AirLink OS 3.0

RELEASE NOTES

About AirLink OS 3.0

This release of AirLink OS 3.0 is for the AirLink XR90 and XR80. These release notes describe new features, bug fixes and known issues that apply to this release.

Warning: *AirLink OS 3.0 includes a bootloader update for security purposes. Because of this update,* ***downgrading from AirLink OS 3.0 to version 2.1 is not supported****.*

Note: Starting with AirLink OS 3.0, Vehicle Telemetry is disabled by default. For customers using Vehicle Telemetry features, upgrading from AirLink OS 2.1 to 3.0 does not automatically disable Vehicle Telemetry unless a factory reset is performed. Similarly, after upgrading to AirLink OS 3.0, Advanced Mobility Reporting (AMR) will continue to work as before, unless a factory reset was performed, in which case, Vehicle Telemetry must be re-enabled in order for AMR data to continue to be sent from the router.

New Features

Radio Module Firmware

The following new or updated radio module firmware applies to this release:

HL7800:

- 4.6.9.4 (new factory models only)
- 4.4.14.0 (existing units)

EM9190:

- Telstra: 03.04.03.00

EM74x1

- Verizon: 01.14.07.00
- AT&T, T-Mobile, FirstNet, Sierra, Generic: 01.14.03.00

EM7690

- Telstra: 03.04.03.00

VPN

Added VPN features, including traffic exemption for IPsec tunnels (based on IP addresses), using custom external IP pools in Host-to-LAN mode, and using Multi-WAN policies (roaming, signal, SSID and speed rules) for a VPN tunnel.

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Wi-Fi	
	Added improvements to Wi-Fi, including: • Dynamic Frequency Selection (DFS) support for XR80, increasing the number of available 5 GHz channels. • Added the capability to disable the router Wi-Fi AP when the router Wi-Fi Client connects to a depot Wi-Fi AP.
Location and Vehicle Telemetry	
	See Note on page 1.
	Added enhancements and improvements to Vehicle Telemetry, including the ability to trigger events based on monitored inputs, adaptive location reporting interval (based on vehicle speed and turning), and refactoring GNSS code.
Cellular	
	Added Auto SIM failover.
	Moved LPWA interface status information to the end of the WAN interfaces list on the AirLink OS dashboard. Renamed “LPWA” to “LPWA - Out-of-Band Management”.
Networking	
	AirLink OS now shows a fixed IP assignment as a “device” under Networking > Zones Settings > Device IP / Network.
	Added a Source Interface selector for traceroute.
	Enhanced Port Forwarding configuration by removing broadcast addresses and local host addresses from list of possible Port Forwarding targets.
AirLink OS	
	Under Networking > Firewall, the Device Defined Firewall Rules now appear above the System Rules. New Help text notifies you that changing system rules could make the device unreachable.
	Added a troubleshooting package option. Clicking a button in the UI generates a file for download containing device and status information.
	Added beta version of the REST API, with documentation at source.sierrawireless.com/airlinkos. To participate in this beta program, please contact Sierra Wireless.
	Added beta version of lightweight container application framework, including custom configuration files and container log viewing. To engage with this beta program, please contact Sierra Wireless.
Hardware	
	Added monitoring and configuration support for GPIO analog input and digital input.
	Added support for 5G cartridges as an add-on accessory. See also Known Issues on page 5.

Bug Fixes

Networking and Connectivity	
	Resolved an issue where the Idle Traffic threshold under Network Watchdog > Monitoring Rules was high enough that interfaces could restart while still carrying active traffic.

