

System Maintenance Aid

Using SMA Under BS2000/OSD

Version 2.2.1

June 2019

This document applies to System Maintenance Aid Version 2.2.1 and all subsequent releases.

Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

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Preface

This section contains information relevant when using SMA under BS2000/OSD.

Parameter Group BASIC
LMS Libraries Used by SMA
JCL Generation
SMA Installation Jobs
Report and Logging Files
BS2000/OSD Utilities
Restart Mechanism
Executing SMA Functions
Copy Files from Tape to Disk

1 About this Documentation

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Document Conventions

Convention	Description
Bold	Identifies elements on a screen.
Monospace font	Identifies service names and locations in the format <code>folder.subfolder.service</code> , APIs, Java classes, methods, properties.
<i>Italic</i>	Identifies: Variables for which you must supply values specific to your own situation or environment. New terms the first time they occur in the text. References to other documentation sources.
Monospace font	Identifies: Text you must type in. Messages displayed by the system. Program code.
{ }	Indicates a set of choices from which you must choose one. Type only the information inside the curly braces. Do not type the { } symbols.
	Separates two mutually exclusive choices in a syntax line. Type one of these choices. Do not type the symbol.
[]	Indicates one or more options. Type only the information inside the square brackets. Do not type the [] symbols.
...	Indicates that you can type multiple options of the same type. Type only the information. Do not type the ellipsis (...).

Online Information and Support

Software AG Documentation Website

You can find documentation on the Software AG Documentation website at <http://documentation.softwareag.com>. The site requires credentials for Software AG's Product Support site Empower. If you do not have Empower credentials, you must use the TECHcommunity website.

Software AG Empower Product Support Website

If you do not yet have an account for Empower, send an email to empower@softwareag.com with your name, company, and company email address and request an account.

Once you have an account, you can open Support Incidents online via the eService section of Empower at <https://empower.softwareag.com/>.

You can find product information on the Software AG Empower Product Support website at <https://empower.softwareag.com>.

To submit feature/enhancement requests, get information about product availability, and download products, go to [Products](#).

To get information about fixes and to read early warnings, technical papers, and knowledge base articles, go to the [Knowledge Center](#).

If you have any questions, you can find a local or toll-free number for your country in our Global Support Contact Directory at https://empower.softwareag.com/public_directory.asp and give us a call.

Software AG TECHcommunity

You can find documentation and other technical information on the Software AG TECHcommunity website at <http://techcommunity.softwareag.com>. You can:

- Access product documentation, if you have TECHcommunity credentials. If you do not, you will need to register and specify "Documentation" as an area of interest.
- Access articles, code samples, demos, and tutorials.
- Use the online discussion forums, moderated by Software AG professionals, to ask questions, discuss best practices, and learn how other customers are using Software AG technology.
- Link to external websites that discuss open standards and web technology.

Data Protection

Software AG products provide functionality with respect to processing of personal data according to the EU General Data Protection Regulation (GDPR). Where applicable, appropriate steps are documented in the respective administration documentation.

2 Parameter Group BASIC

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The parameter group BASIC contains parameters which are used for general tasks of SMA. The following tables show the most important parameters grouped by task.



Note: In this section, the term “tape” represents any installation media (e.g. tape and CD-ROM) supported by Software AG. The information provided here applies to the use of any of these media.

SMA Jobs and Procedures

Parameter Name	Default Value	Function
ENVMOD	#V-JOBLIB#	Name of environment module library
ENVSIGN	SMA	Environment Sign
JCLGEN-COUNTER	JCL001	LMS version of the elements in the libraries JOBLIB, REPLIB and ENVMOD
JOBLIB	#V-ENVSIGN#.JOBLIB	Name of the SMA job library
JOBPASS	X'00000000'	File protection password
LOGON-PARM	Blank	Logon parameter (ISP syntax)

Report and Logging Files

Parameter Name	Default Value	Function
OWN-REPORT	NO	Use an environment specific report file (L.REPORT)?
REPLIB	#V-JOBLIB#	Name of the SMA report library

BS2000/OSD Utilities

Parameter Name	Default Value	Function
CRELLM	NO	Create LLMs?
LMS	\$LMS	File name of the BS2000/OSD program LMS (ISP syntax)
PHASE-TO-LIB	NO	Store phase in LMS library?
TSOSLNK	\$TSOSLNK	File name of the BS2000/OSD utility TSOSLNK

Executing SMA Functions

Parameter Name	Default Value	Function
NATPHSE-SMA	NATPHSE-SMA	Name of the Natural phase which is used to execute the JCL generation
SMALIB	#V-JOBLIB#	Name of the library where the procedure P.SMA is located
SMALIB-P	blank	If the library SMALIB is protected the password can be specified here

Restart and Control Mechanism

Parameter Name	Default Value	Function
JV	NO	Use BS2000/OSD job variables?
RR	NO	Use restart routine?
SMAJV	SMAJV	Name of the SMA job variable

