

# How to use Local Docker as SSH Host in Clion

# 0. Machine Species of Docker

- For native Ubuntu, just follow the readme.md and install docker via command lines.
  - Please skip Section 0 or go to Docker on Ubuntu
- For Windows, most are the same, but please note the following specifics before continue:
  - **You should have power shell and run in administrator**
  - All of the following linux commands are available and the same in the power shell of Windows 11
  - Do not use CMD or other command lines!

# Docker on Windows 11

- Go to <https://docs.docker.com/desktop/install/windows-install/>, follow the guides
- **Reboot computer**, run docker desktop as administrator
  - **Do not skip the rebooting!!!!**
  - Possible problems:  
<https://stackoverflow.com/questions/61530874/docker-how-do-i-add-myself-to-the-docker-users-group-on-windows>
- After the Docker GUI shows up, just leave it there
- Now go to the following, using power shell adm, as if it is Ubuntu rather than Windows
  - The differences, if any, are highlight

# Docker on Ubuntu

- Just run `DockerOnNativeUbuntu.sh` at `docker/`
- Wait and fishing a while... That's it
-

# 1. Create the container as follows (Ubuntu)

```
tony@MOSS02:~/projects/temp/CANDY/docker$ sudo bash start.sh
Removing network docker_default
Building candy
[+] Building 554.9s (11/11) FINISHED                                docker:default
=> [internal] load build definition from Dockerfile                0.0s
=> => transferring dockerfile: 1.22kB                               0.0s
=> [internal] load metadata for docker.io/nvidia/cuda:11.7.1-cudnn8-devel-ubuntu22.04 2.1s
=> [internal] load .dockerignore                                  0.0s
=> => transferring context: 2B                                       0.0s
=> CACHED [1/7] FROM docker.io/nvidia/cuda:11.7.1-cudnn8-devel-ubuntu22.04 0.0s
```

```
PS D:\CANDY\docker> bash start.sh
WARN[0000] /mnt/d/CANDY/docker/docker-compose.yml: the attribute `version` is obsolete, it will be ignored, please remove it to avoid potential confusion
WARN[0000] /mnt/d/CANDY/docker/docker-compose.yml: the attribute `version` is obsolete, it will be ignored, please remove it to avoid potential confusion
[+] Building 36333.7s (6/12)                                docker:default
=> [candy internal] load build definition from Dockerfile                0.0s
=> => transferring dockerfile: 1.37kB                               0.0s
=> [candy internal] load metadata for docker.io/nvidia/cuda:11.7.1-cudnn8-devel-ubuntu22.04 3.3s
=> [candy internal] load .dockerignore                                  0.0s
=> => transferring context: 2B                                       0.0s
=> [candy 1/9] FROM docker.io/nvidia/cuda:11.7.1-cudnn8-devel-ubuntu22.04@sha256:38e59267704b5d91ef63c7d8f6133 135.8s
```

- Please just run without sudo in Windows
- If your windows has docker with wsl, just follow the picture
- If your windows has only docker, than use ./start.sh instead of bash start.sh

# 1. Create the container as follows (Windows 11)

[illegible]

- You'd better not use C:
- Run 'cd' to the folder where there is this \*.pdf
- Please just run without sudo in Windows as above
- If your windows has docker with wsl, just follow the picture
- If your windows has only docker, than use ./start.sh instead of bash start.sh

# If you go to play War thunder and go back in 20 minutes, you should see this

```
=> => writing image sha256:efc8241e01aa2a22b06fd347d953ac70e74a3f3227040 0.0s
=> => naming to docker.io/library/docker_candy 0.0s

1 warning found (use docker --debug to expand):
- SecretsUsedInArgOrEnv: Do not use ARG or ENV instructions for sensitive data
(ENV "PASSWD") (line 4)
Creating network "docker_default" with the default driver
Creating docker_candy_1 ... done
Docker container is running. You can connect via SSH with:
ssh root@<remote_server_ip> -p 2222
```

# For Windows, there may be some power shell bugs, but pls just ignore

```
=> CANCELED [candy 2/9] RUN apt-get update && apt-get install -y --
anceled
ARN[0000] /mnt/wsl/docker-desktop-bind-mounts/Ubuntu-22.04/3f194e21
f11/docker/docker-compose.yml: the attribute `version` is obsolete,
ial confusion
+] Running 2/2
✓ Network docker_default      Created
✓ Container docker-candy-1    Started
ocker container is running. You can connect via SSH with:
sh root@<remote_server_ip> -p 2222
rror response from daemon: No such container: docker_candy_1
S D:\CANDY\docker> bash start.sh_
```

