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How to determine if a process runs inside lxc/Docker?

Ask Question

Asked 10 years, 11 months ago Modified 5 months ago Viewed 118k times

Is there any way to determine if a process (script) runs inside an lxc container (~ Docker runtime)? I know that some programs are able to detect whether they run inside a virtual machine, is something similar available for lxc/docker?

linux bash docker

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edited Apr 7, 2018 at 22:40
Ciro Santilli
OurBigBook.com
378k 115 1.3k 1.1k

asked Nov 15, 2013 at 20:42
Mate Varga
3,386 2 16 18

It might seem pedantic, but it would be best to rephrase your question to be more specific about what you are having and ask how to solve it -- without the risk of being closed. In many cases, the answer is "no" but in yours it wouldn't be hard to find a way to do it. – mah Nov 15, 2013 at 21:04

use when issuing this command while
Scott Stensland Feb 19, 2017 at 1:16

Sorted by: Highest score (default)

1. `ls -la` file at the root of the directory tree is seen by performing an `ls -la` is created on container startup.

2.

```
then
matrix ;(
n real world!";
```

bash script: `/bin/running-in-` the type of container it has been Don't know about other major distros

edited May 15, 2022 at 6:09
Archimedes Trajano
40.5k 24 201 327

answered Aug 27, 2014 at 3:09
atOS
4,846 2 15 10

`-in-container` is provided by on to systemd it might go away. I hope not
rph Sep 1, 2016 at 9:12

checking `.dockerenv` is [not](#)
5, 2018 at 10:53

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0 Detect whether script running inside docker container



- 2
- It's Aug 2020 and `/.dockerenv` is available on ubuntu:20.04 and alpine:3.12, so I'd say that's definitely the best answer – [Meir Gabay](#) Aug 6, 2020 at 11:12
- 3
- Ubuntu 18.0.4 doesn't have `/bin/running-in-container`. – [Daniel Griscom](#) Oct 19, 2020 at 12:58

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210



The most reliable way is to check `/proc/1/cgroup`. It will tell you the control groups of the init process, and when you are *not* in a container, that will be `/` for all hierarchies. When you are *inside* a container, you will see the name of the anchor point. With LXC/Docker containers, it will be something like `/lxc/<containerid>` or `/docker/<containerid>` respectively.

Share Improve this answer Follow

edited Jul 2, 2019 at 2:44



tshepang

12.4k 24 95 139

answered Nov 15, 2013 at 23:36



jpetazzo

15.5k 3 44 46

instead of `lxc` in those paths – [Andy](#)

containers, but [26/170230](#) does. – [Draco Ater](#) Jun 8, 2016

and it looks like you can't rely on process 1 in my Debian 9 system (systemd 232) only `cpuset`, `4:perf_event` and the rest are under `/init.scope`. That file for `:/docker/` is probably the moment. – [cjs](#) Feb 28, 2018 at 7:40

ubuntu 19.04, guest Ubuntu 18.04 using LXC /cgroup does NOT contain the lxc string.

`/proc/1/cgroup 0:/:` so doesn't work. at 10:54

on, new systemd & lxc 2.0

`lxc /proc/1/environ`

answered Mar 2, 2016 at 15:12



larss

301 3 2

in focal 20.04. None of the answers above [rtley](#) Apr 23, 2020 at 15:18

you please explain why '-a' is needed? `=lxc /proc/1/environ` enough?

erates environment variables with null message from the man page applies: > By rep suppresses output after null input [adam Azarchs](#) Sep 22, 2021 at 20:56

`/proc/1/environ` contained had. So I used `grep -qa` [fstamour](#) Oct 28, 2022 at 18:14

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- 8
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- 9
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In containers, this PID either doesn't exist, or isn't kthreadd. Both docker and lxc show:

```
root@85396f8bce58:/# ps -p 2
  PID TTY          TIME CMD
root@85396f8bce58:/#
```


The best way seems to be to check `/proc/2/status`:

```
$ head -n1 /proc/2/status
Name:    kthreadd
```

So something like this seems to work:

```
if [ -n "$(grep 'kthreadd' /proc/2/status 2>/dev/null)"
then
    echo "Not in container"
else
    echo "In container";
fi
```

