User Guide

Ayla Insights

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Ayla Networks

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1. Introduction

Ayla Insights is a fully-integrated business intelligence platform that provides Ayla customers with real-world insights into how their connected products are being used. Insights provides an easy path for customers to unlock the value of their data by offering a way to visualize, analyze, and explore their data quickly, regardless of the device type.

The Insights data platform completes the feedback loop for manufacturers and provides the fastest path for uncovering the actionable data needed to improve product development, customer satisfaction, and revenues.

1.1 About this Document

This document provides information on how to use Ayla Insights.

1.2 Intended Audience

This document is written for all stakeholders who would like to use the Ayla Insights feature to view metrics on their connected device data for analysis.

1.3 Related Documentation

Refer to the following documents on support.aylanetworks.com for additional information.

- *Ayla Customer Dashboard User's Guide* (AY006UDB3)
- *Ayla Developer Portal User's Guide* (AY006UDP3)
- *Ayla Service API Guide* (AY006USA3)
- *Getting Started* (AY006AIO2)

1.4 Abbreviations and Acronyms

OEM	Original Equipment Manufacturer
SMS	Short Message Service
SW	Software

1.5 Document Conventions

The following Ayla conventions are used in this document:

- Words or phrases that are specifically defined and could potentially be misunderstood are initially in “quotes” the first time they appear in the document.
- Names of buttons, keys on the keyboard, links on a website, and the like are written as is; for example, press the Reset button.
- Ancillary information that is important to emphasize is shown as:

NOTE The commands provided in the example assume your evaluation board is `mw300_rd` and your chip is `mw300`. If otherwise, make the appropriate substitutions.

- Information describing system failures or hazards that could damage a product, including data loss, is shown as:

CAUTION

Make sure that the appropriate data buffering is accounted for in deployed devices, especially where the loss of data is critical to the core functionality or the services provided by the systems.

1.6 Glossary

Ayla Module SW Version	This is the Ayla image (specific software version) associated with the OEM’s devices. The version of the Ayla firmware on the Wi-Fi module.
OEM Host SW Version	This is the image (specific software version) of the host microcontroller unit (MCU) associated with OEM’s devices. The term is specifically referring to the version of the host MCU's firmware that runs on the OEM's microcontroller. The host MCU is the product’s MCU that communicates directly with the Ayla-enabled Wi-Fi module using the Ayla module drivers.
OEM Model	This is a specific product model created by the OEM to represent that the product is connected to the Ayla cloud. This is also described as the name of the device that the OEM created.
Properties	These are the characteristics, attributes, and traits that make up a virtual device. The OEM defines these device-specific variables in the device template.

Property Direction (Input)	This is a property that is sent to the device. A property may originate in the Ayla cloud, an application, or some other cloud. The transactions (API calls) for this property are from an end user's mobile application to the OEM's physical device. (Transactions are from the cloud, not the application, even though the properties may originate on the application.)
Property Direction (Output)	This is a property that originates in the device and is sent from the device to the cloud for further distribution (to, for example, applications, other clouds, etc). The associated transactions (API Calls) that are from an OEM's device and alert an end user through a mobile application or web interface.
Transmissions	Any communication to or from a device in the Ayla cloud.

2. Navigating Ayla Insights

Ayla Insights provides information on how your users are interacting with their products and how the products are being used on a day-to-day basis. This 360-degree view of product usage enables you to see, understand, and promote continued product improvements and innovation.

Ayla Insights is easy to access on the Ayla Customer Dashboard, as shown below in Figure 1 below. This section provides information on how to open and start using Ayla Insights.

2.1 How to Access Insights

To access Ayla Insights, follow these steps:

1. Log in to the Ayla Customer Dashboard using your current log-in credentials.

NOTE These are the credentials you set up to register for a developer's account. If you have not done this, refer to the *Ayla Developer's Portal User's Guide, AY006UDP3* on support.aylanetworks.com.

2. Click **Insights** in the navigational panel (on the left side of the dashboard), as shown in Figure 1.

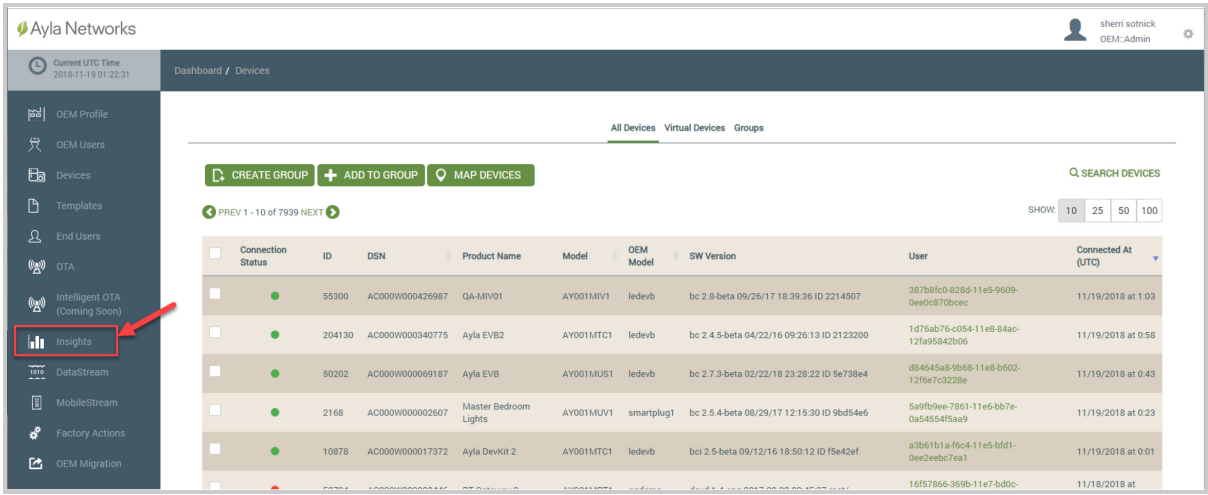


Figure 1: Accessing Insights on the Ayla Customer Dashboard

3. Type your credentials in the Sign In dialog box (shown in Figure 2) to open Ayla Insights. These are the same credentials described in Step 1.

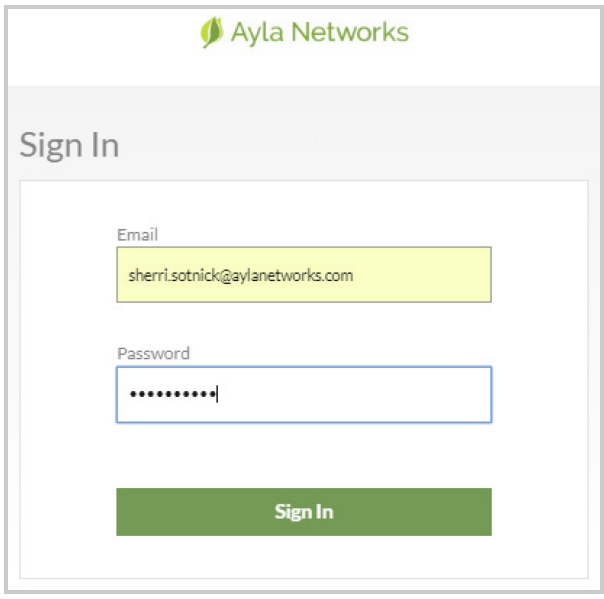


Figure 2: Signing In to Insights

4. Click **Sign In** to open the Overview page of Insights (which is the default landing page upon signing in).

2.2 How to Display the Reports for Ayla Insights

Ayla Insights has ten sets of reports that provide data pertaining to the components of your connected devices. Each set of reports has its own view in Insights. This section describes how to open the different sets of reports.

NOTE For a description of each set of reports, refer to Section 3 of this document.

1. As described in Section 2.1, sign in to Ayla Insights to open the Overview set of reports (Steps 3 and 4 of Section 2.1). Overview is the default landing page (shown in Figure 3).
2. Click the icon on the left of "Overview" at the top of the Overview landing page, (also called a hamburger icon) as shown in Figure 3. This displays the Ayla Insights navigational panel (shown in Figure 4).

NOTE This icon in the same location on each page of the report sets.

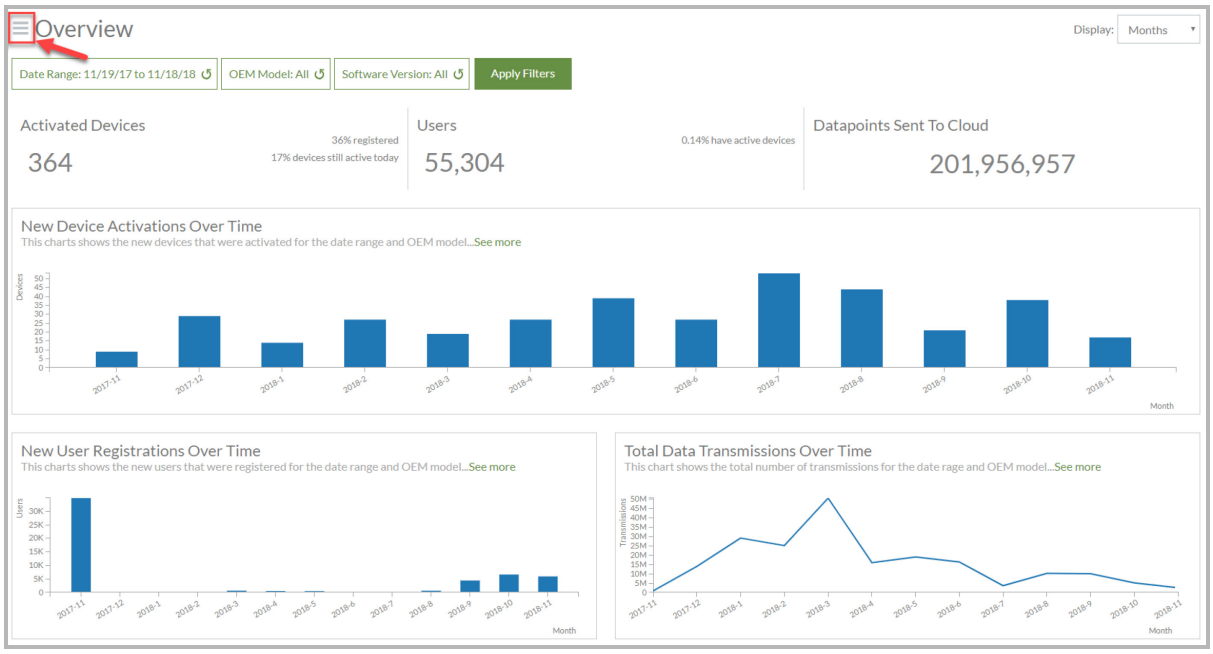


Figure 3: Overview Reports, and Clicking the Navigational Menu Icon

3. Notice that all ten sets of reports are listed in the Insights navigational panel, as shown in Figure 4.

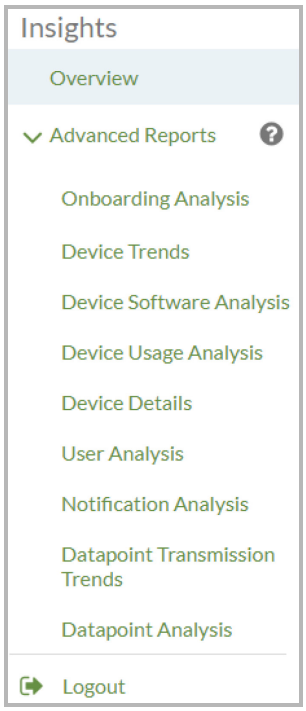


Figure 4: Insights Navigational Panel

4. In the Insights navigational panel, click the set of reports you wish to review, for example **Device Trends** (shown in Figure 5), to open the page for those reports.

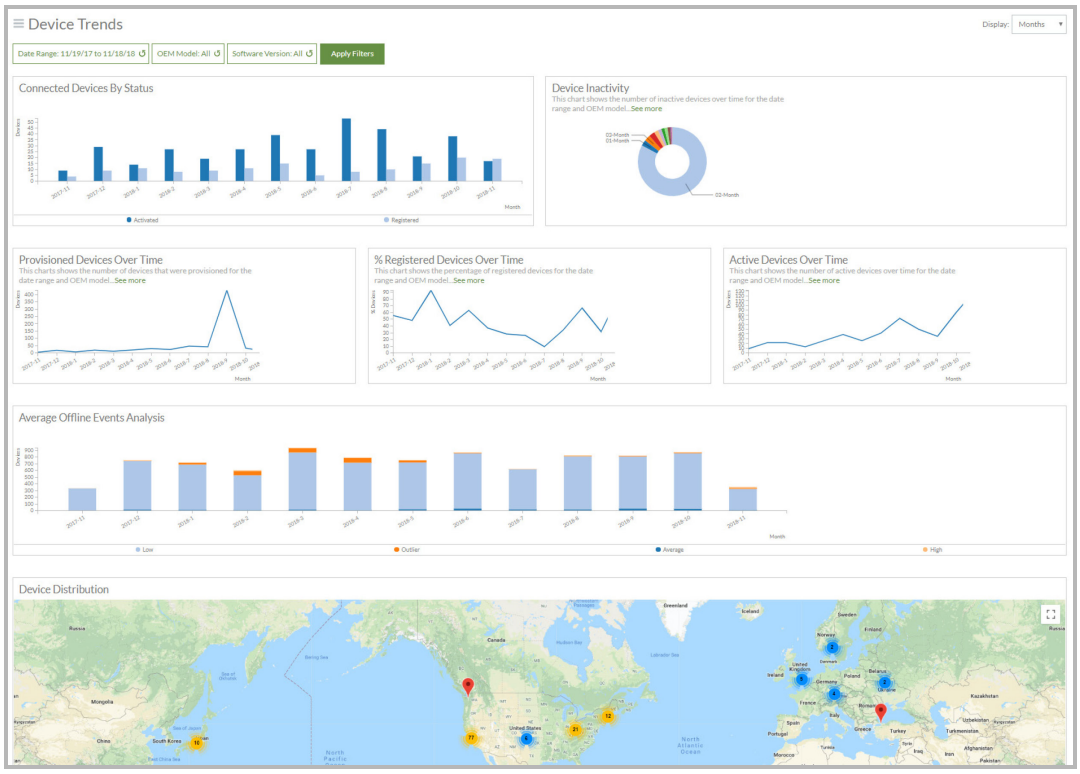


Figure 5: Device Trends Reports

5. Click the (hamburger) icon near “Device Trends” (shown below) to open the Insights navigational panel again.

6. To access Advance Reports, contact your Ayla Product Specialist. If you place your mouse cursor over the question mark icon, , there is note informing you of this as well. The Advanced Reports are described in Sections 3.2 -3.10 of this document.

7. Click **Logout** to sign out of Ayla Insights.

2.3 How to Filter Reports

You can modify the data shown in a set of reports based on specific filters. This enables you to visualize and analyze data to make product improvements, revenue predictions, etc. This section describes how to set the filters. Table 1 provides a description of some of the common filters used.

