

# TRB245 Firmware Downloads

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This page contains firmware files for TRB245 devices. Look to the table below or the [changelog](#) to find download links.

To upgrade firmware using WebUI, follow the instructions in [TRB245 Firmware](#).

## TRB245

File	Type	Release date	Size	MD5	Changelog
<a href="#">TRB2_R_00.07.06.10_WEBUI.bin</a>	Latest FW	2024.04.04	10.19 MB	6d4d3497e47eef0b33b7772c8c6d12df	<a href="#">Link</a>
<a href="#">TRB2_R_00.07.06.10_WEBUI.bin</a>	Mass production FW	2024.04.04	10.19 MB	6d4d3497e47eef0b33b7772c8c6d12df	<a href="#">Link</a>
<a href="#">TRB2_R_GPL_00.07.06.10.tar.gz</a>	SDK	2024.04.04	20.96 MB	ec06cbddb4be905aeeb4066e16cbd66a	

**Note:** packages for [Package Manager](#) are independent from firmware and can be downloaded in the [Package Downloads](#) page.

## FW checksums

Checksums for firmware files can be found [here](#).

## Changelog

**Global RUTOS changelog can be found here:** [LINK](#)

\* This is universal changelog of RUTOS. Changes made to features that are not present in some devices, do not affect them.

### [TRB2\\_R\\_00.07.06.10](#) | 2024.04.04

- Global changelog for **R\_00.07.06.10** - [LINK](#)

### [TRB2\\_R\\_00.07.06.8](#) | 2024.03.25

- Firmware **R\_00.07.06.8** was removed due to an issue with inefficient memory allocation for LED control.

## [TRB2\\_R\\_00.07.06.6](#) | 2024.03.04

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- Global changelog for **R\_00.07.06.6** - [LINK](#)

## [TRB2\\_R\\_00.07.06.5](#) | 2024.02.21

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- Global changelog for **R\_00.07.06.5** - [LINK](#)

## [TRB2\\_R\\_00.07.06.3](#) | 2024.01.17

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- Global changelog for **R\_00.07.06.3** - [LINK](#)

## [TRB2\\_R\\_00.07.06.1](#) | 2024.01.04

- **Fix**
  - **Services**
    - Fixed issue with NTPclient zombie processes

## [TRB2\\_R\\_00.07.06](#) | 2023.12.20

- **New**
  - **Network**
    - Enabled IPv6 by default for mobile interfaces
    - Added operator blacklisting and whitelisting based on mobile country code
    - Added SIM card not inserted event in Events Log
  - **Services**
    - Added OPC UA Server
    - Added the ability to set port for TACACS+ in PAM service
    - Added switch to enable using root certificate authority for MQTT alarms in Modbus Client services
    - Added new alarm action "Ubus event" in Modbus Client services
    - Added new input "Modbus alarms" in Data to Server service
    - Added wget ping subtype support in Events Reporting service
    - Added new I/O SNMP OID that returns numeric I/O state
    - Added new Post/Get service action "mobile\_sim\_pin" for changing used SIM PIN code on the device
    - Added TLS support for OverIP serial functionality
  - **WebUI**
    - Renewed user interface design
    - Added network interface name change functionality
    - Added last resort configuration option for multiwan policy rules
    - Added indication when new modem firmware is available
    - Added mobile connection establishment display in mobile status page
    - Added default value for "Reset threshold" field in Low Signal Reconnect feature
  - **System**
    - Added ability to enable/disable SSH access for specific users in System Users
    - API support

- **Improvements**

- **Network**

- Disabled operator scan when SIM card is not inserted

- **Services**

- Expanded GRE VPN keep alive functionality to disable routes from unreachable tunnel
    - Added PKCS#12 certificate container authentication method in IPsec VPN
    - Added TLV message\_payload support for SNMP service
    - Added Purple.ai configuration profile
    - Replaced option "No leading zeros" with "Remove all zeros" in Over IP serial functionality
    - Added possibility to assign mobile interface in SQM service
    - Added additional anonymous phone number validation in Mobile Utilities service
    - Added "N/A" signal strength response in DNP3 service if SIM card is not inserted

- **WebUI**

- Improved Events Log page loading by adding asynchronous pagination
    - Removed requirement for Diffie-Hellman parameters in OpenVPN service
    - Added improvements for creating OpenVPN IPv6 configurations
    - Added auto redirect after changing router's IP address or port
    - Added "Interface" dropdown for interfaces selection in Wake on LAN service
    - Increased Data to Server service MQTT topic length limit to 65535 characters
    - Added OSPF external routes section to Status page
    - Moved device menu entry "Reboot" to header menu
    - Added indication in Overview, Status -> Mobile and WAN pages when mobile data limit is reached
    - Updated Operator state field to show if modem is in limited service
    - Combined Mobile Usage day, week, month and total pages into one
    - Updated Realtime data -> Mobile signal page design to show all available modems and their bands data in one graph
    - Added message when SIM card requires PIN/PUK code in Status -> Mobile page

- **System**

- Added Mosquitto CVE patch 2023-28366
    - Added Mosquitto CVE patch 2023-3592
    - Updated cURL version to 8.4.0
    - Updated kernel version to 5.4.259
    - Added RMS data display to generated troubleshoot
    - Added downloaded Package Manager packages list to generated troubleshoot
    - Added process activity load list to generated troubleshoot
    - Changed default OPKG feed to use Teltonika's URL

- **Fix**

- **Network**

- Fixed DMVPN firewall rule creation issues
    - Fixed Failover missing active rules when using multiple source and destination IP addresses
    - Fixed mobile service crash due to buffer overflow while reading partially overwritten SMS
    - Fixed an issue with Manual APN connection making attempts too rapidly
    - Fixed deny data roaming functionality when transitioning between roaming and home operator network
    - Fixed network disconnection on mobile network detach and DHCP lease loss

situations

- Fixed VoLTE configuration after modem reboot
- Fixed Mobile interface bridge and passthrough mode connectivity loss
- Fixed an issue where rarely PIN code would get removed after SIM switch
- Fixed mobile operator list being not updated after changes in WebUI
- Fixed issue where mobile interface was unreachable after device reboot or interface restart while using Failover service

◦ **Services**

- Fixed SSH module enable in PAM service
- Added minimum free space check when saving logs to flash in Logging service
- Fixed "Set multiple coils" function sending too many bytes in Modbus Client services
- Fixed multiple Events Reporting messages being sent when Firewall configuration is changed
- Fixed VRRP instances advertising wrong virtual IPs
- Added Hotspot information in SNMP MIB file
- Fixed registered Hotspot Local Users showing random username
- Fixed selection of MAC Auth for LAN interfaces in Hotspot service
- Fixed inconsistent Hotspot login behaviour when using MAC Auth with Password
- fixed instance shutdown after last local user deletion
- Fixed RMS Hotspot data display for devices without WiFi support
- Fixed Cumulocity app not sending any telemetry data
- Fixed Call Utilities failure when caller id is hidden during a call
- Fixed AVL with poor mobile connections
- Fixed default profile SMS Utilities I/O status rule configuration in Profiles functionality
- Fixed serial timeout not working in Over IP serial functionality
- Removed "Echo" option in Modbus TCP over Serial functionality
- Fixed CRC verification failing when CRC is correct in Modbus TCP over Serial functionality
- Fixed crash when getting unexpected messages from RTU in Modbus TCP over Serial functionality
- Fixed RMS I/O data display to return values calculated by formula

◦ **WebUI**

- Fixed side menu style issues when Japanese language is used
- Fixed displaying of vendor names in Topology page
- Fixed language packs being selectable when still in Package Manager queue
- Added ability to configure IPv6 BGP peer
- Fixed realtime graphs responsive design issues
- Fixed not all LAN interfaces shown in dropdown in Hotspot service page
- Fixed modem updater legacy firmware flashing

◦ **System**

- Patched FRR CVE-2023-38406
- Patched FRR CVE-2023-38407
- Patched FRR CVE-2023-41358
- Patched FRR CVE-2023-41360
- Patched FRR CVE-2023-41909
- Patched FRR CVE-2023-47234
- Patched FRR CVE-2023-47235
- Patched OpenSSL CVE-2023-3446
- Patched OpenSSL CVE-2023-3817

- Patched LibXML2 CVE-2023-39615
- Patched LibXML2 CVE-2023-45322
- Patched FFMPEG CVE-2021-28429
- Patched FFMPEG CVE-2022-48434
- Patched dnsmasq CVE-2023-28450
- Fixed running out of space when SSHFS is mounted in /tmp while generating troubleshoot

## [TRB2\\_R\\_00.07.05.4](#) | 2023.11.09

- **Improvements**

- **WebUI**

- Improved asynchronous pagination in events log pages
    - Optimized Overview page load
    - Added resource loading cancellation after switching to different page

## [TRB2\\_R\\_00.07.05](#) | 2023.10.09

- **New**

- **Network**

- Added "shared.m2m.ch" APN for Swisscom IoT operator to APN database
    - Added "gamma" APN to auto-APN database
    - Added "soracom.io" APN for Soracom operator to APN database
    - Added "simbase" APN to auto-APN database
    - Added "pnd" APN for Pond IoT to auto-APN database
    - Added "spitfire1" APN for Spitfire operator to APN database
    - Software Offloading enabled on default configuration
    - New argument in "gsmctl" CLI command for Carrier aggregation
    - Numeric mode support for modem AT commands
    - Enabled dynamic MTU configuration on mobile interfaces by default

- **Services**

- DLMS Client package
    - 7zip package
    - TincVPN package
    - Added router uptime and mobile connection uptime data parameters to SNMP
    - Custom MQTT publisher/subscriber topics definition support
    - Alternative configuration file upload support for MQTT Broker service
    - Device Provisioning Service support for Azure IoT Hub service
    - Added more mobile usage parameters to SNMP
    - SIM Idle Protection package
    - AVL collection based on minimum accuracy for GPS service
    - Moved SOcat to Package Manager

- **WebUI**

- Firewall status page
    - Page search feature
    - Network Topology page
    - "Allow insecure connection" option for MQTT TLS protocol in Data to Server service
    - Package Restore feature Enable/Disable option
    - Hotspot client connection/disconnection trap option for SNMP service
    - Added Events log trap option for SNMP service
    - Confirm dialog when cancelling a verified package in Package Manager

- "Bridge ALPN" option for Bridge configuration in MQTT Broker service
- New subtypes of events that specify a specific port on "Events Reporting" and "SNMP Trap rules" pages
- Specific firmware packages repository link in Package Manager page
- Ability to enter decryption passphrase for encrypted private keys
- "Reconnect" button in RMS page
- New event "Device startup completed" in Events Reporting service
- "Write to config" option for SIM Switch action in I/O Juggler service
- Added formula for analog signal value conversion to other unit value
- Configurable GPS NMEA prefix
- Support for using hostnames in "Server address" field for NTRIP service
- "Start up message" field for Modem control serial utility
- Modem Debug page
- APN database management page added to package manager
- Added "Message forwarding" option in SMS Rules page when rule type is "Execute custom script"
- Ability to unblock SIM card and insert SIM PIN in Overview page
- New SMS rules "Reset mobile connection" and "Reload config"
- "SMS limit clear due" display in Overview page
- Added modem temperature to System -> Status page
- New "Server+Client" work mode for OverIP Serial Utility
- New "Connect on data" action for OverIP Serial Utility
- Multiple Client instance support for OverIP Serial Utility
- **System**
  - Mechanism to rebrand WebUI using GPL
  - Possibility to create web applications with closed-source GPL
- **Improvements**
  - **Network**
    - Moved FRR VTYSH package to package manager
    - Made newly created Firewall Traffic, NAT rules and Port Forwards disabled by default
    - Improved Interfaces to enable IPv6 DHCP server when mobile v6 or v4v6 PDP type is set
    - Improved auto APN selection
    - SMS sending event is now logged into events log
    - Improved roaming control
    - Removed unused APN usernames and passwords from auto-APN database
    - Added connection to the operator when no mobile interfaces are active
    - Improved VoLTE management functions
    - Improved cases where Low Signal Reconnect sometimes executed prematurely
    - Improved wrong SIM PIN remove logic
  - **Services**
    - New reworked Data to Server
    - UPNP moved to package manager
    - Added IPv6 support for Modbus TCP Server/Client services
    - Refactored Azure IoT Hub service
    - Improved resiliency to timeouts in Modbus Client service
    - Added PDU data type to Modbus read requests
    - Added new formatters for MQTT alarms in Modbus Client service
    - Added main section to make test functions independent in Modbus Client service

