



## SXL Software Release Notes Merlin 4100/4400/4600 Series

Release SXL-25.03.43.009

<b>Hardware Models</b>	Merlin4100; Merlin4400; Merlin4600 Series
<b>Revision</b>	1.00.10
<b>Approval status</b>	Approved
<b>Date</b>	27 September 2023
<b>Brief description</b>	Details the release of system software SXL-25.03.43.009 for Merlin4400 and Merlin4600 Series

## Revision history

<b>Date</b>	<b>Revision</b>	<b>Description</b>
02 November 2021	1.00.00	Release notes for SXL-25.02.14.000
18 November 2021	1.00.01	Release notes for SXL-25.02.14.002
03 March 2022	1.00.02	Release notes for SXL-25.02.14.013
21 March 2022	1.00.03	Release notes for SXL-25.02.14.016
24 May 2022	1.00.04	Release notes for SXL-25.02.14.027
13 October 2022	1.00.05	Release notes for SXL-25.02.14.032
05 January 2023	1.00.06	Release notes for SXL-25.02.80.000
13 February 2023	1.00.07	Release notes for SXL-25.02.99.000
23 March 2023	1.00.08	Release notes for SXL-25.03.23.000
22 May 2023	1.00.09	Release notes for SXL-25.03.43.000
27 September 2023	1.00.10	Release notes for SXL-25.03.43.009

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# 1 SXL-25.03.43.009 release statement

SXL-25.03.43.009 has formally passed internal acceptance and regression testing and is available for general release on hardware platforms as stated below.

## 1.1 Firmware information

Filename	Size (bytes)	Build Date	Checksum (md5)
SXL-25.03.43.009.k01.image	18,415,616	27/09/2023	9707e0a51adf5919a7998c709eee8078

## 1.2 Hardware platforms

Hardware model	Details
Merlin4100	EN 61000-6 LTE/LTE-450 wireless router with 4 port Ethernet switch (10/100M) with dual use port for RS232 serial or digital input, TPM and secure boot.
Merlin4400	EN50121-4, EN 61000-6 LTE/LTE-450 wireless router with 4 port Ethernet switch (10/100M), TPM and secure boot. Optional dual serial.
Merlin4600	IEC61850-3, EN50121-4, EN 61000-6 LTE/LTE-450 wireless router with 4 port Ethernet switch (10/100M), TPM and secure boot. Optional dual serial, dual SFP (1GbE), USB host, digital IO.

# 2 Mobile module support

## 2.1 5G modules

Firmware introduced	Vendor	Module	Region	3G bands	LTE Bands	5G Bands
25.02.85.000	Quectel	RM520N-GL	-	B1,2,4,5,8,19	B1,2,3,4,5,7,8,12,13,14,17,18,19,20,25,26,28,29,30,32,34,38,39,40,41,42,43,46,48,66,71	1,2,3,5,7,8,12,13,14,18,20,25,26,28,29,30,38,40,41,48,66,70,71,75,76,77,78,79

## 2.2 4G modules

Firmware introduced	Vendor	Module	Region	Cat	2G bands	3G bands	LTE Bands
25.03.43.005	Sierra Wireless	WP7702	-	M1	850/900/1800/1900	-	B1, B2, B3, B4, B5, B8, B12, B13, B17, B18, B19, B20, B26, B28
25.02.80.000	Unitac	ML620DE	-	4			B3, B7, B20, B72

<b>25.02.14.027</b>	Sierra Wireless	WP7609-G	Australia	4	-	B1, B8	B1, B3, B5, B8, B40, B41
	SIMCOM	SIM7070E	-	M	850/900/1800/1900	-	B1, B2, B3, B4, B5, B8, B12, B13, B14, B18, B19, B20, B25, B26, B27, B28, B31, B66, B72, B85,
	Unitac	ML620EU	-	4	-	-	B3, B7, B20, B31, B72
		ML660P	-	4	-	-	B3, B20, B87
<b>25.02.14.000</b>	Sierra Wireless	WP7607-G	EMEA	4	900/1800	B1, B8	B1, B3, B7, B8, B20, B28
		WP7608-G	Asia/Pacific	4	900/1800	B2, B4, B5	B2, B4, B5, B12, B13, B14, B17, B66
		WP7610-G	North America	4	-	B1, B5, B8	B1, B3, B5, B7, B8, B28

### 3 Security patches/module firmware upgrades

Firmware	Module	Description	CVE identifier	Mantis
<b>25.03.43.005</b>	console	Automatically log out console sessions after 30 mins if inactivity		6884
<b>25.03.23.000</b>	telnetd	Remove telnetd support		
	password	Resetting password via web UI now requires input of current password		5261
	SSH	Added grace period after console login failure to disrupt brute force attacks		5853
<b>25.02.80.000</b>	dnsmasq	Updated to 2.85	CVE-2021-3448	6041
	gpsd	Updated to 3.23.1		
	overlay	Implemented automatic overlay clean up to remove ad hoc modifications		5374
	snmpd	Application now runs with dedicated unique user and group id instead of root privileges		4695

### 4 New features

<b>Certificates</b>
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Check both TPM and flash for certificate key	<p>If the key cannot be found in the location specified in the configuration file, the router will automatically check an alternate location using the following methodology (Mantis: 6820).</p> <ul style="list-style-type: none"> <li>When configured for <b>PEM</b> key and key cannot be found at the configured location, the router will try to use a TPM key with name corresponding to base file name (/etc/uhttpd.key -&gt; "uhttpd").</li> <li>When configured for <b>TPM</b> key and key cannot be found in the TPM, the router will try to use file "/etc/&lt;tpm label&gt;.key"</li> </ul>						
<b>Mobile</b>							
FOTA support for Unitac modules	Support FOTA upgrade for Unitac modules						
Neighbour cell information	<p>Added display of neighbouring cell information. Currently only supported on Unitac ML620/660 and Quectel EC200x series</p> <pre>cli: vam -n</pre>						
Sierra Wireless WP7702 LTE-M support	Added support for Sierra Wireless WP7702 LTE-M1/NB1 mobile module on Merlin series						
<b>Multiwan</b>							
Multiwan upper retry limit for roaming interfaces	<p>For 3G roaming connections, and connections with <code>retry_on_first_fail</code> enabled, to avoid getting stuck on one SIM, a new multiwan configuration parameter defines the maximum number of seconds to stay with an interface after its first failure before proceeding. (Mantis: 6975)</p> <table border="1"> <thead> <tr> <th>Package</th> <th>Section</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>multiwan</td> <td>interface</td> <td>retry_connection_max_sec (def: multiwan.interface.ifup_timeout_sec)</td> </tr> </tbody> </table>	Package	Section	Options	multiwan	interface	retry_connection_max_sec (def: multiwan.interface.ifup_timeout_sec)
Package	Section	Options					
multiwan	interface	retry_connection_max_sec (def: multiwan.interface.ifup_timeout_sec)					
<b>Power over Ethernet</b>							
PoE port stop/start	<p>Power over an individual Ethernet port can now be stopped and started via the PoE status page on the web UI (Mantis: 6827)</p> <pre>web: status-&gt;PoE</pre>						
<b>Scada</b>							
DNP3 Analog Set point command variation	<p>Added new option for DNP3 Analog Set point command variation</p> <table border="1"> <thead> <tr> <th>Package</th> <th>Section</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>iecd</td> <td>cmdpoint</td> <td>dnp3_cmd_variation (def: 0)</td> </tr> </tbody> </table>	Package	Section	Options	iecd	cmdpoint	dnp3_cmd_variation (def: 0)
Package	Section	Options					
iecd	cmdpoint	dnp3_cmd_variation (def: 0)					
MODBUS to Remote IO protocol conversion	Added support for MODBUS to Remote IO ( <code>ioservd</code> ) protocol conversions (Mantis: 6886)						
Update IEC104 master on DNP3 static variation change	<p>Added new feature to transmit a spontaneous update to IEC104 master on DNP3 static variation value change</p> <table border="1"> <thead> <tr> <th>Package</th> <th>Section</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>iecd</td> <td>port</td> <td>dnp3_tx_spont_on_static_change (def: 0)</td> </tr> </tbody> </table>	Package	Section	Options	iecd	port	dnp3_tx_spont_on_static_change (def: 0)
Package	Section	Options					
iecd	port	dnp3_tx_spont_on_static_change (def: 0)					
<b>TPM</b>							

