Ruby master - Feature #9323

IO#writev

12/30/2013 10:08 PM - Glass_saga (Masaki Matsushita)

<table>
<thead>
<tr>
<th>Status:</th>
<th>Closed</th>
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<td>Priority:</td>
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<tr>
<td>Assignee:</td>
<td>Glass_saga (Masaki Matsushita)</td>
</tr>
<tr>
<td>Target version:</td>
<td>2.5</td>
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</table>

**Description**

I propose addition of IO#writev.
It enables gather output from multiple buffers.
If writev(2) is not available, IO#writev uses Array#join to emulate atomic write.

**Related issues:**
- Related to Ruby master - Feature #9420: warn and puts should be atomic - Open
- Related to Ruby master - Feature #14042: IO#puts: use writev if available - Closed

**Associated revisions**

Revision 60343 - 10/22/2017 02:11 AM - Glass_saga (Masaki Matsushita)
Make IO#write accept multiple arguments

Revision 6e3ff2ec - 10/22/2017 06:22 AM - nobu (Nobuyoshi Nakada)
io.c: fix local variables
  - io.c (io_writev): fix local variable declarations, when writev(2) is not available.  [Feature #9323]

Revision 60351 - 10/22/2017 06:22 AM - nobu (Nobuyoshi Nakada)
io.c: fix local variables
  - io.c (io_writev): fix local variable declarations, when writev(2) is not available.  [Feature #9323]

Revision 60351 - 10/22/2017 06:22 AM - nobu (Nobuyoshi Nakada)
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Revision 60351 - 10/22/2017 06:22 AM - nobu (Nobuyoshi Nakada)
io.c: fix local variables
  - io.c (io_writev): fix local variable declarations, when writev(2) is not available.  [Feature #9323]

Revision 60370 - 10/23/2017 02:25 AM - nobu (Nobuyoshi Nakada)
io.c: no restriction
  - io.c (io_write_m): remove argc restriction upto IOV_MAX-1.  [Feature #9323]

Revision 60370 - 10/23/2017 02:25 AM - nobu (Nobuyoshi Nakada)
io.c: no restriction
  - io.c (io_write_m): remove argc restriction upto IOV_MAX-1.  [Feature #9323]
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Revision 60370 - 10/23/2017 02:25 AM - nobu (Nobuyoshi Nakada)
io.c: no restriction
  - io.c (io_write_m): remove argc restriction up to IOV_MAX-1. [Feature #9323]

Revision 92023a8f - 10/23/2017 05:09 AM - nobu (Nobuyoshi Nakada)
io.c: fix total
  - io.c (io_writev): total may be a bignum. [Feature #9323]
git-svn-id: svn+ssh://ci.ruby-lang.org/ruby/trunk@60371 b2dd03c8-39d4-4d8f-98ff-823fe69b080e

Revision 60371 - 10/23/2017 05:09 AM - nobu (Nobuyoshi Nakada)
io.c: fix total
  - io.c (io_writev): total may be a bignum. [Feature #9323]

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io.c: fix total
  - io.c (io_writev): total may be a bignum. [Feature #9323]

Revision 71a7ef31 - 10/23/2017 05:09 AM - nobu (Nobuyoshi Nakada)
io.c: fix buffered output
  - io.c (io_binwritev): append to buffered data, not overwriting. [Feature #9323]
git-svn-id: svn+ssh://ci.ruby-lang.org/ruby/trunk@60372 b2dd03c8-39d4-4d8f-98ff-823fe69b080e

Revision 60372 - 10/23/2017 05:09 AM - nobu (Nobuyoshi Nakada)
io.c: fix buffered output
  - io.c (io_binwritev): append to buffered data, not overwriting. [Feature #9323]

Revision 60372 - 10/23/2017 05:09 AM - nobu (Nobuyoshi Nakada)
io.c: fix buffered output
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Revision 60372 - 10/23/2017 05:09 AM - nobu (Nobuyoshi Nakada)
io.c: fix buffered output
  - io.c (io_binwritev): append to buffered data, not overwriting. [Feature #9323]