- Improved WAN IP register reading time in Modbus service
- Sped up default profile and profile template generation for Profiles functionality
- Optimized profile change time for Profiles functionality
- Added IPv6 support for Stunnel VPN
- Added MAC blocking for client connections after set amount of failed login attempts in Hotspot service
- Improved TCPdump by allowing to capture packets from any interface
- Added OSPF support for DMVPN
- Updated Hotspot password hashing to sha512
- Added Hotspot service support
- A single SMS message with multiple PDUs is sent instead of multiple SMS messages in Email to SMS service
- Allowed connection to SMPP server using IPv6 address
- Extended IP unblock action functionality in SMS Utilities
- Increased allowed Email to SMS service message size to 61440 bytes
- Added parameter "%gs" that sends GPS data in formatted info message
- Updated AVL to prefer checking network status through Failover if configured
- Added I/O pin name to trap notification message
- **WebUI**
  - Reorganized menu
  - Updated header design
  - Split Interfaces configuration in Advanced mode into two pages: WAN and LAN, identically as in Basic WebUI mode
  - Moved Interfaces IPv6 configuration into separate tab
  - Added client/server status information in OpenVPN instance overview page
  - Added more IPv6 information to interface status in Interfaces page
  - Removed "Custom delegated IPv6-prefix" field from DHCPv6 configuration in Interfaces page
  - Disabled DHCPv6 interface editing while in basic mode
  - Refactored custom DHCP options into separate modal
  - Added automatic start and end IP allocation for DHCP server configuration in Interfaces
  - Added client/server status information in L2TP VPN page
  - Added "MTU" field to L2TP client configuration page
  - Added CHAP, PAP and MSCHAP-v2 authentication fields to L2TP instance configuration
  - Added more detailed IPsec VPN status information
  - Encryption AES-256-CBC added as default in OpenVPN
  - Added "Authentication algorithm" support to OpenVPN configuration with static key mode
  - Added GRE (DMVPN) VPN tunnel source support to any instead of specific interface
  - Improved Hotspot landing page theme package removal
  - Added upload and download theme functionality to Hotspot Landing page
  - Improved ZeroTier VPN bridge configuration
  - Added ability to adjust order of rules in Firewall page
  - Added IPv6 RAW table to be displayed in Status -> Firewall
  - Improved file upload component's visual appearance
  - Change "Allow anonymous" option default value to 0 in MQTT Broker
  - Added option to specify "Client ID" in MQTT Publisher
  - Added functionality to select specific interface in Web Filter service

- Allowed to select FTP server subfolder in Traffic Logging service
- Renamed various service master/slave naming convention in config files, package names and webUI to client/server
- Added "Create static" button in Status -> Network -> LAN which bind DHCP lease for device
- Updated Status -> Network -> Mobile page layout
- Added bandwidth, provider in Status -> Network -> Mobile page
- Added colors for signal strength values in Status -> Network -> Mobile page
- Added frequency, pcid, mcc, mnc and LAC values in Status->Network->Mobile page
- Refactored network type selection in Network -> Mobile -> General page
- Serving cell information is not returned anymore when SIM card is not inserted
- Changed default "Check interval" option value in Network -> Mobile -> SIM Switch page
- Added button in a Scanned operators table which allows to add an operator to the operator list
- Added search bar in Mobile Utilities -> SMS Utilities page
- Added SMS sent and limit count to Network -> Mobile -> General page
- Added GPS longitude and latitude data in TR069
- Updated Mobile Signal graphs to show EC/IO and RSCP values when network type is 3G
- Added IPv6 support in OverIP serial utility
- Updated "Change SIM" action type to display configured SIM target in I/O Juggler -> Actions overview page
- **System**
  - Updated kernel version to 5.4.251
  - Updated UCI version to 2021-10-22
  - Updated SSHFS version to 3.7.1
  - Updated FRR suite to 8.4.2
  - Updated cURL version to 8.2.0
  - Updated TCPdump version to 4.99.4
  - Updated C-ares version to 1.19.1
  - Updated iproute2 version to 5.19.0
  - Updated libubox package version to 2021-08-19
  - Added CVE patch CVE-2023-2650
  - Added additional firmware information in CLI prompt banner
  - Connection mode LED now blinks on data transfer
  - Changed "routername" to "devicename" in system config file
  - Made all clients get disconnected out once dropbear service is disabled
  - Improved firmware downgrade restrictions for certain regions
  - Device name is now displayed in browser tab when in WebUI login page
  - Added NF conntrack information in generated troubleshoot archive

- **Fix**

- **Network**
  - Fixed UDP Broadcast Relay service crashing on start without physical network device
  - Fixed SMS limit period migration
  - Fixed SMS limit size breaking various functionality
  - Fixed custom IPv6 DNS option not overriding default DNS from operator
  - Fixed an issue with blacklist and whitelist connection



- Fixed multipart SMS handling
- Changed modem init behavior if Modem Control serial utility feature is enabled
- Fixed wrong SIM state display when SIM is fully blocked
- Fixed incorrect virginmobile APN MNC
- Fixed mobile operator scanning fault when no mobile interfaces are active
- Fixed mobile interfaces generating multiple events on mobile connection
- Fixed PDU SMS parsing when operator provides user data header in single part SMS
- Added scheduled data limit clear for inactive mobile interfaces
- Fixed connection tracking for main interface in Failover
- **Services**
  - Fixed reconnecting to inactive connections for Modbus Server service
  - Fixed Modbus Client response after reboot write request
  - Fixed Modbus Server to show error when trying to get operator name without SIM
  - Updated Modbus Client to handle large numbers of schedule rules, when frequency is set to schedule (Daini
  - Fixed "Input" rule displaying incorrect and missing ports in Network -> Firewall -> Traffic Rules
  - Fixed WireGuard VPN endpoint resolving problem
  - Peer cache is no longer deleted when ZeroTier service is restarted
  - Fixed RMS data collection about the list of devices connected to WiFi
  - Fixed showing incorrect Internet state in RMS
  - Fixed WiFi client info display in RMS
  - Implemented error handling when device is blocked or unrecognized by RMS
  - Fixed L2TP client sometimes not adding routes on successful connection
  - Fixed NTP time sync with browser functionality in some edge cases
  - Fixed reinstalled packages" verification when device name is changed
  - Fixed an issue where signal query would return invalid value instead of error in case of no signal in MQTT Publisher service
  - Fixed OpenVPN firewall rule creation for both IPv4 and IPv6
  - Fixed OpenVPN server crash loop after changing authentication from TLS to Static Key
  - Fixed IPsec VPN connection problem with small lifetime values
  - Fixed IPsec "Default Route" not working when Flow Offloading is enabled
  - Fixed an issue where system directory could be used as a mount point in SSHFS service
  - Fixed IP block feature to unblock an OpenVPN IP address on successful authentication
  - Fixed package installation process bug when packages have different architecture names
  - Added "bearer token" authentication functionality in Dynamic DNS
  - Fixed MQTT Broker "local\_port" option keep settings migration
  - Remove public keys when key-based authentication is disabled in Access Control
  - Fixed "Parity" field "Mark" and "Space" options being ignored in DNP3 Serial services
  - Corrected SNMP MIB file syntax according to standards
  - Fixed returned port count in SNMP
  - Fixed disabled CLI remote access taking up a session slot
  - Fixed received SMS messages parsing with trailing whitespaces
  - Fixed VPN status rule message text in SMS Utilities
  - Fixed data being lost when sending large packets to serial devices using OverIP

serial utility

- Fixed OverIP possible serial device overflow and minor bugs
- More robust error recovery for RTU communication in Modbus Client service
- Fixed UDP payload size in GPS AVL

◦ **WebUI**

- Fixed empty events cards in Overview page when no content is available
- Fixed modal form inputs not clearing upon closing after nested modal is saved
- Fixed select menu closing when selecting custom option
- Fixed multi select expanding table row when adding new values
- Fixed global section caching after deleting a section in a table
- Fixed unpredictable search logic in tables
- Fixed interfaces reordering by metrics in Failover page
- Removed ability to select ports on ICMP and ESP protocol in Failover page
- Fixed wrong status when interface is disabled in Failover page
- Fixed firewall zone and rule creation/deletion on VPN configuration creation/deletion
- Fixed STP enabling issue in Interfaces
- Fixed EIGRP status info in Dynamic Routes
- Fixed issue with custom DHCP options where you could not have multiple values per rule
- Fixed Routing/NAT Offloading section display in Network -> Firewall -> General Settings when device is not supported
- Fixed SSH/HTTP/HTTPS/ICMP setting in Network -> Firewall -> Attack Prevention page
- Fixed failing Firewall rules with united protocol formats
- Fixed zone select component not closing options menu when selecting an option in Firewall pages
- Fixed memory leak when cancelling file uploads on Chromium-based browser
- Fixed group settings saving by removing deprecated ":section" routes in Administration -> User Settings -> System Users
- Fixed allowing IDs above 247 in Modbus Client service
- Fixed selecting SIM in Modbus Client service Alarms
- Fixed Modbus Alarm telephone number limit
- Fixed to show available options for test requests on error in Modbus Client service
- Fixed Modbus Alarm I/O pin display values
- Fixed issue when creating instance named "gre" does not show in GRE VPN
- Remote endpoint field now allows underscore character in IPsec VPN
- Fixed ZeroTier wrong service status display in Status -> Services
- Fixed problems with L2TP/PPTP VPN firewall rules automatic creation
- Fixed problem related to the enable/disable toggle in OpenVPN instance overview page
- Added fixes for key-direction missing problem when uploading OpenVPN config file
- Fixed login page read-only inputs after custom user logout
- Fixed issue when double clicking firmware upgrade cancel button returned error
- Fixed Package Manager prompt message to appear when package requires network restart
- Fixed showing in queue packages when they contained special symbols in the Package Manager page
- Fixed various visual Side Widget bugs
- Fixed Data to Server DNP3 filter from flash display

- Fixed incorrect source data displayed in Realtime Data -> Connections table
- Fixed memory expansion confirmation prompt title
- Fixed incorrect configuration saving in Hotspot 2.0 service
- Disabled password hashing for new user creation in Hotspot service
- Fixed Hotspot landing page themes saving bug
- Fixed test email sending to more than one recipient in Events Reporting page
- Fixed VLAN OID values in SNMP service
- Output proper error message in case of hardware not being supported in Firmware Upgrade
- Fixed being able to open side widget when user does not have read access
- Fixed profile creation when current configuration is not present
- Fixed wrong protocol data display in "Access control" page
- Fixed carrier aggregation information when no connection is made or SIM card is not inserted
- Changed representation of mobile cell ID from hexadecimal to integer type
- Fixed Mobile Utilities "SMS forwarding to HTTP" URL generation
- Fixed an issue where sometimes bands were not represented correctly on certain modems
- Fixed provider information and IMSI value representation when SIM and modem cannot provide this information
- Fixed mobile pages throwing 404 error when modem disconnects
- Fixed WebUI showing mobile connection when no SIM card is inserted
- Fixed "Clear Collect Data" button logic to not clear overall mobile usage info
- Fixed "Used data" showing large negative numbers for disabled mobile interfaces with Data Limit enabled
- Fixed GPS AVL I/O trigger option filtering

