



Configuration and User Guide

AMM Operations Pack: Asset Manager



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Rev 1

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>> 1: Introduction

This document describes the Asset Manager Application (known also as the Asset Manager), a component of the AirLink Mobility Manager (AMM) Operations Pack. The Operations Pack is a separately licensed optional module of the AMM.

This guide should be read by anyone configuring or using the Asset Manager application module and monitoring assets on the AirLink Mobility Manager (AMM).

1.1 Related Publications

Title and Publication Number	Description
AMM Operation and Configuration Guide	Describes how to operation and configure the AMM.
AMM Report Guide	Describes the reports available on the AMM.

1.2 What is the Asset Manager

The Asset Manager is an optional application installed on the AMM that works in conjunction with the AMM to provide the locations of assets using signals sent from supported asset tags.

An asset tag is a small electronic device which is attached to an asset and sends a signal to an MG. The following image shows an example of an asset tag:



Figure 1-1: Example of an Asset Tag

The signal from the asset tag is broadcast to devices within the tag's vicinity. The MG device takes this signal and attaches a GPS location to it and then forwards it to the AMM. The AMM then provides a variety of tools to help manage the assets attached to the tags. These tools include up-to-the-minute reporting on an asset's location, email alerts, and other parameters such as the ambient temperature.

Once logged on to the AMM, the Asset tab provides a graphical interface with a map indicating the last reported location of all asset tags in your fleet, along with information on the state of the tags.

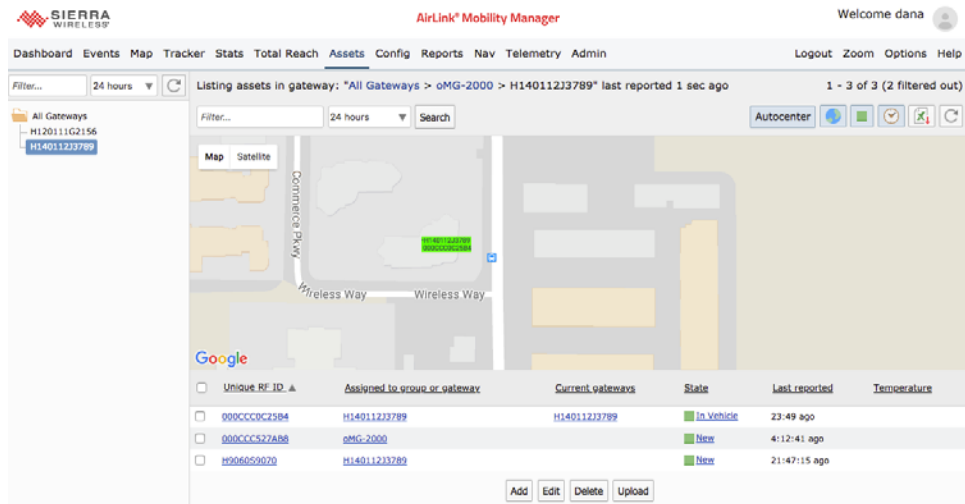


Figure 1-2: The Asset Tab

1.3 Reports

The Asset Manager application on the AMM provides four reports to analyze asset tag information:

- **Asset Usage Summary:** Displays a summary view of assets managed by a fleet of vehicles.
- **Asset Usage Graph** Displays a graphical view of a single asset.
- **Asset History:** Displays the known history of a selected asset over the specified time range. This report is used to track the performance of a single asset over a period of time and across one or more vehicles.
- **Vehicle Assets:** Similar to the single *Asset History* except that this report focuses on all assets in a vehicle over a period of time. This report is used to get a summary of asset performance (or usage) for assets assigned to a single vehicle.

For detailed information on each report, see the *AMM Report Guide*.

>> 2: Asset

Asset tags are small, battery-powered wireless devices which utilize standard Wi-Fi networks to track high-value assets in real-time, in any environment – from tight indoor locations such as hospitals and manufacturing floors to open outdoor locations such as parking lots and shipping yards. They send out a signal indicating the tag's presence allowing the tags to be used for a variety of applications varying from tracking the location of an asset used in your fleet to obtaining vital information from an employee currently on site. The asset tags are used in conjunction with MG devices and the AMM to provide up-to-the-minute reporting of location, temperature, and/or other configurable statistics.