Table 1: Filters for the Report Sets in Ayla Insights

Search Filter	Description
Software Version	This is the firmware image (specific software version) associated with the devices. It is either the version of the Ayla firmware on the Wi-Fi module, or the version of the host MCU's firmware that runs on the OEM's microcontroller unit (MCU). The host MCU is the product's MCU that communicates directly with the Ayla-enabled Wi-Fi module using the Ayla module drivers.
Date Range	This enables you to show data for a specific date or time frame.
OEM Model	This is a specific product model created by the OEM to represent that the product is connected to the Ayla cloud. This is also described as the name of the device that the OEM created.
Notification Type	This enables you to show device data based on a specific alert type (user-defined notification), such as SMS (short message service), email, push (set up and sent from server usually in real-time), forward, and so on. Notifications help monitor device activity.
Datapoint Name	This enables you to review and analyze device data for a specific datapoint (by its name, i.e. heat_on for a heater) of a device property (i.e. fan_speed for a ceiling fan or heat_set_point for a heater).
Property Name	This enables you to review and analyze device data for a specific device property. The property name usually refers to and matches the property on the device, i.e. Blue_LED.
Display Name	Like the Property Name filter, this enables you to review and analyze device data for a specific device property, but this filter is based on the display name, not the property name. The display name refers to the actual device (product), i.e. kitchen_light_on.
Datapoint Value	This enables you to review and analyze device property data for a specific datapoint value (i.e. 75 degrees Fahrenheit for the temperature property of a heater).
DSN	This enables you to view specific datapoint transmission trends for a particular device by entering the device serial number (DSN).
Display	This enables you to show the data over weeks, months, or years. This filter is available for all report sets.

NOTE When you select a filter in one set of reports, that same filter is set in all reports for which the filter is applicable.

The remainder of this section describes the filters and how to use them.

2.3.1 Most Common Filters in the Report Sets

The following report sets have the same filters (shown below this list) available:

- Overview
- Device Trends
- Device Software Analysis
- Device Usage Analysis
- User Analysis

The Date Range and OEM Model filters are also available in the following report sets:

- Device Details
- Notification Analysis
- Datapoint Transmission Trends
- Datapoint Analysis

However, these reports also provide additional filters as described later in this section. The Onboarding Analysis reports includes the Data Range filter.

Key performance indicators (KPIs) from the Overview Reports display next to the Apply Filters button in all report sets, as shown below.

Follow these steps to apply the Data Range, OEM Model, and Software Version filters:

NOTE When you select a filter in one set of reports, that same filter is set in all reports for which the filter is applicable.

The Date Range Filter

1. To filter for specific date range, click **Date Range** to open the Filter: Date Range dialog box, shown in Figure 6.

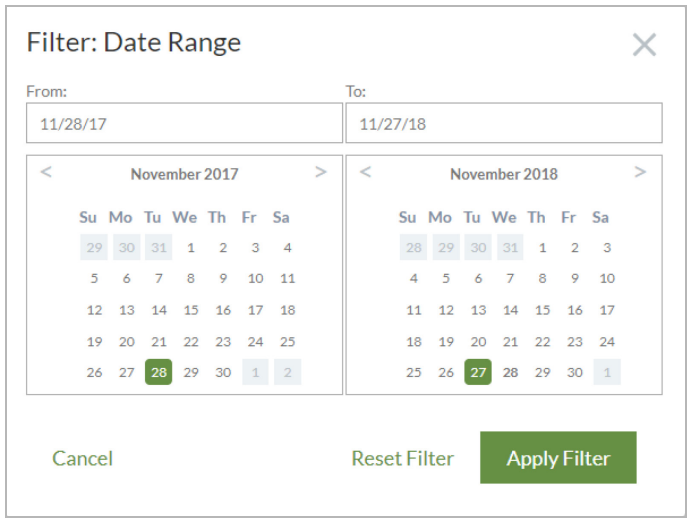


Figure 6: Date Range Filter

2. Either type your date range in the From and To fields, or use the right and left selectors (shown below) to choose the month(s) and click the date in the calendars.

NOTE If you select the wrong dates, you can click **Reset Filter** to revert to the previous date selection or **Cancel** to close the dialog box without saving your changes.

3. Click **Apply Filter** to close the dialog box and display the results of your filter in the set of reports.

The OEM Model Filter

1. To filter by a specific OEM model, click **OEM Model** to open the Filter: OEM Model dialog box, shown in Figure 7.

Figure 7: OEM Model Filter

2. Click the name of the OEM Model in the drop-down list to select the filter.

NOTE If you select the wrong OEM model, you can click **Reset Filter** to revert to the previous model or **Cancel** to close the dialog box without saving your changes.

3. Click **Apply Filter** to close the dialog box and display the results of your filter in the set of reports.

The Software Version Filter

1. To filter by the software version, click **Software Version** to open the Filter: Software Version dialog box.

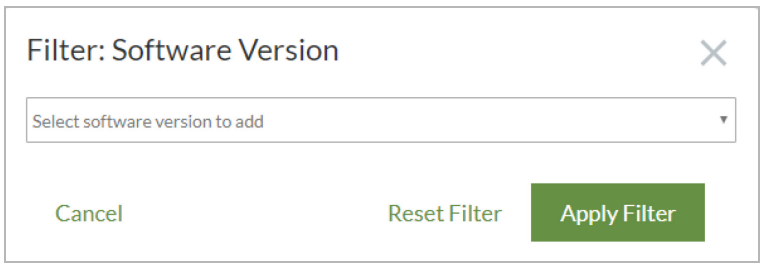


Figure 8: Software Version Filter

2. Click the software version of the firmware image in the drop-down list to select the filter.

NOTE If you select the software version, you can click **Reset Filter** to revert to the previous software version or **Cancel** to close the dialog box without saving your changes.

3. Click **Apply Filter** to close the dialog box and display the results of your filter in the set of reports.

2.3.2 The Display Filter

All the report sets, except Notification Analysis, have a Display filter that enables you to drill down to show the data (per the other filters applied) based on weeks, months, or years. Just click the drop-down list for Display (shown below) located in the upper right corner of the report page, and then click the option you prefer to view.

NOTE The time period (weeks, months, or years) you select in the Display filter is applied to all of the report sets.

2.3.3 The Notification Type Filter

The Device Details and Notification Analysis report sets enable you to filter the results by a notification type (filter shown below).

Apply the Notification Type filter as follows:

1. Click **Notification Type** to open the Filter: Notification Type dialog box, shown in Figure 9.

NOTE Refer to the *Ayla Developer Portal User's Guide* and the *Ayla Customer Dashboard User's Guide* for more information on notifications.

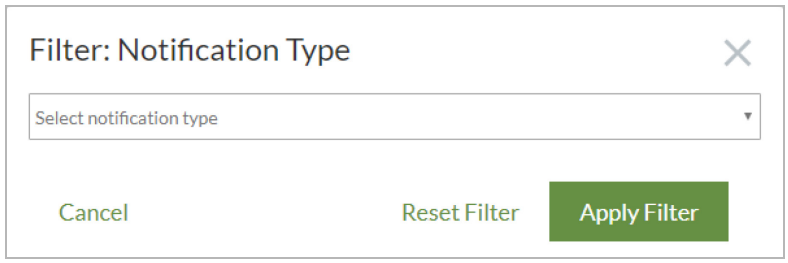


Figure 9: Notification Type Filter

2. Click the type of notification in the drop-down list to select the filter.

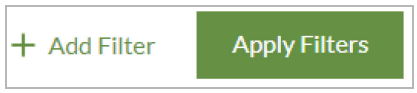
NOTE If you select the wrong notification type, you can click **Reset Filter** to revert to the previous notification type or **Cancel** to close the dialog box without saving your changes.

3. Click **Apply Filter** to close the dialog box and display the results of your filter in the set of reports.

2.3.4 Additional Filters

The following report sets provide additional filters (option shown below the list) enabling you to drill down to retrieve granular details.

- Notification Analysis
- Datapoint Transmission Trends
- Datapoint Analysis



For the Notification Analysis reports, apply the additional filters as follows:

1. Click **+ Add** Filter to display the drop-down list shown in Figure 10.

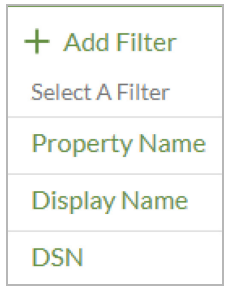


Figure 10: Additional Filters for Notification Analysis

2. To filter the results by Property Name, click **Property Name**, which opens the Filter: Property Name dialog box shown in Figure 11.

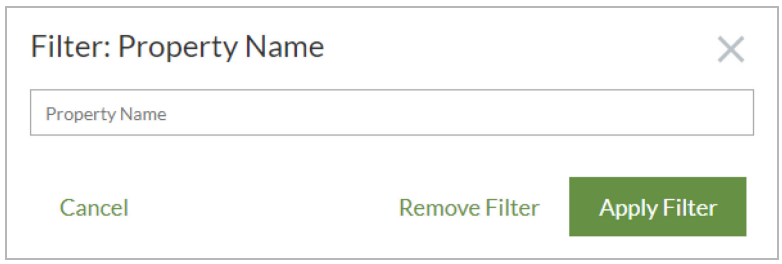


Figure 11: Property Name Filter

3. Type the name of the property. The property name usually refers to and matches the property on the device, i.e. Blue_LED.

NOTE If you type the wrong property name, you can click **Remove Filter** to clear the name in the Property Name field or **Cancel** to close the dialog box without saving your changes.

4. Click **Apply Filter** to close the dialog box and display the results for the Property Name filter in the Notification Analysis reports.

5. To filter the results by Display Name, click **Display Name** in the + Add Filter drop-down list (see Figure 10). This opens the Filter: Display Name dialog box shown in Figure 12.

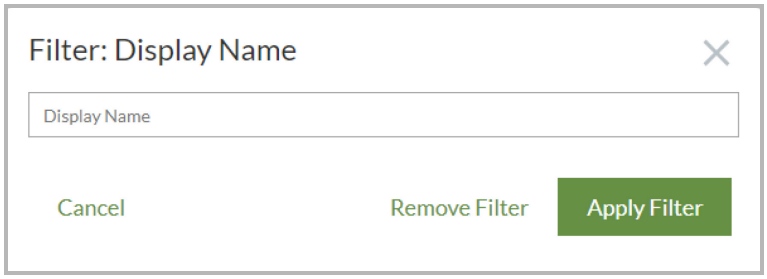


Figure 12: Display Name Filter

6. Type the display name of the device property. The display name usually refers to the actual device (product) and the specific property, such as kitchen_light_on. (Unlike the property name which usually refers to (and matches) the property on the device, such as blue_LED.)

NOTE If you type the wrong display name, you can click **Remove Filter** to clear the information in the Display Name field or **Cancel** to close the dialog box without saving your changes.

7. Click **Apply Filter** to close the dialog box and display the results for the Display Name filter in the Notification Analysis reports.

8. To filter the results by the device serial number (DSN), click **DSN** in the + Add Filter drop-down list (see Figure 10). This opens the Filter: DSN dialog box shown in Figure 13.

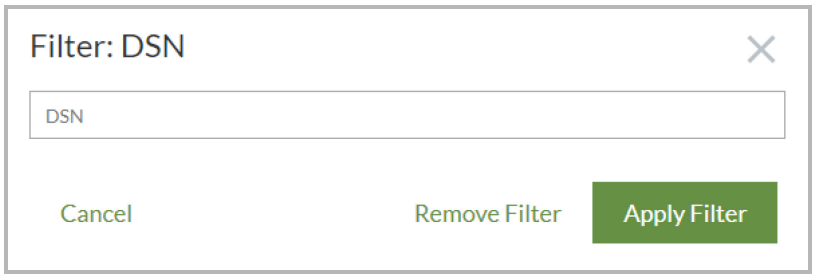


Figure 13: DSN Filter

9. Type the DSN of the device for which you would like to show in the results.

NOTE If you type the wrong DSN, you can click **Remove Filter** to clear the DSN field or **Cancel** to close the dialog box without saving your changes.

10. Click **Apply Filter** to close the dialog box and display the results for the DSN filter in the Notification Analysis reports.

For the Datapoint Transmission Trends reports, apply the additional DSN filter as follows:

1. Click **+ Add Filter** to display the drop-down list shown in Figure 14.

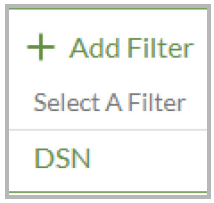


Figure 14: Additional Filter for Datapoint Transmission Trends

2. Click **DSN** in the + Add Filter drop-down list (see Figure 14) to filter the results by the device serial number (DSN). This opens the Filter: DSN dialog box shown in Figure 15.

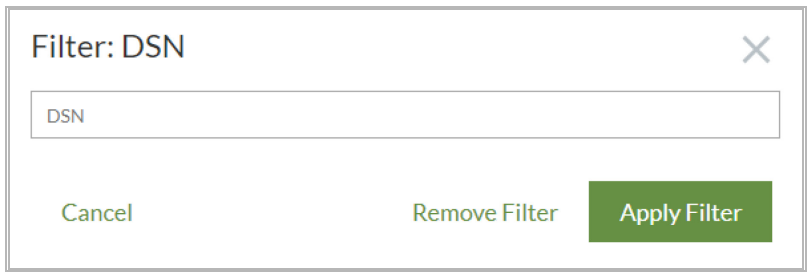


Figure 15: DSN Filter

3. Type the device serial number of the device for which you would like to show results.

NOTE If you type the wrong DSN, you can click **Remove Filter** to clear the DSN field or **Cancel** to close the dialog box without saving your changes.

4. Click **Apply Filter** to close the dialog box and display the results for the DSN filter in the Datapoint Transmission Trends reports.

For the Datapoint Analysis reports, apply the additional Datapoint Value filter as follows:

1. Click **+ Add Filter** to display the drop-down list shown in Figure 16.

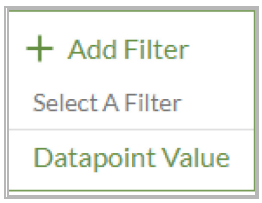


Figure 16: Additional Filter for the Datapoint Analysis Reports

2. Click **Datapoint Value** in the + Add Filter drop-down list (see Figure 16) to open the Filter: Datapoint Value dialog box shown in Figure 17.

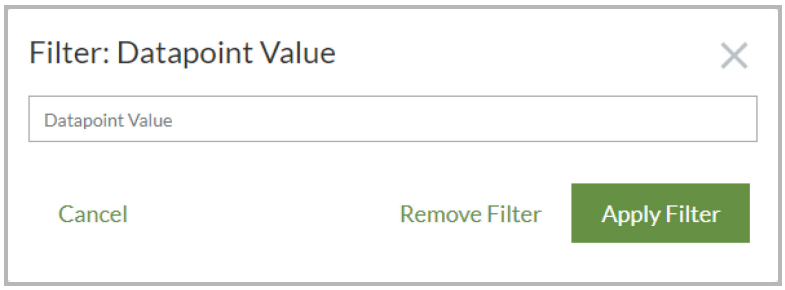


Figure 17: Datapoint Value Filter

3. Type datapoint value for which you would like to show in the results.

NOTE If you type the wrong datapoint value, you can click **Remove Filter** to clear the field or **Cancel** to close the dialog box without saving your changes.

4. Click **Apply Filter** to close the dialog box and display the results for the DSN filter in the Datapoint Analysis reports.

3. Standard Reports in Ayla Insights

This section provides information on the ten sets of reports available in Ayla Insights. The Overview Reports are included with your Ayla Developer account. Contact your Ayla representative for access to the remaining nine advanced reports (described in Sections 3.2 -3.10).

3.1 Overview Reports

The first set of reports is called Overview. They provide a high-level synopsis of device and user metrics, as shown in Figure 18.

