

# RobustOS Firmware Release Notes

## NOTES

- This document serves as the release notes for the mainline version of RobustOS, primarily recording the new features, optimizations, and fixes for each version. All version release information will be accumulated here, allowing users to refer to the complete product version update history through this document.
  - This release note applies to all routers using **RobustOS 5.x** version.
  - The firmware name prefix corresponds to the supported product models:
    - m120x: M1200, M1201
    - r131x: R1312, R1315
    - r151x: R1510, R1510Lite, R1511, R1511P, R1511PL
    - r1520: R1520
    - et801x: ET8013, ET8015, ET8015L, ET8016
    - r201x: R2010, R2011
    - r3000: R3000, R3000Lite, R3000Q
    - r3000lg: R3000LG
    - r2110: R2110
    - r2120: R2120
    - r2111a: R2111A
    - r5020: R5020, R5020Lite
  - **Prerequisites for upgrading RobustOS from V3.x.x to V5.x.x:**
    - ❖ R5020 must upgrade the intermediate version firmware (V3.1.8 or later) before upgrading the RobustOS 5.0 firmware.
    - ❖ R3000LG must upgrade the intermediate version firmware (V3.1.9 or later) before upgrading the RobustOS 5.0 firmware.
    - ❖ Other devices can directly upgrade to the RobustOS 5.0
  - **Prerequisites for upgrading RobustOS from V5.x.x to V5.3.x:**
    - ❖ R2110/R5020/R5020Lite must be upgraded to V5.2.2 or above (excluding V5.2.3) before upgrading to V5.3.x.
  - **Prerequisites for upgrading RobustOS V3.x.x to EN18031 compliant firmware:** You must first upgrade to any V5.x version before proceeding to upgrade to compliant versions V5.3.5 and above.
- Note:**
- ❖ Please be aware that if you downgrade the firmware from V5.x.x to V3.x.x, the router will reset the user management feature parameter to default, and you also need to clean the browser cache.
  - ❖ Please check the compatible module information of the firmware version before upgrading.
  - ❖ Please be aware that if you downgrade the firmware from V5.3.x or V5.2.x to V5.0.x and V5.1.x, the router will reset the the Link Manager feature parameter to default.

## VERSION V5.5.0

Release Date: January 4, 2026

Previous Version: V5.4.0

## NEW FEATURES

1. Added Support for eSIM. (Only for the device with MFF2 eSIM)

## ENHANCEMENTS

1. Added support for importing/exporting APN list.
2. Added support for the EG25-GL module in R1510/R1511.
3. Added support for SHA256\_96 algorithm in IPsec VPN to enhance cross-vendor compatibility and data integrity security.
4. Added support for automatically selecting the 'BEST' network after a SmartRoaming site survey.
5. Optimized SmartRoaming logic for Periodic/Daily Restart and Forget RPLMN.
6. Optimized the cellular module initialization logic for R1510 and R1510 Lite.
7. Updated the built-in APN database to enhance network compatibility.

## BUGS FIXED

1. Fixed OpenSSH vulnerability CVE-2025-32728.
2. Fixed Nginx vulnerability CVE-2024-33452.
3. Fixed a problem in the SmartRoaming Site Survey test results where SINR showed incorrect values and frequency band details were truncated.
4. Fixed USB LED failing to light up when configured as "NET" on R2120, R2111a, and R5020 Lite.

## KNOWN BUGS & LIMITATIONS

N/A

## OTHERS

1. Starting from V5.1.0, subsequent versions of RobustOS will no longer support the R2000 series.
2. Starting from V5.4.0, subsequent versions of RobustOS will no longer support M1200, M1201, and R1500.
3. The SFE Fast feature and IPv6 functionality on R2120/R2111A/R5020/R5020Lite are mutually exclusive and cannot be enabled simultaneously.

## VERSION V5.4.0

Release Date: October 9, 2025

Previous Version: V5.3.6

## NEW FEATURES

1. Added support for R2111A/R1312/R1315/R2120/ET8015/ET8015L/ET8016.
2. Added support for the IEEE 802.1X protocol to enable identity-based network access control on local area networks, enhancing security.
3. Added support for customizable timeout settings for WEB, SSH, and Telnet sessions, allowing users to adjust the idle disconnection time based on their needs.

## ENHANCEMENTS

1. Added support for SmartRoaming V3, which includes mobile network survey capabilities.
2. Added automatic redirection of WEB management traffic from HTTP to HTTPS, enforcing encrypted connections.
3. Added support for APN polling feature, allowing automatic connection attempts between multiple APNs to improve network registration success rates.
4. Added support for the GCM encryption algorithm in OpenVPN.
5. Added support for the GCM encryption algorithm in IPSecVPN for R151x and R3000.
6. Added a customizable retransmission mechanism for IPSec VPN, allowing configuration of the maximum number of retransmission attempts.
7. Added support for DHgroup19 and DHgroup20 in IPSec VPN.
8. Added firewall port mapping interface binding options, supporting the selection of all available interfaces or VPN tunnel interfaces.
9. Added support for MT5710CN/RG200UCN/SLM770A-SA modules in R2010.
10. Added support for the SLM828 module in R2110.
11. Added support for SRM821/RM500U-EA modules in R5020/R5020lite.
12. Added support for the SLM770A module in R3000.
13. Added support for the EG800Q module in R1312.
14. Added FOTA support for SLM828/SLM770A-S/MT5710CN/EC800K modules.
15. Added WiFi Client network scanning and specified BSSID connection feature.
16. Added support for roaming feature in WiFi Client, enabling seamless switching between access points.
17. Added support for using Chinese characters in Wi-Fi SSIDs.
18. Added the DO Scheduler feature, allowing users to create custom scheduled tasks for managing Digital Output (DO) states.
19. Added support for Syslog backup servers, enabling data to be sent to two log servers simultaneously.
20. Added support for LoRa private mode in R3000LG, enabling customized proprietary network communication.
21. Added configuration support for LCP heartbeat detection parameters (lcp\_echo\_interval/lcp\_echo\_failure) in PPPoE Bridge.

