

Survey Kit Configuration and Operation Instructions

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1 LOADING SPECIAL COMMUNICATOR DRIVERS TO YOUR PC

To communicate with the tablet PC and translator you will first need to load the drivers for this link module. To achieve this

- Plug in the USB cable from the receiver into one of your spare USB slots of your computer.
- In the unusual occasion where the drivers are not automatically installed please go to the following link to download the drivers required or contact your nearest Incite Fire office for assistance.

<http://www.ftdichip.com/Drivers/D2XX.htm>

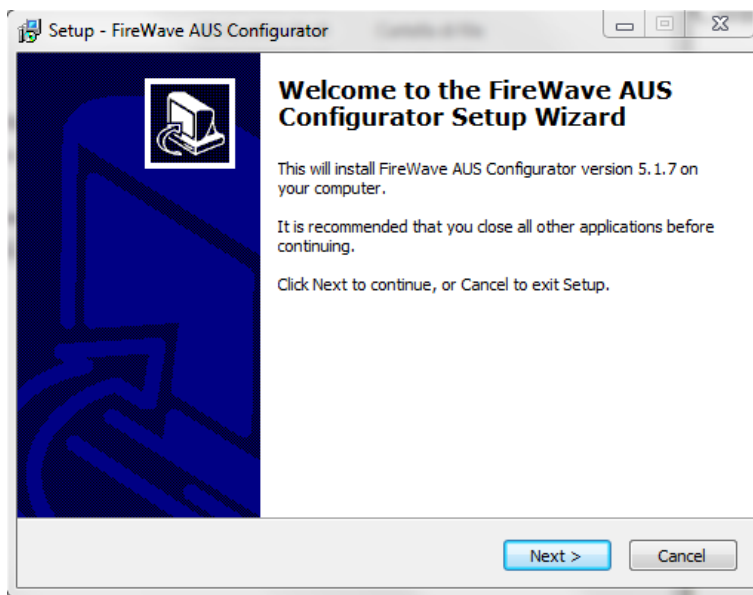


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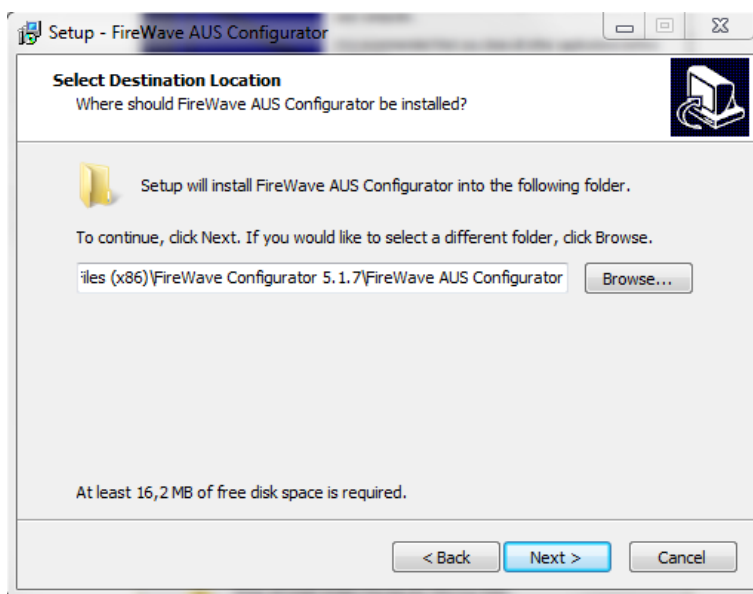
2 LOADING FireWave AUS CONFIGURATOR TO YOUR PC

The FireWave AUS Configurator software is supplied to approved customers on a dedicated CD-ROM.

- Insert the CD and the following installation screen should automatically be displayed

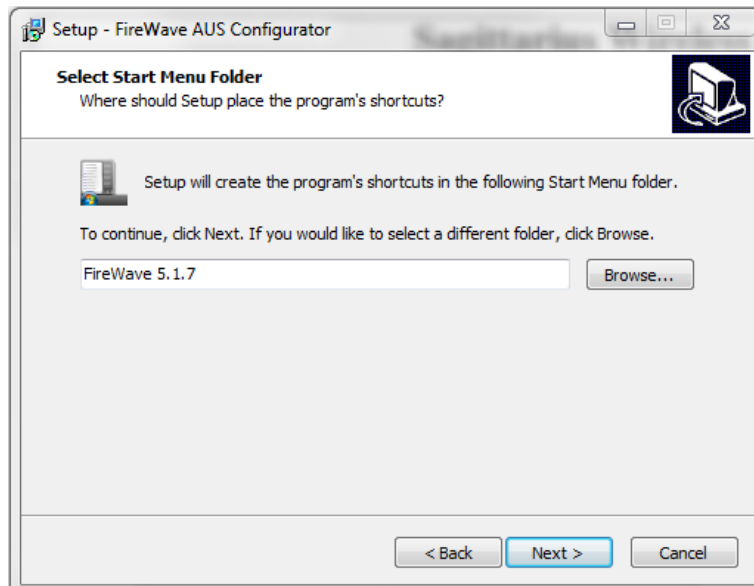


- Click on "Next" to move to the next stage of the Installation Wizard for the FireWave AUS configuration software. The following window will appear:

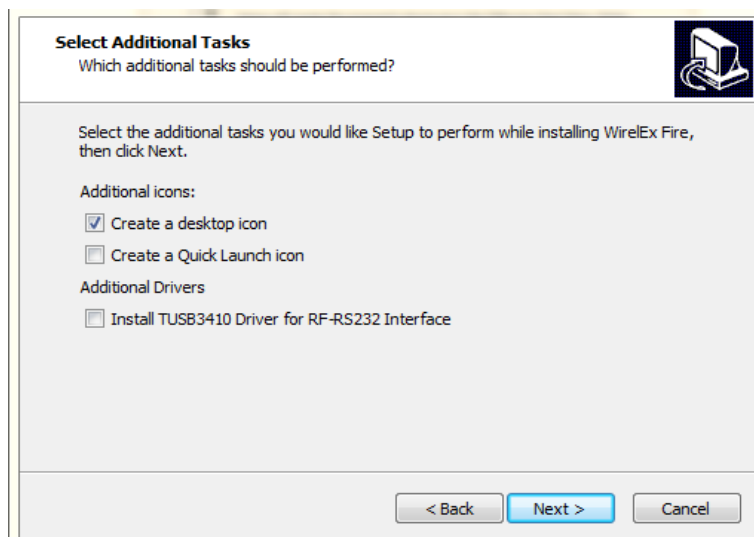


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- It is preferred to install the software in the selected default folder on the computer but this can be modified if required by selecting “Browse”. Once you are satisfied that the destination folder is correct, select “Next”. The following window will appear:



- This will add a line for the programme in the Start Listings so that the application can be selected from Main Shortcuts. Change the folder name if required. If the folder name is correct, select “Next”. The following Window will appear:

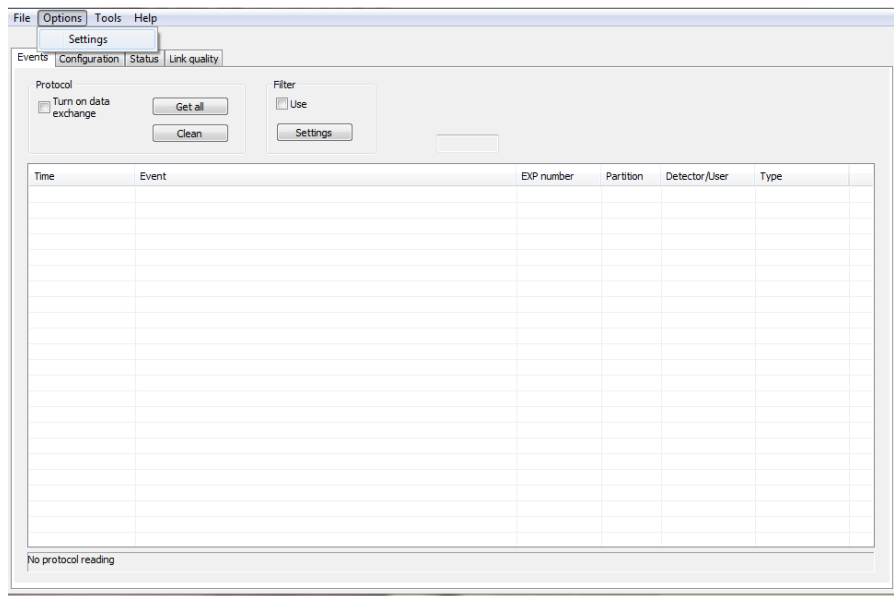


Checking the box for “Create a desktop icon” will ensure a shortcut icon will be placed on the Desktop window allowing the application to be accessed easily from the Desktop. Select “Next”.

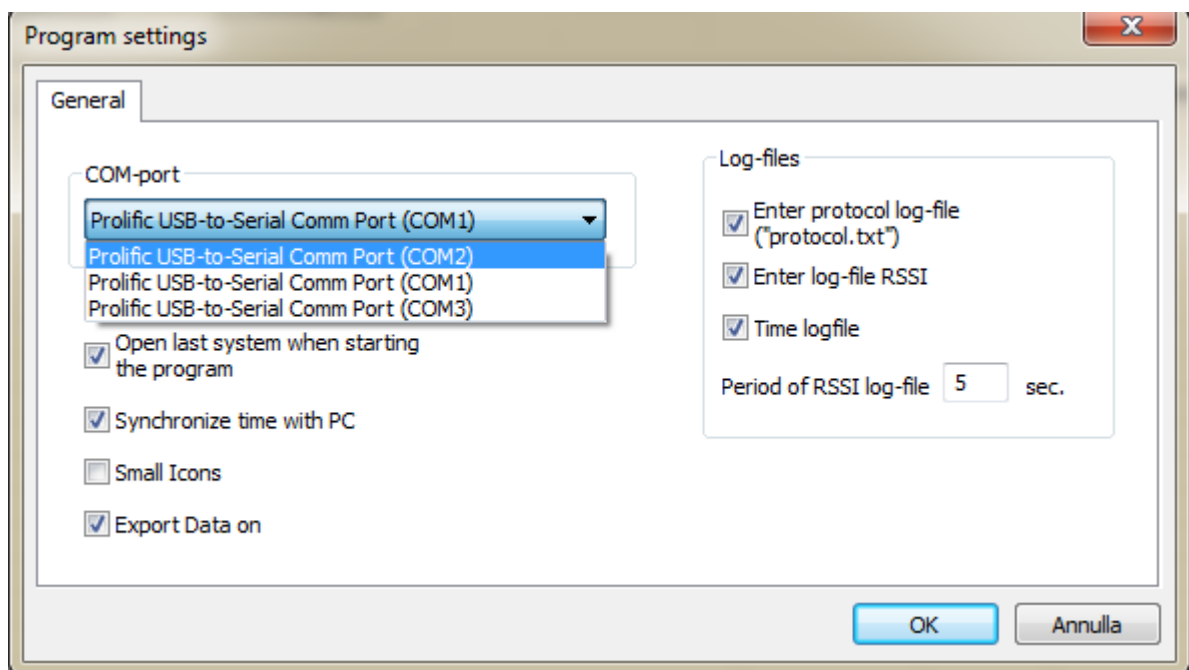
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3 SYSTEM SETTINGS

At the Main Menu page, select Options > Settings

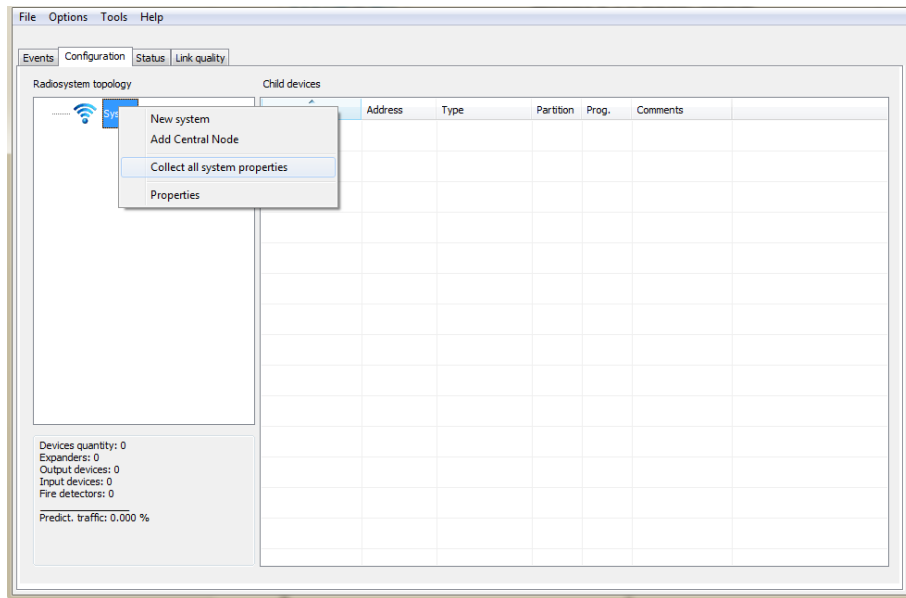


The Software properties window will appear.
Select COM port of the receiver.

