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## mineTalk

### Installation and Configuration Instructions for mineTalk PC software

### Document 101157 Revision 3

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Prepared: GW Date: 30/03/2019      Approved: GW Date: 30/03/2019

Implemented: 30/03/2019

#### Revision History:

Original - 27/09/2013

Revision 1 – 14/05/2015 – Changes in the PC software.

Revision 2 – 30/10/2016 – Changes in the PC software and Moxa installation.

Revision 3 – 30/03/2019 – Section added on SQL Server installation and initialisation.

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#### Equipment Required

1. Windows 7, 8, 8.1 or 10 PC with:
  - 1.1. At least 4GB RAM (preferably 8GB or more).
  - 1.2. A PC monitor with a minimum resolution of 1920 x 1080 (Full HD).
  - 1.3. An internet connection.

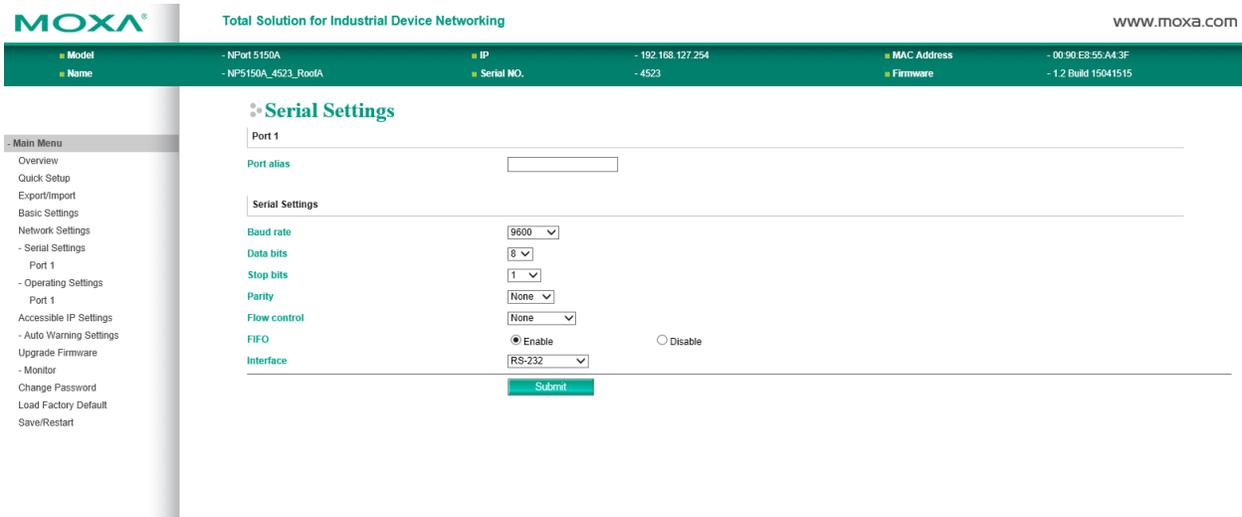
#### Software Required

1. mineTalk™ Network Control Software
  2. Moxa `drvmgr_setup_Ver3.0_Build_18081311_whql.exe`
  3. `moxa-nport-5100a-series-nport-administration-suite-for-windows-7--server-2008-r2-or-later-driver-v3.0.exe`
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## 1. Configure the Moxa NPort 5150A Serial Device Server

