OCR4all

A semi-automatic Open Source Software aimed at the OCR of Historical Printings

Setup Guide

Version 2.2, November 2020

To be always up to date, especially with a view to new image releases and other innovations around OCR4all, please make sure to subscribe to our mailing list OCR4all.

Preparation

- You have to prepare the following folder structure:

    - *ocr4all* (main folder)
        - *models* (folder for the neural network models)
        - *data* (folder for the documents you want to recognize)
            - **work title** (folder that contains all data of a single, specific print/book)
                - *input* (folder for original, coloured/grayscaled book scans on page level)

- This structure can be created provisionally anywhere in your system. However, depending on your system (Linux, Windows, MacOS), you might have to move it later, see below.

Choosing the right Docker version

- You will need the Community Edition (CE) of Docker for installation.
- **Recommendation:**
    - If you can: **Use Linux!**
    - Else, try to use a more recent Windows version that is compatible with *Docker for Windows*. The procedure for the *Docker Toolbox* version is more complicated and error-prone.
- For Linux: https://docs.docker.com/install/ (choose your distribution on the left)
- For Windows:
    - There are two ways of using Docker on Windows: *Docker for Windows* and the *Docker Toolbox*.
    - *Docker for Windows*:
        - Available for Windows 10, 64 bit: Pro, Enterprise or Education (Build 14393 or later; check for your version, which can be found in your *System Information*)
        - https://docs.docker.com/docker-for-windows/release-notes/ (If you do not want to register, do not chose “Download Docker for Windows” right away, but instead use “Download” under the “Stable Releases” section below)
    - *Docker Toolbox* for other (older) versions of Windows: https://docs.docker.com/toolbox/toolbox_install_windows/
- Mac: https://docs.docker.com/docker-for-mac/
    - Like with Windows, there is *Docker for Mac* und the *Docker Toolbox*: https://docs.docker.com/docker-for-mac/docker-toolbox/
    - However, these will not be covered in this guide.

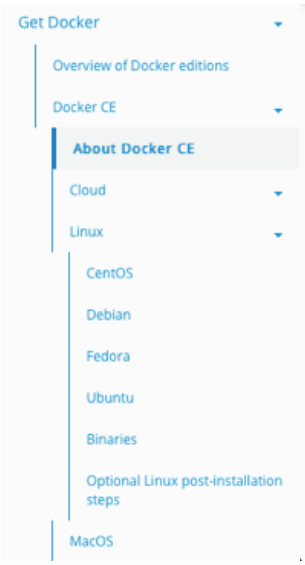
Following up, you will find three separate guides, each for a Linux system, *Docker for Windows* and for the *Docker Toolbox* (using Windows).

You can copy the different terminal commands without line breaks from the accompanying file *calls.txt*.

Linux

Docker setup

- Follow the instructions under https://docs.docker.com/install/ …



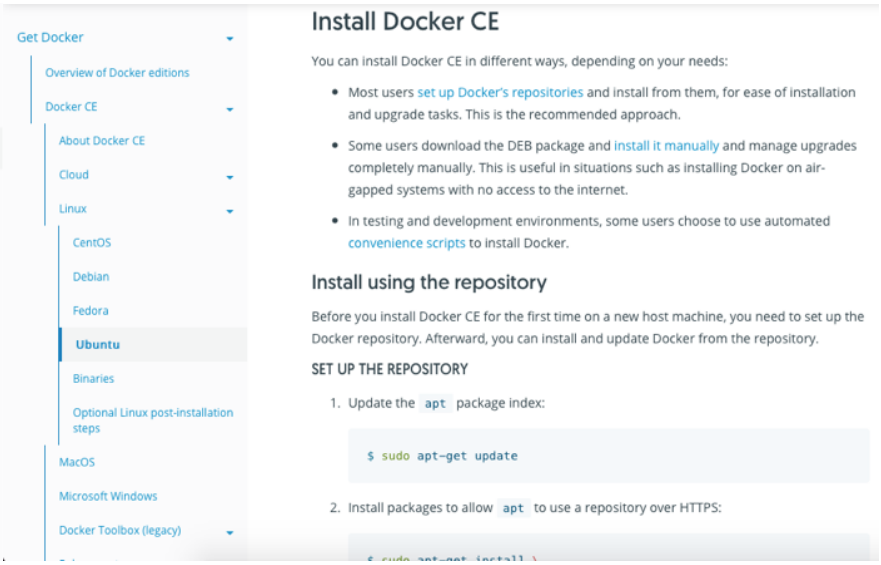


Fig. 1: Choose Linux under Docker CE. *Fig. 2: Choose your Linux version and follow the instructions.*

- … and appreciate that everything works without further adjustments!

