

ACCESSAGILITY

WiFiSurvey **Complete User Guide**



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INTRODUCTION

This manual is divided into two parts. The first part of the manual defines each icon and its function. The second part details a step-by-step procedure for how to use the application to conduct an RF survey. Please read entire manual to understand how signal information is collected for use in app.

About WiFiSurvey App

Use WiFiSurvey to perform WiFi 802.11 a/b/g/n speed tests and site surveys of indoor and outdoor networks. We've integrated iPerf3 client and server with the app, allowing placements of speed test markers on a floor plan. The iPerf3 client/server is compatible with WiFiPerf and iPerf3 apps.

Signal collection in dBm is achieved by using the AirPort Utility running on same device. AirPort Utility has a WiFi Scanning feature that can be turned on and used with App data sharing.

System Requirements

Built for the iPad, but compatible with iPhone and iPod Touch. Requires iOS 5.1.1 or later.

Online Support




Please visit our web page for any questions or comments you may have:

<http://accessagility.com/products/wifi-survey.html>

If you have any further questions, please send them to: support@accessagility.com

iPad Survey Companion Apps

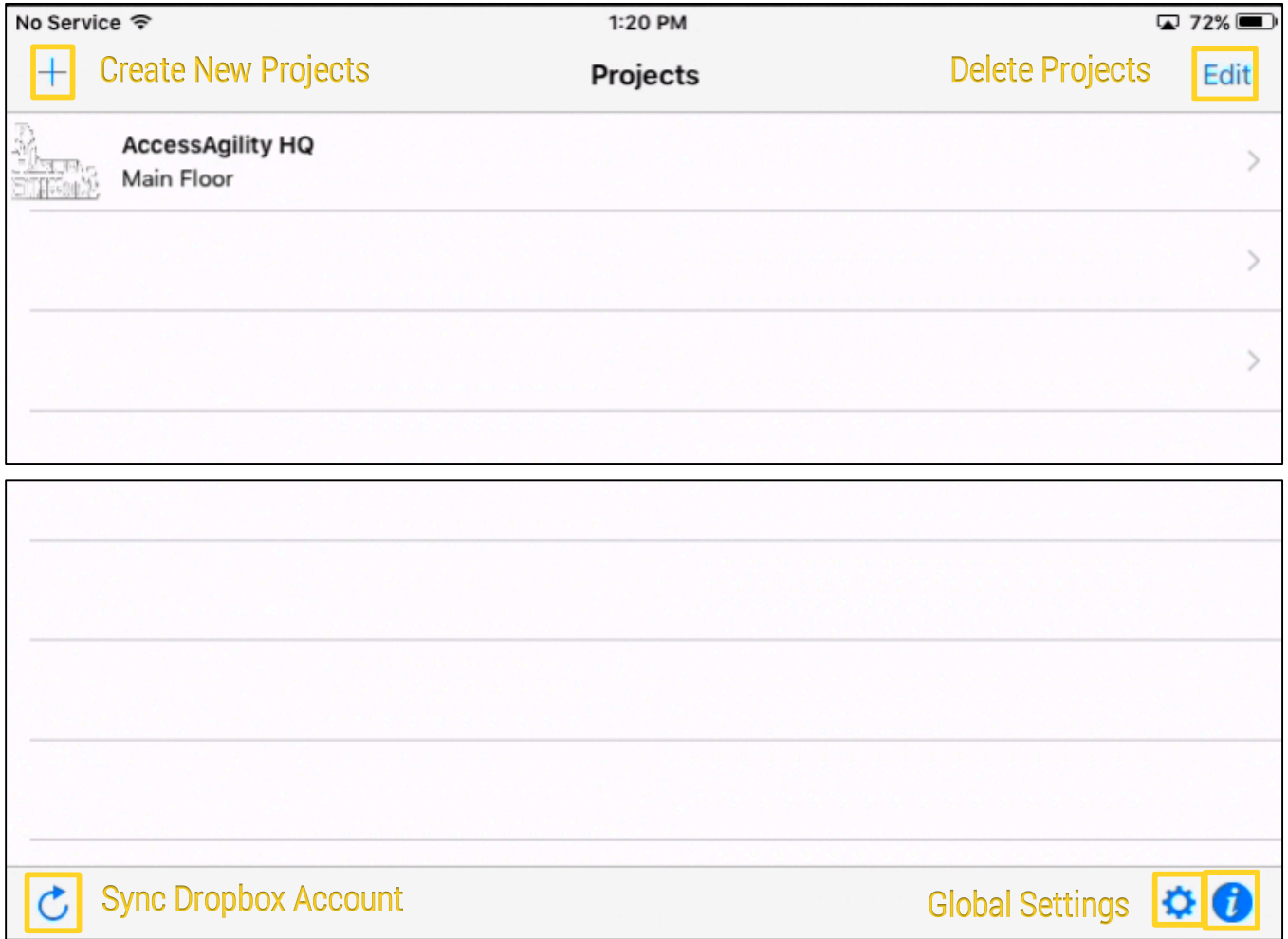
WiFiPerf, iPerf3, and WiFiSurvey Agent are companion programs for the WiFiSurvey App. See Appendix F for details regarding each app.

App Icon	App Name	Purpose	Download
	WiFiPerf	TCP and UDP speed testing with results in graphical and tabular format.	iOS and Mac App Store
	iPerf3	Terminal/Command line TCP and UDP speed testing.	http://accessagility.com/downloads/iperf3-windows.zip http://accessagility.com/downloads/iperf3.zip
	AirPort Utility	Enables WiFi Scanning data to be used in WiFiSurvey	https://itunes.apple.com/us/app/airport-utility/id427276530?mt=8

HOME SCREEN

Below is the WiFiSurvey App home screen. Here you can:

- Create new projects
- Delete existing projects
- Upload and download project files from your Dropbox account
- Configure global-level project settings that are applicable to all projects
- View Application information and access this guide.

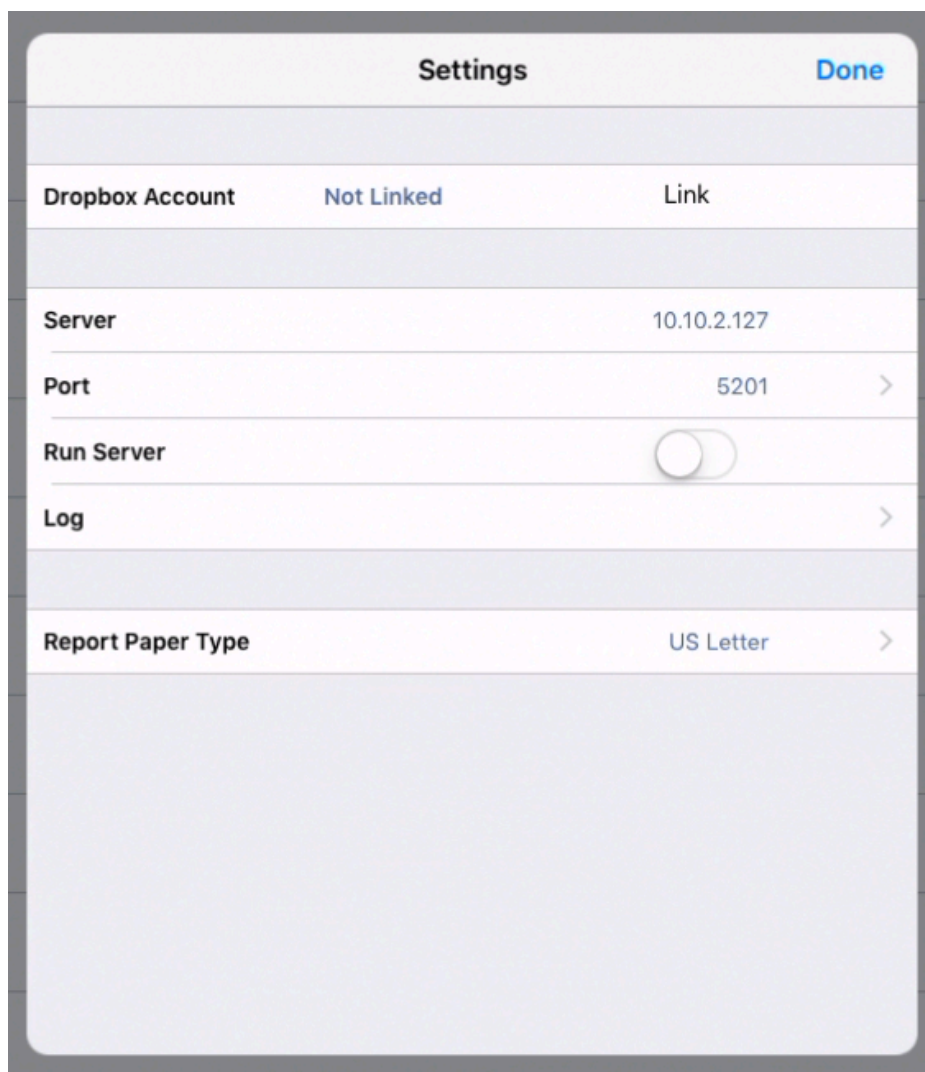


App Information


Global Settings

Below is a screen shot of the global project settings screen. Here you can:

- Configure your Dropbox account for sync.
 - To configure your Dropbox account, click on the Link button and enter your Dropbox account information, then click sign in
- View the IP address for the iPerf3 server function of the iPad
 - The server function allows the iPad to act as an iPerf3 server, so two iPads can be used for local speed testing if an Android device or laptop is not available.
- View the port for the iPerf3 server function of the program
- Toggle the server function on and off
- View the log of iPerf3 results

