
Subject: Re: Userspace checkpoint/restart hack: cryo
Posted by [Nadia Derby](#) on Tue, 29 Apr 2008 14:50:14 GMT
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Cedric Le Goater wrote:

> Dave Hansen wrote:

>

>>A guy named Marc Vertes wrote this as a little demonstration of
>>checkpoint/restart. I've been using it to experiment with
>>checkpoint/restart. I thought it might be of some use as we move
>>subsystems to being helped by the kernel to checkpoint and restart.

>>

>>It's ptrace-based, and stuck on i386 for now. It can probably be ported
>>elsewhere without too much trouble. It doesn't support *anything
>>fancy like multiple tasks :). It has the advantage of being very
>>feature-bare, and I think it is pretty easy to hack on. Whatever c/r
>>support we add to the kernel could easily be added on and tested.

>>

>><http://userweb.kernel.org/~daveh/cryo/cryo-001.tar.gz>

>>

>>Usage:

>> cr -p `pidof task` > checkpoint.cryo

>> cr -r < checkpoint.cryo

>>

>>If anyone else has something simpler or easier to hack on, I'm all ears.

>

>

> Indeed. It looks simple enough.

>

> do you have some kernel requirement ? I run Fedora 8

>

> Here's my first try on a program calculating decimal of PI :

>

> \$./cr -p `pidof pi1` > pi1.cryo

> attaching to pid: 11082

> [11087 cr.c:243 getfdinfo()] n : 0

> WARNING (sci.c:242) unexpected signal for 11082: 11

> [11087 sci.c:228 ptrace_waitsyscall()] WTERMSIG(status) : 11

> ERROR (sci.c:383) ptrace_getregs(11082, 0xbfe4a3d0) errno=3: No such process

> ./cr[0x8051f10]

> ./cr[0x8049ce9]

> ./cr[0x804b7d2]

> ./cr[0x804f75b]

> ***STOP***

>

> other terminal :

>

> \$ pi1 20000

> pi1 - 20000 digits, 78.1 kbytes
> Segmentation fault (core dumped)
>
> Thanks,
>
> C.
>

Looks like it has worked for me (msg1 creates 1000 msg queues, sleeps for a while and then removes the msg queues).

Output attached.

Regards,
Nadia

```
[root@akt cryo-001]# ./cr -p `pidof msg1` > msg1.cryo
attaching to pid: 4689
[4695 cr.c:243 getfdinfo()] n : 0
[4695 cr.c:243 getfdinfo()] n : 1
[4695 cr.c:243 getfdinfo()] n : 2
DEBUG (utils.c::25) write_item() writing item named: 'pid' datasize: 4 to position: 0
DEBUG (utils.c::25) write_item() writing item named: 'ppid' datasize: 4 to position: 10
DEBUG (utils.c::25) write_item() writing item named: 'exitsig' datasize: 4 to position: 21
DEBUG (utils.c::25) write_item() writing item named: 'fpregs' datasize: 108 to position: 35
DEBUG (utils.c::25) write_item() writing item named: 'regs' datasize: 68 to position: 154
DEBUG (utils.c::25) write_item() writing item named: 'exe' datasize: 32 to position: 230
DEBUG (utils.c::25) write_item() writing item named: 'argv' datasize: 7 to position: 269
DEBUG (utils.c::25) write_item() writing item named: 'env' datasize: 1137 to position: 283
DEBUG (utils.c::25) write_item() writing item named: 'cwd' datasize: 27 to position: 1429
DEBUG (utils.c::25) write_item() writing item named: 'sigact' datasize: 9240 to position: 1463
DEBUG (utils.c::25) write_item() writing item named: 'sigmask' datasize: 128 to position: 10715
DEBUG (utils.c::25) write_item() writing item named: 'sigpend' datasize: 128 to position: 10855
```

