AirLink Vehicle Telemetry

User Guide

SIERRA WIRELESS®

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Avertrissement: *RISQUE D'EXPLOSION-LA SUBSTITUTION DE COMPOSANTS PEUT RENDRE CE MATERIEL INACCEPTABLE POUR LES EMPLACEMENTS DE CLASSE I, DIVSION 2.*

Warning: *EXPLOSION HAZARD–DO NOT DISCONNECT WHILE CIRCUIT IS LIVE UNLESS THE AREA IS KNOWN TO BE NON-HAZARDOUS.*

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1: AirLink Vehicle Telemetry

Overview

The AirVantage Telemetry Application (AVTA) is an application based on ALEOS Application Framework (AAF) that collects telemetry data from an AirLink® gateway or router and conveys it to AirLink Management Service (ALMS), AirLink Mobility Manager (AMM), a 3rd-party Automatic Vehicle Location, or fleet management system.

Note: This guide is for ALEOS-based routers and gateways only. Routers running AirLink OS do not require AVTA to send telemetry data to ALMS. This page in the ALMS User Guide has information and links to resources for configuring AirLink OS-based routers for telemetry and reporting.

The AirLink gateway or router can collect data from the vehicle using different connection methods. The method used depends on the gateway or router model. The AirLink GX450 gateway and the AirLink MP70 router both support AVTA for vehicle telemetry capabilities.

The GX450 gateway collects data from an OBD-II scanner connected to a vehicle, as shown in Figure 1. AVTA communicates with the scanner through the gateway's serial port.

MP70 routers using ALEOS 4.9.0 or later can collect data through a direct connection to the vehicle bus using a vehicle bus interface cable connected to the router's Aux I/O port, as shown in Figure 2. This cable is available as a separate accessory from Sierra Wireless.

Note: Not all MP70 routers support Direct Vehicle Bus data collection. For more information, see Preliminary Steps on page 8. If the MP70 does not support Direct Vehicle Bus data collection, the router can still use the OBD-II scanner method described for the GX450.

Note: The GX450 supports OBD-II connections only. MP70 routers that support Direct Vehicle Bus support both OBD-II (passenger vehicles and light-duty trucks) and J1939 (heavy-duty trucks). MP70 vehicle bus interface cables are available for OBD-II and J1939 connectors.

The collected telemetry data is sent via MQTT protocol to the MQTT broker configured to receive the data. By default, the AVTA application uses an MQTT broker that resides on ALMS.

Note: AVTA writes telemetry data to Flash if the gateway is out of coverage. The data persists after a device reboot. By default, AVTA stores the last 10,000 events (this value is configurable in ALMS under "Maximum Size of Tx Queue"). At a transmission rate of 1 event every 2 seconds, this equals about five hours of data.

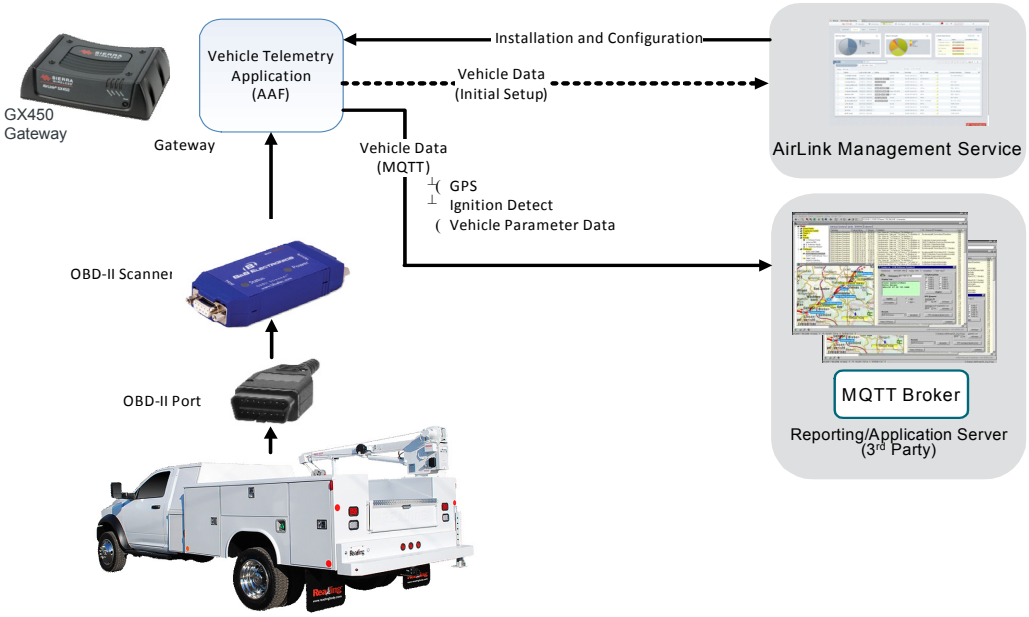

Figure 1: AirLink Vehicle Telemetry Overview for GX450

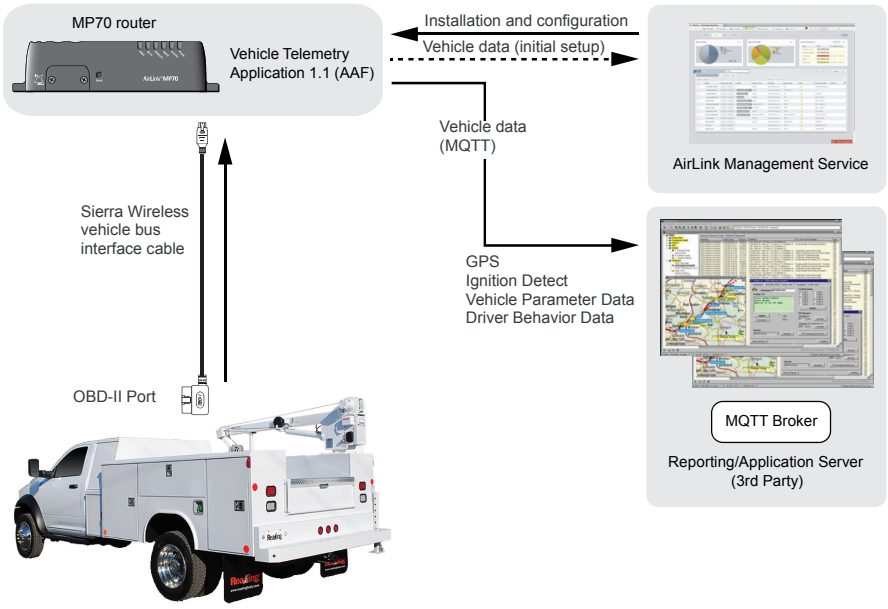

Figure 2: AirLink Vehicle Telemetry Overview for MP70

AVTA works with major vehicle makes and models, depending on the age of the vehicle. Based on information collected during Sierra Wireless testing, AVTA supports standard OBD-II data from vehicles model year 2008 or later.

AVTA allows for on-the-fly and historical tracking of vehicle performance to:

- Ensure that vehicles are performing in top condition
- Increase operational efficiency
- Save money on fuel

- Detect engine problems early to allow for proactive scheduling of repairs
- Provide accurate hours of operation and/or mileage to optimally schedule periodic maintenance
- Monitor driver behavior for insurance and driver safety purposes
- Monitor and automate workflows, combining telemetry with other sensor inputs such as status or light bar, siren, gun rack, and parking brake

Common telemetric data reported includes[1]:

- Idle time/engine hours
- Stops and idle report
- Odometer readings
- Diagnostic fault codes
- Seat belt use
- Fuel use
- Tire pressure

For a complete list of reportable data, see the AirLink Telemetry Protocol (ATP) 2.1 Specification.

AirLink Vehicle Telemetry Components

To enable vehicle telemetry, you must have:

- A Sierra Wireless AirLink GX450 gateway with:
  - ALEOS 4.9.0 or later
  - A Sierra Wireless AirLink Vehicle Telemetry kit, which includes an OBD-II scanner, a male-to-male null modem serial cable, and an OBD-II Y-cable
  - The AVTA application installed

  –or–

  A Sierra Wireless AirLink MP70 router with:
  - ALEOS 4.9.0 or later
  - A Sierra Wireless vehicle bus interface cable. Two versions of the cable are available, with OBD-II or J1939 connectors
  - The AVTA application installed
- An AirLink Management Service (ALMS) account

  ALMS is Sierra Wireless' cloud application for remotely configuring, deploying, and monitoring multiple AirLink gateways.

1. Where supported by the vehicle.

References

Table 2: AVTA-Related References

Reference	Where to find
ALMS How-To Videos and Getting Started Tutorial	https://doc.airvantage.net/alms/
ALMS MQTT documentation	https://doc.airvantage.net/av/reference/hardware/protocols/mqtt/
Sierra Wireless Hardware User Guide for your AirLink Gateway	Download from source.sierrawireless.com Click **sign up** to register to the Source for free.
ALEOS Software Configuration User Guide (for ALEOS 4.9.0 or later)	
AirLink Vehicle Telemetry Application Release Notes	
List of supported vehicles and data points	

Preliminary Steps

To determine if you need to complete some preliminary steps before installing AVTA, check the appropriate options in the following table.

Table 3: Preliminary Steps

Statement	True	False	See...
ALEOS Application Framework (AAF) is enabled and the serial port is reserved[a].	❑	❑	Enable AAF and Reserve Serial Port on page 9
MP70 only—My router supports Direct Vehicle Bus (CAN).	❑	❑	MP70 Direct Vehicle Bus (CAN) Support at source.sierrawireless.com.
MP70 only—I have enabled Direct Vehicle Bus (CAN) Data Collection and Driver Behavior Detection.	❑	❑	Enable and Configure Vehicle Telemetry Settings (MP70) on page 10
GX450—I have enabled the serial ports on the gateways to be used with AVTA.	❑	❑	Enable Serial Port (GX450) on page 13
I have an AirLink Management Service (ALMS) account.	❑	❑	Create an ALMS account on page 13
All the gateways to be used with AVTA are registered on ALMS.	❑	❑	Register your gateway or router and install AVTA on page 13

a. Reserving the serial port is not required for an MP70 connected using the MP70 AUX/IO port and a vehicle bus interface cable.

