

# How To Dev Workshop

# Core Idea

# Core Idea

 Software is messy, especially when distributed.

# Greatest compliment

# Greatest compliment

 It just works!

# **What brakes programs?**

# What brakes programs?

 Code

# What brakes programs?

 Code

 Environment



# Development enablers

# Development enablers

 Code

# Development enablers

 Code - Version control system

# Development enablers

 Code - Version control system - **Git**

# Development enablers

 Code - Version control system - **Git**

 Environment

# Development enablers

-  Code - Version control system - **Git**
-  Environment - Containerized environment

# Development enablers

 Code - Version control system - **Git**

 Environment - Containerized environment - **Docker**

# Development enablers

 **Git**

 **Docker**



# Development enablers

 **Linux**

 **Git**

 **Docker**

# Linux



# Linux

 Most computations runs on **servers**

# Linux

- 🌱 Most computations runs on **servers**
- 🌱 Most **servers** runs **Linux**

# Linux

- 🍫 Most computations runs on **servers**
- 🍫 Most **servers** runs **Linux**
- 🍫 Most effective in resources

# Linux

- 🌱 Most computations runs on **servers**
  - 🌱 Most **servers** runs **Linux**
  - 🌱 Most effective in resources
    - 🌱 **Linux** philosophy

# Linux

## Linux Philosophy

# Linux

## Linux Philosophy

 Do only one thing



# Linux

## Linux Philosophy

 Do only one thing

 And do it well

# **Linux**

## **Linux Philosophy**

### **In practice**

# Linux

## Linux Philosophy

### In practice

 Built out of tiny independent programs

# Linux

## Linux Philosophy

### In practice

- 🍫 Built out of tiny independent programs
- 🍫 Productive terminal environment

# Linux

 Fill at ~ in the \$

# Linux

 Fill at ~ in the \$

 Fill at **home** in the **terminal** (shell)

# Linux

 This is the / of the problem

# Linux

 This is the / of the problem

 This is the **root** of the problem



# Linux

 What is going on . ?

# Linux

 What is going on . ?

 What is going on **here** ?

# Linux

 My ~ is at **/home/user/**

# Linux

 Where have you **bin/** ?

# Linux

 Where have you **bin/** ?

 Directory structure:

**/bin /home /opt /tmp /usr /var /etc**

# Linux

 Don't **Bash** your head against the keyboard

# Linux

 You don't need to say goodbye to your Windows machine **WSL** to the rescue

# Linux

## Hands-on!



# Linux

## Hands-on keyboard!

# Linux

## Hands-on keyboard!

 Go to cmd

# Linux

## Hands-on keyboard!

 Go to cmd

```
ssh -i how-to-dev_key.pem  
howtodev@172.160.226.208
```

# Linux

# Utilities

# Linux

## Utilities

```
ls
```

List all files in a directory

# Linux

## Utilities

```
cd
```

Change directory

# Linux

## Utilities

```
cat  
less
```

Show content of file

# Linux

## Utilities

```
touch  
cp  
mv
```

Make, copy, move or rename files



# Linux

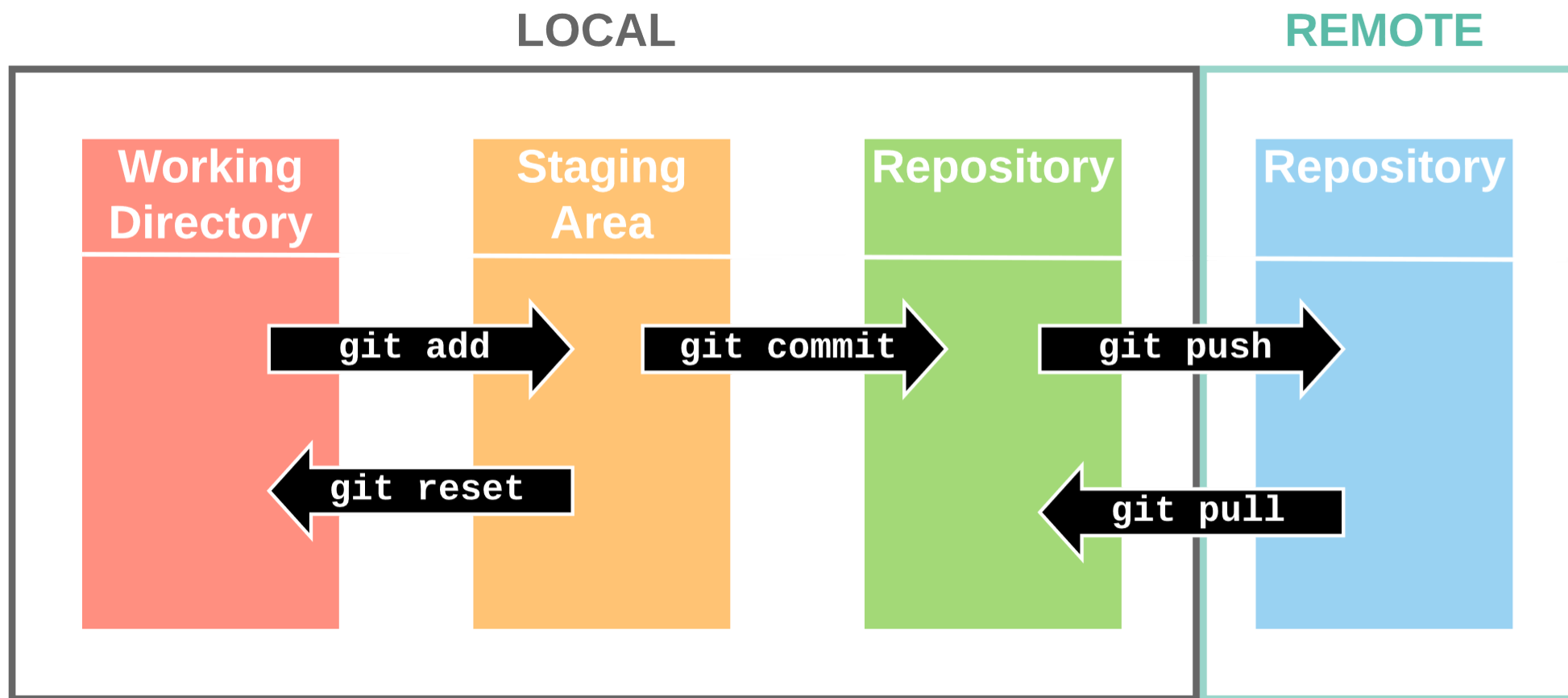
## Utilities

```
mkdir
```

Make a directory

# Git

# Git



# Git

```
mkdir <dir_name>
```

# Git

```
mkdir <dir_name>  
git init .
```

# Git

```
mkdir <dir_name>  
git init .  
git status
```

# Git

```
nano <file_name>  
echo <content> > <file_name>
```

Enter some content to a file.

# Git

```
nano <file_name>  
echo <content> > <file_name>  
git status
```



# Git

```
nano <file_name>  
echo <content> > <file_name>  
git status  
git add <file_name>
```

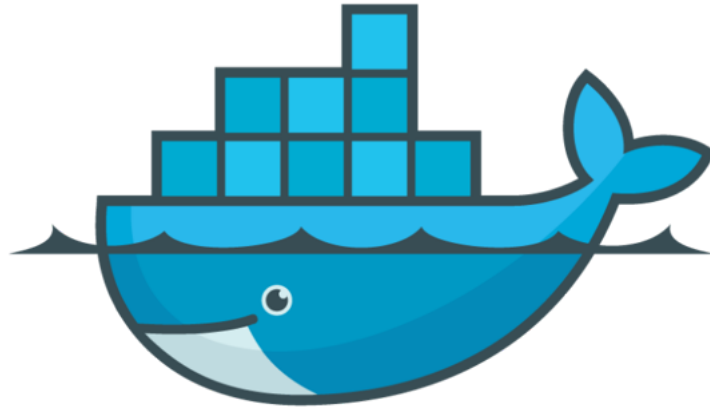
# Git

```
nano <file_name>  
echo <content> > <file_name>  
git status  
git add <file_name>  
git status
```

# Git

```
nano <file_name>  
echo <content> > <file_name>  
git status  
git add <file_name>  
git status  
git commit -m "some commit message"
```

# Docker

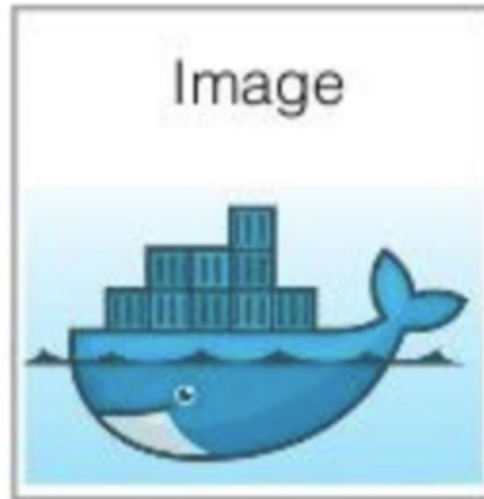


# Docker

```
FROM ubuntu:14.04
MAINTAINER myname@mycompany.com
RUN apt-get update && apt-get install -y python
RUN apt-get install -y python-dev python-pip
RUN pip install Flask
RUN pip install gunicorn
EXPOSE 80
CMD ["python", "flask.py"]
```

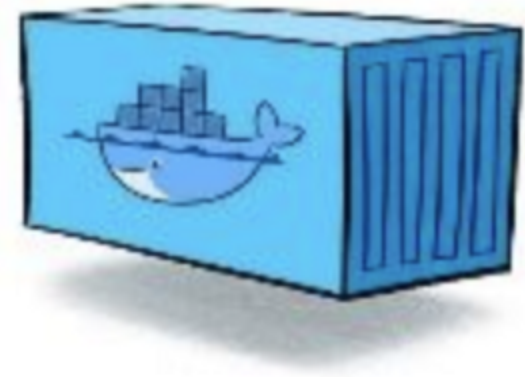
Dockerfile

→  
build



Docker Image

→  
run



Docker Container

# Docker

```
docker build --tag "how-to-dev" .
```

Building a new docker image based on the 'Dockerfile'  
in the current directory.

# Docker

```
docker image list
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
how-to-dev	latest	d211d6bfa5ab	About a minute ago	202MB

# Docker

```
docker run --interactive --tty --name <my_name> how-to-dev bash
```



# Docker

```
docker run -it --name <my_name> how-to-dev bash
```

# Docker

```
docker container list  
docker container list --all
```

# Docker

```
docker run \  
  -tty \  
  --detach \  
  --name <my_name> \  
  how-to-dev \  
  bash
```

# Docker

```
docker container list  
docker container list --all
```

# Docker

```
docker exec -t <my_name> bash -c "ls"
```

# Bye

**Ben Sivan**  
Data Scientist

---

+972-546925522

[ben.sivan@celleste-bio.com](mailto:ben.sivan@celleste-bio.com)