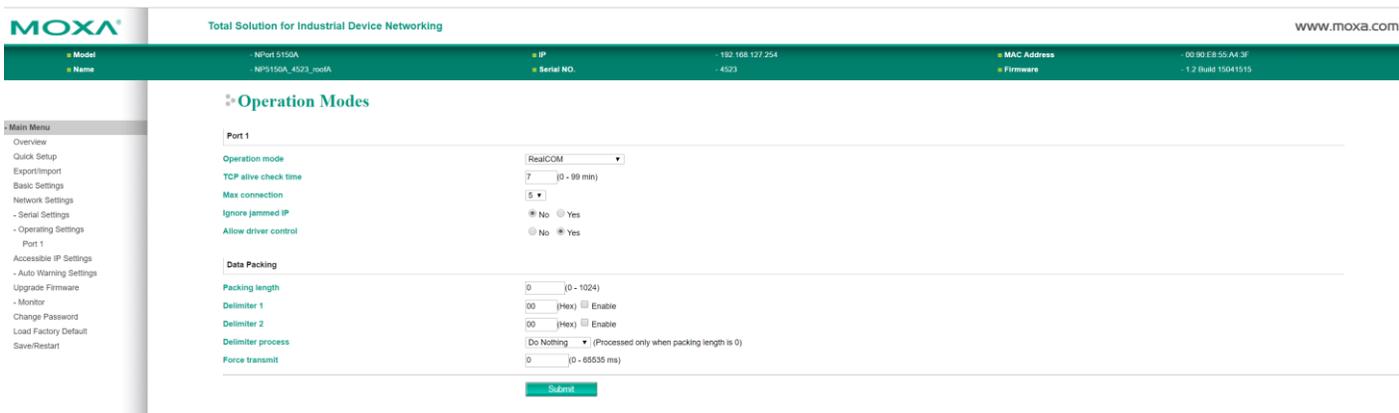
- 1.1. **Prerequisite:** The Moxa NPort 5150A in the mineTalk control panel must be powered-up and connected to the same local area network as the PC that is going to run the mineTalk control software.
  - 1.2. On the mineTalk control PC, install `drvmgr_setup_Ver3.0_Build_18081311_whql.exe` by right-clicking the file name and selecting “run as Administrator”.
  - 1.3. Install `moxa-nport-5100a-series-nport-administration-suite-for-windows-7--server-2008-r2-or-later-driver-v3.0.exe` by right-clicking the file name and selecting “run as Administrator”. Select yes when it asks if you want to overwrite nport.dll
  - 1.4. On the mineTalk control PC start the Moxa “NPort Administrator” program as an administrator by right-clicking the file name and selecting “run as Administrator”.
  - 1.5. Run Search function. The mineTalk serial device server name ends in “mineTalk” or “roofAlert”.
  - 1.6. Select the mineTalk or roofAlert serial device server.
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1.7. Click “Web” on the top menu. Leave the password field blank and click <Login>.



1.8. From the left hand menu select Serial Settings and Port 1. Make sure Parity and Flow control are set to none and baud rate set to 9600 with 1 stop bit. Click <Submit> after any changes are made.

1.9.

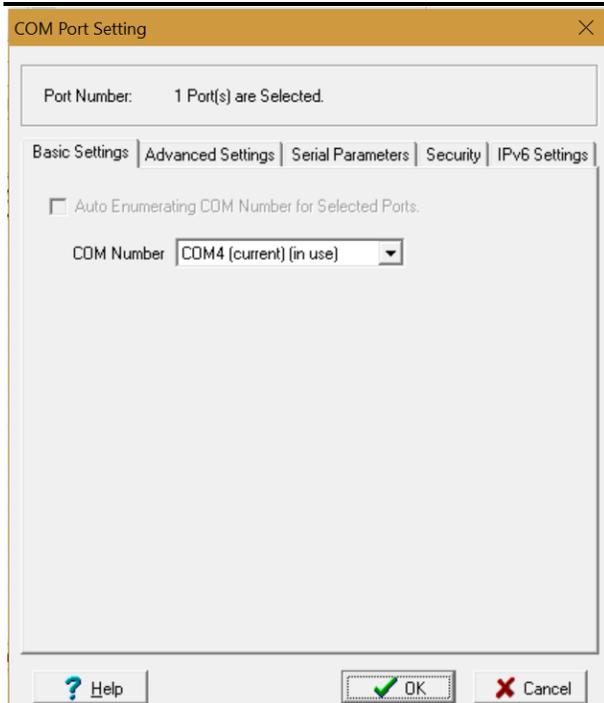


From the left hand menu select Operating Settings and Port 1. Make Max. connections is set to a number greater than the total number of PC’s that will be accessing the system (min. 4). Set “Allow driver control” to Yes. Click <Submit> after any changes are made. Click <Save/Restart> at the bottom of the left-hand menu then close the web page.

1.10. On the mineTalk control PC start the Moxa “NPort Windows Driver Manager” program as an administrator by right-clicking the file name and selecting “run as Administrator”.

