Issuer: 2510   LARS DANIELSSON TEL.031-667479   031-667479

Subject: SMS serv Users   91-06-03

SMS implementation at Volvo Data.   Ver: 91-03-07.
===

Service Requirements - Application- and User-interface.

Table of contents.

Issuer: 2510   LARS DANIELSSON TEL.031-667479   031-667479

Subject: SMS serv Users   91-06-03

Data class.
===========

Models to allocate new data sets.

DATACLAS		Default STORCLAS	Default MGMTCLAS	Note
LIB	--+			! Library, sorce type, PDSE
LIB1M	+-->	STANDARD	BACKUP7	! LIB is a copy of LIB1M
LIB50M	!			!
LIB100M	--+			!
SEQ	--+			! Sequential, DSORG=PS.
SEQ1M	+-->	STANDARD	NOBACKUP	! SEQ is a copy of SEQ1M
SEQ50M	!			!
SEQ100M	--+			!
LOAD	--+			! Load libraries, PDS
LOAD1M	+-->	STANDARD	BACKUP7	! LOAD is a copy of LOAD1M
LOAD50M	!			!
LOAD100M	--+			!
KEY	--+			! Key-sequenced, VSAM
KEY1M	+-->	STANDARD	BACKUP7	! KEY is a copy of KEY1M
KEY50M	!			!
KEY100M	--+			!
DBA	--+			! Data base, IMS, CICS etc.
DBA1M	+-->	STANDARD	NOBACKUP	! Most attributes supposed
DBA50M	!			! to be set by the user.
DBA100M	--+			! DBA is a copy of DBA1M
DBB	--+			! Same as DBA but separate
DBB1M	+-->	STANDARD	NOBACKUP	! storage group (set of
DBB50M	!			! volumes).
DBB100M	--+			! DBB is a copy of DBB1M
DBC				! Same as DBA and DBB but
.....				! separate storage group.
......				! As many as needed.
....				!
DB2	--+			! DB2 table spaces.
DB21M	+-->	STANDARD	NOBACKUP	! VICS, IMS, etc...
DB250M	!			!
DB2100M	--+			! DB2 is a copy of DB21M
DB2B	--+			! Same as DB2 but separate
DB2B1M	+-->	STANDARD	NOBACKUP	! storage group (set of
DB2B50M	!			! volumes).
DB2B100M	--+			! DB2B is a copy of DB2B1M

Issuer: 2510   LARS DANIELSSON TEL.031-667479   031-667479

Subject: SMS serv Users   91-06-03

```
    DB2C                          ! Same as DB2 and DB2B but
    .....                         ! separate storage group.
    ......                        ! As many as needed.
    .......                       !


    STANDARD                      ! All the others.


    NULL                          ! Assign no dataclas.
```

Issuer: 2510   LARS DANIELSSON TEL.031-667479   031-667479

Subject: SMS serv Users   91-06-03

Inside Data Class.

	Recfm	Lrecl	DS type	Space Mb pri	sec	IM-BED	REP-LIC	CI-SIZE	FREESP CI	CA
LIB	FB	80	PDSE	.5	.5	---	---	-----	--	--
LIB1M	FB	80	PDSE	.5	.5	---	---	-----	--	--
LIB50M	FB	80	PDSE	25	25	---	---	-----	--	--
LIB100M	FB	80	PDSE	50	50	---	---	-----	--	--
SEQ	--	--	PS	1	.5	---	---	-----	--	--
SEQ1M	--	--	PS	1	.5	---	---	-----	--	--
SEQ50M	--	--	PS	50	25	---	---	-----	--	--
SEQ100M	--	--	PS	100	50	---	---	-----	--	--
LOAD	--	--	PDS	.5	.5	---	---	-----	--	--
LOAD1M	--	--	PDS	.5	.5	---	---	-----	--	--
LOAD50M	--	--	PDS	25	25	---	---	-----	--	--
LOAD100M	--	--	PDS	50	50	---	---	-----	--	--
KEY	--	--	KSDS	.1	.5	YES	---	23476	5	10
KEY1M	--	--	KSDS	.1	.5	YES	---	23476	5	10
KEY50M	--	--	KSDS	5	25	YES	---	23476	5	10
KEY100M	--	--	KSDS	10	50	YES	---	23476	5	10
DBA	--	--	-----	1	.5	---	---	-----	--	--
DBA1M	--	--	-----	1	.5	---	---	-----	--	--
DBA50M	--	--	-----	50	25	---	---	-----	--	--
DBA100M	--	--	-----	100	50	---	---	-----	--	--
DB2	--	--	LI	1	.5	---	---	-----	--	--
DB21M	--	--	LI	1	.5	---	---	-----	--	--
DB250M	--	--	LI	25	25	---	---	-----	--	--
DB2100M	--	--	LI	50	50	---	---	-----	--	--

Issuer: 2510   LARS DANIELSSON TEL.031-667479   031-667479

Subject: SMS serv Users   91-06-03

Storage class

Performance and availability options.

