

## Redmine - Patch #29359

### Switch to mini\_mime from mime-types

2018-08-10 21:44 - Pavel Rosický

<b>Status:</b>	Closed	<b>Start date:</b>	
<b>Priority:</b>	Normal	<b>Due date:</b>	
<b>Assignee:</b>	Go MAEDA	<b>% Done:</b>	0%
<b>Category:</b>	Performance	<b>Estimated time:</b>	0.00 hour
<b>Target version:</b>	4.0.0		
<b>Description</b>			
Redmine uses unbound cache for mime types which is eliminated now. Also mime-types is too heavy and Redmine uses only a tiny peace of it, we just need a simple ext -> mime lookup.			
<a href="https://github.com/mikel/mail/pull/1059">https://github.com/mikel/mail/pull/1059</a> (mail 2.6.x still uses mime-types)			
<a href="https://github.com/teamcapybara/capybara/pull/1884">https://github.com/teamcapybara/capybara/pull/1884</a>			
<pre>require 'benchmark/ips'</pre>			
<pre>Benchmark.ips do  x    x.report('known') { Redmine::MimeType.of("file.patch") }   x.report('not known') { Redmine::MimeType.of("file.zip") } end</pre>			
trunk			
	known	284.431k (± 1.9%) i/s -	1.422M in 5.002378s
	not known	285.699k (± 3.0%) i/s -	1.446M in 5.065113s
patch			
	known	657.114k (± 1.8%) i/s -	3.327M in 5.064494s
	not known	392.574k (± 2.2%) i/s -	1.965M in 5.006827s
boot allocations boot retained			
mime-types	109796	31165	
mini_mime	398	62	
what do you think?			
<b>Related issues:</b>			
Related to Redmine - Defect #29365: MailHandlerTest#test_add_issue_with_local...			<b>Closed</b>
Related to Redmine - Patch #29383: Update mini_mime gem (~> 1.0.1)			<b>Closed</b>
Related to Redmine - Feature #29443: Update mail gem (~> 2.7.1)			<b>Closed</b>

#### Associated revisions

##### Revision 17468 - 2018-08-13 01:37 - Go MAEDA

Replace mime-types gem with more efficient mini\_mime gem (#29359).

Contributed by Pavel Rosický.

##### Revision 17470 - 2018-08-13 13:38 - Go MAEDA

Don't require mime-types (#29359).

##### Revision 17471 - 2018-08-15 03:23 - Go MAEDA

Test that Redmine::MimeType.of is case-insensitive (#29359).

##### Revision 17472 - 2018-08-15 15:20 - Go MAEDA

Test that Redmine::MimeType.css\_class\_of, main\_mimetype\_of and is\_type? are case-insensitive (#29359).

##### Revision 17473 - 2018-08-15 16:01 - Go MAEDA

Refactor Redmine::MimeType.of. Uses MiniMime.lookup\_by\_extension instead of lookup\_by\_filename (#29359).

## History

### #1 - 2018-08-11 08:03 - Go MAEDA

- File `replace-mime-types-with-mini_mime.diff` added
- Category changed from *Gems support* to *Performance*

Thank you for posting the interesting improvement.

Your patch is very fast, but I think an application should not have codes which rely on the internal structure of third-party libraries. Your patch accesses `mini_mime`'s instance variable `'@db'`.

I updated your patch not to manipulate an internal variable of `mini_mime`. It is 15% slower than your patch but 70% faster than the current `Redmine::MimeType.of`.

without patches:

known	226.301k	(± 5.0%)	i/s -	1.131M	in	5.010006s
unknown	225.491k	(± 4.6%)	i/s -	1.131M	in	5.024550s

`replace-mime-types-with-mini_mime.diff`: (faster):

known	382.020k	(± 6.2%)	i/s -	1.923M	in	5.052268s
unknown	382.602k	(± 6.6%)	i/s -	1.908M	in	5.008955s

`mime_type.rb.patch` by Pavel Rosický (fastest):

known	431.349k	(± 5.4%)	i/s -	2.167M	in	5.038918s
unknown	432.307k	(± 5.5%)	i/s -	2.172M	in	5.040046s

### #2 - 2018-08-11 08:27 - Go MAEDA

Sorry, there was a problem with my benchmark script. After fixing the problem, I found that my patch is very slow for unknown extensions.

without patches:

known	170.009k	(± 7.2%)	i/s -	859.560k	in	5.083952s
unknown	169.572k	(± 6.2%)	i/s -	844.816k	in	5.000900s