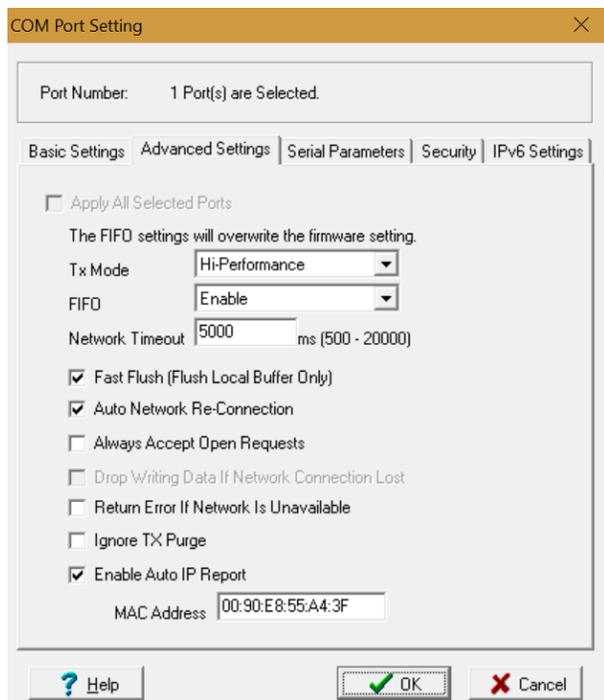
1.11. Click Add on the top menu. A new window will pop up – select Search at the top of this window. When the new NPort 5150A appears click the OK button at the bottom of the window. Select Yes when it asks if you want to activate the port now.

1.12. Select the listed NPort 5150A and then click on the <Setting> button on the top menu.



1.13. The COM port number you want to use can be selected from the drop-down list next to “COM Number”.

1.14. Select the “Advanced Settings” tab.



1.15. Make sure “Always Accept Open Requests” is not selected then click <OK>. Click the <Apply> button. . Click Yes to confirm you wish to apply the changes.

The mineTalk Moxa NPort 5150A has now been assigned a COM port on the PC running the mineTalk or roofAlert system control software.

## 2. mineTalk SQL database Installation

This has to be done before installing the mineTalk™ software for the first time as the node configuration data as well as logged data is stored in the database tables.

Installation files are available at:

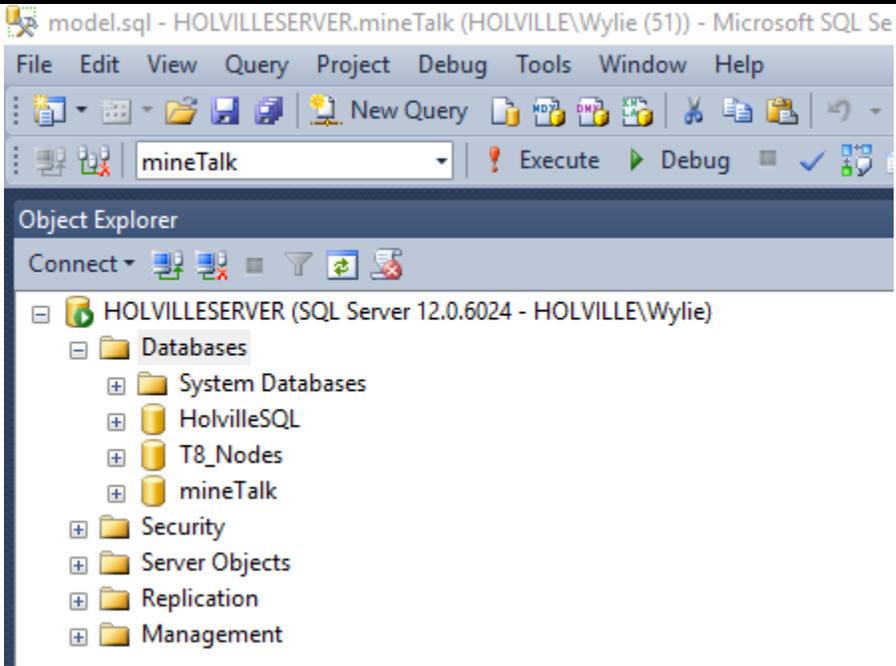
<https://www.dropbox.com/home/Holville/roofAlert%20Install%20Files>  
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### **Pre-requisites:**

