NDC Infrared Engineering
InfraLab Manager
User Guide

Publication Reference: 115/15204-01SA

Issue 1

COPYRIGHT

NDC
Offices in the USA, UK and China. Visit www.ndcinfrared.com for office details.

A Spectris Company

Contents

1 Overview

InfraLab Manager is a Windows™-based software tool supplied with InfraLab e-Series analysers. It provides convenient facilities for displaying, logging, analysing and exporting sample measurement data collected from individual or multiple analysers.

All sample measurement data is held in system databases that can store multiple-product values collected from multiple InfraLab analysers. During the installation process a default system database is created.

The system operates in two ways:

- **Networked**

  In an Ethernet-based LAN configuration the system provides the ability to view real-time measurement data from connected on-line analysers and to calculate and upload new calibration settings when necessary.

  Sample data can be automatically or manually uploaded from any connected InfraLab analyser.

- **Non-networked**

  Off-line, where previously-collected analyser data can be imported into the system for analysis.

  An InfraLab analyser can save samples directly to a USB memory stick. Refer to the InfraLab operating instructions for further details.

1.1 Associated documentation

The following documents are associated with this manual:

- InfraLab e-Series Analyser User Guide
  Publication Reference: 115/14946-01SA

1.2 Contact information

For enquiries relating to the operation and use of the equipment described in this manual please refer to www.ndcinfrared.com for company contact details.

2 Getting Started

2.1 Hardware and system requirements

The InfraLab Manager software may be installed and used on a desktop or laptop computer with the following specifications:

Item	Minimum	Recommended
Processor	Any Dual Core	1.7 GHz Dual Core
Memory	256 MB	512 MB
Hard Disk (free space)	200 MB	1 GB
Display	800 x 600 pixels	1024 x 768 pixels
Pointing Device	Mouse or tracker ball	
Operating System	Windows XP (x86)	
	Windows Vista or Windows 7 (x86 and x64)	
Network Port	Ethernet 10/100/1000 MBit/s	

2.2 Installing the software

The InfraLab Manager software is usually distributed on a CD.

Install, as follows:

1. Insert CD into the PC drive.
2. If the installation process does not start automatically, navigate to the CD and run the program **InfraLabManager Setup.exe**.
3. During installation, follow the on-screen instructions and select, as required:
   - Add a shortcut icon to desktop.
   - Add a quick launch icon.
   - Languages to be installed.
   - Default language.

Note: Once the installation setup is complete, you can start the system immediately in a 30 day Trial License mode. However, to gain access to all available features, the software must be registered.

If you do not have the distribution CD, the software can be downloaded from here:

www.ndcinfrared.com/InfraLabManager

2.3 Registering the software

1. Start the InfraLab Manager system using one of the following methods:
   - Double-clicking the Desktop shortcut icon.
   - Selecting the Quick Launch icon.
   - Selecting Start > Programs > NDC Infrared > InfraLab Manager.
2. Do one of the following:
   - Select Help > About, select Request License.
   - Select the flashing trial license indicator in the status bar.
3. Enter your name, company details and other requested registration information.
4. Submit the license request using one of the following methods:
   - If the host PC has local email access, select Email request.

- If the host PC has no email access, select Save to file.
  Follow the on-screen instructions to save the file, then email it to **infralab@ndcinfrared.co.uk**.

In reply to your request, a license file (.gtlic) will be emailed with full instructions on use.

If you are unable to register electronically, please contact NDC.

3 Operation

3.1 Introduction

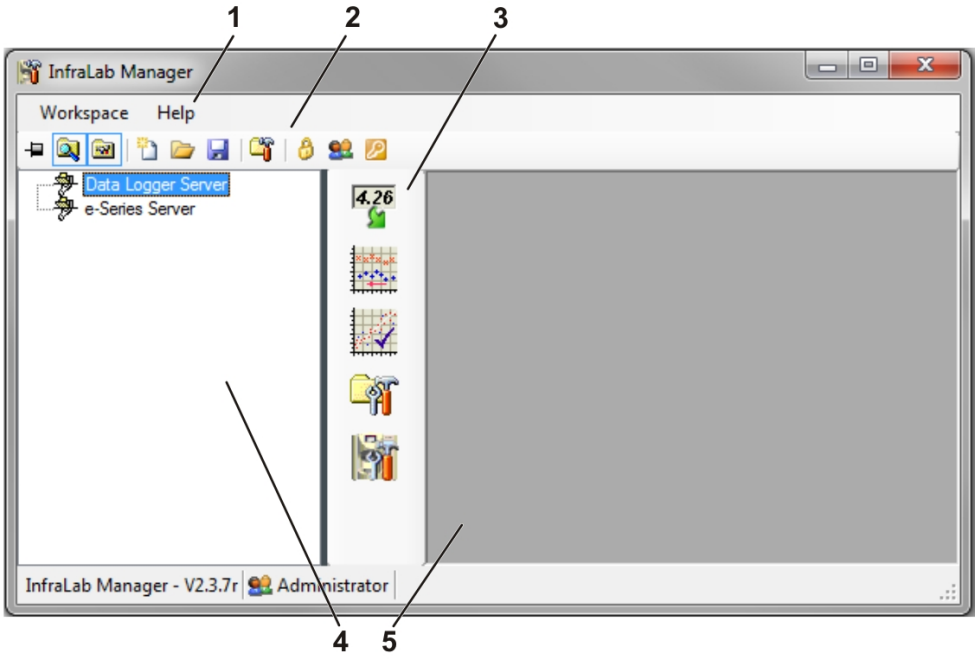
Typical InfraLab Manager operation

1. Start (Page 3-3) the InfraLab analyser application.
2. If necessary, log on (Page 3-4) as a User or Administrator.
3. If using the system with **networked** analysers:
   1. Ensure the required analysers are physically connected (Page 4-1) to the host PC and switched on.
   2. Check the analysers have automatically connected (Page 3-4). If not, manually connect them.

      To ensure you have access to the most up-to-date measurement data, the system automatically synchronises your chosen database with the analyser.
4. If using the system with **non-networked** analysers, to review the most up-to-date measurement data, you need to import (Page 5-19) the previously-saved analyser sample files.
5. Use the Toolbox strip tools, as required.

