



XR Solution Technical Certification Training

Session 3:

Training | Knowledge Check | Lab exercise

This Workbook

Use this workbook to follow along with the technical training and take notes. This workbook only applies to session 3 of the XRSA certification.

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AirLink Services for XR Series

Details of All AirLink Services for XR Series

| Router Models | XR80 (All) | XR90 |
|-----------------------------------|-------------------------|------------------------|
| Default Warranty (1 Year) | Yes | Yes |
| Service Offering | AirLink Complete | AirLink Premium |
| Management Platform (ALMS) | Yes* | Yes* |
| Access to SW Support | Yes* | Yes* |
| ALMS Out-of-Band Management | Yes* | Yes* |
| Advanced Mobility Reporting | Optional Add-on* | Yes* |
| Advanced Replacement | No | Yes* |
| Extended Warranty (up to 5 Years) | Yes* | Yes* |

* Requires registration with a valid subscription

Routers come with initial year access to AirLink Premium or Complete included with purchase price but require registration with a valid subscription in order to access the benefits.

Strictly speaking, Default Warranty is not part of the AirLink Services offering but is included here for completeness.

Note that while Advanced Mobility Reporting is available separately in the price list for XR80, Advanced Replacement is not currently available for any models other than the XR90.

Registration and Subscription are Required



Most features come with AirLink Premium or AirLink Complete and require registration

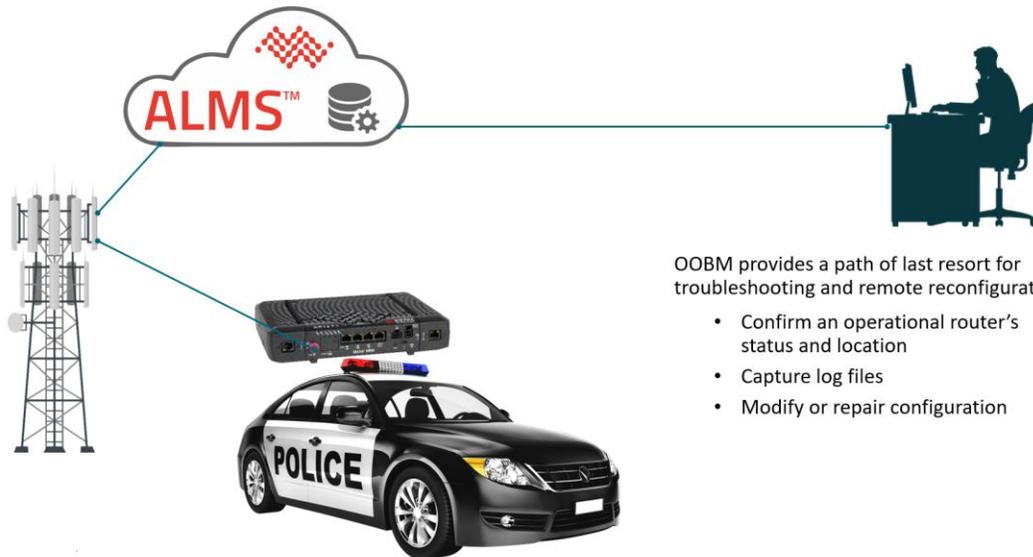
Some features absolutely require access to ALMS

Devices can be registered anytime within the first year but the 1-year coverage is based on a fixed clock

It is expected that routers will be registered when purchased and allowances have been made for a reasonable amount of processing time within distribution channels. Customers who register devices much later than expected should be prepared to provide proof of purchase date if they have less than the 12 months of access to their initial subscription.

Several of the features are reliant on the router being registered in a suitable ALMS account in order to be activated or accessible and with an active subscription to continue to function.

ALMS Out-of-Band Management



OOBM provides a path of last resort for troubleshooting and remote reconfiguration

- Confirm an operational router's status and location
- Capture log files
- Modify or repair configuration

As previously discussed, out-of-band management is restricted to management traffic, and due to the need for strong security the management platform is restricted to AirLink Management Service which is capable of supporting the required Lightweight Machine to Machine (LWM2M) high security module.

The management platform provides a set of restful APIs that allow customers to programmatically extract the router operational data from ALMS, but the data is only capable of being sent to ALMS itself directly.

All management traffic being sent over the LPWA connection is covered by the AirLink Services subscription, and customers concerned about data usage can implement a routing policy that restricts any management traffic to LPWA only or can modify the trigger events to reduce the amount of data being sent. The first option is preferable to the second, because the data being sent as it is provides greater detail and granularity for events and reporting.

If a customer is adamant about not having any data going to the cloud in any way, even with the highest available security both in transport and account access, they can elect to disable the LPWA module. This coupled with all private/isolated WAN networks will effectively isolate or airgap their operation. This is strongly discouraged as Sierra Wireless has done our utmost to ensure data security in both transport and storage, and feels there is significant value in both the management platform and the out-of-band access to it.

