
Subject: [PATCH 5/5] Move alloc_pid() to copy_process()
Posted by [Sukadev Bhattiprolu](#) on Sun, 15 Jul 2007 04:58:59 GMT
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Pavel

Like we discussed, I am sending this out. Pls ack.

Suka

Subject: [PATCH 5/5] Move alloc_pid call to copy_process

From: Sukadev Bhattiprolu <sukadev@us.ibm.com>

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().

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

Index: lx26-22-rc6-mm1/include/linux/pid.h

```
=====
```

--- lx26-22-rc6-mm1.orig/include/linux/pid.h 2007-07-13 18:13:38.000000000 -0700
+++ lx26-22-rc6-mm1/include/linux/pid.h 2007-07-13 18:23:55.000000000 -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_nr(struct pid *pid)
Index: lx26-22-rc6-mm1/kernel/fork.c
=====
--- lx26-22-rc6-mm1.orig/kernel/fork.c 2007-07-13 18:13:38.000000000 -0700
+++ lx26-22-rc6-mm1/kernel/fork.c 2007-07-13 18:23:55.000000000 -0700
@@ -964,11 +964,12 @@ 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);
@@ -1029,6 +1030,10 @@ 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);
@@ -1316,6 +1321,8 @@ 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:
@@ -1342,7 +1349,7 @@ 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);

@@ -1380,19 +1387,16 @@ 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.
@@ -1400,6 +1404,8 @@ long do_fork(unsigned long clone_flags,
  if (!IS_ERR(p)) {
    struct completion vfork;

+ nr = pid_nr(task_pid(p));
+
  if (clone_flags & CLONE_VFORK) {
    p->vfork_done = &vfork;
    init_completion(&vfork);
@@ -1433,7 +1439,6 @@ long do_fork(unsigned long clone_flags,
  }
  }
} else {

```

```
- free_pid(pid);
  nr = PTR_ERR(p);
}
return nr;
```

Index: lx26-22-rc6-mm1/kernel/pid.c

=====

--- lx26-22-rc6-mm1.orig/kernel/pid.c 2007-07-13 18:23:55.000000000 -0700

+++ lx26-22-rc6-mm1/kernel/pid.c 2007-07-13 18:23:55.000000000 -0700

```
@@ -206,6 +206,10 @@ 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);
```

```
@@ -214,13 +218,17 @@ 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;
```

```
 struct pid_namespace *ns;
```

```
+ /* check this here to keep copy_process() cleaner */
```

```
+ if (unlikely(copy_src == COPY_IDLE_PROCESS))
```

```
+ return &init_struct_pid;
```

```
+
```

```
 ns = task_active_pid_ns(current);
```

```
 pid = kmem_cache_alloc(ns->pid_cachep, GFP_KERNEL);
```

```
 if (!pid)
```

Containers mailing list

Containers@lists.linux-foundation.org

<https://lists.linux-foundation.org/mailman/listinfo/containers>