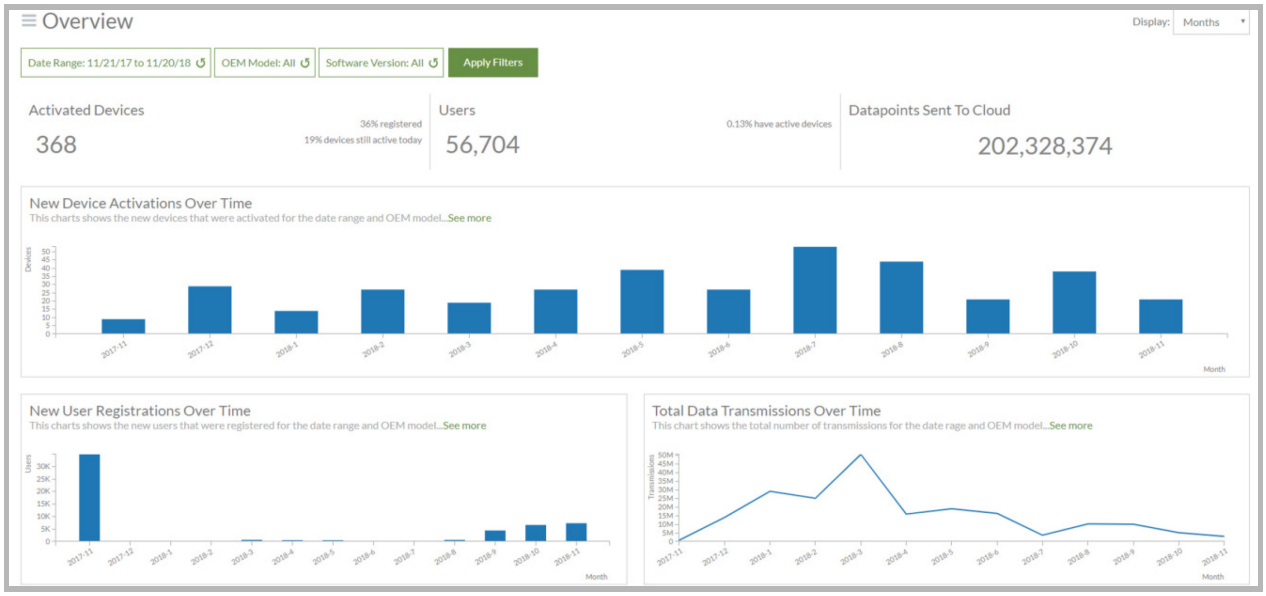


Figure 18: Overview Reports

The following types of information is available in the Overview reports.

- The total number of connected devices online, users with connected devices, datapoints sent to the cloud, and other related information.
- The total number of new device activations based on the date range and OEM model selected.
- The total number of new users who registered during a specific time period, which you can view in weeks, months, or years.
- A broad overview of the total number of times the device sends one or multiple property values to the cloud, broken down by week, months, or years. This information also depends on the OEM model and date range you select.

The remainder of Section 3.1 provides the different types of data in the Overview reports.

NOTE Refer to Section 2.3 in this document for more information on using the filters in Ayla Insights, which affects all individual reports in the set.

3.1.1 Key Performance Indicators (KPIs)

Different KPIs are prominently displayed directly above the Overview reports. These KPIs are shown next to the Apply Filters button in all report sets.

Following are descriptions of these KPIs:

- Activated Devices

  This is the total number of devices that are connected to the Ayla cloud, including a percentage of those registered and those still actively sending data to the cloud. See the following example.

- Total Users

  This is the total number of end users with registered devices and the percentage of those who have devices actively sending data to the cloud (example shown below).

NOTE You create user accounts by registering using the mobile application or via the API calls to the Ayla platform. Refer to the *Ayla Developer's Portal User's Guide* and the *Ayla Service API Guide* for more information on how to do this. A device may have multiple users; therefore, oftentimes users do not have a devices associated to a user account.

- Datapoints Sent to the Cloud

  This is the total number of device property datapoints sent to the cloud based on the date range and OEM model selected in the filters.

3.1.2 New Device Activations Report

This individual report (shown in Figure 19) provides the number of new devices that were activated for the date range and OEM model selected in the filters. A device is considered activated after it has been onboarded and starts sending data to the cloud.

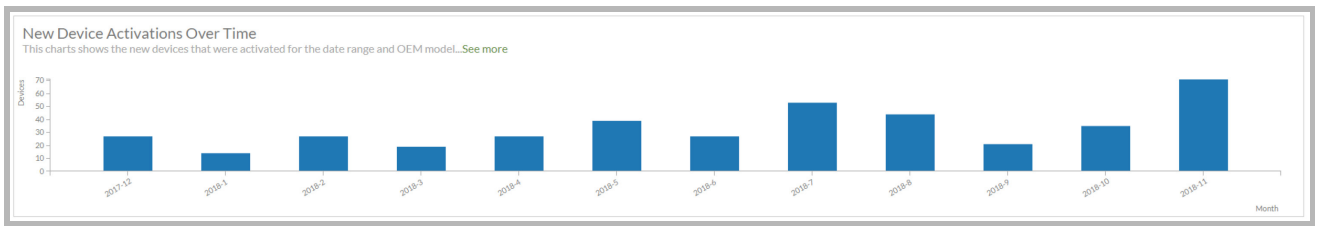


Figure 19: Overview Report on New Device Activations

NOTE If there was already a record of a device's DSN (device serial number) for a previous activation, that device is not included in this report.

3.1.3 New User Registrations Over Time Report

This individual report (Figure 20) shows the new users that were registered for the date range and OEM model selected in the filters. A device is considered registered when the end user registers the device using the mobile application. One person may have multiple user accounts with or without registered devices.

NOTE If there was already a record of user's UUID (universally unique identifier) for a previous registration, that user is not counted in this report.

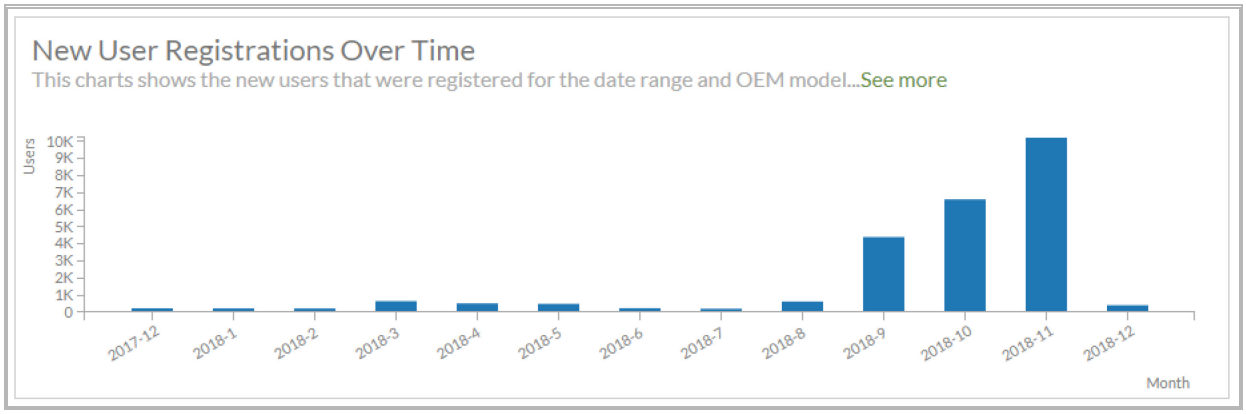


Figure 20: Overview Report on New User Registrations

3.1.4 Total Data Transmissions Over Time Report

This individual report shows the total number of times that the device sent one or more property values to the cloud. Refer to Figure 21 for an example. The device data transmissions shown are based on the date range, OEM model, and any additional filters applied to the Overview report set.

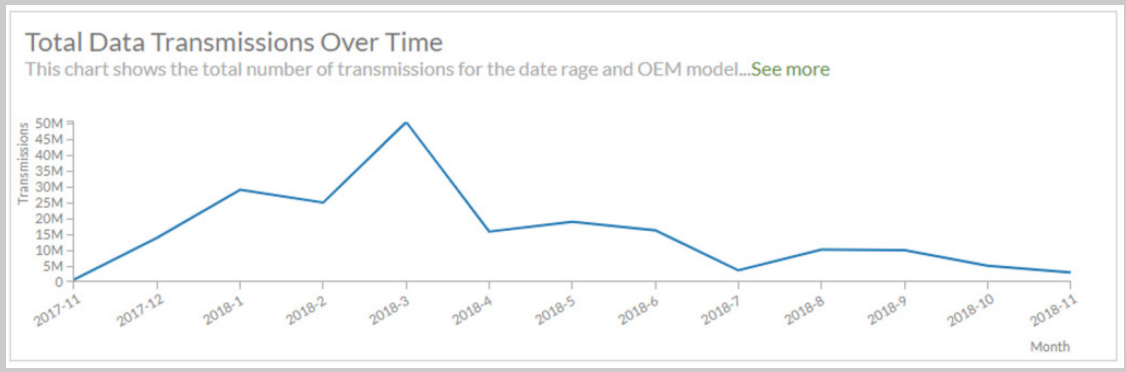


Figure 21: Overview Report on Total Data Transmissions Over Time

3.2 Onboarding Analysis Reports

The next report set is called Onboarding Analysis. It provides a comparison of activated and registered devices for two different date ranges that you specify in the filters. On each side (shown as a funnel), the upper portion of the report provides the number of activated devices per the specific date range (shown at the top). Then, the bottom of the report (both sides) shows the percentage of the activated devices that were registered during the same date range. By default, the right side shows device activations and the percentage of those devices registered for the past 6 months from the current date, and the left side shows the same information for a 6-month range prior to the date range on the right side.

Refer to Figure 22 for an example of the Onboarding Analysis Reports.

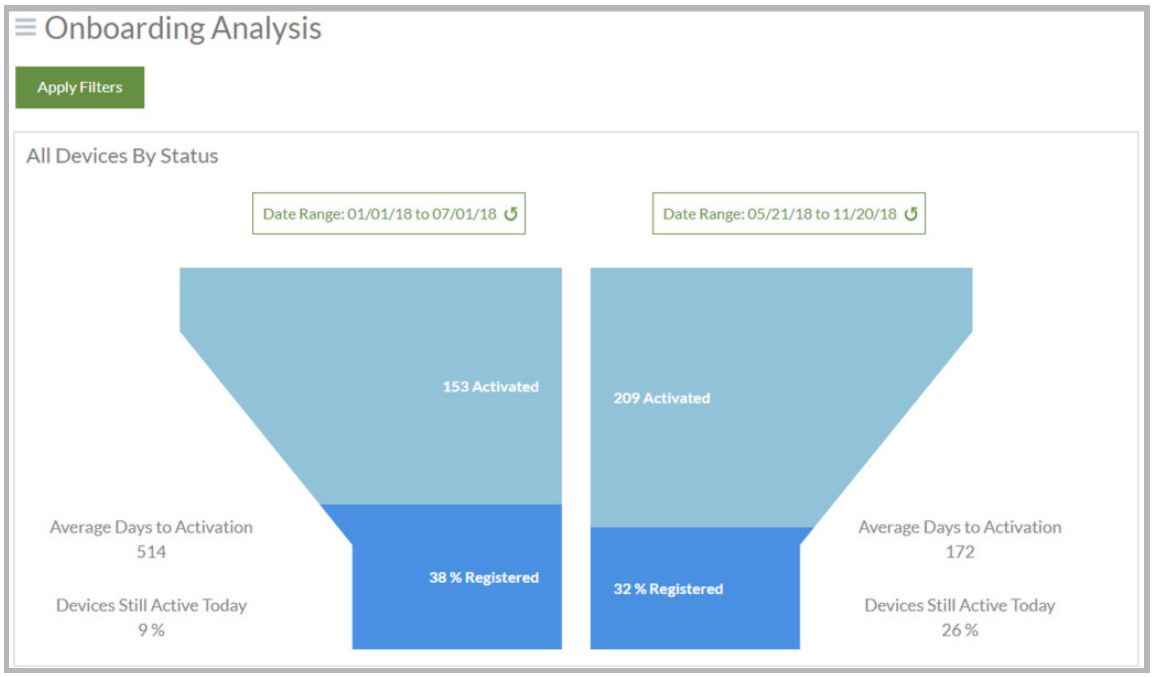


Figure 22: Onboarding Analysis Reports

NOTE Once onboarded and sending data to the cloud, the device is considered "activated." If still sending data to the cloud in the past 30 days, the device is considered "active."

Additionally, each side of the Onboarding Analysis report (funnel) shows the following data:

- Average number of days to activate and register devices. This information can tell OEMs, for example, how well they are doing in terms of devices being activated and registered.
- Percentage of devices still active today. This indicates whether the devices are still being used or not.

3.3 Device Trends

This set of reports (Figure 23) enables you to monitor device trends over a specific time frame in terms of the following:

- Connected status of devices
- The number of provisioned devices
- Percentage of registered devices
- Activity/Inactivity of devices over time
- Offline events
- Distribution (and location) of online and offline devices

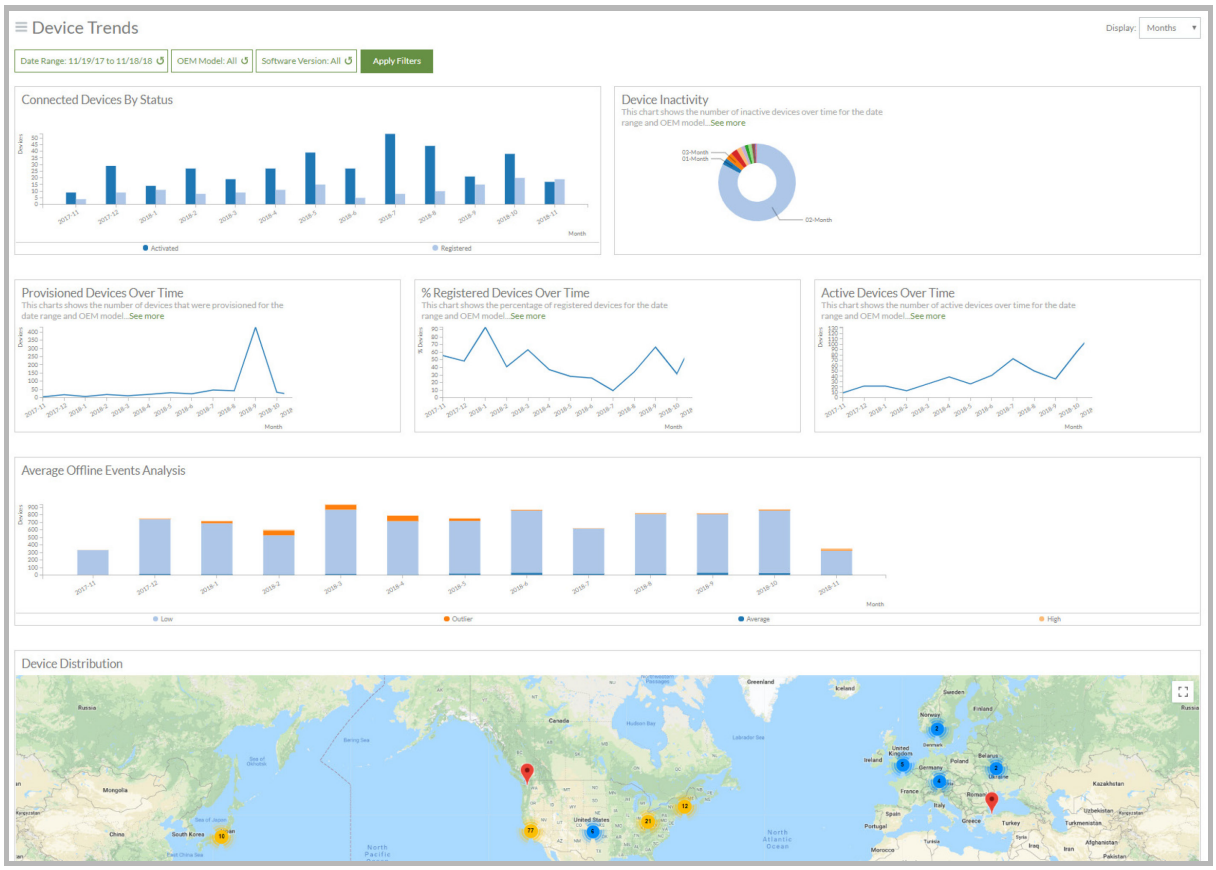


Figure 23: Device Trends Reports

This section describes the data provided in all seven Device Trends reports.

