Siretta

Enabling Industrial IoT

SNYPER CloudSURVEY

User Manual

Rev 1.0

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User Manual

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Introduction

This document describes how to register, login and use the Siretta subscription based CloudSURVEY portal. With access to the portal you can add and review cellular surveys captured using the following SNYPER products.

CloudSURVEY is compatible with the following SNYPER V3 hardware models:

- SNYPER-LTE Graphyte (EU)
- SNYPER-LTE Graphyte (USA)
- SNYPER-LTE+ (EU)
- SNYPER-LTE+ (USA)
- SNYPER-LTE+ Spectrum (EU)

To determine your hardware version, go to the Main Menu on your SNYPER and select ‘About’. You will see the hardware version listed within the ‘About’ menu.

For SNYPER V2 and V1 users, please note that these models are not compatible with CloudSURVEY. However, if you want to use CloudSURVEY, please contact your Siretta representative for details on how you may be able to upgrade to SNYPER V3 hardware.

About Siretta

Siretta, located in Reading, United Kingdom have been manufacturing antennas, cable assemblies and cellular modems for over 10 years. We supply our products globally to many of the world's leading organisations.

Whether you require an off the shelf or custom solution, Siretta has a wide portfolio of antenna, RF cable assemblies and modems to fit your application.

Our extensive knowledge and experience in the wireless market allows us to support a wide range of customer applications, focusing on frequencies typically within the 75MHz - 5.8GHz range. These encompass the HF, VHF, ISM, GSM/GPRS/3G/4G and GPS frequencies as well as industrial WLAN and VHF/UHF antenna/Wi-Fi antenna solutions.

With a heavy emphasis on design, we have a team of dedicated Application Engineers and Product Managers, backed up by Field Sales Engineers, who specialise in wireless applications.

We have made significant investments in R&D facilities which boast GPS hardware development equipment and a GSM Pico Cell on site, as well as development software and a comprehensive suite of ISM (Industrial, Scientific and Medical) band, and non ISM band frequency products. We have many technology partners enabling us to keep at the forefront of the communications industry and offer class leading wireless solutions.

General Description

The SNYPER range of cellular signal analysers provide users with a breakdown of the cellular basestations located in the area where a survey is performed. The information returned from the survey allows users to make informed decisions about which network operator and which network technology is most suitable for their application installation. For the SNYPER range of analysers, a comprehensive breakdown of network performance is provided for a snapshot in time. For the SNYPER-LTE Graphyte range of analysers, a breakdown of network performance is provided over a user defined number of cycles which provides a detailed average, allowing you to determine network reliability and performance more accurately.

CloudSURVEY allows you to export and save all of your survey results from your compatible SNYPER to CloudSURVEY, extracting the approximate position of the basestation, and displaying the location on a map. The portal offers you the ability to determine where your basestations are located in relation to where your survey was performed, allowing you to retain all of your survey results in one central location, with the ability to categorise and label each survey for identification.

In addition, the portal simultaneously calculates the entire available network resource in the area the survey was performed, and displays the relative network dominance of each network carrier. This allows you to make an informed decision about the optimal cellular network for your application, taking into consideration technology, network reliability, average signal strength, basestation position and network density.

Features

- Provide approximate basestation position information for all available networks
- Store all survey results in a central location in the cloud
- Recall survey results and compare results against each other
- Label and categorise survey results
- Dynamically show individual network technologies on the map
- Dynamically show network signal strength heat map
- Automatically calculate network dominance for each saved survey
- Display advanced network parameters visually for easy comparison
- Filter survey result parameters to establish and visualise trends

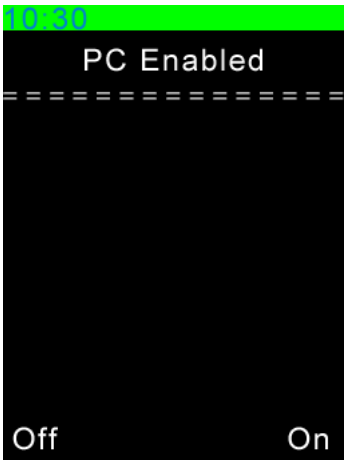
Initial Setup

The PC Connect feature on your SNYPER allows you to access all stored surveys on your PC.

Step 1. Connect supplied USB cable to your SNYPER and PC.

Step 2. Select ‘PC Connect’ from the main menu, and use the RIGHT button to enable PC Connect.

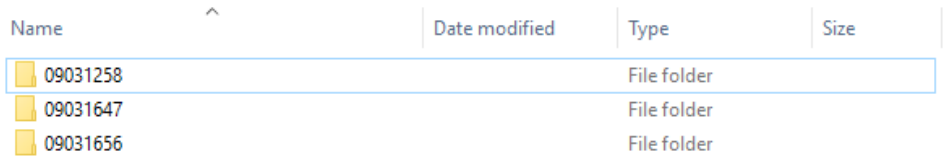
Figure 1. Prepare for PC connection



Once a connection has been established between a PC and the SNYPER, a window will appear on your PC screen. If no surveys have been completed using the SNYPER then this window will appear empty.

If the SNYPER has completed one survey, then one folder will appear. If the SNYPER has made two surveys, then two folders will appear and so on. The folders will be named after the date and time of the survey respectively.

Figure 2. Folder structure

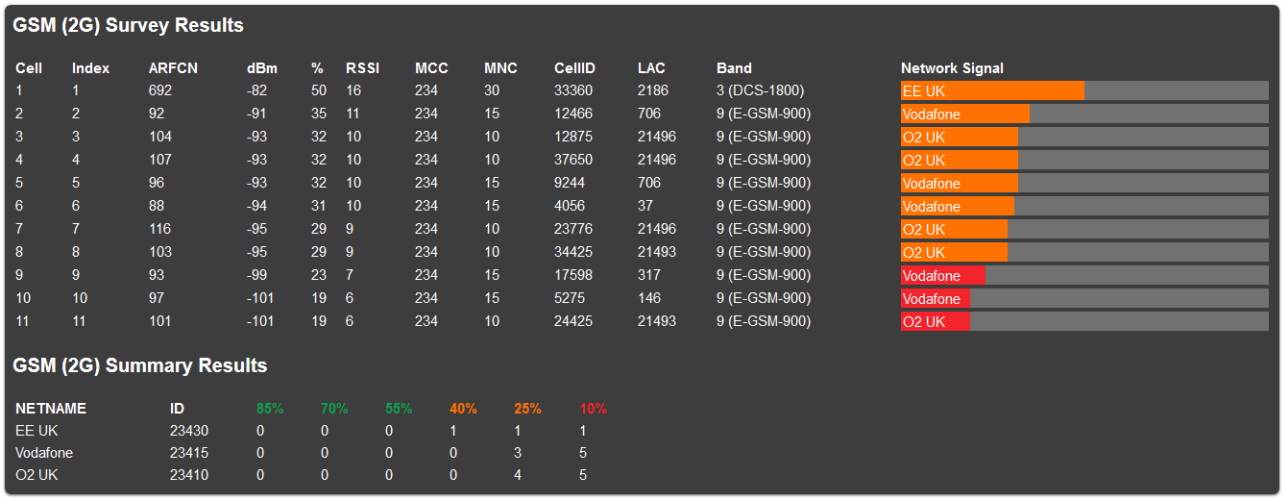


Using the above image as a reference, the device has three surveys in storage. Each survey was taken on the 03/09/(2018), the times respectively were: 12:58, 16:47, 16:56.

Each folder will have at least two files inside it; two files if it's a single survey, three files if a multiple survey is conducted and multiple files if a liveSCAN is performed.

In each folder there will be a .HTM file; this will display the survey results in a browser tab. To open, double click the file.

Figure 3. .HTM file



GSM (2G) Survey Results

Cell	Index	ARFCN	dBm	%	RSSI	MCC	MNC	CellID	LAC	Band	Network Signal
1	1	692	-82	50	16	234	30	33360	2186	3 (DCS-1800)	EE UK
2	2	92	-91	35	11	234	15	12466	706	9 (E-GSM-900)	Vodafone
3	3	104	-93	32	10	234	10	12875	21496	9 (E-GSM-900)	O2 UK
4	4	107	-93	32	10	234	10	37650	21496	9 (E-GSM-900)	O2 UK
5	5	96	-93	32	10	234	15	9244	706	9 (E-GSM-900)	Vodafone
6	6	88	-94	31	10	234	15	4056	37	9 (E-GSM-900)	Vodafone
7	7	116	-95	29	9	234	10	23776	21496	9 (E-GSM-900)	O2 UK
8	8	103	-95	29	9	234	10	34425	21493	9 (E-GSM-900)	O2 UK
9	9	93	-99	23	7	234	15	17598	317	9 (E-GSM-900)	Vodafone
10	10	97	-101	19	6	234	15	5275	146	9 (E-GSM-900)	Vodafone
11	11	101	-101	19	6	234	10	24425	21493	9 (E-GSM-900)	O2 UK

GSM (2G) Summary Results

NETNAME	ID	85%	70%	55%	40%	25%	10%
EE UK	23430	0	0	0	1	1	1
Vodafone	23415	0	0	0	0	3	5
O2 UK	23410	0	0	0	0	4	5

NOTE - The .HTM file is compatible with all common operating systems and supports HTML5. Please use an up to date browser for the best viewing experience.

Survey Results

The results will display data for any detected GSM (2G), UMTS (3G) and LTE (4G) networks. Data will only be displayed for networks that are found. For example, if only GSM (2G) networks are found there will be no data on UMTS (3G) and LTE (4G) in the results.

Remember, results are displayed based on the survey type that was performed. A full survey will attempt to find everything (2G, 3G and 4G). A GSM survey will only look for 2G networks*, a UMTS survey will only look for 3G networks, an LTE survey will only look for 4G networks.

The survey results shows data for various fields, all the terms seen above are defined in the glossary. The key interest of the survey is the “Network Signal” and the “Summary Results”.

The figure below shows the GSM (2G) section of the survey.

Figure 4. 2G survey results

GSM (2G) Survey Results

Cell	Index	ARFCN	dBm	%	RSSI	MCC	MNC	CellID	LAC	Band	Network Signal
1	1	692	-82	50	16	234	30	33360	2186	3 (DCS-1800)	EE UK
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GSM (2G) Summary Results

NETNAME	ID	85%	70%	55%	40%	25%	10%
EE UK	23430	0	0	0	1	1	1
Vodafone	23415	0	0	0	0	3	5
O2 UK	23410	0	0	0	0	4	5

Network Signal

The horizontal bar chart (orange and red bars, as shown in figure 4 above, shows the different signal strengths of different network operators for GSM (2G) networks. The survey results shown above indicate the received signal strength for each basestation. You can easily identify the cell with the best signal strength for the performed survey.

*The SNYPER-LTE Graphyte (USA) and SNYPER-LTE+(USA) do not support GSM surveying.

Summary Results

The summary results provide a more in depth analysis of the data. If you look at **figure 4** on the previous page, you will see 11 different networks in the index/cell column.

