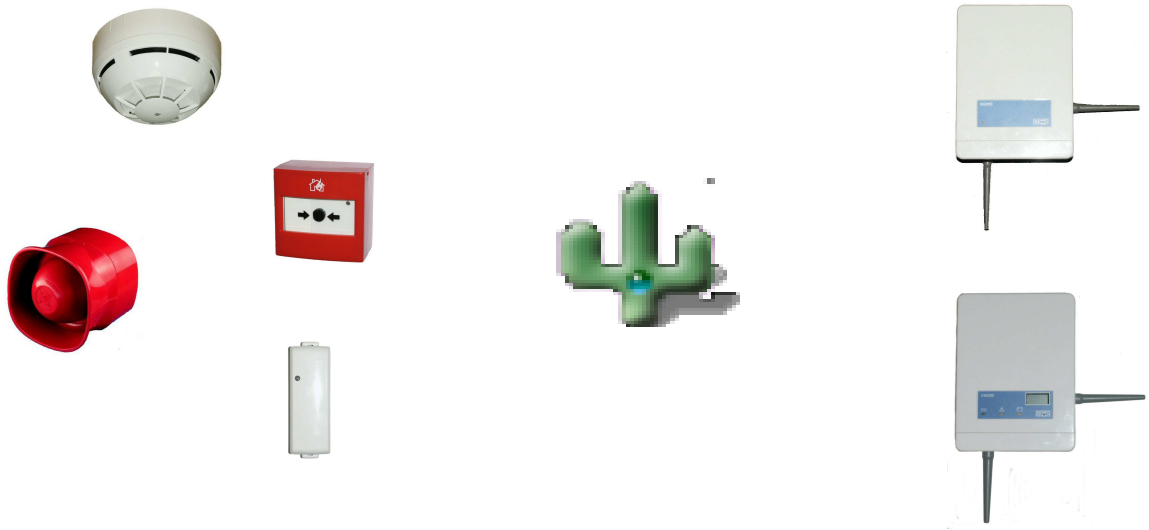
Wireless Fire System



WireLEX PC Configuration Tool

CONTENTS

INTRODUCTION

The FDW2W (Wire to Wireless) device (TRANSLATOR MODULE) enables an existing Wireless InterActive fire detection system to be extended with minimum disruption for the end user. All field device programming can be undertaken prior to integration on to the existing system, thus minimising system down time. It is recommended that a comprehensive site survey be undertaken prior to starting any work to help determine optimum siting arrangements.

System coverage can be increased by the using EXPANDER MODULES which act as signal boosters to extend range. These modules must be locally powered from suitable standard compliant 12-24VDC Power Supply Units. Note that it is also possible for additional devices to be directly associated with these EXPANDER modules, creating sub-cells that communicate with the panel via the loop TRANSLATOR.

The TRANSLATOR is wired directly to, and powered by, a chosen fire detection loop with all associated Wireless devices then connected via a secure wireless network.

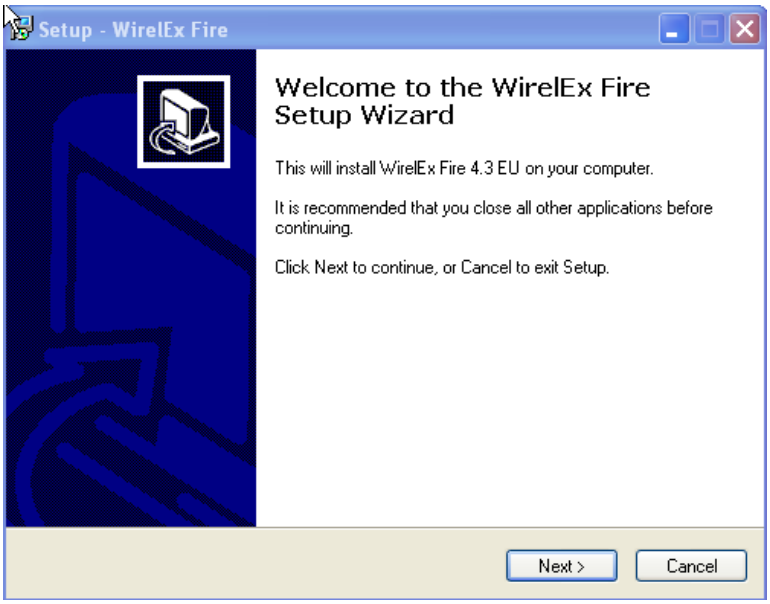
This guide details how to program a TRANSLATOR with or without extension EXPANDER Modules and associated field (child) devices prior to connecting them to the hard wired Fire Detection Control Interface Equipment (Panel) loop. If only a small number of wireless devices are to be linked to a Translator it may be easy to use the local programming facilities of the Translator without the need for a PC on site (refer to the FDW2W Translator Instruction Manual for more details). With a larger number of wireless devices, and certainly if Expander Modules are involved, then the WireLEX software should be used, and it is recommended that modules and devices be pre-programmed to aid efficient operations on site.

The guide also details some of the auxiliary processes available to assist the engineer diagnose potential causes and solutions for problems directly related to the wireless equipment.

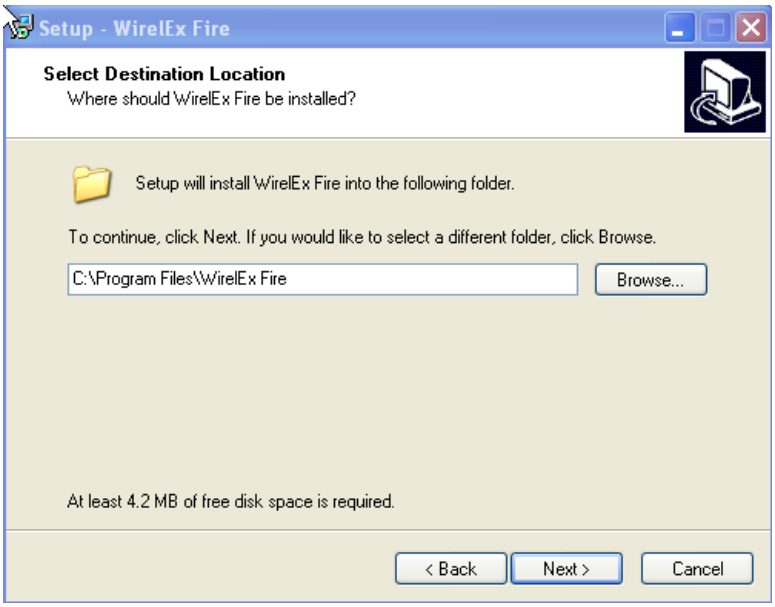
The Commissioning/Installation Engineer must ensure they have the WireLEX software installed on a portable computer prior to commencing this procedure, together with having a suitable serial interconnect cable.

LOADING SOFTWARE

The WireLEX software is supplied to approved customers on a dedicated CD-ROM.
Insert the CD-ROM in to the laptop CD drive. The programme should “autostart”, however otherwise simply navigate to the “WSetupEngxxx.exe” and double click on the application. The following window will appear:

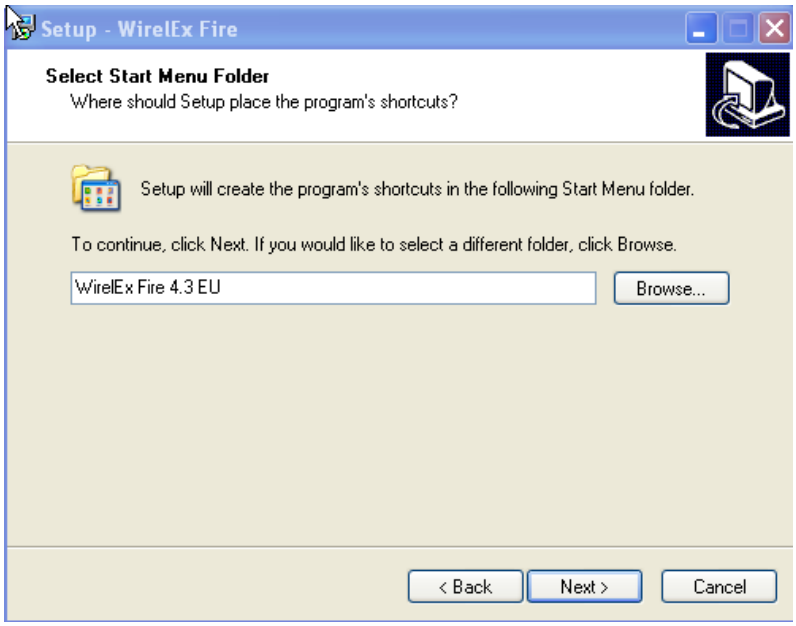


Click on “Next” to move to the next stage of the Installation Wizard for the WireLEX Configuration software. The following window will appear:



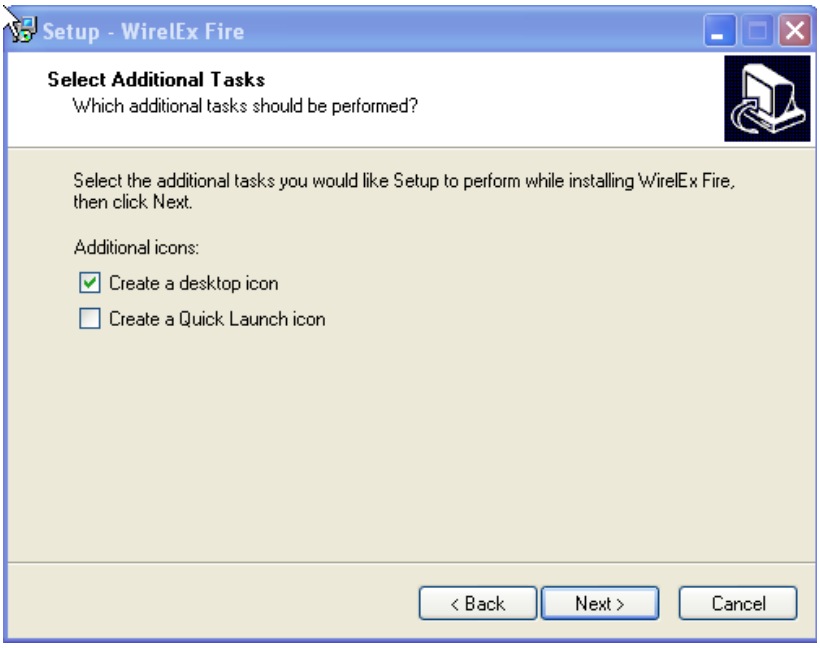
Install the software in the selected default folder on the computer or modify if required by selecting “Browse”. Once you are satisfied that the destination folder is correct, select “Next”.

The following window will appear:

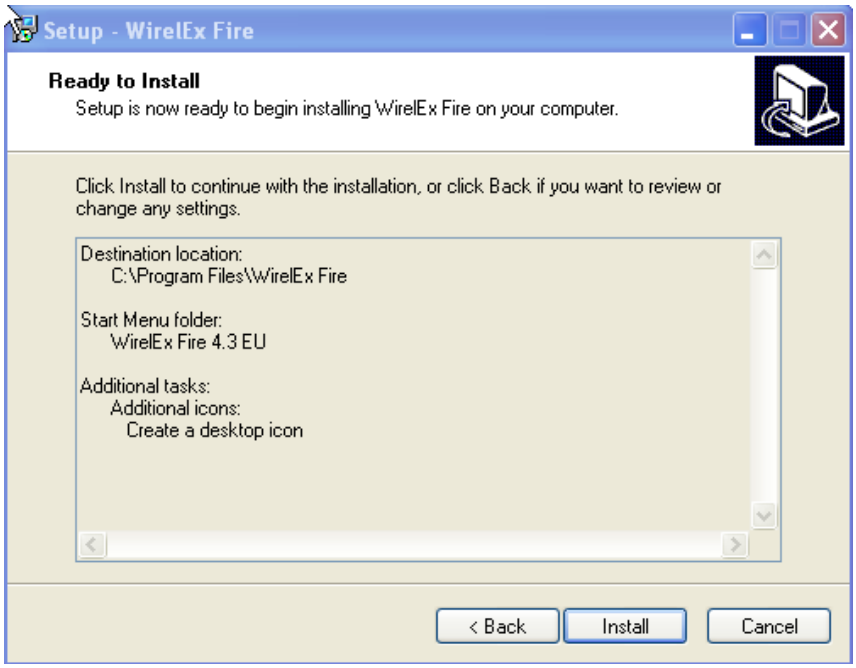


This will add a line for the programme in the Start Listings so that the application can be selected from Main Shortcuts.
Change the folder name if required.
If the folder name is correct, select “Next”

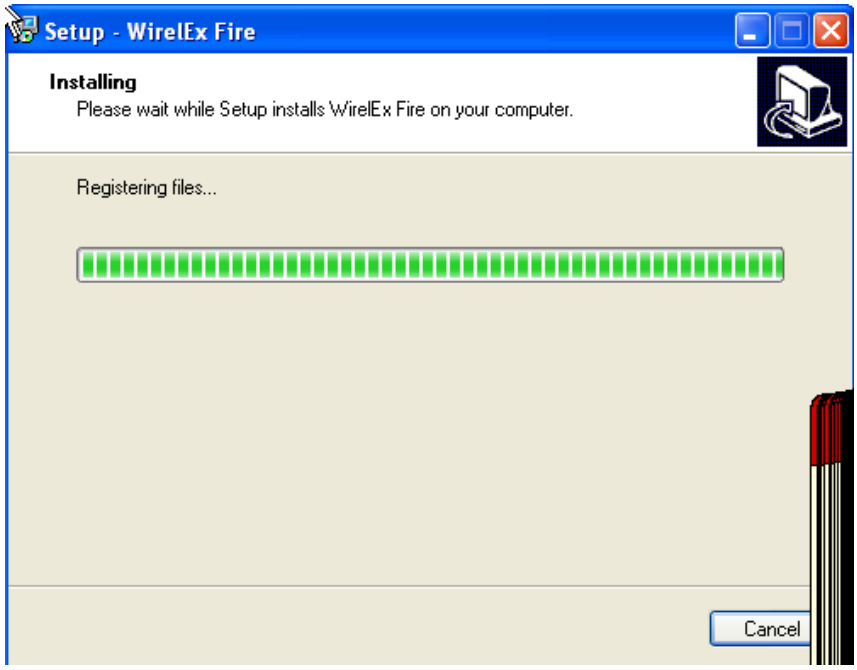
The following Window will appear:



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”. The following Window will appear:



This Window provides a summary of the information just entered by the user. Select “Install” to start the installation process and display the following Window:



After completion of the application installation, remove the CD-ROM from the CD drive and store in a safe place.

