
Subject: Re: [PATCH 3/5] Move the IPC namespace under the option
Posted by [Pavel Emelianov](#) on Mon, 01 Oct 2007 07:52:53 GMT
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Cedric Le Goater wrote:

> Pavel Emelyanov wrote:

>> Currently all the IPC namespace management code is in

>> ipc/util.c. I moved this code into ipc/namespace.c file

>> which is compiled out when needed.

>>

>> The linux/ipc_namespace.h file is used to store the

>> prototypes of the functions in namespace.c and the stubs

>> for NAMESPACES=n case. This is done so, because the stub

>> for copy_ipc_namespace requires the knowledge of the

>> CLONE_NEWIPC flag, which is in sched.h. But the linux/ipc.h

>> file itself is included into many many .c files via the

>> sys.h->sem.h sequence so adding the sched.h into it will

>> make all these .c depend on sched.h which is not that good.

>> On the other hand the knowledge about the namespaces stuff

>> is required in 4 .c files only.

>>

>> Besides, this patch compiles out some auxiliary functions

>> from ipc/sem.c, msg.c and shm.c files.

>>

>> Signed-off-by: Pavel Emelyanov <xemul@openvz.org>

> ^

> that sounds french :)

:)

> Also, for the code aesthetic,

>

> I think that ipc/ipc_namespace.c is a better name which fits

> the header file ipc/ipc_namespace.h.

Well, it already resides in ipc/ directory. I think it's a
mess to add one more ipc_ prefix.

> I'm wondering if it possible to move the init routines :

>

> #ifdef CONFIG_NAMESPACES

> int {msg,sem,shm}_init_ns(struct ipc_namespace *ns)

> {

> ...

> }

> #endif

>

> from the ipc/{msg,sem,shm}.c file to the ipc/ipc_namespace.c file.

> It would look better in the code than using ugly #ifdef.

Hm... Looks like it is. I will remake the patches.

> Thanks !

>

> C.

>

>> ---

>>

>> diff --git a/include/linux/ipc.h b/include/linux/ipc.h

>> index 96988d1..b882610 100644

>> --- a/include/linux/ipc.h

>> +++ b/include/linux/ipc.h

>> @@ -100,56 +100,6 @@ struct kern_ipc_perm

>> void *security;

>> };

>>

>> -struct ipc_ids;

>> -struct ipc_namespace {

>> - struct kref kref;

>> - struct ipc_ids *ids[3];

>> -

>> - int sem_ctls[4];

>> - int used_sems;

>> -

>> - int msg_ctlmax;

>> - int msg_ctlmnb;

>> - int msg_ctlmni;

>> -

>> - size_t shm_ctlmax;

>> - size_t shm_ctlall;

>> - int shm_ctlmni;

>> - int shm_tot;

>> -};

>> -

>> -extern struct ipc_namespace init_ipc_ns;

>> -

>> -#ifdef CONFIG_SYSVIPC

>> -#define INIT_IPC_NS(ns) .ns = &init_ipc_ns,

>> -extern void free_ipc_ns(struct kref *kref);

>> -extern struct ipc_namespace *copy_ipcs(unsigned long flags,

>> - struct ipc_namespace *ns);

>> -#else

>> -#define INIT_IPC_NS(ns)

>> -static inline struct ipc_namespace *copy_ipcs(unsigned long flags,

>> - struct ipc_namespace *ns)

>> -{

```

>> - return ns;
>> -}
>> -#endif
>> -
>> -static inline struct ipc_namespace *get_ipc_ns(struct ipc_namespace *ns)
>> -{
>> -#ifdef CONFIG_SYSVIPC
>> - if (ns)
>> - kref_get(&ns->kref);
>> -#endif
>> - return ns;
>> -}
>> -
>> -static inline void put_ipc_ns(struct ipc_namespace *ns)
>> -{
>> -#ifdef CONFIG_SYSVIPC
>> - kref_put(&ns->kref, free_ipc_ns);
>> -#endif
>> -}
>> -
>> #endif /* __KERNEL__ */
>>
>> #endif /* __LINUX_IPC_H */
>> diff --git a/include/linux/ipc_namespace.h b/include/linux/ipc_namespace.h
>> new file mode 100644
>> index 0000000..3d8a516
>> --- /dev/null
>> +++ b/include/linux/ipc_namespace.h
>> @@ -0,0 +1,67 @@
>> +#ifndef __IPC_NAMESPACE_H__
>> +#define __IPC_NAMESPACE_H__
>> +
>> +#include <linux/err.h>
>> +
>> +struct ipc_ids;
>> +struct ipc_namespace {
>> + struct kref kref;
>> + struct ipc_ids *ids[3];
>> +
>> + int sem_ctls[4];
>> + int used_sems;
>> +
>> + int msg_ctlmax;
>> + int msg_ctlmnb;
>> + int msg_ctlmni;
>> +
>> + size_t shm_ctlmax;
>> + size_t shmctlall;