#### ◦ **System**

- Patched CVE-2023-0386 vulnerability
- Patched CVE-2023-0464 vulnerability
- Patched CVE-2023-0465 vulnerability
- Patched CVE-2023-2602 vulnerability
- Patched CVE-2023-3772 vulnerability
- Patched CVE-2023-4128 vulnerability
- Patched CVE-2023-33476 vulnerability
- Patched CVE-2023-28484 vulnerability
- Patched CVE-2023-29469 vulnerability
- Patched CVE-2023-31490 vulnerability
- Patched CVE-2023-36369 vulnerability
- Patched CVE-2023-48174 vulnerability
- Delayed Custom Scripts execution on boot, after storage devices are mounted
- Fixed Custom Scripts permissions after save
- Changed certificate expiry calculation mechanism to fix Y2K38 bug
- Fixed downloading of certificates that have a space in their name in Administration -> Certificates -> Certificates Manager
- Fixed Events Log database rotation to prevent log partition space exhaustion
- Fixed duplication and sorting of all events IDs in Events Log
- Fixed FOTA crash when current hours is with leading 0
- Fixed crontab job removal after disabling FOTA
- Changed Mosquitto build options to not include cJSON library
- Fixed device name resetting to default upon refresh in Administration
- Fixed log messages not showing sent SMS info

## [TRB2\\_R\\_00.07.04.5](#) | 2023.07.24

- **Improvements**

- **Network**

- Improved MBN reselection algorithm when switching SIM
    - Improved SIM card change detection algorithm
    - Improved connection establishment speeds after sim switch
    - Added metric field support in BGP Route-maps page

- **WebUI**

- Updated SIM slot labeling in modem card Overview page

- **Fix**

- **Network**

- Fixed an issue with MBN selection when device is started for the first time
    - Fixed an issue where MBN activation would not be successful
    - Fixed service provider parsing when operator does not provide all fields for Quectel modems
    - Fixed a condition where mobile connection would not get established after a SIM switch
    - Fixed an issue with SIM switch causing connection problems
    - Fixed modem not establishing mobile connection by failing to parse MBN list

## [TRB2\\_R\\_00.07.04.4](#) | 2023.06.26

**Note:** Firmware version *TRB2\_R\_00.07.04.4* released on 2023.06.26 was removed due to an issue on certain modems with failing initial mobile connection after upgrading from *TRB2\_R\_00.07.02.5* or lower.

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- **Improvements**

- **Network**

- Improved mobile operator query methods and operator name parsing in various services

- **Services**

- Improved UPNP lease file validation

- **System**

- Device name is now displayed in browser tab when in login page

- **Fix**

- **Network**

- Fixed a connection issue with bridge/passthrough mode when reconnecting ethernet cable
    - Fixed long mobile operator list parsing for whitelist/blacklist functionality
    - Patched CVE-2023-32233 vulnerability
    - Fixed supported mobile bands setting
    - Fixed possibility to add a network that is not yet created on a firewall zone

- **Services**

- Fixed connection establishment for RMS MQTT service
    - Implemented partial restart when connection with RMS server fails
    - Fixed device name resetting to default upon WebUI page refresh
    - Fixed being able to set device name without passing validations

- Fixed WireGuard port change in firewall traffic rule when modifying instance port

## [TRB2\\_R\\_00.07.04.3](#) | 2023.05.11

- **Improvement**

- **System**

- Optimized firmware image size
    - Removed SSH RSA key generation
    - Added SSH ECDSA key generation

- **Fix**

- **Network**

- Fixed an issue with mobile when Call Utilities configuration is invalid
    - Fixed an issue where sometimes PIN/PUK code was deleted when performing a SIM switch

- **Services**

- Fixed incorrect mobile data usage provided to RMS service

- **System**

- Fixed an issue on bootloader web recovery hanging with certain firmware sizes

## [TRB2\\_R\\_00.07.04.2](#) | 2023.04.18

- **New**

- nftables support

- **Improvement**

- **Network**

- Added PDP profile registry and LTE SMS format functions & management for the Verizon network
    - Improved SIM detection algorithm
    - Improved Multi-APN connection establishment time

- **WebUI**

- Improved Overview page performance

- **System**

- Changed hostname to router name
    - Updated OpenSSL to version 1.1.1t
    - Updated CA certificates to version 20211016
    - Updated libiwininfo to version 2022-08-19

- **Fix**

- **Network**

- Fixed IPv4, IPv6 mobile connection restarts
    - Fixed operator scanning when mobile interface is disabled
    - Fixed data limit and tracking when software flow offloading is enabled
    - Added network reload call before bringing the mobile interface up
    - Fixed a segmentation fault issue which would occur occasionally when switching between SIM cards
    - Fixed Port-based VLAN ID calculation issue
    - Fixed PDP context authentication when using special characters

- **Services**

- Fixed event text for configurable inputs/outputs on I/O Juggler
    - Fixed I/O PIN3 value not changing via MODBUS TCP
    - Added I/O status request error handling in various WebUI pages when the I/O

- service is booting up
  - Fixed wrong timezone returned issue in Operator Station Synchronization & Timezone Synchronization
  - Fixed MODBUS TCP Slave memory leak issue when requesting mobile parameters
  - Fixed OpenVPN enabling/disabling when using Password or TLS/Password authentication modes
  - Fixed OpenVPN keep alive setting migration issue
  - Fixed PPTP server name setting migration issue
  - Fixed RS485 2nd stop bit support
  - Fixed missing WebUI issue caused by Email Relay installation
  - Fixed NTP's Operator Station Synchronization memory leak issue
  - Fixed test email validation
- **System**
  - Fixed libcares vulnerability CVE-2022-4904
  - Fixed frr vulnerability CVE-2022-37035
  - Removed ability for non root users to edit scripts that get executed as root

## [TRB2\\_R\\_00.07.04.1](#) | 2023.03.24

- **Fix**
  - **Network**
    - Fixed Data Limit issue

## [TRB2\\_R\\_00.07.04](#) | 2023.03.07

- **Improvements**
  - **WebUI**
    - Improved data persistence between page refreshes
    - Improved page navigation behavior
    - Improved redirect logic to open configuration edit modals
    - Updated the 'Status -> Mobile' page
    - Updated interface card in the Overview page
    - Separated Sent and Received data bars on the chart in the Mobile Usage page
  - **Network**
    - Added an info message displayed when a faulty SIM card is inserted
    - Added ResIOT operator's APNs to the APN database
    - Improved mobile connection re-establishment after reboot
    - Improved mobile connection recovery in cases where it was lost unexpectedly
    - Improved 'Deny data roaming' operation when switching between operators
  - **Services**
    - Added MQTT support to I/O Juggler
    - Added support for new NMEA sentences: GARMC, GAGGA, GAGSA, GAVTG, GBGSV, GBGSA, GQGSV, GQGSA
    - Added an error message when trying to send an SMS from the 'Send Messages' page with no SIM card inserted
    - Changed the behavior of setting the 'Write to config' flag in the 'mobileoff' SMS rule
    - Added argument support for the 'Execute custom script' SMS rule
    - Added a frequency option 'schedule' Modbus Master
    - Added pagination to Events Reporting overview
    - Added limit to Events Reporting rule list
    - Added email logging for Events reporting

- 'Sync with browser' button in the NTP page now also synchronizes the time zone
- Added a limit of 30 for NTP instances
- Made Networks selections in the 'Traffic Logging' page to display interface choices dynamically
- Added "make before break" option to IPsec configuration
- Added MODBUS TCP connection handling layer to MQTT-MODBUS Gateway
- Improved MODBUS Master connection handling to reduce connection count
- Updated modbus request error messages
- Added OpenVPN server ip block support
- Added MQTT support for MODBUS Master alarms
- Added the possibility to get the device's Ethernet port data via SNMP
- Improved error messages in the Serial Utilities page
- **System**
  - Updated bash to version 5.1.16
  - Added detailed FW update failure error message to Events Log
  - Improved firmware upload/validation error messages
  - Updated Turkish language support
  - Added protocol column to IP block page
  - Added "vpns.log" file to the Troubleshoot package
  - Added Wireguard tunnel information to the Troubleshoot package
  - Updated default admin group access rights
  - Updated DFOTA notification to show "More info" only when the update is forced
- **Fix**
  - **WebUI**
    - Fixed MAC address showing on mobile interfaces
    - Fixed mobile cell ID displaying in hexadecimal
    - Fixed mobile data limit card creation in the Overview page
    - Fixed modem widget disappearing from the Overview page
    - Fixed Services page not displaying data after Thingworx package is installed
    - Added DNP3 to the 'Status > Services' page
  - **Network**
    - Fixed interface priority change issue
    - Fixed a Custom Firewall Rule editing issue
    - Fixed DMZ configuration saving while it is disabled
    - Fixed Port Scan script execution failure
    - Fixed Firewall zone duplication issue
    - Fixed call function when VoLTE is disabled
    - Fixed VoLTE control when IMS is not enabled
    - Fixed mobile IPv6 IP checking when the device didn't get a correct IP address
    - Fixed APN authentication when using empty credentials
    - Fixed manual APN selection from list
  - **Services**
    - Fixed disappearing GPS NMEA and HTTPS fields
    - Fixed unused NTRIP option deletion on NMEA source change
    - Fixed I/O Scheduler overlapping instances issue
    - Fixed Input/Output image pin colors
    - Fixed issue that causes ADC subscribers to receive notifications for when ACL is active
    - Fixed DNP3 serial master not working when Stop bits are set to 2
    - Fixed DNP3 requests not deleting along with instance

- Fixed DNP3 memory leak occurring after spamming the test request button
- Fixed Serial Over IP related Firewall rule setting
- Added limitations on message size and quantity of email messages in Email to SMS
- Fixed SMTP HELLO value parsing issue
- Fixed SMS message window reset button
- Fixed not being able to save empty 'Message text' field in Auto Reply
- Fixed multi-part SMS concatenation
- Fixed multi-part SMS processing
- Fixed SMS error message on 'Mobile Data Reset' action
- Fixed Data To Server JSON format %n, %N and %s flag issues
- Fixed Events Reporting email data clean
- Fixed Events Reporting missing config selections
- Fixed GRE Tunnel's 'Tunnel source' field validation when the source is custom
- Fixed IPsec instance deletion after removing DMVPN package
- Fixed IPSec migration via Backup file when DMVPN is configured
- Fixed IPsec naming issue when the includes an equals sign
- Fixed L2TP client to use correct interface on failover events
- Fixed L2TP over IPsec connection dropping issue when connecting from a Windows client
- Fixed MODBUS database size limiting issue
- Fixed MODBUS MQTT Gateway client ID input
- Fixed MODBUS TCP Slave RSSI value
- Fixed MODBUS test button returning errors when several non-connected devices are configured
- Fixed NTP Etc/GMT+1 and Etc/GMT-1 time zones
- Fixed OpenVPN password validation when no CA certificate is uploaded or 'custom' template is selected
- Fixed OpenVPN Static Key configuration saving by making Static key upload required
- Fixed OpenVPN TLS client creation issue while LAN is down
- Fixed Package Manager displaying non-existent packages
- Fixed Package Manager errors showing up after successful installations
- Fixed Periodic Reboot entry duplication after a power cycle
- Fixed PPTP 'Client to client' option not being applied after save
- Fixed receiving excessive device state emails after a reboot is initialized over RMS
- Fixed WebUI unavailability after unsuccessful package install
- **System**
  - Fixed vulnerabilities CVE-2022-3524, CVE-2022-3566, CVE-2022-3567, CVE-2022-39188, CVE-2022-45934, CVE-2022-47929
  - Fixed bash vulnerability CVE-2022-3715
  - Fixed CGI-IO file download vulnerability CVE-2022-38333
  - Fixed libxml2 vulnerability CVE-2022-40304
  - Fixed libcurl vulnerabilities CVE-2022-43551 and CVE-2022-43552
  - Improved file upload logic
  - Fixed GPL firmware compilation with selected Tinc package
  - Fixed OpenVPN Static Key migration via keep settings issue
  - Fixed NTP time zone name setting migration when the name contains whitespaces
  - Fixed language setting issue
  - Fixed integer validation on industrial services
  - Fixed LED indications when PDP type is IPv6
  - Fixed issues with PDP type and SMS limit period migration via keep settings



