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Subject: [PATCH] Brush up task's session and group numbers manipulations

Posted by [xemul](#) on Tue, 15 May 2007 10:17:12 GMT

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The set of functions `process_session`, `task_session`, `process_group` and `task_pgrp` is confusing, as the names can be mixed with each other when looking at the code for a long time.

The proposals are to

- \* equip the functions that return the integer with `_nr` suffix to represent that fact,
- \* and to make all functions work with task (not process) by making the common prefix of the same name.

For monotony the routines `signal_session()` and `set_signal_session()` are replaced with `task_session_nr()` and `set_task_session()`, especially since they are only used with the explicit `task->signal` dereference.

Fits 2.6.21-mm2

Signed-off-by: Pavel Emelianov <[xemul@openvz.org](mailto:xemul@openvz.org)>

---

```
diff --git a/arch/mips/kernel/irixelf.c b/arch/mips/kernel/irixelf.c
index 403d96f..10ba0a5 100644
--- a/arch/mips/kernel/irixelf.c
+++ b/arch/mips/kernel/irixelf.c
@@ -1170,8 +1170,8 @@ static int irix_core_dump(long signr, st
    prstatus.pr_sighold = current->blocked.sig[0];
    psinfo.pr_pid = prstatus.pr_pid = current->pid;
    psinfo.pr_ppid = prstatus.pr_ppid = current->parent->pid;
-   psinfo.pr_pgrp = prstatus.pr_pgrp = process_group(current);
-   psinfo.pr_sid = prstatus.pr_sid = process_session(current);
+   psinfo.pr_pgrp = prstatus.pr_pgrp = task_pgrp_nr(current);
+   psinfo.pr_sid = prstatus.pr_sid = task_session_nr(current);
    if (current->pid == current->tgid) {
/*
```

    \* This is the record for the group leader. Add in the

```
diff --git a/arch/mips/kernel/irixsig.c b/arch/mips/kernel/irixsig.c
index 6980deb..210503e 100644
--- a/arch/mips/kernel/irixsig.c
+++ b/arch/mips/kernel/irixsig.c
@@ -609,7 +609,7 @@ repeat:
    p = list_entry(_p, struct task_struct, sibling);
    if ((type == IRIX_P_PID) && p->pid != pid)
        continue;
-   if ((type == IRIX_P_PGID) && process_group(p) != pid)
```

```

+ if ((type == IRIX_P_PGID) && task_pgrp_nr(p) != pid)
    continue;
    if ((p->exit_signal != SIGCHLD))
        continue;
diff --git a/arch/mips/kernel/sysirix.c b/arch/mips/kernel/sysirix.c
index 93a1484..23c3e82 100644
--- a/arch/mips/kernel/sysirix.c
+++ b/arch/mips/kernel/sysirix.c
@@ -763,11 +763,11 @@ asmlinkage int irix_setpgrp(int flags)
    printk("[%s:%d] setpgrp(%d) ", current->comm, current->pid, flags);
    #endif
    if(!flags)
-   error = process_group(current);
+   error = task_pgrp_nr(current);
    else
        error = sys_setsid();
    #ifdef DEBUG_PROCGRPS
-   printk("returning %d\n", process_group(current));
+   printk("returning %d\n", task_pgrp_nr(current));
    #endif

    return error;
diff --git a/arch/sparc64/solaris/misc.c b/arch/sparc64/solaris/misc.c
index 3b67de7..c86cb30 100644
--- a/arch/sparc64/solaris/misc.c
+++ b/arch/sparc64/solaris/misc.c
@@ -415,7 +415,7 @@ asmlinkage int solaris_procids(int cmd,

    switch (cmd) {
    case 0: /* getpgrp */
-   return process_group(current);
+   return task_pgrp_nr(current);
    case 1: /* setpgrp */
    {
        int (*sys_setpgid)(pid_t,pid_t) =
@@ -426,7 +426,7 @@ asmlinkage int solaris_procids(int cmd,
        ret = sys_setpgid(0, 0);
        if (ret) return ret;
        proc_clear_tty(current);
-   return process_group(current);
+   return task_pgrp_nr(current);
    }
    case 2: /* getsid */
    {
diff --git a/drivers/char/tty_io.c b/drivers/char/tty_io.c
index 6a7ba37..3bae36f 100644
--- a/drivers/char/tty_io.c
+++ b/drivers/char/tty_io.c

