

ROS

(The Robot Operating System)

- Framework

ROS naming convention

- Platforms

- Libraries

- Tools

- Development approach

Installing & Configuring Environment

- Linux cmd
- Environment variables
- Filesystem rosbash bin
- Workspace \$ mkdir -p ~/catkin_ws/src
\$ cd ~/catkin_ws/
\$ catkin_make

Package

- catkin_create_pkg
- catkin_make

```
workspace_folder/      -- WORKSPACE
  src/                  -- SOURCE SPACE
    CMakeLists.txt      -- 'Toplevel' CMake file, provided by catkin
  package_1/
    CMakeLists.txt      -- CMakeLists.txt file for package_1
    package.xml          -- Package manifest for package_1
  ...
  package_n/
    CMakeLists.txt      -- CMakeLists.txt file for package_n
    package.xml          -- Package manifest for package_n
```

Nodes()

- Library

`rospy roscpp`

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- `roscore`

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- `roslaunch`

`roslaunch turtlesim turtlesim_node`

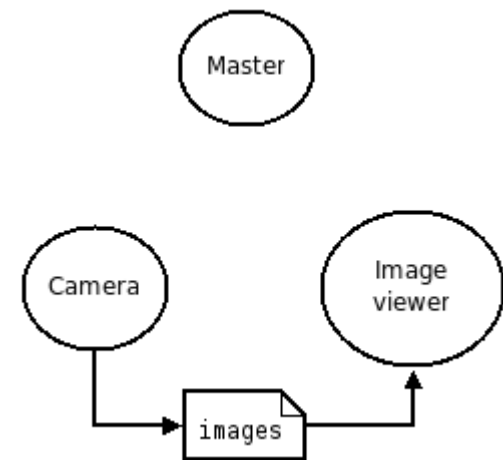
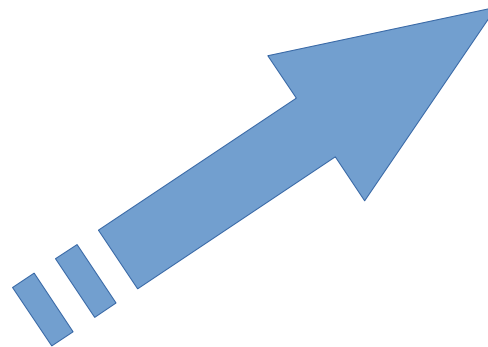
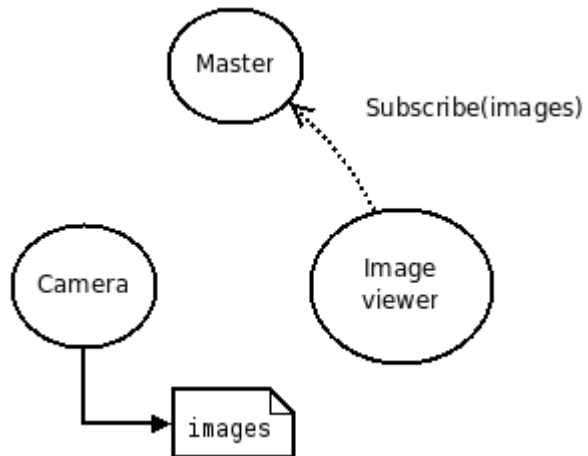
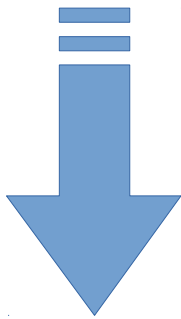
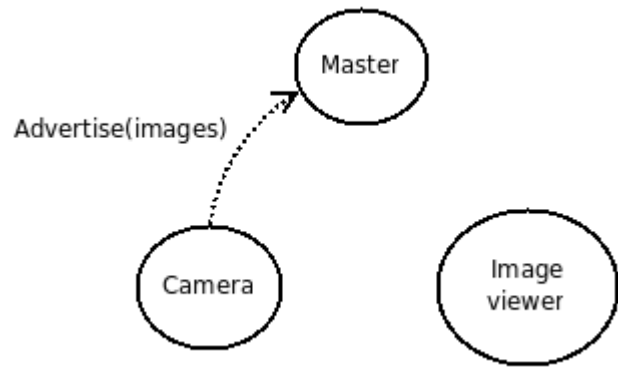
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- `rostopic`

roscore

- ROS Master
- ROS Parameter Server
- roscore logging node

Master



Topics

- `roslaunch rqt_graph rqt_graph`
- `rostopic`

Messages

- int8, int16, int32, int64 (plus uint*)
- float32, float64
- string
- time, duration
- other msg files
- variable-length array[] and fixed-length array[C]

Services

- rosservice

Parameters

- rosservice

roslaunch

Bags

Example

- Topic
- Service
- Launch
- .srv 、 .msg
- Cmakelist
- test
- Debug log
- Gdb coredump