22. Optimized account password policy by adjusting special character requirements and improving validation rules to enhance account security.
23. Optimized the SSH login security mechanism by requiring a mandatory password change for the admin account upon first login.
24. Optimized part of the CLI command set (select/uninstall/tftpupdate) and added support for SSH Client feature.
25. Optimized the usage logic of static IP SIM cards to ensure address persistence of WWAN interfaces in IPv6 environments.
26. Optimized cellular network status monitoring and link auto-recovery mechanisms to enhance network connection stability.
27. Optimized dial-up backoff mechanism to reduce invalid dialing and lower network pressure.
28. Optimized MagicSMS command set by adding support for cellular network authentication commands that configure only APN or APN + username.
29. Optimized SMS control feature to automatically filter out CR/LF control characters from received messages.
30. Optimized transmission performance of the RM500U module, improving data transmission rates and reducing communication latency.
31. Optimized event information synchronization mechanism to ensure key events are recorded in the system log in real-time.
32. Optimized R2120 PoE event prompt information to improve the accuracy of alarm descriptions.
33. Optimized ACC delay shutdown parameters for R2110/R5020, adjusting the maximum timeout to 64800 seconds.
34. Optimized XML configuration file download mechanism to enable direct download feature.
35. Optimized the maximum number of static routes, limiting it to 50.
36. Optimized the control logic of WiFi LED lights to enhance the accuracy of status indication and user experience.
37. Added RCMS connection status information to device homepage.
38. Optimized the web server certificate import mechanism, adding feature to view and delete certificate files.
39. Optimized GPS feature. The cellular module can enable GPS positioning without a SIM card (under specific Link Manager settings).
40. Updated the data source for the Speedtest server list and added the ability to manually specify target servers.
41. Updated the built-in APN database to enhance network compatibility.
42. Updated arp-scan to version 1.10.0.
43. Updated busybox to version 1.36.1.
44. Updated conntrack-tools to version 1.4.8.
45. Updated dnsmasq to version 2.90.
46. Updated ethtool to version 6.5.
47. Updated expat to version 2.6.3.
48. Updated fping to version 5.2.
49. Updated gmp to version 6.3.0.
50. Updated iproute2 to version 6.9.0.
51. Updated ipset to version 7.22.
52. Updated iptables to version 1.8.10.
53. Updated iw to version 5.9.
54. Updated libmnl to version 1.0.5.
55. Updated libnetfilter\_conntrack to version 1.0.9.
56. Updated libnetfilter\_cthelper to version 1.0.1.

57. Updated libnetfilter\_cttimeout to version 1.0.1.
58. Updated libnfnetlink to version 1.0.2.
59. Updated libpcap to version 1.10.5.
60. Updated msmtplib to version 1.8.26.
61. Updated ntp to version 4.2.8p18.
62. Updated strongswan to version 5.9.14.
63. Updated zlib to version 1.3.1.
64. Updated nginx to version 1.26.2.

## BUGS FIXED

1. Fixed the issue where port mapping fails when the default filtering policy is set to Drop.
2. Fixed the issue of failing to switch serial port parity from Odd to Even mode.
3. Fixed the issue of duplicate definitions of certain SNMP OID identifiers.
4. Fixed the abnormal IPv6 network access issue for end devices in IP Passthrough mode.
5. Fixed the issue where end device IP updates fail when WWAN address changes in IP Passthrough mode.
6. Fixed the abnormal level fluctuation of the DO interface during the startup process of R2110/R5020.
7. Fixed the mounting failure of specific SD cards (without /dev/mmcblk0p0 partition) on R2110.

## KNOWN BUGS & LIMITATIONS

N/A

## OTHERS

1. Starting from V5.1.0, subsequent versions of RobustOS will no longer support the R2000 series.
2. Starting from V5.4.0, subsequent versions of RobustOS will no longer support M1200, M1201, and R1500.
3. The SFE Fast feature and IPv6 functionality on R2120/R2111A/R5020/R5020Lite are mutually exclusive and cannot be enabled simultaneously.

## **VERSION V5.3.6**

Release Date: September 8, 2025

Previous Version: V5.3.5

## **NEW FEATURES**

N/A

## **ENHANCEMENTS**

N/A

## **BUGS FIXED**

1. Fixed the issue of license import failure.
2. Fixed an issue where the web service would unexpectedly restart under certain conditions.

## **KNOWN BUGS & LIMITATIONS**

1. When IP Passthrough feature is enabled, when the IP address of cellular module changes, the device connected to LAN port of router/gateway needs to disconnect the Ethernet port to obtain the latest IP address assigned by cellular module.

## **OTHERS**

1. Starting from RobustOS V5.1, firmware updates no longer support R2000 series.
2. R5020Lite only supports upgrade from V5.0.0.2 and V5.0.0.5 to V5.2.0.
3. The SFE Fast feature of R5020/R5020Lite does not support enabling the IPv6 function at the same time.

