
Subject: [PATCH 07/17] Pid-NS(V3) Move alloc_pid call to copy_process
Posted by [Sukadev Bhattiprolu](#) on Sat, 16 Jun 2007 23:01:05 GMT
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Subject: [PATCH 07/17] Pid-NS(V3) Move alloc_pid call to copy_process

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Move alloc_pid() into copy_process(). This will keep all pid and pid namespace code together and simplify error handling when we support multiple pid namespaces.

Changelog:

- [Eric Biederman] Move the check of copy_process_type to alloc_pid()/free_pid() and to avoid clutter in copy_process().

Signed-off-by: Sukadev Bhattiprolu <sukadev@us.ibm.com>

```
include/linux/pid.h | 7 ++++++-
kernel/fork.c       | 21 ++++++++-----
kernel/pid.c        | 10 ++++++++
3 files changed, 28 insertions(+), 10 deletions(-)
```

Index: lx26-22-rc4-mm2/include/linux/pid.h

```
=====
--- lx26-22-rc4-mm2.orig/include/linux/pid.h 2007-06-14 11:33:16.000000000 -0700
+++ lx26-22-rc4-mm2/include/linux/pid.h 2007-06-14 11:47:13.000000000 -0700
@@@ -3,6 +3,11 @@@
```

```
#include <linux/rcupdate.h>
```

```
+enum copy_process_type {
+ COPY_NON_IDLE_PROCESS,
+ COPY_IDLE_PROCESS,
+};
+
+enum pid_type
+{
+ PIDTYPE_PID,
@@@ -95,7 +100,7 @@@ extern struct pid *FASTCALL(find_pid(int
extern struct pid *find_get_pid(int nr);
extern struct pid *find_ge_pid(int nr);

-extern struct pid *alloc_pid(void);
+extern struct pid *alloc_pid(enum copy_process_type);
extern void FASTCALL(free_pid(struct pid *pid));

static inline pid_t pid_to_nr(struct pid *pid)
```

Index: lx26-22-rc4-mm2/kernel/fork.c

=====

--- lx26-22-rc4-mm2.orig/kernel/fork.c 2007-06-14 11:33:16.000000000 -0700

+++ lx26-22-rc4-mm2/kernel/fork.c 2007-06-14 11:47:13.000000000 -0700

```
@@ -961,11 +961,12 @@ static struct task_struct *copy_process(
    unsigned long stack_size,
    int __user *parent_tidptr,
    int __user *child_tidptr,
-   struct pid *pid)
+   enum copy_process_type copy_src)
{
    int retval;
    struct task_struct *p = NULL;
    int container_callbacks_done = 0;
+   struct pid *pid;

    if ((clone_flags & (CLONE_NEWNS|CLONE_FS)) == (CLONE_NEWNS|CLONE_FS))
        return ERR_PTR(-EINVAL);
@@ -1026,6 +1027,10 @@ static struct task_struct *copy_process(
    if (p->binfmt && !try_module_get(p->binfmt->module))
        goto bad_fork_cleanup_put_domain;

+   pid = alloc_pid(copy_src);
+   if (!pid)
+       goto bad_fork_put_binfmt_module;
+
    p->did_exec = 0;
    delayacct_tsk_init(p); /* Must remain after dup_task_struct() */
    copy_flags(clone_flags, p);
@@ -1313,6 +1318,8 @@ bad_fork_cleanup_container:
#endif
    container_exit(p, container_callbacks_done);
    delayacct_tsk_free(p);
+   free_pid(pid);
+bad_fork_put_binfmt_module:
    if (p->binfmt)
        module_put(p->binfmt->module);
bad_fork_cleanup_put_domain:
@@ -1339,7 +1346,7 @@ struct task_struct * __cpuinit fork_idle
    struct pt_regs regs;

    task = copy_process(CLONE_VM, 0, idle_regs(&regs), 0, NULL, NULL,
-   &init_struct_pid);
+   COPY_IDLE_PROCESS);
    if (!IS_ERR(task))
        init_idle(task, cpu);

@@ -1377,19 +1384,16 @@ long do_fork(unsigned long clone_flags,
```

```

{
    struct task_struct *p;
    int trace = 0;
- struct pid *pid = alloc_pid();
    long nr;

- if (!pid)
- return -EAGAIN;
- nr = pid->nr;
    if (unlikely(current->ptrace)) {
        trace = fork_traceflag (clone_flags);
        if (trace)
            clone_flags |= CLONE_PTRACE;
    }

- p = copy_process(clone_flags, stack_start, regs, stack_size, parent_tidptr, child_tidptr, pid);
+ p = copy_process(clone_flags, stack_start, regs, stack_size,
+ parent_tidptr, child_tidptr, COPY_NON_IDLE_PROCESS);
/*
 * Do this prior waking up the new thread - the thread pointer
 * might get invalid after that point, if the thread exits quickly.
@@ -1397,6 +1401,8 @@ long do_fork(unsigned long clone_flags,
    if (!IS_ERR(p)) {
        struct completion vfork;

+ nr = pid_to_nr(task_pid(p));
+
        if (clone_flags & CLONE_VFORK) {
            p->vfork_done = &vfork;
            init_completion(&vfork);
@@ -1430,7 +1436,6 @@ long do_fork(unsigned long clone_flags,
        }
    }
} else {
- free_pid(pid);
    nr = PTR_ERR(p);
}
return nr;
Index: lx26-22-rc4-mm2/kernel/pid.c
=====
--- lx26-22-rc4-mm2.orig/kernel/pid.c 2007-06-14 11:46:25.000000000 -0700
+++ lx26-22-rc4-mm2/kernel/pid.c 2007-06-14 11:47:13.000000000 -0700
@@ -200,6 +200,10 @@ fastcall void free_pid(struct pid *pid)
/* We can be called with write_lock_irq(&tasklist_lock) held */
unsigned long flags;

+ /* check this here to keep copy_process() cleaner */
+ if (unlikely(pid == &init_struct_pid))

```

```

+ return;
+
  spin_lock_irqsave(&pidmap_lock, flags);
  hlist_del_rcu(&pid->pid_chain);
  spin_unlock_irqrestore(&pidmap_lock, flags);
@@ -208,12 +212,16 @@ fastcall void free_pid(struct pid *pid)
  call_rcu(&pid->rcu, delayed_put_pid);
}

-struct pid *alloc_pid(void)
+struct pid *alloc_pid(enum copy_process_type copy_src)
{
  struct pid *pid;
  enum pid_type type;
  int nr = -1;

+ /* check this here to keep copy_process() cleaner */
+ if (unlikely(copy_src == COPY_IDLE_PROCESS))
+   return &init_struct_pid;
+
  pid = kmem_cache_alloc(pid_cachep, GFP_KERNEL);
  if (!pid)
    goto out;

```

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