

## Redmine - Patch #8222

### Setting model should use Rails.cache instead of class variable

2011-04-25 19:44 - Jan from Planio [www.plan.io](http://www.plan.io)

<b>Status:</b>	Needs feedback	<b>Start date:</b>	2011-04-25
<b>Priority:</b>	Normal	<b>Due date:</b>	
<b>Assignee:</b>		<b>% Done:</b>	0%
<b>Category:</b>	Rails support	<b>Estimated time:</b>	0.00 hour
<b>Target version:</b>	Candidate for next minor release		
<b>Description</b>			
<p>The Setting model uses two local class variables called <code>@cached_settings</code> and <code>@cached_cleared_on</code> to prevent reloading the settings from database and/or settings.yml at every request.</p> <p>Rails has been supporting different cache implementations for some time now, why not let the Setting model use them as well? Besides the fact that this will help with tenant switching which we've implemented for Planio, it should also improve Redmine's performance when running it with more than processes and a custom cache mechanism, like memcached.</p> <p>A patch is attached.</p>			

#### History

##### #1 - 2011-04-25 23:33 - Etienne Massip

- Target version set to Candidate for next major release

##### #2 - 2011-04-27 18:10 - Anuj Sapkota

- Status changed from New to Resolved

- Assignee set to Jim Mulholland

(spam)

##### #3 - 2011-04-27 18:17 - Jan from Planio [www.plan.io](http://www.plan.io)

?? :-)

how were you even able to update this ticket?

##### #4 - 2011-04-27 20:13 - Etienne Massip

- Status changed from Resolved to New

- Assignee deleted (Jim Mulholland)

##### #5 - 2011-05-28 10:16 - Toshi MARUYAMA

- File rails-cache.diff added

This is patch series from <https://www.chiliproject.org/issues/350>

##### #6 - 2011-05-28 14:12 - Etienne Massip

Chiliproject looks to add a lot of code complexity and we should not need to change tests, Jan's patch, on the other side, is pretty clean.

Should settings be cached separately or could the full Hash of Settings be cached instead ?

##### #7 - 2014-09-08 23:31 - Jean-Baptiste Barth

- Status changed from New to Needs feedback

- Assignee set to Jean-Baptiste Barth

There's at list one possible gotcha with this: Rails.cache defaults to a file backend which leads to potential problems if permissions are not set correctly, or, say, the production server disk is full (which never happens hey?).

In those cases you'll have this behaviour:

```
>> Rails.cache.write("foo", "bar")
Errno::EACCES: Permission denied - /Users/jbbarth/Projects/redmine/redmine-test/tmp/cache/145
...
```

... which will break the application completely, whereas the current code would work.

Also it seems even Rails will issue a "read" operation on the file each time we call `Rails.cache.read/fetch`. Maybe not a good idea on instances with lots of users, this will lead to unnecessary IOs.

Otoh I admit it would be nice to rely on `Rails.cache` if we configure a memory store or a smart database (e.g. memcached or redis).

Ideally, I'd like to make this optional. What do you think ?

#### #8 - 2014-09-11 18:33 - Jan from Planio [www.plan.io](http://www.plan.io)

Jean-Baptiste Barth wrote:

There's at list one possible gotcha with this: `Rails.cache` defaults to a file backend which leads to potential problems if permissions are not set correctly, or, say, the production server disk is full (which never happens hey?).

In those cases you'll have this behaviour: [...]

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Also it seems even Rails will issue a "read" operation on the file each time we call `Rails.cache.read/fetch`. Maybe not a good idea on instances with lots of users, this will lead to unnecessary IOs.

Oh, I was under the impression that the default store would be `MemoryStore`, but I can confirm it's `FileStore` in a vanilla Redmine - you're absolutely right. However, Redmine already uses Rails Caching since [r10844](#). So, I would say, it wouldn't hurt to make more use of it.

Otoh I admit it would be nice to rely on `Rails.cache` if we configure a memory store or a smart database (e.g. memcached or redis).

Ideally, I'd like to make this optional. What do you think ?

Hmmmm, personally I would not make this optional. I think the current caching mechanism of the Setting model might be a relic from times where Rails Caching wasn't available, and that should be replaced. To make it more obvious that caching is used there and less confusing for cases where in-memory caching is not the best option, I would really like to move this to `Rails.cache`.

