
Subject: [PATCH 04/11] sysfs: Rename Support multiple superblocks

Posted by [Benjamin Thery](#) on Fri, 06 Jun 2008 15:47:34 GMT

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sysfs: Rename Support multiple superblocks

This patch modifies the `sysfs_rename_dir` and `sysfs_move_dir` routines to support multiple sysfs dentry tries rooted in different sysfs superblocks.

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fs/sysfs/dir.c | 195 ++++++-----
1 file changed, 137 insertions(+), 58 deletions(-)

Index: linux-mm/fs/sysfs/dir.c

=====

--- linux-mm.orig/fs/sysfs/dir.c

+++ linux-mm/fs/sysfs/dir.c

```
@@ -816,43 +816,113 @@ static struct dentry *__sysfs_get_dentry
    return dentry;
}
```

```
+struct sysfs_rename_struct {
```

```
+ struct list_head list;
```

```
+ struct dentry *old_dentry;
```

```
+ struct dentry *new_dentry;
```

```
+ struct dentry *old_parent;
```

```
+ struct dentry *new_parent;
```

```
+};
```

```
+
```

```
+static void post_rename(struct list_head *head)
```

```
+{
```

```
+ struct sysfs_rename_struct *srs;
```

```
+ while (!list_empty(head)) {
```

```
+ srs = list_entry(head->next, struct sysfs_rename_struct, list);
```

```
+ dput(srs->old_dentry);
```

```
+ dput(srs->new_dentry);
```

```
+ dput(srs->old_parent);
```

```
+ dput(srs->new_parent);
```

```
+ list_del(&srs->list);
```

```
+ kfree(srs);
```

```
+ }
```

```
+}
```

```
+
```

```
+static int prep_rename(struct list_head *head,
```

```
+ struct sysfs_dirent *sd, struct sysfs_dirent *new_parent_sd,
```

```

+ const char *name)
+{
+ struct sysfs_rename_struct *srs;
+ struct super_block *sb;
+ struct dentry *dentry;
+ int error;
+
+ list_for_each_entry(sb, &sysfs_fs_type.fs_supers, s_instances) {
+ dentry = sysfs_get_dentry(sb, sd);
+ if (dentry == ERR_PTR(-EXDEV))
+ continue;
+ if (IS_ERR(dentry)) {
+ error = PTR_ERR(dentry);
+ goto err_out;
+ }
+
+ srs = kzalloc(sizeof(*srs), GFP_KERNEL);
+ if (!srs) {
+ error = -ENOMEM;
+ dput(dentry);
+ goto err_out;
+ }
+
+ INIT_LIST_HEAD(&srs->list);
+ list_add(head, &srs->list);
+ srs->old_dentry = dentry;
+ srs->old_parent = dget(dentry->d_parent);
+
+ dentry = sysfs_get_dentry(sb, new_parent_sd);
+ if (IS_ERR(dentry)) {
+ error = PTR_ERR(dentry);
+ goto err_out;
+ }
+ srs->new_parent = dentry;
+
+ error = -ENOMEM;
+ dentry = d_alloc_name(srs->new_parent, name);
+ if (!dentry)
+ goto err_out;
+ srs->new_dentry = dentry;
+ }
+ return 0;
+
+err_out:
+ post_rename(head);
+ return error;
+}
+

```

```

int sysfs_rename_dir(struct kobj * kobj, const char *new_name)
{
    struct sysfs_dirent *sd = kobj->sd;
- struct dentry *parent = NULL;
- struct dentry *old_dentry = NULL, *new_dentry = NULL;
+ struct list_head todo;
+ struct sysfs_rename_struct *srs;
+ struct inode *parent_inode = NULL;
    const char *dup_name = NULL;
    int error;

+ INIT_LIST_HEAD(&todo);
    mutex_lock(&sysfs_rename_mutex);

    error = 0;
    if (strcmp(sd->s_name, new_name) == 0)
        goto out; /* nothing to rename */

- /* get the original dentry */
- old_dentry = sysfs_get_dentry(sysfs_sb, sd);
- if (IS_ERR(old_dentry)) {
-     error = PTR_ERR(old_dentry);
-     old_dentry = NULL;
-     goto out;
- }
+ sysfs_grab_supers();
+ error = prep_rename(&todo, sd, sd->s_parent, new_name);
+ if (error)
+     goto out_release;

- parent = old_dentry->d_parent;
+ error = -ENOMEM;
+ mutex_lock(&sysfs_mutex);
+ parent_inode = sysfs_get_inode(sd->s_parent);
+ mutex_unlock(&sysfs_mutex);
+ if (!parent_inode)
+     goto out_release;

- /* lock parent and get dentry for new name */
- mutex_lock(&parent->d_inode->i_mutex);
+ mutex_lock(&parent_inode->i_mutex);
    mutex_lock(&sysfs_mutex);

    error = -EEXIST;
    if (sysfs_find_dirent(sd->s_parent, new_name))
        goto out_unlock;

- error = -ENOMEM;

