PROGRAMMING STAFF NOTE 46

TO: R.C. Daley

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SUBJ: Interim total dump and reload program for temporary use with new file system.

Until such time as the incremental dumper (DAEMON) is completely checked out and trustworthy, there is a need for a very simple method of completely dumping the contents of the disk for backup in case of an emergency. Three programs must be written, a complete dump, complete reload, and selective reload for retrieval. These programs are to be characterized by a lack of sophistication, and therefore high probability of working very soon. These programs will be known as the interim Dump, Load, and Retrieval programs, to emphasize their transitory nature.

All three programs will be written in the MAD language. They will all be capable of operating as background jobs while CTSS is in operation, although they will use entries into the file system both for reading the disk and for writing on tape. As such, they fall into the category of a privileged background job, requiring a special operator's console key (23) down during operation. The complete load program must also be capable of running without the time-sharing system supervisor, with its own copy of the file control system.

The dump program will write a single file onto tape containing the complete contents of several user's file directories. The number of users who are dumped onto the tape will be chosen so as to keep the tape file on a single reel if possible. Another group of users will be dumped in a single file onto another tape, etc., until the complete contents of the disk have been dumped. A directory of users on each tape will be written on the disk for off-line printing, so that retrievals may be easily handled, without scanning several tapes.

The file written on tape consists of logical records preceded by record-marks. (This format is seen by the program and is independent of the physical format written on the tape.) The format is shown on the last two pages.

This format has been chosen primarily for the simplicity of coding of the dump and load programs, and convenient recovery in case of fatal tape reading errors.

Again, for simplicity, the dump program will follow several conventions.

1. An interlocked file will not be dumped. Comment will be made off-line.

2. Two identical dump tapes will be written.

3. If any tape errors occur while dumping a file, that tape file will be completely rewritten on a new (pair) of tapes. Other errors will cause a fatal halt.

4. Temporary mode files will not be dumped.

5. Tape files will not be dumped.

6. All files are reloaded onto the disk, even though they are from the drum.

7. If a fatal tape error occurs on both tapes on loading, the user file in question will be skipped, and loading will continue as soon as possible thereafter. A parity error on both tapes will be ignored.

On the next two pages are indicated the format of the dump tapes.

M.F.D. entry	077777000005 Probno Progno Drum allot Disk allot Tape allot	An M.F.D. entry will usually be followed by several U.F.D. entries.
U.F.D. entry	17777700011 Probno Progno 1 2 3 4 5 6 7	copy of UFD entry If the U.F.D. entry does not describe a "linked file", it will be followed by the dumped file.
Dumped file	777777 count "count" words of data	"count" is normally 2500 words, except for the last record of a dumped file.
	777777 count "count" words of data	..
	377777 count "count" words of data	The last record is identified by the 377777 record mark.
Locked file	007777000000	This entry means that the file was interlocked and could not be dumped.

end-of-U.F.D. marker	037777000003 Prohno Progno Sum of prev. 3 words	This record is not strictly needed, but simplifies reading, and recovery from tape errors.
end-of-last dump tape marker	017777000004 (ENDF) M.F.D. (FILE)	again, not needed, but simplifies loading.