Technical Memorandum
(TM Series)

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Utility Program Descriptions
Milestone 11
Symbolic Dump Routine (SYMDUMP)

By
F. J. LaChapelle
R. L. Kinkead
14 March 1963
Approved
J. B. Munson

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SUBROUTINE IDENTIFICATION

A. Title: Symbolic Dump Routine (SYMDUMP) - Ident A48, Mod AB

B. Programmed and Documented: 14 July 1962
   F. J. LaChapelle, System Development Corporation

C. Revised: 14 February 1963, documented: 14 March 1963
   R. L. Kinkead, System Development Corporation

PURPOSE

To provide octal, symbolic, floating point decimal, or BCD dumps of COPLI routines using their names to define the areas in core to be dumped.

USAGE

A. Calling Sequence

L   RTIJ  SYMDUMP
L+1 Normal Return
    ZRO  N
L+2 BCD  1XXXXXXX
L+3 DEC  T
L+4 BCD  1PROGl
L+5 BCD  1PROG2
    :    :    :
    :    :    :
L+K BCD  1PROG(LAST)

Where:

N = the total number of parameters
T = the logical tape or printer to write dump on (2 ≤ T ≤ 13).
PROGl ... PROG(LAST) = the names of the specific routines to dump (left adjusted with trailing blanks).
B. The Parameter XXXXXXXX is optional and if it is present, the result will be that the routines will be dumped in the specified format. The possible values of XXXXXXXX are:

1. SYMBOLIC - mnemonic format
2. FLOATDEC - floating point decimal format, and
3. BCD - BCD format.

If absent, the dump will be in octal.

C. When called by a function card:

```
* SYMDUMP XXXXXXXX T PROG1 ... PROG(LAST)
```

where all parameters are defined as above with XXXXXXXX again optional.

RESTRICTIONS

A. SYMDUMP uses the TTTT table, LCOUNT, LINFO, and LNAMEs.

B. SYMDUMP uses the subroutine CORE, (TM-(L)-715/016/001A).

C. A page eject follows the dump of each program and no end of file is written following a dump.

D. A maximum of twenty routines may be dumped with one call to SYMDUMP.

E. Only those routines defined previously by a DEFINES card or those routines which have been loaded by MTCII at execution time may be dumped by SYMDUMP.

F. It is possible to call six selected areas of core by six special names. These areas and their mnemonics are: COMMON (067438 - 071068), POOL (077438 - 071068), COP (000008 - 077778 and 700008 - 777778), ZEROTEN (000008 - 000108), INOUT (000008 - 077778), and ALLCOP (000008 - 077778 and 700008 - 777778). Note that COP and ALLCOP are
the same areas and consist of two separate parts. INOUT is everything below 100008 since the I/O routines and buffers are scattered throughout this area.

G. If a routine is requested which is not a special name or has not been loaded or defined, a one-line record to this effect is written on the output tape. The normal dumping of the remaining routines then resumes.

H. If an absolute program is requested, a dump beginning with the first cell of the program and extending through 764328 is made.

I. If the logical tape is illegal, a normal return is made with no error message.

J. Output is called into core by CORE using the ADDROF feature in MTCII if FLOATDEC or BCD formats are selected.

TIMING
SYMDUMP takes a maximum of one minute to dump "32K" core.

STORAGE
2338 cells total.
1218 cells are instruction cells.
158 cells for a table defining the special areas of core.
258 cells contain messages.
158 cells are constants.
338 cells are temporary storage.

VALIDATION TESTS
SYMDUMP was tested by the use of function cards. It was tested for dumping defined routines, routines called from the master tape, and the special areas of core (in all of the possible formats). Tests were made which printed on tape and the on-line printer. Multiple dumps were tested, as
was SYMDUMP's response to illegal tape numbers and to subroutines not in core.

See Appendix A for the function card inputs and the dump results of these tests.

REFERENCES

A. "1604 Systems Manual", Lockheed Missiles and Space Division
   LMSC - 44758, 1 January 1962, P. 50.12.01.

B. Computer Program Library Catalog No. 75048.
SYMDUMP

SAVE
CONSOLE
REGISTERS

SET TYPE OF DUMP
INDICATED INTO
LINKAGE FOR CORE

SAVE ALL
PARAMETERS

IS LOGICAL
TAPE NUMBER
LEGAL

YES

EDIT TTTT INFO.
FOR THIS TAPE
NUMBER INTO LIN-
KAGE FOR CORE

SET WRITE SUB-
ROUTINE TO OUT-
PUT COMMENTS ON
THIS UNIT

LOOPIT

NO

RESTORE

RESTORE
CONSOLE
REGISTERS

EXIT
LOOPIT

GET NAME OF NEXT ROUTINE TO BE DUMPED FROM PARAMETERS

IS THIS ROUTINE IN MEMORY

YES → SET LENGTH INFO FROM LINFO TABLE INTO RANGE

NO → NOROUT

IS THIS A SPECIAL NAME

YES → SET LENGTH INFO FROM THE SPECIAL TABLE INTO RANGE

NO → IS NAME COP OR ALLCOP

YES → SET TWO PART FLAG TO YES

NO → SET TWO PART FLAG TO NO

FIXIT
FIXIT

COMPUTE LIMITS FROM INFO IN RANGE

EDIT NAME, START ADDRESS, AND END ADDRESS INTO COMMENT

SET UPPER AND LOWER LIMITS INTO LINKAGE FOR CORE

WRITE (OUTPUT COMMENT USING MTCII I/O)

RESET CONSOLE REGISTERS

SET RANGE FOR PART TWO

SET TWO PART FLAG TO NO

CORE (DUMP THIS ROUTINE)

ARE THERE TWO PARTS TO THIS DUMP

YES

NO

ISKDONE

FIXIT
SET NAME IN ERROR COMMENT

WRITE (OUTPUT COMMENT USING MTCII I/O)

ISKDONE

HAVE ALL ROUTINES BEEN PROCESSED

NOROUT

RESTORE

LOOPIT

YES

NO

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<table>
<thead>
<tr>
<th>DUMP OF THE ALPHA ROUTINE, RANGE IS FROM 10000 TO 10100</th>
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<tbody>
<tr>
<td>ACUMULATION: G-REGISTER</td>
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<tr>
<td>----------------------------</td>
</tr>
<tr>
<td>01656</td>
</tr>
<tr>
<td>10000</td>
</tr>
<tr>
<td>10004</td>
</tr>
<tr>
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<tr>
<td>10024</td>
</tr>
<tr>
<td>10074</td>
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<td>10100</td>
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The routine AB SUBCH is not in core. Check your function card for an error.

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<tr>
<th>DUMP OF THE EXP ROUTINE, RANGE IS FROM 11144 TO 10251</th>
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PIR-E4 (GE-Box 8661)
J. D. Rogers
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States that the Symbolic Dump Routine (SYMDUMP) provides octal, symbolic, floating point decimal, or BCD dumps of COPII (Control for Operational Programs) routines using their names to define the areas in core to be dumped.