```

```

@@ -3470,7 +3470,7 @@ void __do_SAK(struct tty_struct *tty)
/* Kill the entire session */
do_each_pid_task(session, PIDTYPE_SID, p) {
    printk(KERN_NOTICE "SAK: killed process %d"
- " (%s): process_session(p)==tty->session\n",
+ " (%s): task_session_nr(p)==tty->session\n",
        p->pid, p->comm);
    send_sig(SIGKILL, p, 1);
} while_each_pid_task(session, PIDTYPE_SID, p);
@@ -3480,7 +3480,7 @@ void __do_SAK(struct tty_struct *tty)
do_each_thread(g, p) {
    if (p->signal->tty == tty) {
        printk(KERN_NOTICE "SAK: killed process %d"
- " (%s): process_session(p)==tty->session\n",
+ " (%s): task_session_nr(p)==tty->session\n",
        p->pid, p->comm);
        send_sig(SIGKILL, p, 1);
        continue;
diff --git a/fs/autofs/inode.c b/fs/autofs/inode.c
index e7204d7..45f5992 100644
--- a/fs/autofs/inode.c
+++ b/fs/autofs/inode.c
@@ -80,7 +80,7 @@ static int parse_options(char *options,

    *uid = current->uid;
    *gid = current->gid;
- *pgrp = process_group(current);
+ *pgrp = task_pgrp_nr(current);

    *minproto = *maxproto = AUTOFS_PROTO_VERSION;

diff --git a/fs/autofs/root.c b/fs/autofs/root.c
index c148953..592f640 100644
--- a/fs/autofs/root.c
+++ b/fs/autofs/root.c
@@ -215,7 +215,7 @@ static struct dentry *autofs_root_lookup
    oz_mode = autofs_oz_mode(sbi);
    DPRINTK(("autofs_lookup: pid = %u, pgrp = %u, catatonic = %d, "
        "oz_mode = %d\n", pid_nr(task_pid(current)),
- process_group(current), sbi->catatonic,
+ task_pgrp_nr(current), sbi->catatonic,
        oz_mode));

    /*
@@ -536,7 +536,7 @@ static int autofs_root_ioctl(struct inode
    struct autofs_sb_info *sbi = autofs_sb_info(inode->i_sb);
    void __user *argp = (void __user *)arg;

```

```

- DPRINTK(("autofs_ioctl: cmd = 0x%08x, arg = 0x%08lx, sbi = %p, pgrp =
%u\n",cmd,arg,sbi,process_group(current)));
+ DPRINTK(("autofs_ioctl: cmd = 0x%08x, arg = 0x%08lx, sbi = %p, pgrp =
%u\n",cmd,arg,sbi,task_pgrp_nr(current)));

    if (_IOC_TYPE(cmd) != _IOC_TYPE(AUTOFS_IOC_FIRST) ||
        _IOC_NR(cmd) - _IOC_NR(AUTOFS_IOC_FIRST) >= AUTOFS_IOC_COUNT)
diff --git a/fs/autofs4/autofs_i.h b/fs/autofs4/autofs_i.h
index d85f42f..2d4ae40 100644
--- a/fs/autofs4/autofs_i.h
+++ b/fs/autofs4/autofs_i.h
@@ -131,7 +131,7 @@ static inline struct autofs_info *autofs
    filesystem without "magic".) */

static inline int autofs4_oz_mode(struct autofs_sb_info *sbi) {
- return sbi->catatonic || process_group(current) == sbi->oz_pgrp;
+ return sbi->catatonic || task_pgrp_nr(current) == sbi->oz_pgrp;
}

/* Does a dentry have some pending activity? */
diff --git a/fs/autofs4/inode.c b/fs/autofs4/inode.c
index 692364e..32a39b0 100644
--- a/fs/autofs4/inode.c
+++ b/fs/autofs4/inode.c
@@ -226,7 +226,7 @@ static int parse_options(char *options,

    *uid = current->uid;
    *gid = current->gid;
- *pgrp = process_group(current);
+ *pgrp = task_pgrp_nr(current);

    *minproto = AUTOFS_MIN_PROTO_VERSION;
    *maxproto = AUTOFS_MAX_PROTO_VERSION;
@@ -325,7 +325,7 @@ int autofs4_fill_super(struct super_bloc
    sbi->pipe = NULL;
    sbi->catatonic = 1;
    sbi->exp_timeout = 0;
- sbi->oz_pgrp = process_group(current);
+ sbi->oz_pgrp = task_pgrp_nr(current);
    sbi->sb = s;
    sbi->version = 0;
    sbi->sub_version = 0;
diff --git a/fs/autofs4/root.c b/fs/autofs4/root.c
index 2d4c8a3..c766ff8 100644
--- a/fs/autofs4/root.c
+++ b/fs/autofs4/root.c
@@ -582,7 +582,7 @@ static struct dentry *autofs4_lookup(str
    oz_mode = autofs4_oz_mode(sbi);