List TPM keys	Support new diagnostic command to list TPM keys <code>cli: tpm-cli listkeys</code>
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## 5 Deprecated features

Firmware	Package	Description
25.02.14.013	network	Configuration section <code>va_switch</code> deprecated. Ethernet configuration should be done using option <code>ifname</code> configured with driver port names
	wireless	<code>wireless.wifi-device.type</code> option deprecated

## 6 Known issues

No.	Module	Short Description	Mantis
1.	Ethernet	Unable to bridge different VLANs in Merlin series	6768
2.	Event System	Event target <code>cmd_template</code> does not escape properly when using double quotes	5736
3.	Mobile	Do not display RSSI in mobile stats for 5G mobile modules	
4.	Network	Network restart from command line using <code>/etc/init.d/network restart</code> intermittently brings back interfaces in an incorrect state	5423
5.	OSPF	Routing table is not updated correctly with OSPF for dual interfaces	5678
6.	OSPF	When the remote connection (from a remote OSPF peer) is dropped, OSPF crashes intermittently.	5677
7.	Strongswan	Strongswan memory footprint increases slowly with tunnel restart	5866
8.	Syslog	No web UI support for syslog filter rules	3705
9.	TACACS	Option <code>tac_user_template %s@VAR</code> not supported	4502
10.	VRF	Command <code>ip vrf identify</code> to view PID associated with VRF's not working as expected	4210
11.	Web/Failsafe	Unable to configure failsafe via web UI	5843
12.	Web/IPsec	Unable to configure <code>strongswan.connection.disable_mobike</code> , <code>strongswan.connection.mobike_send_additional_self</code> or <code>strongswan.connection.disable_natt</code> via web UI	5437
13.	Web/Management Users	Unable to configure management users via web UI	5503
14.	Web/Multiwan	Unable to configure <code>multiwan.interface.state_transition_hook</code> via the web UI	5433
15.	Web/SNMP	Unable to configure SNMP alias index for a roaming template via the web UI	3166

## 7 Problems resolved

No.	Module	Short Description	Mantis
1.	Activator	Set model URL parameter to uimodel rather than machtype in updates to Activator	6761
2.	Certificates	Improve error reporting for common issues with HTTPS certificates	6987
3.	CLI	Improve error message for <code>uci show xy</code> when <code>xy</code> does not exist	
4.	Ethernet	Add <code>arp-scan</code> utility to DRS, ORK and SXL families for consistency with EDG family <code>cli: arp-scan -l</code>	5829
5.	Firewall	Fix variable name clash in zone option presence test causing occasional restart issue	
6.	Firewall	Simplify firewall forwarding within a bridge by avoiding calls to iptables	
7.	Firmware	Prevent downgrade of router firmware to a version that is incompatible with the on board Sierra Wireless module	6878
8.	IECD	Fixed issue with IEC104 clock synchronization on conversion from CP56TIME2A to time format where memory was not being cleared correctly	
9.	IECD	Improvements for Analog Input integer to float conversion for IEC104 to DNP3	
10.	Mobile	Ensure ARP is not turned off for the Unitac Ethernet interface causes problems with the firmware upgrade tool.	
11.	Mobile	Ensure NOARP flag is set on mobile Ethernet devices to avoid the ARP table from filling up with entries from the mobile connection	6676
12.	Mobile	Ensure the SMS format is set correctly and interfaces restarted after Verizon provisioning.	
13.	Mobile	Fix handling of 5G status when operating in an 5G SA network	
14.	Mobile	Fix to ensure the Verizon attach APN is set correctly	
15.	Mobile	Only restart interfaces when Network Initialisation was indicated in OMADM	
16.	Mobile	Record Unitac AUX antenna values regardless of MIMO state	
17.	Mobile	Switch to AT!GSTATUS to retrieve signal information for Unitac modules	
18.	OpenVPN	Fix privileges in OpenVPN to allow automatic restarts and fix open SSL errors in WeConnect	6793
19.	SNMP	Correct vaUciMib implementation so that it matches the previous implementation	6903
20.	SNMP/GPS	Fix GPS heading in MIB from degrees to micro degrees	6901
21.	System	Fix issues when config files have execute permissions set and configuration audit is enabled	
22.	TPM	Don't allow loading a new key if a key with the same label is already present	
23.	VLAN	Fix VLAN bridging on Merlin and GW6650V models	6768 6844



<b>24.</b>	Web	Fix error message typo when SSL subsystem fails to initialise	
<b>25.</b>	Web	Print openssl errors when init, cert load or key load fail	
<b>26.</b>	Web/ Interfaces	Avoid restarting all interfaces when adding new interface via web UI	6922 6923
<b>27.</b>	Web/Cwatch	Fix display of bridge interface on Cwatch interface list	6824
<b>28.</b>	Web/Event System	Support configuration of Event System Digital Input change event input number and value via web UI  web: services->va event system->event filters->Input Number cli: va_eventd.forwarding.input_number  web: services->va event system->event filters->Input Value cli: va_eventd.forwarding.value	6839
<b>29.</b>	Web/IECD	Added selector lists in place of fixed values where possible	
<b>30.</b>	Web/OSPF	Support configuration of OSPF VRF via web UI  web: network->ospf->global settings->VRF cli: ospfd.routing.vrf	6964
<b>31.</b>	Web/PoE	Modifications to a PoE port configuration via the web UI no longer result in the other PoE ports being reset	6827
<b>32.</b>	Web/System	Restore javascript validation preventing underscores in system hostname	4555

## 8 Appendix 1: New features history

### 8.1 25.03.43.000

General			
Merlin4100 support	Added support for Merlin4100 series		
GPS			
GPS MIB support	Added support for VA-GNSS-MIB for retrieval of GPS values		
Network			
Dummy interface support	Added support for dummy interfaces. Dummy interfaces are real kernel interfaces (unlike alias interfaces) and support all the configuration options of a static interface. Dummy interfaces are useful in combination with VRFs as they can be isolated from general routing.		
Ignore carrier state option	Support new option for static protocol interfaces to ignore carrier state changes. This allows interfaces to stay permanently up even when physical connection is not present (Mantis: 6739)		
	Package	Section	Options
	network	interface	ignore_carrier_state (def: no)
System			
IP PAD support	Added <code>padd</code> and <code>vald</code> packages for IP PAD support for converting legacy X.25 serial communication over TCP/IP.		
SCADA			
IECD VRF support	VRF support for IECD TCP based protocols (Mantis: 6784)		
	Package	Section	Options
	iecd	port	dnp3_vrf; dnp3s_vrf; iec61850_vrf; iec61850mX_vrf; modbus_slave_vrf; modbus_vrf; modbus1_vrf; mqtt_vrf; iec104m_vrf; iec104m1_vrf;
Serial to UDP multi-point mode	Added support for multiple UDP peers on serial port. Data received on a serial port is transmitted to all peers; data received from any peer is transmitted on the serial port. Up to 8 UDP peers supported (Mantis: 6723)		
	Package	Section	Options
	tservd	port	udpMultiPointOn (def: no); remote_ipX; udpRemotePortX