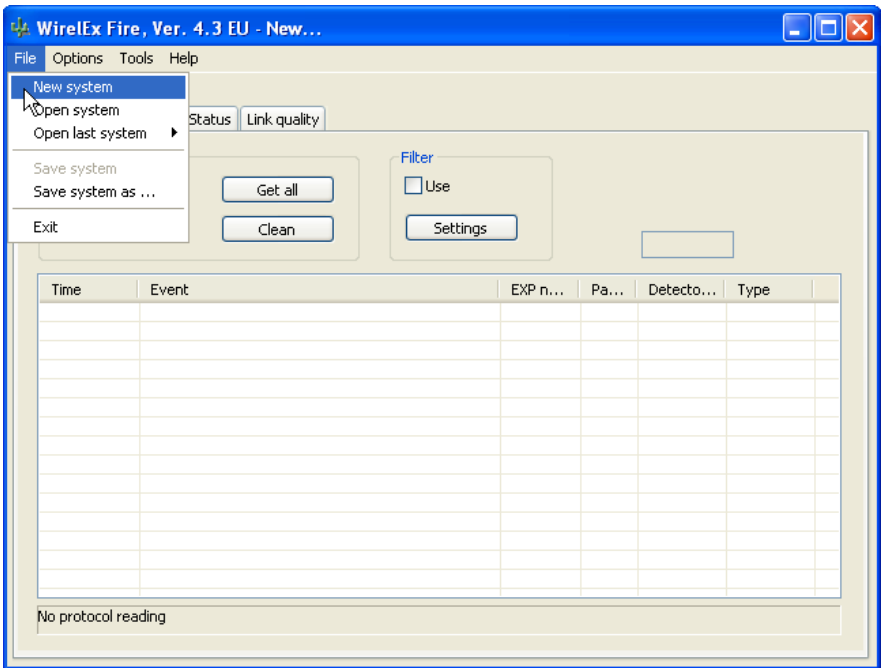
Follow the procedure on the following pages regarding the correct use of the software.

TO START

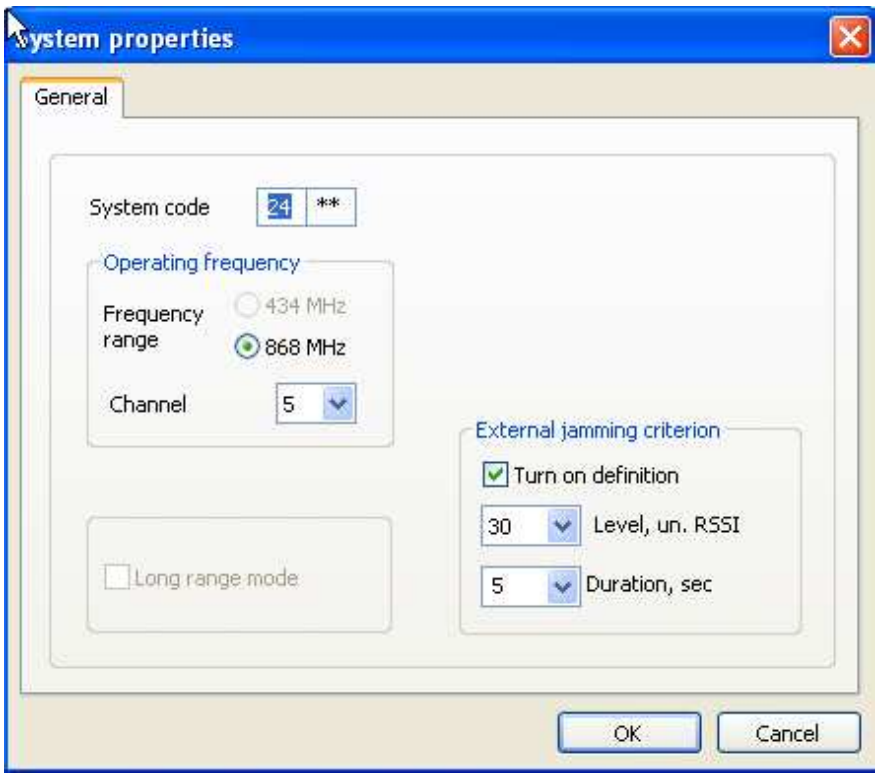
Connect the computer to the Translator via an RS232 Serial Cable fitted with a standard 9 pin male D type connector.

Open the WireLEX software by double clicking the cursor over the WireLEX icon located on the computer desktop.

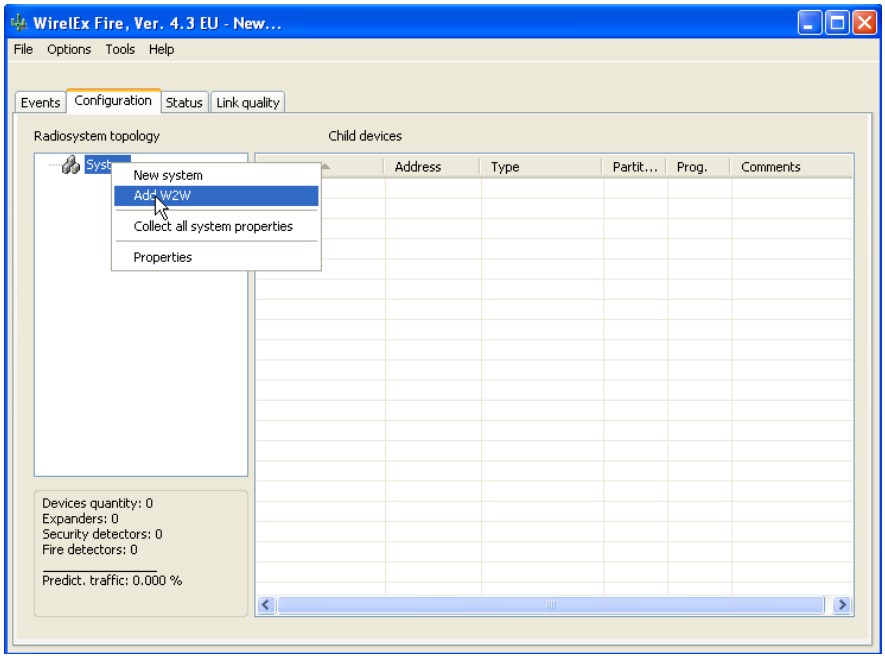
At the Main Menu page, select ***File*** and ***New System.***



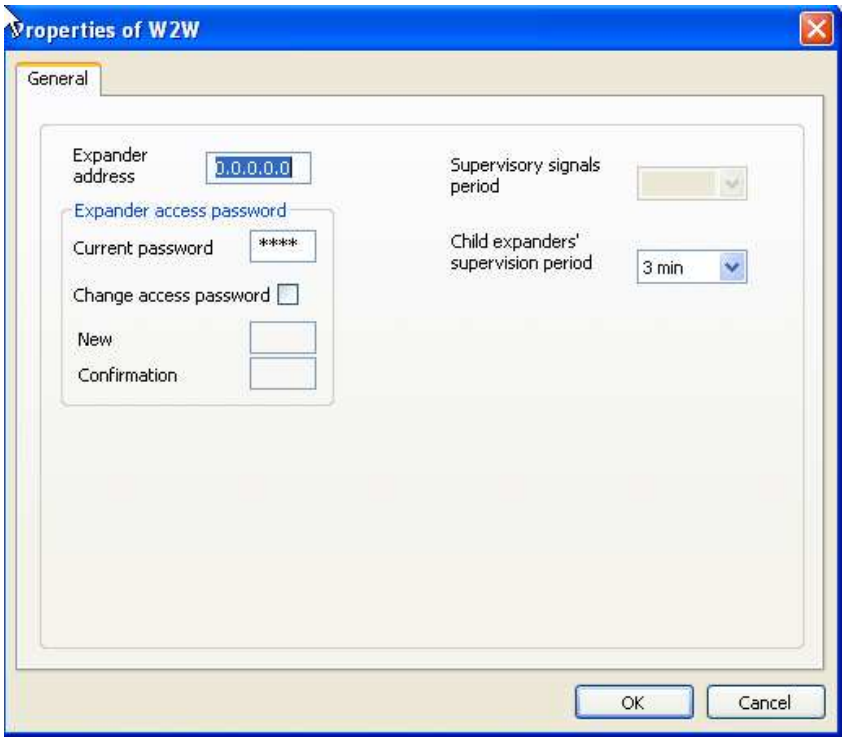
The System properties window will appear. If required, change the System code and the RF Channel shown and press ***OK.*** (There is normally no requirement to change the System code)



At the Main Menu page, select the ***Configuration*** tab. Right click the mouse over the System icon located in the "Radiosystem topology" area. Select ***"Add VW2W"*** from the drop down list.

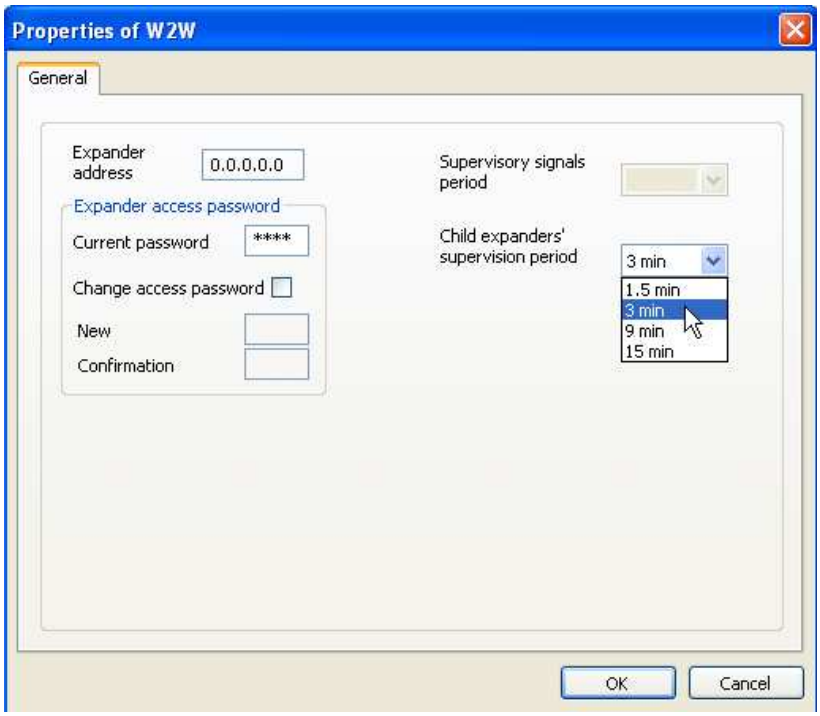


A window will appear with FDW2W properties detailed.



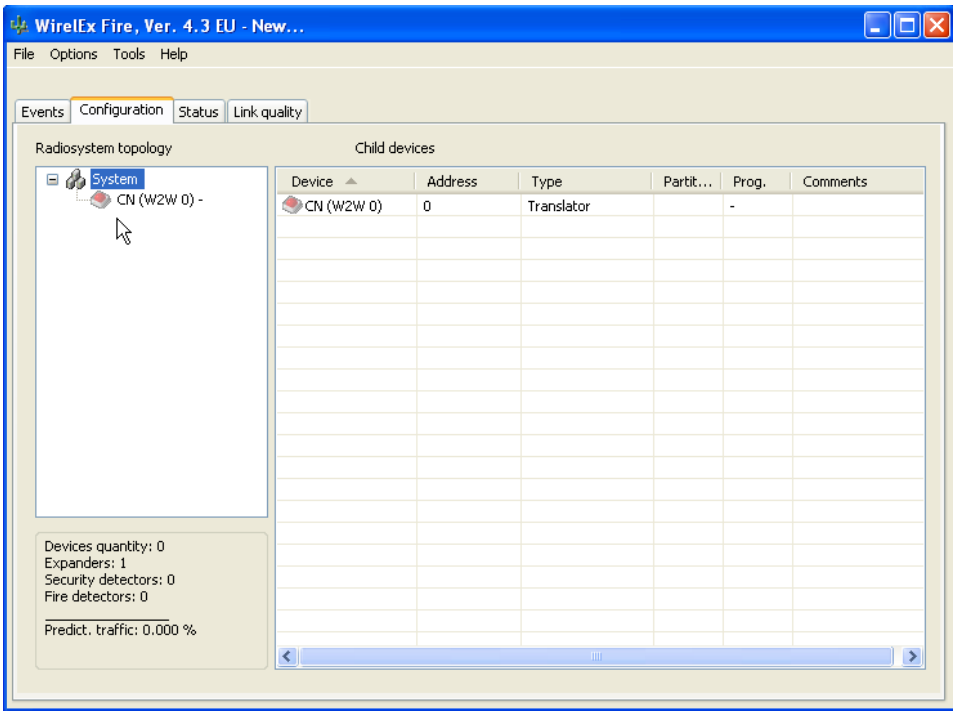
It is possible to change the access password (this is only used with the PU-R Wireless Keypad so is not normally changed). The only other parameter that can be changed is the "***Child Expanders' Supervision Period"***.

This value is changed by placing the cursor over the arrow: a single left click will reveal the drop-down options available. Select an alternate time period if required and the window will close.

