LTE configuration tips and tricks

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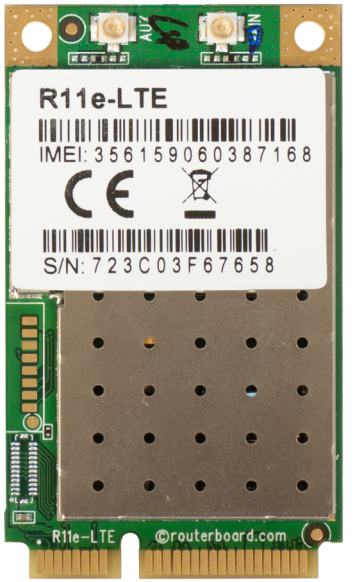
Overview

- Different modem types
- Modem interfaces
- PPP client configuration
- LTE interface configuration
- GPS support on LTE modem
- RouterBOARDs with modem support
- wAP LTE kit and its usage cases
- Supported 3G/4G(LTE) modems
- LtAP mini

Different modem types

- USB modem

- Mini-PCIe modem



USB modem

- Advantages
  - Small/portable
  - Works with almost any USB port
  - Sometimes subsidised by provider
- Disadvantages
  - Sometimes requires external USB power supply
  - Low gain antennas built-in
  - Usually no external antenna connector avaliable
  - Hard to mount or hide as it is an external device

Mini-PCIe modem

- Advantages
  - Great for integrated solutions
  - External antenna support
  - Usually better driver support
- Disadvantages
  - Requires board with mini-PCIe USB support
  - Higher cost than USB modem

Modem interfaces

- PPP emulation
  - Wide list of supported modems
  - PPP emulation speed limit of approx. 25Mbps
- Ethernet emulation
  - No limitation of the speed like in PPP emulation
  - Small list of supported modems

PPP client configuration

- USB port needed
  - ‘/port print’
- PPP client located in ‘/interface ppp-client’
- Data and Info channels for modem communications
  - Some modems have only one active channel
- Dial-on-demand setting is enabled by default

LTE interface configuration

- LTE interface can be used for 2G/3G/4G modems if they support Ethernet emulation driver
- LTE interface configuration located in ‘/interface lte’
- Two options for configuration (depends on modem)
  - WEB interface configuration located on the LTE interface gateway IP where the main configuration like APN,PIN and other options are set
  - Direct configuration on the LTE interface in the RouterOS

LTE network-mode and band setting

- Network-mode setting allows to enable/disable the GSM, 3G or LTE mode
  - Some of the modems do not allow to customize this option
  - Some of the modems support higher technology preffered option. Example:
    - Using “3G,LTE” mode modem will use LTE mode as preffered
- Band setting allows to customize allowed LTE bands
  - Not all of the modems support this feature
  - Only LTE bands are changed (GSM and 3G bands are not changed)

LTE interface IP address

- LTE interface IP address/default-gateway is added depending on the LTE model:
  - For most of the LTE modems the IP address/default-gateway is added by using DHCP-Client on the LTE interface
  - For a few LTE modems like SXT LTE the IP address/default-gateway is added directly from the LTE interface without DHCP-Client
- SXT LTE also supports the IPv6 address on the LTE interface

at-chat command

- Starting from RouterOS v6.40 “user-command” from lte info command will be replaced with “at-chat” command
- Output format of this command will help to use values in the scripting more easier than “user-command” implementation
- Example:
  /interface lte at-chat lte1 input="AT*mrd_imei\?"

  output: *MRD_IMEI:356159060388208

  OK

SMS on LTE interface

- Starting from RouterOS v6.37 it is possible to send and receive SMS on LTE modems
- SMS feature allows to send custom status messages and execute scripts on the router by receiving SMS messages
- Some limitations/requirements applies:
  - Sending and receiving SMS will only work when LTE interface is in Running state (connected to cellural network)
  - SMS tool supports only “GSM 7” encoding for SMS messages

