

NAME

statfs, fstatfs - get filesystem statistics

SYNOPSIS

```
#include <sys/vfs.h> /* or <sys/statfs.h> */

int statfs(const char *path, struct statfs *buf);
int fstatfs(int fd, struct statfs *buf);
```

DESCRIPTION

The function **statfs()** returns information about a mounted filesystem. *path* is the pathname of any file within the mounted filesystem. *buf* is a pointer to a *statfs* structure defined approximately as follows:

```
#if __WORDSIZE == 32 /* System word size */
# define __SWORD_TYPE int
#else /* __WORDSIZE == 64 */
# define __SWORD_TYPE long int
#endif

struct statfs {
    __SWORD_TYPE f_type; /* type of filesystem (see below) */
    __SWORD_TYPE f_bsize; /* optimal transfer block size */
    fsblkcnt_t f_blocks; /* total data blocks in filesystem */
    fsblkcnt_t f_bfree; /* free blocks in fs */
    fsblkcnt_t f_bavail; /* free blocks available to
unprivileged user */
    fsfilcnt_t f_files; /* total file nodes in filesystem */
    fsfilcnt_t f_ffree; /* free file nodes in fs */
    fsid_t f_fsid; /* filesystem id */
    __SWORD_TYPE f_namelen; /* maximum length of filenames */
    __SWORD_TYPE f_frsize; /* fragment size (since Linux 2.6) */
    __SWORD_TYPE f_spare[5];
};
```

Filesystem types:

```
ADFS_SUPER_MAGIC 0xadf5
AFFS_SUPER_MAGIC 0xADFF
BDEVFS_MAGIC 0x62646576
BEFS_SUPER_MAGIC 0x42465331
BFS_MAGIC 0x1BADFACE
BINFMNTFS_MAGIC 0x42494e4d
BTRFS_SUPER_MAGIC 0x9123683E
CGROUP_SUPER_MAGIC 0x27e0eb
CIFS_MAGIC_NUMBER 0xFF534D42
CODA_SUPER_MAGIC 0x73757245
COH_SUPER_MAGIC 0x012FF7B7
CRAMFS_MAGIC 0x28cd3d45
DEBUGFS_MAGIC 0x64626720
DEVFS_SUPER_MAGIC 0x1373
DEVPTS_SUPER_MAGIC 0x1cd1
EFIVARFS_MAGIC 0xde5e81e4
EFS_SUPER_MAGIC 0x00414A53
EXT_SUPER_MAGIC 0x137D
EXT2_OLD_SUPER_MAGIC 0xEF51
EXT2_SUPER_MAGIC 0xEF53
EXT3_SUPER_MAGIC 0xEF53
```

```

EXT4_SUPER_MAGIC 0xEF53
FUSE_SUPER_MAGIC 0x65735546
FUTEXFS_SUPER_MAGIC 0xBAD1DEA
HFS_SUPER_MAGIC 0x4244
HOSTFS_SUPER_MAGIC 0x00c0ffee
HPFS_SUPER_MAGIC 0xF995E849
HUGETLBFS_MAGIC 0x958458f6
ISOFS_SUPER_MAGIC 0x9660
JFFS2_SUPER_MAGIC 0x72b6
JFS_SUPER_MAGIC 0x3153464a
MINIX_SUPER_MAGIC 0x137F /* orig. minix */
MINIX_SUPER_MAGIC2 0x138F /* 30 char minix */
MINIX2_SUPER_MAGIC 0x2468 /* minix V2 */
MINIX2_SUPER_MAGIC2 0x2478 /* minix V2, 30 char names */
MINIX3_SUPER_MAGIC 0x4d5a /* minix V3 fs, 60 char names */
MQQUEUE_MAGIC 0x19800202
MSDOS_SUPER_MAGIC 0x4d44
NCP_SUPER_MAGIC 0x564c
NFS_SUPER_MAGIC 0x6969
NILFS_SUPER_MAGIC 0x3434
NTFS_SB_MAGIC 0x5346544e
OPENPROM_SUPER_MAGIC 0x9fa1
PIPEFS_MAGIC 0x50495045
PROC_SUPER_MAGIC 0x9fa0
PSTOREFS_MAGIC 0x6165676C
QNX4_SUPER_MAGIC 0x002f
QNX6_SUPER_MAGIC 0x68191122
RAMFS_MAGIC 0x858458f6
REISERFS_SUPER_MAGIC 0x52654973
ROMFS_MAGIC 0x7275
SELINUX_MAGIC 0xf97cff8c
SMACK_MAGIC 0x43415d53
SMB_SUPER_MAGIC 0x517B
SOCKFS_MAGIC 0x534F434B
SQUASHFS_MAGIC 0x73717368
SYSFS_MAGIC 0x62656572
SYSV2_SUPER_MAGIC 0x012FF7B6
SYSV4_SUPER_MAGIC 0x012FF7B5
TMPFS_MAGIC 0x01021994
UDF_SUPER_MAGIC 0x15013346
UFS_MAGIC 0x00011954
USBDEVICE_SUPER_MAGIC 0x9fa2
V9FS_MAGIC 0x01021997
VXFS_SUPER_MAGIC 0xa501FCF5
XENFS_SUPER_MAGIC 0xabba1974
XENIX_SUPER_MAGIC 0x012FF7B4
XFS_SUPER_MAGIC 0x58465342
_XIAFS_SUPER_MAGIC 0x012FD16D

