011
ACC20210-A REDUCEP FOR DD-SRSTEST DSN=SYS11041.T121006.RA000.DONR.SCCIVP1.H01 VO
ACC21110-A PRIMARY SPACE REDUCED FROM 4000 TO 400 CYL
IEF236I ALLOC. FOR DONR STEP1
IGD100I OASA ALLOCATED TO DDNAME SRSTEST DATACLAS ( )
IEF142I DONR STEP1 - STEP WAS EXECUTED - COND CODE 0000
IEF285I SYS11041.T121006.RA000.DONR.SCCIVP1.H01 DELETED
IEF285I VOL SER NOS= STOR05.
IEF373I STEP/STEP1 /START 2011041.1210
IEF374I STEP/STEP1 /STOP 2011041.1210 CPU OMIN 00.00SEC SRB OMIN 00.00S
IEF236I ALLOC. FOR DONR STEP2
IEF237I 0124 ALLOCATED TO STEPLIB
IGD100I OASA ALLOCATED TO DDNAME SRSTEST DATACLAS ( )
ACC20210-A SETSEC FOR DD-SRSTEST DSN=SYS11041.T121006.RA000.DONR.SCCIVP2.H01 VOL
ACC20400-A SECONDARY SPACE SET TO 500 TRK (50% OF 1000)
ACC20210-A ADDVOL FOR DD-SRSTEST DSN=SYS11041.T121006.RA000.DONR.SCCIVP2.H01 VOL
ACC20600-A VOLUME STOR06 WAS ADDED TO DATA SET
IEF142I DONR STEP2 - STEP WAS EXECUTED - COND CODE 0000
IEF285I DTS.R51.LOADLIB KEPT
IEF285I VOL SER NOS= DTS003.
IEF285I SYS11041.T121006.RA000.DONR.SCCIVP2.H01 DELETED
```

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OK, the Real SRS!!!! We'll talk about the RULES that cause the Yellow highlighted area above to be executed in a few minutes!

The Space Recovery System (SRS) dynamically recovers disk space allocation failures. When SRS intercepts a space failure, the installation rules are used to determine the recovery options. If the rules allow recovery, SRS forces the operating system to get the required disk space, and the job runs to completion.

The Space Recovery System Solution



Typical out-of-space recovery functions:

- **Volume Addition**
 - Similar to coding JCL 'VOL=(, , , 10)'
- **Secondary Increase**
- **Secondary Decrease**
- **Last-Resort Recovery**

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VOLUME ADDITION – Note - If a dataclass had a volume count of 10 and SRS had a pool definition with ADDVOL(YES MAXVOL(20)), SRS will only start adding volumes UP TO 20 (not an additional 20) after the first 10 are used.

SECONDARY INCREASE – If the job needs more secondary allocation to satisfy an allocation request

SECONDARY DECREASE – If the job can get by with less Secondary allocation

LAST-RESORT RECOVERY - Sometimes, despite use of primary and secondary space reduction and dynamic volume addition, it is not possible to prevent an out-of-space condition from occurring. This might happen if, for example, a dataset has extended to all of the available volumes in the storage group, or if one volume on which a sequentially striped dataset must extend is full. In these cases, SRS can dynamically interrupt the job and notify the operator that a failure is imminent. The Operator or Sysprog can then take appropriate action, such as adding new volumes to the storage group or migrating unused data, to allow the job to complete successfully. This feature is unique to SRS. Obviously, this would only be used for mission critical applications where an out of space failure could be disastrous.

Remember that 'MULTIPLE' Reduction Attempts are made to attempt to satisfy an Allocation request!

Installation

Download –

Internet Delivery

The DTS distribution libraries, manuals and temporary license keys are available on the DTS web server.

Transferring PC Distribution Files to your Host

The DTS FTP Installation application (FTPINSTW.EXE) can be used to create the DTS distribution libraries on your MVS system.

Host Installation – 7 simple steps

- Step 1 – Create the DTS Production Libraries (IEFBR14 JCL)
- Step 2 – APF Authorize the DTS Load Library (MVS Console command/PROG00 update)
- Step 3 - Copy the JCL for DIF task to a system procedure library
- Step 4 - Copy members from distribution to production libraries (IEBCOPY JCL)
- Step 5 - IEBCOPY DTS Load Modules to an Authorized Library
- Step 6 - Install the DTS ISPF Interface (OPTIONAL)
- Step 7 - Update the LICENSE and STARTnn Members



Installation Support

- One on One technical Installation support was given FirstBank through the entire installation and customization process of SRS, which included: SMS Reporting, the free Sx37 monitoring tool, and the GUI.

Web Site Registration

- Once registered on the DTS website, the product files and documentation can be downloaded.
- Also the MON-Explorer Client (workstation software - Explorer Client GUI) can be downloaded.

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We did a Proof of Concept @ FirstBank and 'One on One technical Installation support' was given FirstBank through the entire installation and customization process of SRS, which included: SMS Reporting, the free Sx37 monitoring tool, and the GUI, plus the creation of initial SRS Rule definitions for our environment.

DTS Digest (weekly)



DTS Digest -- Week ending Mar 26, 2012 - Message (HTML)

From: Hal Barnes <hal@dtssoftware.com>
To: support
Cc: DTS Digest -- Week ending Mar 26, 2012
Sent: Thu 3/29/2012 6:53 AM

DTS Software
Enterprise Storage Management Solutions

DTS Software update for DTS Digest -- Week ending Mar 26, 2012

Items that are new are shown as ""NEW""

Severity: Hiper
===NONE===

Severity: Service
===NONE===

Severity: Info

Product: PTL
Article ID: DTS41370 Simulate ZAP for LE under zOS 1.10 through 1.13
Abstract: Zap to LE - CEEPLPKA module for date modification.
Link: http://www.DTSsoftware.com/support_article.php?id=DTS41370
Status: To be included in next release
Create/Change date: 2009-05-07 16:11:00 / 2012-03-21 18:48:23

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How DTS Software keeps you informed of critical service!

DTS Maintenance Email

SHARE
Technology. Connected. Results.

Message: FW: DTS Software, Inc. - Maintenance Release Announcement - Message (HTML)

From: Mona Hassan <mona@dtssoftware.com>
To: Astenboorski, David
Cc:
Subject: FW: DTS Software, Inc. - Maintenance Release Announcement

Sent: Tue 7/24/2012 9:03 AM

DTS Software
Enterprise Storage Management Solutions

NEW SCC 5.1 Maintenance Release Available on DTS Website: SL12156

*****NOTE***** Enhancements-
MON-TS7700 EVIR support
DCC- Control-T (CT) tape management support

Changes in this release: http://www.dtssoftware.com/scc/dnlsc51_service.htm

Current Release Information

Product	Release
DIF/DLM	5.1.19
ACC/SRS/SMSDdebug/DLMALLOC	5.1.17
Monitor/ABC/PRECALL	5.1.17
SCC DLimit	5.1.9
EASY/Exit	5.1.9

Download this release:
http://www.dtssoftware.com/scc/dnlsc51_zos.htm

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What is included in the DTS software Email Notifications



DTS software
ENTERPRISE STORAGE MANAGEMENT SOLUTIONS

Email Notification

When DTS creates a software maintenance release, or encounters problem that gets classified as "HIPER", DTS customer support sends a **Maintenance Announcement** email to registered customers that have requested notification. Note: Maintenance announcements are relatively infrequent - maintenance builds are usually produced in 3-6 month intervals.

Our support staff also produces a **Weekly Digest** that includes summary information about the product maintenance activity that occurred during the previous week. The emails are relatively short, and list the article abstracts for new and updated support database entries. The email contains links to the related DTS support database web pages for customers that want more detailed information.

If you would like to be included on either mailing list, please drop a note to [customer support](#).

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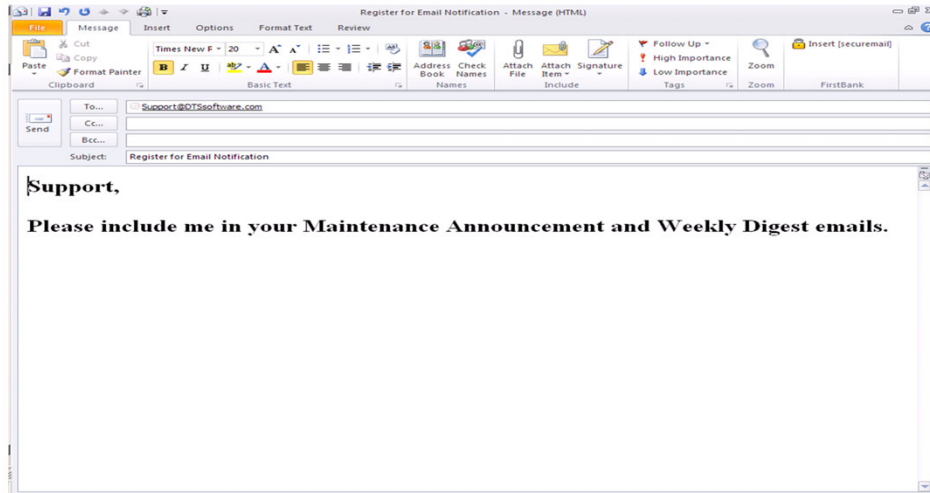
Company - Products - Downloads - **Support & Training** - Login -

http://www.dtssoftware.com/home_dts.htm

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How to subscribe to the weekly DTS software Digest (Emailing support)



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The DIF STC (Dynamic Install Facility)