Advanced Mobility Reporting



Coverage

Coverage Map (Beta)
Coverage Trails (Beta)
Link Utilization (Beta)



Driver

Driver Behavior
Seat Belt
Trip Replay



Vehicle

Engine Fault
Summary
Odometer Report
Vehicle Report
Vehicle Utilization



Geographic

Trips Report
Zone Summary

Basic ALMS Skills for XR Series

Basic ALMS Skills



Register routers



Create and deploy templates



Upgrade router software



Set passwords and unique values



Use a workflow



Synchronize a router



Run a report



View a router configuration



Monitor operations



Retrieve a router log file



Read the timeline



Factory Reset

The basic skills listed include using features within the management platform during all facets of a product lifecycle, from acquisition through retirement. Often these features are used by different groups within a customer environment and this list is not intended to be exhaustive, but rather foundational as the name implies.

There are many other things that the management platform supports which are documented and for which training may already exist or may be planned. Participants are encouraged to consider this list and identify any gaps in their own skillset that should be considered topics for additional training.

In most cases, each of the skills listed can be accomplished in more than one way but anyone selling and representing the XR Series solution set should be comfortable with both doing each of these operations and also demonstrating them to customers and end-users.

Basic Skills Reinforcement

Take the **Basic Device Management with ALMS** course. Most of these basic skills have not changed at all for XR Series. Some, like registration, have had very small changes.

There are additional courses available for more advanced operations also,

Perform Operations on a Router or a Fleet

- One router at a time on Device Monitor page
- A large number of routers on the Systems Monitor page

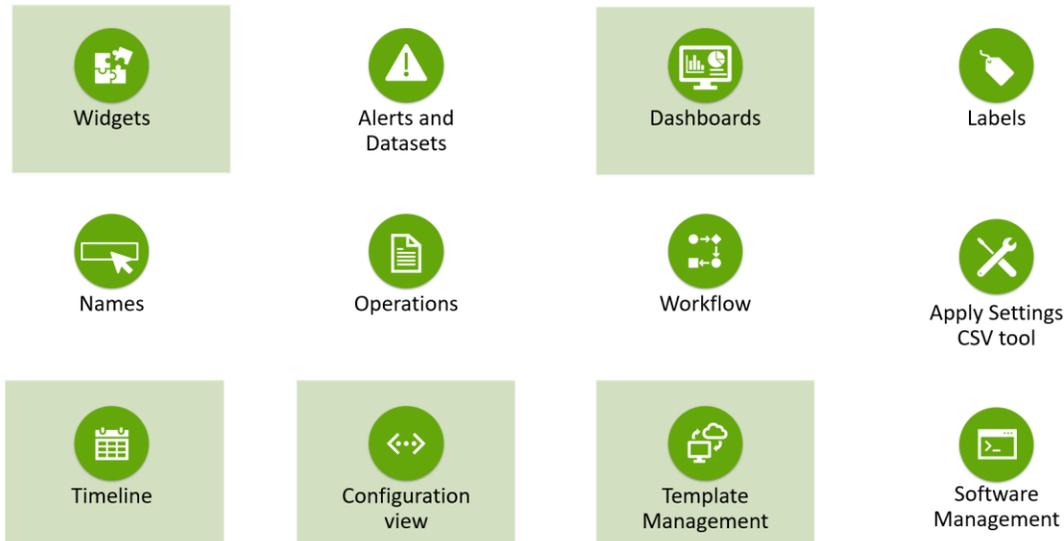
These operations include:

- Synchronize
- Apply template
- Reboot
- Factory reset
- Apply workflow
- Change labels
- Upgrade firmware

In some instances, a user may only want to make a change to a single router at a time as part of a test or remediation or new project requirements phase. At other times, the power of the ALMS management platform can be leverage for larger group or whole-fleet configuration or software changes.

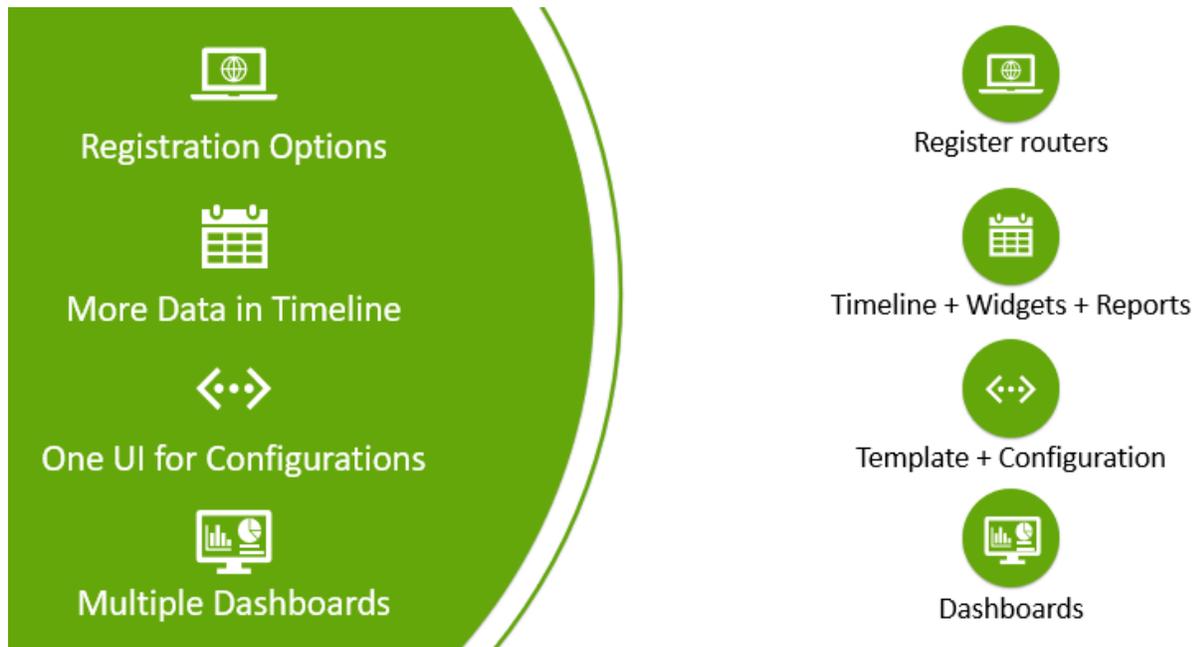
You should be familiar with doing these operations in either of those circumstances, and preferably also be aware of the tools for monitoring those operations across the fleet, using tools like Labels for subdividing the fleet-wide operations into managed groups, and scheduling operations.