`replace-mime-types-with-mini_mime.diff`:

known	244.827k	(± 5.3%)	i/s -	1.228M	in	5.031343s
unknown	79.055k	(± 5.5%)	i/s -	394.128k	in	5.000338s

`mime_type.rb.patch` by Pavel Rosický:

known	256.660k	(± 5.7%)	i/s -	1.291M	in	5.047902s
unknown	150.151k	(± 5.5%)	i/s -	753.483k	in	5.033494s

```
require 'benchmark/ips'
require 'mini_mime'
require './lib/redmine/mime_type'
```

```
Benchmark.ips do |x|
  x.report('known') { Redmine::MimeType.of('file.txt') }
  x.report('unknown') { Redmine::MimeType.of('file.zip') }
end
```

### #3 - 2018-08-11 09:37 - Go MAEDA

- File `replace-mime-types-with-mini_mime-v2.diff` added

I updated my patch to preserve existing cache mechanism. Now it is fast also for unknown extensions.

known	232.028k	(± 4.9%)	i/s -	1.170M	in	5.052806s
unknown	236.938k	(± 4.6%)	i/s -	1.199M	in	5.071712s

### #4 - 2018-08-11 09:42 - Pavel Rosický

Lets ask sam saffron if he could add it to the public api.

**#5 - 2018-08-11 10:02 - Pavel Rosický**

@known\_types is a class variable. There're two problems:  
It isn't threadsafe.

It's unlimited and because it's related to user's actions it could grow indefinitely. This memory won't be released. That's why I was trying to avoid it or limit it. Minimime has the upper bound for caches. Please correct me if I'm wrong.

**#6 - 2018-08-12 09:10 - Go MAEDA**

Pavel Rosický wrote:

@known\_types is a class variable. There're two problems:  
It isn't threadsafe.

It's unlimited and because it's related to user's actions it could grow indefinitely. This memory won't be released.

Although the patch still has the same problem with the current implementation, simply replacing mime-types with mini\_mime will reduce memory usage and improve performance.

I suggest that we discuss the problem as a new issue, after committing the patch. Is it OK with you?

**#7 - 2018-08-12 09:24 - Pavel Rosický**

It's ok, thanks

**#8 - 2018-08-12 09:58 - Go MAEDA**

- Subject changed from Switch to mini\_mime to Switch to mini\_mime from mime-types

- Target version set to 4.1.0

**#9 - 2018-08-12 11:43 - Go MAEDA**

- File replace-mime-types-with-mini\_mime-v3.diff added

**#10 - 2018-08-13 01:37 - Go MAEDA**

- Status changed from New to Closed

- Assignee set to Go MAEDA

Committed. Thank you for your contribution.

**#11 - 2018-08-13 01:45 - Go MAEDA**

- Target version changed from 4.1.0 to 4.0.0

**#12 - 2018-08-13 01:56 - Go MAEDA**

- Related to Defect #29365: MailHandlerTest#test\_add\_issue\_with\_localized\_attributes fails with mail gem 2.7.0 added

**#13 - 2018-08-13 11:18 - Pavel Rosický**

please also remove

```
require 'mime/types'
```

**#14 - 2018-08-13 11:28 - Marius BĂLTEANU**

- Status changed from Closed to Reopened

**#15 - 2018-08-13 13:39 - Go MAEDA**

- Status changed from Reopened to Closed

Pavel Rosický wrote:

please also remove  
[...]

Committed. Thanks.

## #16 - 2018-08-14 12:09 - Go MAEDA

- File 29359-remove-known-types-hash.patch added

- Status changed from Closed to Reopened

mini\_mime 1.0.1 supports lookup\_by\_extension. We can remove the cache mechanism using known\_types hash by making use of the new method. Attaching a patch to remove the hash.

Even without the cache mechanism, Redmine::MimeTypes.of is faster than the original code.