### 8.2 25.03.23.000

Roaming Manager
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Roaming Manager connection retry options	Added new connection retry options for Roaming Manager feature		
	Package	Section	Options
	network	interface	roaming_link_success_time (def: 600 secs); roaming_prefer_best_operator (def: no); roaming_scan_inheritance (def: no)
	multiwan	interface	retry_on_first_fail (def: no)
<b>SCADA</b>			
MODBUS TCP routes	Added support for MODBUS TCP routes (Mantis: 6643)		
	Package	Section	Options
	iecd	mbtcp_route	ifnum; devaddr, ipaddr
IECD104 Slave cyclic transmission	Support for cyclic transmission of data point messages		
	Package	Section	Options
	iecd	port	iec104_cyclic_on (def: 0)
Transparent mode offline queue	Added support for IEC104 slave offline queue when using transparent mode (no iec104s application layer)		
VRF	Support for binding IEC104 Slave socket to a VRF for isolation from general routing (Mantis: 4802)		
	Package	Section	Options
	iecd	port	iec104_ip1_vrf; iec104_ip2_vrf; iec104_ip3_vrf; iec104_ip4_vrf; iec104_ip5_vrf; iec104_ip6_vrf;
<b>System</b>			
GNSS time synchronisation	Added support for time update via GNSS. Note: Router requires GNSS capabilities and GNSS is enabled (Mantis: 6229)		
	Package	Section	Options
	system	timeserver	gnss_clock_source_enabled (def: no)

### 8.3 25.02.99.000

<b>Mobile</b>	
FOTA upgrade via CURL	FOTA upgrade can now use CURL to download a firmware image from remote location
<b>SCADA</b>	
IECD61850 Slave to MODBUS Server	Added support for IEC61850 slave to MODBUS Server
IEC62351-3 TLS - CRL/OCSP Automated Fetching	Added support for CRL/OCSP automatically fetching from a link provided within the certificate. Previously implementation only used a local file (Mantis: 5955)
New IECD diagnostics	Added new command line diagnostics to show all possible point and cmdpoint options (Mantis: 6556) cli: iecd show point options cli: iecd show cmdpoint options

## 8.4 25.02.80.000

<b>BGP</b>			
BGP MIB support	Added BGP-4-MIB support so BGP information can beretrieved via SNMP (Mantis: 6347)		
<b>FXS</b>			
Analogue gain	Added options to store FXS card gain		
	Package	Section	Options
	fxs	interface	rx_analogue_gain (def: 0.0); tx_analogue_gain (def: 0.0)
<b>General</b>			
Merlin4400 support	Added support for Merlin4400 series		
Sierra Wireless	Added support for newer Sierra Wireless NAND flash. Note: Routers running newer Sierra Wireless flash cannot be rolled back prior to 25.02.80.000		
<b>GPS</b>			
GPS diagnostics	Added new <code>gps</code> diagnostics command		
<b>SNMP</b>			
LAPB MIB support	Added support for Virtual Access VA-LAPB-STATS-MIB which provides level 2 statistics for the serial interface (Mantis: 4695).		
Modem firmware version MIB support	Virtual Access VA-MODEM-MIB modemTable now supports <code>modemFirmwareVersion</code> and <code>modemGsmLtePci</code> (Mantis: 5912)		
VA roaming manager MIB support	Added MIB support for VA Roaming Manager ( <code>vaRoamingManagerModule</code> ) feature to VA-MODEM-MIB (Mantis: 5842)		
<b>Mobile</b>			
EID retrieval	Support EID retrieval for Quectel, Simcom, Sierra Wireless, Huawei and Telit mobile modules. EID information on the SIMs can be displayed using <code>vam -a</code> command (Mantis: 6236)		
FOTA upgrade	Support Quectel FOTA upgrade via locally stored file		
<b>Monitor</b>			
LTE band and cell diagnostics	Added support for LTE band and cell information in ISAD bins (Mantis 6007)		
VRF support for monitor keepalive	Added support for configuration of VRF domain for Monitor keepalive traps (Mantis: 5983)		
	Package	Section	Options
	monitor	keepalive	vrf
<b>Multiwan</b>			

Multiwan interface scanning timeout	New multiwan config parameter to extend <code>ifup</code> timeout when a mobile roaming operator scan is active. Used in conjunction with VA Roaming Manager feature, this parameter is added to the normal <code>ifup_timeout_sec</code> used for <code>ifup</code> operations whenever the <code>ifup</code> occurs during a 3G operator background scan, or the <code>ifup</code> itself triggers such a scan, on the modem being used for the current interface.						
<table border="1"> <thead> <tr> <th>Package</th> <th>Section</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>multiwan</td> <td>interface</td> <td><code>ifup_scanning_timeout_sec</code> (def: 480 secs)</td> </tr> </tbody> </table>		Package	Section	Options	multiwan	interface	<code>ifup_scanning_timeout_sec</code> (def: 480 secs)
Package	Section	Options					
multiwan	interface	<code>ifup_scanning_timeout_sec</code> (def: 480 secs)					
<b>SCADA</b>							
DNP3 to IEC104 DI inversion and AI Scaling	Added support for inversion of single bit binary input points (Gr1, Gr2) for DNP3 RTU's to IEC104 Scada master. In addition, added support for a new an option for analog scaling – the analog inputs received from the RTU are divided by the scaler before conversion to SCADA protocol (mantis: 6419)						
<table border="1"> <thead> <tr> <th>Package</th> <th>Section</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>iecd</td> <td>port</td> <td><code>di_invert</code> (def: 0); <code>ai_scaler</code> (def: 0)</td> </tr> </tbody> </table>		Package	Section	Options	iecd	port	<code>di_invert</code> (def: 0); <code>ai_scaler</code> (def: 0)
Package	Section	Options					
iecd	port	<code>di_invert</code> (def: 0); <code>ai_scaler</code> (def: 0)					
Health points in multi master mode	Added support for health points (6) in multi-master mode						
<table border="1"> <thead> <tr> <th>Package</th> <th>Section</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>iecd</td> <td>port</td> <td><code>iec104_rtuX_health_ioa</code>;</td> </tr> </tbody> </table>		Package	Section	Options	iecd	port	<code>iec104_rtuX_health_ioa</code> ;
Package	Section	Options					
iecd	port	<code>iec104_rtuX_health_ioa</code> ;					
HMI second interface	Added support for HMI Second Control Interface (MQTT)						
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IOSRVD direct serial comms	Support IOSRVD interface to serial using direct driver calls instead of UNIX sockets to <code>tservd</code> (Mantis: 6322)						
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IOSRVD MQTT	Added support for remote IO and MQTT slave (Mantis: 6315)						
MODBUS master side analog filtering	When IECD is configured to communicate with a modbus slave, it can receive updates of register values that are modelling analog inputs (Holding Registers and/or Input Registers). Since analog values can be 'noisy' in nature, these updates can be quite frequent. If it is desired to limit the frequency of these updates, it is now possible to apply per data point filtering of analog values.						
<table border="1"> <thead> <tr> <th>Package</th> <th>Section</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>iecd</td> <td>point</td> <td><code>modbus_filter_mode</code>; <code>modbus_filter_db_val</code>; <code>modbus_filter_sampling_time_secs</code>; <code>modbus_filter_transmit_time_secs</code></td> </tr> </tbody> </table>		Package	Section	Options	iecd	point	<code>modbus_filter_mode</code> ; <code>modbus_filter_db_val</code> ; <code>modbus_filter_sampling_time_secs</code> ; <code>modbus_filter_transmit_time_secs</code>
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MODBUS slave to Modbus master TCP data conversion	Support Modbus slave to Modbus master TCP conversion (Mantis: 6047)		
	Package	Section	Options
	iecd	port	modbus_slave_devaddr; modbus_slave_protocol; modbus_slave_local_ip; modbus_slave_tcp_port (def: 502); modbus_slave_serial_ifnum; modbus_slave_use_tls; modbus_slave_tls_cacertfile; modbus_slave_tls_crlfile; modbus_slave_tls_certfile; modbus_slave_tls_keyfile; modbus_slave_tls_pass; modbus_slave_tls_common_name; modbus_slave_tls_validate_peer_cert; modbus_slave_tls_verify_depth; modbus_slave_tls_force_tls1_2; modbus_slave_tls_cipherlist
MQTT offline queue	Added support for MQTT offline message queue for storing public messages in memory while MQTT broker is offline.		
	Package	Section	Options
	iecd	port	mqtt_offline_q_on (def: 0)
MQTT payload logging	Added payload logging for MQTT publish (Mantis: 6317)		
	Package	Section	Options
	iecd	port	mqtt_debug_on (def: 0)
MQTT Slave to Modbus conversion	Added support for MQTT slave to Modbus protocol conversion (Mantis: 6319)		
RTU test emulator	Added support for VRTU (RTU Test Emulator) for pre-production SCADA connectivity and operations testing (Mantis: 6225)		
	Package	Section	Options
	iecd	port	vrtu_simulation_interval_sec (def: 30)
Windows file format data point import	Support windows .xlsx extension for data point files import (Mantis: 6027)		