Copy Files From Tape To Disk

Parameter Name	Default Value	Function
CONV-PROG	SAMTOLIB	Name of the conversion program
FILE-ACCESS	*READ	File access protection against overwriting
FILE-USER-ACCESS	*ALL-USERS	Specifies whether the file may be processed under user IDs other than the file owner's ID
TAPE-DEVICE-TYPE	#D-DEV#	Tape device type, for example, TAPE-C4

openUTM

Parameter Name	Default Value	Function
KDCDEF	\$TSOS.SYSPRG.UTM.050.KDCDEF	File name of the openUTM utility KDCDEF
UTM-CRTE	\$TSOS.SYSLNK.CRTE	File name of the CRTE library
UTMDLLOML	\$TSOS.SYSLNK.UTM.050	File name of the openUTM system library
UTMMAC	\$TSOS.SYSLIB.UTM.050.ASS	File name of the openUTM macro library
UTMSPLRTS	\$TSOS.SYSLNK.UTM.050.SPLRTS	File name of the openUTM SPL runtime library
UTM-VERS	53	openUTM Version

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LMS Libraries Used by SMA

SMA stores all generated elements (jobs, procedures, sources, etc.) in the SMA job library. The name of this library can be specified with the SMA parameter `JOBLIB`.

The report and logging files of SMA are stored in the SMA report library. The name of this library can be specified with the SMA parameter `REPLIB`.


The library which is identified by SMA parameter `ENVMOD` contains those modules that are needed in the production environment after the installation has terminated.

By default the value of parameter `JOBLIB` is used as value for the libraries `REPLIB` and `ENVMOD`.



Note: Elements in the job library may contain passwords. Therefore it is recommended to protect this library against unauthorized access. The corresponding file protection password can be specified with SMA parameter `JOBPASS`.

4 JCL Generation

 **Note:** In this section, the term “tape” represents any installation media (e.g. tape and CD-ROM) supported by Software AG. The information provided here applies to the use of any of these media.

For BS2000/OSD, the SMA JCL generation is always executed in Natural batch mode. If the JCL generation is started online (under TIAM or UTM) SMA submits a batch job which performs the generation.

The generated JCL lines will be written to the SMA system file and are additionally stored in the library JOBLIB (see SMA parameter JOBLIB in parameter group BASIC).

The following naming conventions are used:

Name (Type)	Description
E.T nnn (J)	Job which copies Software AG product files from tape to disk. nnn represents the last three digits of the tape name.
E.I nnn (J)	SMA installation jobs where nnn represents the number of the job (see table below). These jobs mainly consist of CALL - PROCEDURE commands which execute the installation steps.
P. <i>function</i> (J)	Procedures which execute the corresponding functions, for example: <ul style="list-style-type: none">■ P.ASEMBLE■ P.LINK■ P.REPORT■ P.REPSTORE■ P.ADALOD■ etc.

Name (Type)	Description
#READ-ME (D)	README file of SMA which contains the following information: <ul style="list-style-type: none"> ■ News for SMA ■ How to work with SMA ■ Product-specific README files
<i>product.function</i> (D)	Instructions/commands for programs or utilities. <i>product</i> represents the 3-byte product code and <i>function</i> the corresponding function. For example, element NAT.INPLMOD contains the instructions for the Natural INPL utility.

Procedures and data which are used for common tasks are controlled by the internal product @SD111 of SMA. All procedures and jobs use the SDF syntax format of BS2000/OSD. There are still some parts where Software AG uses the ISP syntax format but in general Software AG no longer supports the ISP syntax. Therefore, the support of the internal product @IS111 will end together with the support of SMA version 1.3.1.

The following table shows a list of installation jobs which are often used.

Job Name	Description
E.I030	Create database
E.I050	Load database files
E.I055	Assemble Natural (batch)
E.I060	Assemble Natural parameter module and link Natural (batch)
E.I061	Execute Natural INPL and ERRLODUS
E.I065	Link NAF modules
E.I070	Assemble Natural (TIAM and batch)
E.I080	Assemble Natural parameter module and link Natural (TIAM and UTM)
E.I900	Optional job
E.I999	Set environment installed
E.Z010	Apply Zaps
E.Z020	Apply updates (IUPDs)

A Software AG product is installed by executing the generated installation jobs step by step. The jobs can be submitted online within the SMA application or directly using the `ENTER-JOB` command of BS2000/OSD, for example, `/ENTER-JOB *LIB(JOBLIB,E.I050)`. The SMA installation jobs, with the exception of job E.Z010 (apply Zaps), do not modify any Software AG product files.

If you modify any element in the library JOBLIB, it is possible that the next JCL generation will overwrite your modification.

The version of the elements in the library JOBLIB can be specified with the SMA parameter `JCLGEN-COUNTER`.