DEBUG (utils.c::25) write_item() writing item named: 'FD' datasize: 0 to position: 10995
[4695 cr.c:512 checkpoint()] pi->nf : 3
DEBUG (utils.c::25) write_item() writing item named: 'fdinfo' datasize: 148 to position: 11000
DEBUG (utils.c::25) write_item() writing item named: 'fdinfo' datasize: 148 to position: 11159
DEBUG (utils.c::25) write_item() writing item named: 'fdinfo' datasize: 148 to position: 11318
DEBUG (utils.c::25) write_item() writing item named: 'END FD' datasize: 0 to position: 11477
DEBUG (utils.c::25) write_item() writing item named: 'SOCK' datasize: 0 to position: 11486
DEBUG (utils.c::25) write_item() writing item named: 'END SOCK' datasize: 0 to position: 11493
DEBUG (utils.c::25) write_item() writing item named: 'MEM' datasize: 0 to position: 11504
getmaps() " is anonymous (old test)
getmaps() " is anonymous (new test)
getmaps() " is anonymous (old test)
getmaps() " is anonymous (new test)
getmaps() " is anonymous (old test)
getmaps() " is anonymous (new test)
getmaps() '[stack]' is anonymous (new test)
getmaps() '[vdso]' is anonymous (new test)
DEBUG (utils.c::25) write_item() writing item named: 'memseg' datasize: 148 to position: 11510
DEBUG (cr.c::528) mem i=0 0x850000 -> 0x869000 /lib/ld-2.5.so
DEBUG (utils.c::25) write_item() writing item named: 'membuf' datasize: 0 to position: 11669
DEBUG (utils.c::25) write_item() writing item named: 'memseg' datasize: 148 to position: 11678
DEBUG (cr.c::528) mem i=1 0x869000 -> 0x86a000 /lib/ld-2.5.so
DEBUG (utils.c::25) write_item() writing item named: 'membuf' datasize: 0 to position: 11837
DEBUG (utils.c::25) write_item() writing item named: 'memseg' datasize: 148 to position: 11846
DEBUG (cr.c::528) mem i=2 0x86a000 -> 0x86b000 /lib/ld-2.5.so
DEBUG (cr.c::530) mem i=2 saved size = 4 KB
DEBUG (utils.c::25) write_item() writing item named: 'membuf' datasize: 4096 to position: 12005
DEBUG (utils.c::25) write_item() writing item named: 'memseg' datasize: 148 to position: 16113
DEBUG (cr.c::528) mem i=3 0x86d000 -> 0x9a4000 /lib/libc-2.5.so
DEBUG (utils.c::25) write_item() writing item named: 'membuf' datasize: 0 to position: 16272
DEBUG (utils.c::25) write_item() writing item named: 'memseg' datasize: 148 to position: 16281

DEBUG (cr.c::528) mem i=4 0x9a4000 -> 0x9a6000 /lib/libc-2.5.so
DEBUG (utils.c::25) write_item() writing item named: 'membuf' datasize: 0 to position: 16440
DEBUG (utils.c::25) write_item() writing item named: 'memseg' datasize: 148 to position: 16449
DEBUG (cr.c::528) mem i=5 0x9a6000 -> 0x9a7000 /lib/libc-2.5.so
DEBUG (cr.c::530) mem i=5 saved size = 4 KB
DEBUG (utils.c::25) write_item() writing item named: 'membuf' datasize: 4096 to position: 16608
DEBUG (utils.c::25) write_item() writing item named: 'memseg' datasize: 148 to position: 20716
DEBUG (cr.c::528) mem i=6 0x9a7000 -> 0x9aa000
DEBUG (cr.c::530) mem i=6 saved size = 12 KB
DEBUG (utils.c::25) write_item() writing item named: 'membuf' datasize: 12288 to position: 20875
DEBUG (utils.c::25) write_item() writing item named: 'memseg' datasize: 148 to position: 33176
DEBUG (cr.c::528) mem i=7 0x8048000 -> 0x8049000 /home/lkernel/src_ref/tests/msg1
DEBUG (utils.c::25) write_item() writing item named: 'membuf' datasize: 0 to position: 33335
DEBUG (utils.c::25) write_item() writing item named: 'memseg' datasize: 148 to position: 33344
DEBUG (cr.c::528) mem i=8 0x8049000 -> 0x804a000 /home/lkernel/src_ref/tests/msg1
DEBUG (cr.c::530) mem i=8 saved size = 4 KB
DEBUG (utils.c::25) write_item() writing item named: 'membuf' datasize: 4096 to position: 33503
DEBUG (utils.c::25) write_item() writing item named: 'memseg' datasize: 148 to position: 37611
DEBUG (cr.c::528) mem i=9 0xb7f98000 -> 0xb7f99000
DEBUG (cr.c::530) mem i=9 saved size = 4 KB
DEBUG (utils.c::25) write_item() writing item named: 'membuf' datasize: 4096 to position: 37770
DEBUG (utils.c::25) write_item() writing item named: 'memseg' datasize: 148 to position: 41878
DEBUG (cr.c::528) mem i=10 0xb7fa6000 -> 0xb7fa8000
DEBUG (cr.c::530) mem i=10 saved size = 8 KB
DEBUG (utils.c::25) write_item() writing item named: 'membuf' datasize: 8192 to position: 42037
DEBUG (utils.c::25) write_item() writing item named: 'memseg' datasize: 148 to position: 50241
DEBUG (cr.c::528) mem i=11 0xbfc93000 -> 0xbfca8000 [stack]
DEBUG (cr.c::530) mem i=11 saved size = 84 KB
DEBUG (utils.c::25) write_item() writing item named: 'membuf' datasize: 86016 to position: 50400
DEBUG (utils.c::25) write_item() writing item named: 'memseg' datasize: 148 to position: 136429
DEBUG (cr.c::528) mem i=12 0xffffe000 -> 0xfffff000 [vdso]
DEBUG (utils.c::25) write_item() writing item named: 'membuf' datasize: 0 to position: 136588
DEBUG (utils.c::25) write_item() writing item named: 'END MEM' datasize: 0 to position: 136597

Containers mailing list
Containers@lists.linux-foundation.org
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