OCR4all setup

- The OCR4all folder structure detailed above (“Preparation”) can be located anywhere you want.
- **Open a terminal inside the OCR4all folder** and load an OCR4all image by using the following command (this will take up a few minutes and requires a stable connection to the internet):

  docker pull ls6uniwue/ocr4all

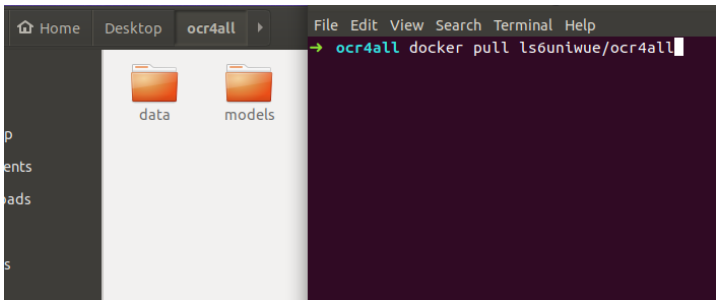


Fig. 3: Load the OCR4all image via a terminal inside the OCR4all folder.

- Create the OCR4all container using the following command:

  *docker run -p 1476:8080 -p 5000:5000 -u `id -u root`:`id -g $USER` --name ocr4all *
  *-v $PWD/data:/var/ocr4all/data *
  *-v $PWD/models:/var/ocr4all/models/custom *
  -it ls6uniwue/ocr4all

  (Once again, this may take a while)

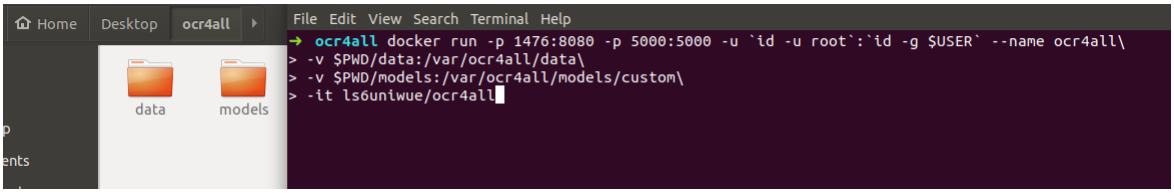


Fig. 4: Create an OCR4all container.

Browser access and further use

- OCR4all is optimized for Chrome/Chromium.
- Browser access: http://localhost:1476/ocr4all/
- In the browser tool, check *Project Overview -> Project selection:* If you can find the two pre-loaded books called "Cirurgia" and "GNM", the mapping (-v *$PWD/data:/…*) is working properly.

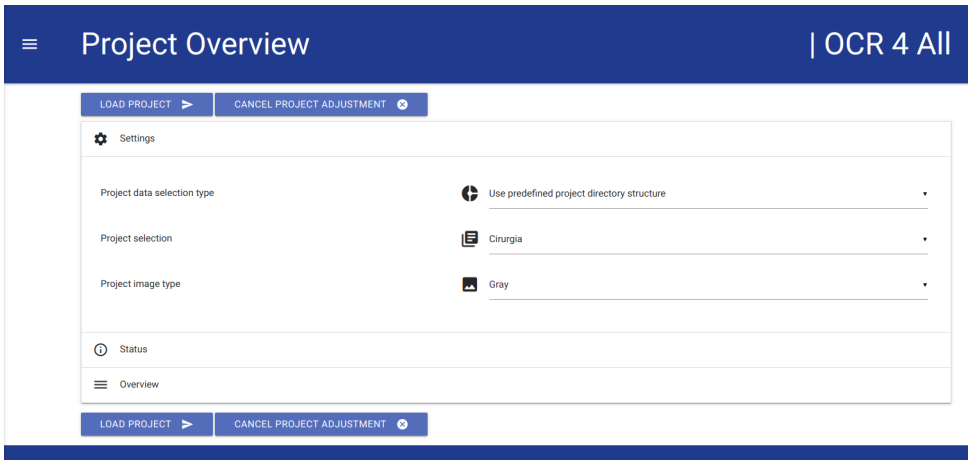


Fig. 5: Project Overview – mapping is working.

Otherwise, it´s likely that there was a typo in the "docker run" command, so you will have to create the container again. First, delete the container you just created:

Stop the process in the terminal using *CTRL+C*, then type:
docker rm ocr4all

Check and correct your command (as with most terminals, you can sift through your previous commands using the arrow keys), especially the "-v *$PWD/data:/…*"-lines, then run it again.

