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Subject: [RFC][PATCH] Rename pspace to pid\_namespace  
Posted by [Sukadev Bhattiprolu](#) on Fri, 08 Sep 2006 05:39:45 GMT  
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Rename struct pspace to struct pid\_namespace for consistency with other namespaces (uts\_namespace and ipc\_namespace). Also rename include/linux/pspace.h to include/linux/pid\_namespace.h and variables from pspace to pid\_ns.

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```
include/linux/pid_namespace.h | 23 ++++++
include/linux/pspace.h       | 23 -----
kernel/pid.c                 | 39 ++++++-----
3 files changed, 43 insertions(+), 42 deletions(-)
```

Index: lx26-18-rc5-mm1/include/linux/pid\_namespace.h

```
=====
--- /dev/null 1970-01-01 00:00:00.000000000 +0000
+++ lx26-18-rc5-mm1/include/linux/pid_namespace.h 2006-09-07 22:19:51.000000000 -0700
@@ -0,0 +1,23 @@
+#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>
+
+struct pidmap {
+    atomic_t nr_free;
+    void *page;
+};
+
+#define PIDMAP_ENTRIES    ((PID_MAX_LIMIT + 8*PAGE_SIZE - 1)/PAGE_SIZE/8)
+
+struct pid_namespace {
+    struct pidmap pidmap[PIDMAP_ENTRIES];
+    int last_pid;
+};
+
+extern struct pid_namespace init_pid_ns;
+
+#endif /* _LINUX_PID_NS_H */
```

Index: lx26-18-rc5-mm1/include/linux/pspace.h

```
=====
--- lx26-18-rc5-mm1.orig/include/linux/pspace.h 2006-09-07 22:18:55.000000000 -0700
+++ /dev/null 1970-01-01 00:00:00.000000000 +0000
@@ -1,23 +0,0 @@
-#ifndef _LINUX_PSPACE_H
-#define _LINUX_PSPACE_H
-
-#include <linux/sched.h>
-#include <linux/mm.h>
-#include <linux/threads.h>
-#include <linux/pid.h>
-
-struct pidmap {
-    atomic_t nr_free;
-    void *page;
-};
-
-#define PIDMAP_ENTRIES      ((PID_MAX_LIMIT + 8*PAGE_SIZE - 1)/PAGE_SIZE/8)
-
-struct pspace {
-    struct pidmap pidmap[PIDMAP_ENTRIES];
-    int last_pid;
-};
-
-extern struct pspace init_pspace;
-
-#endif /* _LINUX_PSPACE_H */
Index: lx26-18-rc5-mm1/kernel/pid.c
```

```
=====
--- lx26-18-rc5-mm1.orig/kernel/pid.c 2006-09-07 22:18:55.000000000 -0700
+++ lx26-18-rc5-mm1/kernel/pid.c 2006-09-07 22:19:51.000000000 -0700
@@ -26,7 +26,7 @@
#include <linux/init.h>
#include <linux/bootmem.h>
#include <linux/hash.h>
-#include <linux/pspace.h>
+#include <linux/pid_namespace.h>

#define pid_hashfn(nr) hash_long((unsigned long)nr, pidhash_shift)
static struct hlist_head *pid_hash;
@@ -43,9 +43,10 @@ int pid_max_max = PID_MAX_LIMIT;
#define BITS_PER_PAGE (PAGE_SIZE*8)
#define BITS_PER_PAGE_MASK (BITS_PER_PAGE-1)

-static inline int mk_pid(struct pspace *pspace, struct pidmap *map, int off)
+static inline int mk_pid(struct pid_namespace *pid_ns,
+ struct pidmap *map, int off)
```

```

{
- return (map - pspace->pidmap)*BITS_PER_PAGE + off;
+ return (map - pid_ns->pidmap)*BITS_PER_PAGE + off;
}

#define find_next_offset(map, off) \
@@ -57,7 +58,7 @@ static inline int mk_pid(struct pspace *
* value does not cause lots of bitmaps to be allocated, but
* the scheme scales to up to 4 million PIDs, runtime.
*/
-struct pspace init_pspace = {
+struct pid_namespace init_pid_ns = {
    .pidmap = {
        [ 0 ... PIDMAP_ENTRIES-1] = { ATOMIC_INIT(BITS_PER_PAGE), NULL }
    },
@@ -80,25 +81,25 @@ struct pspace init_pspace = {

static __cacheline_aligned_in_smp DEFINE_SPINLOCK(pidmap_lock);