## [TRB2\\_R\\_00.07.03.4](#) | 2023.02.09

- **Fix**
  - **Network**
    - Changed generic modem restart method
    - Fixed mobile page VoLTE switching issues
  - **Services**
    - Sanitized tcpdump storage location
  - **System**
    - Fixed CVE-2023-32349 vulnerability

## [TRB2\\_R\\_00.07.03.2](#) | 2023.01.13

- **New**
  - **System**
    - Japanese language
- **Improvements**
  - **Network**
    - Optimized mobile netifd script installation
- **Fix**
  - **Network**
    - Shortened modem hang monitor timeout
    - Fixed VLAN option setting when changing VLAN ID
  - **Services**
    - Fixed RS485 not receiving data without transmitting prior

## [TRB2\\_R\\_00.07.03.1](#) | 2023.01.03

- **Improvements**
  - **System**
    - Remove front-end certificate validation
  - **Network**
    - Optimized mobile netifd script installation
- **Fix**
  - **Network**
    - Fixed modem communication validation
    - Fixed connection establishment in IPv6 only mode
  - **Services**
    - Fixed libxml2 vulnerability CVE-2022-40303
    - Fixed an IPsec Phase one & two setting migration issue
    - Returned missing udp\_client\_count option to Over IP mode
    - Fixed operator index in DNP3 outstation; added GPS resubscribe; fixed segfault when GPS is enabled
  - **System**
    - Fixed JSON key parsing; keys can now be any printable character sequence
    - Fixed memory leak in 'session' module
  - **WebUI**
    - Fixed file pretty name parsing

- **New**

- **Network**

- Firewall DMZ page

- **Services**

- Java package
    - SFTP server support
    - OPC UA client
    - NTRIP
    - BACnet
    - Modbus Serial Slave

- **System**

- Portuguese language
    - Spanish language
    - Turkish language
    - Email Relay package

- **WebUI**

- New Web menu design

- **Improvements**

- **Network**

- Updated modem handling, attachment, tracking and connection establishment processes
    - Added the possibility to select multiple ports in all firewall port fields
    - Added 'Match' traffic by type option to firewall traffic rules
    - Added DNS servers and routing table fields to the Wireguard page
    - Improved generating network topology
    - Moved Relayd, UDP Relay & Static Leases to the Interfaces menu section
    - Update Firewall Traffic Rules page with DSCP and MARK options
    - Added keepalive, holdtime and connect timers to BGP configuration
    - Added 'Use gateway metric' to network protocols web interface
    - Added more DHCPv6 client events to system log
    - Moved IP Filter rules from Modbus TCP Gateway and Over IP services to Firewall page
    - Added option to select subnet parameters in mobile Passthrough/Bridge modes
    - Added WhereverSIM operator APN and fr.lebara.mobi APN to APN database
    - Added mobile connection state for IPv6
    - Added switch back to default SIM after SIM Switch service disable
    - Added wget tracking method to WAN Failover
    - Added interface checks to remove inaccurate Failover events from the Event Log

- **Services**

- Added the possibility to switch profiles on GPS geofencing events
    - Added satellite count and accuracy columns to GPS Map page
    - Added execute custom script SMS Utilities rule
    - Added receiver and transceiver mode support to SMPP
    - Added timezone synchronization with GSM operator option to NTP Client
    - Updated Zerotier web interface
    - Added IPsec Flush connection option on tunnel initialization
    - Added MODBUS slave regfile validation
    - Added delay, number of timeouts, always reconnect options to MODBUS Master

service

- Added DMVPN Phase 2 and Phase 3 support
- Added synchronization counting to NTP client
- Expanded the data that is sent to the Cumulocity cloud with device log, mobile data usage and GPS data
- Added 'Unregister' button to RMS page
- Added new data monitoring options to SNMP: configuration state of wireless, smart queues & VLANs
- Updated Zerotier package to version 1.10.1
- Added automatic package removal upon failed installation in Package Manager
- Added option to describe custom routing table and MTU auto counting to Wireguard VPN
- Added IP blocking to MQTT Bridge for failed login attempts to prevent bruteforce attacks
- Updated sqm-scripts to version 1.5.1
- Improved MODBUS Master service: added multiple datatypes, added multiple register reading for alarms
- Added monthly reboot option to periodic reboot function
- Added support for multiple custom option selection to SSTP configuration
- Added PKCS12 certificate chain support to OpenVPN
- Improved MQTT to support multiple port listening, multiple bridge connections, notification settings and added support for custom configuration file
- Added QoS selection to MQTT Modbus Gateway
- Improved RAM usage during upload and installation of packages via Package Manager
- Updated curl to version 7.86.0
- Added brute-force prevention measures to Post/Get
- Added automatic private and public key generation to Wireguard VPN
- Added multiple Remote source IP support to IPsec
- Added the possibility to configure multiple IPsec phase 1 and phase 2 proposals
- Added functionality to rotate log file when log is saved to Flash memory
- Improved performance while fetching packages on repeat visits to the Package Manager page
- Added custom value calculation to ADC and ACL pins
- Added MODBUS TCP Slave registers to store Analog Current Loop value

◦ **System**

- Added a 'test mail' button to the Administration -> Recipients page
- Added option to clear blocked IPs in the Access Control page after reboot
- Updated Web Request-Response core logic
- Added certificate validation to all services that support certificate upload
- Updated URL protocol validations
- Removed profile update requests during Save & apply
- Optimized profile switching logic

◦ **WebUI**

- Added an indication to the Interfaces page that displays when data limit is enabled
- Added bootloader version to the Device section in the System page
- Added configuration page shortcuts to Overview page widgets
- Added tooltip in Overview that show free, used and total RAM/Flash values on mouse cursor hover
- Updated network interfaces protocols web interface
- Updated 404 page to include navigation menu

- **Fix**

- **Network**

- Fixed jumbo frames MTU issue
- Added the 'Any' choice to source & destination IP address field in NAT rule edit
- Fixed NHRP web interface issues
- Fixed WAN interface configuration interfering with LAN
- Fixed mdcollect memory leak issue
- Fixed data limit not resetting properly
- Fixed incorrect mobile data usage calculations for multiple day periods
- Fixed an Auto APN 'Keep settings' issue
- Fixed data counting after mobile data limit has been reached
- Fixed mobile band not setting correctly on first try
- Fixed incorrect data limit conditions causing unwanted SIM switches
- Fixed Passthrough DHCP lease time setting
- Fixed mobile bridge mode issue when no DNS servers are supplied
- Added new Operator Lists instance name validations
- Fixed SIM Switch issue on newly created mobile interfaces
- Fixed switch back to primary SIM rule disable when the default SIM is changed
- Fixed incorrect SIM Switch behavior on low signal value
- Fixed Wired WAN connectivity issue when Failover interfaces are disabled
- Fixed Failover fallback issue
- Fixed mobile passthrough mode for single ethernet port devices

- **Services**

- Corrected serial connection baud rates
- Fixed hostname resolution in 'Over IP' serial type
- Fixed RS232/RS485 starting issues
- Fixed relay state switching
- Fixed Save & Apply issue with ADC/ACL type condition on I/O Juggler
- Added I/O restart on configuration profile change
- Fixed I/O voltage range display for power socket pins
- Fixed SMNP OID for I/O state
- Fixed I/O Juggler SMS text message Save & Apply issue
- Fixed Delay field in GPS HTTPS/HTTP Server Settings section
- Fixed AVL packet timestamp display
- Fixed issue that prevented GPS map display after clearing cache
- Removed unnecessary field from the Port Mirroring page
- Fixed Events Reporting 'Changing to SIM1/SIM2' options
- Fixed I/O analog voltage type display issue
- Fixed UCI SMS Rule return message to display new changes
- Fixed DNP3 issues when asking for modem temperature
- Fixed base64 encoding of SMS messages when forwarding to HTTP
- Fixed SMS sending issues when using multiple APN
- Added Gateway modem option to IP Block and WoL in SMS Rule edit
- Fixed unblocking IP addresses with an SMS message
- Fixed Mobile Utilities page not load properly on some occasions
- Fixed dbus vulnerability CVE-2020-35512
- Fixed dnsmasq vulnerability CVE-2022-0934
- Fixed ext4 vulnerability CVE-2021-3428
- Fixed kernel vulnerabilities CVE-2021-3669, CVE-2021-4203, CVE-2022-1353, CVE-2022-3435, CVE-2022-20008, CVE-2022-30594
- Fixed libxm12 vulnerability CVE-2022-29824

- Fixed Linux vulnerabilities CVE-2021-4148, CVE-2022-0480, CVE-2022-1055, CVE-2022-0886, CVE-2022-2663, CVE-2022-36879 for v5.4
- Fixed MQTT DoS vulnerability CVE-2021-41039
- Fixed privoxy vulnerability CVE-2021-44542
- Fixed python3 vulnerability CVE-2022-42919
- Fixed strongswan vulnerabilities CVE-2021-41991, CVE-2021-45079
- Fixed uboot vulnerabilities CVE-2022-30552, CVE-2022-30790
- Fixed CVE-2023-32350 vulnerability
- Fixed switching between RMS connection types while the device is unregistered
- Fixed reload issues in website blocking feature
- Fixed IPsec PSK secret required field validation
- Fixed bandwidth limiting after QoS is enabled for the first time
- Fixed Dropbear issues when logging in over IPv6
- Fixed Modbus status in Status -> Services page
- Fixed Azure IoT Hub application issues when sending large volumes of data
- Fixed Azure IoT Hub MQTT password validation
- Fixed DMVPN configuration migration issue
- Fixed DMVPN duplicate select options, added suffix to mobile interfaces to use IPv4
- Fixed DMVPN IPsec connection issue
- Fixed DMVPN mobile interface 'Keep settings' migration issue
- Fixed Dynamic DNS long hostname text display issue
- Fixed Events Reporting memory leak issue
- Fixed Events Reporting not triggering after flipping an I/O slider
- Fixed FOTA cron job not starting after factory reset
- Fixed IPsec local firewall option parsing
- Fixed IPsec tunnel creation issue when compatibility mode is used and the tunnel name contains an underscore
- Fixed L2TP, PPTP, SSTP state display in the Status -> Services page
- Fixed NTP pool hostname validation
- Fixed OpenVPN certificate remove with Static key and TLS authentication methods
- Fixed OpenVPN configuration saving issue when using HMAC key authentication
- Fixed OpenVPN custom dev name transformation to correct format
- Fixed OpenVPN device name setting logic when uploading config from file
- Fixed OpenVPN instance status display
- Fixed OpenVPN TAP (bridged) configuration detection
- Fixed Qos configuration saving issue occurring after instance deletion
- Fixed RMS JSON incorrect WAN state and IP information
- Fixed RMS step access issue in the Setup Wizard page
- Fixed SNMP issues after reboot while using a Hotspot
- Fixed SNMP generating MIB files for devices in accordance with to their hardware
- Fixed SNMP traps not working after SNMP is installed from server
- Fixed SSTP client route creation issue
- Fixed UPNP secure mode not turning off issue
- Fixed Wireguard route to endpoint issue
- Fixed manual package installation for queued packages
- Fixed NAT Rules dependency from IPsec web instance
- Returned usleep utility
- Updated Australian and South African NordVPN server IP addresses