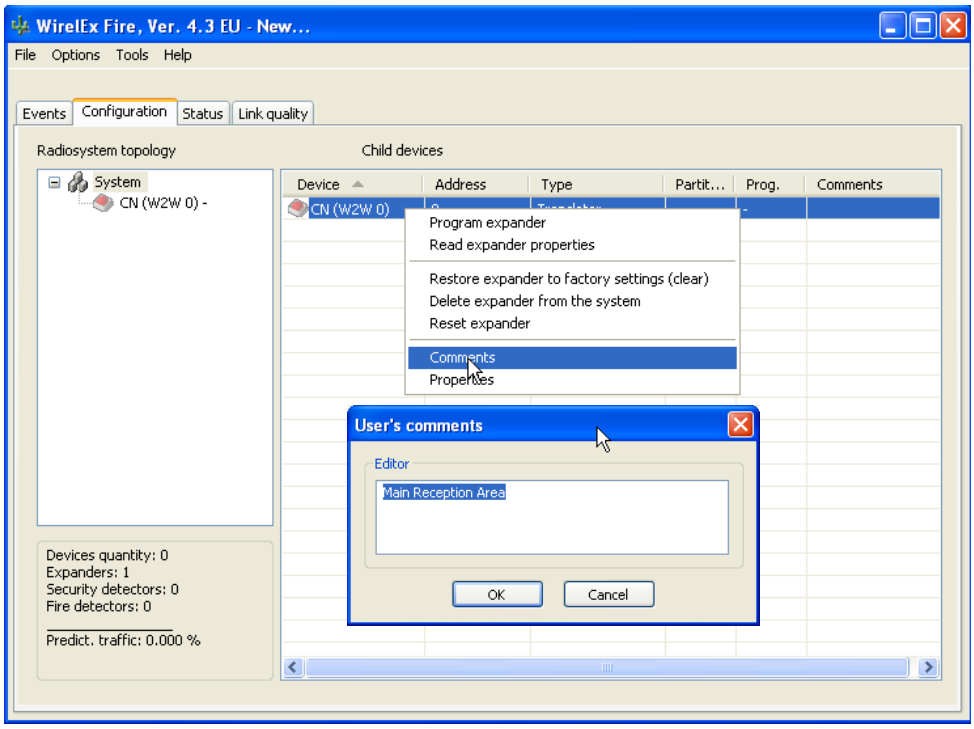


Once all parameters are acceptable, press "***OK"*** to confirm the Translator values.

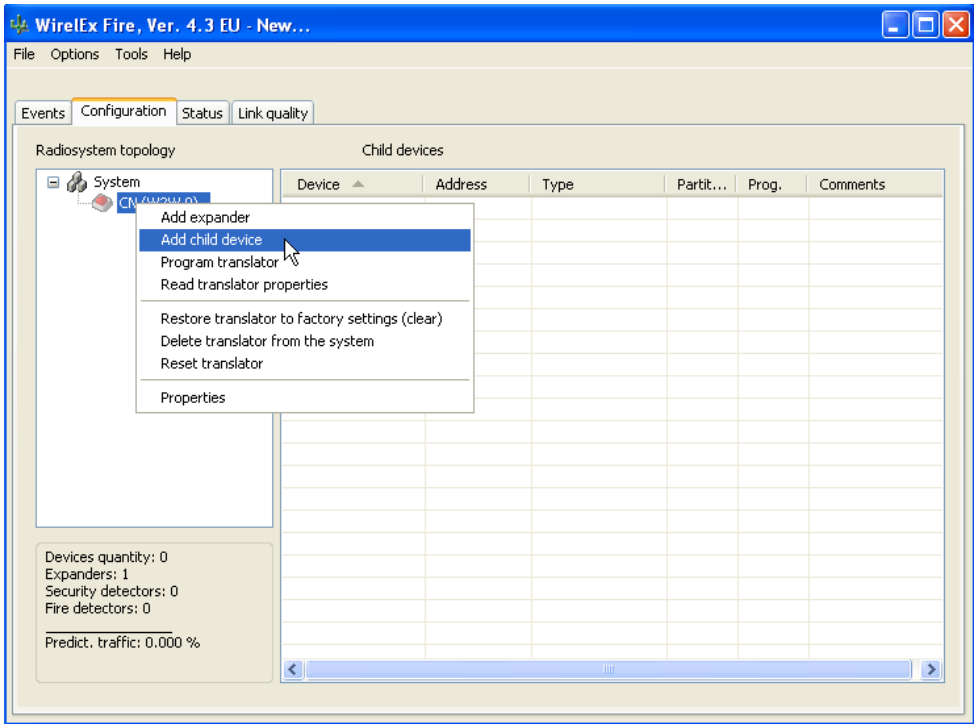
A new Translator has now been added to the System configuration and the related icon appears in the "Radiosystem topology" tree. The associated window has been updated to reflect the addition of the Translator.



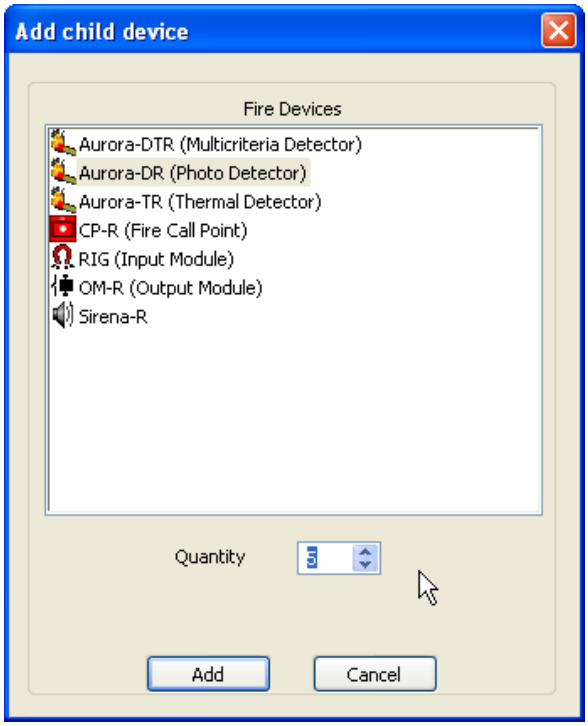
To add comments - device location, etc., right click the mouse in the menu box and select ***Comments*** - up to 31 alphanumeric characters can now be entered. Press ***OK*** on completion to return to the Main Menu.



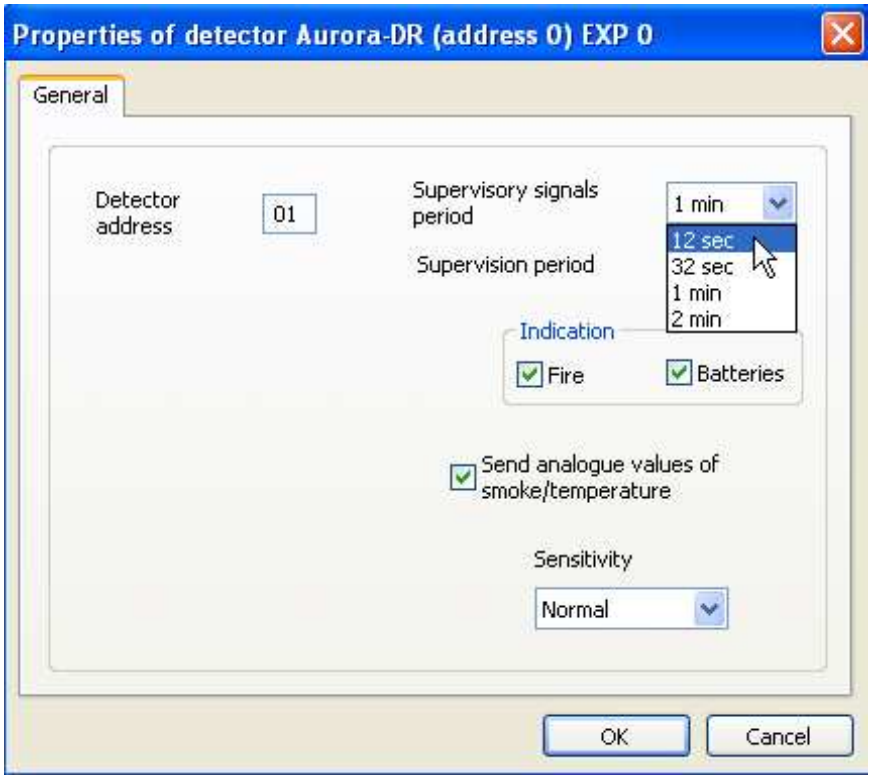
To add a device to the Translator, right click the mouse over the Translator's icon and select ***"Add child device"***



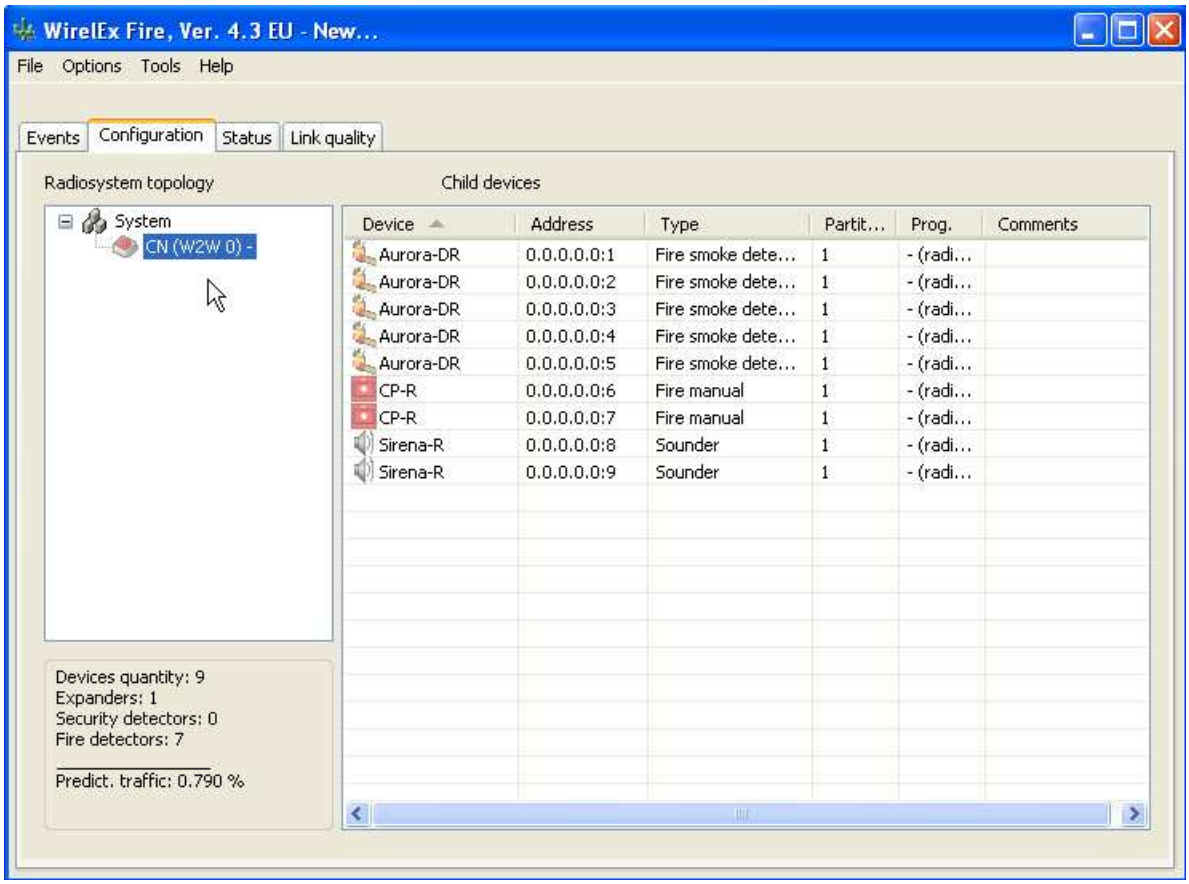
A window with the list of selectable child devices now appears. Select the device and quantity required and press ***Add*** on completion.



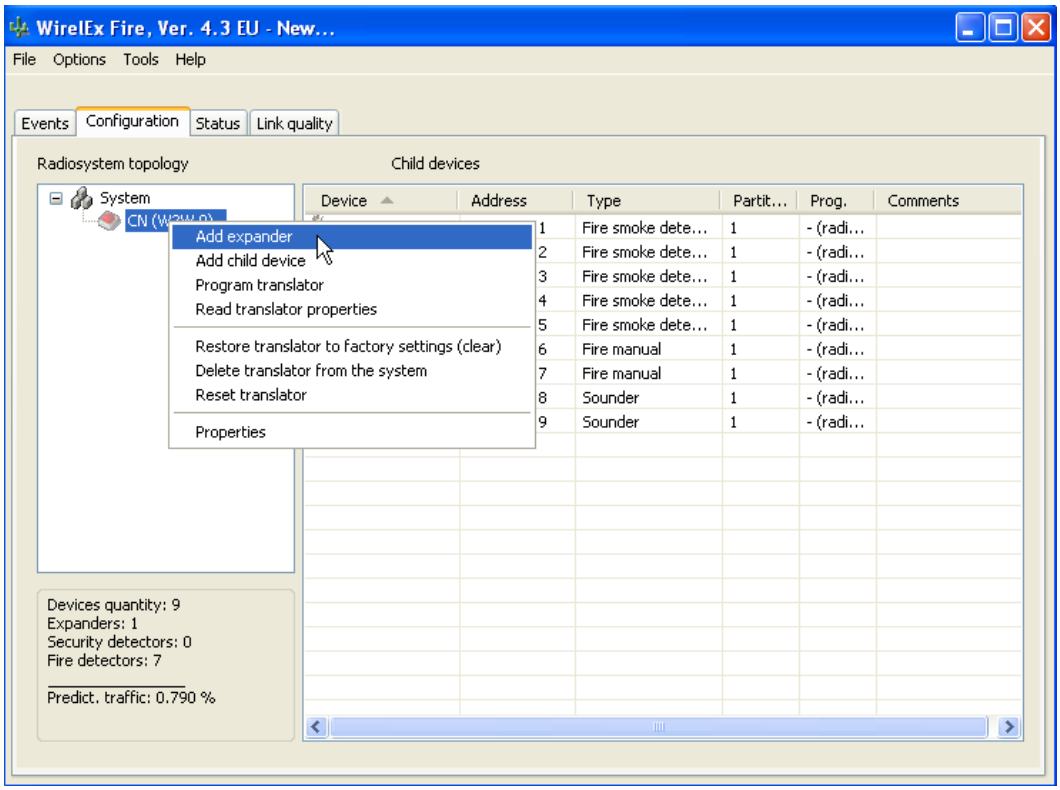
A window will appear allowing the engineer to amend the device operating parameters. **Note:** The Supervisory Signal Period may be adjusted down to 12 seconds if necessary to assist during commissioning but generally it is acceptable to leave at 1 min to avoid overloading channel traffic. Left click on the down arrow and select the appropriate time option. If the device quantity is >1, only the first device address will appear in the parameter window but all devices of the type selected will have the same operational parameters.



