

Dealing with a disk space in Docker

Article



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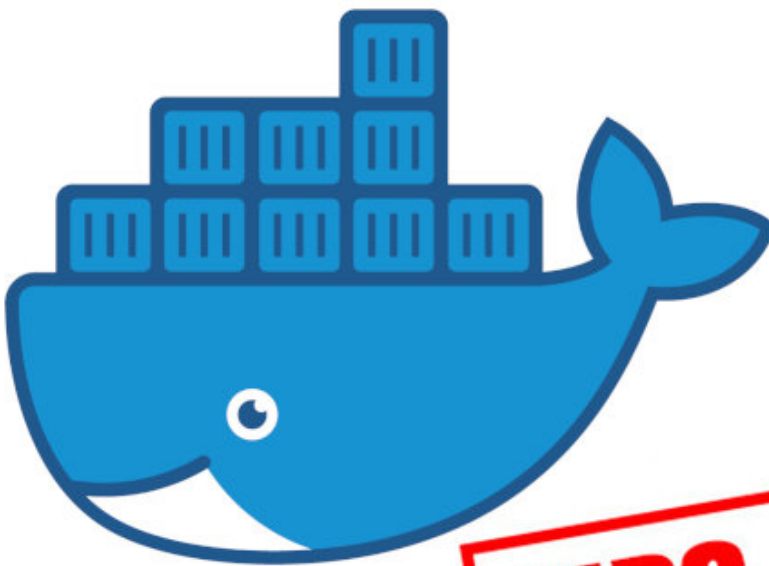
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6m read

Dealing with a disk space in Docker

I wanted to write it as a comment to [article](#) of [@Evgeny Shvarov](#) . But it happens to be so long, so, decided to post it separately.