## ◦ System

- Fixed certificate signing issues
- Fixed Telnet, CLI access blocking after max invalid tries
- Fixed FW upgrade with 'Keep settings' while low free space is available
- Fixed backup file duplication issue
- Fixed network device handling in system
- **WebUI**
  - Fixed side widget accessibility during first login
  - Fixed file upload issues
  - Fixed drag and drop issue in the Traffic Rules page
  - Fixed protocol display in the overview of the Interfaces page
  - Fixed blocked IP settings migration during a FW upgrade with the 'Keep settings'
  - Fixed login errors after browser tab restoration
  - Fixed redirect to newly set IP address after Interface configuration
  - Fixed firmware upgrade verify spinner not closing
  - Fixed an issue with file upload via drag and drop

## [TRB2\\_R\\_00.07.02.7](#) | 2022.09.12

- **Improvements:**
  - Improved manual-auto connection mode
- **Fixes**
  - Fixed AT command for SMS storage usage
  - Fixed CVE-2022-1012 memory leak vulnerability
  - Fixed CVE-2022-37434 kernel vulnerability
  - Fixed GPS constellation settings
  - Removed memory leak on port events

## [TRB2\\_R\\_00.07.02.6](#) | 2022.08.24

- **Improvements:**
  - Added 'home.vodafone.de' APN
  - Improved stability of device information storage
- **Fixes:**
  - Added SMSC type omitting when empty SMSC number parsed in SMS PDU mode
  - Fixed VoLTE management
  - Fixed OpenVPN tls-auth and tls-crypt option names

## [TRB2\\_R\\_00.07.02.5](#) | 2022.08.12

- **Improvements:**
  - Updated curl to version 7.83.1
  - Updated firmware validation error messages
  - Added multiple source IP address support to the Port Forwards page
  - Increased custom APN Username & Password field maximum length to 64 symbols
  - Added auto switch to modem's SMS storage when SIM card storage doesn't exist
  - Improved mobile connection status handling
- **Fixes:**
  - Fixed CVE-2022-32205, CVE-2022-32206, CVE-2022-32207, CVE-2022-32208 curl

vulnerabilities

- Fixed CVE-2022-30065 busybox vulnerability
- Fixed file upload path traversal
- Removed Data to Server limit to process less than 10 instances
- Fixed Data to Server 'out of memory' crashes when database is full or has a large amount of data
- Fixed OpenVPN dev setting logic
- Fixed OpenVPN updating from legacy issue that caused IPv6 not to work
- Fixed MAC and leasetime setting for Bridge & Passthrough modes

## **TRB2\_R\_00.07.02.4 | 2022.07.20**

- Improvements:
  - Added default password change warning message before firmware downgrade
  - Extended time period for device to make connection to operator
  - Reduced the number of modem reboots when changing mobile settings
  - Reduced excessive log output when no SIM card is inserted
  - Added modem restart prevention on modem init
  - Added disable RPLMN option in the SIM section of the SIM card config
- Fixes:
  - Fixed CVE-2022-2068 vulnerability
  - Disabled autoconnect on stop-network call

## **TRB2\_R\_00.07.02.2 | 2022.06.27**

- Improvements:
  - Updated FSTools package to version 2022-05-03
  - Added security headers to web requests
  - Added ping to DNS IPv6 support
  - Added modem reset to default state after device FW upgrade
  - Modem init now checks NVRAM sensitive commands before setting
  - GSM output was made consistent
- Fixes:
  - Fixed CVE-2019-12900 libbz2 vulnerability
  - Fixed CVE-2022-23303 hostapd vulnerability
  - Fixed CVE-2022-29581 Linux kernel vulnerability
  - Fixed CVE-2022-29458 ncurses vulnerability
  - Fixed CVE-2022-1292 c\_rehash script command injection vulnerability
  - Fixed behavior of some gsmctl commands
  - Fixed band locking issue

## **TRB2\_R\_00.07.02.1 | 2022.06.06**

- Improvements:
  - Improved GSM related messages in Troubleshoot logs
- Fixes:
  - Fixed IGMP Proxy menu item not appearing after package installation
  - Fixed default mobile network configuration generation
  - Fixed MODBUS write requests and Mobile Utils option setting

- **New features**

- Overview side widget
- IGMP Proxy
- Privileged Access Management (PAM)
- AWS Greengrass support
- HTTPS certificate and key upload feature
- SSH public keys edit box
- License page
- WAN Failover
- DNP3 data for Data to Server

- **Improvements**

- Updated busybox to version: 1.34.1
- Updated curl to version 7.79.1
- Added iptables filter package for string filtering
- Added CHAP authentication for L2TP VPN
- Added IPv6 support for L2TPv3 VPN
- Added EAP-MSCHAPV2 authentication method for IPsec VPN
- Added IPv6 support to Auto Reboot
- Added 'Save to flash' and 'Test configuration' button to DNP3 configuration page
- Updated SNMP version 5.9.1
- Added OpenSSL authentication options to SNMPv3
- Added support for OSPF redistribution options and OSPF neighbors
- Added password field to BGP Peers page
- Extended BGP "AS" field validation to accept integers up to 4294967295
- Added "DHE+RSA" to OpenVPN cipher selections
- Increased OpenVPN max password length from 128 bytes to 512 bytes
- Made HMAC key direction initial value dependent on the role of the instance (client or server)
- Made HMAC key and HMAC authentication key upload fields required
- Added DES to IPsec encryption algorithms selections
- Added special character support for CHAP secrets
- Added validation requirements for PPTP user list username field
- Added option to manually enter Public key in Wireguard configuration
- Made generating Wireguard keys possible only while in auto mode
- Added Events Log database to troubleshoot archive
- Added RFC1918 filter field
- Added the possibility to unblock multiple blocked devices at once
- Added 'Port' column to blocked login attempts table
- Added Speedtest server refresh
- Updated Speedtest server list
- Added asterisk option to Site Blocking
- Added MD5 and SHA256 checksums to package validation page
- Changed certificate requirements to only require client key file if client certificate is used
- Added pagination and data retention between table pages
- Added pagination functionality to tables when there are more than 10 records
- Improved table sorting by saving user provided sort settings in the browser
- Improved drag and drop functionality



- Added the possibility to drag and drop files onto upload components
- Moved 'Root CA' from the 'Access Control' page to the 'Certificates' page
- Added 'Strict-Transport-Security' response header for HTTPS
- Added 'breadcrumbs' to modal windows
- Improved initial WebUI loading after login
- Added mobile bytes sent and bytes received SNMP OIDs
- Added mobile LED turn off feature ('System -> Administration' page)
- Added 'iot.1nce.net', 'internet', 'VZWINTERNET' and Truphone APNs to APN database
- Updated mobile usage data point calculation logic
- Added the possibility to manually enter operator number
- Improved obtain mobile cell ID process
- Added modem restart if SIM card is removed during APN database fetching process
- Added unauthorized call logging
- Added space character support in SMS commands
- Disabled SMS modem storage configuration form when SIM is not inserted
- Changed SMS '%wi' parameter value to return IP address of any currently used WAN interface (not only wired)
- Added external modem SMS limit Overview card and widget
- Made in-use APNs visible next to mobile interface configurations (before clicking the 'Edit' button)
- Added duplicate value check for list configuration options
- Changed mobile card instance design
- Fixed 'Mobile Data usage reset' SMS rule
- Fixed the default state parameter of SMS list POST/GET command
- Added AVL "Static Navigation" flag
- Added GSV parsing for NMEA collecting
- Added newline and GPS location actions to I/O Juggler
- Added I/O SNMP trap
- Added ISO 8601 time format to I/O Juggler's '%ts' parameter
- Added device name parameter '%pc' to I/O Juggler
- Added ACL or ADC SNMP trap notification on enter/exit/both
- Added ACL MQTT topic
- Added PPPoE VLAN priority support
- Made VRRP ping section dependent on main instance
- Added CRC verification support to MODBUS and RS232/RS485

## • Fixes

- Fixed CVE-2021-20322, CVE-2021-4197, CVE-2022-1011, CVE-2022-0847 kernel vulnerabilities
- Fixed CVE-2022-28391 busybox vulnerability
- Fixed CVE-2018-16789 shellinabox vulnerability
- Fixed CVE-2021-44543, CVE-2021-44542 privoxy vulnerabilities
- Fixed CVE-2021-43618 GNU Multiple Precision Arithmetic Library vulnerability
- Fixed zlib backport security issue
- Fixed Wireguard firewall zone assignment
- Fixed queued packages disappearing from list after FW upgrade with keep settings
- Fixed error message display for multiple input validation rules
- Fixed incorrect DHCP validation range for start and limit fields
- Removed 'Bring up on boot' option from network interface configuration pages
- Fixed coma-separated DHCP options disappearing after save
- Fixed exclude and listen interfaces

- Fixed 'Use broadcast flag' option saving
- Fixed firewall zone assignment when creating new interfaces
- Fixed OpenVPN 'Netmask' and 'IP address' field validations
- Fixed OpenVPN TAP configuration saving issue
- Fixed OpenVPN switching to TUN mode when uploading a configuration from file
- Fixed dynamic BGP route state display
- Fixed BGP peer enable in edit page
- Fixed issue when no L2TP client instance could be bound to IPsec
- Fixed firewall rule and zone behavior related to config section creation
- Added default value for L2TPv3 netmask, which is now written to config after save
- Fixed passthrough option saving to IPsec file
- Fixed DMVPN issue where instance configuration could not be saved
- Fixed Wireguard peer could not be saved issue
- Fixed NTP client time synchronization after factory reset
- Fixed device time display with selected time zone
- Fixed MODBUS TCP indexation missing bracket issue
- Fixed initial MODBUS TCP request count validation
- Fixed PIN 3/4 direction switching over MODBUS TCP
- Fixed MODBUS data to MQTT socket closing issue when connection fails
- Fixed MODBUS alarm configuration deletion
- Fixed DNP3 master not working after FW upgrade with 'keep settings'
- Fixed DNP outstation not returning error messages
- Added missing SNMP objects: mobile IP, data sent/received today
- Fixed MQTT Publisher 'Remote address' field validation
- Fixed long interface name support for Azure IoT Hub
- Increased maximum Azure IoT Hub 'Connection String' length to 4096 characters
- Fixed missing sent/received data issue
- Fixed URL input field length validation
- Fixed admin login issue after upload of backup from a device with older firmware versions
- Fixed MAC address formatting in Events reporting messages
- Fixed Events reporting DHCP lease message spam, when no new lease is added
- Fixed logging crashing after downloading Troubleshoot file
- Made Wake on LAN visible only on devices with Ethernet ports
- Fixed Traffic log file transfer to FTP server
- Fixed Web Filter service reloading after a host list file is uploaded
- Fixed access denied messages when sending JSON-RPC requests from root user
- Fixed error message display about duplicated intervals in Profile scheduler
- Fixed FW upgrade with 'keep settings' migration issue for Access Control's 'Fail count' and 'Device port' fields
- Corrected OSPF Routing card values, value positions and names
- Fixed global secret instances not being removed when there are no IPsec instances
- Fixed uploaded file remove icon not staying in position on hover
- Fixed Overview card collapse issue that made it unresponsive after too many clicks
- Removed WAN6 interface from the Overview page
- Fixed mobile IPv6 display in Events Reporting status messages
- Fixed Bridge mode when DNS2 is not available
- Fixed PAP/CHAP username and password fields not saving in interface edit window
- Fixed sending email without secure connection for providers that support such an option
- Fixed 'N/A' parameter showing up in SMS Utilities monitoring status message
- Fixed Call Utilities Events Log message for reboot rule

