Lab 3: Managing Templates and Workflows in ALMS

XR SOLUTION
LAB

ABOUT THIS LAB

Goals

In this lab you will do the following:

- Create and save a configuration template in ALMS
- Perform a factory reset in ALMS
- Deploy a saved config template and change the AOS UI password using a Workflow
- Perform a software upgrade remotely using ALMS
- Create and test an Alert Rule

Items Needed

This lab is a hands-on exercise, and you need the following items to complete it:

- A computer
- An internet connection, preferably with a router or switch
- Two network* cables and available port in a wired router or switch (optional, preferred)
- An XR80 or XR90 production router (activated SIM cards and antennas are optional but beneficial)

*If working on a laptop or tablet without an Ethernet RJ45 port, you can use a data-capable USB-C cable for LAN connection to your router.

Procedure

Download the Lab Submission document from the Training Portal and paste the screen shots described in this lab procedure document in the proper locations in the submission document.

In the Lab section of the training course in the Sierra Wireless Training Portal, follow the instructions to upload your completed lab submission document in Word or PDF format. Make sure you include your name and the email address used to register you for the XRSA training course.

NOTE Please ensure that you have completed the lab exercises below **BEFORE** gathering screenshots for submission. The lab exercises are a requirement and must be submitted to successfully complete the homework assignment for this lab. **Do not paste screenshots in this document.**

LAB NOTES

Your XR router should already be configured with a few basic settings which include changes to the default LAN subnet address, Wi-Fi client (STA) and AP modes, voltage threshold, and location reporting. This lab will now guide you through creating and saving an AirLink OS (AOS) template from ALMS. It will then walk you through how to factory reset it and re-deploy your saved template via Workflows. Finally, it will then finish off by creating an alert rule and perform a software upgrade remotely using the ALMS platform.

PREREQUISITE UNDERSTANDING
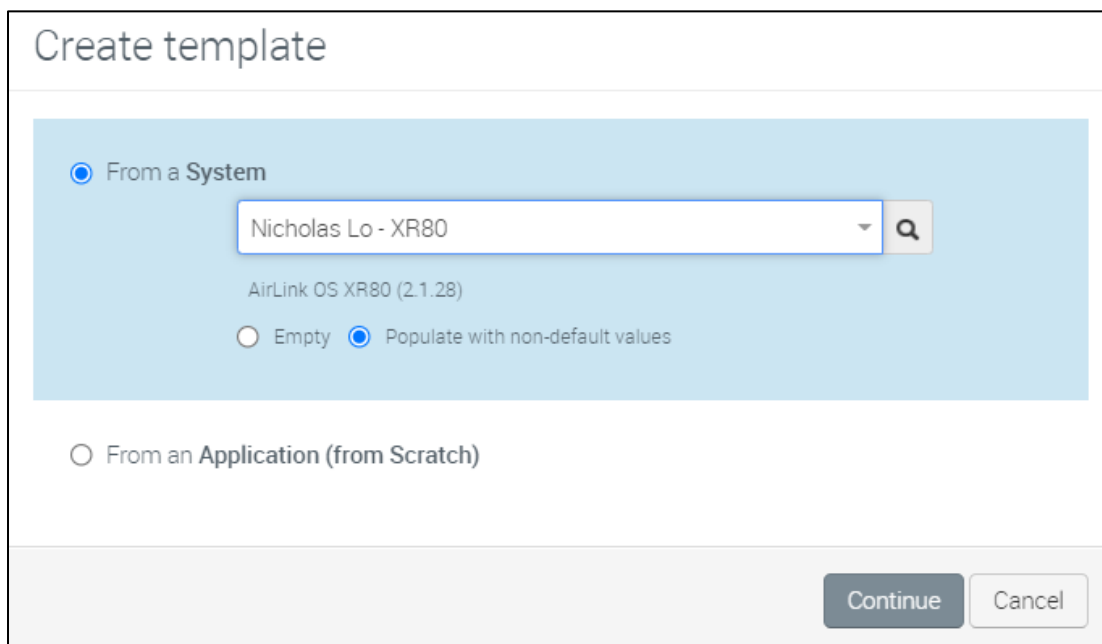
Please ensure that you have followed along with the XR Solution Administrator (XRSA) certification training program and have completed previous labs before starting this one.

LAB EXERCISES

Please download the "XRSA-Lab3 Submission Document.docx" file in the Training portal to get started.