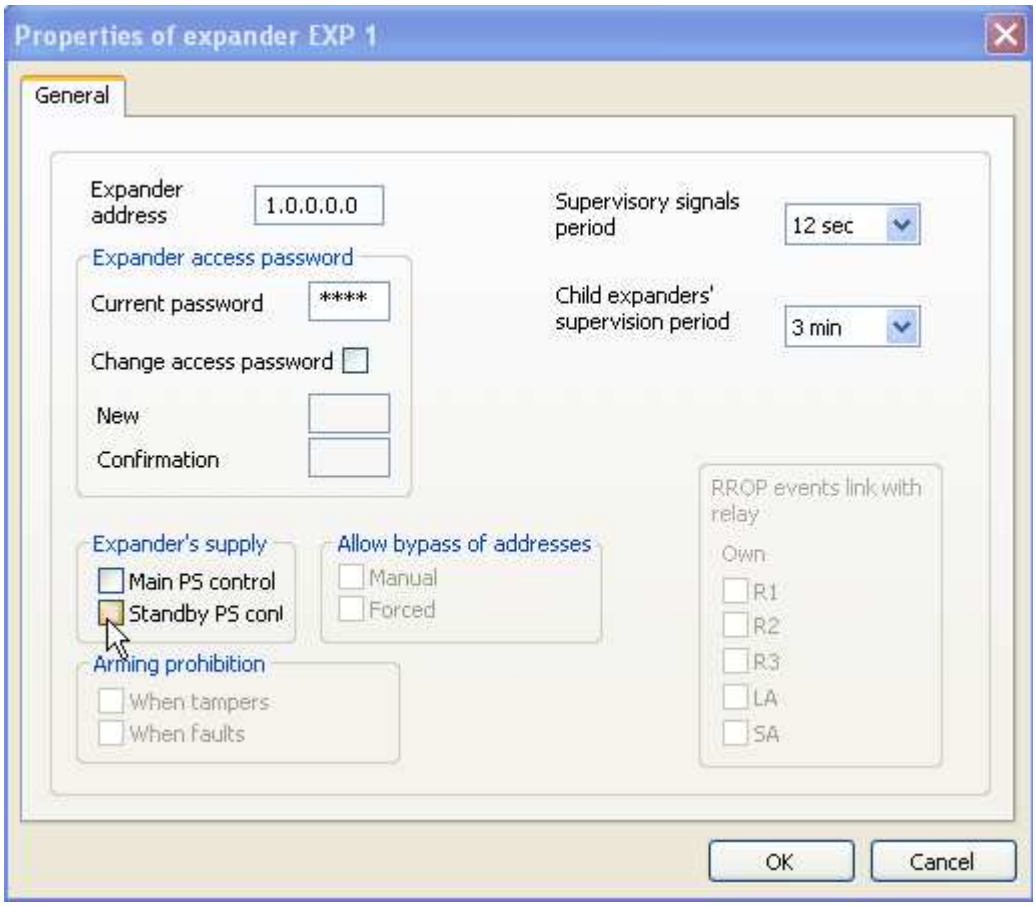
On completion the Radio system topology chart will be updated to reflect the number of child devices added.



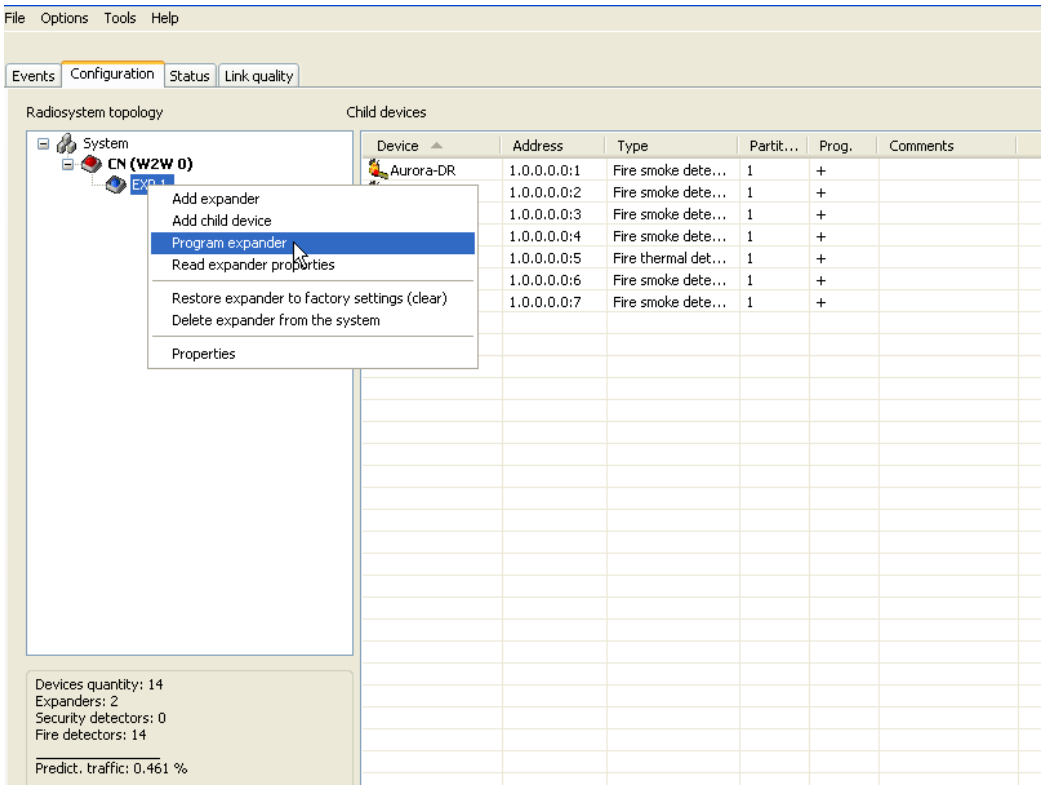
To add an Expander module, right click the Translator icon and select the ***Add Expander*** option and confirm the parameters before selecting OK.

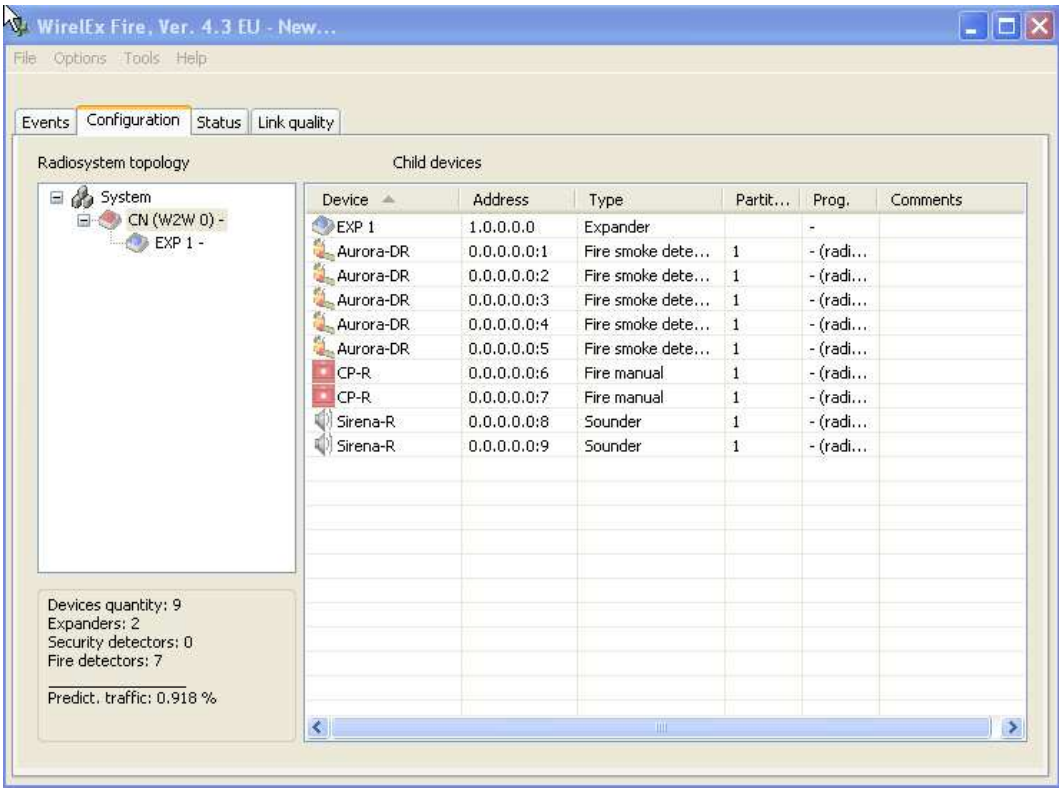


Right click on the Expander that has been added and select “Properties”.
Under the General tab displayed go to “Expander’s Supply” and ensure that the two tick boxes are deselected to disable external power supply monitoring. The facility may be enabled later if PSU functionality allows and the appropriate connection schematic implemented. In most cases it is recommended to use a monitor module to signal PSU fault conditions.



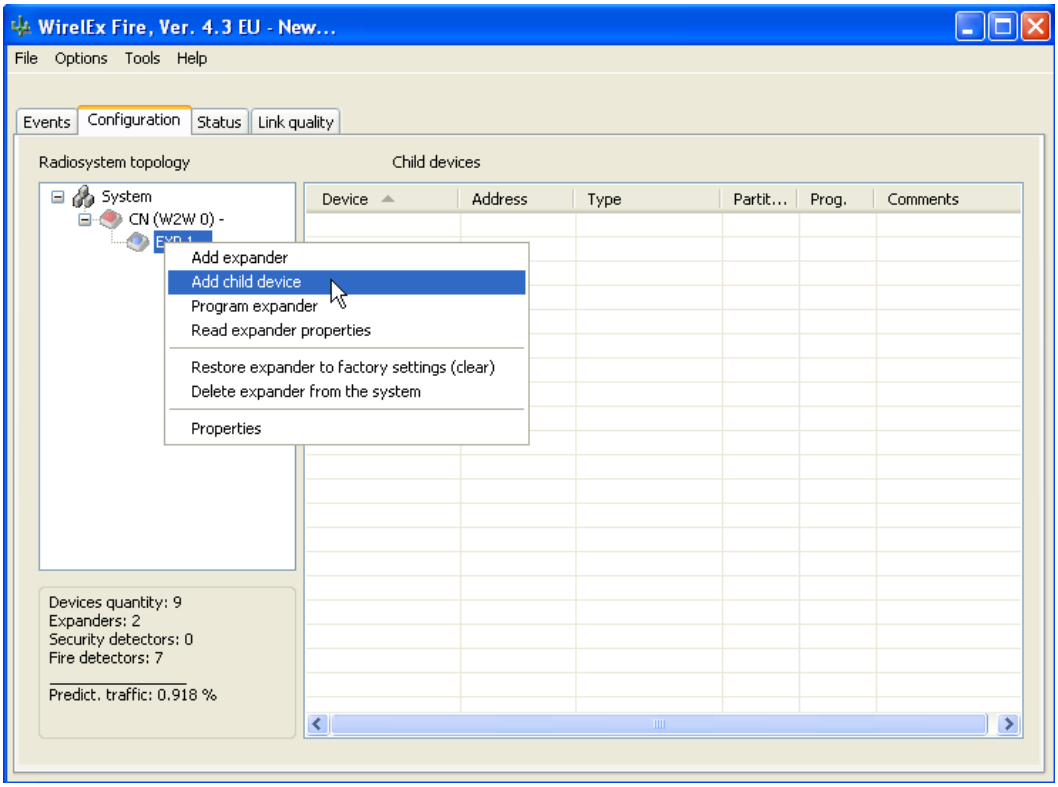
When the properties have been checked and accepted return to the Configuration tab, right click on the Expander again and select “Program Expander”. Programming will commence and confirm when completed.

