How do you get the filename of a tempfile to use in Linux?

Asked 16 years, 3 months ago Modified 4 years ago Viewed 11k times

11

Let's say I'm creating a program in C that needs to use a tempfile. Creating an ad hoc tempfile in /tmp is probably not a good idea. Is there a function or OS call to supply me with a tempfile name so that I can begin to write and read from it?

c linux

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edited Apr 8, 2009 at 19:30

17 of 26

27.4k ● 13 ● 68 ● 85

asked Aug 27, 2008 at 7:05

andrewrk

31.1k ● 28 ● 95 ● 117

6 Answers

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22

You can use the `mkstemp(3)` function for this purpose. Another alternative is the `tmpfile(3)` function. Which one of them you choose depends on whether you want the file to be opened as a C library file stream (which

`tmpfile` does), or a direct file descriptor (`mkstemp`). The `tmpfile` function also deletes the file automatically when you program finishes.

The advantage of using these functions is that they avoid race conditions between determining the unique filename and creating the file -- so that two programs won't try to create the same file at the same time, for example.

See the man pages for both functions for more details.

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answered Aug 27, 2008 at 7:12

gavrie

1,811 ● 1 ● 16 ● 14

1 mkstemp just returns a file descriptor open on a new file but you also can get it's final name because mkstemp replaces the XXXXXX characters of the template. – Angel Oct 31, 2016 at 10:33

3

@garethm:

> I believe that the function you're looking for is called tmpnam.

You should definitely *not* use `tmpnam`. It suffers from the race condition problem I mentioned in my answer: Between determining the name and opening it, another program may create the file or a symlink to it, which is a huge security hole.

The `tmpnam` man page specifically says not to use it, but to use `mkstemp` or `tmpfile` instead.

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edited Aug 27, 2008 at 8:08

Konrad Rudolph

545k ● 139 ● 956 ● 1.2k

answered Aug 27, 2008 at 7:56

gavrie

1,811 ● 1 ● 16 ● 14

2

Absolutely: man mkstemp.

The man page has example usage.

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answered Aug 27, 2008 at 7:12

DMC

231 ● 2 ● 4

0

Not sure about anything in a C lib, but you can do this at the shell with mktemp.

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answered Aug 27, 2008 at 7:13

Frep D-Oronge

2,646 ● 3 ● 28 ● 27

0

You should use the mkstemp() as this is the recommended function, but it returns a file descriptor, so once you have the descriptor get it's name:

```
int fd;
fd = mkstemp("hdrXXXXXX);
/* Read out the link to our file descriptor. */
sprintf(path, "/proc/self/fd/%d", fd);
memset(result, 0, sizeof(result));
readlink(path, result, sizeof(result)-1);

/* Print the result. */
printf("%s\n", result);
```

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answered May 31, 2016 at 10:17

Cristiano Pereira

1

Please chekc this URL it will be useful to raise your content quality up – Willie Cheng May 31, 2016 at 10:33

.. this will only work if you send it to another thread in your own process (or if you send it to your own thread), it won't work if you send it to another process with a different `/proc/self` - instead use `/dev/fd/%d` , then it will work both with threads within your own process, AND different processes – hanshenrik Nov 22, 2020 at 13:17

0

usually there's no need to actually make a named file; instead use the file descriptor path,

```
FILE *tmp=tmpfile();
char path[PATH_MAX+1]={0};
```

```
sprintf(path, "/dev/fd/%d", fileno(tmp));
printf("%s\n", path);
```

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answered Nov 22, 2020 at 13:20

hanshenrik

21.3k ● 4 ● 56 ● 101