
Subject: [PATCH 1/7] cgroup: fix and update documentation
Posted by [Li Zefan](#) on Mon, 18 Feb 2008 05:49:41 GMT
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Misc fixes and updates, make the doc consistent with current cgroup implementation.

Signed-off-by: Li Zefan <lizf@cn.fujitsu.com>

Documentation/cgroups.txt | 65 ++++++-----
1 files changed, 34 insertions(+), 31 deletions(-)

diff --git a/Documentation/cgroups.txt b/Documentation/cgroups.txt

index 42d7c4c..dfadd75 100644

--- a/Documentation/cgroups.txt

+++ b/Documentation/cgroups.txt

@@ -28,7 +28,7 @@ CONTENTS:

4. Questions

1. Control Groups

+++++

1.1 What are cgroups ?

@@ -143,10 +143,10 @@ proliferation of such cgroups.

Also lets say that the administrator would like to give enhanced network access temporarily to a student's browser (since it is night and the user -wants to do online gaming :) OR give one of the students simulation +wants to do online gaming :)) OR give one of the students simulation apps enhanced CPU power,

-With ability to write pids directly to resource classes, its just a

+With ability to write pids directly to resource classes, it's just a matter of :

echo pid > /mnt/network/<new_class>/tasks

@@ -227,10 +227,13 @@ Each cgroup is represented by a directory in the cgroup file system containing the following files describing that cgroup:

- tasks: list of tasks (by pid) attached to that cgroup
- - notify_on_release flag: run /sbin/cgroup_release_agent on exit?
- + - releasable flag: cgroup currently removeable?
- + - notify_on_release flag: run the release agent on exit?
- + - release_agent: the path to use for release notifications (this file
- + exists in the top cgroup only)

Other subsystems such as cpusets may add additional files in each
-cgroup dir
+cgroup dir.

New cgroups are created using the mkdir system call or shell
command. The properties of a cgroup, such as its flags, are
@@ -257,7 +260,7 @@ performance.

To allow access from a cgroup to the css_sets (and hence tasks)
that comprise it, a set of cg_cgroup_link objects form a lattice;
each cg_cgroup_link is linked into a list of cg_cgroup_links for
-a single cgroup on its cont_link_list field, and a list of
+a single cgroup on its cgrp_link_list field, and a list of
cg_cgroup_links for a single css_set on its cg_link_list.

Thus the set of tasks in a cgroup can be listed by iterating over
@@ -272,7 +275,7 @@ for cgroups, with a minimum of additional kernel code.

*** notify_on_release is disabled in the current patch set. It will be
-*** reactivated in a future patch in a less-intrusive manner
+*** reactivated in a future patch in a less-intrusive manner.

If the notify_on_release flag is enabled (1) in a cgroup, then
whenever the last task in the cgroup leaves (exits or attaches to
@@ -360,8 +363,8 @@ Now you want to do something with this cgroup.

In this directory you can find several files:

ls
-notify_on_release release_agent tasks
-(plus whatever files are added by the attached subsystems)
+notify_on_release releasable tasks
+(plus whatever files added by the attached subsystems)

Now attach your shell to this cgroup:

/bin/echo \$\$ > tasks
@@ -404,19 +407,13 @@ with a subsystem id which will be assigned by the cgroup system.
Other fields in the cgroup_subsys object include:

- subsys_id: a unique array index for the subsystem, indicating which
 - entry in cgroup->subsys[] this subsystem should be
 - managing. Initialized by cgroup_register_subsys(); prior to this
 - it should be initialized to -1
 - + entry in cgroup->subsys[] this subsystem should be managing.
-
- hierarchy: an index indicating which hierarchy, if any, this
 - subsystem is currently attached to. If this is -1, then the
 - subsystem is not attached to any hierarchy, and all tasks should be

- considered to be members of the subsystem's top_cgroup. It should
- be initialized to -1.
- + name: should be initialized to a unique subsystem name. Should be
- + no longer than MAX_CGROUP_TYPE_NAMELEN.
- name: should be initialized to a unique subsystem name prior to
- calling cgroup_register_subsystem. Should be no longer than
- MAX_CGROUP_TYPE_NAMELEN
- + early_init: indicate if the subsystem needs early initialization
- + at system boot.

