

MBatch Stand Alone Image 01 Installing External Image on Linux
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1 Introduction

These instructions are aimed at people familiar with Linux administration and GitHub, Docker and Docker-Compose, with root access to their Linux environment. Installation is for external users. The username and password for accessing RStudio are both `docker_rstudio`. By default RStudio can be accessed on port 8080.

2 Target Operating System and Installation

These instructions were tested on Debian 9.1 installed on Oracle VirtualBox. These instructions with appropriate modifications should work as a basis for installing MBatch on other distributions. Perform the installs in the order given in this document. Some steps are dependent on previous steps. All elements of this document expect a Linux host. It may be possible to convert these instructions to Windows or OSX, but no such ability is supported.

3 Operating System Prerequisites

Docker and Docker-Compose are required installs.

Docker versions used in development and testing were:

Version: 17.12.0-ce or 17.06.0-ce

API version: 1.35 or 1.30

Go version: go1.9.2 or go1.8.3

Docker-Compose versions used in development and testing were:

docker-compose version 1.16.1 or 1.14.0

docker-py version: 2.5.1 or 2.3.0

CPython version: 2.7.13

4 Clone the GitHub Repository

Clone the GitHub repository with a shallow clone, since you will not be checking anything back in. This clone call grabs the newest version from master.

```
git clone --depth 1 https://github.com/MD-Anderson-Bioinformatics/MBatchImage.git
```

5 Preparation from Clone

5.1 Optional: Compile

If you want to use pre-built images from Docker Hub, you can skip compiling. You can build a fresh local image using:

```
docker-compose -f docker-compose.EXTERNAL.yml build --force-rm --no-cache
```

5.2 Required Paths

Since Docker Containers do not save internal modifications between runs, the MBatch Stand Alone Image expects external locations for storing data. The two paths it uses are /mbatchsa/mbatch and /mbatchsa/website.

6 Setup Local Information in Files

6.1 Dockerfile and docker-compose.yml Settings

Since Docker Containers do not save internal modifications between runs, the Batch Effects Interface Stack expects external locations for storing data. Other setup information is also needed.

The Dockerfile has the following values which might be desirable to update for local installs.

- User id number for useradd line (around line 46). If you need a particular owner for created files, this can be updated.
`useradd -l -s /bin/bash -d /home/docker_rstudio -u 2002 docker_rstudio && \`
- Password for chpasswd line (around line 47). If you need a particular password, change the second entry in "docker_rstudio:docker_rstudio" to be the new password.
`echo "docker_rstudio:docker_rstudio" | chpasswd && \`

The file docker-compose.yml has the following values which might be desirable to update for local installs.

- volumes:
The /MBATCH and /WEBSITE paths are set to /mbatchsa/mbatch and /mbatchsa/website by default. You can edit this for local paths as desired.
- ports:
The external port for accessing RStudio Server is 8080. This can be updated as desired.
- image:
The image tag is set to "latest". This can be updated to target a desired version.

7 Images

7.1 Pull Images from Docker Hub

Pull the images with:

```
docker-compose -f docker-compose.yml pull
```

8 Starting and Stopping MBatch Stand Alone Image

The container is started using:

```
docker-compose -p EXT -f docker-compose.yml up --no-build -d
```

The EXT may be varied if needed on your system to ensure unique ids for the container.

The MBatch Stand Alone Image can be stopped using:

```
docker-compose -p EXT -f docker-compose.yml down
```

9 Debugging and File Maintenance

To connect as root, using the following:

```
docker exec -t -i -u 0 mbatchsa_cont_extr /bin/bash
```

To connect as the default user (2002 docker_tcga), use:

```
docker exec -t -i mbatchsa_cont_extr /bin/bash
```

Another useful command is to use the container root to set access to directories and files created by the container to 777.

```
cd /MBATCH  
chmod -R 777 *  
cd /WEBSITE  
chmod -R 777 *
```