Share Improve this answer Follow answered May 6, 2022 at 6:08

 **Ferry Boender**
768 ● 1 ● 7 ● 14

have no pid 2 normally. – Daniel Widdis Jul 10, 2022 at 12:00

h with pid 2 – Prem Anand Dec 6, 2022 at 10:00

tribution Ubuntu 22.04.1, it does not have kthreadd. This is not docker environment. – zerox Jul 10, 2022 at 12:00

ent to `if ! grep -q kthreadd /proc/2/status; then; echo "In container"; fi` – lenrie Feb 5 at 22:30

`/proc/$PID/sched` to extract the PID of the process inside the container will differ then the PID in the container system).

`/proc/1/sched` on a container will return:

```
cat /proc/1/sched | head -n 1
1)
```

st:

```
head -n 1 /proc/1/sched
```

you are in a container or not.

answered May 4, 2016 at 0:00

 **Founder**
619 ● 6 ● 6

might need to be replaced by "systemd". See [here](#). – BrianV Jun 23, 2017 at 1:50

name of the init process, the point was the point was the point. – k May 2, 2018 at 14:31

Docker. In an LXC container It's returning kthreadd. – k May 2, 2018 at 14:32



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5 Under docker, this is no longer the case - `bash-5.0# cat /proc/1/sched bash (1, #threads: 1)` – [shalomb](#) Jun 4, 2020 at 10:57

Add a comment

▲ The easiest way would be to check the environment. If you have the `container=lxc` variable, you are within a container.

9 ▼ Otherwise, if you are root, you can try to perform `mknod` or `mount` operation, if it fails, you are most likely in a container with dropped capabilities.

🔖 Share Improve this answer Follow answered Nov 15, 2013 at 21:09  [creack](#) 121k 12 100 73

This one works not only for docker (I didn't check that), but more importantly for lxd/lxc containers (checked), where `/proc/1/cgroup` does not allow you to detect that. – [Draco Ater](#) Jun 8, 2016 at 6:37

5 can you edit the answer with code instead of pseudocode? "container=lxc" ?is not proper anything. do you mean something like if `[["lxc" = "$container"]]` ? – [Alexander Mills](#) Dec 20, 2016 at 10:20 ✎

... variables are in all caps, so looking for `container=lxc` – [Alexander Mills](#) Dec 20, 2016 at 10:22

... does not give anything that looks like `container=lxc` – [arajano](#) Mar 10, 2019 at 16:01

... REALLY good one. :)

... scripts that we run on baremetal, VM with logic branching based on which environment we are running on. In my case I have the privilege to control the host and the docker image, so this is not a problem. We are in control of the entire stack:

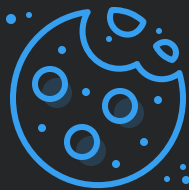
... the value of `$PLATFORM` for desired

... pecification in environment

... cker, do this stuff
... ainerized, proceeding..."

... /M, do different stuff
... VM, loading VM stuff..."
... el-module

... ator specified! Exiting..."



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Snare improve this answer Follow answered Nov 26, 2020 at 5:17

 **mainmachine**
307 ● 5 ● 10

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Check for all the solutions above in Python:

4



```
import os

def in_container():
    proc_1 = r'/proc/1/sched'

    if os.path.exists(proc_1):
        with open(proc_1, 'r') as fp:
            out = fp.read()
    else:
        out = ''

    checks = [
        'docker' in out,
        '/lxc/' in out,
        out.split(' ')[0] not in ('systemd', 'init',),
        os.path.exists('./dockerenv'),
        os.path.exists('/.dockerenv'),
        os.path.exists('/.dockerinit'),
        os.getenv('container') is not None
    ]
```

--':
(())

--mount type=bind,source=\${PWD}:/:

edited Jun 1, 2023 at 22:39

answered Sep 26, 2017 at 22:54

 **blakev**
4,419 ● 2 ● 37 ● 52

mac based docker container. Returns
1 (37199). – splintercell Nov 26, 2019 at

_docker(): return
'/1/cgroup') as per the accepted
om/questions/20010199/... – splintercell

t Award. And Useless Use Of Subprocess
0 at 15:00 ✎

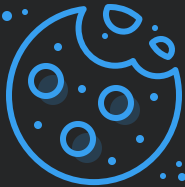
l of unnecessary cat ! Nice one :-D
14

answer even though it's still not all-
- blakev May 7, 2020 at 17:32

[OS is running in a virtual](#)

e same as the OP's question, it does
s of finding which container you're in

the code of this bash script which



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`sudo apt install virt-what`

