DECUS

PROGRAM LIBRARY

DECUS NO.	12-31
TITLE	DCON-1Ø
AUTHOR	Stephen G. Wellcome
COMPANY	Digital Equipment Corporation Maynard, Massachusetts
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SOURCE LANGUAGE	LAP6-DIAL

ABSTRACT

DCON-1∅ ALLOWS THE USER TO READ AND WRITE PDP-1∅ DECTAPE SOURCE FILES
ON A PDP-12 EQUIPPED WITH THE TC12-F HARDWARE OPTION. ALL NECESSARY
INDEX HANDLING IS PERFORMED. BINARY FILES PRODUCED BY PALI∅ OR PAL12
MAY BE TRANSFERRED TO THE DIAL BINARY WORKING AREA OR PUNCHED ON PAPER
TAPE.

REQUIREMENTS

THE PROGRAM REQUIRES A PDP-12 WITH 8K, AT LEAST TWO LINCTAPE DRIVES, THE
TC12-F HARDWARE OPTION, AND A DIAL-MS SYSTEM TAPE. SUPPORTED OPTIONS
INCLUDE DISKS AND MULTIPLE TAPE UNITS. EAE WILL THEORETICALLY ALLOW THE
PROGRAM TO RUN FASTER, THOUGH THE ACTUAL GAIN IS DEBATABLE.

The PROGRAM MUST BE LOADED BY THE DIAL-MS SYSTEM LOADER.

OPERATION

THE PROGRAM IS LOADED IN NORMAL FASHION BY:

        LO DCON,U   WHERE U = UNIT

WHEN THE PROGRAM IS LOADED, IT STARTS AT *4∅2∅, LINC MODE, AND BOOT-
STRAPS THE DIAL-MS I/O ROUTINES FROM THE SYSTEM UNIT (UNIT ∅ IF A TAPE
SYSTEM, OR UNIT 1∅ IF DISK). SOME INITIALIZATION IS THEN EXECUTED WHICH
CHECKS FOR THE PRESENCE OF THE NECESSARY HARDWARE AND SETS UP FOR EAE
IF AVAILABLE. IF THE TC12-F OPTION IS NOT PRESENT, AN APPROPRIATE MESSAGE
IS DISPLAYED.

IF EVERYTHING IS SATISFACTORY, AN INITIAL QANDA DISPLAY WILL APPEAR ASKING
FOR THE DECTAPE UNIT AND DIAL UNIT. ANSWER USING NORMAL QANDA CON-
VENTIONS. DECTAPE UNITS MAY BE ∅ - 7 AND DIAL UNITS ∅∅ - 77. IF YOUR
MACHINE DOES NOT HAVE A PARTICULAR DIAL UNIT, DIAL-MS WILL DISPLAY "NO".
AFTER THIS DISPLAY, A LIST OF OPTIONS WILL BE GIVEN. THESE ARE R(EAD) A
DECTAPE FILE, W(RITE) A DECTAPE FILE, P(RINT) A DECTAPE DIRECTORY, OR Z(ERO)
A DECTAPE DIRECTORY. CHOOSE THE APPROPRIATE OPTION (R, W, P, OR Z).

PRINT WILL LIST THE DECTAPE FILES, FOLLOWED BY THEIR LENGTHS IN OCTAL.

IF "Z" IS REQUESTED, "ARE YOU SURE?" WILL BE DISPLAYED. TYPE "Y" TO ZERO
THE DIRECTORY, OR ANY OTHER CHARACTER TO RETURN TO THE FIRST DISPLAY.

IF THE "R" OPTION IS CHOSEN, A DISPLAY WILL APPEAR ASKING FOR THE NAME OF THE PDP-12 OUTPUT FILE AND THE NAME OF THE PDP-1Ø INPUT FILE. OUTPUT WILL BE TO A DIAL-COMPATIBLE SOURCE FILE. SEVERAL THINGS MUST BE OBSERVED:

A. ONLY UPPER CASE ASCII IS HANDLED. ANY LOWER CASE ASCII CHARACTERS ARE IGNORED.

B. MULTIPLE CARRIAGE RETURNS FOUND IN THE PDP-1Ø INPUT FILE ARE CONVERTED TO INCLUDE A SLASH (/), AS BLANK LINES ARE ILLEGAL IN DIAL.

C. SINCE ONE MUST KNOW IN ADVANCE HOW LONG A PDP-12 FILE IS GOING TO BE BEFORE AN INDEX ENTRY CAN BE MADE. AN ESTIMATE IS DETERMINED BY COUNTING THE NUMBER OF PDP-1Ø BLOCKS AND MULTIPLYING BY 5/4. (5/4 IS A LOGICAL NUMBER, IF YOU THINK ABOUT IT FOR A WHILE.) HOWEVER, BECAUSE DIAL SOURCES REQUIRE ONLY ONE CHARACTER FOR CARRIAGE RETURN, LINEFEED AND DECTAPE FILES REQUIRE TWO. THE SOURCE WILL LOSE ONE CHARACTER PER LINE AND NOT BE AS LONG AS ITS INDEX ENTRY INDICATES. TO CORRECT THE INDEX ENTRY AFTER THE TRANSFER IS COMPLETE, DO "ADD PROGRAM", "SAVE PROGRAM" UNDER DIAL.