- Fixed SMS command validation for no-authorization option
- Fixed MODBUS SMS alarms 'Enable' option saving
- Fixed running RMS with no SIM card inserted issue
- Fixed firmware available on server version checking issue
- Fixed CVE-2020-15078 openvpn vulnerability
- Fixed storage calculation for packages
- SMS Utilities: enhanced service security
- Fixed firmware deletion after leaving the page
- Fixed setup wizard redirect after LAN IP change
- Fixed various validation bugs, typos, option hints & alignments
- Fixed multiple IPv6 configuration field validations
- Fixed unnecessary SIM switch issue when Multi-APN is configured
- Fixed MODBUS TCP slave modem not starting after switching SIM cards
- Fixed restoring GPS HTTPS options after FW upgrade with 'keep settings'
- Fixed missing NMEA sentences
- Fixed NMEA cache sentence calculation
- Fixed 'outside/inside range' condition for AVL I/O Analog input trigger
- Fixed relay output value display in I/O Juggler condition page
- Fixed I/O Juggler's WiFi rule not enabling or disabling WiFi interfaces
- Fixed I/O Juggler's double delete issue on I/O Juggler action and condition instances
- Fixed I/O Juggler's incorrect I/O status messages
- Fixed automatic port open after RS232/RS485 Over IP server & bidirect configuration changes
- Fixed 'iostatus' SMS rule
- Added multiwan support for Wireguard default route

## **TRB2\_R\_00.07.01.4 | 2022.02.25**

### **• Improvements**

- Increased Port Forwards rule max name length
- Added a new '%it' parameter for UTC time in ISO 8601 format to I/O Juggler
- Improved RS232 Port and Timeout validation

### **• Fixes**

- Added missing bracket to the end of MODBUS messages
- Fixed preserving the contents of /etc/luci-uploads/ after FW upgrade with the 'Keep all settings' option
- Fixed IPv4-Gateway column showing empty values in the Status -> Routes page
- Fixed firewall extra option validation
- Fixed usage of custom headers in I/O Juggler HTTP action
- Fixed 'verify' option parsing for I/O Juggler
- Changed the logic of uploading files to the modem
- Fixed OpenVPN server configuration with password authentication
- Fixed NTP interval length validation
- Fixed network interface enable after Drag & Drop
- Updated NTP client interval to 24h
- Fixed connection to whitelist carriers
- Fixed Passthrough mode when DHCP is disabled
- Fixed 'Deny data roaming' feature
- Fixed mobile blocking dependency on region
- Disabled Ping To DNS functionality when Bridge/Passthrough mode is enabled

## **[TRB2\\_R\\_00.07.01.2](#) | 2022.01.04**

- **New features**
  - DFOTA modem upgrade system for Quectel modems
- **Improvements**
  - Removed L2TP section title prefixes
- **Fixes**
  - Fixed IPsec crashing issue using mobile
  - Fixed FW flashing when chip is in unknown state
  - Fixed CPU usage percentage display in the Overview page
  - Fixed FOTA timeout issue when server does not respond
  - Fixed installation of backup packages
  - Fixed mobile data limit display after profile change
  - Fixed Bridge mode without multi-APN
  - Fixed multi mobile interface checking
  - Fixed error handling when the modem is not responding
  - Prolonged autoconnect setting timeout

## **TRB2\_R\_00.07.01 | 2021.11.18**

**Note:** Firmware version TRB2\_R\_00.07.01 released on 2021.11.18 was removed due to an issue with IPsec tunnel while using mobile connection.

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- **New features**
  - Tinc VPN
  - German language support
  - Manual-Auto operator select
- **Improvements**
  - Improved WebUI functionality when multiple browser tabs are open
  - Updated base to OpenWrt version 21.02
  - Updated kernel to version 5.4.141
  - Updated mtd-utils to version 2.1.2
  - Updated busybox to version 1.33.1
  - Updated ubus to version 2021-06-3
  - Updated ubox to version 2020-10-25
  - Updated rpcd to version 2021-03-11
  - Updated opkg to version 2021-06-13
  - Updated fstools to version 2021-01-04
  - Updated wwan to version 2019-04-29
  - Updated ethtool to version 5.10
  - Updated uhttpd to version 2021-03-21
  - Updated ppp to version 2020-10-03
  - Updated odhcpd to version 2021-07-18
  - Updated hostapd to version 2020-06-08
  - Updated dropbear to version 2020.81
  - Updated dnsmasq to version 2.85
  - Updated netifd to version 2021-07-26
  - Updated firewall3 to version 2021-03-23

- Updated libjson-c to version 0.15
- Updated libevent2 to version 2.1.12
- Updated mac80211 to version 5.10.42-1
- Updated wireless-regdb to version 2021.04.21
- Updated binutils to version 2.35.1
- Updated gdb to version 10.1
- Updated strace to version 5.10
- Updated trace-cmd to version 2.9.1
- Updated valgrind to version 3.16.1
- Updated ath10k-ct-firmware to version 2020-11-08
- Updated procd to version 2021-02-23
- Updated iw to version 5.9.8
- Updated iproute2 to version 5.11.0
- Updated iptables to version 1.8.7
- Updated nettle to version 3.6
- Updated libpcap to version 1.9.1 rel3
- Updated elfutils to version 0.180
- Updated cryptodev-linux to version 1.11
- Updated linux-firmware to version 20201118
- Updated util-linux to version 2.36.1
- Updated openwrt-keyring to version 2021-02-20
- Updated mtd to version rel26
- Updated fwtool to version 2019-11-12
- Updated ca-certificates to version 20210119
- Updated wireguard-tools to version 1.0.20210223
- Updated iwinfo to version 2021-04-30
- Updated ipset to version 7.6
- Updated gre to version rel12
- Updated wolfssl to version 4.7.0
- Updated ustream-ssl to version 2020-12-10
- Updated uclient to version 2021-05-14
- Updated readline to version 8.1
- Updated mbedtls to version 2.16.11
- Updated libusb to version 1.0.24
- Updated libunwind to version 1.5.0
- Updated libubox to version 2021-05-16
- Updated libnl-tiny to version 2020-08-05
- Updated libnftnl to version 1.1.8
- Updated libiconf-full to version 1.16
- Updated libbsd to version 0.10.0
- Updated gmp to version 6.2.1
- Updated ulogd to version rel6
- Updated sqm-scripts to version 1.5.0
- Updated ntpclient to version rel14
- Updated nmap to version 7.80
- Updated curl to version 7.77.0
- Updated zerotier to version 1.6.5
- Updated xtables-addons to version 3.13
- Updated xl2tpd to version 1.3.16
- Updated stunnel to version 5.59
- Updated strongswan to version 1.0.13

- Updated sstp-client to version 1.0.13
- Updated pptpd to version rel5
- Updated openvpn to version 2.5.3 rel2
- Updated ntpd to version rel3
- Updated net-snmp to version rel2
- Updated mosquitto to version 2.0.11
- Updated miniupnpd to version 2.2.1 rel 3
- Updated etherwake to version rel5
- Updated libzip to version 1.7.3
- Updated libpgp-error to version 1.39
- Updated glib2 to version 2.66.4
- Updated libnetfilter-conntrack to version 1.0.8
- Updated libnetfilter-log to version rel3
- Updated lzo to version rel4
- Updated nghttp2 to version 1.43.0
- Updated openvpn-easy-rsa to version 3.0.8 rel3
- Updated iperf to version rel2
- Updated iperf3 to version 3.10.1
- Updated e2fsprogs to version 1.45.6
- Updated fuse to version 2.9.9
- Updated udprelay to version 2020-02-26
- Updated qmicli to version 1.28.2
- Updated pcre to version 8.45
- Updated libsmpp34 to version 1.14.1
- Updated libiwinform to version 2.1
- Added netifd library for additional information related to network interfaces
- Updated openssl to version 1.1.1l
- Updated privoxy to version 3.0.32
- Added ACL reload method for sessions
- Added 'Advertisement interval' field to the VRRP configuration window
- Added a PPTP-to-WAN Zone Forwarding rule when default route is enabled on PPTP client
- Added email user group validation for sending test emails with Events reporting
- Added an event logging feature for Ping Reboot events
- Improved file/section deletion logic: now files are also deleted after deleting a related config section
- Improved package deletion logic
- Added the possibility to configure multiple reboot times in one Reboot Scheduler configuration instance
- Updated 'External system log server' field validation to accept IPv6 addresses
- Added redirect to Overview page after login
- Added WebUI session timeout after user inactivity
- Added placeholder text to dropdown menus
- Improved multi-select design and functionality
- Added Unix timestamp, local ISO time, UTC time to Modbus
- Added info message when selected file cannot be uploaded
- Improved IPsec throughput
- Added IPsec "Compatibility mode" configuration support
- Made SNMP 'Community name' option editable
- Added the option to delete configurations to the SMS Utilities 'UCI' rule
- Added 'hour', 'week day', 'month day' selection options to SMS Limit configuration

- Added Lithuanian and Verizon APNs
- Added modem selection for the 'Send SMS' option in Auto Reboot settings
- Added the possibility to get total data usage value without specifying time interval via ubus
- Added return SIM count command
- Added an indication to the GPS map when GPS service is disabled
- Added I/O support to SNMP
- Removed ubus list method due to security reasons
- Added MODBUS "%I, %T, %S, %r, %n" support to MODBUS Data Sender
- Removed search engine site crawling
- Improved IPsec "Local/Remote source" validation
- Added Firewall "all" and "custom" protocol options
- Added Backup file size limit of 2 MB
- Improved basic/advanced mode changing
- Improved Wireguard "IP Addresses" field validation
- Added language download support from language selection section
- Added PPTP "Client to client" configuration support
- Made DDNS "username", "password", "host" fields optional
- Added SSTP "Default route" configuration support
- Added SMS Limit hour, week day and month day support
- Added Passthrough "Leasetime" and "Unit" configuration support
- Added Call Utilities "Active Timeout" configuration support
- Added support for PL2303GC serial to USB chip
- Added GPS AVL "Don't Contain Connection" and "Retry on Fail" configuration support

#### • Fixes

- Made RMS 'Connect' button disabled when a connection attempt is already in progress
- Added validation for TLS Clients 'Private network' option
- Fixed the validation range for MTU fields
- Fixed removing firmware image file after leaving the firmware upgrade page
- Fixed network selection list for Traffic Logging - added all available LAN networks
- Fixed DHCP Options validation
- Fixed configuration profile date display
- Fixed blank page after invalid URL in login page
- Fixed TR-069 related firewall rule loading
- Fixed remote subnet netmask validation issues for the GRE Tunnel configuration
- Fixed WebUI section toggle
- Fixed package installation modal layout
- Fixed current page values showing up in login page username field
- Fixed the possibility to create section with a name that is already in use in the same config file
- Fixed OpenVPN username and password deletion when deleting configuration instance
- Fixed session closing issue for the user whose password was just changed
- Updated MODBUS credential validation
- Updated MQTT credential validation
- Fixed DNS 'Rebind protection' setting when switch is disabled
- Updated libgcrypt to version 1.9.3 to fix CVE-2021-33560
- Fixed CVE-2021-33624, CVE-2021-29648 vulnerabilities
- Fixed DHCP 'Lease time' and 'Unit' option saving over the Setup Wizard LAN page
- Fixed Reboot Scheduler not removing crontab file after disabling the rule
- Fixed OpenVPN 'Extra options' field validation to allow a space character

- Added table drag and drop functionality to the Firewall's Traffic Rules page
- Fixed DNP3 Outstation crash caused by non-void function returning no value
- Fixed RMS 'Copy' button functionality
- Fixed gsmd daemon crashing after modem restart
- Fixed gsm memory leak
- Fixed WCDMA band names for MEIG modules
- Fixed SMS Gateway loading screen issue when sending an SMS message
- Fixed mobile data database error after upgrading firmware with the 'Keep settings' option
- Fixed rpcd memory leak issue
- Fixed network information gathering
- Fixed 3G LED not being active in 3G mode
- Fixed data limit accuracy issue
- Fixed SIM Switch back to default SIM crash loop when SIM1 is disabled
- Removed unused SIM Switch struct objects
- Fixed NTP GPS Synchronization switch to enable GPS service
- Fixed MODBUS Serial Master crash when requesting a 4-byte datatype from a 2-byte data payload
- Added a check if DNP3 is installed for 'Serial type' option
- Fixed I/O Juggler hour condition interval issue
- Removed 'Memory Expansion' and 'Printer Server' from the Status -> Services page
- Patched CVE-2021-40528 vulnerability
- Patched CVE-2021-40490 vulnerability
- Patched CVE-2020-16120 vulnerability
- Fixed VLAN section creation
- Returned Interfaces "Port priority" option
- Fixed missing Content-Type header to initial WebUI response
- Fixed RIP information parsing in status page
- Fixed OpenVPN IPv6 netmask validation
- Fixed SNMP Trap Settings Host/IP field validation
- Fixed Cumulocity authentication reset
- Fixed Events Reporting rule saving

