
Subject: [PATCH 01/11] sysfs: Support for preventing unmounts.
Posted by [Benjamin Thery](#) on Fri, 06 Jun 2008 15:47:04 GMT
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sysfs: Support for preventing unmounts.

To support mounting multiple instances of sysfs occasionally I need to walk through all of the currently present sysfs super blocks.

To allow this iteration this patch adds `sysfs_grab_supers` and `sysfs_release_supers`. While a piece of code is in a section surrounded by these no more sysfs super blocks will be either created or destroyed.

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Signed-off-by: Benjamin Thery <benjamin.thery@bull.net>

fs/sysfs/mount.c | 79 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++-----
fs/sysfs/sysfs.h | 10 ++++++
2 files changed, 81 insertions(+), 8 deletions(-)

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

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```
--- linux-mm.orig/fs/sysfs/mount.c
+++ linux-mm/fs/sysfs/mount.c
@@ -41,47 +41,110 @@ struct sysfs_dirent sysfs_root = {

static int sysfs_fill_super(struct super_block *sb, void *data, int silent)
{
- struct inode *inode;
- struct dentry *root;
+ struct sysfs_super_info *info = NULL;
+ struct inode *inode = NULL;
+ struct dentry *root = NULL;
+ int error;

    sb->s_blocksize = PAGE_CACHE_SIZE;
    sb->s_blocksize_bits = PAGE_CACHE_SHIFT;
    sb->s_magic = SYSFS_MAGIC;
    sb->s_op = &sysfs_ops;
    sb->s_time_gran = 1;
- sysfs_sb = sb;
+ if (!sysfs_sb)
+   sysfs_sb = sb;
+
+ error = -ENOMEM;
+ info = kzalloc(sizeof(*info), GFP_KERNEL);
+ if (!info)
```

```

+ goto out_err;

/* get root inode, initialize and unlock it */
+ error = -ENOMEM;
inode = sysfs_get_inode(&sysfs_root);
if (!inode) {
pr_debug("sysfs: could not get root inode\n");
- return -ENOMEM;
+ goto out_err;
}

/* instantiate and link root dentry */
+ error = -ENOMEM;
root = d_alloc_root(inode);
if (!root) {
pr_debug("%s: could not get root dentry!\n", __func__);
- iput(inode);
- return -ENOMEM;
+ goto out_err;
}
root->d_fsdata = &sysfs_root;
sb->s_root = root;
+ sb->s_fs_info = info;
return 0;
+
+out_err:
+ dput(root);
+ iput(inode);
+ kfree(info);
+ if (sysfs_sb == sb)
+ sysfs_sb = NULL;
+ return error;
}

static int sysfs_get_sb(struct file_system_type *fs_type,
int flags, const char *dev_name, void *data, struct vfsmount *mnt)
{
- return get_sb_single(fs_type, flags, data, sysfs_fill_super, mnt);
+ int rc;
+ mutex_lock(&sysfs_rename_mutex);
+ rc = get_sb_single(fs_type, flags, data, sysfs_fill_super, mnt);
+ mutex_unlock(&sysfs_rename_mutex);
+ return rc;
}

-static struct file_system_type sysfs_fs_type = {
+struct file_system_type sysfs_fs_type = {
.name = "sysfs",

```

```

.get_sb = sysfs_get_sb,
.kill_sb = kill_anon_super,
};

+void sysfs_grab_supers(void)
+{
+ /* must hold sysfs_rename_mutex */
+ struct super_block *sb;
+ /* Loop until I have taken s_umount on all sysfs superblocks */
+restart:
+ spin_lock(&sb_lock);
+ list_for_each_entry(sb, &sysfs_fs_type.fs_supers, s_instances) {
+ if (sysfs_info(sb)->grabbed)
+ continue;
+ /* Wait for unmount activity to complete. */
+ if (sb->s_count < S_BIAS) {
+ sb->s_count += 1;
+ spin_unlock(&sb_lock);
+ down_read(&sb->s_umount);
+ drop_super(sb);
+ goto restart;
+ }
+ atomic_inc(&sb->s_active);
+ sysfs_info(sb)->grabbed = 1;
+ }
+ spin_unlock(&sb_lock);
+}
+
+void sysfs_release_supers(void)
+{
+ /* must hold sysfs_rename_mutex */
+ struct super_block *sb;
+restart:
+ spin_lock(&sb_lock);
+ list_for_each_entry(sb, &sysfs_fs_type.fs_supers, s_instances) {
+ if (!sysfs_info(sb)->grabbed)
+ continue;
+ sysfs_info(sb)->grabbed = 0;
+ spin_unlock(&sb_lock);
+ deactivate_super(sb);
+ goto restart;
+ }
+ spin_unlock(&sb_lock);
+}
+
+int __init sysfs_init(void)
+{
+ int err = -ENOMEM;

```

Index: linux-mm/fs/sysfs/sysfs.h

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```
--- linux-mm.orig/fs/sysfs/sysfs.h
+++ linux-mm/fs/sysfs/sysfs.h
@@ -85,6 +85,12 @@ struct sysfs_addrm_cxt {
    int cnt;
};

+struct sysfs_super_info {
+ int grabbed;
+};
+
+#define sysfs_info(SB) ((struct sysfs_super_info *) (SB)->s_fs_info)
+
+/*
+ * mount.c
+ */
@@ -92,6 +98,10 @@ extern struct sysfs_dirent sysfs_root;
extern struct super_block *sysfs_sb;
extern struct kmem_cache *sysfs_dir_cache;
extern struct vfsmount *sysfs_mount;
+extern struct file_system_type sysfs_fs_type;
+
+void sysfs_grab_supers(void);
+void sysfs_release_supers(void);

+/*
+ * dir.c
+ */

--
```

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