

SSTLIB

COBOL Librarian

USER MANUAL
Version 2.0F

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PREFACE

This document introduces and explains the operational and installation procedures of SSTLIB - the efficient tool to manage COBOL-74/-85 Source Text Copy Libraries within the GCOS-8 environment.

The manual has been organized in 7 chapters.

Chapter 1 gives a general introduction.

Chapter 2 describes the batch directives.

Chapter 3 describes the batch operation procedures.

Chapter 4 describes the time-sharing operation procedures.

Chapter 5 describes the output reports and messages.

Chapter 6 describes the installation/update procedure.

Chapter 7 describes the software problem reporting procedure.

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Chapter 1

General Introduction

The Source Text Library utility program, SSTLIB, is designed to create and maintain source text libraries. The source text library may be used to retrieve source text portions into COBOL-74/-85 modules or programs via the COPY verb.

SSTLIB provides various library maintenance functions:

- initialization of library
- random insertion, deletion and update of source text(s)
- source text and sorted directory listing
- source text extraction
- Batch and TSS service

1.1 COBOL COPY Verb

A Source Text Library may be used for storage of multiple COBOL source texts - also referred to as copy-books. Source text may be virtually any portions of COBOL syntax and may be copied into a module or programs at compile time through the COPY verb. Following illustrate a simple compile job with use of the COPY verb:

```
$ IDENT      . . . . .
$ CBL74     COPY,NCLIST
IDENTIFICATION DIVISION.
. . .
DATA DIVISION.
. . .
COPY my-fd.
COPY my-record OF L1.
. . .
PROCEDURE DIVISION.
. . .
COPY my-procedure OF L2.
. . .
$ PRMFL     .L,R,R,MYUMC/MYLIB
$ PRMFL     L1,R,R,MYUMC/MYLIB1
$ PRMFL     L2,R,R,MYUMC/MYLIB2
```

For more details on the use of COPY verb refer to COBOL-74/-85 documentation.

1.2 Compatibility

As SSTLIB is intended as a replacement for the standard SRCLIB utility, the library formats are completely compatible as are most of the functionality. The few non-supported features of SRCLIB has been considered of limited value and/or very seldom

used features, whereas the added features of SSTLIB address the requirements of a Source Text Librarian in the current GCOS-8/COBOL environment.

Following features of SRCLIB are not supported:

- The directives MODIFY and ALTER are not supported.

Following information is relevant when both SSTLIB and SRCLIB are used to update library files:

- SSTLIB maintains a date, time and userid stamp for each source text member. The stamp is used for documentation purposes only. SRCLIB does not maintain such stamp and although the stamp is not erased by SRCLIB, such stamp may be incorrect when library file is updated both through SSTLIB and SRCLIB.
- SSTLIB creates dummy members (S.S.T.nn) on the library file to ensure a minimum of two directory blocks are present, as SRCLIB will not allow "free-space-slots" when only one directory block is present. These dummy members are not shown by SSTLIB, SRCLIB will however treat these as normal source text members. This may be somewhat confusing when library file is updated both through SSTLIB and SRCLIB, however this technique represents limited overhead, while maintaining compatibility between the two products.

Chapter 2

Batch Directives

This chapter describes the syntax and argument options of the SSTLIB Batch directives.

2.1 General Description

Directives may begin in any column and are terminated by a blank. The operand separators are blanks or commas depending on the directive. At least one blank must be used to separate the directive from the operand. Optional operands are in brackets [...]. Only columns 1 through 72 are processed.

CLEAR	Initialize library.
APPEND member-name [fc]	Insert new source text in library.
DELETE member-name[,...]	Delete source text(s) from library.
UPDATE member-name [fc]	Insert new or replace existing source text in library.
LIST [member-name[,...]]	List content of source text(s) in library.
TABLE [member-name[,...]]	List sorted directory of source text(s) in library.
EXTRACT [member-name] fc [-BCD]	Extract source text(s) from library to output files.
IDENT userid	Set current userid.
SUPPRESS ON OFF	Suppress text listing for APPEND, UPDATE and EXTRACT directives.
END	End of source text signal.

2.2 CLEAR Directive

The CLEAR directive initializes the Source Text library.

2.2.1 Syntax

```
CLEAR
```

2.2.2 Rules

- The CLEAR directive must precede any other directives when a new library is used.

Note: Any subsequent CLEAR directive will initialize the entire library and all source text members will be lost.

2.3 APPEND Directive

The APPEND directive causes a new source text member to be appended to the library.

2.3.1 Syntax

```
APPEND member-name [fc]
```

2.3.2 Rules

- Member-name identifies the name to be associated with the source text.
- If the member-name already exists in the library, the directive is ignored and an error message is issued.
- Fc identifies the file-code containing the source text. If no file-code is specified, the lines following the APPEND directive until *END* directive, are taken as the input source text. If file-code is specified, the input source text is taken from the file allocated with this file-code.
- Following file-codes are reserved by SSTLIB and may not be used in the APPEND directive: I*, P*, PP, SC, QQ and OT.
- APPEND files must be System Standard Format (SSF) sequential files in either BCD (card-image) or ASCII (TSS) format. Each record of input source text is copied to the library as is. The *END* directive is optional.

2.4 DELETE Directive

The DELETE directive causes an existing source text member or members to be deleted from the library.

2.4.1 Syntax

```
DELETE member-name[,...]
```

2.4.2 Rules

- The member-name(s) identifies each source text to be deleted.
- If the member-name contains the character * (asterisk) the remaining part of the member-name will be masked, thus all source text members starting with the identification up to the * are deleted, ex. ABC*.
- If the member-name does not exist in the library, the delete request is ignored and an error message is issued.
- Each member-name specified will be processed separately.

