

# TRB500 Firmware Downloads

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This page contains firmware files for TRB500 devices. Look to the table below or the [changelog](#) to find download links.

To upgrade firmware using WebUI, follow the instructions in [TRB500 Firmware](#).

| File  | Type               | Release date | Size      | MD5                              | Changelog            |
|---|--------------------|--------------|-----------|----------------------------------|----------------------|
| <a href="#">TRB500_R_00.07.08_WEBUI.bin</a>   | Latest FW          | 2024.07.18   | 19.75 MB  | 43a404c099b7f2f97545f4fff1d4bd2a | <a href="#">Link</a> |
| <a href="#">TRB500_R_00.07.07.2_WEBUI.bin</a> | Mass production FW | 2024.06.12   | 20.74 MB  | 9a10c49f728d6033c2dd20a50cd2cad6 | <a href="#">Link</a> |
| <a href="#">TRB500_R_GPL_00.07.08.tar.gz</a>  | SDK                | 2024.07.18   | 391.14 MB | f1731a0b863ea79fe81db6fddf005c8a |                      |

**Note:** Firmware versions before TRB5\_R\_00.07.04.4 will not be supported by devices from batch 09 and higher.

**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

### [TRB500\\_R\\_00.07.08](#) | **2024.07.18**

- **New**
  - **Network**
    - DNS: added inherited server status to configuration page
    - HTTPS DNS Proxy: added new HTTPS DNS Proxy package to package manager
    - Mobile: added SIM card lock/unlock functionality in Mobile->Utilities page
    - Mobile: added SIM card PIN change functionality in Mobile->Utilities page
    - Mobile: added new Mobile->Limits page which shows information and allows to configure SMS limits
    - Mobile: added DFOTA support for RG520N modems
    - Mobile: added nr-arfcn display to mobile status page
    - Mobile: added dfota support for devices with RG520N-EB modem
  - **Services**
    - Data to Server: added 'Lua script' data input
    - Input/Output: added ability to configure gpio debounce timer and changed default gpio debounce timer value from 200 ms to 10 ms

- IPsec: added initial XFRM support
- MQTT Modbus Gateway: added JSON message type format
- OpenVPN: added DCO support
- **System**
  - API Core: added option to configure api session timeout
  - Certificates: added "Let's encrypt" certificate generation
  - PAM: added RADIUS external user support
  - UI Core: added data analytics support
  - Update Firmware: added warning message about device being temporarily unreachable on firmware update
- **Improvements**
  - **Network**
    - DNS: separated field "DNS forwardings" into two: one for simple server forwarding other for domain-specific
    - DNS: moved "DNS Forwardings", "Listen interfaces", "Exclude interfaces", "Local service only", options to advanced tab
    - Firewall: improved protocol field in all firewall pages by making that "All" value would be mutually exclusive with any other value
    - Mobile: improved IMS context initialization
    - Mobile: updated SMS memory management for multipart SMS
    - Mobile: added error message when attempting to enable the SIM switch without any criteria set
    - Mobile: added informative message in SIM switch page when Data/SMS limit criteria are enabled but the limits themselves are not set up
    - Mobile: moved operator list allowlist/blocklist selection to Network selection page
    - Mobile: refactored Scanned operators modal, added repeat scan button
    - Mobile: added ability to view previously scanned operators in Network selection and Operator lists pages
    - Mobile: added ability to edit operator list name and initiate scans for operators in Operator lists page
    - Mobile: updated operator code field list to include APNs from the APN database in Operator lists page
    - Mobile: split Mobile->General page into three pages: General, Connection and Utilities pages
    - Mobile: added mobile interface with highest priority APN configuration in Mobile->General page
    - Mobile: added icons with hints which show SIM card, operator, data connection statuses in Mobile->General page
    - Mobile: moved Mobile data limit section to a tab in WAN page
    - Mobile: added informative message in WAN page to indicate whether the connection will be made using APN from APN database, empty or custom APN
    - Mobile: improved logging of ping error messages
    - Mobile: added 5G SA/NSA mode selection
    - Mobile: improved modem updater to stop ping reboot service while update is in progress
    - Mobile: improved the handling of denied messages upon SIM switch
    - Mobile: added notification when a multi-IMSI SIM card is using Auto APN
    - Mobile: added validation to not allow passthrough and bridge mode when one already exists
    - Mobile: improved safeguards for modem services startup
    - Mobile: improved modem update status display

