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Red Hat Enterprise Linux Release 9.2 Manual Pages on 'fstatfs64.2' command

$ man fstatfs64.2

STATFS(2) Linux Programmer's Manual STATFS(2)

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 statfs() system call returns information about a mounted filesys?
tem. path is the pathname of any file within the mounted filesystem.
buf is a pointer to a statfs structure defined approximately as fol?
lows:

```
   struct statfs {
      __fsword_t f_type;    /* Type of filesystem (see below) */
      __fsword_t f_bsize;   /* Optimal transfer block size */
      fsblkcnt_t f_blocks;  /* Total data blocks in filesystem */
      fsblkcnt_t f_bfree;   /* Free blocks in filesystem */
      fsblkcnt_t f_bavail;  /* Free blocks available to
                               unprivileged user */
      fsfilcnt_t f_files;   /* Total inodes in filesystem */
      fsfilcnt_t f_ffree;   /* Free inodes in filesystem */
      fsid_t     f_fsid;    /* Filesystem ID */
      __fsword_t f_namelen; /* Maximum length of filenames */
```

```
        __fsword_t f_frsize;  /* Fragment size (since Linux 2.6) */
        __fsword_t f_flags;   /* Mount flags of filesystem
                                 (since Linux 2.6.36) */
        __fsword_t f_spare[xxx];
                          /* Padding bytes reserved for future use */
    };
```

The following filesystem types may appear in f_type:

```
    ADFS_SUPER_MAGIC      0xadf5
    AFFS_SUPER_MAGIC      0xadff
    AFS_SUPER_MAGIC       0x5346414f
    ANON_INODE_FS_MAGIC   0x09041934 /* Anonymous inode FS (for
                                        pseudofiles that have no name;
                                        e.g., epoll, signalfd, bpf) */
    AUTOFS_SUPER_MAGIC    0x0187
    BDEVFS_MAGIC          0x62646576
    BEFS_SUPER_MAGIC      0x42465331
    BFS_MAGIC             0x1badface
    BINFMTFS_MAGIC        0x42494e4d
    BPF_FS_MAGIC          0xcafe4a11
    BTRFS_SUPER_MAGIC     0x9123683e
    BTRFS_TEST_MAGIC      0x73727279
    CGROUP_SUPER_MAGIC    0x27e0eb   /* Cgroup pseudo FS */
    CGROUP2_SUPER_MAGIC   0x63677270 /* Cgroup v2 pseudo FS */
    CIFS_MAGIC_NUMBER     0xff534d42
    CODA_SUPER_MAGIC      0x73757245
    COH_SUPER_MAGIC       0x012ff7b7
    CRAMFS_MAGIC          0x28cd3d45
    DEBUGFS_MAGIC         0x64626720
    DEVFS_SUPER_MAGIC     0x1373     /* Linux 2.6.17 and earlier */
    DEVPTS_SUPER_MAGIC    0x1cd1
    ECRYPTFS_SUPER_MAGIC  0xf15f
    EFIVARFS_MAGIC        0xde5e81e4
    EFS_SUPER_MAGIC       0x00414a53
```