[r17467](#) (before applying replace-mime-types-with-mini\_mime-v3.diff):

```
Warming up -----
      known      20.028k i/100ms
      unknown    12.677k i/100ms
Calculating -----
      known      246.855k (± 6.0%) i/s -      1.242M in  5.049235s
      unknown    138.044k (± 5.9%) i/s -      697.235k in  5.068005s
```

with the patch 29359-remove-known-types-hash.patch:

```
Warming up -----
      known      20.249k i/100ms
      unknown    11.787k i/100ms
Calculating -----
      known      264.152k (± 8.0%) i/s -      1.316M in  5.015411s
      unknown    142.650k (± 8.6%) i/s -      719.007k in  5.076025s
```

## #17 - 2018-08-14 13:18 - Pavel Rosický

29359-remove-known-types-hash.patch - .downcase shouldn't be removed, both EXTENSIONS[] and lookup\_by\_extension expect lower-case

and the benchmark looks odd, in [r17467](#) both known/unknown scenarios were cached in a class var, so I would expect similar performance

## #18 - 2018-08-14 17:19 - Go MAEDA

- File 29359-remove-known-types-hash-v2.patch added

Pavel Rosický wrote:

29359-remove-known-types-hash.patch - .downcase shouldn't be removed, both EXTENSIONS[] and lookup\_by\_extension expect lower-case

Fixed.

and the benchmark looks odd, in [r17467](#) both known/unknown scenarios were cached in a class var, so I would expect similar performance

You are right. Maybe I pasted a wrong result. The following results are correct ones. Redmine::MimeType.of will be faster than [r17467](#) in many cases.

[r17467](#) (before switching to mini\_mime):

```
found in array (file.patch)
      164.476k (± 6.5%) i/s -      832.300k in  5.081748s
found in gem (file.zip)
      167.251k (± 5.7%) i/s -      841.580k in  5.047872s
not found in gem (file.go)
      168.700k (± 5.7%) i/s -      851.440k in  5.063132s
```

with the patch:

```
found in array (file.patch)
      418.181k (± 6.0%) i/s -      2.099M in  5.036624s
found in gem (file.zip)
      183.820k (± 6.9%) i/s -      923.232k in  5.047995s
not found in gem (file.go)
      147.241k (± 6.7%) i/s -      734.046k in  5.007225s
```

benchmark script:

```
require 'benchmark/ips'
require 'mini_mime'
require './lib/redmine/mime_type'
```

```
Benchmark.ips do |x|
  x.report('found in array (file.patch)') { Redmine::MimeType.of('file.patch') }
  x.report('found in gem (file.zip)') { Redmine::MimeType.of('file.zip') }
  x.report('not found in gem (file.go)') { Redmine::MimeType.of('file.go') }
end
```

**#19 - 2018-08-14 17:53 - Pavel Rosický**

my results (ruby 2.5.0):

with the patch (mini\_mime)

```
found in array (file.patch)
      1.079M (± 1.9%) i/s -      5.407M in   5.011560s
found in gem (file.zip)
      486.991k (± 2.6%) i/s -      2.456M in   5.047320s
not found in gem (file.go)
      428.810k (± 2.3%) i/s -      2.174M in   5.072125s
```

[r17467](#) (mime\_types)

```
found in array (file.patch)
      293.348k (± 1.6%) i/s -      1.477M in   5.035304s
found in gem (file.zip)
      295.426k (± 1.8%) i/s -      1.500M in   5.080399s
not found in gem (file.go)
      293.534k (± 5.3%) i/s -      1.477M in   5.048996s
```

[r17467](#) (mime\_types without @known\_types cache)

```
found in array (file.patch)
      298.984k (± 5.2%) i/s -      1.499M in   5.027456s
found in gem (file.zip)
      60.804k (± 1.6%) i/s -      304.803k in   5.014262s
not found in gem (file.go)
      65.405k (± 2.9%) i/s -      332.575k in   5.089481s
```

**#20 - 2018-08-15 02:09 - Go MAEDA**

- Related to Patch #29383: Update mini\_mime gem (~> 1.0.1) added

**#21 - 2018-08-15 16:02 - Go MAEDA**

- Status changed from Reopened to Closed

Committed 29359-remove-known-types-hash-v2.patch.

**#22 - 2018-08-27 13:54 - Go MAEDA**

- Related to Feature #29443: Update mail gem (~> 2.7.1) added

**Files**

File Name	Size	Date	Author
Gemfile.patch	381 Bytes	2018-08-10	Pavel Rosický
mime_type.rb.patch	1.43 KB	2018-08-10	Pavel Rosický
replace-mime-types-with-mini_mime.diff	1.38 KB	2018-08-11	Go MAEDA
replace-mime-types-with-mini_mime-v2.diff	1.17 KB	2018-08-11	Go MAEDA
replace-mime-types-with-mini_mime-v3.diff	1.14 KB	2018-08-12	Go MAEDA
29359-remove-known-types-hash.patch	1.13 KB	2018-08-14	Go MAEDA
29359-remove-known-types-hash-v2.patch	1.14 KB	2018-08-14	Go MAEDA