3.3.1 Connected Devices By Status

This individual report (Figure 24) shows the number of activated versus registered devices for the time frame selected (weeks, months, or years). You can use this information, for example, to understand if the fact that devices are registered impacts how often they are connected.

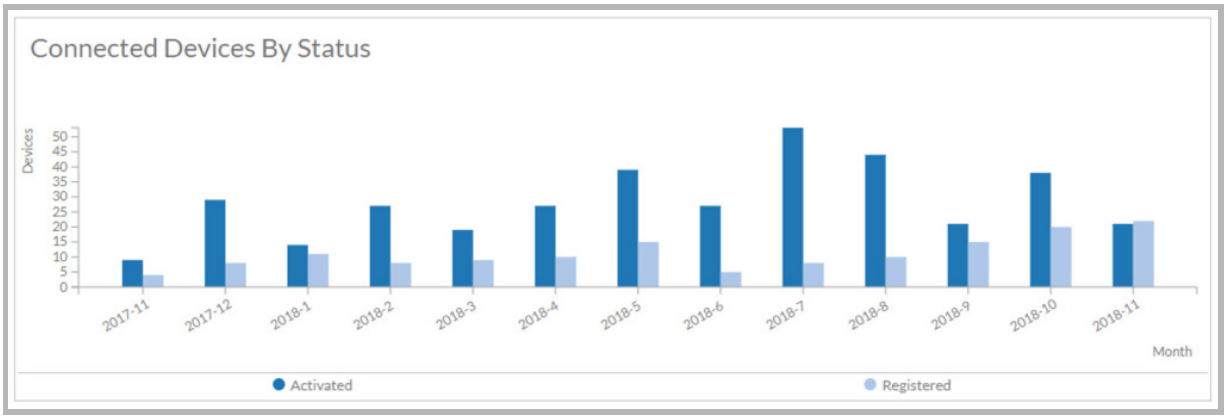


Figure 24: Connected Devices By Status

The statuses are as follows:

- Activated devices are onboarded (by enabling an initial Ayla service connection) and sending data to the cloud. A device remains activated for the duration specified in the terms of the license.
- Registered devices are devices that the end user registers using the mobile application.

3.3.2 Device Inactivity

This individual report shows the number of devices inactive over the time period selected in the filters. The device is considered “inactive” if it has not connected to the cloud within 30 days. You can use this report, for example, to determine if devices are regularly left inactive, if there is an even distribution of inactivity, or if there was a particular time span where devices became inactive. Refer to Figure 25 for an example.

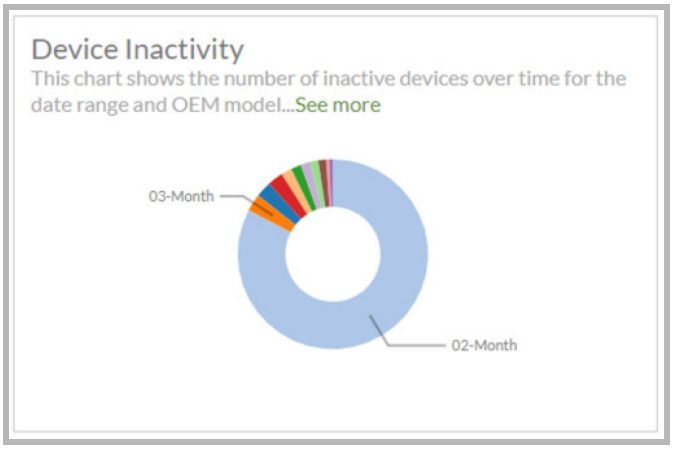


Figure 25: Device Inactivity

3.3.3 Provisioned Devices Over Time

This individual report shows the number of devices provisioned during the time range specified in the filters. A provisioned device has a DSN (Device Serial Number) and is authorized to connect to the cloud. Refer to Figure 26 for an example.

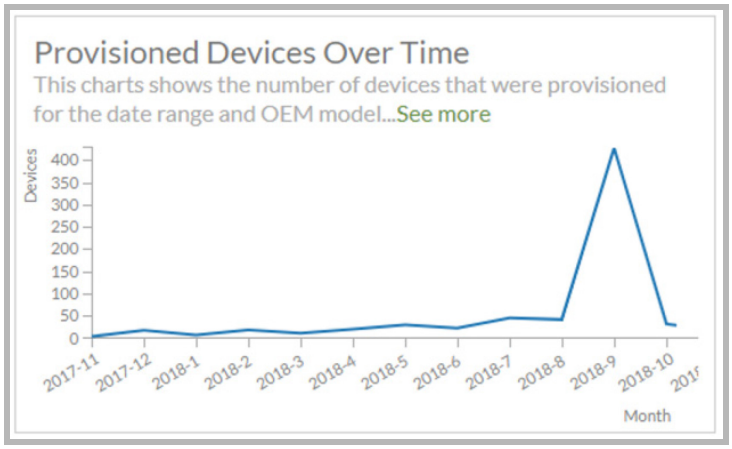


Figure 26: Provisioned Devices Over Time

3.3.4 % Registered Devices Over Time

This individual report (Figure 27) shows the percentage of activated devices that are registered based on the date range, OEM model, and other filters applied to the Device Trend reports. A device is considered registered if the end user registered the device using the mobile application. The device is then associated with that end user's Ayla account. One person can have multiple user accounts, and one device may have multiple users registered to it.

NOTE If there was already a record of the end user's UUID (universally unique identifier) for a previous device registration, that device is not counted in this report.

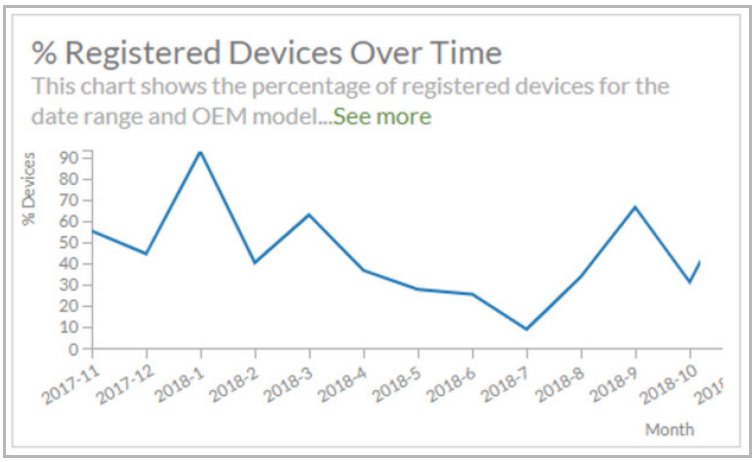


Figure 27: % Registered Devices Over Time

3.3.5 Active Devices Over Time

This individual report (Figure 28) shows the number of active devices for the time period and the OEM model selected in the filters. A device is considered “active” if it has connected to the Ayla cloud at least once in the past 30 days from the current date. This information is a good metric to determine if devices are being used during specific time ranges.

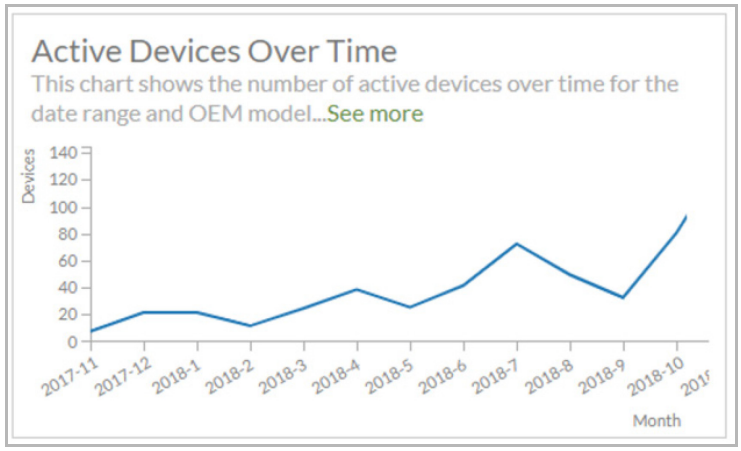


Figure 28: Active Devices Over Time

3.3.6 Average Offline Events Analysis

This individual report (Figure 29) shows the approximate number and time frame of offline devices. You may want to monitor this data since the number of offline events should be minimal; as ultimately, you want devices (especially static devices, like a thermostat) connected as long as possible to transmit events whenever they happen.

Figure 29: Average Offline Events Analysis

3.3.7 Device Distribution

This individual report (Figure 30) shows a map of the last known geographical locations of connected devices based on the date range and OEM model specified in the filters for the Device Trends report set. The location is determined by the IP address of the device's connection.

NOTE Per privacy regulations, the locations are an approximate locality (e.g. may be based on the zip code in the US and other countries that have postal codes).

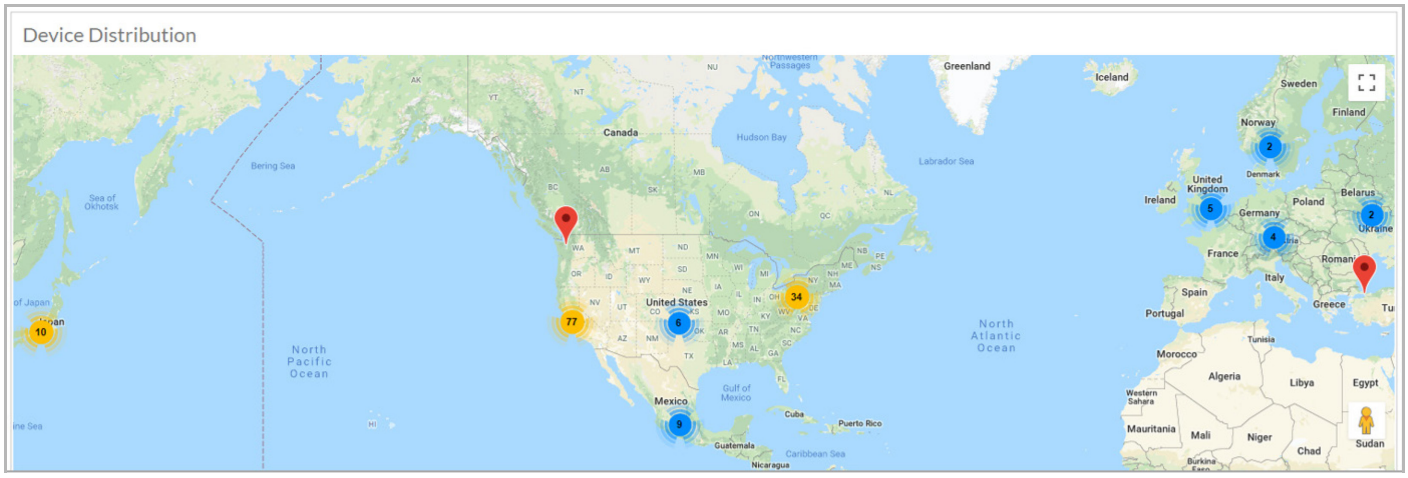


Figure 30: Device Distribution

Color codes are as follows:

- Red – indicates that there is one device in that area (i.e. zip code).
- Blue - indicates that there are 2–9 devices in that area (i.e. zip code).
- Yellow - indicates that there are 10-99 devices in that area (i.e. zip code).
- Red - indicates that there are 100-999 devices in that area (i.e. zip code).
- Purple - indicates that there are 1000-9999 devices in that area (i.e. zip code).

3.4 Device Software Analysis Reports

This set of reports provides data related to the Module and Host SW versions. Refer to the example in Figure 31. Manufacturers can use this information to determine the number of devices, users, and SW versions their devices support. This section highlights all six reports in this set.

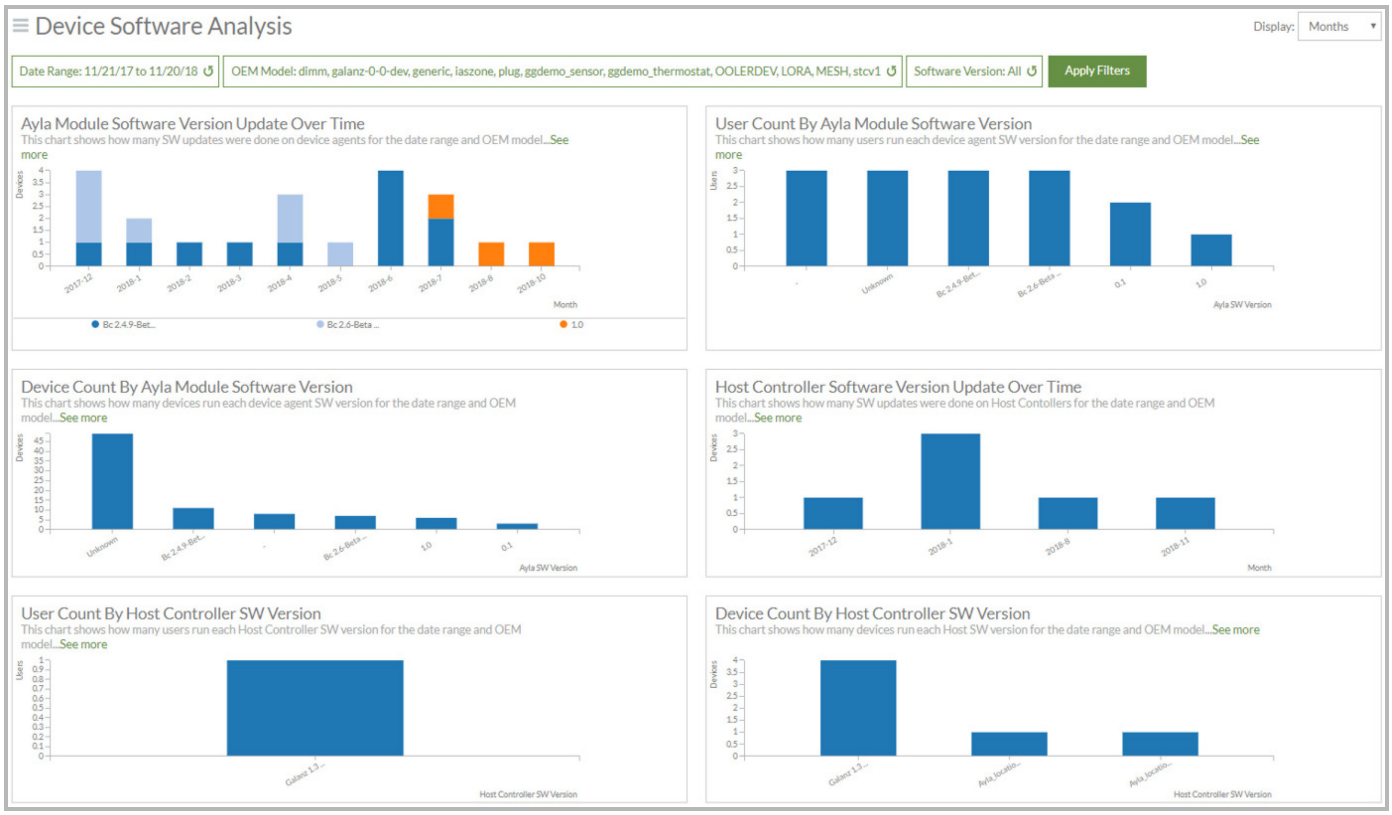


Figure 31: Device Software Analysis

3.4.1 Ayla Module Software Version Update Over Time

This individual report (Figure 32) shows the number of devices that were updated with a specific Ayla module software version for the time range and other filters applied to the Device Software Analysis Reports.