If ALL of the statements are true:

1. Check the Device Initiated Interval. You may want the AirLink gateway to check into ALMS more frequently when using AVTA. See Set the Device Initiated Interval on page 9.
2. Proceed to Installing the Hardware on page 27.

If any of them are false, complete the following preliminary steps:

1. Power on the AirLink gateway and use an Ethernet or USB cable to connect it to a computer.
2. Open your browser and log in to ACEmanager. For information about default log-in credentials, see the latest ALEOS Software Configuration User Guide for your device.

Important: *For system security, please change the default password to something unique and strong as soon as possible.*

Enable AAF and Reserve Serial Port[1]

1. In ACEmanager, go to Applications > ALEOS Application Framework.
2. Set **ALEOS Application Framework** and **Serial Port Reserved**[1] to Enable.

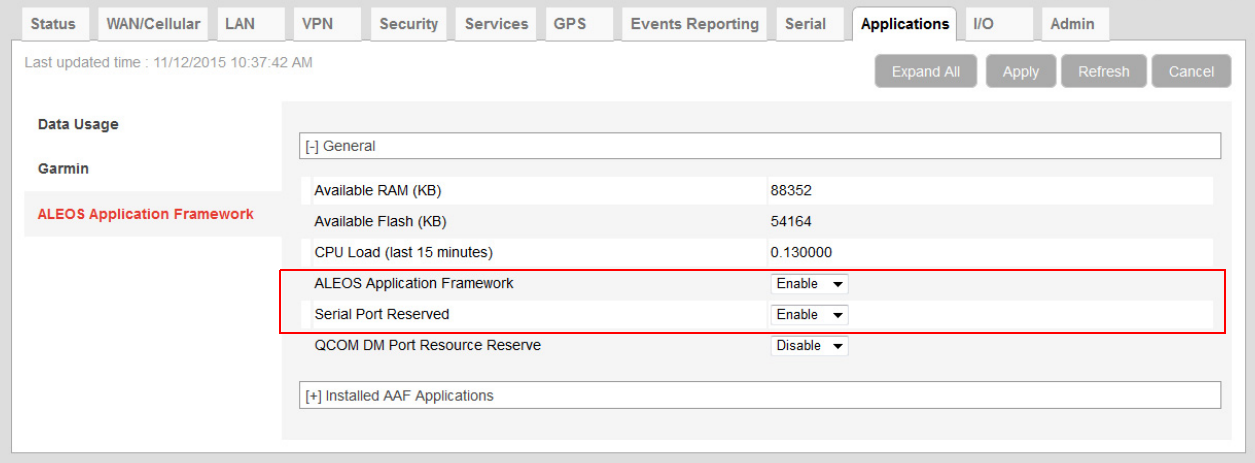

Figure 4: ACEmanager: Applications > ALEOS Application Framework

3. Click Apply.

Set the Device Initiated Interval

1. In ACEmanager, go to Services > ALMS.
2. Set the desired **Device Initiated Interval (minutes)**.

   The suggested value is 15 minutes. Note that the shorter the period, the more responsive it will be, but the higher the potential cost in data usage. The default value is 1440 minutes (once every 24 hours).
3. Confirm that the ALMS Status is Success.
4. Click Apply.

1. Reserving the serial port is not required for an MP70 connected using the MP70 AUX/IO port and a vehicle bus interface cable.

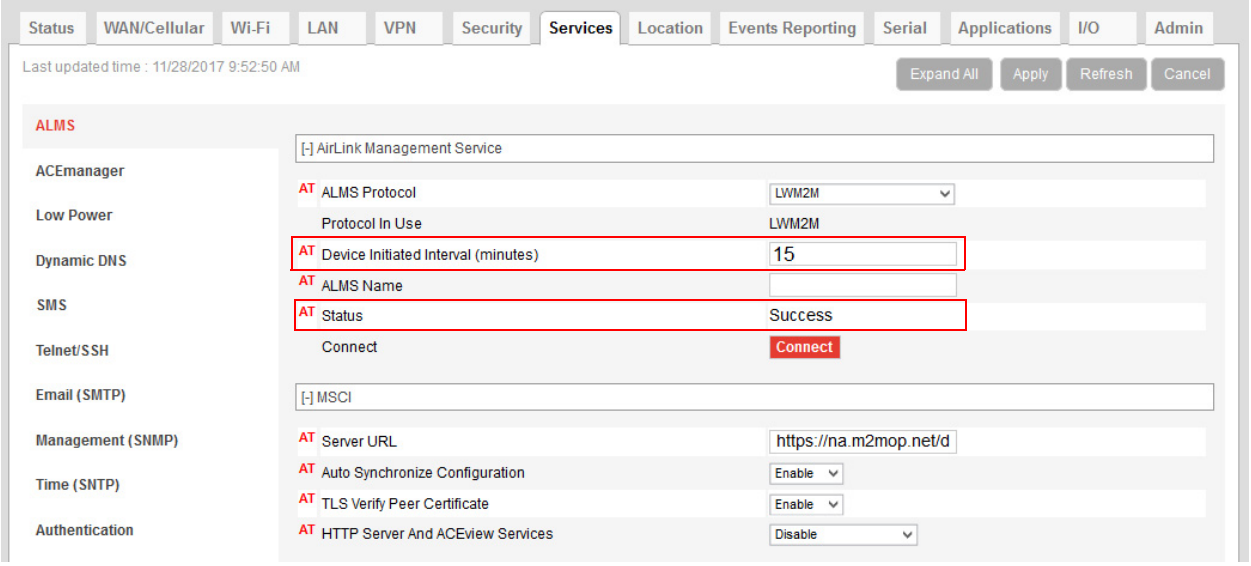

Figure 5: ACEmanager: Services > ALMS

Enable and Configure Vehicle Telemetry Settings (MP70)

1. In ACEmanager, go to Services > Vehicle Telemetry.

Note: The Vehicle Telemetry settings described in this section are correct as of ALEOS 4.11.2. The Vehicle Telemetry settings in your software version may be different. If you are not running ALEOS 4.11.2, please see the ALEOS Software Configuration Guide for MP70 for your ALEOS software version.

2. Under Direct Vehicle Bus (CAN) Data Collection, enable vehicle telemetry data collection. Select the option that matches how your router is installed.

   Options are:

   - **Disabled** (default)
   - **Enabled: Connected to Ignition**— Select when the ignition is connected to the router's Ignition Input (Pin 3, Ignition Sense)
   - **Enabled: Connected to I/O**— Select when the ignition is connected to the router's I/O Input on pin 4 of the power connector

Important: *Selecting Enabled: Connected to Ignition or Enabled: Connected to I/O ensures that the router reports ignition state data correctly and stops the router from interacting with the vehicle bus when the ignition is off.*

If Enabled: Connected to I/O is selected, ensure that you have configured the MP70 *to wake from Standby Mode when I/O is high. You can configure these settings in ACEmanager on the Services > Power Management page.*

   - **Enabled: Diagnostic (Always On)** — When selected, the data link between the router and the vehicle bus is always active, even when the ignition is off.

Note: Do not select Enabled: Diagnostic (Always On) for conventional vehicle applications. Diagnostic (Always On) should only be used for diagnostic or testing purposes. Select it only after consulting Sierra Wireless.

- **Companion: ALEOS Telemetry Mode**—Enables GenX Companion mode to extend the telemetry capability of the MP70. In ALEOS Telemetry Mode, the MP70 can receive J1708 data via a GenX-6 device connected to the MP70 serial port.
- **Companion: Passthrough Mode**—Enables GenX Companion Passthrough Mode. In Passthrough Mode, the GenX-6 device connected to the MP70 serial port uses the MP70 router's WAN connection to send native GenX telemetry data to external servers.

Note: Detailed information about the GenX Companion modes is not covered in this document. The GenX Companion modes require installing both a GenX AAF application and a GenX Companion kit. Please visit sierrawireless.com/products-and-solutions/routers-gateways/genx/ and contact your Sierra Wireless sales representative for more information about GenX Companion.

3. Leave **Direct Vehicle Bus (CAN) Detection Algorithm** at its default setting.
4. In the **Odometer Value (meters)** field, enter the starting value, in meters, for the odometer reading reported by the MP70.

   You should derive the starting value from the current reading of your dashboard odometer. When the proprietary dash odometer is not available to AVTA as a telemetry data point, AVTA uses the starting value as an offset for reporting the odometer reading.
5. Enable **Driver Behavior Detection**. When enabled, the router generates event reports when it detects Acceleration, Deceleration, and Cornering events.
6. (Optional) Upload a custom Telemetry Configuration file, if available. After clicking Telemetry Configuration, you can:
   - Select and upload your Telemetry Configuration file
   - Remove the installed Telemetry Configuration file
   - Download the Telemetry Configuration file to your computer

Note: Telemetry Configuration files (.json format) enable the router to collect vehicle data beyond the default parameters available from the basic connection. These additional parameters include seat belt, dash odometer, and, in some cases, tire pressure. Telemetry Configuration files are vehicle specific, and must match your vehicle's manufacturer, model, and year.

You can apply Telemetry Configuration files using the AAF application AVTC (AirVantage Telemetry Configuration). AVTC should be installed on telemetry-compatible routers when AVTA is installed. AVTC contains every configuration file that Sierra Wireless has compiled for various vehicles, and automatically applies the correct file for your vehicle. AVTC also automatically updates your configuration files when Sierra Wireless releases updates. You can find a list of supported vehicles and parameters in the AVTC documentation.