2.5 UPDATE Directive

The UPDATE directive causes an existing member or members to be deleted from the library file and new member or members to be appended to the library from the update file.

2.5.1 Syntax

```
UPDATE member-name [fc]
```

2.5.2 Rules

- Member-name identifies the name to be associated with the source text or the name of an existing source text.
- Fc identifies the file-code containing the source text. If no file-code is specified, the lines following the UPDATE directive until the *END* directive, are taken as the input source text. If file-code is specified, the input source text is taken from the file allocated with this file-code.
- Following file-codes are reserved by SSTLIB and may not be used in the UPDATE directive: I*, P*, PP, SC, QQ and OT.
- UPDATE files must be System Standard Format (SSF) sequential files in either BCD (card-image) or ASCII (TSS) format. Each record of input source text is copied to the library as is. The *END* directive is optional.

2.6 LIST Directive

The LIST directive produces a content list of the specified source text member(s).

2.6.1 Syntax

```
LIST [member-name[,...]]
```

2.6.2 Rules

- The member-name(s) identifies each source text to be listed.
- If no member-name(s) is specified, the entire library content will be listed.
- If the member-name contains the character * (asterisk) the remaining part of the member-name will be masked, thus all source text members starting with the identification up to the * are listed, ex. ABC*.
- When listing more than one source text member, the listing will be sorted in ascending member-name sequence.
- Each source text member is preceded by a heading (newpage) containing member-name, date, time and userid of the last update.

2.7 TABLE Directive

The TABLE directive produces a sorted directory listing of the library.

2.7.1 Syntax

```
TABLE [member-name[,...]]
```

2.7.2 Rules

- If no member-name(s) is specified, the directory for the entire library is listed.
- If the member-name contains the character * (asterisk) the remaining part of the identification is masked, thus a directory of all source text members starting with the identification up to the * are listed, ex. ABC*..
- Each directory entry contains the member-name, member-size (# lines), date, time and userid of the last update.
- The directory listing is sorted in ascending member-name sequence.

2.8 EXTRACT Directive

The EXTRACT directive extracts a copy of one or more source members to an output file.

2.8.1 Syntax

```
EXTRACT [member-name] fc [-BCD]
```

2.8.2 Rules

- The member-name identifies the source text to be extracted.
- If no member-name(s) is specified all source text members in the library will be extracted.
- If the member-name contains the character * (asterisk) the remaining part of the identification is masked, thus all source text members starting with the identification up to the * are extracted, ex. ABC*.
- The fc identifies the output file-code for the extracted source text, thus the file allocated with this file-code contains the extracted source text.
- Following file-codes are reserved by SSTLIB and may not be used in the EXTRACT directive: I*, P*, PP, SC, QQ and OT.
- When extracting only one source text member, the output file will contain the content (lines) of the source text member.
- The output file will contain both UPDATE and *END* directives as well as the content (lines) of each source text member. The output file may subsequently be used for re-creation or update of another library file.
- When the -BCD operand is specified the output file is written in BCD (card-image) format, as opposed to ASCII (TSS) format which is the default.
- If the member-name does not exist in the library, the directive is ignored and an error message is issued.
- Adjacent EXTRACT directives referencing the same file-code will produce a concatenated output file, as if the EXTRACT was performed with one directive.

2.9 IDENT Directive

The IDENT directive identifies the current user for subsequent maintenance directives.

2.9.1 Syntax

```
IDENT userid
```

2.9.2 Rules

- Userid is a 1-12 character identification, ex. TSS userid.
- If the IDENT directive is not used the identification will be all blanks.
- When using SSTLIB in TSS the logon USERID is automatically used as identification.
- The identification may be useful together with the date and time of the last update operation.

2.10 SUPPRESS Directive

The SUPPRESS directive set text content listing ON/OFF for the APPEND, UPDATE and EXTRACT directives.

2.10.1 Syntax

```
SUPPRESS ON | OFF
```

2.10.2 Rules

- The default is SUPPRESS ON.

2.11 *END* Directive

The *END* directive signal end of source text for APPEND and UPDATE directives.

2.11.1 Syntax

```
*END*
```

2.11.2 Rules

- The *END* directive is the only recognizable directive after an APPEND or UPDATE directive.
- The directive must start in column 1, as opposed to other directives.

- Failure to provide a *END* directive will cause any subsequent directives to be processed as source text.

Chapter 3

Batch Operation

This chapter describes how JCL procedures are set-up or amended for utilization of SSTLIB to maintain Source Text Libraries.

3.1 General Description

A Source Text Library may be used for storage of multiple COBOL source texts - also referred to as copy-books. Source text may be virtually any portions of COBOL syntax and may be copied into a module or programs at compile time through the COPY verb. The Source Text Library is maintained thru the SSTLIB batch utility or SSTLIB time-sharing utility. Following illustrate the basic JCL for batch procedures:

```
$      IDENT    .... as required ...
$      SRCLIB
$      PRMFL    OT,W,R, ... library ...
Directives and source text .....

Optional files for input or output:

$      PRMFL    I1,R,S, ... source-text input ...
$      PRMFL    O1,W,S, ... source-text output ...

Use of ASCII directive and source text:

$      DATA    I*
$      ASCII
Directives and source text .....
$      ENX
```

Directive-, source-text input and source-text output files are system standard format files, either in BCD (card-image) or ASCII (TSS) format.

SSTLIB is an enhanced version of SRCLIB, which may be installed (ref. chapter 6) to replace SRCLIB or as an optional product. When installed as optional, which is assumed in the following examples, the SRCLIB activity must include a reference to the SSTLIB program file CMDLIB/SSTLIB/HSTAR/SRCLIB.

