Overview

RTLS enables tracking of live client device location within a network. Cisco Meraki APs can track location of client devices independently, using the signal strength of each client device. This helps to locate client devices that are either stationary or moving inside the intended area. Using this approach, network administrators can easily determine the location of any desired client device within the network perimeter. This helps in asset tracking and location based services.

To view the location of a client:

1. Navigate to Network-wide > Monitor > Clients.
2. Select the client you want to locate from the list.
3. The client will be represented as a blue dot on the map as shown below.

Note: The client location is shown on a floor plan only if a floor plan is uploaded to dashboard. If a floor plan is not uploaded in dashboard the client will be shown on google maps based on the information defined within dashboard.

Designing RTLS-Ready Networks
Signal Strength

RSSI (Received signal strength indicator) value is recommended to be -75dBm or better (higher) for client devices in any network, as client devices with lower signal strength may be difficult to locate inside the network perimeter. Dashboard displays SNR (Signal to Noise Ratio) value on a per-client basis, therefore it is preferred to have an SNR value of 20dB or higher for all client devices that need to be tracked inside the network perimeter. RSSI requirements can be planned before deployment during the site survey phase for any given site.

Placement of Access Points

Proper placement of access points is recommended in order to fully leverage the benefits of location accuracy. It is important to note that all APs should not be clustered inside the floor plan. Instead, APs may be placed on the perimeter of the floor plan in order to provide a consistent coverage throughout. Additional APs can be placed in the corners of floor plan to enhance the location accuracy for client devices. These corner APs play a vital role in ensuring good location accuracy for clients that are inside the perimeter area. Examples of such a deployment are shown in below floor plan images. Client location and tracking is expected to be more accurate when client devices are inside the blue dotted box.

Distance between APs

Positioning of APs may impact client location tracking as well as the wireless performance in general. Therefore it is recommended that APs should not be placed very close together, or too distant from each other. Ensure that the SNR value for a client does not drop below 20dB as they roam between APs. Further,
a minimum of three access points (with four or more for better accuracy and precision) should be able to decode client frames at any given time for client location tracking.

**Minimum bit rate**

Setting up a higher minimum bit rate value may help to balance client devices between all available APs in the network. This will also result in much accurate tracking as clients with lower RSSI values may roam to other AP with a much better RSSI value. This may help to track the location of client devices more accurately.

**RF Profiles**

Static channel assignment will override RF profiles settings assigned to an AP. While choosing a static channel, ensure that you have selected a static channel within the RF profile range assigned to that specific AP. This will ensure that the APs are tracking client devices more accurately for a network.

**Third Party Integration**

Cisco Meraki access points also integrate with Real-Time Location Services (RTLS) software from Ekahau and Stanley Healthcare (previously known as AeroScout). These RTLS vendors offer the ability to track clients or Active RFID tags with great accuracy in real-time, graphical formats. Cisco Meraki APs support Ekahau and Stanley/AeroScout tags in both unassociated “blink mode” and associated “connected mode”. Blink mode is used in order to conserve battery of the WiFi tags as they are not connected to the AP full time.

**Ekahau RTLS**

Meraki integrates with Ekahau’s Real-Time Location Services (RTLS) solution, which offers the ability to track clients or tags with great accuracy in real-time, graphical formats. For detailed documentation on Ekahau’s products please visit the [Ekahau website](http://www.ekahau.com).

**How to Integrate with Ekahau**
**Associating Mode**

In associating mode, the tags will associate with the Meraki AP and independently communicate with the Ekahau positioning engine. No special configuration of the Meraki AP is required.

**Blink Mode**

In blink mode, the tags will not formally associate with the AP, but will instead broadcast information which is collected by the AP and then sent by the AP to the Ekahau server.

To configure a given Dashboard wireless network to work with tags in Ekahau blink mode:

1. Select the wireless network from within Dashboard
2. Go to Network-wide > General
3. Change “Ekahau RTLS” to “Enabled”
4. Enter the IP and port of your Ekahau positioning engine.
5. Select “Save Changes”.

The Meraki APs on the selected wireless network will now pass information from Ekahau blink tags back to your Ekahau server.

![Ekahau configuration settings](Ekahau RTLS, Ekahau server IP, Ekahau server port)

**Stanley/AeroScout RTLS**

Stanley/AeroScout branded products are available for purchase through Cisco. Meraki integrates with both Stanley and AeroScout branded RTLS solutions. For detailed documentation on Stanley’s products please visit the [Stanley Healthcare website](https://www.stanleyhealthcare.com/).
How to Integrate with Stanley/AeroScout

**Associating Mode**

In associating mode, the tags will associate with the Meraki AP and independently communicate with the Stanley positioning engine. No special configuration of the Meraki AP is required.

**Blink Mode**

In blink mode, the tags will not formally associate with the AP, but will instead broadcast information which is collected by the AP and then sent by the AP to the Stanley server. To configure a given Dashboard wireless network to work with tags in Stanley blink mode:

1. Select the wireless network from within Dashboard
2. Go to Network-wide > General
3. Change “AeroScout RTLS” to “Enabled”.
4. Enter the IP and port of your Stanley / AeroScout positioning engine.
5. Select “Save Changes”.

The Meraki APs on the selected wireless network will now pass information from Stanley blink tags back to your positioning engine.
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