

TYPO3.Flow - Bug # 33621

Status:	Resolved	Priority:	Should have
Author:	Peter Russ	Category:	Cache
Created:	2012-02-02	Assigned To:	Bastian Waidelich
Updated:	2014-02-25	Due date:	
PHP Version:	5.3		
Has patch:	Yes		
Complexity:			
Affected Flow version:	FLOW3 1.0.2		
Subject:	Filebackend reports error when trying to rename file due to concurrent processes		
Description	<p>Due to concurrent processes it happens that a temp-cache-file gets renamed while an other process is just writing it. Further there is an error in the error handling.</p> <p>We fixed both.</p> <ol style="list-style-type: none">1. added an exclusive lock for the writing operation2. added counters for a break to avoid an endless loop due to file system errors3. added timers for getting the process to sleep4. fixed error handling		
Related issues:	related to TYPO3.Flow - Bug # 27989: Wrong check in our atomic writes code Resolved 2011-07-08		

Associated revisions

Revision 54486a01 - 2013-08-14 17:46 - Christopher Hlubek

[BUGFIX] Fix race condition when setting cache entries

This change adds the uniqid() to the temporary filename again and adds the process id (if the function "posix_getpid" is present) as another unique identifier.

Change-Id: Ib2a21f8607f464901b81c1950d112f639cbe29ba

Fixes: #33621

Releases: master, 2.0

History

#1 - 2012-02-02 14:21 - Peter Russ

- File 33621.patch added

#2 - 2012-02-02 14:32 - Peter Russ

- % Done changed from 0 to 80

Reported also fixes to TYPO3 s. <http://forge.typo3.org/issues/33622>

#3 - 2012-02-09 09:44 - Karsten Dambekalns

Hm, I had this in the pipeline: <https://review.typo3.org/8786>

#4 - 2012-02-09 09:53 - Karsten Dambekalns

- *Category set to Cache*
- *Status changed from New to Accepted*
- *Assigned To set to Karsten Dambekalns*

#5 - 2012-02-09 10:21 - Karsten Dambekalns

Thanks! Aside from a simple issue with your code (forgot to throw a new exception), this seems fine. Two "theoretical" problems, though:

1. the unit tests fail, as we use fvsStream to mock the filesystem, but <https://bugs.php.net/60232> breaks lock support for custom stream wrappers
2. Robert did not use LOCK_EX back in the days, because it is said to be useless as soon as you don't use a local filesystem (but NFS e.g.)

Any ideas about the former (except using the real FS for the tests) and any hard facts about the latter?

#6 - 2012-02-09 10:21 - Karsten Dambekalns

- *Status changed from Accepted to Needs Feedback*

#7 - 2012-02-16 14:27 - Gerrit Code Review

- *Status changed from Needs Feedback to Under Review*

Patch set 3 for branch **master** has been pushed to the review server.

It is available at <http://review.typo3.org/8931>

#8 - 2012-03-07 18:52 - Karsten Dambekalns

- *Target version changed from 1.0.3 to 1.0.4*

#9 - 2012-03-13 21:43 - Karsten Dambekalns

- *Status changed from Under Review to Needs Feedback*

#10 - 2012-04-18 22:49 - Karsten Dambekalns

- *Target version changed from 1.0.4 to 1.0.5*

#11 - 2012-06-05 21:20 - Karsten Dambekalns

- *Target version changed from 1.0.5 to 1.1 RC1*

#12 - 2012-06-19 12:28 - Karsten Dambekalns

- *Target version changed from 1.1 RC1 to 2.0 beta 1*

#13 - 2012-12-12 09:21 - Karsten Dambekalns

- *Target version changed from 2.0 beta 1 to 2.0*

#14 - 2013-08-12 19:26 - Christopher Hlubek

- *Status changed from Needs Feedback to Accepted*
- *Assigned To changed from Karsten Dambekalns to Christopher Hlubek*

We still have this issue with the latest session implementation. With the iterable file backends this got even worse because no uniqid() is used anymore.