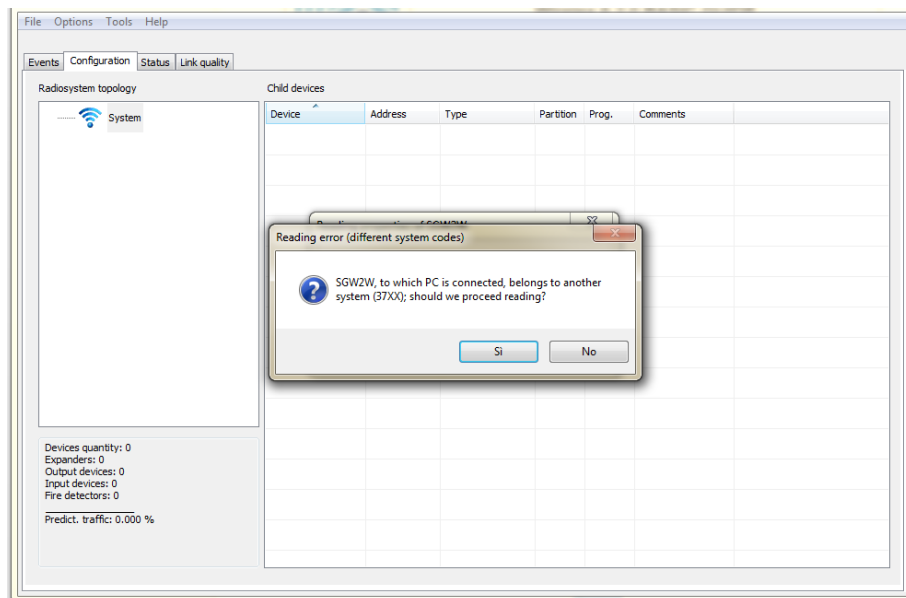


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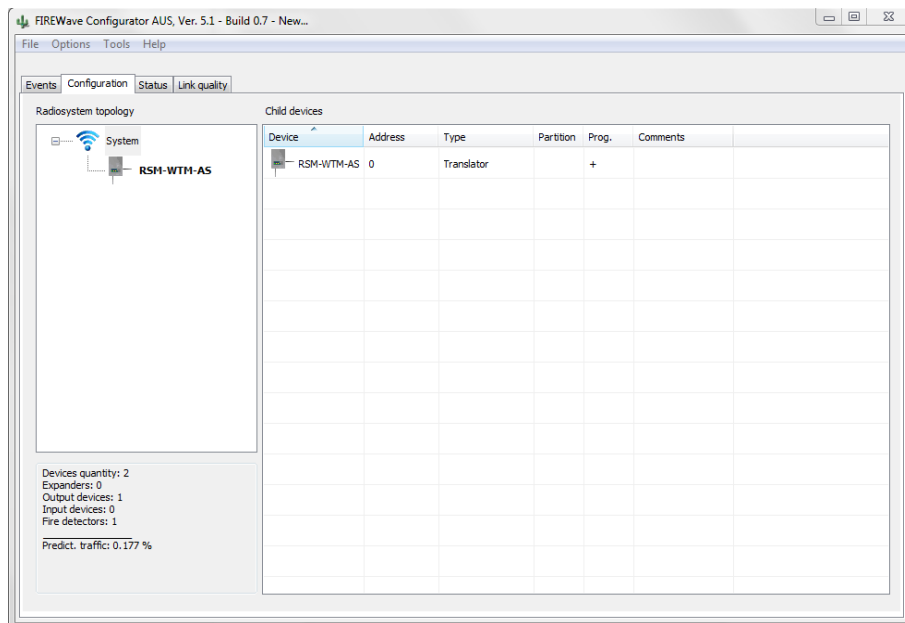
In the section headed “Configuration” right click on the “System” icon: a “pop-up” menu will appear; click on the “**Collect all system properties**” option.



Select yes.

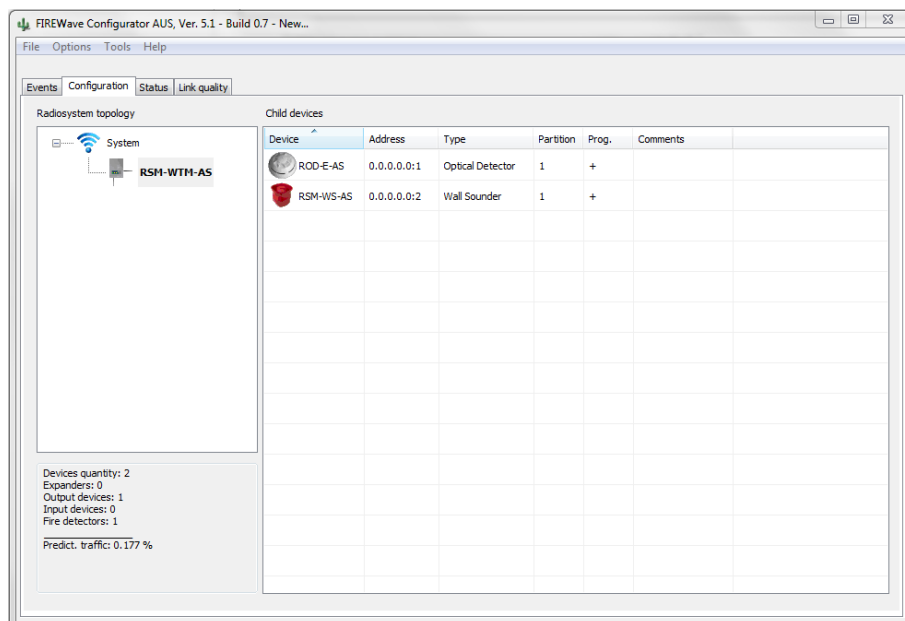


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Software will read and shows all system properties