```

```

DPRINTK("pid = %u, pgrp = %u, catatonic = %d, oz_mode = %d",
- current->pid, process_group(current), sbi->catatonic, oz_mode);
+ current->pid, task_pgrp_nr(current), sbi->catatonic, oz_mode);

unhashed = autofs4_lookup_unhashed(sbi, dentry->d_parent, &dentry->d_name);
if (!unhashed) {
@@ -973,7 +973,7 @@ static int autofs4_root_ioctl(struct ino
void __user *p = (void __user *)arg;

DPRINTK("cmd = 0x%08x, arg = 0x%08lx, sbi = %p, pgrp = %u",
- cmd,arg,sbi,process_group(current));
+ cmd,arg,sbi,task_pgrp_nr(current));

if (_IOC_TYPE(cmd) != _IOC_TYPE(AUTOFS_IOC_FIRST) ||
    _IOC_NR(cmd) - _IOC_NR(AUTOFS_IOC_FIRST) >= AUTOFS_IOC_COUNT)
diff --git a/fs/binfmt_elf.c b/fs/binfmt_elf.c
index fa8ea33..7893feb 100644
--- a/fs/binfmt_elf.c
+++ b/fs/binfmt_elf.c
@@ -1327,8 +1327,8 @@ static void fill_prstatus(struct elf_prs
prstatus->pr_sighold = p->blocked.sig[0];
prstatus->pr_pid = p->pid;
prstatus->pr_ppid = p->parent->pid;
- prstatus->pr_pgrp = process_group(p);
- prstatus->pr_sid = process_session(p);
+ prstatus->pr_pgrp = task_pgrp_nr(p);
+ prstatus->pr_sid = task_session_nr(p);
if (thread_group_leader(p)) {
/*
* This is the record for the group leader. Add in the
@@ -1373,8 +1373,8 @@ static int fill_psinfo(struct elf_prpsin
psinfo->pr_pid = p->pid;
psinfo->pr_ppid = p->parent->pid;
- psinfo->pr_pgrp = process_group(p);
- psinfo->pr_sid = process_session(p);
+ psinfo->pr_pgrp = task_pgrp_nr(p);
+ psinfo->pr_sid = task_session_nr(p);

i = p->state ? ffz(~p->state) + 1 : 0;
psinfo->pr_state = i;
diff --git a/fs/binfmt_elf_fdpic.c b/fs/binfmt_elf_fdpic.c
index 9d62fba..9bb9ff1 100644
--- a/fs/binfmt_elf_fdpic.c
+++ b/fs/binfmt_elf_fdpic.c
@@ -1334,8 +1334,8 @@ static void fill_prstatus(struct elf_prs
prstatus->pr_sighold = p->blocked.sig[0];

```

```

prstatus->pr_pid = p->pid;
prstatus->pr_ppid = p->parent->pid;
- prstatus->pr_pgrp = process_group(p);
- prstatus->pr_sid = process_session(p);
+ prstatus->pr_pgrp = task_pgrp_nr(p);
+ prstatus->pr_sid = task_session_nr(p);
if (thread_group_leader(p)) {
/*
* This is the record for the group leader. Add in the
@@ -1383,8 +1383,8 @@ static int fill_psinfo(struct elf_prpsin

