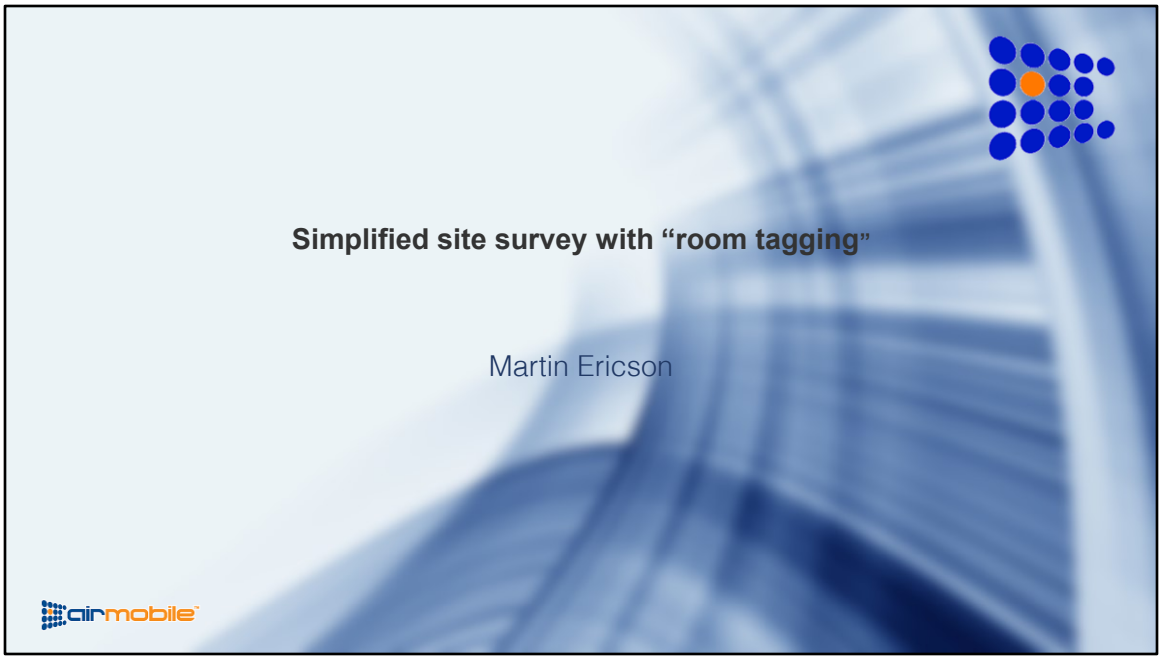

AirMobile Installer is a Wi-Fi verification and documentation App for Android. It will help you to verify your Wi-Fi installation and document your AP:s. The APP includes features like "Room Survey" to make site surveys easy and fast to complete without having to use heat maps or being a Wi-Fi Rf engineer.

AirMobile Installer – Wi-Fi verification, documentation & troubleshooting with Android

Android Version 11 or better

Uses Android standard info

Installer Free, on google Play

Installer Pro more info # licensed

Reporting capabilities through AirMobile cloud

Yearly fee 149 USD

US Distributor

AirMobile Installer is a free Wi-Fi verification and documentation App for Android. AirMobile Installer Pro is a paid WiFi verification, documentation and troubleshooting App for Android 11 and 12.

Two primary usage scenarios are:

1. **Network installation** – access points focused. The verification is a part of the installation process.
2. **Room survey** – place focused. Each location is tagged with District/Site/Project/Room information.

Wi-Fi verification, documentation & troubleshooting with an Android phone

Connect your device to the Wi-Fi network to be tested

1. Start the app
2. Select **Run test** when you are close to the AP to be measured.
3. Fill in the four-layer location hierarchy to your desire. For the upcoming test change the Room ID as you walk around.
4. Review the values and make sure that the values are taken from the closest AP.
5. Scroll down to see the RSSI values measured.
6. Select Generate a Report to send the data to the cloud (Pro version only)

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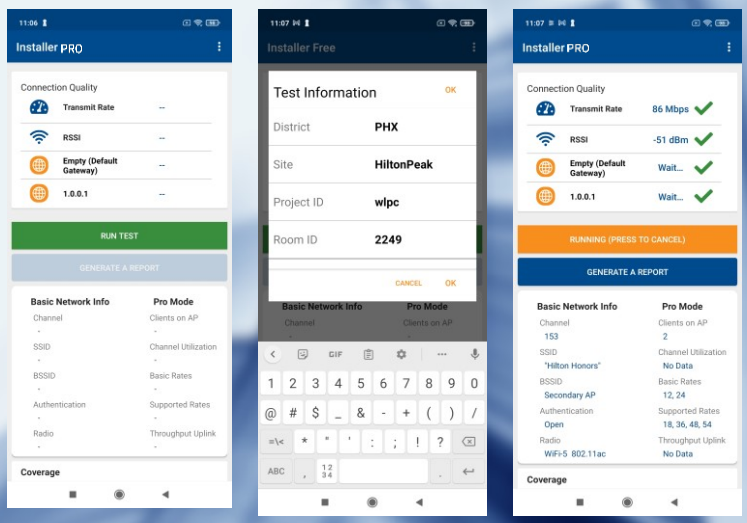


Getting Started

Prerequisites.
Download the wanted version of the tool from Google Play.
Note: Be sure to turn on location since Android requires that for scanning.

1. Start the app
2. Select **Run test** when you are close to the AP to be measured.
3. Fill in the four-layer location hierarchy to your desire. For the upcoming test change the Room ID as you walk around.
4. Review the values and make sure that the values are taken from the closest AP.

Transmit Rate - Is the transmit rate that your phone used during the test. Note: this is a data rate at which the packets have been sent, not throughput. The higher the better.

RSSI - Is the signal strength of the access point that your phone has been connected to. Typically, values higher than -65dBm is considered good.

The **Free** version list the following values in the lower part

- **Current Channel**
  - the Wi-Fi channel for the access point your phone is connected to.

- **SSID**
  - network name
- **BSSID**
  - normally shows the MAC address of the access point your phone is connected to
    If this is the strongest or the second strongest available access point, terms Primary AP or Secondary AP are used

    Note that this refer to the small table and the bottom of the screen under coverage.
    In this case the signal strength is from another AP than the one you are connected to. (Stronger APs nearby)
- **Authentication**
  - Authentication methods as listed in the RSN Element

- **Radio (Wi-Fi-Standard)**
  - Reported as generation of the Wi-Fi standard used both in WFA terms and IEEE**.**

The **Installer Pro** displays the additional values if supported in the beacon:

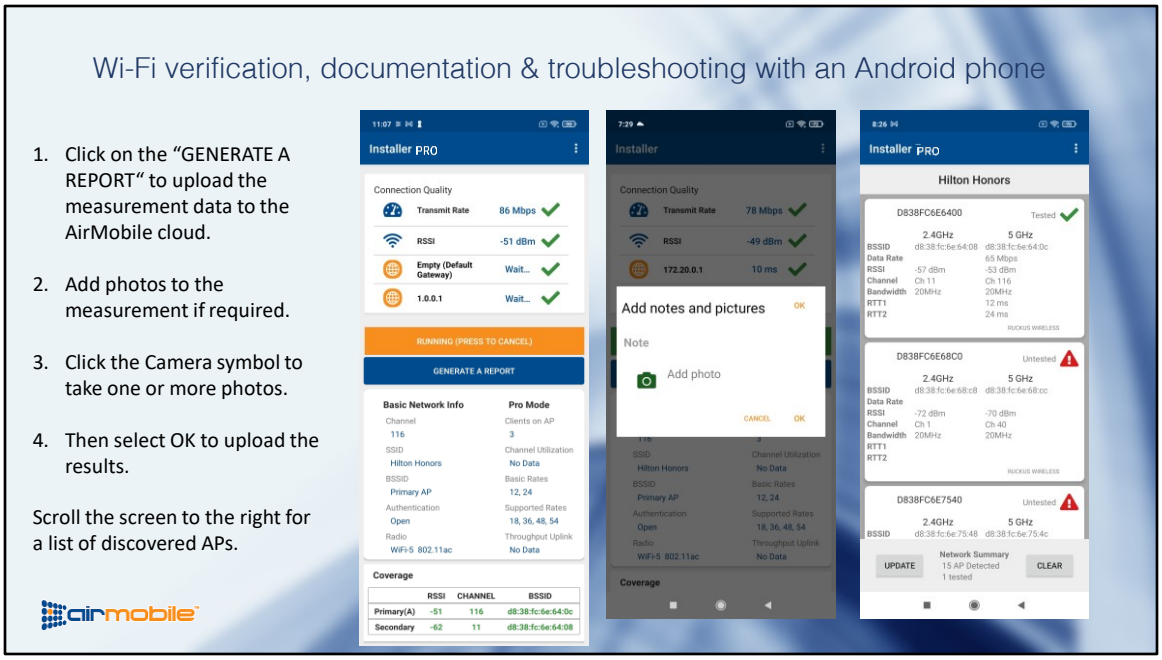
- **Clients on the AP**
  Displays the number of Wi-Fi clients connected to an access point (AP) as reported by the AP in the QBSS Load Information Element.
  This usually means number of clients connected to the BSSID the AirMobile Installer is connected to.

- **Channel Utilization**
  Displays the channel utilization, in percent, as reported by the AP in the QBSS Load Information Element.
  This usually means the utilization of the entire access point's radio the AirMobile Installer is connected to.

- **Basic Rates and Supported Rates**
  Display the basic and supported data rates as reported by the AP in the Supported Rates Element.

- **TCP Uplink**

  Displays the throughput at which the measurement report has been sent to the AirMobile cloud server.



Uploading report (measured data) to the cloud

Only available in the Pro version and using a subscription of the cloud Services

1. Click on the “GENERATE A REPORT“ to upload the measurement data to the AirMobile cloud.
2. Add photos to the measurement if required.
   Click the Camera symbol to take one or more photos. Then select OK to upload the results.

   Tip: Use any feature on your camera to adjust the picture.
   Note: You will not see the pictures on your phone.

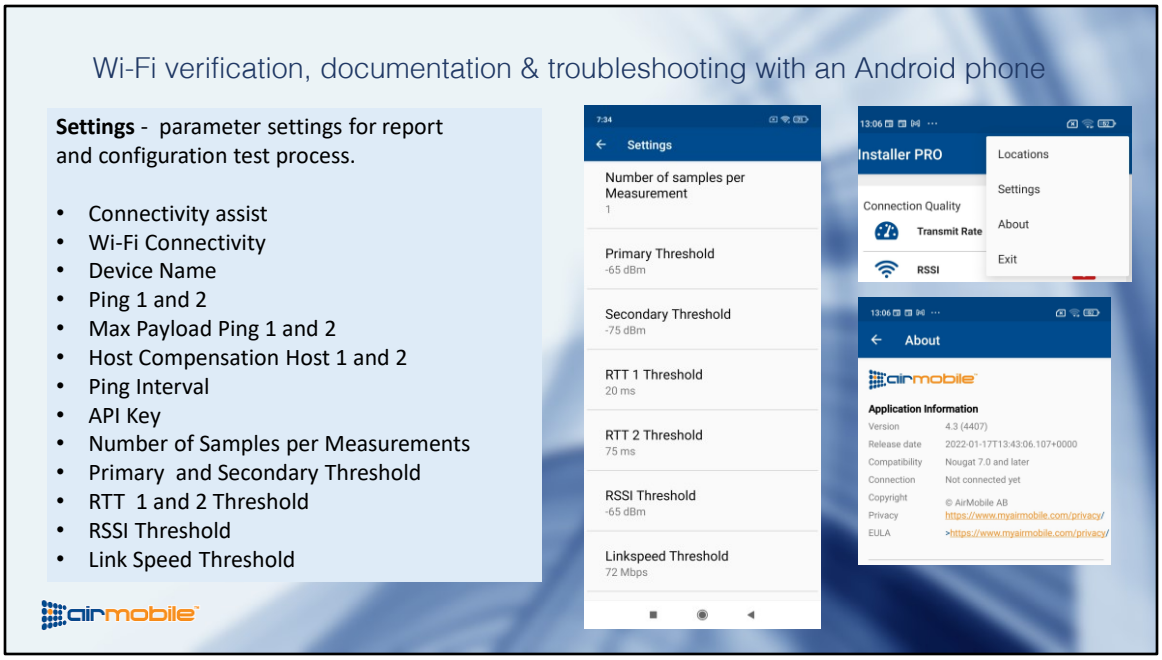
The app stores the data measured locally on your device for later reviewing.

Scroll the screen to the right to list the APs that were visible when the test was run. At the top, the current SSID should be displayed.

In this example room 2249 at the WLPC 2022 Conference Hotel Hilton at the Peak was measured, with Hilton Honors as the SSID.

15 APs were discovered during the test . The tested AP is marked with a green check mark. The others are not yet measured. After taken more measurement in other rooms the red warning triangle should go away.

Note: The TCP RoundTripTime (RTT) is only listed on the channel that was used when uploading the report.



Settings
Select the three dots in the in the upper right corner on the main screen to open the system menu.

Location - Create a list of Location name that can be used

Settings - parameter settings for the report and configuration of the test process.

Connectivity assist
- If turned on keeps the connection while walking between rooms

Wi-Fi Connectivity
- Keeps the Wi-Fi radio alive

Device Name
- Name your device for identification in the cloud.

Ping 1
- The IP address of the first host to ping, normally the default gateway is used

Ping 2
- The IP address of the second host, any host on the Internet, a common one. Default is 1.0.0.1 a DNS server owned run by Cloudfare

Max Payload Ping 1 and 2
- Size pf Ping Payloads in bytes

Host Compensation Host 1and 2
- Compensation for slow performance hosts that takes time generating a Ping.

Ping Interval
- The number of seconds between pings. Default is 1 s.

API Key
- The API key to identify database to use. Also functions as license key for the Pro version

Number of Samples per Measurements
- Number of scanning across the channel Default = 1

Primary and Secondary Threshold
- Thresholds for signal Strength in dBm

RTT 1 and 2 Threshold
- Threshold for TCP RTT (Only in the pro version that connects to the cloud)

Link Speed Threshold
- Link speed required to pass in Mbps

About - Shows the current version of the APP

Exit- Shuts down the App

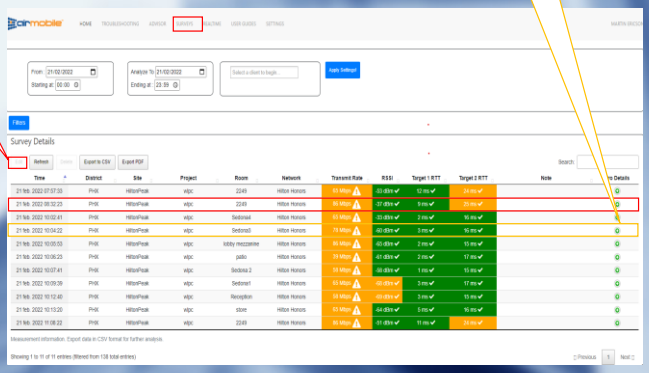
Wi-Fi verification, documentation & troubleshooting with an Android phone

All tests are uploaded to the cloud based on the API used in the client - in the **Surveys** pane.

- Tests can be Filtered on date and device used for analyzing
- Tests are identified with the 4-layer location hierarchy and timestamp
- All columns can be used as sort criteria

Use the **Edit** button to add Notes off issues observed .etc

Press the plus sign for details (on next slide)



The colors depends on the threshold settings

On the mobile a threshold settings were
Transmit Rate 75 Mbps
RSSI -65 dBm
Target 1 RTT 20 ms
Target 2 RTT 75 ms

Note: Make sure that the Time zone is set the same in the browser and the Android device

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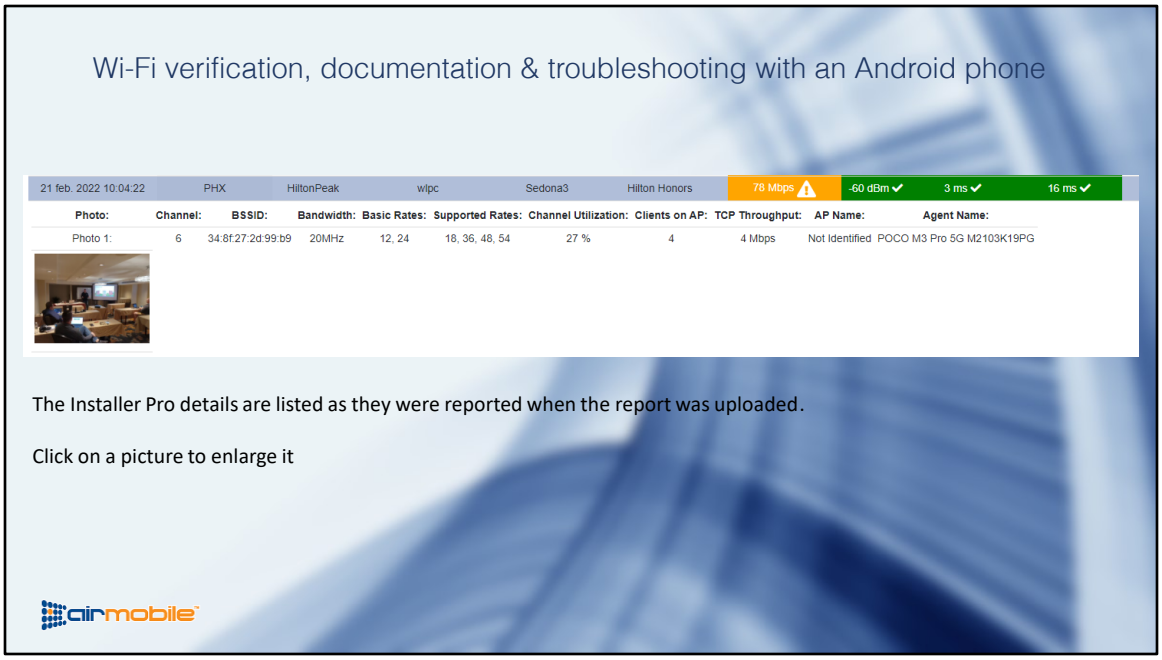
Air Mobile Cloud and Airmobile Enterprise
Data from the tests are stored in a customers' database in the AirMobile Cloud.

Note: AirMobile has other applications that uses the cloud for their data. Not all commands and test are used with the Installer Application

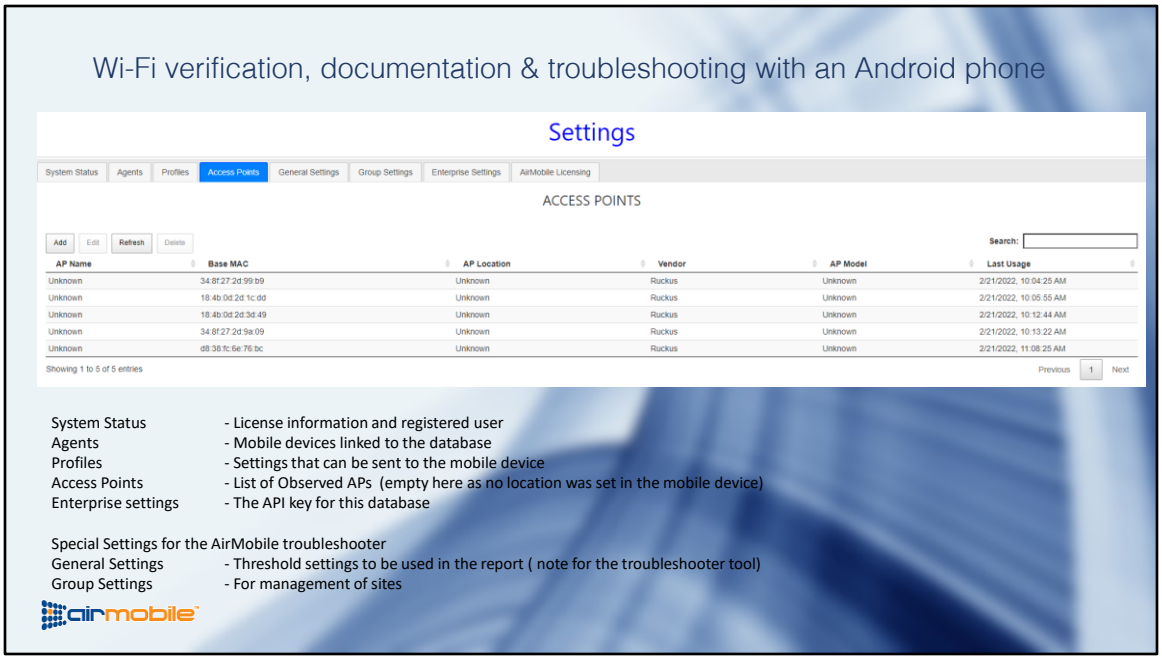
Example of some site observation and analyzing data analyzing task:

- Create an AP inventory list
- AP verification, APs up and running according to plan
- Room survey, Single point signal measuring in a room (Like Stop-and Go in Ekahau Pro)
- Picture documentation
- PDF reporting
- …



Pro Information

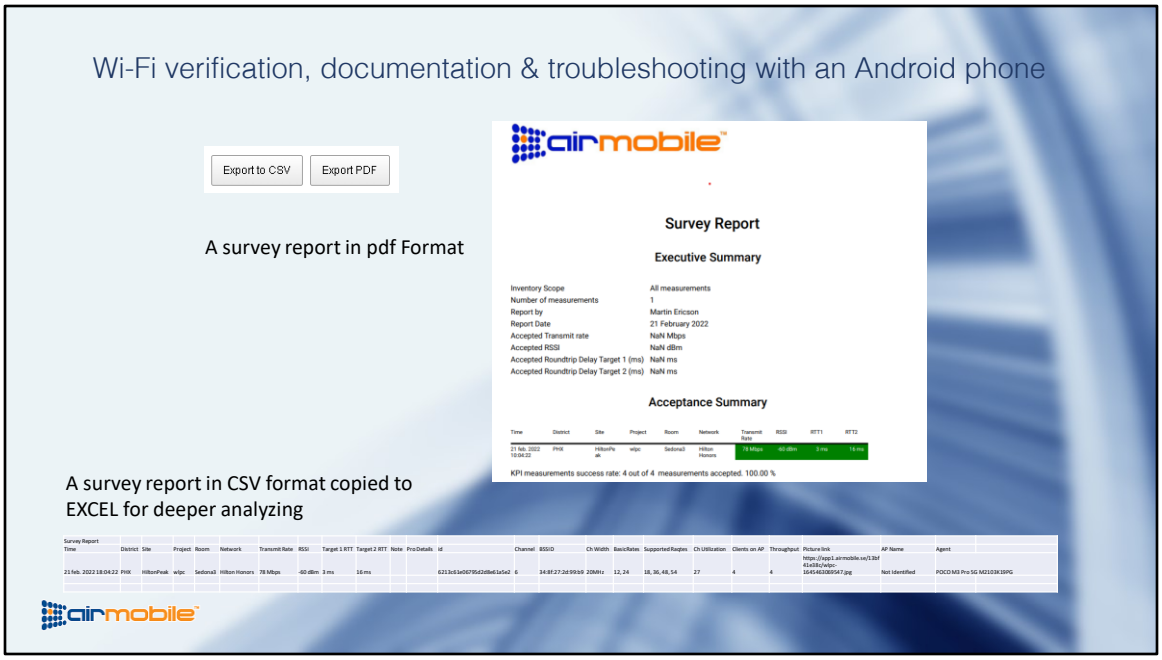
Extended information is visible after clicking on the plus sign to the right of a record in the list.



Settings menu in the cloud services

The settings menu is used to verify the working of the database and get some statistic out of the system.

Information about your license can be viewed and information about the clients that can report to the system



Exporting results

2 format supported for reports

1. Exporting a **PDF** fie
2. Exporting a **CSV** file (using the clipboard and paste into an empty Excel spreadsheet).

Select the test to include in report and click on the report button.

Summary Try it!

Coupon for free AirMobile Installer Pro App for Android in WLPC bag

- Go/no go test, fast testing with no preparation
  - Simplified RF testing
  - No maps needed, use room tagging
  - Documentation on cloud server

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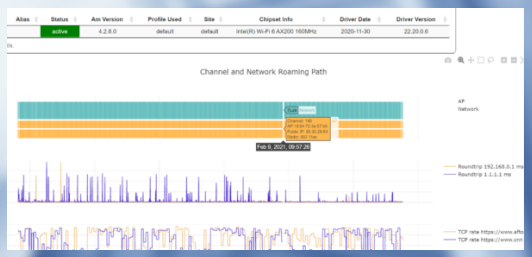
AirMobile Enterprise Troubleshooting

WLPC EU Berlin 2015 Presentation by Karol Kroll

"Troubleshooting WiFi from Client | Karol Krol | WLPC EU Berlin 2015"



- Troubleshooting Wi-Fi from inside a Client,
- Cloud based 24/7 reporting
- Windows and Android supported

- Uses the same Cloud based platform
  - Performance measuring
  - Roaming events

Keith also has a Podcast interview. with Karol
https://wlanprofessionals.com/interview-with-karol-krol-about-airmobile

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Air Mobile APP for Troubleshooting

AirMobile also has APP:s for Windows and Android that report data to AirMobile cloud 24/7 to troubleshoot remote from any location. Data is collected from inside the client to understand real end-to-end Wi-Fi quality. These packages are sold as a cloud service per year.

These product packages are called AirMobile Enterprise versions. To know more please contact AirMobile.

https://www.youtube.com/watch?v=oILUvm3wzm4&list=PLXJsNZqZEF9YxyGqRCsgiun3zgCppIWlv&index=7

Appendix

Best Practice Guidelines

Clients on AP and Channel utilization

	Low "Clients on AP" (<10)	High "Clients on AP" (>40)
Low "Channel utilization" (<10%)	Only few clients, network not overloaded with traffic or RF/Co-Channel Interference. **Large capacity margin, low latency**	Many clients but not sending much traffic. Typical for battery devices not used actively (sensors, mobile phones in stand-by). Low RF/Co-Channel Interference. **Large capacity margin, low-medium latency**
High "Channel utilization" (>50%)	Few power users that generate much data or Low data transfer but heavy RF/Co-Channel Interference. **Small capacity margin, medium-high latency**	Highly loaded AP – traffic from multiple active clients and/or Heavy RF/Co-Channel Interference. **Small capacity margin, high latency**

Channel utilization		
Same BSS	Other BSS	Non-wifi
This is "your AP" wifi traffic, to or from clients in the same network. High channel utilization in this category indicates a high AP load – calls for a possible network redesign if happens often	This is "other APs" wifi traffic that take the airtime on the channel. If possible, minimize by channel planning or AP removal/repositioning	This is not wifi traffic at all, could be other wireless technologies occupying the same spectrum or RF interference. If possible, minimize by finding and eliminating the source

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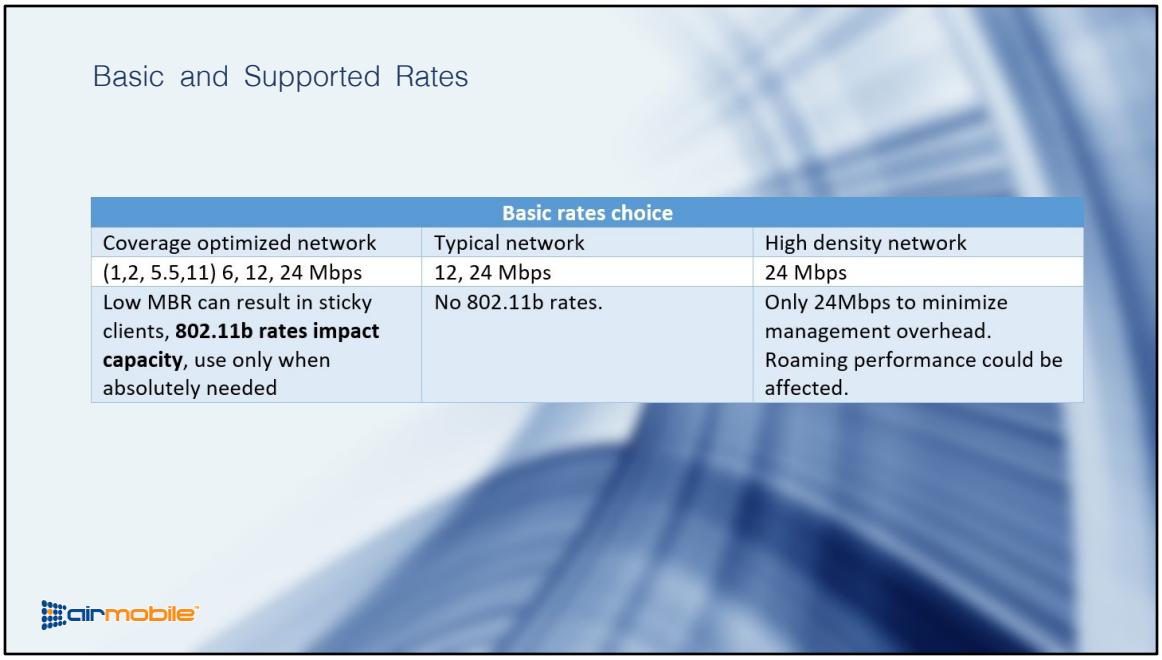
Together offer an invaluable insight into the network load and the RF environment on the channel, as seen by AP.
The matrix of typical combinations for Clients on AP and Channel utilization parameters is presented in the table below.

Depending on usage scenario or band the client count below 15-30 per AP radio would be considered adequate. Channel utilization is typically expected to be below 50%.

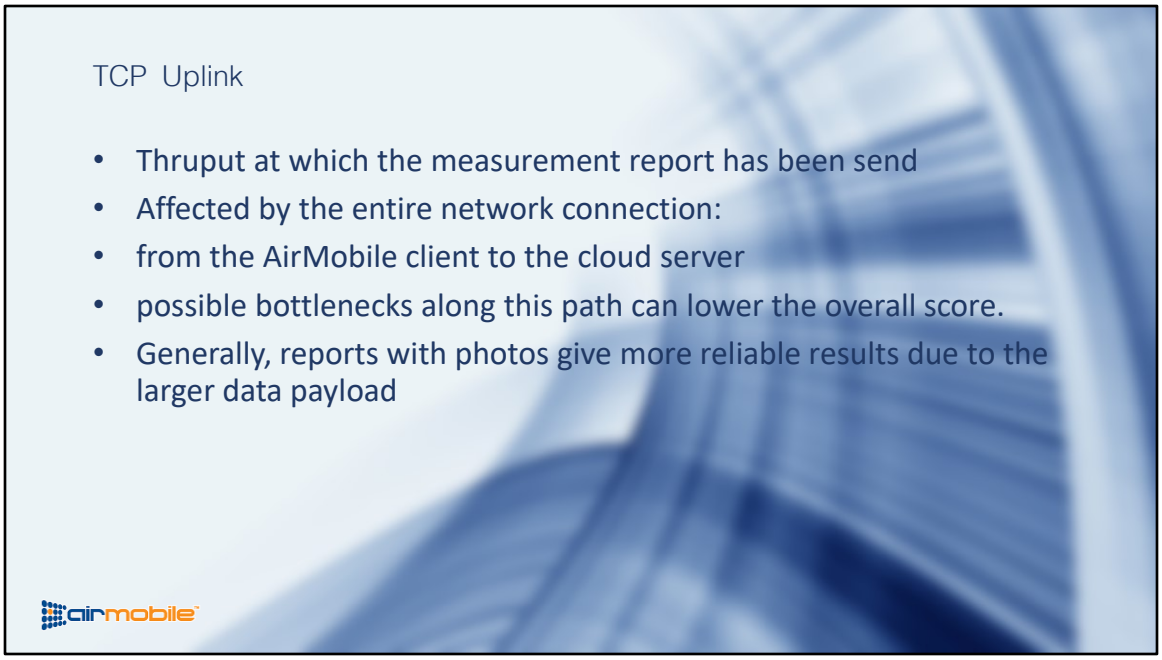
Not surprisingly the high values for both represent the worst-case scenario. The client count is easy to interpret, however the channel utilization is trickier. It can come from three different sources. Firstly, the Wi-Fi traffic from the same BSS, then the Wi-Fi traffic from other BSS: s and a non-Wi-Fi traffic. Only the same BSS traffic is expected during the network use, the other two categories impact your network negatively.



Basic and Supported Rates

Are the rates that must supported by all clients. Management and control traffic uses basic rates, especially the minimum basic rate (MBR). **Optimizing your basic rates can affect the management overhead and roaming behavior in the network**. Beacon frames use MBR and alone; if sent at low rates; can create high channel utilization even without clients connected to the network.

Depending on the Wi-Fi network primary usage scenario there are number of preferred settings for Basic rates – presented in the table.



TCP Uplink
Is the thruput at which the measurement report has been send to the Airmobile cloud. This **value is affected by the entire network connection – from the AirMobile client to the cloud server** and a possible bottleneck along this path can lower the overall score. Generally, reports with photos give more reliable results due to the larger data payload.