ALMS Toolkit



Many things in ALMS work exactly as they always have, but there have been some modifications to support the new XR Series routers and the new requirements they represent. The highlighted items represent tools within ALMS that have undergone some change. We will discuss these items in some detail later on.

Changes in ALMS for AirLink OS and XR



We have already discussed the changes to registration, such as the change from IMEI number to the randomized Reg Code and the new ability for partners to register routers on behalf of their customers, whether they have a partnership already established or not.

The main change to the Timeline is that there is more data, and more frequent communication overall. This accomplished a few things that should be noted:

- All communication is based on trigger events, and they are configurable by an experienced user
- All communication is sent securely via LWM2M, which is a session-based protocol which allow ALMS an opportunity to respond back with directions for configuration or software changes
- There is still a heartbeat as a scheduled connection time in case nothing has been sent for a long time, but most routers will never resort to the heartbeat timing
- Since data flows so much more quickly, there is much richer and detailed data available for troubleshooting



How the Timeline is Different



How the Timeline is Different



Data streams almost instantaneously



More data means more precision for diagnostics and better reporting

Everything happens more quickly

As mentioned previously, the Timeline has more data in it. That statement has far-reaching implications. The Timeline is a raw tool for seeing how data flows from the router to the management platform and how the management platform sends operational requests to the router. But the implications go much deeper.

The data that flows does not reside only in the timeline, but is used to create data sets for widgets and update all the information in the Configuration View. The presence of rich data combined with the responsiveness of requests from the management platform means that reconfiguration, synchronization, software updates and confirmation of all operations happens much more rapidly.

Additional Skills for Partners



Help customers set up a new ALMS account



Register routers for customers



Transfer routers for trials

Things Partners need to understand:



ALMS account changes and migration plan



Partnerships in ALMS

Customers may face some challenges around creating new ALMS accounts and the need for unique emails addresses, and the timeline for migrating legacy accounts to single combined accounts if they



actually want that experience. One of the reasons why you have gone through that process hands-on is to help you to understand it so you are capable of guiding your customers through the same process.

The new options for registering routers more seamlessly is part of our effort to ensure that all customers benefit from the full integrated solution set that accompanies the XR Series routers. Many customers have not made use of ALMS in the past, and it is our hope that an increasing number choose to do so.

Guiding potential or existing customers through trials or demos is another part of the process, and it is different than previous generations because of the care and handling required for the XR Series' OOBM subscription.



Deleting an operational XR Series router from a new ALMS account will cause issues with the LPWA SIM that will require the device being sent back to Sierra Wireless for RMA processing. Transferring routers between accounts is an important part of both giving potential customers the full integrated experience, but also properly managing the routers themselves.

Partnerships are required between ALMS accounts for transferring routers; this will come to bear with working with demo routers for trials and will also play a part in corporate acquisitions and mergers, so it is an important thing to understand. If your customer creates their new ALMS account using your new signup link, the required partnership will already be in place to support transferring routers. If you do not have the new signup link in your ALMS Reseller account, you can either make use of the connectivity services sales agreement or you can have your customer submit a request to be linked to your account.



ALMS account partnership requests must be originated by the end customer. A partner may submit the request if they attach an email thread where the end user either requests that the partnership be created or agrees to submitting the request. A suitable user profile would still need to be added to the customer account if they want the partner to be able to view and/or support the routers in the account.