- 2.1. Install GNUPLOT by running “gp526-win64-mingw\_2.exe” as administrator.
- 2.2. If SQL Server is not installed on the computer then go to: <https://www.microsoft.com/en-au/sql-server/sql-server-editions-express> and select “SQL Server 2017 Express”. When finished downloading run “SQLServer2017-SSEI-Expr.exe” as an administrator and select the Basic installation.
- 2.3. Download SQL Server Management Studio from :
- 2.4. <https://docs.microsoft.com/en-gb/sql/ssms/download-sql-server-management-studio-ssms?view=sql-server-2017>.
- 2.5. Install SQL Server Management Studio by running “SSMS-Setup-ENU.exe” as an administrator.

### **\*\*\*To install an empty mineTalk SQL database:**

- 2.6. On the PC you want to store the database, Check Microsoft SQL Management Studio is installed.
- 2.7. Copy mineTalk.dacpac to a temporary folder.
- 2.8. Right-click on mineTalk.dacpac and select Unpack. A subdirectory called mineTalk will be created. It contains a file called model.sql.
- 2.9. Right click on model.sql file and click Open. SQL Server Management Studio will start.
- 2.10. Microsoft SQL dialog box titled 'Connect to Database Engine' should open after a delay. Press Connect
- 2.11. Microsoft SQL dialog box titled 'Connect to Server' should pop up. Press Connect.
- 2.12. In the Databases Object Explorer Window, right click on 'New Database'. Name the new database "mineTalk" (note the small m).
- 2.13. Click on the script window (model.sql) in the middle of the screen to make it active.
- 2.14. In the top left hand database list box select mineTalk.



2.15. Click Execute. All the empty tables in the database should be created.

2.16. On database name right click and go to Properties. Click ViewConnectionProperties, take note of Server Name for the application database connection string.

### 3. \*\*\* To install the mineTalk PC software:

- 3.1. The mineTalk software can be installed on a PC that:
  - Runs Windows 7 or newer.
  - Has at least 4GB of RAM (but preferably 8GB or more).
  - Has a monitor with a screen resolution of at least 1920 x 1080 (Full-HD).
  - Has an internet connection. The PC will need to be connected to the internet to download Microsoft .NET configuration files during installation.

At least one serial port needs to be connected to the data collection PC in order to run the mineTalk installation exe.

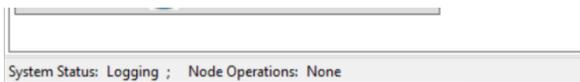
- 3.2. On device manager, identify the serialport(s) to be connected (the name usually starts with NPort if a Moxa 5150A serial device server is being used in the control box).
- 3.3. In the unzipped folder, Right click on the setup.exe file and press 'Run as Administrator'.
- 3.4. Click Install.
- 3.5. The software will prompt for the serial port connection. Using the arrows on the top right hand corner scroll until the desired port is displayed.
- 3.6. In the status dropdown box select Select 'Enabled'. The baud rate and port settings are already set to the desired 9600Baud etc.
- 3.7. Press Save and Test. The message "Test Successful - .." is displayed if the connection to the port has been made.
- 3.8. Repeat from 5 above to initialise a second port.
- 3.9. Close the form when complete.
- 3.10. The system will then prompt for the connection string to the database. Replace the server name in the string with the one noted above.
- 3.11. Press Save. If the connection string is recognised the message "Connection Opened will be displayed."
- 3.12. Close the form.

The system will start to load automatically. It will stop all nodes attached and restart them. It will also do a plug n play to identify the control nodes (the LNCs and SAIIs) attached to the system.

