## Does the thread id change after forking a new process?

Asked 6 years, 9 months ago Modified 1 year, 3 months ago Viewed 2k times



I know that this fork creates a new process, but what about the thread that was running prior to calling fork, does it also change (because now it is part of a new process "child process" which should have new threads?)



Compiling and running the following C test confirms that the thread id remains the same:





```
pthread_t threadId1, threadId2;
threadId1 = pthread_self();
if (fork() == 0)
  threadId2 = pthread_self();
  if (pthread_equal(threadId1,threadId2)) // edited
    printf("we are in the same thread \n");
  }
 else
  {
  printf("we are on different threads \n");
```

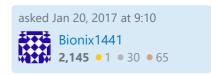
Could someone explain to me why the thread is shared among the parent and child process?

multithreading

pthreads

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- Thread ids are opaque data, you should not use direct comparison of them. Instead use <a href="pthread\_equal">pthread\_equal</a>. - Some programmer dude Jan 20, 2017 at 9:13
- Use gettid() rather than the opaque pthread\_t structure. Claudio Jan 20, 2017 at 9:15

Yes, I just compare and print the result of the comparison of thread id before forking and in the child process.

- Bionix1441 Jan 20, 2017 at 9:16

- I'm not sure, but maybe threads are tied up to a parent process and their ids are unique only within it. Therefore you can get the same ids. - Long Smith Jan 20, 2017 at 9:17 /
- Moreover POSIX standard claims that comparing threads with '==' is not appropriate way. You have to use pthread\_equal. - Long Smith Jan 20, 2017 at 9:20

## 2 Answers

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If you read the pthread\_self manual page you will see that

Thread IDs are guaranteed to be unique only within a process.



That of course means that two very different processes may have threads with the same id.



Share Improve this answer Follow edited Jun 30, 2022 at 13:02 answered Jan 20, 2017 at 9:15 Some programmer dude **401k** • 35 • 404 • 623

I have missed that Thank you. – Bionix1441 Jan 20, 2017 at 9:18

Is there a 't' missing because the link is to gettid? - SoulfreezerXP Jun 30, 2022 at 12:57

@SoulfreezerXP Yes that was a typo. – Some programmer dude Jun 30, 2022 at 13:02



## From the man pages of pthread\_self

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Thread IDs are guaranteed to be unique only within a process. A thread ID may be reused after a terminated thread has been joined, or a detached thread has terminated.

The thread ID returned by pthread\_self() is not the same thing as the kernel thread ID returned by a call to gettid(2).

Since fork effectively duplicates a process, including its handles to kernel objects, the result therefore is not unexpected. (The kernel uses both handle value and pid when doing object lookup)

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answered Jan 20, 2017 at 9:21