I would propose a simpler change that includes the process id in the uniqid and excludes temporary files from the backend iterator. This should solve concurrent process race conditions and needs no locking.

#15 - 2013-08-13 12:01 - Gerrit Code Review

- Status changed from Accepted to Under Review

Patch set 1 for branch **2.0** has been pushed to the review server.

It is available at <https://review.typo3.org/23081>

#16 - 2013-08-14 15:35 - Karsten Dambekalns

- Target version changed from 2.0 to 2.0.1

#17 - 2013-08-14 17:42 - Gerrit Code Review

Patch set 1 for branch **master** has been pushed to the review server.

It is available at <https://review.typo3.org/23102>

#18 - 2013-08-14 17:43 - Gerrit Code Review

Patch set 2 for branch **master** has been pushed to the review server.

It is available at <https://review.typo3.org/23102>

#19 - 2013-08-14 17:46 - Gerrit Code Review

Patch set 2 for branch **2.0** has been pushed to the review server.

It is available at <https://review.typo3.org/23081>

#20 - 2013-09-30 14:46 - Mariusz Maroszczyk

- File 33621_SimpleFileBackend.patch added

The SimpleFileBackend "set" method also does not handle concurrency. "rename" should only be called if the file still exists (wasn't renamed yet). A simple condition fixes the problem:

```
if (file_exists($temporaryCacheEntryPathAndFilename)) {
    rename($temporaryCacheEntryPathAndFilename, $cacheEntryPathAndFilename);
}
```

#21 - 2013-09-30 19:22 - Bastian Waidelich

There is still an issue with the current implementation (even with the patches applied): rename() issues a warning so

```
1$i = 0;
2$cacheEntryPathAndFilename = $this->cacheDirectory . $entryIdentifier . $this->cacheEntryFileExtension;
```

```
3while (($result = rename($temporaryCacheEntryPathAndFilename, $cacheEntryPathAndFilename)) === FALSE && $i < 5) {
4  $i++;
5}
6if ($result === FALSE) {
7  throw new \TYPO3\FLOW\Cache\Exception("The cache file "" . $cacheEntryPathAndFilename . "" could not be written.", 1222361632);
8}
```

won't work as expected because a warning is issued for the first failed attempt leading to an exception in dev context. Besides this loop is probably iterated much too fast. We should add a `usleep()`.

#22 - 2013-10-07 11:57 - Christopher Hlubek

- Assigned To changed from Christopher Hlubek to Bastian Waidelich

Bastian: Can you push a new patchset that fixes the rename warning (and maybe add the `usleep` to the busy waiting)?

Bastian Waidelich wrote:

There is still an issue with the current implementation (even with the patches applied): `rename()` issues a warning so
[...]

won't work as expected because a warning is issued for the first failed attempt leading to an exception in dev context. Besides this loop is probably iterated much too fast. We should add a `usleep()`.

#23 - 2013-10-07 12:02 - Christopher Hlubek

I would say that could be fixed by ignoring warnings from the `rename` (which we have to do anyway as Basti stated). An additional `file_exists` call is bad in terms of performance. And it doesn't give any guarantees since the calls to `file_exists` and `rename` are not atomic and race conditions could occur where the file existed but is gone when calling `rename`.

Mariusz Maroszczyk wrote:

The `SimpleFileBackend` "set" method also does not handle concurrency. "rename" should only be called if the file still exists (wasn't renamed yet). A simple condition fixes the problem:
[...]

#24 - 2014-02-25 15:10 - Gerrit Code Review

Patch set 3 for branch **master** of project **Packages/TYPO3.Flow** has been pushed to the review server.

It is available at <https://review.typo3.org/23102>

#25 - 2014-02-25 15:34 - Karsten Dambekalns

- Status changed from Under Review to Resolved

- % Done changed from 80 to 100

Files

33621.patch	3.1 kB	2012-02-02	Peter Russ
33621_SimpleFileBackend.patch	844 Bytes	2013-09-30	Mariusz Maroszczyk