

LINFO

## Bad Blocks Definition

*Bad blocks*, also called *bad sectors*, are sections of magnetic storage media (i.e., hard disks and floppy disks) that cannot be reliably used for storing and retrieving data.

A block is a uniform unit of the storage media whose size is determined at the time of *high-level formatting* (i.e., creation of a filesystem). If the *mke2fs* command (which is used to create the standard Linux *ext2* and *ext3* filesystems) is used, valid block size values are 1024, 2048 or 4096 bytes. The default block size on a typical Red Hat 9 Linux installation is 4096 bytes.

New disks are given a *low level formatting* at the factory, which consists of writing the track and sector markers on the blank magnetic media. If one of these new sectors cannot be read or write correctly, then it is marked as *bad* or *invalid*, and a spare sector is used to replace it. Similarly, if, in use, a block does not record correctly after several attempts, it is marked bad, and is remapped to a spare defect-free block.

The list of bad blocks is provided to the filesystem, which stores it in a special file and remembers not to use those blocks. This relieves the operating system of the task of keeping track of bad blocks and ensures that the computer only sees a well-behaved, defect-free device. The *e2fsck* command, which is used to check *ext2* and *ext3* filesystems, automates the process of giving the list to the filesystem and thus is highly reliable.

The *badblocks* program is used for checking for bad blocks is on Unix-like operating systems. This program should only be used directly when checking a blank partition or a filesystem other than *ext2* or *ext3*. When checking an *ext2* or *ext3* filesystem partition, *e2fsck* should be used, which runs *badblocks* in the background. Some Microsoft Windows operating systems as well as MS-DOS contain a program

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