The GSM (2G) networks are divided into the following:

» O2 (5 detected basestations)
» Vodafone (5 detected basestations)
» EE UK (1 Detected basestation)

Where the network signal only shows the static signal strength for each network, the summary results show how this static signal is divided up in to different signal ranges.

Starting with EE, it can be seen from the data that only 1 basestation was found. So the average strength for that signal depends entirely on that cell, the signal strength in the example was 50%.This can be seen from looking at the summary results where it sits just below the 55% mark.

The second row is for Vodafone. Using this diagram, it can be seen that only 3 of the signals (basestations) had an average power over 25% (represented by the orange bars) and 2 signals under 10% signal strength (represented by the red bars).

The summary results give you faster way of looking at the total number of signals detected and their signal strength.

Signal Strength Increments

For each signal strength band there are 15% increments in signal strength. These start at 10% as a minimum, as signals below this are not considered usable in a reliable application. The signal strength bands are split as follows:

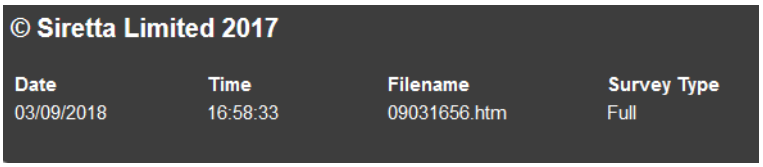
» Lowest (Red) - 10%-24%
» Medium (Amber) - 25%-39%
» Medium (Amber) - 40%-54%
» High (Green) - 55%-69%
» High (Green) - 70%-84%
» Highest (Green) > 85%

The total number of cells found at the current signal strength band is shown and this number increases as the signal strength bands reduce to the lowest value. The number of cells found in brackets indicates how many new cells were found at this particular signal strength threshold.

Survey Details

To view the details of the survey performed, scroll to the bottom of the survey results page. Here you can get the following information: Date, Time, Filename and Survey Type.

Figure 5. Survey information



Basestation Location Map

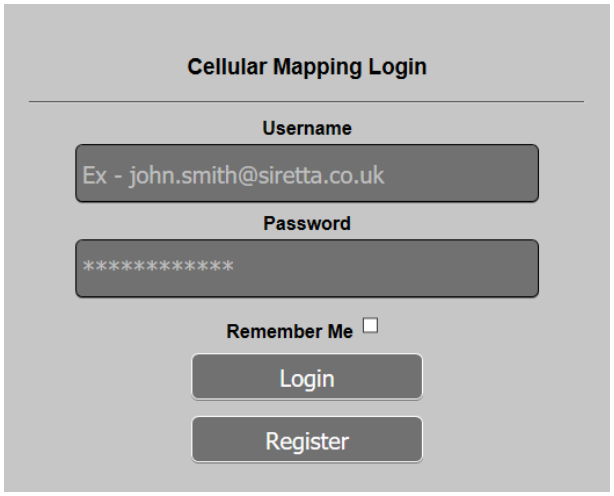
To access the SNYPER CloudSURVEY, scroll down to below the survey results screen and click on the button 'Display Cellular Basestation Map'. This will open a new window where you can login to the portal, here you can gain access to the online results and mapping information.

Figure 6. Display Cellular Basestation Map button

Existing User

Login to the system with your credentials. You will remain logged in until your session expires, this means you will not have to keep logging in for each survey that you add.

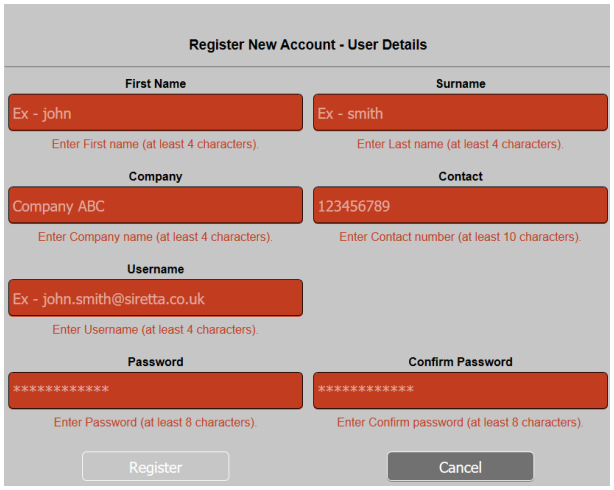
Figure 7. Existing user login



New User

If you do not have an account, you can register by clicking on the ‘Register’ button and filling in all of the required fields in the registration form.

Figure 8. New user registration



When you have successfully added your details to create an account, you will be taken to a confirmation page to highlight the features and benefits and agree to the terms of use before finally registering your account on the Siretta CloudSURVEY.

Once the registration process is complete, you will receive 500 free tokens in your account to use within the portal. Once you have used up all of your tokens you can purchase more tokens. See page 41 for more information on tokens.

Reviewing a Map

When you are reviewing a new or existing map on the portal, the window will display a map highlighting the relevant information obtained from the survey. This includes colour coded areas representing the signal strength of the 2G, 3G and 4G basestations.

These are represented on the map as circles in the same colour as their associated basestation markers. Each marker sits at the centre of it's associated circle.

The marker is an approximate location of the basestation. The larger the circle, the higher the basestation signal output.

Figure 9. Map example

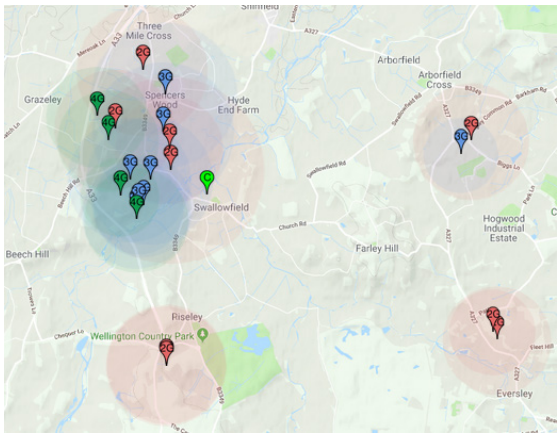


Figure 10. Toggle results

For each network type (2G, 3G and 4G), you can control which networks are displayed by using the toggle on/off feature on each respective marker tab.

You can also select the cell site accuracy tab which shows a defined transparent circle around each basestation. This circle represents that the location of the basestation resides somewhere within this circle. The smaller the circle, the closer the basestation will be to the marker.

The marker positions shown are estimated from the network cell information retrieved from the survey, and a third party API is used to provide the actual locations on the map. Over time the accuracy of the retrieved cell information will improve and the marker positions on the map will become more and more accurate, however, the cell site will generally be less than 500m from the marker position in any one direction, so, this is a good indication of where the base station is, in relation to the survey carried out. The marker position accuracy is controlled by the third party API, and is not a limitation of the results provided by the SNYPER network analyser.

For each survey a comment can be left which will be stored. This is useful for noting something unusual, or reminding yourself of something that occurred to cause a specific set of results.

Bookmarks

You can specify a bookmark for each survey that has been saved on the system to highlight specific features or anomalies with the survey. These icons can be used to clearly identify the different types of survey carried out.

As standard, there are 5 survey categories:

» Standard Survey (Default)
» Survey of Interest
» Featured Survey
» Problem Survey
» Archived Survey

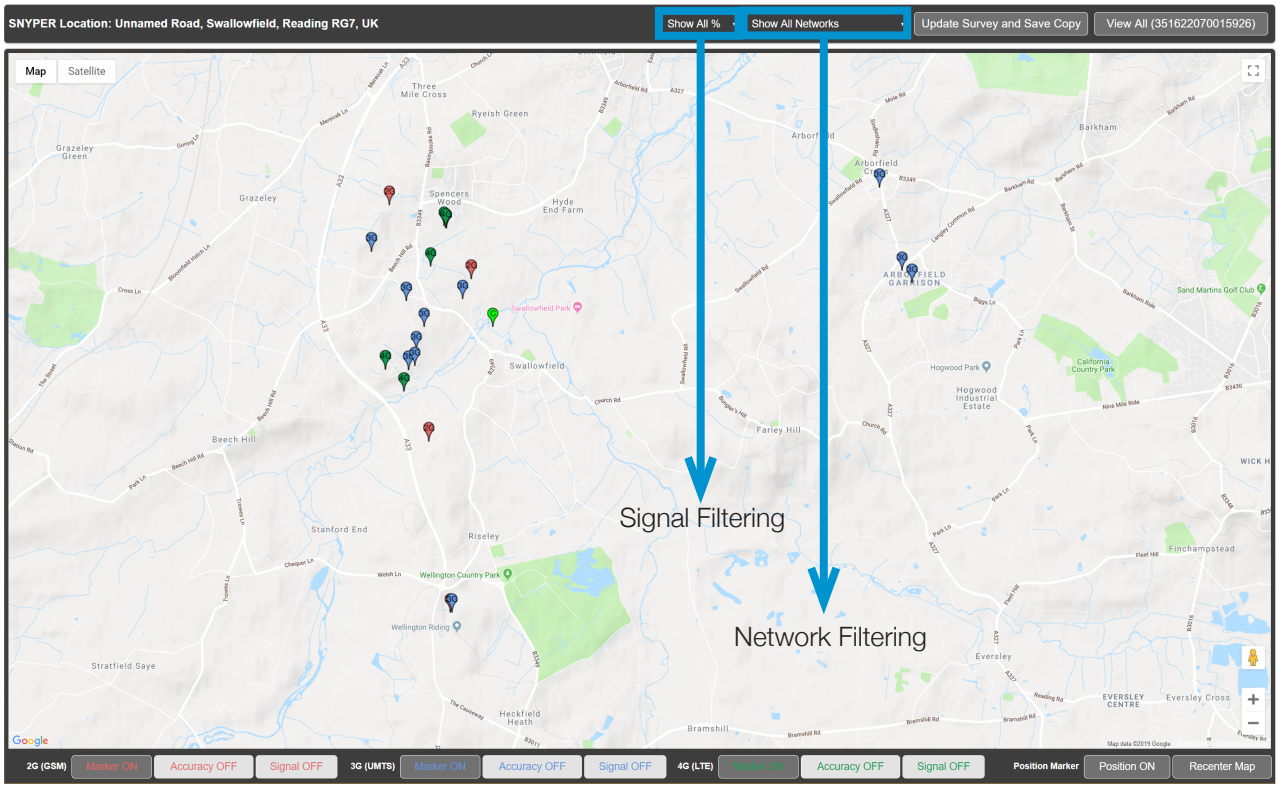
Survey notes are a free text field to describe any specific notes of interest about the survey. The notes do not need to be filled out and are an option for easy reference.

You can save your selected bookmark and comments by clicking on the '**Save Bookmark and Comments For Survey**' button.

Signal and Network Filtering

When you have completed a survey and examined the broad set of results, you have the option of filtering the results further to focus on a specific set of criteria. There are 2 parameters available to filter the results which include signal strength and network provider.

