

**NAME**

*lfs* — format of Logical File System disk area

**DESCRIPTION**

As described in *lfs(3C)*, The Logical File System (LFS) is a fast-access file system that provides contiguous file storage. The LFS disk area is configured by the *mk-lfs(1)* command. It is broken into several distinct areas:

- Sector 0 is unused and could be used in the future for any purpose desired. It was left empty to be consistent with standard UNIX file systems.
- Sector 1 contains the LFS header which contains all of the parameters input to *mk-lfs* plus a "magic" number used for detection of major disk overwrites, the starting sector of the free list (see below), and the last *lfn* created automatically by the LFS.
- The next area contains a file definition entry for each *lfn*. Each entry contains some flags for the *lfn* (e.g. allocated or not), the starting LFS block, the number of LFS blocks in the file, and arbitrary user information about the file. A LFS block is defined to be a contiguous area *blkf* sectors long where *blkf* is the LFS block size specified in the *mk-lfs(1)* command. Since a file is allocated by the user in terms of sectors, the size in sectors is also stored. If the number of file definition entries fitting in a sector is *nfde*, and *nlfm* is the maximum number of files defined by *mk-lfs*, then the entries take  $(nlfm + (nfde - 1))/nfde$  sectors to store.
- The next area is a freelist (one sector long) containing the starting address and size (both in LFS blocks) of unallocated disk space. It is updated when files are created and deleted. After *mk-lfs* configures the disk, all "overhead" LFS blocks (e.g., header, file definition entries, and the freelist) have been allocated. The first unallocated area thus starts at the first LFS block after the last overhead block and has a size equal to the remaining space on the disk area.
- A bit map is stored next which records the allocated/unallocated status of each LFS block in the system. It is used primarily for checking the sanity of the LFS in case of system crashes. Since there is one bit per LFS block, the bitmap takes
 
$$((disksize+7)/8 + 511)/512$$
 sectors where
 
$$disksize = (ncyl * trkf * secf + (blkf-1))/blkf.$$
 (See the *mk-lfs(1)* command for definitions of these quantities).
- The last area of the disk contains the files themselves and comprises the remainder of the disk area. As implied above, this area may be subdivided into any number of files from 1 to *nlfm*. The only limit is that the size of a file cannot exceed 32,767 LFS blocks.

**FILES**

*/usr/include/sys/lfs.h*

**SEE ALSO**

*mk-lfs(1)*, *lfs(3C)*