

**BELL TELEPHONE LABORATORIES
INCORPORATED**

SUBJECT: The Multics Device Utility Package -
Case 70025-851

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WORKING NOTESIntroduction

The Device Utility Package (DUP) has been redesigned and implemented. The DUP is used to aid in checking out I/O for the Multics drum and disk storage devices and to examine or change the contents of the disk or drum.

The DUP currently runs under GECOS on the GE 645. It interprets commands typed at the 645 operators console and reads from or writes on the device by calling the Multics standard device control modules.

The operator currently has the following capabilities using the device utility package:

- (1) Examine small sections of the drum or disk via the on-line typewriter (PEEK).
- (2) Dump blocks (1024 words per block) of the drum or disk on the printer (PRINT or TEST1).
- (3) Patch a particular word in a given block with a new value (PATCH).

The DUP is written so additional capabilities can be added without modifying the program.

DUP Commands

This section describes in detail the command, the appropriate call, the arguments and their default values if any. A command line consists of one command and its associated parameters with spaces as delimiters. Any number of spaces may be used; however, the command line may not exceed 85 characters. Some commands may be abbreviated as indicated below. All arguments are octal values except "did" and "count" which are assumed by the DUP to be decimal integers.

PEEK or PK did blockno wordno count

where:

did = device id

blockno = a 1024 word block number on
the device (starting from 0)

wordno = relative word number (starting from
0) within the block

count = number of words in the block to be dumped
(default = 1)

Count number of words are typed out on the typewriter.

PRINT or PR did blockno count

where:

did = device id

blockno = a 1024 word block number on the
device (starting from 0)

count = number of 1024 word blocks to be
printed (default = 1)

Count number of blocks are printed on the printer.

PATCH or PT did blockno wordno value₁... value_n

where:

did = device id

blockno = a 1024 word block number on the
device (starting from 0)

wordno = word number (relative to 0) of the
first word within the block to be
patched

value₁... value_n = values to replace word number
'wordno' (n ≤ 5)

value₁ replaces wordno, value₂ replaces wordno
+1, etc.

QUIT OR Q Quit from the DUP

TEST1 did blockno

where:

did = device id

blockno = a 1024 word block number on the
device (starting from 0)

Issues **IO** for 10 consecutive blocks beginning at
block number blockno. Then waits for all **IO**
completion and prints the first word in each
block on the printer.

DUP Routines

<u>File Name</u>	<u>Segment Name</u>	<u>CTSS Directory (5/27/68)</u>
DMAIN	main-program	T269 8054
NDUP	dup	"
NCMD	command	"
PERROR	error_codes	"
TEST1T	test1t	"
GETNUM	getnum	"
GETOCT	getoct	"

The DUP GECOS File

*Routines necessary to run the DUP

t1 dmain

t1 ndup

t1 ncmd

t1 perror

t1 test1t

t1 getnum

t1 getoct

t1 print.

*a 1024-word segment into which each 1024-word block is read

maket1 ntaf source fsdct slvacc wpermt data

*a 1024-word segment into which 10 consecutive blocks are read

maket1 drum area drum-area slvacc, wpermt, data

*disc device control modules

* drum device control modules