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SOOT

DECUS Program Library Write-up

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/**********SOOT MANUAL**********
SOOT IS A PROGRAM TO HELP A PROGRAMMER DEBUG HIS PROGRAMS ON AN OCTAL LEVEL.

IT CONSISTS OF TWO PARTS WHICH WORK SEPARATELY OR SIMULTANEOUSLY.

THE FIRST PART IS THE SO-CALLED INTERPRETER. THIS IS THE PART WHICH EXECUTES THE PROGRAMS WHICH ARE TO BE DEBUGGED. THIS EXECUTION CAN BE CONTROLLED MANUALLY.

THE SECOND PART EXECUTES THE COMMANDS WHICH ARE GIVEN ON THE KEYBOARD.

*EXECUTION IS STARTED BY TYPING: NNNNG WHERE NNNN IS THE STARTING ADDRESS. IF NECESSARY THIS CAN BE EXTENDED TO: X NNNNG WHERE X IS THE MEMORY BLOCK (THE SPACE IS NOT ECHOED).

*BEFORE OR DURING EXECUTION THE USER MIGHT DECIDE TO INSERT ONE OR MORE BREAKPOINTS (A BREAKPOINT IS AN ADDRESS WHERE A TYPOUT OF SEVERAL REGISTERS OCCURS IF THE INSTRUCTION ON THIS ADDRESS IS TO BE EXECUTED).

THE FORMAT IS: NNNNB.

NNNN IS THE ADDRESS. SOOT DOES NOT DISTINCT BETWEEN MEMORY BLOCKS AS FAR AS BREAKPOINTS ARE CONCERNED.

*ALL BREAKPOINTS MUST BE REMOVED TOGETHER. THIS IS DONE BY TYPING A R (RESET). THERE IS ONE FIXED BREAKPOINT IN SOOT. THIS BREAKPOINT LIES ON LOCATION 0000 AND CANNOT BE REMOVED.

*IF THE USER WISHES, HE CAN ALSO PUT A BREAKPOINT ON EVERY ADDRESS WITHOUT EXCEPTION (SINGLE INSTRUCTION OR TRACE-MODE). THIS OCCURS WHEN THE COMMAND CTRL/T IS ISSUED. THE ECHO IS ↑ T.

*REMOVING THE TRACE MODE IS DONE BY TYPING A T. THE USER MAY DECIDE WHETHER EXECUTION IS STOPPED OR AUTOMATICALLY CONTINUED AFTER THE TYPOUT ON A BREAKPOINT.

*EXECUTION STOPS ON A BREAKPOINT. THE BREAKPOINT INSTRUCTION IS NOT EXECUTED WHEN THE TYPOUT OCCURS. IT IS EXECUTED AS SOON AS THE USER TYPES A C (FOR NORMAL CONTINUE) OR A S (FOR SKIP THIS INSTRUCTION AND EXECUTE THE NEXT ONE).

* C MEANS :CONTINUE EXECUTION ON THE BREAKPOINT LOCATION.

* S MEANS :CONTINUE EXECUTION ON THE NEXT SEQUENTIAL INSTRUCTION AND SKIP THE BREAKPOINT INSTRUCTION.

*WHEN THE USER HAS INSERTED SEVERAL BREAKPOINTS, (THE NUMBER DEPENDS UPON THE VERSION OF SOOT) AND THE TABLE IN WHICH THEY ARE KEPT IS GOING TO HAVE OVERFLOW, SOOT PRINTS AN EXCLAMATION POINT TO WARN THE USER THAT TABLE OVERFLOW OCCURS AND ALL THE BREAKPOINTS ARE GONE.