3.2 The InfraLab Manager Interface

The InfraLab Manager interface comprises the following functional elements and uses standard windows techniques for resizing, selecting, dragging and dropping and exiting.



Item	Description
1	Menu bar
2	Toolbar
3	Toolbox strip
4	Explorer
5	Workspace

The individual functional elements are described in greater detail below:

Menu bar

Item	Description
Workspace	Menu for Workspace functions. The options available duplicate the Toolbar icon functions detailed below.
Help	Provides system software information and a Raise Report function that prepares a software report for sending to NDC when requested.

Toolbar

Icon	Description or function
	Always on top. When activated, InfraLab Manager is always displayed on the Desktop top layer.
	Show or hide the Explorer display.
	Show or hide the Toolbox strip.
	Create a New empty Workspace. This also clears the currently displayed Workspace.
	Load a previously-saved Workspace file.
	Save the current Workspace.
	System configuration. Provides access to the Security (Page 7-1), General, Colours and Styles (Page 7-1) functions.
	Log off the current user.
	Log on.
	Change current user password.

Toolbox strip

Icon	Description or function
	**Simple display tool** (Page 6-1) Used to to view the current sample measurement values and status of an InfraLab analyser.
	**History tool** (Page 5-6) Used to view previously-collected InfraLab analyser sample values.
	**Linefit tool** (Page 5-12) Used to perform a statistical analysis of sample measurement values to determine analyser calibration accuracy.
	**Configuration tool** Used to view and edit the connections between analysers and databases.
	**Utilities tool** (Page 6-2) Provides a range of analyser diagnostic and maintenance functions
	**Product Manager** (Page 6-2) (a licensed option). Allows you to manage multiple product sampling across multiple production lines.

Explorer

When working with networked InfraLab analysers, the Explorer is used to display a tree view of all the attached and associated system devices, as follows:

Item	Type	Description
	A Server device.	The system uses two types of built-in server: ▪ A **Data logger server** that manages the data connections between analysers and system databases and provides various data upload management functions. ▪ An **e-Series server** that detects the presence of analysers and provides real-time data for functions such as the Simple display (Page 6-1) and Utility (Page 6-2) tools.
	An InfraLab analyser.	Each attached analyser is displayed with a label giving its serial number or ID.

Items displayed in the Explorer view may be supplemented by further symbols (typically with adjacent message text), or overlaid with symbols as shown in the table below:

Item	Meaning	Status
	Device is disconnected.	Off-line
	Device status is OK.	On-line
	Device has a Warning message.	On-line
	Device has an Error condition.	On-line

Workspace

A display area where arrangements of individual or multiple Toolbox tools are viewed.

Workspace arrangements can be saved and loaded using the Toolbar icons or the Workspace menu functions.

3.3 Starting InfraLab Manager

Depending on the installation options chosen, there may be up to four ways to start the InfraLab Manager system:

- Double-clicking the Desktop shortcut icon.
- Selecting the Quick Launch icon.
- Selecting Start > Programs > NDC Infrared > InfraLab Manager.
- Double-clicking a Workspace file icon.

Start the system using one of these methods and after initialisation, the interface window will open.

3.4 Logging on

During installation setup, the built-in security feature is disabled, so you can immediately use the system with full access to all functions, without the need for logging on.

However, if the security feature is enabled, access to certain system functions is controlled by a series of Privileges (Page 7-2) defined in individual **User Accounts**. Once created, a user account enables you to log on to the system and grants access to all your applicable functions.

If the built-in system security (Page 7-1) option has been enabled, a log on icon is displayed on the toolbar.

Note: You can choose to log on as the default Administrator or as a pre-defined User at any time. However, you do not need to log on to use the basic functions provided by the system, including the Analysis (Page 5-1) tools.

Log on as follows:

1. On the toolbar, select  .
2. If logging on as the default Administrator, enter **Administrator** as the User Name.
3. If logging on as a user, enter your **User Name**.
4. Enter any required Password.
   Passwords are case-sensitive.

3.5 Logging off

If the built-in system security option has been enabled, to log off the current user, select  on the toolbar.

3.6 Working with networked analysers

Networked operation involves the connection of one or more InfraLab analysers to the host PC. The InfraLab Manager system automatically detects all currently available analysers and provides functions to do the following:

- Create and manage (Page 4-1) the data communication connections.
- Remotely Display (Page 6-1) the current operational status and sample measurement values of any analyser.
- Upload (synchronise (Page 4-2)) stored sample measurement data from the analysers to the InfraLab Manager system databases.
- Upload new calibration values (Page 5-18) to analysers.

Prior to operating with networked analysers, the system needs initial configuration (Page 4-1) to establish the connections and define various operational preferences.

3.6.1 Connecting and disconnecting an analyser

Connecting an analyser

If the Auto Connect operational preference (Page 4-3) is selected, when a networked analyser comes on-line it is automatically connected to a system database via an established data communication (Page 4-1) connection. The analyser icon in the Explorer view will look like this:

However, if Auto Connect is not selected, or a valid data communication connection is not available, the analyser will remain in a disconnected state and the analyser icon in the Explorer view will look like this:

To manually connect an analyser to a database:

1. Right-click the required analyser in the Explorer view.
2. Select Connect.

Disconnecting an analyser

1. Right-click the required analyser in the Explorer view.
2. Select Disconnect.

3.6.2 Right-click context menu functions

1. Right-click an item in the Explorer view.
2. Select from the following functions:

Function	Items	Description of use
Refresh	All	Dynamically refreshes the Explorer view
Search For Devices	e-Series	Attempts to identify all valid devices connected to the system network.
Configure	e-Series	Opens a window to set the automatic analyser backup routine. Configure this as appropriate.
Open with >	Data Logger and Analyser	Displays a list of tools valid for the selected item. Select to open the tool in the Workspace.
Connect	Analyser	Manually connects an analyser to a system database via an established data communication connection.
Disconnect	Analyser	Manually disconnects the analyser from the system.
Reset	Analyser	Resets the InfraLab analyser operating software.
Re-reference	Analyser	An advanced function - consult NDC before use.

4 Configuring a networked system

To use an InfraLab Manager system with networked analysers, you need to:

- Configure the physical connections (Page 4-1) between the host PC and the analysers.
- If required, configure the system IP parameters (Page 4-1).
- Create the data connections (Page 4-1) between the analysers and the system databases.
- Select your operational preferences (Page 4-3).