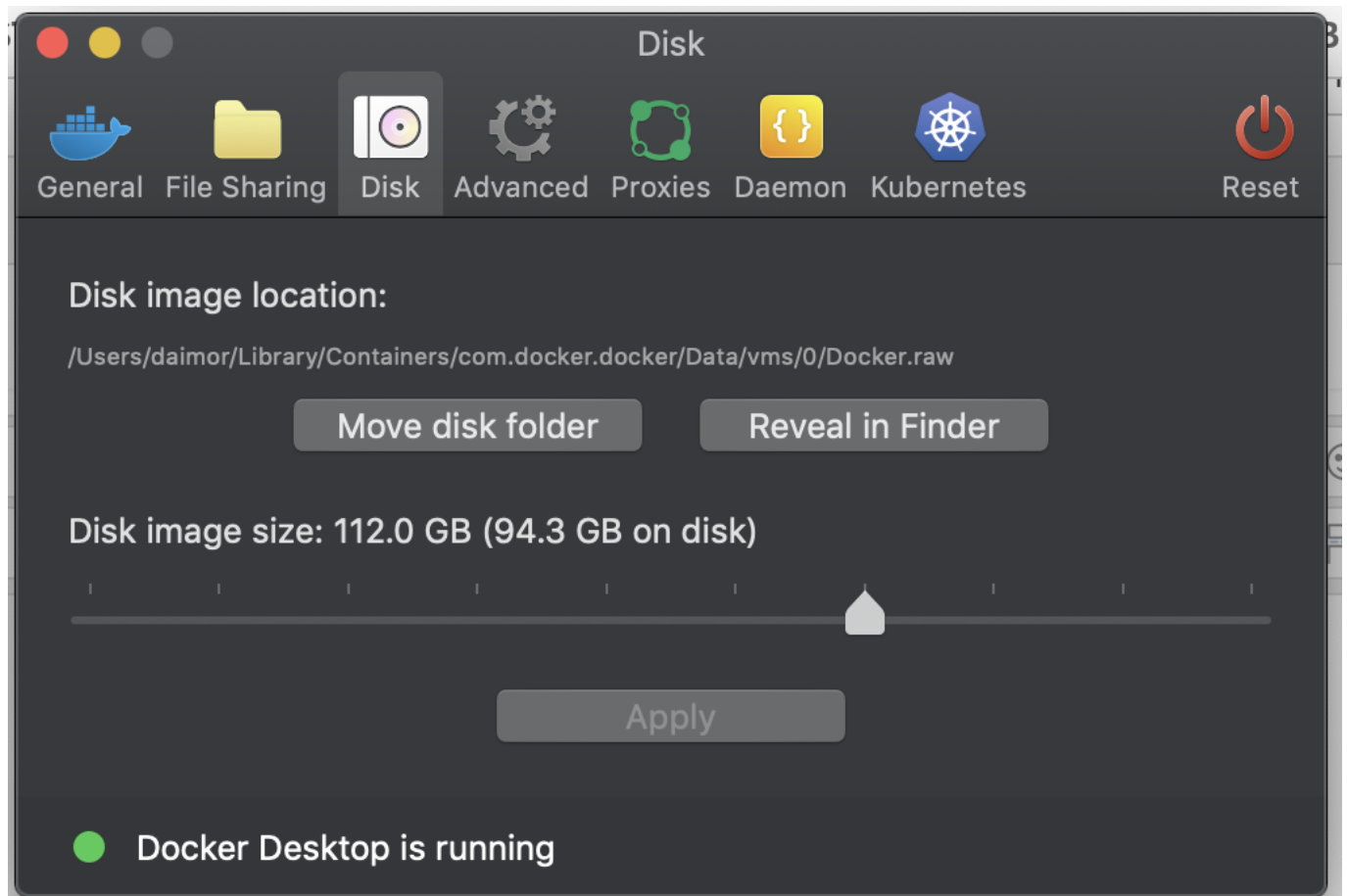


I would like to add a bit of clarification about how docker uses disk space and how to clean it. I use macOS, so, everything below, is mostly for macOS, but docker commands suit for any platform.

While docker comes from Linux, it works there on the same filesystem by default. But on Windows and macOS, it works in a small virtual machine with own Linux inside. And disk's space there is limited by settings in docker. In my case, I have configured to use up to 112 GB.

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So, when you actively working with Docker, your space inside will go out. You can check how docker spends all that space with the command.

```
$ docker system df
TYPE                TOTAL          ACTIVE          SIZE           RECLA
IMABLE
Images              84             6              66.02GB        55.6G
B (84%)
Containers          6              5              4.914GB        0B (0
%)
Local Volumes      19             4              1.812GB        342.7
MB (18%)
Build Cache         0              0              0B             0B
```

In macOS with the latest versions of Docker, used the raw format of the disk (previously was qcow2). And together with APFS filesystem in macOS, this file may take up less physical space than file size itself. Look at these two commands.

```
$ ls -lh ~/Library/Containers/com.docker.docker/Data/vms/0/Docker.raw
-rw-r--r--@ 1 daimor  staff   104G Jul 13 15:49 /Users/daimor/Library/Containers/com.
docker.docker/Data/vms/0/Docker.raw
?
```

```
$ du -h ~/Library/Containers/com.docker.docker/Data/vms/0/Docker.raw
88G    /Users/daimor/Library/Containers/com.docker.docker/Data/vms/0/Docker.raw
```

ls command shows the size of my Docker.raw file as 104Gb, while du command shows real size on the disk and it is 88Gb

