

RUT950 Firmware Downloads

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This page contains firmware files for RUT950 devices. Look to the table below or the [changelog](#) to find download links.

To upgrade firmware using WebUI, follow the instructions in [RUT950 Firmware](#).

RUT950

File	Type	Release date	Size	MD5	Changelog
RUT9_R_00.07.06.11_WEBUI.bin	Latest FW	2024.05.07	12.38 MB	947c00e6141e0dae8f65a7f2c715534	Link
RUT9_R_00.07.06.11_WEBUI.bin	Mass production FW	2024.05.07	12.38 MB	947c00e6141e0dae8f65a7f2c715534	Link
RUT9XX_R_00.06.09.5_WEBUI.bin	Latest FW (legacy)*	2023.05.19	12.9 MB	466ebf15d87b57f8f0a2f4291906b193	Link
RUT9_R_GPL_00.07.06.11.tar.gz	SDK	2024.05.07	21.69 MB	2ee975802db5d19ea63f9f5006cf74d7	
RUT9XX_R_GPL_00.06.09.5.tar.gz	SDK (Legacy)	2023.05.19	494.2 MB	f483a609785520e161273337bd540581	

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

* **Legacy FW** - firmware using the legacy RutOS design. You can find all legacy firmwares in [RUT950 Firmware Downloads \(legacy WebUI\)](#) page.

FW checksums

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

Notes

- FW version RUT9_R_00.07.0X contains many major updates, some of which made certain functionalities of RUT950 no longer available to utilize. The full list of features that were removed since FW version RUT9XX_R_00.06.09.5 can be found [here](#).
- FW version RUT9_R_00.07.00 and above will not be supported on legacy-design ([RUT950 *G1***](#)) devices.

Changelog

[RUT9_R_00.07.06.11](#) | 2024.05.07

- Global changelog for **R_00.07.06.11** - [LINK](#)

[RUT9_R_00.07.06.10](#) | 2024.04.04

- Global changelog for **R_00.07.06.10** - [LINK](#)

RUT9_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.

[RUT9_R_00.07.06.6](#) | 2024.03.04

- Global changelog for **R_00.07.06.6** - [LINK](#)

[RUT9_R_00.07.06.5](#) | 2024.02.21

- Global changelog for **R_00.07.06.5** - [LINK](#)

[RUT9_R_00.07.06.3](#) | 2024.01.17

- Global changelog for **R_00.07.06.3** - [LINK](#)

[RUT9_R_00.07.06.1](#) | 2024.01.04

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

[RUT9_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
 - Added 802.11v BSS Transition Management and 802.11k Radio Resource Measurement
 - **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**
 - 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
 - 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
 - Moved WiFi scanner page to Services section
 - **System**
 - Added Mosquitto CVE patch 2023-28366
 - Added Mosquitto CVE patch 2023-3592
 - Updated hostapd version to 2023-09-08
 - 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 an issue when Call Utilities rules would be active on data only modems
- 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

- **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 RelayD configuration issues after keep settings
- Fixed realtime graphs responsive design issues
- Fixed not all LAN interfaces shown in dropdown in Hotspot service page
- Fixed modem updater legacy firmware flashing
- Fixed wireless realtime data to show signal as unavailable with no connected clients
- Fixed WiFi scanner disconnecting AP users

- Fixed setup wizard errors in Wireless configuration page
- **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
 - Fixed connection status LED indication when SIM card is removed