Enduser:

STORCLAS	Re- sponce time	Note
STANDARD	Good	Default class.
HIPER	Superb	The class will be extra charged.
DUALCOPY	Superb	The class will be extra charged.

Note. Dual copy is parallel updating on a mirror volume. If the
      original volume fails, the mirror volume instantly
      replaces the original volume without any affect to the
      applications. After the original volume is repaired or
      replaced, the volume is rebuild automaticaly and the
      pair is established again.

Issuer: 2510   LARS DANIELSSON TEL.031-667479   031-667479

Subject: SMS serv Users   91-06-03

Management class.
============================

```
   MGMTCLAS
   --------
   NOBACKUP    --> no backup at all is taken by Storage Management
                   services

   SD0B0       --> dump pool service

   BACKUP1     --> incr. backup with a delay of 1 day
   BACKUP7     --> incr. backup with a delay of 7 days
   BACKUP      --> incr. backup with a delay of 7 days
                   (customized by user to any freq, future
                    service, does not work today)

   BACKUPC     --> incr. backup by the daily Central Backup.
   DEL2BKPC    --> incr. backup by the daily Central Backup.
   BACKUPW     --> incr. backup by the weekly Central Backup.
   DEL2BKPW    --> incr. backup by the weekly Central Backup.

   ????????    --> directly migration
   ????????    --> archiving
```

   Incremental backup means that backup is taken only if the data
   set is new or changed since last search for backup candidates
   was run.

   Delay is the number of days that must elapse since last backup
   version from the same data set was created. If no backup
   version exist (the original data set is new) there will be no
   delay.

   Data sets with management class BACKUP, BACKUP1, BACKUP7 are
   tested every morning to see if it's time to take a new backup.
   If it's time, the backup is taken immediately.

   Data sets with management class BACKUPC, DEL2BKPC are tested
   up to four times every morning to see if it's time to take a
   new backup. If it's time, the backup is taken immediately.

   Daily Central Backup time-table:

```
   ------------------------- V1,V2,V4 -----------+------- VD -----
   Monday           08.00, 21.30                 ! none
   Tuesday-Friday   01.00, 05.00, 08.00, 21.30   ! 01.00
   Saturday         01.00, 05.00, 17.00          ! 01.00
   Sunday           08.00                        ! none
                                                 !
   ----------------------------------------------+----------------
```

   Weekly Central Backup time-table:

```
   ------------------------- V1,V2,V4 -----------+------- VD -----
   Weekly Central Backup time-table:            !
                                                !
   Sunday           09.00                       ! 09.00
   ---------------------------------------------+----------------
```

Issuer: 2510   LARS DANIELSSON TEL.031-667479   031-667479

Subject: SMS serv Users   91-06-03
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Conversion of "old standard" allocations.

Old unit allocations (UNIT=...) and old volume allocations
(VOL=SER=...) are converted to the new SMS allocations
automaticly.


```
UNIT=PLP / VOL=SER=PLP...   ->   MGMTCLAS=BACKUP7
       PLB /          PLB...   ->          BACKUP1
       PP             PP....   ->          NOBACKUP
       MD             MD....   ->          DEL2
       TS             TS....   ->          DEL2
       WD             WD....   ->   see "Temporary data sets" below.
       SYSDA          -        ->   see "Temporary data sets" below.
       TPTEST         TPO...   ->   DATACLAS=DBT   note(1)
       -              TPO...   ->   DATACLAS=DBA   note(2)
```

Note(1). TP-test volumes only.

Note(2). TP-prod volumes only.

TSO allocations with no volser and no unit given are treated as
UNIT=TS.

Temporary data sets.

All temporary datasets (DSNAME=&&xyx... or DSNAME=) are captured
automaticaly by SMS. Small datasets are converted to virtual I/O
(VIO), all others directed to disk.