Figure 11. Network and signal filtering



Signal Strength

The signal strength selection allows you to specify the minimum signal level you wish to display on the map within the survey results. The signal breaks are shown below:

- Show All % - Shows all results with no filtering
- >85% - Shows only signal strengths greater than 85%
- >70% - Shows only signal strengths greater than 70%
- >55% - Shows only signal strengths greater than 55%
- >40% - Shows only signal strengths greater than 40%
- >25% - Shows only signal strengths greater than 25%
- >10% - Shows only signal strengths greater than 10%

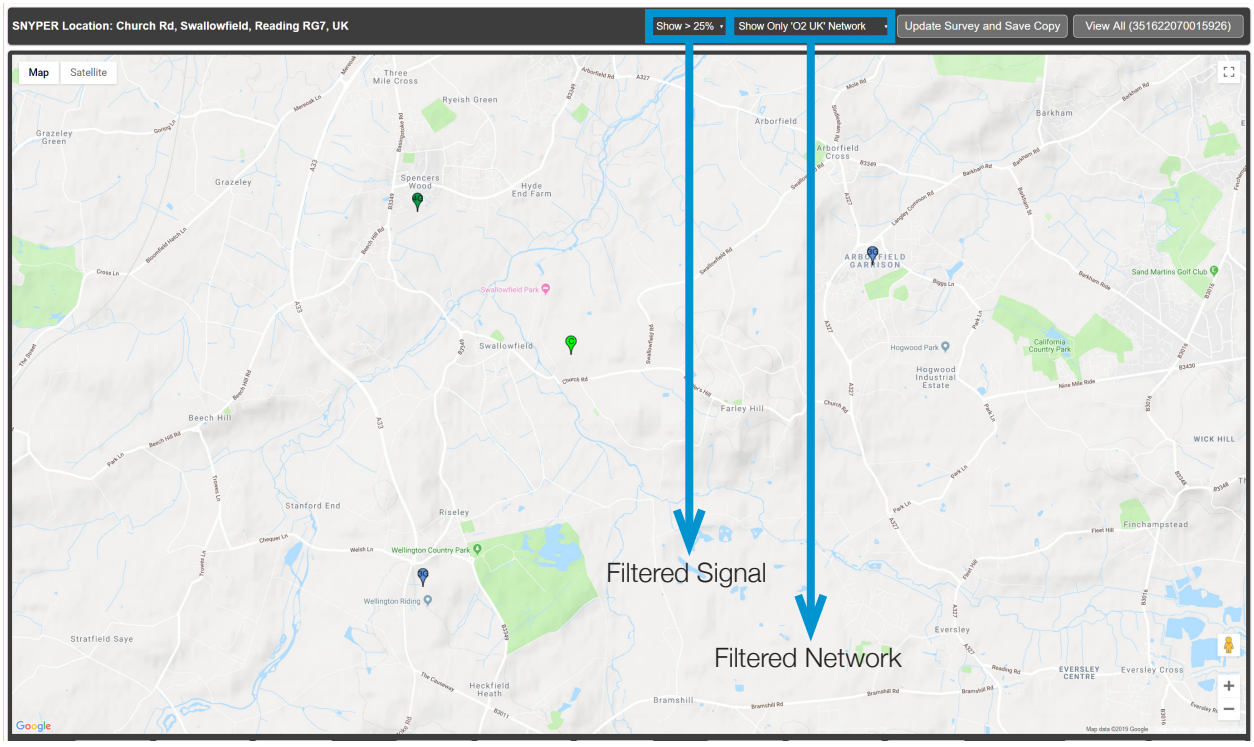
Network Provider

The network provider selection allows you to specify the specific network you wish to display on the map within the survey results. The available networks will vary between surveys and may include multiple references to the same network depending on how many MCC / MNC combinations are in use for the particular network. An example set of network breaks are shown below for the UK:

- Show All Networks - Shows all network providers with no filtering
- Show Only ‘EE UK’ Network - Shows only results returned from EE UK
- Show Only ‘O2 UK’ Network - Shows only results returned from O2 UK
- Show Only ‘Vodafone’ Network - Shows only results returned from Vodafone
- Show Only ‘3 UK’ Network - Shows only results returned from 3 UK

You can apply both signal strength and network provider’s filters, at the same time, to show network results from a specific operator at a specific signal strength. For example, only show O2 UK at 25% signal strength and higher.

Figure 12. Network and signal filtering



Network Dominance

If you scroll down below the map, the full survey data will be displayed for the current technology (2G, 3G or 4G) including the signal strength bars. If a survey was conducted and networks were found, the results will be displayed.

Below the survey data and network summary table is the network dominance information. The network dominance graph shows a simple breakdown of the total available network resource and what allocation each carrier has of the total for this particular set of survey results.

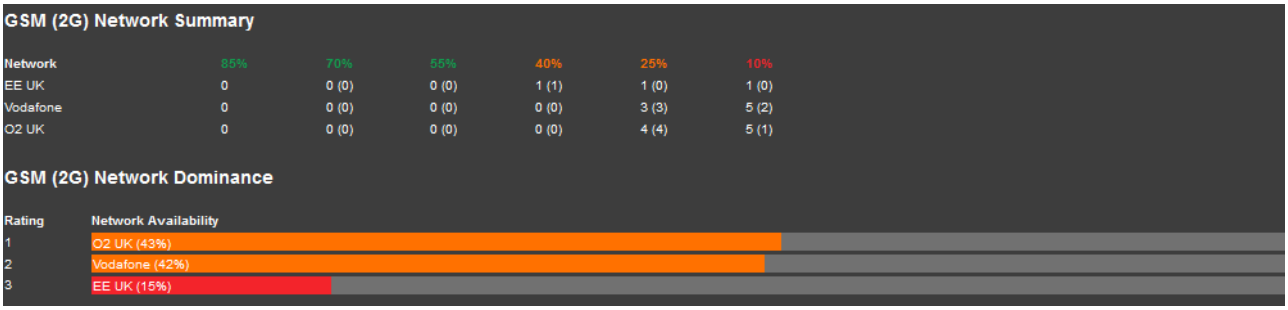
For network dominance, 3 things are taken into consideration:

1. The number of networks there are for each network provider. For example, in **figure 13,** at 10% or higher signal strength band there is 1 EE signal, 5 O2 signals and 5 Vodafone signals.
2. The average strength of a network. The overall average strength of a network, not the average strength of any individual signal.
3. How often the cell was found. If 5 surveys were completed but EE was only found once, this would penalise its network dominance/availability as it would imply an unreliable signal source.

By taking these things into consideration, we can determine which network is on average the most powerful and the most reliable/abundant.

In **figure 13** below, O2 has the highest network availability, which is not a measure of the best signal strength, but the best average signal strength with reliability taken into consideration. For example, if EE goes down, there is no alternative basestation to use. However, if an O2 basestation went down, there would be 4 other basestations to use.

Figure 13. Network dominance



Mathematical Explanation

Using the EE network as an example.

There is 1 EE network, and it's AV % strength is 50%.

We want a percentage in terms of the total network coverage of all the networks.

The available networks are EE, O2, and Vodafone. But there are far more O2 and Vodafone networks than EE networks, for which there is only 1.

If we add all the numbers in the column (AV %) we get the number 331. As each network was found 100% of the time we don't need to factor this in. If a base station was seen in only 90% of the surveys, we would multiply the total by 90%.

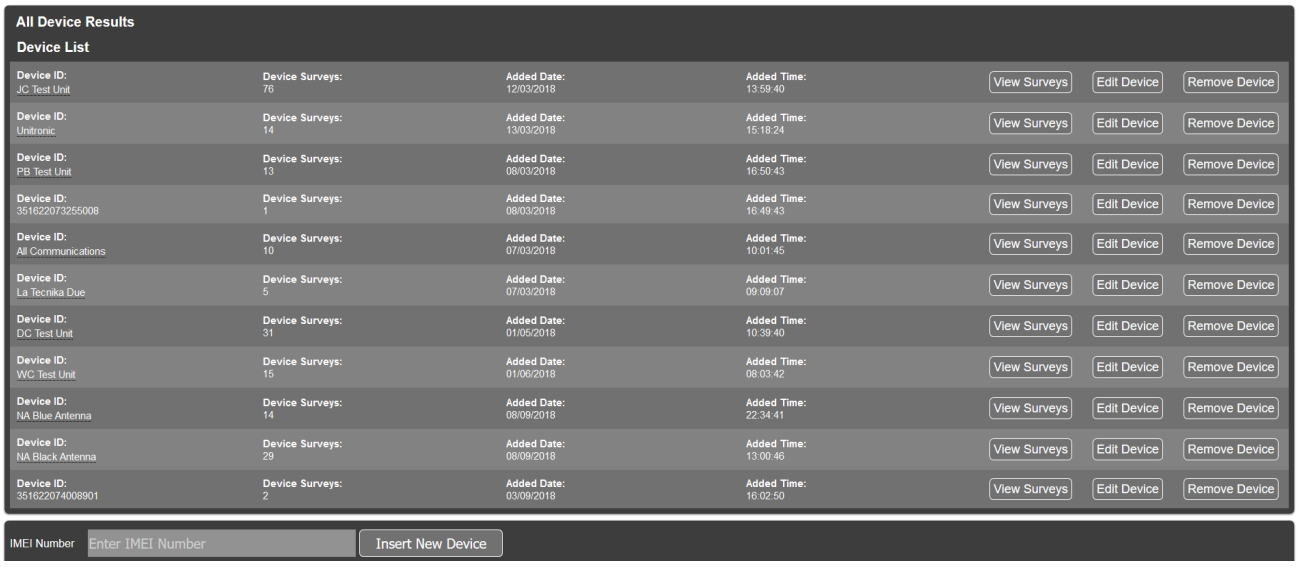
When there are more cells found and different networks to choose between, the percentages will alter according to the overall availability. When performing a logged survey using a SNYPER-LTE Graphyte, the seen percentage is also taken into consideration so that the overall reliability and average signal values provide a true representative summary of the network availability for each network provider.

Device List

Each SNYPER device that is added to the system can be viewed under the 'View Device List' button. This shows each of the registered devices, when it was added to the system and the total number of surveys completed.

You can edit each device and add more user specific details such as a device nick-name, device location and device owner. This is to help identify between multiple units when you have a number of users on the system.