- If everything is set up properly, you can (and should!) restart OCR4all in the future by using:

docker start –ia ocr4all

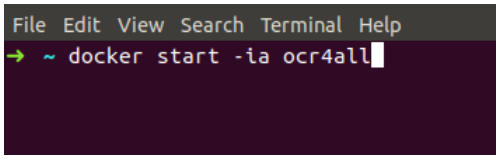


Fig. 6: Command to (re-)start OCR4all.

Docker for Windows

Docker setup

- Follow the installation guide under https://docs.docker.com/docker-for-windows/release-notes/.

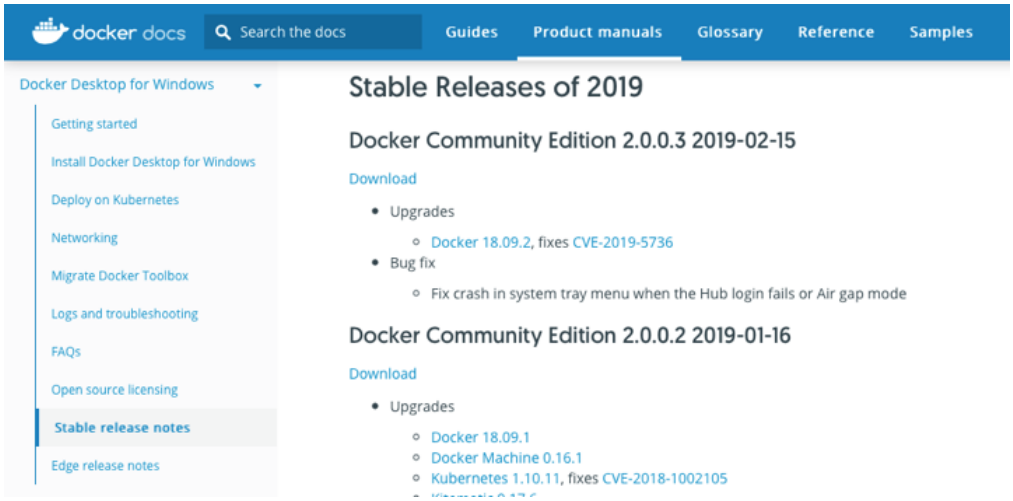


Fig. 7: Download the latest Docker for Windows version from "Stable release notes".

Make sure to give all needed permissions, install all additional drivers etc.

- Start Docker.
- Adjust the Docker settings (Right-click on the Docker symbol in the hidden bottom-right toolbar, then chose *Settings*):
  - *Shared Drives*: Chosen drive (or partition).
    - You will need at least one. Our recommendation: Simply use "C:".

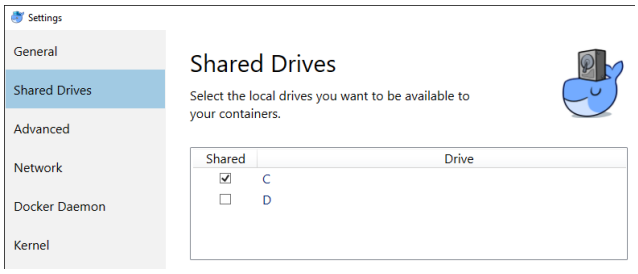


Fig. 8: Shared drives.

    - Click *Apply*. (Attention: This requires a valid, non-empty Windows password. Changing or removing the password later results in a silent removal of your Docker privileges!).
  - *Advanced*: Adjust CPUs (max) and Memory (2GB+) if you want to.

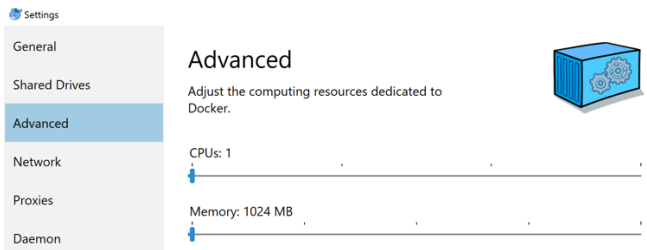


Fig. 9: Adjust CPUs and Memory if you want.