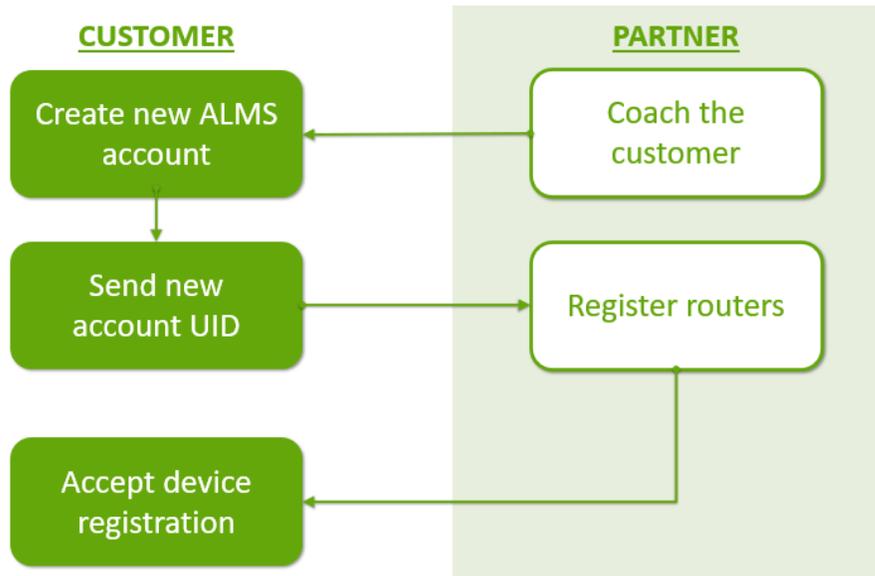
XR Series routers being sent back for RMA work will also make use of the account transfer process.

Three Ways to Register

The following slides outline the three different workflows for registering XR Series or any other current AirLink routers for AirLink Complete or AirLink Premium (except MG90).

Entire process is documented on the [Source](#).

1) Generic link with no partnership

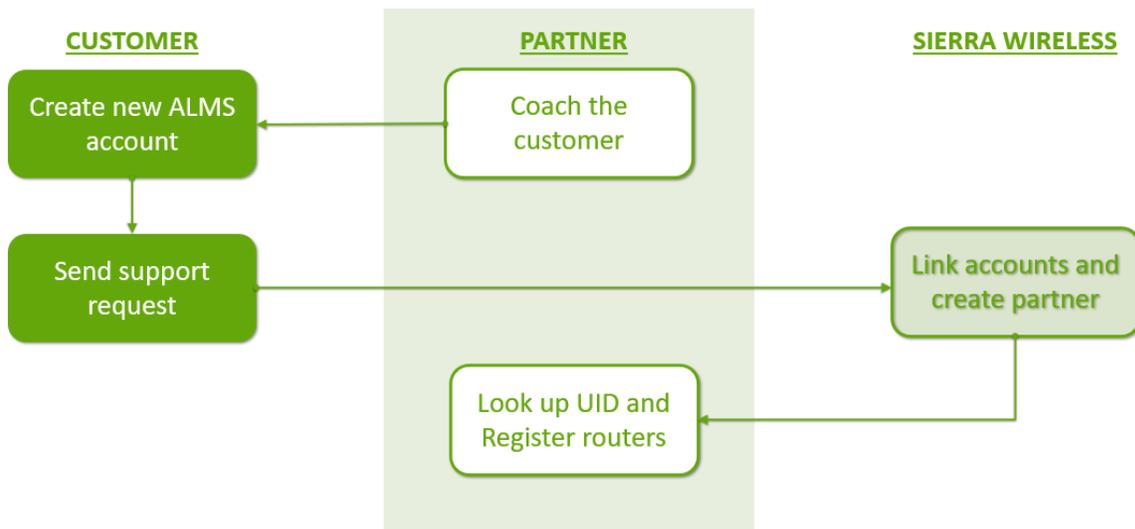


In this case, the customer account administrator would receive a notification that there is a request to register routers in their account. Within 7 days the administrator must allow the request or it will timeout and must be re-initiated by the partner.

When allowing the registration, the customer administrator will have the option to make the limited partnership permanent, which will allow the partner to register future routers without requiring any customer acceptance.

The partnership that is created by the customer accepting the transfer and allowing the permanent link is more limited than the partnership created using the signup link, and would not in itself support transferring routers between accounts.

