
Subject: [RFC][PATCH 6/6]: Enable unsharing pid namespace.
Posted by [Sukadev Bhattiprolu](#) on Sat, 10 Mar 2007 04:00:28 GMT
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From: Cedric Le Goater <clg@fr.ibm.com>
Subject: [RFC][PATCH 6/6]: Enable unsharing pid namespace.

Enable unsharing of pid namespace - i.e allow creating and using
a new pid namespace and attaching multiple struct pid_nrs per
process, one for each namespace.

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

include/linux/sched.h | 1 +
kernel/fork.c | 22 ++++++-----
kernel/nsproxy.c | 5 +++-
kernel/pid.c | 18 ++++++
4 files changed, 41 insertions(+), 5 deletions(-)

Index: lx26-20-mm2b/kernel/pid.c

```
=====
--- lx26-20-mm2b.orig/kernel/pid.c 2007-03-09 14:56:53.000000000 -0800
+++ lx26-20-mm2b/kernel/pid.c 2007-03-09 15:03:05.000000000 -0800
@@ -546,6 +546,24 @@ void free_pid_ns(struct kref *kref)
     struct pid_namespace *ns;

     ns = container_of(kref, struct pid_namespace, kref);
+
+ if (ns != &init_pid_ns) {
+ /* BEGIN: to be removed soon */
+ int i;
+ int nr_free = atomic_read(&ns->pidmap[0].nr_free);
+
+ BUG_ON(nr_free != (BITS_PER_PAGE - 1));
+
+ if (unlikely(PIDMAP_ENTRIES != 1)) {
+ for (i = 1; i < PIDMAP_ENTRIES; i++) {
+ nr_free = atomic_read(&ns->pidmap[i].nr_free);
+ BUG_ON(nr_free != BITS_PER_PAGE);
+ }
+ }
+ /* END: to be removed soon */
+ kfree(ns->pidmap[0].page);
+ }
+
     kfree(ns);
```

```
}
```

Index: lx26-20-mm2b/include/linux/sched.h

```
=====
--- lx26-20-mm2b.orig/include/linux/sched.h 2007-03-09 14:56:12.000000000 -0800
+++ lx26-20-mm2b/include/linux/sched.h 2007-03-09 14:56:53.000000000 -0800
@@ -26,6 +26,7 @@
#define CLONE_STOPPED 0x02000000 /* Start in stopped state */
#define CLONE_NEWUTS 0x04000000 /* New utsname group? */
#define CLONE_NEWIPC 0x08000000 /* New ipcs */
+#define CLONE_NEWPID 0x10000000 /* New pid namespace */
```

```
/*
```

```
 * Scheduling policies
```

Index: lx26-20-mm2b/kernel/fork.c

```
=====
--- lx26-20-mm2b.orig/kernel/fork.c 2007-03-09 14:56:12.000000000 -0800
+++ lx26-20-mm2b/kernel/fork.c 2007-03-09 15:05:39.000000000 -0800
@@ -57,6 +57,7 @@
#include <asm/mmu_context.h>
#include <asm/cacheflush.h>
#include <asm/tlbflush.h>
+#include <linux/pid_namespace.h>

/*
 * Protected counters by write_lock_irq(&tasklist_lock)
@@ -1609,6 +1610,7 @@ asmlinkage long sys_unshare(unsigned lon
    struct nsproxy *new_nsproxy = NULL, *old_nsproxy = NULL;
    struct uts_namespace *uts, *new_uts = NULL;
    struct ipc_namespace *ipc, *new_ipc = NULL;
+ struct pid_nr *new_pid_nr = NULL;
```

```
    check_unshare_flags(&unshare_flags);
```

```
@@ -1616,7 +1618,7 @@ asmlinkage long sys_unshare(unsigned lon
    err = -EINVAL;
    if (unshare_flags & ~(CLONE_THREAD|CLONE_FS|CLONE_NEWNS|CLONE_SIGHAND|
        CLONE_VM|CLONE_FILES|CLONE_SYSVSEM|
-    CLONE_NEWUTS|CLONE_NEWIPC))
+    CLONE_NEWUTS|CLONE_NEWIPC|CLONE_NEWPID))
        goto bad_unshare_out;

    if ((err = unshare_thread(unshare_flags)))
@@ -1637,18 +1639,20 @@ asmlinkage long sys_unshare(unsigned lon
        goto bad_unshare_cleanup_semundo;
    if ((err = unshare_ipcs(unshare_flags, &new_ipc)))
        goto bad_unshare_cleanup_uts;
+ if ((err = unshare_pid_ns(unshare_flags, &new_pid_nr)))
```

```

+ goto bad_unshare_cleanup_ipc;

- if (new_ns || new_uts || new_ipc) {
+ if (new_ns || new_uts || new_ipc || new_pid_nr) {
    old_nsproxy = current->nsproxy;
    new_nsproxy = dup_namespaces(old_nsproxy);
    if (!new_nsproxy) {
        err = -ENOMEM;
- goto bad_unshare_cleanup_ipc;
+ goto bad_unshare_cleanup_pid;
    }
}

    if (new_fs || new_ns || new_mm || new_fd || new_ulist ||
- new_uts || new_ipc) {
+ new_uts || new_ipc || new_pid_nr) {

    task_lock(current);

@@ -1696,12 +1700,22 @@ asmlinkage long sys_unshare(unsigned long
    new_ipc = ipc;
}

+ if (new_pid_nr) {
+ pid = task_pid_ns(current);
+ set_task_pid_ns(current, new_pid_nr->pid_ns);
+ new_pid_nr = NULL;
+ }
+
    task_unlock(current);
}

if (new_nsproxy)
    put_nsproxy(new_nsproxy);

+bad_unshare_cleanup_pid:
+ if (new_pid_nr)
+ free_pidmap_pid_nr(new_pid_nr);
+
bad_unshare_cleanup_ipc:
    if (new_ipc)
        put_ipc_ns(new_ipc);
Index: lx26-20-mm2b/kernel/nsproxy.c
=====
--- lx26-20-mm2b.orig/kernel/nsproxy.c 2007-03-09 14:56:12.000000000 -0800
+++ lx26-20-mm2b/kernel/nsproxy.c 2007-03-09 15:03:05.000000000 -0800
@@ -83,13 +83,16 @@ int copy_namespaces(int flags, struct ta
    struct nsproxy *old_ns = tsk->nsproxy;

```

```
struct nsproxy *new_ns;
int err = 0;
+ int ns_all;

if (!old_ns)
    return 0;

get_nsproxy(old_ns);

- if (!(flags & (CLONE_NEWNS | CLONE_NEWUTS | CLONE_NEWIPC)))
+ ns_all = CLONE_NEWNS | CLONE_NEWUTS | CLONE_NEWIPC | CLONE_NEWPID;
+
+ if (!(flags & ns_all))
    return 0;

new_ns = clone_namespaces(old_ns);
```

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