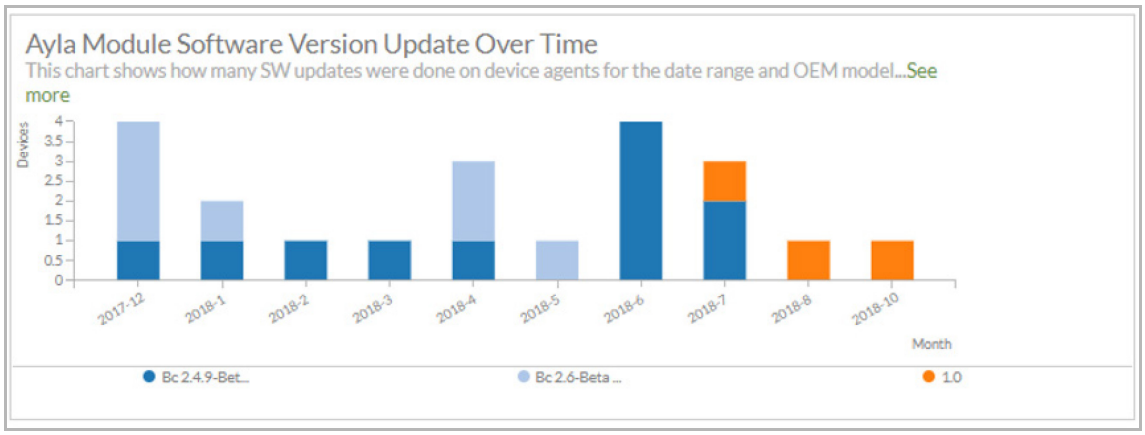


Figure 32: Ayla Module Software Version Update Over Time

3.4.2 User Count By Ayla Module Software Version

This individual report (Figure 33) shows the number of users with registered devices that are running a particular Ayla module software version.

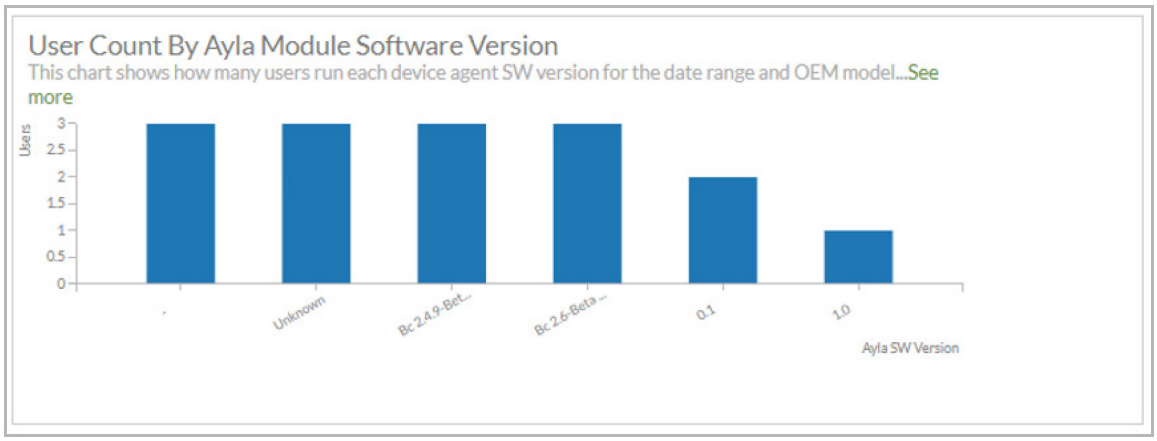


Figure 33: User Count By Ayla Module Software Version

3.4.3 Device Count By Ayla Module Software Version

This individual report (Figure 34) shows the number of devices running a particular Ayla module software version.

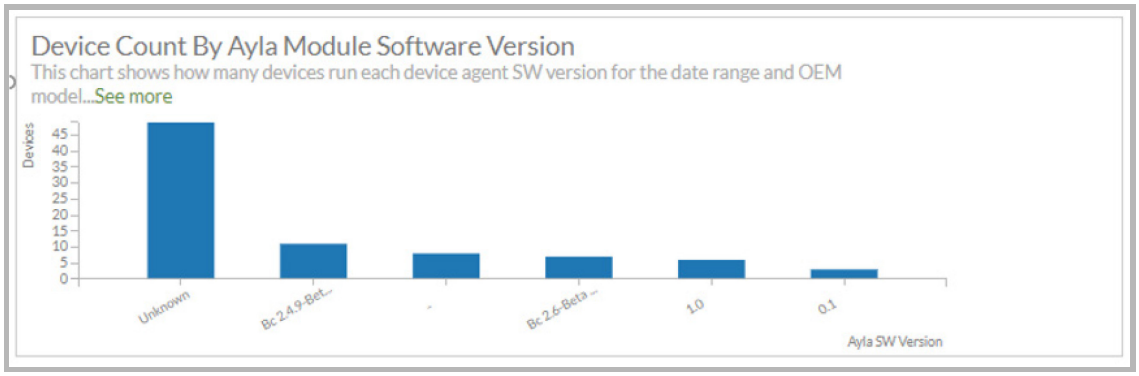


Figure 34: Device Count By Ayla Module Software Version

3.4.4 Host Controller Software Version Update Over Time

This individual report (Figure 35) shows the number of devices that were updated with a particular OEM host software version for the time range and other filters applied to the Device Software Analysis Reports.

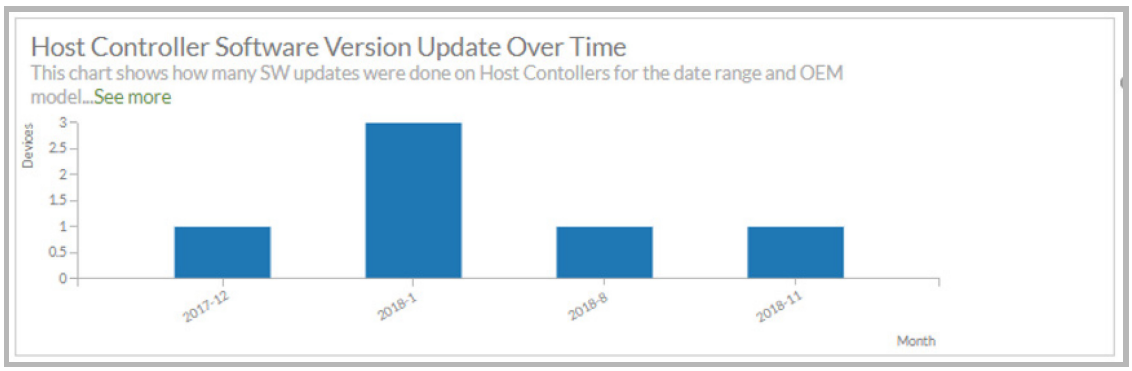


Figure 35: Host Controller Software Version Update Over Time

3.4.5 User Count By Host Controller Software Version

This individual report (Figure 36) shows the number of users with registered devices that are running a particular OEM host software version.

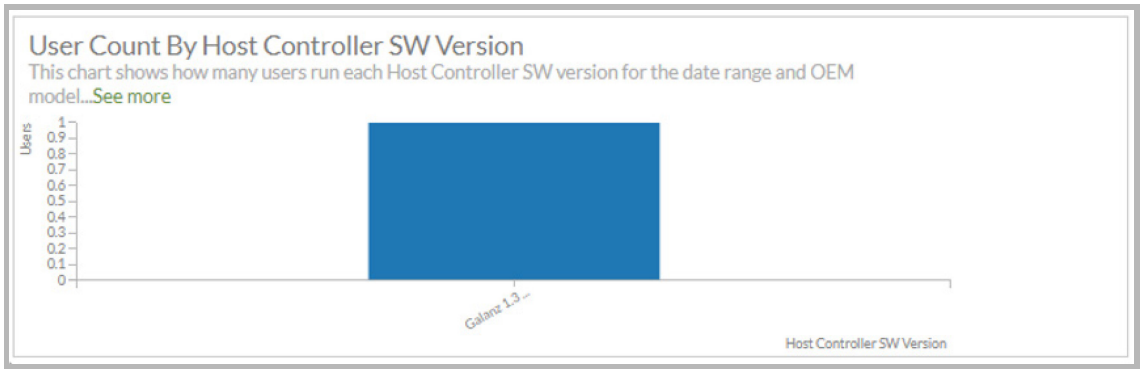


Figure 36: User Count By Host Controller Software Version

3.4.6 Device Count By Host Controller Software Version

This individual report (Figure 37) shows the number of devices running a particular OEM host software version.

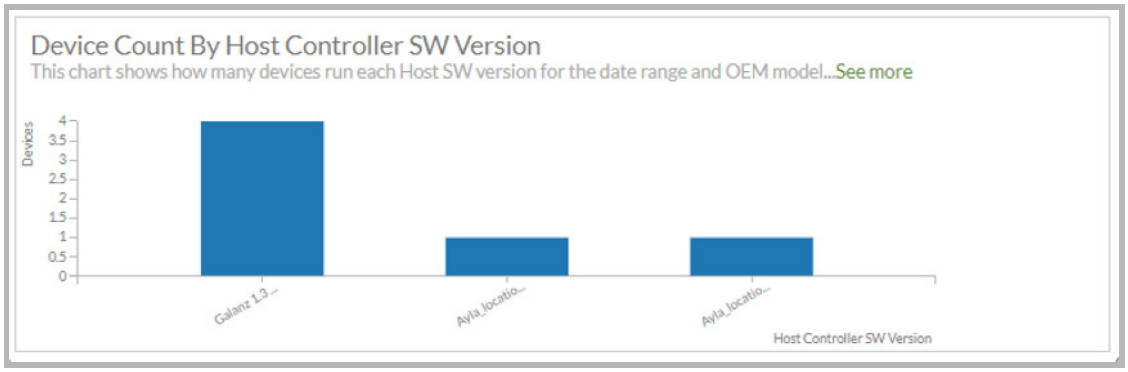


Figure 37: Device Count By Host Controller Software Version

3.5 Device Usage Analysis Reports

This set of reports provides data on the average number of daily transmissions of datapoints from devices to the Ayla cloud. The reports show registered and unregistered devices so that you can monitor whether registered devices display a higher level of utilization or not. Refer to Figure 38 for an example.

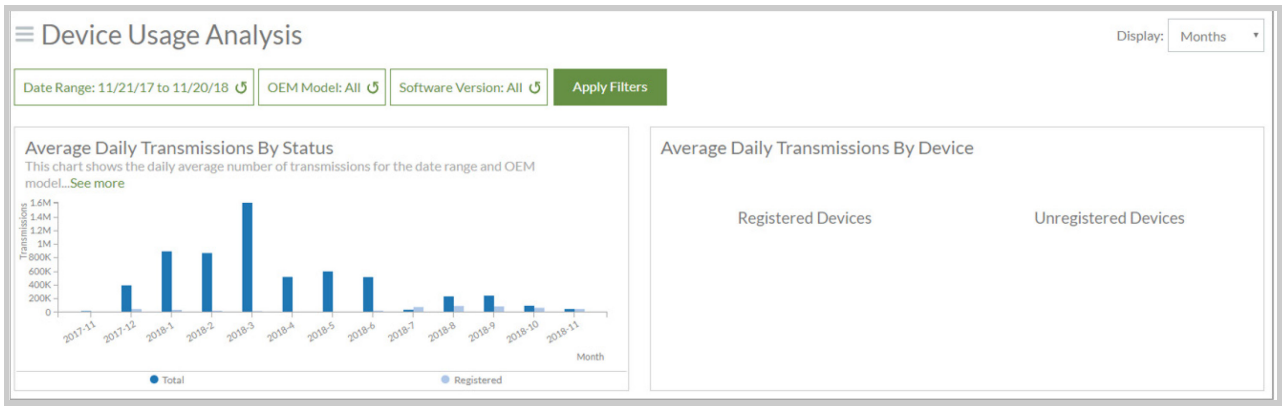


Figure 38: Device Usage Analysis Reports

3.5.1 Average Daily Transmissions By Status

This individual report (Figure 39) shows the average number of daily transmissions per the device registration status and based on the date range and OEM model selected in the filters. The statuses are “Total” and “Registered.” Total represents the average transmissions for both registered and unregistered devices. Registered is the average transmissions for registered devices only. A transmission is the interactions between the device and the Ayla cloud, or the mobile application and the cloud. For example, setting a value, or sending the state of a property variable counts as one transmission.

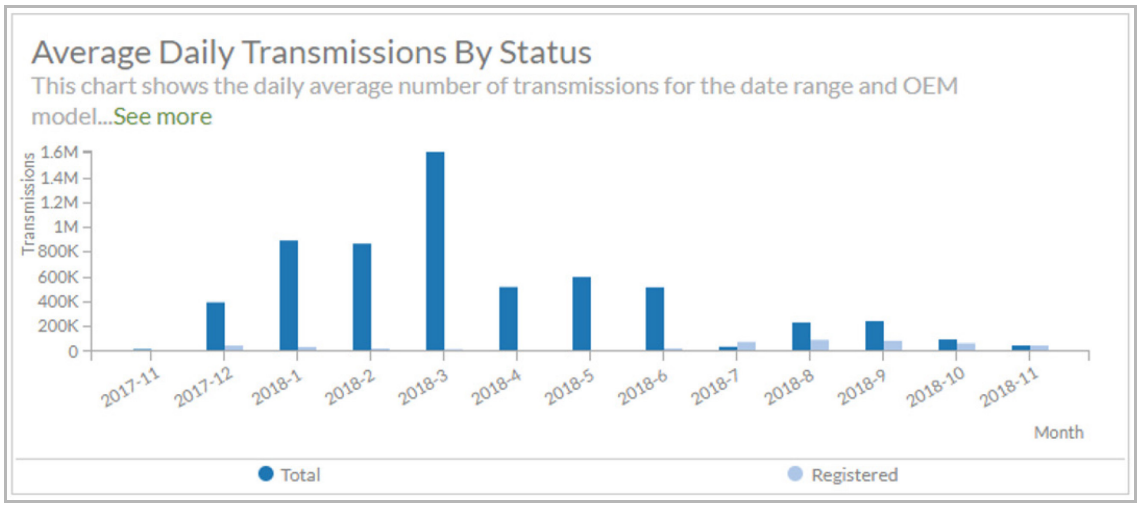


Figure 39: Average Daily Transmissions By Status

3.5.2 Average Daily Transmissions By Device

This individual report (Figure 40) shows the average number of daily transmissions for registered and unregistered devices based on the date range and OEM model selected in the filters for the Device Usage Analysis report set. As stated in the previous section, a transmission is when a device sends one or more property values to the cloud.