D. THE RESULTING PDP-12 FILE MAY BE MORE THAN 1ØØ BLOCKS LONG. THE DIAL EDITOR CAN ONLY HANDLE A SOURCE OF LESS THAN 1ØØ BLOCKS, SO IF THIS OCCURS, DO AN "ADD PROGRAM" BY LINE NUMBER AND SAVE THE FILE IN SEVERAL PIECES.

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AP  1,3ØØØ,  FILE,3
SP  PART1,4
CLEAR
AP  3ØØ1,6ØØØ,3
SP  PART2,4
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IF THE "W" OPTION IS CHOSEN, A DISPLAY WILL APPEAR ASKING FOR PDP-12 INPUT AND PDP-1Ø OUTPUT. NO UNIQUE SITUATIONS ARISE IN THIS CASE.

UNLIKE PDP-12 FILES, DECTAPE FILES ARE LINKED AND SPACE IS ALLOCATED AS IT IS NEEDED. THEREFORE, THE PROBLEM OF ALLOCATING SPACE BEFOREHAND DOES NOT ARISE. IT DOES PRODUCE AN INTERESTING RESULT, HOWEVER; ONE MAY BE NEARLY THROUGH A FILE TRANSFER AND RUN OUT OF ROOM. IN ORDER TO AVOID WASTING TIME, BE REASONABLY SURE OF HAVING SUFFICIENT SPACE BEFORE BEGINNING A TRANSFER.

IN ALL CASES, NO CHECKING IS DONE FOR ILLEGAL CHARACTERS IN FILE NAMES. THEREFORE, TO BE CERTAIN OF BEING ABLE TO RECOVER THE FILE ONCE IT HAS BEEN TRANSFERRED, BE SURE THAT NAME CONVENTIONS ARE FOLLOWED.

BINARY FILES: WHEN INPUT IS FROM A PDP-1Ø DECTAPE, THE FILE IS CHECKED TO SEE IF IT IS SOURCE OR BINARY. IT DOES THIS BY LOOKING AT THE FIRST CHARACTER OF THE FILE. IF BINARY, IT WILL BE ZERO AND IF SOURCE, NON-ZERO. IF THE FILE IS BINARY, A SPECIAL SET OF HANDLERS ARE USED AND THE BINARY FILE IS OUTPUT TO

THE DIAL BINARY WORKING AREA. IT MAY THEN BE SAVED VIA A NORMAL "SAVE
BINARY" COMMAND. THE PROGRAM WILL HALT IF A FIELD SETTING OTHER THAN Ø
OR 1 IS ENCOUNTERED, AS DIAL CAN ONLY HANDLE UP TO 8K BINARY FILES. IF
THIS OCCURS, THE PROGRAM MAY BE PUNCHED ON PAPER TAPE INSTEAD. MAKE
THE FOLLOWING PATCH:

LOC	OLD	NEW	
*6Ø15	2563	6Ø26	/PLS
*6Ø3Ø	5622	5765	/JMP I DONE
*6Ø73	71Ø6	6Ø21	/PSF
	7ØØ4	5273	/JMP .-1
	7ØØ6	6Ø26	/PLS
	753Ø	72ØØ	/CLA
	5672	7ØØØ	/NOP
*6113	7Ø12	57Ø2	/JMP I PUTBIN
*6165	6316	4Ø25	/DONE, RESTRT

FOR USE WITH TTY, THE IOT's MAY SIMPLY BE CHANGED FROM 6Ø21 TO 6Ø41 AND
FROM 6Ø26 TO 6Ø46. IF TTY IS USED, LOCATION *6Ø15 NEED NOT BE CHANGED.
(IT JUST SETS THE PUNCH HARDWARE FLAG.)

ERRORS: A VARIETY OF ERROR MESSAGES MAY APPEAR, MOST OF WHICH ARE
OBVIOUS. THESE INCLUDE "NO SUCH INPUT FILE," "NO ROOM FOR OUTPUT,",
AND "REPLACE?".

CTRL/D DURING ANY DISPLAY WILL RETURN TO DIAL.

HALT CONDITIONS: IN ADDITION TO THE ERROR MESSAGES, NUMEROUS HALTS
ARE SCATTERED THROUGHOUT THE PROGRAM FOR A VARIETY OF ERROR CONDITIONS.
IF ONE IS ENCOUNTERED, DO NOT TRY TO CONTINUE AS THERE IS NO SORT OF
RECOVERY CODE. EITHER RESTART AT 4Ø2Ø, OR RELOAD.

LOC	REASON
4216	PDP-1Ø OUTPUT ERROR (BAD FILE FORMAT, OR BAD TAPE)
43Ø4	NO CHARACTERS IN PDP-1Ø FILE WHEN THERE SHOULD BE
4564	OUTPUT ERROR
6112	FIELD SETTING OTHER THAN Ø OR 1 IN BINARY FILE
6134	BAD BINARY INPUT FORMAT
6136	BAD BINARY INPUT
6Ø17	BAD BINARY INPUT
1472	ATTEMPT TO CLOSE AN INPUT FILE
1477	OUTPUT ERROR
12ØØ1	(FIELD 1) BAD DECTAPE I/O CALL
14255	BAD CALLING SEQUENCE FOR DIAL FILE ENTRY ROUTINES.