## **TRB2\_R\_00.07.00 | 2021.07.16**

### **• New features**

- New WebUI based on Vue.js 2.6.12
- RutOS updated to OpenWrt 19.07.7 base
- DNP3 Master and DNP3 Outstation
- 'Restore to user's defaults' SMS Utilities rule

### **• Improvements**

- Updated firewall to release 3
- Updated kernel to version 4.14.221
- Updated uhttpd to version 2020-10-01
- Updated xtables-addons to release 9
- Updated mwan to version 2.8.14
- Updated pcre to version 8.44
- Updated curl to version 7.74
- Updated sqlite to version 3.33
- Updated ncurses to version 6.2
- Updated OpenSSL to version 1.1.1k



- Added full MODBUS register address expansion specifier for Data to Server
- Added full MODBUS register address legend
- Added Client ID option for the MQTT protocol in Data to Server
- Improved Data to Server sleeping accuracy
- Improved Data to Server username validation; now space is allowed
- Added firmware version OID to the SNMP service
- Added IP address family option field to the SNMP page
- Added SNMPv6 section to the SNMP Communities page
- Renamed the 'System -> Users' page to 'System -> System Users'
- Moved password changing option to the 'System -> System Users' page
- Switched to ar8216 driver
- Added IPsec XAUTH support
- Improved OpenVPN updown, init scripts to write info about instance in JSON
- Added AES-256-GCM encryption support to OpenVPN
- Added extra configuration parameters to DMVPN
- Added PSK conversion to DMVPN and single PSK types
- Improved Package Manager package installation, deletion and dependencies
- Improved Package Manager download process over FOTA
- Added new Input/Output values manageable over RMS
- Added IPv6 traffic logging
- Made 'Network -> Failover' and 'Network -> Interfaces' page data draggable on multiple browsers
- Added Input/Output Post/Get URL parameter t\_time changing delay and time to seconds or milliseconds
- Added message storage management by config value
- Improved QMI error handling and status tracking
- Turned on modem in preinit for correct power-on sequence
- Added Post/Get feature to turn mobile data on/off
- Added the possibility to use 2gonly/3gonly/4gonly arguments for cellular service command alongside current 2g/3g/lte arguments
- Added "Phone number" and "Message" fields for "Send SMS" option
- Added "Host to ping from SIM1" and "Host to ping from SIM2" fields
- Added option to switch back to primary SIM card after timeout
- Added "send analog input" option to TAVL settings

#### • Fixes

- Added glib2 patch to fix CVE-2019-13012 vulnerability
- Added ntfs-3g patch to fix CVE-2019-9755 vulnerability
- Added WolfSSL patch to fix CVE-2021-3336 vulnerability
- Added Busybox patch to fix CVE-2018-1000500 vulnerability
- Added netifd, odhcp6c IPv6 routing loop on point-to-point links patches to fix CVE-2021-22161 vulnerability
- Fixed Android clients IPsec MTU/MSS size
- Fixed wrong IPsec DPD value saving
- Changed IPsec PSK maximum length to 128 symbols
- Fixed SSTP remaining up after package removal
- Fixed DMVPN crypto\_proposal write to config
- Fixed I/O Juggler's SMS sending to correct group
- Fixed I/O Scheduler's relay state issue
- Added I/O direction check while changing IOs via I/O Post/Get
- Fixed float endianness mismatch on some devices MODBUS TCP Master, MODBUS

#### Serial Master

- Fixed UPnP issue that caused config changes to apply only after service restart
- Fixed WebUI files caching when upgrading firmware
- Fixed WebUI date display format
- Fixed MODBUS returning incomplete MAC address data
- Fixed depleting IPv6 RA timeout when the ISP doesn't send RA updates
- Added "Transaction timed out" error handling
- Fixed PPPOE connection loss when wrong session PADT packet arrives
- Added gcont object tracking and info update if this service is restarted
- Fixed default SMS storage
- Fixed SMS warning sending after Mobile Data Limit change
- Fixed DHCP relaying over mobile networks
- Changed PIN code maximum length to 8 symbols
- Fixed 'I/O status' message to include correct Input/Output name based on info in ubus ioman objects
- Fixed 'Over IP' serial type's UDP issue in client mode

### [TRB2\\_R\\_00.02.06.1](#) | 2021.02.10

#### • Fixes

- Added dnsmasq patch CVE-2020-25681, CVE-2020-25682, CVE-2020-25683, CVE-2020-25684, CVE-2020-25685, CVE-2020-25686, CVE-2020-25687
- Fixed SSH reachable over SIM IP in early boot
- Fixed modem status after failed network scan
- Fixed mbnfcfg function and PIN check logic
- Fixed PPTP server interface naming
- Fixed correct client PPTP interface name selection for route creation
- Fixed adding helper to firewall's wan zone when enabling PPTP configuration
- Added package size checking when manually installing a package
- Fixed 'New Firmware Available' message display after firmware upgrade

### [TRB2\\_R\\_00.02.06](#) | 2020.12.31

#### • New features

- Operator Whitelist/Blacklist
- Web Filter
- Interface Based VLAN
- Partial and full modem control support from RS bus

#### • Improvements

- Updated base to OpenWrt 19.07.4
- Added Phone Groups as possible SMS recipients to SMS Post/Get
- Added PSK support for MQTT Broker/Publisher
- Changed Output Scheduler structure
- Removed limitation of one configuration per Input
- Added multiple modem support for TR-069
- Fixed parsing user uploaded custom OpenVPN configuration files containing carriage returns
- Added iptables conntrack flush on WAN Failover if IPsec is enabled
- Optimized package responsible for sending/receiving GRE Tunnel keepalive packets
- Added extra error checking to Package Manager when downloading packages
- Added data usage info for both SIM cards to RMS

- Added logging to syslog when Ping/Wget Reboot "Action" is set to 'None'
- Improved display of configuration tables when a lot of information is shown
- Renamed MODBUS strings to uppercase
- Added redirect to configuration page after a new configuration is created with the 'Add' button
- Added option to create a Configuration Profile from current configuration
- Added data validation to Profiles Scheduler fields
- Replaced the Firewall 'Helpers' page with conntrack helper configuration for each firewall zone
- Increased dynamic list maximum amount of values to 50
- Added the possibility to save email accounts without entering email username and password
- Unified device access password validations
- Expanded DDNS validation for domain input to accept emails
- Added SMS Utilities rule to reset mobile data usage for specified interface
- Improved SMS Utilities VPN status rule to support custom configurations
- Added SMS storage limit check after inserting a SIM card
- Changed modem name from primary to internal if device has only one built-in modem
- Improved SIM count check during init
- Added serial 1000000 bps baud rate option

#### • Fixes

- Fixed IPsec Passthrough subnet/ip value parsing to make it dynamic for leftsubnet
- Fixed occasions when error messages overlap buttons
- Fixed I/O state saving after revert back to original state
- Fixed IPsec connection after reboot
- Fixed bridged interface configuration for L2TPv3
- Removed trailing newlines in returned SNMP strings
- Fixed Events Reporting waiting to send email before rebooting
- Fixed MQTT MODBUS Gateway not working when topics have special characters
- Swapped pin3 and pin4 values in MQTT Publisher
- Added an 'IP4Table' option to advanced interface configuration
- Fixed an issue where User Scripts were being deleted after device reboot
- Fixed various WebUI validation bugs, typos, option hints & alignments
- Fixed a bug that caused an internal sever error after logging in with a username that contained special characters
- Fixed crashes that occur after configuration files are not correctly generated
- Fixed a Firewall Port Forwarding bug which caused an internal sever error when no 'Protocol' was selected
- Fixed changing WebUI mode bug while current page is accessed with POST method
- Fixed password allowed lengths and tooltips
- Fixed mountpoint display
- Removed non-supported SMS Utilities rules
- Fixed SMS sending to Phone Group on I/O event
- Changed device name in 'Status' message to configured name instead of the default one
- Added modem reinit after SIM card initialization failure
- Fixed SMS Limit checking when messages exceed the set SMS limit
- Moved 2-8 PDP contexts to 9-16 the 2-8 are necessary for SIM card MIB APNs
- Changed mobile interface subnet to /32
- Fixed modem SIM card checking
- Fixed multi SMS handling on SMS Limit

- Fixed Call Utilities multiple SMS sending per received call
- Fixed SMS storage limit check on device reboot
- Changed SNMP mSignal, mTemperature and numSatellites datatypes to correspond to devices' MIB files
- Fixed serial over IP Bidirect mode issues

## [TRB2\\_R\\_00.02.05.2](#) | 2020.11.19

### • Fixes

- Randomized the global rate limiter to mitigate "SAD DNS" attack

## [TRB2\\_R\\_00.02.05.1](#) | 2020.09.30

### • New features

- DLNA media server
- iptables NETMAP extension
- "Flush connections on" option for WAN Failover
- New firmware notifications
- Updated header logo from 'Teltonika' to 'Teltonika | Networks'
- USSD command support
- Time sync via network operator's station
- GPS time synchronization

### • Improvements

- Improved WebUI page loading speed
- Added Basic/Advanced mode selection in Setup Wizard
- Added a dropdown with a search function for time zone selection
- Added "copy to clipboard" button in Cloud Solutions next to MAC and Serial
- Added option to send all Modbus records in one packet
- Disabled IPV6 services on LAN by default
- Added password hashing in Post/Get pages
- Added a warning message about rebooting the device while certificate files are being generated
- Added status option to uploaded custom OpenVPN configuration file
- No longer showing "Enable OpenVPN config from file" option if "Enable external Services" is selected
- Added some missing placeholder values
- Added warning message about unsaved changes when leaving Auto Reboot, Periodic Reboot, Wireless pages
- Added port selection to SSTP configuration
- Changed Periodic Reboot service name to Reboot Scheduler
- Added table row highlights on hover
- Changed section name from 'Email users' to 'Email accounts' in the Recipients page
- Added network interface automatic assignment to firewall zones when interface protocol is switched
- Adjusted Azure validations
- Adjusted Local/Remote subnet field validations
- Adjusted Hotspot field validations
- Unified VPN overview section option names and titles
- Removed mandatory requirements for inter-zone forwarding source & destination options in Firewall zone configuration
- Added placeholder values for drop down options in Routing pages

- Increased maximum package upload size
- Removed mobile interfaces from Hotspot configuration
- Added "Passthrough subnets" option to IPsec configuration page
- Added package size checking when installing packages via Package Manager
- Optimized switching between Basic and Advanced WebUI modes
- Added missing services to Events Reporting page when selected Event is "Config change"
- Improved general web design, ordering and positioning
- Added word wrap in the Unsaved Changes page
- Centered 'Apply' button in the Profiles page
- Hid network interfaces with DHCPv6 protocol in Overview page while in Basic WebUI mode
- Changed tcpdump "Select storage" option value from 'Internal storage' to 'RAM memory' in the System → Administration → Troubleshoot page
- Added more descriptive error messages when connection to FOTA server fails
- Updated "Local address" hint in l2tpv3 page
- Updated phone number placeholders to +370000000000
- Updated SMS rule descriptions related to phone numbers and email accounts
- Made SMS/Mobile data limit options always visible in Overview Setup page
- Added indications for which antenna connector is connected to which modem
- Adjusted Modem FW file validations
- "LAN as WAN" easy setup
- Added possibility to retrieve analog input value to Modbus TCP Slave
- Added loading spinner and a "No GPS signal" message to GPS Map page
- Removed incorrect GPS analog input option from GPS HTTPS settings

