Using Docker to run WHIZARD

The WHIZARD collaboration

MC4BSM 2016, Beijing

Why Docker?

- Creates a virtual environment of a Linux system. $\Rightarrow$ Platform-independent program execution (We don't have to care about your operating system).
- We can already supply you with a working WHIZARD-installation. $\Rightarrow$ Time is not lost configuring and installing.

Installing Docker

You will quite probably have to install Docker on your computer. Very well-written installation instructions for Linux, Mac OS and Windows can be found at

`https://docs.docker.com/engine/installation/`.

Docker consists of a server which runs in the background (the Docker *daemon*) and a client which you control as the user.

Linux Users: The installation instructions encourage you to enable the daemon at boot. The daemon will store all its data (a few GB) in /var/lib. If this does not work for you, follow the instructions on the next slide, otherwise skip the following page.

Starting the Docker daemon

Linux Users: To control the Docker daemon manually:

1. Do not enable the daemon by default.
2. Create a directory with sufficient space (a few GB), say */home/my-username/docker*
3. Open a separate console window and start Docker manually in this window, telling it where to put its data:

```
(sudo) docker daemon -g /home/my-username/docker
```

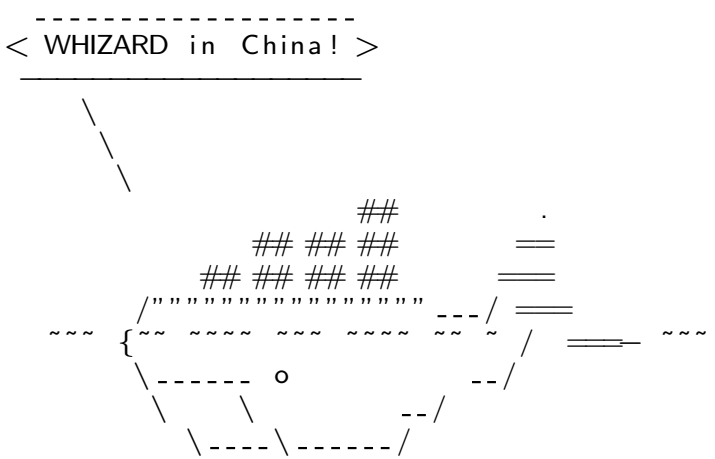
4. Leave the window open, you'll see all Docker diagnostics there. Closing the process (Ctrl-C) or the window should terminate the daemon.
5. Run your Docker application (see below) in a different window.

Checking the Docker Installation

You can check whether everything is working fine by runnig

```
(sudo) docker run docker/whalesay cowsay "WHIZARD in China!"
```

giving you this image:



Using Docker to run WHIZARD

1. Put the `tutorial-mc4bsm.tar` file in your current directory and load it into Docker (as an *image*) by executing:

   ```
   (sudo) docker load < tutorial-mc4bsm.tar
   ```

2. The command

   ```
   (sudo) docker images
   ```

   shows you that the image is now available

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
tutorial	latest	8587d3f0231f	About an hour ago	2.578 GB

3. Create a directory, e.g. `/home/my-username/mount`. This will serve as the connection between your local filesystem and the image filesystem.
4. Start the docker client (you need absolute paths here):

   ```
   (sudo) docker run -v /home/my-username/mount:/home/whizard/mount -it tutorial
   ```

   You are now in a virtual environment (a Docker *container*) with a ready WHIZARD installation!

Cleanup Instructions

1. To exit the container, just type `exit`.
2. This does not remove the container. To remove it, you may list the existing containers

   ```
   (sudo) docker ps -a
   ```

   look for the container name which the system has assigned (first or last column) and remove it

   ```
   (sudo) docker rm my-container-name
   ```

3. To remove the tutorial image from the docker installation, type

   ```
   (sudo) docker rmi tutorial
   ```

4. To finish Docker altogether, stop the daemon if you started it manually (see above) or disable it from the boot configuration if you enabled it there.