Note: Any modification in the JOBLIB has no influence on the objects (jobs, parameters, etc.) stored in the SMA system file and vice versa. The JOBLIB will be updated during a JCL generation and only in this case. For example, if you modify a generated job online (in the SMA system file) this modification will not be transferred into the JOBLIB.

5 SMA Installation Jobs

The following example job shows the principles of SMA installation jobs:

```
/.I055 LOGON SAG,12345678, 'PASSWORD' (1)
/ REMARK +-----+
/ REMARK I JOB-NAME : E.I055 I
/ REMARK I FUNCTION : ASSEMBLE BATCH NATURAL I
/ REMARK I ENVIRONM.: SMA (2005/09/19 10:10:38) I
/ REMARK I LOGFILE : L.I055.SMA I
/ REMARK +-----+
/ ASSIGN-SYSOUT L.I055.SMA (2)
/ SHOW-JOB-STATUS
/ ADD-PASSWORD X'00000000' (3)
/ CALL-PROC (SMA.JOBLIB,P.REPORT), - (4)
/ (TEXT='=====', -
/ STEP='I055 START')
/ REMARK SKIP-COMMANDS TO-LABEL=????????? "<== MODIFY IF RESTART" (5)
/ REMARK +-----+
/ REMARK I JOB=I055 STEP=0216 PRODUCT=NATnnn I
/ REMARK +-----+
/.STEP0216 REMARK ANATSTUB (6)
/ CALL-PROCEDURE -
/ (SMA.JOBLIB, P.ASSEMBLE), ( -
/ SOURCE = ANATSTUB, -
/ SRCLIB = SMA.JOBLIB, -
/ ALTLIB = $SAG.NATnnn.MAC, -
/ OUTMOD = SMA.JOBLIB, -
/ STEP = 'ANATSTUB')
/ REMARK +-----+
/ REMARK I JOB=I055 STEP=0217 PRODUCT=NATnnn I
/ REMARK +-----+
/.STEP0217 REMARK ANATFRNT
/ CALL-PROCEDURE -
/ (SMA.JOBLIB, P.ASSEMBLE), ( -
/ SOURCE = ANATFRNT, -
```

```

/          SRCLIB   = SMA.JOBLIB,          -
/          ALTLIB   = $SAG.NATnnn.MAC,     -
/          OUTMOD   = SMA.JOBLIB,          -
/          STEP     = 'ANATFRNT'
/
/          ...
/.NORMEND  REMARK +-----+ (7)
/          REMARK I NORMAL END OF JOB I055 I
/          REMARK +-----+
/          CALL-PROC (SMA.JOBLIB,P.REPORT), - (4)
/              (TEXT='OK NORMEND', STEP='I055')
/          ASSIGN-SYSOUT *PRIMARY
/          CALL-PROC (SMA.JOBLIB,P.REPSTORE), -
/              (REPORT=L.I055.SMA)
/          SKIP-COMMANDS TO-LABEL=LOGOFF
/.ABEND    SET-JOB-STEP                      (8)
/          REMARK +-----+
/          REMARK I ABNORMAL END OF JOB I055 I
/          REMARK +-----+
/          CALL-PROC (SMA.JOBLIB,P.REPORT), - (4)
/              (TEXT='** JOB ABEND, SEE FILE L.I055.SMA*',
/              STEP='I055 ABEND')
/.LOGOFF  EXIT-JOB  SYS-OUT=*NONE

```



Notes:

1. LOGON Command. The first command in a job (ENTER file) generated by SMA is the LOGON command (in the ISP syntax format). It is possible to specify the operands of this command in the SMA parameter LOGON-PARM.
2. Report and Logging Files. The job assigns the SYSOUT file as logging file.
3. Password Protected Files. If you want to protect any file used by SMA with a password, you can specify this password with the SMA parameter JOBPASS.
4. Report Entry. At the beginning and at the end of every job a report entry is written to the report file L.REPORT (by calling procedure P.REPORT). It is also possible to use your own report file for an SMA environment by setting the the SMA parameter OWN-REPORT to the value YES.
5. Restart. In case of a restart situation, you can skip directly to the corresponding label of an installation step. If the BS2000/OSD product Jobvariables is available, this will be done automatically by SMA if the SMA parameter RR (Restart Routine) is set to YES.
6. Call Procedure. Every installation step is executed by calling a procedure which is located in the library JOBLIB. Each procedure uses its own logging file.
7. Normal End of Job. If the job terminates normally, the logging file is stored in the library REPLIB by calling the procedure P.REPSTORE. Software AG strongly recommends to check the logging files of every job (and procedure) even though the job has terminated normally.

8. Abnormal End of Job. If the job terminates abnormally, the logging file is not stored in the library REPLIB. If you use the restart routine of SMA (parameter RR) you can submit this job again (without changing the job itself) after you have resolved the error.

