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Subject: Re: Attaching PID 0 to a cgroup

Posted by [Dhaval Giani](#) on Tue, 01 Jul 2008 09:47:34 GMT

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---

[put in the wrong alias for containers list correcting it.]

On Tue, Jul 01, 2008 at 03:15:45PM +0530, Dhaval Giani wrote:

> Hi Paul,

>

> Attaching PID 0 to a cgroup caused the current task to be attached to  
> the cgroup. Looking at the code,

>

```
>     if (pid) {  
>         rcu_read_lock();  
>         tsk = find_task_by_vpid(pid);  
>         if (!tsk || tsk->flags & PF_EXITING) {  
>             rcu_read_unlock();  
>             return -ESRCH;  
>         }  
>         get_task_struct(tsk);  
>         rcu_read_unlock();  
>  
>         if ((current->euid) && (current->euid != tsk->uid)  
>             && (current->euid != tsk->suid)) {  
>             put_task_struct(tsk);  
>             return -EACCES;  
>         }  
>     } else {  
>         tsk = current;  
>         get_task_struct(tsk);  
>     }  
>
```

> I was wondering, why this was done. It seems to be unexpected behavior.

> Wouldn't something like the following be a better response? (I've used

> EINVAL, but I can change it to ESRCH if that is better.)

>

> ---

> cgroups: Don't allow PID 0 to be attached to a group

>

> Currently when one tries to attach PID 0 to a cgroup, it attaches  
> the current task. That is not expected behavior. It should return  
> an error instead.

>

> Signed-off-by: Dhaval Giani <[dhaval@linux.vnet.ibm.com](mailto:dhaval@linux.vnet.ibm.com)>

>

> Index: linux-2.6/kernel/cgroup.c

> =====

> --- linux-2.6.orig/kernel/cgroup.c

```
> +++ linux-2.6/kernel/cgroup.c
> @@ -1309,8 +1309,7 @@ static int attach_task_by_pid(struct cgr
>     return -EACCES;
> }
> } else {
> - tsk = current;
> - get_task_struct(tsk);
> + return -EINVAL;
> }
>
> ret = cgroup_attach_task(cgrp, tsk);
> --
> regards,
> Dhaval
```

--  
regards,  
Dhaval

---

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

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Subject: Re: Attaching PID 0 to a cgroup  
Posted by [Li Zefan](#) on Tue, 01 Jul 2008 10:28:07 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

CC: Paul Jackson <[pj@sgi.com](mailto:pj@sgi.com)>

Dhaval Giani wrote:

```
> [put in the wrong alias for containers list correcting it.]
>
> On Tue, Jul 01, 2008 at 03:15:45PM +0530, Dhaval Giani wrote:
>> Hi Paul,
>>
>> Attaching PID 0 to a cgroup caused the current task to be attached to
>> the cgroup. Looking at the code,
>>
```

[...]

```
>>
>> I was wondering, why this was done. It seems to be unexpected behavior.
>> Wouldn't something like the following be a better response? (I've used
>> EINVAL, but I can change it to ESRCH if that is better.)
>>
```

Why is it unexpected? it follows the behavior of cpuset, so this patch will break backward compatibility of cpuset.

But it's better to document this.

-----  
Document the following cgroup usage:

```
# echo 0 > /dev/cgroup/tasks
```

Signed-off-by: Li Zefan <lizf@cn.fujitsu.com>

---

```
cgroups.txt | 4 ++++
```

```
1 file changed, 4 insertions(+)
```

```
diff --git a/Documentation/cgroups.txt b/Documentation/cgroups.txt
```

```
index 824fc02..213f533 100644
```

```
--- a/Documentation/cgroups.txt
```

```
+++ b/Documentation/cgroups.txt
```

```
@ @ -390,6 +390,10 @ @ If you have several tasks to attach, you have to do it one after another:
```

```
...
```

```
# /bin/echo PIDn > tasks
```

```
+You can attach the current task by echoing 0:
```

```
+
```

```
+# /bin/echo 0 > tasks
```

```
+
```

```
3. Kernel API
```

```
=====
```

---

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---

Subject: Re: Attaching PID 0 to a cgroup

Posted by [Dhaval Giani](#) on Tue, 01 Jul 2008 10:51:26 GMT

[View Forum Message](#) <> [Reply to Message](#)

---

On Tue, Jul 01, 2008 at 06:28:07PM +0800, Li Zefan wrote:

> CC: Paul Jackson <pj@sgi.com>

>

> Dhaval Giani wrote:

> > [put in the wrong alias for containers list correcting it.]