Create and save a configuration template in ALMS

1) Navigate to **Configure > Templates**.
2) Select the **+** symbol to create a template.
3) Ensure *From a System* is selected and search for the name of your XR device. Leave the default radio button as *Populate with non-default values*.

NOTE Empty creates a template from scratch based on your XR model and AOS firmware. Populate with non-default values will preserve your current settings and create a template out of it.

NOTE If you're running an engineering build of AOS, you will not be able to create a template.

4) You will enter template mode. Select **SIM Database** under **Hardware > Cellular Interfaces**.
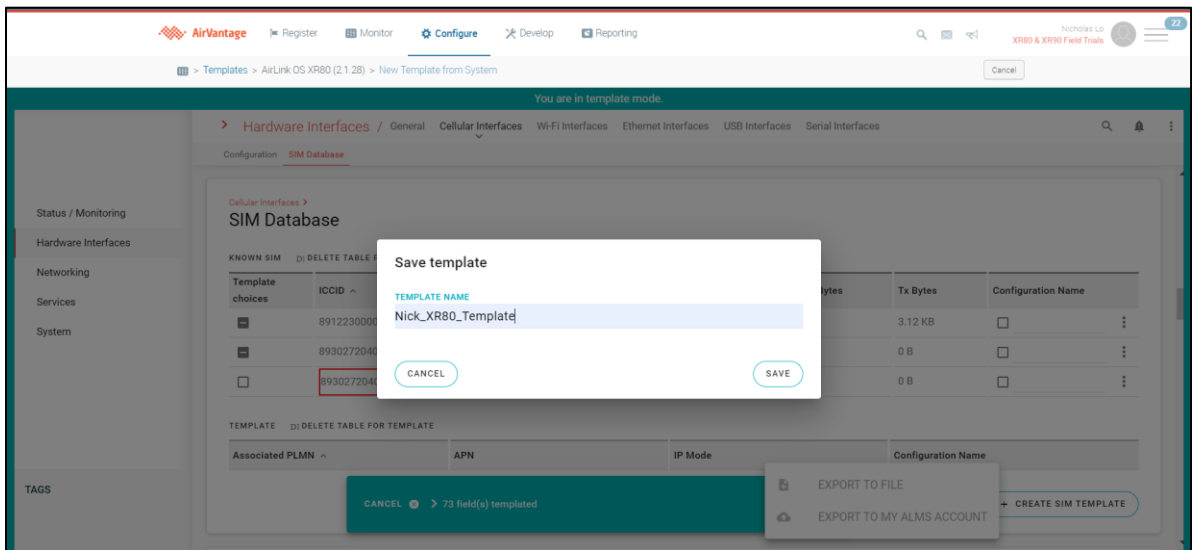
NOTE Sometimes, a duplicate ICCID is created and the template mode feature will highlight the error. To avoid these errors in value from being included in the template, remove it by clicking ⊟ . If you don't, you will have problems deploying it.
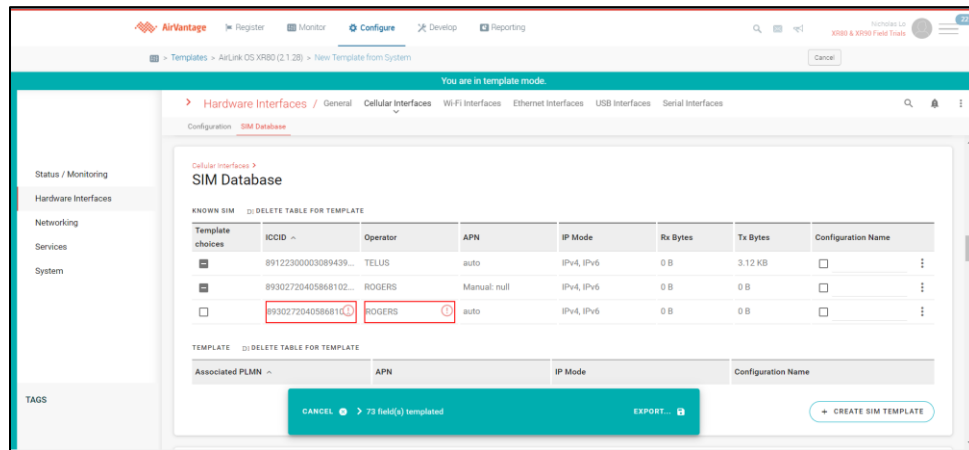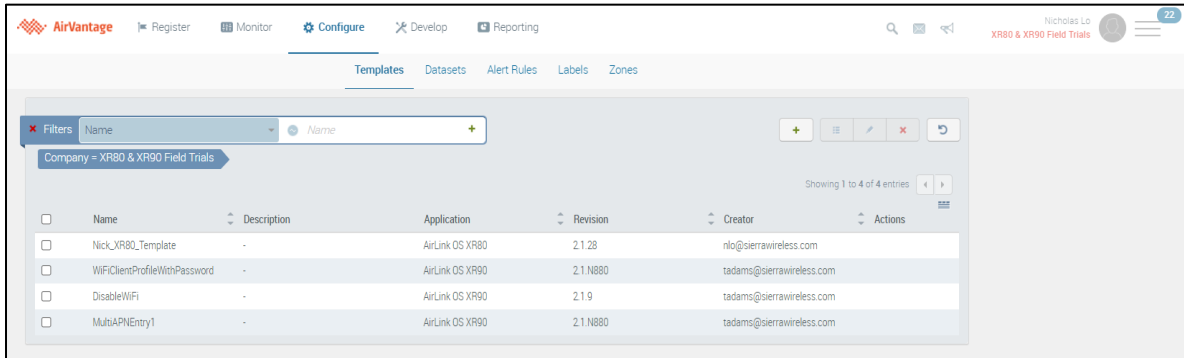

