


Is it ok to run docker from inside docker?

Asked 9 years, 7 months ago Modified 1 year, 9 months ago Viewed 260k times  Part of [CI/CD Collective](#)

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357
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I'm running Jenkins inside a Docker container. I wonder if it's ok for the Jenkins container to also be a Docker host? What I'm thinking about is to start a new docker container for each integration test build from inside Jenkins (to start databases, message brokers etc). The containers should thus be shutdown after the integration tests are completed. Is there a reason to avoid running docker containers from inside another docker container in this way?

[docker](#)[jenkins](#)[docker-in-docker](#)

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edited Jan 28, 2022 at 17:15



[David Maze](#)


152k ● 38 ● 208 ● 259

asked Jan 10, 2015 at 18:29



[Johan](#)

39.8k ● 41 ● 165 ● 269

- 21 Another possibility is to mount the docker socket from the host as a volume in the container. That lets you create "sibling" containers and has the advantage of being able to reuse the cache. — [Adrian Mouat](#) Jan 10, 2015 at 19:59 
- 8 I've found that when using the docker socket from the host that in cases where I want to mount external volumes it's necessary to set the volume path relative to the host as that is where the docker daemon runs. Setting it relative to the container that starts containers will not necessarily work unless paths coincide. — [Jakob Runge](#) Mar 1, 2016 at 15:50

5 Answers

Sorted by: Highest score (default) 

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397
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Running Docker inside Docker (a.k.a. *dind*), while possible, should be avoided, if at all possible. (Source provided below.) Instead, you want to set up a way for your main container to produce and communicate with *sibling* containers.



[Jérôme Petazzoni](#) — the author of the feature that made it possible for Docker to run inside a Docker container — actually wrote [a blog post saying not to do it](#). The use case he describes matches the OP's exact use case of a CI Docker container that needs to run jobs inside other Docker containers.

Petazzoni lists two reasons why dind is troublesome:

1. It does not cooperate well with Linux Security Modules (LSM).
2. It creates a mismatch in file systems that creates problems for the containers created inside parent containers.

From that blog post, he describes the following alternative,

[The] simplest way is to just expose the Docker socket to your CI container, by bind-mounting it with the `-v` flag.

Simply put, when you start your CI container (Jenkins or other), instead of hacking something together with Docker-in-Docker, start it with:

```
docker run -v /var/run/docker.sock:/var/run/docker.sock ...
```

Now this container will have access to the Docker socket, and will therefore be able to start containers. Except that instead of starting "child" containers, it will start "sibling" containers.

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edited Feb 4, 2016 at 18:04

answered Oct 7, 2015 at 22:10



gotgenes

39.7k ● 30 ● 101 ● 129



predmijat

4,094 ● 2 ● 12 ● 2

- 1 How to run docker commands without `sudo` when doing like this ? Thanks – [c4k](#) Oct 21, 2016 at 17:18
- 10 You need to add user to `docker` group: `sudo usermod -aG docker $USER` . You'll need to relog after that. – [predmijat](#) Dec 4, 2016 at 9:12
- 3 How to relog from within a container? – [thiagowfx](#) Jul 10, 2017 at 20:45
- 4 what about windows? i dont have `/var/run/docker.sock` – [Abdelhafid](#) Nov 11, 2017 at 9:05
- 10 [Jérôme Petazzoni](#) changed his opinion (2020) because there are new tools like [sysbox](#) that make it more convenient. He updated his blog post linked in the answer reflecting this. – [volkit](#) Dec 7, 2020 at 15:34

I answered a similar question before on [how to run a Docker container inside Docker](#).

76

To run docker inside docker is definitely possible. The main thing is that you `run` the outer container with [extra privileges](#) (starting with `--privileged=true`) and then install docker in that container.

Check this blog post for more info: [Docker-in-Docker](#).

One potential use case for this is described in [this entry](#). The blog describes how to build docker containers within a Jenkins docker container.

