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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

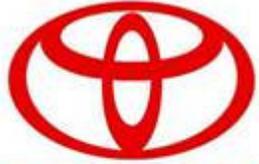


The Agenda

- 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



TOYOTA's Supplemental Restraint System



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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 *****
ICH70001I 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 0A8A 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 0A8A 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

```

The **S**pace **R**ecovery **S**ystem Solution

Typical out-of-space recovery functions:

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

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

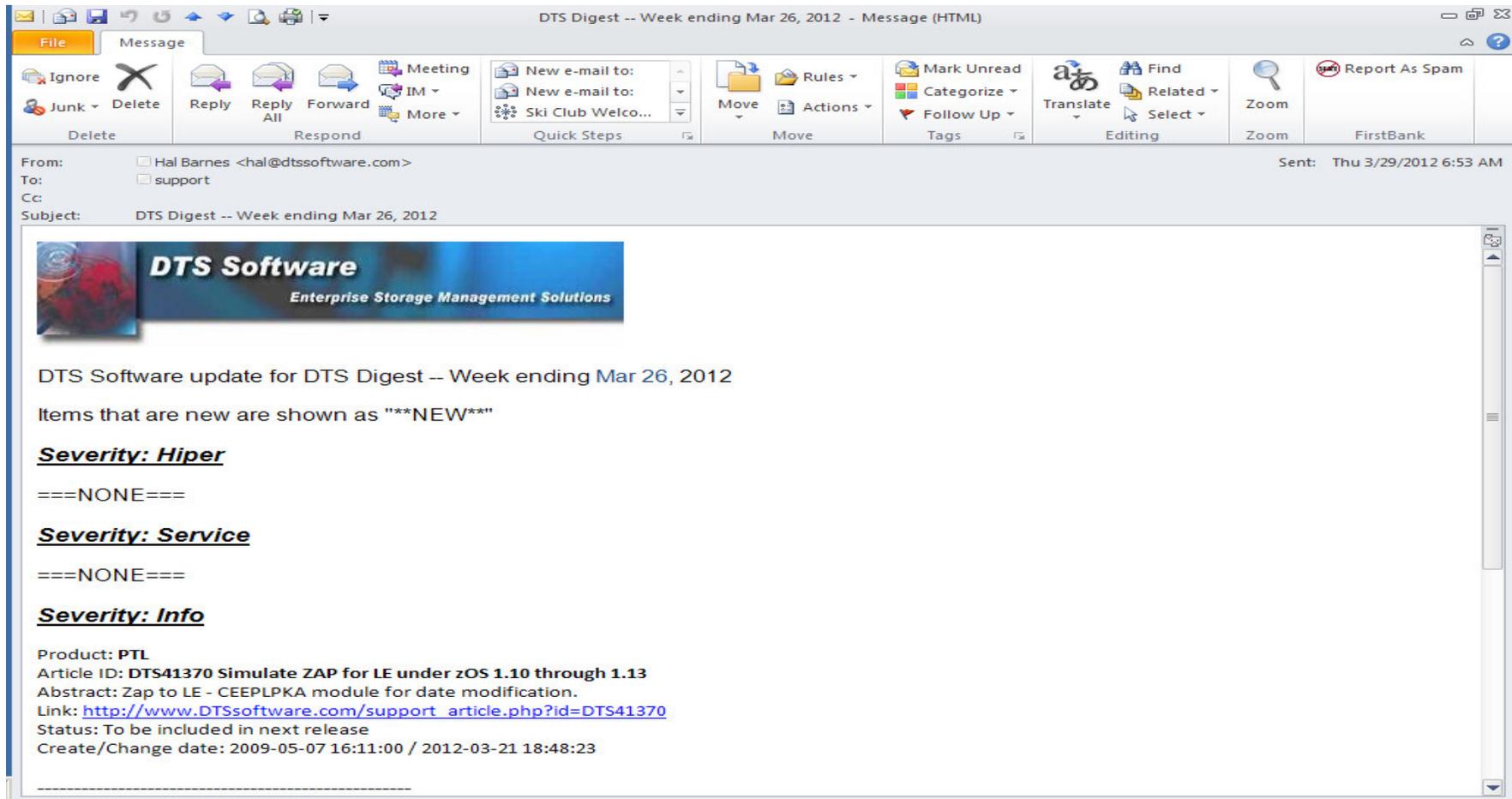
Installation Support

- 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.

DTS Digest (weekly)



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

File Message

Ignore X Reply Reply All Forward Meeting IM More

Junk Delete

New e-mail to: New e-mail to: Ski Club Welco...

Rules Actions Move

Mark Unread Categorize Follow Up Tags

Translate Editing

Find Related Select

Zoom

Report As Spam

Zoom FirstBank

From: Hal Barnes <hal@dtssoftware.com>
To: support
Cc:
Subject: 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

DTS Maintenance Email

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

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

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



NEW SCC 5.1 Maintenance Release Available on DTS Website: SL12156

*****NOTE***** Enhancements-
 MON-TS7700 BVIR 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/SMSDebug/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