5) Click [EXPORT... 🖫] near the bottom of the page and select *Export to My ALMS Account.*

6) Name your template as **<name>_<device>_Template.** Click Save.

7) Your template should now be saved.

Perform a factory reset in ALMS

1) Navigate to **Monitor > Systems**.

2) Select your device from the system view pane. It should take you to your device view.
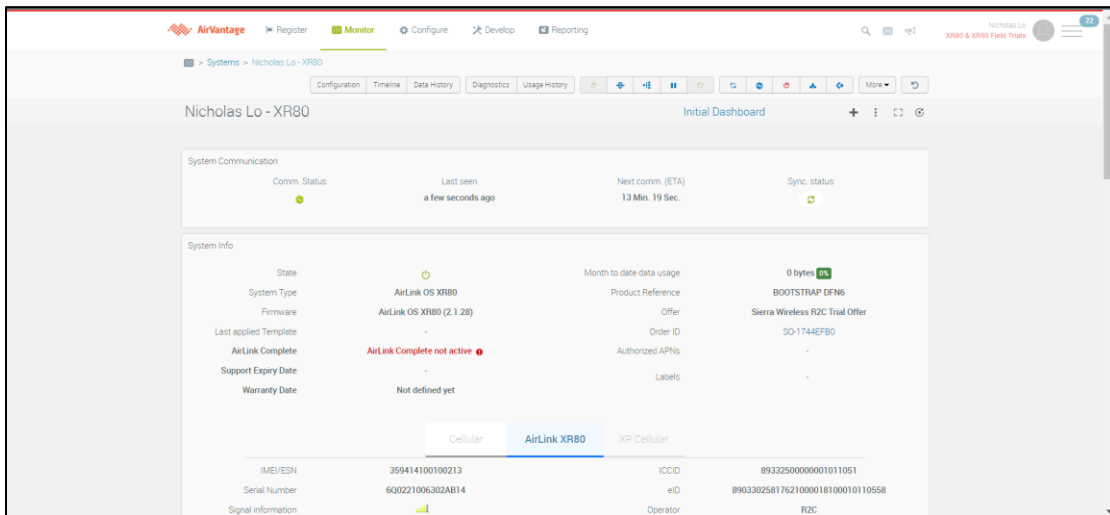
3) Click the [More ▾] near the top right of the page and select [↰ Factory reset] .

4) When prompted. Choose **Reset System**.

5) A *Reset System* operation will be created and completed in a few moments denoted by the green status symbol.
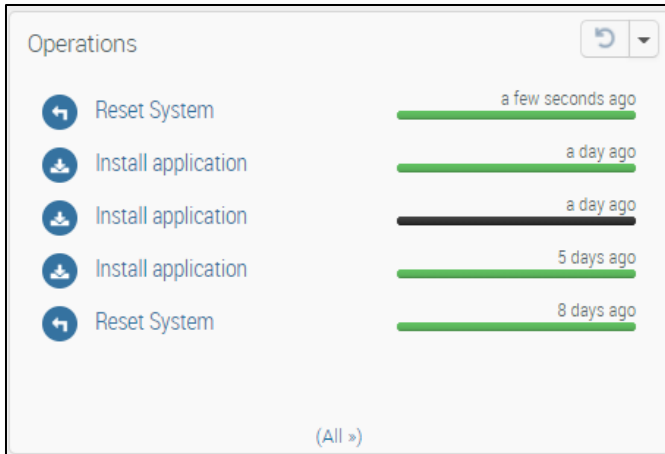
NOTE Your device should communicate with ALMS using the LPWA radio if there are no available WAN links for the XR to use. If not, please connect your XR to an available Ethernet uplink for a wired WAN connection.