```
/**
/**
/**          DTS SOFTWARE DYNAMIC INSTALL FACILITY (DIF)
/**
/**
/**
//DIF      PROC      P=
//DIF      EXEC      PGM=DIF,DYNAMNBR=20,TIME=1440,REGION=4M,
//          PARM='CMDCHAR=#,TSO=NO,DIFTSO=DIFTSO,&P'
//STEPLIB DD DISP=SHR,DSN=DTS.R51.LOADLIB
//PARMLIB DD DISP=SHR,DSN=DTS.R51.PARMLIB
//          DD DISP=SHR,DSN=DTS.R51.RULELIB
//RULECKPT DD DISP=SHR,DSN=DTS.R51.RULECKPT
//RTMDB    DD DUMMY
//LPALIB   DD DISP=SHR,DSN=SYS1.LPALIB
//*MLPALIB DD DISP=SHR,DSN=m\pa.library
//SYSPRINT DD SYSOUT=A
//SYSABEND DD SYSOUT=A
//*SYSEXEC DD DISP=SHR,DSN=rexx.library
//*SYSPROC DD DISP=SHR,DSN=clist.library
//*SYSTSPRT DD UNIT=VIO,SPACE=(CYL,1)
//*SYSTSIN DD DUMMY
```

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The only SRS STC running on MVS (The Dynamic Install Facility)!



RACF Rules required to run SRS

Add STC = DIF to the STC group

Give the SYSPROG group ALTER access to 'SYS3.DTS.**' data sets

Give the STC = DIF ALTER access to 'SYS3.DTS.**' data sets

TSO LISTDSN DATASET('SYS3.DTS.') GENERIC AUTHUSER
INFORMATION FOR DATASET SYS3.DTS.** (G)**

LEVEL OWNER UNIVERSAL ACCESS WARNING ERASE

00 SYS3 READ NO NO
ID ACCESS

**SYSPROG ALTER
DIF ALTER**

Add an OMVS Segment to the STC = DIF
'ALU DIF OMVS(HOME() PROGRAM(/bin/sh))'

**TSO LU DIF NORACF OMVS
OMVS INFORMATION**

UID= 0000000250
HOME= /
PROGRAM= /bin/sh
CPUTIMEMAX= NONE
ASSIZEMAX= NONE
FILEPROCMAx= NONE
PROCUSEMAX= NONE
THREADEMAX= NONE
MMAPAREMAX= NONE

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SMF recovery analysis report (SRSSMF)



```
SRSSMF 5.1 DETAIL REPORT          TUESDAY    04/10/12  00:05:28

JOB: DFHSM      SYSID: ZOSD   THURSDAY   03/22/12  2012.082  21:46:06
STEP: DFHSM     DDNAME: ARCPDOX  VOLSER: HSMC03  POOL: *NONE*
          DSNNAME: DFHSM.ZOSD.HSMPDOX
          ADDVOL 03:00:04  ACC20620-I POOL DEFINITION DOES NOT ALLOW VOLUME ADDITION
JOB: INETQD2    SYSID: ZOSD   MONDAY    04/09/12  2012.100  13:57:23
STEP: STEP01   DDNAME: CSGDATA  VOLSER: TSO013  POOL: *NONE*
          DSNNAME: DVSTK.XMTOUT.ROADBLK.CSG
          ADDVOL 13:57:45  ACC20620-I POOL DEFINITION DOES NOT ALLOW VOLUME ADDITION
JOB: RMFGAT     SYSID: ZOSD   THURSDAY   03/22/12  2012.082  21:46:08
STEP: RMFGAT   DDNAME: SYS01204  VOLSER: PERF20  POOL: *NONE*
          DSNNAME: SYS2.ZOSD.RMF.RMFGAT03.DATA
          SETSEC 00:56:40  ACC20420-I POOL DEFINITION DOES NOT ALLOW SETTING SECONDARY
          ADDVOL 00:56:40  ACC20620-I POOL DEFINITION DOES NOT ALLOW VOLUME ADDITION
STEP: RMFGAT   DDNAME: SYS01208  VOLSER: PERF86  POOL: *NONE*
          DSNNAME: SYS2.ZOSD.RMF.RMFGAT02.DATA
          SETSEC 02:20:00  ACC20420-I POOL DEFINITION DOES NOT ALLOW SETTING SECONDARY
          ADDVOL 02:20:00  ACC20620-I POOL DEFINITION DOES NOT ALLOW VOLUME ADDITION
STEP: RMFGAT   DDNAME: SYS01212  VOLSER: PERF08  POOL: *NONE*
          DSNNAME: SYS2.ZOSD.RMF.RMFGAT01.DATA
          SETSEC 03:43:20  ACC20420-I POOL DEFINITION DOES NOT ALLOW SETTING SECONDARY
          ADDVOL 03:43:20  ACC20620-I POOL DEFINITION DOES NOT ALLOW VOLUME ADDITION
```

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The Detail Report prints each SRS SMF record processed by SRSSMF in a readable format.

The report is written to the DETAIL DD statement.

SRS SMF Reporting was implemented in our environment via the '**DEFPROD MSG(RULESET(@SRMSG)) SMF(222 LEVEL(I))**' rule as defined in the SRS Rules member.

SMF recovery analysis report (SRSSMF) (Cont.)



SRSSMF 5.1 SUMMARY REPORT FRIDAY 05/04/12 01:07:44
CONTROL STATEMENTS ECHOED FROM SYSIN:

RECOVERY SUMMARY FOR PERIOD:
STARTING THURSDAY 05/03/12 2012.124 00:01:06
ENDING THURSDAY 05/03/12 2012.124 18:12:55

SMF RECORD SUMMARY:
NUMBER OF SMF RECORDS READ 470
NUMBER OF SMFRID (222) SRS READ 470
NUMBER OF RECORDS AFTER FILTERING 235

JOB SUMMARY:
NUMBER OF JOBS THAT SRS INTERCEPTED 18
NUMBER OF JOBS THAT SRS RECOVERED 0 ← We were Monitoring only!!!

RECOVERY SUMMARY:

RECOVERY TYPE	BYPASSED RECOVERIES	SUCCESSFUL RECOVERIES	UNSUCCESSFUL RECOVERIES
REDUCEP	191	0	0
SETSEC	0	0	0
INCSEC	0	0	0
REDUCES	34	0	0
ADDVOL	5	0	0
RECAT	1	0	0
TOTALS	235	0	0

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The summary report indicates how many recoveries of each type (primary space reduction, secondary space reduction, add-volume, and so on) were performed.

The summary report provides information on the number and type of SMF records processed, and the number and type of SRS recoveries performed. The number of successful and unsuccessful recoveries of each type is shown.

The Summary report is written to the SYS PRINT DD Statement in the JCL

Recovery Types are:

- REDUCEP - Reduce Primary Allocations
- SETSEC - Create a Secondary Allocation
- INCSEC - Increase Secondary (for small allocation requests)
- REDUCES - Reduce Secondary Allocation
- ADDVOL - Add Candidate Volumes
- RECAT - Not Cat 2 (dup non-SMS dataset uncataloged), DUP DSN on vol (non-SMS dup dsn, JCL error),

DUP DSN in catalog (SMS dup \ dsn, JCL error). Uncatalog/scratch/or rename old dsn so new dsn can be cataloged.

SMF recovery analysis report (SRSSMF) (Cont.)



SRSSMF 5.1 MULTIVOL REPORT FRIDAY 05/04/12 01:07:44

DSNAME	FROM	TO
SPDWA.DTS.TEST.DATASET.ONE	MF1000 MF1001	MF2000 MF2001
SPDWA.DTS.TEST.DATASET.TWO	MF1002	MF2002
SPDWA.DTS.TEST.DATASET.THREE	MF1003	MF2003

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The **Multivolume Report** provides a list of data sets which have become multivolume due to SRS ADDVOL processing, in order to prevent out of space errors and shows the volumes on which the data sets currently reside.

The Multivolume Report is written to the data set identified by the MULTIVOL DD statement in the JCL.

SRS SMF RECOVERY ANALYSIS REPORTING JCL