How to subscribe to the weekly DTS software Digest & Maintenance Email



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Click here



How to subscribe to the weekly DTS software Digest – Email Notifications



Click here

Complete your sessions evaluation online at SHARE.org/AnaheimEval



What is included in the DTS software Email Notifications

A screenshot of a web browser window showing the DTS Software support page. The browser title is "DTS Software - Windows Internet Explorer provided by FirstBank". The address bar shows "http://www.dtssoftware.com/support_notify.htm". The page content includes the DTS Software logo and the text "ENTERPRISE STORAGE MANAGEMENT SOLUTIONS". A section titled "Email Notification" contains the following text:

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 than want more detailed information.

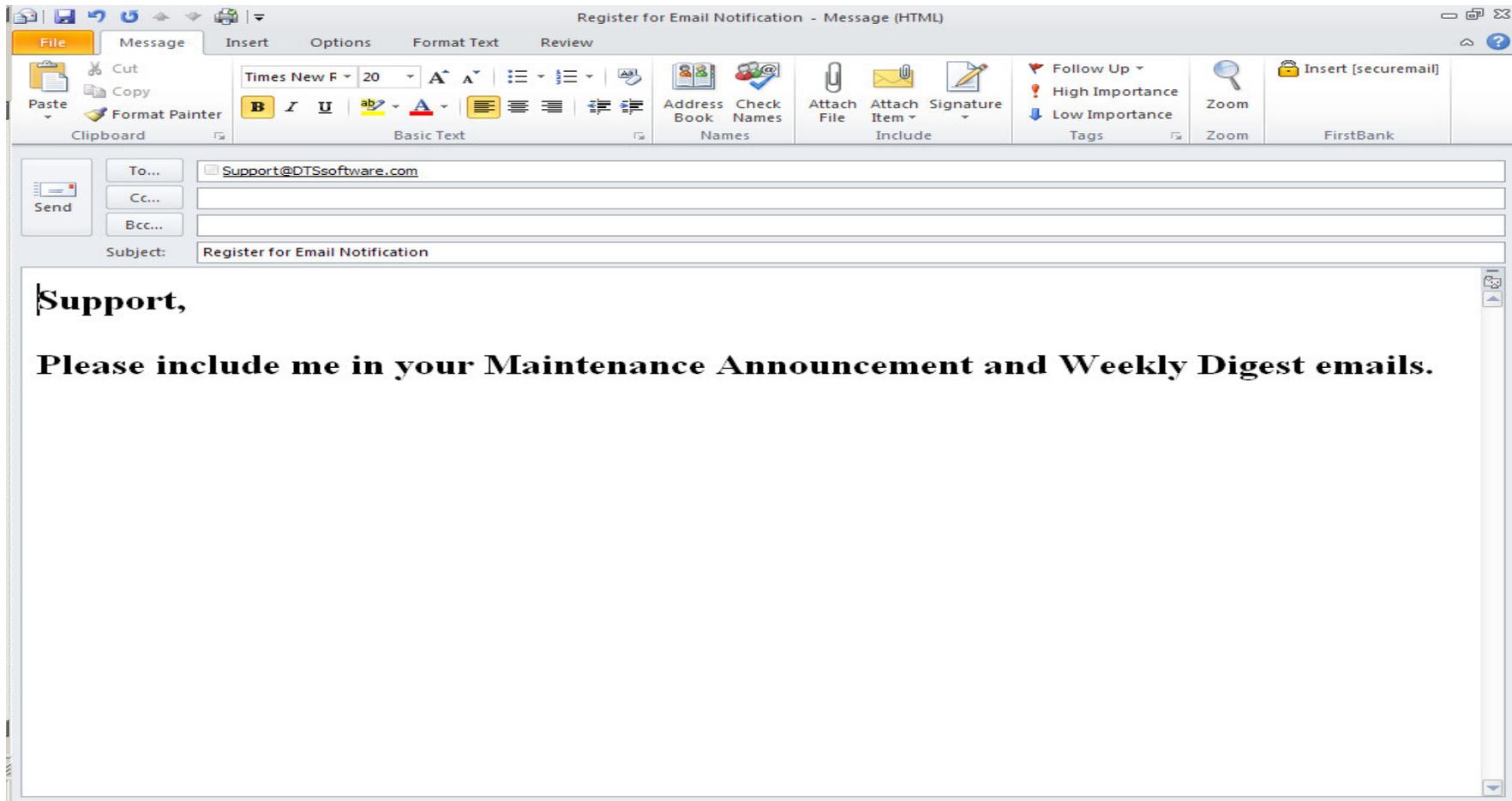
If you would like to be included on either mailing list, please drop a note to [customer support](#).

At the bottom of the page, there is a copyright notice: "© 2012 DTS Software, Inc. All Rights Reserved. | [legal](#) | [privacy](#)". The browser's navigation bar shows "Company", "Products", "Downloads", "Support & Training", and "Login". The status bar at the bottom indicates "Internet" and "100%".

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



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=m1pa .library
//SYSPRINT DD  SYSOUT=A
//SYSABEND DD  SYSOUT=A
//*SYSEXEC DD  DISP=SHR ,DSN=rexx .library
//*SYSPROC DD  DISP=SHR ,DSN=c1ist .library
//*SYSTSPRT DD  UNIT=VIO ,SPACE=(CYL ,1)
//*SYSTSIN DD  DUMMY

