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Release Note NRSW 3.8.0.100

Project Name: NRSW 3.8

Abstract:

This document represents the release note for NetModule Router Software 3.8.0.100. It informs on new functionality, corrections and known issues of the current software version of NetModule's router series.

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1 Release Information

NetModule Router Software:

Version: **3.8.0.100**
Date: **April 27, 2015**

Supported Hardware:

NetModule Router	Hardware Version
NB1600	V1.0 - V3.3
NB2700	V1.0 - V2.5
NB2710	V1.0 - V2.5
NB3700	V2.0 - V4.3
NB3710	V2.0 - V4.3
NB3720	V2.0 - V4.3

Unsupported Hardware:

NetModule Router
NB1310
NB22XX
NB23XX
NB25XX
NB26XX

2 New Features

Case-#	Description
30071 34821 35093 35480 35366	**Support for NB2710 and NB3710** We have unveiled a new series of routers and 3.8.0.100 provides support for them. The NB2710 models offer more flexibility in terms of module population, more SIM slots and various additional extensions which can be made up of NetModule's new Audio, CAN/RS485 or IBIS/RS232 adapters. The NB3710 models boast up to 4 modems which can be paired to a dedicated SIM. Their extended FPGA logic enables a variety of new voice applications and the additional extension port can be used to implement further vehicle-specific types of communication.
35526 33521 31492 35024 37005 37453 37806	**Support for New Modules** The range of modems has been extended by the Huawei MU609, a quad-band 3G modem which also supports HD Voice. NetModule's new audio extension comes with a stereo line-in/out port and supports volume control. It can be used in combination with the voice gateway in order to build up a VoIP/GSM communication channel to a remote device. The new CAN/RS485 adapter holds an isolated Controller Area Network (CAN) physical layer transceiver which complies with the ISO 11898 standard. It also holds a 3-wire RS485/RS422 transceiver which will pop up as an additional serial port and can be used to implement a Modbus RTU/TCP gateway for instance. The IBIS/RS232 adapter connects to an Integrated On-Board Information System (IBIS) and also provides an additional serial port. Further serial ports can be realized by plugging external USB adapters. Besides PL2303 and CH341 based devices, we also support now FTDI SIO quad-channel adapters.
32732	**Performance Tuning** We have applied various enhancements for making things faster. There is a new wwanmd which takes care about modems and their SIM assignment in background. In combination with some polished startup scripts, this speeds up bootup time significantly, especially when having multiple modules. Further efforts have been spent in speeding up Ethernet switching and also WLAN connections should become a bit faster now. Last but not least, the startup of the CLI application has been accelerated noticeably and also the config converter will do it's job more quickly.
31740 36443	**New Discovery Protocols** In addition to LLDP and CDP, the system is now able to provide device discovery over SONMP, EDP, FDP and IRDP. IRDP implements RFC1256 and can be used to inform locally connected hosts about the nexthop gateway. Discovered hosts will be exposed to the LLDP-MIB and can be queried over SNMP or CLI.
31797 35310 37699 37494 32184 34904	**Improved WLAN** We have upgraded the MAC80211 stack and other WiFi applications (such as hostapd and wpa_supplicant) and also applied fixes and enhancements (e.g. for a better transmit power). This is accompanied by an updated regulatory database which enables further channels in the 5 GHz range and defines an appropriate power level for some countries. It is now possible to specify multiple networks (up to 4 SSIDs) when operating as client and it is feasible to implement a failover mechanism based on their priorities. Scanning for networks is now being done without tearing down interfaces. RADIUS accounting can be performed now for any kind of access-point operation.

Case-#	Description
37706 38055 38311	**New Firewall Features** Firewall filtering can be enabled for bridged Ethernet interfaces to make the box operate as a a transparent firewall. IP addresses and ports can be defined in groups now, so that filtering rules will get less and simpler. It is also possible now to filter packets based on their source MAC address.
31469 35553 35798 24427 35419	**IPsec Extensions** A flurry of activity has also happened in the field of IPsec. Extended Authentication (XAUTH) leverages RADIUS-like authentication and can be used to apply user level access control over IPSec. Beyond that, the system is now presented with support for dynamic address assignment and a number of 10 remote networks per tunnel. Any IPsec connections are now getting supervised so that broken NAT peers will be detected properly. We can also offer now IKEv2 and MOBIKE (RFC4555) through a dedicated Strongswan image which we only provide on request.
35635 35263 36651	**OpenVPN** Uploading OpenVPN unified configuration files (ovpn) over the GUI is now supported and running QoS on top of OpenVPN tunnels has been evaluated and verified. We further fixed an issue where OpenVPN clients did not re-connect in case authentication failed.
36178 37605	**Bridged VLAN Interfaces** It is now possible to bridge VLAN interfaces to other Ethernet ports.
35527 36901	**Assisted GPS** Assisted GPS (A-GPS) is a technique which downloads orbital information from a Secure User Plane Location (SUPL) server over the mobile network rather than from the satellite. It can be used to improve the startup performance or time-to-first-fix (TTFF). The accuracy and fix frame interval can be configured now.
36446	**Support for Multicast** We have added an IGMP proxy which collects membership information from the LAN interfaces and acts like a multicast receiver on the WAN interface. Incoming multicast packets will be forwarded to the relevant LAN interfaces based on their membership registration.
30377 33678 33027 36799 36921	**Voice Gateway Extensions** The audio module can be used to connect an intercom unit via analog input/output lines and implement mixed circuit-switched and Voice-over-IP communication scenarios. The voice daemon itself is now able to listen on the WAN interface and to operate as SIP registrar. Apparently, it can also act as SIP client and register towards a remote registrar. Support for RTCP and Variable RTP frame sizes is given now. We also feature an extended dejitter alorithm which avoids buffer overruns. The sound volume can now be adjusted for each call on the modem and audio module side. Voice calls with Huawei ME909 and MU609 are now supported, include Wideband audio (HD voice).
36506 37712	**SNMP Extensions** We now support AES/SHA authentication for SNMPv3 and it is possible to configure further users entitled to query information. We have activated the inetNetToMediaTable MIB and also extended the VENDOR MIB. For instance, it is now possible to query the modem temperature.