```

```

>> + int shm_ctlmni;
>> + int shm_tot;
>> +};
>> +
>> +extern struct ipc_namespace init_ipc_ns;
>> +
>> +#ifdef CONFIG_SYSVIPC
>> +#define INIT_IPC_NS(ns) .ns = &init_ipc_ns,
>> +#else
>> +#define INIT_IPC_NS(ns)
>> +#endif
>> +
>> +#if defined(CONFIG_SYSVIPC) && defined(CONFIG_NAMESPACES)
>> +extern void free_ipc_ns(struct kref *kref);
>> +extern struct ipc_namespace *copy_ipcs(unsigned long flags,
>> +    struct ipc_namespace *ns);
>> +
>> +static inline struct ipc_namespace *get_ipc_ns(struct ipc_namespace *ns)
>> +{
>> + if (ns)
>> + kref_get(&ns->kref);
>> + return ns;
>> +}
>> +
>> +static inline void put_ipc_ns(struct ipc_namespace *ns)
>> +{
>> + kref_put(&ns->kref, free_ipc_ns);
>> +}
>> +#else
>> +static inline struct ipc_namespace *copy_ipcs(unsigned long flags,
>> +    struct ipc_namespace *ns)
>> +{
>> + if (flags & CLONE_NEWIPC)
>> + return ERR_PTR(-EINVAL);
>> +
>> + return ns;
>> +}
>> +
>> +static inline struct ipc_namespace *get_ipc_ns(struct ipc_namespace *ns)
>> +{
>> + return ns;
>> +}
>> +
>> +static inline void put_ipc_ns(struct ipc_namespace *ns)
>> +{
>> +}
>> +#endif
>> +#endif

```

```

>> diff --git a/ipc/util.c b/ipc/util.c
>> index fd29246..44fb843 100644
>> --- a/ipc/util.c
>> +++ b/ipc/util.c
>> @@ -32,6 +32,7 @@
>> #include <linux/proc_fs.h>
>> #include <linux/audit.h>
>> #include <linux/nsproxy.h>
>> +#include <linux/ipc_namespace.h>
>>
>> #include <asm/unistd.h>
>>
>> @@ -50,66 +51,6 @@ struct ipc_namespace init_ipc_ns = {
>> },
>> };
>>
>> -static struct ipc_namespace *clone_ipc_ns(struct ipc_namespace *old_ns)
>> -{
>> - int err;
>> - struct ipc_namespace *ns;
>> -
>> - err = -ENOMEM;
>> - ns = kmalloc(sizeof(struct ipc_namespace), GFP_KERNEL);
>> - if (ns == NULL)
>> - goto err_mem;
>> -
>> - err = sem_init_ns(ns);
>> - if (err)
>> - goto err_sem;
>> - err = msg_init_ns(ns);
>> - if (err)
>> - goto err_msg;
>> - err = shm_init_ns(ns);
>> - if (err)
>> - goto err_shm;
>> -
>> - kref_init(&ns->kref);
>> - return ns;
>> -
>> -err_shm:
>> - msg_exit_ns(ns);
>> -err_msg:
>> - sem_exit_ns(ns);
>> -err_sem:
>> - kfree(ns);
>> -err_mem:
>> - return ERR_PTR(err);
>> -}