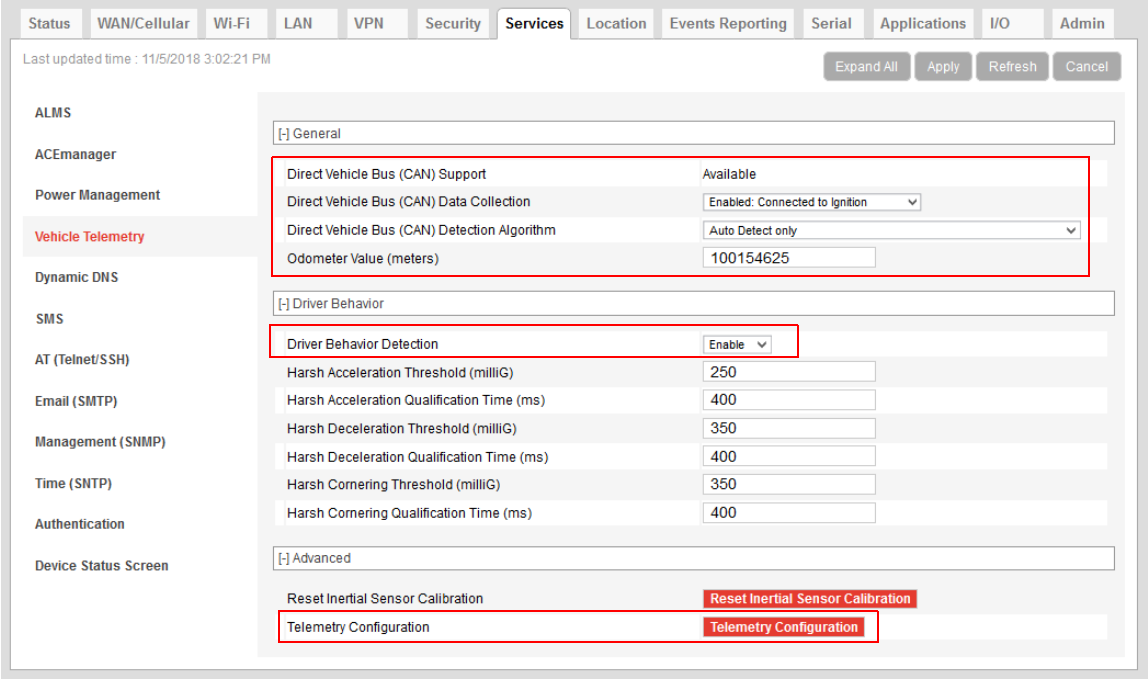

Figure 6: ACEmanager: Services > Vehicle Telemetry

Enable Serial Port (GX450)

In ACEmanager, go to Serial > Port Configuration and confirm that the **Serial Port** is set to Enable (default setting).

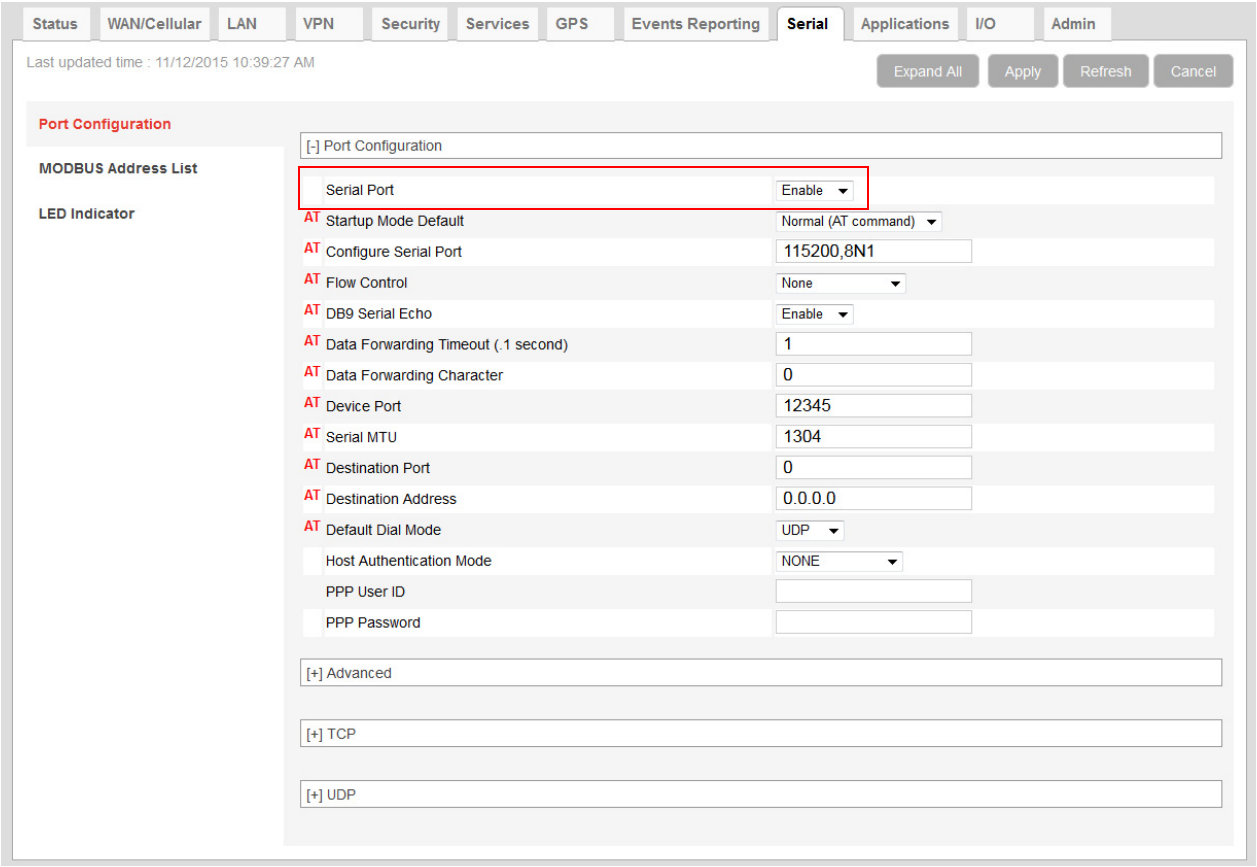

Figure 7: ACEmanager: Serial > Port Configuration

Create an ALMS account

If you don't already have an AirLink Management Service (ALMS) account, go to https://na.airvantage.net/accounts/signup?type=AVMS_AL to register for a free trial, or contact your Sierra Wireless distributor to purchase an account.

Register your gateway or router and install AVTA

Note: For full information on AirLink device registration, start at source.sierrawireless.com/airvantage/alms/reference/register/ and follow the "How To" links.

To register your gateway:

1. Go to https://na.airvantage.net/login.
2. Enter your email address and password.
3. Click the **Register** tab.

4. Enter your device serial number. AirVantage identifies your system type.

   The serial number (S/N) appears on the bottom of the gateway or router, and in ACEmanager (Status > About > Serial Number).

*Note: If AirVantage does not identify your system type (or misidentifies your system type) when you enter the serial number, click **Select system type** in the top left corner of the screen. The device catalog appears, and you can select your system type from there.*

Figure 8: ALMS: Register

5. Enter your device IMEI and optional Name.
6. Select **Pre-configure system** and then click **Register**.
7. On the Pre-configure System(s) screen, configure the Basic Workflow as desired.
8. Drag the Install AAF Application workflow below the Basic Workflow.

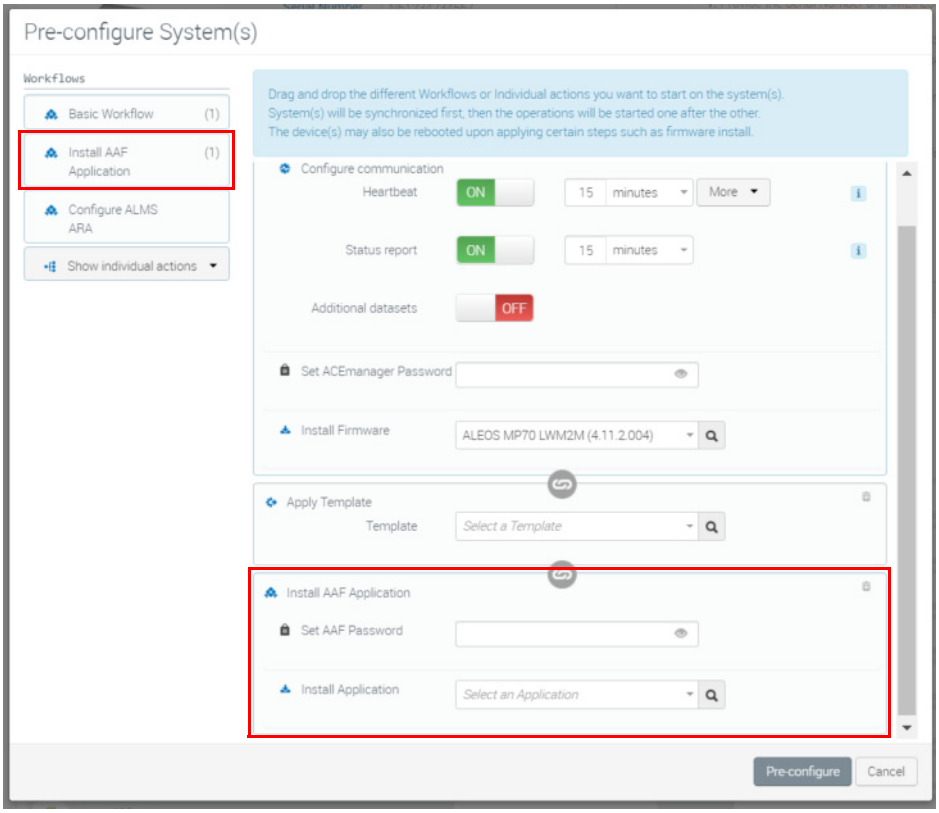

Figure 9: Pre-configure System(s) screen

9. Set the AAF Password and select the ATVA version you wish to install.
10. Click **Pre-configure**.

To confirm that the gateway is registered:

1. Click **Register** at the top of the screen.
2. Click **Refresh**.

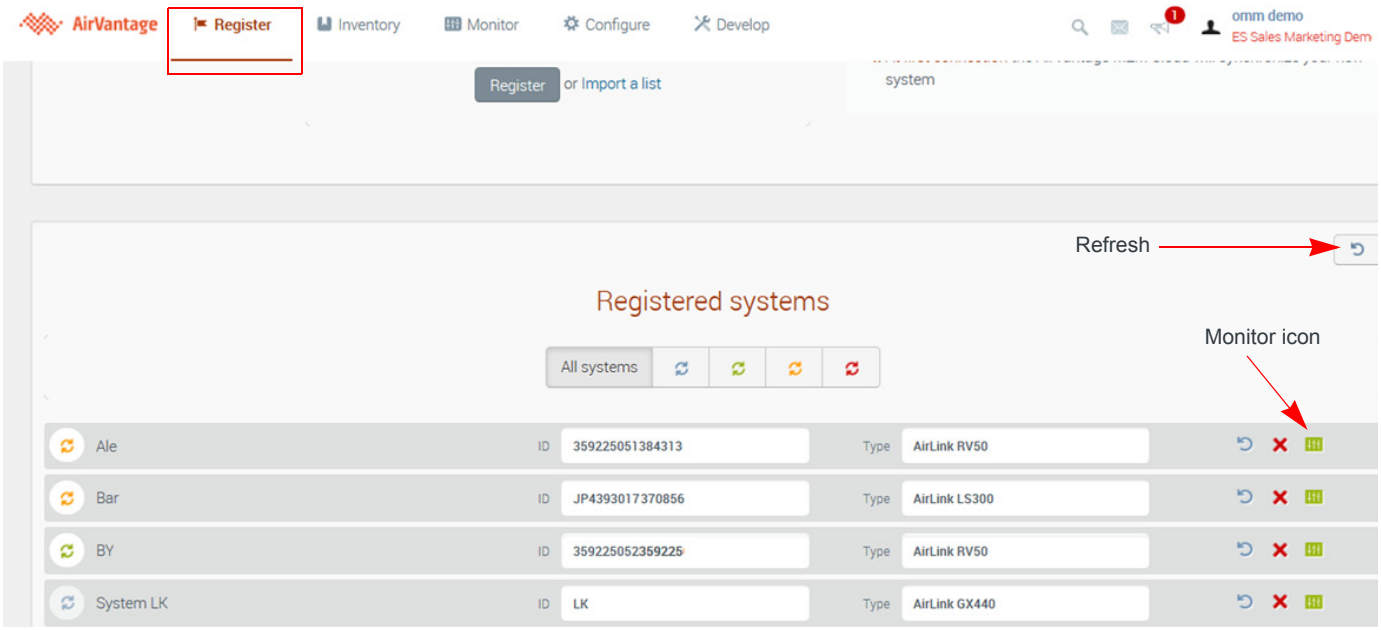

Figure 10: ALMS: Registration (confirmation)

3. Confirm that your gateway appears in the list of registered systems and that the monitor icon at the right of the that row is green.

Installing AVTA on a Registered Device

Note: These instructions describe how to use ALMS to install AVTA on a device that was previously registered. AirLink Mobility Manager (AMM) customers that have licensed the AMM ALEOS Telemetry feature can collect the same data in AMM using the AMMER AAF app in place of AVTA. AMMER is pre-installed on AMM 2.16 and later.

To install AVTA:

1. Ensure that you have completed the necessary preliminary steps (see Preliminary Steps on page 8).
2. Go to https://na.airvantage.net/login.

Note: Configuration must be done using ALMS, but reports can be sent to ALMS or a 3rd-party management system.

3. Go to Monitor > Systems, and then select your gateway.
4. Select **Edit** (you may have to click **More** first).

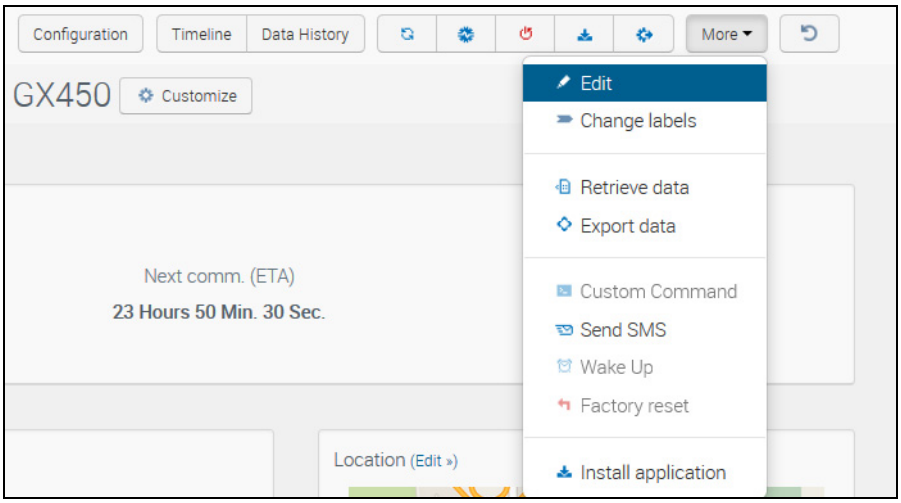

Figure 11: ALMS: More > Edit

The following screen appears:

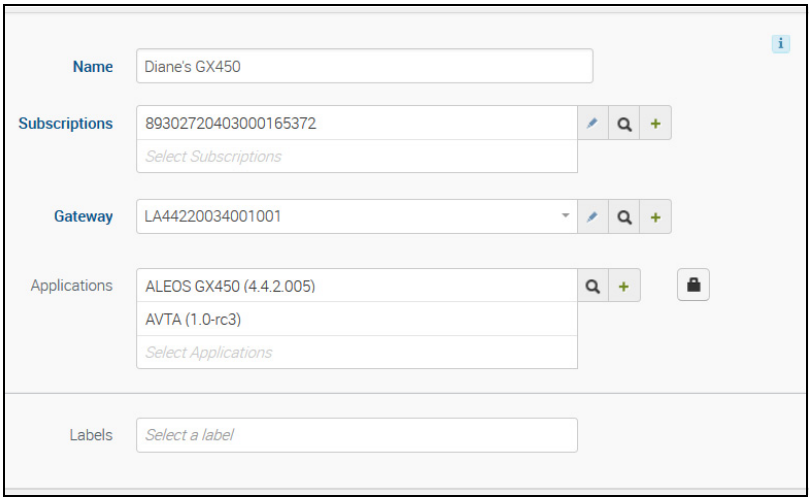

Figure 12: ALMS: Monitor > More > Edit

5. Click the Credentials icon ( ) beside **Applications**.
   The following screen appears:

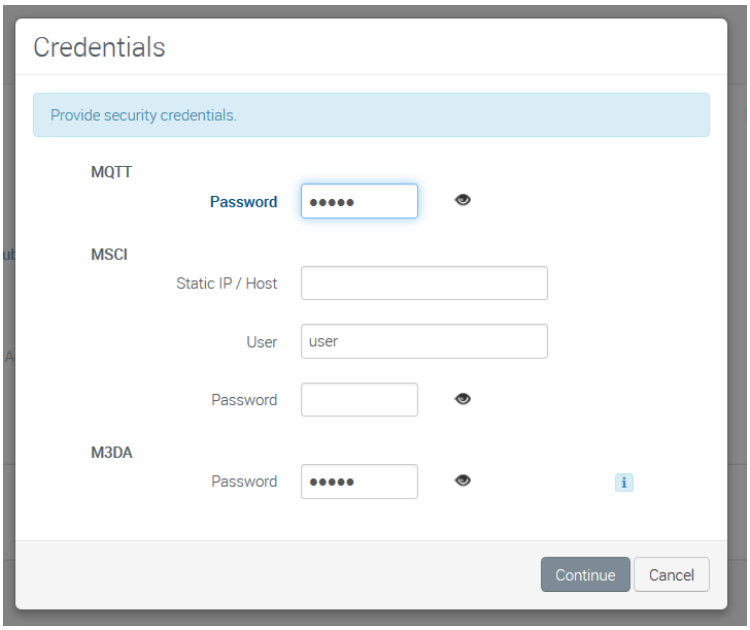

Figure 13: More > Edit > Credentials

6. Enter the M3DA password. This password must match the M3DA password in ACEmanager (Services > ALMS > AAF > M3DA Protocol Password). The default M3DA password is the default ACEmanager password printed on the device label. The default password on older devices is 12345.

Note: If you have problems completing your AVTA installation, ensure that the M3DA password is entered both in ACEmanager and in ALMS.

Important: *For system security, please change the default password to something unique and strong as soon as possible. For more information, see this article on The Source.*

7. Click **Continue**.
8. Select More > Install application.

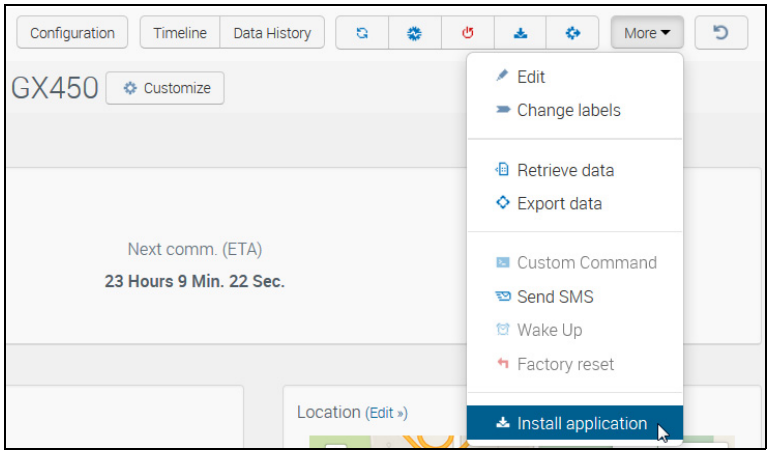

Figure 14: ALMS: More > Install application

The following screen appears:

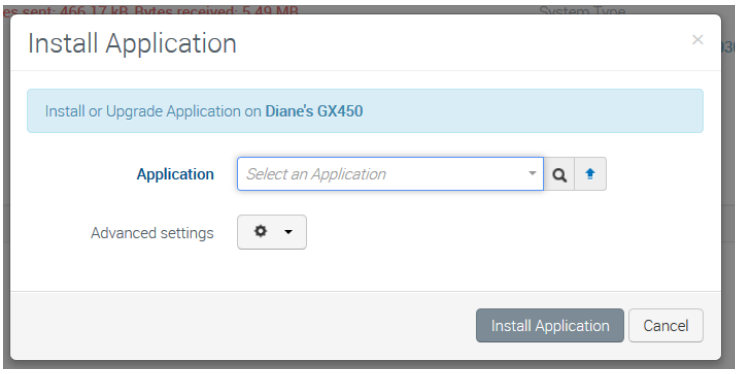

Figure 15: ALMS: Install Application

9. If AVTA has never been installed on any of the gateways in your company/organization, click the search icon ( ) and use the filter to search for the most recent version of AVTA in the Public repository.