2.1 Types of Asset Tags & Tag Features

All tags support the reporting of their presence to a nearby MG device. The MG will then associate a GPS location with the signal and forward it to the AMM.

There are different types of tags available, each of which can provide different types of information.

Some models for example, are also capable of reporting the ambient temperature while others are able to report that the asset tag itself has been tampered with.

2.1.1 Temperature

Some tags are capable of reading and transmitting temperature information, which can be useful in locations where temperature may affect the performance of vehicle-based assets or equipment. By attaching a tag with the temperature-reading capabilities of these assets, the AMM can be configured to send out an alert when a desired temperature threshold has been exceeded.

Examples where such asset tags might be used include:

- transporting temperature sensitive medications
- operating machinery in unstable or sub-freezing climates

2.1.2 Asset Tag Disclaimer

The temperature events rely on a stable WAN connection to transmit such events. In the event that WAN connectivity is unavailable, the asset tag events may not be available until connectivity is re-established.

2.2 Supported Asset Tags

Asset Manager currently supports two different models manufactured by AeroScout:

- **T2 Tags** – Basic Wi-Fi Tag which reports its presence:



T5 Tags – Basic Wi-Fi Tag which reports its presence and the ambient temperature:



Label indicating temperature tag



>> 3: Asset Tag Provisioning

Asset tags must be activated, added to the AMM, and then assigned to a single gateway or to a group of gateways.

3.1 Activating Asset Tags

All asset tags are activated by Sierra Wireless before being shipped. They are configured to broadcast over Wi-Fi channel 11 (2.462 GHz). Once asset tags are enabled on the MG(s), the MG WLANs must also be set to work on channel 11 for optimum performance.

Upon request, the asset tags can be configured to use another channel but this can only be done by Sierra Wireless prior to shipping.

3.2 Adding Asset Tags to the AMM

Use the steps below to add an asset tag on the AMM. To add multiple asset tags using a file, see [Bulk Uploading Multiple Asset Tags to the AMM](#) below.

Note: Before an asset tag can be displayed on the AMM, it must be added by a user who has been granted the privilege to edit assets.

1. Log in to the AMM using your credentials.
2. Click on the **Assets** tab.
3. Click on the **Add** button towards the bottom of the dashboard to open the **Add Asset** page and proceed to fill in the following fields:
 - **Unique RF ID:** Enter the identification number (MAC address) given to the tag. This can be found directly on the tag just above a barcode starting with the letters MAC.

Unique RF ID:*

Figure 3-1: Example Unique RF ID

- **Label:** Enter a unique name that will show up in the Asset dashboard
 - **Type of asset:** Leave as default [RFID].
 - **Assigned to group or gateway:** Choose an MG for vehicle mode or a group for group mode (for more information see Section 4.3 - Assigning Asset Tags to a Gateway or a Group).
 - **Notes:** User specific notes to attach to the asset (optional).
4. Click on **Save** to apply all changes and exit to the dashboard.

3.3 Bulk Uploading Multiple Asset Tags to the AMM

Multiple asset tags can be added to a gateway or group of gateways by specifying their information in a .yaml file and then uploading that file to the AMM.

1. Open a text editor and create a .yaml file based on the template and example provided in [Yaml File Template for Bulk Asset Upload](#).

Note: Ensure there are no extra space characters when entering the content into the .yaml file.

2. Log in to the AMM using your credentials.
3. Click on the **Assets** tab.
4. Click on the **Upload** button towards the bottom.
5. Select the .yaml file created in Step 1.
6. Once selected, click **Upload** to add the asset(s) in the file to the gateway(s).

3.4 Editing Asset Tags in the AMM

One or more existing asset tags may be edited at once:

1. Log in to the AMM using your credentials.
2. Click on the **Assets** tab.
3. Select one or more asset tags by enabling the checkbox next to each asset you wish to edit.

