

Release Note NRSW 4.1.0.1

Project Name: NRSW

Please be aware this is a beta release and not qualified by NetModule for productive usage!

Abstract:

This document represents the release note for NetModule Router Software 4.1.0.1. It informs on new functionality, corrections and known issues of the current software version of NetModule's router series in comparison to the previous stable release 4.0.0.107.

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1 Release Information

NetModule Router Software:

Version: **4.1.0.1**
Date: **October 25, 2017**

Supported Hardware:

NetModule Router	Hardware Version
NB800	V2.0 - V2.2
NB1600	V1.0 - V3.3
NB1800	V1.0 - V1.0
NB2700	V1.0 - V2.7
NB2710	V1.0 - V2.7
NB2800	V1.0 - V1.4
NB3700	V2.0 - V4.3
NB3701	V1.0 - V1.4
NB3710	V2.0 - V4.3
NB3711	V1.0 - V1.4
NB3720	V2.0 - V4.3
NB3800	V1.0 - V1.4

Unsupported Hardware:

NetModule Router
NB1300 Series
NB2200 Series
NB2300 Series
NB2500 Series
NB2600 Series



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2 New Features

Case-#	Description
29048	Wi-Fi dual mode In the Wi-Fi dual mode, one radio works concurrently as access-point and client mode. This allows us to configure Wi-Fi repeater functionalities with only one radio module. Please note that the client and access-point must operate on the same channel.
29048	Wi-Fi Client to ETH Bridge It is possible to bridge Wi-Fi clients with other interfaces now. The WLAN client interface will communicate via 4-address frames to its associated access-point to support full-featured layer-2 bridging over WLAN (not available on NB800).
40359	Secure connections in SDK SDK API functions 'nm_transfer' and 'nm_mail' support SSL.
40615	Firmware Update for Sierra Wireless MC74xx Modems It is now possible to upgrade the firmware for Sierra MC74xx modems.
40649	Bluetooth support Bluetooth modules can be mapped to the LXC containers.
41078	Reduce Power Consumption The power for modems can be turned off via SDK which can be used to reduce power consumption.
42258	Support for the ME909s-821 modem WWAN module Huawei ME909s-821
42320	Support for Redpine RS9113 The Redpine RS9113 Wi-Fi + BT combo module is now supported. This includes support for Bluetooth Low Energy (BLE). The Wi-Fi chip-sets supports 802.11n with 1x1 MIMO and up to 40 MHz operation. The supported operation bands are 2.4 GHz and 5GHz for client and access-point mode. This chip-set can handle up to 32 clients if BLE is disabled and up to 4 in BLE concurrent mode.
42807	JSON Output on CLI-PHP The CLI-PHP interface is now supports JSON output.
43719	Faster Reconnect Time SIMs will be now switched by UBOOT on NB1800/NB2800/NB37x1/NB3800 which results in faster registration and link establishment.
44329	LED status exposed Current LED status can be pulled via CLI and SDK.
44447	Package updates Linux Kernel compat-wireless driver has been upgraded to 2016-01-10. Hostapd and wpa-suppliment updated to 2016-06-15 tcpdump was upgraded to version 4.9.2 dnsmasq was upgraded to version 2.78. Updated PHP to version 5.6.31 OpenSSL was updated to version 1.0.2l. Curl and libcurl were upgraded to version 7.56.0. Dropbear was updated to version 2017.75. lldpd was upgraded to version 0.7.19. zlib was upgraded to version 1.2.11 rsync was updated to release 3.1.2
46818	
47296	
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44551	Excluded networks in IPsec It is possible to define local networks which are excluded from routing via VPN. Packages to and from these networks will be considered local.

