# Arvados - Bug #12134

## [arv-mount] Fix test deadlock by using new llfuse in test suite

08/16/2017 09:57 PM - Tom Clegg

| Status: | Resolved | | Start date: | 08/16/2017 |
|---|---|---|---|---|
| Priority: | Normal | | Due date: | |
| Assigned To: | Tom Clegg | | % Done: | 100% |
| Category: | FUSE | | Estimated time: | 0.00 hour |
| Target version: | 2017-09-13 Sprint | | | |

### Description

Peter's patch for the thread-cancel bug has been merged upstream, but there is no new release yet.

Instead of waiting for a new release, we can update run-tests.sh to build its own version ("1.2.1arvados1"?) from source and install it into $VENVDIR during the dependencies/setup phase. Then "python setup.py install" in services/fuse should use that custom version instead of going to pypi, and we should see no more test suite deadlocks.

This is the relevant fix:

https://bitbucket.org/nikratio/python-llfuse/commits/8aab6579089bb0b07423a41bca84c4654b2f9b81

### Subtasks:

| Task # 12143: Exercise test suite with patched llfuse | **Resolved** |
|---|---|
| Task # 12187: Review 12134-llfuse-patch | **Resolved** |

### Related issues:

| Related to Arvados - Story #8345: [FUSE] Support llfuse 0.42+ | **Resolved** | **02/03/2016** |
|---|---|---|
| Related to Arvados - Bug #10805: [FUSE] Upgrade llfuse to 1.2, fix deadlock i... | **Resolved** | **01/04/2017** |

## Associated revisions

### Revision 84f5a47b - 09/01/2017 03:29 PM - Tom Clegg

Merge branch '12134-llfuse-patch'

refs #12134

Arvados-DCO-1.1-Signed-off-by: Tom Clegg <tclegg@veritasgenetics.com>

## History

### #1 - 08/17/2017 06:12 PM - Tom Clegg

Even with new llfuse, test_replace (tests.test_unmount.UnmountTest) hangs sometimes, but it wakes up if I look in /proc/self/mountinfo for stray fuse mounts and hit them with "echo 1 > /sys/fs/fuse/connections/NNN/abort".

### #2 - 08/17/2017 08:50 PM - Tom Clegg

*- Status changed from New to In Progress*

### #3 - 08/18/2017 01:40 PM - Tom Clegg

Tests hung on test_tmp_rewrite (tests.test_tmp_collection.TmpCollectionTest). Destroying fuse mounts had no effect, but SIGKILLing the innermost python program revived the test run.

Again in test_tmp_snapshots (tests.test_tmp_collection.TmpCollectionTest).

```
14694 tom       20   0   11896    3872    2900 S   0.0  0.1   0:00.08                                    `- run-tests.sh
 9248 tom       20   0 2728408 202196   15776 S   0.3  5.0   2:43.15                                    `- python

 9404 tom       20   0   16956    1044     916 S   0.0  0.0   0:00.01                                        `- sed
 9405 tom       20   0  497612   11512    5820 S   0.0  0.3   0:02.04                                        `- keepst
ore
 9416 tom       20   0   16956    1080     948 S   0.0  0.0   0:00.00                                        `- sed
 9417 tom       20   0  503440    9632    5928 S   0.0  0.2   0:01.86                                        `- keepst
ore
 4799 tom       20   0 2497948 186832    2860 S   0.0  4.6   0:00.00                                        `- python
```

9396 (one of 9248's threads) is doing waitpid(4799, ...), sleep 100ms, repeat.

4799 is waiting in futex().

Killing 4799 just resulted in a new process in the same place doing the same thing, whether or not I had aborted the fuse mounts. Had to kill 9248 to abort the test suite. Judging by strace, 9396 was the multiprocessing module maintaining its 1-worker pool. I suspect this behavior (multiprocessing keeping an idle worker pool alive) is fine, the problem is just that some other thread is deadlocked. (But it is possible that the way multiprocessing keeps a worker pool alive is helping that other thread get deadlocked.)

### #4 - 08/18/2017 02:54 PM - Tom Clegg

```
----------------------------------------------------------------------
Ran 83 tests in 292.678s

OK
Exception in thread Thread-83:
Traceback (most recent call last):
  File "/usr/lib/python2.7/threading.py", line 801, in __bootstrap_inner
    self.run()
  File "/usr/lib/python2.7/threading.py", line 754, in run
    self.__target(*self.__args, **self.__kwargs)
  File "/usr/lib/python2.7/multiprocessing/pool.py", line 366, in _handle_tasks
    debug('task handler got sentinel')
TypeError: 'NoneType' object is not callable

Exception in thread Thread-82:
Traceback (most recent call last):
  File "/usr/lib/python2.7/threading.py", line 801, in __bootstrap_inner
    self.run()
  File "/usr/lib/python2.7/threading.py", line 754, in run
    self.__target(*self.__args, **self.__kwargs)
  File "/usr/lib/python2.7/multiprocessing/pool.py", line 330, in _handle_workers
    debug('worker handler exiting')
TypeError: 'NoneType' object is not callable

/home/tom/src/arvados/build/run-tests.sh: line 574: 26482 Segmentation fault      "${3}python" setup.py ${shor
t:+--short-tests-only} test ${testargs[$1]}
```

### #5 - 08/29/2017 01:26 PM - Tom Clegg

at commit:7c92bc77b, ran fuse tests 50 times in a row with no deadlocks, interrupted by this (non-deadlocking) failure:

```
======================================================================
FAIL: runTest (tests.test_mount.FuseModifyFileTest)
----------------------------------------------------------------------
Traceback (most recent call last):
  File "/home/tom/src/arvados/services/fuse/tests/test_mount.py", line 348, in runTest
    self.pool.apply(fuseModifyFileTestHelperReadEndContents, (self.mounttmp,))
  File "/usr/lib/python2.7/multiprocessing/pool.py", line 244, in apply
    return self.apply_async(func, args, kwds).get()
  File "/usr/lib/python2.7/multiprocessing/pool.py", line 567, in get
    raise self._value
AssertionError: 'plnp' != 'blub'

----------------------------------------------------------------------
Ran 83 tests in 317.388s
```

12134-llfuse-patch @ [99c19e1539aabb8053ee9221f62744bf76d63737](#)

### #6 - 08/30/2017 07:03 PM - Tom Clegg

*- Target version changed from 2017-08-30 Sprint to 2017-09-13 Sprint*

### #7 - 08/31/2017 02:59 PM - Lucas Di Pentima

Tried to run the tests repeatedly on my VM, but llfuse requires cython 0.24+ and Debian Jessie doesn't have it.
The updates LGTM, but I don't know if this would create problems with the rest of the team, for example I know Peter runs tests using arvbox.

### #8 - 09/01/2017 03:39 PM - Tom Clegg

*- Status changed from In Progress to Feedback*

### #9 - 09/01/2017 03:40 PM - Tom Clegg

We'll have to update arvbox to stretch to make it pass tests.

### #10 - 09/08/2017 02:20 AM - Tom Clegg

*- Status changed from Feedback to Resolved*

No test deadlocks since merge.