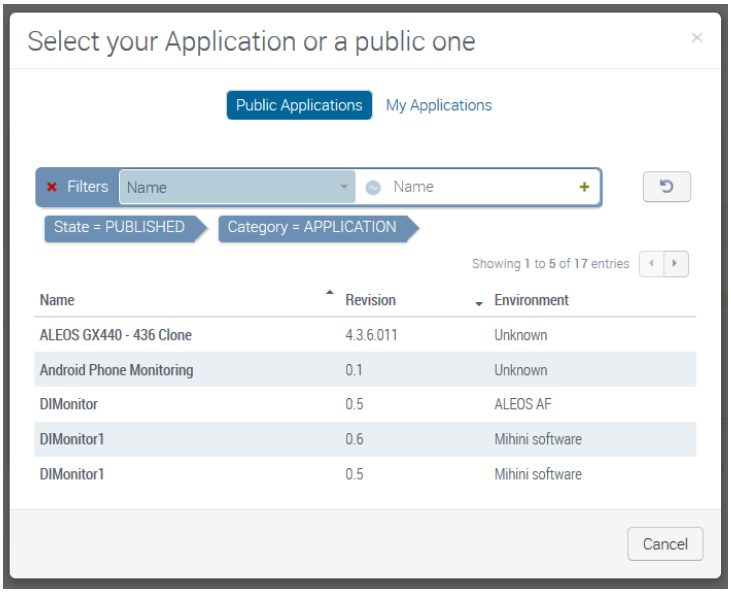

Figure 16: ALMS: Install Application from Public Repository

If AVTA has been installed on other AirLink gateways in your company/organization, it will be listed in the MyApps repository. In the drop-down menu, select the most recent version of AVTA.

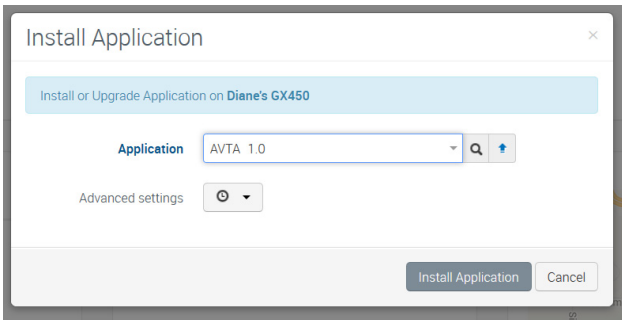

Figure 17: ALMS: Select application to install (AVTA)

10. Click Install Application.

AVTA is now scheduled for installation the next time the gateway checks in with ALMS. (See step 1 on page 9.) To install the application immediately, in ACEmanager, go to Services > ALMS > AAF, and click **Connect**.

11. Confirm that AVTA has been installed successfully, either:

- In ALMS, on the Monitor screen, under Latest Operations, the bar beside the most recent “Install application” should be green. If you rest the mouse pointer over it, a pop-up message indicates “Success”.

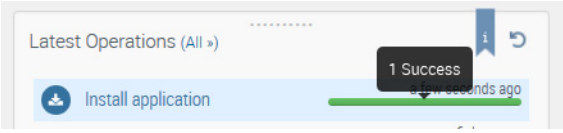

Figure 18: ALMS: Monitor: Latest Operations

- In ACEmanager, go to Applications > AAF > Installed AAF Applications and confirm that AVTA appears in the list.

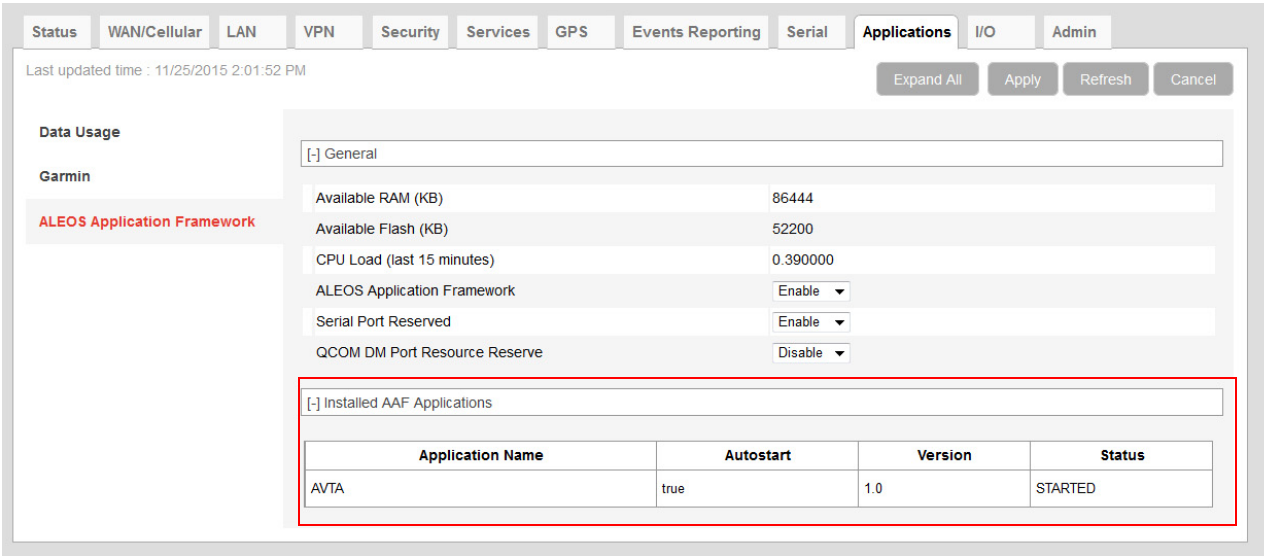

Figure 19: ACEmanager: Applications > ALEOS Application Framework

12. Once the application is installed, the next step is to enter the MQTT password. On the Monitor screen, select More > Edit.

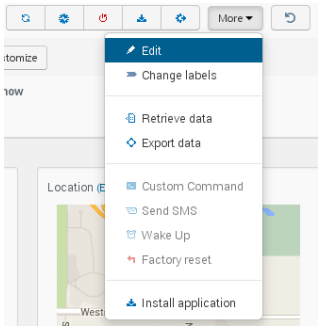

Figure 20: ALMS: Monitor > More

The following screen appears:

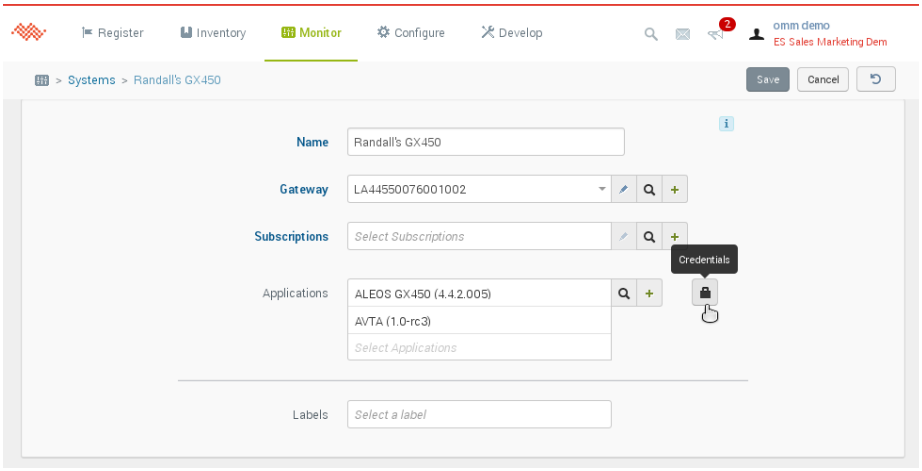

Figure 21: ALMS: Monitor > More > Edit

You should see AVTA in the list of Applications.

13. Click the Credentials icon ( ) beside **Applications**.
    The following screen appears:

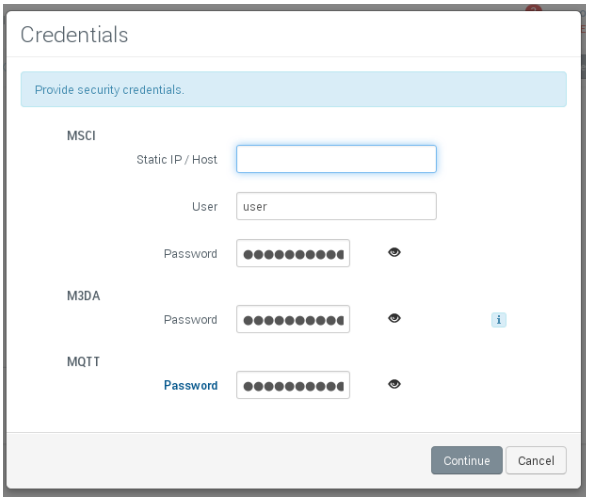

Figure 22: ALMS: Monitor > More > Edit > Credentials

14. In the MQTT Password field
    - If you will be using ALMS to monitor telemetry, enter the default password, Sierra-123.

Important: *For system security, please change the default password to something unique and strong as soon as possible.*

    - If you are going to be using a 3rd-party management service, leave this field blank.

Once the installation is complete and the MQTT password is entered, you are ready to create a template to capture the data points you are interested in and apply that template to one or more gateways.

Configure AVTA for AirLink Gateways or Routers

Rather than configure AVTA for each AirLink gateway or router, you can create a template, save it, and then apply the template to multiple gateways at the same time.