6 Report and Logging Files

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In general the installation jobs of SMA assign the SYSOUT file and the SMA procedures the SYSLST file as logging file. Additionally the SYSOUT data in the procedures are routed to the SYSLST file.

Naming Conventions

The name of the logging files is built as follows:

Jobs:	L.<JOB-NAME>.<ENVSIGN>
Procedures:	L.<FUNCTION>.<OBJECT>

where:

<JOB-NAME>	Name of the JOB. For example: I055.
<ENVSIGN>	SMA parameter ENVSIGN (Environment Sign). This parameter is used as short environment name (1 up to 4 characters). It is used as a unique key and separates different SMA environments from each other.
<FUNCTION>	Name of the executed function. For example: ASSEMBLE, LINK or ADALOD.
<OBJECT>	Name of the object. For example: source ANATFRNT.

Examples:

L.I055.SMA (logging file for SMA installation job E.I055)

L.ASSEMBLE.ANATFRNT (logging file for the assembly of source ANATFRNT)

Procedure P.REPSTORE

All logging files are stored in the library REPLIB (see SMA parameter REPLIB) when the procedure terminates without error (by calling procedure P.REPSTORE). In the case of an error the report files will remain on the BS2000/OSD disk and are not stored in the library REPLIB.

Procedure P.REPORT

At the beginning and at the end of every SMA job and procedure, a report entry is written to the report file L.REPORT (by calling procedure P.REPORT). It is possible to use an own report file for every SMA environment. It is also possible to use your own report file for an SMA environment by setting the SMA parameter OWN-REPORT to the value YES.

Example of file L.REPORT

```

-----+-----+-----+-----+-----+-----+-----
DATE !TIME!   S T E P   !     T     E     X     T           ->
-----+-----+-----+-----+-----+-----+-----
050914 1442 I061      OK NORMEND
050914 1442 ADAREP    OK P.ADAREP NORMEND
050914 1442 ADAREP    P.ADAREP DATA=ADA.ADAREP
050914 1442 NATEXPL   OK P.NAT NORMEND
050914 1442 NATEXPL   P.NAT NAT.INPLMOD/TST1.JOBLIB, NAT414.EXPL
050914 1442 NATERRN   OK P.NAT NORMEND
050914 1442 NATERRN   P.NAT NAT.ERRLODUS/TST1.JOBLIB, NAT414.ERRN
050914 1442 NATINPL   OK P.NAT NORMEND
050914 1438 NATINPL   P.NAT NAT.INPLMOD/TST1.JOBLIB, NAT414.INPL
050914 1438 I061 START  =====
050914 1438 I060      OK NORMEND
050914 1438 LNATSHAR  OK P.LINK NORMEND
050914 1438 LNATSHAR  P.LINK TST1.JOBLIB/LNATSHAR
050914 1438 LNATFRNT  OK P.LINK NORMEND
050914 1438 LNATFRNT  P.LINK TST1.JOBLIB/LNATFRNT
050914 1438 ANATPARM  OK P.ASSEMBLE NORMEND
050914 1437 ANATPARM  P.ASSEMBLE TST1.JOBLIB/ANATPARM->TST1.JOBLIB
050914 1437 I060 START  =====

```


7 BS2000/OSD Utilities

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BS2000/OSD utilities are started by SMA using the corresponding `START-` commands. For example:

- `START-ASSEMBH`
- `START-BINDER`
- `START-EDT`
- `START-LMS`
- `START-PERCON`

TSOSLNK

In that there is no `START-TSOSLNK` command available, SMA provides the parameter `TSOSLNK` which can be used to specify the file name of the program `TSOSLNK` if necessary. This, however, is generally not required since the default value `$TSOSLNK` should be applicable for most BS2000/OSD systems.

If you want to store linked programs in the LMS library `ENVMOD` (as LMS-type C) the parameter `PHASE-T0-LIB` must be set to `YES`.

BINDER

The BS2000/OSD program `BINDER` is used instead of the program `TSOSLNK` if the parameter `CRELLM` (Create LLMs) is set to `YES`.

LMS

In general SMA uses the SDF syntax version of LMS. But in some cases the ISP syntax version is still needed, for example, Zaps are created with ISP syntax. For this case SMA provides the parameter `LMS` where you can specify the name of this program if the default value `$LMS` is not valid for your BS2000/OSD system.

8 Restart and Control Mechanism

SMA procedures use job variables to monitor the result of BS2000/OSD utilities or of Natural if the parameter JV is set to YES and the BS2000/OSD product Jobvariables is available.

In addition SMA offers the possibility to restart installation jobs. To use this function the parameters RR (Restart Routine) and JV (Jobvariable) must be set to YES.