```
***** Top of Data *****
//JOB CARD
//*-----*
//* 1) SUMMARY REPORT - DDNAME:  DETAIL          *
//* 2) DETAIL REPORT  - DDNAME:  SYSPRINT         *
//* 3) MULTIVOL REPORT - DDNAME:  MULTIVOL        *
//*-----*
//SORT      EXEC PGM=SORT
//SYSOUT    DD  SYSOUT=*
//STATOUT   DD  SYSOUT=*
//SORTIN    DD  DISP=SHR,DSN=OUR.SMF222.RECORDS
//SORTOUT   DD  DISP=(NEW,PASS),DSN=&&WK1,
//           UNIT=SYSALLDA,SPACE=(CYL,(5,5))
//SYSIN     DD  *
            SORT  FIELDS=(19,16,BI,A,73,16,BI,A)
            INCLUDE COND=(6,1,BI,EQ,X'DE')
//
//SRSSMF    EXEC PGM=SRSSMF,PARM=SMFRID(222)
//STEPLIB   DD  DISP=SHR,DSN=DTS.LOADLIB
//SMFILE    DD  DISP=SHR,DSN=&&WK1
//DETAIL    DD  SYSOUT=*
//SYSPRINT  DD  SYSOUT=*
//MULTIVOL  DD  SYSOUT=*
//SYSIN     DD  DUMMY
***** Bottom of Data *****
```

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Remember the Reports are generated on DDNames:

DETAIL

SYSPRINT

MULTIVOL

SRS Analysis Program findings – (The Free Monitoring Tool)



- DTS SOFTWARE, INC. - SPACE ABEND ANALYSIS VER 1.2 - DETAIL REPORT

OJOBNAME	DATE	TIME	STEPNAME	PGMNAME	SYSID	CPU TIME	ABEND TIME	CODE
RCCGENER	2012.091	05:43:00	STEP01	IEBGENER	PRD1	0:00:01.48	05:43:11	S837
SPDWALOG	2012.069	13:15:42	STEP010	IEAMBLG	PRD1	0:00:00.67	13:15:46	S837
SMSRPTS	2012.052	16:02:00	CVSMR00A	CVSMR00	PRD1	0:00:04.59	16:06:55	S837
AOGW0015	2012.030	08:00:00	STEP0010	IEBCOPY	PRD1	0:00:00.02	08:00:01	S837
SYSDD0015	2012.005	00:15:00	STEP012	LMRK700	PRD1	0:00:19.61	00:17:12	S837
CUST10	2011.320	21:39:35	UNLOAD	DFSRRCC0	PRD1	0:00:13.92	21:40:13	S837
DHSRPTS	2011.318	20:05:00	CVDHR00C	CVDHR00	PRD1	0:00:00.91	20:05:36	S837
SPWESP	2011.280	11:06:54	RMFSORT	SORT	PRD1	0:00:04.48	11:07:14	S837
SAVE06	2011.228	00:33:59	CONCAT	IEBGENER	PRD1	0:00:00.02	00:34:05	S837
SAVE06	2011.228	00:38:22	CONCAT	IEBGENER	PRD1	0:00:00.02	00:38:28	S837
ICMMSTRB	2011.220	19:00:01	STEP01	IDCAMS	PRD1	0:00:00.10	19:00:03	S837
SAVE07EM	2011.182	00:39:22	STEP01	DFSRRCC0	PRD1	0:00:18.21	00:40:04	S837
SAVE07EM	2011.182	02:48:57	STEP01	DFSRRCC0	PRD1	0:00:19.68	02:50:11	S837
SMFEXTRP	2011.144	07:59:22	STEP02	VSRASMF1	PRD1	0:00:06.96	07:59:51	S837
ETC....								

DTS SOFTWARE, INC. - SPACE ABEND ANALYSIS VER 2.2 - SUMMARY REPORT

REPORTING PERIOD FROM: 2011.097 TO: 2012.091

REPORTING PERIOD REPRESENTS 360 DAYS

TOTAL ABENDS: 26

D37 : 3
E37 : 0
B37 : 23

TOTAL TIME LOST (STEP): 00:08:40
TOTAL CPU TIME LOST: 0:00:50.43

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This program will analyze installation SMF data and determine the number and cost of Sx37 abends. This self-extracting file contains a READ.ME entry that describes the installation procedure. **Notice that we only had 26 Sx37 abends in the last 360 days!**

SRS Analysis Program findings – The Free Monitoring Tool (Continued)



DTS SOFTWARE, INC. - SPACE ABEND ANALYSIS VER 5.1 - TYPE 42 REPORT

SYS	JOBNAME	DATE	TIME	CODE	DSNAME	VOLSER	EXTENTS
PRD1	EMCSCF	2012.092	08:58:52	B37	SYS3.EMC.TRACE.PRD1\$\$\$\$.D2012090.T105050	SYS011	00000016
PRD1	DFHSM	2012.092	07:13:50	B37	DFHSM.PRD1.HSMPDOX	HSMC03	00000016
PRD1	DFHSM	2012.092	07:13:50	B37	DFHSM.PRD1.HSMPDOX	HSMC03	00000016
PRD1	DFHSM	2012.092	07:13:50	B37	DFHSM.PRD1.HSMPDOX	HSMC03	00000016
PRD1	DFHSM	2012.091	07:13:50	B37	DFHSM.PRD1.HSMPDOX	HSMC03	00000016
PRD1	DFHSM	2012.064	07:13:50	B37	DFHSM.PRD1.HSMPDOX	HSMC03	00000016
PRD1	DFHSM	2012.091	07:13:50	B37	DFHSM.PRD1.HSMPDOX	HSMC03	00000016
PRD1	RCCGENER	2012.091	05:43:00	B37	SYS3.TMONCICS.RCC.LOGS.D120331	PERF65	00000010
PRD1	DFHSM	2012.090	07:13:50	B37	DFHSM.PRD1.HSMPDOX	HSMC03	00000016
PRD1	DFHSM	2012.090	07:13:50	B37	DFHSM.PRD1.HSMPDOX	HSMC03	00000016
PRD1	DFHSM	2012.090	07:13:50	B37	DFHSM.PRD1.HSMPDOX	HSMC03	00000016
PRD1	DFHSM	2012.090	07:13:50	B37	DFHSM.PRD1.HSMPDOX	HSMC03	00000016
PRD1	DFHSM	2012.089	07:13:50	B37	DFHSM.PRD1.HSMPDOX	HSMC03	00000016
PRD1	DFHSM	2012.089	07:13:50	B37	DFHSM.PRD1.HSMPDOX	HSMC03	00000016
PRD1	DFHSM	2012.089	07:13:50	B37	DFHSM.PRD1.HSMPDOX	HSMC03	00000016
PRD1	DFHSM	2012.088	07:13:50	B37	DFHSM.PRD1.HSMPDOX	HSMC03	00000016
PRD1	DFHSM	2012.088	07:13:50	B37	DFHSM.PRD1.HSMPDOX	HSMC03	00000016
PRD1	DFHSM	2012.088	07:13:50	B37	DFHSM.PRD1.HSMPDOX	HSMC03	00000016
PRD1	EMCSCF	2012.088	08:58:52	B37	SYS3.EMC.TRACE.PRD1\$\$\$\$.D2012087.T064220	SYS012	00000016
PRD1	DFHSM	2012.087	07:13:50	B37	DFHSM.PRD1.HSMPDOX	HSMC03	00000016
PRD1	DFHSM	2012.087	07:13:50	B37	DFHSM.PRD1.HSMPDOX	HSMC03	00000016
PRD1	EMCSCF	2012.087	08:58:52	B37	SYS3.EMC.TRACE.PRD1\$\$\$\$.D2012085.T164710	SYS006	00000016
PRD1	DFHSM	2012.085	01:13:18	D37	DFHSM.PRD1.HSMLOGX1	HSMC03	00000001
PRD1	DFHSM	2012.085	01:13:18	B37	DFHSM.PRD1.HSMPDOX	HSMC03	00000016
PRD1	DFHSM	2012.085	01:13:18	B37	DFHSM.PRD1.HSMPDOX	HSMC03	00000016
PRD1	DFHSM	2012.085	01:13:18	B37	DFHSM.PRD1.HSMPDOX	HSMC03	00000016
PRD1	EMCSCF	2012.085	08:58:52	B37	SYS3.EMC.TRACE.PRD1\$\$\$\$.D2012084.T025210	SYS001	00000016
PRD1	DFHSM	2012.084	01:13:18	B37	DFHSM.PRD1.HSMPDOX	HSMC03	00000016

Complete your sessions evaluation online at SHARE.org/AnaheimEval



NOTE: SMF Type 42 records are: DFSMS Statistics and Configuration records.

Extracting SMF records for use in the SRS Analysis Program (The Free Monitoring Tool)