## VERSION V5.3.5

Release Date: May 30, 2025

Previous Version: V5.3.4

## NEW FEATURES

1. Added compliance with RED DA (EN 18031) standard.
  - (1) Added mandatory admin password change on first login.
  - (2) Added QoS (Quality of Service) support.
  - (3) Added cybersecurity version display on homepage.
  - (4) Added ICMP forwarding limiting in firewall.
  - (5) Added MAC-IP binding feature.
  - (6) Optimized password policy for user accounts.
  - (7) Optimized encryption algorithms for firmware/configuration import/export.
  - (8) Fixed kernel vulnerability (CVE-2024-1086).

## ENHANCEMENTS

1. Added firmware downgrade risk notification feature.
2. Optimized DHCP protocol compatibility.

## BUGS FIXED

1. Resolved the rare issue of devices losing MAC addresses.

## KNOWN BUGS & LIMITATIONS

1. When IP Passthrough feature is enabled, when the IP address of cellular module changes, the device connected to LAN port of router/gateway needs to disconnect the Ethernet port to obtain the latest IP address assigned by cellular module.

## OTHERS

1. Starting from RobustOS V5.1, firmware updates no longer support R2000 series.
2. R5020Lite only supports upgrade from V5.0.0.2 and V5.0.0.5 to V5.2.0.
3. The SFE Fast feature of R5020/R5020Lite does not support enabling the IPv6 function at the same time.

## VERSION V5.3.4

Release Date: January 24, 2025

Previous Version: V5.3.3

## NEW FEATURES

N/A

## ENHANCEMENTS

1. Optimized the service restart mechanism of application configuration.
2. Optimized the default policy for the firewall INPUT chain.

## BUGS FIXED

1. Fixed the problem that the port mapping feature failed to specify the WWAN interface.
2. Fixed the problem that PPP dial-up failed after enabling the IPV6 function.
3. Fixed the problem that some modules failed to lock the network or frequency.
4. Fixed the problem that the signal indicator light displayed abnormally when the module was registered to the 5G NSA network.

## KNOWN BUGS & LIMITATIONS

1. When IP Passthrough feature is enabled, when the IP address of cellular module changes, the device connected to LAN port of router/gateway needs to disconnect the Ethernet port to obtain latest IP address assigned by cellular module.

## OTHERS

1. Starting from RobustOS V5.1, firmware updates no longer support R2000 series.
2. R5020Lite only supports upgrade from V5.0.0.2 and V5.0.0.5 to V5.2.0.
3. The SFE Fast feature of R5020/R5020Lite does not support enabling the IPv6 function at the same time.



## VERSION V5.3.3

Release Date: December 16, 2024

Previous Version: V5.3.0

## NEW FEATURES

N/A

## ENHANCEMENTS

1. Enhanced the security protection capability of WEB Server.
2. Optimized the control logic of WIFI LED light.
3. Optimized the status display logic of LAN connected devices.
4. Optimized the features of some CLI commands.
5. Optimized the Smart Roaming features of SLM770A module.
6. Optimized the custom APN feature of R5020Lite.
7. Optimized the exception handling mechanism of OpenVPN.
8. Optimized the startup mechanism of R3000LG UDP Packet Forwarder.
9. Optimized the display mechanism of modem status on the home page.
10. Optimized the startup mechanism of WiFi.
11. Optimized the display of IPv6 routing status.
12. Optimized the information content returned by executing the speedtest command via SMS.
13. Optimized the APN information of TeleKom in the automatic APN database.

## BUGS FIXED

1. Fixed the CVE-2024-6387 vulnerabilities of OpenSSH.
2. Fixed the CVE-2024-0727 vulnerabilities of OpenSSL.
3. Fixed the memory leak problem of event service.
4. Fixed the memory leak problem caused by frequent initiation of AT over Telnet connection.
5. Fixed the problem that the IPv6 address cannot be obtained after the MTU of the WWAN interface is modified.
6. Fixed the problem that the transparent mode of the serial port does not work properly when the local IP address of the TCP server is empty.
7. Fixed the problem that the filtering rule in the firewall is invalid when the source address is empty.
8. Fixed the problem of abnormal routing in Link Manager warm backup mode.
9. Fixed the problem that there is a probability that ping cannot reach the peer IP after IPsec VPN reconnect/restart.
10. Fixed the problem that the device restarts due to receiving an empty DNS address during PPP dial-up.
11. Fixed the problem that LAN fails to allocate IPv6 addresses to connected devices.
12. Fixed the problem that GPS will not automatically restart after abnormal exit after the cellular module is

restarted.

13. Fixed the problem of the device automatically restarting after triggering WAN/WLAN data traffic overflow event.

## KNOWN BUGS & LIMITATIONS

1. When IP Passthrough feature is enabled, when the IP address of cellular module changes, the device connected to LAN port of router/gateway needs to disconnect the Ethernet port to obtain latest IP address assigned by cellular module.

## OTHERS

1. Starting from RobustOS V5.1, firmware updates no longer support R2000 series.
2. R5020Lite only supports upgrade from V5.0.0.2 and V5.0.0.5 to V5.2.0.
3. The SFE Fast feature of R5020/R5020Lite does not support enabling the IPv6 function at the same time.

## VERSION V5.3.0

Release Date: July 3, 2024

Previous Version: V5.2.8

## NEW FEATURES

1. Added IPv6 support for the link management feature(For Quectel Module).
2. Added IPv6 support for the LAN feature.
3. Added IPv6 support for the firewall feature.
4. Added IPv6 support for the IP Passthrough feature.
5. Added IPv6 support for the GRE VPN feature.
6. Added IPv6 support for the IPSec VPN feature.
7. Added IPv6 support for the OpenVPN feature.
8. Added IPv6 support for the static routing feature.
9. Added IPv6 support for the Tools feature.
10. Added IPv6 support for the E-mail feature.
11. Added IPv6 support for the GPS feature.
12. Added IPv6 support for the Syslog feature.
13. Added IPv6 support for the NTP feature.
14. Added IPv6 support for the SSH feature.
15. Added IPv6 support for the WebServer feature.
16. Added support for the EC200M module in the R151x.