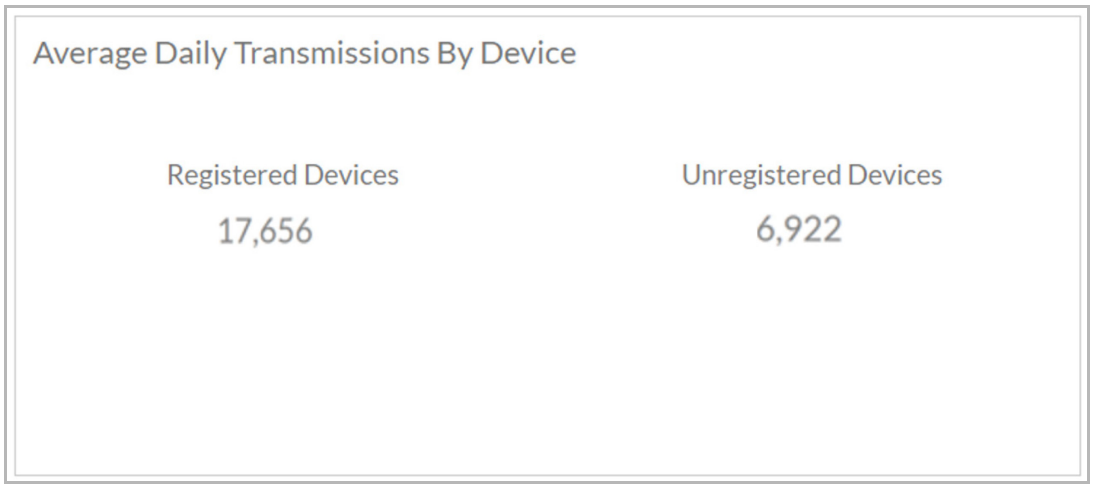


Figure 40: Average Daily Transmissions By Device

3.6 Device Details Reports

This set of reports enables you to drill down to a specific device to gain insights on the following:

- When the device was connected and when it was offline
- How often the device sent notifications
- How many transmissions the device sent over specific time periods
- Where the device is located (approximated to the locality by zip code)

Refer to the example in Figure 41.

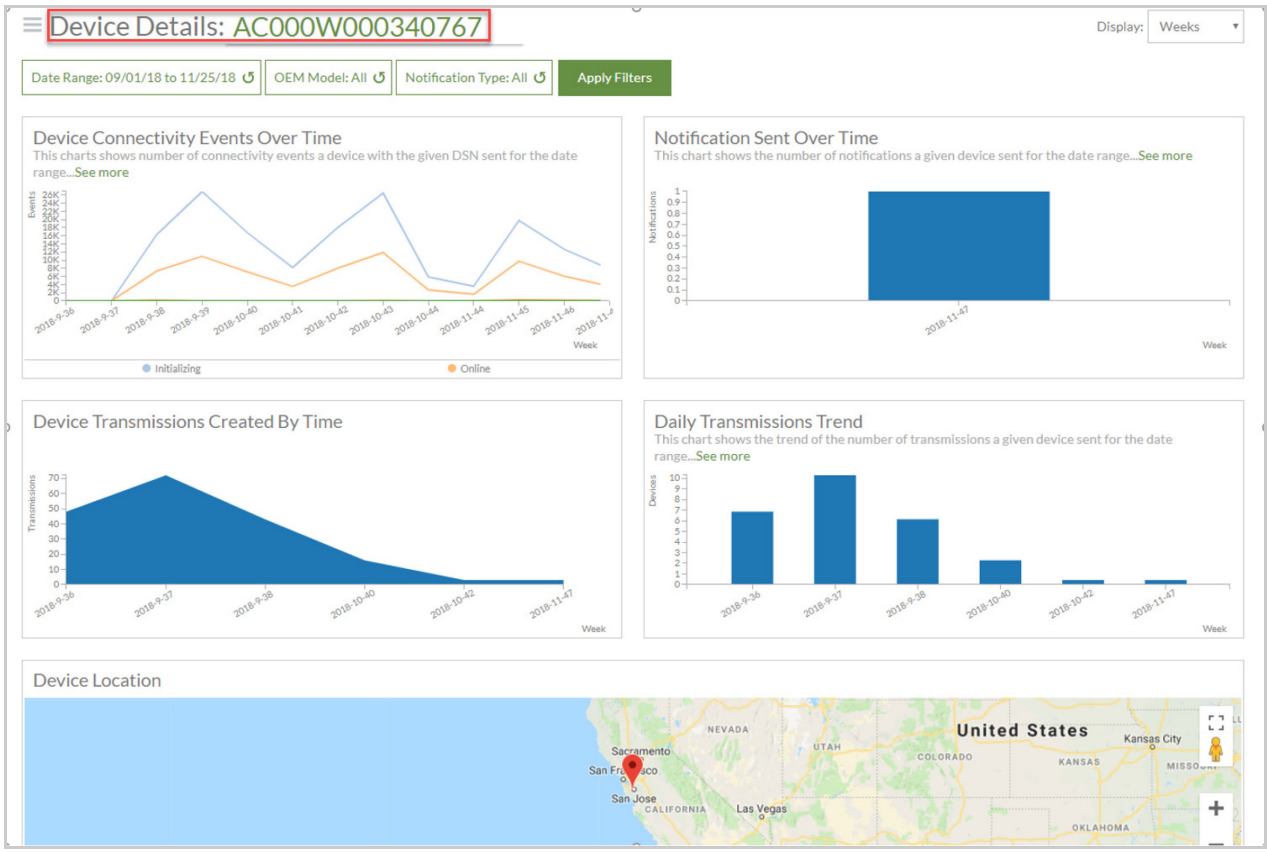


Figure 41: Device Usage Analysis Reports

Notice at the top of the Device Details reports, there is a field to enter the Device Serial Number (DSN) of the device you wish to analyze. The remainder of Section 3.6 highlights each report in this set.

3.6.1 Device Connectivity Events Over Time

This individual report (Figure 42) shows number of times the device connected to the Ayla cloud over specific time periods based on the time range entered in the filters for the Device Detail reports. The device has the DSN entered at the top of the reports (see Figure 41 above). This report provides data on the connections made when the device was online and when it was initializing (connected to the Ayla cloud platform and in the process of synchronizing by updating its configuration).

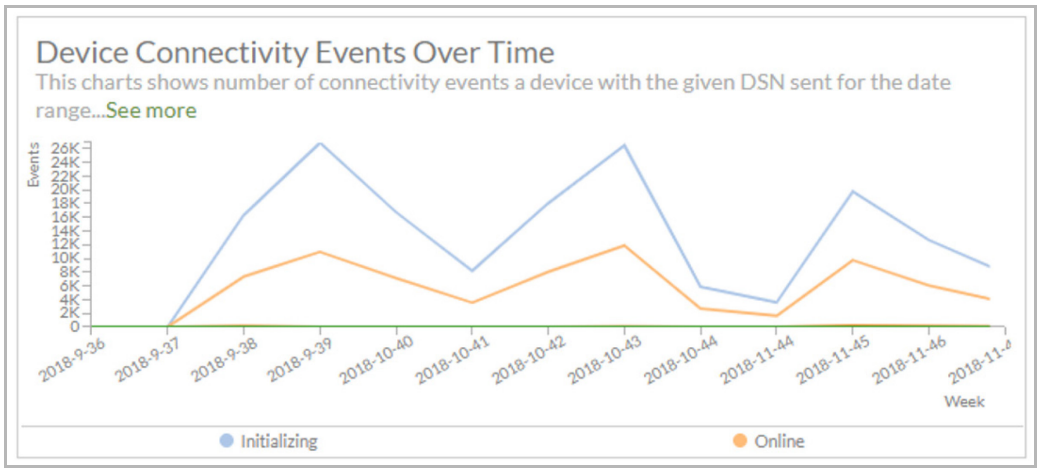


Figure 42: Device Connectivity Events Over Time

3.6.2 Notifications Sent Over Time

This individual report (Figure 43) shows the number of notifications that this device sent for the date range and OEM model selected in the filters. Notifications are user-defined alerts, such as SMS (short message service), email, push (set up and sent from server usually in real-time), forward, etc. Notifications help you monitor device activity.

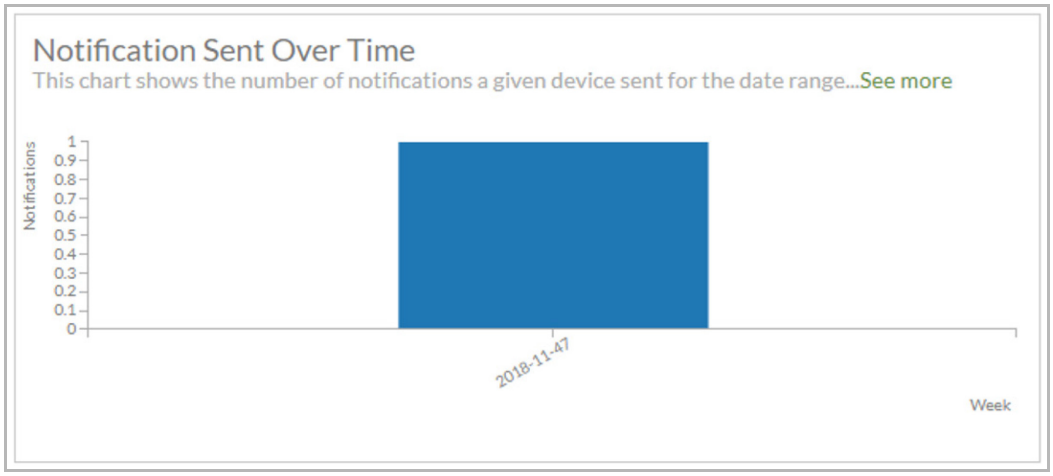


Figure 43: Notifications Sent Over Time

3.6.3 Device Transmissions Created By Time

This individual report (Figure 44) shows the number of transmissions this device sent per the time range entered in the filters for the Device Detail reports. A transmission is when the device sends one or more property values to the Ayla cloud.

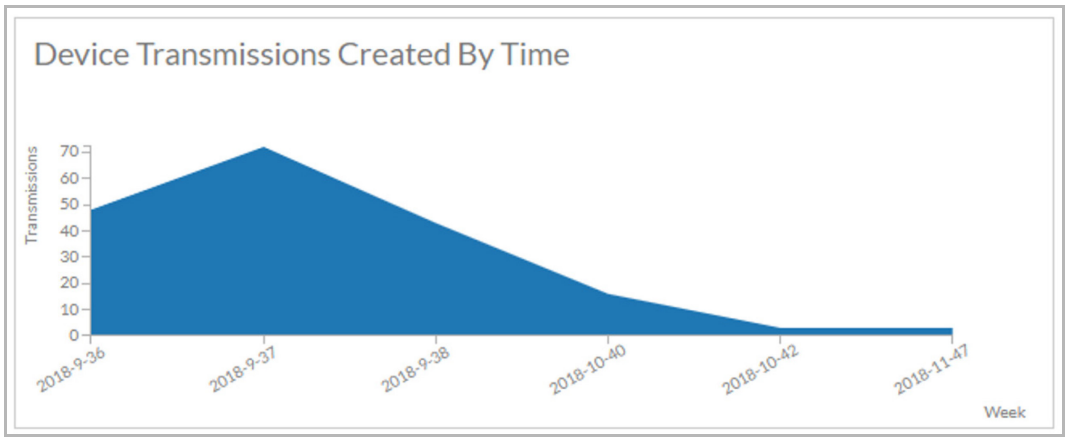


Figure 44: Device Transmissions Created By Time

3.6.4 Daily Transmissions Trend

This individual report (Figure 45) shows a cumulative number of transmissions per day for this device over the time range selected in the filters. A transmission is when the device sends one or more property values to the Ayla cloud.

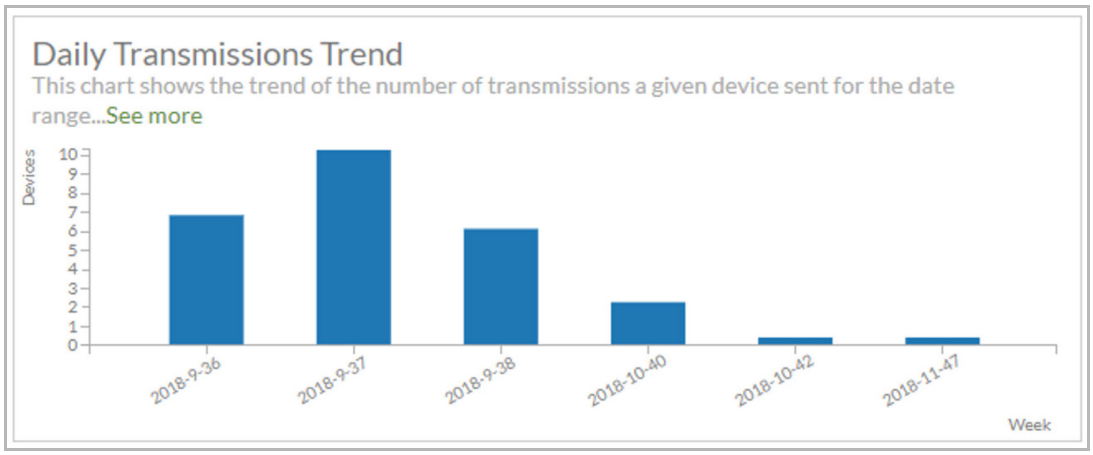


Figure 45: Daily Transmissions Trends

3.6.5 Device Location

This individual report (Figure 46) pinpoints the last known location for this device.

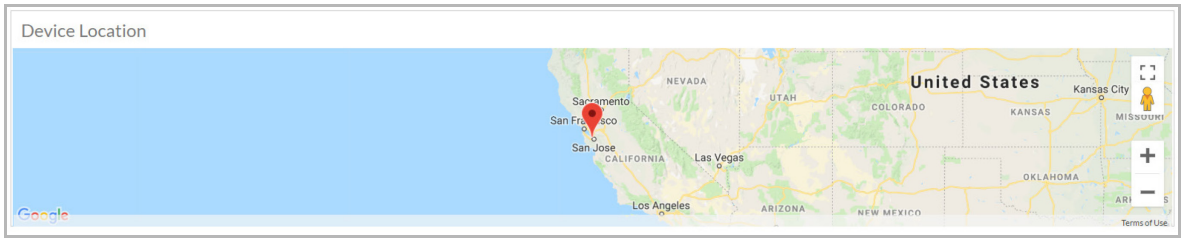


Figure 46: Device Location

NOTE If the device moves after activation, the map may not automatically display the device in the new location right away.

3.7 User Analysis Reports

This set of reports enables you to analyze the following data about your users:

- How many users are registered for a specific time range
- The percentage of active devices for your total number of users
- How often your users are signed in
- How many users created accounts over a specific time period

Refer to the example in Figure 47.

Figure 47: User Analysis Reports

3.7.1 Users

This individual report (Figure 48) shows the number of users registered (with end user accounts) for the date range and OEM model specified in the filters applied to this report set. The percentage of users with active devices during this time range is also provided. This percentage is of the devices that were activated and registered by the users.

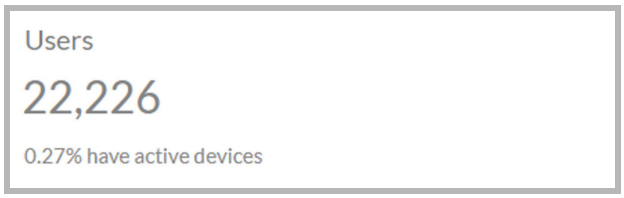


Figure 48: Users

3.7.2 User Activity By Last Sign In

This individual report (Figure 49) shows the number of users who signed in (enter their log-in credentials via their mobile application or browser) during the date range specified in the filters applied to this report set.