- Mobile: added corrupted mobile statistics database restoration functionality
- Mobile: improved setting of IPv4 and IPv6 types inside the modules
- Mobile: improved provider name parsing for SLM750 modem
- Multi WAN: improved interface status representation when using load balancing
- Network: added more options for "IPv6 assignment length" field
- **Services**
  - Azure IoT Hub: added DPS symmetric key attestation support
  - Azure IoT Hub: added Direct Method support
  - Azure IoT Hub: added Plug and Play integration
  - Azure IoT Hub: added link to "Data to Server" page
  - Data to Server: added support for multiple filters
  - Data to Server: improved HTTP output hostname definition with automatic protocol specification in URL
  - Data to Server: improved MQTT input connection handling
  - DNP3 Client: added option to enable/disable service
  - GRE: increased Inbound and Outbound key limit to 4294967295
  - Input/Output: added custom name support in I/O status page
  - IPsec: added certificate warning message
  - Mobile Utilities: added interface option to sms\_utils cellular command
  - Mobile Utilities: improved error log message
  - Mobile Utilities: improved naming of I/O pins in initial I/O status rule
  - Mobile Utilities: sms utilities authentication brute force prevention
  - Modbus Server: added mobile last month and last week usage registers
  - Mosquitto: added large package size check for MQTT clients
  - MQTT Modbus Gateway: improved mosquitto reconnect time and service will try to recover few times before exiting
  - MQTT Publisher: improved MQTT connection handling
  - OPC UA Client: added security modes
  - OPC UA Server: added security modes
  - OPC UA Server: added service status display
  - OpenVPN: added support for decrypting private key when uploading a configuration file
  - OpenVPN: improved instance status state
  - OpenVPN: added options to specify an IP address pool for dynamic assignment to clients
  - SMPP: added brute-force prevention
  - SMPP: added TLS/SSL support
  - SMS Utilities: added security warning in "Authorization method" configuration
  - SNMP: changed interface module OID structure
  - SNMP: improved User-based Security Model (USM) brute force attack prevention measures
  - Stunnel: improved global instance settings dependencies
  - emailrelay: updated version to 2.4.1
  - OpenVPN: updated version to 2.6.9
  - stunnel: updated version to 5.72
  - Tailscale: updated version to 1.68.1
- **System**
  - Access Control: added certificate key length warnings
  - Access Control: adjusted access control when all pages are blocked
  - Access Control: added certificate file download for CLI to work on all browsers
  - API Core: implemented functionality to include warning messages for vulnerable

certificates

- Boot: improved modem startup reliability
- Package Manager: added multi package actions
- Package Manager: added status filter
- Package Manager: moved package upload action to main page
- Package Manager: added links to installed packages pages
- Package Manager: refactored "Packages" page
- Package Manager: updated opkg repository link to use https
- RutOS: improved GPL example page to align with new software architecture
- Troubleshoot: refactored Modem debug section to display responses in single field, added clear button to remove received responses
- Troubleshoot: added support for multiple syslog servers
- UI Core: added additional message with IP address to loading screen for scenarios when redirect to different IP address happens
- UI Core: added toast message hiding when text is too long
- Update Firmware: added 'Firmware version' data in screen after firmware upload
- WebUI: added functionality to cancel loading screen if it takes 30 or more seconds
- WebUI: removed all ubus method calls from webui
- WebUI: improved language caching
- WebUI: added password generator for first login modal
- WebUI: added sticky position to side menu
- WebUI: added default password hint to login error message
- WebUI: added warning messages for low-security certificates
- libexpat: updated version to 2.6.2
- SSL/TLS: updated version to 3.0.14
- vue: updated version to 3.4

