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Subject: [PATCH 13/17] Pid-NS(V3) Make pid ns functions inline  
Posted by [Sukadev Bhattiprolu](#) on Sat, 16 Jun 2007 23:03:19 GMT  
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Subject: [PATCH 13/17] Pid-NS(V3) Make pid ns functions inline

Now that pid namespace is no longer dependent on 'struct nsproxy' we can inline is\_global\_init() and pid\_to\_nr().

We can also clean up pid\_namespace.h by moving task\_child\_reaper() and task\_active\_pid\_ns() into sched.h (where other functions that operate on a 'task\_struct' currently reside).

P.S: Note that while these "clean up" changes could be folded into the previous patch, they may unnecessarily complicate that patch due to dependencies between sched.h, pid.h, nsproxy.h and pid\_namespace.h.

Signed-off-by: Sukadev Bhattiprolu <sukadev@us.ibm.com>

---  
include/linux/pid.h | 5 ---  
include/linux/pid\_namespace.h | 37 -----  
include/linux/sched.h | 47 ++++++++++++++++++++++++++++++++++++++  
kernel/nsproxy.c | 1  
kernel/pid.c | 20 -----  
5 files changed, 46 insertions(+), 64 deletions(-)

Index: lx26-22-rc4-mm2/include/linux/pid.h

```
=====
--- lx26-22-rc4-mm2.orig/include/linux/pid.h 2007-06-15 19:21:35.000000000 -0700
+++ lx26-22-rc4-mm2/include/linux/pid.h 2007-06-15 19:47:51.000000000 -0700
@@ -2,6 +2,7 @@
#define _LINUX_PID_H

#include <linux/rcupdate.h>
+#include <linux/pid_namespace.h>

enum copy_process_type {
    COPY_NON_IDLE_PROCESS,
@@ -16,8 +17,6 @@ enum pid_type
    PIDTYPE_MAX
};

-struct pid_namespace;
-
/*
 * A struct upid holds a process identifier (or pid->nr) for a given
 * pid namespace.
@@ -122,7 +121,6 @@ extern struct pid *dup_struct_pid(enum c
```

```

    unsigned long clone_flags, struct task_struct *new_task);
extern void FASTCALL(free_pid(struct pid *pid));

```

```

-extern pid_t pid_to_nr(struct pid *pid);
extern void zap_pid_ns_processes(struct pid_namespace *pid_ns);

```

```

#define do_each_pid_task(pid, type, task) \
@@ -170,7 +168,6 @@ static inline struct pid_namespace *pid_
*/
static inline struct pid_namespace *pid_active_pid_ns_parent(struct pid *pid)
{
- extern struct pid_namespace init_pid_ns;
  struct pid_namespace *ns = &init_pid_ns;

```

```

    if (pid->upid_list[0].pid_ns != &init_pid_ns)

```

```

Index: lx26-22-rc4-mm2/include/linux/pid_namespace.h

```

```

=====
--- lx26-22-rc4-mm2.orig/include/linux/pid_namespace.h 2007-06-15 19:21:35.000000000 -0700
+++ lx26-22-rc4-mm2/include/linux/pid_namespace.h 2007-06-15 19:26:40.000000000 -0700
@@ -1,11 +1,6 @@
#ifndef _LINUX_PID_NS_H
#define _LINUX_PID_NS_H

```

```

-#include <linux/sched.h>
-#include <linux/mm.h>
-#include <linux/threads.h>
-#include <linux/pid.h>
-#include <linux/nsproxy.h>
#include <linux/kref.h>

```

```

struct pidmap {
@@ -50,36 +45,4 @@ static inline void put_pid_ns(struct pid
    kref_put(&ns->kref, free_pid_ns);
}

```

```

-extern struct pid_namespace *pid_active_pid_ns(struct pid *pid);
-static inline struct pid_namespace *task_active_pid_ns(struct task_struct *tsk)
-{
- return pid_active_pid_ns(task_pid(tsk));
-}
-
-/*
- * Return the child reaper of @tsk.
- *
- * Normally the child reaper of @tsk is simply the child reaper
- * the active pid namespace of @tsk.
- *
- * But if @tsk is itself child reaper of a namespace, NS1, its child

```

```

- * reaper depends on the caller. If someone from an ancestor namespace
- * or, if the reaper himself is asking, return the reaper of our parent
- * namespace.
- *
- * If someone from namespace NS1 (other than reaper himself) is asking,
- * return reaper of NS1.
- */

```

```

-static inline struct task_struct *task_child_reaper(struct task_struct *tsk)
-{
- struct task_struct *reaper;
- struct pid *pid = task_pid(tsk);
-
- reaper = pid_active_pid_ns(pid)->child_reaper;
- if (tsk == reaper)
- reaper = pid_active_pid_ns_parent(pid)->child_reaper;
-
- return reaper;
-}
-