## ENHANCEMENTS

1. Added support for displaying the current login account name on the WEB interface.
2. Added support for enabling or disabling Cellular IMS.
3. Added support for enabling or disabling LoRa Basic Station and UDP Forwarder logs.
4. Added support for quickly configuring APN and enabling RCMS via MagicSMS.
5. Optimized support for matching APN by reading the SIM card's IMSI in automatic APN mode.
6. Optimized the DO interface of the R1510/R1520 to maintain the same level state upon device startup.
7. Optimized the control of the USER LED.
8. Optimized the module restart mechanism.
9. Optimized static routing feature in cold backup mode to support selecting the backup link's interface.
10. Optimized Smart Roaming V2 to automatically refresh test results after completing the speed test.
11. Optimized the dialing mechanism of the EC25-J to redial after receiving the Associated message.
12. Added support for manually specifying the operator in Cellular.
13. Added support for NAT\_Helpers to control SIP ALG in the firewall.
14. Added support for configuring multiple time points for scheduled reboot.
15. Added support for displaying carrier aggregation status information for R5020/R5020Lite/R2110 (CAT6).

16. Added support for enabling or disabling network ports for the R3000Q.
17. Added support for configuring VLAN tags on the WAN port of the R3000Q.
18. Added support for configuring the external resistor size on the AI interface of the R1520.
19. Added support for Smart Roaming V2 for R5020/R5020Lite.
20. Added support for DFOTA feature for the EC200 and EC25-J.

## BUGS FIXED

1. Fixed an issue where starting RNDIS on M1200/M1201 devices first would cause module dialing failure.
2. Fixed the issue where the configuration file could not be generated when the Wireguard Peer Settings was empty.
3. Fixed the issue of tunnel connection failure when using P12 authentication in IPSec.

## KNOWN BUGS & LIMITATIONS

1. When IP Passthrough feature is enabled, when the IP address of cellular module changes, the device connected to LAN port of router/gateway needs to disconnect the Ethernet port to obtain latest IP address assigned by cellular module.

## OTHERS

Starting from RobustOS V5.1, firmware updates no longer support R2000 series.  
R5020Lite only supports upgrade from V5.0.0.2 and V5.0.0.5 to V5.2.0.

## VERSION V5.2.8

Release Date: July 2, 2024

Previous Version: V5.2.7

## NEW FEATURES

N/A

## ENHANCEMENTS

N/A

## BUGS FIXED

1. Fixed the problem of no full-duplex broadcast in auto-negotiation mode of Ethernet port of R151X/R1520/R201X.

## KNOWN BUGS & LIMITATIONS

1. When IP Passthrough feature is enabled, when the IP address of cellular module changes, the device connected to LAN port of router/gateway needs to disconnect the Ethernet port to obtain latest IP address assigned by cellular module.

## OTHERS

R5020Lite only supports upgrade from V5.0.0.2 and V5.0.0.5 to V5.2.0

## VERSION V5.2.7

Release Date: June 11, 2024

Previous Version: V5.2.6

## NEW FEATURES

N/A

## ENHANCEMENTS

1. Optimized the Flash driver of R2010/R2011.

## BUGS FIXED

N/A

## KNOWN BUGS & LIMITATIONS

1. When IP Passthrough feature is enabled, when the IP address of cellular module changes, the device connected to LAN port of router/gateway needs to disconnect the Ethernet port to obtain latest IP address assigned by cellular module.

## OTHERS

R5020Lite only supports upgrade from V5.0.0.2 and V5.0.0.5 to V5.2.0

## VERSION V5.2.6

Release Date: May 27, 2024

Previous Version: V5.2.5

## NEW FEATURES

N/A

## ENHANCEMENTS

1. Optimized the module restart mechanism.

## BUGS FIXED

1. Fixed the problem that CLI commands cannot be used normally.

## KNOWN BUGS & LIMITATIONS

1. When IP Passthrough feature is enabled, when the IP address of cellular module changes, the device connected to LAN port of router/gateway needs to disconnect the Ethernet port to obtain latest IP address assigned by cellular module.

## OTHERS

R5020Lite only supports upgrade from V5.0.0.2 and V5.0.0.5 to V5.2.0

## VERSION V5.2.5

Release Date: May 7, 2024

Previous Version: V5.2.4

## NEW FEATURES

N/A

## ENHANCEMENTS

1. Added support for user-defined DDNS Check IP Server address.
2. Added support for the USR LED to be controlled by other applications when the USR LED light is configured as NONE.
3. The Check IP Server address of DynDNS and 3322 is updated to ip.3322.net.

## BUGS FIXED

1. Fixed the problem where restarting the R151x/R1520/R201x caused the device connected to the LAN obtains the IP address of the WAN port network segment.
2. Fixed the DFOTA problem with EC20 module.
3. Fixed the failure to upgrade firmware/import configuration file via USB issue.

## KNOWN BUGS & LIMITATIONS

1. When IP Passthrough feature is enabled, when the IP address of cellular module changes, the device connected to LAN port of router/gateway needs to disconnect the Ethernet port to obtain latest IP address assigned by cellular module.

## OTHERS

R5020Lite only supports upgrade from V5.0.0.2 and V5.0.0.5 to V5.2.0



## VERSION V5.2.4

Release Date: April 9, 2024

Previous Version: V5.2.2

## NEW FEATURES

N/A

## ENHANCEMENTS

1. Added support for DDNS fake-address option.
2. Added support for IPSec DPD option.
3. Optimized EC25 module network locking strategy.
4. R1520 supports SLM770A module..

