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Subject: [RFC][PATCH] Use task\_pgrp()/task\_session() in copy\_process  
Posted by [Sukadev Bhattiprolu](#) on Thu, 11 Jan 2007 15:58:16 GMT  
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I am trying to replace process\_group() and process\_session() calls in copy\_process() with task\_pgrp() and task\_session().

Since task\_pid() task\_pgrp(), task\_session() for the swapper are NULL, I had to treat swapper as special in this patch and would like some comments.

Should we instead do some magic in start\_kernel() so we don't have to treat swapper special or maybe move the check for pid\_t == 0 into task\_pgrp()/task\_session() ?

P.S: For find\_attach\_pid()/attach\_pid(), pls see my recent patches to Containers@ and LKML.

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

Replace process\_group() and process\_session() with container-friendly task\_pgrp() and task\_session().

Signed-off-by: Sukadev Bhattiprolu <sukadev@us.ibm.com>  
Cc: Cedric Le Goater <clg@fr.ibm.com>  
Cc: Dave Hansen <haveblue@us.ibm.com>  
Cc: Serge Hallyn <serue@us.ibm.com>  
Cc: containers@lists.osdl.org

---  
kernel/fork.c | 9 ++++++---  
1 files changed, 7 insertions(+), 2 deletions(-)

Index: lx26-20-rc2-mm1/kernel/fork.c

```
=====
--- lx26-20-rc2-mm1.orig/kernel/fork.c 2007-01-11 07:18:03.383853328 -0800
+++ lx26-20-rc2-mm1/kernel/fork.c 2007-01-11 07:19:55.550801360 -0800
@@ -1248,8 +1248,13 @@ static struct task_struct *copy_process(
    p->signal->tty = current->signal->tty;
    p->signal->pgrp = process_group(current);
    set_signal_session(p->signal, process_session(current));
-   find_attach_pid(p, PIDTYPE_PGID, process_group(p));
-   find_attach_pid(p, PIDTYPE_SID, process_session(p));
+   if (current->pid) {
+       attach_pid(p, PIDTYPE_PGID, task_pgrp(current));
+       attach_pid(p, PIDTYPE_SID, task_session(current));
+   } else {
+       find_attach_pid(p, PIDTYPE_PGID, process_group(current));
+       find_attach_pid(p, PIDTYPE_SID, process_session(current));
+   }
```

```
list_add_tail_rcu(&p->tasks, &init_task.tasks);
__get_cpu_var(process_counts)++;
```

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Subject: Re: [RFC][PATCH] Use task\_pgrp()/task\_session() in copy\_process  
Posted by [Dave Hansen](#) on Thu, 11 Jan 2007 18:04:29 GMT

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On Thu, 2007-01-11 at 07:58 -0800, Sukadev Bhattiprolu wrote:

```
> =====
> --- lx26-20-rc2-mm1.orig/kernel/fork.c 2007-01-11 07:18:03.383853328 -0800
> +++ lx26-20-rc2-mm1/kernel/fork.c 2007-01-11 07:19:55.550801360 -0800
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> - find_attach_pid(p, PIDTYPE_PGID, process_group(p));
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> + if (current->pid) {
> +   attach_pid(p, PIDTYPE_PGID, task_pgrp(current));
> +   attach_pid(p, PIDTYPE_SID, task_session(current));
> + } else {
> +   find_attach_pid(p, PIDTYPE_PGID, process_group(current));
> +   find_attach_pid(p, PIDTYPE_SID, process_session(current));
> + }
>
>   list_add_tail_rcu(&p->tasks, &init_task.tasks);
>   __get_cpu_var(process_counts)++;
```

I know I've asked this before (and I know I'm going to ask it again), but why do we need both task\_pgrp() and process\_group() to both have similar-sounding names and both take the same kind of argument? :) This stuff really needs to get cleaned up. It makes reviewing these patches much harder.

In general, you should keep the hacks (which this is) to boot and init-time stuff. If you can initialize a structure so that it plays nicely for the rest of its life, do that. Don't put special cases in common code that everybody will have to look at.

```
> Since task_pid() task_pgrp(), task_session() for the swapper are NULL, I
> had to treat swapper as special in this patch and would like some comments.
```

Can you do some research and find out \_why\_ these are NULL, and why they need to be kept NULL?

-- Dave

---

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Subject: Re: [RFC][PATCH] Use task\_pgrp()/task\_session() in copy\_process  
Posted by [Sukadev Bhattiprolu](#) on Thu, 11 Jan 2007 19:44:23 GMT  
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Dave Hansen [haveblue@us.ibm.com] wrote:

| On Thu, 2007-01-11 at 07:58 -0800, Sukadev Bhattiprolu wrote:

```
| > =====  
| > --- lx26-20-rc2-mm1.orig/kernel/fork.c 2007-01-11 07:18:03.383853328 -0800  
| > +++ lx26-20-rc2-mm1/kernel/fork.c 2007-01-11 07:19:55.550801360 -0800  
| > @@ -1248,8 +1248,13 @@ static struct task_struct *copy_process(  
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| > +     attach_pid(p, PIDTYPE_SID, task_session(current));  
| > + } else {  
| > +     find_attach_pid(p, PIDTYPE_PGID, process_group(current));  
| > +     find_attach_pid(p, PIDTYPE_SID, process_session(current));  
| > + }  
| >  
| >     list_add_tail_rcu(&p->tasks, &init_task.tasks);  
| >     __get_cpu_var(process_counts)++;  
|
```

| I know I've asked this before (and I know I'm going to ask it again),  
| but why do we need both task\_pgrp() and process\_group() to both have  
| similar-sounding names and both take the same kind of argument? :) This  
| stuff \_really\_ needs to get cleaned up. It makes reviewing these  
| patches much harder.