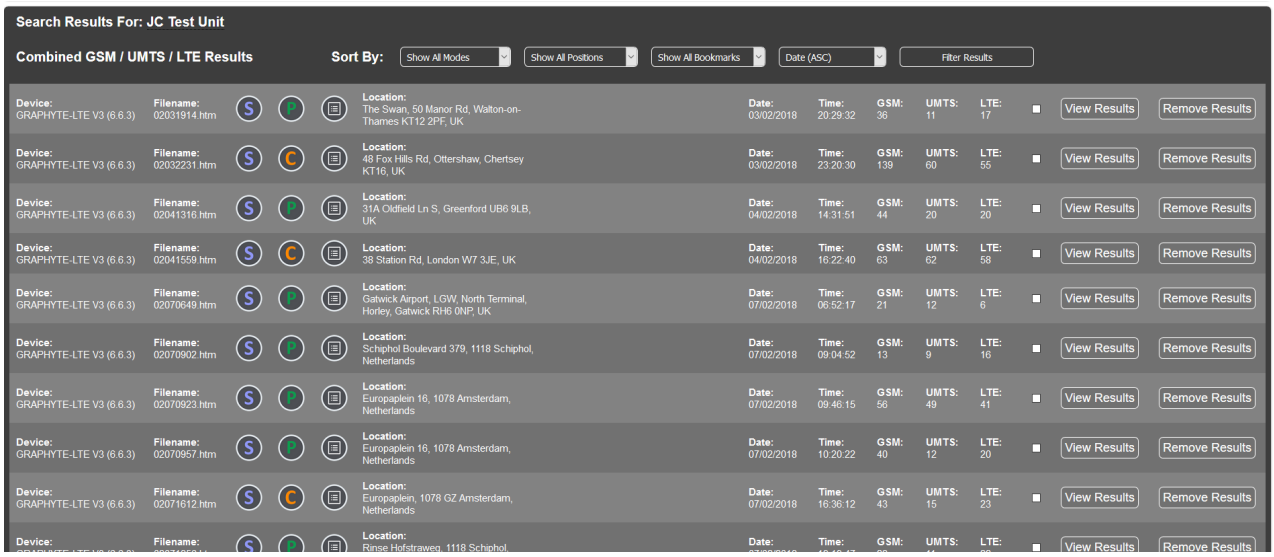
Figure 14. Registered device list



For each device listed on the system you can review the surveys performed on the unit by clicking on the 'View Surveys' button. This will open a new page listing all of the surveys performed and show a summary of the survey results. The surveys are listed by default in order of date performed with the oldest at the top.

You can change the sort order and other options by choosing any of the selections in the menu bar and clicking on 'Filter Results'.

Figure 15. Filtered results



Each survey can be categorised and have its own detailed comments which can be added at any time to describe observations and details regarding the survey. These can then be filtered from the survey list to allow easy comparisons between completed surveys.

SNYPER Modes

The information displayed in the survey results depends on the SNYPER survey mode setting, this determines what data is collected and displayed in the results.

There are 3 modes, Standard (S), Advanced (A) and Engineer (E). The default setting is standard mode.

Table 1. Breakdown of information provided

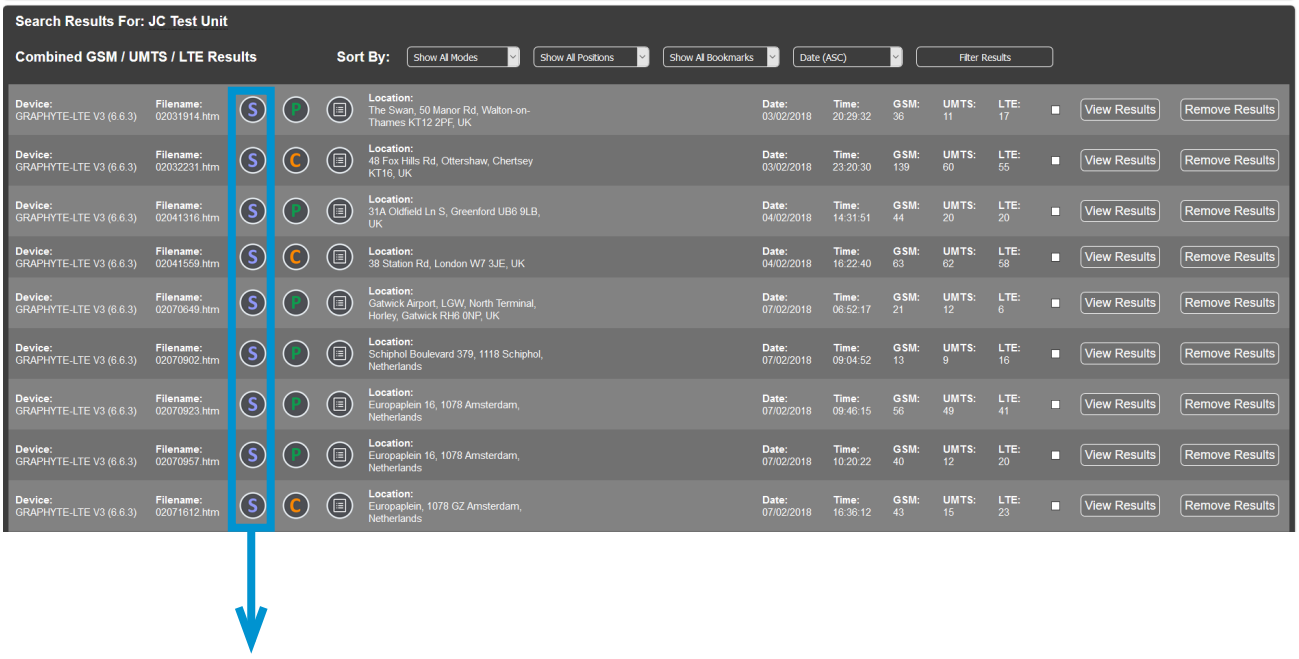
	Standard (S)	Advanced (A)	Engineer (E)
Index - Base station number assigned by your SNYPER-LTE Graphyte	✓	✓	✓
Network - Name of the network provider	✓	✓	✓
MCC - Mobile Country Code being received	✓	✓	✓
MNC - Mobile Network Code being received	✓	✓	✓
dBm - Signal strength being received. Signal strength ranges from -115dBm to -25dBm (UMTS); -100 to -25dBm (LTE), the larger the number the higher the signal strength.)	✓	✓	✓
RSSI - Received Signal Strength Indicator (Values range from 0 - 31 (GSM); 0 - 91 (UMTS); 0- 76 (LTE), the higher the number the higher the signal strength.)	✓	✓	✓
Signal - Percentage signal received (Values range from 0% - 100%, the higher the number the higher the signal strength.)	✓	✓	✓
Band - Frequency band being received	✓	✓	✓
ARFCN - Absolute Radio Frequency Channel Number being received	✓	✓	✓
UARFCN - UTRA Absolute Radio Frequency Channel Number being received (GSM)	✓	✓	✓
EARFCN - E-UTRA Absolute Radio Frequency Channel Number being received (LTE)	✓	✓	✓
Cell ID - Unique ID of the network cell being received (if available)		✓	✓
SCR - Scrambling Code (UMTS)		✓	✓
LAC - Location Area Code		✓	✓

Table 1 (continued). Breakdown of information provided

BSIC - Base Station Identity Code (GSM)		✓	✓
RSCP - Received Signal Code Power (UMTS)		✓	✓
ECIO - Ratio of Energy Chip / Interference in dB (UMTS)		✓	✓
RSRQ - Reference Signals Received Quality (LTE)		✓	✓
PhyCellID - Physical Layer Cell ID (LTE)		✓	✓
RSRP - Reference Signal Received Power (LTE)		✓	✓
BW - Bandwidth (LTE)		✓	✓
DL – Downlink frequency			✓
UL - Uplink frequency			✓

The survey mode is indicated in the survey list with the ‘S’, ‘A’ or ‘E’ icons to represent Standard, Advanced or Engineer.

Figure 16. Survey mode



Advanced/Engineer Mode Results

Surveys performed in Advanced or Engineer mode include additional information in the survey results which adds more parameters to the survey results columns.

In both Advanced and Engineering modes, there are additional signal quality columns for 3G/UMTS and 4G/LTE. 3G/UMTS includes the Energy to Interference ratio (ECIO) and Received Signal Code Power (RSCP). 4G/LTE includes Reference Signal Received Quality (RSRQ) and Reference Signal Received Power (RSRP). Both relate to the received signal quality.

These additional parameters are shown in the table below for the 4G/LTE network., the RSRQ field is shown as a separate bar graph underneath the signal strength bar graph. This allows you to look at the overall received signal strength and the signal quality at the same time. The higher signal quality at the higher signal strength will provide the best performance in the field.

Figure 17. Engineer mode

In the survey results performed for 3G and 4G in Advanced and Engineer modes, the additional network information is used to show signal quality on the signal strength graph. The ranges are shown from red to green indicating the quality of the received signal strength.

The highest signal strength with the highest quality will provide the end equipment with the most reliable connection to the network and ultimately the fastest connection speeds.

An example of this can be shown in the figure below for the 4G network survey results in Engineer mode.

Figure 18. Engineer mode

Position/Location

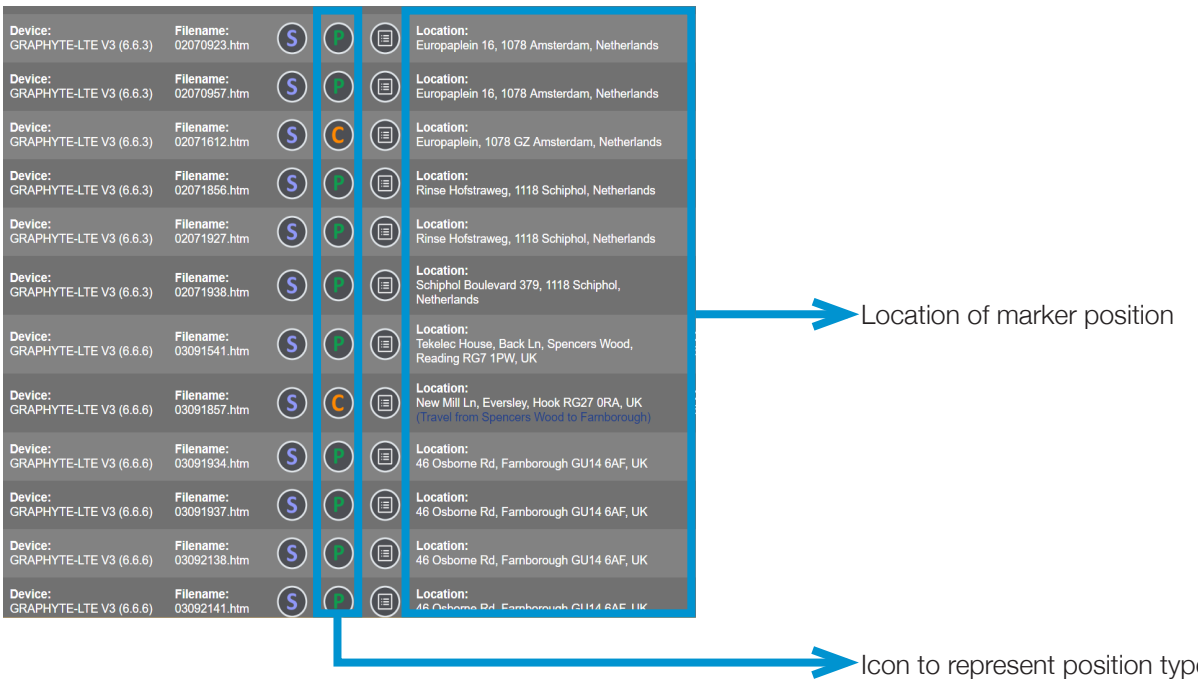
All items listed on the portal have a number of icons to indicate the various types of survey and position status. All surveys added to the CloudSURVEY will attempt to return a position for each basestation recorded in the survey. This will create a visual representation of the area where the survey was performed and using the relevant positions of each of the returned basestations, the system automatically calculates the estimated position at which the survey was conducted. This calculated position can vary in accuracy from where the actual location of the survey was performed depending on a number of factors:

1. How accurate the position of the basestation that has been reported
2. How many basestations are reported in the recorded survey
3. Environmental factors including landscapes and obstructions
4. Signal strength (many reported low signal strength cells)
5. Signal distance (abnormally high power output base stations)

As a result of having a potentially inaccurate automatic calculated position, the user has the ability to move the calculated position marker on the map to where the actual survey was performed. This is referred to as a ‘User Defined Position’.