> >

> > On Tue, Jul 01, 2008 at 03:15:45PM +0530, Dhaval Giani wrote:  
> >> Hi Paul,  
> >>  
> >> Attaching PID 0 to a cgroup caused the current task to be attached to  
> >> the cgroup. Looking at the code,  
> >>  
>  
> [...]  
>  
> >>  
> >> I was wondering, why this was done. It seems to be unexpected behavior.  
> >> Wouldn't something like the following be a better response? (I've used  
> >> EINVAL, but I can change it to ESRCH if that is better.)  
> >>  
>  
> Why is it unexpected? it follows the behavior of cpuset, so this patch will  
> break backward compatibility of cpuset.

Ah, I was not aware of that. Thanks!

>  
> But it's better to document this.  
>

Yes please.

> -----  
>  
> Document the following cgroup usage:  
> # echo 0 > /dev/cgroup/tasks  
>  
> Signed-off-by: Li Zefan <lizf@cn.fujitsu.com>

Acked-by: Dhaval Giani <dhaval@linux.vnet.ibm.com>

> ---  
> cgroups.txt | 4 ++++  
> 1 file changed, 4 insertions(+)  
>  
> diff --git a/Documentation/cgroups.txt b/Documentation/cgroups.txt  
> index 824fc02..213f533 100644  
> --- a/Documentation/cgroups.txt  
> +++ b/Documentation/cgroups.txt  
> @@ -390,6 +390,10 @@ If you have several tasks to attach, you have to do it one after  
> another:  
> ...  
> # /bin/echo PIDn > tasks  
>

> +You can attach the current task by echoing 0:

> +

> +# /bin/echo 0 > tasks

> +

> 3. Kernel API

> =====

>

>

--

regards,  
Dhaval

---

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---

---

Subject: Re: Attaching PID 0 to a cgroup  
Posted by [Paul Jackson](#) on Tue, 01 Jul 2008 18:54:09 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

> But it's better to document this.

Good idea.

Acked-by: Paul Jackson <pj@sgi.com>

You (Li Zefan) might want to resend this as a patch, in case Andrew doesn't happen to see this embedded here.

Something like the following:

Subject: [PATCH] cgroup: document zero pid means current task

From: Li Zefan <lizf@cn.fujitsu.com>

Document that a pid of zero(0) can be used to refer to the current task when attaching a task to a cgroup, as in the following usage:

# echo 0 > /dev/cgroup/tasks

This is consistent with existing cpuset behavior.

Signed-off-by: Li Zefan <lizf@cn.fujitsu.com>

Acked-by: Dhaval Giani <dhaval@linux.vnet.ibm.com>

Acked-by: Paul Jackson <pj@sgi.com>

---

cgroups.txt | 4 ++++  
1 file changed, 4 insertions(+)

diff --git a/Documentation/cgroups.txt b/Documentation/cgroups.txt  
index 824fc02..213f533 100644

--- a/Documentation/cgroups.txt

+++ b/Documentation/cgroups.txt

@@ -390,6 +390,10 @@ If you have several tasks to attach, you have to do it one after another:

...

# /bin/echo PIDn > tasks

+You can attach the current task by echoing 0:

+

+# /bin/echo 0 > tasks

+

3. Kernel API

=====

--

I won't rest till it's the best ...  
Programmer, Linux Scalability  
Paul Jackson <pj@sgi.com> 1.940.382.4214

---

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---

Subject: Re: Attaching PID 0 to a cgroup  
Posted by [Paul Menage](#) on Tue, 01 Jul 2008 19:01:27 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

On Tue, Jul 1, 2008 at 3:28 AM, Li Zefan <lizf@cn.fujitsu.com> wrote:

>

> Why is it unexpected? it follows the behavior of cpuset, so this patch will

> break backward compatibility of cpuset.

Agreed. I think we want to keep this behaviour.