- **Fix**

- **Network**

- Devices: fixed missing API devices status endpoint permission
- DHCP: fixed "DHCP option" allow empty input value
- DHCP: fixed IPv4 leases being not correctly shown when NTP synchronizes time
- DHCP: fixed DHCP error that occurred after changing the subnet of the LAN IP address in the setup wizard
- Dynamic routes: fixed duplicated external routes cards
- Firewall: fixed firewall zone validation when adding interfaces
- Mobile: fixed low signal reconnect being available on modems where it is not supported
- Mobile: fixed gsmctl -E output to return only json values
- Mobile: fixed Carrier Aggregation signal strength info
- Mobile: fixed wrong mobile data limit used data format for sms messages
- Mobile: fixed duplicate data connection event reporting
- Mobile: fixed an issue where low signal notifications were displayed without a SIM card
- Mobile: fixed modem serial number acquisition after modem reboot
- Mobile: fixed an issue when 4G-only network type selection may have resulted in a slower connection to the operator
- Mobile: fixed issue where USSD responses were returned in HEX format instead of text format for EC200A module
- Mobile: fixed issue where DHCP filter was not set correctly for RG501Q
- Mobile: fixed modem restart using gsmctl
- Mobile: fixed an issue where the wrong IP address was used after a DFOTA

upgrade

- Network: fixed overriding MAC address for interfaces that are bridged
- Network: fixed not getting IP address when switching LAN to WAN
- Network: fixed mobile data counters
- Realtime Traffic: fixed mobile usage by week day translation by device language
- SQM: fixed missing PPP mobile device selection in SQM configuration

○ **Services**

- BACnet: fixed incorrect BACnet IP port used for sending responses
- BGP: fixed route map sequence going out of range
- BGP: fixed listen range field allowing multiple entries
- Call Utilities: fixed table header switch to be disabled if no rules were created
- DLMS: fixed DLMS test response format
- DLMS: fixed COSEM group validation
- DLMS: fixed API POST error for /dlms/devices/config endpoint
- DLMS: fixed serial connection not working after reboot
- DNP3 Client: fixed to allow reading objects past 255 index
- DNP3 Client: fixed incorrect hints
- DNP3 Outstation: fixed serial outstation starting issues
- I/O Juggler: fixed improper dout action config handling
- I/O Juggler: updated profile change action
- Input/Output: allow unselecting all Post/Get access methods
- IPsec: fixed connectivity issues when using WAN failover
- IPsec: fixed the instance status when the local firewall option is disabled
- Ledman: fixed issue when after some time network type LED starts blinking
- Modbus Client: fixed test request option validation
- Modbus Client: fixed alarm output action display values
- Modbus Client: fixed incorrect period hint
- Modbus Server: fixed APN register not clearing APN
- Modbus Server: fixed 148 and 164 modbus registers
- Modbus Server: fixed incorrect hints
- OPC UA Server: fixed not starting while modem is down
- OpenVPN: fixed displaying imported files from device
- OpenVPN: fixed the private key decryption for cases when a password is used
- OpenVPN: fixed data cipher migration
- Overview: fixed issue when devices without WiFi send additional request without data
- SMPP: fixed username bypass problem
- SMPP: fixed password validation
- SMS Gateway: fixed SMS to Email recipient formatting according to RFC5322
- SNMP: fixed GSM mSignal OID value type
- SNMP: fixed GSM module memory leaks
- SSTP: fixed functionality when the default route option is not enabled
- Web Filter: fixed whitelist not working for some hosts when using IPv6

○ **System**

- Administration: fixed repeated validation on cleared inputs and added validation when new password matches the old one
- API Core: fixed API method validation during upload action
- API Core: fixed error messages for POST method
- API Core: fixed option list validation
- Boot: fixed factory settings restore (firstboot) not deleting hidden files
- Events Log: fixed refresh button in event log table

- IP Block: fixed adding MAC addresses back to whitelist when unblocking all of them
  - Kernel: fixed stability issues when using mobile connection
  - Recipients: made phone number field required
  - Setup Wizard: fixed lan ip step not changing ip address
  - Troubleshoot: fixed system log and kernel log buttons to be enabled with read only rights
  - Update Firmware: fixed misleading "Firmware version" status of "N/A" to "FOTA service is disabled" when FOTA is disabled
  - Update Firmware: fixed issue when infinite spinner appears after updating device firmware from server without having internet connection
  - USB: fixed USB ethernet VID PID declaration
  - **CVE Patches**
    - Patched CVE-2023-52425
    - Patched CVE-2023-52530
    - Patched CVE-2024-25629
    - Patched CVE-2024-28757
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## [TRB500\\_R\\_00.07.07.3](#) | 2024.06.25

