Testing AirLink Routers Before Deployment

APPLICATION NOTE

This application note, intended for AirLink customers using ALEOS, MGOS and Airlink OS devices (“AirLink routers”), describes best practices for testing devices prior to deployment. “Deployment” can refer to an AirLink router’s initial installation and configuration, or applying a new system firmware to an existing fleet of AirLink routers.

Background

Sierra Wireless AirLink® routers are complex devices that interact with many other devices and networks. It is good practice to integrate and test AirLink routers with the subsystems that they interact with to ensure that the AirLink router and other subsystems behave as expected. This application note details best practices relating to integrating and testing AirLink routers before deploying them.

Details

AirLink routers employ many virtual, logical and physical communication interfaces. It is important to integrate and test the interfaces that will be in use prior to deploying AirLink routers in the field. AirLink routers are often integrated with other complex computer systems and are often deployed in remote or difficult-to-access locations where unexpected behaviors can be very costly to rectify.

Testing physical interfaces such as RJ45, DB9 and Molex connectors is relatively straightforward from a mechanical and electrical point of view. What is much more complex are the interactions that occur over a radio link such as cellular, Wi-Fi or Bluetooth, where debugging is often more challenging. Furthermore, with IP-based interactions, the integration, testing and debugging of myriad Internet protocols makes interoperability testing challenging for many reasons. Routing protocols may be particularly complex, and a good grasp of IP networking is required.

Bench Testing

We recommend that our customers and partners integrate, test and run pilots to verify that the AirLink router is operating as expected in what can be complex networking environments. We recommend that a test lab or test bench be set up in a controlled environment in which the AirLink router can interact with the other subsystems in a controlled and repeatable fashion.

Over the Air Updates

Sierra Wireless releases new firmware for AirLink devices periodically. This firmware may contain critical updates and/or new features. We recommend that all customers keep their AirLink router firmware up to date. The latest firmware is available for download on the Source[1]. Firmware can also be updated over the air using ALMS (ALEOS and AirLink OS device) or AM/AMM (MG90).

Sierra Wireless performs rigorous testing and regression testing before releasing new AirLink firmware, but given the inherent complexity in which AirLink routers operate, it is possible that, through a protocol update or slight timing change, unintended behavior may occur.

If the AirLink router is part of a field deployment, it is imperative that you or your integrator perform functional testing on a small number of routers before deploying a fleet of AirLink routers to the field. If the AirLink router firmware is being updated, ensure that the upgraded firmware meets your functional and performance expectations on a limited set of devices before upgrading a larger field population. If adequate testing is not performed, then it's possible that multiple very expensive "truck rolls" may be required to physically access the AirLink router to change a parameter or make a configuration change.

Conclusion

Sierra Wireless recommends that before deploying any AirLink router that the AirLink router be upgraded to the latest firmware and tested in a lab or "bench" operating environment. All applications should be tested to confirm proper and expected operation.

If your deployment includes different AirLink router models, ensure that you upgrade and test at least one of each model.

If your fleet consists of hundreds or thousands of devices, the best way to upgrade is to segment these devices into groups so that you can manage the upgrade process more easily.

1. MG90 firmware is available here. ALEOS firmware is available for the following devices here: MP70, RV50, RV55, LX40 and LX60, GX450, ES450.

Document History

Revision number	Release date	Changes
1	September 2021	First release
2	November 2021	Fixed typo

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