[RUT9_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

[RUT9_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
 - WDS support for wireless bridging
 - **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
- **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
 - Wireless interface QR code generator
 - Channel analysis page Status -> Wireless -> Channel Analysis
 - Disabled direct network interface deletion when it is associated with a wireless interface
 - Limited to a single section configuration and added IP address field for Relayd service
 - "Fast roaming" configuration for Wireless service in Client mode
 - Updated Status->Network->Wireless page to display interfaces as cards and added ability to filter connected clients by selected interface
 - "Write to config" option for SIM Switch action in I/O Juggler 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
 - IP6 table configuration option for DHCPv6 protocol in Network -> WAN 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
- Added automatic reconfiguration when switching between wireless interface modes
- Added automatically generated name option for new network
- Improved operator information parsing logic on MeiG modem
- **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
 - 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
- Added DFS channel marking in Network -> Wireless
- Show wireless MAC address even when interface is inactive in Status -> System page
- Merged Multi AP configuration to wireless interface edit modal
- Added automatic network switch to bridge if selected in Wireless configuration
- Added default encryption for newly created wireless interfaces
- Simplified "802.11r Fast Transition" configuration options in Wireless interface configuration
- 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 curl version to 7.88.0
- 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
- 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 wrong or empty WAN state info
- Fixed Wireless scanning issue with certain configuration
- Fixed Wireless transmit power changing without user input after saving different country code
- Fixed clients isolation functionality in Wireless
- Fixed Wireless STA authentication failure in case of channel change
- Fixed Multi AP startup when changing Multi AP configuration in Wireless
- Fixed client connection to EAP Wireless network
- Fixed LTE band 14 management with Quectel modems
- 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

◦ **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 LAN interfaces not showing up before WAN interfaces in Status -> Realtime Data -> Traffic
- 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
- Updated Network -> Wireless interface add and delete button visibility in basic mode
- Fixed Wireless Multi AP incorrect SSID list after removal of an instance
- Fixed MAC address filtering in Network -> Wireless page to list only connected

WiFi devices

- 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 error when user has no write permissions in Speed Test page

◦ **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

[RUT9_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 OpenVPN firewall zone migration when upgrading from legacy firmwares

RUT9_R_00.07.04.4 | 2023.06.26

Note: Firmware version *RUT9_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 *RUT9_R_00.07.02.5* or lower.

- **New**
 - **Network**
 - Travelmate package for captive portal redirection
- **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 an issue with Multi AP service remaining enabled when disabling
 - Fixed default networks in WAN firewall zone and possibility to add a network that is not yet created
 - **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

[RUT9_R_00.07.04.3](#) | 2023.05.11

- **Improvement**
 - **System**
 - Removed SSH RSA key generation
 - Added SSH ECDSA and ED25519 key generation
- **Fix**
 - **Network**
 - Fixed an issue with mobile when Call Utilities configuration is invalid
 - Fixed clients being unable to connect to wireless AP when multi AP configuration is empty
 - 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

[RUT9_R_00.07.04.2](#) | 2023.04.04

- **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 an issue with mobile metric setting migration from legacy FWs to RUTOS

- Fixed frr vulnerability CVE-2022-37035
- Removed ability for non root users to edit scripts that get executed as root

[RUT9_R_00.07.04.1](#) | 2023.03.24

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

[RUT9_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
 - Changed default WiFi AP cipher to CCMP (AES)
 - Added the logging of MAC addresses rejected by a WiFi AP
 - **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
 - Fixed disabled WiFi interface after factory reset
 - Fixed WiFi interface creation with SAE mixed encryption
 - **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
 - Fixed WiFi Hotspot landing page uploaded theme image display
 - Fixed WiFi Hotspot trial user deletion issue
 - Fixed WiFi Hotspot service crash when associated WiFi interface is not up
 - Fixed WiFi Hotspot password request by SMS
 - Fixed WiFi Scanner starting process when the WiFi interface is disabled
 - 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
 - Fixed OpenVPN migration from legacy firmwares
 - Fixed an issue with OpenVPN TAP configuration migration from legacy FWs
 - 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

[RUT9_R_00.07.03.4](#) | 2023.02.09

- **Fix**
 - **Network**
 - Changed generic modem restart method
 - Fixed mobile page VoLTE switching issues
 - Fixed CVE-2023-32349 vulnerability
 - **Services**
 - Sanitized tcpdump storage location
 - Fixed RS485 issue on devices from batch > 110
 - Removed OPOST stty output setting with legacy Over IP mode
 - **System**
 - Fixed legacy backup upload
 - Fixed upgrade from legacy FW issue with keep settings

[RUT9_R_00.07.03.3](#) | 2023.01.25

- **Fix**
 - **Network**
 - Fixed disabled WiFi interface after factory reset

[RUT9_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

[RUT9_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

- Fixed operator index in DNP3 outstation
- Fixed OpenVPN migration from legacy firmwares
- Fixed not being able to create or edit PPTP instances after upgrading from legacy firmware
- **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