```

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 LISTDSD 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
FILEPROCMA= NONE
PROCUSERMA= NONE
THREADSMA= NONE
MMAPAREAMA= NONE
```

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*
                DSNAME: 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*
                DSNAME: 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*
                DSNAME: 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*
                DSNAME: 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*
                DSNAME: 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

```


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

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
//SMFFILE   DD  DISP=SHR,DSN=&&WK1
//DETAIL    DD  SYSOUT=*
//SYSPRINT  DD  SYSOUT=*
//MULTIVOL  DD  SYSOUT=*
//SYSIN     DD  DUMMY
***** Bottom of Data *****
```



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	SB37
SPDWALOG	2012.069	13:15:42	STEP010	IEAMDBLG	PRD1	0:00:00.67	13:15:46	SB37
SMSRPTS	2012.052	16:02:00	CVSMR00A	CVSMR00	PRD1	0:00:04.59	16:06:55	SB37
AOGW0010	2012.030	08:00:00	STEP0010	IEBCOPY	PRD1	0:00:00.02	08:00:01	SD37
SYSD0015	2012.005	00:15:00	STEP012	LMRK700	PRD1	0:00:19.61	00:17:12	SB37
CUST10	2011.320	21:39:35	UNLOAD	DFSRR00	PRD1	0:00:13.92	21:40:13	SB37