## 8.5 25.02.14.032

No new features

## 8.6 25.02.14.027

General	
Merlin4600 Sierra Wireless WP7609-G support	Due to differing versions of Sierra Wireless WP7609G Australia module this release marks official support for WP7609G in Merlin4600 series (Mobile code: PFJ) for all versions.  Note: Do not downgrade the Merlin4600 (PFJ) variant to firmware prior to SXL-25.02.14.027.
Mobile	
EID retrieval using SIMCOM 7070E	The SIMCOM 7070E mobile module can now report EID information on the SIMs using <code>vam -a</code> command (Mantis: 6236)
LTE-450 mobile module support	Merlin4600 series now supports an alternate mobile module via PCIe slot in order to support frequency bands not support by the on board Sierra Wireless radio, in particular LTE-450 bands 31, 72 and 87 using Unitac and SIMCOM 7070E modules.

**8.7 25.02.14.016**

DI/DO							
Digital Input	Merlin4600 series digital input values changed to match GW2020 series for compatible SCADA operation						
	<table border="1"> <thead> <tr> <th>Input value</th> <th>State</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Input not detected / open / low</td> </tr> <tr> <td>1</td> <td>Input detected / closed / high</td> </tr> </tbody> </table>	Input value	State	0	Input not detected / open / low	1	Input detected / closed / high
Input value	State						
0	Input not detected / open / low						
1	Input detected / closed / high						

**8.8 25.02.14.013**

Ethernet															
Ethernet port to interface mapping using port names	<p>Ethernet interface configuration now uses driver port names in option <code>ifname</code> rather than <code>va_switch</code> configuration section for mapping interfaces to Ethernet ports. The <code>va_switch</code> method used in other hardware models is now deprecated for Merlin4600 series. Use space separator when specifying multiple port names in option <code>ifname</code>.</p> <p>When bridging Ethernet ports option type must be set to 'bridge' (Mantis 6028)</p> <table border="1"> <thead> <tr> <th>Physical port label</th> <th>network.interface ifname value</th> </tr> </thead> <tbody> <tr> <td>Ethernet A</td> <td>portA</td> </tr> <tr> <td>Ethernet B</td> <td>portB</td> </tr> <tr> <td>Ethernet C</td> <td>portC</td> </tr> <tr> <td>Ethernet D</td> <td>portD</td> </tr> <tr> <td>SFP I</td> <td>portI</td> </tr> <tr> <td>SFP J</td> <td>portJ</td> </tr> </tbody> </table> <p>Example bridged configuration:</p> <pre>package network config interface 'LAN'     option ifname 'portA portB portC portD'     option type 'bridge'</pre> <p>Example segmented configuration:</p> <pre>package network config interface 'LAN1'     option ifname 'portA portB portC'     option type 'bridge' config interface 'LAN2'     option ifname 'portD'</pre>	Physical port label	network.interface ifname value	Ethernet A	portA	Ethernet B	portB	Ethernet C	portC	Ethernet D	portD	SFP I	portI	SFP J	portJ
Physical port label	network.interface ifname value														
Ethernet A	portA														
Ethernet B	portB														
Ethernet C	portC														
Ethernet D	portD														
SFP I	portI														
SFP J	portJ														
SCADA															
Allow commands to work without status points	Setting option <code>iecl04_status_ioa</code> in a <code>cmdpont</code> section to 0 makes the IECD ignore the feedback point, but the commands still work. (Mantis: 5981)														

IEC104 Double Bit command conversion to two DNP3 single commands	Setting option <code>iec104_status_ioa</code> in a <code>cmdpoint</code> section to 0 makes the IEC104 ignore the feedback point, but the commands still work. (Mantis: 5981)										
IEC104 multi master support	<p>The IEC104 slave now supports up to 6 SCADA masters that can control the same RTU. In a normal scenario there is a single IEC104 SCADA master connecting to the router. It may sometimes use several TCP concurrent connections, however only one connection is active and transferring data at a time. All configured data points are sending data to the same connected IEC104 master.</p> <p>In some scenarios it may be necessary that several IEC104 SCADA masters are polling and controlling the same RTU concurrently. Moreover, it may be desirable that one master polls or receives data from a specific set of data points (identified by IOAs (information object addresses)) while another master polls a different set of data points within the same RTU. (Mantis: 6012)</p> <table border="1" data-bbox="486 757 1444 1267"> <thead> <tr> <th>Package</th> <th>Section</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td rowspan="3">iecd</td> <td>port</td> <td><code>iec104_multi_master_on</code> (def: 0); <code>iec104_conn1_casdu</code>; <code>iec104_conn2_casdu</code>; <code>iec104_conn3_casdu</code>; <code>iec104_conn4_casdu</code>; <code>iec104_conn5_casdu</code>; <code>iec104_conn6_casdu</code>; <code>iec104_local_ip1</code>; <code>iec104_local_ip2</code>; <code>iec104_local_ip3</code>; <code>iec104_local_ip4</code>; <code>iec104_local_ip5</code>; <code>iec104_local_ip6</code>; <code>iec104_local_tcpport1</code>; <code>iec104_local_tcpport2</code>; <code>iec104_local_tcpport3</code>; <code>iec104_local_tcpport4</code>; <code>iec104_local_tcpport5</code>; <code>iec104_local_tcpport6</code></td> </tr> <tr> <td>point</td> <td><code>iec104_conn_mask</code></td> </tr> <tr> <td>cmdpoint</td> <td><code>iec104_conn_mask</code></td> </tr> </tbody> </table>	Package	Section	Options	iecd	port	<code>iec104_multi_master_on</code> (def: 0); <code>iec104_conn1_casdu</code> ; <code>iec104_conn2_casdu</code> ; <code>iec104_conn3_casdu</code> ; <code>iec104_conn4_casdu</code> ; <code>iec104_conn5_casdu</code> ; <code>iec104_conn6_casdu</code> ; <code>iec104_local_ip1</code> ; <code>iec104_local_ip2</code> ; <code>iec104_local_ip3</code> ; <code>iec104_local_ip4</code> ; <code>iec104_local_ip5</code> ; <code>iec104_local_ip6</code> ; <code>iec104_local_tcpport1</code> ; <code>iec104_local_tcpport2</code> ; <code>iec104_local_tcpport3</code> ; <code>iec104_local_tcpport4</code> ; <code>iec104_local_tcpport5</code> ; <code>iec104_local_tcpport6</code>	point	<code>iec104_conn_mask</code>	cmdpoint	<code>iec104_conn_mask</code>
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	point	<code>iec104_conn_mask</code>									
	cmdpoint	<code>iec104_conn_mask</code>									
Modbus HMI support	<p>VHMI (Virtual HMI) is a human machine interface exposed to an externally connected software. Current version supports only Modbus TCP protocol for the connection to the HMI software. The router acts as a Modbus TCP slave/server. External HMI software is a Modbus TCP master/client. When VHMI is enabled, the Modbus TCP client can poll the values of all data point objects in parallel to normal protocol conversion process. (Mantis: 6040)</p> <table border="1" data-bbox="486 1547 1444 1749"> <thead> <tr> <th>Package</th> <th>Section</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td rowspan="2">iecd</td> <td>port</td> <td><code>vhmi_enabled</code> (def: 0); <code>vhmi_proto</code> (def: <code>modbus_tcp</code>); <code>vhmi_listen_port</code> (def: 502); <code>vhmi_debug_on</code> (def: 0)</td> </tr> <tr> <td>point</td> <td><code>vhmi_on</code> (def: 0); <code>vhmi_regaddr</code> (def: 0); <code>vhmi_dword</code> (def: 0)</td> </tr> </tbody> </table>	Package	Section	Options	iecd	port	<code>vhmi_enabled</code> (def: 0); <code>vhmi_proto</code> (def: <code>modbus_tcp</code> ); <code>vhmi_listen_port</code> (def: 502); <code>vhmi_debug_on</code> (def: 0)	point	<code>vhmi_on</code> (def: 0); <code>vhmi_regaddr</code> (def: 0); <code>vhmi_dword</code> (def: 0)		
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	point	<code>vhmi_on</code> (def: 0); <code>vhmi_regaddr</code> (def: 0); <code>vhmi_dword</code> (def: 0)									
Support CP24 timestamp format messages in IEC101 to 104 conversion	IEC101 Type ID 2, 4, 6, 8, 10,12,14,16 now supports CP24Time2a (Mantis: 5980)										