The installation jobs store the following information in the job variable SMAJV (see parameter SMAJV):

No.	Position	Length	Content
1	1	3	'JOB'
2	5	4	Name of the job. For example: I055.
3	10	8	Status of the job: <ul style="list-style-type: none">■ STARTED■ RESTART■ NORMEND■ ABEND
4	19	4	'STEP'
5	24	8	Name of the step
6	33	8	Not used
7	42	11	Date with format: yy-mm-ddjjj (yy=year, mm=month, dd=day, jjj=julian date)
8	54	8	Time with format: hh:mm:ss (hh=hours, mm=minutes, ss=seconds)
9	63	8	Name of SMA environment
10	71	1	'<' (end of jv)

If you restart an installation job, SMA branches to the label (which is identified by the name of the step) if the name of the job is equal to the job name stored in the SMAJV and if the status of the

job is not equal NORMEND. Otherwise, the job will be executed beginning with the first step of the job.

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Note: In this section, the term “tape” represents any installation media (e.g. tape and CD-ROM) supported by Software AG. The information provided here applies to the use of any of these media.

The central procedure P.SMA executes all functions which are necessary for the administration and installation of Software AG products on BS2000/OSD. This procedure is located in the JOBLIB which belongs to an SMA environment where the product SMA is installed. SMA environments where the product SMA is not installed must use this procedure by specifying the name of the SMA job library with the SMA parameter `SMALIB`.

If the procedure does not yet exist it can be generated as follows:

- Set product SMA *to be installed*
- Specify the name of the Natural batch phase (which is used for SMA) as value for parameter `NATPHSE - SMA`. In this case procedure P.SMA will not be called during the following JCL generation.
- Execute the JCL generation
- Set parameter `NATPHSE - SMA` to the value blank, to use procedure P.SMA from now on for the JCL generation

The following topics provide further information regarding the execution of SMA functions:

Overview of Supported Functions

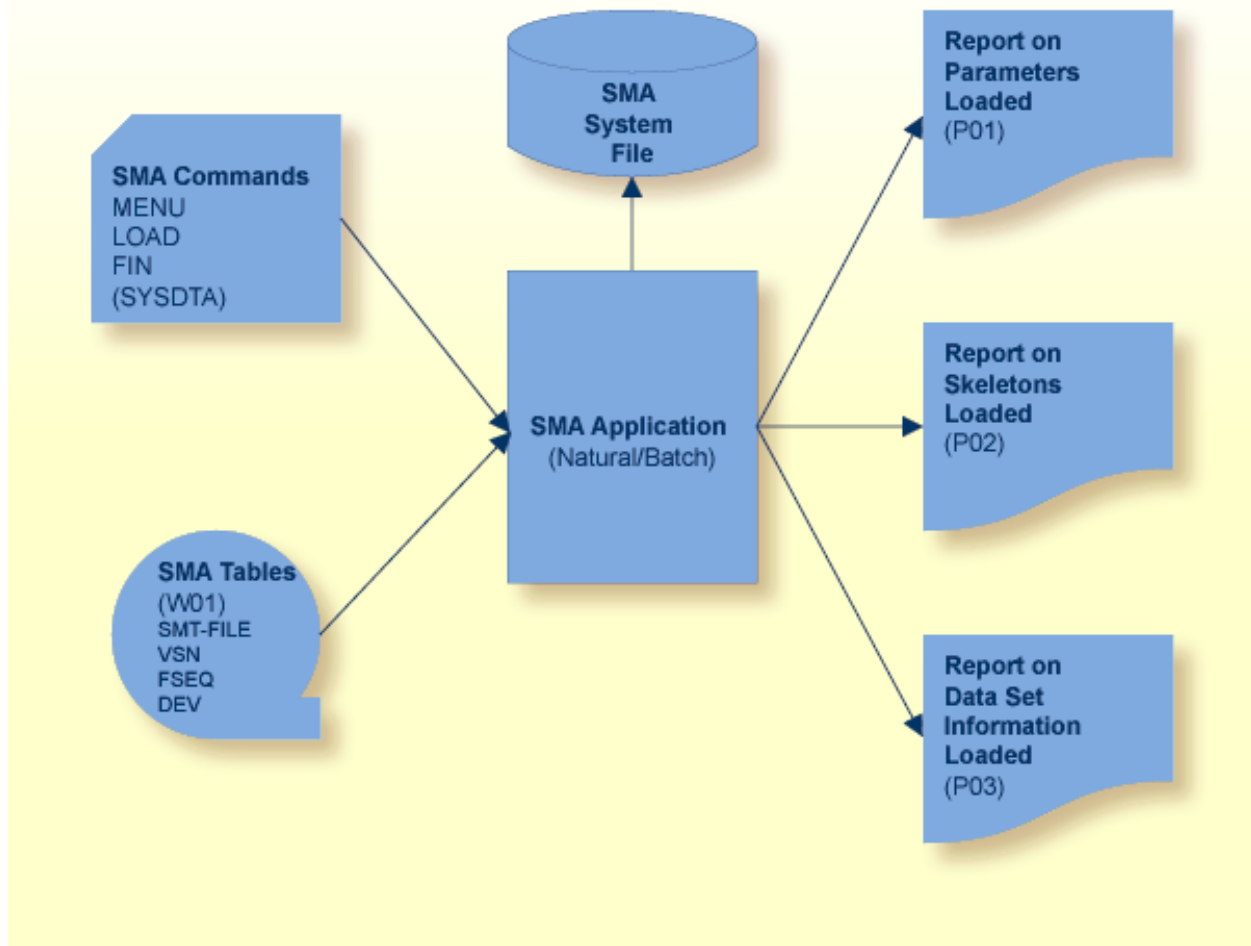
Function	Description
TABLOAD	Load SMA table data into the SMA system file
JCLGEN	Start JCL generation
SET-COPIED	Reset the status to be copied for the data sets of all tapes
SET-INSTALLED	Change the status of products from <i>to be installed</i> and the status of new parameter values to <i>installed values</i>
SET-APPLIED	Change the status from <i>to be applied</i> to <i>applied</i> , and from <i>to be undone</i> to <i>undone</i> for all Zaps in a library group