2) Generic link with a partnership

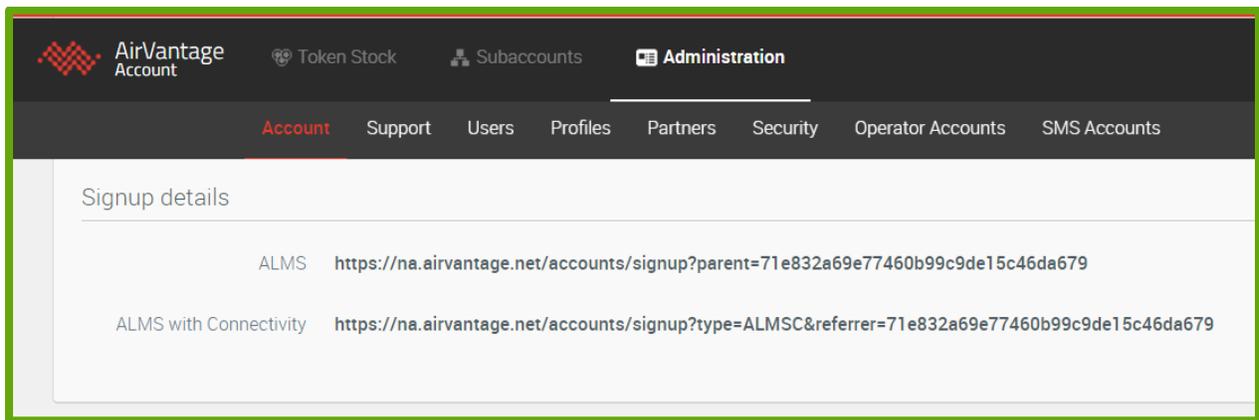
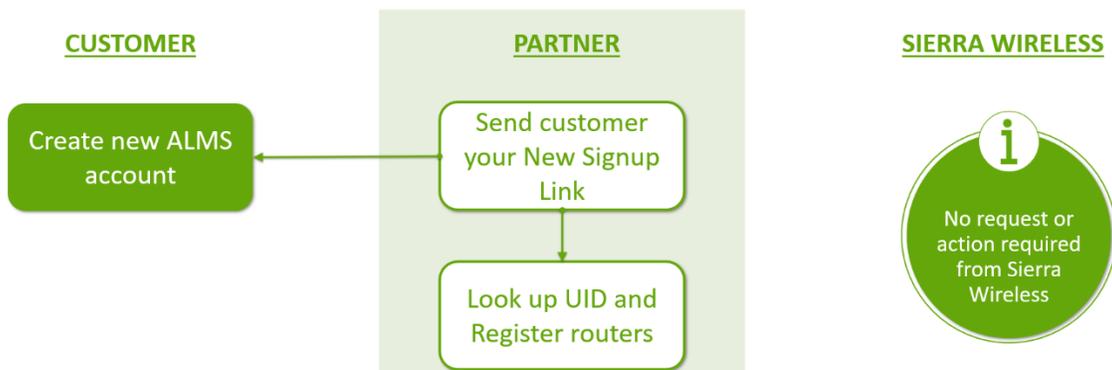


If the customer uses the generic link to create their new ALMS account and requests that a partnership be created with their reseller, that reseller will be able to register routers for that customer in the future and would also support transferring routers if necessary.

In the past there was a 1:1 relationship between partners and subaccounts, but customers may purchase from more than one reseller over time and so the partnership that is created is not exclusive.

NOTE ALMS account partnership requests must be originated by the end customer. A partner may submit the request if they attach an email thread where the end user either requests that the partnership be created or agrees to submitting the request. A suitable user profile would still need to be added to the customer account if they want the partner to be able to view and/or support the routers in the account.

3) ALMS with Connectivity signup link (*Current at time of writing but not permanent*)



Using the ALMS with Connectivity signup link in your ALMS Reseller account will have the customer account partnership already in place and will require the least follow-up work.

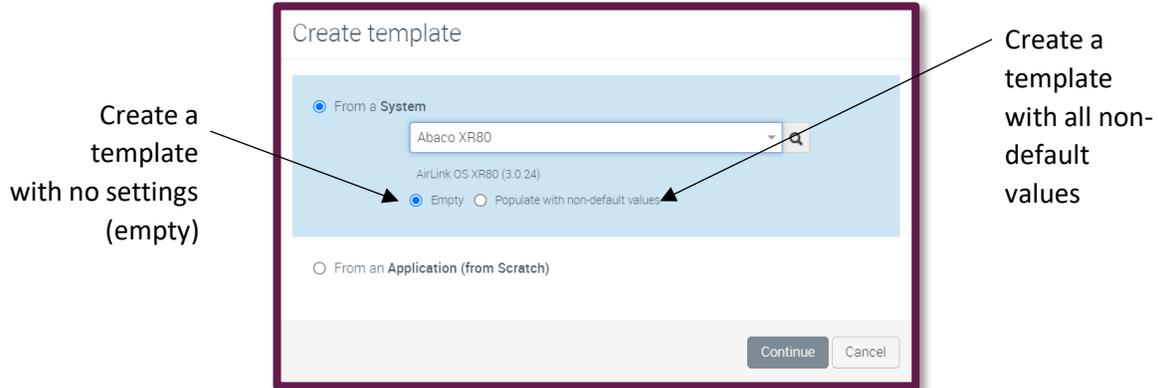
In this case, the partner would be able to use the Change Company feature to look up the UID for the customer account on their own and would not require any request to the customer. The UID is available on the Administration panel, but it is also part of the URL for the customer account.

NOTE No request or action is required from Sierra Wireless. A suitable user profile would still need to be added to the customer account if they want the partner to be able to view and/or support the routers in the account.



Working with Templates in ALMS

Two Ways to Work with Templates

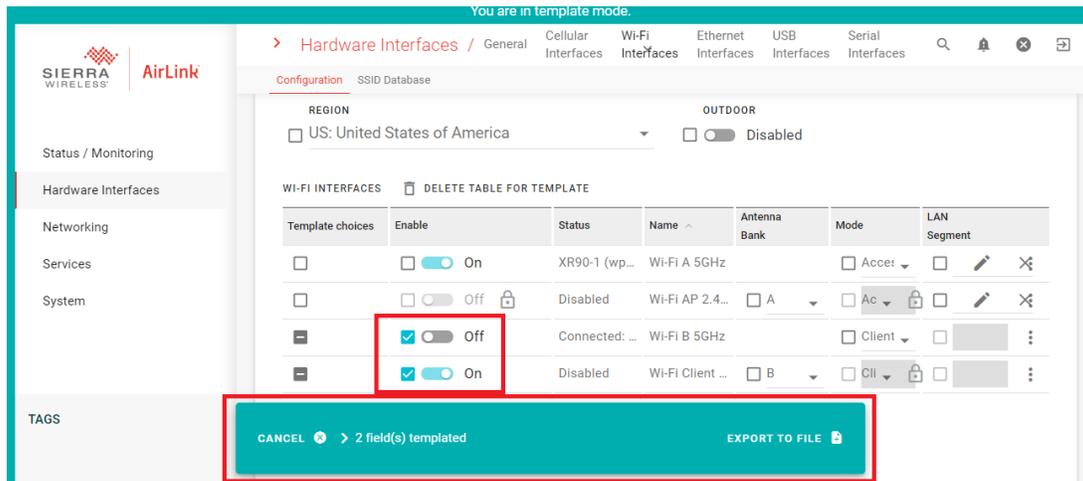


Navigate to Configure > Templates and click the + icon to create a new template, or select an existing template to edit it.

You must have a compatible router in your ALMS account

This is slightly different behavior than with ALEOS routers

Template Mode



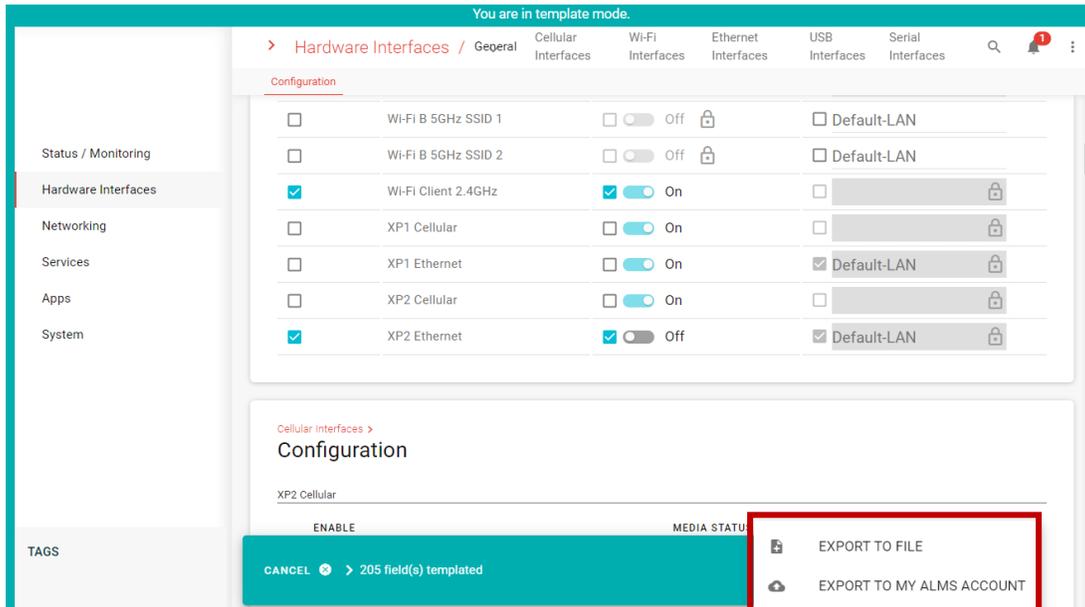
Template mode in AirLink OS is clearly indicated by bright blue frame and bar

Changes are not applied to the system while you are creating the template



Template mode through ALMS looks identical to template mode working directly on an AirLink OS router.

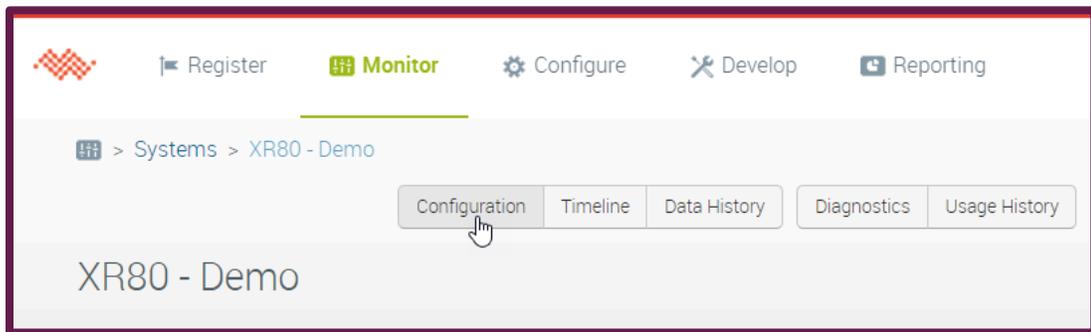
Template Export



You have the options to **Export to File** or Export to **My ALMS Account**.

Access Template Creation Through ALMS Configuration

1. From the selected router's **Monitor Device** page, click the **Configuration** button.

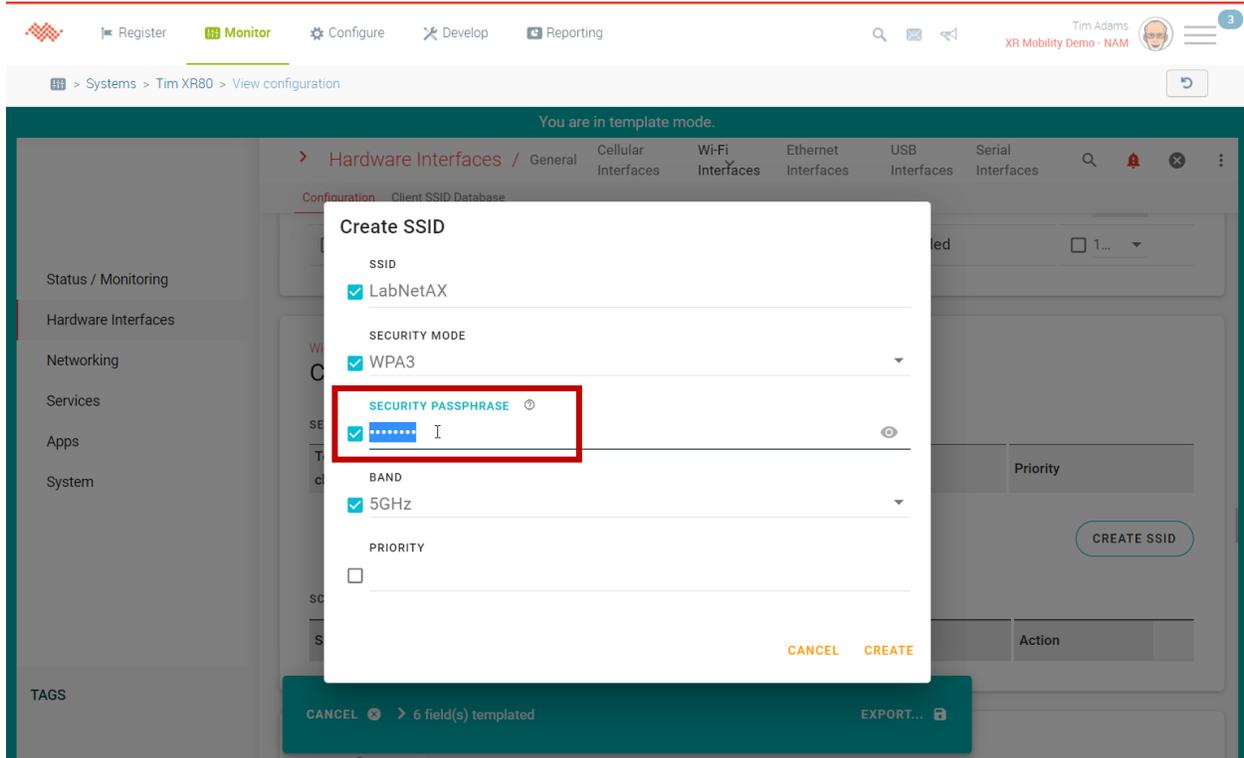


2. The AirLink OS UI appears in the ALMS session.
3. Click the **Template** icon in the top right corner just as you would locally.



You will have the option to export to your ALMS account when working through ALMS Configuration.

Including Passwords in Templates



Passwords can be included within ALMS templates but that requires entering all passwords during the template creation process. AirLink OS has a method for setting passwords, but not for retrieving previously-set passwords.

Passwords will not be included in exported JSON template files for security purposes. They can be included within ALMS account templates, which is an important feature for first-time provisioning of routers within an account.

All passwords will need to be entered during the process of creating or editing templates.

Working with AirLink Support

Who Has Access to AirLink Support



Access to Support is now controlled by each router's active subscription status.

This began with the introduction of AirLink Complete. Legacy accounts are still supported and will continue to use tokens for accounting purposes, but if a customer wants to consolidate their entire fleet into a single account it will require migrating legacy devices to AirLink Basic or Complete coverage.

Access to ALMS-only is now called AirLink Basic and does not include access to Support

NOTE Customers will be directed to register the router before contacting Sierra Wireless. Customers unable to register routers will be directed to their reseller for support. Sierra will work with resellers on unregistered routers but not directly with end users.

Services and Warranty Status

There are multiple ways to check status but the quickest is probably the [Warranty Checker](#).



SIERRA WIRELESS

Warranty Information

Check Single Device:

Any Serial or IMEI Number *

Check Warranty

- or -

Check Multiple Devices from

File: ?