3.2 Example - Creation of library

```

$      IDENT    ... as required
$      FILSYS
CF USER/MY-LIB,BLOCKS/100,1000/,MODE/RAND/
$      SRCLIB
$      PRMFL   **,R,R,CMDLIB/SSTLIB/HSTAR/SRCLIB
$      PRMFL   OT,W,R,USER/MY-LIB
CLEAR
APPEND my-member-1
000100 01  xxxxx.
      .
      .
last text line
*END*
APPEND my-member-2 F1
LIST my-member-1,my-member-2
TABLE my-member-*
$      PRMFL   F1,R,S,USER/F1-FILE
$      ENDJOB

```

The library (MY-LIB) is created and initialized, the source text MY-MEMBER-1 is inserted from I*, the source text MY-MEMBER-2 is inserted from the input file F1, the source text MY-MEMBER-1 and MY-MEMBER-2 content are listed and finally a directory of all source text member starting with MY-MEMBER is listed.

3.3 Example - Update source text

```

$      IDENT    ... as required
$      SRCLIB
$      PRMFL   **,R,R,CMDLIB/SSTLIB/HSTAR/SRCLIB
$      PRMFL   OT,W,R,USER/MY-LIB
IDENT myself
DELETE my-member-1
APPEND my-member-1
000100 01  xxxxx.
      .
      .
last text line
*END*
UPDATE my-member-2 F1
$      PRMFL   F1,R,S,USER/F1-FILE
$      ENDJOB

```

The identification is set to MYSELF, the source text MY-MEMBER-1 is first deleted and then re-inserted from I*, and finally the source text MY-MEMBER-2 is replaced from the input file F1.

3.4 Example - Extract and re-insert source text

```

$      IDENT    ... as required
$      SRCLIB
$      PRMFL    **,R,R,CMDLIB/SSTLIB/HSTAR/SRCLIB
$      PRMFL    OT,W,R,USER/MY-LIB
EXTRACT MY-MEMBER* W1 -BCD
$      FILE     W1,H01SR,1L
$      SRCLIB
$      PRMFL    **,R,R,CMDLIB/SSTLIB/HSTAR/SRCLIB
$      PRMFL    OT,W,R,USER/YOUR-LIB
$      FILE     I*,H01RR
$      ENDJOB

```

All source text members starting with MY-MEMBER are extracted from MY-LIB onto a temporary file in BCD format and then inserted or replaced in YOUR-LIB.

3.5 Example - Re-build library

```

$      IDENT    ... as required
$      SRCLIB
$      PRMFL    **,R,R,CMDLIB/SSTLIB/HSTAR/SRCLIB
$      PRMFL    OT,W,R,USER/oldlib
EXTRACT W1
$      FILE     W1,H01SR,1L
$      SRCLIB
$      PRMFL    **,R,R,CMDLIB/SSTLIB/HSTAR/SRCLIB
$      PRMFL    OT,W,R,USER/newlib
CLEAR
$      SRCLIB
$      PRMFL    **,R,R,CMDLIB/SSTLIB/HSTAR/SRCLIB
$      PRMFL    OT,W,R,USER/newlib
$      FILE     I*,H01RR
$      ENDJOB

```

All source text members are extracted from oldlib onto a temporary file. The newlib is initialized and all source text members are inserted from the temporary file.

3.6 SSTLIB Update Technique

SSTLIB was designed to provide very secure, flexible and fast Source Text Library maintenance procedures.

When creating a random library file the CLEAR directive is used to format the library according to the initial file size. The statistics from each SSTLIB run will indicate how much space (blocks) is available for insertion of new source text members. As new members are inserted SSTLIB will automatically grow the library file up to the maximum file size specified. Should this be inadequate, simply adjust the maximum file size and re-run the SSTLIB job. When inserting new or replacing existing source text members in the library, SSTLIB will place the member content most efficiently. Typically even a very

active library will contain very few "empty blocks", except for remaining space at the end of the library. The library size will not decrease automatically, however excess space may be regained by extracting the entire library, creating a new smaller library file and re-inserting the source text members again.

SSTLIB always use a "Safely-Update" technique, which will secure the integrity of the library file should any failure occur (abort, crash etc.). Interrupted SSTLIB activities may simply be re-run after any failure.

3.7 SSTLIB P* Handling

The P* may, as with standard GCOS-8, be assigned to a PRMFL for further process or deferred printing. SSTLIB will issue an immediate FA-abort or a deferred WA-abort if errors are detected during directive processing, however technique conflicts with the most recent GCOS-8 releases, since the P* PRMFL is overwritten with GCOS-8 history dump information.

To avoid such problem, SSTLIB will instead write reports to file-code PP, when a PRMFL allocation of PP is recognized. This technique only affects JCL when a PRMFL is assigned - no SYSOUT PP is required.

```
$ PRMFL PP,W,S,... P* Output file ...
```

Chapter 4

Time-Sharing Operation

This chapter describes the command and function of the Time-Sharing operation of SSTLIB.

4.1 General Description

SSTLIB service is invoked through the Time-sharing command - .L. This command will operate in prompt mode as default or in short-form mode if required information is given in the command line. The syntax of the command line is as follows:

4.1.1 Command Format

```
.L function[ library[ member]]
```

4.1.2 Command Functions

The various command functions of SSTLIB and their associated actions are as follows:

Function	Action
O[ld]	Retrieve source text member from library into current-file.
S[ave]	Insert source text member from current-file into library. Verify member does not exist.
R[esave]	Replace source text member in library from current-file. Verify member does exist.
U[pdate]	Insert or replace source text member in library from current-file.
D[elete]	Delete source text member from library.
L[ist]	List source text member from library.
T[able]	List directory of library.