Case-#	Description
31492 **34287** **31319** **35595** **36273** **36511** **31473** **37015**	**New SDK Features** We have added a bunch of functions for accessing and controlling the voice daemon. They can be used to route, drop or accept a call, to change the volume level and to keep track of available endpoints. The new CAN module can be driven now with dedicated CAN functions. They can set attributes and filters as well as receive and transmit CAN frames. Additional information (if not covered by the available MIBs) can be exposed now over SNMP by writing your own backend scripts which allow to extend the list of MIB entities, run SET/GET requests or issue traps. We have further added functions to list, fetch and delete E-Mails from a remote POP3/IMAP server. Another bunch of functions help to implement a Modbus TCP/RTU gateway. The `nb_sms_sendmsg` can be provided by additional header information which influences the processing of a message and can request an SMS delivery report which indicates whether sending was successful. The `nb_restart` function makes it possible to restart services and daemons and the `nb_transfer_post` function can now issue POST requests without a file. Additional event parameters can be gathered by the `nb_event_msg` function. We have added functions to compute the MD5/SHA256 checksum of a string or file and it is also possible now to generate TechSupport files on demand.
32100	**Enhanced Certificate Management** We blessed the software with support for rolling out certificates using the Simple Certificate Enrollment Protocol. SCEP enables a centralized management and is widely available and supported by numerous manufacturers of network equipment. It docks into a new certification management framework which adds more protection to your private keys and is also able to create signing requests which can be later imported into the box. By uploading a list of trusted CA certificates, various client applications can be forced to require a valid certificate for HTTPS connections. Any certificates can now be managed by the CLI, the operations include: • install a certificate from specified URL • create a certificate locally • enroll a certificate via SCEP • erase an installed certificate • view an installed certificate
34442 **34936** **35310** **36290**	**CLI Extensions** Apart from the new certificate management, the CLI is now showing the CPU speed, the carrier version, the current associated WLAN network name and the DHCP addresses/names for WLAN stations. The CLI is now able to upgrade the firmware of specific modules. It is further possible to issue USSD queries and to generate or dump a TechSupport file. The debug level for system applications can be set/reset now and it is possible to show debug messages and to tail the system log.

Case-#	Description
22442 **31917** **34629** **36304** **37407** **37660**	**New GUI Pages** The GUI entry page has been extended by various status pages and it is now possible to gain more details about the modem status, connected WLAN stations , QoS and firewall, discovered neighbors, WLAN txpower and frequency, etc. We have also implemented Continue buttons at some places to avoid unneccessary reconfiguration steps. It is now possible to specify an FTP/HTTP/TFTP URL for updating the configuration. Also, any SDK test scripts can be uploaded now at the SDK testing page. A testing facility for sending E-Mails has been added and the TechSupport file can be encrypted now. We also added an option to disable root/admin login for the SSH server.
34471 **36746**	**New DynDNS Protocols** Dynamic DNS updates according to RFC2136 (including TSIG key support) or using GnuDIP are now supported.
34406 **35407**	**Module Firmware Update** The firmware of the following modules can be upgraded now over the GUI or CLI: • Option GTM661/GTM671 • Huawei ME909 • NM CAN/RS485 adapter • NM IBIS/RS232 adapter
	Package Upgrades The following packages have received upgrades: openssl 1.0.1k php 5.4.27 wpa_supplicant 2014-04-04 hostapd 2014-04-04 dropbear 2014.63 openvpn 2.3.6 mac80211 2014-03-31 wireless-tools 29.5
35804 **36045** **37271** **31279** **33541**	**Various** We have added a command-based speed-test client which is able to measure the current download/upload speed using speedtest.net servers. The box ships with a TFTP server now which can be enabled by setting `tftpd.status` and `tftpd.directory`. We have added a tty-bridge application which can be used to bridge input/output for two TTYs. Loading the FPGA logic can now be omitted in the UBOOT by pressing 'f' multiple times. It is now possible to log in with an empty admin password if boxes are in factory state.

3 Fixes

The following issues and problems have been fixed.

Case-#	Description

4 Known Issues

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

Case-#	Description
37225	**USSD on Huawei EM770/EM820** It is currently not possible to issue USSD queries on Huawei EM770/EM820.
32507	**No VRRP on Bridged Interfaces** Running VRRP over bridged interfaces is currently not possible.

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
30071	**New Config Version 1.5** The config version in 3.8.0 has been changed to 1.5. Although older configuration files will be converted during software upgrade or configuration upload, it may happen that third-party applications or SDK scripts require adaptions to changed configuration directives. In doubt, one may run: `cfconvert -i <old-config> -o <new-config> -s <old-version> -t <new-version>` and compare the relevant sections.

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7 Change History

Version	Date	Name	Reason
1.0	2015-04-27	hess	Release

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