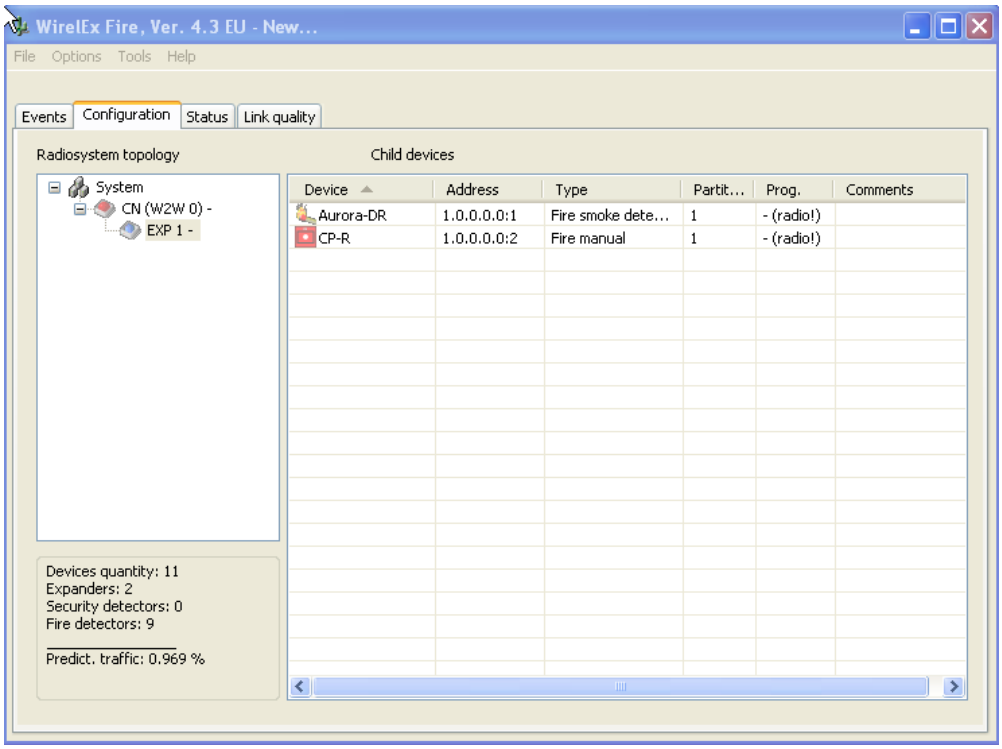




To add devices on to the new Expander Module, follow the same procedure as for the Translator Module, ensuring the child device parameters are the same as for the Translator Module.

Once initial programming of the Translator and any associated Expanders has been undertaken it may be more convenient to add and programme all devices first to the lowest level Expander, then the next level Expander and finally the Translator, at which stage final programming of the Translator prior to the “Load” operation can be undertaken. This can be termed a “Bottom Up” programming strategy.

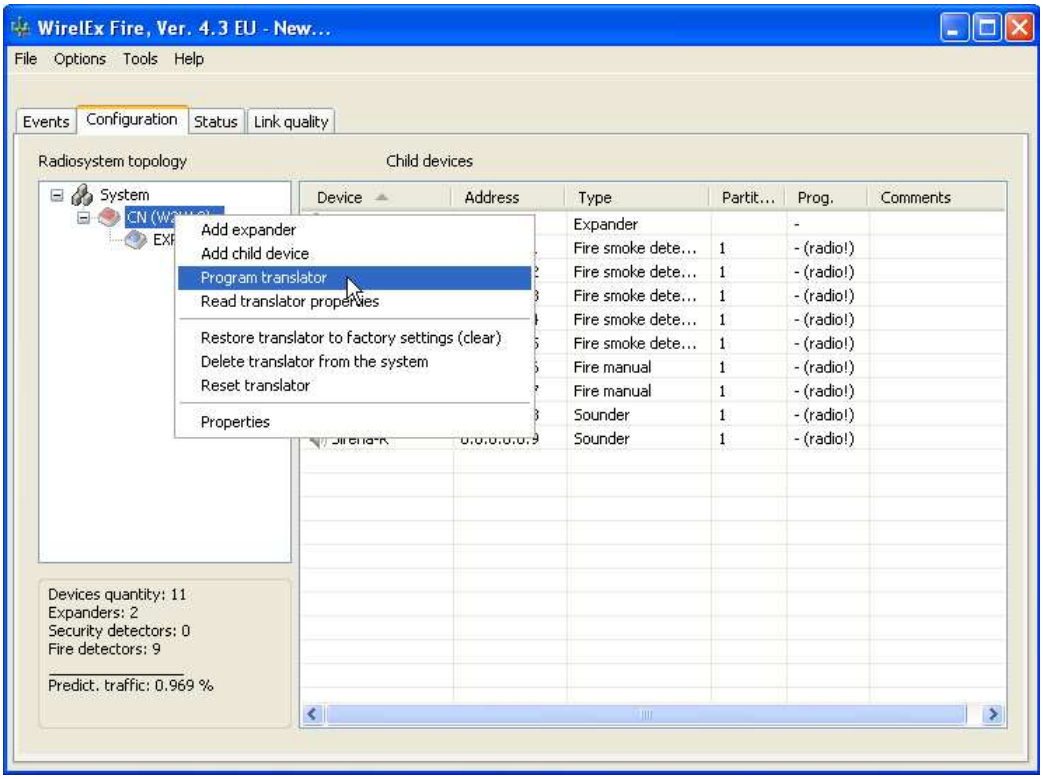




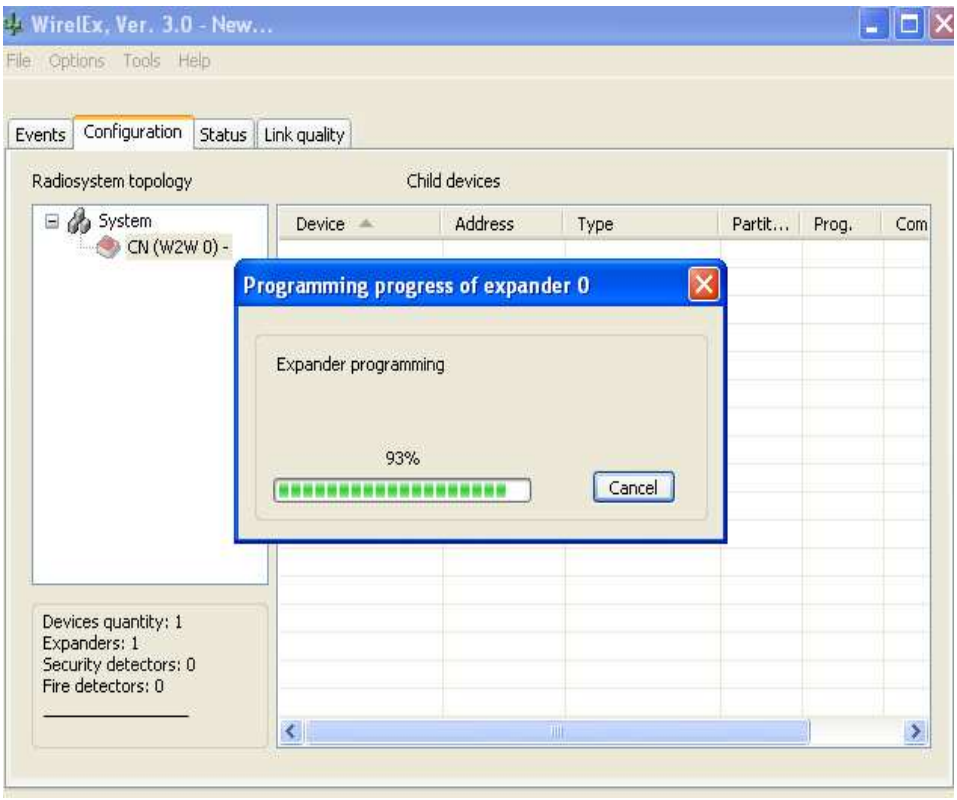
This procedure needs to be repeated for every Expander Module that needs to be added to the system.

PROGRAMMING THE SYSTEM

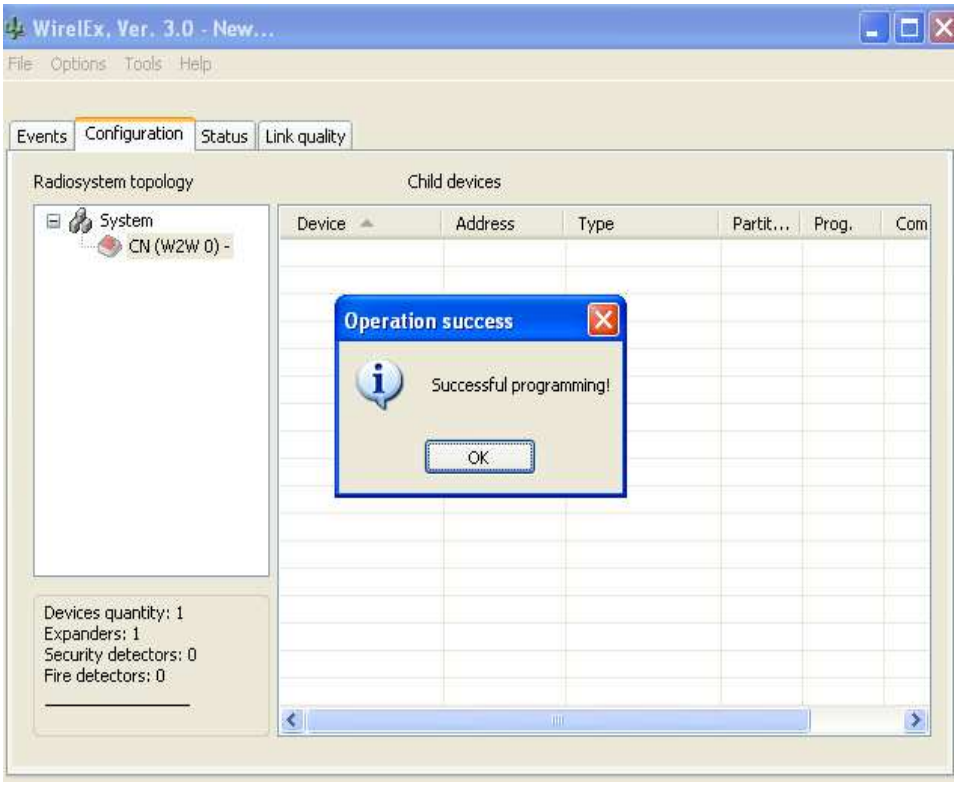
Once system configuration is complete, the Translator will need to be programmed. Right click the mouse over the Translator icon selecting the "***Program Expander***" option from the drop down menu.



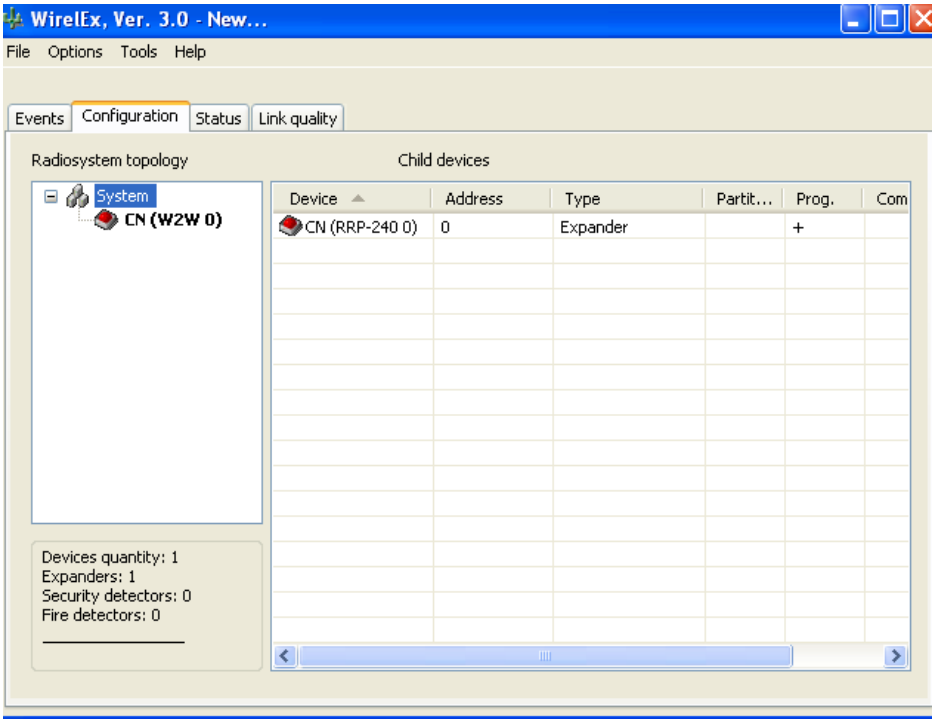
A sub-window appears indicating that Expander programming is taking place



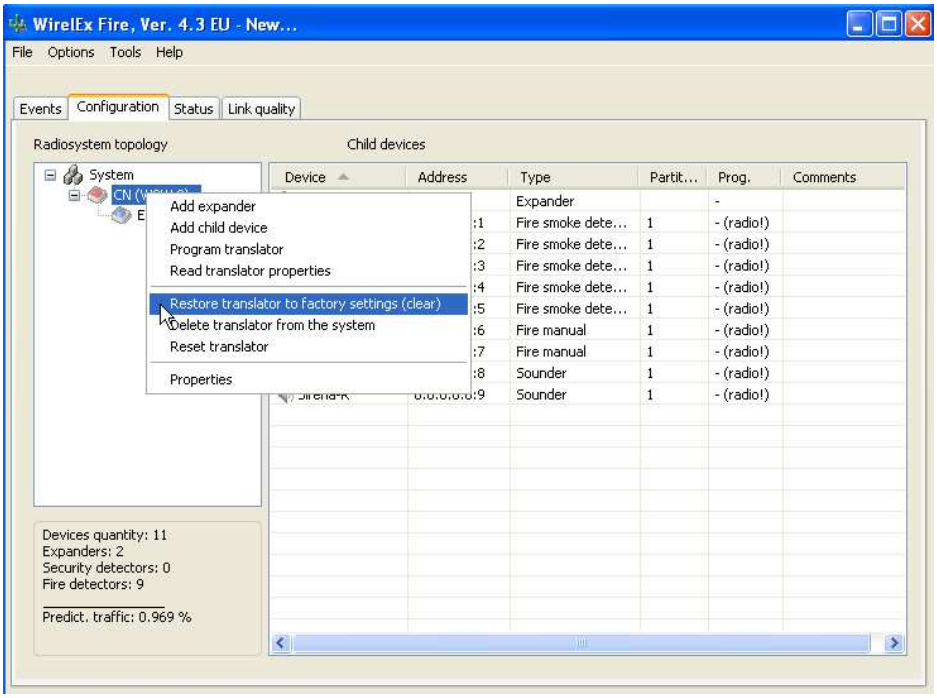
On completion of programming, the user is advised that programming is complete by the appearance of a further sub-window:



Once complete the Translator Module will become **BOLD** in appearance indicating programming is complete.