Support Regulating Step and Bitstring commands for IEC101 to IEC104 conversion	<p>Added IEC101 to IEC104 conversion support for commands (Mantis: 6030):</p> <ul style="list-style-type: none"> <li>• C_RC_NA_1 Regulating step</li> <li>• C_BO_NA_1 Bitstring of 32 bit</li> </ul>						
<b>Strongswan</b>							
SCEP certificate debug level	<p>The SCEP client natively supports debug options with 4 levels levels - 0,1,2,3 and 4. These can now be configured using new config option <code>debug_level</code>. Set to 0 to disable. (Mantis 5881)</p> <table border="1"> <thead> <tr> <th>Package</th> <th>Section</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>strongswan</td> <td>scep_cert</td> <td>debug_level (def: 0)</td> </tr> </tbody> </table>	Package	Section	Options	strongswan	scep_cert	debug_level (def: 0)
Package	Section	Options					
strongswan	scep_cert	debug_level (def: 0)					
SCEP cert user option	<p>New SCEP config option <code>user</code> which is the high-level concept of the user of the cert. It gets read access via its group. The owner is root, the group is the user. The user is expected to be a member of its group. User certs are ctored in <code>/etc/certs</code> tree (Mantis: 5913).</p> <table border="1"> <thead> <tr> <th>Package</th> <th>Section</th> <th>Options</th> </tr> </thead> <tbody> <tr> <td>strongswan</td> <td>scep_cert</td> <td>user (def: strongswan)</td> </tr> </tbody> </table>	Package	Section	Options	strongswan	scep_cert	user (def: strongswan)
Package	Section	Options					
strongswan	scep_cert	user (def: strongswan)					

## 8.9 25.02.14.002

No new features

## 8.10 25.02.14.000

<b>Hardware</b>	
Digital IO	<p>Support for</p> <ul style="list-style-type: none"> <li>• Six digital input ports with Wet/Dry control</li> <li>• Two digital outputs</li> </ul> <p>An event is raised in the routers syslog when the status of the digital input changes. The routers event system can be used to forward the events to a Syslog Server, SNMP, email or SMS.</p>
SFP	<p>Support for two 1Gbps SFP ports using physical ports I and J. Ports can operate with Ethernet or Fibre adapters and are internally configured as standard Ethernet interfaces</p>
Trusted Platform Module (TPM)	<p>A Trusted Platform Module (TPM) is a microcontroller-based chip, which provides hardware-based security for the user's data, cryptographic keys, and safeguards confidential information.</p> <p>The Merlin hardware comes with a set of keys that are burned to the TPM's memory fuse and cannot be changed. These keys are used to produce a set of keys that act as local Root of Trust. These can then be used by a variety of system processes and for data exchanges. This digital signing process ensures the highest level of identity verification.</p>
<b>SNMP</b>	
Last Gasp	<p>Power fail event generated in syslog and optionally delivered using the routers event system via an SNMP trap when power is lost.</p>

<b>SCADA</b>			
SCADA applications	Support for SCADA protocol conversion suite.		
	Web	Package	
	Description		
	DNPOSD	dnposd	DNPOSD is a SCADA application which emulates a DNP3 controlled station and presents status of monitored interfaces and device information as DNP3 objects
	IEC101MON	iec101mon	IEC101MON is a router application that monitors IEC 60870-5-101 link and forwards the decoded messages over MQTT
	IEC101RTR	iec101rtr	IEC101RTR is a SCADA protocol conversion application which acts as IEC101 Slave and converts SCADA traffic to IEC104 Master
	IECD	iecd	IECD is a SCADA protocol conversion application supporting many SCADA protocols: IEC 60870-5-104, IEC 60870-5-101, IEC61850, DNP3, Modbus, MQTT
	IOSRVD	iosrvd	IOSRVD is a router application working with IECD to communicate to Remote IO devices
	Modbus Gateway	modbus_gw	Modbus Gateway SCADA protocol conversion application which acts as Modbus Slave and converts SCADA traffic to IEC104 Master
	RTUD	rtud	RTUD allows the remote SCADA master to monitor and control the digital IOs of the Virtual Access router that acts as the RTU slave. RTUD supports IEC 60870-5-104, DNP3 and Modbus.
<b>Security</b>			
Last Gasp	Power fail event generated in syslog and optionally delivered using the routers event system via an SNMP trap when power is lost.		
<b>WeConnect</b>			
WeConnect	<p>WeConnect allows secure remote access to both the network behind the devices and the devices themselves. WeConnect solves the complexity of managing VPNs over the Internet. With WeConnect users can easily and securely connect to any IP-device on the network using their normal PC, smartphone or tablet.</p> <p>If you do not yet have an account, contact your local Westermo reseller or visit <a href="http://weconnect.westermo.com">weconnect.westermo.com</a> for further information.</p>		