DHSRPTS	2011.318	20:05:00	CVDHR00C	CVDHR00	PRD1	0:00:00.91	20:05:36	SB37
SPWESP	2011.280	11:06:54	RMFSORT	SORT	PRD1	0:00:04.48	11:07:14	SB37
SAVE06	2011.228	00:33:59	CONCAT	IEBGENER	PRD1	0:00:00.02	00:34:05	SB37
SAVE06	2011.228	00:38:22	CONCAT	IEBGENER	PRD1	0:00:00.02	00:38:28	SB37
ICMMSTRB	2011.220	19:00:01	STEP01	IDCAMS	PRD1	0:00:00.10	19:00:03	SB37
SAVE07EM	2011.182	00:39:22	STEP01	DFSRR00	PRD1	0:00:18.21	00:40:04	SB37
SAVE07EM	2011.182	02:48:57	STEP01	DFSRR00	PRD1	0:00:19.68	02:50:11	SB37
SMFEXTRP	2011.144	07:59:22	STEP02	VSRASMF1	PRD1	0:00:06.96	07:59:51	SB37

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

DTS SOFTWARE, INC. - SPACE ABEND ANALYSIS VER 5.1 - TYPE 42 REPORT							VOLSER	EXTENTS
SYS	JOBNAME	DATE	TIME	CODE	DSNAME			
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.HSMLGX1		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

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

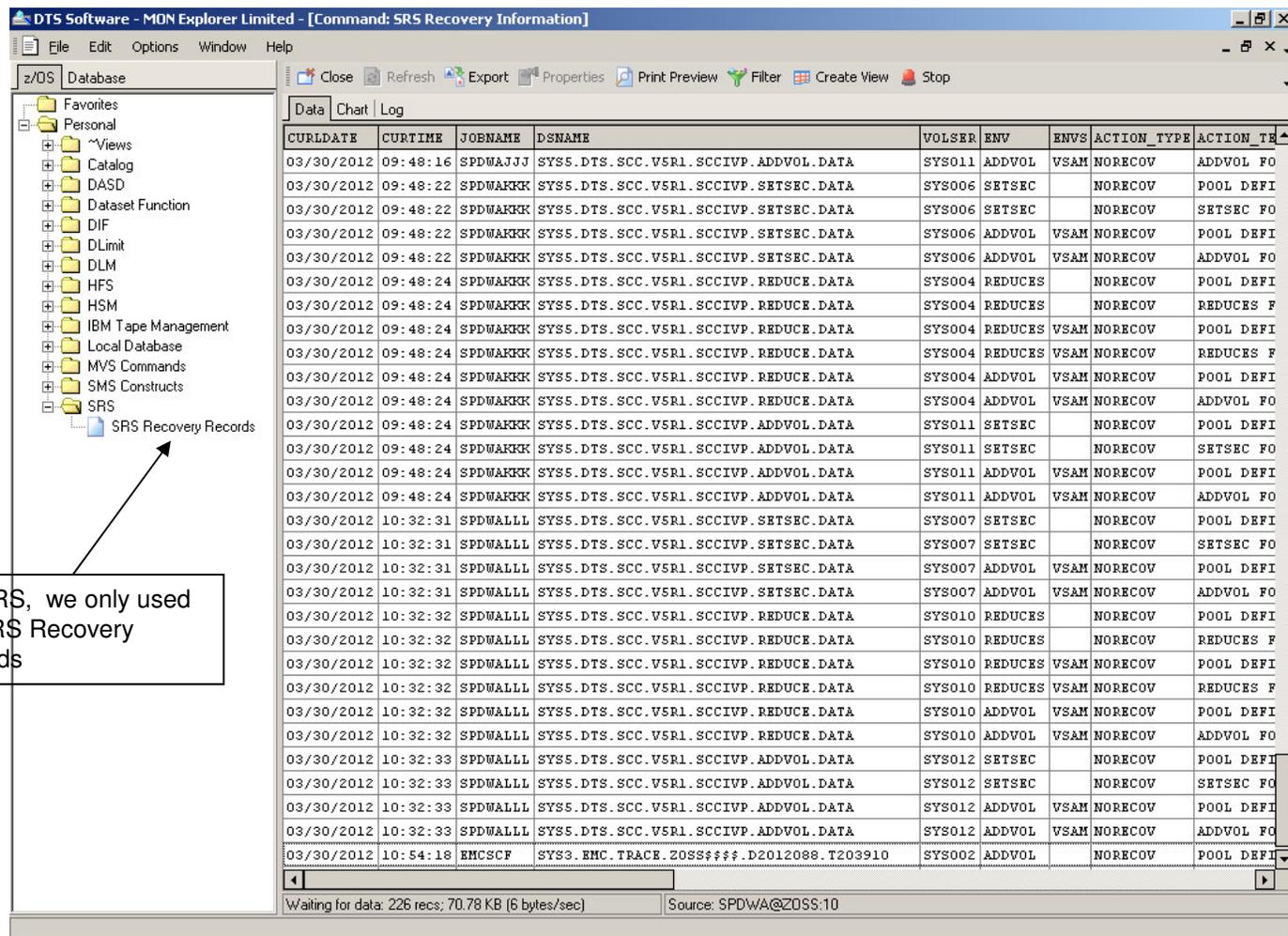
```
***** Top of Data *****
//JOB CARD
//*-----*
//* EXTRACT SMF TYPE (4, 30(4), 42(9)) RECORDS FOR USE IN DTS'S SMFEXTR
//*-----*
//STEP001 EXEC PGM=IFASMFDP
//SYSPRINT DD SYSOUT=*
//DUMPIN DD DISP=SHR,DSN=SYS2.FBDC.SMFMTHBK(+0)
//DUMPOUT DD DSN=OUTPUT.TYPE4.TYPE30.TYPE42,
//          DISP=(NEW,CATLG),
//          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 *****
```

SRS Analysis Program (The Free Monitoring Tool) JCL