## BUGS FIXED

1. Fixed issue where IPsec connection time is displayed abnormally.

## KNOWN BUGS & LIMITATIONS

1. When IP Passthrough feature is enabled, when the IP address of cellular module changes, the device connected to LAN port of router/gateway needs to disconnect the Ethernet port to obtain latest IP address assigned by cellular module

## OTHERS

R5020Lite only supports upgrade from V5.0.0.2 and V5.0.0.5 to V5.2.0

## VERSION V5.2.2

Release Date: January 31, 2024

Previous Version: V5.2.1

## NEW FEATURES

N/A

## ENHANCEMENTS

1. Added support for IPsec VPN GCM feature.
2. Added support for WLAN traffic statistics function.
3. Added support for WLAN traffic statistics events.
4. Added support for daily traffic statistics on WAN and WLAN interfaces.
5. Optimized the R2110/R5020/R5020lite partition to solve the problem of firmware exceeding 10M.
6. Optimized the Link Manager PING detection backup server address to 1.2.4.8.
7. Optimized certificate management. When the device saves the configuration, it will check whether there are any changes to the certificate and update it only if there are any changes.
8. Optimized the software restart mechanism. The device needs to be restarted when saving the configuration, and needs to wait until the configuration is saved before restarting.
9. R2110/5020/R5020lite added support for specifying a 1000M Ethernet port rate.
10. R1520/R201x series/R151x series added support for specified network port speed.
11. R151X series added support for SLM770A.
12. The EC25J module added support for DFOTA feature.

## BUGS FIXED

1. Fixed an issue where the imported OVPN file containing auth-user-pass would cause the device to fail to save configuration and restart when OpenVPN uses Auto mode.
2. Fixed the problem of SNMP failure to read RSRP.
3. Fixed the issue that the R2110/R5020 could not mount an SD card with partitions.
4. Fixed the issue where no event was generated when the traffic limit set in link manager exceeded the threshold.
5. Fixed the issue that the IP address of the cellular module (EC200A) could not be obtained from the downstream device after IP Passthrough was enabled.
6. Fixed the problem that event information could not be obtained when executing the status event command in CLI mode.
7. Fixed the problem of low probability of Uboot being modified after restarting R201x/ R2110/ R5020/R5020 lite
8. Fixed the issue that IP address assignment was incorrect when modifying WiFi configuration after Captive Portal was enabled.

## KNOWN BUGS & LIMITATIONS

1. When IP Passthrough feature is enabled, when the IP address of cellular module changes, the device connected to LAN port of router/gateway needs to disconnect the Ethernet port to obtain latest IP address assigned by cellular module

## OTHERS

R5020Lite only supports upgrade from V5.0.0.2 and V5.0.0.5 to V5.2.0

## VERSION V5.2.1

Release Date: November 6, 2023

Previous Version: V5.2.0

## NEW FEATURES

N/A

## ENHANCEMENTS

N/A

## BUGS FIXED

1. Fixed the abnormal use problem of R2110/R5020/R5020lite WireGuard feature.
2. Fixed the problem of QoS speed limit failure.
3. Fixed the problem of abnormal usage of ACC feature.
4. Fixed the issue of incomplete system log sending.
5. Fixed the problem of DynDNS connection error.

## KNOWN BUGS & LIMITATIONS

1. When IP Passthrough feature is enabled, when the IP address of cellular module changes, the device connected to LAN port of router/gateway needs to disconnect the Ethernet port to obtain latest IP address assigned by cellular module

## OTHERS

R5020Lite only supports upgrade from V5.0.0.2 and V5.0.0.5 to V5.2.0

## VERSION V5.2.0

Release Date: September 28, 2023

Previous Version: V5.1.6

## NEW FEATURES

1. Added WiFi STA status information on the home page (only for devices that support WiFi).
2. Added support for SpeedTest tool.
3. Added support for SLM750, ML620DE, and SLM770A modules.
4. Added support for R5020Lite.
5. Added support for PPPoE Bridge feature.

## ENHANCEMENTS

1. Updated the R2110/R5020/R5020Lite kernel version to 5.4.179.
2. Updated R2110/R5020/R5020Lite WiFi driver.
3. R2110/R5020 series/R151X series/R1520/R201X series supports WPA3 in Wi-Fi AP mode.
4. R2110/R5020 series/R151X series/R1520/R201X series support running WiFi AP and WiFi Client modes at the same time.
5. R2110/R5020/R5020Lite supports WiFi EAP-TLS authentication method.
6. Optimized the speed of L2TP VPN.
7. Added support for customizing the reporting interval of GPS data.
8. Added support for deleting CR and LF characters of GPS data.
9. Added support for custom WEB tags.
10. Added support for limiting the number of SMS sent by the SIM card.
11. Added support for displaying ENDC status in cellular status.
12. Added support for disabling DNS resolution feature.
13. Added the Conntrack Flush feature to be enabled by default.
14. Added firewall support for WebFilter feature.
15. Added OpenVPN support for SHA384 authentication algorithm and TLS Crypt.
16. Added DI Counter to support reservation clearing feature.
17. Added support for configuring RSRP threshold in event feature.
18. Added support for Ethernet port UP/Down events.
19. Added support for daily traffic statistics events.
20. Optimized the log format to comply with RFC5424 specification.
21. Optimized the login security feature.
22. Optimized the TCP Server feature of the serial port.
23. Optimized OpenVPN's backup server address configuration to support being empty.
24. Updated the auto mode name in the WPA Version of WIFI to WPA/WPA2.
25. Updated the upload file size limit for R151x/R1520/R201x to 30MB.