As the first character uniquely identify the function the remainder [] need not be entered.

4.1.3 Library identification

The source text library may be referenced through a one to ten character identifier, instead of the actual catalog-/file-string for the library. The library identifiers are site configurable, thus refer to identifiers set-up for the site or use the prompt mode to get a list of the identifiers available.

The actual catalog-/file-string of the library may still be entered and SSTLIB simply assumes this, when no valid library identifier is recognized.

4.1.4 Member identification

Each source text member in the library is identified by a unique member name of up to 30 characters. Member names are restricted to the same rules as identifiers in COBOL-74.

4.1.5 Prompt mode

SSTLIB enters prompt mode when no information, insufficient information or incorrect function information is entered on the command line.

Prompt	Required input
Function?	Enter valid function ex. OLD. - Valid functions are displayed if the entered function is invalid. - SSTLIB terminates if no function is entered.
Library?	Enter valid library identifier ex. T. - Valid library identifiers with explanatory information are displayed if a ? is entered.
Member?	Enter member name of the source text.

4.1.6 Menu Mode

SSTLIB may be configured to present a menu when operated in prompt mode. The menu is presented before the function prompt and contains the following information:

Available functions:	
O[ld], S[ave], R[esave], U[pdate], D[elete], L[ist], T[able]	
Defined libraries for sub-set: PROJA	
T - Project A Test Library	
P - Project A Production Library	
No current library & member	
Syntax	.L Function Library [member]
Reuse library	.L Function * [member]
Reuse member	.L Function Library *
Reuse both	.L Function *

4.1.7 Current Library and Member

SSTLIB will remember the last referenced library and member after execution of each function. The current library and/or member may be referenced by entering an asterisk (*) instead of the library and/or member name.

Note: Current Library and member information is saved in TSS core-file, and will thus normally be available across command executions, except when a true cat-file string is entered.

4.1.8 Tabulation

SSTLIB does not recognize tabulation characters or first line format command (\$\$TAB), thus current-file must be formatted through CONVERT before invoking SSTLIB, when such functionality is used. This is normally only relevant during initial SAVE of source text.

4.1.9 Upper/lower-case

All command line parameters are converted to uppercase, thus SSTLIB operates with both upper- and lower-case. The source text member content will be recorded as is.

4.1.10 Listing and Directory

SSTLIB will maintain the date, time and userid of the last update for each library member. This information is displayed when using the LIST or TABLE function.

The LIST and TABLE functions may be selective through the use of the mask character asterisk (*). Both functions will use sort to provide members in ascending member name sequence.

Function	Action
LIST	List all library members.
LIST member	List one specific member.
LIST ABC*	List all members starting with ABC.
TABLE	Directory of all library members.
TABLE ABC*	Directory of all members starting with ABC.

4.1.11 Library sub-sets

SSTLIB may be configured with library sub-sets, which provide multiple library identifier definitions. The current sub-set is related to the current UMC, as the sub-set name is retrieved from the umc/.LPROFIL file, which contain an identification of the current sub-set.

UMCA/.LPROFIL (example of content)
PROJA

```
CMDLIB/SSTLIB/SUBSET/.LPROJA (example of content)
T,UMCA/TEST/SOURCE/COPY/LIB,Project A Test Library
P,UMCA/PROD/SOURCE/COPY/LIB,Project A Production Library
```

```
UMCB/.LPROFIL (example of content)
PROJB
```

```
CMDLIB/SSTLIB/SUBSET/.LPROJB (example of content)
T,UMCB/TEST/SOURCE/COPY/LIB,Project B Test Library
P,UMCB/PROD/SOURCE/COPY/LIB,Project B Production Library
```

4.2 Examples

Following examples illustrate the use of SSTLIB time-sharing command functions. The referenced T library identifier is presumed defined either as a general or a sub-set identifier.

4.2.1 Create and save a new source text in library.

```
*EDIT NEW
*Source text line 1
*Source text line 2
* .....
*Source text line n
*
-.L
Function? save
Library? t
Member? my-text
-
```

Above command in short-form mode.

```
.L SAVE T my-text
```

4.2.2 Retrieve and update source text.

```
*.L O T my-text
*edit
.... various editing
-.L R *
-
```

Note: The U(pdate) could have been used instead of both Save and Resave functions above.

4.2.3 Delete source text (non-existing).


```
*.L D T another-text
* NO SUCH MEMBER EXIST - another-text
*
```

4.2.4 Directory of all my members.

```
*.L T P my*
.... directory of all members starting with my
*
```

4.2.5 Searching, listing and deleting

```
*.L T T
.... directory listing
Function? L * my-text
.... listing of member
Function? D *
*
```


Chapter 5

Output Reports and Messages

5.1 Directive Listing Report

SSTLIB always produce a directive listing and process report on report code 74. Any errors detected are flagged with error messages together with the directive causing the error. Each message is prefixed with a class and reference number. Three classes of messages may occur:

I-nnn - Information only message
W-nnn - Warning message
F-nnn - Fatal error message

The end of the directive listing report contains basic statistical information on library utilization.

The DELETE and EXTRACT directives when used with a mask activates an implicit number of DELETE or EXTRACT directives. The directive listing report will reflect this by inserting an information line for each implicit directive.

Following illustrate the content of the directive listing report:

```
CLEAR
I-001 Library initialized
XXXXX
W-001 Unknown directive
EXTRACT ABC* 10
-EXTRACT ABC01
-EXTRACT ABC02
TABLE

Library Size in Blocks      120  Available Space in Blocks      12
No of Members in Library   22  No of Directory Blocks         2
```

Note: Blocks is equivalent to Links.