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Well, docker system df showed me, that I can reclaim some space. Let's do this.

```
$ docker system prune -f
Deleted Containers:
79b3d54ae5a881e37771cfdcd1d651db9ce036abc297dc55bdd454eb287f0e329

Deleted Images:
deleted: sha256:298d555976effb112428ed3f6bcc2f4d77ab02b4f287a230d9535001184078f5
deleted: sha256:adb2c64ce6e44d837fce8067c7498574822bff90ed599d1671c126539fe652ac
deleted: sha256:9695172139ceec16f1071449daf29bd1c424353044088b92b8acbf33f59952e67
deleted: sha256:24d834b252e25e645b8b5d9194360f5ab1a26ffd2b5c03b6593b9a2c468f59fa
deleted: sha256:1b4e3e73fe0b7d88d5ec718bdc6dc6d17d9fe8ba00988eb72690d76f2da3d1a3
deleted: sha256:9f218f6c7aca9c21760ae43590a2d73b35110e10b6575125ed3ccd12c4495d6e
deleted: sha256:b2fa3335d672a0dc60ea7674c45ee3c85b9fc86584a0e21cc7f1900c368ceec3
deleted: sha256:2ecace396ab65fd393dfb2e330bece974cd952e7a41364352f9c867d9ea4c34e
deleted: sha256:16b894351fe53b95dd43d7437bbcd5104b8613bc1fa8480826e843d65fc92a3
deleted: sha256:b00d9c05035eac62f3ed99a814cd6f6ea3e4b68797b6d1203e2f41538c78c2aa
deleted: sha256:5a3d0d9f36b356cb47d3838585da6450c60e2860ef143d1406b48d3a5e72b92b
deleted: sha256:998e719368ff74d13b3a8c096ce81f8f2c4bb28bd1ccd169bfa173b4a78d2e74
deleted: sha256:a74d7ff2ca7d623134f9ce1db40da476134a733935a3f322ba34b99653c6273d
deleted: sha256:4d0dcd2bdad2cf0cb91d13313afff29326771bdac27fcb8780545687dbd39ae4
deleted: sha256:29a8989eed3d4002053f98bf562654910ee5f8836940daaa2f2344a8f29a52a2
deleted: sha256:12d34fbf938d19b193199ea6cce5d690fd0d57ec3f4d1630e1d4b3790379c9ec
deleted: sha256:75aba481bb5ccaa52a3aadf311ae22485fb2a82d69be864fe2f45f2834c5e515
deleted: sha256:326efafee9b92e06876878b21a2931ba771bc0e0b2b359f906ef6cca1d297905
deleted: sha256:913937f4ea932fcb00b6c6b3007970296955aa4f488d6fbaa1a575a5aa4ff5ab
deleted: sha256:f3fc0c75858a36ff9d3f4e8eb7a96f511158bbac92d128760b0d3340d828c5da
deleted: sha256:c002dde1ea6a02ae3e3037442a5c556a925e3e4750a6b2aa923c51fa3d11f5ac
deleted: sha256:e763f6e226613c67aaf5984e4c74b9f6e9e28e0490a4f3286885f498a57d3fa0
deleted: sha256:e7daf0a1574376c8602515dc70e44392d16e1b79013d6e81a9b697794432e660
deleted: sha256:ce33670f78109dcacc73a7c6d70f4b5cd4a13bcfe7878b9df5e4e16b812e5df4
deleted: sha256:95bf79e86f83ed16943f9c34035bf8167a4b89466a05d6793c2957d6d46bab2d
deleted: sha256:056d184391613b33303ccf3818a95a17398e9da813d093a6ee5d87952539380c

Total reclaimed space: 5.537GB
```

This command deletes any stopped containers and any non-tagged images which not in use by any tagged images. And can be deleted safely.

You maybe noticed that it was reclaimed just only 5.5 GB, while docker system df said about 55GB. That's because, df counts all not active images, not just dangled ones. If you want to delete all those images as well, you can use this command. Which deletes any images which not used in running containers at the moment. So, if you don't have any running containers, it will delete all local images.

```
docker system prune -a
```

I just reclaimed only dangled images and stopped containers. How much space my docker use now.

```
$ docker system df
TYPE                TOTAL                ACTIVE                SIZE                RECLA
IMABLE
Images              83                  5                   60.48GB            50.1G
B (82%)
Containers          5                   5                   4.914GB            0B (0
%)
```

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Local Volumes	19	3	1.812GB	342.7
MB (18%)				
Build Cache	0	0	0B	0B

As you can see, it uses already less size. Is will show the same result. Size of the file mostly grows.

```
$ ls -lh ~/Library/Containers/com.docker.docker/Data/vms/0/Docker.raw
-rw-r--r--@ 1 daimor  staff   104G Jul 13 16:07 /Users/daimor/Library/Containers/com.
docker.docker/Data/vms/0/Docker.raw
```

But for macOS is mostly important how much space is used on a physical disk.

```
$ du -h ~/Library/Containers/com.docker.docker/Data/vms/0/Docker.raw
69G    /Users/daimor/Library/Containers/com.docker.docker/Data/vms/0/Docker.raw
```

And as you can see it now 69GB, and it is about 19GB less than it was before.

So, for macOS users, it does not really matter how much size of the file, with APFS optimizations it can be less in reality.

Another way to prune old images with some filter by creation date. Like this example, will delete all images which were created more than 10 days ago, but will keep images which currently in use by containers.

```
$ docker image prune --all --filter until=240h
```

```
70  2  4  3,049  3
```

Source URL: <https://community.intersystems.com/post/dealing-disk-space-docker>