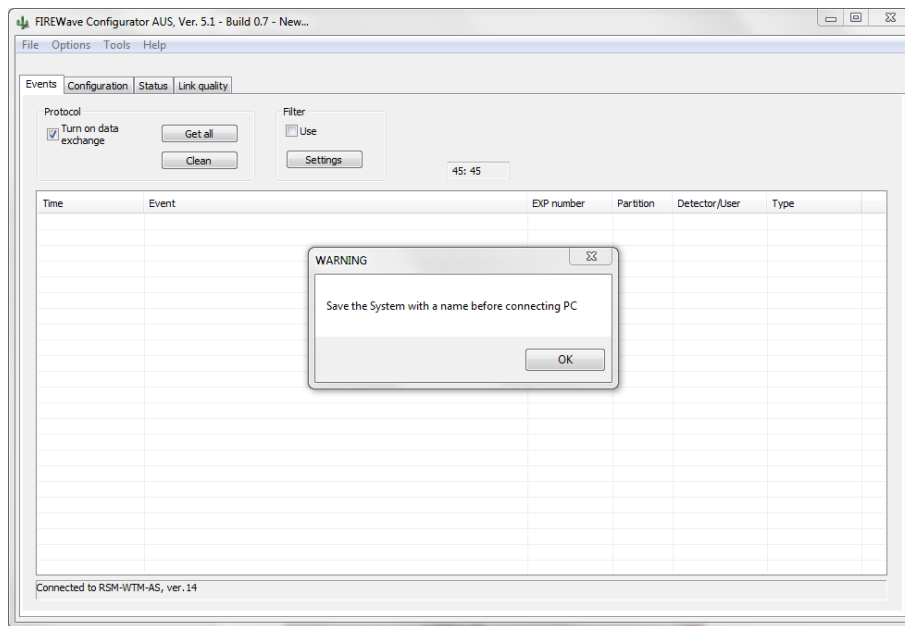
In this survey kit we only have 1 Optical Detector plus 1 Sounder configured.



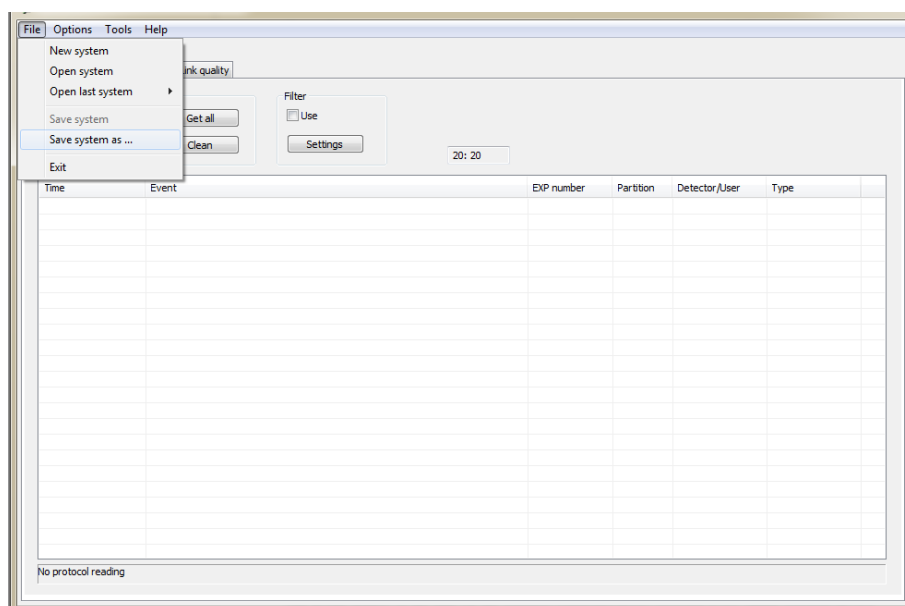
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4 EVENTS TAB

Select the Events tab and check the “Turn on data exchange”. This allows the computer to communicate with the Translator/Expander and provide the User with a history of system events.

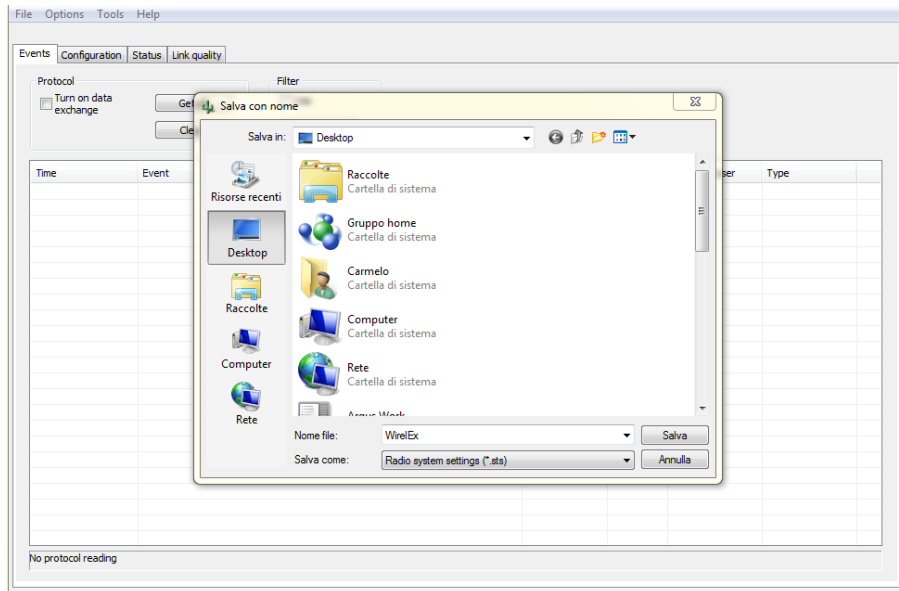


If you have not saved the configuration you will be prompted to save the configuration before you will be allowed turn on the data exchange (as shown above). To save the configuration Select the pulldown File menu and select “Save system as”.