26. Updated the name of DO status.
27. Updated the CA certificate list.

## BUGS FIXED

1. Fixed displaying wrong 5G network type when registering EN-DC network.
2. Fixed the problem that when WAN PPPoE+L2TP VPN is used at the same time, the WAN link and L2TP VPN keep restarting.
3. Fixed the problem of incomplete firewall domain name resolution.
4. Fixed the conflict between IPSecVPN interest flow and LAN.
5. Fixed the problem of low probability of restart failure using the reboot command.

## KNOWN BUGS & LIMITATIONS

1. When IP Passthrough feature is enabled, when the IP address of cellular module changes, the device connected to LAN port of router/gateway needs to disconnect the Ethernet port to obtain latest IP address assigned by cellular module

## OTHERS

R5020Lite only supports upgrade from V5.0.0.2 and V5.0.0.5 to V5.2.0

## VERSION V5.1.6

Release Date: September 26, 2023

Previous Version: V5.1.5

## NEW FEATURES

N/A

## ENHANCEMENTS

1. Optimized the speed of L2TP VPN.
2. Added the Conntrack Flush feature to be enabled by default.

## BUGS FIXED

1. Fixed the problem that the account created by Clish cannot be logged in with SSH/Telnet/Web.

## KNOWN BUGS & LIMITATIONS

1. When IP Passthrough feature is enabled, when the IP address of cellular module changes, the device connected to LAN port of router/gateway needs to disconnect the Ethernet port to obtain latest IP address assigned by cellular module

## OTHERS

From RobustOS V5.1 onwards, subsequent firmware updates no longer support **R2000 series**.

## VERSION V5.1.5

Release Date: August 3, 2023

Previous Version: V5.1.4

## NEW FEATURES

N/A

## ENHANCEMENTS

N/A

## BUGS FIXED

1. Fixed issue that boot abnormally may cause probabilistic loss of configuration in R151X/R1520/R201X/ET801X series.

## KNOWN BUGS & LIMITATIONS

1. When IP Passthrough feature is enabled, when the IP address of cellular module changes, the device connected to LAN port of router/gateway needs to disconnect the Ethernet port to obtain latest IP address assigned by cellular module

## OTHERS

From RobustOS V5.1 onwards, subsequent firmware updates no longer support **R2000 series**.



## VERSION V5.1.4

Release Date: June 15, 2023

Previous Version: V5.1.3

## NEW FEATURES

N/A

## ENHANCEMENTS

1. Optimized R151x 2.4G Wi-Fi channel.
2. Optimized display of R2110/R5020 Wi-Fi signal strength.
3. The HTTP upload function supports uploading files larger than 20M.
4. OpenVPN function Backup Port allows configuration to be empty, and the default value is empty.
5. GPS message uploaded to the server supports deleting CR and LF characters.

## BUGS FIXED

1. Fixed issue that the frequency band cannot be locked when locking the Cat-M1/NB-IoT network.
2. Fixed issue that the EC200 series module has no data for a long time and the network connection is disconnected.
3. Fixed issue that Wi-Fi probabilistically fails to start when Wi-Fi changes from Client mode to AP mode.

## KNOWN BUGS & LIMITATIONS

1. When IP Passthrough feature is enabled, when the IP address of cellular module changes, the device connected to LAN port of router/gateway needs to disconnect the Ethernet port to obtain latest IP address assigned by cellular module

## OTHERS

From RobustOS V5.1 onwards, subsequent firmware updates no longer support **R2000 series**.

## VERSION V5.1.3

Release Date: March 28, 2023

Previous Version: V5.1.2

## NEW FEATURES

N/A

## ENHANCEMENTS

N/A

## BUGS FIXED

1. Fixed issue that R2110/R5020 fails to initialize due to an error in obtaining OEM data.

## KNOWN BUGS & LIMITATIONS

1. When IP Passthrough feature is enabled, when the IP address of cellular module changes, the device connected to LAN port of router/gateway needs to disconnect the Ethernet port to obtain latest IP address assigned by cellular module

## OTHERS

From RobustOS V5.1 onwards, subsequent firmware updates no longer support **R2000 series**.

## VERSION V5.1.2

Release Date: March 22, 2023

Previous Version: V5.1.1

## NEW FEATURES

N/A

## ENHANCEMENTS

1. Optimized display of Chinese language packs.

## BUGS FIXED

1. Fixed issue that WLAN client could not connect normally under certain circumstances.

## KNOWN BUGS & LIMITATIONS

1. When IP Passthrough feature is enabled, when the IP address of cellular module changes, the device connected to LAN port of router/gateway needs to disconnect the Ethernet port to obtain latest IP address assigned by cellular module

## OTHERS

From RobustOS V5.1 onwards, subsequent firmware updates no longer support **R2000 series**.

## VERSION V5.1.1

Release Date: March 17, 2023

Previous Version: V5.1.0

## NEW FEATURES

N/A

## ENHANCEMENTS

N/A

## BUGS FIXED

1. Fixed issues of production testing.

## KNOWN BUGS & LIMITATIONS

1. When IP Passthrough feature is enabled, when the IP address of cellular module changes, the device connected to LAN port of router/gateway needs to disconnect the Ethernet port to obtain latest IP address assigned by cellular module

## OTHERS

From RobustOS V5.1 onwards, subsequent firmware updates no longer support **R2000 series**.