Revision 08524bc5 - 10/23/2017 05:28 AM - nobu (Nobuyoshi Nakada)
io.c: fix infinite retry
  - io.c (io_binwritev): fix infinite retry when flushing buffered data. [Feature #9323]
git-svn-id: svn+ssh://ci.ruby-lang.org/ruby/trunk@60373 b2dd03c8-39d4-4d8f-98ff-823fe69b080e

Revision 60373 - 10/23/2017 05:28 AM - nobu (Nobuyoshi Nakada)
io.c: fix infinite retry
  - io.c (io_binwritev): fix infinite retry when flushing buffered data. [Feature #9323]

Revision 60373 - 10/23/2017 05:28 AM - nobu (Nobuyoshi Nakada)
io.c: fix infinite retry

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Revision 60373 - 10/23/2017 05:28 AM - nobu (Nobuyoshi Nakada)
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Revision 5682bc6a - 10/23/2017 06:05 AM - nobu (Nobuyoshi Nakada)
NEWS: add [Feature #9323] [ci skip]
git-svn-id: svn+ssh://ci.ruby-lang.org/ruby/trunk@60376 b2dd03c8-39d4-4d8f-98ff-823fe69b080e

Revision 60376 - 10/23/2017 06:05 AM - nobu (Nobuyoshi Nakada)
NEWS: add [Feature #9323] [ci skip]

Revision 60376 - 10/23/2017 06:05 AM - nobu (Nobuyoshi Nakada)
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Revision 60376 - 10/23/2017 06:05 AM - nobu (Nobuyoshi Nakada)
NEWS: add [Feature #9323] [ci skip]

Revision 85195203 - 10/29/2017 12:43 AM - nobu (Nobuyoshi Nakada)
io.c: convert to string at writev

- io.c (io_fwritev): needs conversion to string before accessing the content, as well as single argument case, not to segfault. [Feature #9323]
git-svn-id: svn+ssh://ci.ruby-lang.org/ruby/trunk@60534 b2dd03c8-39d4-4d8f-98ff-823fe69b080e

Revision 60534 - 10/29/2017 12:43 AM - nobu (Nobuyoshi Nakada)
io.c: convert to string at writev

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History

#1 - 01/23/2014 12:12 AM - normalperson (Eric Wong)
Unless we have use for it, I don't think rb_io_writev should be in the C API, and even less reason for it to be public for extensions in ruby/intern.h

Also, it'd probably be good to dedup the fptr->wbuf initialization code in io_binwrite*.

Otherwise, I think this is fine.

#2 - 06/03/2017 11:38 PM - ioquatix (Samuel Williams)
I think this is a great idea. It avoids a ton of string issues - e.g. concatenating strings in Ruby before writing them out. It would be great if #write could take an array, and if possible, call writev.

#3 - 06/27/2017 05:06 AM - Glass_saga (Masaki Matsushita)
- File patch.diff added
It would be great if `write` could take an array, and if possible, call `writev`.

That's would be nice.

```ruby
File.open("test", "w") do |f|
  f.write("foo", "bar", "baz") # use writev(2) if possible
end
```

Is there benchmark?

What the situation that `writev` is actually fast?

The main purpose of IO#writev is to make a chance for users to write multiple buffers atomically, not to improve performance.

The main purpose of IO#write is to make a chance for users to write multiple buffers atomically, not to improve performance.

IO#write on Array#join result is atomic, too; but Array#join can result in too large buffers and excessive memory use.

I wrote benchmarks for shards io-extra project on Rubyforge years ago, but I guess that email is no longer available publically. I've quoted and reposted the test to spew:

https://80x24.org/spew/20170926005509.GA22313@starla/raw

I vote for making IO#write take multiple arguments, probably using writev(2) inside.

This patch makes IO#write accept multiple arguments.

Applied in changeset `trunk|r60351`.

- io.c: fix local variables
  - io.c (io_writev): fix local variable declarations, when writev(2) is not available. [Feature #9323]
#12 - 10/23/2017 04:36 AM - shyouhei (Shyouhei Urabe)
- Related to Feature #9420: warn and puts should be atomic added

#13 - 10/23/2017 04:36 AM - shyouhei (Shyouhei Urabe)
- Related to Feature #14042: IO#puts: use writev if available added

<table>
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<th>Files</th>
<th>Size</th>
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<th>Author</th>
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<td>Glass_saga (Masaki Matsushita)</td>
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