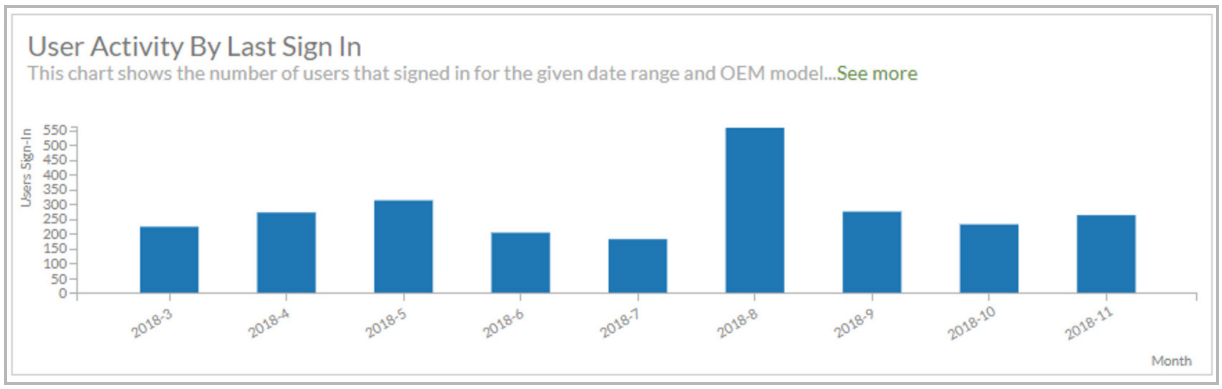


Figure 49: User Activity By Last Sign In

3.7.3 Users Created Over Time

This individual report (Figure 50) shows the number of user accounts created during the date range specified in the filters applied to this report set. One person may have multiple user accounts with or without registered devices.

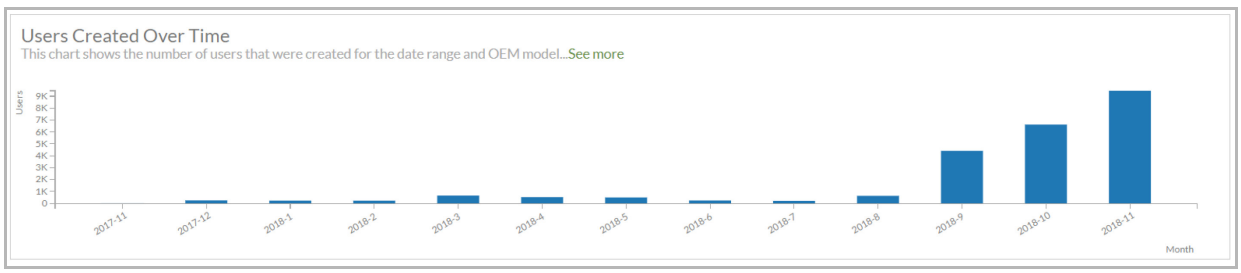


Figure 50: Users Created Over Time

3.8 Notification Analysis Reports

This set of reports enables you to analyze the types of notifications used and how often, for example:

- The notifications that are subscribed or sent from the cloud for each OEM model.
- The notifications either subscribed to or sent by device properties

Refer to the example in Figure 51.

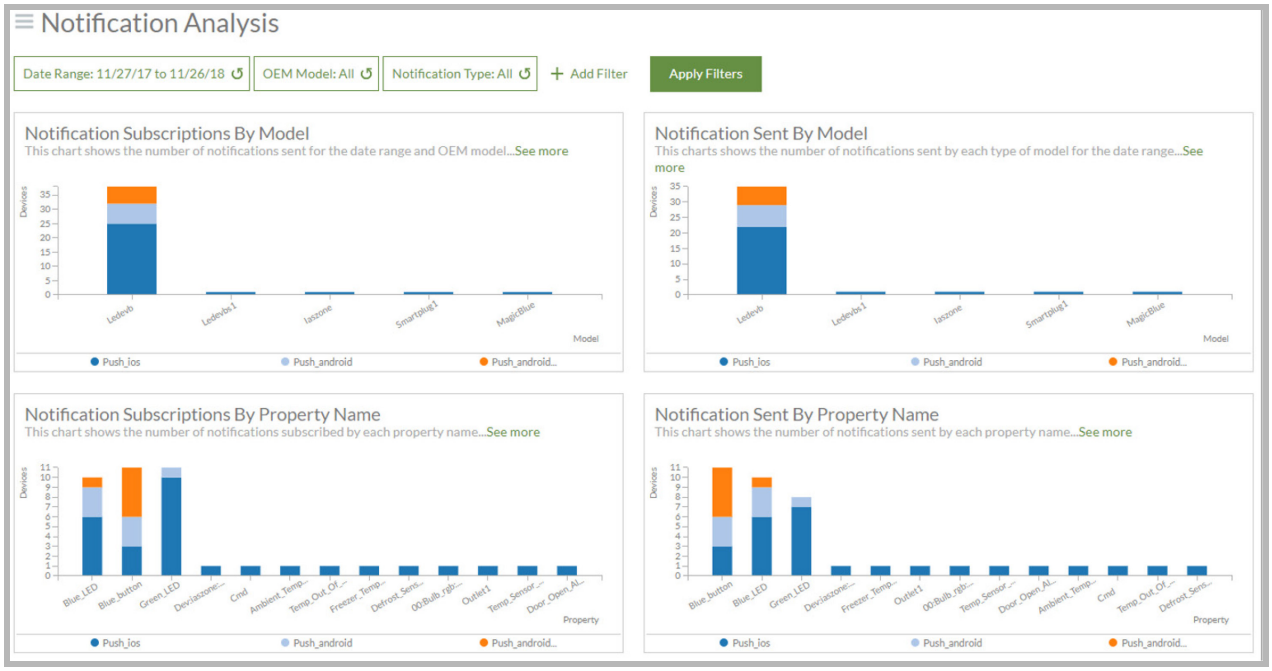


Figure 51: Notification Analysis Reports

3.8.1 Notification Subscriptions By Model

This individual report (Figure 52) shows the types of notifications that devices sent for specific OEM models and the date range entered in the filters applied to this report set.

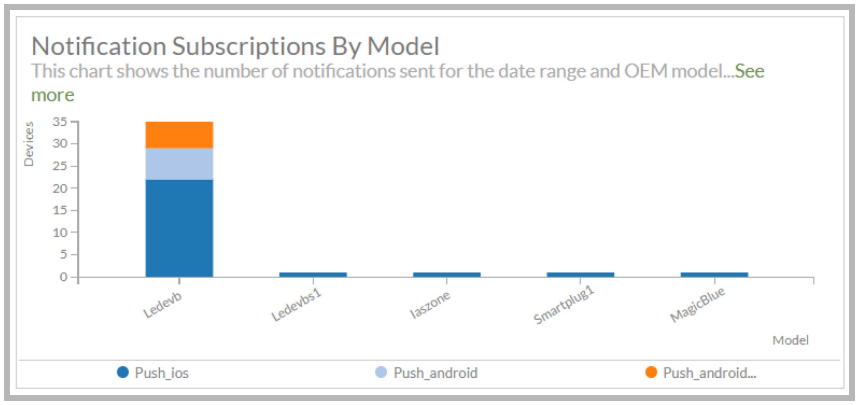


Figure 52: Notification Subscriptions By Model

3.8.2 Notification Sent By Model

This individual report (Figure 53) shows the number of notification types that devices sent for specific OEM models and the date range entered in the filters applied to this report set.

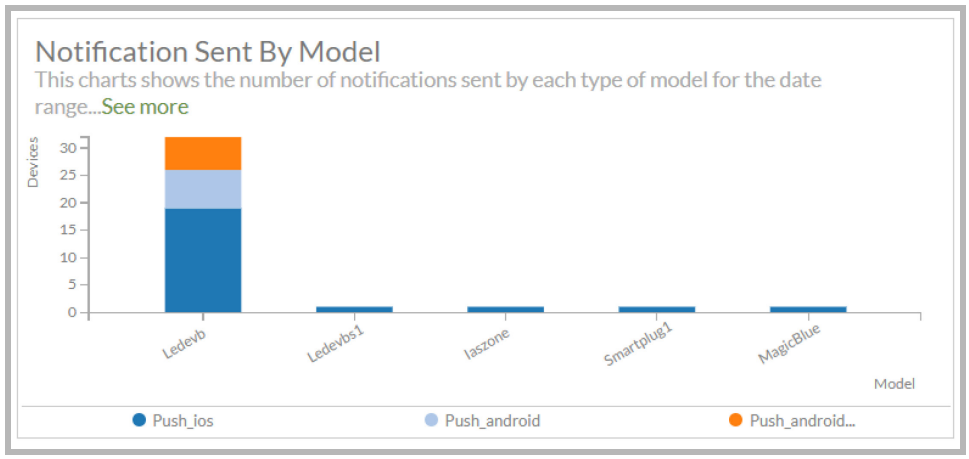


Figure 53: Notification Sent By Model

3.8.3 Notification Subscriptions By Property Name

This individual report (Figure 54) shows the number of notification subscriptions for each device property for specific OEM models and the date range entered in the filters applied to this report set.

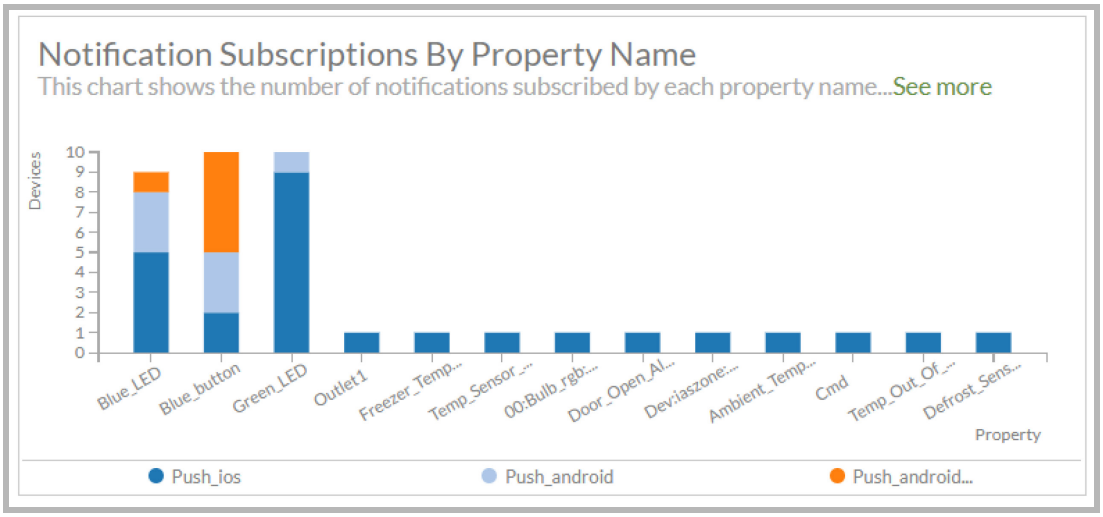


Figure 54: Notification Subscriptions By Property Name

3.8.4 Notification Sent By Property Name

This individual report (Figure 55) shows the number of notifications sent for each device property for specific OEM models and the date range entered in the filters applied to this report set.

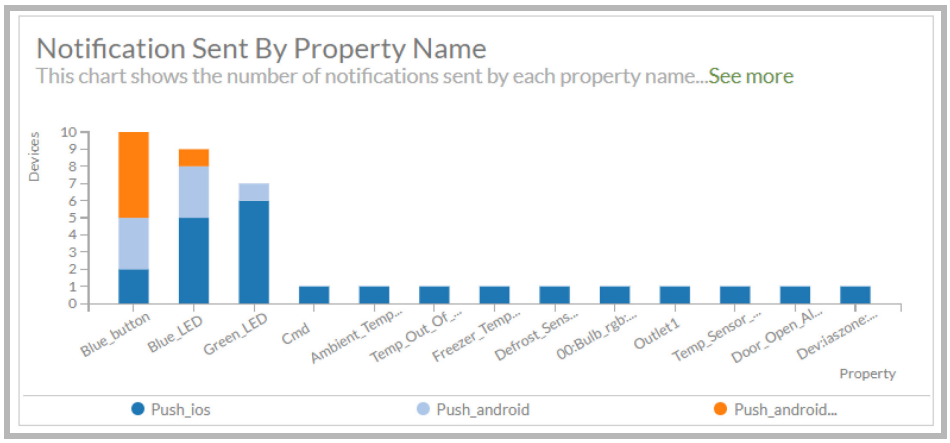


Figure 55: Notification Sent By Property Name

3.9 Datapoint Transmission Trends Reports

This set of reports enables you to analyze the trends for data transmissions. A transmission is when a device sends one or more property values to the cloud. There are additional filters you can use in these reports; see Section 2.3.3 for more information. Refer to the example of this report set in Figure 56.

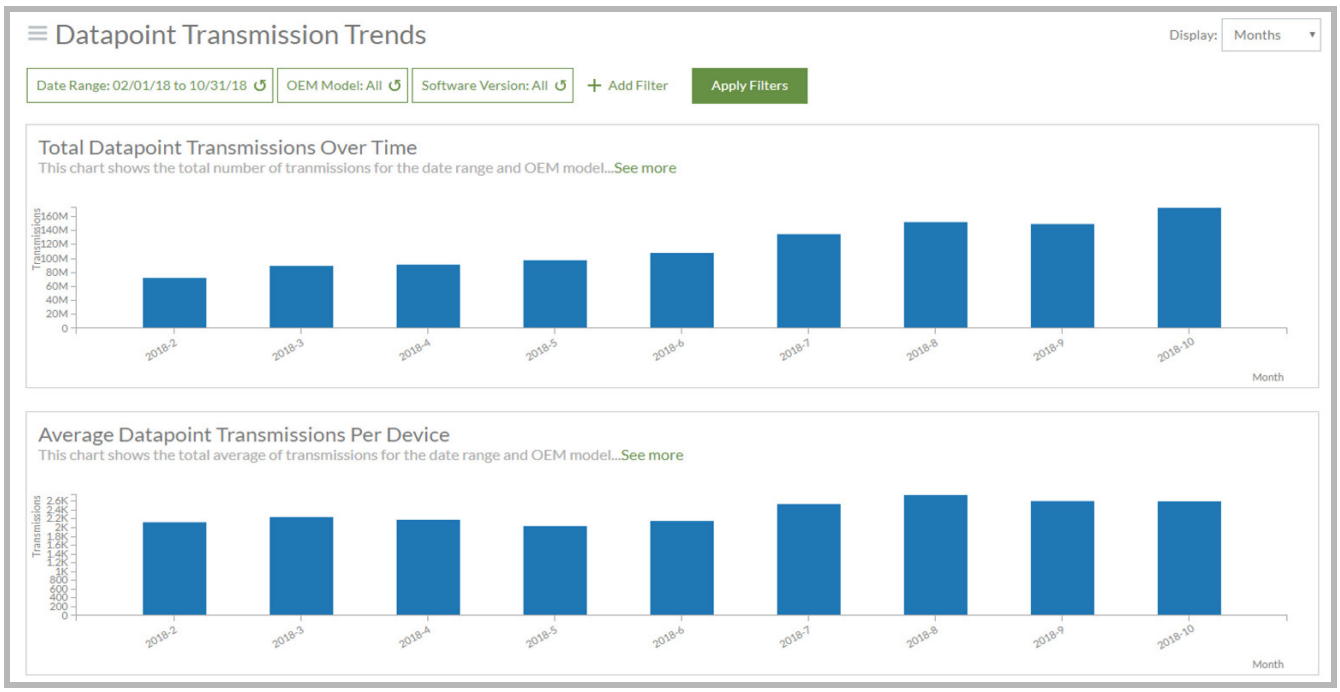


Figure 56: Datapoint Transmission Trends Reports

3.9.1 Total Datapoint Transmissions Over Time

This individual report (Figure 57) shows the datapoints transmitted for the OEM model, date range, and time period (weeks, months, or years) entered in the filters applied to this report set.