Each cgroup object created by the system has an array of pointers, indexed by subsystem id; this pointer is entirely managed by the @@ -434,8 +431,6 @@ situation.
See kernel/cgroup.c for more details.

Subsystems can take/release the cgroup_mutex via the functions -cgroup_lock()/cgroup_unlock(), and can -take/release the callback_mutex via the functions cgroup_lock()/cgroup_unlock().

Accessing a task's cgroup pointer may be done in the following ways:
@@ -444,7 +439,7 @@ Accessing a task's cgroup pointer may be done in the following ways:
- inside an rcu_read_lock() section via rcu_dereference()

3.3 Subsystem API

+-----

Each subsystem should:

@@ -455,7 +450,8 @@ Each subsystem may export the following methods. The only mandatory methods are create/destroy. Any others that are null are presumed to be successful no-ops.

```
-struct cgroup_subsys_state *create(struct cgroup *cont)
+struct cgroup_subsys_state *create(struct cgroup_subsys *ss,
+    struct cgroup *cgrp)
(cgroup_mutex held by caller)
```

Called to create a subsystem state object for a cgroup. The @@ -470,7 +466,7 @@ identified by the passed cgroup object having a NULL parent (since it's the root of the hierarchy) and may be an appropriate place for initialization code.

```
-void destroy(struct cgroup *cont)
+void destroy(struct cgroup_subsys *ss, struct cgroup *cgrp)
(cgroup_mutex held by caller)
```

The cgroup system is about to destroy the passed cgroup; the subsystem @@ -481,7 +477,14 @@ cgroup->parent is still valid. (Note - can also be called for a newly-created cgroup if an error occurs after this subsystem's create() method has been called for the new cgroup).

```
-int can_attach(struct cgroup_subsys *ss, struct cgroup *cont,  
+void pre_destroy(struct cgroup_subsys *ss, struct cgroup *cgrp);  
+(cgroup_mutex held by caller)  
+  
+Called before checking the reference count on each subsystem. This may  
+be useful for subsystems which have some extra references even if  
+there are not tasks in the cgroup.  
+  
+int can_attach(struct cgroup_subsys *ss, struct cgroup *cgrp,  
               struct task_struct *task)  
(cgroup_mutex held by caller)
```

@@ -492,8 +495,8 @@ unspecified task can be moved into the cgroup. Note that this isn't called on a fork. If this method returns 0 (success) then this should remain valid while the caller holds cgroup_mutex.

```
-void attach(struct cgroup_subsys *ss, struct cgroup *cont,  
-   struct cgroup *old_cont, struct task_struct *task)  
+void attach(struct cgroup_subsys *ss, struct cgroup *cgrp,  
+   struct cgroup *old_cgrp, struct task_struct *task)
```

Called after the task has been attached to the cgroup, to allow any post-attachment activity that requires memory allocations or blocking.
@@ -505,9 +508,9 @@ registration for all existing tasks.

```
void exit(struct cgroup_subsys *ss, struct task_struct *task)
```

-Called during task exit
+Called during task exit.

```
-int populate(struct cgroup_subsys *ss, struct cgroup *cont)  
+int populate(struct cgroup_subsys *ss, struct cgroup *cgrp)
```

Called after creation of a cgroup to allow a subsystem to populate the cgroup directory with file entries. The subsystem should make @@ -516,7 +519,7 @@ include/linux/cgroup.h for details). Note that although this method can return an error code, the error code is currently not always handled well.

```
-void post_clone(struct cgroup_subsys *ss, struct cgroup *cont)  
+void post_clone(struct cgroup_subsys *ss, struct cgroup *cgrp)
```

Called at the end of cgroup_clone() to do any parameter
initialization which might be required before a task could attach. For

--

1.5.4.rc3

Containers mailing list

Containers@lists.linux-foundation.org

<https://lists.linux-foundation.org/mailman/listinfo/containers>
