**Commands**

**Bag file**

**bag**

rosbag info [file.bag] show info

rosbag record [topic] record a specified topic

rosbag play [file.bag] play

rosbag compress [file.bag] compress

rosbag decompress [file.bag] decompress

rosbag filter

rosbag fix repair the messages in a bag file

**Node information**

rosnode list list of active nodes

rosnode info [node] info (topics, services)

rosnode machine [machine] nodes running on a machine

rosnode ping [node] test connectivity to node

rosnode cleanup clean registration info (devel, build)

rosnode kill [node] kill the node

**Launch information**

roslaunch --nodes [pkg] [file.launch] list nodes of the launch files

roslaunch --args [node] [pkg] [file.launch] list of arguments of a node

roslaunch --find [node] [pkg] [file.launch] show the launch file name

roslaunch --files [pkg] [file.launch] show all files including in the launch file

roslaunch --ros-arg [pkg] [file.launch] show required/optional arguments

**Filesystem Management Tools**

roscd [path] move to a folder

rosls [path] list of directories

rosed [pkg] [file] open the file in the text editor

roscp [pkg] [file] [destination] copy the file in a destination folder

rosclean purge clean-up filesystem resources

**catkin (make)**

catkin\_make building workspace

catkin\_init\_workspace initializing workspace

catkin\_create\_pkg [pkg] [args] create package

**catkin (build)**

[**https://catkin-tools.readthedocs.io/en/latest/cheat\_sheet.html**](https://catkin-tools.readthedocs.io/en/latest/cheat_sheet.html)

catkin init

catkin config

catkin build building workspace (whitin)

[--workspace] building workspace

catkin create [pkg] [args] create package

catkin clean

**rospack**

rospack find [pkg\_name] find a package

rospack list list packages

rospack depends [pkg\_name] list dependencies of a package

rospack profile reindex the packages for autocompletion

**rosdep**

rosdep install [pkg] install package dependencies

rosdep check check if all dependencies have been met

rosdep init initialize rosdep sourced

rosdep update updating rosdep database

rosdep fix-permission fix permission after updating

**roswtf (debug)**

roswtf display errors and warning about ROS

[file] display errors and warning about launch

**wstool**

wstool init set up a directory as workspace

wstool set change workspace configuration

wstool update update configuration elements

wstool merge merges workspace with a configuration set

**Environment variables**

env | grep ROS

env | grep PYTHON

PACKAGE\_PATH

ROS\_MASTER\_URI

ROS\_IP

ROS\_HOSTNAME

# Higher-level

**RQT**

rqt rqt plugin

|  |  |  |
| --- | --- | --- |
|  |  |  |
| **Introspection** | rqt\_graph | Computation graph |
| rqt\_dep | Dependencies graph |
| rqt\_top | ROS processes monitoring |
| **Command** | rqt\_topic | Topic debug info |
| rqt\_msg | Messages types |
| rqt\_publisher | Publish messages |
| rqt\_srv | Service types |
| rqt\_service\_caller | Services call |
| rqt\_action | actions |
| rqt\_reconfigure | parameters reconfiguration |
| rqt\_launch | launch files |
| rqt\_bag | record/play bag file |
| **Visualization** | rqt\_plot | graph of data over time |
| rqt\_image\_view | visualizing images |
| **Logger** | rqt\_console | display and filter messages |
| rqt\_logger\_level | change logged information |
| rqt\_shell | shell console |
| rqt\_py\_console | python console |
| **Robotic** | rqt\_runtime\_monitor | Diagnostic array messages |
| rqt\_moveit | Assisting monitoring Moveit! |
| rqt\_robot\_steering | Steering using twist messages |
| rqt\_robot\_monitor | Diagnostic messages |
| rqt\_pose\_view |  |
| rqt\_nav\_view |  |
| rqt\_rviz |  |
| rqt\_tf\_tree | tf gui |

**Dynamic reconfigures**

**TF**

**Static transform broadcaster**

rosrun tf2\_ros static\_transform\_publisher x y z yaw pitch roll frame\_id child\_frame\_id

rosrun tf2\_ros static\_transform\_publisher x y z qx qy qz qw frame\_id child\_frame\_id

**Visualizing**

rosrun tf tf\_monitor show info on the tf tree

rosrun tf tf\_echo source\_frame target\_frame show the tf transform

rosrun tf2\_tools view\_frames.py create a pdf of tf tree

**Common actions**

**Creating a Workspace**

**Creating**

mkdir -p ~/[ws\_name]/src

**Building**

* + - 1. catkin\_make

cd ~/[ws\_name]

catkin\_make

rospack profile

* + - 1. catkin build

cd ~/[ws\_name]

catkin build

**Sourcing**

Sourcing every time when creating a workspace or building it. For creating the workspace is better using the permanent way, while with the building is better the temporary way.

echo source ~/[ws\_name]/devel/setup.bash >> ~/.bashrc

source ~/.bashrc

Note: modify the order of concurrent sourced workspace

gedit ~/.bashrc

**Link a workspace to another**

ln -s ~/[workspace\_2/pkg\_name] ~/[workspace\_1/src]

**Creating a Package**

**Creating an empty package**

1. catkin\_make

cd ~/[ws\_name]/src

catkin\_create\_pkg [pkg\_name] [dep]

1. catkin build

cd ~/[ws\_name]/src

**Local copy of a shared package**

cd ~/[ws\_name]/src

git clone [clone\_link]

**Building**

1. catkin\_make

cd ~/[ws\_name]

catkin\_make

rospack profile

1. catkin build

cd ~/[ws\_name]

catkin build

**Sourcing**

source ~/[ws\_name]/devel/setup.bash

**catkin\_tool**

**Building**

catkin build build the workspace

--verbose

--interleave

--no-deps skip all the dependencies

catkin build [pkg] build only the package

catkin run\_test run test before building

**Cleaning**

catkin clean clean all the built workspace

catkin clean [pkg]

catkin clean --orphans

**Creating**

catkin create pkg [pkg]

--catkin-dep [dep], -c [dep] catkin-based dependencies used by the package

--system-dep, -s [dep] system dependencies used by the package

--boost-components [comp] boost components used by the package

**Environment**

catkin env [NAME=VALUE] set env variable

-i start with an empty env

-s read env variable definitions from stdin

**List**

catkin list list package

--deps show direct dependencies of each package

--rdeps show recursive dependencies of each package

--depends-on [pkg] show direct dependencies of the specific package

--rdepends-on [pkg] show recursive dependencies of the specific package

--quiet do not print warning