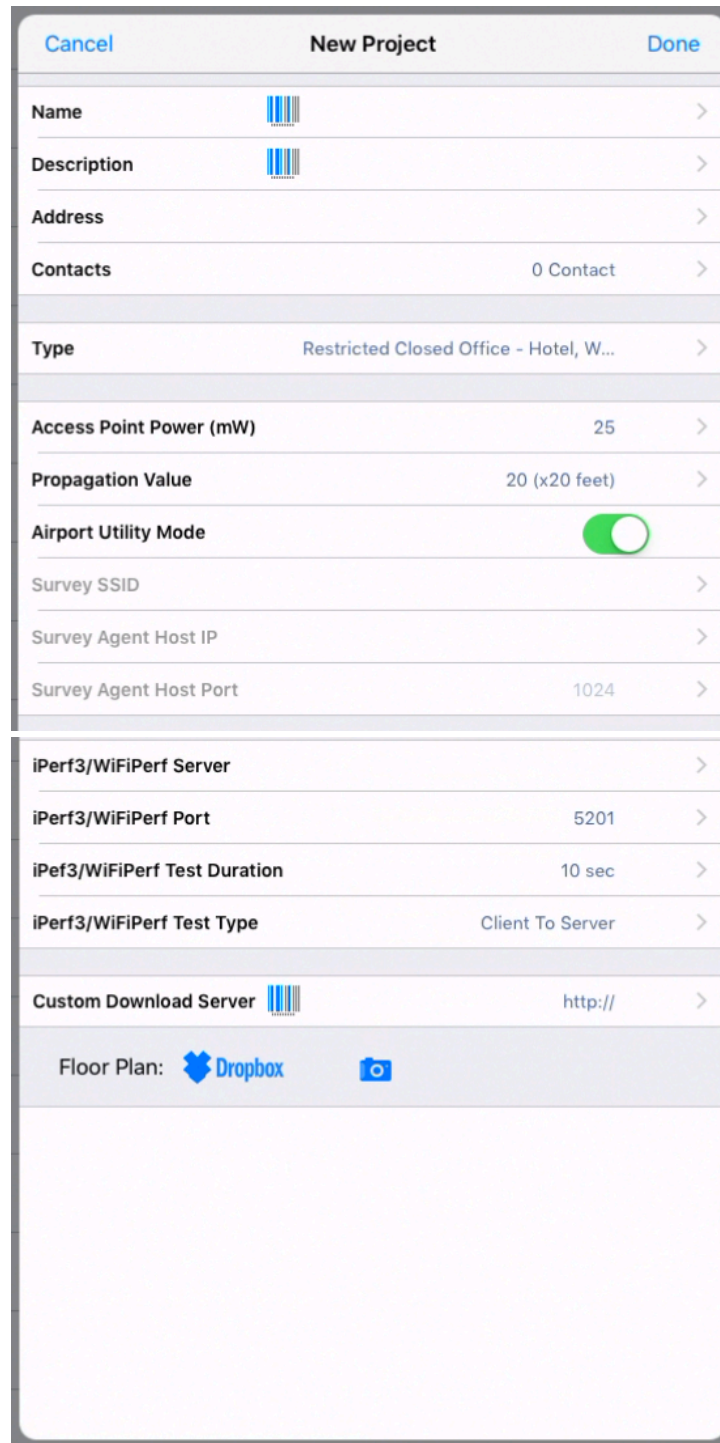


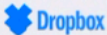

Adding a Project

Anywhere in the application that a barcode icon  is shown, it means that information for that field can be inserted using barcode reading. Tap this icon to open the barcode scanner.

Note: The barcode scanner function is limited by camera capability and size of barcode.

To create a new project, tap the “+” icon, and you will be prompted with the below screen:



Field	Value	Barcode Icon
Name		Yes
Description		Yes
Address		No
Contacts	0 Contact	No
Type	Restricted Closed Office - Hotel, W...	No
Access Point Power (mW)	25	No
Propagation Value	20 (x20 feet)	No
Airport Utility Mode	<input checked="" type="checkbox"/>	No
Survey SSID		No
Survey Agent Host IP		No
Survey Agent Host Port	1024	No
iPerf3/WiFiPerf Server		No
iPerf3/WiFiPerf Port	5201	No
iPerf3/WiFiPerf Test Duration	10 sec	No
iPerf3/WiFiPerf Test Type	Client To Server	No
Custom Download Server	http://	Yes
Floor Plan	 	No

Project Field Descriptions

Name - Name of the project

Description - Any relevant information about the project

Address - Physical address of the location where the site survey is being performed

Contacts - Any personnel information relevant to the site – POCs, Superintendents, etc.

Type - This defining the type of site being surveyed. The following are supported:

Restricted Closed Office - Hotel, Walled Office

- Open Space Office – Cubicle, etc.
- Commercial – Warehouse, Airport, Convention Center, Mall
- Outdoor– Free Space
- Outdoor – Residential
- Outdoor – Downtown

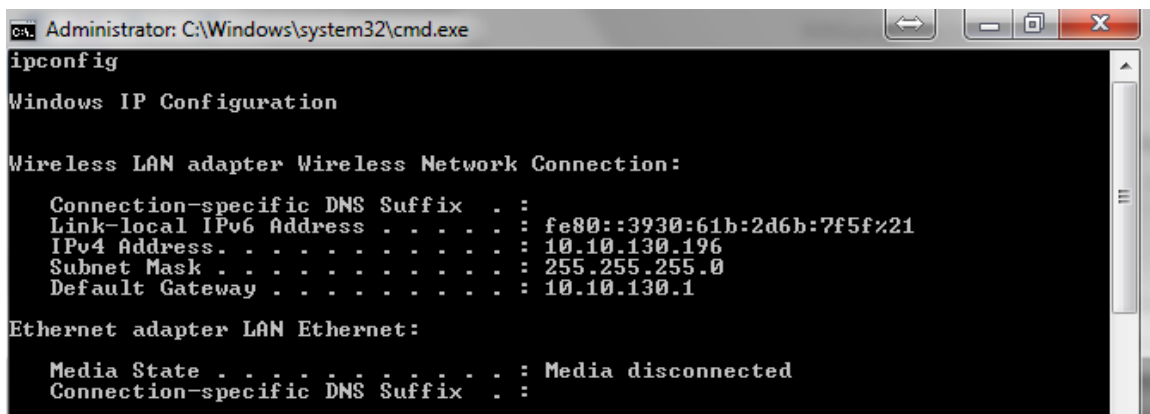
Access Point Power - Specifies the signal power of the APs

Propagation Value - Estimated average area of the signal (In feet)

Note: The Type, Access Point Power, and Propagation Value values are calculated in to the signal strength. For accurate results, it is essential to enter the correct information.

AirPort Utility Mode - **This must be on for WiFi scanning to function.**

iPerf3/WiFiPerf Server - Specify the IP of the device where iPerf3/WiFiPerf server is running. This makes sure that the iPad can communicate to the computer running the iPerf3 server. To find out the IP address in this case, open the command prompt (cmd.exe) and type “ipconfig” for Windows and “ifconfig” for Mac.



```
ca. Administrator: C:\Windows\system32\cmd.exe
ipconfig

Windows IP Configuration

Wireless LAN adapter Wireless Network Connection:

    Connection-specific DNS Suffix . . . . . : 
    Link-local IPv6 Address . . . . . : fe80::3930:61b:2d6b:7f5fz21
    IPv4 Address. . . . . : 10.10.130.196
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 10.10.130.1

Ethernet adapter LAN Ethernet:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix . . . . . :
```

iPerf3/WiFiPerf Servers allow for WiFiSurvey to perform local speed tests. **Make sure your devices are on the same network.**

iPerf3/WiFiPerf Port - Specifies the port of the iPerf3/WiFiPerf server. The default port is 5201

iPerf3/WiFiPerf Test Duration - Specify how long the test should run

iPerf3/WiFiPerf Test Type - Specifies the mode of the iPerf3 speed testing. The following modes are supported:

- Client to Server
- Server to Client
- Both – performs Client to Server, then Server to Client, one after the other

Custom Download Server - Specify the custom download server for Internet speed download test.

Floor Plan - Specify the floor plan for the project. Floor plans can be imported either from the device's internal storage, or from Dropbox.

Note: The only way for WiFiSurvey to be able to use your floor plan is if you provide it. The floor plan must already be on your device or in your Dropbox account.

Once the project is created, it will be visible on the project home page. Tap it to open the project.

WIFI SCANNING WITH AIRPORT UTILITY

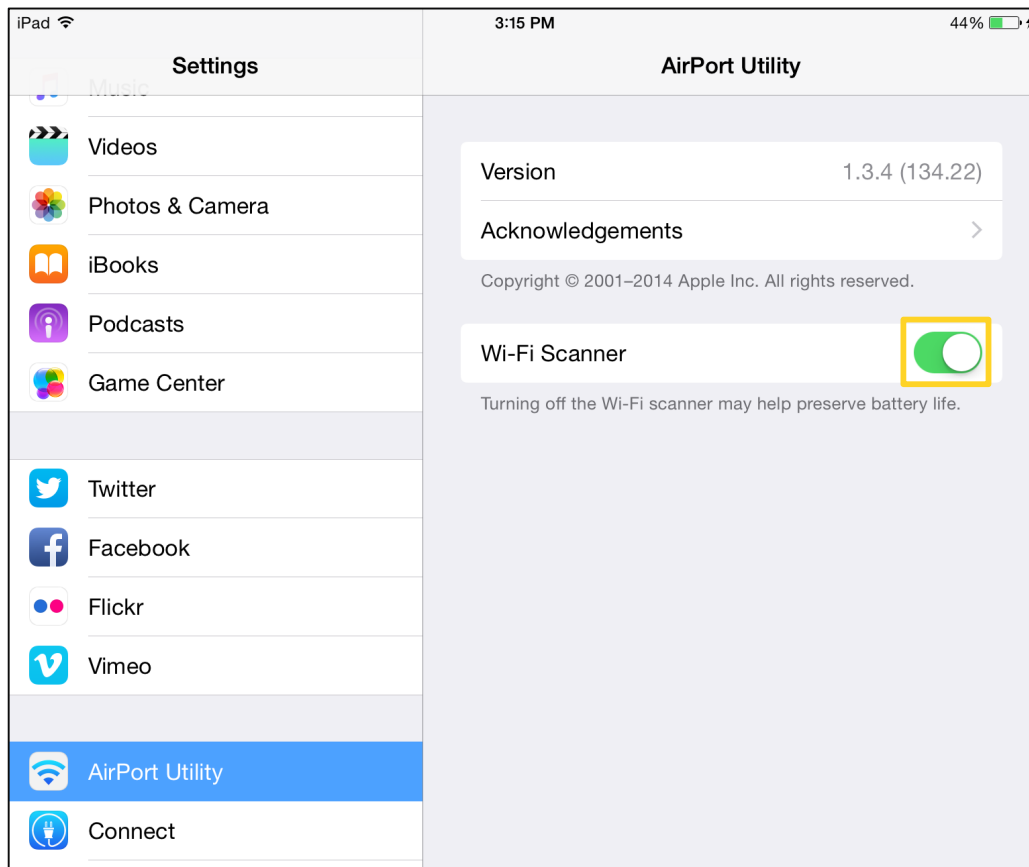
This guide will explain the process of using **AirPort Utility's** WiFi scanning capabilities for surveying on the iPad. As of the creation of this document, Apple does not allow third-party apps to perform WiFi scanning. However, with app data sharing, we have leveraged Apple's scanning ability for our own use in **WiFiSurvey**.

Setup

Download **AirPort Utility** and **WiFiSurvey**.

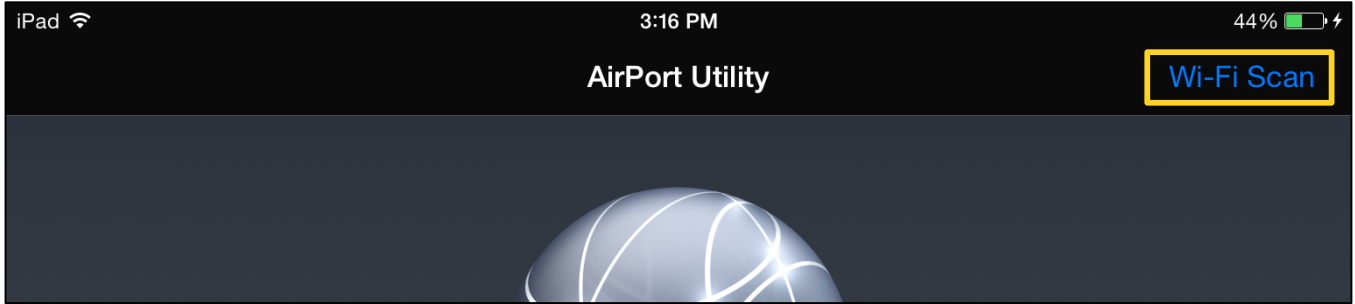
IMPORTANT: Open **WiFiSurvey** and the project you will be working on (or setup a new one). WiFi scan data will only be received and stored when **WiFiSurvey** is running and a project is **OPEN**.

Go to the **Settings** on the iPad, scroll down to **AirPort Utility** and turn on **Wi-Fi Scanner**.



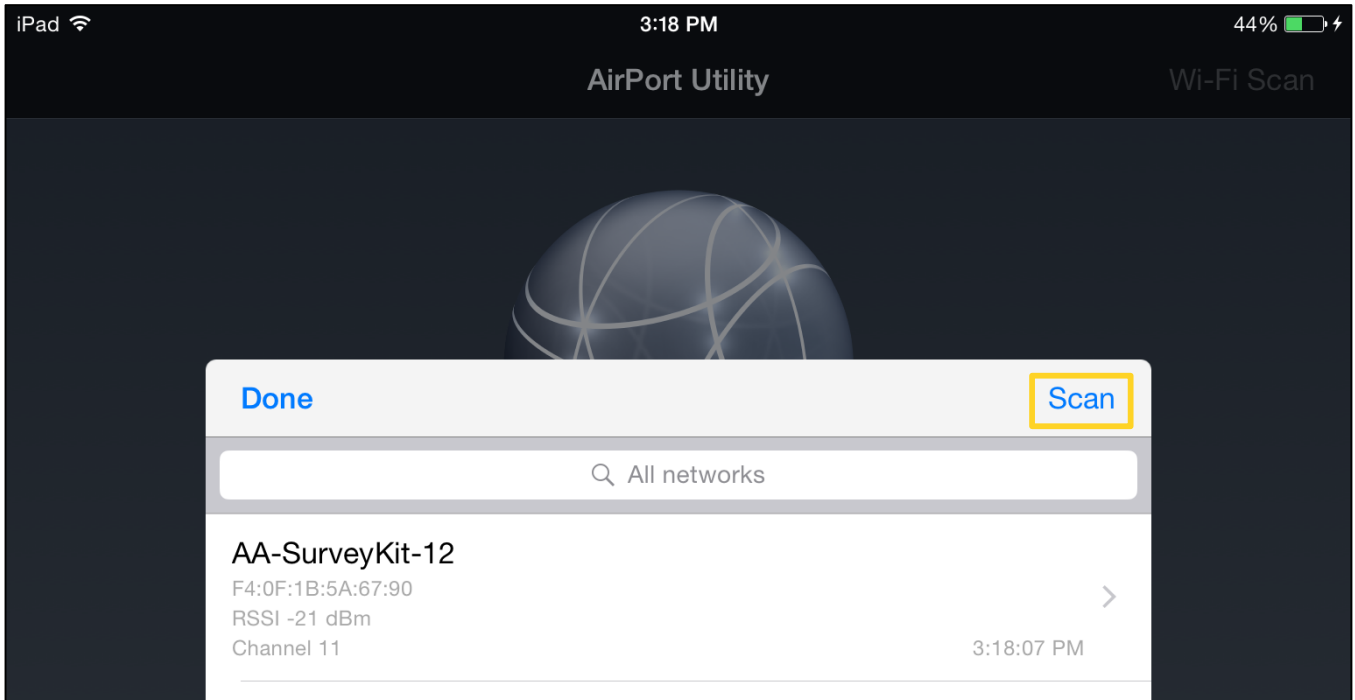
WiFi Scanning

Open **AirPort Utility** and click **Wi-Fi Scan** in the top right.

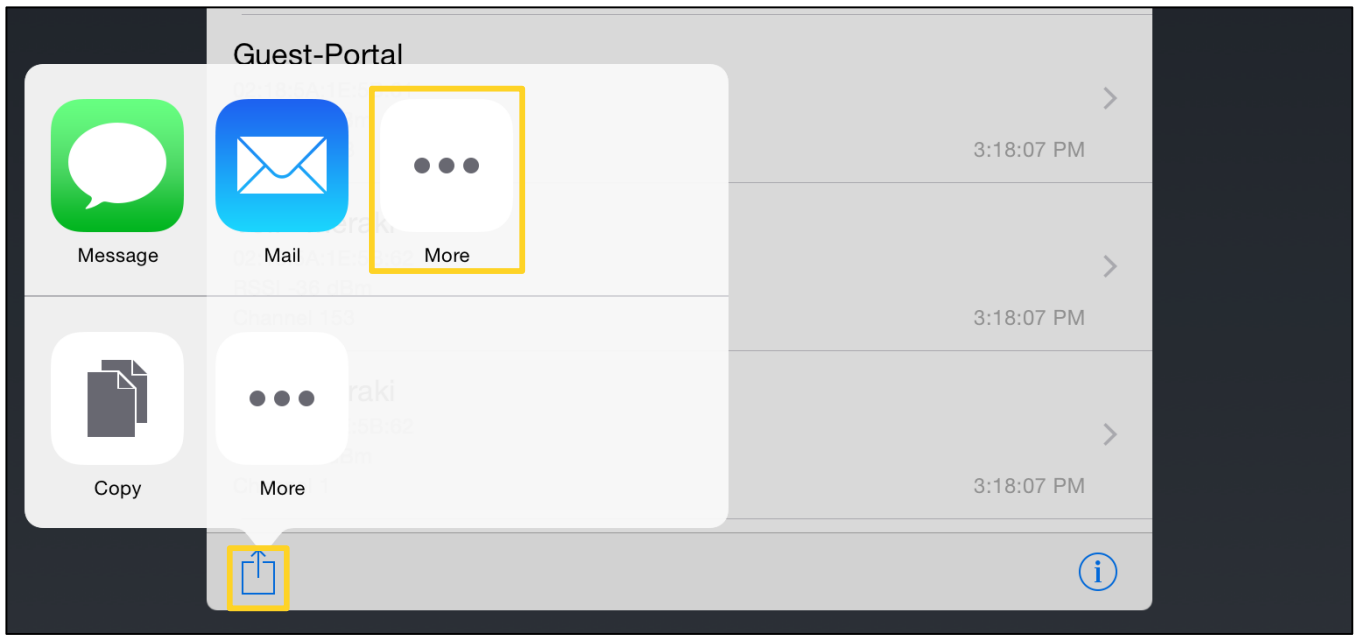


Optional: Select a **Scan Duration**

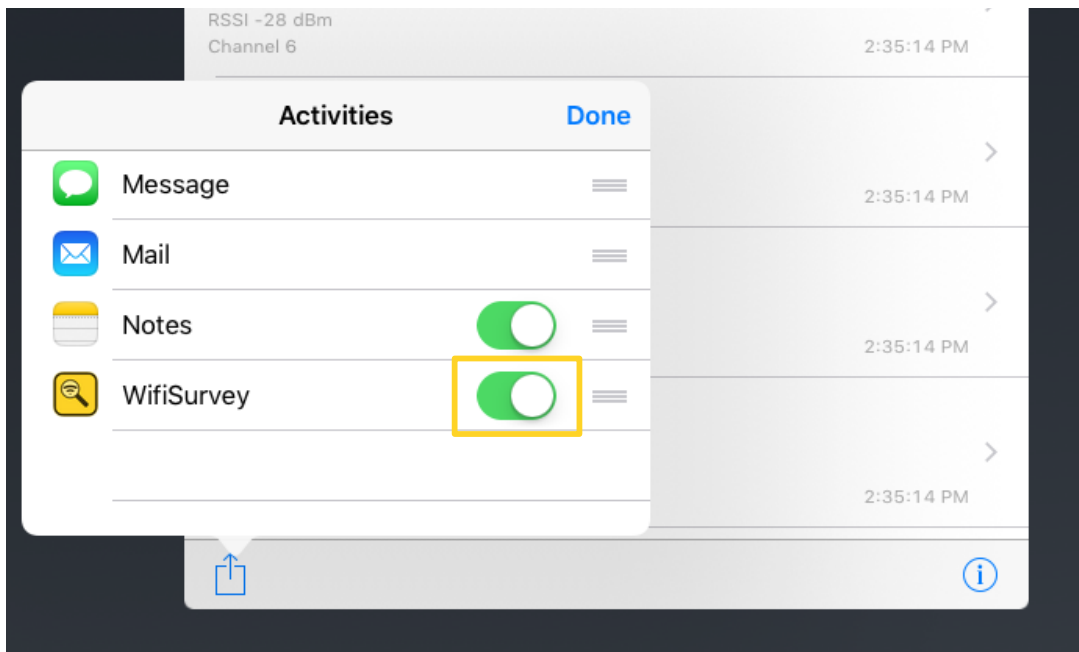
Click **Scan** in the top right



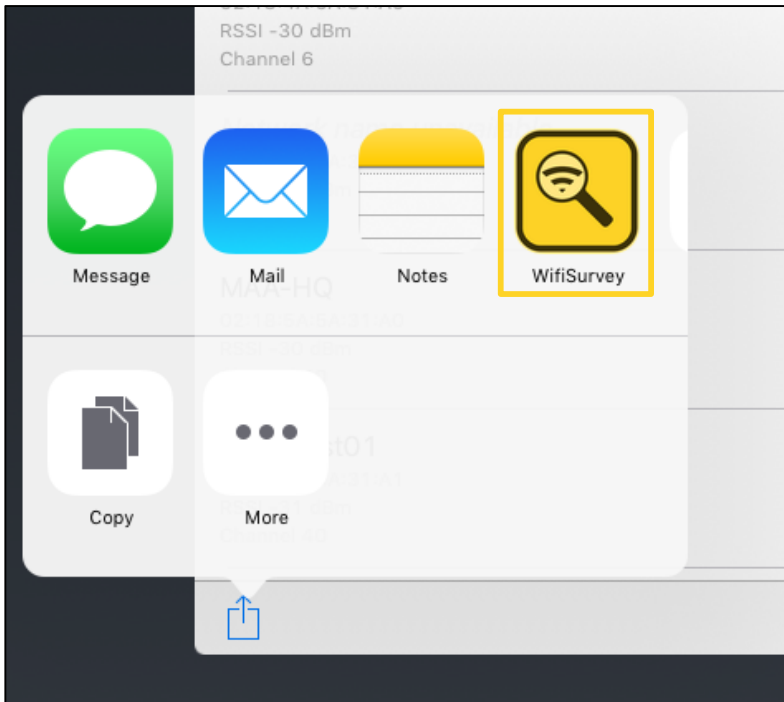
When the scan is finished, click on the **share icon** in the bottom left, then click the top **More** icon.



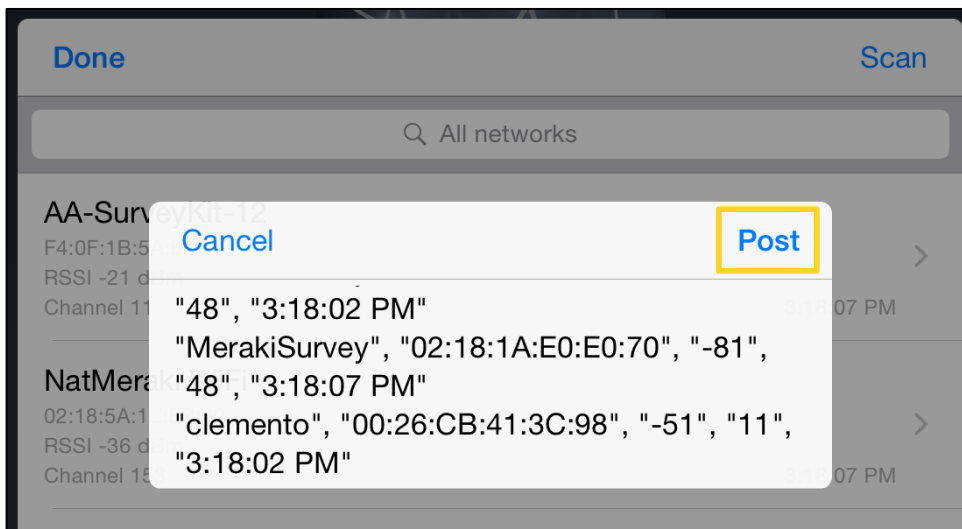
Check on **WiFiSurvey** and click **Done**



Back in the Share options, **WiFiSurvey** should now appear. Click on **WiFiSurvey**



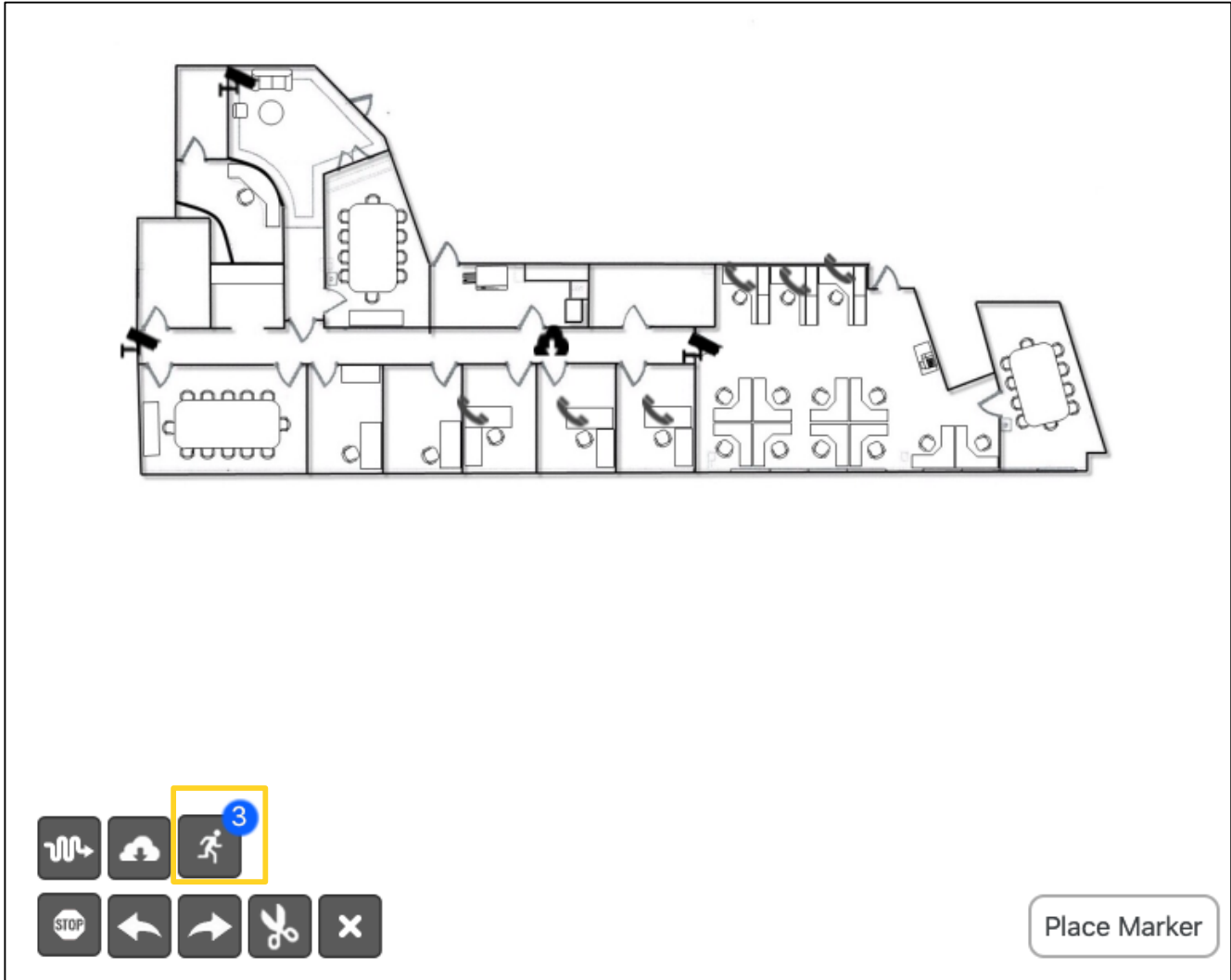
Click **Post** to send this information to **WiFiSurvey**



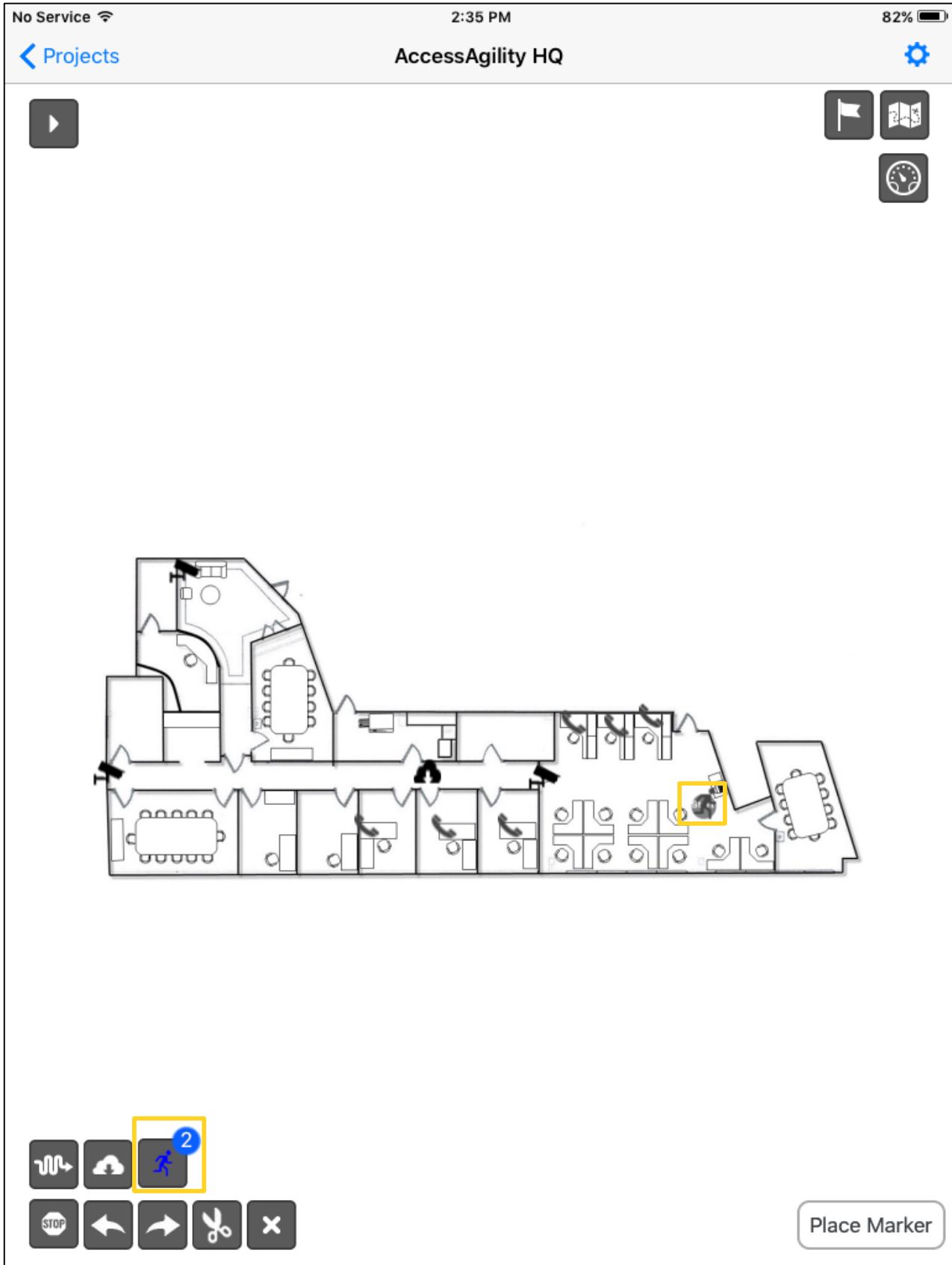
The Walking Man: Placing Scan Data in WiFiSurvey

Once you have sent scan data from **AirPort Utility** to **WiFiSurvey**, navigate to **WiFiSurvey** and you will notice a **blue circle** with a number in it overtop the **Walking Man**. This number indicates the number of scan lists sent to the app.

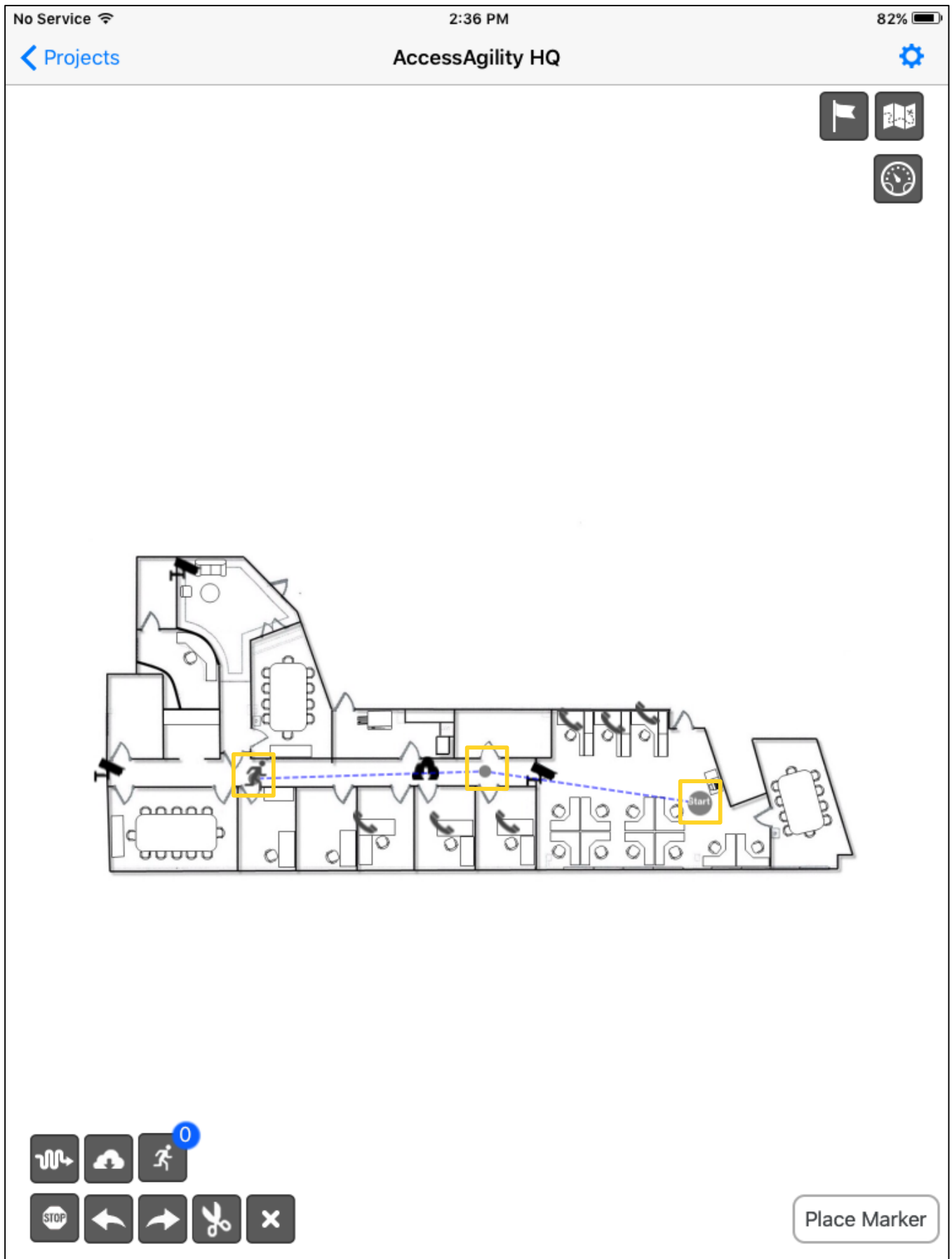
For example, if you have sent three, it should read **3**.



Click the **Walking Man** and select the area of the map where the first scan was completed. This places the first set of scanned data onto the map and the number in the **blue circle** should go down by one.

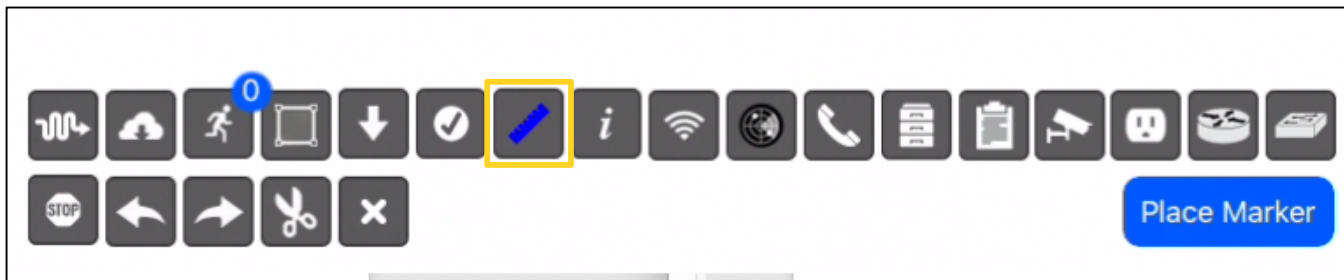


Continue placing data points where they have been collected on the map to create the survey.

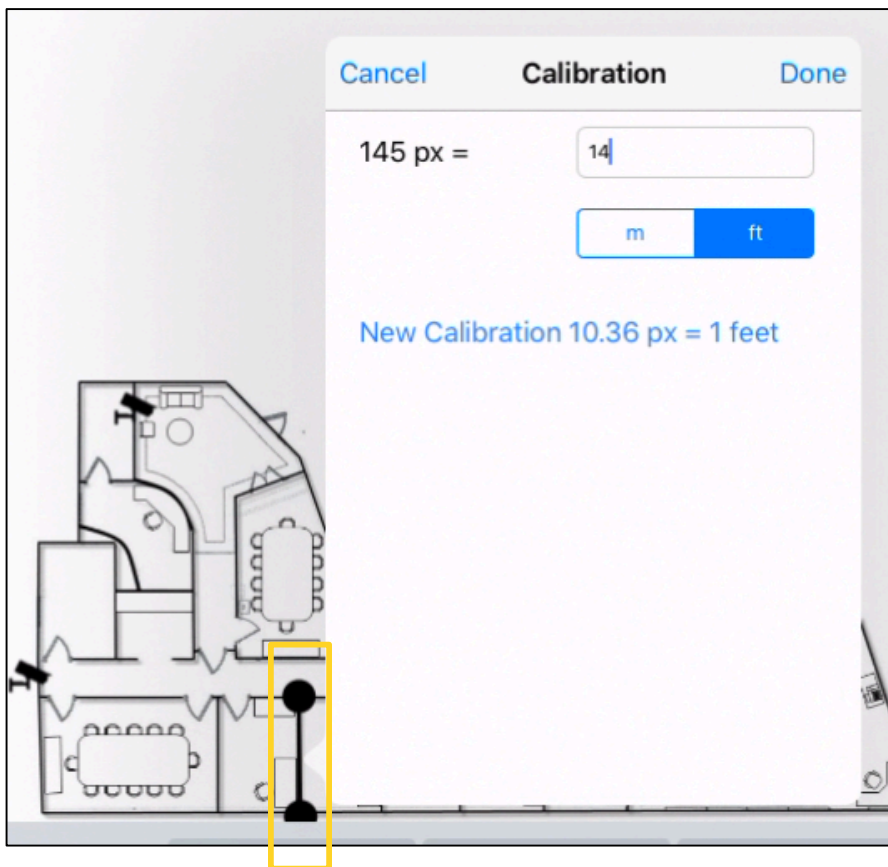


Calibrate the Map

If you have not already done so, calibrate the map using the **Ruler** tool:

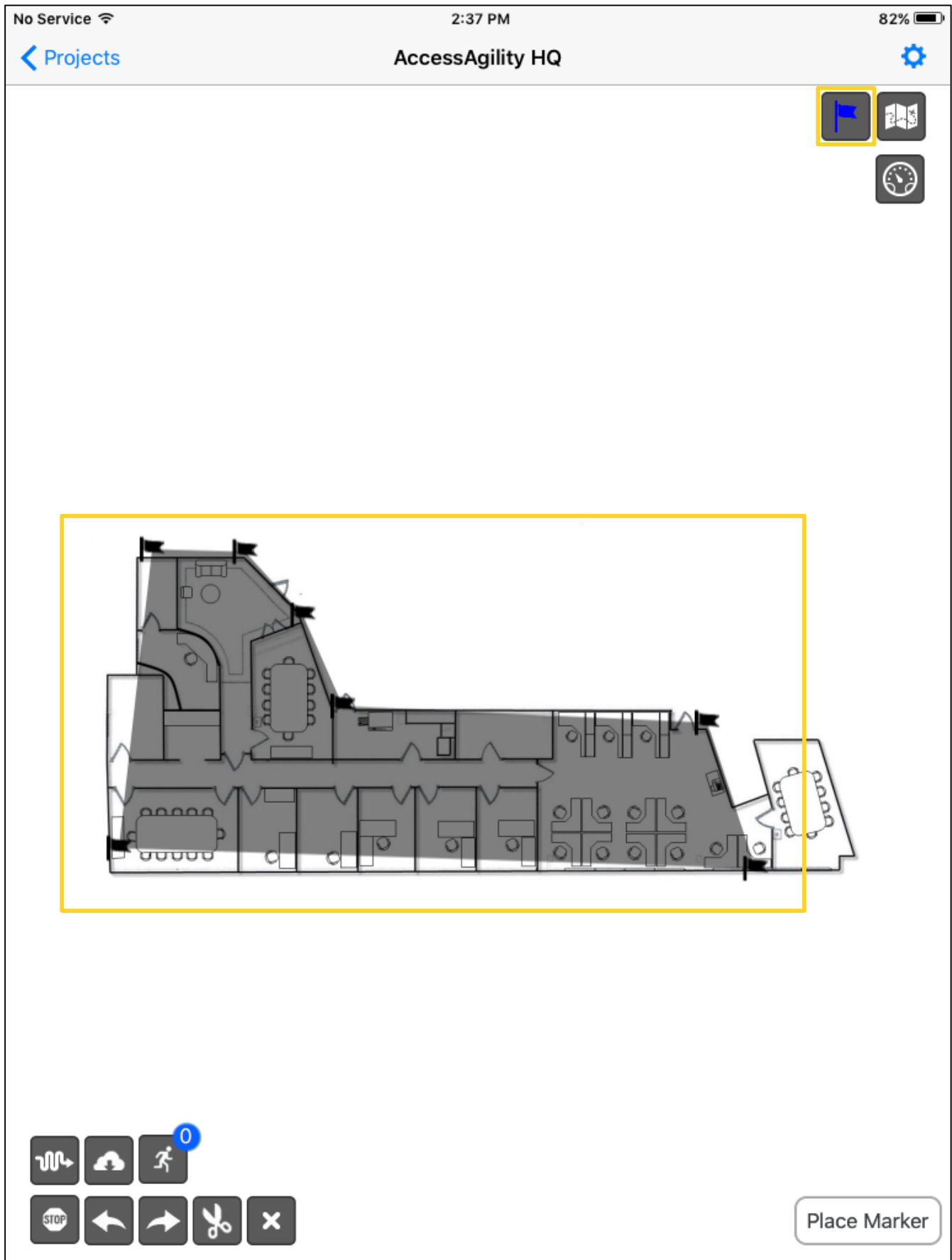


With the **Ruler** selected, press and hold on a wall or area where the distance is known. Drag across the screen and release to calibrate. Maps can be recalibrated for distance at any time using the **Ruler** tool:



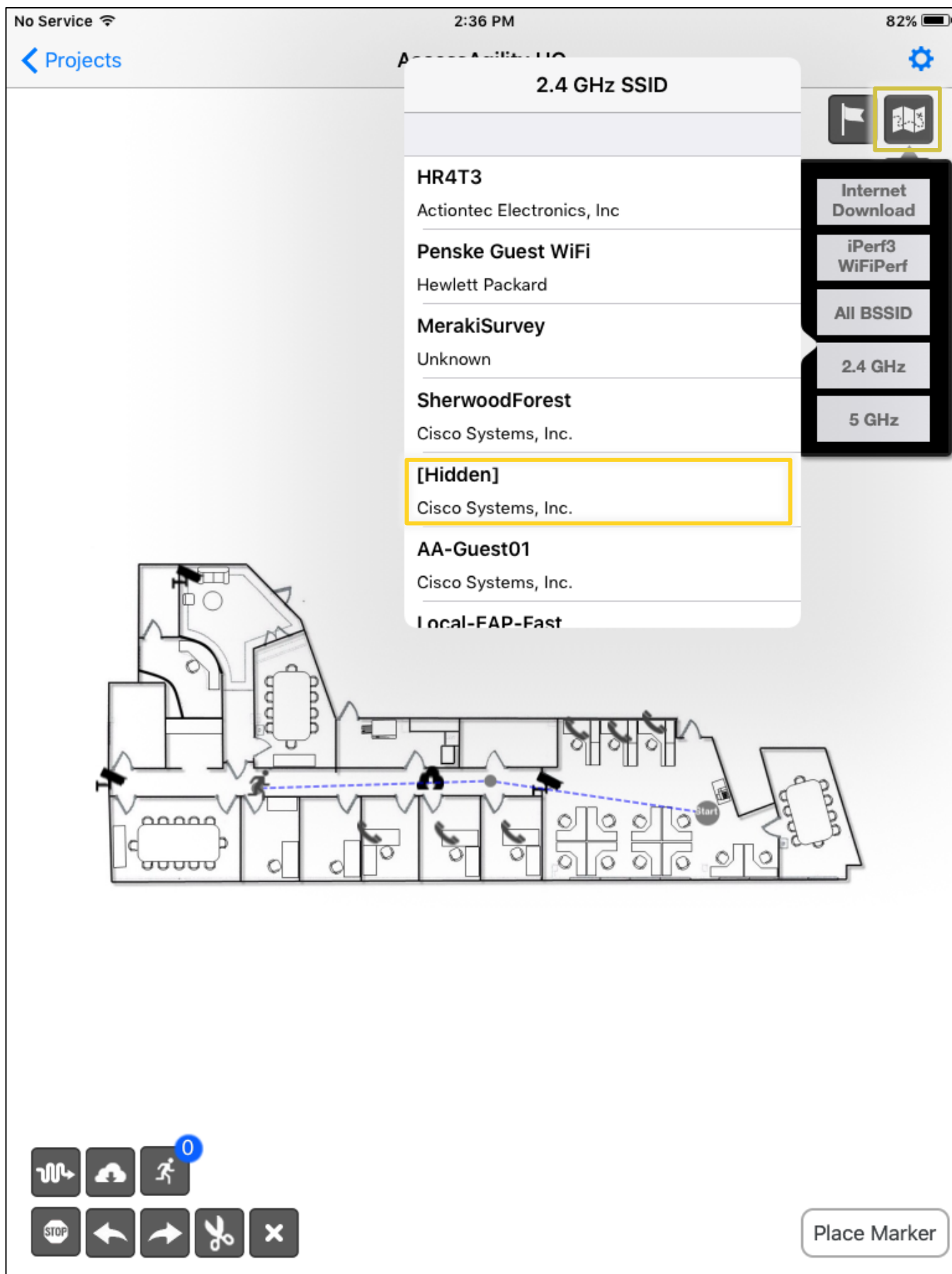
Set Heat Map Boundaries

Click the **Flag** icon to set the Survey Boundaries you want.

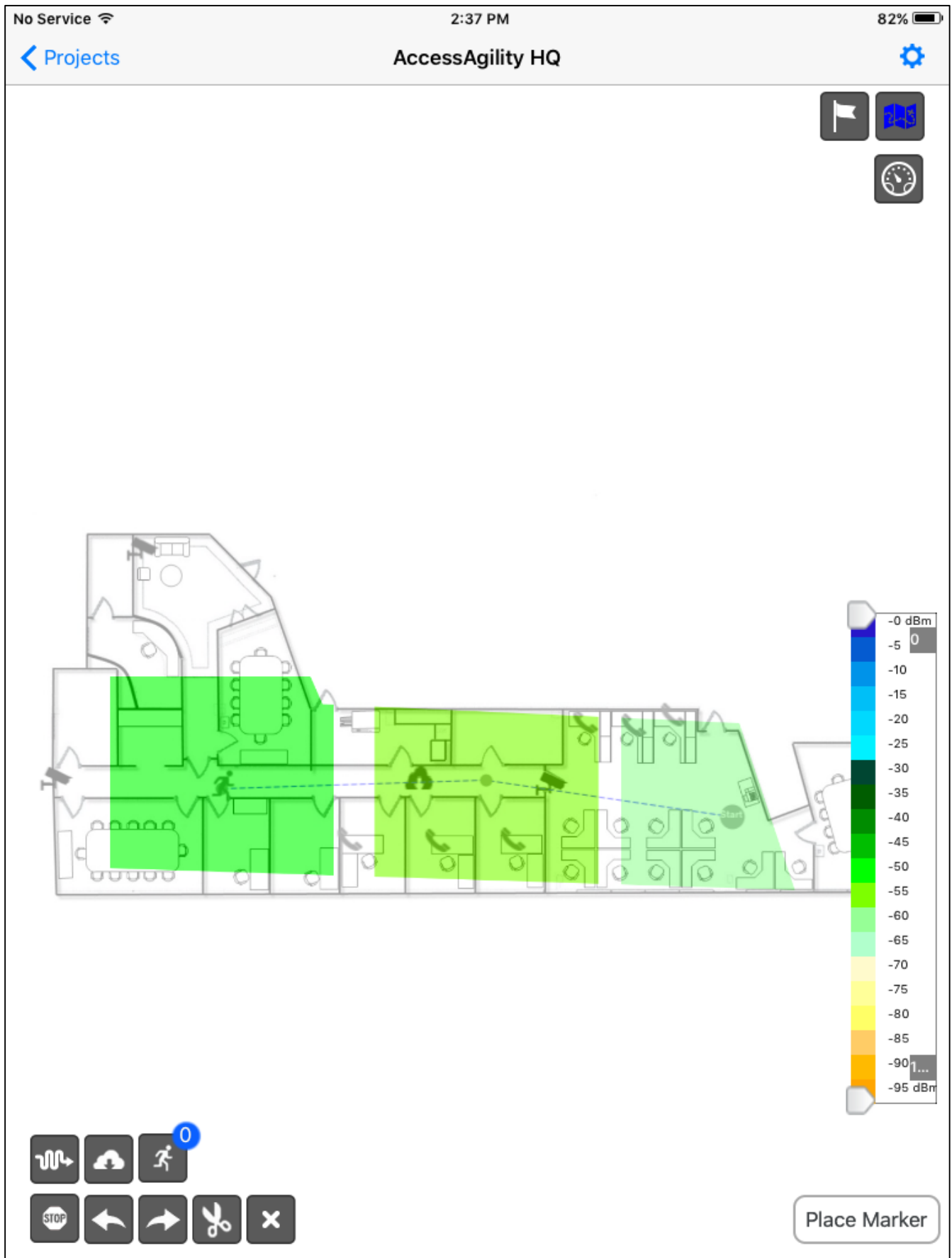


Using the Heat Map

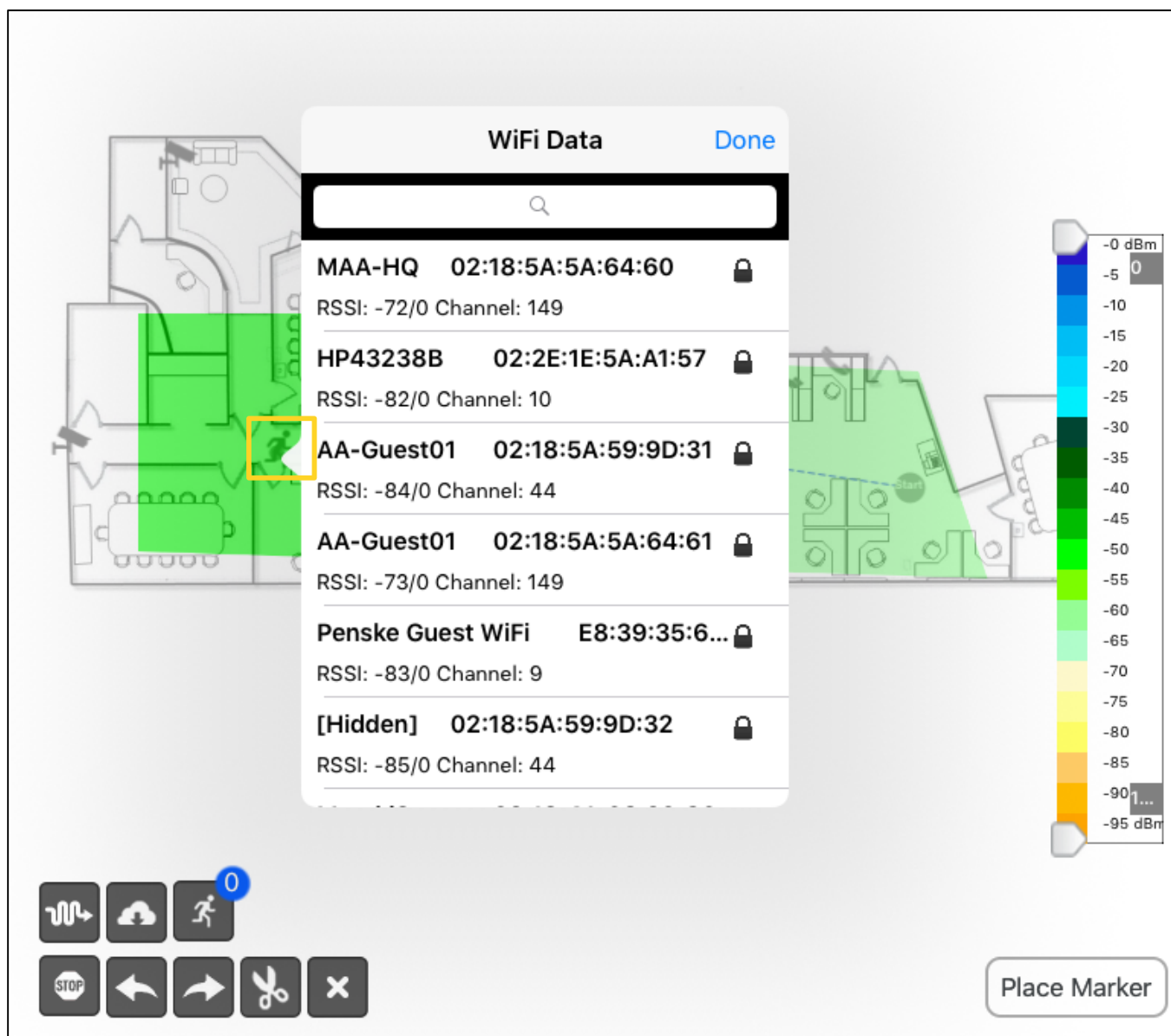
Click the **Map** icon in the top right to select a SSID and view its heat map signature.



Here is an example of the heat signature:



You can view scan data by selecting a specific data point.



WiFi scans can be sent to **WiFiSurvey** and then immediately placed, or you can build up scans. Just note that you must remember where each sequential scan took place and there is a possibility of losing the data before you place it. So it is recommended to stay under five posted scans at a time, place them in **WiFiSurvey**, then continue scanning.

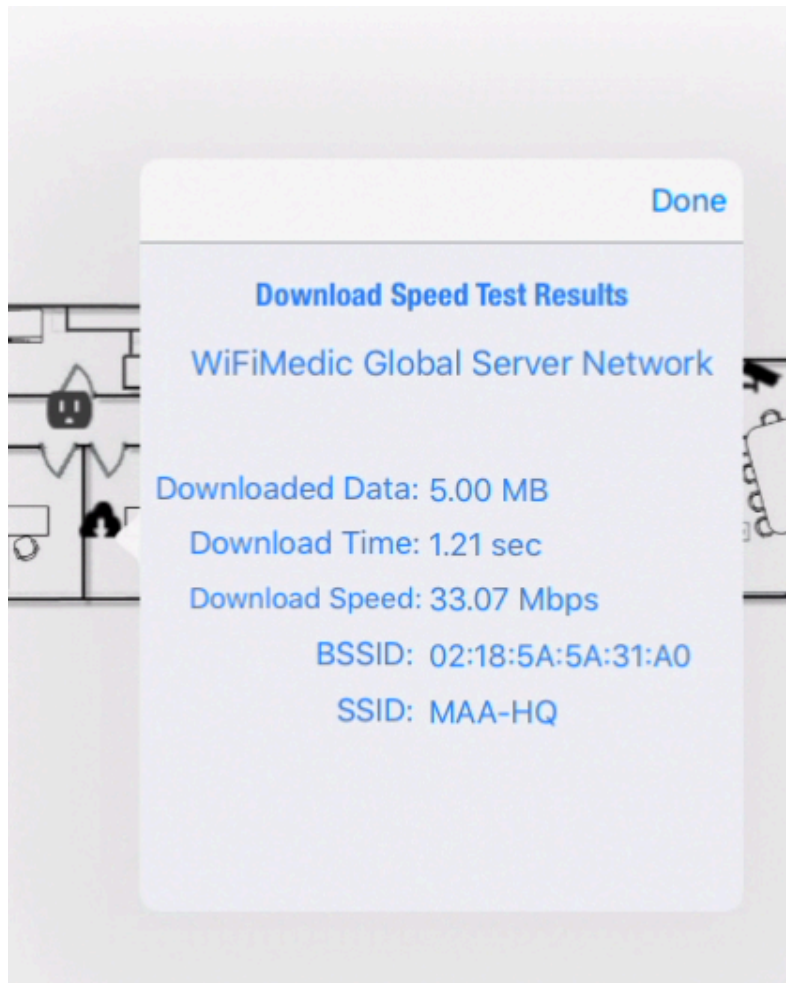
USING SPEED TEST MARKERS

One of the functions of WiFiSurvey is the ability to test the speed of the network at any place on the floor plan. To use the speed test markers, place any of the markers on the floor plan. For each of these markers, a corresponding test will be performed. Once the test finishes, click on the marker to see the result of the test.

The Cloud: Internet Download Test

With the Cloud icon, users can run an Internet speed test based on the WiFiMedic Global Server Network (Cloud). The device needs to be connected to the Internet, but no special server software needs to be running.

When run, complete, and the placed icon is clicked, the below result window will be shown:



It will display:

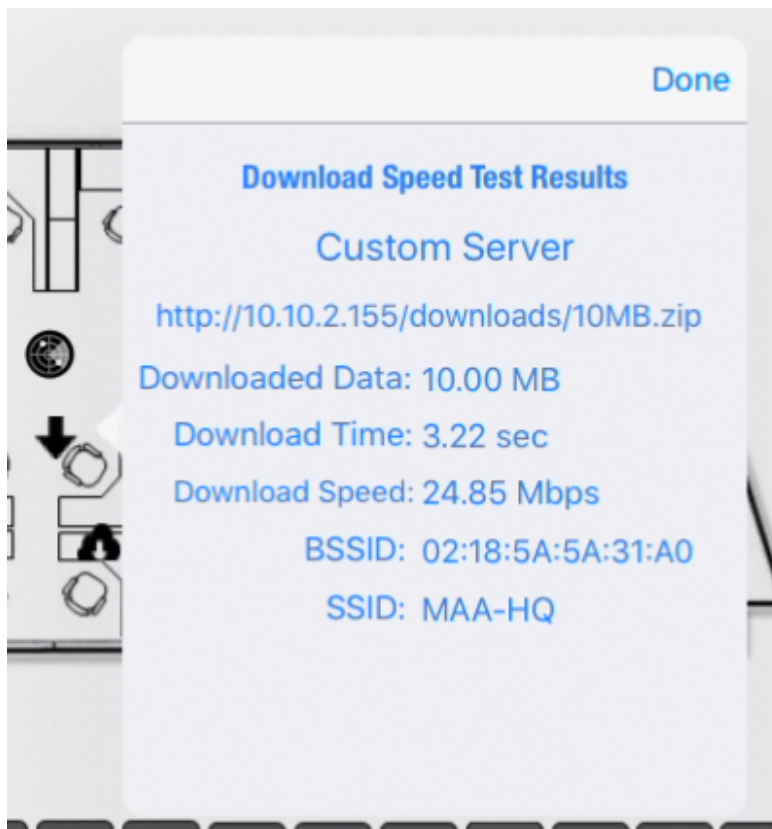
- Size of Download
- Download Time
- Download Speed
- BSSID of connected AP
- SSID of connected AP

The Down Arrow: Custom Download Server

For the Down Arrow icon, users must configure a Custom Download Server in the Edit screen of the project. This server can be on the LAN, WAN, or somewhere over the internet. Have the IP address point to a file of substantial size for a more accurate reading, such as 10MB.

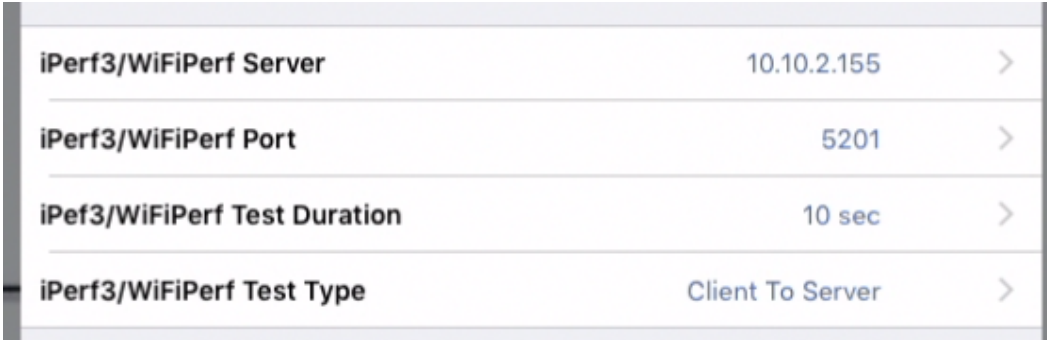


When run, complete, and the placed icon is clicked, the below result window will be shown:



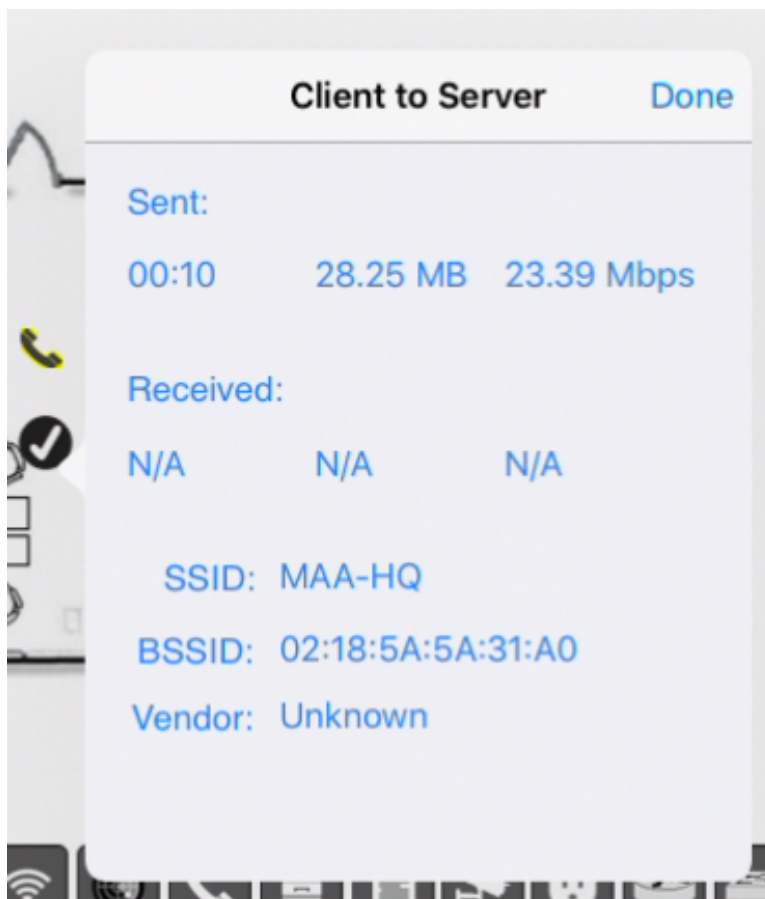
The Check Mark: Downloading Between A Client And Server On The Network

The Check Mark icon uses a WiFiPerf/iPerf3 speed test, configured in the project settings. An iPerf3 or WiFiPerf server must be running on a device (iOS, Android, OS X, or Windows) as a server, and the client (WiFiSurvey) must be configured with that server's IP address.

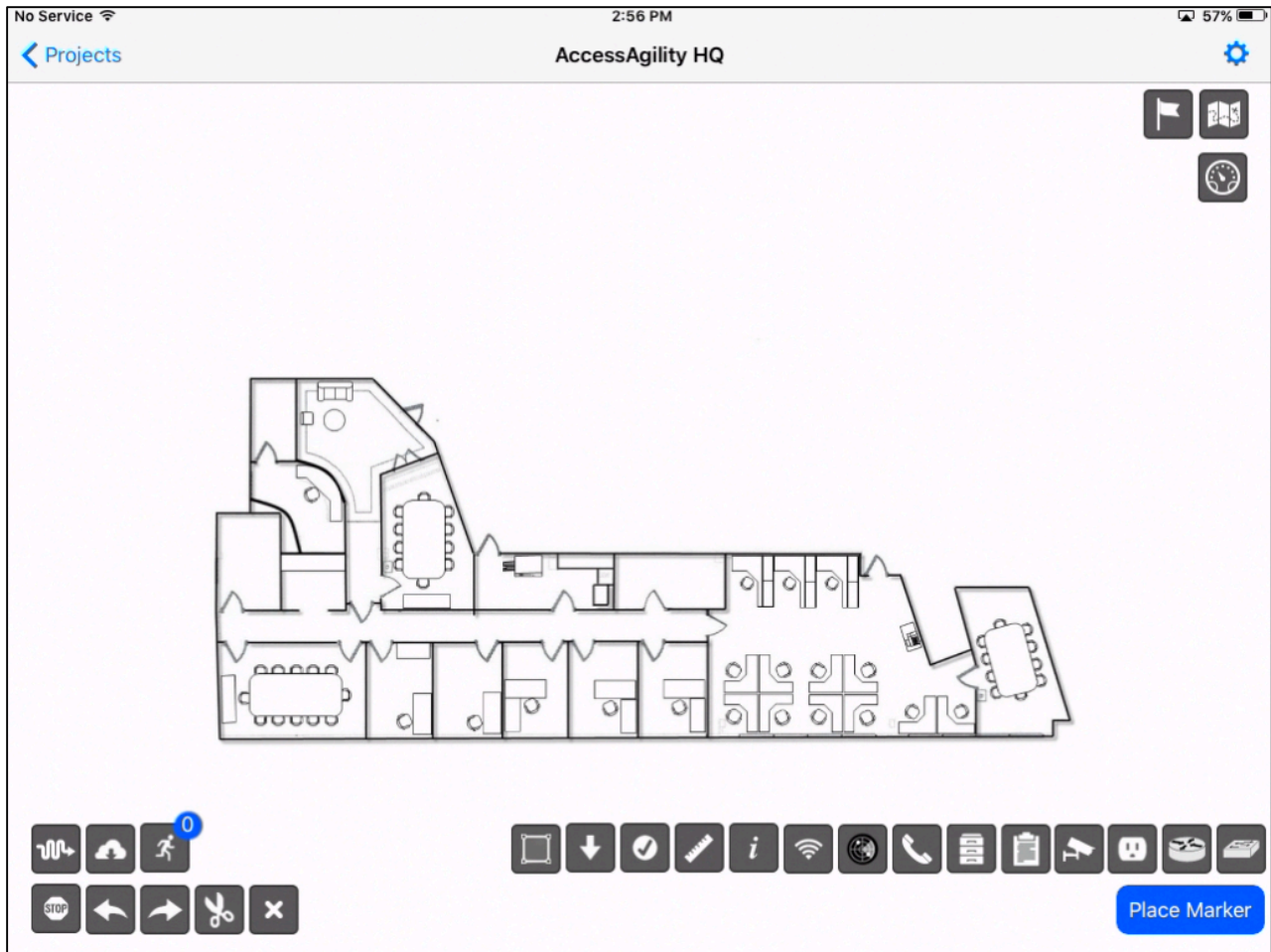


iPerf3/WiFiPerf Server	10.10.2.155	>
iPerf3/WiFiPerf Port	5201	>
iPerf3/WiFiPerf Test Duration	10 sec	>
iPerf3/WiFiPerf Test Type	Client To Server	>

When run, complete, and the placed icon is clicked, the below result window will be shown:

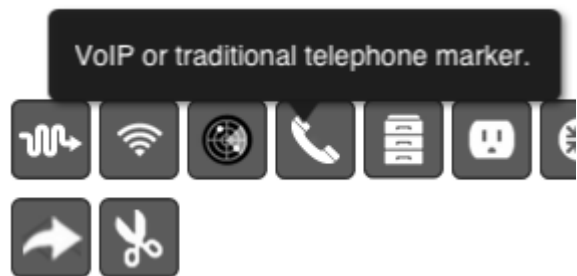


PLACING MARKERS ON THE PROJECT

















To place a marker on the floor plan, select the **Place Marker** button, single tap on the marker, and it will turn blue. Then tap on the floor plan to add it. Once the marker is selected, you can place it until you deselect it, or select another icon.












To get instant help for any marker, press and hold the icon for one second. A small pop-up window will open with a short description of the marker when you release the icon.
Note: This only works while in Portrait mode.



Marker Descriptions

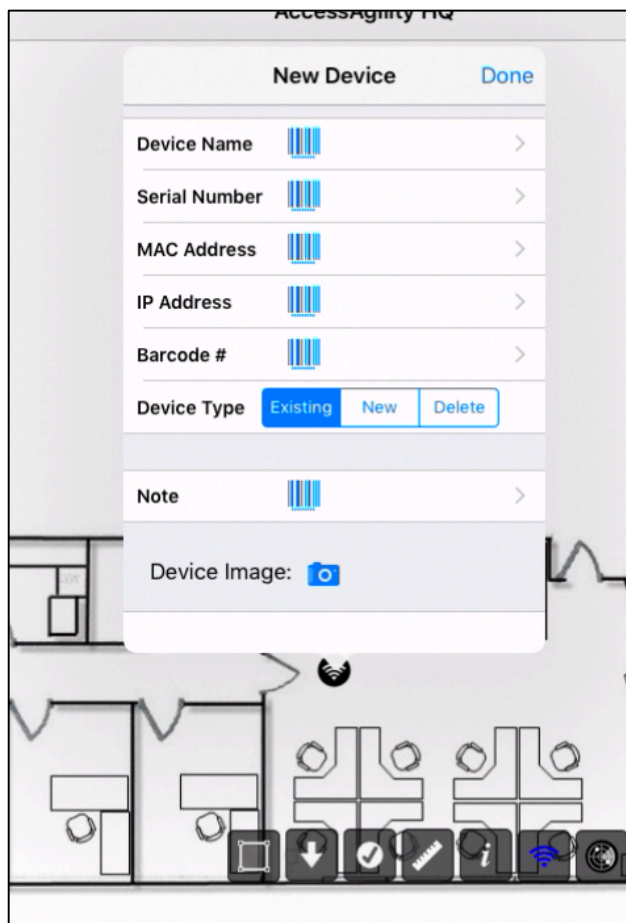
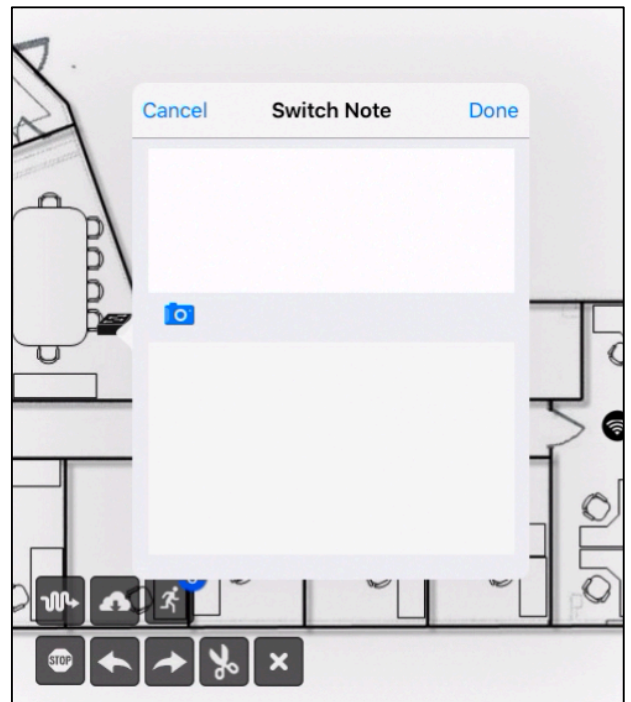
The following list contains the details regarding each of the markers:

	Cable Line: Use the Line marker to draw cable paths. Click the stop button in the second row to end the cable line, and begin a new one. Click the green dot to view the length of the entire path.
	Cloud: Use the Cloud marker to run an Internet speed test via WiFiMedic's Global Server Network at the point on the floor plan where you place the Cloud marker.
	Walking Man: Marks the path that the surveyor walks to create an accurate WiFi heat map. It is used with the AirPort Utility app, which generates the WiFi Data.
	Stop: Ends the current logical group, and begins a new one. Note: This is applicable to AP markers, radar markers, cable lines, and survey lines.
	Arrow-left: Undo last placed marker.
	Arrow-right: Redo last placed marker.
	Scissor: With the Scissors selected, press any marker to delete.
	Delete: Delete whatever set of markers is currently selected– for example, if the phone marker is in use, the phones will be deleted from the floor plan.
	Flag: Used to create the boundary for the heat map. Place it in the form of a perimeter around the area to be surveyed.
	Map: The Map icon will generate a heat map for speed tests and WiFi survey data.
	Speedometer: Speedometer marker is used to set minimum desired speeds for WiFiPerf / iPerf3 speed testing.
	Square: Used to create an accurate representation of how large an area the floor plan covers. Place it in the form of a perimeter (Going along the edge, in order) to calculate the area of the floor plan. (Can be measured in feet or meters)
	WiFi: Use WiFi marker to indicate current or planned AP locations. Add device details
	Sensor: Use sensor marker to indicate current or planned sensor locations. Add device details such as a photo of the device.

	Phone: VoIP or traditional telephone marker.
	Cabinet: Server room/telecom closet marker.
	Power: Power outlet/Power over Ethernet marker.
	Notes: Use to add any additional information
	Camera: Security camera marker: indicates future or present camera placements.
	Router: Use router marker to indicate current or planned router location.
	Switch: Use switch marker to indicate current or planned switch location.
	Arrow-Down: Use the Arrow-Down marker to run an Internet Speed Test via a custom web server that you specify at the point on the floor map where you place the Arrow-Down marker.
	Check: Use the Check marker to run a WiFiPerf/iPerf3 upload and download speed test at the point on the floor map where you place the Check marker.
	Ruler: The Ruler marker is used to calibrate the floor plan to achieve a more accurate readout. This can also be used to measure a calibrated wall. Units can be either meters or feet. Whatever units are selected here will be reflected on cable paths and area of the floor plan.
	Information: This button displays information about the application, and AccessAgility

Marker Options

After placing the marker, press on the blue icon in the icon list to deselect it. Then tap on the marker you placed to add additional notes. When an icon has a note attached to it, it will be highlighted yellow, so that anyone else who reads the project will be able to see there is more information.



WiFi markers have even more information that can be added. Here you can put in all the specific AP information for that part of the layout.

The type changes the color of the marker:

- Existing** - An existing AP (Black AP)
- New** - A future AP to be placed (Green AP)
- Delete** - An AP to be removed (Red AP)