## 9 Appendix 2: Problems resolved history

### 9.1 25.03.43.000

No.	Module	Short Description	Mantis
1.	BGP	Fix local VRF IP subnet not being advertised over WAN VRF using a BGP instance in the same VRF	6799
2.	Cwatch	Fix cwatch using cached interface values rather than current values which caused cwatch to intermittently miss state changes	6784
3.	IECD	Fix IEC104 operation when IEC104 local TCP port configured to '0'	6778
4.	IECD	Fix unwanted Health Point updates during normal master switchover for IEC104 RTU's	6463
5.	IECD	Fixed Modbus master initialisation error when loading TCP routes	6803
6.	IECD	IEC61850 Server: Add conversion from Modbus DI to DPS objects	
7.	IECD	IEC61850 Server: Added mapping of Modbus DI to integer types (INS, etc)	
8.	IECD	IEC61850 Server: Fix error with double init of data points for Modbus master	
9.	IECD	IEC61850 Server: Update points from Modbus RTU when point have not been changed before in addition to when value changed	
10.	IECD	Improve debugging of IEC61850 client when processing control commands	
11.	Mobile	Fix signal strength detection on older Unitac modules	6805
12.	Mobile	Rename 'phone number' to 'MSISDN' in mobile stats	
13.	SNMP	Fix SNMP configuration using TCP protocol	5930
14.	VRF	Fix DNAT behaviour for alias interface within VRF	6705
15.	Web	Fix slow web SSL access when using keys from TPM	6734
16.	Web/ IPsec	Fix error on saving of configuration general section	6281
17.	Web/ Network	Show colour codes for interface status in network overview	6536
18.	Web/ OpenVPN	Automatically add and remove OpenVPN network interfaces	6296
19.	Web/Firewall	Fix summary page showing rules with <code>option enabled '1'</code> in configuration file as disabled	6765
20.	Web/HTTP Server	Support configuration certificate keys in TPM web: services->http server->Certificate Key Format cli: uhttpd.uhttpd.keytype [PEM TPM]	6756
21.	Web/Mobile	Correct display of mobile interface type on web UI interface overview page	6787
22.	Web/SCADA	Moved COSEM HDLC Bridge configuration from Services to SCADA tab	6781
23.	Web/Status	Add download button for kernel and system log web: status->System Log web: status->Kernel Log	6794

## 9.2 25.02.23.000

No.	Module	Short Description	Mantis
1.	Activator	Fix Activator active update command returning incorrectly parsed IPv6 addresses	4727
2.	CWATCH	Cwatch now ignores non-existing UCI network interfaces	6644
3.	Failsafe	Failsafe mode now uses SSH instead of telnet access	6663
4.	Firewall	Insert the <code>MARK</code> configuration rule before the <code>redirect</code> rules in the firewall table	5405
5.	IECD	Added RTS-CTS flow control of the serial (when not using <code>tserverd</code> )	6615
6.	IECD	Fix issue in IEC104S to IEC101 in transparent mode, where 104 ASDU CA=65535	
7.	IECD	Fix issue processing IEC101 reset process response	
8.	IECD	Fix issue with DNP3 Gr3 (double bit) to IEC104 single point conversion	6671
9.	IECD	Fixed incorrect cleanup while closing during IEC104S TLS session establishment	6636
10.	IECD	Fixed issues with events not sent from IEC104 slave offline queue after connection is restored	6648
11.	IECD	Fixed issues with processing TI 105 Reset Process command	6640
12.	IECD	IEC104 slave: Fixed incorrect application of clock synchronization command	
13.	IECD	IEC104 to IEC101 conversion: fixed issue with converting QU field of commands from Master (104) to RTU (101)	
14.	IECD	IEC104 to IEC104 conversion: Fix Double command Execute part of Select Execute sequence not passing on QU field of command	6656
15.	Mobile	Add MTU detection for Unitac modules	
16.	Mobile	Ensure MTU does not exceed 1500 bytes on QMI links	6567
17.	Mobile	Ensure Quectel EC25/EG25 modules use GSM format for SMS messages	
18.	Mobile	Fix crash when <code>switch_sim</code> command is executed with no value	
19.	Mobile	Fix interface name and type for Unitac modules on Merlin series	
20.	Mobile	Fix interface name and type for Unitac modules on Merlin series	
21.	Mobile	Fix missing LTE band information on older Unitac firmware	6630
22.	Mobile	Fix performance issues on Sierra Wireless modules (introduced in 25.02.80.000)	6708
23.	Mobile	Prevent <code>+CGEV: NW DETACH</code> trigger warnings in the logs	6616
24.	Mobile	Prevent crash when handling SIMs with invalid ICCID	6635
25.	Mobile	Prevent crash when no SIM slot specified for SIM switch command	
26.	Mobile	va-mobile no longer automatically changes GNSS configuration as this is now done in manufacturing	6659
27.	Monitor	Fix Monitor Keepalive configuration changes taking effect immediately when changed from web UI or Activator	6650
28.	NTP	Improvements to chrony operation for interface state changes	6631

29.	PPP	Fix connection issue when two ppp links have similar UCI name	6654
30.	Roaming Manager	Retry existing connection after routine disconnect when using Roaming Manager feature	
31.	Routing	Enable FRR <code>vtty_enabled</code> option in user interface	6613
32.	SFP	Support <code>ethtool -m</code> option for displaying SFP info	
33.	SNMP	Fix mibwalk error on <code>.1.3.6.1.4.1.2078.3.1.2.4.2</code> when walking VA-MODEM-MIB:: <code>roamingOp*</code> series of values	6618
34.	SSH	Fix SSH login via private and public key.	6425
35.	TACACS	Fix ipv6 address support	6620
36.	Web	Sort web UI drop down headings	5909
37.	Web/ Multiwan	Allow multiwan configuration via web UI when no multiwan config options exist in configuration file	
38.	Web/BGP	Fix BGP network option for IP address/subnet input rather than interface name web: network->bgp->global settings->Network	6619
39.	Web/BGP	Fix BGP network option for IP address/subnet input rather than interface name web: network->bgp->global settings->Network	6619
40.	Web/HTTP Client	Support configuration of Http Client certificate key format web: services->http client->advanced->Certificate Key Format cli: httpclient->httpclient->KeyFormat	5792
41.	Web/IECD	Changed default location of TLS certs to <code>/etc/cert</code>	6643
42.	Web/IECD	Only show IEC104 TLS Common Name and IEC104 TLS Verify Depth options when IEC104 TLS Validate Peer Cert is enabled	6643
43.	Web/IECD	Removed unused <code>iec101_cmd_type_id</code> option from web UI	6627
44.	Web/IECD	Support SCL import file upload for IEC61850 master web: scada->iecd->master protocols->configure IEC61850->Select IEC61850M SCL File for Upload	
45.	Web/IECD	Support upload capability for TLS cert, key and CRL files via web UI	6643
46.	Web/IPsec	Web UI IPSEC configuration improvements	6281
47.	Web/System	Fix firmware flashing error message	6286
48.	Web/VRRP	Add support for configuration of VRRP Group Multicast Source IP web: network->vrrp->vrrp group configuration-> Multicast Source IP cli: vrrp.vrrp_group.mcast_src_ip	4057

### 9.3 25.02.99.000

No.	Module	Short Description	Mantis
1.	CWATCH	Ensure cwatch can handle comma separated ping destinations	
2.	GRE	Fix GRE keepalives	6554
3.	IECD	Added conversion from 4 Modbus 16-bit registers (int64) to iec104 float	

