
Subject: [PATCH v5 08/14] res_counter: return amount of charges after res_counter_uncharge

Posted by [Glauber Costa](#) on Tue, 16 Oct 2012 10:16:45 GMT

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It is useful to know how many charges are still left after a call to res_counter_uncharge. While it is possible to issue a res_counter_read after uncharge, this can be racy.

If we need, for instance, to take some action when the counters drop down to 0, only one of the callers should see it. This is the same semantics as the atomic variables in the kernel.

Since the current return value is void, we don't need to worry about anything breaking due to this change: nobody relied on that, and only users appearing from now on will be checking this value.

Signed-off-by: Glauber Costa <glommer@parallels.com>

Reviewed-by: Michal Hocko <mhocko@suse.cz>

Acked-by: Kamezawa Hiroyuki <kamezawa.hiroyu@jp.fujitsu.com>

CC: Johannes Weiner <hannes@cmpxchg.org>

CC: Suleiman Souhlal <suleiman@google.com>

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```
Documentation/cgroups/resource_counter.txt | 7 +++++-
include/linux/res_counter.h                | 12 ++++++-----
kernel/res_counter.c                       | 20 ++++++-----
3 files changed, 24 insertions(+), 15 deletions(-)
```

```
diff --git a/Documentation/cgroups/resource_counter.txt
```

```
b/Documentation/cgroups/resource_counter.txt
```

```
index 0c4a344..c4d99ed 100644
```

```
--- a/Documentation/cgroups/resource_counter.txt
```

```
+++ b/Documentation/cgroups/resource_counter.txt
```

```
@@ -83,16 +83,17 @@ to work with it.
```

```
res_counter->lock internally (it must be called with res_counter->lock held). The force parameter indicates whether we can bypass the limit.
```

```
- e. void res_counter_uncharge[_locked]
```

```
+ e. u64 res_counter_uncharge[_locked]
```

```
(struct res_counter *rc, unsigned long val)
```

When a resource is released (freed) it should be de-accounted from the resource counter it was accounted to. This is called - "uncharging".

+ "uncharging". The return value of this function indicate the amount + of charges still present in the counter.

The `_locked` routines imply that the `res_counter->lock` is taken.

```
- f. void res_counter_uncharge_until
+ f. u64 res_counter_uncharge_until
  (struct res_counter *rc, struct res_counter *top,
   unsigned long val)
```

```
diff --git a/include/linux/res_counter.h b/include/linux/res_counter.h
index 7d7fbe2..4b173b6 100644
--- a/include/linux/res_counter.h
+++ b/include/linux/res_counter.h
@@ -130,14 +130,16 @@ int res_counter_charge_nofail(struct res_counter *counter,
 *
 * these calls check for usage underflow and show a warning on the console
 * _locked call expects the counter->lock to be taken
+ *
+ * returns the total charges still present in @counter.
 */
```

```
-void res_counter_uncharge_locked(struct res_counter *counter, unsigned long val);
-void res_counter_uncharge(struct res_counter *counter, unsigned long val);
+u64 res_counter_uncharge_locked(struct res_counter *counter, unsigned long val);
+u64 res_counter_uncharge(struct res_counter *counter, unsigned long val);
```

```
-void res_counter_uncharge_until(struct res_counter *counter,
- struct res_counter *top,
- unsigned long val);
+u64 res_counter_uncharge_until(struct res_counter *counter,
+ struct res_counter *top,
+ unsigned long val);
/**
 * res_counter_margin - calculate chargeable space of a counter
 * @cnt: the counter
```

```
diff --git a/kernel/res_counter.c b/kernel/res_counter.c
index ad581aa..7b3d6dc 100644
--- a/kernel/res_counter.c
+++ b/kernel/res_counter.c
@@ -86,33 +86,39 @@ int res_counter_charge_nofail(struct res_counter *counter, unsigned long
val,
  return __res_counter_charge(counter, val, limit_fail_at, true);
}
```

```
-void res_counter_uncharge_locked(struct res_counter *counter, unsigned long val)
+u64 res_counter_uncharge_locked(struct res_counter *counter, unsigned long val)
{
  if (WARN_ON(counter->usage < val))
    val = counter->usage;
```

```

    counter->usage -= val;
+ return counter->usage;
}

-void res_counter_uncharge_until(struct res_counter *counter,
- struct res_counter *top,
- unsigned long val)
+u64 res_counter_uncharge_until(struct res_counter *counter,
+ struct res_counter *top,
+ unsigned long val)
{
    unsigned long flags;
    struct res_counter *c;
+ u64 ret = 0;

    local_irq_save(flags);
    for (c = counter; c != top; c = c->parent) {
+ u64 r;
        spin_lock(&c->lock);
- res_counter_uncharge_locked(c, val);
+ r = res_counter_uncharge_locked(c, val);
+ if (c == counter)
+ ret = r;
        spin_unlock(&c->lock);
    }
    local_irq_restore(flags);
+ return ret;
}

-void res_counter_uncharge(struct res_counter *counter, unsigned long val)
+u64 res_counter_uncharge(struct res_counter *counter, unsigned long val)
{
- res_counter_uncharge_until(counter, NULL, val);
+ return res_counter_uncharge_until(counter, NULL, val);
}

static inline unsigned long long *
--
1.7.11.7

```

Subject: Re: [PATCH v5 08/14] res_counter: return amount of charges after res_counter_uncharge
Posted by [David Rientjes](#) on Wed, 17 Oct 2012 23:23:19 GMT
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On Tue, 16 Oct 2012, Glauber Costa wrote:

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Acked-by: David Rientjes <rientjes@google.com>