Paul

---

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---

Subject: Re: Attaching PID 0 to a cgroup  
Posted by [Andrea Righi](#) on Tue, 01 Jul 2008 21:48:31 GMT  
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---

Li Zefan wrote:

> CC: Paul Jackson <pj@sgi.com>

>

> Dhaval Giani wrote:

>> [put in the wrong alias for containers list correcting it.]

>>

>> On Tue, Jul 01, 2008 at 03:15:45PM +0530, Dhaval Giani wrote:

>>> Hi Paul,

>>>

>>> Attaching PID 0 to a cgroup caused the current task to be attached to  
>>> the cgroup. Looking at the code,

>>>

>

> [...]

>

>>> I was wondering, why this was done. It seems to be unexpected behavior.

>>> Wouldn't something like the following be a better response? (I've used

>>> EINVAL, but I can change it to ESRCH if that is better.)

>>>

>

> Why is it unexpected? it follows the behavior of cpuset, so this patch will  
> break backward compatibility of cpuset.

>

> But it's better to document this.

>

> -----

>

> Document the following cgroup usage:

> # echo 0 > /dev/cgroup/tasks

>

> Signed-off-by: Li Zefan <lizf@cn.fujitsu.com>

> ---

> cgroups.txt | 4 ++++

> 1 file changed, 4 insertions(+)

>

> diff --git a/Documentation/cgroups.txt b/Documentation/cgroups.txt

> index 824fc02..213f533 100644

> --- a/Documentation/cgroups.txt

> +++ b/Documentation/cgroups.txt

> @@ -390,6 +390,10 @@ If you have several tasks to attach, you have to do it one after  
another:

> ...

> # /bin/echo PIDn > tasks

>

> +You can attach the current task by echoing 0:

```
> +
> +# /bin/echo 0 > tasks
> +
> 3. Kernel API
> =====
```

Wouldn't be more meaningful to specify the bash's builtin echo here even if it doesn't opportunely handle write() errors?

Using /bin/echo would attach /bin/echo itself to the cgroup, that just exists, so it seems like a kind of noop, isn't it?

-Andrea

---

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---

Subject: Re: Attaching PID 0 to a cgroup  
Posted by [Dhaval Giani](#) on Tue, 01 Jul 2008 21:54:48 GMT  
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---

On Tue, Jul 01, 2008 at 11:48:31PM +0200, Andrea Righi wrote:

```
> Li Zefan wrote:
>> CC: Paul Jackson <pj@sgi.com>
>>
>> Dhaval Giani wrote:
>>> [put in the wrong alias for containers list correcting it.]
>>>
>>> On Tue, Jul 01, 2008 at 03:15:45PM +0530, Dhaval Giani wrote:
>>>> Hi Paul,
>>>>
>>>> Attaching PID 0 to a cgroup caused the current task to be attached to
>>>> the cgroup. Looking at the code,
>>>>
>>>>
>>>> I was wondering, why this was done. It seems to be unexpected behavior.
>>>> Wouldn't something like the following be a better response? (I've used
>>>> EINVAL, but I can change it to ESRCH if that is better.)
>>>>
>>>>
>>>> Why is it unexpected? it follows the behavior of cpuset, so this patch will
>>>> break backward compatibility of cpuset.
>>>>
>>>> But it's better to document this.
```



```

>>
>> -----
>>
>> Document the following cgroup usage:
>> # echo 0 > /dev/cgroup/tasks
>>
>> Signed-off-by: Li Zefan <lizf@cn.fujitsu.com>
>> ---
>> cgroups.txt | 4 ++++
>> 1 file changed, 4 insertions(+)
>>
>> diff --git a/Documentation/cgroups.txt b/Documentation/cgroups.txt
>> index 824fc02..213f533 100644
>> --- a/Documentation/cgroups.txt
>> +++ b/Documentation/cgroups.txt
>> @@ -390,6 +390,10 @@ If you have several tasks to attach, you have to do it one after
another:
>> ...
>> # /bin/echo PIDn > tasks
>> +You can attach the current task by echoing 0:
>> +
>> +# /bin/echo 0 > tasks
>> +
>> 3. Kernel API
>> =====
>
> Wouldn't be more meaningful to specify the bash's builtin echo here
> even if it doesn't opportunely handle write() errors?
>
> Using /bin/echo would attach /bin/echo itself to the cgroup, that just
> exists, so it seems like a kind of noop, isn't it?
>

```

Yes, you are right. this example should use bash's builtin echo.