(The ‘error response’ is a false alarm)



# Then do something like this

```
Creating network "docker_default" with the default driver
Creating docker_candy_1 ... done
Docker container is running. You can connect via SSH with:
ssh root@<remote_server_ip> -p 2222
root@313388752f9a:/workspace# tony@MOSS02:~/projects/temp/CANDY/docker$ sudo bas
docker image rm docker_candy^C
tony@MOSS02:~/projects/temp/CANDY/docker$ ssh candy@127.0.0.1
ssh: connect to host 127.0.0.1 port 22: Connection refused
tony@MOSS02:~/projects/temp/CANDY/docker$ ssh candy@127.0.0.1 -p 2222
candy@127.0.0.1's password:
Welcome to Ubuntu 22.04.3 LTS (GNU/Linux 6.8.0-45-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

This system has been minimized by removing packages and content that are
not required on a system that users do not log into.
```

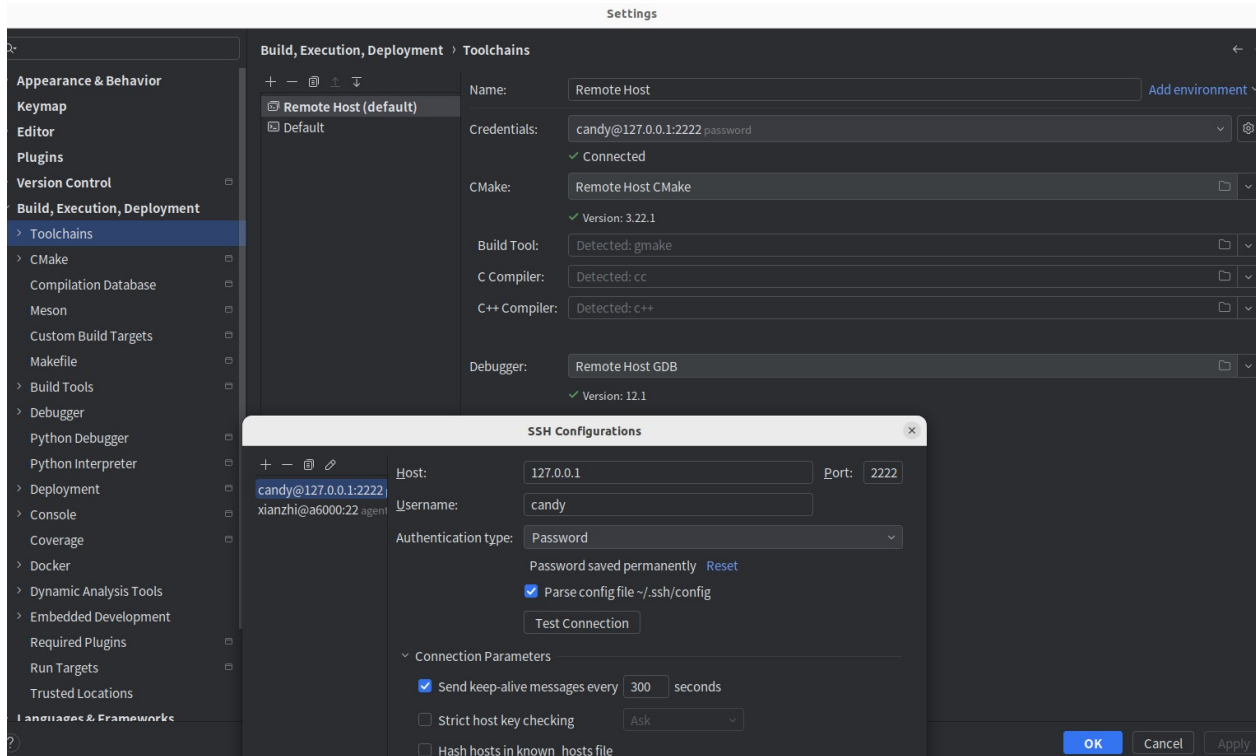
```
PS D:\CANDY\docker> ssh candy@127.0.0.1 -p 2222
candy@127.0.0.1's password:
Welcome to Ubuntu 22.04.3 LTS (GNU/Linux 5.15.153.1-micros

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

This system has been minimized by removing packages and co
not required on a system that users do not log into.

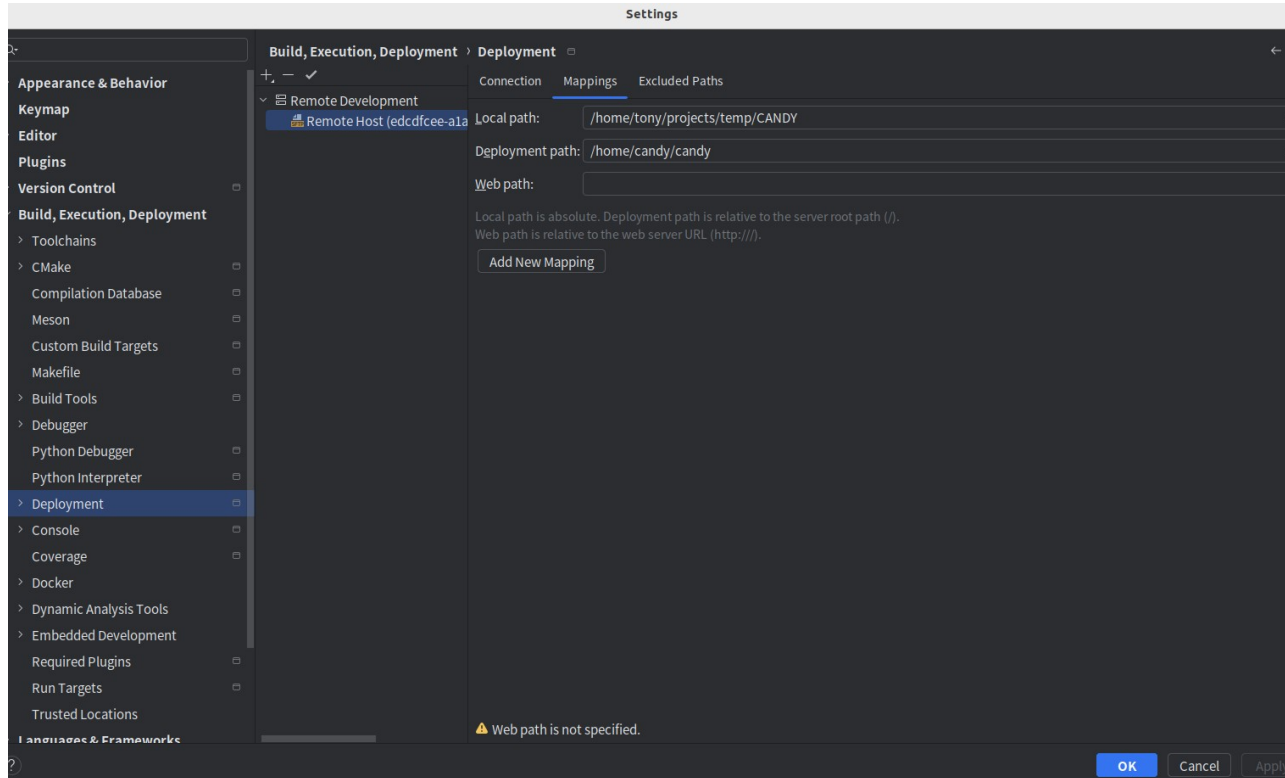
To restore this content, you can run the 'unminimize' com
Last login: Wed Oct 16 02:11:28 2024 from 172.18.0.1
$
```