Creating a template

To create a template:

1. In ALMS, go to Configure > Templates.
2. Click + , and from the drop-down menu, select **Brand-new**.

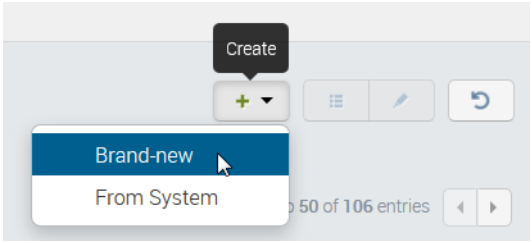

Figure 23: ALMS: Configure > Templates > Create

3. In the Application / Firmware drop-down menu, select the most recent version of AVTA.

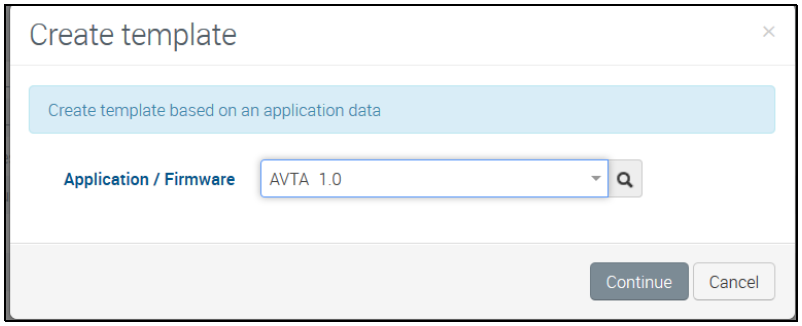

Figure 24: ALMS: Configure > Templates > Create > Brand-new

4. Click **Continue**.

Figure 25: ALMS: Template creation

5. Select **Telemetry_config**.

Note: For more information on configuring the fields on this screen, click the i *button to the right of the field. Also see the example in Figure 27 on page 26.*

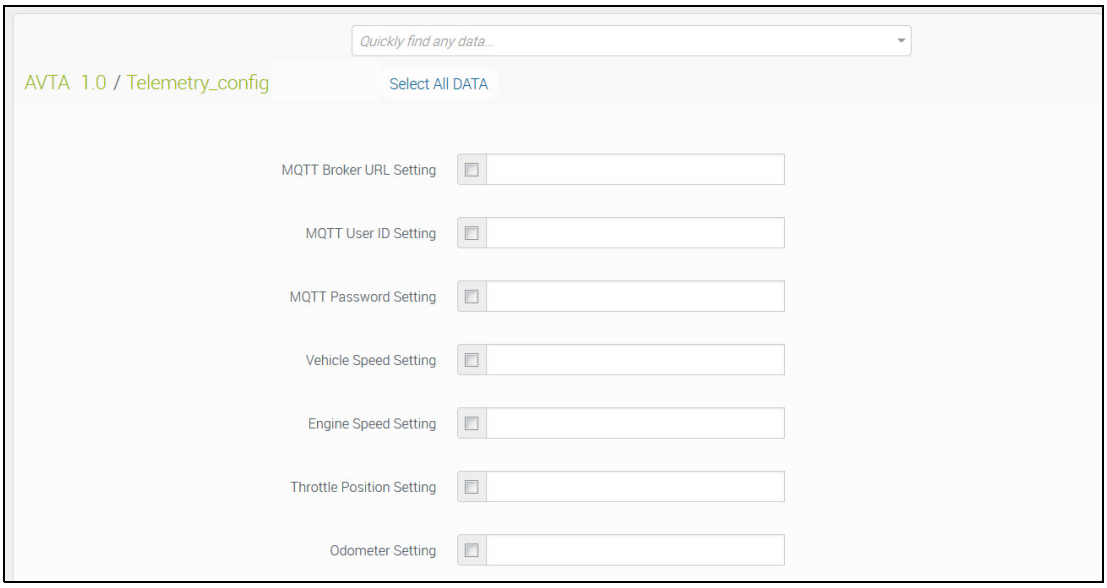

Figure 26: ALMS: Configure Template

6. In the first three fields, select the check boxes in front of the fields.

- By default, the telemetry data is sent to ALMS for basic viewing and verification. In this case, leave the following fields blank:
  - MQTT Broker URL (defaults to the ALMS URL)
  - MQTT User ID (defaults to the gateway's serial number, which is unique to each gateway)
  - MQTT Password (defaults to Sierra-123)

  AVTA supports simple user ID and password authentication built into MQTT. Telemetry data is sent from AVTA to the ALMS MQTT at port 1883 via MQTT protocol using unencrypted non-secure (TCP) mode.

Important Note about the use of ALMS and AirVantage Telemetry Application (AVTA):

- ***Customers are expected to use ALMS to configure the application to send telemetry data to a 3rd party server in a production environment.***

- ***The AirLink Vehicle Telemetry scanner kit includes a complimentary 200K data points per device, per month to ALMS for testing and debug purposes.***
- ***Sierra Wireless reserves the right to throttle any system sending more application data than the amount of complimentary data points offered with the Telemetry kit.***
- ***Users who require the ability to collect and report on non-gateway data in ALMS are expected to upgrade to a full AirVantage account. For more information, contact Sierra Wireless.***

- If you are building your own server-based vehicle telemetry reporting or fleet management system, you must install and configure your own MQTT broker on your server, and in the configuration, specify the URL and details of the MQTT broker. The relevant fields are:
  - MQTT Broker URL
    Enter the URL for the MQTT broker that the 3rd-party management system subscribes to. The URL format is: <protocol>://<address>:<port>
    where:
    - <protocol> is tcp (unencrypted) or ssl (secure)
    - <address> is either DNS location name or dotted quad IP address
    - <port> is the listening port of broker, typically 1883 for tcp, 8883 for ssl

    For example:
    tcp://my.broker.com:1883
    ssl://10.1.65.4:8883
    The management system then subscribes to MQTT topic as:
    <GX450 gateway serial number>/messages/json
    Use of SSL certificates is not supported.

Note: If you are using AMM to configure the MQTT URL, do not enter the protocol or port. AMM does not read the URL correctly if the URL includes colons. Specify only the address: for example, my.broker.com. AMM adds the default protocol or port to the URL.

  - MQTT User ID
    If you want to use the gateway's serial number (filled in by default and unique to each gateway) as the MQTT User ID, leave this field blank. Otherwise, enter for the User ID for the MQTT broker that the 3rd-party management system subscribes to.
  - MQTT Password
    Enter the MQTT Password for the MQTT broker that the 3rd-party management system subscribes to.

7. For the data points (parameters) you want to collect, select the check box in front of the field and enter the desired parameters. For more information, click the i button.

Individual telemetry data points can be enabled (or disabled). The available configuration values for each telemetry data point are:

- enable= 0 or 1

  Set to 1 if the data point will be evaluated for reporting to the configured MQTT broker. Set to 0 to disable.
- threshold=n

  When a data point changes (increases or decreases) by the specified value compared to the last value reported, it is reported to the configured MQTT broker. This does not apply to boolean data.

- min=n (seconds) Optional

  Minimum rate at which reports are sent for that data point, even if the threshold is not crossed. For example, if the minimum is set to 60 seconds, the status of the data point is reported within 60 seconds, either when the threshold is crossed or when the 60 seconds minimum report timer expires. This ensures that you receive regular reports regardless of whether or not the configured threshold is crossed.
  - Range: 1 to unlimited
  - Disabled: 0
- max=n (seconds) Optional

  The data point is reported no more frequently than once within the configured maximum time interval. For example, if the maximum report interval is set to 300 seconds, at most, a report is sent every 300 seconds, regardless of how many times the threshold was crossed before the maximum time limit expires. This ensures that your system is not bombarded with reports when the threshold is frequently being crossed.
  - Range: 1 to unlimited
  - Disabled: 0

If a value is not specified, the default value is used, i.e., leaving a field blank results in the default settings for the data point being used. Also, some fields, such as ambient temperature, allow multiple parameters. In those fields, for any parameters omitted, the default value is used. For example, if you configure the ambient temperature field as: “enable=1, threshold=5” and do not include any values for the minimum and maximum reporting intervals, the default values are used for the reporting intervals. (For default values, see the AirLink Telemetry Protocol 2.1 Specification.)

Entries:

- Separated by commas
- Not case-sensitive
- Spaces are allowed between syntactical elements

For an example of configured fields, see Figure 27.

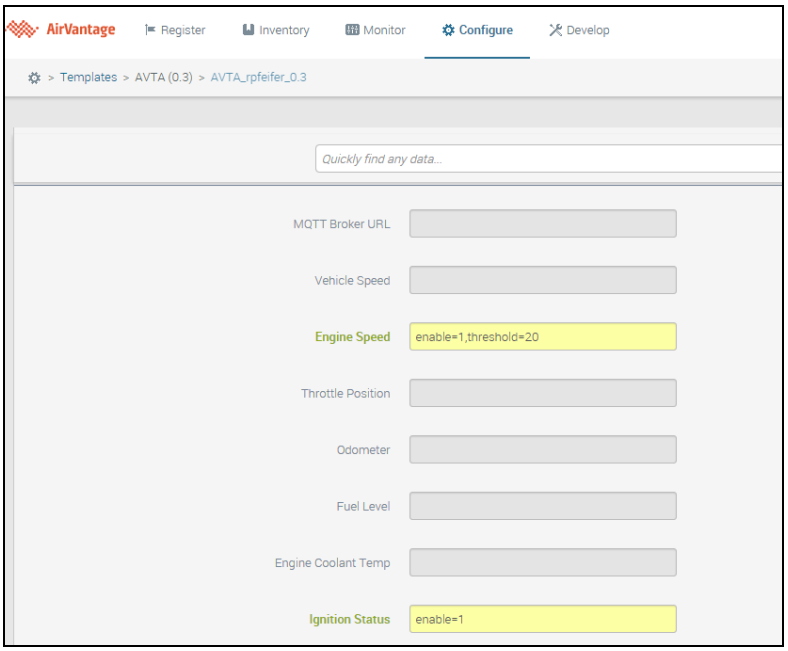

Figure 27: ALMS: Configure Template Example

Note: You can configure all the parameters in one template, or you can create multiple templates and apply them sequentially to the gateway.