<input type="checkbox"/>	Unique RF ID ▲	Assigned to group or gateway	Current gateways	State	Last reported	Temperature
<input checked="" type="checkbox"/>	H9060S49A04	ND62230		New	5:32:22 ago	
<input type="checkbox"/>	H9060S9070	H150515		New	5:19:06 ago	
<input checked="" type="checkbox"/>	Q3HTAG2000	H150515		New	5:39:01 ago	

Figure 3-2: Asset List

4. Click on the **Edit** button towards the bottom of the dashboard to open the Editing Assets page. The following fields will be available for edit.
 - **Unique RF ID:** shows the MAC address of the asset tag that was selected. This field is disabled if more than one asset tag has been selected.
 - **Label:** assigns a name to the selected asset tag.
 - **Type of asset:** this field must be left as default [RFID]
 - **Assigned to group or gateway:** assign/reassign the selected asset tag(s) to a gateway or group (for more information about assigning asset tags see Section 4.3 - Assigning Asset Tags to a Gateway or a Group).
 - **Notes:** user specific notes to attach to the asset (optional).

Note: if multiple assets were selected, each of the following fields will contain a checkbox, which must be enabled in order to modify the field.

5. Click on **Save** to apply all changes and exit to the dashboard.

3.5 Assigning Asset Tags to a Gateway or a Group

The Asset Manager module can be used in two different ways. If an asset tag is assigned to a specific MG which is installed in a vehicle, the tag will be set in Gateway mode. If a tag is assigned to a group of MG devices which are used across the fleet, the tag will be set in Group mode.

3.5.1 Gateway Mode

When an asset tag is configured in Gateway mode it is associated with one MG device or vehicle. This mode is useful for situations where an asset must remain within or near a specific vehicle. The AMM will only report the state of the tag with respect to the particular vehicle to which it has been assigned.

Some examples of where Gateway mode might be used include:

- Specialty equipment required in specific vehicles
- Any equipment assigned to a vehicle whose removal would impact the operation of the crew.

3.5.2 Group Mode

When an asset tag is configured in Group Mode it is associated with a group of vehicles. This mode is useful for situations where an asset does not remain near or in the same vehicle at all times. This mode will allow the tag to report to any vehicle that is within 400 feet. The AMM will report the state of the tag with respect to all vehicles in the same group that the tag is assigned to.

Some examples of where Group Mode might be used:

- Ambulance stretchers.
- Equipment or narcotics that are shared between vehicles.

3.5.3 Assigning a Tag to a Group or a Gateway

Asset tags are assigned to a gateway or to a group of gateways in the asset tag Add/Edit page.

In the Assigned to group or gateway field, type a portion of the gateway's (or group's) name and select it from the drop down list.

Unique RF ID: 000CCC50CCB1

Label: Stock

Type of asset: RFID

Assigned to group or gateway: H0 (8,138 gateways)

Notes:

- H010101
- H010101
- H010101
- H010101
- H010101
- H010101
- H010101

Save Cancel

Figure 3-3: Assigning an Asset Tag to a Gateway or Group of Gateways

>> 4: Configuring an MG Device

Customers wishing to use Asset Manager must purchase the Asset Manager package (part of the Operations Pack) and also order asset tags from Sierra Wireless. Once ordered, the technical support team will work with customers to push the software to the fleet.

Once enabled, the Asset Manager application module on the MG will start automatically and operate continuously whenever the MG is powered up.

For configuration assistance, please contact Sierra Wireless Customer Support.

4.1 Enabling Asset Manager on MG Devices

Once the Asset Manager module has been installed on an MG:

1. Power on the MG, and verify that it connects to a WAN service and communicates with the AMM.
2. Open a web browser (Internet explorer or Firefox recommended) and enter the following URL into the address bar followed by your login credentials:
 - **oMG Devices:** <http://welcome.to.inmotion/MG-LCI> (prior to MGOS 3.14.5)
 - **oMG/MG Devices:** <http://welcome.to.sierrawireless/MG-LCI> (MGOS 3.14.5 and higher)
3. Click on the **Applications** tab and then click on the **Asset Tracker** sub-tab. Enable the Asset Tracker application by entering a checkmark in the box next to **Enable**.