NOTE: In certain situations (e.g. multiple wrong parameter entries) there may be a requirement to clear the Translator memory and restore it to factory default. Right click the mouse on the Translator icon and select the "***Restore expander to factory settings (clear)***" option.



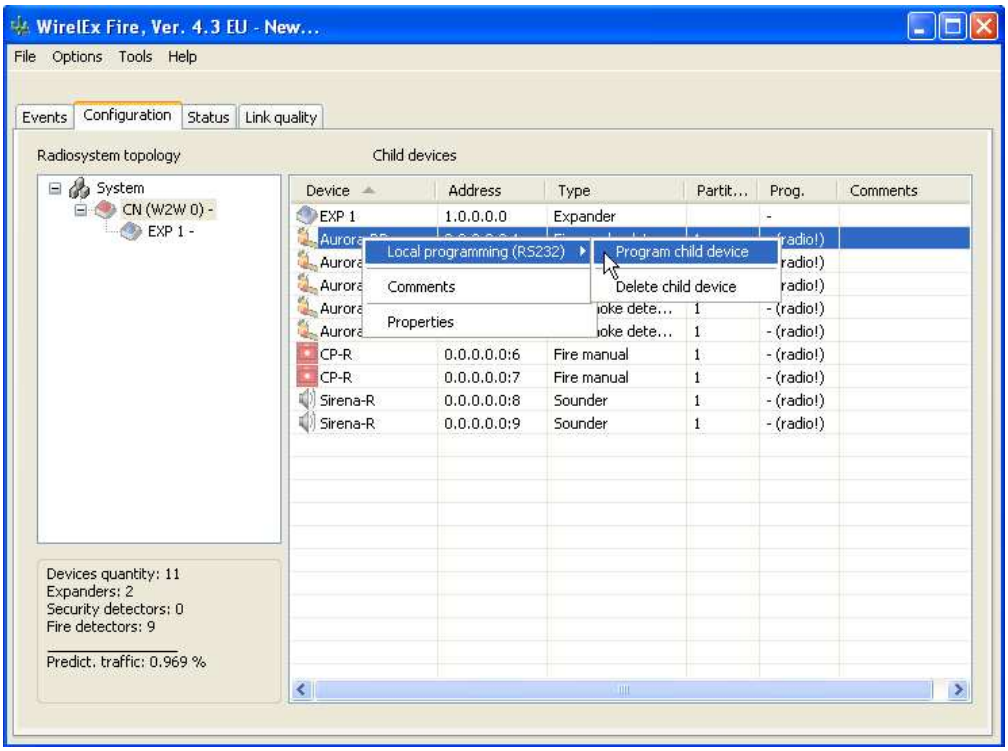
If this step is necessary, **ALL** assigned devices will need to be reprogrammed on to the system again (see Programming Child Devices).

(For info - this indicates that although the System has been configured through the Translator/Expander, the child device still needs to have the operational parameters loaded). The Translator should be initially programmed before any additional Expander Modules, although all devices may not have been allocated at this stage. After all devices have been allocated and implemented to any linked Expanders and direct to the Translator the Translator will need to be finally programmed before the "Load" operation.

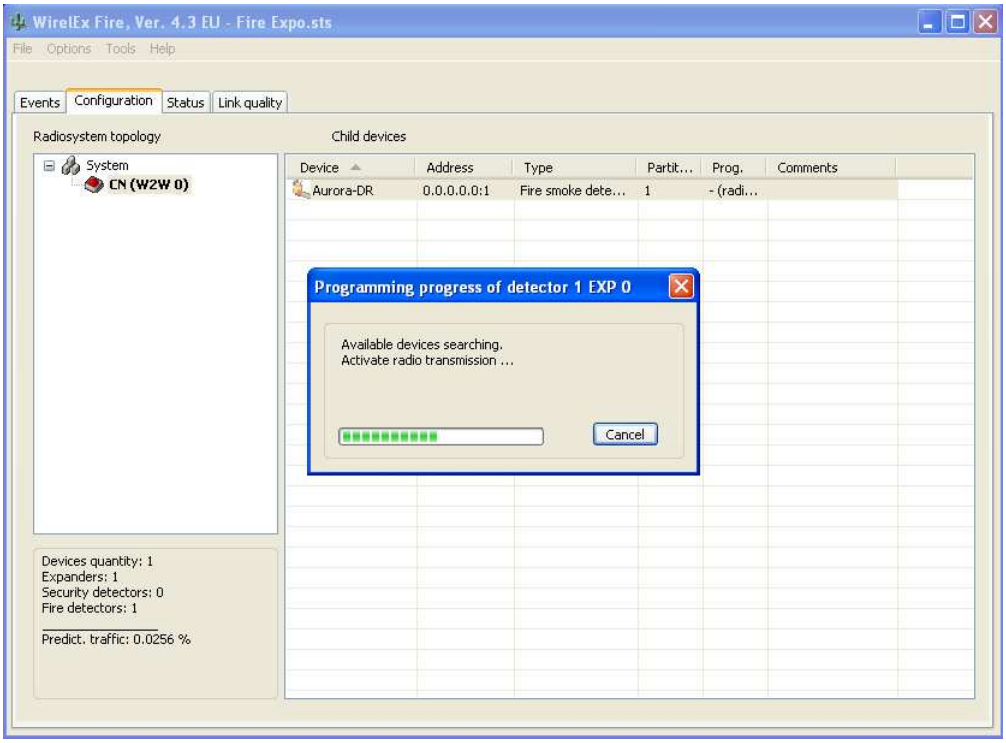
PROGRAMMING CHILD DEVICES

A child device can be programmed via its associated Translator/Expander or from the main Translator using the "Remote Programming" feature if all Expanders have been initially programmed.

With the computer connected to the relevant Translator/Expander, right click the mouse over the first associated child device. Select "***Local Programming (RS232) > Program child device***".



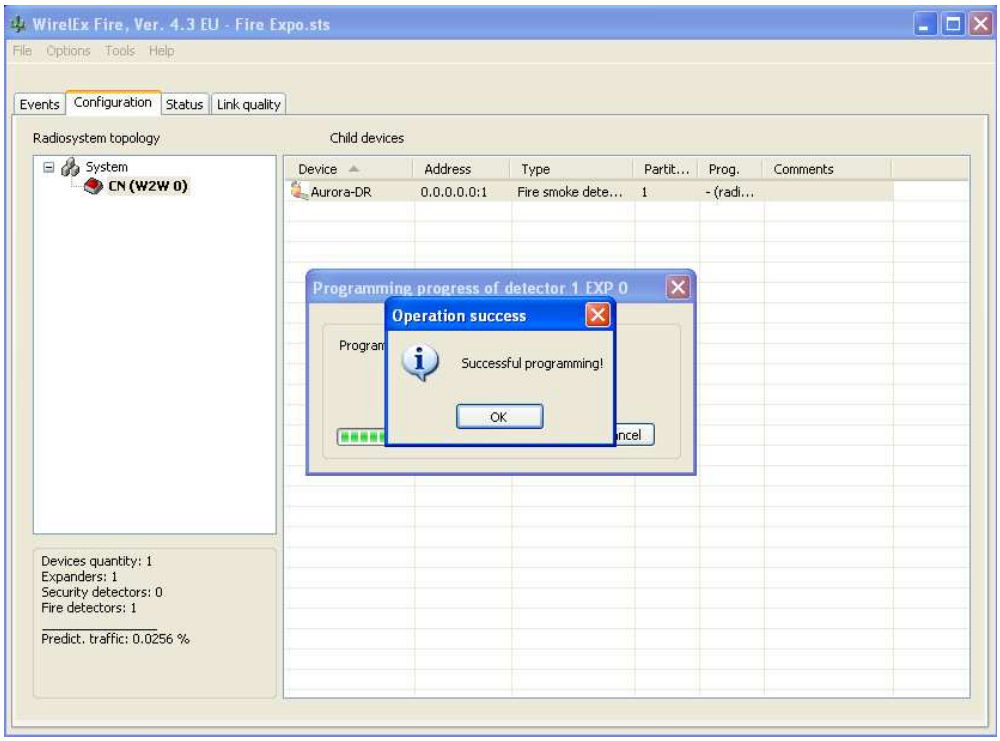
Once selected a sub-window will appear indicating that the Translator / Expander is searching for the device to be programmed:



The secondary (stand-by) disc battery should already be fitted in the device to be programmed.

Ensure the programming switch on the back of the device is in the **ON** position. Insert the Primary Battery (CR123A) into the device observing correct polarity.

When the primary battery is installed, the child device LED should flash **RED** four times indicating the device is in programming mode. Once seen, set the programming switch back to position 1. The device LED will now flash **GREEN** to indicate programming is complete. On the WireLEX configuration display, a sub-window will appear indicating programming is complete.



Press **OK** and repeat in sequence for the other child devices assigned directly to the Translator.

On completion of programming the Translator, re-connect the RS232 lead to the first Expander Module in the system. In the Radio topology section select the first Expander Module and repeat the above programming process for devices assigned to that module. Repeat for all Expander Modules.

When the Translator, Expander Modules and child devices have been programmed, the system configuration needs to be loaded in to the internal CPU of the Translator.

THE LOAD PROCESS

NOTE: The next action is extremely important!!

At the Translator, using the P3/P4 buttons, scroll up/down until rF is displayed in the LCD window. Select EHP using the P2 button.

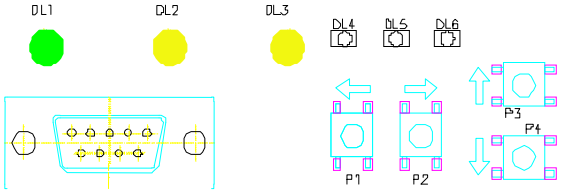
Use P3/P4 to scroll through this menu until is displayed. Select using the P2 button.

Using the P3/P4 buttons, scroll through until LOAd is displayed. Select using the P2 button. ConF will be displayed. Confirm using the P2 button.

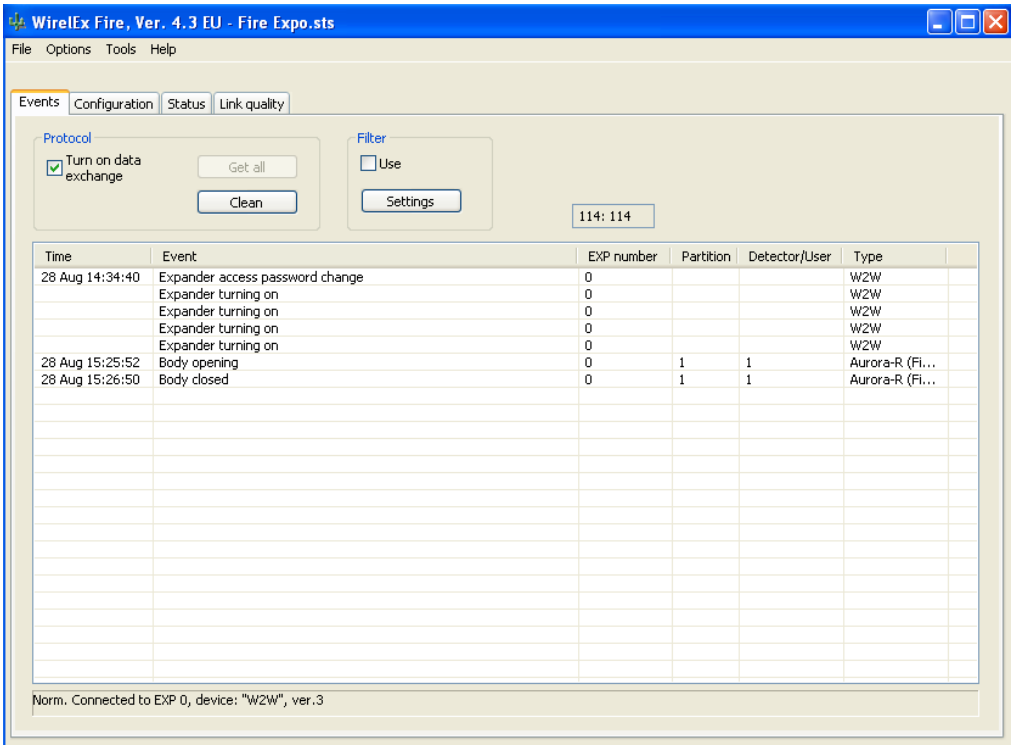
If correct, donE will be displayed. Press the P1 button until the LCD display is blank.

NOTE: Only after the system has been loaded in to the Translator CPU will the system work correctly with the Control Panel.

Translator Indicators
& Programming Keys



Once all programming is complete, connect the RS232 Serial Cable to the Translator Serial Connector. 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.



Now it is possible to control and manage the whole system from the Translator(s).

When all Translators, Expanders and wireless field devices are operational with acceptable signal levels they can be integrated to the wired Wireless fire detection system by simply using the panel configuration software and performing an "auto-learn" to recognise the additional devices (refer to the panel programming manual for specific details).

