RUT951 Firmware Downloads

This page contains firmware files for RUT951 devices. Look to the table below or the [changelog](#) to find download links.

To upgrade firmware using WebUI, follow the instructions in [RUT951 Firmware](#).

RUT951					
File	**Type**	**Release date**	**Size**	**MD5**	**Changelog**
[RUT9M_R_00.07.07_WEBUI.bin](#)	Latest FW	2024.04.16	12.63 MB	ab4901d5071582f2ed3ee621934f181c	[Link](#)
[RUT9M_R_00.07.06.10_WEBUI.bin](#)	Mass production FW	2024.04.04	12.31 MB	a8f196d4a1b1d2c36e98162ee2c92144	[Link](#)
[RUT9M_R_GPL_00.07.07.tar.gz](#)	SDK	2024.04.16	21.23 MB	889384ff54b8083323ce6286ceca8a78	

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

[RUT9M_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
    - QoS: added mobile interface select option
    - Failover: added additional connection flush options
    - Wireless: added auto-reconnect disable functionality
    - Wireless: added ability to use PKCS#12 certificates for EAP-TLS authentication
    - 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
- IPerf3: 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
    - WebUI: added additional field for warning threshold to allow entering value as percentage in Mobile Data Limit section
    - 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
    - Mobile: improved SIM switch logging and protection on failure to acquire data
    - WebUI: added partial data loading to APN database page
    - Mobile: improved SMS sending timeouts during network issues
    - Mobile: improved connection handling when data limit is reached
    - 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
    - Mobile: improved connection establishment time on device boot up
    - 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
    - DHCP: removed default disabled server configuration for WAN interface
    - 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
    - Dnsmasq: updated dnsmasq to version 2.89
    - WebUI: added an information icon and disabled delete button for wireless instance when it is associated with a hotspot interface
    - Wireless: improved hidden AP handling when showing scan results
  - **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
- **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
  - Kernel: updated to version 5.15.149
  - Libcap: updated package version to 2.69
- **Fix**
  - **Network**
    - Topology: fixed showing interfaces with assigned VLAN
    - 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 issue where RSSI value was displayed as 0 when using 2G/3G network types
    - SIM Switch: fixed an issue when low "Check interval" was causing connection to fail
    - SIM Idle Protection: fixed problem when the SIM slot remained unchanged
    - Mobile: fixed an issue where SIM switch would fail when switching to PUK blocked SIM
    - Mobile: fixed an issue where sim switch would be executed twice immediatelly

causing sim to not be switched
- Mobile: fixed SIM PIN saving for non primary SIM cards
- Failover: fixed Failover missing active rules when using multiple source and destination IP addresses
- Failover: fixed an issue where failover would not function correctly while using a mobile interface
- WebUI: fixed network and failover interface metric sorting synchronization issue
- WebUI: fixed failover rule policy save issue with newly added WAN interface
- Interfaces: fixed failover value for new WAN being taken from WAN that was just deleted
- Wireless: fixed Wifi Scanner not saving scanned WiFi SSIDs
- Wireless: fixed missing CCMP-256 and GCMP-256 cipher types in scan results
- Wireless: fixed missing GCMP-256 cipher when using WPA3-EAP encryption in Client mode
- Wireless: fixed skipped MAC address value for interface in Client mode
- Wireless: fixed scanning issue when connected via the same network
- Wireless: fixed mesh functionality
- Wireless: fixed missing signal strength value on Client interfaces
- Wireless: fixed Client interface taking excessive time to connect after boot
- Wireless: fixed missing EAP authentication in Client mode
- WebUI: fixed mesh nodes not being shown in Status->Wireless->Interfaces page
- WebUI: fixed proposed configuration settings when connecting to a mesh point network
- Wireless: fixed connected wireless clients being shown duplicated
- MultiAP: fixed client not switching to another AP if incorrect password was provided

○ **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 formating
- 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
- Azure IoT Hub: fixed 'contentType' telemetry message parameter
- 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
- PPTP: fixed problem related with routes when failover is enabled
- Modbus Client: fixed issue where service freezes when SMS alarm is sent
- WebUI: fixed data loading error in Input/Output > Post/Get page
- 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
    - JavaVM: fixed package installation
    - 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-2022-4603
    - CVE-2022-23308
    - CVE 2022-45061
    - CVE-2023-0466
    - CVE-2023-6129
    - 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-2024-25062
    - CVE-2024-27913
    - CVE-2024-22365

[RUT9M_R_00.07.06.10](#) | 2024.04.04

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

RUT9M_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.