Figure 4-1: Applications Tab

4. Click **Submit**.

5: Asset Manager Control Panel

5.1 The Asset Manager Dashboard

The Asset Manager Dashboard provides an overview of the statistics of all your asset tags. Once logged in to the AMM, select the **Asset** tab to display the *Asset Manager Dashboard*. From this page you can immediately see where your tags are graphically located on the map as well as a variety of important statistics about each tag.

Listing assets in gateway: "All Gateways > oMG-2000 > H140112J3789" last reported 1 sec ago 1 - 3 of 3 (2 filtered out)

Filter... 24 hours Search Autocenter

Map Satellite

Commerce Pkwy Wireless Way

Google

<input type="checkbox"/> Unique RF ID ▲	Assigned to group or gateway	Current gateways	State	Last reported	Temperature
<input type="checkbox"/> 000CCC0C25B4	H140112J3789	H140112J3789	In Vehicle	23:49 ago	
<input type="checkbox"/> 000CCC527AB8	oMG-2000		New	4:12:41 ago	
<input type="checkbox"/> H906059070	H140112J3789		New	21:47:15 ago	

Add Edit Delete Upload

Figure 5-1: Asset Manager Dashboard

Each column provides some basic statistics:

- **Unique RFID:** The user-friendly name (if assigned) of the asset tag along with the RFID number in parenthesis.
- **Assigned to group or Gateway:** The gateway or group to which the tag has been assigned.
- **Current Gateways:** The gateways currently in the vicinity of the asset tag. Each MG will report all tags that are within approximately 400 feet of the MG, regardless of whether the tags are assigned to that MG device.
- **State:** Current state of the tag - please see tables in sections 6.3 and 6.4 for more details.
- **Last Reported:** The last time that the tag reported to the AMM. For bandwidth efficiency, the AMM will not change this field until the asset tag changes state.
- **Location:** Geographical location (GPS coordinates) of the tag.
- **Temperature:** Current ambient temperature (if the tag reports this information).
- **Battery:** Indicates the health of the asset tag's battery:
 - GREEN: 100% – 66%
 - YELLOW: 66% – 33%
 - RED: 33% – dead

To replace the battery: remove the four small screws on the rear of the tag and replace the 1/2 AA size battery.

See Section 3.2 - Supported Asset Tags for more information about the different asset tag types.

5.2 Status of Asset Tags in Gateway Mode

The AMM will display the following states for the status of the tag in Gateway mode:

- **In Vehicle:** Tag is currently in or near the assigned vehicle
- **Left Behind:** Vehicle has changed location while the tag is out of the vehicle
- **Missing:** Tag is not in or near any vehicle
- **Wrong Vehicle:** Tag is currently out of range of the assigned vehicle but in or near an unassigned vehicle

5.3 Status of Asset Tags in Group Mode

The AMM will display these states for the status of the tags in *Group* mode:

- **In Vehicle:** Tag is currently in a vehicle from the fleet
- **Missing Tag:** Tag is away from all vehicles in the assigned group

5.4 Thresholds for Asset Manager

Users can define thresholds for each individual tag, several tags, or the entire fleet. With these thresholds the AMM can send alerts by way of an email to one or more email addresses when a threshold condition has been met.

To configure the thresholds, log in to the AMM, select the **Admin** tab and click on **Thresholds** in the pop up menu. This will open the *Adding a Threshold* screen.

Figure 5-2: Adding a Threshold

This page is divided into three sections: *Properties*, where the stat is chosen, *Enable warning*, where the warning alert is configured, and *Enable error* where the error alert is configured.

The following stats can be selected to monitor for a threshold:

- **Asset Battery:** The condition of the tag’s battery.
- **Asset Signal:** The strength of the tag’s signal from the reporting MG’s point of view.
- **Asset State:** The current state of the MG device.
- **Asset Temperature:** The current ambient temperature where the tag is located.