ADDITIONAL WIRELEX FACILITIES

The application was originally designed for use by both the Security and Fire Detection sectors. Thus some features are not applicable to Fire Detection systems. However two additional sections – under ***Status*** and ***Link Quality*** tabs – provide additional information that may be useful for the engineer:

Graphical display of RF quality of each child device

Graphical display of RF quality history

Communication control between the Translator and Expanders within a cluster

Fault and fire indication in a partition

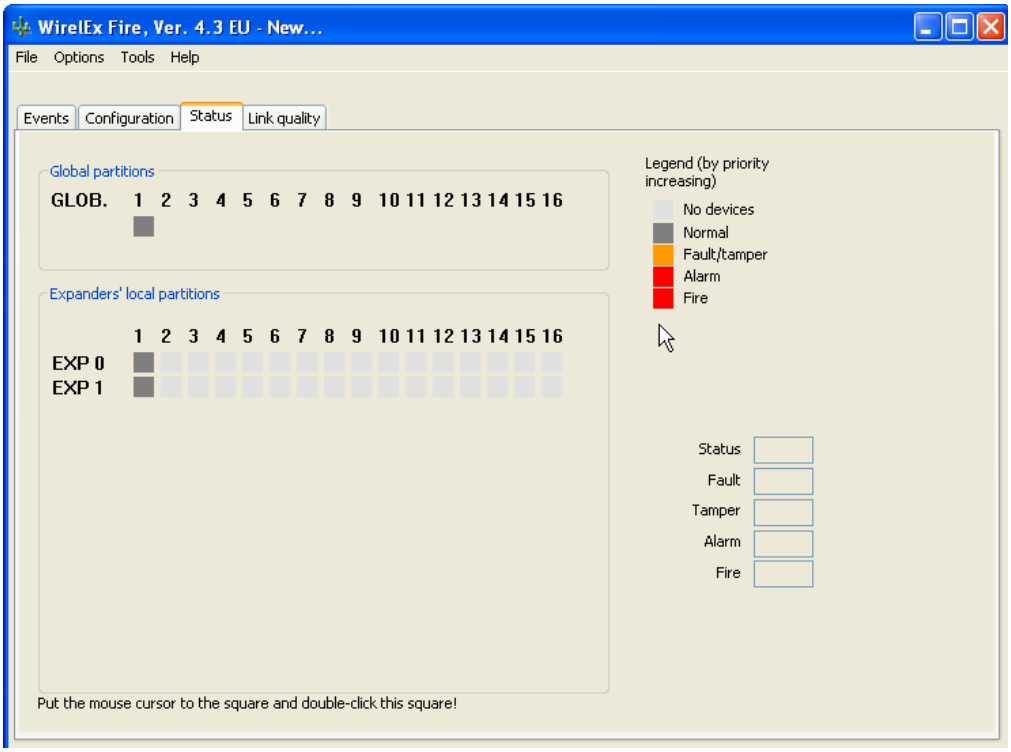
Fault and fire indication of each device

Reset faults and fires within a partition

Power output attenuation control

USE OF STATUS TAB

Select the Status tab on the Windows Configuration tool. The following window will be displayed.



The legend on the right hand side displays various alarm/fault/stats indications. These are:

Normal

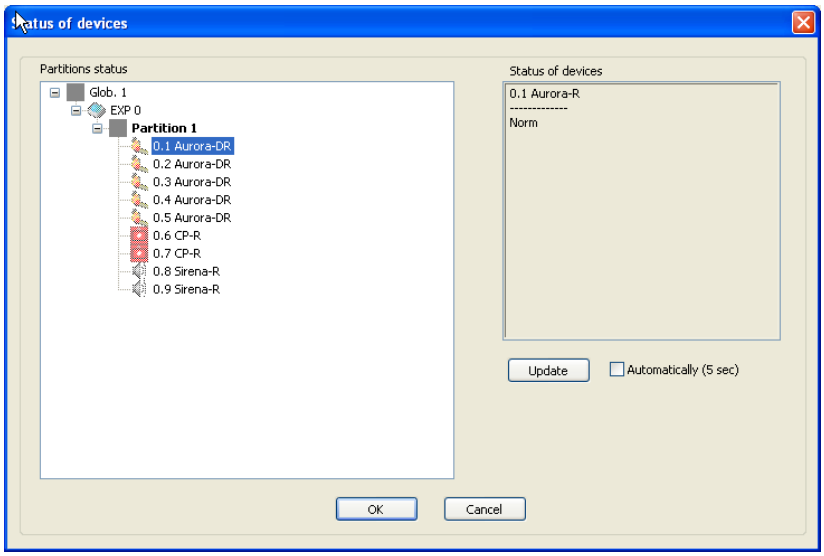
Fault / Tamper

Alarm

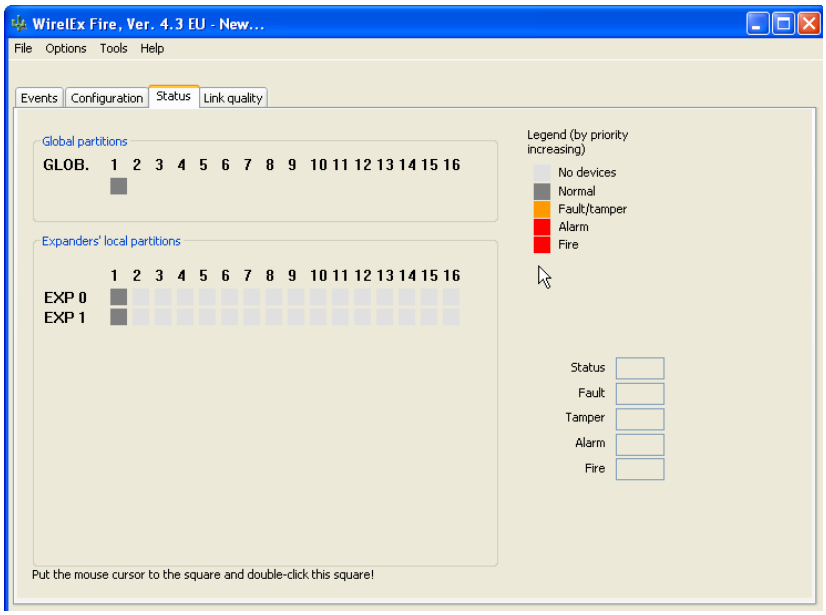
Fire

Further information can be obtained from this page can by moving the cursor over the dark grey box:

Under the Global partition heading, the engineer is provided with confirmation of the local partitions available.



Under the Expander / local partitions heading, the number of devices allocated to each Translator or Expander will be displayed



If the partition is showing any other colour than dark grey, double-clicking over the square will reveal:

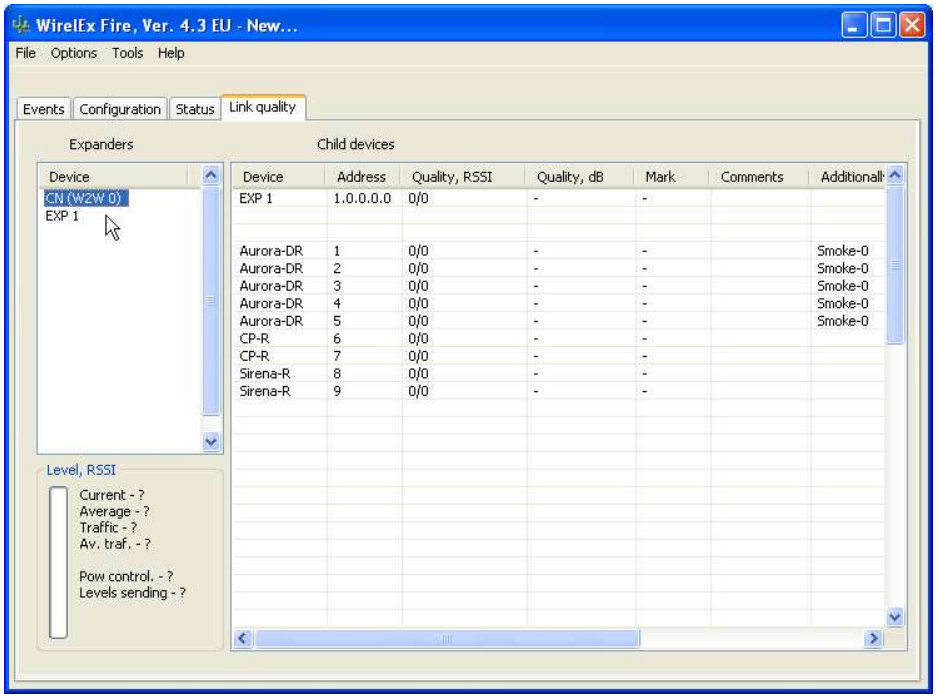
Status of all devices.

Faulty device

Device in a fire condition.

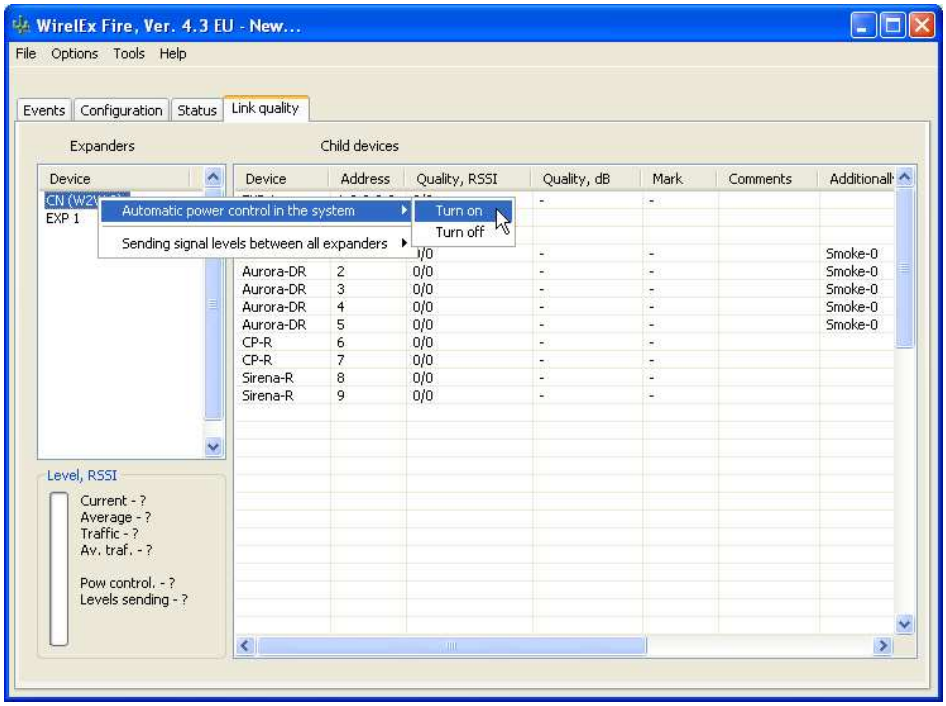
USE OF LINK QUALITY TAB

Select the Link Quality tab on the Windows Configuration tool. The following window will be displayed:



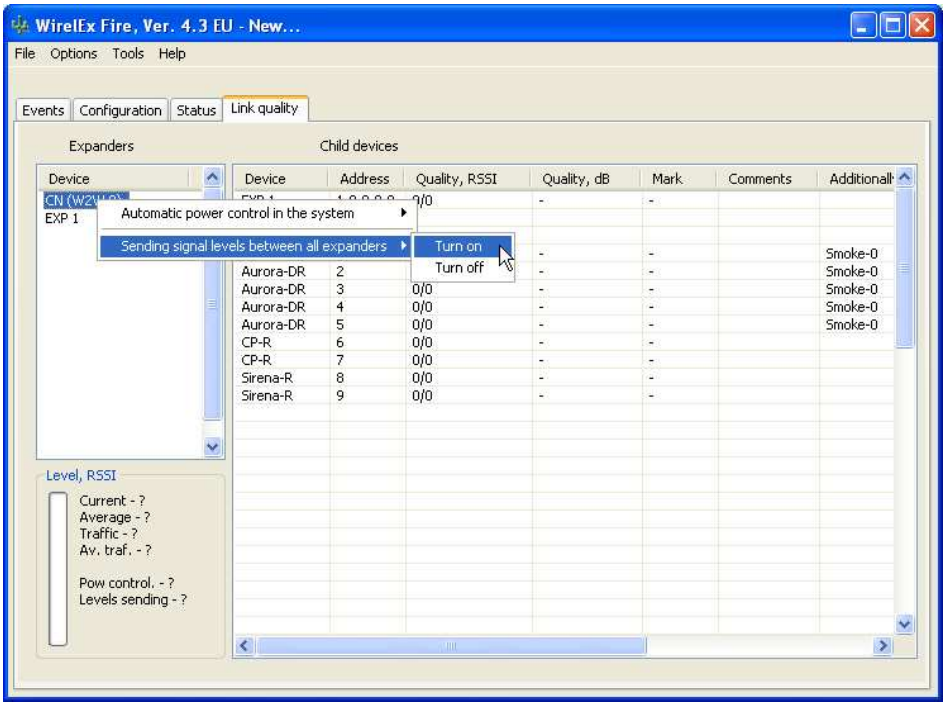
The following information is displayed on the page:

Expanders: The Translator and the associated Expanders in the cluster 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:



The "***Automatic Power Control in the System"*** allows the engineer to turn on/off the automatic power attenuation facility within the Translator cluster. This is normally left on as the system uses complex algorithms to determine the best power level between the Translator/Expander and the associated child devices.

The ***"Sending Signal Levels Between All Expanders"*** option allows the engineer to turn on/off the display of signal level communication between the Translator and the Expanders. In a system using Expanders this **<u>may</u>** be turned on during commissioning to aid visibility of device signal conditions at the Translator. It is not essential during normal operation since it substantially increases system traffic volume. All key information still passes freely between the Translator and Expanders within the cluster so that all device faults, tamper faults, fire activations can be acted upon by the system Control Interface Equipment.



In the Child device section of the page, the following information is displayed:

Device: The device type is displayed in the first column.

Address: The device address is displayed in the next column. This address is allocated to the device by the associated Translator/Expander.

Quality, RSSI: The signal level from each RF modem is displayed here – the first is from the Primary modem, the second figure is the value from the Secondary modem. This level is measured in Standard Units giving the Signal/Noise ratio of the link.