## VERSION V5.1.0

Release Date: January 13, 2023

Previous Version: V5.0.8

## NEW FEATURES

1. Added feature of disabling the network port.
2. Added support for OpenVPN-Client backup mode.
3. Added support to view the network status through the CLI "status active\_link" command.
4. Added support for user role management.
5. Added option to configure the default rules of the INPUT chain on the WAN and LAN sides.
6. Added support for SFTP feature.
7. Added support for importing custom files.
8. Added support for importing custom APN list feature.
9. Added support for GRE interface configuration MTU feature.
10. Added support for GPS to add message station prefix feature.
11. Added feature of switching links immediately after the physical connection of the device WAN is disconnected.
12. Added support for deep recovery.
13. Added support to view all configurations of the current device through CLI "show all" command.
14. Added 'link\_connect' and 'link\_disconnect' script whitelist.
15. Added support for DI Counter timing reset feature.
16. Quectel module supports DFOTA feature.
17. R151x/R201x/R1520 supports WPA3 in Wi-Fi AP mode.
18. R1520 added support for serial port redirection.
19. R3000 LG added support for LoRa packet filtering feature.
20. R3000 Series/R3000 LG/R3010 added support network port specified negotiation mode.

## ENHANCEMENTS

1. Optimized Wi-Fi initial SSID and password.
2. Optimized the display of expandable status pages.
3. Optimized 5G status display.
4. Optimized display of cellular module status page.
5. Optimized OpenVPN and IPsec long text box certificate editing mechanism.
6. Optimized operating mode of ML620EU module.
7. Optimized USB connection stability.
8. Optimized SMS sending function.
9. Optimized the number of serial socket connections, and increase the maximum number of connections to 8.
10. Optimized the Event function.
11. Optimized the DI Counter function and add DI Counter timestamp.

12. Optimized R3000 LG LoRa page information display.
13. Optimized module support list of Verizon Auto APN.
14. Optimized Socket policy creation of Serial Port service. When the creation fails, keep trying to create it until succeed.

## BUGS FIXED

1. Fixed security loopholes and enhance system security.
2. Fixed issue where GRE and IPsec could cause the device to reboot under certain circumstances.
3. Fixed issue of 2.4 GHz channel selection.
4. Fixed issue of OpenVPN connection failure and static routing not taking effect.
5. Fixed issue of starting App after the IP Passthrough feature is enabled when device restarted.
6. Fixed issue that the NTP time server could not be manually synchronized.
7. Fixed issue that status of WAN traffic of a single SIM card device does not display.
8. Fixed issue that "\" or double quotation marks cannot be included in SMS content.

## KNOWN BUGS & LIMITATIONS

1. When IP Passthrough feature is enabled, when the IP address of cellular module changes, the device connected to LAN port of router/gateway needs to disconnect the Ethernet port to obtain latest IP address assigned by cellular module

## OTHERS

From RobustOS V5.1 onwards, subsequent firmware updates no longer support **R2000 series**.

## **VERSION V5.0.8**

Release Date: December 28, 2022

Previous Version: 5.0.7

## **NEW FEATURES**

1. Quectel module DFOTA feature supports offline mode.

## **ENHANCEMENTS**

N/A

## **BUGS FIXED**

1. Fixed issue of password recovery error when restoring the default configuration.

## **KNOWN BUGS & LIMITATIONS**

N/A

## **OTHERS**

N/A

## **VERSION V5.0.7**

Release Date: December 27, 2022

Previous Version: 5.0.6

## **NEW FEATURES**

N/A

## **ENHANCEMENTS**

N/A

## **BUGS FIXED**

1. Fixed issue that RTS/CTS of the R3000 Quad RS232 serial port doesn't work.
2. Fixed issue that DI3 and DI4 of R3000 4DI device doesn't work.

## **KNOWN BUGS & LIMITATIONS**

N/A

## **OTHERS**

This firmware is only for R3000 Series/R3000 LG/R3010.



## **VERSION V5.0.6**

Release Date: December 06, 2022

Previous Version: 5.0.4

## **NEW FEATURES**

N/A

## **ENHANCEMENTS**

N/A

## **BUGS FIXED**

1. Fixed issue that R3000Q RS485 Serial Port was unavailable

## **KNOWN BUGS & LIMITATIONS**

N/A

## **OTHERS**

This firmware is only for R3000 Series/R3000 LG/R3010.

## **VERSION V5.0.5**

Release Date: December 05, 2022

Previous Version: 5.0.4

## **NEW FEATURES**

1. Added DFOTA feature for Quectel module.

## **ENHANCEMENTS**

N/A

## **BUGS FIXED**

1. Fixed issue that network type does not display after the firmware of the RM500Q module is upgraded.

## **KNOWN BUGS & LIMITATIONS**

N/A

## **OTHERS**

This firmware is only for R5020.

## **VERSION V5.0.4**

Release Date: November 08, 2022

Previous Version: 5.0.3

## **NEW FEATURES**

N/A

## **ENHANCEMENTS**

1. Optimized firmware rollback strategy for R3000 series to V3.x.

## **BUGS FIXED**

1. Fixed issue that GPS feature of some R3000 devices was abnormal.
2. Fixed issue that R3000 series RTC feature was abnormal.
3. Fixed issue that R2110 USB feature was abnormal.

## **KNOWN BUGS & LIMITATIONS**

N/A

## **OTHERS**

N/A

## **VERSION V5.0.3**

Release Date: November 01, 2022

Previous Version: 5.0.2

## **NEW FEATURES**

N/A

## **ENHANCEMENTS**

N/A

## **BUGS FIXED**

1. Fixed issue that partition mounting may fail after upgrading from RobustOS 3.x to RobustOS 5 on R3000 series, R3000-LG, R3010, and R3020 devices.