```

```

psinfo->pr_pid = p->pid;
psinfo->pr_ppid = p->parent->pid;
- psinfo->pr_pgrp = process_group(p);
- psinfo->pr_sid = process_session(p);
+ psinfo->pr_pgrp = task_pgrp_nr(p);
+ psinfo->pr_sid = task_session_nr(p);

i = p->state ? ffz(~p->state) + 1 : 0;
psinfo->pr_state = i;
diff --git a/fs/coda/upcall.c b/fs/coda/upcall.c
index a5b5e63..3c35721 100644

```

```

--- a/fs/coda/upcall.c
+++ b/fs/coda/upcall.c
@@ -53,7 +53,7 @@ static void *alloc_upcall(int opcode, in

```

```

inp->ih.opcode = opcode;
inp->ih.pid = current->pid;
- inp->ih.pgid = process_group(current);
+ inp->ih.pgid = task_pgrp_nr(current);
#ifdef CONFIG_CODA_FS_OLD_API
memset(&inp->ih.cred, 0, sizeof(struct coda_cred));
inp->ih.cred.cr_fsuid = current->fsuid;
diff --git a/fs/proc/array.c b/fs/proc/array.c
index 74f30e0..75b1127 100644
--- a/fs/proc/array.c
+++ b/fs/proc/array.c
@@ -381,8 +381,8 @@ static int do_task_stat(struct task_stru
stime = cputime_add(stime, sig->stime);
}

```

```

- sid = signal_session(sig);
- pgid = process_group(task);
+ sid = task_session_nr(task);
+ pgid = task_pgrp_nr(task);
ppid = rcu_dereference(task->real_parent)->tgid;

unlock_task_sighand(task, &flags);

```

```

diff --git a/include/linux/sched.h b/include/linux/sched.h
index 40645b4..567a1df 100644
--- a/include/linux/sched.h
+++ b/include/linux/sched.h
@@ -1094,24 +1094,19 @@ struct task_struct {
    #endif
};

-static inline pid_t process_group(struct task_struct *tsk)
+static inline pid_t task_pgrp_nr(struct task_struct *tsk)
{
    return tsk->signal->pgrp;
}

-static inline pid_t signal_session(struct signal_struct *sig)
+static inline pid_t task_session_nr(struct task_struct *tsk)
{
- return sig->__session;
+ return tsk->signal->__session;
}

-static inline pid_t process_session(struct task_struct *tsk)
+static inline void set_task_session(struct task_struct *tsk, pid_t session)
{
- return signal_session(tsk->signal);
-}
-
-static inline void set_signal_session(struct signal_struct *sig, pid_t session)
-{
- sig->__session = session;
+ tsk->signal->__session = session;
}

static inline struct pid *task_pid(struct task_struct *task)
diff --git a/kernel/exit.c b/kernel/exit.c
index c6d14b8..43ce25b 100644
--- a/kernel/exit.c
+++ b/kernel/exit.c
@@ -308,12 +308,12 @@ void __set_special_pids(pid_t session, p
{
    struct task_struct *curr = current->group_leader;

- if (process_session(curr) != session) {
+ if (task_session_nr(curr) != session) {
    detach_pid(curr, PIDTYPE_SID);
- set_signal_session(curr->signal, session);
+ set_task_session(curr, session);
    attach_pid(curr, PIDTYPE_SID, find_pid(session));
}

```

```

}
- if (process_group(curr) != pgrp) {
+ if (task_pgrp_nr(curr) != pgrp) {
    detach_pid(curr, PIDTYPE_PGID);
    curr->signal->pgrp = pgrp;
    attach_pid(curr, PIDTYPE_PGID, find_pid(pgrp));
@@ -1050,10 +1050,10 @@ static int eligible_child(pid_t pid, int
    if (p->pid != pid)
        return 0;
    } else if (!pid) {
- if (process_group(p) != process_group(current))
+ if (task_pgrp_nr(p) != task_pgrp_nr(current))
    return 0;
    } else if (pid != -1) {
- if (process_group(p) != -pid)
+ if (task_pgrp_nr(p) != -pid)
    return 0;
    }
}