Automatically calculated positions are marked with orange ‘C’ icons. User Defined Positions are marked with green ‘P’ icons. The address for the marker position is shown in the location column and displays the closest street address.

Figure 19. Position and location



Survey Notes and Categories

For each survey that is saved on the system you have the ability to categorise and add notes to highlight specific features or anomalies with the survey. These icons can be used to clearly identify the different types of survey carried out.

As standard, there are 5 survey categories:

» Standard Survey (Default)
» Survey of Interest
» Featured Survey
» Problem Survey
» Archived Survey

Survey notes are shown in blue text underneath the survey address. These notes are a text field and any descriptive references can be placed in the field for the survey. The notes do not need to be filled out and are an option for easy reference.

Figure 20. Survey notes and categories

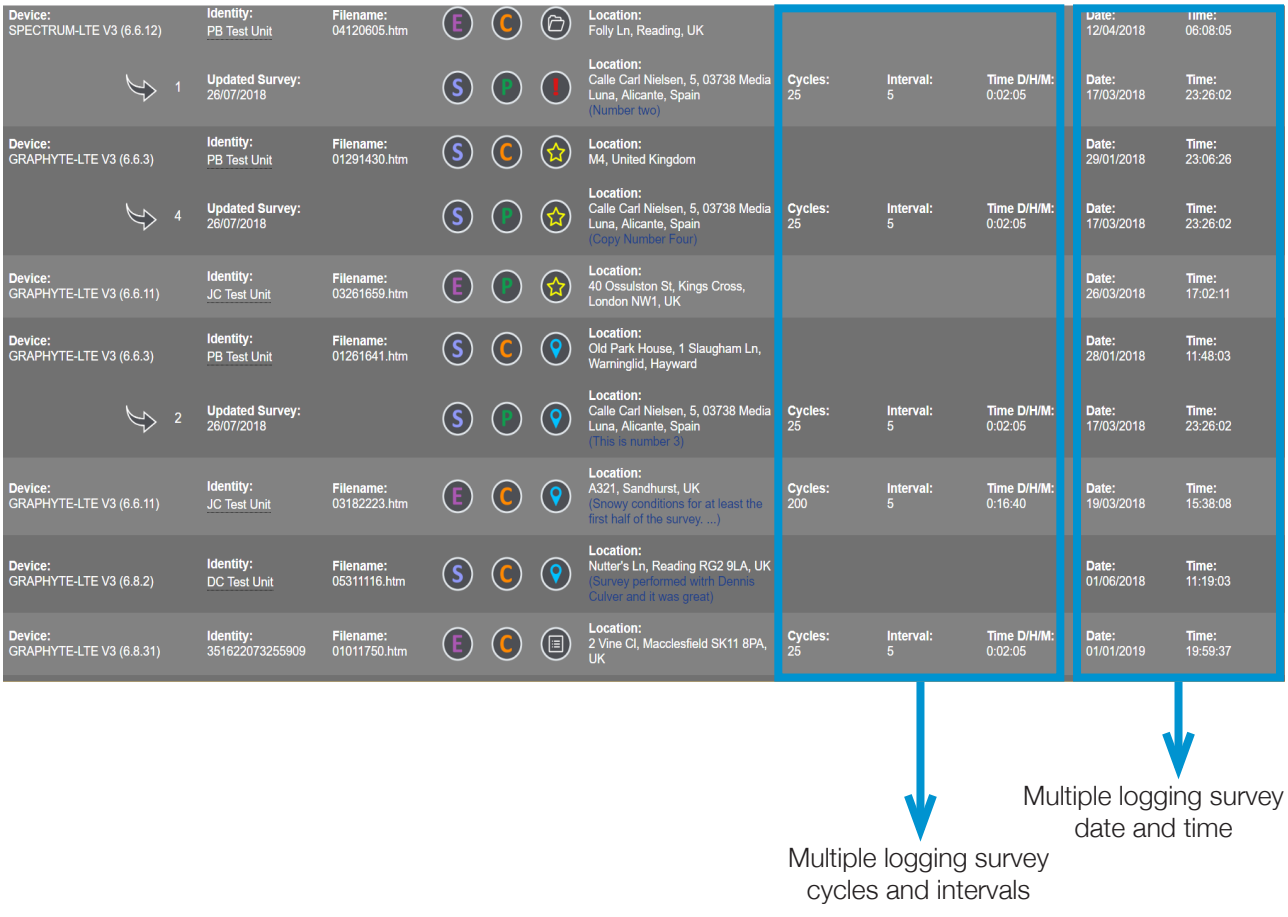
Multiple Logged Surveys (Graphyte ONLY)

To view results on the SNYPER-LTE Graphyte that have been logged over a number of cycles, the filtered surveys list displays the number of cycles, the interval between cycles and the total duration of the survey.

The items listed which include the cycle time and interval are multiple logged surveys which provide average readings over a number of surveys. The items listed which do not include the cycle time and interval are single survey results which provide a single survey for a snapshot in time.

The date and time refer to when the survey was initiated and the number of GSM, UMTS and LTE cells refers to the total number of network cells that were seen during entire surveyed period. This number is generally larger for multiple survey results as there are more cells seen during the survey period. This allows the user to measure how reliable the cells are during the survey period by indicating how often the cells are seen.

Figure 21. Multiple logged surveys



Comparing Results

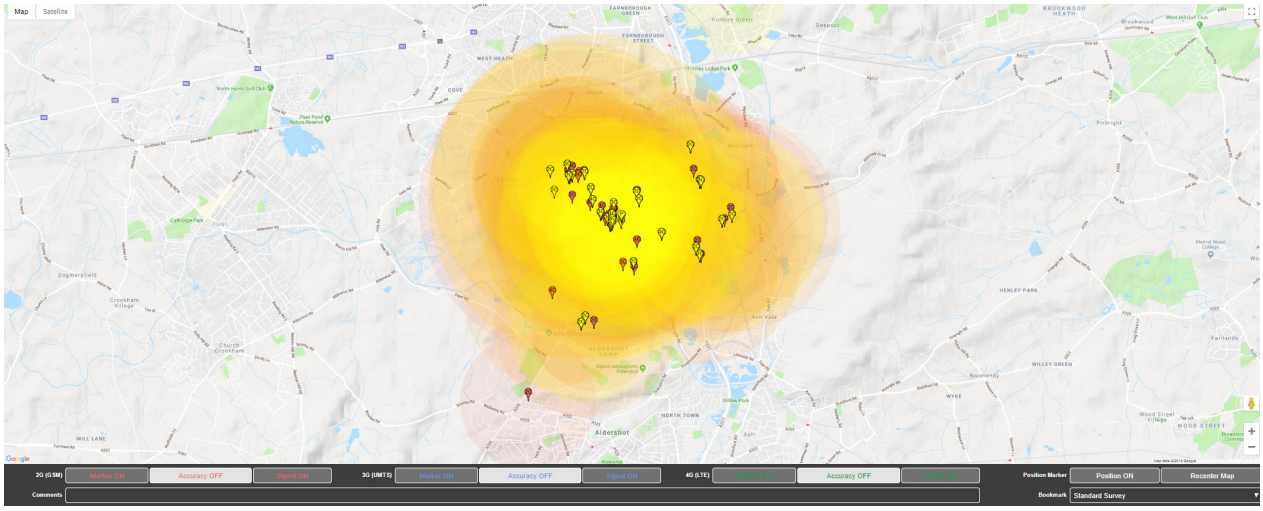
It is possible to show multiple survey results on the same map at the same time when you have performed a number of surveys in a specific area to build up a bigger picture of basestations. This allows you to compare the different survey results against each other at the same time, allowing you to see if there are differences in the recorded data.

On the survey list page there is a tick box next to each survey result, tick the relevant surveys to use in the comparison. You must select a minimum of 2 surveys to enable the compare surveys button and you can select a maximum of 4 surveys at any one time to compare.

Figure 22. Survey comparison

When you have selected the surveys that you wish to compare against each other, click the compare results button and the results will be displayed as shown in the figure below. Each set of survey results are displayed in a different colour as shown below in ‘red’, ‘amber’ and ‘yellow’.

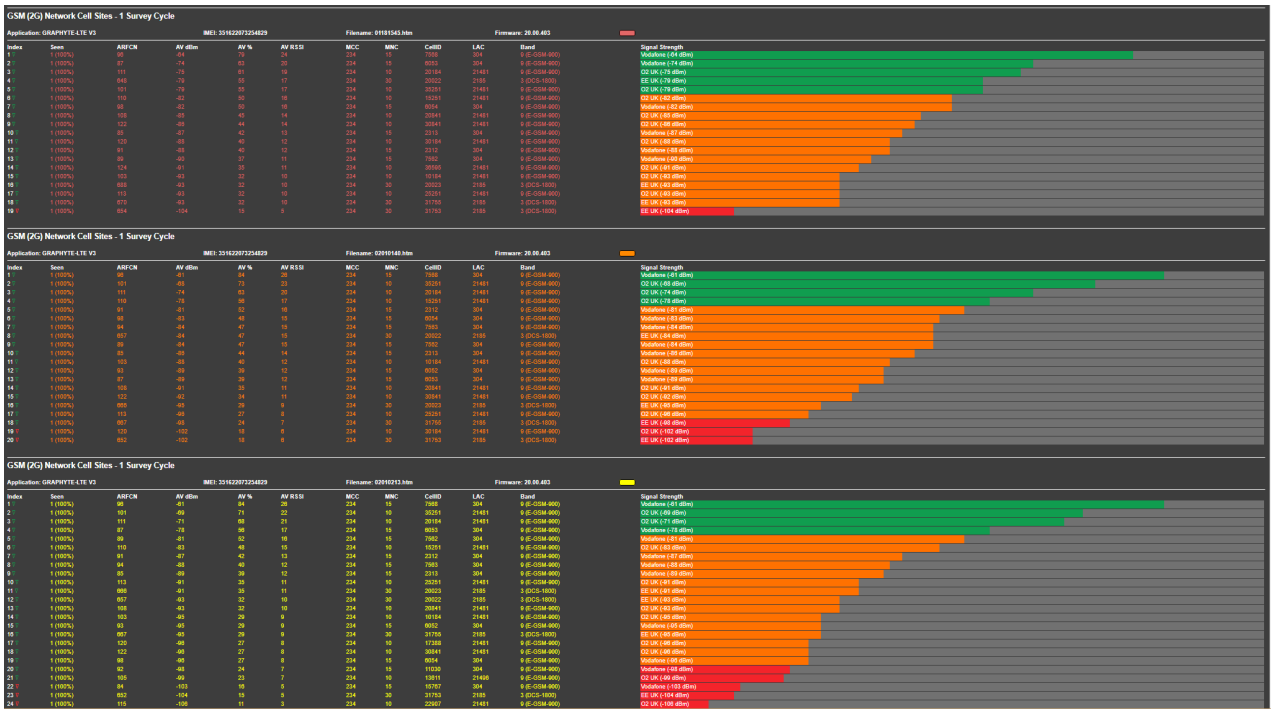
Figure 23. Survey comparison



The map view shows the heat map for all network technologies for all of the sets of survey results in the same colour, with the marker indicating 2G, 3G or 4G for that set of results.

Each colour shows the information for the set of results for that survey and are split out over the 2G, 3G and 4G technologies which contain network information for each set of result data.

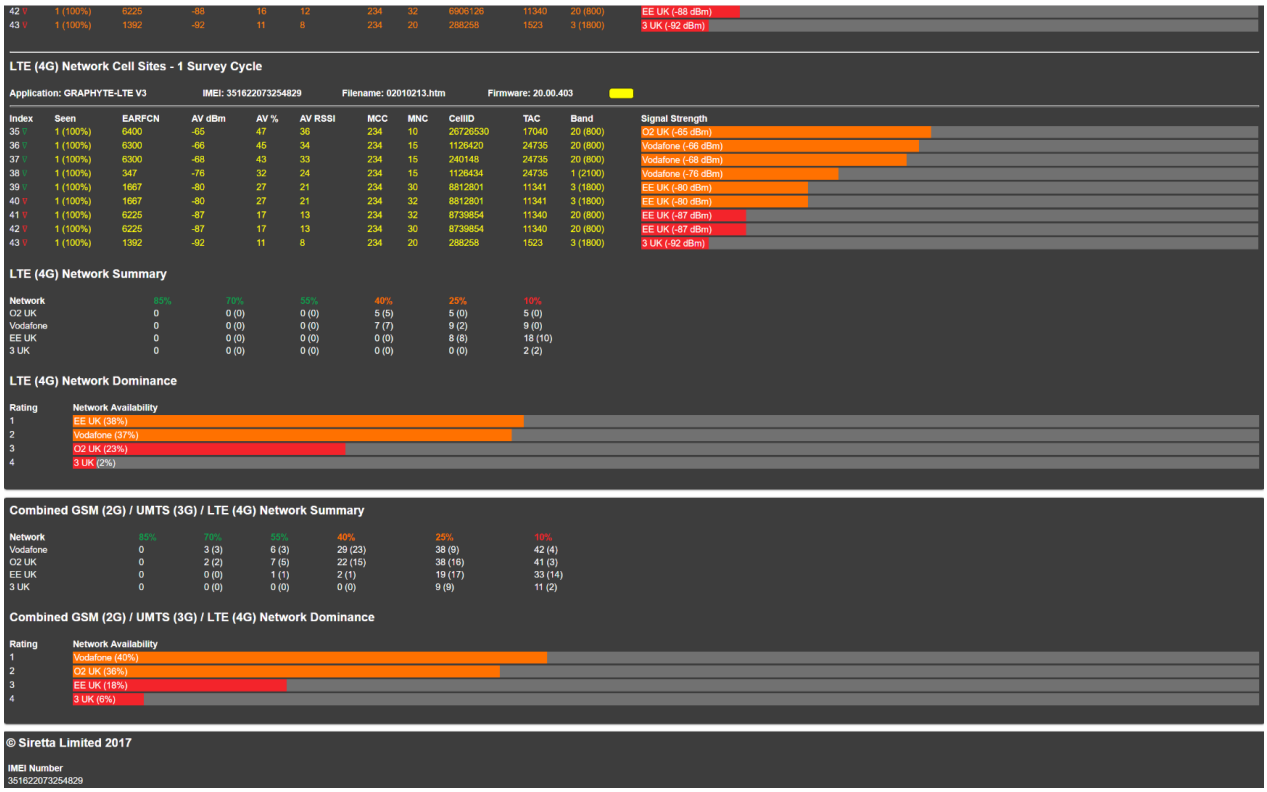
Figure 24. Survey results



Comparing Network Dominance

The network dominance is calculated for survey results combined in the compare results response. You can compare multiple survey results and compare total network dominance for the entire set of surveyed results which helps determine a full summary of information with multiple key sets of result data.

Figure 25. Network dominance comparison



The network dominance is shown individually for each network technology and also for the entire set of surveyed data. In addition to the network dominance table, the overall summary results show you how many cells were seen for each network provider for the entire combined survey results. This information is useful for showing overall peak cells for each signal bracket.

Update Survey and Save Copy

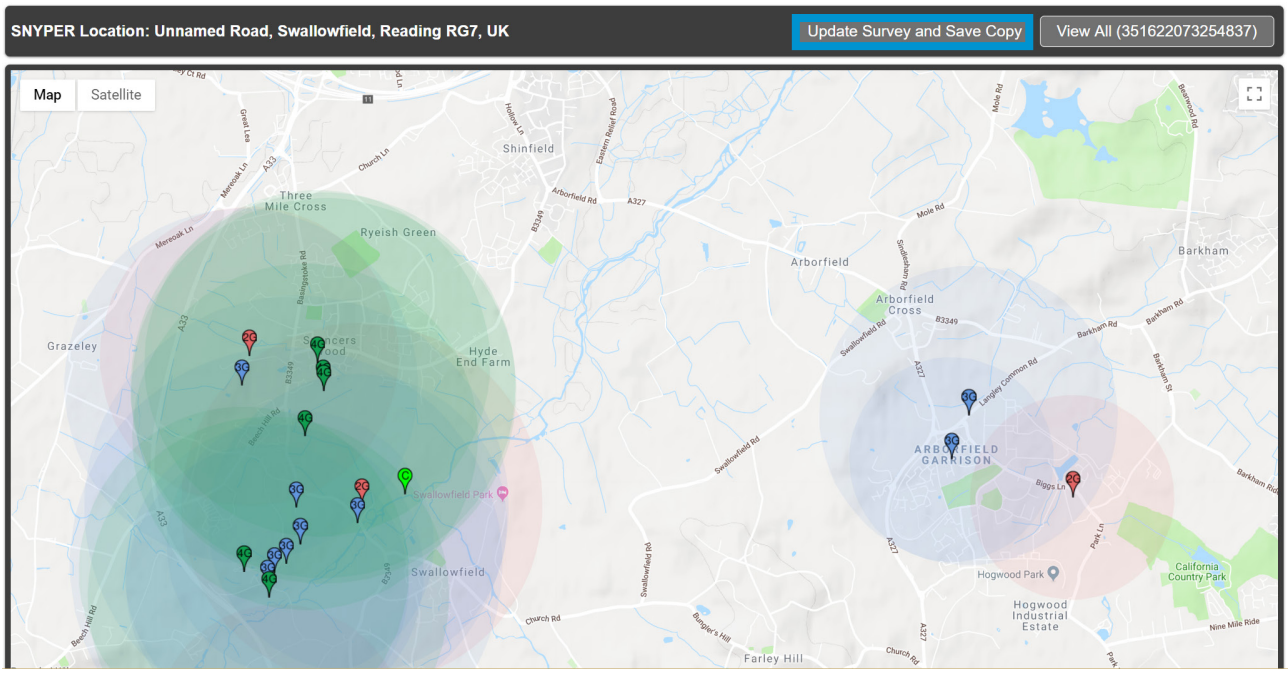
When you have added a set of survey results to the system it will display the approximate position of the basestation for each cell site retrieved from the mapping database. To retrieve one basestation location debits one token, and for a new survey each basestation lookup will debit a token.

The mapping database is being constantly updated and as a result, performing a survey from month to month may display different basestation markers as new cell sites are added. As a result of this, it is possible to reset and lookup all cell sites again after the original survey was added.

This process can be performed at any time after the original survey was added to the system, and can be used to identify if any new cell sites have been added to the mapping database to provide a more completed cellular landscape.

When you perform an 'Update Survey' lookup it will debit one token for each cell site being retrieved as the information is pulled directly from the mapping database.

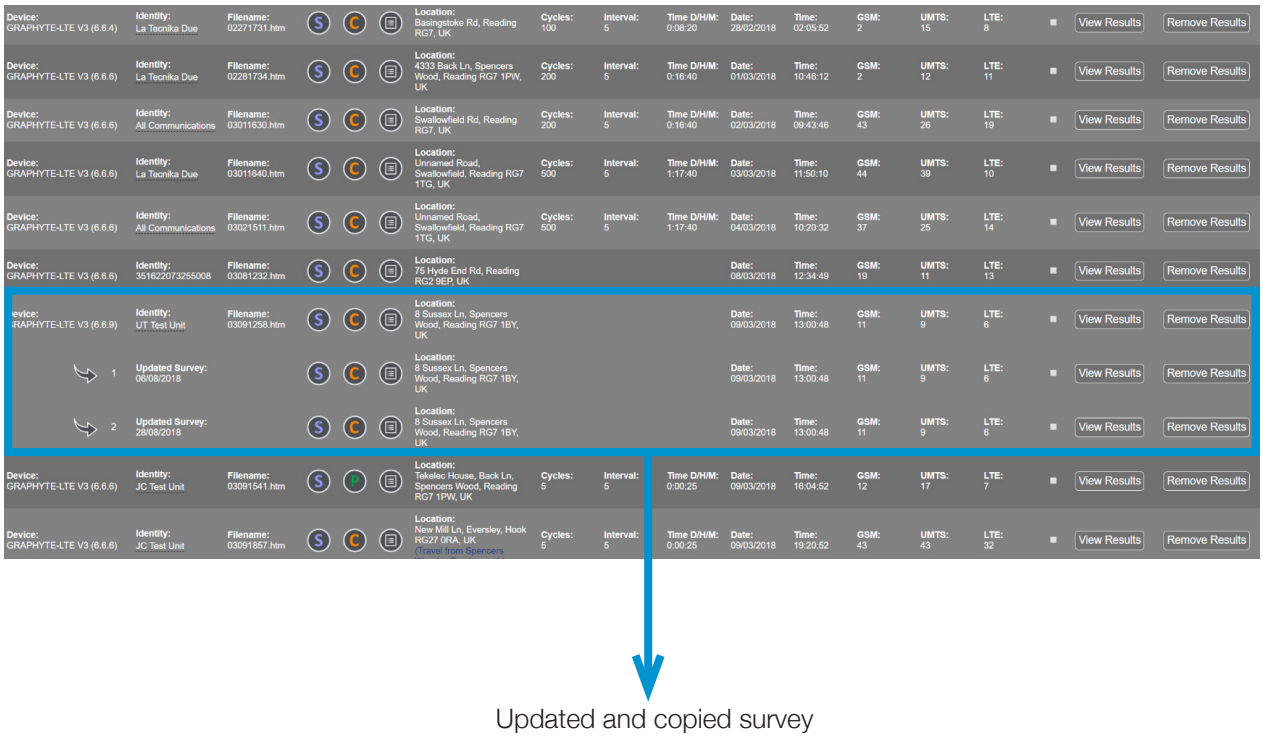
Figure 26. Basestation markers



When you perform an update survey lookup, the results will be captured and stored on the system. They will be listed directly underneath the original performed survey. This helps to keep the surveys located together and allows switching between surveys to review differences.