5.2 Directory Listing Report

The TABLE directive produces a member directory listing report sorted on ascending member name on report code 01.

Each directory entry contains following information:

Name - Name of member

Size - Number of lines
 Ident - UMC or other ident for last update
 Date/Time - Date and time for last update (YY-MM-DD HH.MM.SS)

5.3 Error Messages

When SSTLIB detect any error conditions during operation, either an immediate (FATAL) or deferred (WARNING) abort occur, thus the status of an SSTLIB activity may be checked as follows:

NORMAL TERMINATION - All directives processed.

ABORT-CODE "WA" - One or more directives not processed.

ABORT-CODE "FE" - Fatal error detected during process.

Directives are processed one by one and any update of the library file is permanent after a directive has been processed error free. A fatal error abort will only impact the current and following directives, which are not processed.

5.3.1 Information Messages

5.3.1.1 Batch

```
I-001 The library is empty
```

```
I-002 Library initialized
```

5.3.1.2 Time-Sharing

```
NO CURRENT LIBRARY & MEMBER
```

```
NO CURRENT LIBRARY
```

```
NO CURRENT MEMBER
```

Attempt to reference current library and/or member when none is available will result in prompt for library and/or member.

```
xx...xx - FILE PRESENTLY BUSY, PLEASE WAIT
```

xx...xx file not currently accessible. SSTLIB will wait 10 seconds and retry for a maximum of 10 times.

5.3.2 Warning Messages

```
W-001 Unknown directive
```

W-002 Error in EXTRACT argument: -BCD expected

W-003 Error in EXTRACT argument: FC expected

W-004 I* media code incorrect

Cannot read the I* directive file. Check JCL for allocation of GFRC SSF ASCII or BCD file.

W-005 File not present - XX

A referenced filecode 'XX' was not allocated.

W-006 Library too fragmented - should re-build

SSTLIB will maintain a maximum of 1000 "Available space blocks". Further fragmentation will cause available space to be lost, however this does not impact the integrity of the library. The library file should be re-build to reorganize the available space, since excessive fragmentation degrades performance.

W-007 S.S.T.nn - members may not be referenced

W-008 Member already exist - xx...xx

W-009 No such member exist - xx...xx

W-010 The CLEAR directive must be first - ignored

W-011 Missing argument

5.3.3 Fatal Error Messages

5.3.3.1 Batch

F-001 Library format bad

The library file has incorrect format. Check the library allocation for errors. Report problem and try to restore and re-run SSTLIB activities again as a temporary solution.

F-002 The member XXXXXX has bad format

A member of the library file has incorrect format. Report problem and delete and re-insert the member as a temporary solution.

F-003 Library file OT not source library format

The allocated OT file is not a source library. Check JCL for errors.

```
F-005 Unable to grow library file to NNNNN llinks
```

SSTLIB failed to grow the library file. Increase maximum size to required or larger size. The maximum library size is 65.520 and SSTLIB cannot grow above this limit. Split library file into two separate libraries if the maximum is reached.

```
F-006 Maximum library size 65.520 llinks
```

SSTLIB will not utilize a library file created bigger than 65.520 llinks.

Note: This restriction is physical (18 bit llink pointer) and apply both to SRCLIB and SSTLIB.

```
F-007 S.S.T.nn - members out of sequence
```

Internal error - report problem.

```
F-009 I/O error occurred on filecode 'XX'
```

Permanent I/O error on filecode 'XX'. Check for disk problems on device.

5.3.3.2 Time-Sharing

```
Recordformat invalid = SubSet,Cat-file string,Text
```

The sub-set library identifier definition file has incorrect format.

```
TASK ABORTED BY USER      TASK-ACTIVITY=nn
```

The execution of SSTLIB in batch was aborted. Report problem.

Following error messages all relate to the DRL TASK of the batch SSTLIB activity. Report problem and check specific notes in the following.

```
UNDEFINED FILE           TASK-ACTIVITY=nn
```

```
NO SNUMB                 TASK-ACTIVITY=nn
```

```
DUPLICATE SNUMB         TASK-ACTIVITY=nn
```

```
NO GCOS PROGRAM NO. AVAILABLE TASK-ACTIVITY=nn
```

GCOS-8 system may be overloaded. Wait a little and retry the command again.

```
ACTIVITY NAME UNDEFINED TASK-ACTIVITY=nn
```

The default location for the SSTLIB program file is probably configured incorrect.

```
ILLEGAL USER LIMIT TASK-ACTIVITY=nn
```

Following task limits are used:

```
Urgency      - 40  
I/O-Limit    - 59  
Processor-Limit - 150
```

Check Time-sharing configuration for DRL TASK job.

```
BAD STATUS ON *J TASK-ACTIVITY=nn
```

```
NO FILE SPACE AVAILABLE TASK-ACTIVITY=nn
```

No file space on UMC to create temporary files. Increase the space allocation and retry command.

```
NO *J PROVIDED IN FILE LIST TASK-ACTIVITY=nn
```

```
UNUSED TASK-ACTIVITY=nn
```


Chapter 6

Software Installation/Update

This chapter describes the software installation/release update procedures and specific information related to the current release of SSTLIB (Release Bulletin).

6.1 General Description

The SSTLIB software is delivered as a set of files on a 3 1/2 inch Software Release Diskette. Alternatively the software may also be delivered as a FILSYS Software Release Tape. The installation and update procedures are quite different, and these are described separately in the following.

After installation the software must be generated with your GCOS-8 software release and then integrated into your current JCL procedures.