## **KNOWN BUGS & LIMITATIONS**

N/A

## **OTHERS**

N/A

## VERSION V5.0.2

Release Date: September 13, 2022

Previous Version: 5.0.1

## NEW FEATURES

N/A

## ENHANCEMENTS

1. Optimized the number of serial socket connections, and increase the maximum number of connections to 8.
2. Optimized the injection inspection mechanism of the URL item of the DDNS function.

## BUGS FIXED

1. Fixed issue of app startup after device reboot when IP Passthrough is enabled.

## KNOWN BUGS & LIMITATIONS

N/A

## OTHERS

N/A

## **VERSION V5.0.1**

Release Date: September 13, 2022

Previous Version: 5.0.0

## **NEW FEATURES**

N/A

## **ENHANCEMENTS**

1. Optimized R5020 configuration, set "SFE Fast" option to off by default.

## **BUGS FIXED**

N/A

## **KNOWN BUGS & LIMITATIONS**

N/A

## **OTHERS**

N/A

## VERSION V5.0.0

Release Date: August 10, 2022

Previous Version: N/A

## NEW FEATURES

1. Firewall IPset feature
2. GRE VPN TAP feature
3. SmartRoamingV2

## ENHANCEMENTS

1. Added support for the EC200A module
2. WireGuard support import and export configuration feature
3. Added support for selecting "Wireless mode" for R3000 WiFi devices: 11b, 11g, 11n, 11b/g/n
4. Added support for the single and double quotes for SMS testing
5. Added MTU parameter configuration and status display of WWAN interface
6. Added firewall interface rules label to prevent accidental deletion of firewall rules of other applications
7. Added APP deletion prompt
8. Added support for NTP time synchronization from LAN
9. Added NMEA sentences forwarding to server
10. Added firewall status display NAT table-related rules
11. Added Modem status to the home page
12. Added support for disabling WiFi group key update for R3000, R2000, and 151X series devices
13. Added support for millisecond level settings in the PING detection
14. Modified the "WWAN ->Data Allowance" parameter range to 0 - 2147483646
15. Modified "Link Manager-> Backup\_Link" default parameter to None
16. Optimized the operation method of restoring default configurations and restoring factory configurations
17. Optimized the running status of the language APP
18. Optimized MAC address allocation rules: WIFI MAC address is generated based on LAN0 MAC
19. Added year information to Syslog
20. Removed the E2C Broker in the firmware and integrated it into the northbound APP
21. Updated the WiFi driver of R3000 series devices
22. Updated Copyright's Year Information
23. Updated R3000 series device kernel version to 5.10.50
24. Updated dnsmasq to version 2.86
25. Updated gmp to version 6.2.1
26. Updated sqlite to version 3.37.2
27. Updated conntrack-tools to version 1.4.6
28. Updated libnetfilter\_conntrack to version 1.0.8

29. Updated libnetfilter\_queue to version 1.0.5
30. Updated klish to version 1.7.1
31. Updated iptables to version 1.8.7
32. Updated lzo to version 2.10
33. Updated msmtplib to version 1.8.19
34. Updated ntp to version 4.2.8p15
35. Updated openssh to version 8.8p1
36. Updated libpcap to version 1.10.1
37. Updated ipset to version 7.15
38. Updated libxml2 to version 2.9.11
39. Updated rp-pppoe to version 3.15
40. Updated zlib to version 1.2.11
41. Updated wireguard-tools to version 1.0.20210914
42. Updated mosquitto to version 2.0.14
43. Updated nopoll to version 0.4.1.b265
44. Updated opennhrp to version 0.14.1
45. Updated libgpg-error to version 1.43
46. Updated libgcrypt to version 1.8.8
47. Updated mutt to version 2.1.5
48. Updated paho.mqtt.c to version 1.3.9
49. Updated wireless-regdb to version master-2021-08-28
50. Updated openldap to version 2.4.59
51. Updated scep to version 0.9.1
52. Updated ncurses to version 6.1
53. Updated mtd-utils to version 2.1.1
54. Updated can-utils to version 2021.08.0
55. Updated wpa\_supplicant to version 2.9
56. Updated net-snmp to version 5.9.1
57. Updated c-ares to version 1\_18\_1
58. Updated hostapd to version 2.9
59. Updated libiconv to version 1.16
60. Updated pam\_tacplus to version 1.6.1
61. Updated arptables to version 0.0.4
62. Updated dosfstools to version 4.2
63. Updated dropbear to version 2020.81
64. Updated e2fsprogs to version 1.46.5
65. Updated expat to version 2.4.2
66. Updated openvpn to version 2.5.5

## BUGS FIXED

1. Fixed CVE-2022-33329 command injections vulnerabilities of WEB Server
2. Fixed CVE-2022-33328 command injections vulnerabilities of WEB Server



3. Fixed CVE-2022-33327 command injections vulnerabilities of WEB Server
4. Fixed CVE-2022-33326 command injections vulnerabilities of WEB Server
5. Fixed CVE-2022-33325 command injections vulnerabilities of WEB Server
6. Fixed CVE-2022-33314 command injections vulnerabilities of WEB Server
7. Fixed CVE-2022-33313 command injections vulnerabilities of WEB Server
8. Fixed CVE-2022-33312 command injections vulnerabilities of WEB Server
9. Fixed CVE-2022-32585 command execution vulnerability of WEB Server
10. Fixed CVE-2022-28127 data removal vulnerability of WEB Server
11. Fixed plain text password storage
12. Fix the problem of low probability startup failure of R3000LG

## KNOWN BUGS & LIMITATIONS

N/A

## OTHERS

N/A