

Network Cell Info

by WiLysis, Inc. <http://wilysis.com>

Manual v.3

(!) The free Lite app doesn't have all the features listed here.

(!) "Pro" features are available only in the Pro Subscription, of the paid app.

<https://play.google.com/store/apps/details?id=com.wilysis.cellinfo>

<https://play.google.com/store/apps/details?id=com.wilysis.cellinfoLite>

<http://wilysis.com/networkcellinfo/>



Quick Links

- ✓ Features comparison: <http://goo.gl/8A7PSX>
- ✓ BETA (paid/pro), when available: <https://goo.gl/pYWYe9> (lite: <https://goo.gl/5XTzON>)
- ✓ Manual: <http://goo.gl/hhUFGp>
- ✓ FAQ: <https://goo.gl/EhDDVx> (also FAQ inside app settings / about)
- ✓ **Common** measurements database formats: <https://goo.gl/jbZKAs>
- ✓ **Pro subscription** measurements database formats: <https://goo.gl/rvpRQf>
- ✓ Phone issues: <http://goo.gl/Hy0dx5>
- ✓ Dual SIM issues: Make sure you enable it in the app settings, <http://goo.gl/o0SC6j>
- ✓ APP site: <http://wilysis.com/networkcellinfo/>
- ✓ Play Store (paid/pro): <https://play.google.com/store/apps/details?id=com.wilysis.cellinfo>
- ✓ Play Store (lite): <https://play.google.com/store/apps/details?id=com.wilysis.cellinfoLite>

Main Common Features

- ✓ Almost Real-Time (1 sec.) monitoring of cellular and WiFi signals, in Gauge/Raw Tabs (*)
- ✓ GSM, CDMA, UMTS (WCDMA), IWLAN, LTE, LTE+ support
- ✓ Dual SIM support (*)
- ✓ Signal-meter gauges for both SIMs and WiFi (*)
- ✓ SIM# preference option, for other than Gauge tab
- ✓ Map with network cellular info and signal-meter gauges
- ✓ Indication of cell locations (not cell towers) in the Map from Mozilla Location Service (MLS), excl. cdma (*)
- ✓ Route coloring (in the Map) according to the signal strength, and map markers with location and signal info
- ✓ Logs, Measurements of cellular signals
- ✓ Measurements settings (minimum distance, minimum accuracy, motion sensor, etc.)
- ✓ Database export measurements in KML 2.2, MLS Geosubmit v.2, CLF v.3, OpenCellID csv, CMWF database types
- ✓ Network information in Status Bar
- ✓ Sound notifications (on system, cell id changes)
- ✓ Raw view of network cellular info
- ✓ Raw zoom view of network cellular info (serving cell only)
- ✓ Connection statistics
- ✓ SIM and device info
- ✓ Tabs: select visible tabs
- ✓ Map view settings (Normal, Satellite, Terrain, Hybrid)
- ✓ Gauge tab: option to show only 1 SIM, or 2 SIMs (plus or w/o WiFi)
- ✓ Raw tab: Maximum neighbor cells to show setting, show 0-ASU cells setting

(*) Notes:

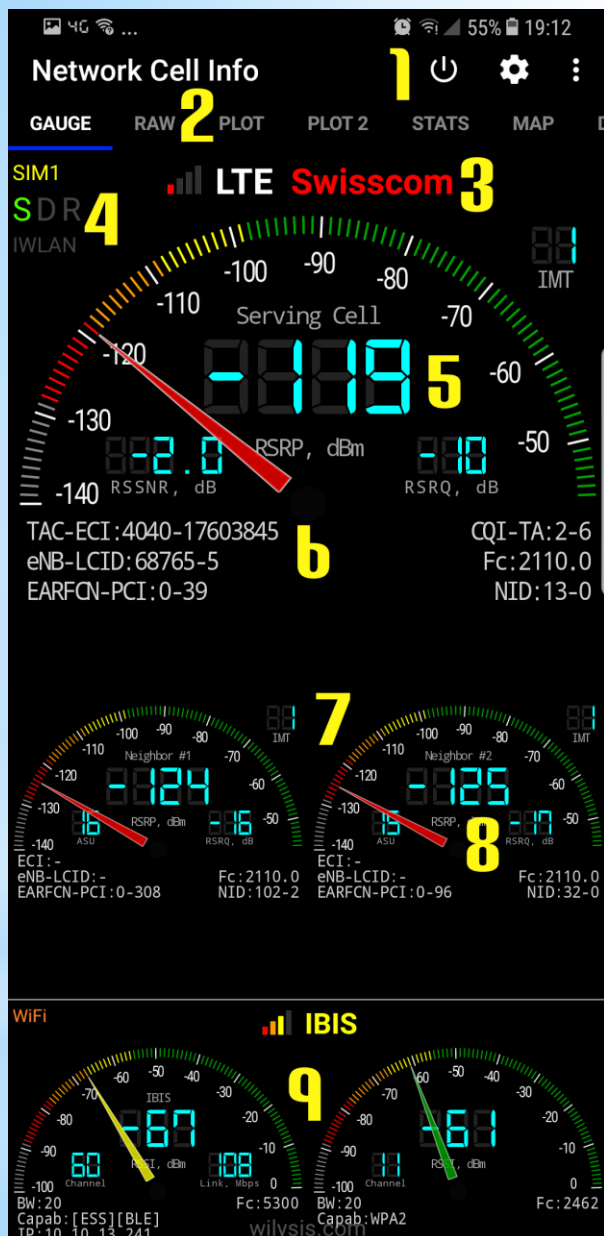
- Data accuracy is dependent on device implementation of Android APIs. Not all manufacturers/devices implement fully/correctly Android APIs.
- For Android < 5.0, Dual SIM is not supported for non-MediaTek devices, due to Android/device limitation.
- You may use Mozilla Stumbler app, to update the Mozilla MLS database in your area.

Features' Comparison

	Network Cell Info Lite	Network Cell Info	Network Cell Info +Pro features 1-year subscription (**)
Ad-free	(Remove Ads purchase)	✓	✓
Signal Meters	2/3	5/6	5/6
Signal Meters update period (sec)	1/2/4	1/2/4	1/2/4
Signal Plot (cells up to)	2	6	6
Export measurements	✓	✓	✓
Log Measurements period (sec)	5	5/10/15/20/30/60	5/10/15/20/30/60
Connection statistics	2G/3G/4G	2G/2.5G/3G/3.5G/4G/4G+	2G/2.5G/3G/3.5G/4G/4G+
Measurements in Background		✓	✓
Map memory cache		✓	✓
Screen rotation (landscape)		✓	✓
Gauges outside Map option		✓	✓
WiFi AP scan period	10x	1,2,5,10,20,60x (*)	1,2,5,10,20,60x (*)
Show/hide Clear markers (Map)		✓	✓
CQI/TA vs NID in the Gauge (#)		✓	✓
Band Name (**)		✓	✓
EARFCN, Carrier Freq View (**)		✓	✓
EARFCN, Carrier Freq, Band Log (**)			✓
CMWF Pro (Log xARFCN, Fc, Band, RSRQ, etc.)			✓
CMWF Pro N (Log Neighbor cell)			✓
Compact Cell Raw View (1-row per cell)			✓

(*) Notes:

- Data accuracy is dependent on device implementation of Android APIs. Not all manufacturers/devices implement fully/correctly Android APIs.
- For Android < 5.0, Dual SIM is not supported for non-MediaTek devices, due to Android/device limitation.
- You may use [Mozilla Stumbler app](#), to update the Mozilla MLS database in your area.
- Low WiFi AP scan period, has diminishing effect on the throughput (Android issue).



Gauge Tab (1/2)

This is the starting tab showing essential network signal strength and information for the serving cell, as well as the neighbor cells.

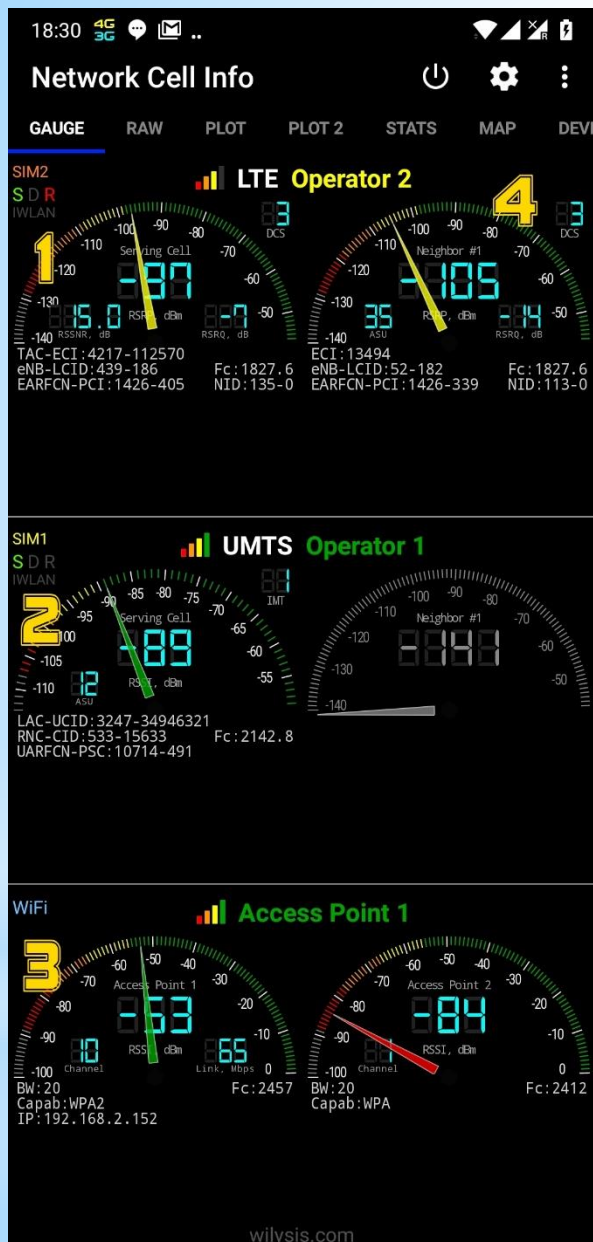
The top gauge "Serving Cell" provides the signal strength about the cell you are currently connected to. The other gauges "Neighbor #x" are the signal strengths of the neighbor cells you are most likely to switch to, if you move or if the network judges so.

Additionally this tab provides info on WiFi, and the second SIM of dual SIM (Android 5+) phones (if enabled from the app settings).

- (1) App close, App settings, and overflow button for feedback etc.
- (2) Available tabs (functionalities)
- (3) Signal level, Wireless network type, and Network provider name
- (4) SDR: Service Status, Mobile Data and Roaming ON/OFF indications
- (5) Signal Strength Gauge and Signal Strength and Quality "LCDs"
- (6) Serving cell identification details
- (7) Neighbor cell gauges, Band info
- (8) Tapping on individual gauge you can turn it off (CPU easing)
- (9) WiFi signals information

Note: If some field shows "-" or is empty, it means that Device/Android doesn't provide that info.

Note: You can find all the acronyms, under the app settings / about / FAQ.



Gauge Tab (2/2)

- (1) SIM1 cells' information
- (2) SIM2 cells' information ** (for dual SIM phones with Android > 5)
- (3) WiFi network information
- (4) Band information (only for Android 7)

Note: Band info is available only in Android 7 devices (that implement well the Android interface); Android introduced this feature in Android 7 Release.

Note: You can click any gauge to turn it off, to save CPU power.

** Dual SIM functionality is available in Android 5+ devices or in devices with Android 4.2+ having MediaTek processor. This is Android/Device limitation.

Raw Tab

18:42 4G 3G ..

Network Cell Info

RAW PLOT PLOT 2 STATS MAP DEVICE+SIM

Data: WiFi

SIM2 LTE

Country: Country Roaming: Yes
Operator: Operator 2 SIM state: Ready
SIM Data: Disconnected Serv. state: In-Service
Voice NW: LTE Data NW: LTE

SIM1 Unknown

Country: Country Roaming: -
Operator: Operator 1 SIM state: Ready
SIM Data: Disconnected Serv. state: Out-of-Service
Voice NW: UMTS Data NW: -

SIM2: Serving / LTE (LTE) N: 14

MCC: 999 MNC: 2 Band: 3 (DCS)
Fc: 1827.6 EARFCN: 1426
TAC: 4217 ECI: 112570 PCI: 405
eNB: 439 LCID: 186 NID: 135/0
RSRP: -100 ASU: 40 Power: 100.0fW
RSRQ: -7 RSSNR: 106
CQI: TA:

SIM1: No serving #0 / (UMTS)

MCC: 999 MNC: 1 Band: 1 (IMT)
Fc: 2147.8 UARFCN: 10739
LAC: 3247 UCID: 34946318 PSC: 491
RNC: 533 CID: 15630
RSSI: -113 ASU: 0 Power: 5.0fW

SIM2: Neighbor #1 / (LTE)

MCC: MNC: Band: 3 (DCS)
Fc: 1827.6 EARFCN: 1426
TAC: 202 ECI: 13494 PCI: 339
eNB: 52 LCID: 182 NID: 113/0
RSRP: -110 ASU: 30 Power: 10.0fW
RSRQ: -16 RSSNR:

SIM2: Neighbor #2 / (LTE)

MCC: MNC: Band: 3 (DCS)
Fc: 1827.6 EARFCN: 1426
TAC: 202 ECI: 13494 PCI: 456

RAW PLOT PLOT 2 STATS MAP DEVICE+SIM

Data: WiFi

SIM2 LTE

Operator: Operator 2
MCC MNC: 99902
Band, Fc: 3 (DCS), 1827.6
TAC: 4217
ECI: 112570
eNB-LCID: 439-186
EARFCN: 1426
PCI (NID): 405 (135/0)
CQI/TA: - / -
N1 (217): -102 / -12

-98 RSRP, dBm
14.4 -7 RSSNR / RSRQ, dB

SIM1 Unknown

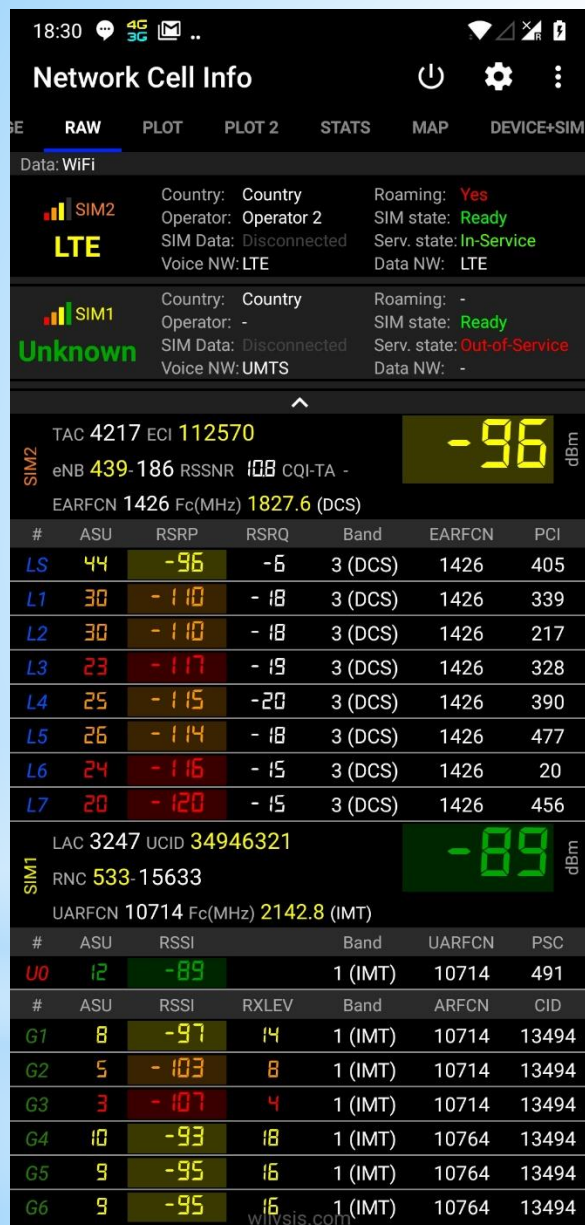
Operator: Operator 1
MCC MNC: 99901
Band, Fc: 1 (IMT), 2152.8
LAC: 3247
UCID: 34946315
RNC-CID: 533-15627
UARFCN: 10764
PSC: 491
N1: -

-113 RSSI, dBm
0 ASU

Raw tab, provides detailed info on the wireless connection.

- (1) “Data:” shows whether Mobile or WiFi data are used.
- (2) This Row shows the current connection info/status
[Hint: You can “click” on this row for a more abstract view]
- (3) This Row shows the serving cell connection status.
- (4) This and the subsequent rows show the neighbor cells status.

Note: If some field shows “-” or is empty, it means that Device/Android doesn’t provide that info.



Raw Tab (“Pro” only)

This tab shows the Raw Tab in the “Pro” Subscription.

If you have purchased the “Pro” subscription, you can get to this view,

either by long click in one cell entry (preferred), on the normal Raw Tab view,

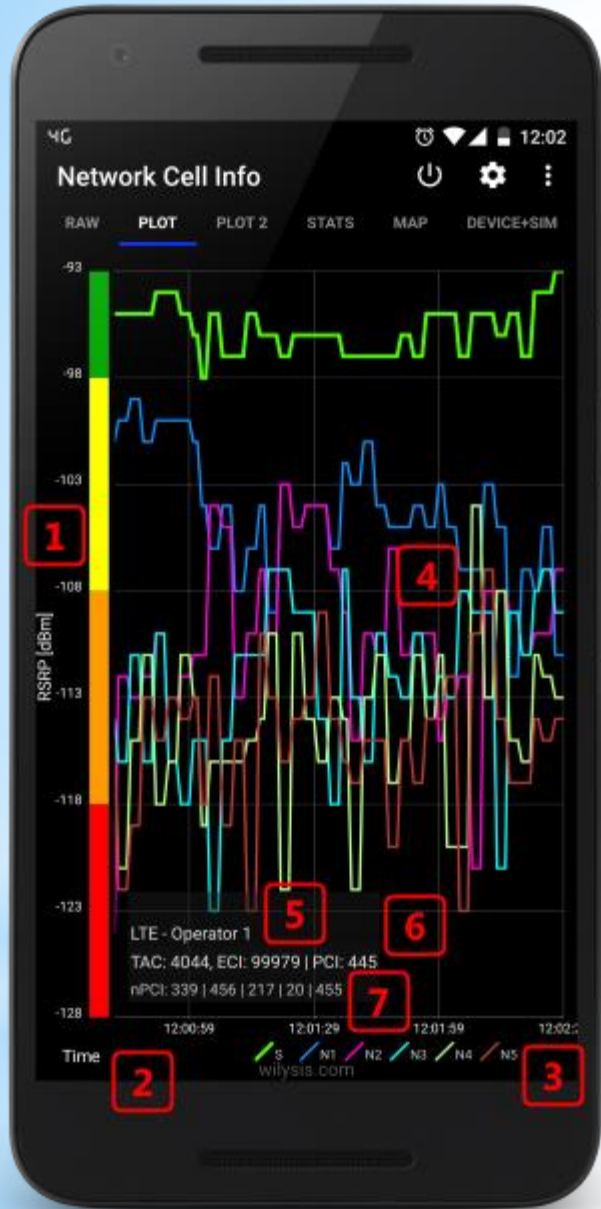
either by going to app settings -> raw tab -> Pro - Cell list view options -> Compact

Note: In this examples SIM2 shows first, as we have changed it to: App settings -> General -> SIM# preference -> SIM2

Plot Tab

This tab shows the evolution of the signal strengths of serving and neighbor cells over time, allowing for better network quality exploration, especially when moving.

- (1) Y-axis : Signal strength in dBm
- (2) X-axis : Time
- (3) Plot legends (colors) for Serving (S) and Neighbor (N#) Cells
- (4) Signal Strength plots over time
- (5) Wireless network type, and Network provider name
- (6) Serving cell details
- (7) Neighbor cell details in order



Plot2 Tab

This tab is plotting signal strength/quality over time, and it is more tailored for the LTE wireless system.

(1) Wireless network type, Serving cell details

(2) LTE RSSNR over time

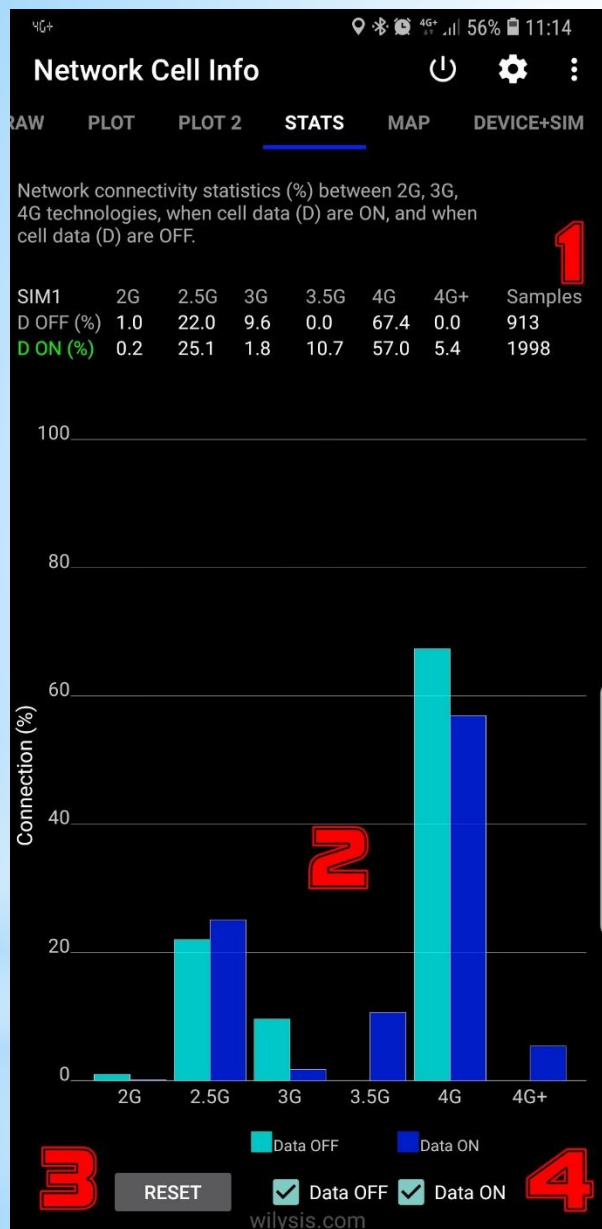
(3) LTE RSRP over time

(4) LTE RSRQ over time

(5) Time, and Plot legends

Note: You can click on a point in the graph, and it will show the Y-axis value.





Stats Tab

This tab gives essential information on the robustness and coverage of your network. For example you might have a 4G plan, but the network most of the time connects you to a 2G or 3G wireless network.

(1) Connection statistics on each of 2G, 2.5G, 3G, 3.5G, 4G, or 4G+ technologies, when cellular data are ON or OFF, along with the counted number of samples.

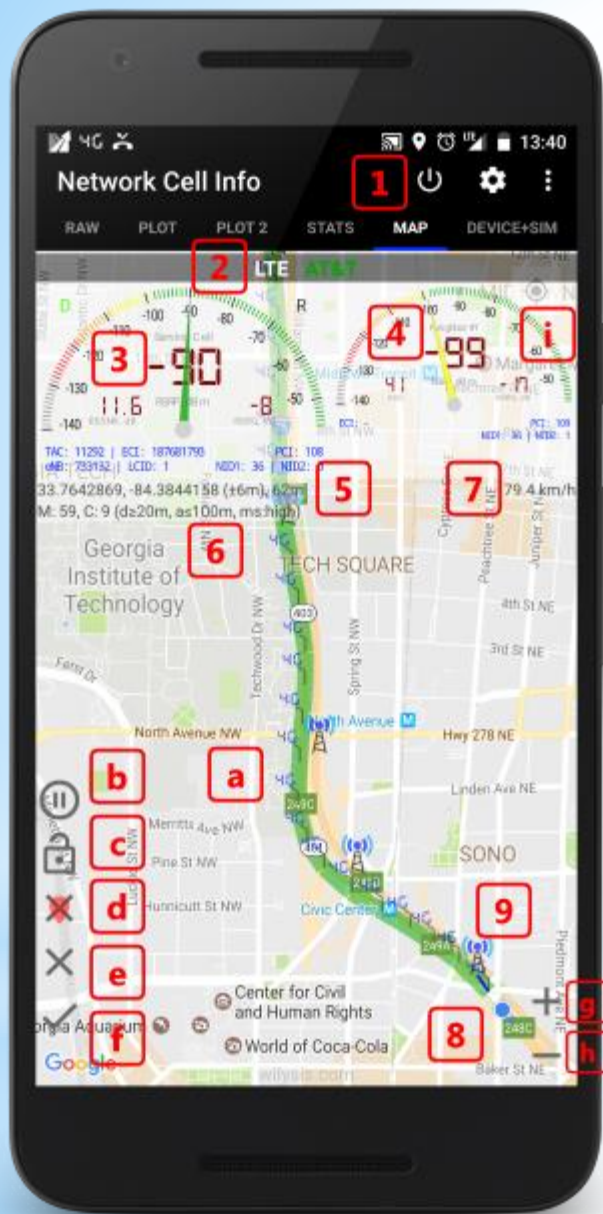
(2) Bar graph

(3) Reset button to reset statistics counters

(4) Checkboxes to control the bar graph

Map Tab (1/2)

Tab where measurements are done, and visual location and cell info is provided.



- (1) App close, App settings, and overflow button for feedback etc.
- (2) Wireless network type, and Network provider name
- (3) Serving cell gauge along with cell info
- (4) Neighbor #1 cell gauge along with cell info
- (5) Current location Lat, Lon, with location accuracy in m/ft
- (6) Number of measurements and cell locations, with distance and accuracy settings
- (7) Speed in km/h or mph (from settings)
- (8) Current location
- (9) Serving **cell location not tower location** (marker has relevant info)

NOTE! We do not show tower locations, but indications of cell locations from Mozilla MLS database. We do not have tower database.

- (a) Measurements taken (markers have also relevant info, and the connecting line is according to signal level)
- (b) Start/pause updates
- (c) Lock (unlock) the cursor in the center
- (d) Clear measurement markers and lines
- (e) Clear map completely
- (f) Save log files (save the database to the device storage)
- (g) Zoom in
- (h) Zoom out
- (i) Move cursor in the center

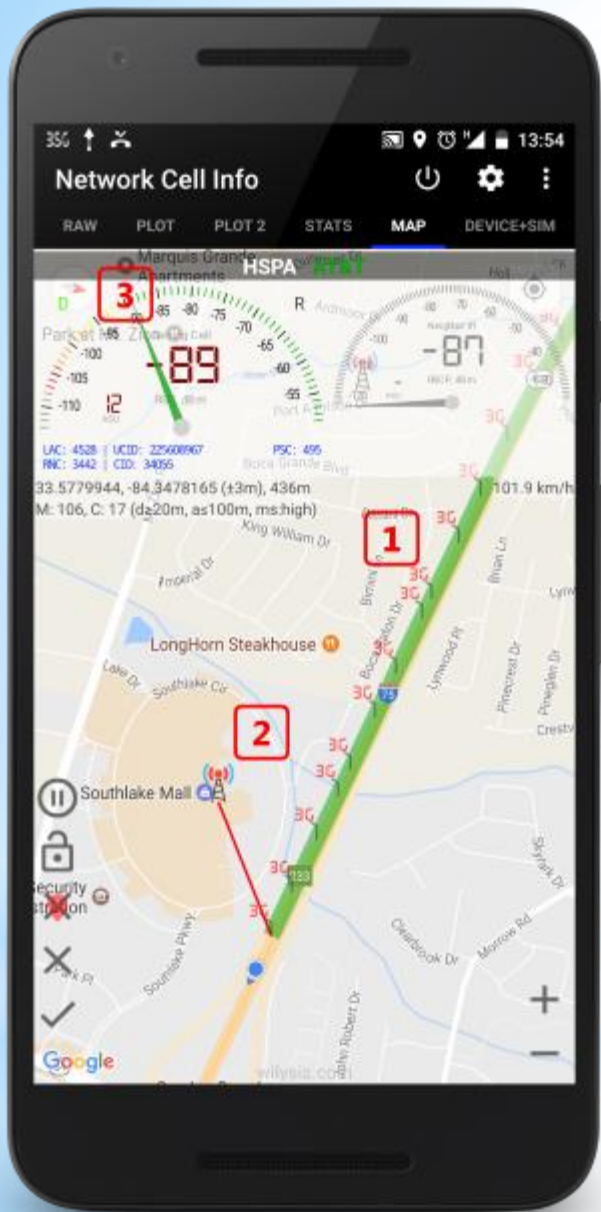
Map Tab (2/2)

Tab where measurements are done, and visual location and cell info is provided.

NOTE! We do not show tower locations, but indications of cell locations from Mozilla MLS database. We do not have tower database.

- (1) Measurements taken (markers have also relevant info - see it by clicking them, and the connecting line is according to signal level)
- (2) Serving **cell location not tower location** (marker has relevant info)
- (3) Compass (it appears when you “turn” the map with two fingers)

NOTE: Map is oriented towards North. Initially compass is not visible. You can change orientation by “turning” the map with the fingers, and the compass will then appear on the top left corner.

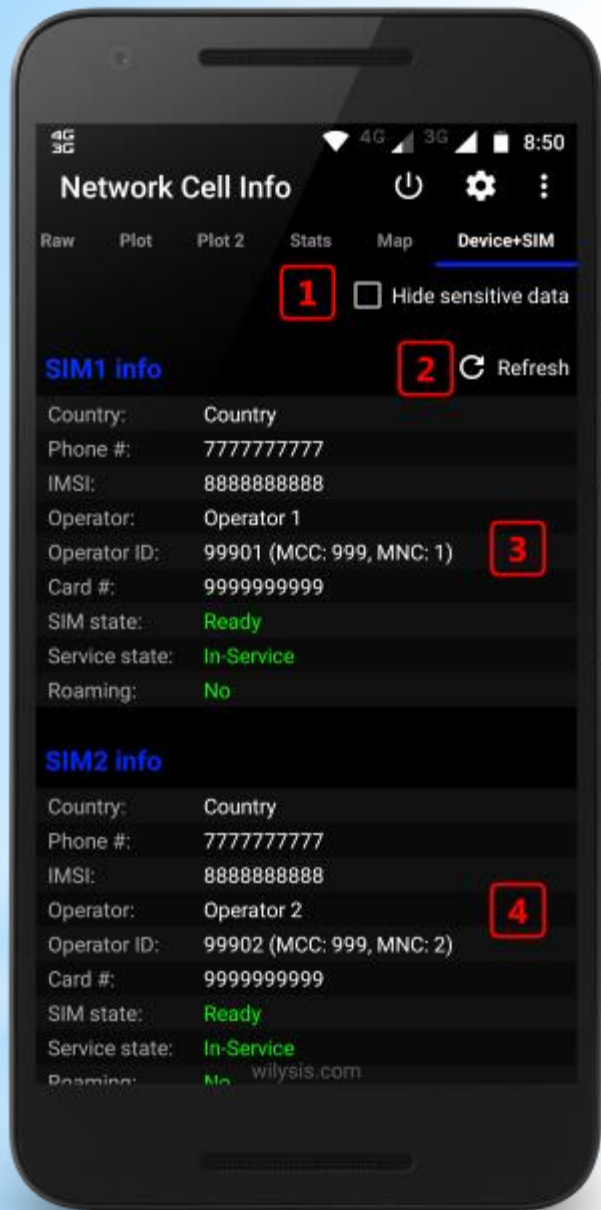


Device+SIM Tab (1/2)

This Tab provides information about the SIM(s) and the Device.

- (1) Hide sensitive data from displaying (in case you want to take a screenshot)
- (2) Refresh the data of the Tab
- (3) SIM1 information
- (4) SIM2 information (for dual SIM phones with Android > 5)

**** Dual SIM functionality is available in Android 5+ devices or in devices with Android 4.2+ having MediaTek processor. This is Android/Device limitation.**



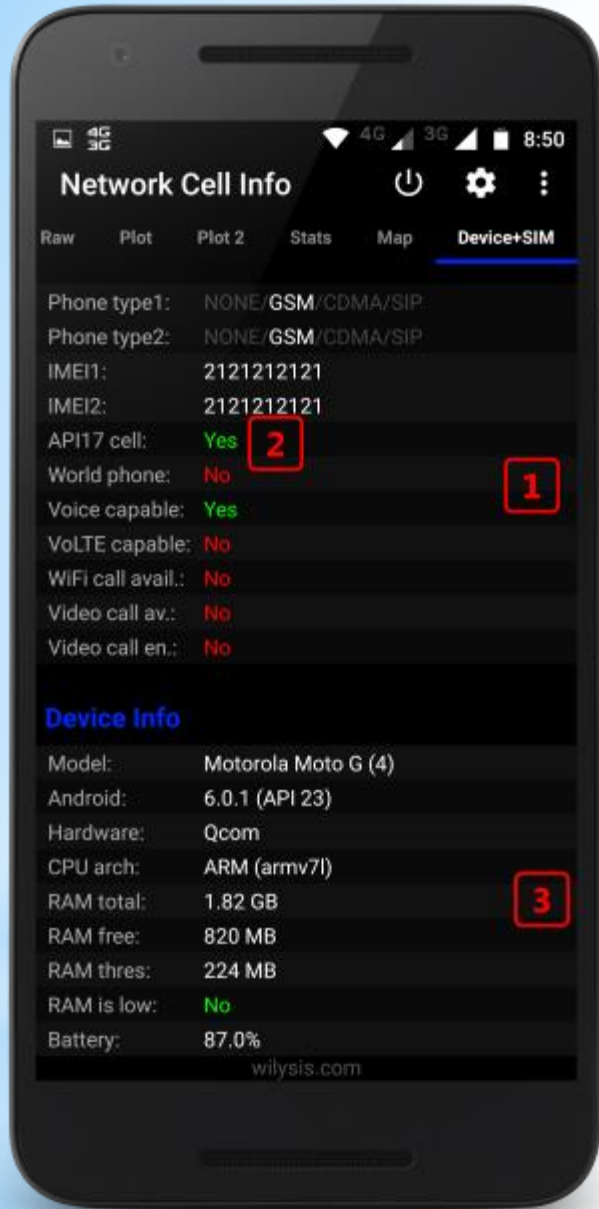
Device+SIM Tab (2/2)

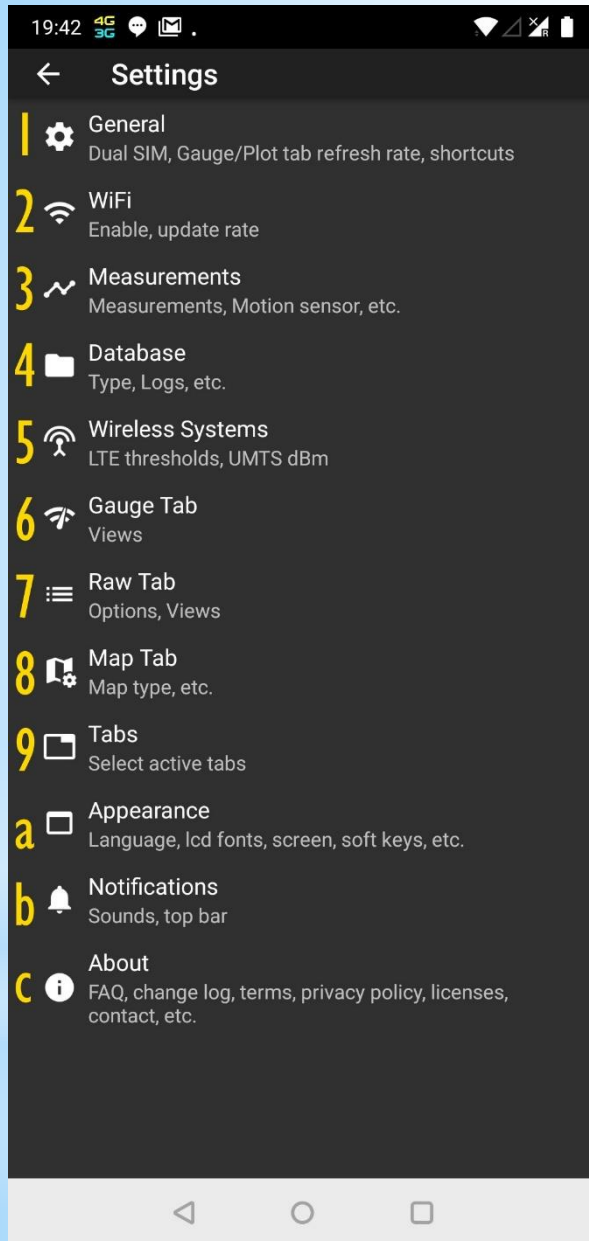
This Tab provides information about the SIM(s) and the Device.

(1) Device telephony related information

(2) **API17 cell functionality**: It should be **Yes** to have the full functionality of the app. Unfortunately, not all API17+ devices implement API17 telephony functions, but some implement only API11 functions! **For example, a device not implementing API17 telephony functions does not show neighbors nor PCI for the LTE. Also an Android 7 device not implementing API17 telephony functions does not show LTE band.**

(3) Device related information





Settings

In the Settings you can control the app functionalities, and also find useful information in the About section, such as FAQ, Privacy Policy (link), Disclaimer (link), Releases history (Log), etc..

(1) General settings: See later slide

(2) WiFi: See later slide

(3) Measurements: See later slide

(4) Database: Select the database type when saving logs in the Map (see more info in the About / FAQ)

(5) Wireless Systems: Set the LTE thresholds type (for signal level)

(6) Gauge Tab : See later slide

(7) Raw: Change the Raw Tab view (see also Raw Tab)

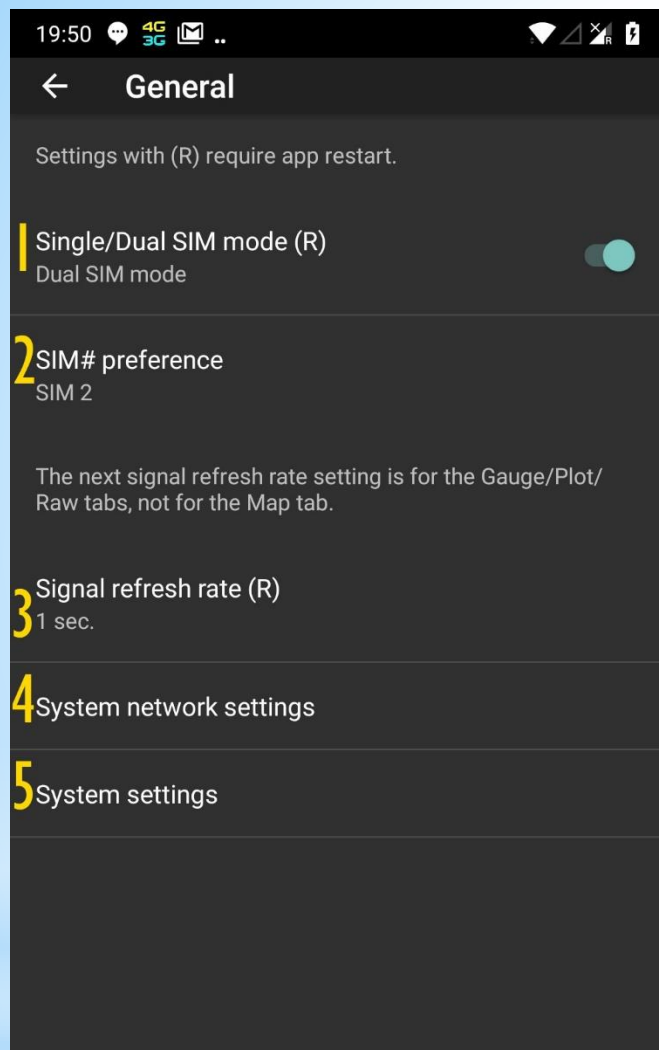
(8) Map: Select the Map type (normal, satellite, etc.)

(9) Tabs: See later slide

(a) Appearance: See later slide

(b) Notifications: See later slide

(c) About: See later slide



Settings - General

Note: Settings with (R) require restarting the application.

- (1) Select single or dual SIM mode (for applicable devices)
- (2) Select the preferred SIM number (for applicable devices) - this shows first that SIM in the Gauge/Raw tabs, and also it shows that SIM in the Plot/Stats/Map tabs
- (3) You may set the signal refresh rate to a higher value if you want to save battery, but the signal strength refreshing will get obviously slower
- (4) (5) Shortcuts to the system network settings and system settings

**** Dual SIM functionality is available in Android 5+ devices or in devices with Android 4.2+ having MediaTek processor. This is Android/Device limitation.**

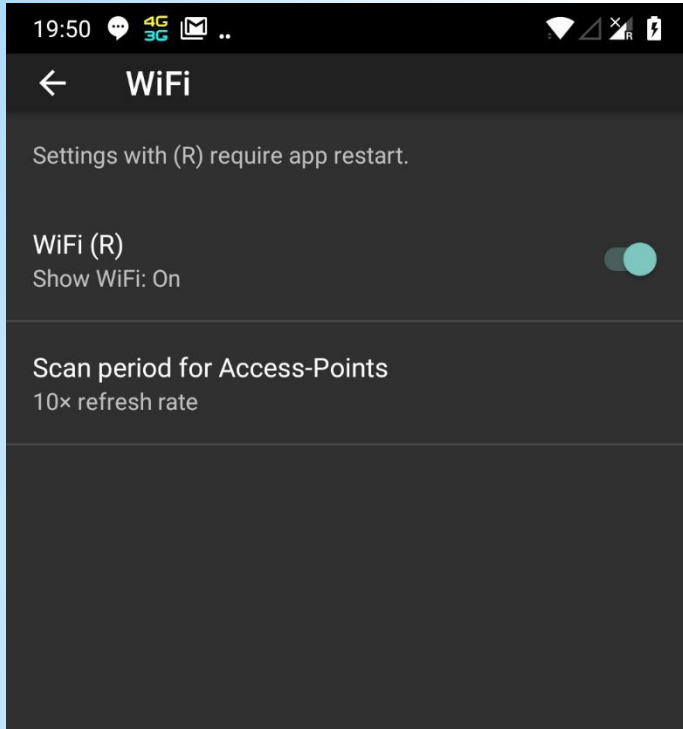
Settings - WiFi

Note: Settings with (R) require restarting the application.

Here you can turn off WiFi Gauge.

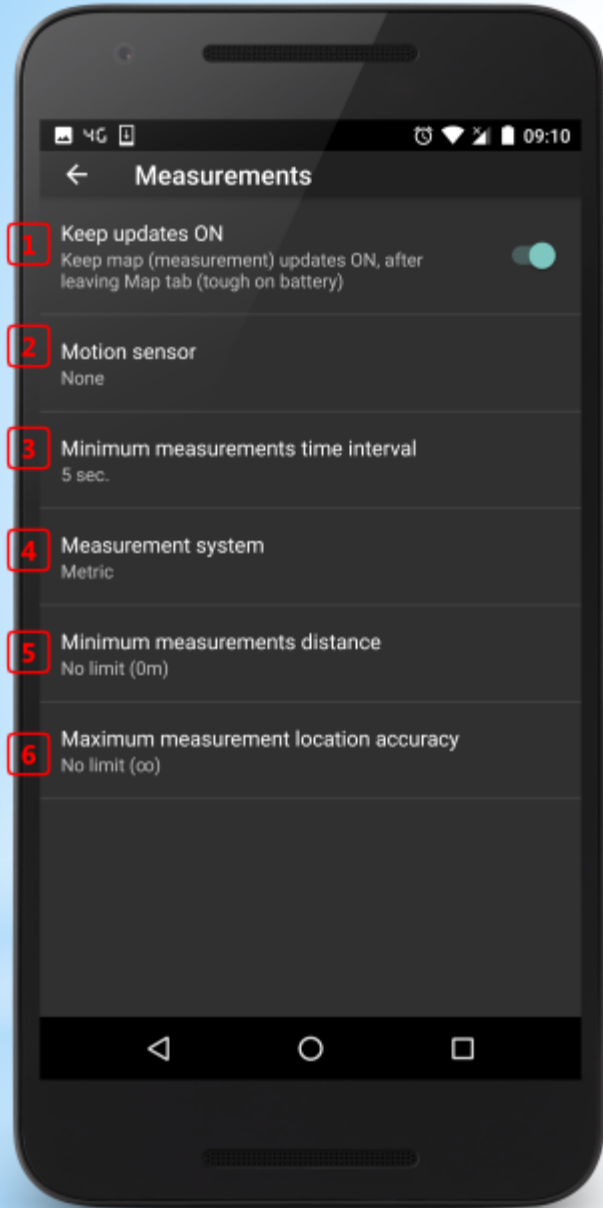
In addition you can select the scan period (refresh rate) for Access-Points.

Note: Selecting a small scan period (more frequent scans) it may deteriorate you data throughput (Android limitation).



Settings - Measurements

Measurements Settings are affecting the measurements taken in the Map tab.



(1) Switch to keep measurements updates (in the Map tab) ON even when leaving the Map tab

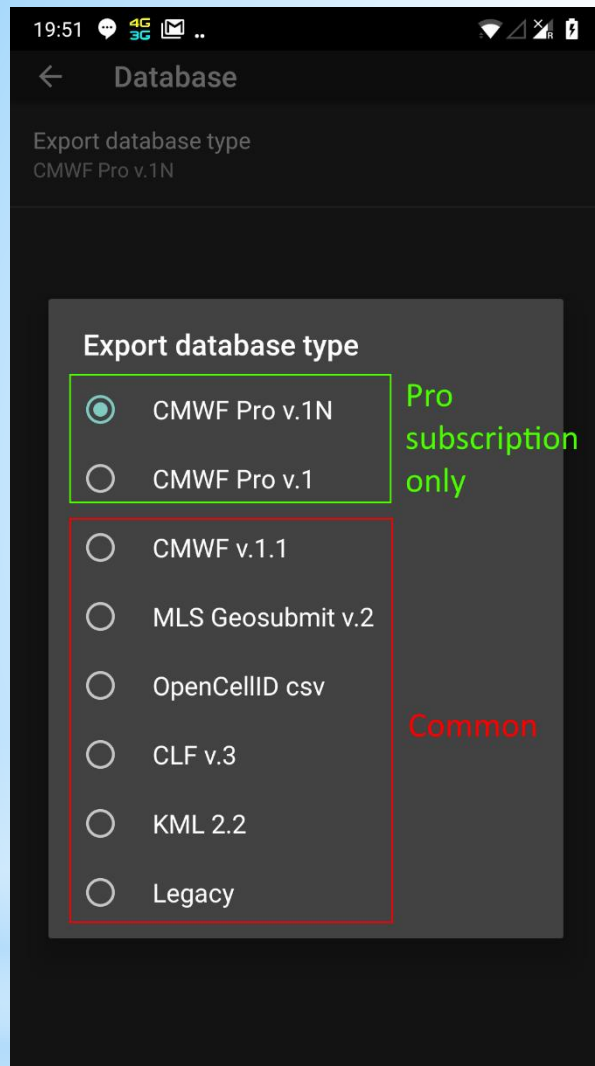
(2) Set the Motion sensor to reduce collecting measurements when there is no device motion

(3) Minimum measurements time interval between consecutive measurements

(4) Metric or US measurement system

(5) Minimum measurements location distance between consecutive measurements

(6) Maximum measurements location accuracy required to take a measurement



Settings - Database

Network Cell Info has the capability of exporting the measurements taken in different database formats. Exporting happens by pressing the checkmark button in the Map Tab of the app.

In the app, you can choose the database format by going to the app settings -> database.

There are 6 common formats, given in the following link:

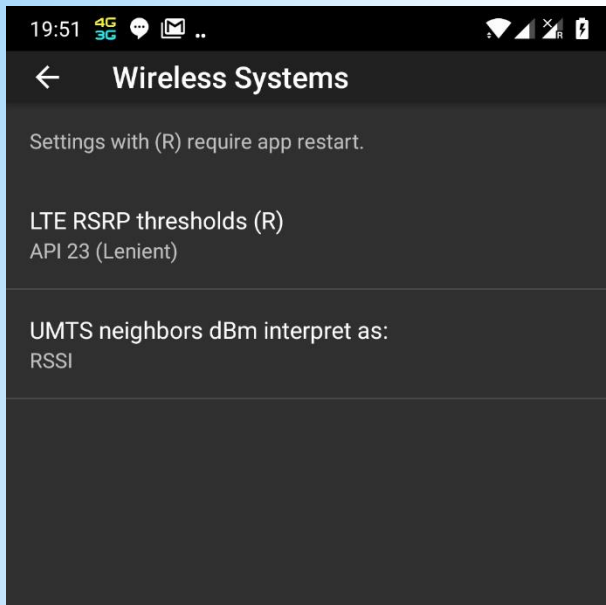
Common measurements database formats:

<https://goo.gl/jbZKAs>

There are also other 2 formats available only in the **Pro subscription** of the paid app, given in the following link:

Pro subscription measurements database formats:

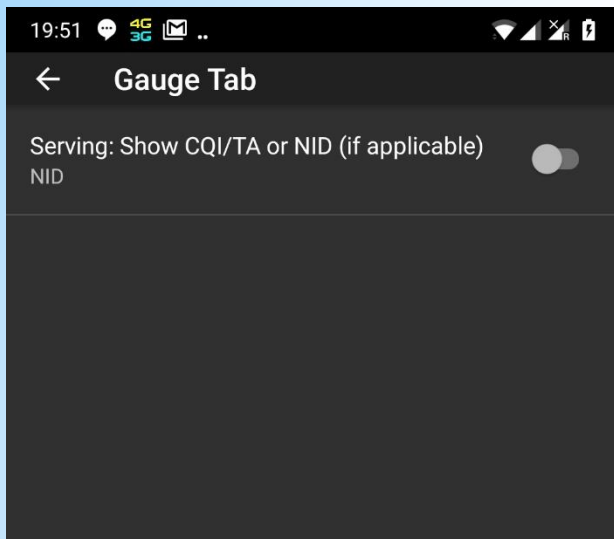
<https://goo.gl/rvpRQf>



Settings - Wireless Systems

Here you can set the:

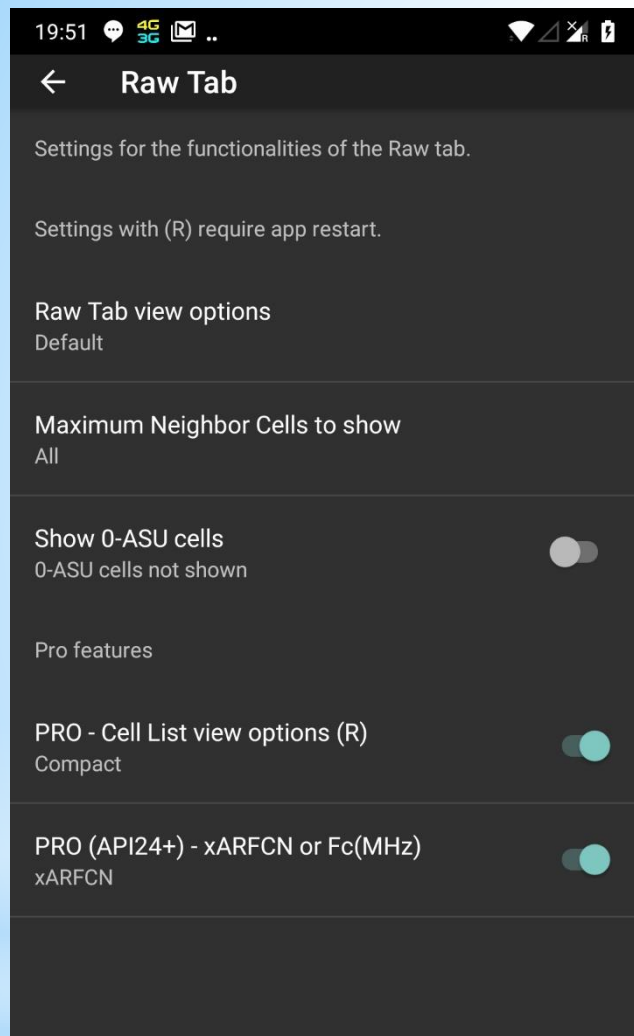
- LTE RSRP thresholds
- UMTS neighbors dBm interpretation



Settings - Gauge Tab

Here you can set to show in the Gauges:

- CQI/TA or NID (if applicable, by the device)



Settings - Raw Tab

In this Settings page, you can control some of Raw Tab options:

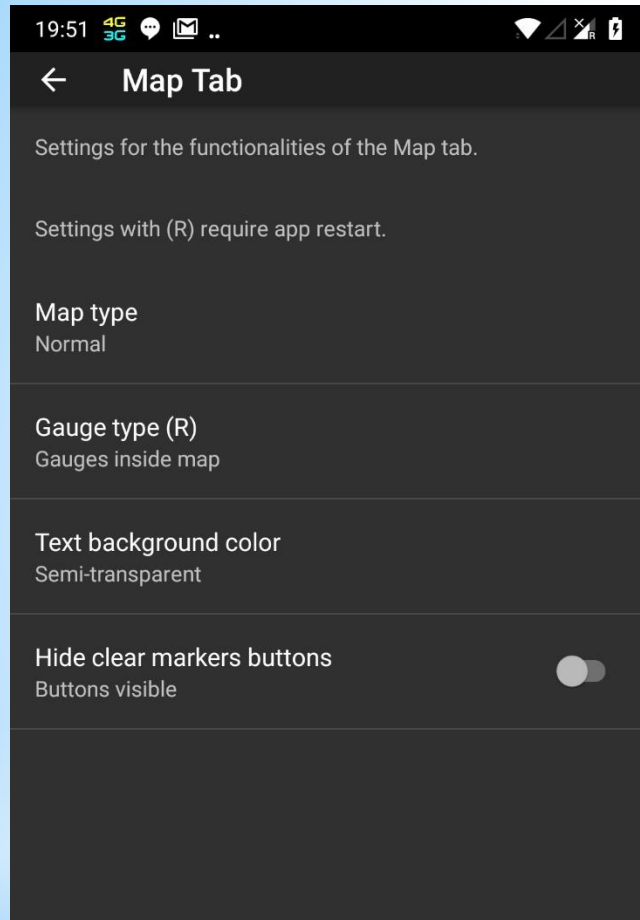
- Set the view to “default” or “zoom”
- Set the maximum neighbor cells to show
- Show/hide the 0-ASU cells

In addition, there are 2 other settings **applicable only to the Pro subscription of the paid app** (else they are grayed-out), that allows to see the cell list in “compact” view, and also choose between xARFCN or Fc in the corresponding “compact” column, see slide 8.

Settings - Map Tab

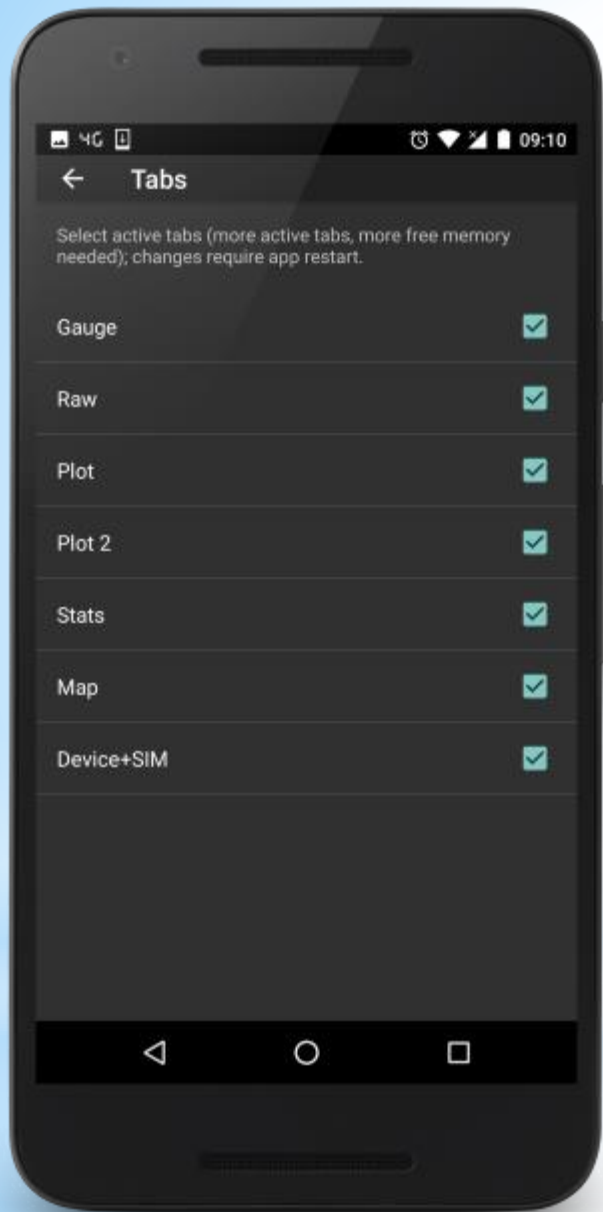
In the Map Tab settings you can modify the view of the Map tab. More specifically, you can:

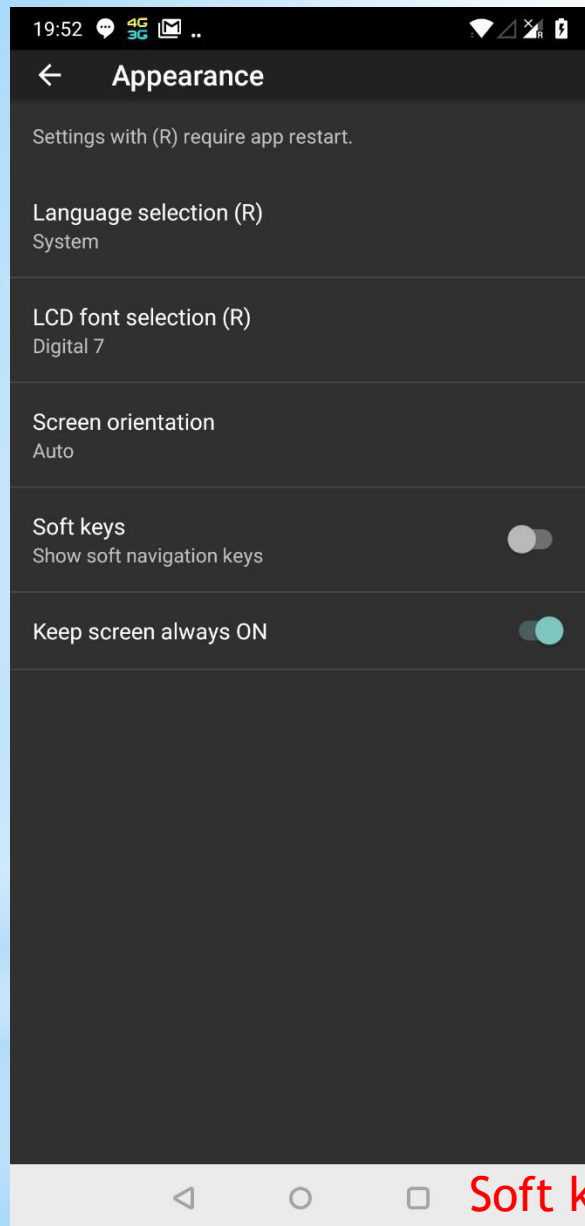
- Choose the Map type
- View the Gauges inside or outside the Map
- Set the Text background color
- Hide the clear markers buttons (to avoid deleting by mistake the measurements)



Settings - Tabs

In the Tabs Settings you can control which Tabs to be active (visible), and which to hide (saving time and resources).





Settings - Appearance

TODO

In the Appearance Settings, you can control:

The language (for applicable Android versions)

The “LCD” fonts used in the Gauge Tab

The Screen Orientation (Portrait, Landscape, Auto)

The Soft Keys appearance or not (for applicable devices)

Setting the screen always ON

NOTE: We do not recommend setting the Screen orientation to “Auto”, due to higher memory consumption.

Settings - Notifications

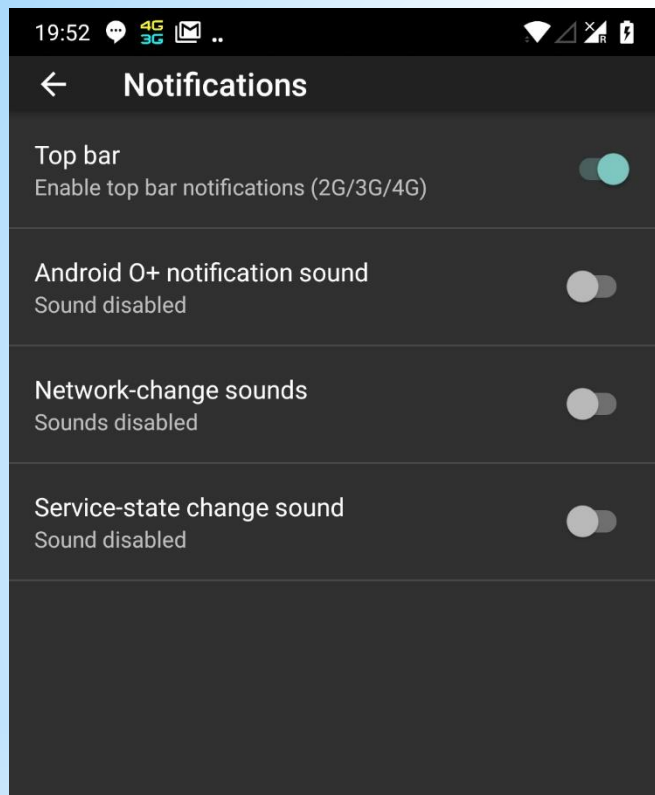
In the Notification Settings, you can:

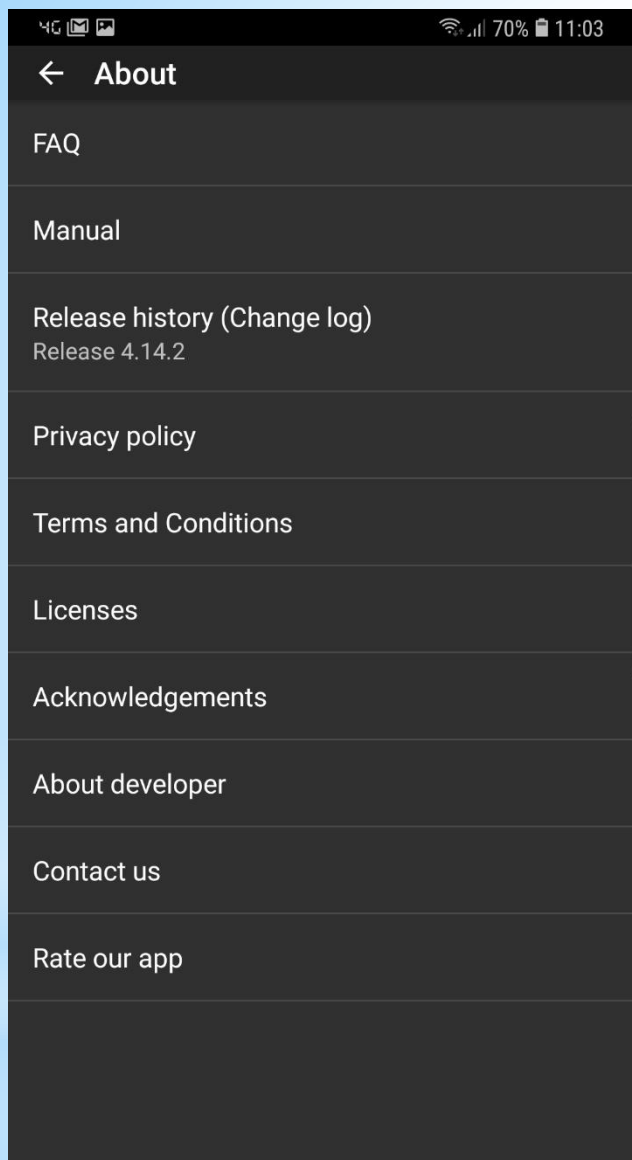
Enable/Disable the Top bar notifications of the Wireless System Generation (2G, 2.5G, 3G, 3.5G, 4G, 4G+)

Enable/Disable the Android O+ notification sound

Enable/Disable the Network-change Sound notifications: There is Sound notification when the Cell ID changes, and different sound notification when the Wireless System Type changes e.g. from UMTS to LTE

Enable/Disable the Service-State change sound notification: There is Sound notification if the Service-State changes





Settings - About

In the About screen, you can find:

FAQ (Frequently asked questions) section, including list of acronyms

Manual (external link)

Release history (change log)

Privacy policy (external link)

Terms and Conditions (external link)

Licenses' list

Acknowledgments

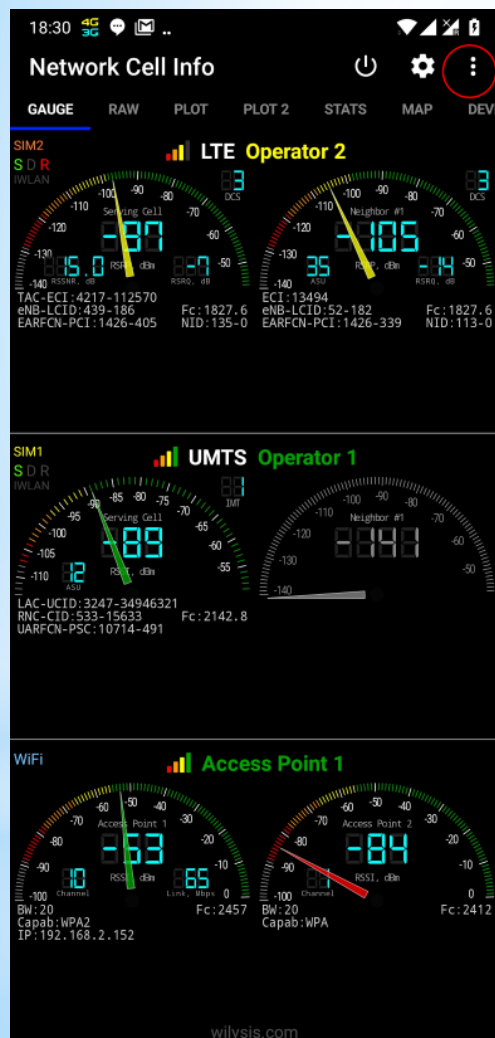
Info about the developer of the app

Our email to contact us, if you have any issues with the app

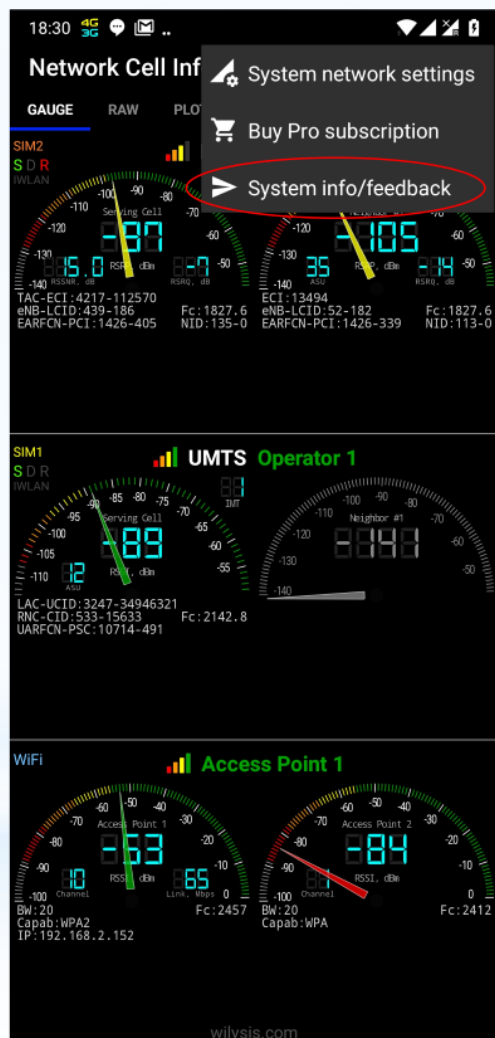
A link to give us a (5*) rating in the Store, which is very important for us to continue the project

System Info/Feedback

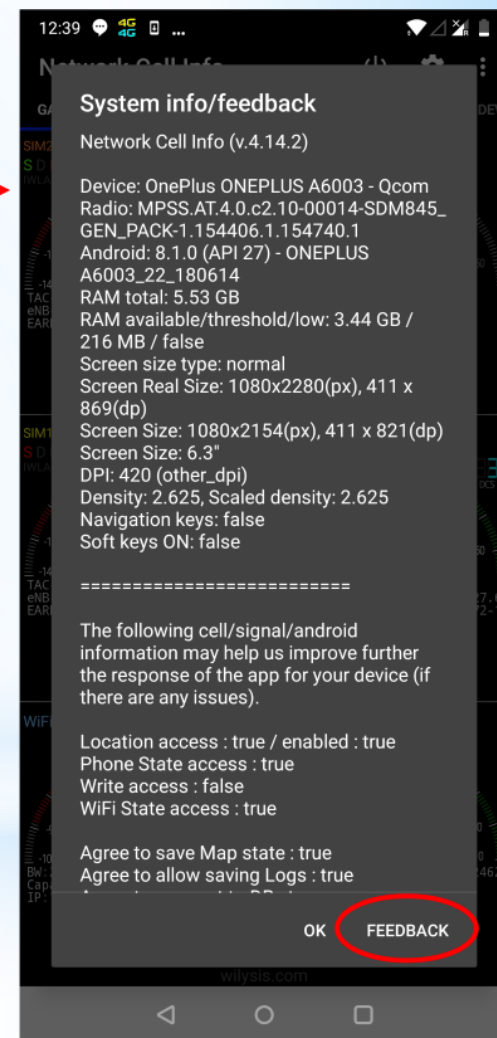
If you have any issues with the app, you may send us the system info/feedback to check and provide a fix if it is our issue, and not Android issue.



Wilysis, Inc. (wilysis.com)



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Manual v.3, July 30, 2018

Thank you for using our applications!

We are constantly developing them to provide you with better experience.

If you are using (especially commercially) the Lite version, please purchase the full version (and the Pro subscription) to support our work.

Your comments are mostly welcome, and your **positive rating** in the Play Store is highly appreciated, and helping us to continue the work!

Support email: [apps /at wilysis /dot com](mailto:apps@wilysis.com)