6.2 Software Diskette Procedure

The diskette procedure requires you are able to perform binary File-Transfer from a PC, e.g. KERMIT. Should this be a problem or if you prefer the Software Release Tape, please contact B & C Solution for a Software Release Tape.

Run a FILSYS to create the required catalogs and files. The following JCL may be used for this activity:

```
$ IDENT ....
$ FILSYS
  USERID CMDLIB$...
  CC CMDLIB/SSTLIB,R
  CC CMDLIB/SSTLIB/JCL
  CC CMDLIB/SSTLIB/OBJECT
  CC CMDLIB/SSTLIB/HSTAR
  CC CMDLIB/SSTLIB/SUBSET
  CF CMDLIB/SSTLIB/HSTAR/.L,B/50,500/,MODE/R/
  CF CMDLIB/SSTLIB/HSTAR/SRCLIB,B/100,500/,MODE/R/
```

Note: This activity is only required for initial installation.

Next perform the following file transfers using your PC terminal emulator (VIP7800, VIP3, GLINK etc.):

\SSTLIB\SOURCE\LIBDEF	CMDLIB/SSTLIB/SOURCE/LIBDEF
\SSTLIB\SOURCE\TSSLIB	CMDLIB/SSTLIB/SOURCE/TSSLIB
\SSTLIB\JCL\LINKSRC -->	CMDLIB/SSTLIB/JCL/LINKSRC
\SSTLIB\JCL\BUILDQ -->	CMDLIB/SSTLIB/JCL/BUILDQ
\SSTLIB\JCL\COMPTSS -->	CMDLIB/SSTLIB/JCL/COMPTSS
\SSTLIB\OBJECT\MODLIB,I -->	CMDLIB/SSTLIB/OBJECT/MODLIB

Note: x..x,I indicate a binary file-transfer is required.

6.3 Software Tape Procedure

Run a FILSYS user restore of the SSTLIB Software Release Tape. The following JCL may be used for this activity:

⊘	IDENT
⊘	USERID CMDLIB\$password
⊘	FILSYS
⊘	LIMITS 5,,,2K
⊘	PRIVITY
	RESTORE BCSTB8/SSTLIB,NEWNAM/CMDLIB/,RESET/DEVICE/
⊘	TAPE9 PR,X1DD,,,99999,,,SSTLIB-SAVE,,,DEN16

Please notice PRIVITY is required to change SMC. You may select to install the software under a different SMC, however all documentation and JCL assume CMDLIB is used.

6.4 Software Generation - Batch

Next load the SSTLIB program to the System Loadable File to assure proper standard subroutines from your current GCOS-8 software release. The JCL for this activity is contained in the file CMDLIB/SSTLIB/JCL/LINKSRC. Insert IDENT information as required at your site.

The SYSOUT reports from SSTLIB are written in BCD (report code 74) and ASCII (report code 01). This default may be changed as required. The USE statements in LINKSRC define the media codes for both reports as follows:

WASC01 - ASCII Report code 01
WBCD01 - BCD Report code 01
WASC74 - ASCII Report code 74
WBCD74 - BCD Report code 74

6.5 Software Integration - Batch

SSTLIB may be integrated into your current JCL using either of two techniques - PRMFL reference and INSERT-EDIT.

6.5.1 PRMFL Reference

This technique requires a \$ PRMFL to be inserted in each JCL procedure where SSTLIB replaces the standard SRCLIB program.

```

$ IDENT ....
$ SRCLIB
$ PRMFL **,R,R,CMDLIB/SSTLIB/HSTAR/SRCLIB
$ PRMFL OT,W,R,....
directives

```

6.5.2 INSERT-EDIT

This technique requires no changes to JCL procedures as SSTLIB is edited into the GCOS-8 system files to replace SRCLIB.

This technique is very convenient when implicit SRCLIB are generated and modification of such JCL is not possible or complicated, e.g. TSM, MAGNA8.

The JCL to build the Q*-tape is contained in the file CMDLIB/SSTLIB/JCL/BUILDQ. After building the Q*-tape should be edited either into your Total System Tapes or directly via Insert Edit during startup. The startup boot information should be changed to include the following control cards:

```

$EDIT SECTION
$   FILDEF   dev,SSTLIB,100/0,SYS,*

$FILES   SECTION
$   ETC     SSTLIB,

```

The placement of the \$ ETC card should be as early in the \$FILES section as possible, to ensure override of the standard SRCLIB program.

Note: Using this technique you are not able to use the standard SRCLIB, thus if features like MODIFY which are not supported by SSTLIB are used, this technique should not be used.

6.6 Software Configuration - TSS

The Time-sharing version of SSTLIB operate as a front-end to the batch SSTLIB, which execute the various directives entered thru the TSS command (.L). The TSS command offers additional features, which may be configured before generating the software.

The configuration is applied to the file CMDLIB/SSTLIB/SOURCE/LIBDEF, which contain the configurable parameters.

6.6.1 Operation Mode

```

*
*   ***   Options   to be configured by site
*
*   SITE-OPTION-3 can only be ON when SITE-OPTION-2 is ON.
*
01      SITE-OPTIONS.
05      SITE-OPTION-1          PIC 9      VALUE 1.
      88  MENU-OPTION-ON      VALUE 0.
05      SITE-OPTION-2          PIC 9      VALUE 1.
      88  PROFIL-OPTION-ON   VALUE 0.
05      SITE-OPTION-3          PIC 9      VALUE 1.
      88  SUB-SET-OPTION-ON  VALUE 0.
05      SITE-OPTION-4          PIC 9      VALUE ZERO.
      88  SITE-OPTION-4-ON   VALUE 1.
05      SITE-OPTION-5          PIC 9      VALUE ZERO.
      88  SITE-OPTION-5-ON   VALUE 1.
*

```

6.6.1.1 Menu Option

The MENU-OPTION may be set to force a help-menu to be presented immediately when the .L command is entered in long-form (no argument). The help-menu is equivalent to the menu presented when ? is entered at the Function prompt.