I agree that a default to `MemoryStore` for Redmine in general may be a good idea. But then again, it may also be nice just to follow Rails' defaults. I think users who deploy Redmine in production will have their own opinion on Caching anyways and will want to define their favorite cache store. (And if they do, I think they would be confused by the fact that the current Setting cache does not follow their configuration for `Rails.cache` but uses its own in-memory mechanism...)

#### #9 - 2016-06-08 15:38 - Gregor Schmidt

- *File 0001-Setting-model-should-use-Rails.cache-instead-of-clas.patch added*

I just stumbled upon this issue and had to rebase the change onto the latest trunk anyway. So I thought, I'd give this a bump.

Attached you may find an updated version of Jan's patch based on [r15494](#).

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**Addendum:** The code currently used at Planio also dups the value fetched from the cache using the following code:

```
def self.[](name)
  v = Rails.cache.fetch("redmine-settings/#{name}") { find_or_default(name).value }
  v.dup rescue v
end
```

Talking to coworkers and inspecting the history of the file suggest, that this was done to avoid getting frozen objects out of the cache. Something similar was discussed in the matching [ChiliProject issue](#).

I was trying to verify that, but I wasn't able not reproduce that behavior. `FileStore`, `MemoryStore` and `MemCacheStore` all seem to return the objects unfrozen. (`FileStore` and `MemCacheStore` return new instances for each each call, `MemoryStore` returns the same object - similar to the ad-hoc cache currently in place.) But since this patch is already 5 years old, it might as well be the case, that implementations have changed since then.

Nevertheless, I wanted to make sure, that everybody is aware of that.

#### #10 - 2016-06-08 15:40 - Jan from Planio [www.plan.io](http://www.plan.io)

- *Assignee deleted (Jean-Baptiste Barth)*

- *Target version changed from Candidate for next major release to Candidate for next minor release*

**#11 - 2016-06-08 15:41 - Jan from Planio [www.plan.io](http://www.plan.io)**

- File deleted (*setting\_rb\_use\_rails\_cache.patch*)

**#12 - 2016-06-08 20:45 - Jean-Philippe Lang**

The Rails default `:file_store` seems to be OK for most use cases but I agree with Jean-Baptiste and would definitely not use it to cache settings that are heavily used (some requests generate > 1000 setting reads).

And the problem with the proposed patch is that it doesn't work if the cache is not shared between Redmine processes (eg. if using `:memory_store`): `redmine-settings-cleared-on` is not initialized and `Setting.check_cache` never clears the cache (`redmine-settings-cleared-on` would only be set in `Setting.clear_cache`).

**#13 - 2016-06-08 20:54 - Jean-Philippe Lang**

From a performance point of view:

With patch applied:

```
irb(main):004:0> Benchmark.ms {1000.times {Setting.app_title}}
=> 218.401
```

With patch applied and Rails cache store set to `:memory_store`

```
irb(main):004:0> Benchmark.ms {1000.times {Setting.app_title}}
=> 31.2
```

With current implementation:

```
irb(main):004:0> Benchmark.ms {1000.times {Setting.app_title}}
=> 0.0
```

**#14 - 2016-06-08 21:55 - Gregor Schmidt**

- File *0001-Setting-model-should-use-Rails.cache-instead-of-clas.patch* added

Thanks a lot for reviewing this discussion and the patch.

Jean-Philippe Lang wrote:

And the problem with the proposed patch is that it doesn't work if the cache is not shared between Redmine processes (eg. if using `:memory_store`): `redmine-settings-cleared-on` is not initialized and `Setting.check_cache` never clears the cache (`redmine-settings-cleared-on` would only be set in `Setting.clear_cache`).

Attached you may find an updated patch, which addresses the bug you described.

**#15 - 2016-06-09 14:41 - Jan from Planio [www.plan.io](http://www.plan.io)**

Jean-Philippe Lang wrote:

From a performance point of view: ...

Cannot argue with that. 0.0ms is a very convincing argument ;-) In that case, using `Rails.cache` would maybe only be beneficial if it's in fact being shared between several processes or app servers. In that case, maybe coming back to Jean-Baptiste's proposal to make this optional could be a way forward.

Of course, if you feel that this doesn't really benefit Redmine, we can also just close this issue...

**Files**

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<a href="#">rails-cache.diff</a>	9.87 KB	2011-05-28	Toshi MARUYAMA
<a href="#">0001-Setting-model-should-use-Rails.cache-instead-of-clas.patch</a>	1.96 KB	2016-06-08	Gregor Schmidt
<a href="#">0001-Setting-model-should-use-Rails.cache-instead-of-clas.patch</a>	2.03 KB	2016-06-08	Gregor Schmidt