Case-#	Description
44823	CLI show status of containers The new command 'clis status virt' provides information on containers running in virtual environment.
44887	Support for general-purpose bridge devices Bridging does not require a LAN interface any more. E.g. Wi-Fi interfaces can be bridged with OpenVPN TAP devices using a general-purpose bridge interface.
45030	Support for NB800 Software support for NB800
45136	Control link management via SDK New functions 'nb_wanlink_deactivate', 'nb_wanlink_activate', 'nb_wanlink_priorize' and 'nb_wanlink_weight' added to SDK.
45482	Manage certificates from the SDK Added new functions 'nb_cert_install', 'nb_cert_erase', 'nb_cert_create', 'nb_cert_read' and 'nb_cert_enroll' for management of local certificates from the SDK.
45495	Modem Bridge If supported by the modem, it is now possible to bridge the modem port to a serial port. Please note that the system will be still accessing the modem on the application port.
45529	WLAN Automatic Channel Selection in AP mode The automatic channel selection surveys different interference factors of each WLAN channel which are provided from the chipset to choose the best channel of the configured frequency band. This feature is supported by the WLE200NX and WLE600VX modules.
45827	ICCID element in CAPWAP communication Added support for ICCID element in CAPWAP communication.
45951	SDK: Email with attachment Added support for sending mails with attachment from SDK.
46008	SSH access with certificate SSH certificates can be deployed for any user not just root/admin.
46107	Support for 2xCAN Module The new 2xCAN adapter is now supported.
46201	Increased number of configurable Wi-Fi networks in client mode In client mode, up to 10 networks can be configured. If any of these is available the client will connect automatically.
46240	Provide access to data sent as reply to a HTTP POST request The data returned in a reply to a HTTP POST request are available in the SDK now.
46529	SNMPv3 engine ID configuration Engine ID for SNMPv3 traps can be configured now.
46540	Multiple radius servers Added option to enter several Radius servers, for redundancy purposes.
46638	ROOT-FS cleanup Due to package upgrades and additional features some devices were running low on internal flash memory. The image size could be reduced by compressing SDK example scripts and other means of optimization.
47365	Added additional WWAN information to SNMP These values can be additionally retrieved via SNMP: RSRP, RSRQ, SINR, RSCP, ECIO, SignalLevel and SignalQuality. Refer to MIB table for more details.
47997	Don't forward packages of local networks Packets which belonged to networks of local interfaces were routed over IPsec links, if they were neither originated from nor targeted to the router (iptables FORWARD chain). That was fixed.

3 Fixes

The following issues and problems have been fixed.

Case-#	Description
41538 45729 45731	OpenVPN Update OpenVPN was upgraded to version 2.3.11 CVE-2017-7478 OpenVPN pre-authentication denial-of-service attack CVE-2017-7479 OpenVPN authenticated remote DoS vulnerability
43055 47038	Email and URL address validation in the web interface failed on some valid addresses The web interface rejected some valid email and URL addresses as invalid.
43162	Support for Soft SIMs Soft SIMs can now be used with Huawei EM100.
43186 43284 43616 43760 44683 45133 45274 46060 46355 46544	Web GUI Improvements Clicking on links in the web GUI while performing an update resulted in update failure. To prevent such errors the web GUI does lock the user interface on update. Microsoft EDGE browser did not show change of WAN priority in WAN link management correctly. Fixed some HTML tag errors. Web interface suggests default firewall setup on configuration of first WAN interface. Inconsistent network inputs are recognized and corrected automatically now: 192.168.1.1/24 is equivalent to 192.168.1.0/24 Wi-Fi Access-Point IP settings didn't update on 'Continue' Small front-end fix for NB800, NB2800 and NB3800. Several tcpdump sessions can be recorded and downloaded in one compressed archive. GUI interface did not show correct channel selection for all Wi-Fi operation modes.
43863	Add LAN1 to existing LAN2/WLAN bridge on NB1600 So far you had to create a LAN1/WLAN bridge and add LAN2.
43910	Change of RADIUS server settings were not applied to hostapd configuration If hostapd is configured to use RADIUS and you change the RADIUS settings in "System - Remote Authentication" hostapd still used the old RADIUS Server until hostapd was reconfigured. This bug has been fixed.
43913	Curl and Libcurl Updated to version 7.51.0
43979	Deprecated Crypto Algorithms SHA1, DES, MD5 and 1024 bit encryption are considered deprecated. We have therefore adjusted various default configuration settings.
44002	HTTPS SSL security levels SSL security level for HTTPS can be selected to exclude obsolete security settings in environments which do not require legacy technology.
44512	Added new configuration parameter for encryption algorithm for CA certificate key generated on the device 3DES was used as encryption algorithm for CA certificate key generated on the device. New default value AES-256 can be managed via configuration.
44515	Improved flash error recognition and automatic recovery On PPC based devices (NB1600, NB2700, NB2710, NB3700 and NB3710) a better error detection was employed. After performing the update the flash data will be converted automatically. This takes about 30 seconds time on next boot. Please refer to Chapter 6 for more detailed information.