```

```

>> -
>> -struct ipc_namespace *copy_ipcs(unsigned long flags, struct ipc_namespace *ns)
>> -{
>> - struct ipc_namespace *new_ns;
>> -
>> - BUG_ON(!ns);
>> - get_ipc_ns(ns);
>> -
>> - if (!(flags & CLONE_NEWIPC))
>> - return ns;
>> -
>> - new_ns = clone_ipc_ns(ns);
>> -
>> - put_ipc_ns(ns);
>> - return new_ns;
>> -}
>> -
>> -void free_ipc_ns(struct kref *kref)
>> -{
>> - struct ipc_namespace *ns;
>> -
>> - ns = container_of(kref, struct ipc_namespace, kref);
>> - sem_exit_ns(ns);
>> - msg_exit_ns(ns);
>> - shm_exit_ns(ns);
>> - kfree(ns);
>> -}
>> -
>> /**
>>  * ipc_init - initialise IPC subsystem
>>  *
>> diff --git a/ipc/namespace.c b/ipc/namespace.c
>> new file mode 100644
>> index 0000000..cef1139
>> --- /dev/null
>> +++ b/ipc/namespace.c
>> @@ -0,0 +1,73 @@
>> +/*
>> + * linux/ipc/namespace.c
>> + * Copyright (C) 2006 Pavel Emelyanov <xemul@openvz.org> OpenVZ, SWsoft Inc.
>> + */
>> +
>> +#include <linux/ipc.h>
>> +#include <linux/msg.h>
>> +#include <linux/ipc_namespace.h>
>> +#include <linux/rcupdate.h>
>> +#include <linux/nsproxy.h>
>> +#include <linux/slab.h>

```

```

>> +
>> + #include "util.h"
>> +
>> + static struct ipc_namespace *clone_ipc_ns(struct ipc_namespace *old_ns)
>> + {
>> +     int err;
>> +     struct ipc_namespace *ns;
>> +
>> +     err = -ENOMEM;
>> +     ns = kmalloc(sizeof(struct ipc_namespace), GFP_KERNEL);
>> +     if (ns == NULL)
>> +         goto err_mem;
>> +
>> +     err = sem_init_ns(ns);
>> +     if (err)
>> +         goto err_sem;
>> +     err = msg_init_ns(ns);
>> +     if (err)
>> +         goto err_msg;
>> +     err = shm_init_ns(ns);
>> +     if (err)
>> +         goto err_shm;
>> +
>> +     kref_init(&ns->kref);
>> +     return ns;
>> +
>> +err_shm:
>> +     msg_exit_ns(ns);
>> +err_msg:
>> +     sem_exit_ns(ns);
>> +err_sem:
>> +     kfree(ns);
>> +err_mem:
>> +     return ERR_PTR(err);
>> + }
>> +
>> + struct ipc_namespace *copy_ipcs(unsigned long flags, struct ipc_namespace *ns)
>> + {
>> +     struct ipc_namespace *new_ns;
>> +
>> +     BUG_ON(!ns);
>> +     get_ipc_ns(ns);
>> +
>> +     if (!(flags & CLONE_NEWIPC))
>> +         return ns;
>> +
>> +     new_ns = clone_ipc_ns(ns);
>> +

```

```

>> + put_ipc_ns(ns);
>> + return new_ns;
>> +}
>> +
>> +void free_ipc_ns(struct kref *kref)
>> +{
>> + struct ipc_namespace *ns;
>> +
>> + ns = container_of(kref, struct ipc_namespace, kref);
>> + sem_exit_ns(ns);
>> + msg_exit_ns(ns);
>> + shm_exit_ns(ns);
>> + kfree(ns);
>> +}
>> diff --git a/ipc/Makefile b/ipc/Makefile
>> index b93bba6..d81fb35 100644
>> --- a/ipc/Makefile
>> +++ b/ipc/Makefile
>> @@ -7,4 +7,5 @@ obj-$(CONFIG_SYSVIPC) += util.o msgutil.
>> obj-$(CONFIG_SYSVIPC_SYSCTL) += ipc_sysctl.o
>> obj_mq-$(CONFIG_COMPAT) += compat_mq.o
>> obj-$(CONFIG_POSIX_MQUEUE) += mqueue.o msgutil.o $(obj_mq-y)
>> +obj-$(CONFIG_NAMESPACES) += namespace.o
>>
>> diff --git a/ipc/ipc_sysctl.c b/ipc/ipc_sysctl.c
>> index 79e24e8..7f4235b 100644
>> --- a/ipc/ipc_sysctl.c
>> +++ b/ipc/ipc_sysctl.c
>> @@ -14,6 +14,7 @@
>> #include <linux/nsproxy.h>
>> #include <linux/sysctl.h>
>> #include <linux/uaccess.h>
>> +#include <linux/ipc_namespace.h>
>>
>> static void *get_ipc(ctl_table *table)
>> {
>> diff --git a/ipc/msg.c b/ipc/msg.c
>> index b7274db..eb74965 100644
>> --- a/ipc/msg.c
>> +++ b/ipc/msg.c
>> @@ -36,6 +36,7 @@
>> #include <linux/seq_file.h>
>> #include <linux/mutex.h>
>> #include <linux/nsproxy.h>
>> +#include <linux/ipc_namespace.h>
>>
>> #include <asm/current.h>
>> #include <asm/uaccess.h>