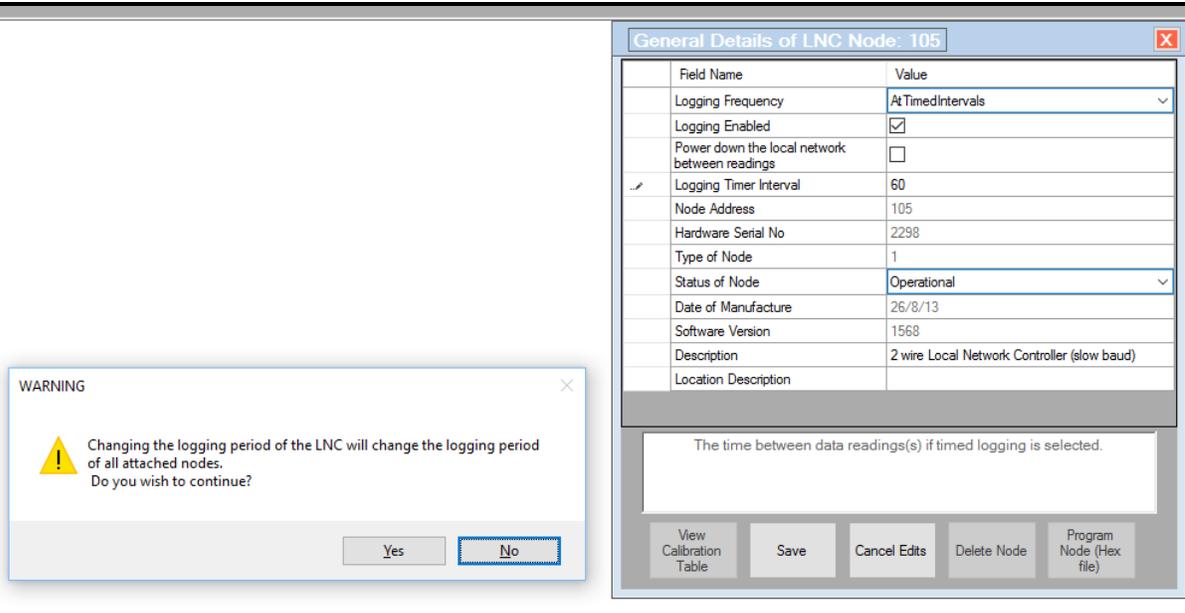
When the form initialisation and load is complete there is likely to be a dialog box saying all networks are logging disabled.

- 3.13. To start logging click on the 'Logging' menu in the menu bar. Press on 'Edit LNC logging Parameters'.
- 3.14. Enter one of the LNC Node Id's in turn and press Enter or the Display Button. The current parameters held in the LNC non-volatile memory are displayed.
- 3.15. Click on enable Logging and select either 'Log Continuously' or 'Log Periodically'. If you select Periodic Logging enter the time required between each logging cycle in the text box (in seconds).
- 3.16. Press 'Update the LNC'. If the LNC is successfully updated the form will close. Repeat the process for each LNC attached to the system.
- 3.17. Once logging is enabled for an LNC the T8 sensor nodes will become visible to the system and they will be plugged and played.

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- 3.18. The roofAlert control system will then display a red countdown box. If the cancel button is NOT pressed the system will go through its routines to start automatic logging. If the button is pressed the system will stop all logging and wait for user action.
  - 3.19. Before it can start automatic logging the software needs to re-set the system to a known state and it goes through a number of background routines to do this; depending on the size of the system it can take 2-3 minutes. This routine includes the reboot of any attached network controllers ie the SAll (Safe Area Isolating interface) and LNC (Local Network Controllers) which are located in the control box. Power to the Extensometers will also be shut off during this routine causing them to do a reboot.
  - 3.20. The grey status bar at the bottom of the screen shows what the system is currently doing.
  - 3.21.



- 3.22. At the end of the start-up process, the system will enter a 'plug n play' routine to look for any new nodes. If any new nodes are detected the PC will query the control node or extensometer to upload its configuration details. This can take 1-2 minutes per 2-channel extensometer or 3-4 minutes per 4-channel extensometer
- 3.23. After the plug n play, the system will start logging to the default values in the LNC's configuration file.
- 3.24. If the cancel button was pressed during the countdown, the system will still reset itself but will closedown logging and wait for the user's further action. No 'Plug n Play' will be performed at that time. If you wish to recommence logging after the cancel button has been pressed use the Logging menu at the top of the screen. Once the system starts logging it will detect any new extensometer and LNC nodes automatically as it logs. Logging will start and stop as the nodes are detected and plug n play is initialised. A new SAll will only be detected during the next system heartbeat, however, the 'plug n play' of the SAll is not critical to system operation.
- 3.25. The LNC as delivered was set up to scan all extensometers every 5 minutes. To change that logging rate:
- 3.26. In the Logging Controller: click stop logging (either against the LNC entry or by using the Stop All buttons). Select the LNC and press the Edit button. The LNC edit form will be displayed.