```

diff --git a/kernel/fork.c b/kernel/fork.c

index 4239de2..4228187 100644

--- a/kernel/fork.c

+++ b/kernel/fork.c

@@ -1251,8 +1251,8 @@ static struct task\_struct \*copy\_process(

```

    if (thread_group_leader(p)) {
        p->signal->tty = current->signal->tty;
- p->signal->pgrp = process_group(current);
- set_signal_session(p->signal, process_session(current));
+ p->signal->pgrp = task_pgrp_nr(current);
+ set_task_session(p, task_session_nr(current));
        attach_pid(p, PIDTYPE_PGID, task_pgrp(current));
        attach_pid(p, PIDTYPE_SID, task_session(current));
    }

```

diff --git a/kernel/signal.c b/kernel/signal.c

index 2a4e530..fad8430 100644

--- a/kernel/signal.c

+++ b/kernel/signal.c

```

@@ -501,7 +501,7 @@ static int check_kill_permission(int sig
    error = -EPERM;
    if ((info == SEND_SIG_NOINFO || (!is_si_special(info) && SI_FROMUSER(info)))
        && ((sig != SIGCONT) ||
- (process_session(current) != process_session(t)))
+ (task_session_nr(current) != task_session_nr(t)))
        && (current->euid ^ t->suid) && (current->euid ^ t->uid)
        && (current->uid ^ t->suid) && (current->uid ^ t->uid)
        && !capable(CAP_KILL))

```

diff --git a/kernel/sys.c b/kernel/sys.c



```

index c0aa0a2..edbfdef 100644
--- a/kernel/sys.c
+++ b/kernel/sys.c
@@ -1484,7 +1484,7 @@ asmlinkage long sys_setpgid(pid_t pid, p
    if (err)
        goto out;

- if (process_group(p) != pgid) {
+ if (task_pgrp_nr(p) != pgid) {
    detach_pid(p, PIDTYPE_PGID);
    p->signal->pgrp = pgid;
    attach_pid(p, PIDTYPE_PGID, find_pid(pgid));
@@ -1500,7 +1500,7 @@ out:
asmlinkage long sys_getpgid(pid_t pid)
{
    if (!pid)
- return process_group(current);
+ return task_pgrp_nr(current);
    else {
        int retval;
        struct task_struct *p;
@@ -1512,7 +1512,7 @@ asmlinkage long sys_getpgid(pid_t pid)
    if (p) {
        retval = security_task_getpgid(p);
        if (!retval)
-     retval = process_group(p);
+     retval = task_pgrp_nr(p);
    }
    read_unlock(&tasklist_lock);
    return retval;
@@ -1524,7 +1524,7 @@ asmlinkage long sys_getpgid(pid_t pid)
asmlinkage long sys_getpgrp(void)
{
    /* SMP - assuming writes are word atomic this is fine */
- return process_group(current);
+ return task_pgrp_nr(current);
}

#endif
@@ -1532,7 +1532,7 @@ asmlinkage long sys_getpgrp(void)
asmlinkage long sys_getsid(pid_t pid)
{
    if (!pid)
- return process_session(current);
+ return task_session_nr(current);
    else {
        int retval;
        struct task_struct *p;

```

```

@@ -1544,7 +1544,7 @@ asmlinkage long sys_getsid(pid_t pid)
    if (p) {
        retval = security_task_getsid(p);
        if (!retval)
-       retval = process_session(p);
+       retval = task_session_nr(p);
    }
    read_unlock(&tasklist_lock);
    return retval;
@@ -1581,7 +1581,7 @@ asmlinkage long sys_setsid(void)
    group_leader->signal->tty = NULL;
    spin_unlock(&group_leader->sigband->siglock);

- err = process_group(group_leader);
+ err = task_pgrp_nr(group_leader);
out:
    write_unlock_irq(&tasklist_lock);
    return err;

```

---