--  
regards,  
Dhaval

---

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---

Subject: Re: Attaching PID 0 to a cgroup  
Posted by [Matt Helsley](#) on Thu, 03 Jul 2008 21:59:35 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

On Wed, 2008-07-02 at 03:24 +0530, Dhaval Giani wrote:

> On Tue, Jul 01, 2008 at 11:48:31PM +0200, Andrea Righi wrote:

> > Li Zefan wrote:

> > CC: Paul Jackson <pj@sgi.com>

> >

> > Dhaval Giani wrote:

> >> [put in the wrong alias for containers list correcting it.]

> >>>

> >>> On Tue, Jul 01, 2008 at 03:15:45PM +0530, Dhaval Giani wrote:

> >>>> Hi Paul,

> >>>>

> >>>> Attaching PID 0 to a cgroup caused the current task to be attached to

> >>>> the cgroup. Looking at the code,

> >>>>

> >>

> >> [...]

> >>

> >>>> I was wondering, why this was done. It seems to be unexpected behavior.

> >>>> Wouldn't something like the following be a better response? (I've used

> >>>> EINVAL, but I can change it to ESRCH if that is better.)

> >>>>

> >>

> >> Why is it unexpected? it follows the behavior of cpuset, so this patch will

> >> break backward compatibility of cpuset.

> >>

> >> But it's better to document this.

> >>

> >> -----

> >>

> >> Document the following cgroup usage:

> >> # echo 0 > /dev/cgroup/tasks

> >>

> >> Signed-off-by: Li Zefan <lizf@cn.fujitsu.com>

> >> ---

> >> cgroups.txt | 4 ++++

> >> 1 file changed, 4 insertions(+)

> >>

> >> diff --git a/Documentation/cgroups.txt b/Documentation/cgroups.txt

> >> index 824fc02..213f533 100644

> >> --- a/Documentation/cgroups.txt

> >> +++ b/Documentation/cgroups.txt

> >> @@ -390,6 +390,10 @@ If you have several tasks to attach, you have to do it one after another:

> >> ...

> >> # /bin/echo PIDn > tasks

> >> +You can attach the current task by echoing 0:

> >> +

> >> +# /bin/echo 0 > tasks

```

> >> +
> >> 3. Kernel API
> >> =====
> >
> > Wouldn't be more meaningful to specify the bash's builtin echo here
> > even if it doesn't opportunely handle write() errors?
> >
> > Using /bin/echo would attach /bin/echo itself to the cgroup, that just
> > exists, so it seems like a kind of noop, isn't it?
> >
>
> Yes, you are right. this example should use bash's builtin echo.

```

IMHO you need to include this point in the docs verbosely rather than just switching the docs to bash's builin-in echo. Otherwise it doesn't fully resolve the fundamental confusion you correctly identified.

Or perhaps a snippet of simplified C code will make it clear:

```

-----
char buffer[16];
int fd;

fd = open("/some/cgroup/tasks", O_WRONLY);

/*
 * These two writes produce the same effect: adding this process
 * to /some/cgroup.
 */
if (the_slightly_shorter_way)
    write(fd, "0", 2);
else {
    /* The slightly-less-short way */
    snprintf(buffer, 16, "%u", getpid());
    write(fd, buffer, strlen(buffer));
}

```

Cheers,  
-Matt Helsley

---

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Containers@lists.linux-foundation.org  
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---

Subject: Re: Attaching PID 0 to a cgroup

Posted by [Paul Menage](#) on Thu, 03 Jul 2008 22:03:05 GMT

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---

On Thu, Jul 3, 2008 at 2:59 PM, Matt Helsley <matthltc@us.ibm.com> wrote:

```
> -----
> char buffer[16];
> int fd;
>
> fd = open("/some/cgroup/tasks", O_WRONLY);
>
> /*
>  * These two writes produce the same effect: adding this process
>  * to /some/cgroup.
>  */
> if (the_slightly_shorter_way)
>     write(fd, "0", 2);
> else {
>     /* The slightly-less-short way */
>     snprintf(buffer, 16, "%u", getpid());
>     write(fd, buffer, strlen(buffer));
```

If it's a threaded application, then you'd need gettid() rather than getpid() for the two to be equivalent.

Paul

---

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