

How to Back up and Restore Docker Image(s)?

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By default, if you want to create a Docker container on your server, you can download the required image directly using the **docker pull** command. But sometimes, there are some cases where you cannot download the image directly from the internet, and you have to back up the existing image and then restore the image to a server.

Problem

How to back up and restore Docker image(s)?

Solution

I have a server that, due to security issues, cannot be connected to the internet, while on the server, many applications run using Docker. Because it cannot directly download the Docker image, I have to download the Docker image on a server that is connected to the internet, and then the image will be installed on this server.

A. Backup Docker image

To back up a Docker image, use the format below:

```
docker image save -o image_name.tar image_name:tag
```

For example, if you want to back up the nginx image, then use the command below:

```
docker image save -o nginx.tar nginx
```

Wait until the process is complete, and if it is finished,

the backup image file will be formed as shown below:

```
sysadmin@ubuntu2404:~$ docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
nginx         latest    60c8a892f36f   6 months ago   192MB
sysadmin@ubuntu2404:~$
sysadmin@ubuntu2404:~$ docker image save -o nginx.tar nginx
sysadmin@ubuntu2404:~$
sysadmin@ubuntu2404:~$ ls
get-docker.sh  nginx.tar
sysadmin@ubuntu2404:~$
```

Back up one Docker image

But use the format below if you want to back up more than one image:

```
docker image save -o image1_name.tar image2_name:tag ...
```

I have more than one Docker image on my server, so I want to back up all the images so I can run the images on my other server, which is not connected to the internet. Then use the command below to back up the docker image of more than one Docker image:

```
docker image save -o all_images.tar alpine redis nginx
```

And the backup image file should be formed according to the image below:

```
sysadmin@ubuntu2404:~$ docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
alpine        latest    aded1e1a5b37   7 weeks ago    7.83MB
redis         latest    65750d044ac8   3 months ago   117MB
nginx         latest    60c8a892f36f   6 months ago   192MB
sysadmin@ubuntu2404:~$
sysadmin@ubuntu2404:~$ docker image save -o all_images.tar alpine redis nginx
sysadmin@ubuntu2404:~$
sysadmin@ubuntu2404:~$ ls
all_images.tar  get-docker.sh  nginx.tar
sysadmin@ubuntu2404:~$
```

Backup more than one docker image

B. Restore Image Docker

After you back up the Docker image, move your Docker image to the desired server. To restore the Docker image, use the format below:

```
docker image load -i image_name.tar
```

So I restored the Docker image backup file using the command below:

```
docker image load -i nginx.tar
```

Then the Nginx image will be restored on the server as shown below:

```
sysadmin@docker:~$ docker images
REPOSITORY    TAG       IMAGE ID      CREATED       SIZE
sysadmin@docker:~$ docker image load -i nginx.tar
Loaded image: nginx:latest
sysadmin@docker:~$ docker images
REPOSITORY    TAG       IMAGE ID      CREATED       SIZE
nginx         latest   60c8a892f36f  6 months ago  192MB
```

Restore one Docker image

With the same command, you can also restore more than one image using the command below:

```
docker image load -i all_images.tar
```

Then all Docker images will be restored on that server, like in the image below:

```

sysadmin@docker:~$ docker images
REPOSITORY    TAG                IMAGE ID           CREATED          SIZE
sysadmin@docker:~$
sysadmin@docker:~$ docker image load -i all_images.tar
08000c18d16d: Loading layer 8.121MB/8.121MB
Loaded image: alpine:latest
ea680fbff095: Loading layer 77.9MB/77.9MB
1910dfbcb631: Loading layer 10.75kB/10.75kB
aaf201c773fb: Loading layer 10.75kB/10.75kB
98ad392b916a: Loading layer 4.144MB/4.144MB
6108f9e7c02c: Loading layer 38.12MB/38.12MB
319c2310f2be: Loading layer 1.536kB/1.536kB
5f70bf18a086: Loading layer 1.024kB/1.024kB
570897943907: Loading layer 4.096kB/4.096kB
Loaded image: redis:latest
Loaded image: nginx:latest
sysadmin@docker:~$
sysadmin@docker:~$ docker images
REPOSITORY    TAG                IMAGE ID           CREATED          SIZE
alpine        latest            aded1e1a5b37      7 weeks ago     7.83MB
redis         latest            65750d044ac8      3 months ago    117MB
nginx         latest            60c8a892f36f      6 months ago    192MB

```

Restore more than one Docker image

Note

You can use the command below to back up the Docker image using the format below:

```
docker save image_name | gzip -c > image_name.tgz
```

So if you want to back up the Nginx image, use the command below:

```
docker save nginx | gzip -c > nginx.tgz
```

The advantage of using this command is that the size of the backup file is much smaller than using the previous command, as shown in the image below:

```
sysadmin@docker:~$ ls -lh
total 496M
-rw----- 1 sysadmin sysadmin 310M Apr  9 14:11 all_images.tar
-rw-rw-r-- 1 sysadmin sysadmin  22K Nov 24 10:03 get-docker.sh
-rw----- 1 sysadmin sysadmin 187M Apr  9 09:53 nginx.tar
sysadmin@docker:~$
sysadmin@docker:~$ docker save nginx | gzip -c > nginx.tgz
sysadmin@docker:~$ docker save nginx redis alpine | gzip -c > all_images.tgz
sysadmin@docker:~$
sysadmin@docker:~$ ls -lh
total 677M
-rw----- 1 sysadmin sysadmin 310M Apr  9 14:11 all_images.tar
-rw-rw-r-- 1 sysadmin sysadmin 114M Apr  9 14:44 all_images.tgz
-rw-rw-r-- 1 sysadmin sysadmin  22K Nov 24 10:03 get-docker.sh
-rw----- 1 sysadmin sysadmin 187M Apr  9 09:53 nginx.tar
-rw-rw-r-- 1 sysadmin sysadmin  68M Apr  9 14:34 nginx.tgz
sysadmin@docker:~$
```

Back up the Docker image using another command

To restore, use the format below:

```
gunzip -c filename.tgz | docker load
```

So if you want to restore more than one image, use the command below:

```
gunzip -c all_images.tgz | docker load
```

And the Docker image will be restored on the server.

```

sysadmin@docker:~$ docker images
REPOSITORY    TAG       IMAGE ID   CREATED   SIZE
sysadmin@docker:~$
sysadmin@docker:~$ gunzip -c all_images.tgz | docker load
Loaded image: nginx:latest
Loaded image: redis:latest
Loaded image: alpine:latest
sysadmin@docker:~$
sysadmin@docker:~$ docker images
REPOSITORY    TAG       IMAGE ID   CREATED   SIZE
alpine        latest    aded1e1a5b37  7 weeks ago  7.83MB
redis         latest    65750d044ac8  3 months ago  117MB
nginx         latest    60c8a892f36f  6 months ago  192MB
sysadmin@docker:~$

```

Restore the backup Docker image using another command

References

youtube.dimas-maryanto.com

youtube.com

docs.docker.com

stackoverflow.com