Parameter of Procedure P.SMA

Function	Description
FUNCTION	Name of the SMA function to be executed
ENV	Name of the SMA user environment
LIB-GROUP	Name of the SMA library group
JOBLIB	Name of the job library
SMT-FILE	Name of the file containing the SMA table data
VSN	Name of the tape
FSEQ	File sequence number of the tape file
DEV	Tape device type

Function TABLOAD

This function loads SMA table data from Natural Workfile 1 into the SMA system file.



Overview of Used Print- and Workfiles

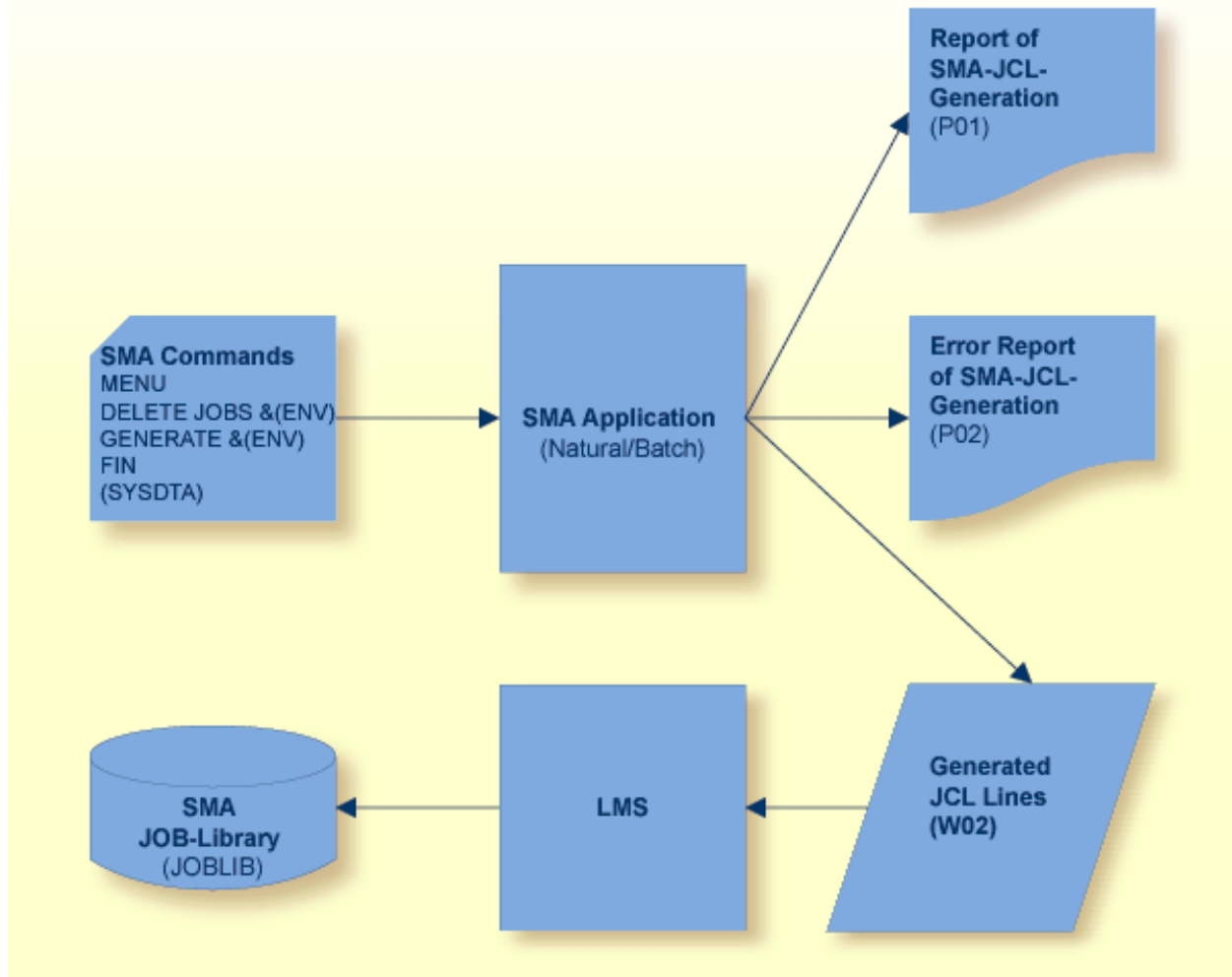
Link-Name	File-Name	Description
W01	&(SMT-FILE)	File containing SMA table data
P01	L.TABLOAD.&(VSN).PARM	Report on parameters loaded
P02	L.TABLOAD.&(VSN).SKEL	Report on skeletons loaded
P03	L.TABLOAD.&(VSN).DSNS	Report on data set information loaded

