
Subject: [PATCH] Fix race between proc_get_inode() and remove_proc_entry()

Posted by [adobriyan](#) on Wed, 07 Mar 2007 08:54:00 GMT

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proc_lookup remove_proc_entry
===== =====

```
lock_kernel();
spin_lock(&proc_subdir_lock);
[find PDE with refcount 0]
spin_unlock(&proc_subdir_lock);
    spin_lock(&proc_subdir_lock);
    [find PDE with refcount 0]
    [check refcount and free PDE]
    spin_unlock(&proc_subdir_lock);
proc_get_inode:
de_get(de); /* boom */
```

Signed-off-by: Alexey Dobriyan <adobriyan@openvz.org>

```
fs/proc/generic.c      |  2 ++
fs/proc/inode.c         | 12 ++++-----
include/linux/proc_fs.h |  3 +++
3 files changed, 9 insertions(+), 8 deletions(-)
```

--- a/fs/proc/generic.c

+++ b/fs/proc/generic.c

```
@@ -398,6 +398,7 @@ struct dentry *proc_lookup(struct inode
    if (!memcmp(dentry->d_name.name, de->name, de->namelen)) {
        unsigned int ino = de->low_ino;
```

```
+    de_get(de);
    spin_unlock(&proc_subdir_lock);
    error = -EINVAL;
    inode = proc_get_inode(dir->i_sb, ino, de);
```

```
@@ -414,6 +415,7 @@ struct dentry *proc_lookup(struct inode
    d_add(dentry, inode);
    return NULL;
}
```

```
+ de_put(de);
    return ERR_PTR(error);
}
```

--- a/fs/proc/inode.c

+++ b/fs/proc/inode.c

```
@@ -21,7 +21,7 @@ #include <asm/uaccess.h>
```

```

#include "internal.h"

-static inline struct proc_dir_entry * de_get(struct proc_dir_entry *de)
+struct proc_dir_entry * de_get(struct proc_dir_entry *de)
{
    if (de)
        atomic_inc(&de->count);
@@ -31,7 +31,7 @@ static inline struct proc_dir_entry * de
/*
 * Decrements the use count and checks for deferred deletion.
 */
-static void de_put(struct proc_dir_entry *de)
+void de_put(struct proc_dir_entry *de)
{
    if (de) {
        lock_kernel();
@@ -147,11 +147,6 @@ struct inode *proc_get_inode(struct supe
{
    struct inode * inode;

- /*
-  * Increment the use count so the dir entry can't disappear.
-  */
- de_get(de);
-
    WARN_ON(de && de->deleted);

    if (de != NULL && !try_module_get(de->owner))
@@ -185,7 +180,6 @@ out_ino:
    if (de != NULL)
        module_put(de->owner);
out_mod:
- de_put(de);
    return NULL;
}

@@ -200,6 +194,7 @@ int proc_fill_super(struct super_block *
    s->s_op = &proc_sops;
    s->s_time_gran = 1;

+ de_get(&proc_root);
    root_inode = proc_get_inode(s, PROC_ROOT_INO, &proc_root);
    if (!root_inode)
        goto out_no_root;
@@ -213,6 +208,7 @@ int proc_fill_super(struct super_block *
out_no_root:
    printk("proc_read_super: get root inode failed\n");
    iput(root_inode);

```

```
+ de_put(&proc_root);
return -ENOMEM;
}
MODULE_LICENSE("GPL");
--- a/include/linux/proc_fs.h
+++ b/include/linux/proc_fs.h
@@ -105,6 +105,9 @@ unsigned long task_vsize(struct mm_struct
int task_statm(struct mm_struct *, int *, int *, int *, int *);
char *task_mem(struct mm_struct *, char *);

+struct proc_dir_entry * de_get(struct proc_dir_entry *de);
+void de_put(struct proc_dir_entry *de);
+
extern struct proc_dir_entry *create_proc_entry(const char *name, mode_t mode,
        struct proc_dir_entry *parent);
extern void remove_proc_entry(const char *name, struct proc_dir_entry *parent);
```