4.	IECD	Added support for conversion of 2 modbus 16-bit registers storing FLOAT32 to IEC104 type 13 float	
5.	IECD	Fetch CRL file using a link from peer certificate	5955
6.	IECD	Fix CSV import issue when parsing bitmap options	6555
7.	IECD	Fix issue in IEC61850 master to DNP3 slave conversion of analog float values	6593
8.	IECD	Fix serial configuration in modbus master	6540
9.	IECD	Fix tx buffer overflow and iecd crash when DNP3 Slave serving large number of points and events (500+)	6609
10.	IECD	Handle multiple sessions, cleaning up in case of errors when fetching CRL file using a link from peer certificate	5955
11.	IECD	Improved IEC61850 control command processing in relation to IEC101 and IEC104 single-double select-execute sequence	
12.	IECD	Improved IEC61850 SCL import and export into UCI file	6581
13.	IECD	Improved show statistics command when multiple RTU protocols are used per point	6580
14.	IECD	Improvements in the VRTU to IEC61850 slave conversion	
15.	IECD	MQTT Slave to MODBUS RTU: send MQTT publish only on value change	6376
16.	IECD	Support configurable IED name and LD name for IEC61850 slave <pre>web: scada-&gt;iecd-&gt;slave protocols-&gt;configure iec61850-&gt;IEC61850 IED Name cli: iecd.port.iec61850_ied_name web: scada-&gt;iecd-&gt;slave protocols-&gt;configure iec61850-&gt;IEC61850 LD Name cli: iecd.port.iec61850_ld_name</pre>	
17.	IECD	Support for Digital Input inversion in the IEC61850 server	
18.	Mobile	Add data-only configuration for Quectel EP06 module	
19.	Mobile	Add display of additional Unitac signal values to <code>vam</code> command and web UI	
20.	Mobile	Added 5G network registration status	
21.	Mobile	Disable the APNs when connection is terminated for Unitac modules	6484
22.	Mobile	Fix for SMS received by Quectel EG25G via IMS in Verizon network	6594
23.	Mobile	Mobile connection no longer dropped when 2 <sup>nd</sup> antenna is disconnected when using Unitac modules	6446
24.	Mobile	Support new option to enable MIMO on Unitac modules (disabled by default). <pre>web: services-&gt;mobile manager-&gt;advanced-&gt;Enable MIMO for Unitac radio Modules cli: mobile.mobile.unitac_mimo_enabled</pre>	6499
25.	Network	Fix dependent interface behaviour when parent WAN interface is using QMI mobile interface	6493
26.	QoS	Fix QoS initialisation	6560
27.	SCEP	Fix intermittent issue where only one SCEP request was sent when multiple SCEP clients were configured	6523

28.	SCEP	Fix loading of SCEP CA certificate	6525
29.	Strongswan	Do not split long PSK into separate lines which would cause PSK to be read incorrectly and Phase1 failure	6537
30.	Syslog	Fix multiwan errors in log when multiwan not configured	6489
31.	System	Prevent download of incorrect firmware family	
32.	TACACS	Fix tab correction for TACACS+ user login via SSH	6527
33.	Terminal Server	Fix failure to recover from bind failure while interface down	6464
34.	TPM	Fix RSA key loading on big endian platforms	
35.	TPM	Improve support for TPM access from multiple processes to avoid TPM being locked by another process	6483
36.	User Limits	Fix Procrustes user limit events	6538
37.	Web	Fix web UI intermittently advising router is running in factconf when in config1	6547
38.	Web/Interfaces	Fix default gateway handling for DHCP protocol	6601
39.	Web/IECD	Fix typo in DNP3 slave protocol option	6578
40.	Web/IECD	Fix web UI issue in IEC61850 slave	
41.	Web/Mobile	Prevent option <code>ifname</code> configuration being added to mobile interfaces when configured via web UI	6501
42.	Web/SNMP	Improvements to web UI SNMP configuration	
43.	WiFi	Fix <code>ifup</code> transmission issue when WiFi is bridged with an Ethernet interface	6514

## 9.4 25.02.80.000

No.	Module	Short Description	Mantis
1.	Ethernet	<code>ifup</code> now preserves VLAN interfaces when configuration has non VLAN and multiple VLANs attached to the same Ethernet interface	6247
2.	Ethernet	Increase frame size limit to accommodate large VLAN packets	6307
3.	Event System	Fix boot success event	5927
4.	GPIO	Merlin4600 digital inputs now default to dry	5992
5.	IECD	Added missing implementation of T0, T1 and T3 timers to address IEC104M link not closing on <code>ifdown</code> <pre>web: scada-&gt;iecd-&gt;master protocols-&gt;configure iec104-&gt;iec104-X cli: iecd.port.iec104m_t0 (def: 5 secs) cli: iecd.port.iec104m_t1 (def: 15 secs) cli: iecd.port.iec104m_t3 (def: 20 secs)</pre>	
6.	IECD	Fix parsing parsing of <code>-casdu switch</code> in IEC104 firewall	6298
7.	IECD	Fixed incorrect parsing of MQTT <code>SUB-ACK</code> packet	6295
8.	IECD	Fixed load errors for custom SCADA firewall rules	6025
9.	IECD	Fixed MQTT hostname resolution	6308
10.	Mobile	Add switch to add switch to data-centric mode for Quectel EC25 and SIMCOM modules	

<b>11.</b>	Mobile	Added PCI display for Unitac modules	6251
<b>12.</b>	Mobile	Ensure that Verizon APN is correct for default/initial bearer	6154
<b>13.</b>	Mobile	Enter airplane mode before attempting to change the default LTE bearer to avoid issues with SIM failover	5991
<b>14.</b>	Mobile	fix <code>chat</code> command failing if previous <code>chat</code> aborted	6210
<b>15.</b>	Mobile	Fix crash when LTE band retrieval for SIMCOM fails	
<b>16.</b>	Mobile	Fix ESN display where leading zero's were being omitted	6345
<b>17.</b>	Mobile	Fix incorrect reporting of RSSI when using Unitac mobile module	6437
<b>18.</b>	Mobile	Fix multiwan to run with default group when no group name specified	
<b>19.</b>	Mobile	Fix to prevent the modification of the Verizon attach bearer	6043
<b>20.</b>	Mobile	Fix <code>va_roaming</code> ignoring <code>Stat=0</code> operators in roaming scan	6184
<b>21.</b>	Mobile	Ignore network provided DNS addresses if option DNS configured	6372
<b>22.</b>	Mobile	Improvements to operator scan: <ul style="list-style-type: none"> <li>• Now commence an operator scan as follows; <code>AT+COPS=2</code> (detach from network); <code>AT+COPS=0;+COPS=?</code> (reattach and commence scan, all in one operation)</li> <li>• <code>AT+COPS=?</code> timeout increased to 190 seconds</li> <li>• automatically retry a failed <code>AT+COPS=?</code> command if it fails within 15 seconds</li> <li>• <code>vam roaming</code> now includes scan duration in seconds</li> </ul>	
<b>23.</b>	Mobile	Incorrect SINR reported for Quectel modules	5951
<b>24.</b>	Mobile	Re-connect to network automatically if <code>AT+CGATT=1</code> fails	
<b>25.</b>	Mobile	VA Mobile roaming diagnostic now shows roaming info for all modems by default <code>cli: vam roaming</code>	
<b>26.</b>	Network	Ensure <code>ifdown</code> kills all <code>ifup</code> processes on the same interface and not just the child processes	
<b>27.</b>	Network	Fix repeated <code>ifup</code> race condition on bridged interfaces	6265
<b>28.</b>	RTUD	Added support for inverting digital inputs after reading from hardware <code>web: scada-&gt;rtud-&gt;advanced-&gt;Invert Inputs</code> <code>cli: rtud.main.invert_inputs (def: 0)</code>	6208
<b>29.</b>	SCEP	Added certificate expiry check during re-rollment	6235
<b>30.</b>	SCEP	Change new cert and key permissions when they are installed at the end of the SCEP process. Also adjust the CRLs directory to allow strongswan write access for runtime CRL downloads.	5908
<b>31.</b>	SCEP	Strongswan is now restarted after SCEP renewal to ensure the peer correctly deletes the existing <code>IKE_SA</code>	6190
<b>32.</b>	SFP	Merlin4600 now supports both 100M and 1000Mbps using SIGMII mode	
<b>33.</b>	SNMP	Fix creation of SNMPv3 traps	5943
<b>34.</b>	SNMP	Fix failing <code>snmpwalk</code> on <code>vaModem MIB</code> when no roaming info available	5922