```
***** Top of Data *****
//JOBCARD
//*-----*
//* EXTRACT SMF TYPE (4, 30(4), 42(9) RECORDS FOR USE IN DTS's SMFEXTR
//*-----*
//STEP001 EXEC PGM=IFASMFDP
//SYSPRINT DD SYSOUT=*
//DUMPIN DD DISP=SHR,DSN=SYS2.FBDC.SMFMTBKB(+0)
//DUMPOUT DD DSN=OUTPUT.TYPE4.TYPE30.TYPE42,
//          DISP=(NEW,CATLG),
//          DATACLAS=LARGE,
//          UNIT=SYSALLDA,
//          VOL=(, ,10),
//          SPACE=(CYL,(500,100))
//SYSIN DD *
          INDD(DUMPIN,OPTIONS(ALL))
          OUTDD(DUMPOUT,TYPE(4,30(4)42(9)))
          ABEND(NORETRY)
/*
***** Bottom of Data *****
```

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In order to use the SRS Analysis Program (The Free Monitoring Tool) to report on Sx37 ABENDS, you probably should extract TYPE 4, TYPE 30, (SUBTYPE 4), and TYPE 42, (SUBTYPE 9) SMF Records. Prior to running the Free Monitoring tool (PGM=SMFEXTR)

SRS Analysis Program (The Free Monitoring Tool) JCL



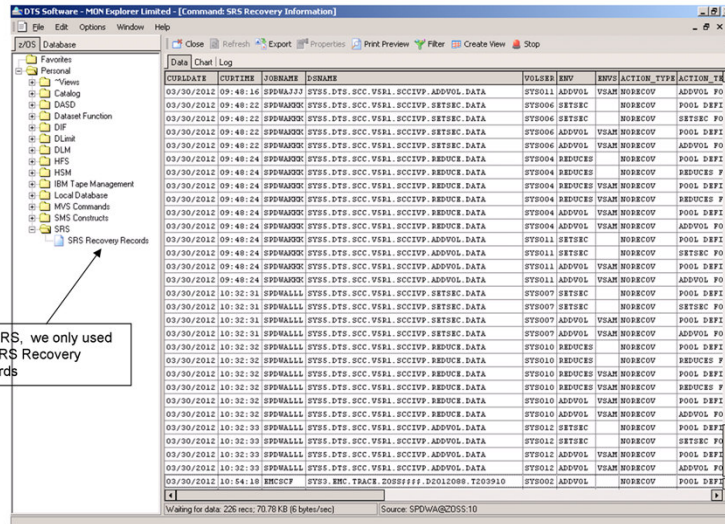
```
***** Top of Data *****
//JOBCARD
//*-----
//*  RUN THE DTS SMF ANALYSIS PROGRAM
//*-----
//STEP010 EXEC PGM=SMFEXTR
//STEPLIB DD DSN=DTS.LOADLIB,DISP=SHR
//SYSOUT DD SYSOUT=*
//*EXTRACTED SMF RECORDS TYPE 4, 30, 42 FROM THE MONTHLY SMF DATA SETS
//SMFFILE DD DISP=SHR,DSN=OUR.SMF.DATASET
//SYSPRINT DD SYSOUT=*
//EXCLUDE DD *
DFHSM
EMCSCF
CICSPRD1
CICSPATM
CICSPOPS
CICSPRDP
GRSMON
/*
***** Bottom of Data *****
```

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The `//EXCLUDE DD *` allows the user to NOT report on certain programs, as these programs will most likely be excluded from allocation modification by SRS, as defined in the SRS Rules member.

How the MON Explorer Limited GUI looks



DATE	TIME	USER	JOBNAME	STATUS	VOLUME	ENV	INFO	ACTION	TYPE	ACTION	INFO
03/30/2012	09:48:16	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	ADDPOL	DATA	STP011	ADDPOL	VSM	NORECOV	ADDPOL	PO
03/30/2012	09:48:22	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	SETSEC	DATA	STP006	SETSEC	NORECOV	POOL	DEFI	
03/30/2012	09:48:22	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	SETSEC	DATA	STP006	SETSEC	NORECOV	SETSEC	PO	
03/30/2012	09:48:22	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	SETSEC	DATA	STP006	ADDPOL	VSM	NORECOV	POOL	DEFI
03/30/2012	09:48:22	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	SETSEC	DATA	STP006	ADDPOL	VSM	NORECOV	ADDPOL	PO
03/30/2012	09:48:24	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	REDUCE	DATA	STP004	REDUCES	NORECOV	POOL	DEFI	
03/30/2012	09:48:24	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	REDUCE	DATA	STP004	REDUCES	NORECOV	REDUCES	F	
03/30/2012	09:48:24	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	REDUCE	DATA	STP004	ADDPOL	VSM	NORECOV	POOL	DEFI
03/30/2012	09:48:24	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	REDUCE	DATA	STP004	ADDPOL	VSM	NORECOV	ADDPOL	PO
03/30/2012	09:48:24	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	ADDPOL	DATA	STP011	SETSEC	NORECOV	SETSEC	PO	
03/30/2012	09:48:24	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	ADDPOL	DATA	STP011	ADDPOL	VSM	NORECOV	ADDPOL	PO
03/30/2012	10:32:31	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	SETSEC	DATA	STP007	SETSEC	NORECOV	SETSEC	PO	
03/30/2012	10:32:31	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	SETSEC	DATA	STP007	SETSEC	NORECOV	SETSEC	PO	
03/30/2012	10:32:31	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	SETSEC	DATA	STP007	ADDPOL	VSM	NORECOV	POOL	DEFI
03/30/2012	10:32:31	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	SETSEC	DATA	STP007	ADDPOL	VSM	NORECOV	ADDPOL	PO
03/30/2012	10:32:32	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	REDUCE	DATA	STP010	REDUCES	NORECOV	POOL	DEFI	
03/30/2012	10:32:32	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	REDUCE	DATA	STP010	REDUCES	NORECOV	REDUCES	F	
03/30/2012	10:32:32	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	REDUCE	DATA	STP010	REDUCES	VSM	NORECOV	POOL	DEFI
03/30/2012	10:32:32	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	REDUCE	DATA	STP010	REDUCES	VSM	NORECOV	REDUCES	F
03/30/2012	10:32:32	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	REDUCE	DATA	STP010	ADDPOL	VSM	NORECOV	POOL	DEFI
03/30/2012	10:32:32	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	REDUCE	DATA	STP010	ADDPOL	VSM	NORECOV	ADDPOL	PO
03/30/2012	10:32:33	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	ADDPOL	DATA	STP012	SETSEC	NORECOV	POOL	DEFI	
03/30/2012	10:32:33	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	ADDPOL	DATA	STP012	SETSEC	NORECOV	SETSEC	PO	
03/30/2012	10:32:33	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	ADDPOL	DATA	STP012	ADDPOL	VSM	NORECOV	POOL	DEFI
03/30/2012	10:32:33	SP0MALL1	STSS.DTS.SCC.VSER1.SCCIVP	ADDPOL	DATA	STP012	ADDPOL	VSM	NORECOV	ADDPOL	PO
03/30/2012	10:54:18	RMCPCF	SYSD.RMC.TRACE.2085###.D2012080.T20910			STP002	ADDPOL	NORECOV	POOL	DEFI	

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The MON-Explorer Limited GUI is a Windows PC-based client that communicates with the DTS DIF address space. The PC application has interfaces to the DIF console commands, SCC Monitor, MVS Console, TSO commands, and system utilities, as well as third party software products. The Explorer can use these interfaces to gather and display information in a variety of formats, reports and graphs. The product can also perform storage management and installation defined actions on the mainframe, but I have not executed any of these functions.

As you can see, SRS only uses a small portion of the MON Explorer Limited GUI for SRS Allocation Recovery reporting.

Exported Data from the MON Explorer Limited GUI to Excel



Microsoft Excel - D12124 - Recovery Information from the GUI.xls [Read-Only]

A	B	C	D	E	F	G	H	
CURLDATE	CURTIME	JOBNMNR	DSNAME	VOLSER	ENV	ENV5	ACTION_TYPE	ACTION_TEXT
04/05/2012	11:04:26	SPDMADTS	SYSE12096.T110424.RA000.SPDMADTS.SCCIVP1.H03	W09K14	REDUCEP	OS	RECOVER	PRIMARY SPACE REDUCED FROM 7000 TO 4
04/05/2012	11:04:26	SPDMADTS	SYSE12096.T110424.RA000.SPDMADTS.SCCIVP1.H03	W09K14	REDUCEP	OS	RECOVER	REDUCED FOR DD=SBSTEST DSN=SYSE12096.
04/05/2012	11:04:26	SPDMADTS	SYSE12096.T110424.RA000.SPDMADTS.SCCIVP2.H03	W09K14	SETSEC		RECOVER	SECONDARY SPACE SET TO 1 TSK (100V 0
04/05/2012	11:04:26	SPDMADTS	SYSE12096.T110424.RA000.SPDMADTS.SCCIVP2.H03	W09K14	SETSEC		RECOVER	SETSEC FOR DD=SBSTEST DSN=SYSE12096.T
04/05/2012	11:04:27	SPDMADTS	SYSE12096.T110424.RA000.SPDMADTS.SCCIVP2.H03		ADDVOL		RECOVER	VOLUME * WAS ADDED TO DATA SET
04/05/2012	11:04:27	SPDMADTS	SYSE12096.T110424.RA000.SPDMADTS.SCCIVP2.H03		ADDVOL		RECOVER	ADDVOL FOR DD=SBSTEST DSN=SYSE12096.T
04/05/2012	11:05:11	SPDMADTS	SYSE.DTS.SCC.V5E1.SCCIVP.SETSEC.DATA	SVS015	SETSEC		RECOVER	SECONDARY SPACE SET TO 1 TSK (100V 0
04/05/2012	11:05:11	SPDMADTS	SYSE.DTS.SCC.V5E1.SCCIVP.SETSEC.DATA	SVS015	SETSEC		RECOVER	SETSEC FOR DD=SVS00001 DSN=SYSE.DTS.
04/05/2012	11:05:15	SPDMADTS	SYSE.DTS.SCC.V5E1.SCCIVP.REDUCE.DATA	SVS016	REDUCES		RECOVER	SECONDARY SPACE REDUCED FROM 07391 T
04/05/2012	11:05:15	SPDMADTS	SYSE.DTS.SCC.V5E1.SCCIVP.REDUCE.DATA	SVS016	REDUCES		RECOVER	REDUCES FOR DD=SVS00004 DSN=SYSE.DTS
04/05/2012	11:05:17	SPDMADTS	SYSE.DTS.SCC.V5E1.SCCIVP.ADDVOL.DATA	SVS018	SETSEC		NORECOV	POOL DEFINITION DOES NOT ALLOW SETTI
04/05/2012	11:05:17	SPDMADTS	SYSE.DTS.SCC.V5E1.SCCIVP.ADDVOL.DATA	SVS018	SETSEC		NORECOV	SETSEC FOR DD=SVS00006 DSN=SYSE.DTS.
04/05/2012	11:05:17	SPDMADTS	SYSE.DTS.SCC.V5E1.SCCIVP.ADDVOL.DATA		ADDVOL	VSAM	RECOVER	VOLUME * WAS ADDED TO DATA SET
04/05/2012	11:05:17	SPDMADTS	SYSE.DTS.SCC.V5E1.SCCIVP.ADDVOL.DATA		ADDVOL	VSAM	RECOVER	ADDVOL FOR DD=SVS00006 DSN=SYSE.DTS.
04/05/2012	11:05:37	SPDMADTS	SYSE.DTS.SCC.V5E1.SCCIVP1		RECAT	OS	RECOVER	DATA SET WAS RECATALOGED AND SCRATCH
04/05/2012	11:05:37	SPDMADTS	SYSE.DTS.SCC.V5E1.SCCIVP1		RECAT	OS	RECOVER	RECAT FOR DD=RECAT DSN=SYSE.DTS.SCC.
04/05/2012	11:20:10	SPDMADTS	SYSE12096.T112009.RA000.SPDMADTS.SCCIVP1.H03		REDUCEP	OS	NORECOV	POOL DEFINITION DOES NOT ALLOW PRIMA

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The MON Explorer Limited GUI – getting data into it!



- In a SRS Rules member Code:
 - DEFPROD MSG(RULESET(@SRMSG)) SMF(222 LEVEL(I))
- How the GUI talks to z/OS: (DIFINIT member)
 - INILOPT SERVER(TCPIP(TCPIP 10))

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The SRS Rule DEFPROD allows us to cut SMF 222 records each time a Storage Allocation request is done.

The DIFINIT member in the SRS PARMLIB coded with INILOPT allows us to send the SMF 222 records to the MON Explorer Limited GUI.

The MON Explorer Limited GUI – Data in MVS (looks close to what the GUI Display's!)



```
FBDCPLEXZOSD C95C69C480E3890504/02/201212:26:18SPDWADTSMVS DSNAMEA 410
SYS12093.T122617.RA000.SPDWADTS.SCCIVP1.H02.WORK13REDUCEP OS RECOVERA
12 ACC21110 PRIMARY SPACE REDUCED FROM 7000 TO 4200 CYL

FBDCPLEXZOSD C95C69C480F1228504/02/201212:26:18SPDWADTSMVS DSNAMEA 410
SYS12093.T122617.RA000.SPDWADTS.SCCIVP1.H02.WORK13REDUCEP OS RECOVERA
12 ACC20210 REDUCEP FOR DD=SRSTEST
DSN=SYS12093.T122617.RA000.SPDWADTS.SCCIVP1.H02.VOL=WORK13.POOL=IVPOOL.EXT=0

FBDCPLEXZOSD C95C69C49045AD8104/02/201212:26:18SPDWADTSMVS DSNAMEA 410
SYS12093.T122617.RA000.SPDWADTS.SCCIVP2.H02.WORK17SETSEC RECOVERA 12
ACC20400 SECONDARY SPACE SET TO 1 TRK (100% OF 1)

FBDCPLEXZOSD C95C69C490524A8104/02/201212:26:18SPDWADTSMVS DSNAMEA 410
SYS12093.T122617.RA000.SPDWADTS.SCCIVP2.H02.WORK17SETSEC RECOVERA 12
ACC20210 SETSEC FOR DD=SRSTEST DSN=SYS12093.T122617.RA000.SPDWADTS.SCCIVP2.H02
VOL=WORK17.POOL=IVPOOL.EXT=1

FBDCPLEXZOSD C95C69C4BFF3040104/02/201212:26:18SPDWADTSMVS DSNAMEA 410
SYS12093.T122617.RA000.SPDWADTS.SCCIVP2.H02.ADDVOL RECOVERA 12
ACC20600 VOLUME * WAS ADDED TO DATA SET

FBDCPLEXZOSD C95C69C4C060AF0504/02/201212:26:18SPDWADTSMVS DSNAMEA 410
SYS12093.T122617.RA000.SPDWADTS.SCCIVP2.H02.ADDVOL RECOVERA 12
ACC20210 ADDVOL FOR DD=SRSTEST DSN=SYS12093.T122617.RA000.SPDWADTS.SCCIVP2.H02
VOL=WORK17.POOL=IVPOOL.EXT=16
```

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Here's an example of MVS Data that gets copied to the 'MON Explorer Limited GUI' for browsing. (Hard to Read – Reasons for the GUI)

A Subset of our Environment that allowed STS Software to code SRS Rules



SRS logged No-Recovery Analysis

The following is a summarization of the SRS log records, listed by jobnames and sample dataset names with the voiser and recovery type. Totals are at the bottom. Note: * and ? denotes wild card characters and indicates multiple jobnames and dsnames. I will come up with a set of SRS rules based on this data and forward to you when I'm done.


Jobname	Dsname	Vol	Recovery
VDBKTOPI	INFOFAC.BACKUP.TOPICS	V1*	RECAT-tape
LFSTIMS	SYS3.TMONIMS.PRD1.OFF.LOGS.TIMS03.G0001V00	PERF*	REDUCES
ACHF34	PROD.PEP.**	PRO*	REDUCES
ACHF34*	PROD.PEP.**.G000?V00	BK*	REDUCES,REDUCEP
RMFGAT	SYS2.PRD1.RMF.RMFGAT?? .DATA	PERF*	SETSEC,ADDVOL-vsam
DFHSM	DFHSM.HMIG.T??????.**	HSM*	REDUCEP
	DFHSM.SMALLDS.VHSM???.DATA		SETSEC,ADDVOL
	DFHSM.PRD1.HSMPOX	HSMC*	ADDVOL
	DFHSM.PRD1.HSMLOGX1		SETSEC
LFSTICIS	SYS3.TMONICIS.PRD1.OFF.LOGS.TMON01.G000?V00	PERF*	REDUCES
SYSD*	SYS3.TMONICIS.PRD1.DETAIL.DAILY.G0???V00	PERF*	REDUCES
	SYS2.FBDC.SMFDLY.G0683V00		
	SYS3.TMONICIS.PRD1.DETAIL.DAILY.ARC.G0695V00	BK*	
	SYS3.TMONTCP.PRD1.DETAIL.DAILY.ARC.G0688V00		REDUCEP
	SYS3.TMONMVS.PRD1.DETAIL.DAILY.ARC.G0702V00		
GLPSBKP	PROD.GLPS.BIGBKUP.G00??V00	BK*	REDUCES
DDAR*	PROD.DEMAND.PSTMTDB.BKP	PRO*	REDUCES
	SYS12122.T014122.RA000.DDAR19.R0359086	WORK*	REDUCES-temp
EMCSCF	SYS3.EMC.TRACE.PRD1\$\$\$\$.D2012103.T123910	SYS*	ADDVOL
CCUPTD	PROD.CCARD.CCTRANS.NEW.DATA	PRO*	REDUCES-vsam

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Here is the SRS logged No-Recovery Analysis report prepared by DTS Support, to allow DTS Support to define or initial SRS Rules member for SRS.

SRS Rules prepared for us by DTS Support



SHARE
Technology - Connections - Results

```

/*****/
/*                                          */
/*          SAMPLE RULES LANGUAGE FOR SRS          */
/*                                          */
/*****/


/*****/
/*          GLOBAL RULE STATEMENTS          */
/*****/
DEFPROD  SMF(222 LEVEL(1))
DEFPROD  MSG(RULESET(@SRMSG))
DEFPROD  POOLNAME(INDEX(2))
DEFPROD  ADDVOL(VSAM(INPUTCHECK))
DEFENV   RECAT PROCESS(TAPE)

/*****/
/* THIS RULE SPECIFIES DATASETS/PGMS/USERS ETC. THAT ARE TO BE */
/* EXCLUDED FROM PROCESSING BY THE PRODUCTS.          */
/*****/
DEFRULE EXCLUDES
  IF HLQ = (SYS1)
  THEN EXIT

  IF PGM = (ADRDSSU)
  THEN EXIT

```

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Here are SRS Rules created for FirstBank from the SMF Recovery Analysis Report (SRSSMF) and the SMF Analysis Program (The Free Monitoring tool)

DEFRULE - specifies a section for IF-THEN-ELSE logic statements, used to compare variables to values to make decisions. The name after DEFRULE is a user specified descriptive name for the rule.

DEFRULE EXCLUDES - Usually jobs, dsns, users, etc. that you want to exclude from SRS processing.

SRS Rules prepared for us by DTS Support (Continued)



```
/******  
/* THIS RULE OVERRIDES THE EXCP CHECK MADE BY THE SRS PRODUCT */  
/* FOR CERTAIN DATASETS. */  
/******  
DEFRULE SKIPCHKS CONTINUE(NEXTIF)  
  IF PGM = (SORT,DFSORT,SYNCSORT)  
  OR CDNAME = (SORT,DFSORT,SYNCSORT)  
    DDNAME NE SORTWK*  
  THEN SET SKIP_EXCP = YES  
  
  IF PGM = IEBCGENER  
  THEN SET SKIP_EXCP = YES  
  
  IF PGM = DSNUTILB  
  THEN SET SKIP_NOTE = YES  
  
  IF DSORG = VS  
  THEN SET SKIP_ENQ = YES
```

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DEFRULE SKIPCHKS -Various integrity checking is done internally to make sure the dataset is a good candidate for ADDVOL recovery. This rule is where you can override the integrity checks for various files if you know that multivolume is acceptable.

SRS Rules prepared for us by DTS Support (Continued)



```
/******  
/* THE FOLLOWING RULE DEFINITIONS CONTROL DATASET POOLING RULES */  
/* FOR SPACE RECOVERY CONDITIONS */  
/******  
DEFRULE RECATTAP  
  IF JOBNAME = VDBKT*  
    HLQ = INFOPAC  
    VOLSER = V1*  
  THEN SET TAPEPOOL = TAPEREC  
  
DEFRULE POOLRULE  
  IF SMS = NO  
  THEN SET DISKPOOL = NONSMSP  
  
  IF DSORG = VS  
  THEN SET DISKPOOL = VSAMPOOL  
  
  IF TEMPDSN = YES  
  THEN SET DISKPOOL = TMPPPOOL  
  
  IF SMS = YES  
  THEN SET DISKPOOL = PRDPOOL
```

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DEFRULE RECATTAP - a rule to allow recatalog for tape dataset names if a duplicate exists

DEFRULE POOLRULE - rules to assign DEFPOOL names (SET DISKPOOL = name) for SRS recovery

SRS Rules prepared for us by DTS Support (Continued)



```

/*****
/* POOL DEFINITIONS - CONTAIN OPTIONS AND VOLUMES TO BE USED      */
/* FOR RECOVERING SPACE PROBLEMS                                  */
/*****
DEFPOOL TAPEREC
  RECAT(YES)

DEFPOOL NONSMSP
  ALGORITHM(MAXSPACE)
  REDUCEP(PERCENT(10) LIMIT(10))
  REDUCES(YES)
  SETSEC(PERCENT(50))
  ADDVOL(YES MAXVOL(20))
  RECAT(YES)
  VOLSER(1,3) = &0:VOLSER(1,3)

DEFPOOL VSAMPOOL
  ALGORITHM(MAXSPACE)
  REDUCEP(PERCENT(10) LIMIT(50))
  REDUCES(YES PERCENT(10) LIMIT(30))
  ADDVOL(YES MAXVOL(25))

```

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ALGORITHM(MAXSPACE) – when adding a volume, pick the volume with the most free space from the EDL

REDUCEP(PERCENT(10) LIMIT(10)) – reduce primary space value by % loop. If limit is reached before space is found then stop.

REDUCES(YES) – reduce secondary space value to largest extent on volume when requested amount is not available

SETSEC(PERCENT(50)) – set a secondary value if none exists and is needed, to a percentage of primary value

ADDVOL(YES MAXVOL(20)) – add volumes or candidate entries (SMS) up to the max volume limit

RECAT(YES) – allow new dataset allocations with existing duplicate names to be properly cataloged

VOLSER(1,3) = &0:VOLSER(1,3) – add a volume with the defined criteria (in this example, same first 3 characters of current

volume). *Usually* coded for non-SMS only.

SRS Rules prepared for us by DTS Support (Continued)



```
/******  
/* POOL DEFINITIONS - CONTAIN OPTIONS AND VOLUMES TO BE USED */  
/* FOR RECOVERING SPACE PROBLEMS (Continued) */  
/******
```


```
DEFPOOL PRDPOOL  
  ALGORITHM(MAXSPACE)  
  REDUCEP(PERCENT(10) LIMIT(20))  
  REDUCES(YES PERCENT(5) LIMIT(0))  
  SETSEC(PERCENT(50))  
  ADDVOL(YES MAXVOL(30))  
  RECAT(SCRATCH)  
  
DEFPOOL TMPPPOOL  
  ALGORITHM(BESTFIT)  
  REDUCEP(PERCENT(10) LIMIT(0))  
  REDUCES(YES PERCENT(10) LIMIT(0))  
  SETSEC(PERCENT(100))  
  ADDVOL(YES MAXVOL(20))
```

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Just more DEFPOOL Definitions

ALGORITHM(BESTFIT) - When adding a volume, pick the volume with the least amount of free space but still adequate for the secondary space request.



Commonly used SRS commands

```

F DIF,STATUS
DIF01180-I PRODUCT VERSION STATUS RULES NAME DATE TIME
DIF01181-I SMSDEBUG 5.1.16 ACTIVE SMSDEBUG 03/27/12 13:03
DIF01181-I SRS 5.1.16 ACTIVE IVRAS 03/27/12 13:03
DIF01182-I SRSVSAM OPTION ACTIVE
DIF01181-I ACC 5.1.16 ACTIVE IVRAS 03/27/12 13:03
DIF01182-I ACCVSAM OPTION ACTIVE
DIF01181-I DIF 5.1.18 ACTIVE

F DIF,Z


F DIF,CLOSE SRSRECV
DIF02263-A CLOSE FOR FILE SRSRECV HAS BEEN SCHEDULED
DIF00750-A FILE SRSRECV(SRSRECV) IS NOW CLOSED

F DIF,SHUTDOWN
DIF02600-A SMSDEBUG HAS BEEN STOPPED
DIF02600-A SPACE RECOVERY SYSTEM HAS BEEN STOPPED
DIF02600-A ALLOCATION CONTROL CENTER HAS BEEN STOPPED
TOTAL ELAPSED TIME= 23.4

F DIF,REF SRS
DIF02130-A RULES LOADED FOR SRS - IVRAS

```

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Here are a few of the commands commonly used and commands we used for testing as we rolled out new LPARs on SRS

F DIF,STATUS

Explanation: The DIF STATUS command was issued by the operator. One DIF01181 message is produced for each product running under DIF. The message displays information about the current release of the product, the current status, and the last conversion of the rules language for the product is also displayed.

F DIF,Z

Note: The SCC products running under DIF will remain active during the restart when using the "F DIF,Z" command: (versus F DIF,SHUTDOWN)

F DIF,CLOSE SRSRECV

Explanation: The DIF CLOSE command was issued by the operator. The ddname belongs to the PRINT subtask running under DIF. The request has been scheduled for execution by the PRINT subtask.

F DIF,SHUTDOWN

Explanation: DIF has successfully stopped the product.

F DIF,REF SRS ← Refreshes BOTH (SRS & ACC) with the current RULE member

Explanation: The DIF REFRESH command was issued by the operator. The command successfully loaded a new copy of the product rules from memname.



Setting up a Trial

- Setting up a Trial of SRS was as easy as signing one form and emailing this form back to DTS Software.



SOFTWARE EVALUATION AGREEMENT

between
DTS Software, Inc.
and
FirstBank Data Corporation

Yes, our company would like to begin a FREE no-obligation evaluation of the proprietary software product(s) SRS/Plus MANUALS ONLY from DTS Software, Inc. I understand that the evaluation is free of charge and the evaluation period is for 30 days unless extended. If the Company decides not to license the product(s) at the end of the evaluation period, all product tapes and manuals are to be returned to DTS Software, Inc. and all product libraries are to be removed from any systems on which the product was installed.

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- SMF Analysis Program (the Free tool) Download at:
 - <http://www.dtssoftware.com/smfxtr.exe>
- White Papers, WEBINARS, MARKETING LITERATURE, PRODUCT MANUALS
 - http://www.dtssoftware.com/product_srs.htm#tab_3
- Storage Administration z/OS Pocket Guide
 - http://www.dtssoftware.com/public/Pocket_Reference_Guide_LowRes.pdf
- The Android App
 - <https://play.google.com/store/apps/details?id=dtssoftware.pocketguide>

Complete your sessions evaluation online at SHARE.org/AnaheimEval



The Android APP - DTS Software's popular z/OS Pocket Reference Guide finally makes its way to the app market. Useful information for mainframe programmers, administrators, and others is now even more easily available. New in Version 2.1: Fixed an error in the DASD Calculator's blocks per track calculation that was brought to our attention by someone at SHARE. This should not have impacted users in a meaningful way, but check to be sure. The error resulted in the blocks per track being 1 off in some cases, which may have added another track to the space calculation. Again thank you for your continued support.


Coming soon: VSAM calculator, and additional support for tablets.

If there's anything else you would like to see in the guide, please contact DTS Software at: *Tel: (770) 922-2444* or *Email: info@DTSsoftware.com*

Our Shop

- New to z/OS as of: May 2010
- We only have 180 physical Disk Drives
- In SMS we only have:
 - A Data Class Member with 78 lines of code (5 Classes)
 - A Management Class Member with 190 lines of code (10 Classes)
 - A Storage Class Member with 435 lines of code (14 Classes)
 - A Storage Group Member with 128 lines of code (15 Groups)

And we were VMESA / VSE/ESA prior to May 2010.



Our SMS / SRS discussions


ZOSD DATA CLASS ALTER Page 2 of 5
 Command ==>

SCDS Name . . . : SYS2.SMS.SCDS
 Data Class Name : STANDARD

To ALTER Data Class, Specify:

Data Set Name Type	(EXT, HFS, LIB, PDS, Large or blank)
If Ext	(P=Preferred, R=Required or blank)
Extended Addressability . . . N	(Y or N)
Record Access Bias	(S=System, U=User or blank)
Space Constraint Relief . . . Y	(Y or N)
Reduce Space Up To (%) . . . 30	(0 to 99 or blank)
Dynamic Volume Count . . . 9	(1 to 59 or blank)
Compaction	(Y, N, T, G or blank)
Spanned / Nonspanned	(S=Spanned, N=Nonspanned or blank)
System Managed Buffering	(1K to 2048M or blank)
System Determined Blocksize N	(Y or N)
EATTR	(0=Opt, N=No or blank)

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We use the below **three DATA CLASS parameters** to satisfy most of our Space Constraint Recovery.

The **SPACE CONSTRAINT RELIEF** field is used to define the data class attribute that will be used by the system to retry allocation and extension failures for SMS managed data sets. Retry is based on a combination of:

1. spreading the requested quantity over multiple volumes,
2. allocating a fraction of requested quantity, and
3. using more than 5 extents to satisfy the allocation.

Use the **REDUCE SPACE UP TO** field in order to reduce the amount of requested space quantity by x% and re-drive the best-fit allocation.

A specification of 0 by the user implies that the user wishes to take advantage of the facility to use more than 5 extents to satisfy the allocation without reducing the allocation amount.

Use **DYNAMIC VOLUME COUNT** field to specify a maximum number of volumes that DFSMS can add dynamically to a SMS managed dataset. The Dynamic Volume Count needs to be larger than the current volume count of the data set. (Similar to 'VOL=(, , 9)')

SRS and SMS Volume Count



Panel List Utilities Scroll Help

PRD1
Command ==>

DATA CLASS LIST

Scroll ==> HALF
Entries 1-11 of 15
Data Columns 12-16 of 49

CDS Name : SYS2.SMS.SCDS

Enter Line Operators below:

LINE OPERATOR	DATACLAS NAME	SPACE DIRECTORY	RETPD OR EXPDT	VOLUME COUNT	ADDITIONAL VOLUME AMT	DYRVOL COUNT
--(1)--	--(2)--	--(12)--	----	----	----	----
	BACKUP	-----	----	9	-----	----
	DCNONSMS	-----	----	1	-----	----
	EXTADDR	-----	----	1	-----	----
	JUMBO	-----	----	9	-----	----
	LARGE	-----	----	9	-----	----
	LOGRLOGS	-----	----	1	-----	----
	LOGRSTG	-----	----	1	-----	----
	MEDIUM	-----	----	9	-----	----
	MINI	-----	----	9	-----	----
	NULL	-----	----	1	-----	----
	PRODS	-----	----	9	-----	----

TR 21/040
Ready 096 000

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Just to reiterate: If a dataclas has a volume count of 10 and SRS had a pool definition with ADDVOL(YES MAXVOL(20)), SRS will only start adding volumes UP TO 20 (not additional 20) after the first 10 are used. In the case where there are not enough eligible volumes period, there is really nothing SRS can do unless more volumes are added to the storage group. SRS does not report on volumes that it does not add, so if a dataset extends to another volume because a multivolume count in the dataclas, SRS is not involved in this. It basically gets involved to help prevent a failure if prevention is possible.

To Wrap Up what we talked about



- Installation
 - Support
 - SMF recovery analysis report (SRSSMF)
 - SMF Analysis Program (the free monitoring tool)
 - SMF Analysis program (The Free Tool)
 - MON Explorer Limited GUI
- DTS's Space Recovery System - The End of Out-of-Space Errors!!!!
With SRS in place, out-of-space errors are not merely reduced,
they are effectively eliminated.

Complete your sessions evaluation online at SHARE.org/AnaheimEval



To wrap up we talked about:

Installation

Support

SMF recovery analysis report (SRSSMF)

SMF Analysis Program (the free monitoring tool)

SMF Analysis program (The Free Tool)

MON Explorer Limited GUI

Any Questions?



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Disclaimer

- "The presentation is my own and doesn't necessarily represent FirstBank's positions, strategies or opinions."



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