OCR4all setup

- Move the OCR4all folder structure detailed above (“Preparation”) to the shared drive (or partition). In the following example, we use “C:\Users\Public\ocr4all\...”. We recommend to use the same for the first setup.
- **Inside the OCR4all folder, open PowerShell** (Shift + right click inside OCR4all folder -> Open PowerShell window here) and load an OCR4all image using the following command (this will take up a few minutes and requires a stable connection to the internet):

  docker pull ls6uniwue/ocr4all

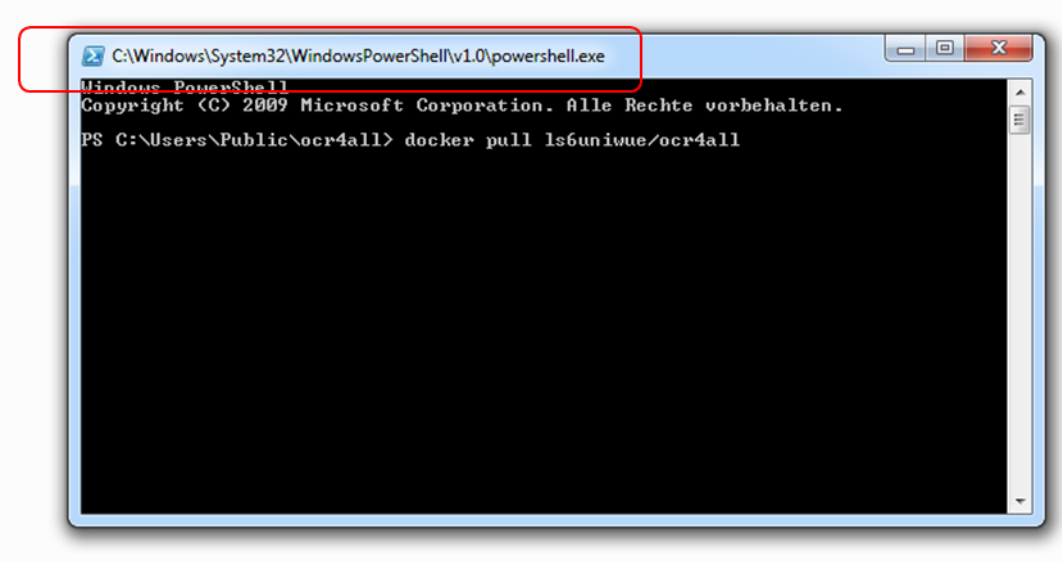


Fig. 10: Load the OCR4all image via Windows PowerShell inside the OCR4all folder.

- Create the OCR4all container using the following command (Note: this works only for the recommended setup, i.e. when the OCR4all folder is located in “C:\Users\Public\...”)

  docker run -p 1476:8080 -p 5000:5000 --name ocr4all
  *-v **C:\Users\Public\ocr4all\data**:/var/ocr4all/data*
  *-v **C:\Users\Public\ocr4all\models**:/var/ocr4all/models/custom*
  -it ls6uniwue/ocr4all

  Alternatively, you will have to adjust the paths marked in bold print.
  - Use absolute paths!
  - Use auto completion!
  - It is recommended to not use print working directory (PWD) in this case.

Browser access and further use

- OCR4all is optimized for Chrome/Chromium.
- Browser access: http://localhost:1476/ocr4all/
- In the browser tool, check *Project Overview -> Project selection:* If you can find the two pre-loaded books called “Cirurgia” und “GNM”, the mapping (-v C:\Users\...) is working properly.

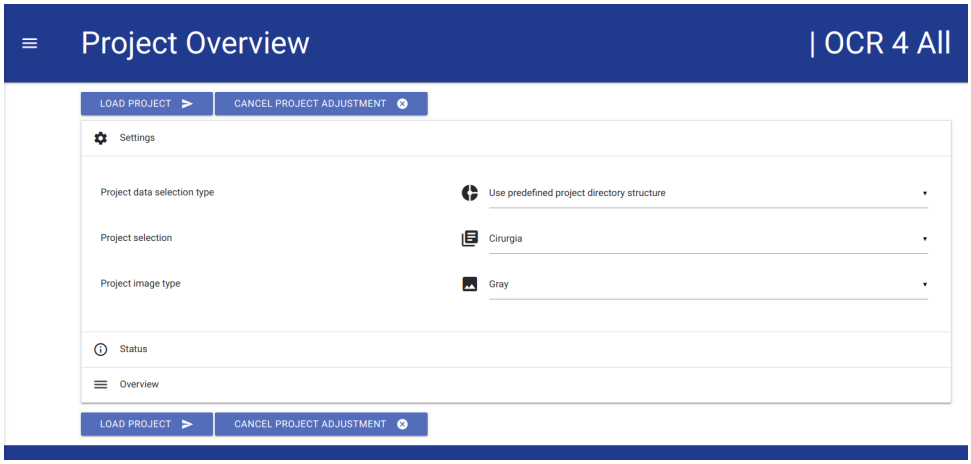


Fig. 11: Project Overview – mapping is working.

