
Subject: [patch 09/10] allow unprivileged mounts

Posted by [Miklos Szeredi](#) on Mon, 16 Apr 2007 11:03:17 GMT

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From: Miklos Szeredi <mszeredi@suse.cz>

Define a new fs flag FS_SAFE, which denotes, that unprivileged mounting of this filesystem may not constitute a security problem.

Since most filesystems haven't been designed with unprivileged mounting in mind, a thorough audit is needed before setting this flag.

Signed-off-by: Miklos Szeredi <mszeredi@suse.cz>

Index: linux/fs/namespace.c

```
=====
--- linux.orig/fs/namespace.c 2007-04-13 13:35:29.000000000 +0200
+++ linux/fs/namespace.c 2007-04-13 13:35:30.000000000 +0200
@@ -785,7 +785,8 @@ asmlinkage long sys_oldumount(char __use
 * o if it's a sticky directory, it must be owned by the user
 * o it must not be an append-only file/directory
 */
-static int mount_is_safe(struct nameidata *nd, int *flags)
+static int mount_is_safe(struct nameidata *nd, struct file_system_type *type,
+ int *flags)
{
    struct inode *inode = nd->dentry->d_inode;

@@ -795,6 +796,9 @@ static int mount_is_safe(struct nameidat
    if (!(nd->mnt->mnt_flags & MNT_USERMNT))
        return -EPERM;

+ if (type && !(type->fs_flags & FS_SAFE))
+     return -EPERM;
+
    if (!S_ISDIR(inode->i_mode) && !S_ISREG(inode->i_mode))
        return -EPERM;

@@ -1035,7 +1039,7 @@ static int do_loopback(struct nameidata
    int clone_flags;
    struct nameidata old_nd;
    struct vfsmount *mnt = NULL;
- int err = mount_is_safe(nd, &flags);
+ int err = mount_is_safe(nd, NULL, &flags);
    if (err)
        return err;
    if (!old_name || !*old_name)
```

@@ -1197,26 +1201,46 @@ out:

```
* create a new mount for userspace and request it to be added into the
* namespace's tree
*/
```

```
-static int do_new_mount(struct nameidata *nd, char *type, int flags,
+static int do_new_mount(struct nameidata *nd, char *fstype, int flags,
    int mnt_flags, char *name, void *data)
```

```
{
+ int err;
    struct vfsmount *mnt;
+ struct file_system_type *type;

- if (!type || !memchr(type, 0, PAGE_SIZE))
+ if (!fstype || !memchr(fstype, 0, PAGE_SIZE))
    return -EINVAL;
```

```
- /* we need capabilities... */
- if (!capable(CAP_SYS_ADMIN))
-     return -EPERM;
+ type = get_fs_type(fstype);
+ if (!type)
+     return -ENODEV;
```

```
- mnt = do_kern_mount(type, flags & ~MS_SETUSER, name, data);
- if (IS_ERR(mnt))
+ err = mount_is_safe(nd, type, &flags);
+ if (err)
+     goto out_put_filesystem;
+
+ if (flags & MS_SETUSER) {
+     err = reserve_user_mount();
+     if (err)
+         goto out_put_filesystem;
+ }
+
+ mnt = vfs_kern_mount(type, flags & ~MS_SETUSER, name, data);
+ put_filesystem(type);
+ if (IS_ERR(mnt)) {
+     if (flags & MS_SETUSER)
+         dec_nr_user_mounts();
+     return PTR_ERR(mnt);
+ }
```

```
    if (flags & MS_SETUSER)
-     set_mnt_user(mnt);
+     __set_mnt_user(mnt);
```

```
    return do_add_mount(mnt, nd, mnt_flags, NULL);
```

```

+
+ out_put_filesystem:
+ put_filesystem(type);
+ return err;
}

/*
@@ -1246,7 +1270,7 @@ int do_add_mount(struct vfsmount *newmnt
    if (S_ISLNK(newmnt->mnt_root->d_inode->i_mode))
        goto unlock;

- /* MNT_USER was set earlier */
+ /* some flags may have been set earlier */
    newmnt->mnt_flags |= mnt_flags;
    if ((err = graft_tree(newmnt, nd)))
        goto unlock;
Index: linux/include/linux/fs.h
=====
--- linux.orig/include/linux/fs.h 2007-04-13 13:35:29.000000000 +0200
+++ linux/include/linux/fs.h 2007-04-13 13:35:30.000000000 +0200
@@ -96,6 +96,7 @@ extern int dir_notify_enable;
#define FS_REQUIRES_DEV 1
#define FS_BINARY_MOUNTDATA 2
#define FS_HAS_SUBTYPE 4
+#define FS_SAFE 8 /* Safe to mount by unprivileged users */
#define FS_REVAL_DOT 16384 /* Check the paths ".", ".." for staleness */
#define FS_RENAME_DOES_D_MOVE 32768 /* FS will handle d_move()
    * during rename() internally.

--

```

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