## 2. Go to Clion, add the host



Do change the port into 2222!

# 3. Change the mapping



# 4. Restart Clion, force cmake to refresh, and enjoy!



A screenshot of the Clion IDE's 'Build' tab. The window title is 'docker-compose.yml'. The 'Messages' pane shows the build progress for the 'all' target in 'Debug' mode. The build command is `/usr/bin/cmake --build /home/candy/candy/cmake-build-debug --target all -- -j 30`. The progress bar shows 100% completion. The build output lists the following targets: CANDY, benchmark\_tool, db\_client, query\_tool, pycandy, Catch2, Catch2WithMain, core\_tests, and torch\_tests. The final status is 'Build finished'.

```
===== [ Build | all | Debug ] =====  
/usr/bin/cmake --build /home/candy/candy/cmake-build-debug --target all -- -j 30  
[ 20%] Built target CANDY  
[ 25%] Built target benchmark_tool  
[ 42%] Built target db_client  
[ 78%] Built target query_tool  
[ 80%] Built target pycandy  
[ 96%] Built target Catch2  
[ 97%] Built target Catch2WithMain  
[ 98%] Built target core_tests  
[100%] Built target torch_tests  
  
Build finished
```

```
README.md      commit.sh  docs          test  
$ ls /home/candy/candy  
CANDY.cbp      apps       commit.sh     docs          test  
CMakeLists.txt build      commit_info   include  
LICENSE        cmake     detect_cuda_arch.py python_bindings  
README.md      cmake-build-debug docker        src  
$
```