4.1 System connections

Use standard Ethernet techniques and components to connect the InfraLab Manager host PC to one or more InfraLab analysers either directly or via a LAN.

4.2 Configuring IP parameters

A built-in utility function is used to configure the TCP/IP parameters of any networked InfraLab analyser that has been detected, but cannot be accessed by the InfraLab Manager system.

An analyser may be inaccessible due to it having IP parameter values that are in different ranges from the system host PC. Configure these, as follows:

1. Select the required InfraLab analyser from the list of **Inaccessible Devices** displayed in the Explorer and drag it onto the Utilities toolbox icon  .
2. Modify the IP parameter values as required and select Apply to set the configuration and restart the analyser.

Parameter	Description
DHCP	Set the Dynamic Host Configuration Protocol as appropriate: ▪ **True** - The analyser will automatically be supplied with LAN settings from the network DHCP Server. ▪ **False** - The LAN parameters are set manually.
AutoIP	If this is set ▪ **True** and DHCP is also set True but no network DHCP Server exists (or it has failed), the IP address will default to the range: 169.254.0.0 - 169.254.255.255. ▪ **False** and DHCP is also set False, the analyser will use the parameters manually set below:
IP Address	Enter the IP address value.
Default Gateway	Enter the default gateway address value.
Subnet Mask	Enter the subnet mask address value.

4.3 Creating data connections

Each InfraLab analyser requires a data connection that defines its attachment to an InfraLab Manager system database.

Data connection wizard

When you drag an analyser onto either the History or Linefit toolbox tool icons and no valid data connection exists, a system wizard guides you through the connection procedure, as follows:

1. Select and drag an analyser from the Explorer view onto either the History or Linefit tool Toolbox icon.
2. If no valid data connection exists due to a connection deletion, or if this is the first time the analyser has been connected to the InfraLab Manager system, a **Create new connection** box automatically appears:
    1. Use the list box and/or the browse function to navigate to and select your required target system database.

The default system database is always automatically chosen by the system.

2. Select OK.
3. Choose an appropriate response to the upload samples system message:

   Yes - upload (synchronise) data from the analyser to the chosen database. This operation ensures you have access to the most up-to-date sample measurement values.

   No - to ignore this operation.

3 If a valid data connection exists, the chosen tool will open in the workspace.

Manually configuring a data connection

Typically, one analyser will attach to one system database. However, it is possible to manually configure data connections for one analyser to connect to multiple databases, or several analysers to connect to one database.

1 Select and drag the Data Logger server from the Explorer view onto the Configuration tool Toolbox icon  .

2 Right-click in an empty area of the Data Logger window.

3 Select Add New.

4 Select a source InfraLab analyser from the tree display.

5 Use the list box and/or the browse function to navigate to and select your required target database.

6 Select OK.

4.3.1 Deleting a data connection

1 Select and drag the Data Logger server from the Explorer view onto the Configuration tool Toolbox icon  .

2 Right-click on the required Device to Database connection.

3 Select Delete.

4 Select Yes, when prompted.

4.3.2 Synchronising sample data

If the Sync On Connect operational preference (Page 4-3) is selected, sample data from a networked analyser is continually synchronised to the system database(s).

If Sync On Connect is not selected, use this procedure to manually synchronise sample data:

1 Select and drag the Data Logger server from the Explorer view onto the Configuration tool Toolbox icon  .

2 Right-click on the required Device to Database connection.

3 Select one of the following functions, as required:

Function	Description
Synchronise	Upload the latest sample data using the selected data connection.
Synchronise All	Upload all sample data from the analyser using the selected data connection.

4.4 Setting operational preferences

1. Select and drag the Data Logger server from the Explorer view onto the Configuration tool Toolbox icon  .
2. Right-click on the required Device to Database connection.
3. Select the following functions, as required:

Function	Description
Auto Connect	The system will attempt to automatically activate the selected data connection when the networked analyser is on-line. By default this is active.
Sync On Connect	As soon as a data connection is established, the system will attempt to upload all sample data taken whilst the analyser was off-line. By default this is active.

5 Analysis tools

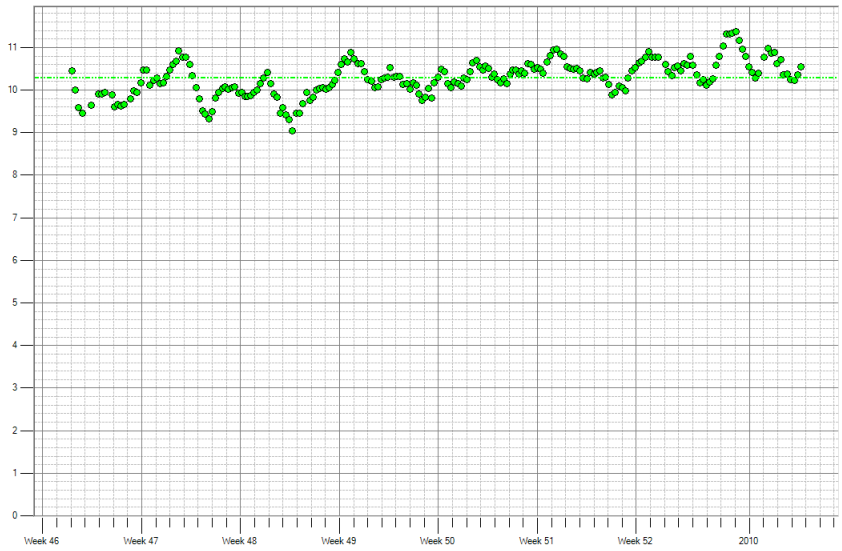
The InfraLab Manager system provides two analysis tools where sample data values are displayed in:

- A tabular Data Grid with individual data-type columns.
- A series of graph tools.

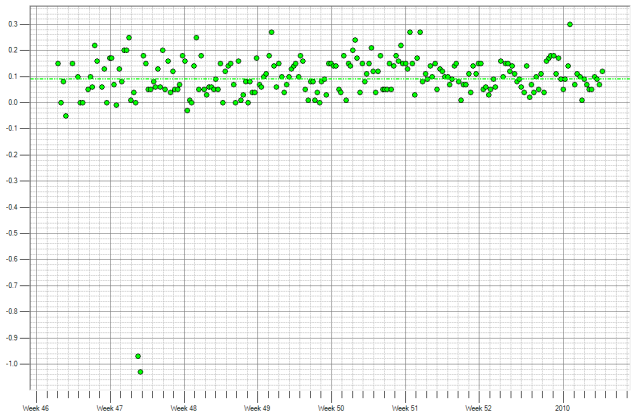
Both analysis tools are provided with common functions to Import (Page 5-19), Export (Page 5-19) and Print (Page 5-19) sample data values.