- Otherwise, there might be a typo in the “docker run” command, so you will have to create the container again. First, delete the container you just created:

  Stop the process in PowerShell using *CTRL + C*, then type:
  docker rm ocr4all

  Check and correct your command (as with most terminals, you can sift through your previous commands using the arrow keys), especially the two “-v C:\Users\...”-lines, then run it again.

- If everything is set up properly, you can (and should!) restart OCR4all in the future by using

  docker start –ia ocr4all

Docker Toolbox (for older Windows versions)

Docker setup

- Follow the installation guide at https://docs.docker.com/toolbox/toolbox_install_windows/.

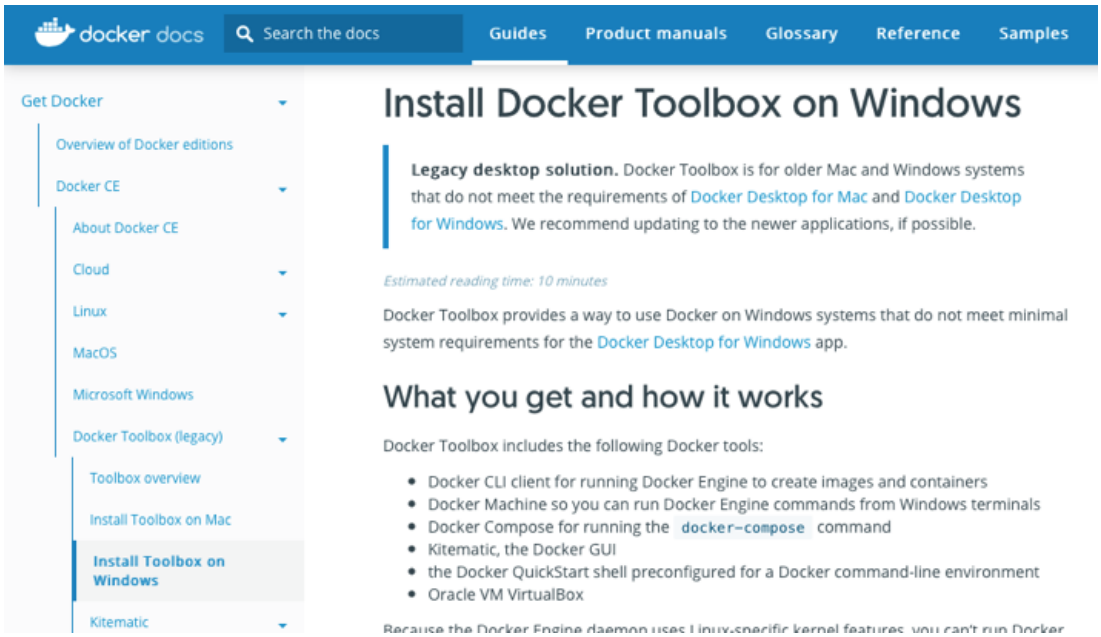


Fig. 12: Choose "Install Toolbox on Windows" and follow the instructions.

- Make sure to give all needed permissions, install all additional drivers etc.
- Start Docker Quickstart Terminal and wait for all processes to finish (Give the needed permissions; this needs a stable internet connection).

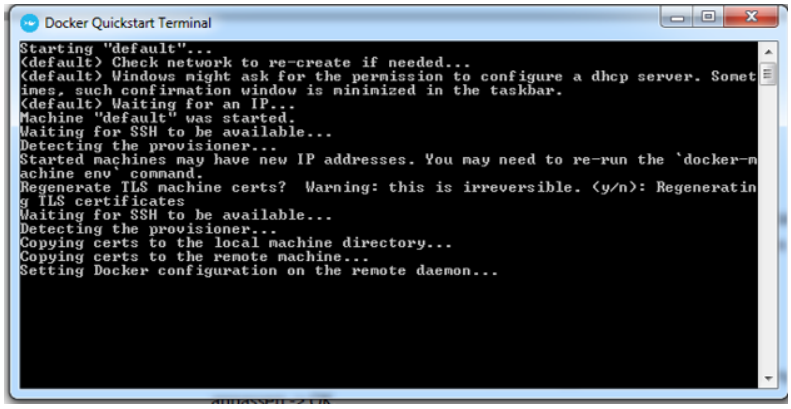


Fig. 13: Wait for all processes to finish.