GPS support on LTE modem

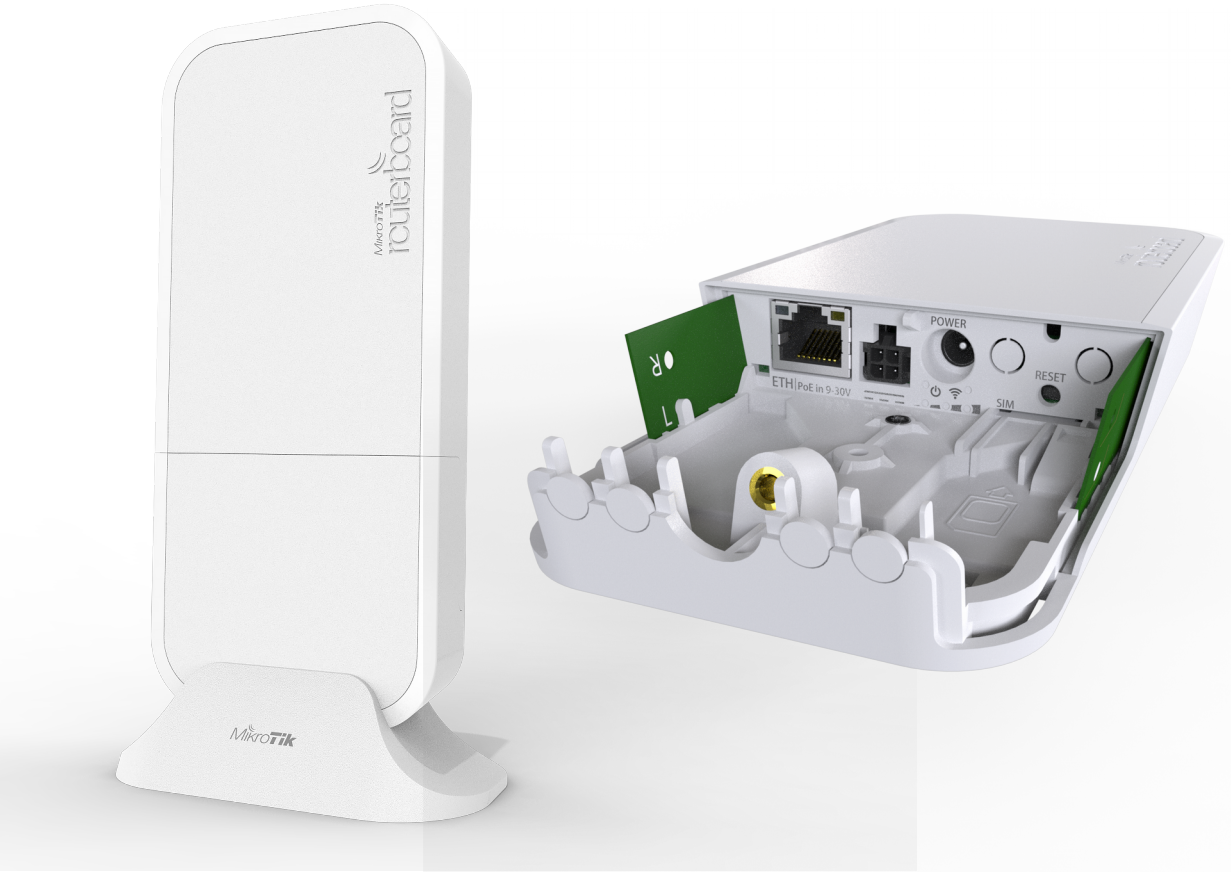
- Some LTE modems support GPS function
- Supported GPS interface from LTE modem will be recognized as USB port which can be used for GPS tool
- Some GPS modems require specific AT init-string command to start GPS on the LTE modem
  - Configuration on the ‘init-string’ command is located in the ‘System → GPS’ menu

RouterBOARDs with modem support

- All RouterBOARDs with mini-PCIe slots support modems except RB800
- All RouterBOARDs with USB ports support USB modems except boards where the USB port is used only for powering
- If modem is locked up it is possible to reset the power for it via RouterOS
- RouterBOARDs that support “USB power reset” feature:

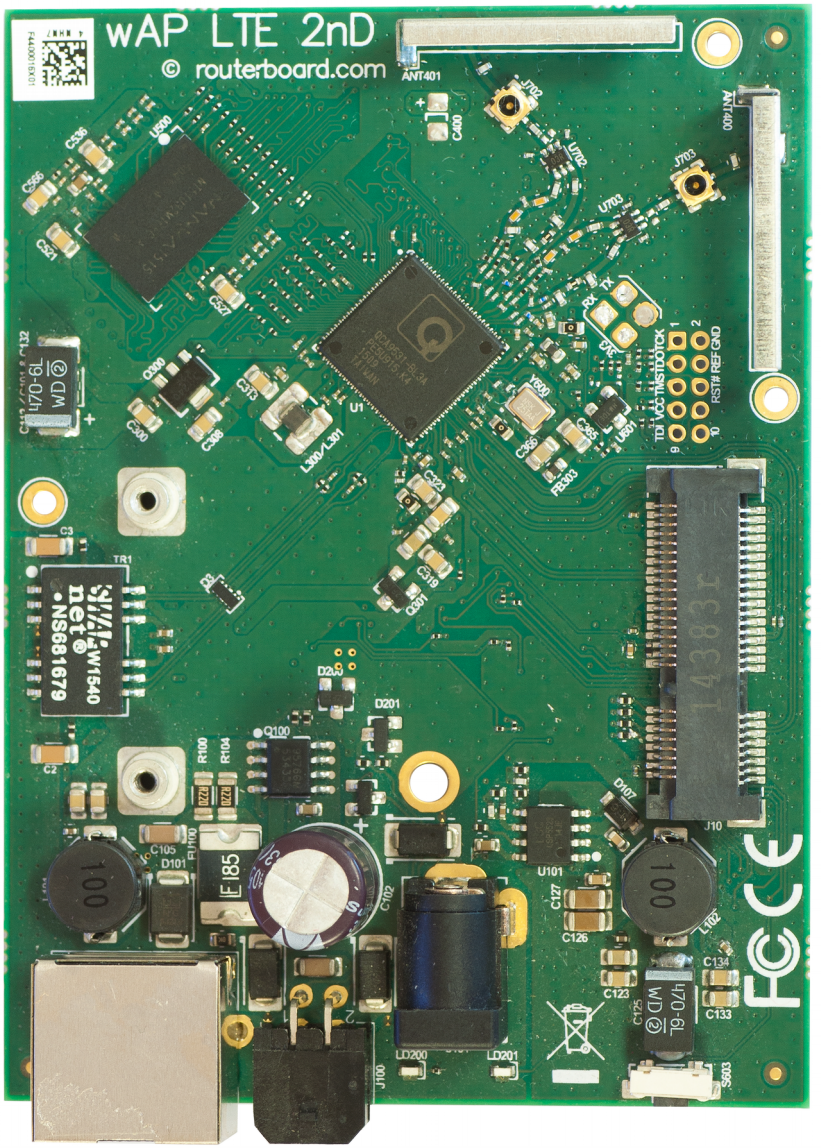
  https://wiki.mikrotik.com/wiki/Manual:USB_Features

wAP LTE kit



- wAPR-2nD board with case
- mini-PCIe LTE modem card
- 2 built-in LTE antennas in the case for LTE modem
- Table stand for case