```

```

- new_dentry = d_alloc_name(parent, new_name);
- if (!new_dentry)
- goto out_unlock;
-
  /* rename kobject and sysfs_dirent */
  error = -ENOMEM;
  new_name = dup_name = kstrdup(new_name, GFP_KERNEL);
@@ -867,17 +937,21 @@ int sysfs_rename_dir(struct kobject * ko
  sd->s_name = new_name;

  /* rename */
- d_add(new_dentry, NULL);
- d_move(old_dentry, new_dentry);
+ list_for_each_entry(srs, &todo, list) {
+ d_add(srs->new_dentry, NULL);
+ d_move(srs->old_dentry, srs->new_dentry);
+ }

  error = 0;
- out_unlock:
+out_unlock:
  mutex_unlock(&sysfs_mutex);
- mutex_unlock(&parent->d_inode->i_mutex);
+ mutex_unlock(&parent_inode->i_mutex);
  kfree(dup_name);
- dput(old_dentry);
- dput(new_dentry);
- out:
+out_release:
+ iput(parent_inode);
+ post_rename(&todo);
+ sysfs_release_supers();
+out:
  mutex_unlock(&sysfs_rename_mutex);
  return error;
}
@@ -886,10 +960,12 @@ int sysfs_move_dir(struct kobject *kobj,
{
  struct sysfs_dirent *sd = kobj->sd;
  struct sysfs_dirent *new_parent_sd;
- struct dentry *old_parent, *new_parent = NULL;
- struct dentry *old_dentry = NULL, *new_dentry = NULL;
+ struct list_head todo;
+ struct sysfs_rename_struct *srs;
+ struct inode *old_parent_inode = NULL, *new_parent_inode = NULL;
  int error;

+ INIT_LIST_HEAD(&todo);

```

```

mutex_lock(&sysfs_rename_mutex);
BUG_ON(!sd->s_parent);
new_parent_sd = new_parent_kobj->sd ? new_parent_kobj->sd : &sysfs_root;
@@ -898,26 +974,29 @@ int sysfs_move_dir(struct kobject *kobj,
if (sd->s_parent == new_parent_sd)
goto out; /* nothing to move */

```

```

- /* get dentries */
- old_dentry = sysfs_get_dentry(sysfs_sb, sd);
- if (IS_ERR(old_dentry)) {
- error = PTR_ERR(old_dentry);
- old_dentry = NULL;
- goto out;
- }
- old_parent = old_dentry->d_parent;
-
- new_parent = sysfs_get_dentry(sysfs_sb, new_parent_sd);
- if (IS_ERR(new_parent)) {
- error = PTR_ERR(new_parent);
- new_parent = NULL;
- goto out;
- }
+ sysfs_grab_supers();
+ error = prep_rename(&todo, sd, new_parent_sd, sd->s_name);
+ if (error)
+ goto out_release;
+
+ error = -ENOMEM;
+ mutex_lock(&sysfs_mutex);
+ old_parent_inode = sysfs_get_inode(sd->s_parent);
+ mutex_unlock(&sysfs_mutex);
+ if (!old_parent_inode)
+ goto out_release;
+
+ error = -ENOMEM;
+ mutex_lock(&sysfs_mutex);
+ new_parent_inode = sysfs_get_inode(new_parent_sd);
+ mutex_unlock(&sysfs_mutex);
+ if (!new_parent_inode)
+ goto out_release;

```

again:

```

- mutex_lock(&old_parent->d_inode->i_mutex);
- if (!mutex_trylock(&new_parent->d_inode->i_mutex)) {
- mutex_unlock(&old_parent->d_inode->i_mutex);
+ mutex_lock(&old_parent_inode->i_mutex);
+ if (!mutex_trylock(&new_parent_inode->i_mutex)) {
+ mutex_unlock(&old_parent_inode->i_mutex);

```

```

    goto again;
}
mutex_lock(&sysfs_mutex);
@@ -926,14 +1005,11 @@ again:
if (sysfs_find_dirent(new_parent_sd, sd->s_name))
    goto out_unlock;

- error = -ENOMEM;
- new_dentry = d_alloc_name(new_parent, sd->s_name);
- if (!new_dentry)
- goto out_unlock;
-
    error = 0;
- d_add(new_dentry, NULL);
- d_move(old_dentry, new_dentry);
+ list_for_each_entry(srs, &todo, list) {
+ d_add(srs->new_dentry, NULL);
+ d_move(srs->old_dentry, srs->new_dentry);
+ }

/* Remove from old parent's list and insert into new parent's list. */
sysfs_unlink_sibling(sd);
@@ -942,14 +1018,17 @@ again:
sd->s_parent = new_parent_sd;
sysfs_link_sibling(sd);

- out_unlock:
+out_unlock:
    mutex_unlock(&sysfs_mutex);
- mutex_unlock(&new_parent->d_inode->i_mutex);
- mutex_unlock(&old_parent->d_inode->i_mutex);
- out:
- dput(new_parent);
- dput(old_dentry);
- dput(new_dentry);
+ mutex_unlock(&new_parent_inode->i_mutex);
+ mutex_unlock(&old_parent_inode->i_mutex);
+
+out_release:
+ iput(new_parent_inode);
+ iput(old_parent_inode);
+ post_rename(&todo);
+ sysfs_release_supers();
+out:
    mutex_unlock(&sysfs_rename_mutex);
    return error;
}

```

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Containers mailing list
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