```
***** Top of Data *****
//JOB CARD
//*-----
//*  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 *****
```

How the MON Explorer Limited GUI looks



The screenshot displays the MON Explorer Limited GUI with the following components:

- Window Title:** DTS Software - MON Explorer Limited - [Command: SRS Recovery Information]
- Menu Bar:** File, Edit, Options, Window, Help
- Toolbar:** Close, Refresh, Export, Properties, Print Preview, Filter, Create View, Stop
- Left Panel (Tree View):** z/OS Database
 - Favorites
 - Personal
 - ~Views
 - Catalog
 - DASD
 - Dataset Function
 - DIF
 - DLimit
 - DLM
 - HFS
 - HSM
 - IBM Tape Management
 - Local Database
 - MVS Commands
 - SMS Constructs
 - SRS
 - SRS Recovery Records

- Main Panel (Table):**

CURLDATE	CURTIME	JOBNAME	DSNAME	VOLSER	ENV	ENVS	ACTION_TYPE	ACTION_TE
03/30/2012	09:48:16	SPDWAJJJ	SYS5.DTS.SCC.VSRL.SCCIVP.ADDVOL.DATA	SYS011	ADDVOL	VSAM	NORECOV	ADDVOL FO
03/30/2012	09:48:22	SPDWAKKK	SYS5.DTS.SCC.VSRL.SCCIVP.SETSEC.DATA	SYS006	SETSEC		NORECOV	POOL DEFI
03/30/2012	09:48:22	SPDWAKKK	SYS5.DTS.SCC.VSRL.SCCIVP.SETSEC.DATA	SYS006	SETSEC		NORECOV	SETSEC FO
03/30/2012	09:48:22	SPDWAKKK	SYS5.DTS.SCC.VSRL.SCCIVP.SETSEC.DATA	SYS006	ADDVOL	VSAM	NORECOV	POOL DEFI
03/30/2012	09:48:22	SPDWAKKK	SYS5.DTS.SCC.VSRL.SCCIVP.SETSEC.DATA	SYS006	ADDVOL	VSAM	NORECOV	ADDVOL FO
03/30/2012	09:48:24	SPDWAKKK	SYS5.DTS.SCC.VSRL.SCCIVP.REDUCE.DATA	SYS004	REDUCES		NORECOV	POOL DEFI
03/30/2012	09:48:24	SPDWAKKK	SYS5.DTS.SCC.VSRL.SCCIVP.REDUCE.DATA	SYS004	REDUCES		NORECOV	REDUCES F
03/30/2012	09:48:24	SPDWAKKK	SYS5.DTS.SCC.VSRL.SCCIVP.REDUCE.DATA	SYS004	REDUCES	VSAM	NORECOV	POOL DEFI
03/30/2012	09:48:24	SPDWAKKK	SYS5.DTS.SCC.VSRL.SCCIVP.REDUCE.DATA	SYS004	REDUCES	VSAM	NORECOV	REDUCES F
03/30/2012	09:48:24	SPDWAKKK	SYS5.DTS.SCC.VSRL.SCCIVP.REDUCE.DATA	SYS004	ADDVOL	VSAM	NORECOV	POOL DEFI
03/30/2012	09:48:24	SPDWAKKK	SYS5.DTS.SCC.VSRL.SCCIVP.REDUCE.DATA	SYS004	ADDVOL	VSAM	NORECOV	ADDVOL FO
03/30/2012	09:48:24	SPDWAKKK	SYS5.DTS.SCC.VSRL.SCCIVP.ADDVOL.DATA	SYS011	SETSEC		NORECOV	POOL DEFI
03/30/2012	09:48:24	SPDWAKKK	SYS5.DTS.SCC.VSRL.SCCIVP.ADDVOL.DATA	SYS011	SETSEC		NORECOV	SETSEC FO
03/30/2012	09:48:24	SPDWAKKK	SYS5.DTS.SCC.VSRL.SCCIVP.ADDVOL.DATA	SYS011	ADDVOL	VSAM	NORECOV	POOL DEFI
