
Subject: [PATCH 13/29] task containersv11 simple task container debug info subsystem

Posted by [Paul Menage](#) on Tue, 11 Sep 2007 19:52:52 GMT

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This example subsystem exports debugging information as an aid to diagnosing refcount leaks, etc, in the cgroup framework.

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```
include/linux/cgroup_subsys.h |  4 +
init/Kconfig                | 10 ++
kernel/Makefile              |   1
kernel/cgroup_debug.c        | 97 ++++++=====
4 files changed, 112 insertions(+)
```

diff -puN

include/linux/cgroup_subsys.h~task-cgroups v11-simple-task-cgroup-debug-info-subsystem

include/linux/cgroup_subsys.h

--- a/include/linux/cgroup_subsys.h~task-cgroups v11-simple-task-cgroup-debug-info-subsystem

+++ a/include/linux/cgroup_subsys.h

@@ -19,4 +19,8 @@ SUBSYS(cpuacct)

/* */

+#ifdef CONFIG_CGROUP_DEBUG

+SUBSYS(debug)

+#endif

+

/* */

diff -puN init/Kconfig~task-cgroups v11-simple-task-cgroup-debug-info-subsystem init/Kconfig

--- a/init/Kconfig~task-cgroups v11-simple-task-cgroup-debug-info-subsystem

+++ a/init/Kconfig

@@ -282,6 +282,16 @@ config CGROUPS

Say N if unsure.

```
+config CGROUP_DEBUG
+ bool "Example debug cgroup subsystem"
+ depends on CGROUPS
+ help
+ This option enables a simple cgroup subsystem that
+ exports useful debugging information about the cgroups
+ framework
+
+ Say N if unsure
+
config CPUSETS
bool "Cpuset support"
depends on SMP && CGROUPS
diff -puN kernel/Makefile~task-cgroupsv11-simple-task-cgroup-debug-info-subsystem
kernel/Makefile
--- a/kernel/Makefile~task-cgroupsv11-simple-task-cgroup-debug-info-subsystem
+++ a/kernel/Makefile
@@ -39,6 +39,7 @@ obj-$(CONFIG_BSD_PROCESS_ACCT) += acct.o
obj-$(CONFIG_KEXEC) += kexec.o
obj-$(CONFIG_COMPAT) += compat.o
obj-$(CONFIG_CGROUPS) += cgroup.o
+obj-$(CONFIG_CGROUP_DEBUG) += cgroup_debug.o
obj-$(CONFIG_CPUSETS) += cpuset.o
obj-$(CONFIG_CGROUP_CPUACCT) += cpu_acct.o
obj-$(CONFIG_IKCONFIG) += configs.o
diff -puN /dev/null kernel/cgroup_debug.c
--- /dev/null
+++ a/kernel/cgroup_debug.c
@@ -0,0 +1,97 @@
+/*
+ * kernel/cccontainer_debug.c - Example cgroup subsystem that
+ * exposes debug info
+ *
+ * Copyright (C) Google Inc, 2007
+ *
+ * Developed by Paul Menage (menage@google.com)
+ *
+ */
+
+#include <linux/cgroup.h>
+#include <linux/fs.h>
+#include <linux/slab.h>
+#include <linux/rcupdate.h>
+
+#include <asm/atomic.h>
+
```

```

+static struct cgroup_subsys_state *debug_create(struct cgroup_subsys *ss,
+      struct cgroup *cont)
+{
+ struct cgroup_subsys_state *css = kzalloc(sizeof(*css), GFP_KERNEL);
+
+ if (!css)
+   return ERR_PTR(-ENOMEM);
+
+ return css;
+}
+
+static void debug_destroy(struct cgroup_subsys *ss, struct cgroup *cont)
+{
+ kfree(cont->subsys[debug_subsys_id]);
+}
+
+static u64 cgroup_refcount_read(struct cgroup *cont, struct cftype *cft)
+{
+ return atomic_read(&cont->count);
+}
+
+static u64 taskcount_read(struct cgroup *cont, struct cftype *cft)
+{
+ u64 count;
+
+ cgroup_lock();
+ count = cgroup_task_count(cont);
+ cgroup_unlock();
+ return count;
+}
+
+static u64 current_css_set_read(struct cgroup *cont, struct cftype *cft)
+{
+ return (u64)(long)current->cgroups;
+}
+
+static u64 current_css_set_refcount_read(struct cgroup *cont,
+      struct cftype *cft)
+{
+ u64 count;
+
+ rCU_read_lock();
+ count = atomic_read(&current->cgroups->ref.refcount);
+ rCU_read_unlock();
+ return count;
+}
+
+static struct cftype files[] = {

```

```

+ {
+   .name = "cgroup_refcount",
+   .read_uint = cgroup_refcount_read,
+ },
+ {
+   .name = "taskcount",
+   .read_uint = taskcount_read,
+ },
+
+ {
+   .name = "current_css_set",
+   .read_uint = current_css_set_read,
+ },
+
+ {
+   .name = "current_css_set_refcount",
+   .read_uint = current_css_set_refcount_read,
+ },
+};
+
+static int debug_populate(struct cgroup_subsys *ss, struct cgroup *cont)
+{
+    return cgroup_add_files(cont, ss, files, ARRAY_SIZE(files));
+}
+
+struct cgroup_subsys debug_subsys = {
+    .name = "debug",
+    .create = debug_create,
+    .destroy = debug_destroy,
+    .populate = debug_populate,
+    .subsys_id = debug_subsys_id,
+};
-
--
```

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