History tool

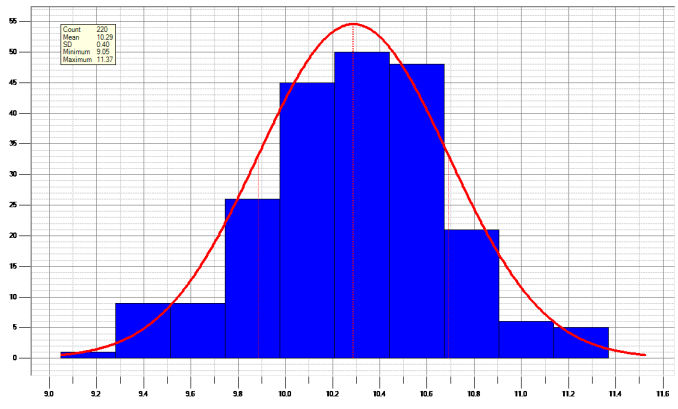
The History tool is used to generate trend plots from previously-collected InfraLab analyser sample measurement values stored in the system databases.



Measurement History trend plot



Residual (difference) trend plots

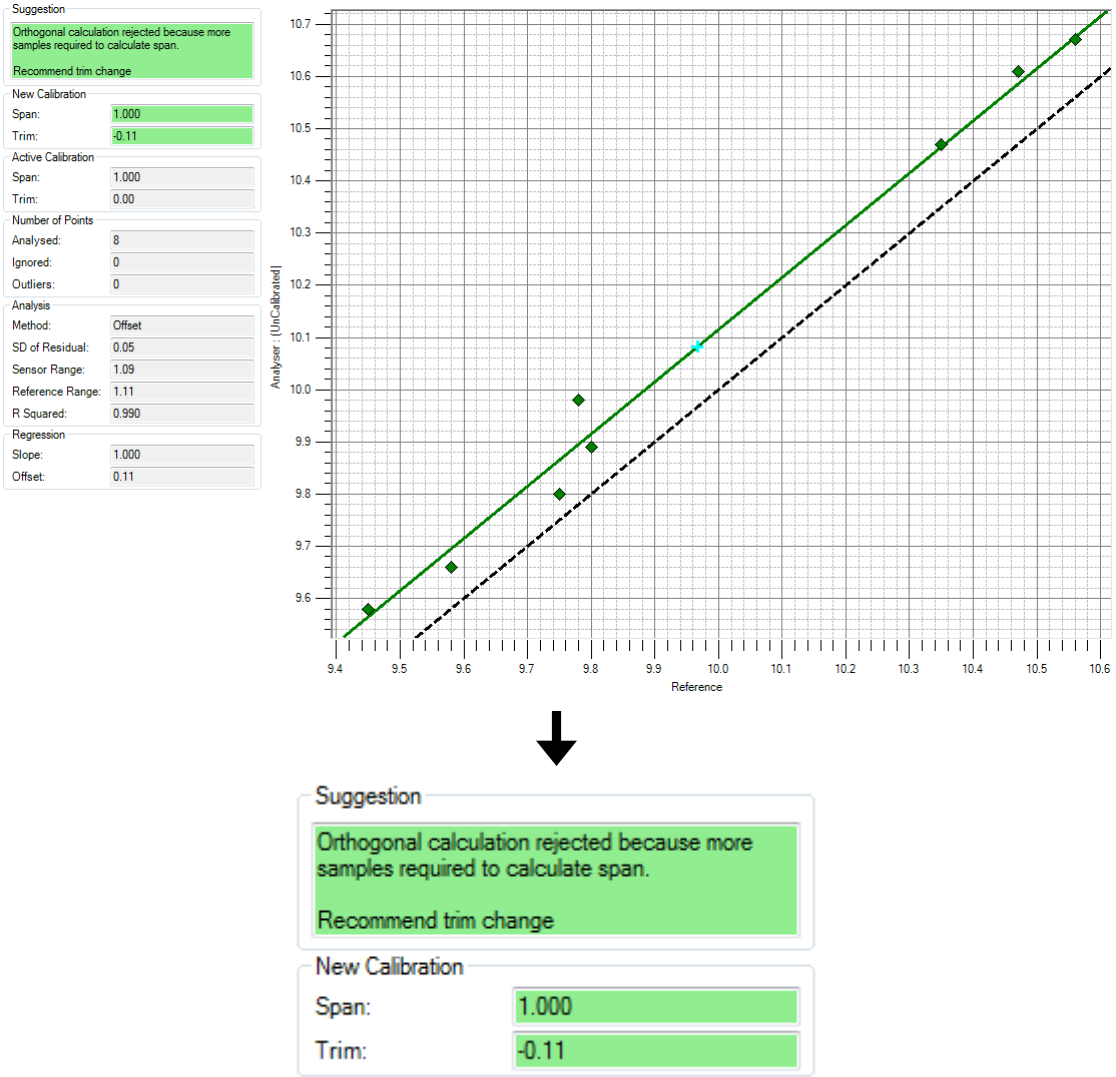


Histogram (Page 5-11) function that displays sample-data value distribution

Linefit tool

The Linefit tool is used to perform a statistical analysis of sample measurement values against laboratory reference data to determine optimal analyser calibration settings.

	Timestamp	Sample ID	Calculated	SD	Reference	Ignored
▶	14/11/2009 13:11:22	Sample0000016	9.58	0.08	9.45	☐
	16/11/2009 21:11:22	Sample0000026	9.89	0.10	9.80	☐
	17/11/2009 07:11:22	Sample0000028	9.66	0.10	9.58	☐
	18/11/2009 05:11:22	Sample0000032	9.80	0.14	9.75	☐
	18/11/2009 10:11:22	Sample0000033	9.98	0.09	9.78	☐
	19/11/2009 08:11:22	Sample0000037	10.47	0.13	10.35	☐
	21/11/2009 05:11:22	Sample0000045	10.61	0.10	10.47	☐
	21/11/2009 10:11:22	Sample0000046	10.67	0.08	10.56	☐



The set of calibration values suggested by the system can be subsequently Uploaded (Page 5-18) to the associated analyser, if required.