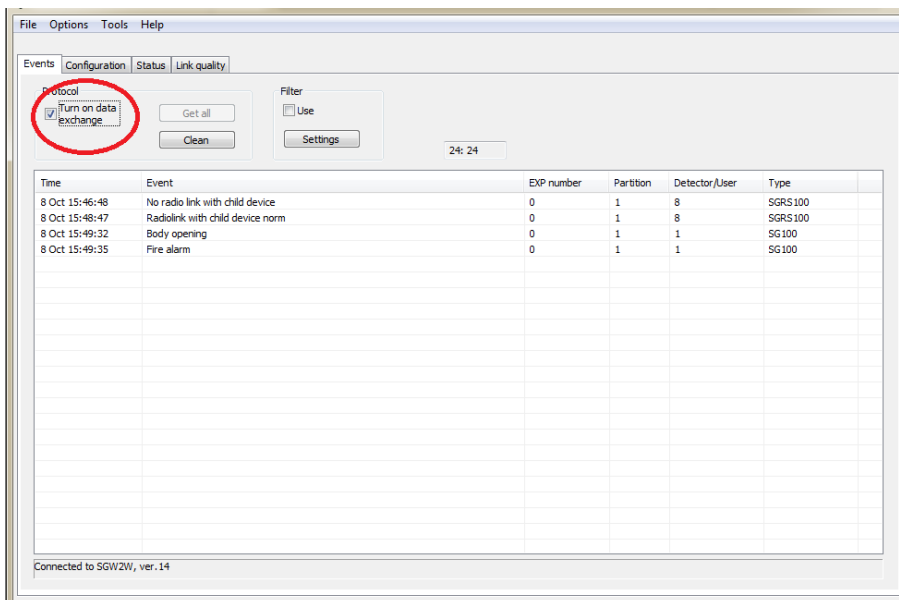


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Choose destination path where you wish to save the file and enter name number. A suggested format is “SiteName_Tx#_Date”. As an example “InciteOffice_Tx1_170316” which indicates that it is the Incite Office Translator 1 on the 17th of March 2016.



Now you can Select the Events tab and check the “Turn on data exchange”.



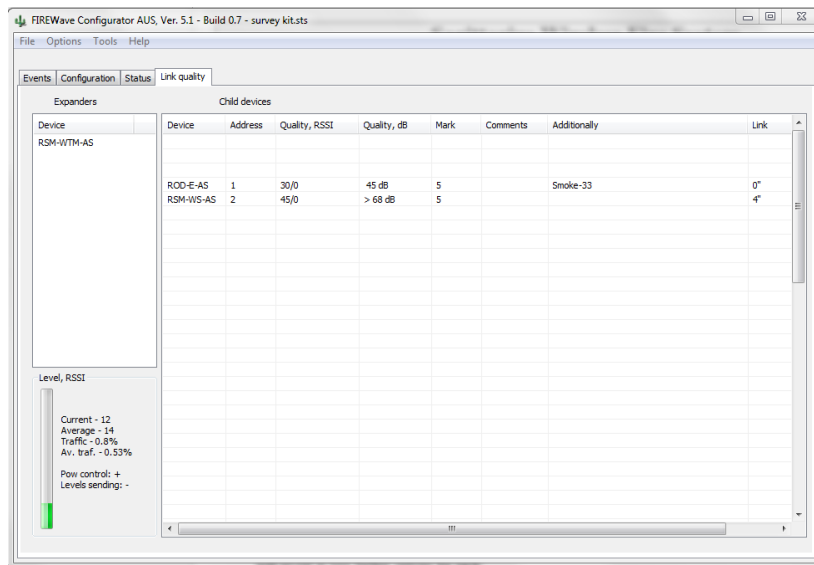
Now it is possible to control and manage the devices connected to that translator from your PC.

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5 LINK QUALITY TAB

The actual quality of the link (or the wireless communication strength) between every single wireless device and their corresponding translator or expander can be determined only when all devices are linked, and, preferably, deployed into their installation position in the fire protected site.

Select the “Link Quality” tab window.

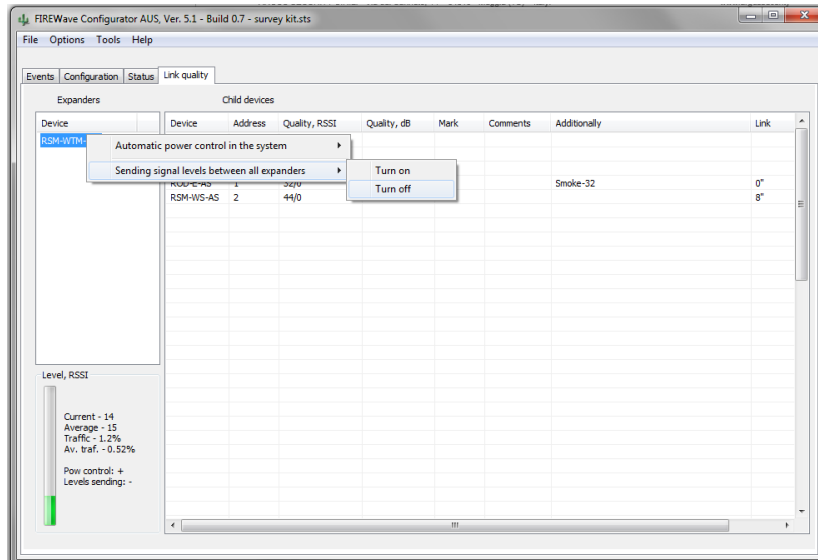


The Translator and the associated Expanders are displayed here. Highlighting the Expander you wish to investigate will display the associated Child devices in the right-hand area.

Right clicking the cursor over the highlighted Translator/Expander will give two further options that will reveal in turn further options for each:

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NOTE: TURN OFF the Automatic power control before start the SURVEY.



The “Automatic Power Control in the System” allows the engineer to turn on/off the automatic power attenuation facility (devices will run at full power attenuation) within the devices.

[illegible]

The first column “Device” simply indicates the device type and the “Address” column indicates the corresponding translator address in the wireless system. Each row indicates the current values for the specific device address.

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Please refer to the screenshot at the bottom of the previous page for the next 4 items. These item values will be update each time the 'Link' value goes back to a value of 0.

QUALITY, RSSI: this column indicates the link quality in RSSI (Radio Signal Strength Indicator) dB units obtained from the ratio between the signal strength level (in dB) and the noise strength level (still in dB).

This indicator has two values divided by a forward slash (/) symbol: the value at the left of it indicates the RSSI signal perceived by the primary receiver, while the value at the right of it indicates the RSSI signal perceived by the secondary receiver. You will always see a value of "0" in one side.