Example

```
/CALL-PROCEDURE *LIB(SMALIB, P.SMA) , -  
/ (FUNCTION = TABLOAD, -  
/ SMT-FILE = SMT111.TABS, -  
/ VSN = T12345, -  
/ FSEQ = 1, -  
/ DEV = TAPE-C4, -  
/ JOBLIB = ENV1.JOBLIB)
```

Function JCLGEN

This function starts the JCL generation for the selected environment. The generated JCL lines will be written to the SMA system file and to the Natural Workfile 2. The JCL lines on Natural Workfile 2 contain additional LMS statements, enabling the addition of the generated JCL to the LMS-library JOBLIB (see SMA parameter JOBLIB).



Overview of Used Print- and Workfiles

Link-Name	File-Name	Description
P01	L.JCLGEN.REP.&(ENV)	Report of SMA JCL Generation
P02	L.JCLGEN.ERR.&(ENV)	Error Report of SMA JCL Generation
W02	SMA.JCL.&(ENV)	Generated JCL

Example

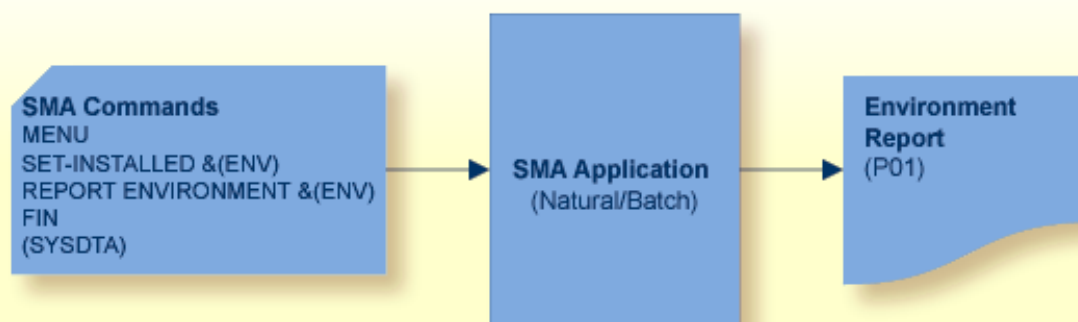
```

/CALL-PROCEDURE *LIB(SMALIB, P.SMA) , -
/ (FUNCTION = JCLGEN, -
/ ENV = ENVTEST1, -
/ JOBLIB = ENV1.JOBLIB)

```

Function SET-INSTALLED (SET-COPIED/SET-APPLIED)

The function SET-INSTALLED changes the status of products from *to be installed* and the status of new parameter values to *installed values*.

**Example**

```

/CALL-PROCEDURE *LIB(SMALIB, P.SMA) , -
/ (FUNCTION = SET-INSTALLED, -
/ ENV = ENVTEST1, -
/ JOBLIB = ENV1.JOBLIB)

```

The function SET-COPIED resets the status *to be copied* for the data sets of all tapes. The function SET-APPLIED changes the status from *to be applied* to *applied*, and from *to be undone* to *undone* for all Zaps in the named library group.

Used Printfiles (P01)

Function	File Name	Description
SET-INSTALLED	L.SET-INSTALLED.REP.&(ENV)	Environment report
SET-COPIED	L.SET-COPIED.REP.&(ENV)	Product tape report
SET-APPLIED	L.SET-APPLIED.REP.&(ENV)	Overview of library corrections