[RUT9M_R_00.07.06.6](#) | 2024.03.04

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

[RUT9M_R_00.07.06.5](#) | 2024.02.21

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

[RUT9M_R_00.07.06.3](#) | 2024.01.17

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

[RUT9M_R_00.07.06.1](#) | 2024.01.04

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

[RUT9M_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
    - Added new ADC IC "TLA2021" support
    - Added new Serial IC "CH343" 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 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
- Fixed wireless client authentication failures when using AP and STA with WPA3-SAE authentication
- Fixed STA connection failure to AP with hidden SSID using WPA3-SAE authentication
- Fixed incorrect signal strength values in Wireless scan results
- **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 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
  - Fixed Unicode SSID representation in Wireless scan results
- **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

[RUT9M_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

[RUT9M_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
    - 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
    - JamVM package
    - 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
- Port status and configuration page
- 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
  - Possiblity 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
    - WPA3/WPA2 (PSK/SAE) mixed mode is now default encryption standard
    - 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 seperate 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 seperate 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 authentification 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 Wireless disconnection issues
    - 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 authentification 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 authentification
- 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
- Fixed carrier aggregation information when no connection is made or SIM card is not inserted
- Changed representation of mobile cell ID from hexadecimal to integer type
- Fixed Mobile Utilities "SMS forwarding to HTTP" URL generation
- Fixed an issue where sometimes bands were not represented correctly on certain modems
- Fixed provider information and IMSI value representation when SIM and modem cannot provide this information
- Fixed mobile pages throwing 404 error when modem disconnects
- Fixed WebUI showing mobile connection when no SIM card is inserted
- 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

[RUT9M_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

RUT9M_R_00.07.04.4 | 2023.06.26

Note: Firmware version *RUT9M_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 *RUT9M_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

[RUT9M_R_00.07.04.3](#) | 2023.05.11

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

- **Fix**
    - **Network**
        - Fixed an issue with mobile when Call Utilities configuration is invalid
        - Fixed 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

[RUT9M_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 libiwinfo 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 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

[RUT9M_R_00.07.04.1](#) | 2023.03.24

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

RUT9M_R_00.07.04_WEBUI.bin | 2023.03.07

Note: Firmware version **RUT9M_R_00.07.04_WEBUI.bin** was removed from downloads list due to issues with Mobile Data Limit functionality not working correctly when Software offloading is enabled.

- ○ **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 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
  - ▪ 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

- **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
  - Fixed PDP authentication not working on EC200A modems

- **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
  - 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 firmware version display
    - 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

[RUT9M_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

[RUT9M_R_00.07.03.3](#) | 2023.01.25

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

[RUT9M_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

RUT9M_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
    - **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

RUT9M_R_00.07.03 | 2022.12.16

- **New**
    - **Network**
        - Firewall DMZ page
    - **Services**
        - Java package
        - SFTP server support
        - OPC UA client
        - Hotspot registered users management page
    - **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 CSP headers to Hotspot Landing Page
  - Added hotspot user script validation
  - Improved logging of disconnecting client devices
  - 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 nd 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
  - **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 handling of WAN/LAN port state changes
- Fixed Wired WAN connectivity issue when Failover interfaces are disabled
- Fixed Failover fallback issue
- **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 Hotspot connected user list maximum upload/download value limits
  - Fixed incorrect connected Hotspot user information in RMS JSON
  - Removed unnecessary field from the Port Mirroring page
  - Fixed Events Reporting 'Changing to SIM1/SIM2' options
  - 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 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
  - Fixed User default settings not restoring issue
  - Fixed LED operation during FW flashing
  - Fixed LED operation while device is in bootloader state
- **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

[RUT9M_R_00.07.02.9](#) | 2022.11.14

- **New features**
    - RNDIS and related drivers

- **Fixes**
    - Added validation that prevents a downgrade below version 7.2.9
    - Fixed libgsm segfault on modem application FW function
    - Fixed handling of state changes for LAN/WAN ports

[RUT9M_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 interface option reset after VLAN ID change
    - Removed memory leak on port events
    - Fixed WiFi Scanner out of range crash when iterating collected data

[RUT9M_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

[RUT9M_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 proccess 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
- Fixed LAC/TAC parsing in 4G mode

[RUT9M_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
    - Fixed FOTA communication issues

[RUT9M_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
    - Fixed operator control issue
    - Fixed VoLTE management issue
    - Fixed SIM card checking on modem init

[RUT9M_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

[RUT9M_R_00.07.02](#) | 2022.05.10

- **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
  - MODBUS
  - 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 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 PPPoE VLAN priority support
- Made VRRP ping section dependent on main instance
- Added 'WAN to LAN' switch

- **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
- 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 VoLTE management
- Fixed incorrect parsing of temperature, revision and IP address values
- Fixed handling of SIM card removal
- Fixed unnecessary SIM switch issue when Multi-APN is configured
- Fixed MODBUS TCP slave modem not starting after switching SIM cards
- 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 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 POST/GET SMS listing by state
- Fixed second VLAN ID not being locked

[RUT9M_R_00.07.01.5](#) | 2022.03.29

- **New features**
  - Initial FW release for the RUT951 device