How to Storage Mount Using Bind Mount on Docker?

written by sysadmin | 14 June 2025

The previous article explained how to make storage using volume in Docker. This article will explain how to make storage using Bind Mount.

Problem

How to storage mount using bind mount on Docker?

Solution

A bind mount is a method of hosting a directory or file that is directly mounted into a container. Since they aren't isolated by Docker, both non-Docker processes on the host and container processes can modify the mounted files simultaneously. So, you can change the data from the host, and those changes will be reflected in the container. This method is useful for development environments where code must be updated and tested in real-time. There are 2 ways when use bind mount:

A. using -v option

This option (using **-v** or **--volume**) uses three fields, separated by colon characters (:). The fields must be in the correct order, and the meaning of each field is not immediately obvious. To use this option, use the format below:

```
docker run -d –name container_name -v
/path/folder/in/server:/path/folder/in/container[:opts]
image_name:tag
```

INFO

opts is the abbreviation for options like readonly, private, z, Z, and so on. The third field is optional, and is separated by colon characters. You can see the options and their descriptions on this page.

To see more detailed information about mounting a container, use the format below:

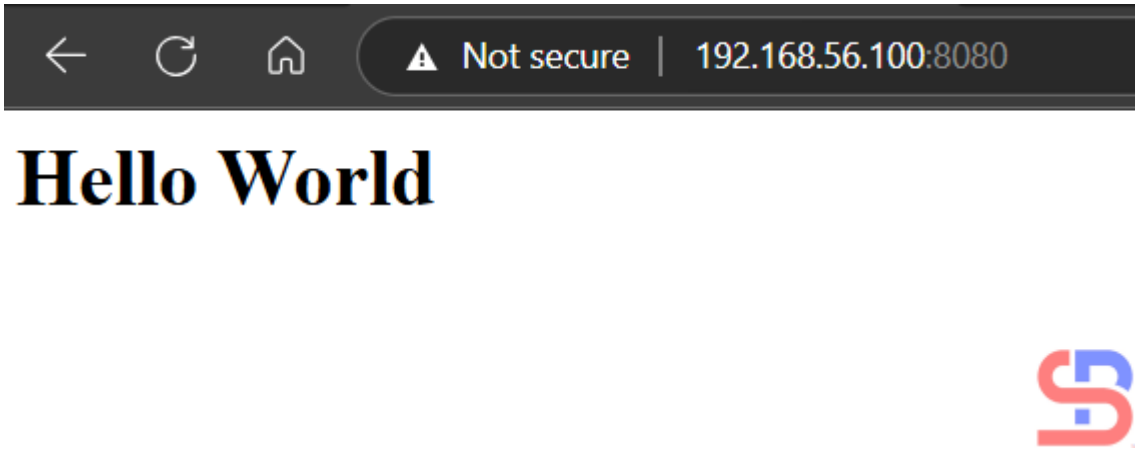
```
docker inspect container_name -f "{{json .Mounts}}" | python3 -m json.tool
```

For example, you want to create a container with a nginx webserver that can be accessed with port **8080** with sources in folder **/home/sysadmin/web** and destination to the folder **/usr/share/nginx/html** on container, so first make a web folder in the server, and create a simple site then create a container using the command below:

```
mkdir /home/sysadmin/web
echo "<h1>Hello World</h1>" > web/index.html
docker run -d --name webapp1 -p 8080:80 -v
/home/sysadmin/web:/usr/share/nginx/html nginx
docker inspect webapp1 -f "{{json .Mounts}}" | python3 -m json.tool
docker exec webapp1 cat /usr/share/nginx/html/index.html
```

Execute the commands

You can see from the image above that the index.html file in the container only displays the hello world sentence, so when you open the browser then the displays in the browser as shown below:



The display of the website

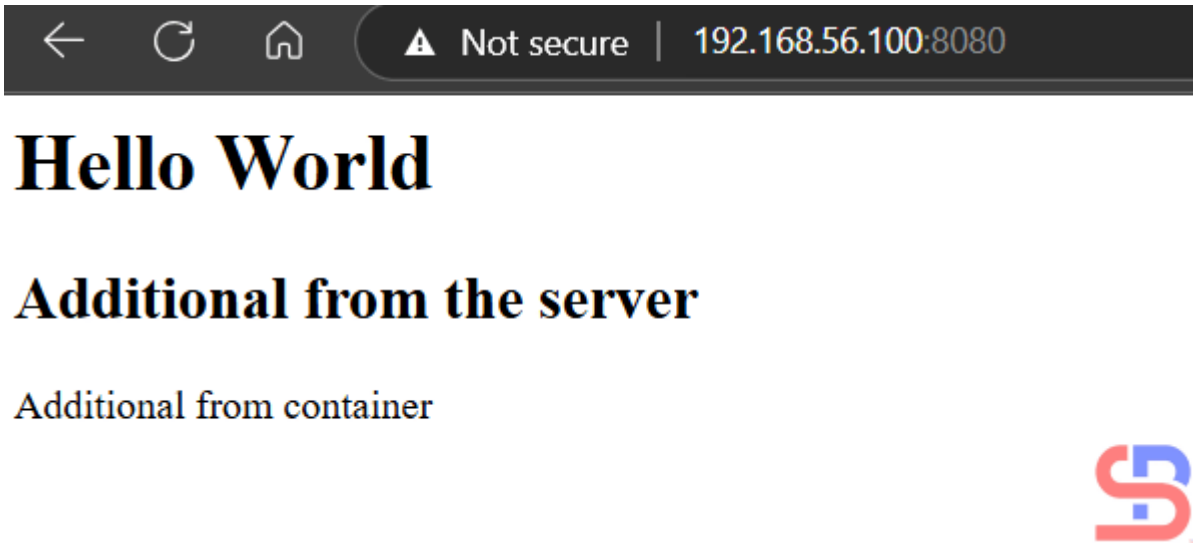
You can change the appearance of the website in the index.html file on the server or in the container. For example, you add the script below to the file on the server:

```
echo "<h2>Additional from server</h2>" >> web/index.html
```

