**Using of GitHub and Docker containers**

This document is intended as a quick guid to using containers. It will help you after the course to use Docker containers. During the course, copying and pasting commands listed here will speed things up.

Table of Contents

[1 GitHUB 1](#_Toc114996182)

[2 Docker 1](#_Toc114996183)

[2.1 Initial setup and installations 1](#_Toc114996184)

[2.1.1 Docker setup 1](#_Toc114996185)

[2.2 Using Docker containers 1](#_Toc114996186)

[2.2.1 Pulling containers 1](#_Toc114996187)

[2.2.2 Running container and mounting data 2](#_Toc114996188)

[2.2.3 Killing a container 3](#_Toc114996189)

[2.2.4 Removing containers 3](#_Toc114996190)

# GitHUB

GitHub is a code hosting platform for version control and collaboration used by developers. It allows access and collaboration on a project from anywhere though the cloud. During the course, we will be introducing GitHub, learn how to perform simple tasks and access example codes.

* Go to [GitHub: Where the world builds software · GitHub](https://github.com/) and create an account following the instructions on screen
* Please send the e-mail address linked to your GitHub account to Belddyn (Joseph Williams; [WilliamsJM14@cardiff.ac.uk](mailto:WilliamsJM14@cardiff.ac.uk)) before the start of the 1st session so that he can add you to the Cellesce GitHub account (Cellesce-Dev). After the course Kirsty and Jessica will become administrators of the Cellesce-Dev GitHub.

# Docker

## Initial setup and installations

### Docker setup

Follow the instructions in the documents Setup for Cellesce workshop-Mac or Windows User as required.

## Using Docker containers

### Pulling containers

This step downloads the container with its settings etc to your local machine. This step is usually only needed once.

**For Windows**: Open **Ubuntu**

**For Mac:** Open **Terminal**

|  |
| --- |
| **For Windows users only skip this step for Mac users**   * Enter in Ubuntu   sudo apt update   * Start docker daemon by entering   sudo dockerd   * enter the PC password if prompted |

* Pull Docker image by entering:

sudo docker pull ktp1organoid/ubuntu-webtop-imagej:latest

* Enter the PC password if prompted

### Running container and mounting data

This command will start the container and load up data, scripts etc stored in the location specified in the run command (see below). Output data saved from the container will be stored in this location and remain there even when the container is stopped.

**For Windows**: Open **Ubuntu**

**For Mac:** Open **Terminal**

* Navigate to the folder containing the files to mount using these command options:
  + - cd / to go up to root directory
    - ls to display folders in current directory
    - cd directory\_name to go to specific folder

You need to navigate to the parent folder the path can look similar to C:/Users/Desktop if the folder to load is stored on the Desktop

* Once in the right parent directory enter:

sudo docker run -d --privileged --mount type=bind,source="$(pwd)"/Workshop\_Data,target=/app -p 3000:3000 ktp1organoid/ubuntu-webtop-imagej:latest

! replace Workshop\_Data with filename containing information to mount

! replace 3000 with another port number if another container is already running using this number. The number needs to e matched in the browser address below

* To open the container, open a web browser and enter in the address bar:

localhost:3000

Closing the browser window will leave the container running. Reopening will let you get back to the same process. You need to kill the container (see below) to terminate it completely.

### Killing a container

Use this to terminate a container. After killing the container you will need to use the run command again. This will start a new instance of the container.

**For Windows**: Open **Ubuntu**

**For Mac:** Open **Terminal**

* To get list of all active containers enter:

sudo docker container ls

* find the container name under NAMES

(i.e. hardcore\_benz or zealous\_kirch)

This names in automatically assigned when running a container



* to kill container enter:

sudo docker kill NAME

### Removing containers

Sometimes it is necessary to completely clean up all containers. If there is an issue running any of the commands above, this should be the first step to do.

**For Windows**: Open **Ubuntu**

**For Mac:** Open **Terminal**

* To get list of all containers enter:

sudo docker container ps -a

* Find the names of all containers as above
* Run:

sudo docker rm NAME1 NAME2

You can enter several container names separated by a space to remove them all