Robot Operating System (ROS) Command-line Tools Cheat Sheet

roscd

roscd <package> go to package dir

roscd log go to log dir

Changes directory to the path of the specified package, stack, or special location.

rospd

rospd <package> go to package dir

Changes directory to the path of the specified package, and ads the path to the directory stack.

rosd

rosd <id> go to id

Changes directory to the package on the directory stack that has the specified id.

rosls

rosls <package>

Changes directory to the patch of the specified package.

rosed

rosed <package> <file>

Edits specified file in package, regardless of depth.

roscp

roscp <package> <file> <destination>

Copies the specified file from its package to the destination.

roscore

The core is the central manager. It is responsible for the name service, rosout and the parameter server.

--help, -h show help

--port=, -p master port

-v verbose

rosnode

A node is an executable that can communicate with other nodes via ROS.

<command> --help, -h help on command

ping <node> test connectivity

-all, -a ping all nodes

-c <count> number of pings

list list active nodes

-all, -a all information

-u XML-RPC URIs

info <node1> ... info about node(s)

machine <machine> list machine’s nodes

kill <node> kills node

-all, -a kill all nodes

cleanup <node> deregisters offline nodes

rostopic

Topics are conduits for messages. Nodes can publish to and subscribe to topics.

<command> --help, -h help on command

bw <topic> bandwidth used

--window, -w window size

echo <topic> real-time messages

--bag, b <file> from .bag file

-p plotting-friendly format

-w <width> numeric fixed width

--filter=<expr> filter by py expression

--nostr no string fields

--noarr no arrays

--clear, -c clear screen before next

--all, -a all in .bag (with –bag)

-n <count> number of messages

--offset times relative to now

find <msg-type> find topics

hz <topic> publishing rate

--window, -w window size

--filter=<expr> filter by py expression

info <topic> info about topic

list list topics

--rate, r <hz> publishing rate

--once, -1 publish once

--file, -f <file> yaml args from file

--latch, -l latch first (-f, -r)

--verbose, -v full details

pub <topic> <data> publish to topic

--bag, b <file> from .bag file

-p only publishers

-s only subscribers

--host group by hostname

--verbose, -v full details

type <topic> get topic’s type

rosmsg, rossrv

rosmsg shows information about message types. rossrv shows information about service types. Use rostopic to publish to topics, and rosservice to call services.

<command> --help, -h help on command

show <msg-type> about this type

--raw, -r raw text and comments

--bag=, -b <file> show from .bag file

list list all messages

md5 message hash

package <package> list messages in package

-s on single line

packages packages with messages

-s on single line

rosrun

rosrun <package> <executable> [args]

Runs the specified executable in the specified package.

--debug runs in debug mode

rosdep

Manages package dependencies.

<command> --help, -h help on command

check <packages> checks dependencies

install <packages> generates and runs script

db create/show database

init inits/etc/ros/rosdep

keys <packages> keys packages depend on

resolve <ros-deps> resolves to system dep’s

update updates the local db (don’t use sudo)

what-needs <ros-deps> packages that need it

where-defined <deps> yaml that requires it

fix-permissions you used sudo update

rosconsole

Configures logger level of nodes. Level is one of debug|info|warn|error|fatal.

get <node> <log> get level for node/logger

set <node> <log> <lv> set level for node/logger

list <node> logger/levels for node

rospack

Manages and provides information about packages. <pkg> can be omitted if the current directory contains a manifest.

-q quiets error reports

<command> --help, -h help on command

cflags-only-I <pkg> list exports from manifest

--deps-only exclude package itself

cflags-only-other <pkg> exports without -I

--deps-only exclude package itself

deps <pkg> dependencies

deps-indent <pkg> entire dependency chain

deps-manifests <pkg> manifests

deps-msgsrv <pkg> message-gen marker files

depends-on <pkg> pkgs that depend on this

depends-on1 <pkg> directly depend on this

deps-why <pkg> dependencies from

--target=, -t <pkg> package to target

deps1 <pkg> packages this depends on

exports <pkg> list exports

--deps-only exclude package

--lang=<lang> specific language

--attrib=<attr> attribute

find <pkg> absolute path to package

langs language-specific libraries

libs-only-L <pkg> list exports with -L

--deps-only exclude package itself

libs-only-l <pkg> list exports with -l

--deps-only exclude package itself

libs-only-other <pkg> exports without –L, -l

--deps-only exclude package itself

list all packages and paths

list-duplicates list duplicated packages

list-names list packages, names only

plugins <pkg> packages that depend on

--attrib=<attr> this with attribute

--top=<pkg> also depending on this

profile crawl all and report time

--length=<length> number to display

--zombie-only those missing manifests

rosdep <pkg> rosdeps from manifests

rosdep0 <pkg> from this manifest

vcs <pkg> versioncontrol from manifests

vcs0 <pkg> from this manifest

catkin\_test\_results

catkin\_test\_results <results-dir>

Outputs the summary of test results.

--all show good, bad, ugly

--verbose show all erred/failed

rosmake

rosmake <package>

Builds a package and its dependencies.