8. Once all the desired parameters are configured, click the Save button at the bottom of the screen.

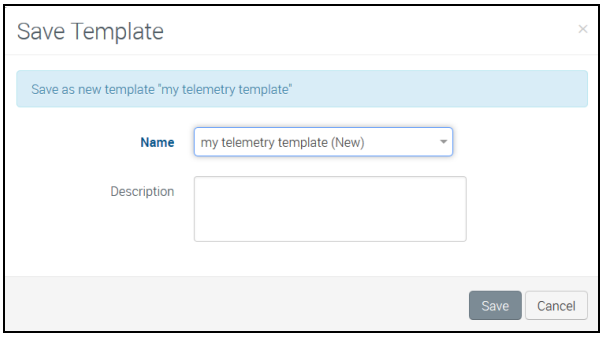

Figure 28: ALMS: Save Template

9. Name the template, and if desired, write a description of it.
10. Click **Save**.

Applying the template

To apply the template to one or more gateways or routers:

1. In ALMS, go to Monitor > Systems.
2. Select the check boxes beside the gateways or routers you want to send the template to.
3. Click the Apply Template button ( ).

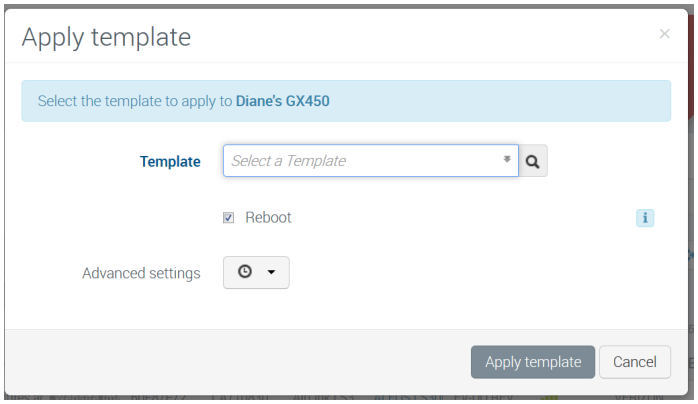

Figure 29: ALMS: Apply Template

4. In the Template drop-down menu, select the AVTA template.
   There is no need to reboot, so you can clear the Reboot check box.
5. Click Apply template.
   The template is sent to the gateway or router the next time it checks in to ALMS, or to manually trigger a connection, in ACEmanager, go to Services > ALMS > AAF, and click **Connect**.

Installing the Hardware

Warning: *Ensure that the gateway or router is grounded to the vehicle chassis. See the Hardware User Guide for your router or gateway for grounding requirements. Ungrounded or improperly grounded routers or attached peripheral devices can be damaged by transient voltages that may flow through the ground points of peripheral interfaces including serial ports and antenna ports.*

GX450 Installation for Vehicle Telemetry

To install the Vehicle Telemetry kit:

1. Install the AirLink gateway as described in the Hardware User Guide.
2. Connect one end of the included serial cable to the DB9 serial port on the AirLink gateway.

Note: If you have a GX gateway with an I/O X-Card installed, connect the serial cable to the main serial port on the gateway. Do not use the serial port on the X-Card.

3. Connect the other end of the serial cable to the DB9 serial port on the scanner.
4. Connect the common end of the OBD-II Y-cable to the OBD-II port on the scanner.
5. Connect one of the terminal ends of the Y-cable to the OBD-II port on the vehicle. The third end of the Y-cable is available for connecting other ODB-II scanning devices.

Note: For a discreet, hidden installation, remove the vehicle OBD-II female connector (❶ in Figure 30) from its typical location under the dashboard, connect it to the scanner and hide the entire assembly. Install the additional female OBD-II port on the Y-cable (❷ in Figure 30) under the dashboard where you removed the vehicle OBD-II port.

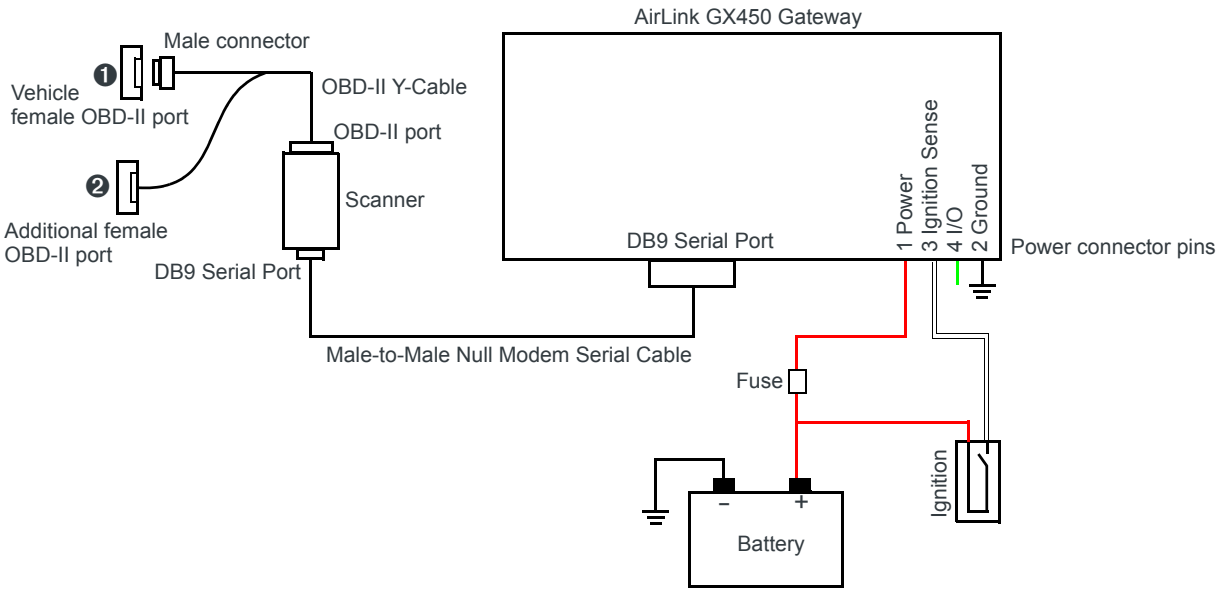

Figure 30: GX450 Hardware Configuration

The Status LED on the scanner flashes for a few seconds while AVTA is detecting the scanner and the vehicle:

- When the scanner is connected to the vehicle OBD-II port and the gateway, and both the gateway and the scanner are booted up
- Whenever the system is started up after having been off

This indicates that AVTA is running.

Upon initial startup or reconnection, the scanner checks its firmware, and if required, automatically updates to the latest version. The Status LED continues flashing while the scanner firmware is being updated. This may take several minutes. During that time, telemetry data is unavailable.

MP70 Installation for Vehicle Telemetry

Note: Sierra Wireless recommends not connecting another tool or OBD-II device to the vehicle bus when the MP70 is connected. Although the MP70 will not interfere with another device's operation on the vehicle bus, the other device will impede the MP70's ability to collect data.

Vehicle Installation: Option 1

This vehicle installation allows the router to operate with the vehicle, in that when the vehicle ignition is off, the router is off. For vehicle installations, Sierra Wireless recommends connecting the white Ignition Sense wire to the vehicle's ignition switch, as shown in the following illustration.

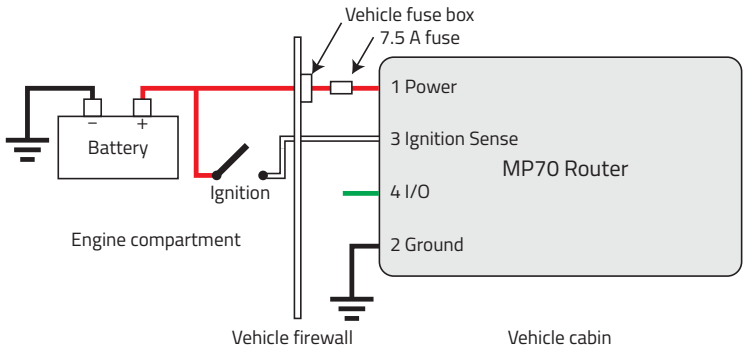

Figure 31: MP70 Vehicle Installation Option 1

If desired, you can configure a delay between the time the vehicle's ignition shuts off, and the time the router shuts down. A delayed shutdown is especially useful if you want to maintain a network connection while the vehicle's engine is shut off for short periods, such as in a delivery vehicle.

- Pin 1 (Power)—Use the red wire in the DC cable to connect Pin 1 to the power source. Include a 7.5 A, fast blow fuse, recommended to have no more than ±10% de-rating over the operating temperature range, in the input power line. Sierra Wireless recommends using a continuous (unswitched) DC power source. Connect the power through the vehicle's fuse box.
- Pin 2 (Ground)—Use the black wire in the DC cable to connect Pin 2 to ground.
- Pin 3 (Ignition Sense)—Sierra Wireless recommends always using the Ignition Sense wire (Pin 3) to turn the router off. It should not be turned off by disconnecting the power.

Vehicle Installation: Option 2

The main difference between this installation and vehicle installation option 1 is that you can configure a timer to turn the router on at set intervals for a configured length of time; for example, 20 minutes once every 24 hours when the ignition is off. Also, instead of the router turning on and off, the router alternates between on and standby mode. This wiring option enables the router to retain its calibration data for dead reckoning.