You can set a warning when a limit is being approached and an error when a limit has been reached. A warning condition will display a yellow icon and an error condition will display a red icon beside the threshold. For information on setting the properties for a threshold, see the *AMM Operation and Configuration Guide*.

Below are scenarios and examples of how the threshold would be set for each type of statistic.

Example 1 - Asset Battery – Low Battery

The following threshold watches the value of the *AssetBattery* stat to determine its battery level. The warning condition will immediately log an event when the asset tag’s battery has reached 66%. When the battery reaches less than 33%, the threshold’s error condition configuration will log an event and immediately send an email.

Adding new threshold [Show Advanced Config](#)

Properties

Label: Low Battery

Group or gateway: H090111G (8,205 gateways)

Stats for gateway type: oMG

Stat: AssetBattery

Matching Labels: (eg: asset label, name or type)

Threshold owner: dana

Email warning and error actions to owner

Only show warning and alert values on dashboard

Do not trigger actions on clear

Notes or instructions: Change Battery

Enable warning

Warning Criteria: AssetBattery equals .66 (equals 66%)

Log Event

Send Email myname@company.com (name@company.com,name2@company.com)

Actions: Snmp Trap

Enable error

Error Criteria: AssetBattery equals .33 (equals 33%)

Log Event

Send Email myname@company.com (name@company.com,name2@company.com)

Actions: Snmp Trap

Figure 5-3: Example Threshold for Low Battery

Example 2 - Asset State – Lost tag

The following threshold monitors the *AssetState* stat to determine the state of the asset tag. The warning condition will log an event and send an email out immediately once the tag has been missing for 30 minutes. When the tag has been missing for 60 minutes, the threshold’s error condition will log an event and immediately send out an email message.

Adding new threshold [Show Advanced Config](#)

Properties

Label:

Group or gateway: (8,205 gateways)

Stats for gateway type:

Stat:

Default value: (when unreported)

Display Filter: (regular expression match)

Matching Labels: (eg: asset label, name or type)

Dashboard group:

Show value as obsolete when: (greyed out)

Threshold owner:

Email warning and error actions to owner

Only show warning and alert values on dashboard

Do not trigger actions on clear

Notes or instructions:

Enable warning

Warning Criteria: is one of (equals Missing)

Extra Criteria:

Log Event

Send Email (name@company.com,name2@company.com)

Snmp Trap

Trigger on all events

Actions:

Hold time: (minutes)

Delay time: (minutes)

Enable error

Error Criteria: is one of (equals In Vehicle)

Extra Criteria:

Log Event

Send Email (name@company.com,name2@company.com)

Snmp Trap

Trigger on all events

Actions:

Hold time: (minutes)

Delay time: (minutes)

Figure 5-4: Example Threshold for Lost Asset Tag

Example 3 - Asset Temperature – Out of Range

The following threshold watches the *AssetTemperature* stat to determine its ambient temperature at the tag’s current location. The threshold’s *Warning* condition is configured to log an event and send out an email when the temperature is lower than -20 degrees C or higher than 35 degrees C for 30 minutes. The threshold’s error condition logs an event and sends out an email when the ambient temperature at the tag’s current location is lower than -30 degrees C or higher than 50 degrees C for 30 minutes. Note: the tags support both Celcius and Fahrenheit.

Adding new threshold [Show Advanced Config](#)

Properties

Label: Temp Range X

Group or gateway: H090111 (8,205 gateways)

Stats for gateway type: oMG

Stat: AssetTemperature

Default value: (when unreported)

Display Filter: (regular expression match)

Matching Labels: (eg: asset label, name or type)

Dashboard group: Group 1

Show value as obsolete when: Never (greyed out)

Threshold owner: dana

Email warning and error actions to owner

Only show warning and alert values on dashboard

Do not trigger actions on clear

Notes or instructions: Temperature out of range

Enable warning

Warning Criteria: AssetTemperature is not between -20 and 35 (is not between -4.0 °F and 95.0 °F)