QUALITY, DB: this column indicates the level of the "signal's strength / noise" in dB.

MARK: With the term "Mark" is conventionally defined as a range, or band, of values (in dB or RSSI units), expressing the perceived quality of the wireless communication signal coming to the translator (or expander) from its child devices. The "Mark" is defined as a value of 1 to 5 which indicates

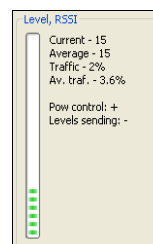
Mark level	Signal strength correspondence dB units	Signal strength correspondence RSSI units
Mark 1	Lesser than 0 dB	Lesser than 0 RSSI units
Mark 2	From 0 to 10 dB	From 0 to 6.8 RSSI units
Mark 3	From 10 to 20 dB	From 6.8 to 13.4 RSSI units
Mark 4	From 20 to 30 dB	From 13.4 to 20 RSSI units
Mark 5	More the 30 dB	More than 20 RSSI units

LINK: values of this column are expressed in Minutes and Seconds which represent the time elapsed from the last received communication from that specific device.

NOTE: The translator (or the expander) measures link quality receiving the communication from its child device and the data shown refers to the link quality of the last received child device's transmission.

By left clicking once on the rows of the "Child devices" window, it is possible to highlight the desired device.

On the lower left area of the "Link quality" window you can see a "Level, RSSI" box:



This data relates to the highlighted device in the

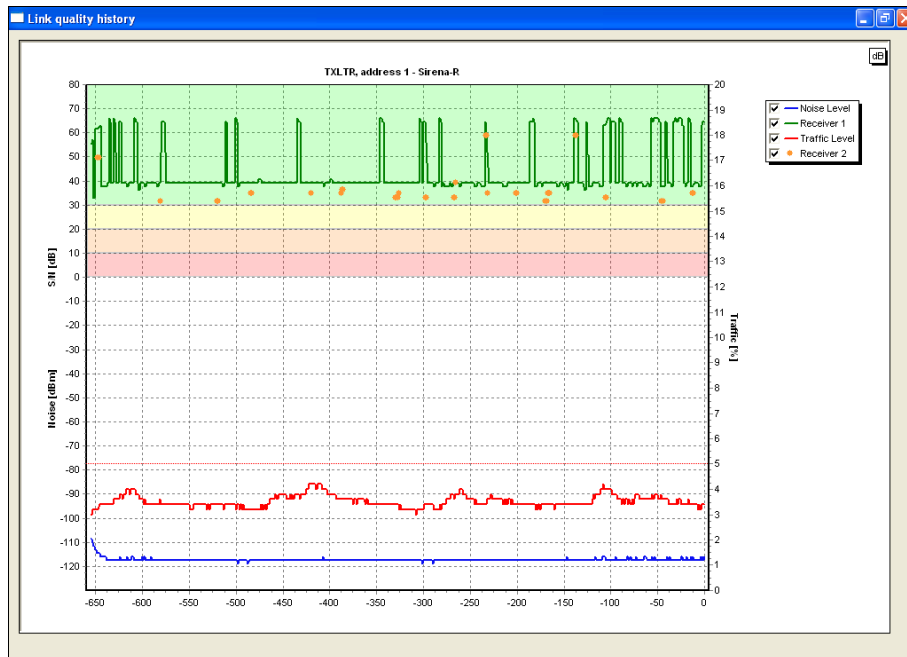
"Child devices" window.

"Child devices" window.

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As can be seen, a vertical progress bar visualizes dynamically the RSSI link quality of the signal from specific child device; the last received and average RSSI level data is also here numerically. The last perceived and average wireless channel traffic percentage is also numerically indicated.

By double-clicking on a single device's row on the "Child device" window, the following screen will pop-up:



In the screenshot shown above, the top centre area of the screen indicates the translator address of the communicating child device the graph represents. In this case it is the "TXLTR" (translator) address 1 (not the loop address) and its device type (sounder).

The Cartesian coordinate plane can display readings from the following screenshot. If a specific option is not required then you remove the tick from the appropriate box adjacent to the text.



This selection box is positioned in the upper right area of the screen.

Graduated scales are positioned on the three sides of the coordinates plane:

Traffic [%]: this scale is used to determine the wireless channel traffic in percentage units. The scale is positioned on the right side of the coordinates plane.

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Noise [dBm]: this scale is used to determine the radio noise present in the environment of the translator (or expander); the unit used is dBm. This scale is positioned on the left side of the plane.

S/N [dB]: Signal/Noise: this scale is used to determine the ratio between the signal strength level (in dB) and the noise level (in dB). It is expressed in dB and is positioned on the left side of the plane.

NOTE: “Noise” and “S/N” scales are geometrically congruent (matching).

A fourth scale, located on the bottom of the plane is used to determine the time (in terms of received child device’s transmissions) when a certain graphic is represented. Starting its progression from 0 representing the present moment and counting up to the left indicating the historic value for that address for that specific time. We will refer to this scale as the “Time” scale.

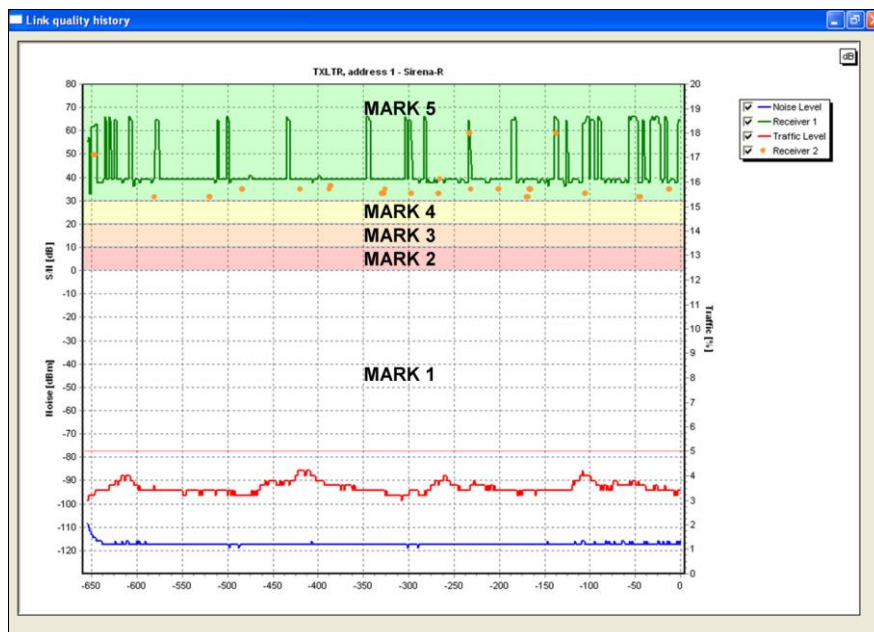
Let’s see in detail the graphics:

Traffic level: this graphic indicates the temporal progression of the perceived wireless channel traffic percentage; it relates the “Time” scale to the “Traffic” scale.