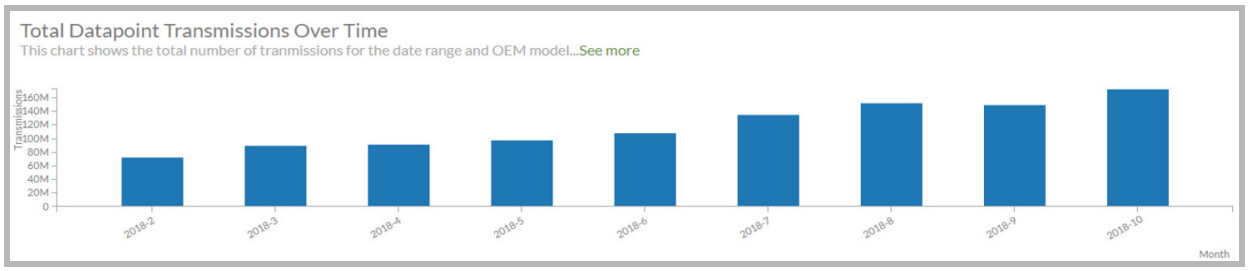


Figure 57: Total Data Transmissions Over Time

3.9.2 Total Datapoint Transmissions Per Device

This individual report (Figure 58) shows the datapoints transmitted per device for the OEM model, date range, and time period (weeks, months, or years) entered in the filters applied to this report set.

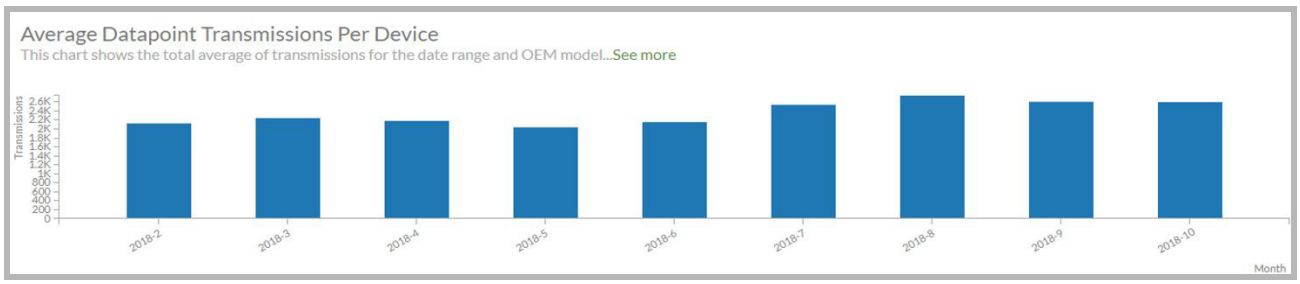


Figure 58: Total Data Transmissions Per Device

3.10 Datapoint Analysis Reports

This set of reports enables you to gain insights on the datapoints transmitted by your users' devices. You can use these reports, for instance, to understand the distribution of a datapoint value across your device population. For example, if your datapoint is for a temperature sensor, you could analyze the distribution of temperature values across your devices. Notice in Figure 59 that one of the basic filters for these reports is Datapoint Name. There are also additional filters you can use in these reports; see Section 2.3.3 for more information.

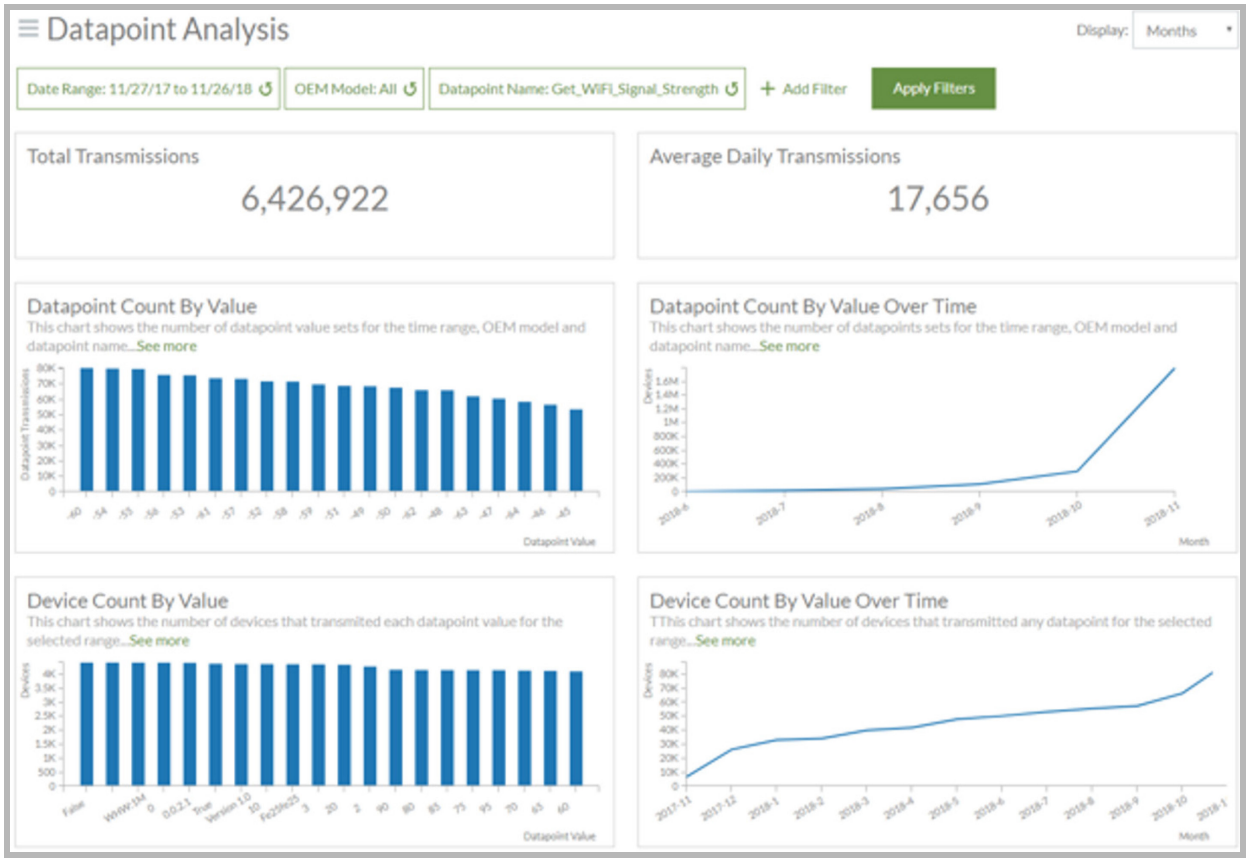


Figure 59: Datapoint Analysis Reports

3.10.1 Total Transmissions

As shown in Figure 60, the total number of data transmissions is shown at the top of the report set. The value is based on the date range and OEM model selected in the filters. A transmission is when a device sends one or more property values to the cloud.

Figure 60: Total Data Transmissions

3.10.2 Average Daily Transmissions

As shown in Figure 61, the average daily data transmissions sent is also displayed at the top of this report set. This value is based on the date range and OEM model selected in the filters. As state throughout this document, a transmission is when a device sends one or more property values to the cloud.

Figure 61: Average Daily Data Transmissions

3.10.3 Datapoint Count By Value

This individual report (Figure 62) provides the total number of datapoints attributed to the selected device property or properties. The datapoint in this example is Wi-Fi Signal Strength values (specifically RSSI – Received Signal Strength Indicator). As you can see in Figure 62, most devices have an RSSI of -60, -54, -55, etc.

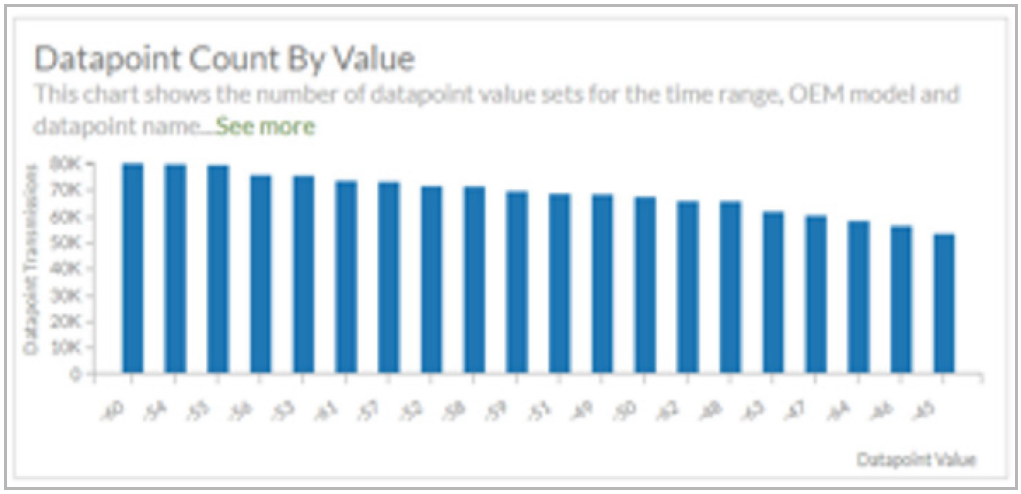


Figure 62: Datapoint Count By Value

3.10.4 Datapoint Count By Value Over Time

This individual report (Figure 63) provides the total number of datapoints attributed to each value of a device property or properties shown over a period of time. As stated in the previous section, the datapoint value in this example is Wi-Fi Signal Strength (specifically RSSI – Received Signal Strength Indicator). Figure 63 shows a steady increase in the Wi-Fi Signal Strength datapoint set over the time period selected in the filters for this report set.

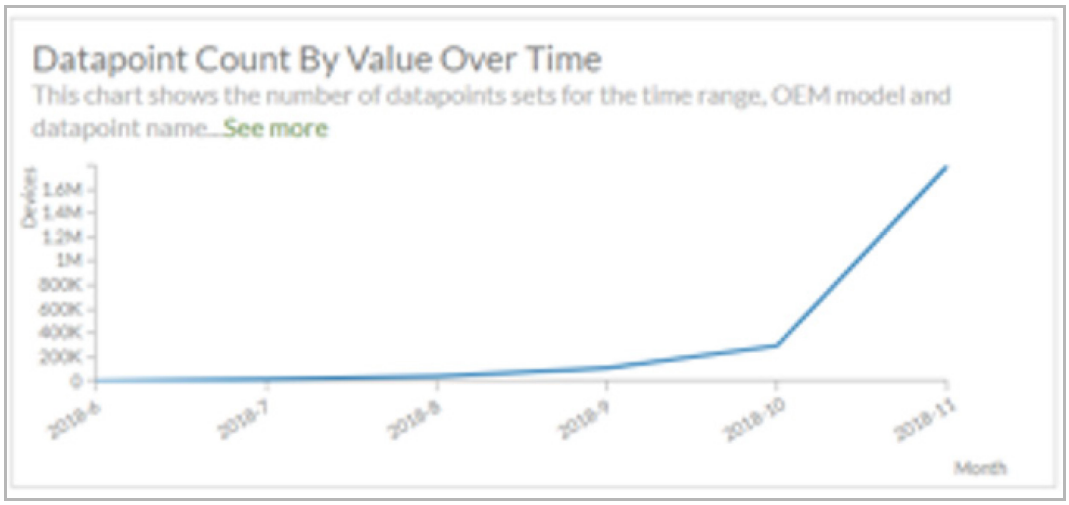


Figure 63: Datapoint Count By Value Over Time

3.10.5 Device Count By Value

This individual report (Figure 64) provides the total number of devices that transmitted each datapoint value for the datapoint, date range, and OEM model selected in the filters applied to this report set.

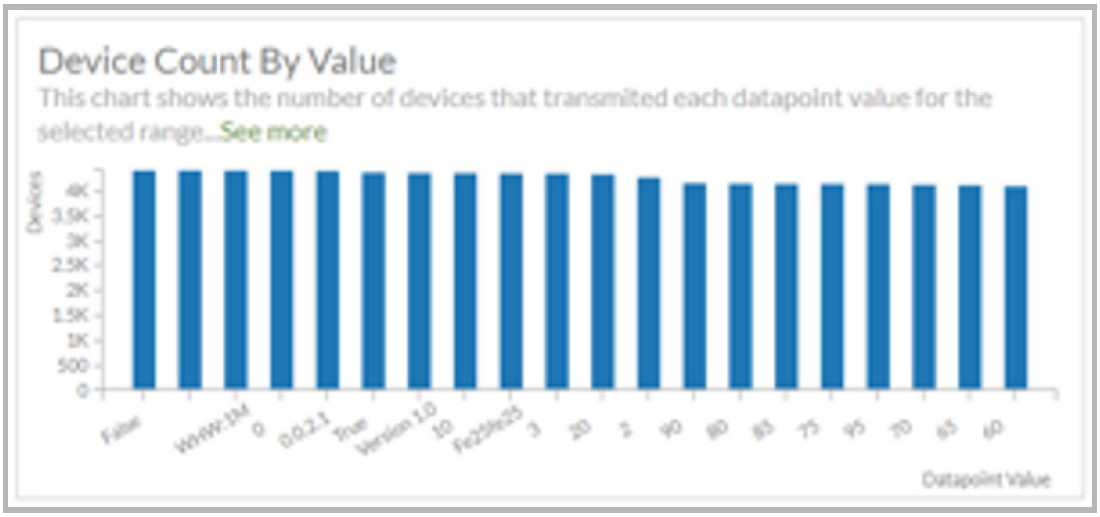


Figure 64: Device Count By Value

3.10.6 Device Count By Value Over Time

This individual report (Figure 65) provides the number of devices that transmitted any datapoint value for the datapoint, date range, and OEM model selected in the filters applied to this report set.

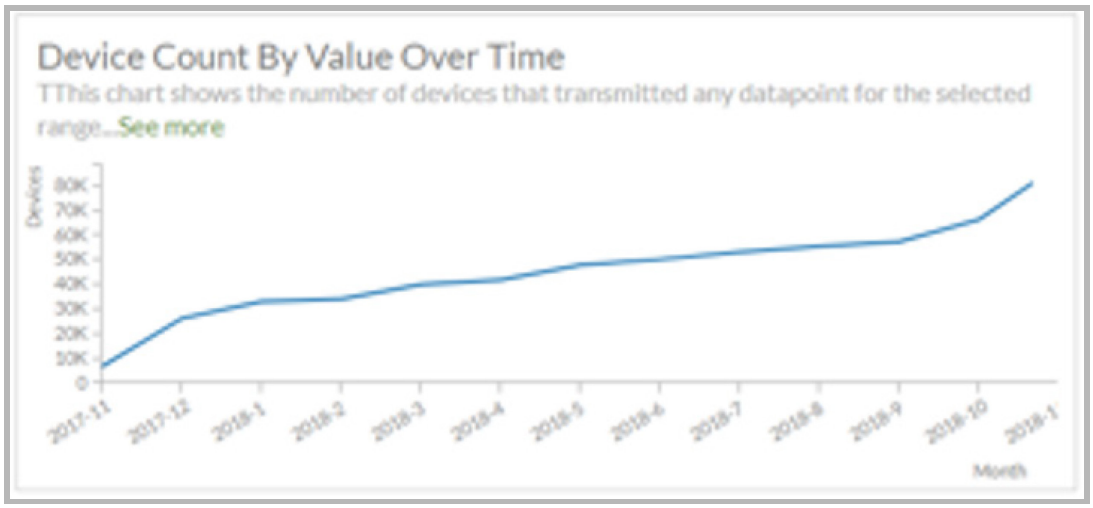


Figure 65: Device Count By Value Over Time

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