5.1 Preparing to use an analysis tool

If using networked analysers

1. Drag the required analyser from the Explorer onto the required Toolbox tool icon.
   If using the system (or an analyser) for the first time, refer to the Creating data connections (Page 4-1) section for further instruction.
2. Configure the data filtering (Page 5-4).

If using non-networked analysers

1. Select the required Toolbox tool icon.
2. Select the database (Page 5-3).
3. If required, Import (Page 5-19) the latest sample measurement data.
4. Configure the data filtering (Page 5-4).

5.1.1 Selecting the database

1. On the History or Line Fit toolbar, select  .
2. Select  .
3. Choose your required entry from the Database list box.
4. If the required database is not present in the list box, use the Open/Select function to navigate to and select your required target database.
   If the required database doesn't exist at your chosen location, simply type in a suitable filename and the system will automatically create a new database.

5.1.1.1 Configuring the data filtering

Data filtering provides a convenient way of producing specific product/constituent result sets based on chosen criteria. Each result set is available as a separate data-grid tab in both the History and Linefit tools.

Data filter selections can be saved (Page 5-5) for future recall and use.

By default, the Search Criteria region contains the following filters operating in a top-down priority (each provides a count of filtered data items):

- **Product**
- **Constituents**
- **Date filter**

However, up to eight further pre-defined filters can be added:

Filter	Description
Application Codes	This is a specialised code, refer to NDC for full details.
Locations	Currently only used with the Product Manager (Page 6-2) option.
Calibrations	Filters the results according to the analyser Calibration records. Choose an appropriate entry from the list box.
Analysers	Unique analyser name/number.
Users	Infralab user name in use when sample taken.
Sample ID	Filters the results according to the user-defined sample ID value. If a sequence of samples has a common prefix label simply enter this to display all those results. Otherwise, enter a unique ID to select a single result.
Reference	Filters the results according to the sample Reference value: ▪ If set to **True** only sample results with a reference value will be displayed. ▪ If set to **False** only sample results without a reference value will be displayed.
Ignored	Filters the results according to the sample Ignored tick box: ▪ If set to **True** only ignored sample results will be displayed. ▪ If set to **False** any ignored sample results will not be displayed.

1. Choose your required entry from the Filter By list box.
2. Select Add.
3. If required, repeat the above to add further applicable filters.
4. If two or more filters have been added, use the  controls to order their priority.
5. To remove an unwanted additional filter, select  .

Using the data filters

The system provides two data filter views:

View	Function
Simple	Provides basic filtering functions suitable for most users. To enable this view, set the Simple View tick box.
Advanced	Provides further filtering functions, such as: ▪ Individual item selection in the filter list boxes ▪ Advanced time-based filtering ▪ A Combine sample set function To enable this view, deselect the Simple View tick box.

1. Use the  controls, to expand or collapse the various Search Criteria filter displays.
2. Choose your required filter criteria from the displayed list boxes.
3. If in Advanced view:
    1. Use the tick boxes to select multiple entries, or select <All>, as required.
    2. Use the Combine tick boxes (where applicable) to combine your filter item selections into one result set, if required.
       Typically, this function is used when the selected items are similar in type.
4. For date-based filtering:
    1. Set the Last tick box.
    2. Configure your required time period using the adjacent spin-control field and list box.
    3. To use the last included sample as the date limit, set the Up To tick box, otherwise leave blank to use the current date.
    4. If in Advanced view, use the From and To fields as required.
5. When satisfied with the data filtering, select Complete.

5.1.1.2 Saving and loading data selections

Saving

1. On the History or Line Fit toolbar, select  .
2. Navigate to your required destination folder.
3. Enter a suitable File name.
4. Select Save.

Loading

1. On the History or Line Fit toolbar, select  .
2. Navigate to the source folder.
3. Select the required file.
4. Select Open.

Note: The History and Linefit tools have differing filename extensions (.hdf_xml & .ldf_xml).

5.2 History tool

5.2.1 Using the data grid display

1 Select the required product/constituent tab.

2 On the toolbar, select  .

Timestamp	Sample ID	Calculated	SD	Reference	Calibration Set
24/01/2011 14:54:42	lab98	28.13	0.50	37.74	●
24/01/2011 14:56:33	lab99	4.67	0.68	8.38	●
24/01/2011 15:01:08	lab100	27.20	0.90	35.88	●
24/01/2011 15:04:25	lab101	6.78	0.88	11.72	●
24/01/2011 15:07:30	lab102	39.07	0.60	53.97	●
24/01/2011 15:15:31	lab104	19.83	0.70	26.37	●
24/01/2011 15:29:54	lab105	14.67	0.86	22.02	●
07/02/2011 09:40:06	lab135	22.39	1.30	23.00	■
07/02/2011 09:45:07	lab136	23.23	1.63	24.20	■

Sample data is displayed in individual data-type columns:

- **Timestamp** - The time and date the sample was taken.
- **Sample ID -** An automatically generated or manually input identifier.
- **Calculated** - The analyser measurement value as originally collected (or normalised when using the advanced settings).
- **SD** - The measurement Standard Deviation value for the sample.
- **Reference** - A manually entered value (typically determined by a laboratory).
- **Calibration Se**t - If samples have been taken with different calibrations (Spans, Trims and Application codes) the system displays them with different Calibration Set symbols.
  This feature allows you to see where the calibration has changed and any effect this may have had on the measurements.

  Position the cursor on a symbol to view the calibration details for that sample in a pop-up.

Modifying sample data

1 Select the **Sample ID** or **Reference** cell you wish to change.

2 Type in the new entry and press Enter.
  Once reference values have been entered, the system can generate residual trend plots

  Various right-click context menu functions are available during the above operations.

Ordering the grid display

Select the required column header (further selections will alternate between ascending and descending values).