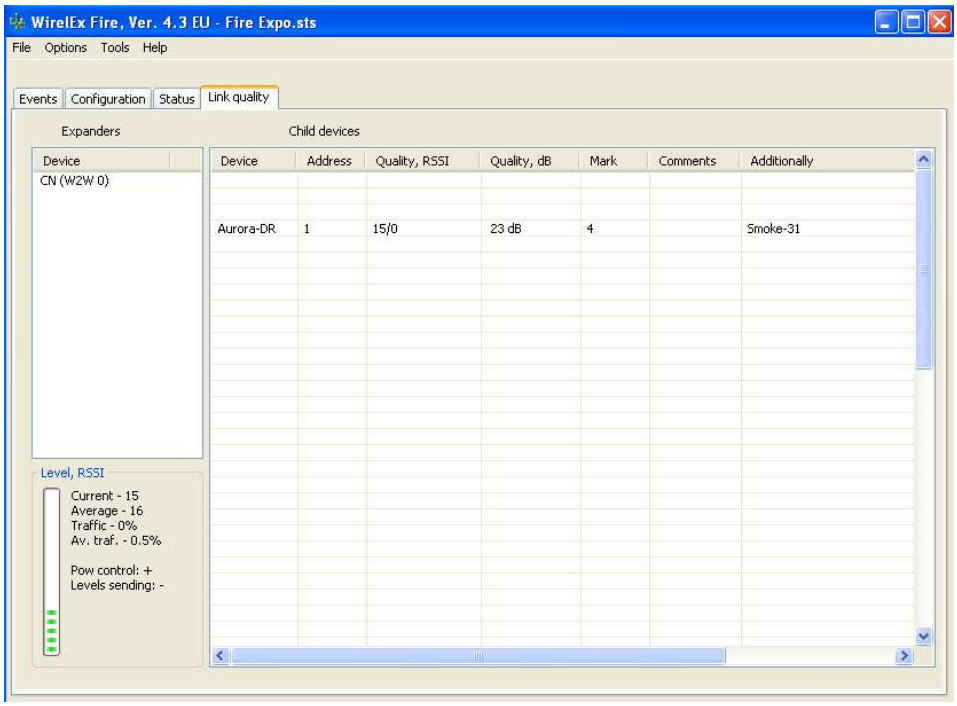
Quality, dB: The signal level here is shown as a dB level.

Mark: This is an indication of the link quality based on a five point rating scale:

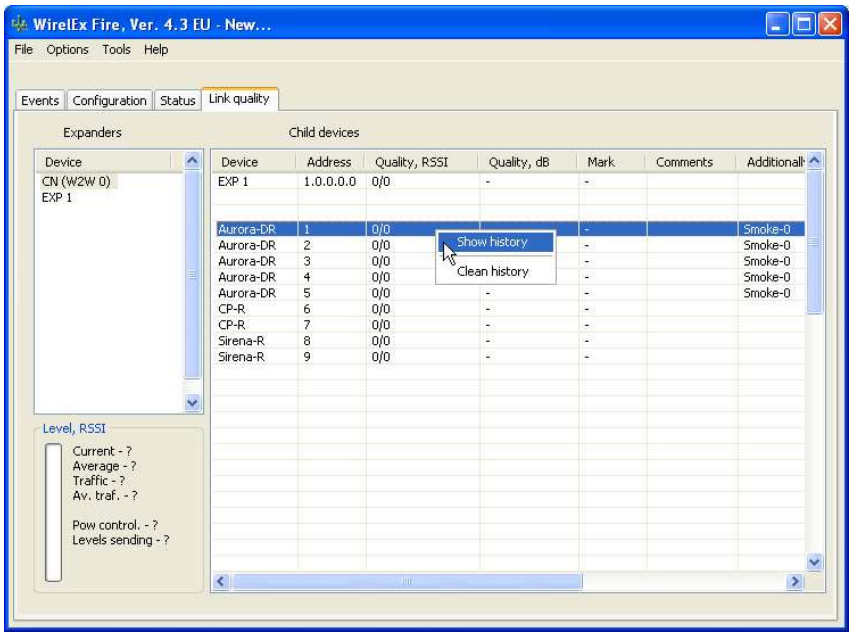
<u>QUALITY MARK</u>	<u>LINK INDICATION</u>
2	Unacceptable – interrupted connection or very weak <10 dB
3	Becoming Marginal – Link margin is 10 - 20 dB should be >15dB
4	Good – robust communication with a link from 20 - 30 dB
5	Excellent – Robust communication with a link margin > 30dB

Comments: This is the comment added about the device from the *Configuration* tab

Link: This is the time lapsed between communications between the device and its associated Translator/Expander



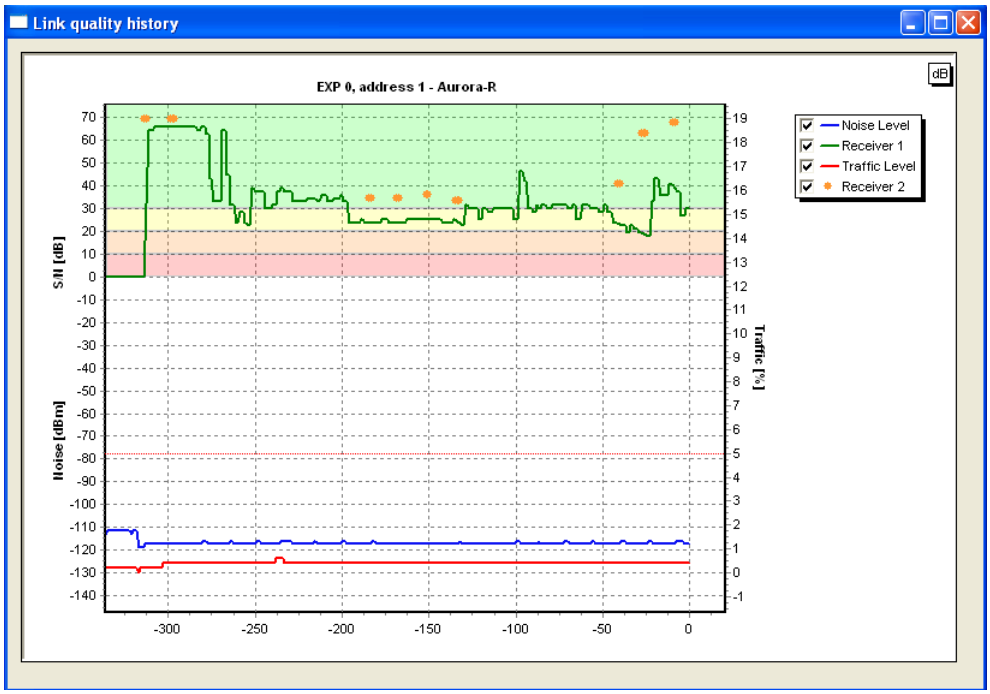
By highlighting a single device, moving the cursor over it and right clicking, two options are displayed:



Show History: Selecting this option will display the RF link quality graph.

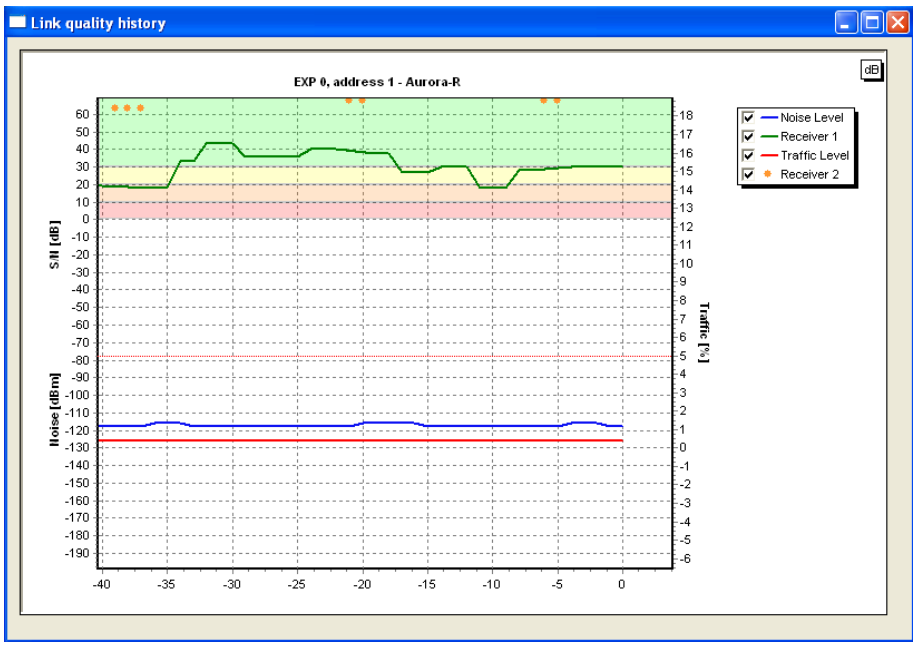
Clean History: This will clean all RF link quality information

(Shortcut - By double-clicking the device the RF link quality history graph will be displayed)



The GREEN waveform indicates the RF link quality history for each device. The graph will provide the user with as many as 8192 segments. This is the equivalent of a sample every 5 seconds over a 12 hour period.

The user can zoom in on specific areas within the graph for better analysis of the RF Quality history. This is achieved by holding down the left mouse button and creating a dashed box around the interested area and then releasing the left mouse button



The graph will now zoom in on that area providing the user with an enhanced view of the area. This can be repeated until the area is clear enough for the user to take a reading.

Once the desired level of analysis has been reached, holding the cursor over the area will produce a box giving an indication of the segment number under investigation along with a dB level.

To return to the normal screen level, the user must select a further box opening from bottom right to top left – this will return the graph to its normal appearance.

The ORANGE dot seen above some of the readings indicates that during the communication process, the primary modem was unable to communicate with the device. In instances such as this, the primary modem will continue to attempt to communicate with the device on the original operational channel. However, the secondary modem will then start a frequency hopping sequence on the other operational channels until communication is achieved. Once communication is achieved, both modems return to the original operating channel and wait for the next communication signal handshake. Should the device not respond on the next signal handshake, the process is repeated.

Each time communication is successful, both modems return to the original operating frequency. The dot gives the engineer an indication of this process occurring.

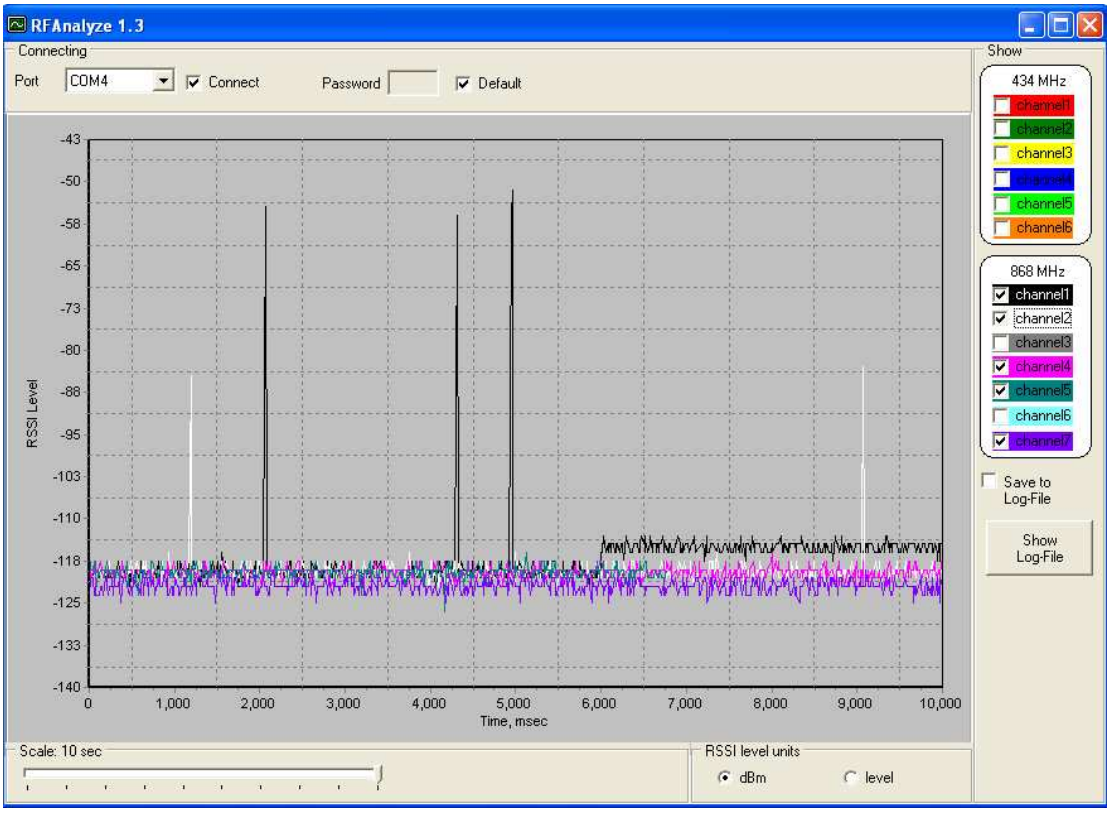
USE OF THE RFANALYZE PROGRAMME

Access the programme from the “Tools” Menu whilst the PC remains connected to a powered Translator or Expander module. A new window will open. Ensure that the correct COM port is selected and the “Connect” box is selected.

The display will illustrate on a moving timebase activity within the radio spectrum for the selected channels (choose by simply selecting the tick boxes alongside the channels of interest).

This survey check on site can help identify channels that may be overloaded due to other nearby radio emissions and hence assist in selecting a primary channel for the installation that is less likely to suffer interference. The tool may also prove useful in troubleshooting a system that is forced to continuously channel hop or is generating monitoring faults after a clear period of running.

Extended period checks can be carried out by selecting the “Save to Log-File” option when the data will be saved to disk, however note that file sizes may be substantial thus storage capacity should be checked.



USE OF THE CLONING UTILITY

There may be occasions when a Translator or Expander have to be replaced. To avoid the need to re-programme all devices linked to them the CloneEx Cloning Utility may be used. Access this by selecting the Tools Menu and click on “CloneEx utility” which will open the screen shown below. Follow the on-screen instructions and all programme data will be transferred from one Translator / Expander to the new interface.
Note: The data being transferred is not stored permanently on PC thus the sequence must be completed in one process to avoid data loss, thus ensure all components are readily available before starting.