NOTE: that a thin horizontal red line (corresponding to 5 % wireless channel traffic) is drawn across the plane: it is suggested that the “Traffic level” should not exceed this line, for communication efficiency and child device’s battery consumption reasons.

Noise level: this graphic indicates the temporal progression of environmental wireless noise; it relates the “Time” scale to the “Noise” scale.

Receiver 1: this graphic visualizes the temporal progression of the child device’s signal/noise dB strength level as perceived by the primary receiver; it relates the “Time” scale to the “S/N” scale. About this graphic, the Cartesian plane can be divided in five zones, one for each “mark” level, as follows:

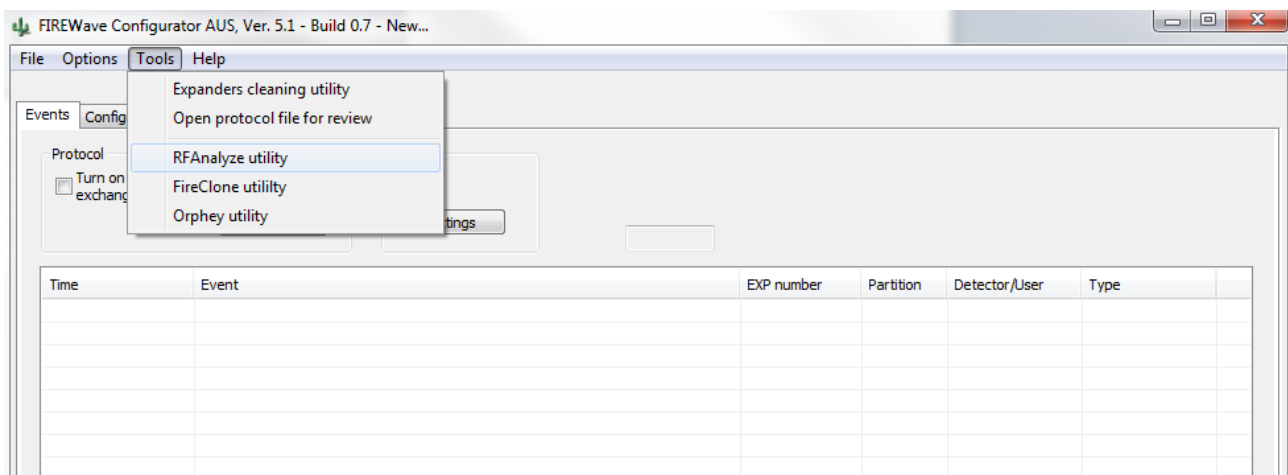


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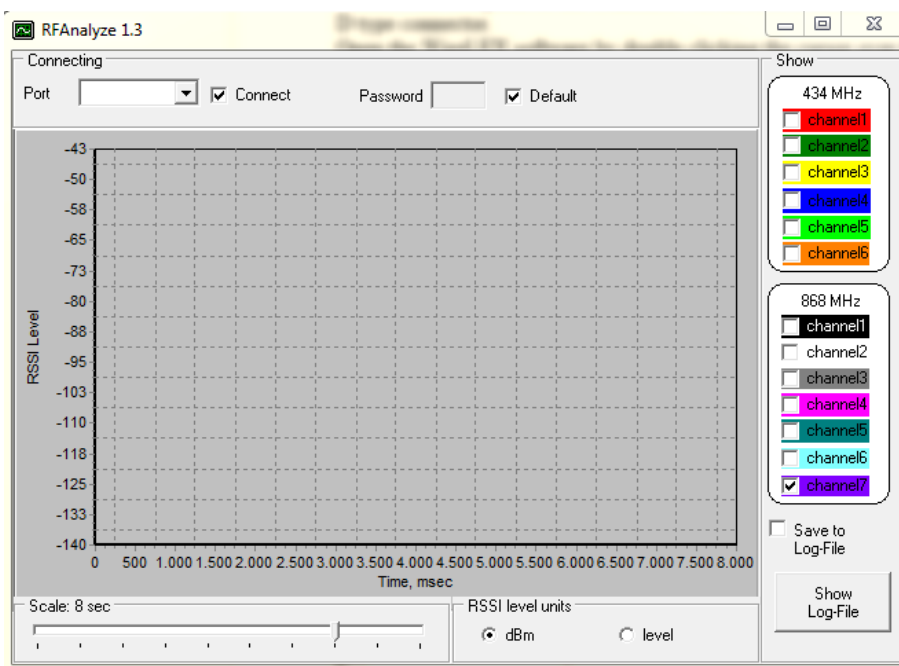
6 LOOKING UP FOR FREE OR RELATIVELY FREE CHANNELS

Since the wireless system is going to use a radio channel, the installer must look for a channel that is not used by other systems, or, if used, is not too congested. To analyse for frequency congestion we utilise the RF-Analyze program built into the FireWave suite.

Run the Wirelex program, left-click, with the mouse, the tools menu, a drop-down menu will appear, then left-click the item “RFAnalyze utility” as illustrated in the following screen-shot:

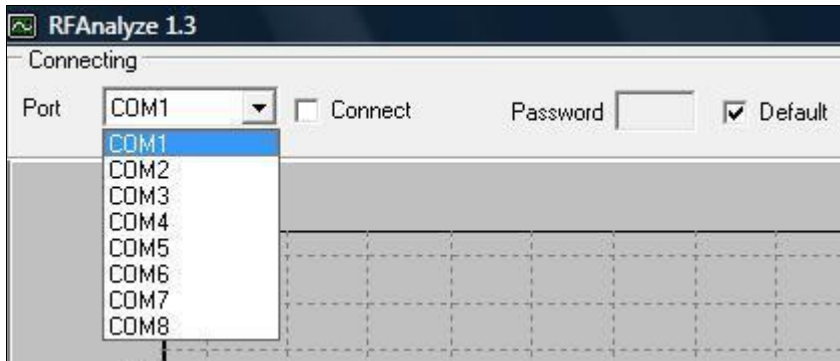


The RF-Analyze program will appear as following:



On the upper left side of the window select correct COM port

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The “Password” box is only used if the translator or expander is protected by password, but generally is not used; just leave the “Default” option checked: this means that there is no need for the password to be entered.