Deleting sample data

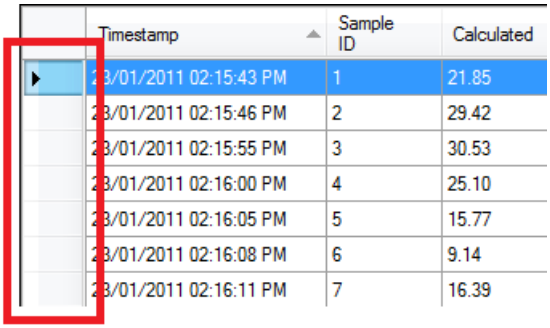
Note: It is recommended that this function is used with caution, as once the selected data has been deleted it cannot be recalled from the database.

1 Ensure the **Allow Sample Deletion** function is enabled in Advanced settings (Page 5-20).

2 Use the table row-selector column to select and highlight:

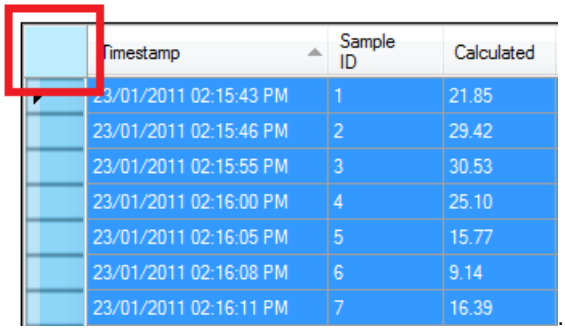
- An **Individual** row.
- A **Block** of rows:
  Select the first row required then drag the cursor to the last row required.
- **Multiple blocks** of rows:

Select the first block, hold down the Control key and select further blocks or rows.



Timestamp	Sample ID	Calculated
23/01/2011 02:15:43 PM	1	21.85
23/01/2011 02:15:46 PM	2	29.42
23/01/2011 02:15:55 PM	3	30.53
23/01/2011 02:16:00 PM	4	25.10
23/01/2011 02:16:05 PM	5	15.77
23/01/2011 02:16:08 PM	6	9.14
23/01/2011 02:16:11 PM	7	16.39

- To select **All** the rows for deletion, select the top row-selector cell:



Timestamp	Sample ID	Calculated
23/01/2011 02:15:43 PM	1	21.85
23/01/2011 02:15:46 PM	2	29.42
23/01/2011 02:15:55 PM	3	30.53
23/01/2011 02:16:00 PM	4	25.10
23/01/2011 02:16:05 PM	5	15.77
23/01/2011 02:16:08 PM	6	9.14
23/01/2011 02:16:11 PM	7	16.39

3 On the toolbar, select  .

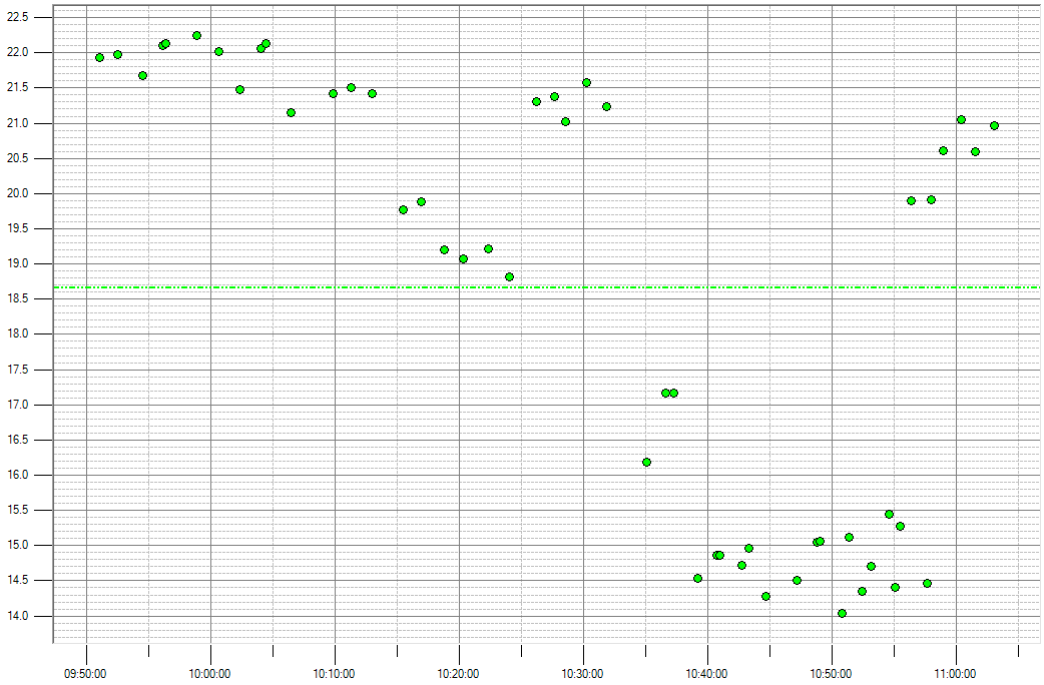
5.2.2 Using the graph view

1 Select the Graph View tab.

2 On the toolbar, select your required graph view from the list box.

History plot

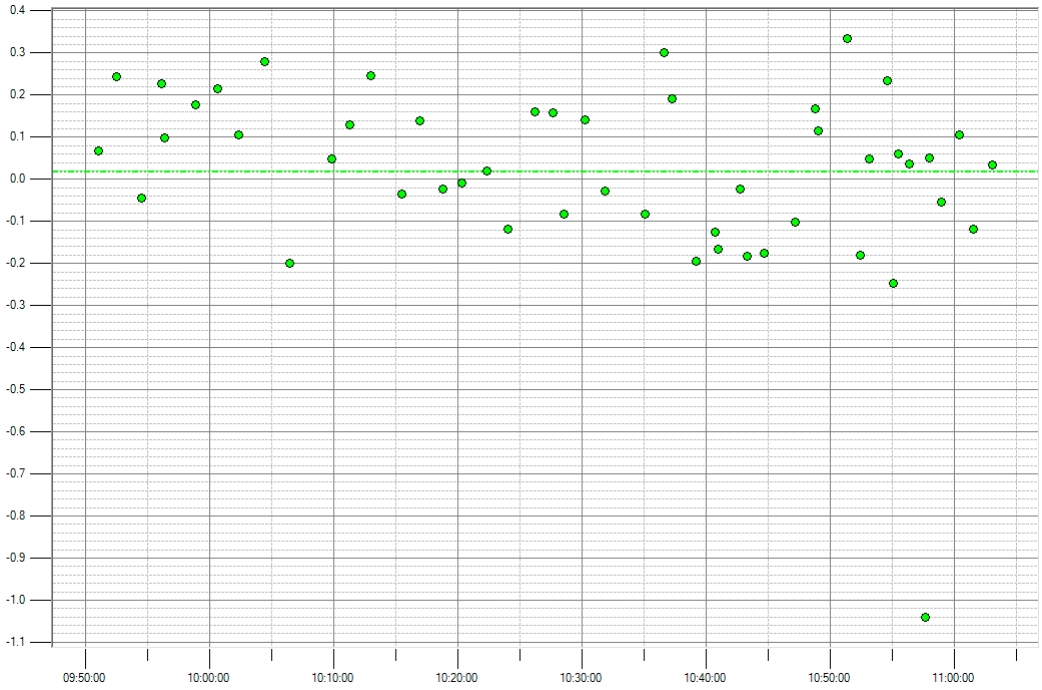
Select  to display a plot of sample data collected over a period of time.