The ID number of the newly performed lookup will be shown along with the date that the new lookup was performed. As the updated survey lookup is identical to the originally performed survey, all of the parameters regarding the survey remain the same and the newly performed surveys appear underneath the original master.

Figure 27. Update survey lookup



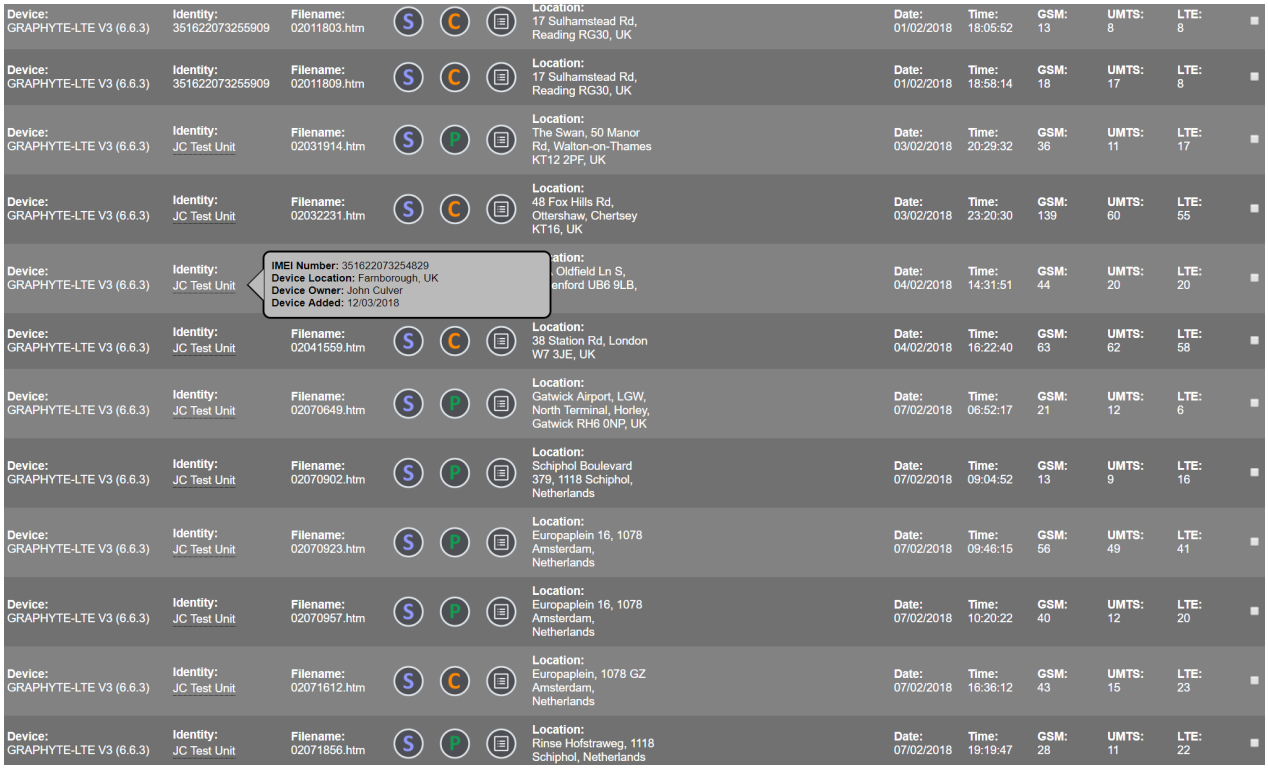
View All Surveys

The “View All Surveys” page allows you to see all the surveys stored on the account. Initially this section will show a list of all survey results; GSM (2G), UMTS (3G), LTE (4G).

When reviewing the items in the ‘View All’ list you will notice that the Identity of the unit is shown in the second column. This allows you to identify which unit the current survey relates to on the system. The window will display all the surveys that have been conducted for all of the devices on the system. Each listing will contain several details such as the device being used, its identity, its filename, the date it was made and the location in which the survey was completed and some details on the number of basestations found for each generation of network. i.e. 11 GSM stations or 2G stations.

If you hover over the name of the unit you will see a pop-up appear which shows the other stored device parameters such as the IMEI number of the unit, location, owner and date added to the system.

Figure 28. Update survey lookup

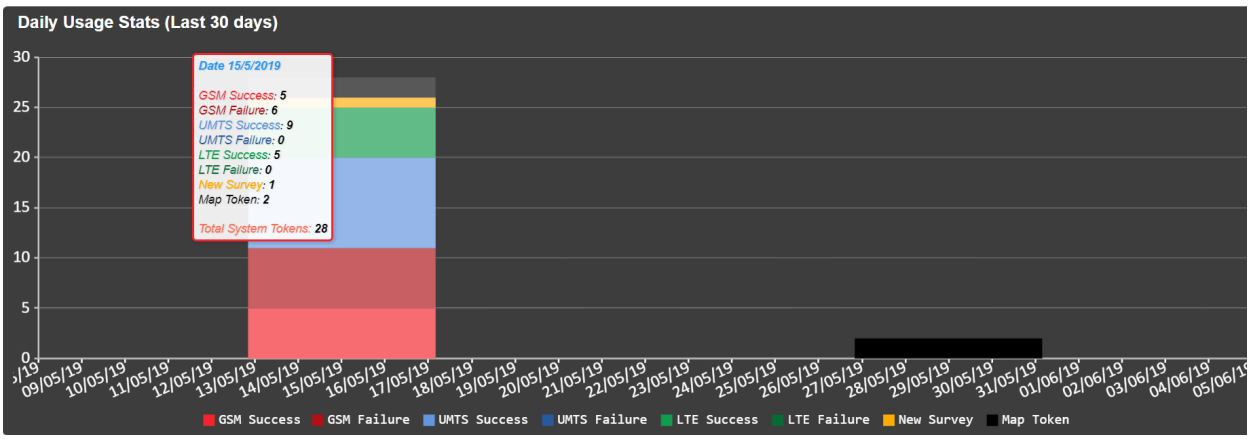


View Account

On the “View Account” page, you can perform numerous functions such as updating personal information, changing passwords and purchasing tokens.

In the “View Account” area, there is a visual representation of surveys completed. Daily Usage Stats (up to 30 days) are displayed. If you hover over any day, you will see a breakdown of the number of surveys completed and the number of cells retrieved for each network technology, as seen in **figure 29** below.

Figure 29. Daily stats



The box which displays upon hovering shows user activity such as the date that the surveys were completed, whether the surveys were successful/unsuccessful (2G, 3G and 4G are all colour coded).

In yellow, you can see how many new surveys were completed on that particular day and in black, how many map tokens were used.

Default Display Options

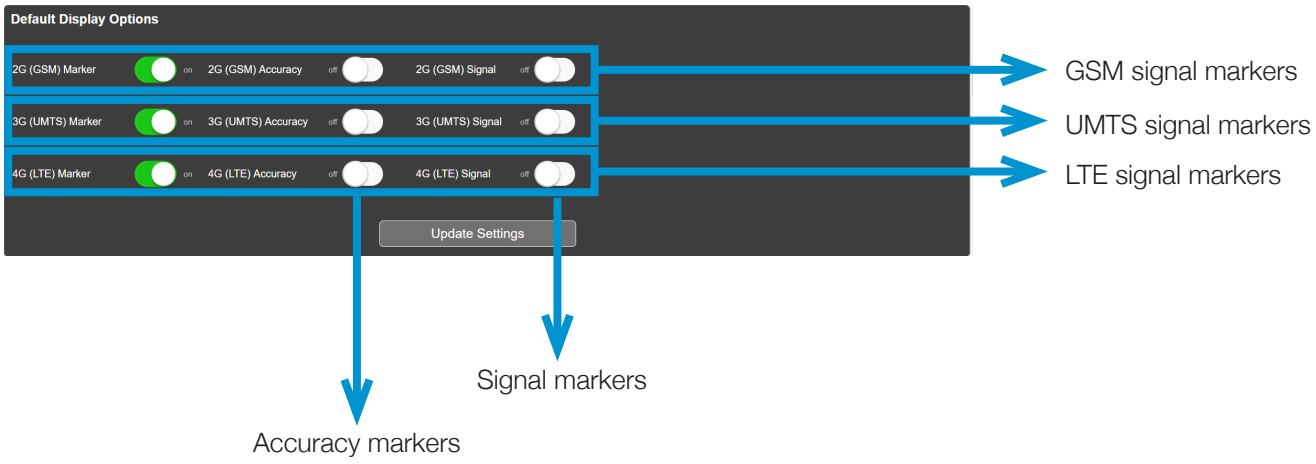
The default display options allow you to select the active survey buttons required when opening a survey. This allows you to tailor your viewing experience for all surveys by default when opening a survey. You can click on any of the buttons to activate or deactivate the display options when the survey is loaded.

For example, you may wish to only display the map markers by default on a survey load and not display the accuracy or signal strength heat maps. When the survey has loaded, you can select either the accuracy or signal strength heat map to display the corresponding information.

Alternatively, you may wish to display map markers and signal strength heat map by default but not display accuracy. When the survey has loaded, you can disable the signal strength heat map and only display the map markers.