Screenshot #1

Please provide a screenshot expanding the details of the Reset System operation.
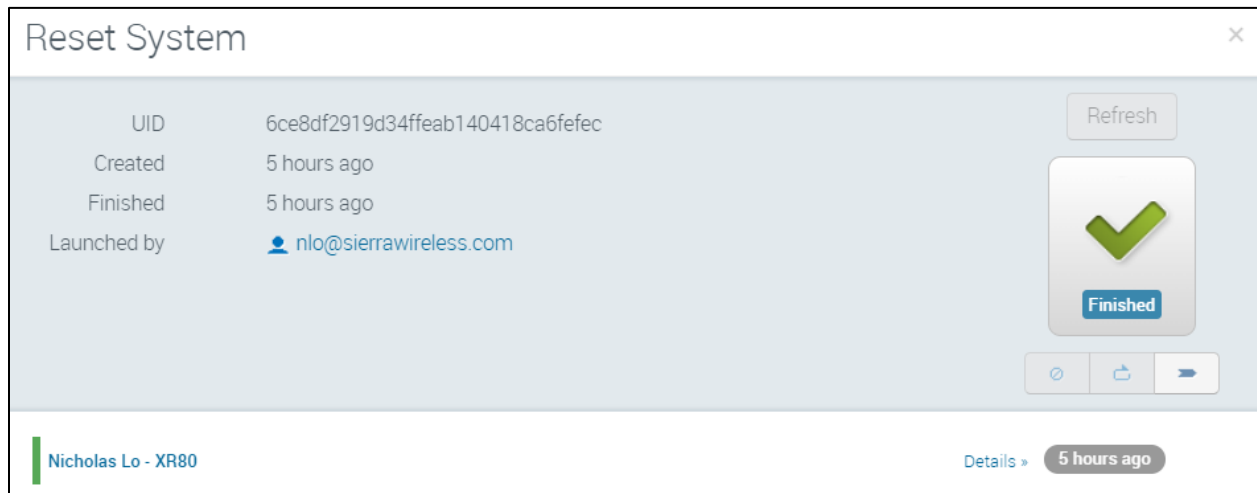
Deploy a saved config template and change the AOS UI password using a Workflow

1) Navigate to **Monitor > Systems**.

2) Check the box beside your device in the system view pane.

3) Click the second ▼ button which will present you with additional application actions.

4) Choose ⚙ Apply Workflow(s) from the list.

5) If shown, remove all the Workflows by clicking   . Drag and drop the *Apply Template* followed by the *Set Device UI Administrator Password* Workflows in the main pane.

6) For the template, select the one you had created and saved in the previous section.

7) Set the UI password to **Sierr@Wir3le55!**

8) Click **Launch**.

9) If prompted, click **Setup dependencies and continue**.

NOTE   To learn more about this operational dependencies, click here.

10) Three operations will be created and completed in a few moments denoted by the green status symbol.

    a. *Bulk Edit* – Updates ALMS with the new AOS password.

    b. *Apply settings – Deploys the template and updates the XR with the new AOS password.*
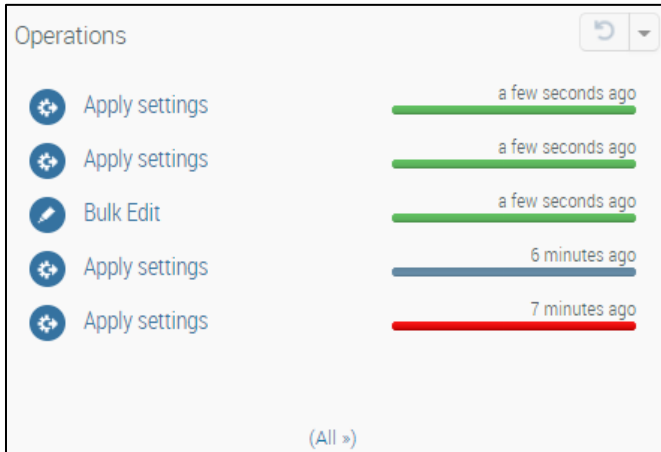
Screenshot #2

Please provide a screenshot expanding the details of the Bulk Edit and the two Apply Settings (applied template and UI password change) operations.