ShareImprove this answerFollow

edited Apr 13, 2017 at 12:36

Community Bot

1 • 1

answered Apr 1, 2017 at 3:08

kaiwan


2,144 • 1 • 18 • 25

Doesn't work with `virt-what` version 1.14-1 on Ubuntu 16.04. Needs patch. – Lucas Jan 4, 2018 at 22:23

Interestingly, inside docker on windows, `virt-what` reports `hyperv`, just as my WSL2 bash shell does. – Peter V. Mørch Mar 3, 2021 at 6:44

This does work in Ubuntu 20.04, it greps for "lxc" in /proc/1/enviro – teknopaul Jun 22, 2021 at 21:05

Add a comment



In a docker container, entries `/proc/self/cgroup` are mounted to cgroups on the host.

3

e.g. in a container

```
/proc/self/cgroup
c154fb4e0d1b6c748faf1f1a12116acc:
```

st

```
/proc/self/cgroup
```

for a low profile test

```
c() {
$3 ~ /^\/$/ { c=1 } END{ exit c
iner; then
container"
in a container"
```

edited Oct 7, 2022 at 19:50

answered Jul 15, 2018 at 21:13

shalomb

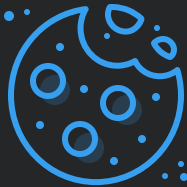
3,635 • 2 • 24 • 19

Oct 1, 2020 at 14:37

ually returns 1 only on host-level, but . – Dmitry Shevkoplyas Oct 5, 2022 at

node.js processes but may be relevant e to this question looking for a

relying on `/proc/self/cgroup` I solely this purpose — to detect whether a Node.js process runs inside a Docker container or not.



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Share Improve this answer Follow answered Sep 23, 2015 at 23:05

 **Martin Tajur**
6,140 ● 1 ● 22 ● 15

Thanks for this module, seems to be a couple of open fixes pending - are you still maintaining this? – [stevokk](#) Aug 2, 2018 at 8:51

This module is no longer maintained. Additionally, a Node.js module that detects non-Docker container environments is needed. – [Jeff](#) Apr 29, 2022 at 14:12

Add a comment


2




I have translated JJC's answer into ruby

```
def in_docker
  File.open('/proc/1/cgroup', 'rt') do |f|
    contents = f.read
    return contents =~ /docker/i || contents =~ /kubep
  end
rescue StandardError => e
  p 'Local development'
  p e
  false
end
```

edited Jun 26, 2019 at 4:09

 **Souradeep Nanda**
3,256 ● 2 ● 33 ● 48

can check **if you're in a container or**

`tr "\0" "\n"|grep container` :
variable if you're in a container.

you will see nothing but only the grep
container, which means there's no
can see (e.g. `[kthreadd]`). Caution:
t show kernel processes.

answered Dec 24, 2022 at 13:58

 **Roennis**
406 ● 7 ● 16

running_in_docker?

c?
c/1/cgroup") =~ %r[^\d+:\w+:/docl

e, [here's a spec in the gist](#).

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3 @SamThomas: launchd, upstart, Solaris SMF, systemd, Sys V style init, BSD style init (these two and some others might call their PID 1 `init` though), OpenRC, initng, runit. [See here](#). Most modern Linux-based systems would use `systemd`, some older ones, upstart.... All modern OS X systems would use `launchd` – Gert van den Berg May 23, 2018 at 8:16

Show 1 more comment



Maybe this do the trick:

-7



Is that what you want? Hope it helps =)

Share Improve this answer Follow edited Apr 16, 2020 at 18:53

answered Jun 11, 2018 at 15:15



Leonardo Da Vinci 65 2 9

able from inside of container, obviously.
:02

tions (e.g. gitlab docker-in-docker) where
`docker` and access to the hosts' docker
8 at 21:02

there isn't ^^ . I got the wrong
stion back at the time when I read it. Thank
a Vinci Apr 16, 2020 at 18:51

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