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TO: 7090 Operators  
FROM: R. H. Orenstein and R. C. Daley  
SUBJECT: Operator's Notes for the Disk Edit Programs

This memo describes the use of the two disk edit programs, one for dumping the contents of the disk onto tape, and one for loading the disk from these tapes. Both programs run within the regular FMS system with the standard MIT library tape.

The file is the unit of information on the disk upon which action may be taken. Files are referenced by two names, both made up of alphanumeric characters. A name must be 6 or less such characters.

Requests submitted by a user for action on his files are given to the edit programs via control cards and associated input that are data for the run. Control cards have a format that allows a variable number of fields each with a variable length not exceeding 6 characters. Fields are separated by commas and the card scan is terminated by a blank. The first field on the card contains the function name, the remaining fields contain the needed parameters.

Both edit programs do their own time accounting for each user that they service. It is, therefore, desirable that control cards for each user be grouped together as much as possible.

At their termination, the editor programs set the FMS clock to account for time that is charged to the editors themselves. This time includes dump time and time spent during execution of certain control cards having to do with disk maintenance. Thus, a final time card accounting for this is produced upon return to the FMS monitor.

Through out this writeup an end-of-file may be either the standard end-of-file card with 7-8 punches in column 1 and "END OF FILE" in columns 16-26, or a decimal card, blank in columns 1-7 with "\*EOF\*" in columns 8-12. The edit programs recognize both; use of the second type does not spoil the FMS input tape.

THE DUMP EDITOR - DPEDT - sequence nos. DED00000

The following sense switch settings affect the program.

- Sense Switch 2: up-write duplicate dump tapes;  
down - write single dump tapes.
- Sense Switch 5: up - off-line printing only off-line;  
down - off-line printing on-line also.
- Sense Switch 6: up - continuous execution of control cards;  
down - stop after execution of each control card (for debug purposes).

For the dump editor the control cards will normally have a format with 5 fields that contain

1. Control word
2. Problem number
3. Programmer number
4. Primary file name
5. Secondary file name.

Exceptions to this will be noted individually. Following is a description of control cards:

1. STAT. There is an option of parameters, either the word "ALL", or some problem and programmer number. If a problem and programmer number is given, then statistics are given for that user; if "ALL" is used, then statistics are given for all users. Statistics for a user consist of a listing of all files, with pertinent information such as size, mode, etc.

2. DATED. The three parameters here are integers representing the month, day and year. During the dump operation, any files (of all users) whose date-last-used is earlier than the date specified on the DATED card will automatically be deleted along with the production of special output cards and appropriate comment. The date-last-used is part of the information kept with each file. When a user employs a file in any way other than deletion, this date is updated.

3. DELETE. This control card has the normal format with an optional sixth field. The specified file is deleted. If the word "CARDS" appears as the sixth parameter, special output cards for the file will be produced.

4. DUMP. This control card causes the disk to be dumped, user by user, file by file, onto pre-assigned tapes. There is an optional parameter which may be any non-zero, non-blank character. If this character is present, single dump tapes will be written. Either this parameter or sense switch 2 down will produce single dump tape; if neither condition is sensed, dump tapes are written in duplicate.

Drives A5, B5, A6 and B6 are available for dumping. If single dump tapes are to be written, then only those drives on channel A will be used. Dumping commences onto A5 and B5. When these reels become full they are rewound and unloaded, and A6 and B6 are used. Should these reels become full, with more to dump, A5 and B5 are used again. This cycle repeats as long as necessary to complete dumping.

First on every dump tape is a 4 word file called the heading. This is merely a label used to check that tapes are mounted properly for reloading. The four words are

1. The type of dump (there is another form discussed later)
2. the date
3. the time
4. a sequential number given each reel (1A, 1B, 2A, 2B, ...)

--and are written in BCD so they may be printed for identification purposes.

5. PRINT. Causes the specified file to be written on the FMS printed output tape for off-line printing.

6. DPUNCH. Causes the specified file to be written on the FMS punched output tape for off-line punching of BCD information.

7. BPUNCH. Causes the specified file to be written on the FMS punched output tape for off-line punching of binary information.

8. 7PUNCH. Causes the specified field to be written on the FMS punch output tape for off-line punching of cards in special binary form.

9. CHMODE. This card has normal format with 6<sup>th</sup> field that is an integer (0-3) representing the new mode of the specified file.