Residuals plot

Select  to display the residual (difference) values on the graph plot (only if sample reference values have been entered).

Use this plot to reveal any systematic trends in the analyser measurements.



Viewing plot point data

Within the graph display area, position the cursor over any graphical element to view its associated data value or label.

Changing graph background

1. On the left-hand side of the graph, select  .
   Alternatively, right-click the graph and select Configure.
2. Select the graphical item you wish to change.
3. Use the tick boxes (where provided) to enable or disable the associated item.
4. Use the list boxes presented to choose your required attribute.
5. To restore factory settings, click Restore Defaults.
6. Click Apply to dynamically update the display and view any changes made.
7. Click OK to accept and save changes.

Changing graph point style

Each sample set is represented on the graph using different colour points, these colours can be changed, as follows:

1. Select the point you wish to change on the left-hand side of the graph.
   For example:

   
2. Choose a suitable Colour and Point Style from the list boxes.
3. Click Apply to dynamically update the display and view any changes made.

4 Click OK to accept and save changes.

Changing graph scaling

When multiple sample sets are displayed, the vertical scale automatically defaults to a range that includes the limits of the entire sample set.

However, you can zoom in on an individual set by selecting the Scale button on the corresponding point icon:

For example (highlighted in red):

Operate the scale button again to display the default. This is a toggle-action control.

Hiding and showing individual sample sets

Select the show/hide button on the corresponding point icon to toggle the display of the sample set:

For example (highlighted in red):

Deleting samples

1 Ensure the **Allow Sample Deletion** function is enabled in Advanced settings (Page 5-20).

2 Drag a Selection Region around the points you wish to delete.

3 Select Delete from the pop-up.

Graph view zooming functions

- To **Zoom In**:
  1. Drag a Selection Region around the area of interest.
  2. Select Zoom from the pop-up.
  3. As required, repeat the zoom operation to increase the levels of display magnification.
- To **Zoom Out**, right-click the graph and select either:
  - Zoom Out, to return to the original graph scale.
  - Zoom Back, to step back one magnification level.

Hiding negative sample values

Right-click the graph and select Hide Negatives. This is a toggle-action control.

Showing the graph origin

To rescale and redraw the graph to show the origin point (0,0) right-click the graph and select Show Origin. This is a toggle-action control.

Use this function to aid visualisation of the measurement data.

5.2.3 Using the advanced view

The Advanced view provides additional sample-data processing options that can help reveal systematic trends such as those associated with incorrect calibration **Span** and **Trim** adjustments over time, or operator sample handling/referencing techniques.

To activate these further options, ensure **Show Advanced View** is selected in Advanced Settings (Page 5-20). However, it is recommended that this option is not enabled for general use.

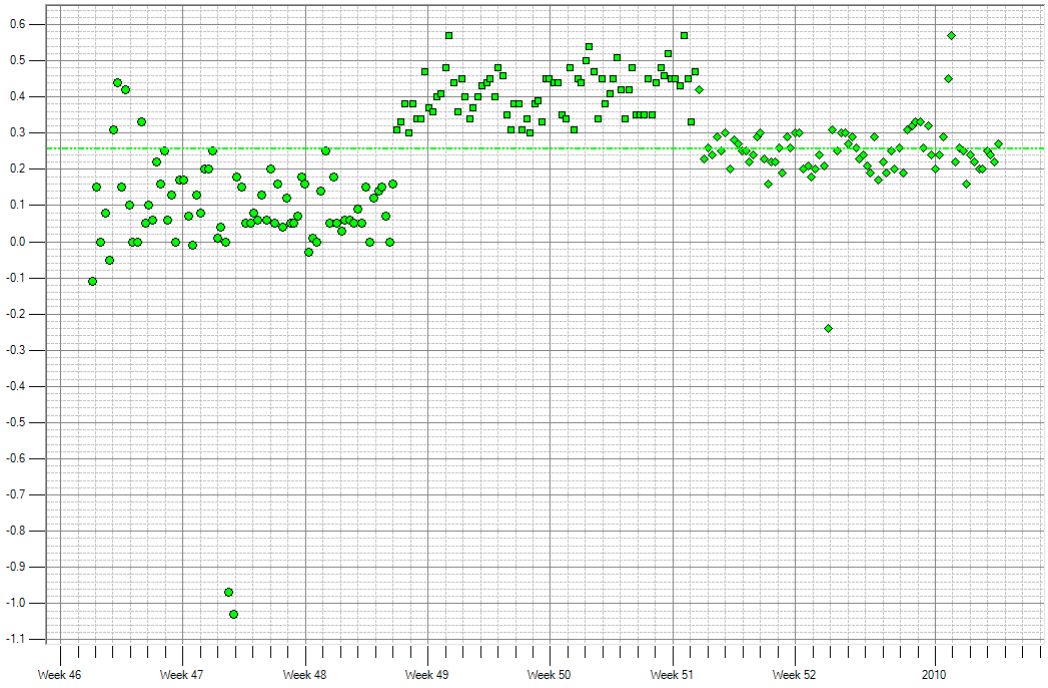
On the toolbar, select your required advanced view from the list box.

Where appropriate, the following options simply recalculate the filtered data and can be applied to both History and Residual plots.