Apply settings

UID	5f1ffc54bf73492e92c848d15a467f45
Created	4 hours ago
Finished	4 hours ago
Launched by	👤 nlo@sierrawireless.com
Template	Nick_XR80_Template
Settings	(log.system[Firmware].name) : Firmware
	(services.monitoring.dataset[gnss].value) : {"__type":"file","__content":"eyJkYXRhc2...

Refresh

✓ Finished

This Operation depends on **another Operation**. While the previous Operation is still in progress, the number of tasks may evolve.

| Nicholas Lo - XR80 | Details » 4 hours ago |

Apply settings

UID	71353e57e7274bc6a5ddcf6875989f2f
Created	4 hours ago
Finished	4 hours ago
Launched by	👤 nlo@sierrawireless.com
Template	Custom
Settings	(accounts.users[0].password) : Sierr@Wir3le55!

Refresh

✓ Finished

This Operation depends on **another Operation**. While the previous Operation is still in progress, the number of tasks may evolve.
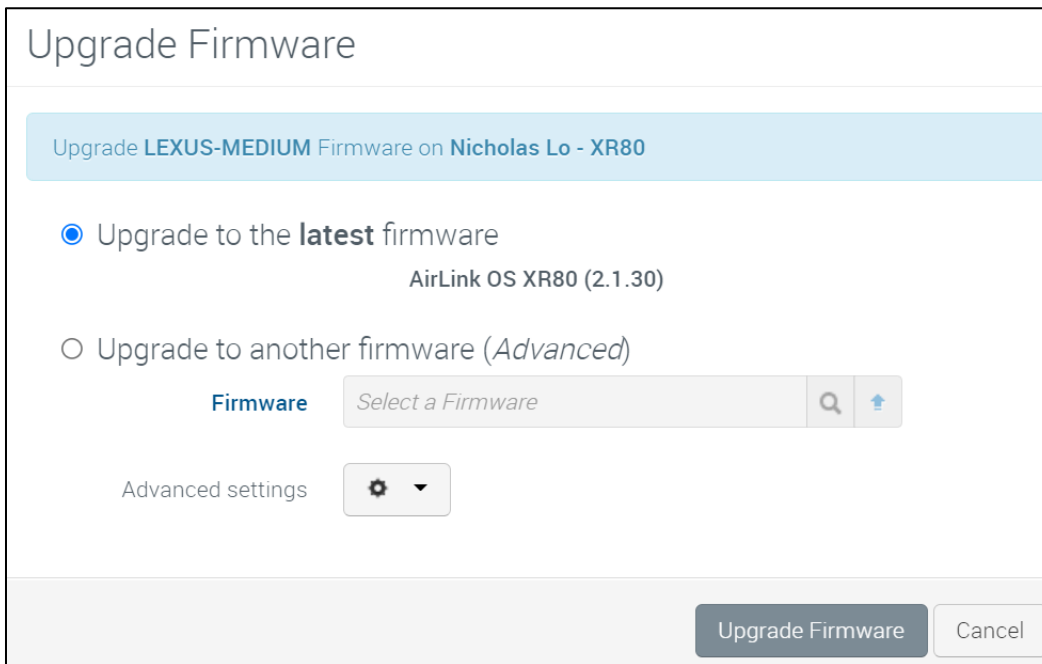
| Nicholas Lo - XR80 | Details » 4 hours ago |

Perform a software upgrade remotely using ALMS

1) In device view, click ⬇ to upgrade your XR device's AOS firmware.

2) Leave the radio button defaulted to *Upgrade to the latest firmware.* Click **Upgrade Firmware**.
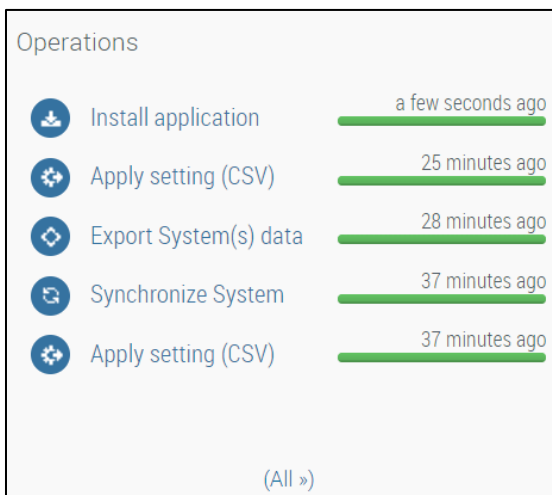
> **NOTE** At the time of writing, the latest GA release of AOS is 2.1.30. If you're running the most recent version of AOS available, please re-install the same AOS version.
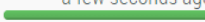

3) An Install application operation will be created and completed in a few moments denoted by the green status symbol.