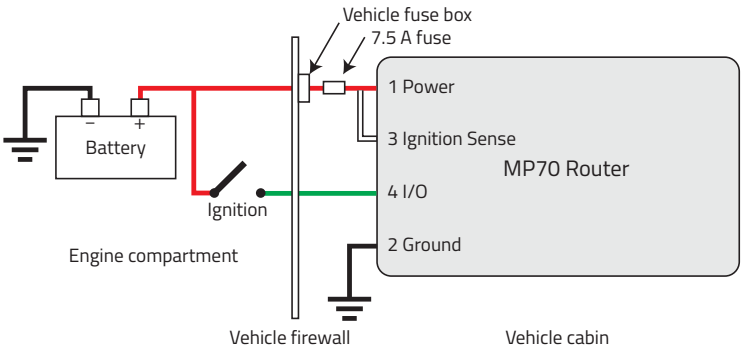

Figure 32: MP70 Alternate Vehicle Installation

- Pin 1 (Power)—Use the red wire in the DC cable to connect Pin 1 to the power source. Include a 7.5 A, fast blow fuse, recommended to have no more than ±10% de-rating over the operating temperature range, in the input power line. Sierra Wireless recommends using a continuous (unswitched) DC power source.
- Pin 2 (Ground)—Use the black wire in the DC cable to connect Pin 2 to ground.
- Pin 3 (Ignition Sense)—Connected to power
- Pin 4 (I/O)—Connected to ignition

Check Data Collection

To check that data is being collected and sent to ALMS:

1. In ALMS, select **Monitor** and choose your system.
2. Click the Add Widget icon.

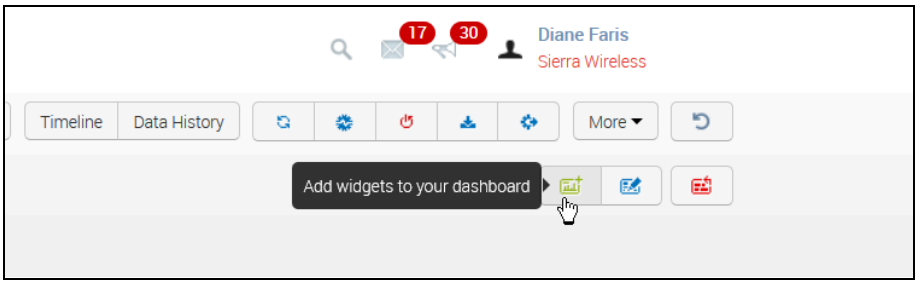

Figure 33: Add a Widget to the Dashboard

The following screen appears:

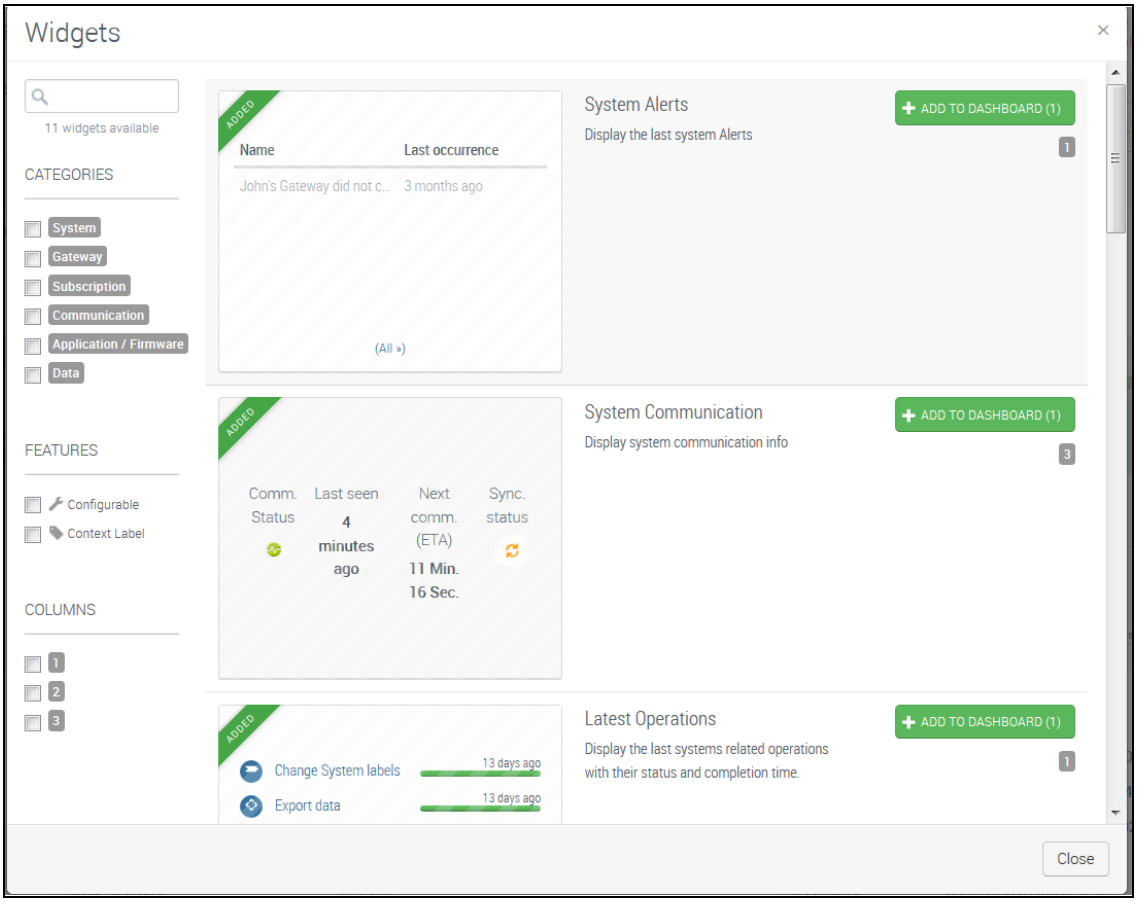

Figure 34: Widgets Configuration Screen

3. Scroll down to the Data history section, and click **ADD TO DASHBOARD**.
4. Under Series 1, search for avta.

5. From the drop-down menu, select the telemetry parameters you want to check.

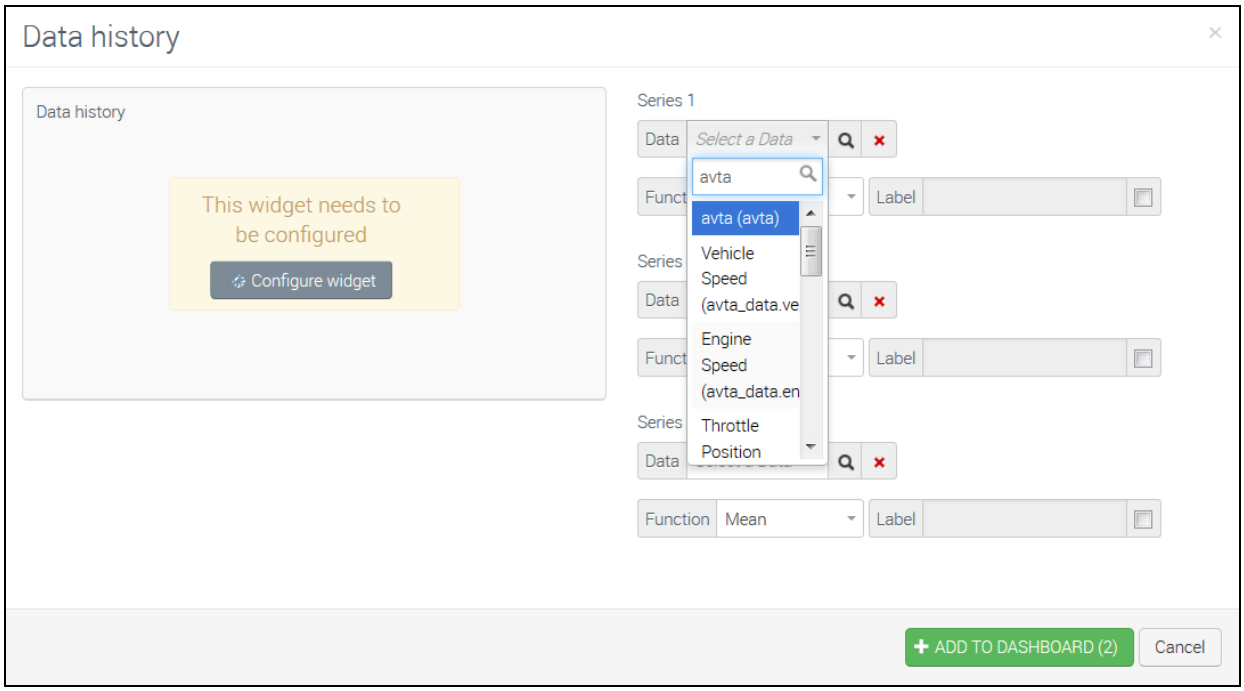

Figure 35: Data History Telemetry Parameter Selection

6. Go to Monitor > Systems, and then select your gateway.
7. Select **Data History** to confirm that data is being collected and sent to ALMS. The following screen appears:

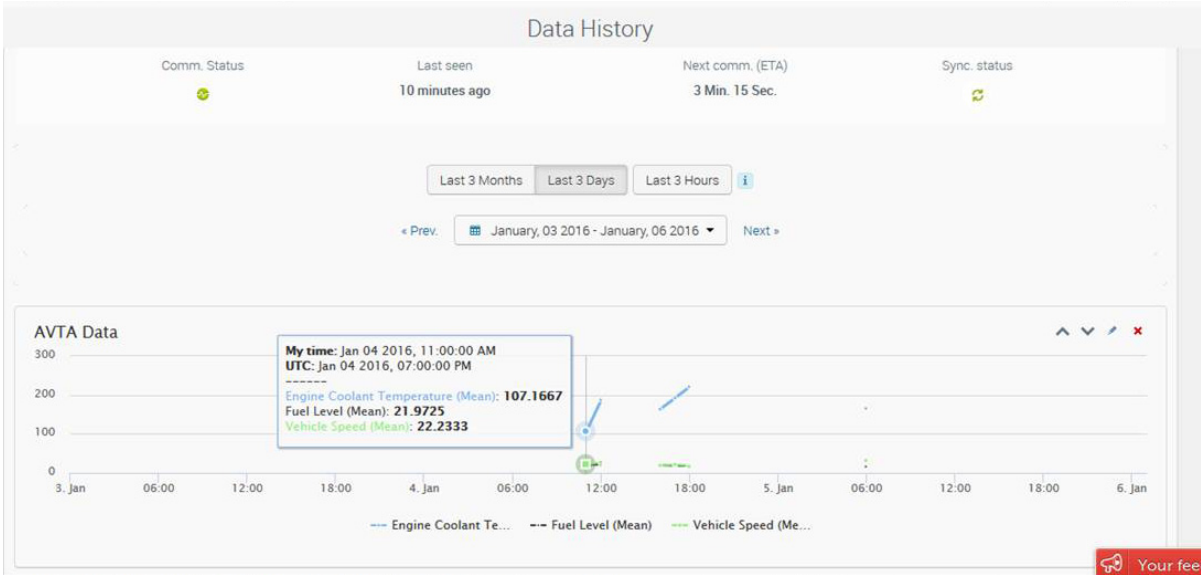

Figure 36: Data History Telemetry Widget

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