- **Fix**
    - **Network**
      - WebUI: fixed port advertisement change
    - **System**
      - FOTA: fixed config when upgrading from older firmware with keep settings
  - **CVE Patches**
    - CVE-2024-31950
    - CVE-2024-31951
- 

## [TRB500\\_R\\_00.07.07.2](#) | 2024.06.12

- **Improvements**
  - **Network**
    - Zerotier: added backup WAN interface blacklisting if WAN failover is enabled
    - Mobile: improved communication stability with eSIM
  - **Services**
    - SNMP: added bruteforce attack prevention when using SNMP v3 user
    - L2TP: improved reconnect attempt logic
  - **System**
    - SSH: removed weak SSH algorithms
    - Telnet: moved to Package Manager
- **Fix**
  - **Network**
    - BGP: fixed instance migration issues
    - ETH driver: fixed connection loss after changing of IP address
    - Mobile: fixed forced APN configuration
  - **Services**
    - DMVPN: fixed duplicate NHRP map entries creation

- OpenVPN: added fixes for the insecure tls-cert-profile option usage
  - **System**
    - IP Block: fixed blocking of UDP traffic
  - **CVE Patches**
    - CVE-2024-31948
- 

## [TRB500\\_R\\_00.07.07.1](#) | 2024.05.03

- **Improvements**
    - **Network**
      - Mobile: improved connection establish time for uqmi protocol
    - **System**
      - WebUI: improved first login password change logic
      - Certificates: updated Root CA certificates
  - **Fix**
    - **Network**
      - Mobile: fixed denied roaming flag set
  - **CVE Patches**
    - CVE-2024-2397
- 

## [TRB500\\_R\\_00.07.07](#) | 2024.04.16

- **New**
  - **Network**
    - WebUI: added ESM/EMM message notifications
    - WebUI: added internet status tracking configuration and overview widget
    - LAN: added a new IPv6 LAN status page
    - Static Leases: added a new IPv6 Static Leases page
    - WebUI: added custom domain name resolve option in “DNS” configuration page
    - Auto APN: added “uno.au-net.ne.jp” APN for “KDDI” operator
    - Auto APN: added 'eprivate010.tisparkle.com' APN for “Sparkle” operator
    - Mobile: added framed routing support
    - VRF: added initial Virtual Routing and Forwarding support
  - **Services**
    - Post/Get: added I/O invert support
    - DLMS Client: added persistent TCP connections
    - Events Reporting: added unexpected shutdown event
    - Modbus Client: added 64bit data types
    - IPPerf3: added iPerf3 to Package Manager
    - DNP3 Outstation: added I/O objects
    - TR-069: added PCI, LAC, TAC, EARFCN and Neighbour cells data to Device.MobileInfo node
    - Hotspot: added domain and subdomain options for external landing page
  - **System**
    - WebUI: added the ability to generate random passwords for password input fields
    - WebUI: added reset to “Factory defaults” option
    - System: changed firmware certificate verification tool
    - IP Block: added time-based login attempt blocking