Please provide a screenshot expanding the details of the Install Application operation.
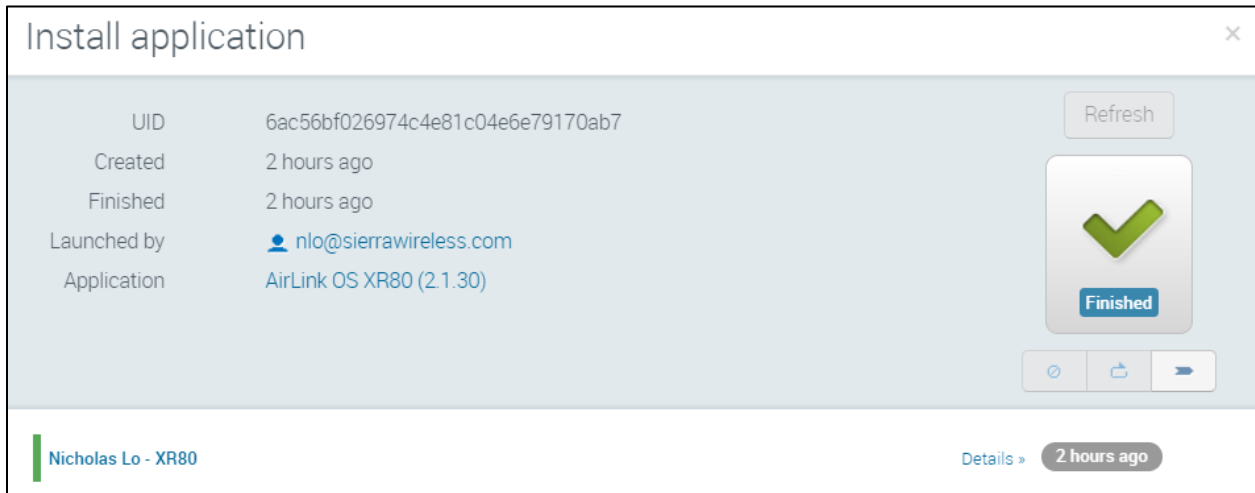
Create and Test GNSS Real Time status reporting

In this section, you will be creating a Throttle Filter combined with a Reporting Rule to send GPS/GNSS at a 15 second interval.

This procedure requires configuring on the XR locally and not through ALMS.

Create the Trigger

1) Navigate to **System > Smart Reporting**.

2) Scroll down to **THROTTLE FILTERS** and click on **CREATE THROTTLE FILTER**.

3) Name your Filter and click on CREATE.

4) Scroll up to **REPORTING RULES** and click on **CREATE RULE**.

5) Enter Rule parameters then click on **CREATE**.

Create Rule

ENABLED

🔵⚪ Rule Active

NAME

GNSS Real Time

TRIGGER ⓘ

Fast-changing Report Trigger

DATASETS

GNSS Report ▾

FILTERS

Real Time Throttle ▾

ACTION

forward ▾

ACTION ADDITIONAL DATASETS

select optional datasets associated with action ▾

CANCEL   CREATE

Create and Test an Alert Rule

NOTE In this section, you will be creating an Alert Rule that will enable ALMS to notify you via email when the GPS antenna connection is disconnected and reconnected. This is just one of many powerful alerting capabilities you can create based on a set of conditions and actions.

NOTE The Alert Rule you will create leverages a Dataset, which essentially contains setting(s) ALMS will monitor for changes in value. If the monitored setting changes in expected value, the platform will subsequently notify you via the defined Alert Rule.

Create the Dataset

1) Navigate to **Configure > Dataset**.

2) Select the **+** symbol to create a Dataset.

