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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Identification

645 Segment Library Editor
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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 (alphabetics are con-
>   sidered 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

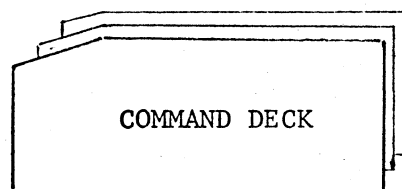| Segment A deck | ← Slave procedure, slave access

$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
```

COMMAND DECK

***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.