```

```

#endif /* _LINUX_PID_NS_H */

```

Index: lx26-22-rc4-mm2/include/linux/sched.h

```

=====
--- lx26-22-rc4-mm2.orig/include/linux/sched.h 2007-06-15 19:04:53.000000000 -0700
+++ lx26-22-rc4-mm2/include/linux/sched.h 2007-06-15 19:47:51.000000000 -0700
@@ -1218,6 +1218,46 @@ static inline struct pid *task_session(s
     return task->group_leader->pids[PIDTYPE_SID].pid;
}

```

```

+static inline struct pid_namespace *task_active_pid_ns(struct task_struct *tsk)
+{
+ return pid_active_pid_ns(task_pid(tsk));
+}
+
+/**
+ * Return the child reaper of @tsk.
+ *
+ * Normally the child reaper of @tsk is simply the child reaper
+ * the active pid namespace of @tsk.
+ *
+ * But if @tsk is itself child reaper of a namespace, NS1, its child
+ * reaper depends on the caller. If someone from an ancestor namespace
+ * or, if the reaper himself is asking, return the reaper of our parent
+ * namespace.
+ *
+ * If someone from namespace NS1 (other than reaper himself) is asking,
+ * return reaper of NS1.
+ */
+static inline struct task_struct *task_child_reaper(struct task_struct *tsk)

```

```

+{
+ struct task_struct *reaper;
+ struct pid *pid = task_pid(tsk);
+
+ reaper = pid_active_pid_ns(pid)->child_reaper;
+ if (tsk == reaper)
+   reaper = pid_active_pid_ns_parent(pid)->child_reaper;
+
+ return reaper;
+}
+
+/**
+ * Return the pid_t by which the process @pid is known in the active
+ * pid namespace of the caller.
+ */
+static inline pid_t pid_to_nr(struct pid *pid)
+{
+ return pid_to_nr_in_ns(pid, task_active_pid_ns(current));
+}
+
+/**
+ * pid_alive - check that a task structure is not stale
+ * @p: Task structure to be checked.
+ @@ -1236,10 +1276,11 @@ static inline int pid_alive(struct task_
+ * @tsk: Task structure to be checked.
+ *
+ * Check if a task structure is the first user space task the kernel created.
+ - *
+ - * TODO: We should inline this function after some cleanups in pid_namespace.h
+ */
+extern int is_global_init(struct task_struct *tsk);
+static inline int is_global_init(struct task_struct *tsk)
+{
+ return tsk == init_pid_ns.child_reaper;
+}
+
+/*
+ * is_container_init:
+ Index: lx26-22-rc4-mm2/kernel/pid.c
+ =====
+ --- lx26-22-rc4-mm2.orig/kernel/pid.c 2007-06-15 19:21:35.000000000 -0700
+ +++ lx26-22-rc4-mm2/kernel/pid.c 2007-06-15 19:47:51.000000000 -0700
+ @@ -111,11 +111,6 @@ struct pid_namespace init_pid_ns = {
+   .child_reaper = &init_task
+ };
+
+ -int is_global_init(struct task_struct *tsk)
+ -{

```

```

- return tsk == init_pid_ns.child_reaper;
-}
-
/*
 * Note: disable interrupts while the pidmap_lock is held as an
 * interrupt might come in and do read_lock(&tasklist_lock).
@@ -263,21 +258,6 @@ static int init_upid(struct upid *upid,
    return 0;
}

-/*
- * Return the pid_t by which the process @pid is known in the active
- * pid namespace of the caller.
- *
- * TODO: pid_to_nr() cannot be easily inlined due to dependencies between
- *      'task_struct', 'nsproxy' and 'pid_namespace'. As a part of
- *      implementing multiple pid namespaces, we remove 'pid_namespace'
- *      from 'nsproxy' and inline this function.
- */
-pid_t pid_to_nr(struct pid *pid)
-{
- return pid_to_nr_in_ns(pid, task_active_pid_ns(current));
-}
-EXPORT_SYMBOL_GPL(pid_to_nr);
-
#ifdef CONFIG_PID_NS
static int init_ns_pidmap(struct pid_namespace *ns)
{
Index: lx26-22-rc4-mm2/kernel/nsproxy.c
=====
--- lx26-22-rc4-mm2.orig/kernel/nsproxy.c 2007-06-15 19:04:53.000000000 -0700
+++ lx26-22-rc4-mm2/kernel/nsproxy.c 2007-06-15 19:21:35.000000000 -0700
@@ -19,6 +19,7 @@
#include <linux/init_task.h>
#include <linux/mnt_namespace.h>
#include <linux/utsname.h>
+#include <linux/err.h>

struct nsproxy init_nsproxy = INIT_NS_PROXY(init_nsproxy);

--

```

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Containers mailing list  
Containers@lists.linux-foundation.org  
<https://lists.linux-foundation.org/mailman/listinfo/containers>

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