RUT9_R_00.07.03 | 2022.12.16

- **New**
 - **Network**
 - Firewall DMZ page
 - **Services**
 - Java package
 - SFTP server support
 - OPC UA client
 - NTRIP
 - Hotspot registered users management page
 - 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 individual WiFi toggle support
 - Added error message when DFS channel is selected during scanning
 - 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 format button for each USB device in USB Tools General page
 - Reduced waiting time during storage device setup for Memory Expansion
 - Optimized Storage Memory Expansion package size
 - Replaced ntfs-3g with kernel-mode driver
 - Added USB to Serial support for Modbus, MQTT Modbus Gateway, NTRIP, DNP3
 - Added CSP headers to Hotspot Landing Page
 - Added hotspot user script validation
 - Improved logging of disconnecting client devices
 - Added the possibility to switch profiles on GPS geofencing events
 - Added satellite count and accuracy columns to GPS Map page
 - Implemented Hotspot 'forget' method, which removes user from DB by MAC
 - 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 CVE-2023-32350 vulnerability
 - 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 mac80211 vulnerabilities CVE-2022-41674, CVE-2022-42719, CVE-2022-42720, CVE-2022-42721, CVE-2022-42722
 - Fixed wireless interfaces connections not reestablishing after disabling & enabling again
 - 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
 - **Services**
 - Fixed Hotspot landing page opening issue
 - Fixed Printer service starting issue

- Fixed Printer service boot issues
- Fixed DLNA service reload issues on USB drive insert/remove
- 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 Hotspot connected user list maximum upload/download value limits
- Fixed incorrect connected Hotspot user information in RMS JSON
- 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 Hotspot issues related to specific connected phones
- Fixed Wireless AP enabled by MODBUS TCP Master not showing in Wireless clients
- Fixed WiFi Scanner hostname validation issues
- 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 Load Balancing, GRE, MQTT broker, IP alias, Operator list & SIM operator connection migration from legacy firmwares
 - Fixed 3G LED animation issue
 - 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 Hotspot interface display
 - 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

[RUT9_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
 - Fixed interface option reset after VLAN ID change
 - Removed memory leak on port events
 - Fixed WiFi Scanner out of range crash when iterating collected data

[RUT9_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 Serial-symlink dmesg messages
 - Fixed VoLTE management
 - Fixed OpenVPN tls-auth and tls-crypt option names

[RUT9_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
 - Added CSP headers Hotspot WebUI landing page
- **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
 - Fixed modal tabs navigation when editing wireless interface with non-english languages

[RUT9_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
 - Fixed Hotspot login via landing page issue

[RUT9_R_00.07.02.3](#) | 2022.06.27

- New Features:
 - Port Mirroring
- Improvements:
 - 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
 - Updated FSTools package to version 2022-05-03
 - Added security headers to web requests
 - Added default VoLTE value
 - Specified IP address family on operator control's ping to DNS feature
- Fixes:
 - Fixed CVE-2019-12900 libbz2 vulnerability
 - Fixed behavior of some gsmctl commands
 - 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 band locking issue
 - Fixed race condition for wireless configuration initialization

[RUT9_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

[RUT9_R_00.07.02](#) | 2022.05.23

- **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
- 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 Hotspot configuration profiles
- Added local Hotspot user password hashing
- Added Hotspot password encoding option
- Improved Hotspot related firewall rule setting
- Improved WiFi Scanner enable switch to toggle 2 and 5 GHz instances separately
- Removed CHAP authentication protocol for WiFi Hotspots due to incompatibility with hashed passwords
- Added ubus support to Hotspot
- Changed default port name of WiFi devices for 'Topology state' Events Reporting rule
- Added AVL "Static Navigation" flag
- Added GSV parsing for NMEA collecting
- Added newline and GPS location actions to I/O Juggler
- Added error code 5 for reserved SAMBA user names
- Added Mobile data and SMS limit features for external modem
- 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 'WAN to LAN' switch
- 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 PDP logging for Verizon operator
- Added multiwan support for Wireguard default route
- Fixed wireless signal strength display when no clients are connected
- Fixed loss of connectivity for clients when router is in STA+AP mode
- Added validation that prevents automatic connection to first unencrypted WiFi AP when using MULTI AP
- Fixed Wifi Scanner data not being stored in certain scenarios
- Fixed WiFi scanner not turning on after FW upgrade with 'keep settings'
- Fixed Hotspot user group limit not resetting on specified time
- Removed an RMS error message when no Hotspot users were created
- Fixed Hotspot landing page image upload issue
- 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 I/O Juggler external modem recognition
- Fixed flash driver reformatting after memory shrink
- Fixed DLNA package installation issue
- Changed Media Directories field to be required
- Fixed SAMBA fields value display
- 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 APN migration if APN was selected from APN list on legacy firmware
- Fixed RIP configuration migration from legacy firmware versions
- Fixed Wireguard interface status setting migration from legacy firmware versions
- Fixed default config options for SSH and Web access SMS Utilities rules
- Fixed POST/GET SMS listing by state
- Fixed automatic port open after RS232/RS485 Over IP server & bidirect configuration changes