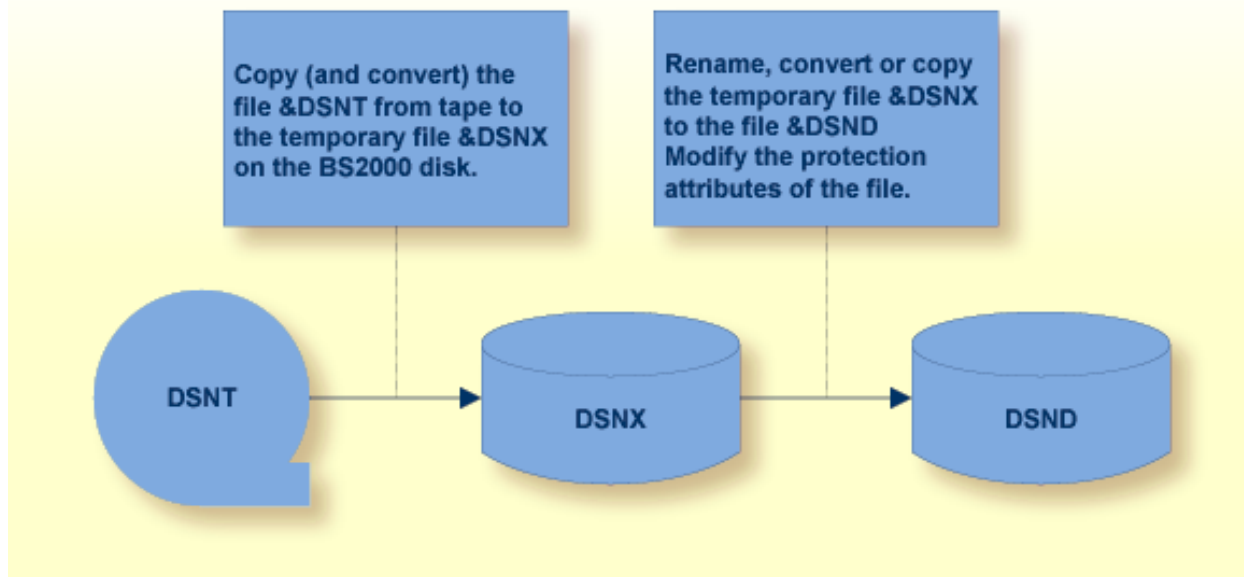
10 Copy Files From Tape To Disk

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Note: In this section, the term “tape” represents any installation media (e.g. tape and CD-ROM) supported by Software AG. The information provided here applies to the use of any of these media.

All files of a Software AG product are stored as sequential files on the tape. To copy these files from tape to disk SMA uses the procedure P.COPYTAPE which is located in the library JOBLIB.

The procedure P.COPYTAPE works as follows:



If the file &DSND already exists it will be renamed to &(DSND).RENAMED-BY-&(VSNT). For example, file XYZ123.MOD will be renamed to XYZ123.MOD.RENAMED-BY-T12345 (assuming that VSNT=T12345). If this file also exists then the procedure will be terminated abnormally.

Important Parameters of Procedure P.COPYTAPE

Name	Description
DSNT	Name of the file on the tape
VSNT	Name of the tape. For example: T12345
DEVT	Tape device type. For example: TAPE-C4
FSEQ	Tape file sequence number (see the <i>Software AG Product Delivery Report</i>).
DSND	Name of file on the BS2000/OSD disk
DSORG	File (data set) organization (see table below)

Name	Description
ACCESS	File access protection against overwriting. Possible values are *READ or *WRITE. The value of this parameter is controlled by SMA parameter FILE-ACCESS.
USER-ACCESS	Specifies whether or not the file may be processed under user IDs other than the file owner's ID. Possible values are *ALL-USERS or *OWNER-ONLY. The value of this parameter is controlled by SMA parameter FILE-USER-ACCESS.
CONV-PROG	Name of the program to be used to convert a sequential file on the tape into a PLAM library on the BS2000/OSD disk. Possible values are SAMTOLIB or PERCON. The program SAMTOLIB is written by Software AG and is delivered in source form. If available, PERCON is the recommended program. The value of this parameter is controlled by SMA parameter CONV-PROG.

DSORG (Dataset Organization) Types

DSORG	FILE-STRUC	REC-SIZE	Conversion-/Copy-Program
LIB	PAM	4096	SAMTOLIB / PERCON
LMS (*)	PAM	80	LMS (ISP syntax)
PAM (*)	PAM	2064	SAMTOPAM
SAM	SAM	ANY	PERCON
SEQ	SAM	<256	EDT

(*) DSORG types LMS and PAM are no longer used for new product releases.

Logging Files

SYSOUT and SYSLST of the procedure P.COPYTAPE are written to file L.COPYTAPE.&(DSNT)

Example

```
/CALL-PROC *LIB(JOBLIB, P.COPYTAPE), -
/   (JOBLIB = JOBLIB,           -
/   DSNT   = XYZ123.PAMS,       -
/   VSNT   = T12345,           -
/   DEVT   = T-C4,             -
/   FSEQ   = 3,                 -
```

Copy Files From Tape To Disk

```
/ DSND = $SAG.XYZ123.MOD, -  
/ DSORG = LIB)
```