Choose File | No fil...hosen

Check Multiple Warranties



SIERRA WIRELESS

Warranty Information

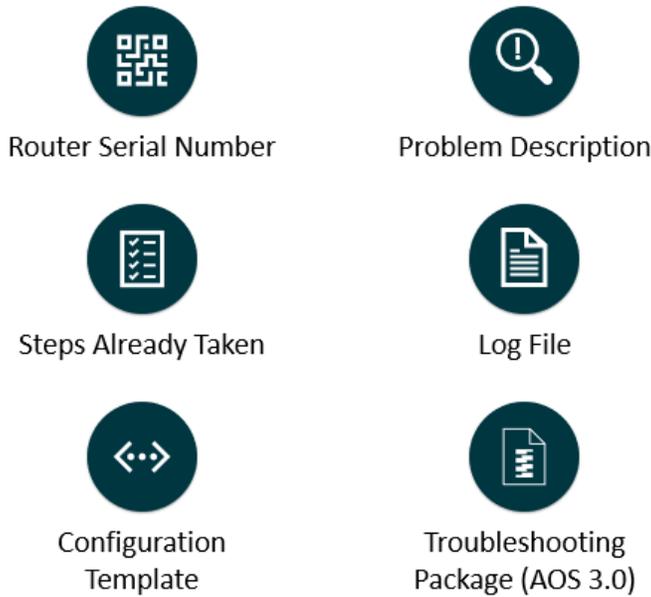
| | |
|-------------------------------|---|
| Model ID (SKU): | XR80 (1104789) - XR80,SWIR,NA,5G SUB-6GHZ,AIF |
| Serial Number: | 6Q1065006502AC24 |
| IMEI Number(s): | 359414100105857, 350546850113471 |
| Product Warranty Ends: | 08/31/2024 |
| Support Plan: | AirLink Complete |
| Support Plan End Date: | 10/26/2022 |

+ Open RMA (0)

The warranty checker provides more information than just hardware warranty and should be the first location to confirm current subscription coverage.

What to Provide When You Open a Support Ticket

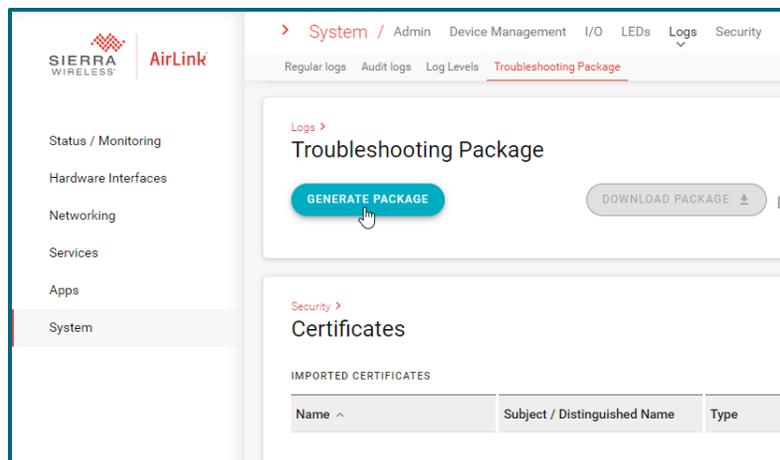
Most of this has not changed for XR Series routers and is the same as it is for ALEOS routers. The Troubleshooting Package is an encrypted set of files with richer diagnostic information which is needed for escalation to L3 support.



In order to log a support ticket, the configuration template and log file have always been the standard set of required information. For several reasons that basic requirement is still the standard even if routers are able to communicate with ALMS. If the router is not under current subscription and you are requesting the customer capture the template and log files, it makes sense to get the troubleshooting package at the same time in case it is required.

Getting Logs and Troubleshooting Package (AirLink OS 3.0)

Logs and Template can be accessed locally or from ALMS. The troubleshooting file is local only (currently).



The Troubleshooting Package is an encrypted package that includes rich logging information beyond what it typically included in the regular logs. It is only currently accessible to Level 3 support within Sierra Wireless so is not strictly required to log a support ticket.

This package is being introduced with AirLink OS 3.0 so is not present in 2.1 and earlier releases.

Tools Available for Troubleshooting

Reading log files isn't for everyone. There are many other tools available. Thanks to the increased amount of data being sent, remote and historical diagnostics are better than ever.



Status Screens



Status LEDs



IP Capture



Traceroute + Ping



Audit Log



Timeline + Widgets

Status screens provide a wealth of information, and by synchronizing an operational router with ALMS you will have access to the most up to date information on the router. In the ALMS widgets you will also see indications of stale or old data which will provide a clue as to when some operations may have stopped taking place.

Status LEDs are a good way to have an untrained user provide some basic operational feedback on the state of a router that is not online. This is one reason why all solution administrators should know where to find detailed LED information and also the typical behavior to expect in their own implementation.

IP Capture (TCPDump) is an industry standard tool for analyzing data flow and the AirLink OS implementation goes beyond what previous generations of AirLink routers could do. The fact that there are basic and advanced user options means that this powerful tool is more accessible to more users than ever before and an inexperienced user can be talked through performing a test more easily than before.

Traceroute + Ping are two additional troubleshooting tools for network traffic analysis and have native IPv6 and IPv6 controls built into them.

Audit log is a new feature that will allow an administrator to analyze what changes to a device configuration may have led to changes in behavior or operational status.

Timeline + Widgets represent a very complete set of troubleshooting tools, and previous recorded training covers several of the newer widgets and how to configure them for best

operation with XR Series routers. Specifically there are many new statistics associated with the XR Series including the multi-WAN aspects. The new widgets are also designed to make the increased frequency of data accessible for troubleshooting purposes.