--test-only only run tests

-t build and test packages

--mark-installed, -i mark with ROS\_NOBUILD

--unmark-installed, -uunmark as built

-v display erred builds

-V display all builds

--robust, -r, -k don’t stop on errors

--build-everything build all and don’t stop

--specified-only, -s only build package x

--buildtest=<test> package to buildtest

--buildtest1=<test> package to buildtest1

--output=<dir> output to directory

--pre-clean make clean first

--bootstrap do bootstrap packages

--disable-logging disable logging

--target=<target> make with this target

--pjobs=<count> override ROS\_PARALLEL\_JOBS

--threads=<count> build n packages async

--profile show time profile at end

--skip-blacklist skip packages in blacklist

--require-platform only if platform supported

--require-platform- only if dependencies

recursive supported

--status-rate=<rate> status bar update freq.

rosservice

Manage and query a service. Services can be called with yaml syntax.

call <svc> <args> calls service with args

--wait first wait for service

find <svc-type> show all services of type

info <svc> help on command

list list all available services

-n include node name

node <svc> get node with service

type <svc> show services type

uri <svc> show service’s URI

args <svc> get available arguments

rosunit

rosunit <file> <test-args>

Runs a unit test.

--time-limit=<time> time limit for test

--name=<test> name of unit test

--package=<package> optional name of package

roslaunch

roslaunch <package> <launch-file> [args]

roslaunch <launch-file1> ... [args]

roslaunch – [args]

Launches multiple nodes using XML launch files, locally and via ssh. Can set parameters on server.

-p <port> roscore’s port

--wait wait for roscore

--local only local nodes

--screen force output to screen

-v verbose

--dump-params show launch file params

--nodes names in launch file

--args <node> get args used for node

--find <node> get launch file for node

--files <file> files used to process file

-p <port> roscore’s port

rosparam

Parameters are stored on the parameter server (managed by roscore) as YAML-encoded files. All commands offer a –v (verbose output) option.

<command> --help, -h help on command

set <param> <value> sets a parameter

--textfile, -t <fn> set to text file contents

--binfile, -b <fn> set to binary file contents

get <param> gets a parameter

-p pretty output (not YAML)

load <file> <ns> loads from YAML file, optionally into namespace

dump <file> <ns> dumps all to file, optionally filtered by NS

delete <param> sets a parameter

list <namespace> list parameters,  
optionally in namespace

rosclean

Cleans log files.

check check disk usage

purge remove logs

roswtf

Performs a sanity check on the current installation.

--all run against all packages

--no-plugins disables plugins

--offline only runs offline tests

rosbag

Bags are recordings of messages to topics that can be played back, like macros.

<command> --help, -h help on command

record <topics> records topics to bag

--all, -a record call topics to bag

--regex=, -e <exp> record matching topics

--exclude, -x <exp> exclude matching topics

--quiet suppress output

--output-prefix, -o <pre>   
prepend bag name

--output-name, -O <name> record to NAME.bag

--split split bag when

--size=, -b <MB> size reached (MB)

--duration= <t> period lapsed

--buffsize=<MB> internal buffer size

--limit=, -l <n> limit to n messages

--bz2, -j use BZ2 compression

info <bag1> ... get bag info

--yaml, -y output in YAML

--key=, -k <key> only field (with –y)

play <bag1> ... playback bag

--quiet, -q suppress output

--immediate, -i play all without waiting

--pause start paused

--queue=<size> outgoing queue size

--clock publish clock time

--hz=<hz> publish clock frequency

--delay=, -d <sec> sleep after advertise

--rate=, -r <factor> multiply publish rate

--start=, -s <sec> start into bag by offset

--duration=, -u <sec> play only this much

--loop, -l loop playback

--keep-alive, -k keep alive at end of bag

check can system play bag?

--genrules=, -g <f> generate migration rule

--append, -a append to migration rule

--noplugins, -n don’t load plugins rules

fix <in> <out> <rules> fix a bag, rules optional

--noplugins, -n don’t load plugins rules

filter <in> <out> <filter> filter by py expr.

--print=<expr> evaluate/print expression

compress <bag1> ... compress bag

--output-dir=<dir> output to dir

--force, -f overwrite if exists

--quiet be less verbose

decompress <bag1> ... decompress bag

--output-dir=<dir> output to dir

--force, -f overwrite if exists

--quiet be less verbose

reindex <bag1> ... repair broken bag

--output-dir=<dir> output to dir

--force, -f overwrite if exists

--quiet be less verbose

catkin\_init\_workspace

Initializes a catkin workspace by creating top-level CMakeLists.txt.

catkin\_make

catkin\_make builds all

catkin\_make <package> builds package

Builds all projects in the workspace. Must be called from top-level in workspace. Additional commands can be appended e.g. catkin\_make install.

catkin\_find†

catkin\_find <package> <path>

Searches catkin workspaces for project-specific files/folders.

catkin\_package\_version

catkin\_package\_version <path>

Shows or bumps the version number in package.xml files.

--bump {major|minor|patch} part to bump

catkin\_prepare\_release

Bumps the version number, commits the modified package.xml, and creates a tag in the repository.

--no-push does not push to repo

--tag-prefix, -t <pre> prefix for release tag

--bump {major|minor|patch} part to bump

--non-interactive, -y answer yes to all

--no-color disables colour output

† Some options have been excluded.



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Please send corrections to the author.

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