However, Docker inside Docker it is not the recommended approach to solve this type of problems. Instead, the recommended approach is to create "sibling" containers as [described in this post](#)

So, running Docker inside Docker was by many considered as a good type of solution for this type of problems. Now, the trend is to use "sibling" containers instead. See [the answer by @predmijat on this page](#) for more info.

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edited Jun 20, 2020 at 9:12

answered Jan 10, 2015 at 18:33



Community Bot

1 ● 1



wassgren

19.1k ● 6 ● 65 ● 79

See the comment below about avoiding docker in docker. – [Dan Poltawski](#) Aug 18, 2016 at 6:46

notice that this is not supported in Docker Swarm – [Sam](#) Jan 18, 2022 at 9:45



24



It's OK to run Docker-in-Docker (DinD) and in fact Docker (the company) has an [official DinD image](#) for this.

The caveat however is that it requires a privileged container, which depending on your security needs may not be a viable alternative.

The alternative solution of running Docker using sibling containers (aka Docker-out-of-Docker or DooD) does not require a privileged container, but has a few drawbacks that stem from the fact that you are launching the container from within a context that is different from that one in which it's running (i.e., you launch the container from within a container, yet it's running at the host's level, not inside the container).

I wrote a blog describing the pros/cons of DinD vs DooD [here](#).

Having said this, Nestybox (a startup I just founded) is working on a solution that runs true Docker-in-Docker securely (without using privileged containers). You can check it out at www.nestybox.com.

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answered Sep 18, 2019 at 19:52



ctalledo

381 ● 3 ● 5



12



Yes, we can run docker in docker, we'll need to attach the unix socket `/var/run/docker.sock` on which the docker daemon listens by default as volume to the parent docker using `-v /var/run/docker.sock:/var/run/docker.sock`. Sometimes, permissions issues may arise for docker daemon socket for which you can write `sudo chmod 757 /var/run/docker.sock`.

And also it would require to run the docker in privileged mode, so the commands would be:

```
sudo chmod 757 /var/run/docker.sock
```

```
docker run --privileged=true -v /var/run/docker.sock:/var/run/docker.sock -it
...
```

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edited Jun 8, 2021 at 17:57

answered Apr 24, 2020 at 10:27



Eduardo Cuomo

18.6k ● 7 ● 120 ● 97



Renu Saini

121 ● 1 ● 4

1 docker: command not found – Proximo Mar 27, 2022 at 16:16

4 @Proximo you have to install it inside the container. – Felipe Martins Melo Jun 1, 2022 at 19:33



1



I was trying my best to run containers within containers just like you for the past few days. Wasted many hours. So far most of the people advise me to do stuff like using the docker's DIND image which is not applicable for my case, as I need the main container to be Ubuntu OS, or to run some privilege command and map the daemon socket into container. (Which never ever works for me)

The solution I found was to use Nestybox on my Ubuntu 20.04 system and it works best. Its also extremely simple to execute, provided your local system is ubuntu (which they support best), as the container runtime are specifically deigned for such application. It also has the most flexible options. The free edition of Nestybox is perhaps the best method as of Nov 2022. Highly recommends you to try it without bothering all the tedious setup other people suggest. They have many pre-constructed solutions to address such specific needs with a simple command line.

The Nestybox provide special runtime environment for newly created docker container, they also provides some ubuntu/common OS images with docker and systemd in built. Their goal is to make the main container function exactly the same as a virtual machine securely. You can literally ssh into your ubuntu main container as well without the ability to access anything in the main machine. From your main container you may create all kinds of containers like a normal local system does. That systemd is very important for you to setup docker conveniently inside the container.

One simple common command to execute sysbox:

```
dock run --runtime=sysbox-runc -it any_image
```

If you think thats what you are looking for, you can find out more at their github:

<https://github.com/nestybox/sysbox>

Quicklink to instruction on how to deploy a simple sysbox runtime environment container:

<https://github.com/nestybox/sysbox/blob/master/docs/quickstart/README.md>

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edited Nov 18, 2022 at 7:49

answered Nov 18, 2022 at 7:32