6.6.1.2 Profile Option

The PROFIL-OPTION may be set to force query of a .LPROFIL file, which may be used to specify a library file sub-set. The .LPROFIL is specific to the UMC and search of library reference codes will be controlled by the given sub-set. The file is by default located at UMC/.LPROFIL. The file must be created as a standard TSS ASCII file, with one record in the following format:

```

sub-set-name (maximum 6 characters)

PROJAUMC/.LPROFIL (example of file content)
PROJA

```

Note: If no .LPROFIL file is found, a sub-set = spaces is used.

6.6.1.3 Sub-Set Option

The SUB-SET-OPTION may be set to force query of a sub-set definition file, which define all library reference codes, catalog/file strings and associated texts. The sub-set file is by default located at CMDLIB/SSTLIB/SUBSET/.Lssssss, where ssssss is the sub-set name. The file must be created as a standard TSS ASCII file, with a record for each library in the following format:

```
reference-code,cat-file-string,library-text
```

```
CMDLIB/SSTLIB/SUBSET/.LPROJA (example of file content)
```

```
T,PROJAUMC/TEST/COPY/MYCOPY,Project A Test Library
```

```
P,PROJAUMC/PROD/COPY/MYCOPY,Project A Production Library
```

Note: If no sub-set is found via .LPROFIL, the file CMDLIB/SSTLIB/SUBSET/.L is queried.

6.6.2 Library Reference Codes

The library reference code provides the user with a more meaningful and quicker reference to a specific copy library. The library reference codes and the associated information must be defined in the LIBRARY-CONTENT table. A default maximum of 20 reference codes have been defined, however this may be changed as required (OCCURS and TABLE-COUNT). Each entry must specify following information:

Sx - Sub-set name, when PROFIL-OPTION is set.

Mx - Reference code, one to ten characters.

Fx - Catalog/file-string for copy library.

Tx - Associated text, used in help-menu.

```

*
*   ***   Definition of site library reference codes
*
*   Modify following definitions to suit your
*   library configuration.
*
*   Sx = one to six character sub-set name, used for
*         Site-option-2 = On and Site-option-3 = Off
*
*   Mx = one to ten character library reference code
*
*   Fx = catalog/file-string for source library file
*
*   Tx = guidance text, used in ? query.
*
*
01  LIBRARY-CONTENT.
05  LIB-S1          PIC X(06)  VALUE "      ".
05  LIB-M1          PIC X(10)  VALUE "X ".
05  LIB-F1          PIC X(48)  VALUE
      "/SSTLIB/SOURCE/DEMOLIB          ".
05  LIB-T1          PIC X(50)  VALUE
      "SSTLIB Demo Library          ".
05  LIB-S2          PIC X(06)  VALUE "      ".
05  LIB-M2          PIC X(10)  VALUE "T ".
05  LIB-F2          PIC X(48)  VALUE
      ".....          ".
05  LIB-T2          PIC X(50)  VALUE
      "SITE Program development and test library          ".
05  LIB-S3          PIC X(06)  VALUE "      ".
05  LIB-M3          PIC X(10)  VALUE "S ".
05  LIB-F3          PIC X(48)  VALUE
      ".....          ".
05  LIB-T3          PIC X(50)  VALUE
      "SITE System test library          ".
05  LIB-S4          PIC X(06)  VALUE "      ".
05  LIB-M4          PIC X(10)  VALUE "P ".
05  LIB-F4          PIC X(48)  VALUE
      ".....          ".
05  LIB-T4          PIC X(50)  VALUE
      "SITE Production library          ".

```

....

```

05     LIB-S20                                PIC X(06)  VALUE "   ".
05     LIB-M20                                PIC X(10)  VALUE "   ".
05     LIB-F20                                PIC X(48)  VALUE
      "                                         ".
05     LIB-T20                                PIC X(50)  VALUE
      "                                         ".
01     LIBRARY-TABLE REDEFINES LIBRARY-CONTENT.
05     LIB-TABLE      OCCURS 20 TIMES.
      10     LIB-SUB-SET      PIC X(06) .
      10     LIB-TABLE-2.
          15     LIB-MEMO      PIC X(10) .
          15     LIB-FILE      PIC X(48) .
          15     LIB-TEXT      PIC X(50) .
01     TABLE-COUNT      COMP-6    VALUE 20.

```

Note: When SUB-SET-OPTION is set, above table need not be filled as such information is dynamically obtained from the sub-set files.

6.6.3 Default file locations

The default locations for the SSTLIB program file, profile and sub-set files may be changed if required.

```

*
*     ***      Definition of site names for files
*
*     Modify following definitions to suit your
*     software installation configuration.
*
*     Program-file should point to CMDLIB/SSTLIB
*     if standard installation is used.
*
01     SITE-FILE-NAMES.
      05     PROGRAM-FILE      PIC X(30) VALUE
          "CMDLIB/SSTLIB/HSTAR/SRCLIB".
      05     QQ-PROFIL         PIC X(10) VALUE
          "/.LPROFIL".
      05     QQ-SUB-SET        PIC X(23) VALUE
          "CMDLIB/SSTLIB/SUBSET/.L".

```

6.7 Software Generation - TSS

Next compile and load the TSS front-end program to the System Loadable File to include site configuration and assure proper standard subroutines from your current GCOS-8 software release. The JCL for this activity is contained in the file CMDLIB/SSTLIB/JCL/COMPTSS. Insert IDENT information as required at your site.