- WebUI: added firmware update notification support
- PAM: added the ability to set port for TACACS+
- Logging: added multiple remote syslog servers support
- **Improvements**
  - **Network**
    - Static Leases: added possibility to use MAC with wildcard
    - WebUI: added ability to disable modem update notifications
    - Topology: changed network devices scanning application
    - WebUI: improved design of Status - LAN page
    - DHCP: simplified DHCP configurations in other pages and moved full DHCP configuration to a separate page
    - WebUI: simplified data entry of DNS forwardings by separating hostname and IP address fields
    - BGP: added Virtual Routing and Forwarding (VRF) support
    - BGP: added multiple BGP instance support
    - WebUI: adjusted responsive design breakpoints
    - HNAT: improved WAN->LAN packet offloading
    - Mobile: improved mobile services stability when SIM card is lost during SMS sending
    - Mobile: updated bridge/passthrough mode logic to flush ARP and add static ARP entry if MAC is specified
    - WebUI: added partial data loading to APN database page
    - Mobile: improved SMS sending timeouts during network issues
    - Mobile: added metric to default gateway when using passthrough mode
    - WebUI: added validation for 2 same APNs
    - WebUI: updated Band selection field to show duplex modes in Mobile General page
    - Dnsmasq: updated dnsmasq to version 2.89
  - **Services**
    - Wireguard: added option to bind tunnel to a specific interface
    - OPC UA Client: added limits (10 servers, 20 groups, 50 nodes per server, 50 values per group)
    - DLMS Client: increased maximum count of connection sections to 30
    - DLMS Client: added short name referencing
    - SNMP: set strict default community access when IPv6 address is used
    - SNMP: improved sysName OID to set device's hostname
    - OpenVPN: added the bridge option for selecting the network device to be bridged with
    - OpenVPN: added possibility to create more than one TAP client
    - Auto Reply: added available SMS message parameters to "Message text" input
    - Modbus Client: allow using diacritics in SMS alarms
    - Hotspot: moved MAC blocking option from Access Control to Hotspot page
    - WebUI: added MAC authentication support when using RADIUS authentication mode
    - WebUI: moved licenses to footer
    - SSTP: updated package version to 1.0.19
    - Mosquitto: updated package version to 2.0.17
    - Tailscale: updated package version to 1.62.1
  - **System**
    - WebUI: added more strict password requirements for restoring backup
    - SMTP: added option to either not verify SMTP server or upload SMTP server's CA

- file to verify authenticity
  - WebUI: Added the ability to choose the ROOT CA when using certificates from the device
  - WebUI: unified time format to ISO8601 across the entire WebUI
  - WebUI: added ability to choose imported certificate and key as 'Server certificate' and 'Server key' in 'Access Control'
  - WebUI: added 'Hosts' and 'IP Addresses' options for 'Simple' certificate generation and certificate signing
  - WebUI: changed firmware update option to server as a default option
  - GPL: added offline package preparation command for GPL builds
  - Speedtest: added multiple connections support to improve accuracy
  - LED: added power LED control
  - Kernel: updated version to 4.14.336
  - Libcap: updated package version to 2.69
- **Fix**
  - **Network**
    - WebUI: fixed static routing creation for GRE instance
    - Network: fixed DHCPv4 relay mode enabling
    - Mobile: fixed PIN code set after modem restart
    - Mobile: fixed cases where 5G NSA network type was shown incorrectly
    - Mobile: fixed an issue where using SIM change command on one SIM slot modems would reset connection
    - Mobile: fixed an issue where message storage would not be checked correctly
    - Mobile: fixed temperature value sometimes returning 0
    - Mobile: fixed deny data roaming being ignored in some cases when switching networks
  - **Services**
    - Modbus Client: allow using negative floating point values in requests
    - Azure IoT Hub: fixed Data to Server minor WebUI dependency bugs
    - Data to Server: fixed DLMS data formatting
    - Data to Server: fixed Network link state data display
    - DLMS Client: fixed segfault while reading profile generic COSEM object
    - DLMS Client: fixed profile generic entries reading
    - DLMS Client: fixed application memory allocation issues
    - SSTP: fixed route adding when default route is enabled
    - SNMP: fixed VLAN OID naming
    - OpenVPN: added fixes for instance status tracking functionality
    - OpenVPN: resolved uptime counting issues
    - PPTP: fixed PPTP instance deletion problem
    - Hotspot: fixed password validation for locally created users and signed-up users
    - Hotspot: fixed session invalidation after deleting registered user
    - Hotspot: fixed SMS OTP password reuse
    - Hotspot: fixed firewall rule creation
    - Modbus Client: fixed issue where service freezes when SMS alarm is sent
    - WebUI: fixed data loading error in Input/Output > Post/Get page
    - MQTT Publisher: fixed device/router topic naming bug
    - Azure IoT Hub: fixed 'contentType' telemetry message parameter
    - UPnP: updated package version to 2.3.4
  - **System**
    - NTP Client: fixed 'Count of time synchronizations' execution when synchronization to mobile operator is chosen