-static fastcall void free_pidmap(struct pspace *pspace, int pid)
+static fastcall void free_pidmap(struct pid_namespace *pid_ns, int pid)
{
- struct pidmap *map = pspace->pidmap + pid / BITS_PER_PAGE;
+ struct pidmap *map = pid_ns->pidmap + pid / BITS_PER_PAGE;
    int offset = pid & BITS_PER_PAGE_MASK;

    clear_bit(offset, map->page);
    atomic_inc(&map->nr_free);
}

-static int alloc_pidmap(struct pspace *pspace)
+static int alloc_pidmap(struct pid_namespace *pid_ns)
{
- int i, offset, max_scan, pid, last = pspace->last_pid;
+ int i, offset, max_scan, pid, last = pid_ns->last_pid;
    struct pidmap *map;

    pid = last + 1;
    if (pid >= pid_max)
        pid = RESERVED_PIDS;
    offset = pid & BITS_PER_PAGE_MASK;
- map = &pspace->pidmap[pid/BITS_PER_PAGE];
+ map = &pid_ns->pidmap[pid/BITS_PER_PAGE];
    max_scan = (pid_max + BITS_PER_PAGE - 1)/BITS_PER_PAGE - !offset;
    for (i = 0; i <= max_scan; ++i) {
        if (unlikely(!map->page)) {
@@ -120,11 +121,11 @@ static int alloc_pidmap(struct pspace *p
    do {

```

```

    if (!test_and_set_bit(offset, map->page)) {
        atomic_dec(&map->nr_free);
-   pspace->last_pid = pid;
+   pid_ns->last_pid = pid;
        return pid;
    }
    offset = find_next_offset(map, offset);
-   pid = mk_pid(pspace, map, offset);
+   pid = mk_pid(pid_ns, map, offset);
/*
 * find_next_offset() found a bit, the pid from it
 * is in-bounds, and if we fell back to the last
@@ -135,16 +136,16 @@ static int alloc_pidmap(struct pspace *p
    (i != max_scan || pid < last ||
     !((last+1) & BITS_PER_PAGE_MASK));
}
- if (map < &pspace->pidmap[(pid_max-1)/BITS_PER_PAGE]) {
+ if (map < &pid_ns->pidmap[(pid_max-1)/BITS_PER_PAGE]) {
    ++map;
    offset = 0;
} else {
-   map = &pspace->pidmap[0];
+   map = &pid_ns->pidmap[0];
    offset = RESERVED_PIDS;
    if (unlikely(last == offset))
        break;
}
-   pid = mk_pid(pspace, map, offset);
+   pid = mk_pid(pid_ns, map, offset);
}
return -1;
}
@@ -174,7 +175,7 @@ fastcall void free_pid(struct pid *pid)
    hlist_del_rcu(&pid->pid_chain);
    spin_unlock_irqrestore(&pidmap_lock, flags);

- free_pidmap(&init_pspace, pid->nr);
+ free_pidmap(&init_pid_ns, pid->nr);
    call_rcu(&pid->rcu, delayed_put_pid);
}

@@ -188,7 +189,7 @@ struct pid *alloc_pid(void)
    if (!pid)
        goto out;

- nr = alloc_pidmap(&init_pspace);
+ nr = alloc_pidmap(&init_pid_ns);
    if (nr < 0)

```

```
goto out_free;
```

```
@ @ -337,10 +338,10 @ @ void __init pidhash_init(void)
```

```
void __init pidmap_init(void)
```

```
{  
- init_pspace.pidmap[0].page = kzalloc(PAGE_SIZE, GFP_KERNEL);  
+ init_pid_ns.pidmap[0].page = kzalloc(PAGE_SIZE, GFP_KERNEL);  
  /* Reserve PID 0. We never call free_pidmap(0) */  
- set_bit(0, init_pspace.pidmap[0].page);  
- atomic_dec(&init_pspace.pidmap[0].nr_free);  
+ set_bit(0, init_pid_ns.pidmap[0].page);  
+ atomic_dec(&init_pid_ns.pidmap[0].nr_free);
```

```
pid_cachep = kmem_cache_create("pid", sizeof(struct pid),  
    __alignof__(struct pid),
```

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Containers mailing list

Containers@lists.osdl.org

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

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