We are phasing out process\_group(), process\_session() which return a  
pid\_t. I guess it also points to not having a special case for swapper.

|

| In general, you should keep the hacks (which this is) to boot and  
| init-time stuff. If you can initialize a structure so that it plays  
| nicely for the rest of its life, do that. Don't put special cases in  
| common code that everybody will have to look at.  
|  
| > Since task\_pid(), task\_pgrp(), task\_session() for the swapper are NULL, I  
| > had to treat swapper as special in this patch and would like some comments.  
|  
| Can you do some research and find out why these are NULL, and why they  
| need to be kept NULL?

task\_struct for swapper is initialized by hand (INIT\_TASK, INIT\_SIGNALS  
etc) but no struct pid is ever allocated and attached to the swapper.  
This is normally done in copy\_process() and so is done for all other  
processes starting with pid\_t = 1 (/sbin/init).

I am trying to understand if there is a history to it and if they need to  
be kept NULL.

|  
| -- Dave

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Subject: Re: [RFC][PATCH] Use task\_pgrp()/task\_session() in copy\_process  
Posted by [ebiederm](#) on Thu, 11 Jan 2007 20:54:19 GMT  
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Sukadev Bhattiprolu <sukadev@us.ibm.com> writes:

> Dave Hansen [haveblue@us.ibm.com] wrote:  
> |  
> | I know I've asked this before (and I know I'm going to ask it again),  
> | but why do we need both task\_pgrp() and process\_group() to both have  
> | similar-sounding names and both take the same kind of argument? :) This  
> | stuff really needs to get cleaned up. It makes reviewing these  
> | patches much harder.  
>  
> We are phasing out process\_group(), process\_session() which return a  
> pid\_t. I guess it also points to not having a special case for  
> swapper.

Definitely. Removing the special cases is good.

> | In general, you should keep the hacks (which this is) to boot and  
> | init-time stuff. If you can initialize a structure so that it plays  
> | nicely for the rest of its life, do that. Don't put special cases in  
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> |  
> | task\_struct for swapper is initialized by hand (INIT\_TASK, INIT\_SIGNALS  
> | etc) but no struct pid is ever allocated and attached to the swapper.  
> | This is normally done in copy\_process() and so is done for all other  
> | processes starting with pid\_t = 1 (/sbin/init).  
> |  
> | I am trying to understand if there is a history to it and if they need to  
> | be kept NULL.

When attach\_pid has completed successfully as well as having a struct pid pointer in your task\_struct you are also on the appropriate list of that struct pid. So you can be found for signal delivery. Preserving that property for the init\_task would be nice but we don't have that property for any other kernel thread so it should not be a big deal to place it in session and process group 1 before the first fork. There are enough corner cases I don't think we can set it all up with static initializers though.

Largely I would suggest that we have enough information that if we are going to do this conversion we don't go through an intermediate step of find\_attach\_pid. There are few enough users we should just be able to do a handful of preparatory patches and just convert all of the uses of attach\_pid.

As for the rest of the history struct pid happened since things started being placed in git so you can find out a lot of the history and context with a simple git-log.

Generally I take a fairly pragmatic approach. If I can't see a use for a change I don't send it. Which simply means attach\_pid not taking a struct pid hasn't been a blocker for anything I have done lately. I think it makes sense to convert attach\_pid.

I think leaving an attach\_find\_pid behind is a horrible idea. There are not enough callers of attach\_pid to make that worthwhile.

set\_special\_pids can get it's pid from the init\_task. Although we

need to kill daemonize in the kernel (or at the very least upgraded it to support all of the namespaces we have merged).

sys\_setsid already has a struct pid for it's session so it can call \_\_set\_special\_pids with that.

In de\_thread we already have a struct pid.

In sys\_setpgid we check to ensure the struct pid already exists.

And in fork we already have a struct pid everywhere except that special init\_task case.

So it probably makes sense for pidmap\_init to initialize the pid for the session and group of the idle task. And then there are no special cases left.

Eric

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Subject: Re: [RFC][PATCH] Use task\_pgrp()/task\_session() in copy\_process

Posted by [ebiederm](#) on Thu, 11 Jan 2007 21:19:28 GMT

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ebiederm@xmission.com (Eric W. Biederman) writes:

>

> So it probably makes sense for pidmap\_init to initialize the  
> pid for the session and group of the idle task. And then there  
> are no special cases left.

Well that almost works except if we did that alloc\_pid could not successfully allocate pid 1. Grumble getting those special cases out of the boot path is a pain.

If we had a non-hashed struct pid (init\_pid?) that we filled in early (statically?), that would keep copy\_process happy.

Then we would need to call setsid() in the kernel right after the fork to assign a legitimate session and process group to pid == 1.

Since the idle thread is not doing anything it shouldn't matter, although we can attach the idle thread after the fork to session and process group == 1 or set them to NULL if there is a corner case is anything that cares.

Eric

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