- Package Manager: fixed spinner message when restarting network after package upload or download
- Package Manager: fixed supported devices check when installing a package from server
- WebUI: fixed language install from uploaded package after upgrade with keep settings
- WebUI: fixed an issue when a user was not logged out after changing profiles
- Telnet: fixed segmentation fault during concurrent connections
- CLI: fixed enter key issue on mobile chromium based browsers
- System Users: fixed SSH session close after deleting user or disabling SSH access
- Profiles: fixed profile migration with installed packages
- WebUI: fixed Hotspot log page table search functionality
- Speedtest: fix missing download speed on some servers
- PAM: updated libpam to version 1.6.0

- **CVE Patches**

- CVE-2022-4269
- CVE-2022-4603
- CVE-2022-23308
- CVE 2022-45061
- CVE-2023-0466
- CVE-2023-6129
- CVE-2023-6915
- CVE-2023-7042
- CVE 2023-24329
- CVE 2023-27043
- CVE-2023-42366
- CVE-2023-46218
- CVE-2023-46219
- CVE-2023-46752
- CVE-2023-46753
- CVE-2023-48795
- CVE-2023-52435
- CVE-2024-25062
- CVE-2024-27913
- CVE-2024-22365

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## **[TRB500\\_R\\_00.07.06.10](#) | 2024.04.04**

- **Fix**
  - **System**
    - Ledman: fixed memory leak

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## **TRB500\_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.

- **New**

- **WebUI**
    - Added eSIM support
  - **Improvements**
    - **Services**
      - IPsec: disabled libgmp in favor of openssl
      - IPsec: updated Strongswan to 5.9.6
  - **Fix**
    - **Services**
      - IPsec: increased charon load timeout
      - IPsec: fixed loading of large private keys
- 

## [TRB500\\_R\\_00.07.06.6](#) | 2024.03.04

- **New**
    - **Services**
      - Added domain and subdomain options for external landing page in Hotspot
  - **Improvements**
    - **System**
      - Minified \*.svg WebUI files to save space on the device
      - Removed unused easy-rsa package to increase free space
- 

## [TRB500\\_R\\_00.07.06.5](#) | 2024.02.21

- **New**
    - **Network**
      - Added support for multi line USSD
  - **Improvements**
    - **Network**
      - Improved DMZ to use its source zone on port forwards creation
    - **System**
      - Updated netifd version to 2024-01-04
      - Updated PPP package version to 2.4.9
      - Updated E2fsprogs package version to 1.47.0
      - Updated Musl package version to 1.2.4
  - **Fix**
    - **WebUI**
      - Fixed action descriptions in the traffic rules table
      - fixed BACnet allow remote access functionality
- 

## [TRB500\\_R\\_00.07.06.3](#) | 2024.01.17

- **Improvements**
  - **Services**
    - Increased DLMS Client connection timeout for TCP sockets
- **Fix**
  - **Services**

- Fixed DLMS Client memory leak with profile generic COSEM class
  - **WebUI**
    - Fixed Events Log sorting and search features
  - **System**
    - Patched CVE-2024-0193 vulnerability
    - Patched CVE-2023-51779 vulnerability
    - Updated OpenSSH to 9.6p1 version, fixed CVE-2023-51385 and CVE-2023-51384
    - Fixed profile migrations, added error handling when trying to change profile while it is still applying
- 

## [TRB500\\_R\\_00.07.06.1](#) | 2024.01.04

- **Fix**
    - **Services**
      - Fixed issue with NTPclient zombie processes
    - **WebUI**
      - Fixed issues with VoLTE status and 5G network type display
- 

## [TRB500\\_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
  - **WebUI**
    - Added Tailscale VPN support
    - Renewed user interface design
    - Added network interface name change functionality
    - 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
  - 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
  - Updated Operator state field to show if modem is in limited service
  - 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 4.14.328
  - 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 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
  - **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 default profile SMS Utilities I/O status rule configuration in Profiles functionality
  - Fixed mobile cell ID retrieval in TR-069 service
- **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