10. COPY. This control card has 4 additional fields to the normal format. The normal format specifies where the file is to go; the 4 additional fields (problem number, programmer number, primary file name, secondary file name) specify where to get the file.

11. CLOSE. Signals end of data. This card has no parameters. Returns control to monitor.

THE FAST DUMP - FDDMP - sequence nos. FDDMP000

This is an absolute on-line job that dumps the disk onto tape in a track by track fashion. Only sense switch 2 affects this program; it is used to control the number of dump tapes written. If it is down then single dump tapes will be written, if up then dump tapes will be written in duplicate. The usage of the dump tapes here is the same as with the DUMP facility in the dump editor. That is, drives A5 and B5 will be used first, when they are full drives A6 and B6 will be used. If more tape is needed then A5 and B5 will be used again. If single tapes are written, only those on channel A are used.

The program immediately writes the 4 word heading file and proceeds to dump each used track of the disk. The process continues for each module until all are dumped.

A comment is printed on-line that the job is done - and the program halts.

THE LOAD EDITOR - LDEPT - LED00000

The following sense switch settings affect this program

- Sense Switch 1: up - write format tracks for all cylinders;  
down - do not write any format tracks.
- Sense Switch 2: up - read from duplicate dump tapes;  
down - read from single dump tapes.
- Sense Switch 5: up - off-line printing only off-line;  
down - off-line printing on-line also.
- Sense Switch 6: up - continues execution of control cards;  
down - stop after execution of each control card (for debug purposes).

Format tracks are special tracks on the disk that must be written before any information can be stored on the disk. They normally remain intact, but it is a good idea to rewrite them when in doubt.

The first data cards for this job are the master file directory entries, unless a fast load is requested (see later). These cards, one per user, have three 6-column fields. All information in these fields is left justified. The fields contain

1. the problem number (cols. 1-6)
2. the programmer number (cols. 7-12)
3. the user's track quota (cols. 13-18)

Cols. 19-20 are ignored. The end of the master file directory is signaled with an end-of-file.

Now control cards are read and processed. This format is the same as for the dump editor - a variable number of fields, each of a variable length not exceeding 6 characters, separated by commas, terminated by a blank.

The following control cards are available in the load editor.

1. LOAD. This control card causes the disk to be loaded from tapes used for dumping the disk by the dump editor. As in the dump editor DUMP card, there is an optional non-zero, non-blank character which may appear as a parameter. If this parameter is present then single dump tapes will be read. Sense switch 2 down will also cause single tapes to be read.

The sequence of tapes used is as in the DUMP facility of the dump editor. The heading file on the tapes is checked for proper type and sequence number. If there is a discrepancy in the headings an appropriate comment is printed along with the heading on headings and the program halts. When headings are verified, loading begins.

2. EDIT. This facility provides a means of loading an absolute binary deck from the FMS input tape to form a core image of the program which is then written as a single file on the disk. The format for the control card is the normal one with the sixth field specifying a mode for the file as described under CHMODE. The control card is followed by a column binary record card for the edit deck, then the deck. The core image is formed until an end-of-file is sensed; the image is then written on the disk.

3. INPUT. The deck of cards immediately following the control card on the input tape is put on the disk as a single file. Binary and decimal cards may be mixed. The end of the deck is determined by an end-of-file signal. This control card is the normal one with the additional field to specify the mode as described under CHMODE.

4. DELTRK. This control card causes the specified track or tracks not to be used in the loading process or the normal operation of the disk. The format for the card is as follows:

- a. After the control word the next field contains the logical module number for the tracks to be deleted.

- b. The track address to be deleted.
- c. An optional field.. If blank only the single track in field **b** will be deleted. If non-blank then the number of sequential tracks, starting with the address in field **b**, to be deleted.

5. DELSUR. This control card deletes from use an entire surface. There are only two parameters; the first specifies the logical module number, and the second specifies the surface (0-39) to be deleted:

6. HA2. This control card causes home addresses to be written on a specified number of tracks. There are two parameters: the first specifies the logical module number, the second specifies the number of tracks to be written with home addresses. The count is made by including all tracks used up to this point as having home addresses, so that upon exit from this section no more than the specified number have home addresses written on them.

7. FLOAD. This control card is used to reload the disk from tapes written from the FDDMP program. After restoring the disk to its status the program proceeds to look for control cards in the normal LOAD fashion. During this operation headings are checked and the conventions described in LOAD are used. The second parameter or sense switch 2 down is permitted here for single tape loading.