You may test your configuration by starting the TSS front-end program with:

```
*CMDLIB/SSTLIB/HSTAR/.L
```

Once testing is complete, the command must be copied to a quick-access-file under CMDLIB, to allow direct invocation of the .L command. This is done as follows:

```
*CPY CMDLIB/SSTLIB/HSTAR/.L"i";CMDLIB/.L
```

6.8 Software Release Bulletin

Following describes the changes and enhancements introduced with this version 2.0F, E, D, C, B and A of SSTLIB.

6.8.1 Changes

- No updates will be made to the library file unless an update type directive is recognized, i.e. APPEND, UPDATE, DELETE, CLEAR.

Note: SSTLIB will, under certain conditions, adjust the member and space directories on the library file, and could as such attempt an update, when the library file was allocated for read-only.

- Abort fix (ref. below), did not work for a library with less than 16 members.

- Lines per page is now picked up from GCOS 8 setting.

- When updating a library with more than 900 members (60 directory blocks), the internal cache mechanism could lead to loss of a directory block, i.e. 15 members dropped accidentally.

- Abort (Not enough space, SYSOUT limit exceeded etc.) during insert of new member (APPEND or UPDATE), would leave an empty entry in the directory. SSTLIB would recover during next update, however, this could lead to confusing and was not compatible with SRCLIB.

- SSTLIB will only create dummy members (.S.S.T.nn) if there is free space after the last directory block. This change to assure compatibility with SRCLIB.

- A library created with SRCLIB and with less than 16 members (one directory block only), can lead SSTLIB to abort (Impermissible perm write), if the library is allocated with read permission only.

- SRCLIB (using a library from SSTLIB) will abort if a LIST or DELETE directive reference a member in the last directory block and SSTLIB has left free space inside the library. Although SSTLIB fails to provide complete compatibility, this situation should be rare, however if it does occur, the abort can be prevented if a

LIST directive is included first and it references a member in any but the last directory block.

- Library size is now taken from the actual file-size, as opposed to the internally recognized size. Any excess space, i.e. library copied to a bigger file, is automatically allocated as free space.

- APPEND or UPDATE directive without argument would give incorrect error message.

- SSTLIB did not always report missing members for LIST, TABLE or DELETE directives, when multiple member names and/or masked member names were specified.

- If DELETE argument overlapped (double delete), SSTLIB would abort (Memory Fault).

- SSTLIB did not prevent new members with the reserved name .S.S.T.nn from being inserted.

- A TABLE directive with mask and with no matching members would produce an empty listing. Now a warning is given instead.

- The date in reporting has been changed from American MM-DD-YY to European DD-MM-YY format.

6.8.2 Enhancements

- The EXTRACT directive now supports a new optional argument:

```
EXTRACT [member] fc [-BCD] [-ONLY]
```

The -ONLY argument may be used to suppress APPEND/UPDATE and *END* from the extracted output.

6.8.3 Migration

No special migration of library files is required.

Note: Remember to copy the existing LIBDEF before installing the new release version and use this copy for reference during migration of an existing library definitions.

Chapter 7

Software Problem Reporting

7.1 General Description

The Software Problem Report procedure has been set-up to provide you, the person responsible for SSTLIB, with a consistent procedure for reporting software or documentation problems and subsequently receive replies in the form of explanations, fixes or updates of the software.

7.2 Software Problem Report

Although you may have the administration responsibility, software problems are often originating from the development system users, whether programmers, analysts or others.

The Software Problem Report (SPR) form may be used to describe the nature of such problems, any avoidance procedures taken and documentation you have collected in relation to the problems. You must fill this form for each problem and ship it to B & C Solution either through mail or facsimile. The site identification and the date of issue is the identification of the SPR. If you need assistance urgently, you may also contact our office in Denmark directly.

Once the problem has been analyzed, B & C Solution will forward a Software Problem Response (SPR) form describing the problem nature, how to avoid it, corrective actions required, an actual fix for the problem or a confirmation on when a fix will be available.

A sample SPR form is attached to this chapter and this should be copied as required.

7.3 Software Problem Distribution

Depending on the nature of a problem, B & C Solution may send the SPR forms to other SSTLIB users, in order to pre-empt a recognized problem in the software. A "Known Problem List" may also be distributed by B & C Solution, in order to document any recognized problem to all SSTLIB users.

7.4 Software Release Documentation

When new releases or versions are shipped, B & C Solution will provide you with a new manual, which will include "Software Release Bulletin" and software update information (ref. chapter 6).

Software Problem Report

Use this form to report problems, documentation errors or suggested enhancements. Please mail or fax the form to B & C Solution. The date and company name will be used as reference of SPR.

Note: For emergency problem assistance please contact B & C Solution office in Denmark directly.

Telephone: +45 49.70.47.90

Facsimile: +45 49.70.47.80

E-mail: support@bc-solution.dk

Web-site: <http://www.bc-solution.dk>

IDENTIFICATION

Date: _____

Company name: _____

Contact person: _____

Street: _____

City: _____

Country: _____

Telephone: _____

Facsimile: _____

Product Registration Number: _____

CATEGORY

Software problem Documentation problem

Software enhancement Other

SOFTWARE

Product _____ Rev. _____

Document _____ Rev. _____

DOCUMENTATION

Please attach listings, copies of displays, programs etc. or any other material related to reported problem.

B & C Solution use only

Date received: _____

Date resolved: _____

Action taken.....: _____/_____/_____

_____/_____/_____
_____/_____/_____

PROBLEM

Please describe the problem in as much detail as possible. How to reproduce the problem, your diagnosis and corrective action or avoidance procedure taken.

Comments: