Contiki-NG Cheat Sheet

Installation

Visit: `https://github.com/contiki-ng/contiki-ng/wiki`

Build System

Set current target and board to `<x>` and `<y>`

```
make TARGET=<x> BOARD=<y> savetarget
```

Build firmware `<z>`

```
make <z>
```

Flash firmware `<z>` on port `<p>` (e.g. `/dev/ttyUSB0`)

```
make <z>.upload PORT=<p>
```

Selected `make` targets

`viewconf`	Shows current config flags
`targets`	Shows list of supported `TARGET`
`boards`	Shows list of `BOARD` for current `TARGET`
`savetarget`	Saves current `TARGET` and `BOARD`
`savedefines`	Saves current `DEFINES` flags
`%.o`	Produces object file
`%.e`	Produces pre-processed file
`%.s`	Produces assembly file
`%.ramprof`	Shows RAM profile of a firmware
`%.flashprof`	Shows ROM profile of a firmware
`login`	View serial output on port `PORT`
`motelist-all`	Shows list of connected devices
`usage`	Shows a brief help

Shell

Enable shell

In `Makefile`, add `MODULES += os/services/shell`

Run `make distclean`

Connect to shell on port `<p>` (e.g. `/dev/ttyUSB0`)

```
make login PORT=<p>
```

Selected commands

`ip-addr`	Shows all IPv6 addresses
`ip-nbr`	Shows all IPv6 neighbors
`log module level`	Set log level (`0`--`4`) for a given module (or "`all`")
`ping addr`	Pings the IPv6 address 'addr'
`rpl-set-root`	Sets node as root or not, sets prefix
`rpl-status`	Shows a summary of the current RPL state
`rpl-nbr`	Shows the RPL neighbor table
`routes`	Shows the route entries
`help`	Shows a brief help

Configuration

Include a module

In `Makefile`, add `MODULES += <path>`

Run `make distclean`

Select network stack

In `Makefile`, set:

`MAKE_MAC = MAKE_MAC_CSMA`	CSMA MAC
`MAKE_MAC = MAKE_MAC_TSCH`	TSCH MAC
`MAKE_ROUTING = MAKE_ROUTING_RPL_LITE`	RPL-Lite routing
`MAKE_ROUTING = MAKE_ROUTING_RPL_CLASSIC`	RPL-Classic routing
`MAKE_NET = MAKE_NET_NULLNET`	No IPv6
`MAKE_NET = MAKE_NET_IPV6`	IPv6

Then, run `make distclean`

System configuration

Add `project-conf.h` to your project directory

Run `make distclean`

Check common configuration flags

Run `make viewconf`

Check out `os/contiki-default-conf.h`

Logging System

Set log level

For RPL Info logs, in `project-conf.h`, add:

```
#define LOG_CONF_LEVEL_IPV6 LOG_LEVEL_INFO
```

Log levels

`LOG LEVEL NONE`	Logs disabled
`LOG LEVEL ERR`	Errors
`LOG LEVEL WARN`	Errors and warnings
`LOG LEVEL INFO`	Errors, warnings, and information logs
`LOG_LEVEL_DBG`	All the above and debug messages

Main log modules

`LOG_CONF_LEVEL_MAC`	MAC layer protocol
`LOG_CONF_LEVEL_IPV6`	IPv6 stack
`LOG_CONF_LEVEL_RPL`	RPL routing protocol

All modules and options

Check out `os/sys/log-conf.h`

Simulation

Cooja: Start from `tools/cooja` by running `ant run`

Renode: Run `renode`