- Fixed 'iostatus' SMS rule

RUT9_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 Hotspot enable button validation
- Removed invalid network interface selections from the "Network" dropdown in the Wireless interface configuration page
- Fixed 3G led animation issue
- Fixed Hotspot 2.0 status display in the System -> Status page
- Changed the logic of uploading files to the modem
- Fixed usage of custom headers in I/O Juggler HTTP action
- Fixed 'verify' option parsing for I/O Juggler
- 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

RUT9_R_00.07.01.2 | 2022.01.04

• New features

- DFOTA modem upgrade system for Quectel modems

• Improvements

- Removed L2TP section title prefixes
- Added necessary/forced module firmware updates to handle AT&T network update

• 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

RUT9_R_00.07.01.1 | 2021.11.22

Note: Firmware version RUT9_R_00.07.01.1 released on 2021.11.22 was removed due to an issue with IPsec tunnel while using mobile connection.

- **Fixes**

- Fixed image signature addition

RUT9_R_00.07.01 | 2021.11.18

Note: Firmware version RUT9_R_00.07.01 released on 2021.11.18 was removed due to an issue with keep settings functionality.

- **New features**

- Load Balancing Rules
- 802.11s based wireless mesh network support
- Multiple Wireless AP feature
- 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 20210118
- 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 mosquito 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 libiwininfo 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 new configuration options to the Failover feature

- Changed Failover page availability from Advanced only both advanced and basic
- Made Failover Interfaces table rows draggable when in 'Load Balancing' mode
- Changed Failover page 'Ratio' fields to a smaller size
- Added the possibility to allow multiple Hotspot users to log in with the same SMS OTP
- Added 'Duplicate passwords are not allowed' error message to Hotspot landing pages
- Added 'Allow password duplicates' field to the Hotspot configuration page
- Improved wireless frequency option layout
- Added an indication to the GPS map when GPS service is disabled
- Added external modem support for the 'Mobile Usage' graph
- Added check to refuse firmware lower than 7.0 on devices with Micron flash
- 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 bgscan feature to wpa_supplicant
- Optimized Wireless device status information requests in all WebUI pages
- Added "Topology state" support to Events Reporting
- 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 incorrect loading after saving Failover configuration
- Fixed escaping '#' symbol from hotspot username and password fields
- 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 Storage Memory Expansion issues related to upgrading from version 6.X with the 'Keep settings' option
- 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

RUT9_R_00.07.00.2 | 2021.10.19

• Fixes

- Fixed NMEA sentence validation for Meig modems

RUT9_R_00.07.00 | 2021.07.16

• New features

- New, RUTX-like WebUI style
- New WebUI based on Vue.js 2.6.12

- RutOS updated to OpenWrt 19.07.7 base
- DNP3 Master and DNP3 Oustation
- 'Restore to user's defaults' SMS Utilities rule
- DHCP Relay AT command

• 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 support for multiple USB to Serial adapters
- Added option to send SMS warning messages to Hotspot users authenticated with SMS OTP when specified amount of data is used up

- 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 GPS time synchronization for DST regions
- 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
- Fixed DLNA connections count total in statistics page
- Fixed WiFi Hotspot's Walled Garden issues
- Fixed WiFi Hotspot data logging issues
- Fixed P2P group information processing vulnerability in wpa_supplicant
- Added validation to Walled Garden Address list field