- Close Docker Quickstart Terminal.
- Open Oracle VM Virtual Box.
  - Right click on *default* -> *Close* -> *Turn Off*.

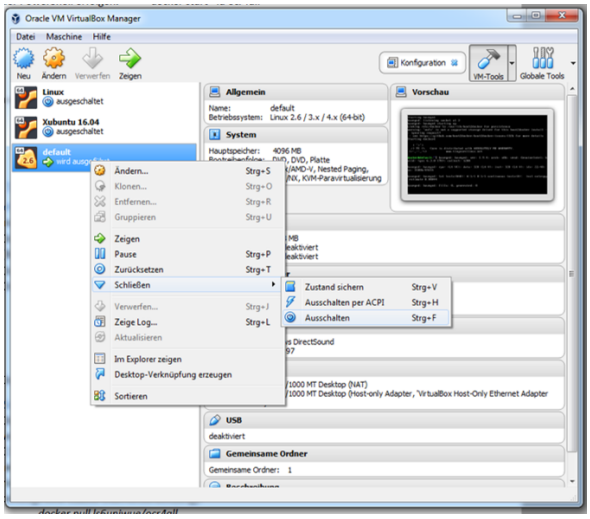


Fig. 14: Turn off "default".

- Click on *default* -> *Change* -> *System* -> Adjust CPUs (max) and Memory (2GB+) if you want to -> OK.

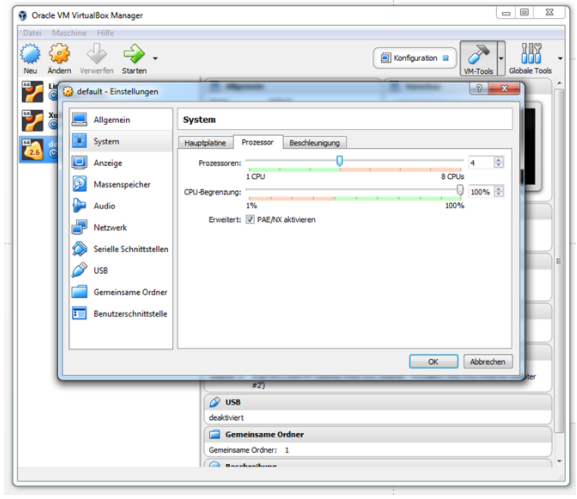


Fig. 15: Adjust CPUs to maximum.

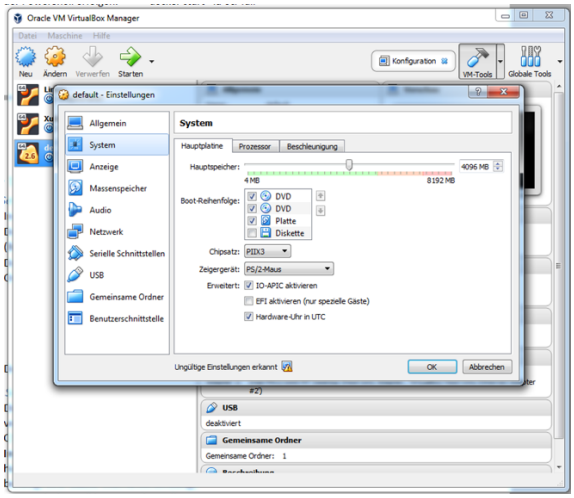


Fig. 16: Adjust Memory to 2GB+.

- It is possible to share additional drives (partitions), however this is quite complicated and is not recommended or explained further at this point.

- Start Docker Quickstart Terminal again.

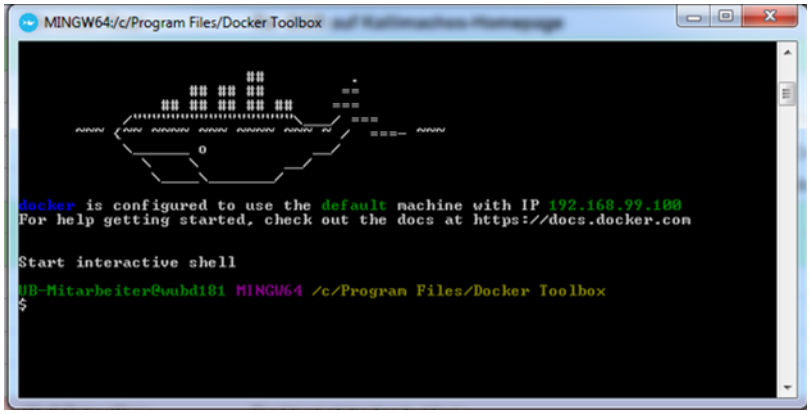


Fig. 17: Start Docker Quickstart Terminal again.