Following allocations get problems if they are allocated to VIO.
They are excluded from conversion to VIO.

    - (DD-name (SYSUT3 or SYSUT4) and PGM=IEBCOPY).
    - PGM=IEHINIT
    - LLQ=SORTWK*

UNIT=WD/SYSDA and DSNAME with a name of permanent type like
AAAA.BBBB.CCCC have never been alloved and are still not
allowed.

Issuer: 2510   LARS DANIELSSON TEL.031-667479   031-667479

Subject: SMS serv Users   91-06-03

Data set naming conventions.
============================

Data class name will be assigned by default depending on the type
of data the data set helds. This is done by LLQ (Low Level
Qualifier) naming conventions.

The following list, wich is taken from the SU/SF project, shows
how data class could be defaulted for card image pds'es.

>>> This list is not completed <<<
>>> This is only an example   <<<

LLQ	default DATACLAS	
.ACBLIB		– Laddmoduler ACB-IMS (IMSBU)
.ACFRULES	LIB	– ACF2-regler
.ACFRESOU	LIB	– ACF2-regler, resurser ex. IMS-transar
.ADFCPY	LIB	– ADF copytexter
.ADFRULES	LIB	– ADF RULE-source
.ADFHLA	LIB	– ADF HLA-source
.ADFMSGS	LIB	– ADF Message-source
.ADFPROF	LIB	– ADF Profile-source
.ADFSCRN	LIB	– ADF Screen-paint-source
.ADFPFK	LIB	– ADF PFK-source
.ADFEXIT	LIB	– ADF AEXIT-source
.ADMCDATA		– ICU-data
.ADMCDEF		– GDDM/ICU
.ADMCFORM		– ICU-format
.ADMDECK		– GDDM/ICU
.ADMGDF		– GDDM/ICU
.ADMSYMBL		– GDDM/ICU
.ARCHDEF	LIB	– SCLM arkitektur HL- CC- och LC- def.
.ASM	LIB	– Källkod Assembler,
.BASCPY	LIB	– BAS copytexter (VPCTEXT)
.BATCHLOG		– loggdataset för batchrutiner
.BMPLIB	LIB	– JCL för BMP-jobb (kan även vara .JCL)(IMSBU)
.CLIST	LIB	– Tso clistkommandon, subcommandon och ev. REXX
.CNTL		– JCL och ev. SYSIN-kort
.COBOL	LIB	– Källkod COBOL
.COBOLCPY	LIB	– Källkod COBOL-copytexter
.COBOLSSA	LIB	– Källkod COBOL-SSA-copytexter
.COBOLLST		– SCLM output vid build
.CONSTANT	LIB	– Konstantinput till appl. system
.DATA		– Uppercase text, testdata
.DATACPY	LIB	– Copytexter för testdatagenerering (VPCTEXT)
.DBD	LIB	– Källkod för DL/I databasedescription
.DBDLIB		– Laddmoduler DBD (IMSBU)
.DBRM		– DB2 DBRM
.DDL	LIB	– Databas beskrivningar för DB2 (se även SQL)
.DGIGRP		– SDFII, panelgrupper CICS
.DGIOCT		– SDFII, operator control tables
.DGIPNL		– SDFII, objekt, paneler
.DGIPST		– SDFII, partioned set kod
.DGITBL		– SDFII, interna tabeller
.DCLGEN	LIB	– DB2 DCLGEN
.EPLUS	LIB	– Källkod EPLUS program
.EPLUSCPY	LIB	– Källkod EPLUS-copytexter gemensamma
.ESSDATA		– Data till ESS