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XR90: Resolved an issue where, under Cellular Configuration, the Preferred Technology setting “5G Only” was configurable even though it was not supported by the radio module.
Resolved an issue where the actual APN IN USE was not displayed.
Resolved an issue where multiple GENERIC carriers were available in the SELECT NETWORK OPERATOR list after setting NETWORK OPERATOR SWITCHING to Manual.
Resolved an issue where logs were flooded with messages when LPWA was unable to read the configured APN.
Resolved an issue where WAN Policy Connectivity states were not updated after link validation.
Resolved an issue where the UI reported incorrect RSSI info for NR5G cellular.
Resolved an issue where the device could not detect an LPWA IMSI change after disconnecting from and reconnecting to the network.
Resolved an issue where during configuration changes to multi-WAN, IPv6 routing rule did not apply an IPv6 multi-WAN policy with a destination FQDN specified, causing traffic to be routed to an IPv4 interface.
Resolved an issue where some policy-based rules were not properly applied after making configuration changes to an existing policy without reboot.
XR90: Resolved an issue where throughput on the XP cartridge port dropped to 0 when having cellular throughput 1G or higher.
XR90: Resolved an issue where the radio module adapter status read “No Service” (with the cellular network LED flashing red), when the Cellular interface was active.
Resolved an issue where the Cellular interface was not restarting after a change to the APN.
Wi-Fi
XR80: Resolved an issue where the router would not connect to an access point after failing to connect to another access point.
Resolved an issue where, after upgrading to AirLink OS 2.0 from an earlier release, it may not be possible to configure the Wi-Fi B 5GHz interface.
Resolved an issue that existed in dual Access Point and Client mode where the XR Wi-Fi Client interface can restart unnecessarily after losing connection to the remote Access Point.
XR80: Resolved an issue where the router did not connect to a remote AP configured to use WPA2/3 Transition mode or WPA3 as its authentication type.
XR80: Resolved an issue where the Wi-Fi 5Ghz Client was frequently disconnecting and reconnecting to a remote AP.
XR80: Resolved an issue where connection to Wi-Fi was lost after applying a template from a different XR80 after factory reset.
XR80: Resolved an issue where, with an empty password and invalid configuration for 5GHz Wi-Fi AP, the interface state went to “Broadcasting” after client attempted to connect.
Resolved an issue where the status of a connected Wi-Fi client was not updated, and AirLink OS displayed the incorrect number of connected clients.
VPN
Resolved an issue where 6-in-4 tunnel could crash. It is now possible to send IPv4 traffic over an IPv6 tunnel.

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AirLink OS
Resolved an issue where a boot failure could occur due to race conditions and could result in the router reverting to its backup firmware image.
Resolved an issue where validation errors could arise when resetting the XR90 to a custom template (for instance, when the template contains settings for Multi-WAN policies).
Resolved an issue where local UI log-in was disabled when authentication servers (RADIUS/ TACACS+/LDAP) were unreachable.
Resolved an issue where cellular radio temperature was reported as “Unknown”.
Removed “create” and “delete” options on MCU and Wi-Fi and WAN > General edit pages.
Resolved an issue where entering a value of 0 converted the corresponding units to the smallest scale available, instead of the default units/scale.
Resolved an issue where the Radio Module Firmware Management table did not correctly display which firmware was running on each cellular interface.
Resolved an issue where certain UI buttons were not a consistent size.
Resolved an issue where the average CPU load increased and remained beyond “Warning” status due to deadlock from multiple tasks requesting the same resource.
Resolved an issue where RAM Usage increased to 90% or more over a period of time as shown in the Memory & Storage status.
Resolved an issue where the UI search tool generated “clickable” results for hidden UI items.
Resolved an issue where radio-related Cellular Interface configuration items could not be selected in Template mode.
AirVantage
Resolved an issue where, after a “Network Detach” operation initiated via ALMS Diagnostics, the HL7800 LPWA radio could not recover a Network attachment.
Security
Resolved an issue where X-XSS-Protection and X-Content-Type-Options headers were missing from the router’s internal Web server.
Vehicle Telemetry/Reporting
Resolved an issue where AirLink OS reported the same timestamp when reporting unclean shutdown (atp.shuttime=1).
Resolved an issue where Vehicle Telemetry did not collect or report atp.gpi (GPIO input state).
Resolved an issue where Driver Behavior incident data points in AirLink OS did match data points in the AirLink Telemetry Protocol specification.
Resolved an issue where XR routers reported the wrong value for “Gateway startup event” (atp.strt).