OCR4all setup

- Move the OCR4all folder structure detailed above (“Preparation”) directly into a folder inside C:\Users. In the following example, we use “C:\Users\Public\ocr4all\...”. We recommend to use the same for the first setup.
- **Inside the OCR4all folder, open PowerShell** (Shift + right click inside OCR4all folder -> Open PowerShell window here) and load an OCR4all image using the following command (this will take up a few minutes and requires a stable connection to the internet):

docker pull ls6uniwue/ocr4all

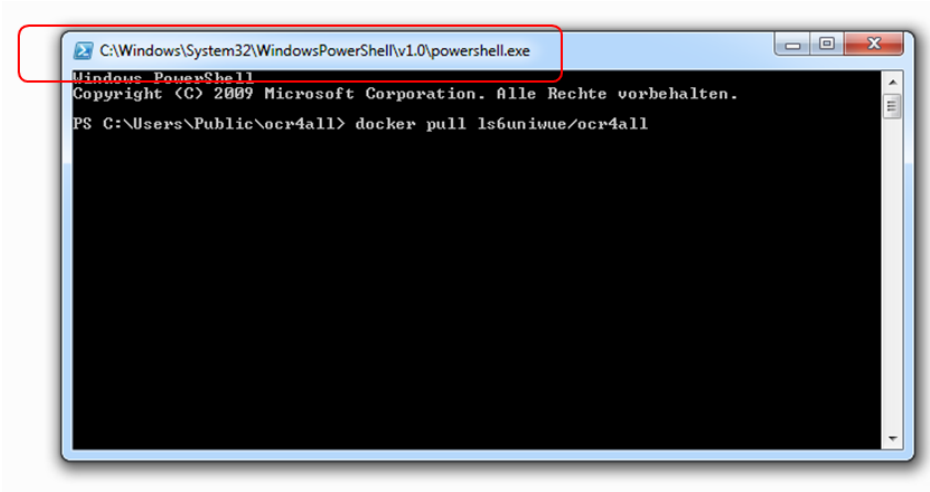


Fig. 18: Load the OCR4all image via Windows PowerShell inside the OCR4all folder.

- If necessary, open the **Docker Quickstart Terminal** again and create the OCR4all container using the following command (Note: this works only for the recommended setup, i.e. when the ocr4all folder is in C:\Users\Public\...)

docker run -p 1476:8080 -p 5000:5000 --name ocr4all
*-v **/c/Users/Public/ocr4all/data**:/var/ocr4all/data*
*-v **/c/Users/Public/ocr4all/models**:/var/ocr4all/models/custom*
-it ls6uniwue/ocr4all

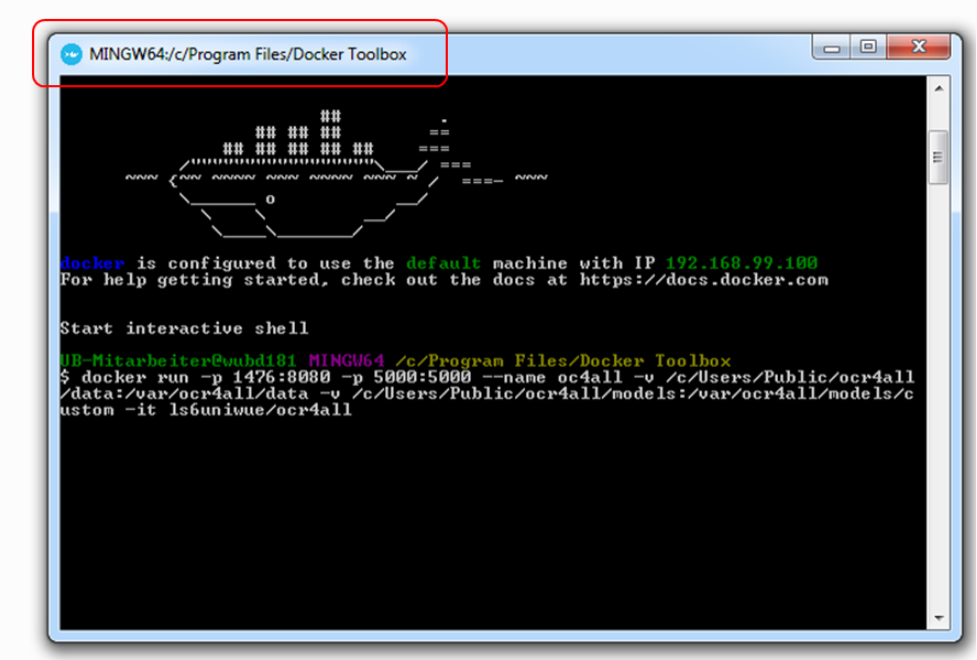


Fig. 19: Create an OCR4all container.

