

Ruby trunk - Bug #10494

ioctl returns EINVAL instead of ENOTTY for pipes on older linux, breaking piped test suite

11/11/2014 01:26 AM - headius (Charles Nutter)

Status:	Closed	
Priority:	Normal	
Assignee:		
Target version:	2.6	
ruby -v:	ruby 2.1.4p265 (2014-10-27 revision 48166) [x86_64-linux]	Backport: 2.0.0: DONE, 2.1: DONE

Description

Yeah I know the title is a mouthful. I'll try to explain.

BACKGROUND:

Starting sometime recently, MRI's test suite started to use a custom version of test/unit contained in test/lib. Inside unit.rb, there's code that uses io/console to determine the window size for some fancy formatting.

<https://github.com/ruby/ruby/blob/trunk/test/lib/test/unit.rb#L404>

The surrounding rescue captures LoadError (io/console doesn't exist), NoMethodError (winsize is not defined), ENOTTY (fd is not a tty), and EBADF (fd is no longer valid), and provides suitable fallback code for console width.

PROBLEM:

However, when we ran the MRI suite with JRuby on Travis, we got the following error:

```
[exec] Run options: -q --
[exec]
[exec] # Running tests:
[exec]
[exec] Errno::EINVAL: Invalid argument - ioctl(TIOCGWINSZ)      winsize at /home/travis/build/
jruby/jruby/lib/ruby/stdlib/io/console.rb:120
[exec]   terminal_width at /home/travis/build/jruby/jruby/test/mri/lib/test/unit.rb:404
[exec]     put_status at /home/travis/build/jruby/jruby/test/mri/lib/test/unit.rb:433
```

This is from within a Maven build target we use to run our test suites with the proper environment. We could not reproduce this on current Linux versions.

CAUSE:

For those unfamiliar with the JVM, the standard process-launching APIs *always* set the child's stdio to pipes that you can then read, a la popen in MRI. Long story short, it turns out that Linux incorrectly returned EINVAL instead of ENOTTY when calling ioctl with a pipe up until this fix in May of 2012: <https://lkml.org/lkml/2012/5/25/142>

This is after the release of Ubuntu 12.04 that Travis runs, and I'm guessing they have not updated the kernels.

REPRODUCTION (for Linux kernels prior to this patch):

I was able to reproduce this EINVAL on a Travis dev box (thanks asarih!) with both JRuby and MRI using the following command line:

```
$ rvm ruby-2.1 do ruby -rio/console -e 'p $stdout.winsize' | cat
-e:1:in `winsize': Invalid argument (Errno::EINVAL)
    from -e:1:in `'
```

SOLUTION:

?????????

I'm not sure.

- We could just patch the test library. I have done this for JRuby here:
<https://github.com/jruby/jruby/commit/29122372da5ba2f359239aa916e074a57fe96b70>
- We could modify io/console #winsize and other methods to raise this incorrect EINTR as ENOTTY, since we should know in each of those methods that we have the right request and data structure (ergo EINTR should not happen on non-buggy systems)

We need to do one or the other for the test suite to be runnable on these earlier Linux kernels when stdout is a pipe.

Associated revisions

Revision 0a528213 - 12/15/2014 10:33 PM - headius (Charles Nutter)

- test/lib/test/unit.rb: Also rescue EINTR for older Linux that raises it in popen. [Bug #10494]

git-svn-id: svn+ssh://ci.ruby-lang.org/ruby/trunk@48854 b2dd03c8-39d4-4d8f-98ff-823fe69b080e

Revision 48854 - 12/15/2014 10:33 PM - headius (Charles Nutter)

- test/lib/test/unit.rb: Also rescue EINTR for older Linux that raises it in popen. [Bug #10494]

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Revision 11ab6f8c - 01/30/2015 07:18 AM - usa (Usaku NAKAMURA)

merge revision(s) 48854: [Backport #10494]

```
* test/lib/test/unit.rb: Also rescue EINTR for older Linux that  
raises it in popen. [Bug #10494]
```

git-svn-id: svn+ssh://ci.ruby-lang.org/ruby/branches/ruby_2_0_0@49446 b2dd03c8-39d4-4d8f-98ff-823fe69b080e

Revision 49446 - 01/30/2015 07:18 AM - usa (Usaku NAKAMURA)

merge revision(s) 48854: [Backport #10494]

```
* test/lib/test/unit.rb: Also rescue EINTR for older Linux that  
raises it in popen. [Bug #10494]
```

Revision 38117a85 - 03/09/2015 05:28 PM - nagachika (Tomoyuki Chikanaga)

merge revision(s) r48854: [Backport #10494]

```
* test/lib/test/unit.rb: Also rescue EINTR for older Linux that  
raises it in popen. [Bug #10494]
```

Revision 49910 - 03/09/2015 05:28 PM - nagachika (Tomoyuki Chikanaga)

merge revision(s) r48854: [Backport #10494]

```
* test/lib/test/unit.rb: Also rescue EINTR for older Linux that
```

raises it in popen. [Bug #10494]

History

#1 - 11/11/2014 07:18 AM - headius (Charles Nutter)

I have reported to Travis that their kernel may be missing this patch. Not directly related to the outcome of this bug, but perhaps there will soon be fewer places to encounter it.

#2 - 12/15/2014 10:27 PM - headius (Charles Nutter)

If there are no objections I'm going to go ahead and patch test/lib/test/unit.rb the same way as we did it in JRuby.

#3 - 12/15/2014 10:34 PM - headius (Charles Nutter)

- Status changed from Open to Closed

- % Done changed from 0 to 100

Applied in changeset [r48854](#).

- test/lib/test/unit.rb: Also rescue EINTR for older Linux that raises it in popen. [Bug [#10494](#)]

#4 - 01/20/2015 02:46 AM - usa (Usaku NAKAMURA)

- Backport changed from 2.0.0: UNKNOWN, 2.1: UNKNOWN to 2.0.0: REQUIRED, 2.1: REQUIRED

#5 - 01/30/2015 07:20 AM - usa (Usaku NAKAMURA)

- Backport changed from 2.0.0: REQUIRED, 2.1: REQUIRED to 2.0.0: DONE, 2.1: REQUIRED

ruby_2_0_0 r49446 merged revision(s) 48854.

Note that ruby_2_0_0 has lib/test/unit.rb instead of at test/lib.

#6 - 03/09/2015 05:28 PM - nagachika (Tomoyuki Chikanaga)

- Backport changed from 2.0.0: DONE, 2.1: REQUIRED to 2.0.0: DONE, 2.1: DONE

Backported into ruby_2_1 branch at r49910.