EXT_SUPER_MAGIC 0x137d /* Linux 2.0 and earlier */

EXT2_OLD_SUPER_MAGIC 0xef51

EXT2_SUPER_MAGIC 0xef53

EXT3_SUPER_MAGIC 0xef53

EXT4_SUPER_MAGIC 0xef53

F2FS_SUPER_MAGIC 0xf2f52010

FUSE_SUPER_MAGIC 0x65735546

FUTEXFS_SUPER_MAGIC 0xbad1dea /* Unused */

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 /* original minix FS */

MINIX_SUPER_MAGIC2 0x138f /* 30 char minix FS */

MINIX2_SUPER_MAGIC 0x2468 /* minix V2 FS */

MINIX2_SUPER_MAGIC2 0x2478 /* minix V2 FS, 30 char names */

MINIX3_SUPER_MAGIC 0x4d5a /* minix V3 FS, 60 char names */

MQUEUE_MAGIC 0x19800202 /* POSIX message queue FS */

MSDOS_SUPER_MAGIC 0x4d44

MTD_INODE_FS_MAGIC 0x11307854

NCP_SUPER_MAGIC 0x564c

NFS_SUPER_MAGIC 0x6969

NILFS_SUPER_MAGIC 0x3434

NSFS_MAGIC 0x6e736673

NTFS_SB_MAGIC 0x5346544e

OCFS2_SUPER_MAGIC 0x7461636f

OPENPROM_SUPER_MAGIC 0x9fa1

OVERLAYFS_SUPER_MAGIC 0x794c7630

PIPEFS_MAGIC 0x50495045

PROC_SUPER_MAGIC 0x9fa0 /* /proc FS */

PSTOREFS_MAGIC 0x6165676c

QNX4_SUPER_MAGIC 0x002f

QNX6_SUPER_MAGIC 0x68191122

RAMFS_MAGIC 0x858458f6

REISERFS_SUPER_MAGIC 0x52654973

ROMFS_MAGIC 0x7275

SECURITYFS_MAGIC 0x73636673

SELINUX_MAGIC 0xf97cff8c

SMACK_MAGIC 0x43415d53

SMB_SUPER_MAGIC 0x517b

SMB2_MAGIC_NUMBER 0xfe534d42

SOCKFS_MAGIC 0x534f434b

SQUASHFS_MAGIC 0x73717368

SYSFS_MAGIC 0x62656572

SYSV2_SUPER_MAGIC 0x012ff7b6

SYSV4_SUPER_MAGIC 0x012ff7b5

TMPFS_MAGIC 0x01021994

TRACEFS_MAGIC 0x74726163

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 /* Linux 2.0 and earlier */

Most of these MAGIC constants are defined in /usr/in? clude/linux/magic.h, and some are hardcoded in kernel sources.

The f_flags field is a bit mask indicating mount options for the filesystem. It contains zero or more of the following bits:

ST_MANDLOCK

Mandatory locking is permitted on the filesystem (see fcntl(2)).

ST_NOATIME

Do not update access times; see mount(2).

ST_NODEV

Disallow access to device special files on this filesystem.

ST_NODIRATIME

Do not update directory access times; see mount(2).

ST_NOEXEC

Execution of programs is disallowed on this filesystem.

ST_NOSUID

The set-user-ID and set-group-ID bits are ignored by exec(3) for executable files on this filesystem

ST_RDONLY

This filesystem is mounted read-only.

ST_RELATIME

Update atime relative to mtime/ctime; see mount(2).

ST_SYNCHRONOUS

Writes are synched to the filesystem immediately (see the de? scription of O_SYNC in open(2)).

ST_NOSYMFOLLOW (since Linux 5.10)

Symbolic links are not followed when resolving paths; see mount(2).

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 The call was interrupted by a signal; see signal(7).

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

ELOOP (statfs()) Too many symbolic links were encountered in translat?
ing 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 di?
rectory.

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 __fsword_t type used for various fields in the statfs structure
definition is a glibc internal type, not intended for public use. This
leaves the programmer in a bit of a conundrum when trying to copy or
compare these fields to local variables in a program. Using un?
signed int for such variables suffices on most systems.

The original Linux statfs() and fstatfs() system calls were not de?
signed 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 in?
creased, to accommodate large file sizes. The glibc statfs() and fs?
tatfs() wrapper functions transparently deal with the kernel differ?
ences.

Some systems have only <sys/vfs.h>, other systems also have

<sys/statfs.h>, where the former includes the latter. So it seems in? cluding 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 sys? tems use (a variation on) the device number, or the device number com? bined with the filesystem type. Several operating systems restrict giving out the f_fsid field to the superuser only (and zero it for un? privileged 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 argu? ment 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(3), path_resolution(7)

COLOPHON

This page is part of release 5.10 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 https://www.kernel.org/doc/man-pages/.