wAPR-2nD



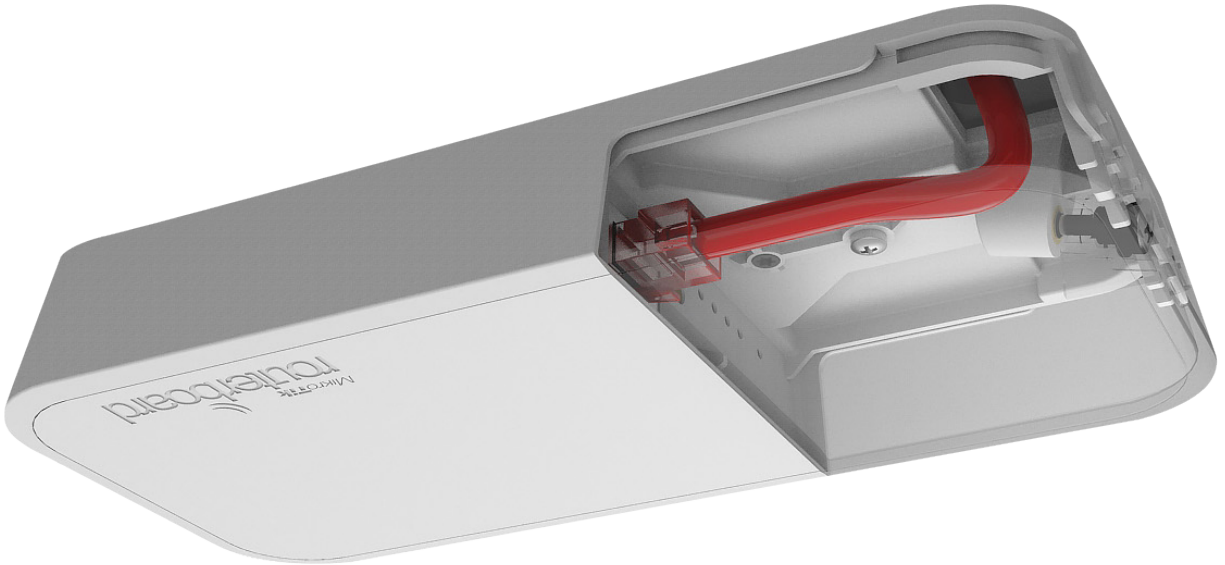
wAP LTE features

- 2 chain 2.4Ghz wireless radio built-in
- Mini-PCIe slot for LTE modem
- miniSIM slot for LTE modem
- 2 integrated antennas in case for LTE interface
- Jack, PoE, 4-pin automotive power option
- Supports passive PoE
- High operating temperatures
- Suitable for indoor, outdoor and mobile operation
- Weatherproof case design

wAPR-2nD specification

- CPU 650MHz
- RAM 64 MB
- Flash 16 MB
- Wireless 802.11b/g/n dual-chain
- One Mini-PCIe slot for LTE modem
- 2dBi gain antennas for 2.4ghz wireless
- 2-4.5dBi gain antennas for LTE
- Ethernet 10/100Mbps
- Voltage 11-30V
- Consumption up to 7W
- Operating temperatures -40 to +60C
- Dimenstions 185 x 85 x 30 mm

Usage cases - mobile



Use it on the ceiling inside a car, bus or train

- wAP LTE kit comes bundled with all the necessary things to be mounted on ceiling
- Cable breakout provides ability to run cable through the ceiling

Usage cases - wall

Use it on the wall

- Wall mounting is easy thanks to the provided drill template and screw anchor.
- Everything is included

Usage cases - table

Use it on the table

- Use special plastic stand to place it on the table at home or office

Supported LTE modems

- RouterOS supported Mini-PCIe LTE modules:

  https://wiki.mikrotik.com/wiki/Supported_Hardware
- MikroTik will provide bundle “wAP LTE kit” with a Mini-PCIe LTE module and antenna mounted together:
  - LTE module will be different depending on the region as LTE supported bands are not the same in each region

LtAP mini

LtAP mini features

- Most features of wAP LTE
- Mini-PCIe slot for LTE modem
- 2 switchable miniSIM card slots for LTE modem
- Jack, PoE and micro-usb port powering options
- 10-57V Voltage support and 802.3af/at support
- Built-in 2 chain 2.4ghz wireless radio with built-in antenas
- Built-in GPS chip with small built-in antenna and external connector
- Special place for 3 SMA connectors for external LTE and GPS antennas
- RS-232 Serial port for configuration or monitoring external devices

Suggestions?
Feature requests?

For more information on “wAP LTE kit”
and “LtAP mini”
please talk to MikroTik staff

Thank you!