```



```

>> @@ -92,6 +93,7 @@ static void __msg_init_ns(struct ipc_nam
>> ipc_init_ids(ids);
>> }
>>
>> +#ifdef CONFIG_NAMESPACES
>> int msg_init_ns(struct ipc_namespace *ns)
>> {
>> struct ipc_ids *ids;
>> @@ -127,6 +129,7 @@ void msg_exit_ns(struct ipc_namespace *n
>> kfree(ns->ids[IPC_MSG_IDS]);
>> ns->ids[IPC_MSG_IDS] = NULL;
>> }
>> +#endif
>>
>> void __init msg_init(void)
>> {
>> diff --git a/ipc/sem.c b/ipc/sem.c
>> index 45c7e57..2e9f449 100644
>> --- a/ipc/sem.c
>> +++ b/ipc/sem.c
>> @@ -82,6 +82,7 @@
>> #include <linux/seq_file.h>
>> #include <linux/mutex.h>
>> #include <linux/nsproxy.h>
>> +#include <linux/ipc_namespace.h>
>>
>> #include <asm/uaccess.h>
>> #include "util.h"
>> @@ -130,6 +131,7 @@ static void __sem_init_ns(struct ipc_nam
>> ipc_init_ids(ids);
>> }
>>
>> +#ifdef CONFIG_NAMESPACES
>> int sem_init_ns(struct ipc_namespace *ns)
>> {
>> struct ipc_ids *ids;
>> @@ -165,6 +167,7 @@ void sem_exit_ns(struct ipc_namespace *n
>> kfree(ns->ids[IPC_SEM_IDS]);
>> ns->ids[IPC_SEM_IDS] = NULL;
>> }
>> +#endif
>>
>> void __init sem_init(void)
>> {
>> diff --git a/ipc/shm.c b/ipc/shm.c
>> index f28f2a3..2717cbc 100644
>> --- a/ipc/shm.c
>> +++ b/ipc/shm.c

```

```

>> @@ -38,6 +38,7 @@
>> #include <linux/mutex.h>
>> #include <linux/nsproxy.h>
>> #include <linux/mount.h>
>> +#include <linux/ipc_namespace.h>
>>
>> #include <asm/uaccess.h>
>>
>> @@ -97,6 +98,7 @@ static void do_shm_rmid(struct ipc_names
>> shm_destroy(ns, shp);
>> }
>>
>> +#ifdef CONFIG_NAMESPACES
>> int shm_init_ns(struct ipc_namespace *ns)
>> {
>> struct ipc_ids *ids;
>> @@ -132,6 +134,7 @@ void shm_exit_ns(struct ipc_namespace *n
>> kfree(ns->ids[IPC_SHM_IDS]);
>> ns->ids[IPC_SHM_IDS] = NULL;
>> }
>> +#endif
>>
>> void __init shm_init (void)
>> {
>> diff --git a/ipc/util.h b/ipc/util.h
>> index 99414a3..8972402 100644
>> --- a/ipc/util.h
>> +++ b/ipc/util.h
>> @@ -20,6 +20,8 @@ void sem_init (void);
>> void msg_init (void);
>> void shm_init (void);
>>
>> +struct ipc_namespace;
>> +
>> int sem_init_ns(struct ipc_namespace *ns);
>> int msg_init_ns(struct ipc_namespace *ns);
>> int shm_init_ns(struct ipc_namespace *ns);
>> diff --git a/kernel/nsproxy.c b/kernel/nsproxy.c
>> index ee68964..5a27426 100644
>> --- a/kernel/nsproxy.c
>> +++ b/kernel/nsproxy.c
>> @@ -20,6 +20,7 @@
>> #include <linux/mnt_namespace.h>
>> #include <linux/utsname.h>
>> #include <linux/pid_namespace.h>
>> +#include <linux/ipc_namespace.h>
>>
>> static struct kmem_cache *nsproxy_cachep;

```

>>
>>
>>
>
>

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