Case-#	Description
45076	Linux kernel CVEs
45077	CVE-2017-6345 Local users may trigger denial of service
46742	CVE-2017-6346 Local users may trigger denial-of-service
46744	CVE-2017-7533 A race condition can lead to local user privilege escalation
47291	CVE-2017-1000112 Linux kernel exploitable memory corruption CVE-2017-1000251 Blueborne - remote DoS in Bluetooth subsystem
45121	NB800 LED indication on factory reset fixed NB800 now indicates factory reset via reset button correctly: All LEDs light up green
45319	Extended routes are not set up if interface is not WAN Extended routes apply now no matter if the interface is WAN or LAN.
45460	Busybox update CVE-2016-6301 Remote DoS in Busybox ntpd fixed by busybox update to 1.26.2.
45532	SDK file transfer blocked other scripts SDK function 'nb_transfer_put' was blocking all running scripts if server was not accessible.
46507	RS485 configuration from web interface failed Some configuration setups for RS485 produced an error message and did not apply the settings. That was fixed.
46620	Fixed unstable LTE connection With one provider, we had bad internet performance with MC7455 under certain circumstances. This was fixed.
46708	Invalid web server config after SW update It was possible that the configuration migration on SW update failed when updating to 4.0.1.x.
46847	Generating and transmitting a techsupport file from SDK timed out Techsupport files are generated on demand. SDK transmit of techsupport via 'nb_transfer_put' timed out before the file was ready.
46852	Opening several parallel SSH sessions for user admin fails When several parallel SSH connections for user admin were open at the same time no more connections would be established. A failure in CLI console memory management was fixed.
46990	Applying an invalid configuration could produce a reboot loop Applying a configuration containing settings for SIM card slots which are not present in the current hardware (e.g. providing settings for SIM6 on a device with only 4 physical SIM interfaces) provoked a failure that triggered the watchdog to reboot the system after some time.
47014	NMEA messages with 'newline' instead of 'carriage-return + newline' after modem reset If the WWAN/GNSS module was restarted due to ping supervision the GNSS stream provided via TCP was malformed afterwards.
47106	Wi-Fi client connections to SSIDs with non ASCII characters failed The WI-FI client is now capable to connect to SSIDs which contain UTF-8 symbols like "TM".
47199	SDK read from bigger temporary files failed Due to a misaligned buffer offset reading temporary files bigger than 1024 bytes failed.
47219	Mount storage from SDK Fixed an error when trying to mount USB storage from SDK script.
47250	SDK command 'nb_transfer_put' returned 0 on error When provided with an invalid server URL 'nb_transfer_put' showed an error in the logs, but came back with return value of 0 never the less.
47292	Ping supervisions restarted WWAN interface twice A failure in the recovery procedure of the ping supervision increased the down time. This has been fixed.
47382	SDK function 'nb_arp_ping' blocks if server not available Instead of returning error code -1 the SDK function 'nb_arp_ping' blocked.

Case-#	Description
47391	SDK function 'nb_restart' failed The SDK function 'nb_restart' failed throwing an error message instead of restarting the given service.
47706	Possible file system corruption on reboot There were situations where NB2800 Devices showed file system errors after power cycle. These are recognized recovered automatically now.
47840	Fixed KRACK attack Wi-Fi issue A weakness in the Wi-Fi standard itself allows a remote attacker to perform a man-in-the-middle attack to encrypted Wi-Fi connections. This is an attack to Wi-Fi clients and the bug-fix applies only to devices configured as client respectively. If you run an encrypted Wi-Fi in AP mode all clients have to be patched to be invulnerable to this attack (CVE-2017-13077, CVE-2017-13078, CVE-2017-13079, CVE-2017-13080, CVE-2017-13081, CVE-2017-13082, CVE-2017-13084, CVE-2017-13086, CVE-2017-13087, CVE-2017-13088).

4 Known Issues

Items listed here represent minor problems known at release time. These issues will be resolved in a later version.

Case-#	Description
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5 Pitfalls

Items listed as pitfalls are potential problems that may arise because of specific environmental conditions. There are currently no fixes planned for these issues.

Case-#	Description
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6 ECC conversion

The flash on NB1600, NB2700, NB2710, NB3700, NB3710 and NB3720 provides an automated error correction using ECC. We changed the ECC length from 1-bit ECC to 4-bit ECC which provides better error correction. On first boot after the update was performed the data on the flash is automatically converted to use the new ECC setup. While this conversion is performed the LEDs show a running light for about 30 seconds.

If you switch back to an older software release like 4.0.0 the migration is reverted.

We tested updates and down-grades to and from 4.0.0 and 3.8.0. Updates to or from older versions are not supported. If you run an older release or want to downgrade to an older release or a feature release like 3.8.2 you are advised to migrate via 4.0.0 as an intermediate release.

To revert the migration on downgrade the SPL boot loader release 4.1.0 stays in place. It can be downgraded in a second software update process initiated from the target release after the first reboot.

Software updates with recovery images require special attention. You must not use recovery images 4.0.0 and older for systems running 4.1.0 and newer. If you want to use recovery images please contact our support at router@support.netmodule.com.

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8 Change History

Version	Date	Name	Reason
1.0	2017-10-25	amsler	Final

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