_____

```
.ESSDEF                     - ESS defenitioner
.ESSMAC                     - ESS macros
.EXEC        LIB            - REXX-program endast.
.FILES                      - APL2 files library (VSAM)
.FMTLIB                     - Laddmoduler MFS                        (IMSBU)
.FORMAT                     - Källkod MFS                            (IMSBU)
.FORMTEXT                   - Färdigformaterad text utan märkord, ex.
                              systemdok.
.FORT        LIB            - Källkod fortran (G1 el. H)
.FORTCPY     LIB            - Copytexter fortran (G1 el. H)
.GENLIB                     - Macros för genereringar (IMS)
.GML         LIB            - GML-source ex. DTL
.HELP        LIB            - Help tso-kommandon
.IC1NICK                    - Nicknames IC/1
.INSTALL                    - installation av programprodukt (data, JCL,
                              dokument)
.JCL         LIB            - JCL (behandlas som .CNTL)
.JOBLIB                     - JCL (jobb) för batch-produktion
.LINKLIB                    - Laddmoduler i LNKLST Volvo Datamoduler
                              moduler.
.LINKLIST                   - Output från linkage editor
.LIST                       - List output
.LOAD                       - Laddmoduler (appl. program)
.LOADLIST                   - Lista från loader (iemblst)
.LPALIB                     - Laddmoduler i LPA eller ELPA
.MACLIB      LIB            - Assemblermacros
.MAP         LIB            - Källkod CICS-maps
.MAPLOAD                    - Laddmoduler CICS-maps
.MSGS        LIB            - ISPF meddelanden
.OBJ                        - Objectmoduler
.PANELS      LIB            - Källkod ISPF-paneler samt kompilerade
                              paneler.
.PARMLIB                    - parameterdata
.PASCAL      LIB            - Källkod Pascal
.PGMLIB                     - laddmoduler IMS/Online-program (IMSBU)
.PLI         LIB            - Källkod PL/I
.PLICPY      LIB            - Copytext-Källkod PL/I
.PROCLIB                    - Procedurbibliotek (JCL, CNTL)
.PROCSTC                    - JCL-procedurer för Started task's
.PROFILE                    - Profilbibliotek ISPF
.PROJLOG                    - SCLM projekt logg
.PSB         LIB            - Källkod för DL/I programspecificationblock,
.PSBLIB      LIB            - Laddmoduler PSB                        (IMSBU)
.SAMPLIB     LIB            - Exempelbibliotek
.SASDATA                    - Data till SAS specifikt
.SASPGM                     - Källkod SAS
.SASPROF                    - Profildataset SAS
.SKELS       LIB            - Källkod ISPF-skelett
.SQL                        - SQL för test av SQL-satser via SPUFI
                              (se DDL)
.SUBRTNES                   - Produkt subrutiner tillhörande kompilerat
                              språk
.TABLES                     - ISPF tabeller
.TEXT                       - Text som kan vara både lower och uppercase
                              med märkord
.USER                       - IC/1 Användarinfo
.USERLIB                    - laddmoduler som VD-tillägg till produkt
.VSBASIC     LIB            - Källkod VSBASIC.
.WKSPS                      - APL2 workspace library (VSAM)
```

DB2.
====

  The DB2 enduser databases are captured by data set name

    The VSAM CLUSTER name must be:
      .DSNDBC..*.I0001.A%%%   (ACS filtering)

  When a DB2 table space is allocated by DEFINE CLUSTER outside
  DB2 and no volume is defined, or a volume prefixed TP2... is
  defined and no SMS classes are defined, or the table space is
  defined via DB2 storage group, the following SMS classes will be
  defaulted:

    DATACLAS=DB2, STORCLAS=STANDARD, MGMTCLAS=NOBACKUP

  Defining SMS classes when allocating DB2 table space outside DB2
  is only needed to override the default values.

  Talk to your DB2 technical support team if you want to change
  the SMS classes defaulted by DB2 storage group allocation.

  If VOLUMES(...) is defined by the user in a define cluster the
  same time as one ore more SMS classes are defined, the
  allocation is failed.

Data set deleting.
==================

  Each data set will be deleted by storage management routines
  after a specified "days not reffered", from here on named "age".

  The age is calculated by formula: todays date minus the last
  reffered date.

  Example:. Todays date is 90-10-19, i.e. the day when the delete
            function is run.

            Last referred date is 90-10-16, i.e. the date when the
            dataset last was opened.

            90-10-19 minus 90-10-16 = 3. The age is 3 days.

  If last referenced date is zero or invalid, the creation date is
  used instaed as base for the age calculation.

  How many unreferenced days the data set is allowed to "live" is
  defined in the management class. The following table shows how
  many days, "age" will elapse before the dataset is deleted.

| | Deleted when | |
MGMTCLAS	days old.	
DEL2	2	(1)
DEL20	20	
all others	1495	

  Note-1. The function that deletes 2 days old datasets is not
          run on Sundays.

Issuer: 2510   LARS DANIELSSON TEL.031-667479   031-667479

Subject: SMS serv Users   91-06-03

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