## • Fixes

- Fixed DDNS freeze issues
- Fixed Firewall Traffic Rules Source and Destination address field validations
- Started using more stable, builtin ar82xx switch driver
- Symlinking tty devices in one place
- Fixed period when sending packet curl timeouts in Modbus Data Sender
- Fixed "active SIM" register value retrieval after regression in Modbus TCP Slave
- Fixed Hotspot 'Trial access' function
- Fixed OpenVPN TLS Cipher display and added a limit to number of ciphers
- Fixed various WebUI validation bugs, typos & option hints
- Fixed DHCP lease range validation and value saving in Interfaces page
- Fixed error messages when creating interfaces with incorrect names
- Fixed various section toggling bugs
- Fixed username validation in SNMP page
- Fixed certificate file importing bugs & common name display in Certificates Manager page
- Fixed interface option related to IPv4 and IPv6 in Routing pages
- Fixed OpenVPN multi-line command that adds client specific parameters
- Fixed DHCP lease range validation in Basic mode
- Fixed incorrect sorting in dynamic tables
- Fixed routing table writing and deleting
- Fixed incorrectly displayed type when no protocol is selected
- Removed Wireguard interfaces from the Interfaces page
- Fixed SNMP user access mode display in SNMPV3 Users Overview page
- Fixed SNMP memory leak on chilli module

- Fixed MD5 and SHA256 checksum calculations
- Fixed DHCP-options field validation to allow separating parameters with commas
- Fixed Package Manager side menu entry updates right after package upload
- Fixed Wireguard port selection
- Fixed VPN zone status display
- Fixed lua errors when Start/End time option is empty
- Fixed incorrectly displayed OpenVPN protocol
- Fixed Lua errors in Profile Scheduler and Firewall Zones
- Removed */log* folder from Troubleshoot file directories
- Fixed endless spinner when applying profiles
- Fixed nil value in the Traffic Logging page
- Fixed "Units" option dependency on "Enable DHCP" option in the Setup Wizard's LAN page
- Fixed redirecting to login page after factory setting restore (reset)
- Removed Unsaved Changes notification when downloading Troubleshoot/tcpdump files from the System → Administration → Troubleshoot page
- Vulnerability fixes for Package Manager and Certificates Manager pages
- Fixed Firewall zone placeholder (removed "-- Please select --" and left "Unspecified")
- Fixed update from server option in the Firmware page
- Added missing error messages when password is invalid in default password change page
- Fixed "Lease time" option in the Setup Wizard's LAN page
- Fixed error 500 when accessing Advanced pages while in Basic mode
- Increased allowed character lengths for MQTT Broker and Data to Server
- Fixed XSS vulnerabilities in package manager and package file upload pages
- Fixed incorrect OpenVPN configuration saving
- Fixed NHRP lua error
- Removed "Wireguard" from Status → Services display if it is not installed
- Fixed crashing issue when getting "SIM slot in use" status value
- Fixed sending status SMS to other number
- Fixed "Change mobile settings" rule service setting
- Fixed SMS Forwarding To HTTP "URL" option validation
- Fixed Mobile Signal graph data display
- Changed message type from 'error' to 'info' from Auto Reply page
- Fixed manual operator selection validation
- Fixed mobile interface authentication settings reset after selecting auto APN mode
- Fixed libgsm password and serial authorization
- Added workaround for mobile to switch LAN port throughput problem for ath79 target
- Removed unnecessary default Hostname and URL values from GPS pages
- Fixed AVL I/O incorrect option display in input rule configuration
- Fixed "Enabled" option design in GPS Geofencing page
- Fixed RS232/RS485 configuration saving
- Fixed Firewall rule creation for RS232/RS485 when UDP protocol is selected
- Removed Hotspot 2.0 page

## **TRB2XX\_R\_00.02.04.3 | 2020.07.31**

### **• New features**

- Backup archive MD5 & SHA256 checksum calculation to help user identify altered backup archives
- Package signature check to verify that a package comes from Teltonika

- **Improvements**

- Updated APN database

- **Fixes**

- Fixed CVE-2019-17367
- Fixed hiding of configuration pages that users of a specific group don't have read access to
- Fixed firmware upload script

## **TRB2XX\_R\_00.02.04.1 | 2020.07.02**

- **New features**

- Added GPS support
- Added 'Mobile Passthrough mode'
- Added mobile signal real-time graph
- Relay control to Call Utilities
- 'Certificates' page for generating and managing TLS certificates
- 'Drag & Drop' support for Overview page tables
- 'Speed Test' feature
- AVL I/O support
- Added JSON formatting option to Data to Server
- Added timeout and keep-connection options to Modbus TCP Slave
- During this release a new package was released - [WireGuard](#)

- **Improvements**

- Improved mobile interface creation
- Improved 'Profile Scheduler' with minute accuracy
- Reordered VPN configuration options
- Standardized section header styles
- Unified spelling of dropdown values
- Added information about 'Package Manager' packages before updating firmware
- Updated services management to Status → Services page
- Improved performance of firmware upgrades from server
- Improved security features related to file uploading and HTTP headers
- Changed RAM/flash memory units from MiB to MB
- Updated warning message and lease deletion message for static leasing
- Moved 'Country code' option to general tab
- General web responsiveness improvements

- **Fixes**

- Power button LED fix
- Fixed SDK firmware compilation
- No longer load the rpcd module
- Removed incorrect SMS character counter from SMS Utilities page
- Fixed symlinking tty devices in one place
- Fixed validations and option saving in OSPF page
- Fixed various element positioning bugs on smaller screens
- Fixed switching to advanced mode notification when accessing non existing pages
- Fixed validations in Traffic Logging page
- Fixed showing failover section only for interfaces with failover rules
- Fixed static leases redirect after saving
- Fixed empty dropdown values in 'I/O juggler' and 'Network Shares'

- Fixed interface IP address validation in DDNS page
- Fixed various spelling mistakes
- Fixed broken address option in the 'Troubleshoot' page
- Fixed dropdown select element double clicking issue
- Fixed basic/advanced mode switching with Microsoft Edge browser
- Fixed firmware upgrading bug when LAN interface with a changed name exists
- Fixed redirecting to the 'Interfaces' page when mode is changed from basic to advanced and user is in the 'LAN' or 'WAN' pages
- Fixed validation of custom header in 'Data To Server' page
- Fixed "Type" option error in Failover page
- Updated username and password validations
- Fixed profile change action in 'I/O Juggler'
- Fixed bidirectional GPIO change feature

## [TRB2XX\\_R\\_00.02.03.1](#) | 2020.05.15

### • **New features**

- Responsive WebUI design
- New Access Control window for managing IP access
- Attack Prevention page under Firewall settings
- New IPv6 options in WAN, LAN and VPN pages
- Hotspot Users Management page
- Progressive Web Application support and extra page caching when device is configured with a valid SSL certificate
- OpenVPN configuration file upload functionality
- Unsaved Changes page
- Bridge mode display in Overview page
- Input inversion buttons
- Dynamic switch port display in side widget
- Input/Output manipulator
- Full unicode SMS support
- IO control and status over SMS
- MQTT Publisher: added support to send I/O values
- Ability to install packages stored in backup file
- IP unblock SMS rule
- New Modbus TCP Slave register fields
- New Modbus Alarm redundancy options
- NTPD version 4.2.8p14

### • **Improvements**

- Added HMAC configurations for OpenVPN
- Added AES ciphers support for OpenVPN
- Added MTU and gateway metric to mobile interfaces
- Added DHCP lease range display in the Network → LAN page
- Added warning messages when deleting interfaces/configurations
- Added available FW on server status messages in FW upgrade page
- Added mobile PIN code saving note
- Changed UPnP redirect delete button style
- Changed functionality of reset button in the Firewall → Custom Rules page. Now fully resets to default
- Added hints on all value fields about field validation
- Added pin information for iostatus SMS rule



- Removed modem traps if no modem is present
- Optimized section toggling logic, removing all toggling associated flags required prior optimization
- Standardized section edit page headers in WebUI Services
- Improved the look of error pages and messages
- Updated Wiki links to [wiki.teltonika-networks.com](http://wiki.teltonika-networks.com)
- Disabled 'Clear data limit' button for inactive interfaces
- Reordered menu, moved 'Default configuration' to the Backup page, moved 'Diagnostics' to the Troubleshoot page
- Added credentials input fields to Data to Server
- Changed hint of 'Allow guest' in the Network Shares page
- Updated Periodic Reboot service status in the Services page
- Improved hint for incoming calls option
- Changed OpenVPN LZO option to a dropdown with an extra 'none' option
- Added suggestion to create a profile if there are no profiles created in the Profiles → Scheduler page
- Filtered out unnecessary interfaces ending with \_4\_6 in firewall page
- Moved SIM switch to separate page and added check interval and retry count options
- Changed side widget button color to blue to make it more visible
- Added 'Dynamic List' option limit (20 elements)
- Added info message to Events Reporting & Mobile Utilities rules, if selected recipient or sender is a group or no groups are created yet
- Improved stm32 recv message handling
- Modbus TCP test now allows reading more than 125 coils/inputs
- Reworked NTP page, separating general options from NTP specific ones
- Fixed grammar errors in Mobile page

#### • Fixes

- Added name validation in the Firewall → Port Forward page, fixed custom protocol value selection and display
- Added validation for GRE 'Remote subnet IP' option
- Added missing Mobile Data limit input validation
- Fixed Schedulers' cells to be of equal width
- Fixed uploading backup from lower firmware version
- Fixed SSTP certificate upload function
- Fixed IPsec 'Aggressive' setting value saving in config file
- Fixed bug where GPS NMEA collecting file field wasn't shown when NMEA collecting was enabled
- Fixed LAN settings static lease name validation
- Fixed issue that sometimes caused failures when redirecting to Mobile interface edit page
- Fixed descriptions in Access Control → Security page
- Fixed SMS Utilities GPS coordinates rule error, swapped longitude and latitude in places
- Fixed HTTP login while HTTPS session is still active
- Fixed real time CPU load in the Overview page
- Fixed advanced static routing display for all routes
- Fixed file upload error messages in backup page
- Fixed 'Select' option for Firefox browser
- Fixed RAM usage display in side widget
- Fixed access to non existing pages
- Fixed saving empty message field in Events Reporting rules

- Fixed showing correct APN settings when upgrading with the 'Keep all settings' option
- Fixed Events Reporting send test email page display when email contains 2 new lines in a row
- Fixed phrasing and grammatical mistakes in SMS messages tooltip
- Fixed LAN Overview section display
- Fixed early login page load after reboot or backup upload
- Fixed Package Manager notification display
- Fixed SMS rule display for different devices
- Fixed PPTP and L2TP client configuration creation with same name
- Fixed static route removal if corresponding interface is removed
- Fixed Realtime Graphs → Traffic tab display
- Fixed OpenVPN username and password writing to file
- Fixed time zone sync between Setup Wizard & NTP pages
- Fixed WiFi interfaces table style when no interfaces are present
- Fixed DHCP lease range validation
- Fixed RS232 hardware flow control
- No longer write anything into Events Log when forcing reboot to prevent device hang-up
- Fixed launching stm32 autoflash script at early boot to avoid possible keep settings loss
- Removed certain Events Reporting options on devices that don't have the corresponding functionality
- Fixed recovery from lost connection for MQTT publisher, Modbus MQTT gateway

## **TRB2\_R\_00.02.02 | 2020.03.10**

- New features
  - Initial TRB245 firmware release