
Subject: [PATCH] ipc: Save the ipc namespace while reading proc files.

Posted by [ebiederm](#) on Tue, 06 Feb 2007 19:30:49 GMT

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The problem we were assuming that current->nsproxy->ipc_ns would never change while someone has our file in /proc/sysvipc/ file open. Given that this can change with both unshare and by passing the file descriptor to another process that assumption is occasionally wrong.

Therefore this patch causes /proc/sysvipc/* to cache the namespace and increment it's count when we open the file and to decrement the count when we close the file, ensuring consistent operation with no surprises.

Signed-off-by: Eric W. Biederman <ebiederm@xmission.com>

ipc/util.c | 58 ++-----
1 files changed, 45 insertions(+), 13 deletions(-)

diff --git a/ipc/util.c b/ipc/util.c

index a9b7a22..7fd10f1 100644

--- a/ipc/util.c

+++ b/ipc/util.c

@@ -739,14 +739,20 @@ int ipc_parse_version (int *cmd)

#endif /* __ARCH_WANT_IPC_PARSE_VERSION */

#ifdef CONFIG_PROC_FS

+struct ipc_proc_iter {

+ struct ipc_namespace *ns;

+ struct ipc_proc_iface *iface;

+};

+

static void *sysvipc_proc_next(struct seq_file *s, void *it, loff_t *pos)

{

- struct ipc_proc_iface *iface = s->private;

+ struct ipc_proc_iter *iter = s->private;

+ struct ipc_proc_iface *iface = iter->iface;

struct kern_ipc_perm *ipc = it;

loff_t p;

struct ipc_ids *ids;

- ids = current->nsproxy->ipc_ns->ids[iface->ids];

+ ids = iter->ns->ids[iface->ids];

/* If we had an ipc id locked before, unlock it */

if (ipc && ipc != SEQ_START_TOKEN)

@@ -773,12 +779,13 @@ static void *sysvipc_proc_next(struct seq_file *s, void *it, loff_t *pos)

*/

```

static void *sysvipc_proc_start(struct seq_file *s, loff_t *pos)
{
- struct ipc_proc_iface *iface = s->private;
+ struct ipc_proc_iter *iter = s->private;
+ struct ipc_proc_iface *iface = iter->iface;
  struct kern_ipc_perm *ipc;
  loff_t p;
  struct ipc_ids *ids;

- ids = current->nsproxy->ipc_ns->ids[iface->ids];
+ ids = iter->ns->ids[iface->ids];

  /*
   * Take the lock - this will be released by the corresponding
@@ -807,21 +814,23 @@ static void *sysvipc_proc_start(struct seq_file *s, loff_t *pos)
  static void sysvipc_proc_stop(struct seq_file *s, void *it)
  {
    struct kern_ipc_perm *ipc = it;
- struct ipc_proc_iface *iface = s->private;
+ struct ipc_proc_iter *iter = s->private;
+ struct ipc_proc_iface *iface = iter->iface;
    struct ipc_ids *ids;

    /* If we had a locked segment, release it */
    if (ipc && ipc != SEQ_START_TOKEN)
      ipc_unlock(ipc);

- ids = current->nsproxy->ipc_ns->ids[iface->ids];
+ ids = iter->ns->ids[iface->ids];
    /* Release the lock we took in start() */
    mutex_unlock(&ids->mutex);
  }

  static int sysvipc_proc_show(struct seq_file *s, void *it)
  {
- struct ipc_proc_iface *iface = s->private;
+ struct ipc_proc_iter *iter = s->private;
+ struct ipc_proc_iface *iface = iter->iface;

    if (it == SEQ_START_TOKEN)
      return seq_puts(s, iface->header);
@@ -836,22 +845,45 @@ static struct seq_operations sysvipc_proc_seqops = {
    .show = sysvipc_proc_show,
  };

- static int sysvipc_proc_open(struct inode *inode, struct file *file) {
+ static int sysvipc_proc_open(struct inode *inode, struct file *file)
+ {

```

```

    int ret;
    struct seq_file *seq;
+ struct ipc_proc_iter *iter;
+
+ ret = -ENOMEM;
+ iter = kmalloc(sizeof(*iter), GFP_KERNEL);
+ if (!iter)
+ goto out;

    ret = seq_open(file, &sysvipc_proc_seqops);
- if (!ret) {
- seq = file->private_data;
- seq->private = PDE(inode)->data;
- }
+ if (ret)
+ goto out_kfree;
+
+ seq = file->private_data;
+ seq->private = iter;
+
+ iter->iface = PDE(inode)->data;
+ iter->ns = get_ipc_ns(current->nsproxy->ipc_ns);
+out:
    return ret;
+out_kfree:
+ kfree(iter);
+ goto out;
+}
+
+static int sysvipc_proc_release(struct inode *inode, struct file *file)
+{
+ struct seq_file *seq = file->private_data;
+ struct ipc_proc_iter *iter = seq->private;
+ put_ipc_ns(iter->ns);
+ return seq_release_private(inode, file);
+}

static struct file_operations sysvipc_proc_fops = {
    .open = sysvipc_proc_open,
    .read = seq_read,
    .llseek = seq_lseek,
- .release = seq_release,
+ .release = sysvipc_proc_release,
};
#endif /* CONFIG_PROC_FS */
--
1.4.4.1.g278f

```

Subject: Re: [PATCH] ipc: Save the ipc namespace while reading proc files.
Posted by [serge](#) on Sat, 10 Feb 2007 16:29:51 GMT
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Quoting Eric W. Biederman (ebiederm@xmission.com):

>
> The problem we were assuming that current->nsproxy->ipc_ns would never
> change while someone has our file in /proc/sysvipc/ file open. Given
> that this can change with both unshare and by passing the file
> descriptor to another process that assumption is occasionally wrong.
>
> Therefore this patch causes /proc/sysvipc/* to cache the namespace
> and increment it's count when we open the file and to decrement the
> count when we close the file, ensuring consistent operation with
> no surprises.

Looks good, thanks.

Looks like mounts already does this with the mounts ns, and we don't
need it for uts. Something to watch in any upcoming network patches
though.

thanks
-serge

>
> Signed-off-by: Eric W. Biederman <ebiederm@xmission.com>
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> +++ b/ipc/util.c
> @@ -739,14 +739,20 @@ int ipc_parse_version (int *cmd)
> #endif /* __ARCH_WANT_IPC_PARSE_VERSION */
>
> #ifdef CONFIG_PROC_FS
> +struct ipc_proc_iter {
> + struct ipc_namespace *ns;
> + struct ipc_proc_iface *iface;

```

> +};
> +
> static void *sysvipc_proc_next(struct seq_file *s, void *it, loff_t *pos)
> {
> - struct ipc_proc_iface *iface = s->private;
> + struct ipc_proc_iter *iter = s->private;
> + struct ipc_proc_iface *iface = iter->iface;
>   struct kern_ipc_perm *ipc = it;
>   loff_t p;
>   struct ipc_ids *ids;
>
> - ids = current->nsproxy->ipc_ns->ids[iface->ids];
> + ids = iter->ns->ids[iface->ids];
>
>   /* If we had an ipc id locked before, unlock it */
>   if (ipc && ipc != SEQ_START_TOKEN)
> @@ -773,12 +779,13 @@ static void *sysvipc_proc_next(struct seq_file *s, void *it, loff_t *pos)
>   /*
> static void *sysvipc_proc_start(struct seq_file *s, loff_t *pos)
> {
> - struct ipc_proc_iface *iface = s->private;
> + struct ipc_proc_iter *iter = s->private;
> + struct ipc_proc_iface *iface = iter->iface;
>   struct kern_ipc_perm *ipc;
>   loff_t p;
>   struct ipc_ids *ids;
>
> - ids = current->nsproxy->ipc_ns->ids[iface->ids];
> + ids = iter->ns->ids[iface->ids];
>
>   /*
>   * Take the lock - this will be released by the corresponding
> @@ -807,21 +814,23 @@ static void *sysvipc_proc_start(struct seq_file *s, loff_t *pos)
> static void sysvipc_proc_stop(struct seq_file *s, void *it)
> {
>   struct kern_ipc_perm *ipc = it;
> - struct ipc_proc_iface *iface = s->private;
> + struct ipc_proc_iter *iter = s->private;
> + struct ipc_proc_iface *iface = iter->iface;
>   struct ipc_ids *ids;
>
>   /* If we had a locked segment, release it */
>   if (ipc && ipc != SEQ_START_TOKEN)
>     ipc_unlock(ipc);
>
> - ids = current->nsproxy->ipc_ns->ids[iface->ids];
> + ids = iter->ns->ids[iface->ids];
>   /* Release the lock we took in start() */

```

```

> mutex_unlock(&ids->mutex);
> }
>
> static int sysvipc_proc_show(struct seq_file *s, void *it)
> {
> - struct ipc_proc_iface *iface = s->private;
> + struct ipc_proc_iter *iter = s->private;
> + struct ipc_proc_iface *iface = iter->iface;
>
> if (it == SEQ_START_TOKEN)
> return seq_puts(s, iface->header);
> @@ -836,22 +845,45 @@ static struct seq_operations sysvipc_proc_seqops = {
> .show = sysvipc_proc_show,
> };
>
> -static int sysvipc_proc_open(struct inode *inode, struct file *file) {
> +static int sysvipc_proc_open(struct inode *inode, struct file *file)
> +{
> int ret;
> struct seq_file *seq;
> + struct ipc_proc_iter *iter;
> +
> + ret = -ENOMEM;
> + iter = kmalloc(sizeof(*iter), GFP_KERNEL);
> + if (!iter)
> + goto out;
>
> ret = seq_open(file, &sysvipc_proc_seqops);
> - if (!ret) {
> - seq = file->private_data;
> - seq->private = PDE(inode)->data;
> - }
> + if (ret)
> + goto out_kfree;
> +
> + seq = file->private_data;
> + seq->private = iter;
> +
> + iter->iface = PDE(inode)->data;
> + iter->ns = get_ipc_ns(current->nsproxy->ipc_ns);
> +out:
> return ret;
> +out_kfree:
> + kfree(iter);
> + goto out;
> +}
> +
> +static int sysvipc_proc_release(struct inode *inode, struct file *file)

```

```
> +{
> + struct seq_file *seq = file->private_data;
> + struct ipc_proc_iter *iter = seq->private;
> + put_ipc_ns(iter->ns);
> + return seq_release_private(inode, file);
> }
>
> static struct file_operations sysvipc_proc_fops = {
> .open   = sysvipc_proc_open,
> .read   = seq_read,
> .llseek = seq_lseek,
> - .release = seq_release,
> + .release = sysvipc_proc_release,
> };
> #endif /* CONFIG_PROC_FS */
> --
> 1.4.4.1.g278f
>
> -
> To unsubscribe from this list: send the line "unsubscribe linux-kernel" in
> the body of a message to majordomo@vger.kernel.org
> More majordomo info at http://vger.kernel.org/majordomo-info.html
> Please read the FAQ at http://www.tux.org/lkml/
```

Containers mailing list
Containers@lists.osdl.org
<https://lists.osdl.org/mailman/listinfo/containers>

Subject: Re: [PATCH] ipc: Save the ipc namespace while reading proc files.
Posted by [ebiederm](#) on Sat, 10 Feb 2007 17:16:48 GMT
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"Serge E. Hallyn" <serge@hallyn.com> writes:

```
>
> Looks good, thanks.
>
> Looks like mounts already does this with the mounts ns, and we don't
> need it for uts. Something to watch in any upcoming network patches
> though.
```

Which is where I got the idea. :)

I did this so many times in my network namespace patches when I looked at util.c it was blinding obvious...

Thanks for the review of the other obvious candidates. I fixed this one

because I tripped over it, when fixing the ref counting bug.

Eric

Containers mailing list

Containers@lists.osdl.org

<https://lists.osdl.org/mailman/listinfo/containers>