Likewise, if you add the script below to the container:

```
docker exec webapp1 bash -c "echo Additional from container >>
/usr/share/nginx/html/index.html"
```

Both scripts will be included in the index.html file and will be displayed on the website as shown below:



Display of the website after additional scripts

B. Using --mount Option

In general, these options are more explicit and verbose. This option consists of multiple key-value pairs, separated by commas, and each consisting of a **<key>=<value>** tuple. The biggest difference is that the -v syntax combines all the options in one field, while the –mount syntax separates them. The –mount syntax is more verbose than -v or –volume, but the order of the keys is not significant, and it is easier to understand. To use this option, use the format below:

```
docker run -d --name container_name --mount
type=type_mount,source=/path/folder/in/server,destination=/path/folder/in/con
tainer[,<key>=<value>...] image_name:tag
```

INFO

The third field is optional, and is separated by commas like readonly, bind-propagation, and so on. You can see the options and their descriptions on this page.

For example, you want to create a container with an Apache web server that can be accessed on port **8081** with sources in the folder **/home/sysadmin/mount** and destination to the folder **/usr/local/apache2/htdocs** on the container, so first make the mount folder in the server, then make the container using the command below:

```
mkdir /home/sysadmin/mount
echo "<h1>Learn --mount option</h1>" > mount/index.html
docker run -d --name webapp2 -p 8081:80 --mount
type=bind,source=/home/sysadmin/mount,destination=/usr/local/apache2/htdocs
httpd
docker inspect webapp2 -f "{{json .Mounts}}" | python3 -m json.tool
docker exec webapp2 cat /usr/local/apache2/htdocs/index.html
```

```
sysadmin@docker:~$ mkdir /home/sysadmin/mount
sysadmin@docker:~$ echo "<h1>Learn --mount option</h1>" > mount/index.html
sysadmin@docker:~$ docker run -d --name webapp2 -p 8081:80 --mount type=bind,source=/home/sysadmin/mount,destination=/usr/local/apache2/htdocs httpd
5376279999b798a6f70f4ced5de48b07e387202984327421936d682a0fdcbb35
sysadmin@docker:~$ docker inspect webapp2 -f "{{json .Mounts}}" | python3 -m json.tool
[
    {
        "Type": "bind",
        "Source": "/home/sysadmin/mount",
        "Destination": "/usr/local/apache2/htdocs",
        "Mode": "",
        "RW": true,
        "Propagation": "rprivate"
    }
]
sysadmin@docker:~$ docker exec webapp2 cat /usr/local/apache2/htdocs/index.html
<h1>Learn --mount option</h1>
sysadmin@docker:~$
```

Execute the commands

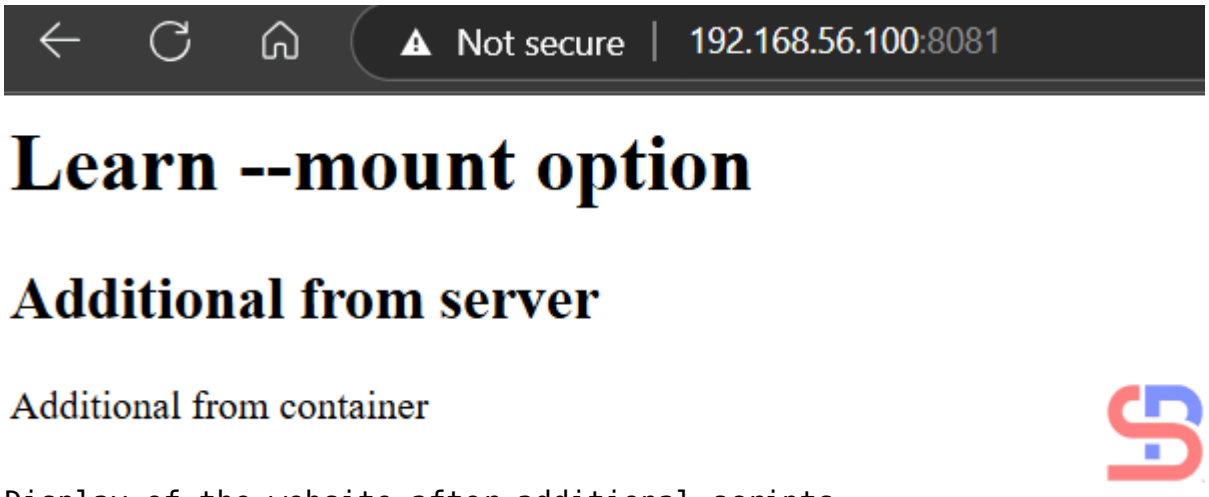
Like using the **-v** option, you can change the appearance of the website in the index.html file on the server or in the container. For example, you add the script below to the file on the server:

```
echo "<h2>Additional from server</h2>" >> mount/index.html
```

Likewise, if you add the script below to the container:

```
docker exec webapp2 bash -c "echo Additional from container >> /usr/local/apache2/htdocs/index.html"
```

Both scripts will be included in the index.html file and will be displayed on the website as shown below:



Display of the website after additional scripts

Note

The only difference between the two options above is how the commands are executed; otherwise, the results would be identical.

References

youtube.dimas-maryanto.com
youtube.com
docs.docker.com
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