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Known Issues

Wi-Fi
The XR series router in 2.4GHz (802.11 b/g/n/ax) Client mode cannot connect to a Cisco 9117AX remote access point.
Windows PCs using Cisco AnyConnect Client with Network Access Manager for Wi-Fi authentication will fail to connect to the XR90 in Access Point mode when PMF (enabled in any of the WPA3 modes) is enabled on the XR90. (See cisco.com/quickview/bug/CSCvq05530.) To resolve, use WPA2 and disable PMF.
Networking and Connectivity
Port forwarding to the router's localhost for remote access is not configurable in AirLink OS 3.0. Devices that upgrade to this release will retain the configuration; however if the device is factory reset or updates are made to the port forwarding configuration, this rule cannot be reconfigured. It is possible to restore the rule via a template update as a workaround.
In cases when the LPWA WAN interface is the only WAN interface for AirVantage traffic, and it loses connection due to network instability, OOBM (AirVantage) traffic failure may persist. To restore the connection, a device restart may be needed.
When a WAN link goes down, link validation correctly applies to the link when the link re-connects. However, link validation is also done for other links that did not go down. This causes some unnecessary policy route changes because links are temporarily marked as "not validated."
When creating a bandwidth profile under Quality of Service (QoS) > Bandwidth Policies, the UI converts Download and Upload settings from kilobytes and kilobytes/sec to megabytes and megabytes/sec. These conversions are inexact: 40,000 KB is converted to 39.06 MB, for example.
IPv6 DNS Propagate fails for the Ethernet WAN interface. Manually configured DNSv6 servers are not propagated from WAN to HOST-PC on the LAN.
XR90: Port forwarding only works on the current active WAN interface. For example, when port forwarding is enabled on the active Cellular WAN interface, if the active WAN interface switches to Wi-Fi, port forwarding will only work on the Wi-Fi Interface. If the active WAN switches back to the Cellular WAN interface, port forwarding will begin to work on it again.
Hardware Interfaces
An intermittent issue exists where an XP cartridge Ethernet port may drop its connection, and must be restarted to reconnect. For version 3.0, Sierra Wireless recommends using the Ethernet ports on the main chassis of the router.
XR80 LTE CAT-20: After adding or reconnecting an XP cartridge to the router, the router must be reset to factory default settings.
VPN
IPv4 IPsec VPN (connected over cellular) does not work after IPv6 Clat is enabled.

When using openssl to generate an ECDSA key file, use the following command:
`openssl ecparam -genkey -name prime256v1 -noout >[key_file_name]`
instead of:
`openssl ecparam -genkey -name prime256v1 -out [key_file_name]`

With WAN interface set as "default", when WAN interface changes from Cellular to Wi-Fi (or vice versa), the traffic over IPSec VPN Non-FIPS, L2L tunnel drops and never recovers. To avoid this behavior, select a WAN interface from the list when configuring the VPN.

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	Changing the IKE and ESP re-key timers to non-default values incorrectly causes many CHILD_SA associations to be created. Please leave these settings at default.
	Host-to-LAN VPN cannot be configured with a strongSwan-negotiated remote subnet. To configure a Host-to-LAN VPN, you must manually enter the remote subnet.
AirLink OS	
	A template containing a SIM configuration cannot be used to modify a SIM configuration on another XR90 (that is, when a SIM configuration is already present on the target XR90). A template containing a SIM configuration can only be used to create a new configuration on another XR90 (that is, no SIM configuration has been applied to the target device yet). To use a template containing a SIM configuration, first delete the SIM configuration from the target XR90.
	A UI glitch can occur after selecting a WAN interface in the USER-DEFINED POLICIES section of the Multi-WAN configuration menu with a narrow window (approximately 1300 px). The WAN interface menu can persist as a pop-up window. To get rid of the pop-up, click elsewhere on the page.

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