Extra Criteria: ** None ** +

Log Event

Send Email myname@company.com (name@company.com,name2@company.com)

Snmp Trap

Trigger on all events

Actions:

Hold time: 30 (minutes)

Delay time: 0 (minutes)

Enable error

Error Criteria: AssetTemperature is not between -30 and 50 (is not between -22.0 °F and 122.0 °F)

Extra Criteria: ** None ** +

Log Event

Send Email myname@company.com (name@company.com,name2@company.com)

Snmp Trap

Trigger on all events

Actions:

Hold time: 60 (minutes)

Delay time: 0 (minutes)

Figure 5-5: Example Threshold for Temperature Out of Range

Changing the Temperature Scale

Users need to select the temperature scale (i.e. Celsius or Fahrenheit). Note for a hosted AMM, only Customer Support can make these changes.

Use the following these steps to change the temperature scale:

1. Click on the **Admin** tab and click on **Stats**.
2. Locate and click on the **Asset Temperature** stat.
3. In the unit field enter the scale (Celsius or Fahrenheit).
4. Click **Save** and return to the thresholds setting page.

>> | A: FAQ

Question – Is the GPS location in the Asset Manager Dashboard an accurate representation of the location of the asset?

Answer – No. The GPS location listed in the dashboard displays the location of the MG device that has been reporting the tag's location the longest. The tag will be located within a maximum 400 foot radius of this MG.

Question - Why are there many MG devices listed in the Current Gateways column next to the asset tag and which one is closest?

Answer – When a tag is assigned to a group, the dashboard will show all MGs that are currently located within the reporting vicinity. The first listed gateway is the one that has been near the tag for the longest duration and is likely to be the one nearest the tag though this is not always the case.

Question – Why is the MG listed in grey in the Current Gateways column of the Asset Manager Dashboard?

Answer - A vehicle shows up in grey when the MG in that vehicle is powered down or offline. When another MG enters the same tag's vicinity, the grey vehicle will disappear.

Question – When an MG appears grey in the Current Gateways column of the Asset Tag Dashboard, is the GPS location the current location of the Tag?

Answer – It could be but likely won't be. Since the MG is grey and powered down, the tag may have been moved to another location where no other MGs are in the tag's vicinity.

Question – I noticed that tags go missing periodically. Why doesn't the listed MG show up as grey?

Answer – When a tag is displayed as missing, this is because there are no vehicles in the tag's vicinity. If a vehicle were to shut down in the tag's vicinity then it would show up as grey.

>> | B: Troubleshooting

B.1 Asset Tag Symptoms

Asset Tag is always missing:

- Verify that all MGs have the Asset Feature enabled (see Section 4)
- Verify that the tag's battery is still good (see Section 6.1)
- Verify that the tag is coming within reach of an MG

Asset Tag is only reporting to one MG:

- Verify that all MGs have the Asset Feature enabled (see Section 4)
- Verify that the tag is assigned to a group and not a single MG – see the Assigned to Group or Gateway column on the Asset Manager dashboard

>> C: Yaml File Template for Bulk Asset Upload

C.1 Format

The following .yaml file template can be used as a starting point for uploading multiple assets to an AMM. Assets can be added to multiple gateways in a group by specifying the name of a group for *Group Name here*. Assets can be specified for an individual gateway by specifying the serial number of the gateway for *Gateway ESN here*. Note that this can be repeated for multiple gateways.

```
%YAML 1.1
---
Group Name here:
  Asset ID 1 here:
    name: ""

Gateway ESN here:
  Asset ID 2 here:
    name: ""
```

C.2 Example

The following is an example of how the template might look with values added:

```
#Having both group and gateway is optional, user can add asset
to just one
#Example:

MyGroup:
  000AAA000000B:
    name: "asset 1 name"
  000BBB000000C:
    name: "asset 2 name"

#MyGateway:
  000CCC000000D:
    name: "asset 3 name"
  000DDD000000E:
```

name: "asset 4 name"