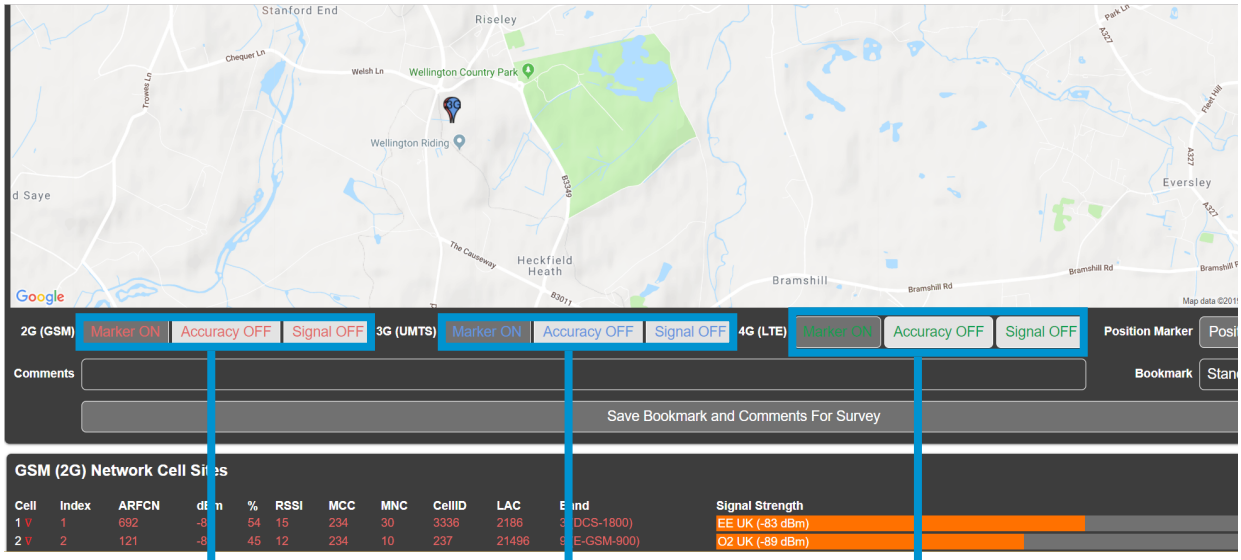
These settings simply allow you to customize how your surveys appear when first loaded in to the browser. You can select the default option preferences as shown below in the 'View Account' settings page.

Figure 30. Default display options



When you load a survey the selected options are displayed by default as shown below in the 'View Survey Results' page.

Figure 31. Selected options displayed



2G (GSM)
Marker ON
Accuracy OFF
Signal OFF

3G (UMTS)
Marker ON
Accuracy OFF
Signal OFF

4G (LTE)
Marker ON
Accuracy OFF
Signal OFF

Account Security

In this section you can update your password.

The format requires a minimum of 1 uppercase letter, 1 lowercase letter and 1 number. A minimum length of 8 characters is required. i.e Siretta1.

Personal Information

On this page you can enter and update personal details.

EU VAT Code

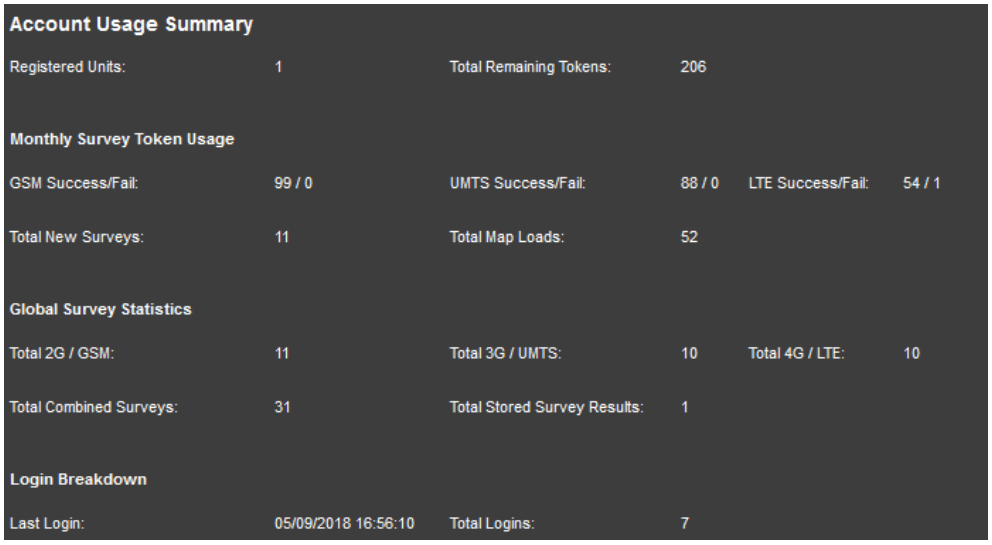
The EU VAT code is a field to allow non UK companies within the EU to enter their company VAT code to remove the VAT charge of 20% for the purchase of tokens. If a valid EU VAT code is entered the VAT charge of 20% will be removed from the token prices listed.

A typical EU VAT code is two characters i.e AT (Austria) or BE (Belgium) followed by a number between 8-12 digits long.

Account Usage Stats

The account summary displays details about completed surveys, registered devices and other general statistics.

Figure 30. Account usage



Account Usage Summary

Registered Units:	1	Total Remaining Tokens:	206		
Monthly Survey Token Usage					
GSM Success/Fail:	99 / 0	UMTS Success/Fail:	88 / 0	LTE Success/Fail:	54 / 1
Total New Surveys:	11	Total Map Loads:	52		
Global Survey Statistics					
Total 2G / GSM:	11	Total 3G / UMTS:	10	Total 4G / LTE:	10
Total Combined Surveys:	31	Total Stored Survey Results:	1		
Login Breakdown					
Last Login:	05/09/2018 16:56:10	Total Logins:	7		

Tokens

Tokens are debited from your account each time the system looks up a cell site or loads a map on the system.

A ‘Lookup Token’ is debited every time a basestation is retrieved from the mapping database. This will only be done when a new survey is added to the system or when a survey update is performed.

A ‘Map Token’ is debited every time a map is loaded. This is different from the way tokens are used to locate basestations.

Lookup Token - Example of Account Debit

For example, a new survey could be added to the system which has found 20 base stations. When added to the CloudSURVEY this would attempt to locate all 20 base stations from the mapping database and would debit 20 tokens to look up all of the cell sites. In addition it would debit 1 token to load the map. Therefore, a total of 21 tokens are debited in this process.

Map Token - Example of Account Debit

The survey and the map data will all be stored in the portal and the next time you open this survey only 1 token will be debited for loading the map. You can load this survey as often as required and it will only use 1 token per map load.

Estimated Token Usage

If you take an average survey to include around 40 cell sites then:

» 500 tokens is approximately 13 surveys

» 5000 tokens is approximately 125 surveys

» 10000 tokens is approximately 250 surveys

» 25000 tokens is approximately 625 surveys

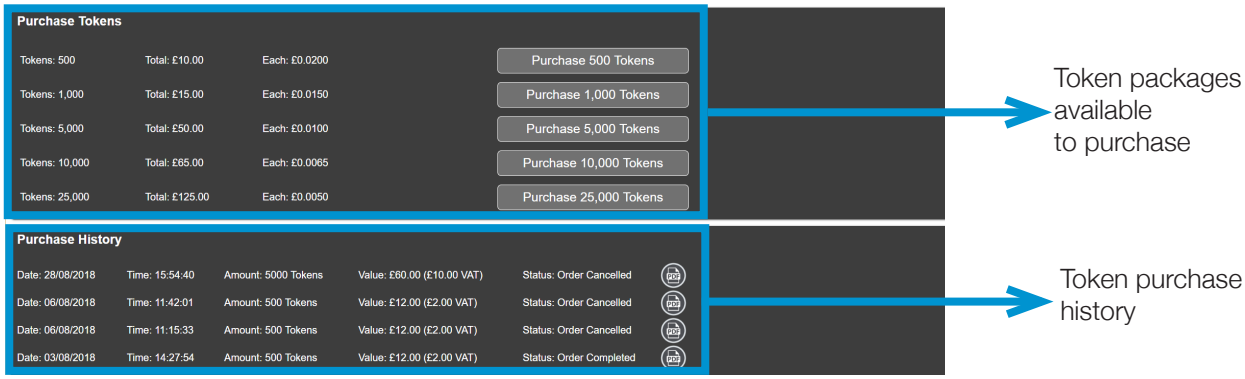
The numbers of surveys available to add to the system would vary depending on the number of cell sites included per survey and the number of times a map was viewed after adding the survey to the system. Once the new survey has been added to the system you only use one token per map loaded, so the tokens will last a long time for general usage.

Purchase Tokens

In this section you can purchase tokens. There is a selection of token packages that can be purchased depending on personal requirements.

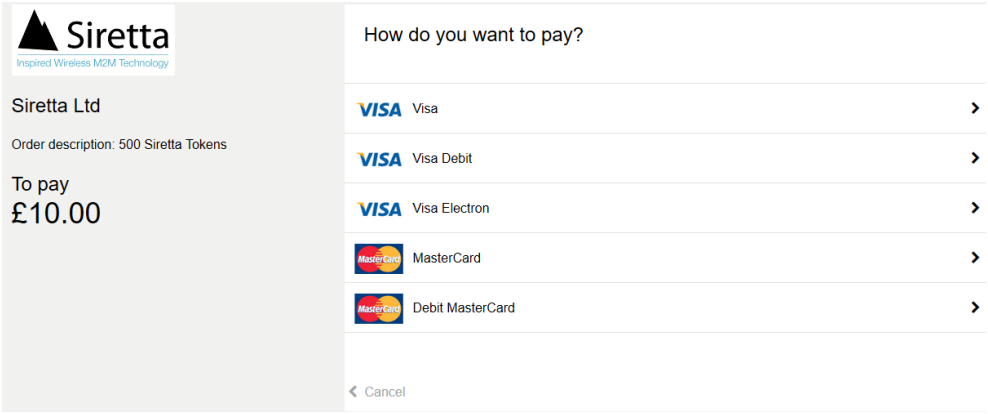
The token purchase options currently available are shown below. Below the 'Purchase Tokens' section is the 'Purchase History' section which shows your transaction history and evidence of successful and unsuccessful purchases on the portal. You can download the sales invoice directly from the portal in a PDF document.

Figure 32. Purchase tokens



Once you click on one of the buttons i.e the 'Purchase 500 tokens' button, you will be redirected to make the purchase. All of the payments are secured by sage pay.

Figure 31. Purchase tokens



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Definitions

Term	Definition
%	Average signal strength across all surveys
2G	2nd Generation Mobile Telecommunications
3G	3rd Generation Mobile Telecommunications
4G	4th General Mobile Telecommunications
ARFCN	Absolute Radio Frequency Channel Number
AV dBM	Average measure of signal power
Band	Identifies the frequency band of the cellular signal
Cell	A beacon attached to a basestation that transmits a signal on a specific frequency.
CellID	Cell Identity
EARFCN	E-UTRA Absolute Radio Frequency Channel Number
GSM	Global System for Mobile Communications
Index	Order in which the signals were detected
LAC	Location Area Code
LTE	Long Term Evolution
MCC	Mobile Country Code
MNC	Mobile Network Code
RSRQ	Reference Signal Received Quality
RSSI	Received Signal Strength Indication
Seen (%)	Number of times a cell was seen as a percentage from the total number of surveys completed
UARFCN	UTRA Absolute Radio Frequency Channel Number
UMTS	Universal Mobile Telecommunications System (Same as 3G)
USB	Universal Serial Bus

For full list of SNYPER glossary terms see:

https://www.siretta.com/snyper-glossary

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