3) Search for your XR's operating AOS version and the name of your device. Click **Continue**.
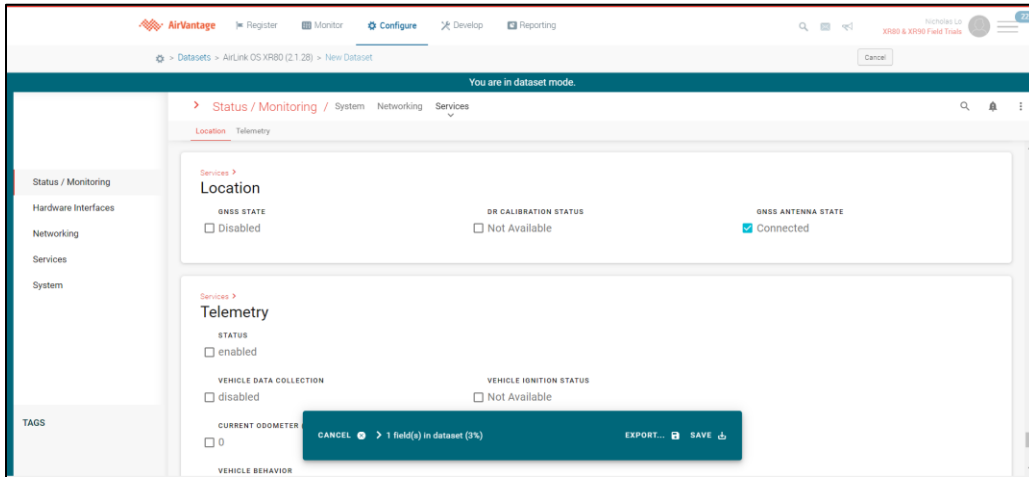
Create Dataset

From Application   AirLink OS XR80 (2.1.28) ▾ 🔍

System   Nicholas Lo - XR80 ▾ 🔍

Continue   Cancel

4) You will enter dataset mode. Select **Location** under **Status/Monitoring > Services**.
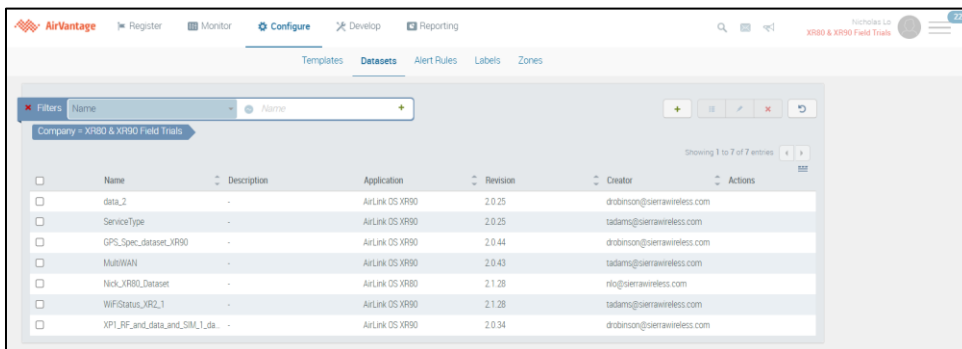
5) Check the box under *GNSS Antenna State*.

6) Click [EXPORT... 🖫] near the bottom of the page and select *Export to My ALMS Account.*

7) Name your dataset as **<name>_<device>_Dataset.** Click Save.

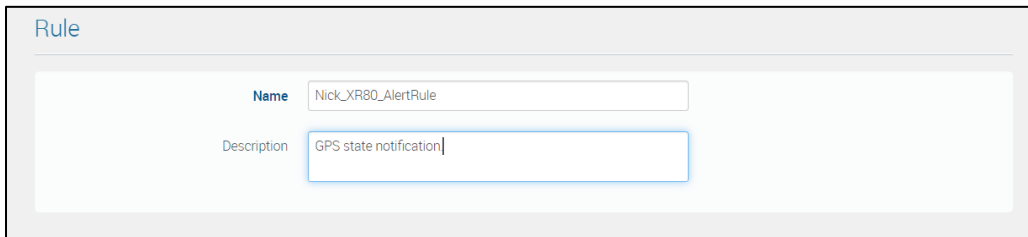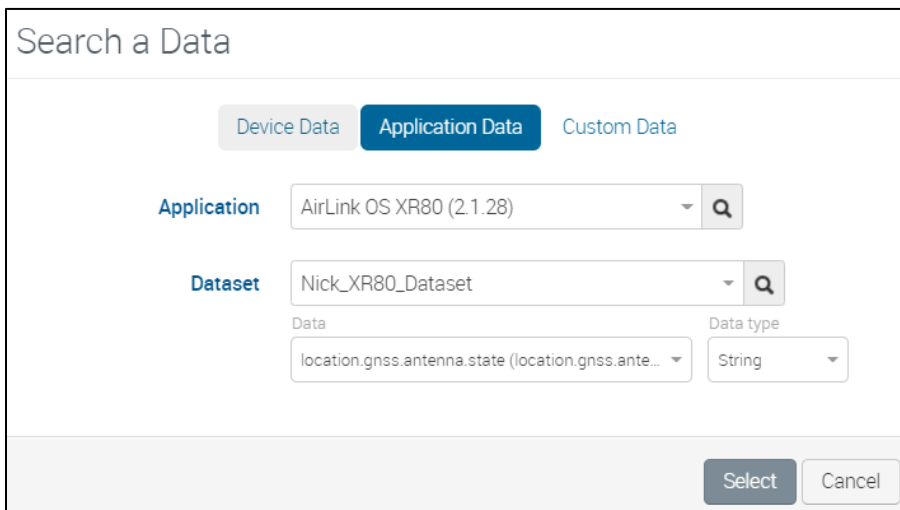
8) Your dataset should now be saved.