3.27.

3.28. To change the logging rate select the logging timer interval. This is currently displayed in 1 sec intervals, so a 1 hr interval would be 3600. Enter the required timer interval, press save and select yes to continue. This will update the configuration data in the LNC and will become the new default logging rate. Close the edit box using the close icon at the top of the box.

3.29. Other logging parameters that can be changed are:

3.30. Logging Frequency Logging can be set to occur 'At Timed Intervals', Continuous or None. Changing these parameters will update the LNC configuration file and become the new default.

'Once' will log the nodes on the LNC's network immediately but will not affect the default value in the LNC configuration file.

'Special Period' will change the logging frequency of the LNC but not the default value in the configuration file. Default logging will be reinstated when the LNC next reboots or until its next heartbeat is taken.

3.31. Logging Enabled This will stop the node logging but is not written to the configuration file. The LNC will be set to its default logging values when it next reboots.

3.32. Power Down the local network between readings If the LNC is set to periodic/At Timed Interval logging there is an option to prolong the battery life of a UPS by switching off the LNC power to the extensometers when they are not logging.

3.33. Other LNC properties that the user may set are :

3.34. Status of Node Generally, the status of the Node is set by the control system software according to its current operations. However if a node is removed from the system, the user may set the node status to 'deleted' or 'suspended' to stop it appearing in the software and generating error messages. If an LNC is deleted it cannot be reinstated without another plug n play.

3.35. Location/Description To distinguish different LNCs from each other the user can also enter a description or a location to identify the node.

**4. \*\*\* To install the DataViewer software:**

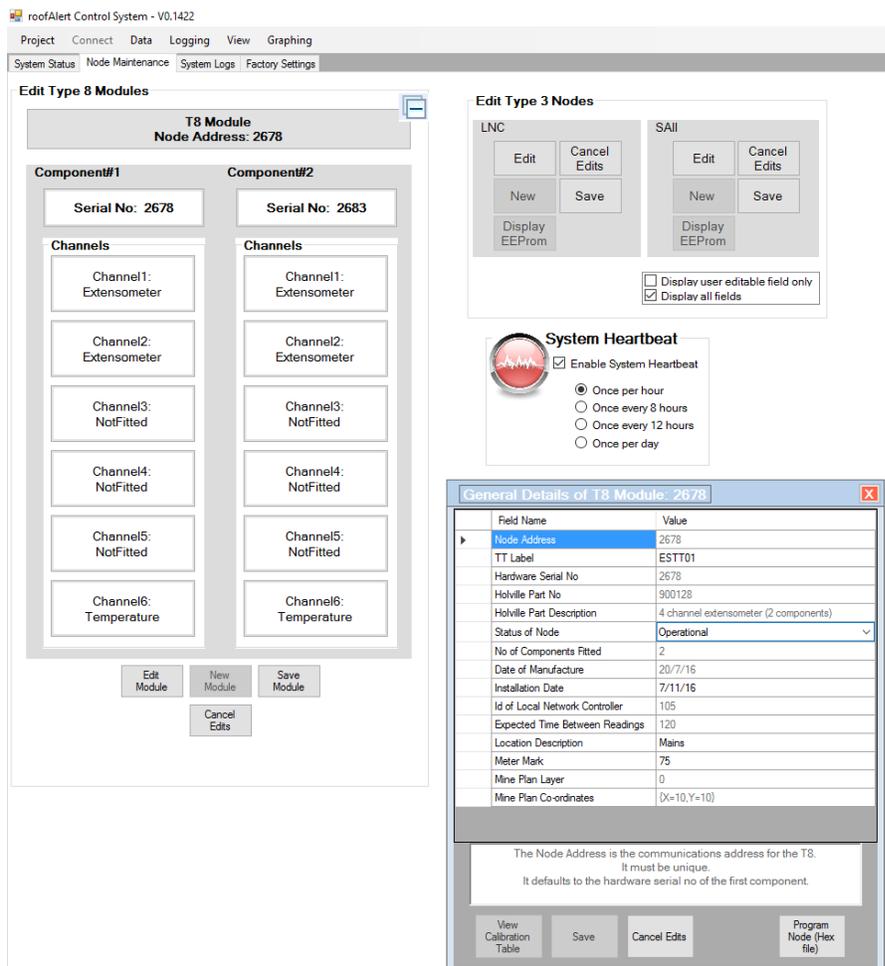
- 4.1. Extract the files in DataViewerV1880.zip. Run setup.exe as an administrator.
- 4.2. Replace ANNSAORUS with the PC name the software is being installed on and save the connection string.

## 5. Extensometer Installation

5.1. At installation, a record needs to be taken of the node address on the extensometer, the mine identification or label of the extensometer and the nodes installed location for input to the PC control system. The node address can be found on the certification labels on the extensometer and for ease of identification the end of the flying lead has a tag attached with the Node Id shown. These details are required to link the roofAlert hardware to the mine’s identification system. The location and metre mark are also used to display the nodes in order in the Network Status control of the main software form which is useful for system diagnostics. The mine label, the extensometer location and the metre mark are also reported in the data csv files generated by the system.

5.2. Optionally, the anchor height of each channel can also be recorded in the PC software.

5.3. To enter the mine label and metre mark for the extensometer, select the Node Maintenance Tab at the top of the Main Form. A 4-channel extensometer will be displayed as its component parts. Click the Edit Module button towards the bottom of the page and enter the node address of the extensometer you wish to edit. Another form will be displayed.



5.4. Enter the mine identification label next to the TT Label field, a description of the location and the Meter Mark field. Press the enter key after each field is input and then Press Save.

5.5. You will note that the 4-channel extensometer as displayed on the screen is currently divided into 2 components which reflects the physical layout of the extensometer – it has 2 node boxes attached, one on each side - and the physical connections to the extensometer anchors. It does not currently correspond to the no of the anchor wires and their installation. If you wish to enter the anchor heights of the extensometer channels this can be done by pressing Component #1 Channel 1 and Channel 2 and the Component# 2 Channel 1 and 2 buttons. The relationship of the ‘hardware channel to the installed anchor wires is as follows;

Component #1	Channel 1 = extensometer channel #2
	Channel 2 = extensometer channel #3
Component #2	Channel 1 = extensometer channel #4
	Channel 2 = extensometer channel #1

When you click on a channel button the title on the form displays the ‘electronic’ channel no but the ‘reporting’ channel no is also displayed in the form. If entering anchor heights or if wishing to enter a description to identify a channel this needs to be considered. All data reported by the system uses the anchor wire channel no NOT the ‘electronic channel no’. The anchor height is not currently used by the system.

## 6. Additional Points To Note

6.1. If you test/plug n play the extensometers on the surface the config file that is created should be deleted before the system is installed underground

(location: C: \roofAlert\config\roofAlert.cfg).

The plug n play routine takes a first reading/offset that may change as the extensometers are installed.

6.2. Data csv files are stored by default in the C: \roofAlert\csv\ directory. Two formats of csv file are available under Data in the main menu at the top of the screen. The preferred file format for your installation is ‘extensometerNGC’.

6.3. The extensometers also log their temperature. If not required, this temperature data does not have to be saved and can be turned off under the Data Menu by unclicking the temperature option. It also does not have to be displayed on the graphs and can be switched off under the graph menu.

6.4. The graphs are meant to be indicative of system operation and display the reading receiving from the extensometers. The data does not currently adjust its readings for a new offset if the extensometer wires are physically reset underground. A number of options for changing the graph view eg zoom and scale are available by right clicking the graph. To pan the graph window use the left mouse key and the ctrl button.

6.5. When shutting down the software it is preferable to use the Project/Exit menu so all system parameters are correctly saved. When closing the system there is an option to depower the LNC networks if required.

6.6. The system LNC’s control the logging of the extensometers. If the PC software crashes or is automatically closed e.g. for a Windows software update, it does not automatically shut down logging of the roofAlert extensometers. The system will continue to log but the data will not be able to be saved by the control software.

6.7. To maximise logging and reduce operator intervention, it is preferable if the roofAlert software is set up in the PC to automatically run if the PC reboots.

The roofAlert software is under continuous improvement. Please make a record of any bugs you encounter during operations and also any suggestions for improvements that will make the software easier to use and send them to: [admin@holville.com.au](mailto:admin@holville.com.au).