35.	Strongswan	Allow IPsec tunnels to start when CA certificate download fails and blocking is disabled in <code>scep_cert</code> config	6324
36.	Strongswan	Remove FlexVPN GRE IP addresses on tunnel termination	5924
37.	Strongswan	Fix IKE SA delete being sent with correct message id to ensure IPsec peer does not discard	6246
38.	System	Changed password hash algorithm option value to a ListValue <code>cli: list system.main.passwr_d_hash_algo</code>	5001
39.	System	Fix auditing of DMVPN configuration using option <code>audit_cfg</code>	
40.	System	Fix boot-success script to set altimage to current image to avoid Merlin4400/4600 series incorrectly reverting to altimage	6392
41.	Terminal Server	Increase port limit to 16	6267
42.	Terminal Server	Added support for new option in GW2124P to control serial LED detection using DSR control signal when DTR/DSR signals are being used <code>cli: tserverd.port.led_dsr_detect (def: 0)</code>	
43.	Terminal Server	Auto detect serial mode gpio control settings	5970
44.	Terminal Server	Fix SNMP poll of TSERVER-MIB	6477
45.	Terminal Server	Fixed issue with auto detection of serial port names on GW2028	6313
46.	Web	Improvements to web UI performance and load times	6178
47.	Web/Ethernet	Fix Ethernet adapter interfaces presented in web UI for Merlin4600 series	5986
48.	Web/Ethernet	Remove Ethernet Port map section in web UI for Merlin4400/4600 series. Mapping configured in Ethernet interface view.	5986
49.	Web/Interface	Added <code>mtu</code> configuration option for PPPoEoA and PPPoA ADSL interfaces	5702
50.	Web/OpenVPN	Do not add <code>key_direction</code> option when set to its default value (bidirectional) when OpenVPN configured via web UI	6063
51.	Web/GPIO	Change Web UI digital input mode default to dry mode	6060
52.	Web/IECD	Changed free text fields <code>log_vaevent_on_change</code> , <code>vhmi_on</code> and <code>vhmi_dword</code> to selector on-off	6165
53.	Web/Terminal Server	Added support for TCP Tap Port configuration <code>web: scada-&gt;terminal server-&gt;port-&gt;advanced-&gt;TCP Tap Port</code> <code>cli: tserverd.port.tap_port (def: 0)</code>	6291
54.	Web/VA Event	Add length check in web UI for <code>snmp_auth_pass</code> and <code>snmp_priv_pass</code>	
55.	Web/WiFi	Add WPA Enterprise configuration to web	5963

## 9.5 25.02.14.032

No.	Module	Short Description	Mantis
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1.	Download	Fix interrupted download when va_vars incorrectly states image not found. Download now correctly continues rather than starting again.	6354
2.	Mobile	Fix duplicated ICCID when using WP76xx-AU module on Merlin4600 series.	6352
3.	TACACS	Fix TACACS behaviour when router is configured to only authorise authentication for SSH access (or other configured PAM services). Previously all authentication requests were sent to TACACS server instead of SSH only.	6050
4.	TPM	Fix HTTPS incoming connection activation with key stored in TPM on Merlin4600 series.	6367
5.	TPM	Flush transient objects from TPM RAM upon session open on Merlin4600 series.	

## 9.6 25.02.14.027

No.	Module	Short Description	Mantis
1.	BFD	BFD rate changes now working as expected when multihop enabled	6255
2.	BFD	Fix BFD multiplier configuration	6242
3.	Download	Fix size calculation when image download exceeds 10M	6033
4.	Download	Increase time limit for image download to 5 hours (previously 2 hours)	6266
5.	HTTP Client	Set download minimum rate limit to 1kBps	6266
6.	PPPoE	ifup <ifname> now correctly re-establishes when <ifname> is a PPPoE link and is already up	6241
7.	Terminal Server	Fix incorrect translation of <code>option serialPortName</code>	
8.	Terminal Server	Fix TOS value support using <code>option tos_value</code>	

## 9.7 25.02.14.016

No.	Module	Short Description	Mantis
1.	GPIO	Merlin4600 series digital input values changed to match GW2020 series for SCADA operation compatibility  0 = input not detected/open/low 1 = input detected/closed/high	6197

## 9.8 25.02.14.013

No.	Module	Short Description	Mantis
1.	Ethernet	Fix default MAC address for Merlin4600 Ethernet ports	5740
2.	GPIO	Merlin series digital inputs now default to dry	5992
3.	IECD	Fix data point handling where previously only the last data point was forwarded the SCADA master when using HART protocol	6046

4.	IECD	Fix IECD CSV files data point import.	5975
5.	IECD	Fix issue in handling periodic GI and Clock Sync timeouts in IEC101 Master	
6.	IECD	Support for CP24 timestamp format messages in IEC101 to 104 conversion	5980
7.	Mobile	Fix crash when LTE band retrieval for SIMCom fails	
8.	SFP	Fix interface failing to restart after network package restart	6079
9.	Strongswan	Decrease OCSP/CRL fetch timeout to 3 seconds from 10 seconds to avoid resource issues for multiple tunnels using CRL	5954
10.	Strongswan	Exclude password field from re-enrollment requests	5993
11.	Strongswan	Handle DER or PEM format for SECP fingerprint	5879
12.	Strongswan	In case multiple root CA's downloaded, verify fingerprint of the root	
13.	Strongswan	Send DELETE message from IKEv2 delete task for initiator. Previously when initiator, the router terminated the IKE_SA without sending a delete which led to problems when connected against another VA router in responder role.	6052
14.	System	Backup, check and fix uboot environment in case of corruption on models using Sierra Wireless WP7600 series processor (GW1150, Merlin4600). Fixes rare situation where machtype could revert to incorrect model.	6031
15.	Terminal Server	Fix loopback test for serial ports	5972
16.	Web/IPsec	Support configuration for FlexVPN via web UI web: services->ipsec->connection->Route Interface cli: strongswan.connection.route_interface web: services->ipsec->connection->FlexVPN Prefixes cli: strongswan.connection.flexvpn_prefixes	6000
17.	Web/IPsec	Support configuration of local cert via web UI web: services->ipsec->scep certificate->Local Certificate cli: strongswan.connection.localcert	6000
18.	Web/RTUD	Fix defaults for Web UI fields to allow web config to save the page	6075
19.	Web/RTUD	RTUD auto generate config option now defaults to off in both web UI and router web: scada->rtud->main settings->Auto generate configuration cli: rtud.rtud.point_auto_config_on	6075
20.	Web/SCEP	Support configuration of SCEP fingerprint and CA Name via web UI web: services->ipsec->scep certificate->CA Fingerprint cli: strongswan.scep_cert->fingerprint web: services->ipsec->scep certificate->CA Name cli: strongswan.scep_cert->ca_name	6001
21.	Web/Terminal Server	Support configuration of serial port name via the web UI web: scada->terminal server cli: tserverd.port.serialPortName	5424

## 9.9 25.02.14.002

No.	Module	Short Description	Mantis
1.	IECD	Fix IEC MIB walk	5920
2.	IOSRVD	Fix for option auto_detect behaviour to not remove undetected devices from iosrvd config file	5522
3.	Mobile	Fix ICCID collection for second SIM on Sierra Wireless and Quectel EM06 modules. Previously showing same ICCID for both SIMs	5946
4.	Network	Fix static default route configuration using target 'default' and netmask 0.0.0.0	5942