On the upper right side of the window you can select which channel is to be shown on the window:

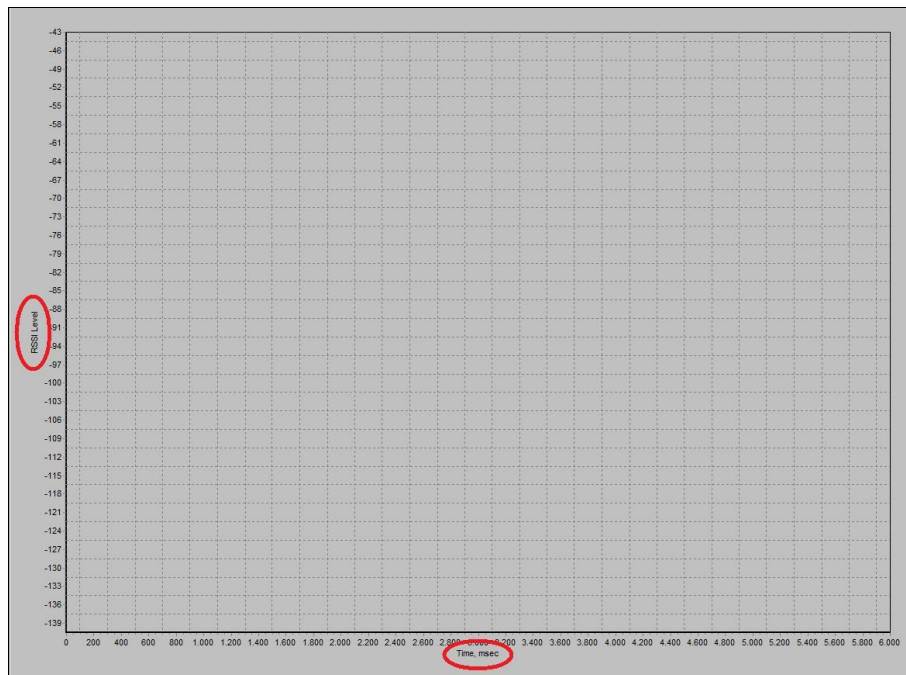


As can be seen, there is a distinction between 868/916 MHz channels and 434 MHz channels. This depends purely on the device’s hardware you will be installing. For FireWave installations select 868MHz which will enable the 916 MHz frequency utilised. One or more channels can be selected for visualization and analysis by checking or un-checking the box at the left of the channel’s identification number.

In the screenshot to the left at the bottom there is a selectable option for saving the wireless data to a log file on your computer system ‘Save to Log-File’ and another option for show on the screen a previously saved log file ‘Show Log-File’.

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The following picture illustrates the central section of the RF-Analyze program where data concerning one or more channels is visualized in the form of graph; this graph visualizes the strength level (or RSSI – Radio Signal Strength Indicator) of radio signals on one or more channels in relation to a certain moment in time which is expressed in milliseconds (a millisecond is a thousandth of a second):

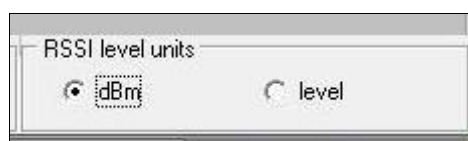


As can be seen in the lower left section of the screen, you can change the time scale of the graphic representing area by using the following selection slide cursor:



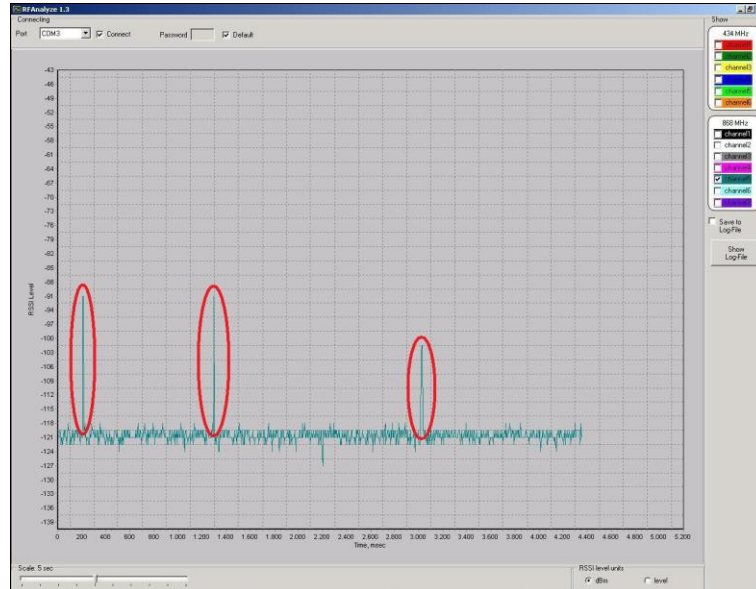
As an example; a scale of 6 seconds is selected, the whole longitudinal length of the graph area represents a time section of 6 seconds. Hold the left mouse button and slide to change to your desired time scale.

A last user selectable option permits you to specify whether you want to measure the RSSI level in dBm units or "level" units that span from 0 to 65:



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In the following picture is illustrated the RFAalyze during operation:



The green graph represents the interference and noise level presence in the selected channel; the lower is this level, the more freer is the channel. The spikes, that are evidenced by the red circles, are the single wireless communications made in the analyzed channel; the measure in height of them indicates, obviously, their strength, that can be influenced by distance and obstacles in the environment; but signal's strength is not the point: what we need to know now is if the channel can be used; in this case is yes, because the channel is not free, but relatively free, since there are just a few communications on it and the interference and noise level is quite low.

Following is illustrated a channel that cannot be used:

As you can see there is a high occurrence of wireless communications, even if they are weak; this channel is almost saturated