- Alternatively, you will have to adjust the paths marked in bold print.
  - Use absolute paths!
  - Use auto completion!
  - It is recommended to not use print working directory (PWD) in this case.

Browser access and further use

- OCR4all is optimized for Chrome/Chromium.
- Browser access: http://192.168.99.100:1476/ocr4all/
- In the browser tool, check *Project Overview -> Project selection:* If you can find the two pre-loaded books called “Cirurgia” und “GNM”, the mapping (-v …) is working properly.

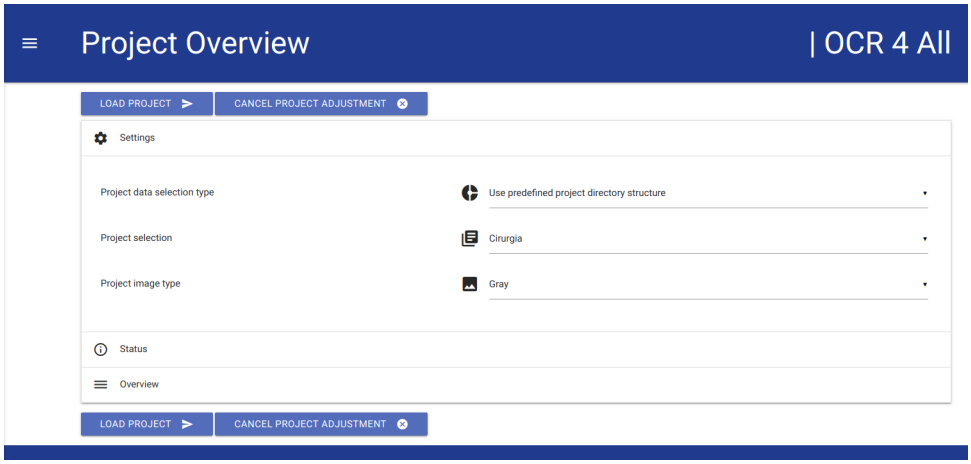


Fig. 20: Project Overview – mapping is working.

Otherwise, it´s likely that there was a typo in the “docker run” command, so you will have to create the container again. First, delete the container you just created:

Stop the process in the Docker Quickstart Terminal using *CTRL + C*, then type:

docker rm ocr4all

Check and correct your command (as with most terminals, you can sift through your previous commands using the arrow keys), especially the two "-v…"-lines, then run it again.

- If everything is set up properly, you can (and should!) restart OCR4all in the future by using

docker start –ia ocr4all

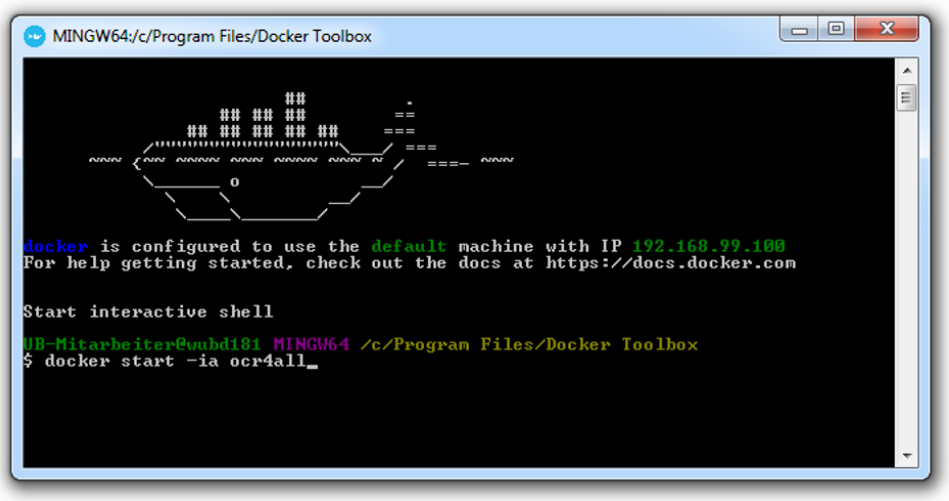


Fig. 21: Command to (re-)start OCR4all.