*SOME ATTENTION MUST BE GIVEN TO PROGRAMS IN WHICH THE INTERRUPT IS TURNED ON. SUPPOSE A PROGRAM:

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IF THE USER DOES NOT INSERT A BREAKPOINT ON SOME INSTRUCTION, HE WILL HAVE TO TRY SEVERAL TIMES TO GAIN CONTROL OVER THE PROGRAM. IF HE STRIKES THE KEYBOARD IT DEPENDS UPON THE MOMENT WHETHER SOOT FINDS IT OR THE (USER SUPPLIED) INTERRUPT PROGRAM.

*INPUT AND OUTPUT OF SOOT IS ALWAYS PERFORMED WITH THE INTERRUPT SWITCHED OFF. IF AN ION OCCURS IN THE PROGRAM TO BE EXECUTED, SOOT TURNS THE INTERRUPT ON ON ENTERING THE INTERPRETER UNTIL AN IOF OCCURS IN THE USER PROGRAM.

*THE USER MIGHT FIND SOME DIFFICULTIES WHEN EXECUTING THE 6031 INSTRUCTION. THE REASON FOR TROUBLE HERE IS THAT SOOT TOO IS LOOKING TO THE KEYBOARD AND HAS THE BIGGEST CHANCE OF FINDING THE FLAG ONE. FOR THIS REASON IN SOOT THERE IS AN OPTION WHICH PREVENTS SOOT TO LOOK AT THE KEYBOARD. IF THE SWITCH REGISTER IS ANYTHING BUT ZERO, SOOT WILL LOOK AT THE KEYBOARD DURING EXECUTION. IF THE SWITCH REGISTER IS ZERO, SOOT WILL NOT LOOK AT THE KEY-BOARD. THE USER CANNOT GAIN CONTROL OVER THE RUNNING PROGRAM BEFORE SETTING THE SWITCH REGISTER.

*THERE ARE MORE COMMANDS WHICH HAVE LESS TO DO WITH EXECUTION THAN THE PREVIOUS ONES.

*THE CONTENTS OF THE ACCUMULATOR CAN BE CHANGED BY TYPING XXXXA. XXXX IS THE NEW CONTENTS.

*THE CONTENTS OF THE LINK CAN BE CHANGED BY TYPING L.

*THE CONTENTS OF A LOCATION CAN BE EXAMINED BY TYPING D NNNN/

D=DATA FIELD (1DIGIT). THIS IS OPTIONAL. THE EXAMINED AT A FILED IS STORED AND USED FOR ALL THE ADDRESSES WHICH ARE EXAMINED AFTERWARDS. ITS VALUE MAY DIFFER FROM THE INSTRUCTION OR DATA FIELD WHICH ARE IN THE PROGRAM TO BE EXECUTED. THESE ARE NOT EFFECTED BUT WHEN TYPING A G-COMMAND.

*THE CONTENTS OF A LOCATION CAN BE CHANGED BY TYPING THE NEW VALUE AFTER THE EXAMINATION TYPOUT. IT MUST BE FOLLOWED BY A CARRIAGE RETURN (THE NEW VALUE IS SIMPLY STORED) OR A LINEFEED (WHICH STORES THE NEW VALUE AND EXAMINES THE NEXT SEQUENTIAL LOCATION).

*SOOT CAN BE PLACED IN ANY MEMORY BANK WITHOUT PRECAUTIONS. IT OCCUPIES 4 CONTINUOUS PAGES. IT CAN BE ASSEMBLED TO ANY 4 PAGES BY CHANGING THE STATEMENT BEGIN= TO THE DESIRED VALUE.

*NOTE: THIS DESCRIPTION IS NOT APPLICABLE TO THE TSS-8 VERSION OF SOOT.

*TYPOUT OF A BREAKPOINT IS OF THE FOLLOWING FORMAT:

D INNNN/ L AAAA XXXX OPT
D=DATA FIELD
I=INSTRUCTION FIELD
NNNN=ADDRESS
L=LINK
AAAA=ACC.CONTENTS
OPT IS NOTHING AS LONG AS THE INTERRUPT IS OFF. IF THE INTERRUPT IS ON, ION IS TYPED.