```

Most of these MAGIC constants are defined in `/usr/include/linux/magic.h` some are hardcoded in kernel sources.

Nobody knows what `f_fsid` is supposed to contain (but see below).

Fields that are undefined for a particular filesystem are set to 0. `fstatfs()` returns the same information about an open file referenced by descriptor `fd`.

RETURN VALUE

On success, zero is returned. On error, -1 is returned, and *errno* is set appropriately.

ERRORS**EACCES**

(**statfs()**) Search permission is denied for a component of the path prefix of *path*. (See also [path_resolution\(7\)](#).)

EBADF

(**fstatfs()**) *fd* is not a valid open file descriptor.

EFAULT

buf or *path* points to an invalid address.

EINTR

This call was interrupted by a signal.

EIO An I/O error occurred while reading from the filesystem.

ELOOP

(**statfs()**) Too many symbolic links were encountered in translating *path*.

ENAMETOOLONG

(**statfs()**) *path* is too long.

ENOENT

(**statfs()**) The file referred to by *path* does not exist.

ENOMEM

Insufficient kernel memory was available.

ENOSYS

The filesystem does not support this call.

ENOTDIR

(**statfs()**) A component of the path prefix of *path* is not a directory.

EOVERFLOW

Some values were too large to be represented in the returned struct.

CONFORMING TO

Linux-specific. The Linux **statfs()** was inspired by the 4.4BSD one (but they do not use the same structure).

NOTES

The original Linux **statfs()** and **fstatfs()** system calls were not designed with extremely large file sizes in mind. Subsequently, Linux 2.6 added new **statfs64()** and **fstatfs64()** system calls that employ a new structure, *statfs64*. The new structure contains the same fields as the original *statfs* structure, but the sizes of various fields are increased, to accommodate large file sizes. The glibc **statfs()** and **fstatfs()** wrapper functions transparently deal with the kernel differences.

Some systems only have *<sys/vfs.h>*, other systems also have *<sys/statfs.h>*, where the former includes the latter. So it seems including the former is the best choice.

LSB has deprecated the library calls **statfs()** and **fstatfs()** and tells us to use [statvfs\(2\)](#) and [fstatvfs\(2\)](#) instead.

The *f_fsid* field

Solaris, Irix and POSIX have a system call [statvfs\(2\)](#) that returns a *struct statvfs* (defined in *<sys/statvfs.h>*) containing an *unsigned long f_fsid*. Linux, SunOS, HP-UX, 4.4BSD have a system call **statfs()** that returns a *struct statfs* (defined in *<sys/vfs.h>*) containing a *fsid_t f_fsid*, where *fsid_t* is defined as *struct { int val[2]; }*. The same holds for FreeBSD, except that it uses the include file *<sys/mount.h>*.

The general idea is that *f_fsid* contains some random stuff such that the pair (*f_fsid,ino*) uniquely

determines a file. Some operating systems use (a variation on) the device number, or the device number combined with the filesystem type. Several operating systems restrict giving out the *f_fsid* field to the superuser only (and zero it for unprivileged users), because this field is used in the filehandle of the filesystem when NFS-exported, and giving it out is a security concern.

Under some operating systems, the *fsid* can be used as the second argument to the [sysfs\(2\)](#) system call.

BUGS

From Linux 2.6.38 up to and including Linux 3.1, **fstatfs()** failed with the error **ENOSYS** for file descriptors created by [pipe\(2\)](#).

SEE ALSO

[stat\(2\)](#), [statvfs\(2\)](#), [path_resolution\(7\)](#)

COLOPHON

This page is part of release 3.74 of the Linux *man-pages* project. A description of the project, information about reporting bugs, and the latest version of this page, can be found at <http://www.kernel.org/doc/man-pages/>.