# Materials to learn from

* High level overview - [www.youtube.com](http://www.youtube.com/)
* More detailed tutorials:
  + [www.youtube.com](https://www.youtube.com/watch?v=pg19Z8LL06w)
  + [docs.docker.com](https://docs.docker.com/get-started/get-docker/)

# Concepts

## Build context directory

Build context directory is a directory which contains the Dockerfile and all the other files which will be used in the Dockerfile (which we will copy into an image using the COPY or ADD instructions).

We provide a path to this directory in the ‘docker build’ command.

What path we will need to specify in the COPY instruction depends on this path.

## Bind Mounting

We can mount a folder on host to a folder in a container. That means that all the files which we create in the host folder will be reflected in the container one and vice versa.

This is useful if we want to upload files to a container and have the same files even after restarting a container.

**Folder permissions:**

If we have a mounted folder and app running in a container wants to create a file in that folder, then it needs to have permissions not only in a container but also **on host.**

The best practice is to create a user with a specific UID and GID in a container and grant permissions to the folder in container and on host for that UID and GID (just using a username is not enough, we need to use UID and GID when defining permissions).

# Dockerfile Instructions

## RUN

The RUN instruction is used in order to execute a command in container’s terminal.

## USER

We can use the USER instruction in order to change a user which will be executing a command used in the RUN instruction.

## SHELL

By default Docker run commands (from instructions like RUN, CMD, ENTRYPOINT) using sh (/bin/sh). Using the SHELL instruction we can change it. We can specify there which shell to use, for example this changes shell into bash:

SHELL [“/bin/bash”, “-c”]

## COPY

Copy a file from a host to the created image. If has the following format:

* COPY local\_path container\_path

Where:

* **Local\_path** – Is a path on a local host where is located a file to copy. This path needs to be relative to the build context directory.
* **Container\_path –** Is a path in a container where to save a file

# Troubleshooting

## Wsl related problems

To solve problems when we see an error related to the wsl those links and solutions might be useful:

* For running Docker on Windows we are using either wsl 2 or hyper v. Check which option we are using and then when looking for solutions check if they are related to wsl 2 or hyper v.
* [www.reddit.com](https://www.reddit.com/r/docker/comments/1ft6u6f/docker_desktop_unexpected_wsl_error/)
* [www.reddit.com](https://www.reddit.com/r/docker/comments/180byo9/why_am_i_keep_getting_this_error_i_tried_every/) – Here we are disabling and enabling windows features what can be also done using the Windows Features UI. We just need to look for ‘windows features’ in the search bar next to the windows logo.
* When reinstalling Docker try to remove all the files related to Docker:
  + In C:\Users\<YourUsername>\AppData:
    - Roaming\Docker
    - Local\Docker
    - Local\Packages – look for any files containing ‘docker’ in its name
  + C:\Users\<YourUsername>\.docker

## Debugging on Linux

* journalctl -xe --unit=docker.service
* systemctl status docker.socket