## [TRB5\\_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

## [TRB5\\_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
- 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
- **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
  - 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
- **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 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
  - Updated Mobile Signal graphs to show EC/IO and RSCP values when network type is 3G
  - Updated Mobile Signal graphs to show RSRP, RSRQ and SINR values when network type is 5G
- **System**
- Updated kernel version to 4.14.319
  - 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 "routename" 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
- 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 device selecting 4G/5G service mode when 3G and manual operator configured
- Fixed PDU SMS parsing when operator provides user data header in single part SMS
- Fixed modem temperature retrieval

- **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

◦ **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 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 5G connection signal strength values display
- Fixed cell info and signal value parsing for 5G SA connection
- 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 error when user has no write permissions in Speed Test page
- **System**
  - 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-2023-1077 vulnerability
  - Patched CVE-2023-3776 vulnerability
  - Patched CVE-2023-33476 vulnerability
  - Patched CVE-2023-28484 vulnerability
  - Patched CVE-2023-29469 vulnerability
  - Patched CVE-2023-31490 vulnerability
  - Patched CVE-2023-35001 vulnerability
  - Patched CVE-2021-36369 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

## [TRB5\\_R\\_00.07.04.5](#) | 2023.07.24

- **Improvements**

- **Network**

- Added metric field support in BGP Route-maps 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 device showing 5G connection when 5G connection is not established or configured
    - Fixed modem not establishing mobile connection by failing to parse MBN list

## [TRB5\\_R\\_00.07.04.4](#) | 2023.06.26

- **Improvements**

- **Network**

- Improved mobile operator query methods and operator name parsing in various services
    - Improved the reboot sequence in case of CEFS issues

- **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 registration status value bug when performing SIM switch
    - 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

## [TRB5\\_R\\_00.07.04.3](#) | 2023.05.11

- **Improvement**
  - **System**
    - Removed SSH RSA key generation
    - Added SSH ECDSA key generation
- **Fix**
  - **Network**
    - Fixed an issue with mobile when Call Utilities configuration is invalid
    - Fixed mobile connectivity in bridge mode after firmware upgrade
    - 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

## [TRB5\\_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 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 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

## [TRB5\\_R\\_00.07.04.1](#) | 2023.03.24

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

## [TRB5\\_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
    - Improved mobile throughput offloading into LAN
  - **Services**
    - Added MQTT support to I/O Juggler
    - 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
- **System**
  - Updated bash to version 5.1.16
  - Extended firmware validation messages
  - 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 mobile status missing RSRP, RSRQ and SINR values on 5G NSA connection type
    - Fixed issue when '3G only' SIM card is used
    - 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
  - **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
    - Fixed interface creation logic so that no more than one mobile interface can be created
    - Fixed device reachability via USB when LAN to WAN is enabled
  - **Services**
    - 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
    - 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 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
  - Fixed mobile network type LED indications when device is in Bridge or Passthrough modes
  - Fixed LAN port LEDs staying on after being disabled
  - 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

## [TRB5\\_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

## [TRB5\\_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

## [TRB5\\_R\\_00.07.03.1](#) | 2023.01.03

- **Improvements**
  - **System**
    - Remove front-end certificate validation
  - **Network**
    - Improved 5G connection evaluation
    - Optimized mobile netifd script installation
- **Fix**
  - **Network**
    - Fixed modem communication validation
    - Fixed connection establishment in IPv6 only mode
    - Fixed memory leak pn Port Events
    - Fixed SIM PIN persistent storing
    - Added renegotiation option for ethtool
  - **Services**
    - Fixed libxml2 vulnerability CVE-2022-40303
    - Fixed an IPsec Phase one & two setting migration issue
  - **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

## [TRB5\\_R\\_00.07.03](#) | 2022.12.16

- **New**
  - **Network**
    - Firewall DMZ page
  - **Services**
    - Java package
    - SFTP server support

- OPC UA client
- **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
  - **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 internal error handling subsystem for I/O Manager
- Added port events support
- **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
  - Implemented modem temperature display
- **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 5G connection state checking
- Fixed LED operation when device is connected to 5G
- Fixed mobile passthrough mode for single ethernet port devices
- **Services**
  - 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 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 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

## [TRB5\\_R\\_00.07.02.8](#) | 2022.09.16

- **New**
  - Initial firmware release