

TO: MSPM Distribution  
FROM: D. E. Joel  
SUBJECT: 645 Segment Library Editor (BE.7.11)  
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The writeup contains the following additions:

1. Symbol Table Segment inclusion
2. Library\_dictionary inclusion

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Supersedes: BE.7.11, 7/1/66

Identification

645 Segment Library Editor  
D. E. Joel

Purpose

To initialize and make amendments to a library which is used by the 645 Loader (see BE.7.07). This library is a repository for 645 text, linkage, and segment symbol tables.

Library Format

The library is maintained on magnetic tape in GE635 GECOS System Standard Format.

The layout of text and linkage for a segment on the library is as follows:

1. Segment identification - 1 record

Word 1 Value of 0

Words 2 - 9 Segment name in ASCII: first character is  
character count of name: octal 000 used to fill  
unused character positions.

2. Text - variable number of records

Word 1 Value of 1

Words 2 - m. (m - 1) words of text.

3. Linkage - variable number of records

Word 1 Value of 2

Words 2 - n (n - 1) words of linkage

4. Symbolage - variable number of records

Word 1 Value of 3

Words 2 - p (p - 1) words of symbolage

The only determination of where segments start and finish is the lead word on each record as described above.

Editor Commands

1. **SETUP:** this is used when a library is initialized. The format of the card issuing the command is:

Col 1 - 4      \$645

Col 8 - 12     SETUP

All other columns blank.

This card, if used, appears first in the command deck.

2. **INCLUDE:** this is used to cause one or more segments to be included in the library at the point the editor is positioned at. The format of the card issuing the command is:

Col 1 - 4      \$645

Col 8 - 14     INCLUDE

All other columns blank.

This card, when used, is immediately followed by the binary decks of text and linkage which are to be included. The inclusion is at the point in the library where the editor is positioned.

3. **COPY:** this is used to copy the old library, from the point the editor is positioned at through a named segment, onto the library update. The format of the card issuing the command is:

Col 1 - 4      \$645

Col 8 - 11     COPY

Col 16 - ...   Segment name (alphabetic are considered lower case)

All other columns blank.

4. **DELETE:** this is used to forward space the old library from the point the editor is positioned at through a named segment. The format of the card issuing the command is:

Col 1 - 4      \$645

Col 8 - 13     DELETE

Col 16 - ...   Segment name

All other columns blank.

When the command file is exhausted, the editor assumes that copy through the end of the old library is implied and proceeds accordingly.

### Dictionary

The last segment on the library is a text segment which is generated by the editor. The name of this segment is `library_dictionary`. The descriptor attributes of this segment are `data`, `slave-access`.

The text of `library_dictionary` consists of a string of entries which describe the other segments contained on the library. An entry has the following format:

Entry size (wds)			← Descriptor attributes
Text size	Maximum size		
Linkage size	Symbolage size		
Segment name (variable length)			

Note: at the present time, text size = maximum size.

At the end of an editor run, this information is all printed on the update listing.

### Descriptor Attributes

The descriptor attributes for a segment are used to set up the descriptor word for any segment which is loaded dynamically from the library.

Default descriptor attributes for a segment which is included on the library are `slave-procedure`, `slave-access`.

To obtain other descriptor attributes it is necessary that the binary deck for the segment be preceded by an OPTION card, whose format is:

```
Col 1 - 4      $645
Col 8 - 13    OPTION
Col 16 - ...  Descriptor attributes (comma separated)
```

The permissible attributes are:

DATA  
MASPRC  
SLVPRC  
SLVACC  
WPERMT

Example:

\$645 INCLUDE

Segment A deck

← Slave procedure, slave access

\$645 OPTION DATA

Segment B deck

← Data

Segment C deck

← Slave procedure, slave access

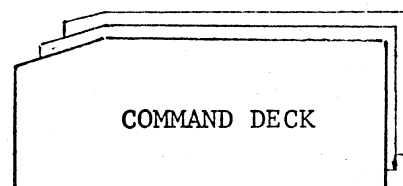
### Using the Editor

The editor is a 635 program contained in the Development Tools Operating System user library (645.LIBRARY). The card deck setup to use the editor is:

```

$          SNUMB          XXXXX
$          IDENT          XXXXX,EDITOR,,UPDATE 645 SEGMENT LIBRARY
$          CONVERT
$          READ           IN,A1R
$          INPUT          MIXED
$          DISC           OT,A1S,10L
$          OPTION         NOMAP
$          LIBRARY        LB
$          USE            EDITOR
$          ENTRY          EDITOR
$          EXECUTE
$          TAPE           LB,A1R,,99999,,645.LIBRARY
$          TAPE           OL,A2D,,99999,,MULTICS.LIB
$          TAPE           NL,A3D,,MULTICS.LIB
$          DISC           IN,A1R,10L
$          DISC           TF,A2R,10L,WORKFILE
***EOF

```



\*\*\*EOF

To copy the library tape the above deck should be used omitting the command deck.

The tapes used above are:

1. 645.LIBRARY - Library of 635 routines which comprise the development tool operating system.
2. MULTICS.LIB - File code OL  
The current 645 Segment Library
3. MULTICS.LIB - File code NL  
A scratch tape which will become the new 645 Segment Library.