03/30/2012	09:48:24	SPDWAKKK	SYS5.DTS.SCC.VSRL.SCCIVP.ADDVOL.DATA	SYS011	ADDVOL	VSAM	NORECOV	ADDVOL FO
03/30/2012	10:32:31	SPDWALLL	SYS5.DTS.SCC.VSRL.SCCIVP.SETSEC.DATA	SYS007	SETSEC		NORECOV	POOL DEFI
03/30/2012	10:32:31	SPDWALLL	SYS5.DTS.SCC.VSRL.SCCIVP.SETSEC.DATA	SYS007	SETSEC		NORECOV	SETSEC FO
03/30/2012	10:32:31	SPDWALLL	SYS5.DTS.SCC.VSRL.SCCIVP.SETSEC.DATA	SYS007	ADDVOL	VSAM	NORECOV	POOL DEFI
03/30/2012	10:32:31	SPDWALLL	SYS5.DTS.SCC.VSRL.SCCIVP.SETSEC.DATA	SYS007	ADDVOL	VSAM	NORECOV	ADDVOL FO
03/30/2012	10:32:32	SPDWALLL	SYS5.DTS.SCC.VSRL.SCCIVP.REDUCE.DATA	SYS010	REDUCES		NORECOV	POOL DEFI
03/30/2012	10:32:32	SPDWALLL	SYS5.DTS.SCC.VSRL.SCCIVP.REDUCE.DATA	SYS010	REDUCES		NORECOV	REDUCES F
03/30/2012	10:32:32	SPDWALLL	SYS5.DTS.SCC.VSRL.SCCIVP.REDUCE.DATA	SYS010	REDUCES	VSAM	NORECOV	POOL DEFI
03/30/2012	10:32:32	SPDWALLL	SYS5.DTS.SCC.VSRL.SCCIVP.REDUCE.DATA	SYS010	REDUCES	VSAM	NORECOV	REDUCES F
03/30/2012	10:32:32	SPDWALLL	SYS5.DTS.SCC.VSRL.SCCIVP.REDUCE.DATA	SYS010	ADDVOL	VSAM	NORECOV	POOL DEFI
03/30/2012	10:32:32	SPDWALLL	SYS5.DTS.SCC.VSRL.SCCIVP.REDUCE.DATA	SYS010	ADDVOL	VSAM	NORECOV	ADDVOL FO
03/30/2012	10:32:33	SPDWALLL	SYS5.DTS.SCC.VSRL.SCCIVP.ADDVOL.DATA	SYS012	SETSEC		NORECOV	POOL DEFI
03/30/2012	10:32:33	SPDWALLL	SYS5.DTS.SCC.VSRL.SCCIVP.ADDVOL.DATA	SYS012	SETSEC		NORECOV	SETSEC FO
03/30/2012	10:32:33	SPDWALLL	SYS5.DTS.SCC.VSRL.SCCIVP.ADDVOL.DATA	SYS012	ADDVOL	VSAM	NORECOV	POOL DEFI
03/30/2012	10:32:33	SPDWALLL	SYS5.DTS.SCC.VSRL.SCCIVP.ADDVOL.DATA	SYS012	ADDVOL	VSAM	NORECOV	ADDVOL FO
03/30/2012	10:54:18	EHCSCF	SYS3.EHC.TRACE.ZOSS###.D2012088.T203910	SYS002	ADDVOL		NORECOV	POOL DEFI
- Status Bar:** Waiting for data: 226 recs; 70.78 KB (6 bytes/sec) | Source: SPDWA@Z0SS:10

For SRS, we only used the SRS Recovery Records

Exported Data from the MON Explorer Limited GUI to Excel



	A	B	C	D	E	F	G	H	
	CURLDATE	CURTIME	JOBNAME	DSNAME	VOLSER	ENV	ENV5	ACTION_TYPE	ACTION_TEXT
1	04/05/2012	11:04:26	SPDWADTS	SYS12096.T110424.RA000.SPDWADTS.SCCIVP1.H03	WORK14	REDUCEP	OS	RECOVER	PRIMARY SPACE REDUCED FROM 7000 TO 4
2	04/05/2012	11:04:26	SPDWADTS	SYS12096.T110424.RA000.SPDWADTS.SCCIVP1.H03	WORK14	REDUCEP	OS	RECOVER	REDUCEP FOR DD=SRSTEST DSN=SYS12096.