Create an Alert Rule

1) Navigate to **Configure > Alert Rules**.

2) Select the **+** symbol to create an Alert Rule.

3) You will be asked to select a template. Choose **Custom**.

4) Under the *Rule* section, name your template **<name>_<device>_AlertRule**. You can enter whatever you would like in the description field.

5) Under the *If* (condition) section, choose **Communication data**.

6) Click [🔍] to open the data search window.

7) Select **Application Data** tab and look for your XR's operating AOS version.

8) Select the Dataset you had created earlier.

9) The data point should be *location.gnss.antenna.state.* Change the *data type* to *String*. Click **Select**.

10) Click the drop-down box to change the conditional expression to *is not*. In the empty value field, type ***Connected***

If

location.gnss.antenna.state (location   Q   is not   ▾   Connected

The alert will only be raised if the system **communicates** and **send this data**. You might have to set up a communication report.

11) Under the *Then* (action) section, choose **Send an Email**.

12) Type in your email address.

Then

Maintain Alert State

To   × nlo@sierrawireless.com

Email preview   [Subject] undefined raised for <system_name>

[Content]
Dear customer,

The alert undefined raised for the system <system_name> in the company XR80 & XR90 Field Trials

<view_system_details_button>

13) Click [Save] near the top-right corner of the page.

14) Your Alert Rule should be created and activated.

	Name	Message	Recipients	Actions
☐	‖ Band change	-	drobinson@sierrawireless.com	
☐	‖ Band Change	This is an alert stating that a suystem has changed RF bands	drobinson@sierrawireless.com	
☐	‖ Change of band	This device changed band blah blah blah	drobinson@sierrawireless.com	
☐	‖ Data change	-	drobinson@sierrawireless.com	
☐	‖ Data sent to AirVantage	Change me	drobinson@sierrawireless.com	
☐	▶ Nick_XR80_AlertRule	GPS state notification.	nlo@sierrawireless.com	

Showing 1 to 6 of 6 entries

Test the Alert Rule

1) Disconnect your XR device's GNSS FAKRA antenna connection.

2) If your Alert Rule does not trigger right away, you can synchronize your device:

   a. Navigate to **Monitor > Systems**.

   b. Click the checkbox beside your device in the main system pane.

   c. Select the Synchronize button [↻].

NOTE A Synchronize System operation is launched and should be completed in a few moments, at which point, the Alert Rule will trigger and send you an email notification automatically.
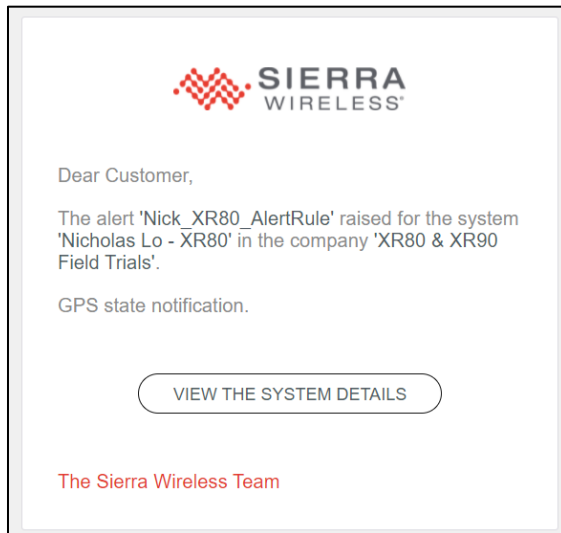
Screenshot #4

Please provide a screenshot showing that you've received the Alert Rule notification. It should include the *from* and *to* recipient email addresses.