3	04/05/2012	11:04:26	SPDWADTS	SYS12096.T110424.RA000.SPDWADTS.SCCIVP2.H03	WORK14	SETSEC		RECOVER	SECONDARY SPACE SET TO 1 TRK (100% 0
4	04/05/2012	11:04:26	SPDWADTS	SYS12096.T110424.RA000.SPDWADTS.SCCIVP2.H03	WORK14	SETSEC		RECOVER	SETSEC FOR DD=SRSTEST DSN=SYS12096.T
5	04/05/2012	11:04:27	SPDWADTS	SYS12096.T110424.RA000.SPDWADTS.SCCIVP2.H03		ADDVOL		RECOVER	VOLUME * WAS ADDED TO DATA SET
6	04/05/2012	11:04:27	SPDWADTS	SYS12096.T110424.RA000.SPDWADTS.SCCIVP2.H03		ADDVOL		RECOVER	ADDVOL FOR DD=SRSTEST DSN=SYS12096.T
7	04/05/2012	11:05:11	SPDWADTS	SYSS.DTS.SCC.V5R1.SCCIVP.SETSEC.DATA	SYS015	SETSEC		RECOVER	SECONDARY SPACE SET TO 1 TRK (100% 0
8	04/05/2012	11:05:11	SPDWADTS	SYSS.DTS.SCC.V5R1.SCCIVP.SETSEC.DATA	SYS015	SETSEC		RECOVER	SETSEC FOR DD=SYS00001 DSN=SYSS.DTS.
9	04/05/2012	11:05:15	SPDWADTS	SYSS.DTS.SCC.V5R1.SCCIVP.REDUCE.DATA	SYS016	REDUCES		RECOVER	SECONDARY SPACE REDUCED FROM 87381 T
10	04/05/2012	11:05:15	SPDWADTS	SYSS.DTS.SCC.V5R1.SCCIVP.REDUCE.DATA	SYS016	REDUCES		RECOVER	REDUCES FOR DD=SYS00004 DSN=SYSS.DTS
11	04/05/2012	11:05:17	SPDWADTS	SYSS.DTS.SCC.V5R1.SCCIVP.ADDVOL.DATA	SYS018	SETSEC		NORECOV	POOL DEFINITION DOES NOT ALLOW SETTI
12	04/05/2012	11:05:17	SPDWADTS	SYSS.DTS.SCC.V5R1.SCCIVP.ADDVOL.DATA	SYS018	SETSEC		NORECOV	SETSEC FOR DD=SYS00006 DSN=SYSS.DTS.
13	04/05/2012	11:05:17	SPDWADTS	SYSS.DTS.SCC.V5R1.SCCIVP.ADDVOL.DATA		ADDVOL	VSAM	RECOVER	VOLUME * WAS ADDED TO DATA SET
14	04/05/2012	11:05:17	SPDWADTS	SYSS.DTS.SCC.V5R1.SCCIVP.ADDVOL.DATA		ADDVOL	VSAM	RECOVER	ADDVOL FOR DD=SYS00006 DSN=SYSS.DTS.
15	04/05/2012	11:05:37	SPDWADTS	SYSS.DTS.SCC.V5R1.SCCIVP1		RECAT	OS	RECOVER	DATA SET WAS RECATALOGED AND SCRATCH
16	04/05/2012	11:05:37	SPDWADTS	SYSS.DTS.SCC.V5R1.SCCIVP1		RECAT	OS	RECOVER	RECAT FOR DD=RECAT DSN=SYSS.DTS.SCC.
17	04/05/2012	11:20:10	SPDWADTS	SYS12096.T112009.RA000.SPDWADTS.SCCIVP1.H03		REDUCEP	OS	NORECOV	POOL DEFINITION DOES NOT ALLOW PRIMA
18	04/05/2012	11:20:10	SPDWADTS	SYS12096.T112009.RA000.SPDWADTS.SCCIVP1.H03		REDUCEP	OS	NORECOV	REDUCEP FOR DD=SRSTEST DSN=SYS12096.

Complete your sessions evaluation online at SHARE.org/AnaheimEval



The MON Explorer Limited GUI – getting data into it!

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

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

```
FBDCCPLEXZOSD  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
```

```
FBDCCPLEXZOSD  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=IVPPool EXT=0
```

```
FBDCCPLEXZOSD  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)
```

```
FBDCCPLEXZOSD  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=IVPPool EXT=1
```

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

```
FBDCCPLEXZOSD  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=IVPPool EXT=16
```

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 volser 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	INFOPAC.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??????.**	HSMM*	REDUCEP
	DFHSM.SMALLDS.VHSMM??.DATA		SETSEC,ADDVOL
	DFHSM.PRD1.HSMPDOX	HSMC*	ADDVOL
	DFHSM.PRD1.HSMLOGX1		SETSEC
LFSTCICS	SYS3.TMONCICS.PRD1.OFF.LOGS.TMON01.G000?V00	PERF*	REDUCES
SYSD*	SYS3.TMONCICS.PRD1.DETAILED.DAILY.G0????V00	PERF*	REDUCES
	SYS2.FBDC.SMFDLY.G0683V00		
	SYS3.TMONCICS.PRD1.DETAILED.DAILY.ARC.G0695V00	BK*	
	SYS3.TMONTCP.PRD1.DETAILED.DAILY.ARC.G0688V00		REDUCEP
	SYS3.TMONMVS.PRD1.DETAILED.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
CCUPDT	PROD.CCARD.CCTRANS.NEW.DATA	PRO*	REDUCES-vsam

SRS Rules prepared for us by DTS Support



```
/*
/*          SAMPLE RULES LANGUAGE FOR SRS
/*
/*
/*
/*
/*
/*          GLOBAL RULE STATEMENTS
/*
/*
DEFPROD  SMF(222 LEVEL(I))
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 = (ADRSSU)
  THEN EXIT
```

Complete your sessions evaluation online at SHARE.org/AnaheimEval



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
```

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))
```

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))
```

Commonly used SRS commands

F DIF,STATUS

DIF	PRODUCT	VERSION	STATUS	RULES NAME	DATE	TIME
DIF01180-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

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.

Features of SRS, White Papers, and free Documentation

- SMF Analysis Program (the Free tool) Download at:
 - <http://www.dtssoftware.com/smfextr.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>

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)

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)

SRS and SMS Volume Count

```

E-Term for IBM - [PRD1 - 1]
File Edit View Setup Transfer Connect Help
[Icons] PA1 PA2 PF1 PF3 PF7 PF8 ?

Panel List Utilities Scroll Help
-----
PRD1                      DATA CLASS LIST
Command ==>                      Scroll ==> HALF
                                   Entries 1-11 of 15
                                   Data Columns 12-16 of 49

CDS Name : SYS2.SMS.SCDS

Enter Line Operators below:

LINE   DATACLAS SPACE   RETPD OR   VOLUME   ADDITIONAL   DYNVOL
OPERATOR NAME   DIRECTORY EXPDT     COUNT    VOLUME AMT   COUNT
---(1)--- --(2)--- --(12)--- ---(13)--- -(14)-  ---(15)--- -(16)-
      BACKUP      -----
      DCNONSMS     -----
      EXTADDR      -----
      JUMBO        -----
      LARGE        -----
      LOGRLOGS     -----
      LOGRSTG      -----
      MEDIUM       -----
      MINI         -----
      NULL         -----
      PRODS        -----
      9
      1
      1
      9
      9
      1
      1
      9
      9
      1
      1
      9
      9
      1
      1
      9
      9
  
```

TE 21/040

Ready [Icons] 040 000

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.

Any Questions?



Disclaimer

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