Original calibration

Select  to display a measurement trend plot of the actual analyser data, as collected.

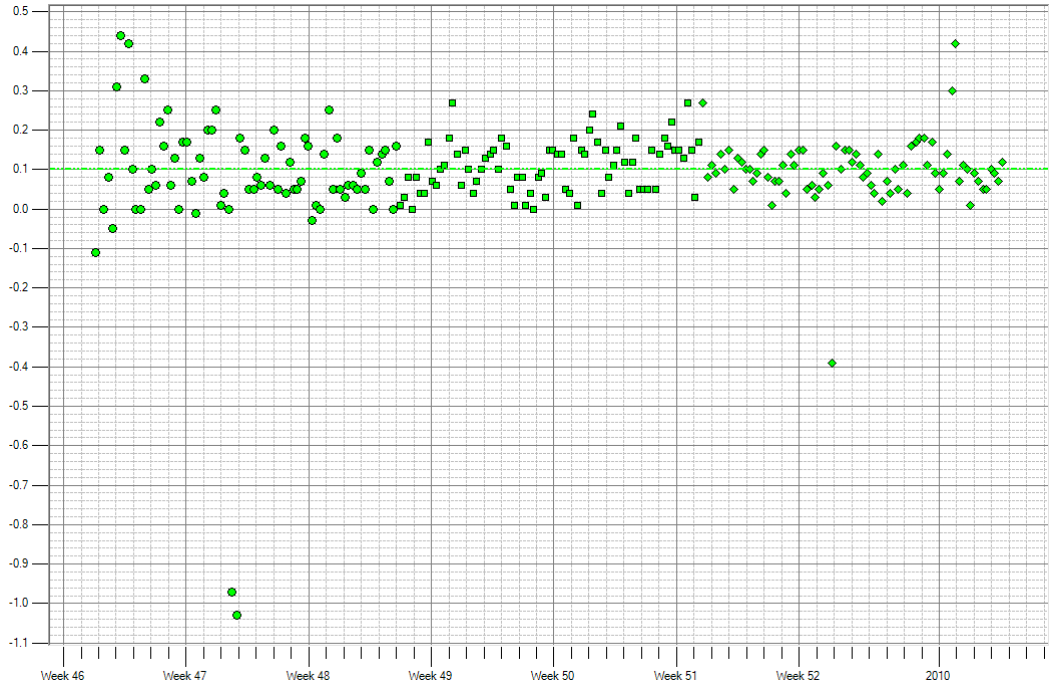
The following illustration is an example Residual plot:



Normalised calibration

Select  to display a measurement trend plot of the analyser data recalculated to a Span of 1 and a Trim of 0.

The following illustration is the example Residual plot from the above data, normalised to remove the effects of historical calibration changes:



Last calibration

Select  to display a measurement trend plot of the analyser data recalculated to the last Span and Trim used.

5.2.4 Using the Histogram graph display

1. Select the required product/constituent data grid tab.
2. On the toolbar, select  from the list box.
3. Use the spin-controls to dynamically select the number of histogram bars displayed.

5.3 Linefit tool

5.3.1 Using the data grid display

On the toolbar, select  from the list box.

Timestamp	Sample ID	Calculated	SD	Reference	Ignored	Calibrated	Residual	Status	Calibration Set
24/01/2011 14:54:42	lab98	40.20	0.69	37.74	☐	38.17	0.43	OK	◆
24/01/2011 14:56:33	lab99	7.92	0.94	8.38	☐	8.18	-0.20	OK	◆
24/01/2011 15:01:08	lab100	38.91	1.24	35.88	☐	36.97	1.09	OK	◆
24/01/2011 15:04:25	lab101	10.82	1.21	11.72	☐	10.88	-0.84	OK	◆
24/01/2011 15:07:30	lab102	55.24	0.82	53.97	☐	52.14	-1.83	OK	◆
24/01/2011 15:15:31	lab104	28.78	0.96	26.37	☐	27.56	1.19	OK	◆
24/01/2011 15:29:54	lab105	21.68	1.19	22.02	☐	20.97	-1.05	OK	◆
07/02/2011 09:40:06	lab135	23.32	1.46	23.00	☐	22.49	-0.51	OK	▲
07/02/2011 09:45:07	lab136	24.27	1.83	24.20	☐	23.37	-0.83	OK	▲

Sample data is displayed in individual data-type columns:

- **Timestamp** - The time and date the sample was taken.
- **Sample ID -** An automatically generated or manually input identifier.
- **Calculated** - The analyser measurement value as originally collected (or normalised when using the advanced settings).
- **SD** - The measurement Standard Deviation value for the sample.
- **Reference** - A manually entered value (typically determined by a laboratory).
- **Ignored** - Used to exclude a sample point from the analysis.
- **Calibrated** - The analyser measurement value recalculated to the new suggested span and trim.
- **Residual** - The calculated difference between the calibrated sample value and the reference value.
- **Status** - A sample status message
- **Calibration Se**t - If samples have been taken with different calibrations (Spans, Trims and Application codes) the system displays them with different Calibration Set symbols.

  This feature allows you to see where the calibration has changed and any effect this may have had on the measurements.

  Position the cursor on a symbol to view the calibration details for that sample in a pop-up.

Modifying sample data

1. Select the **Sample ID** or **Reference** cell you wish to change.
2. Type in the new entry and press Enter.

   Once reference values have been entered, the system can generate residual trend plots

   Various right-click context menu functions are available during the above operations.

Ordering the grid display

Select the required column header (further selections will alternate between ascending and descending values).

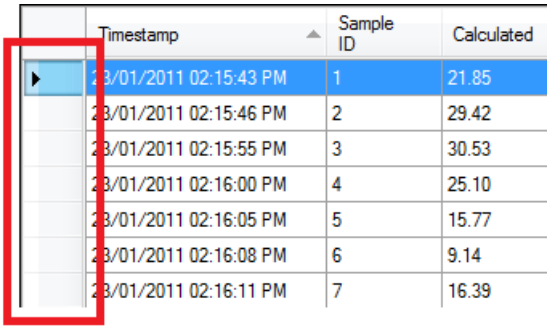
Excluding samples from analysis

To exclude a sample point from the analysis, select the Ignored tick box corresponding to the measurement you wish to ignore.

Deleting sample data

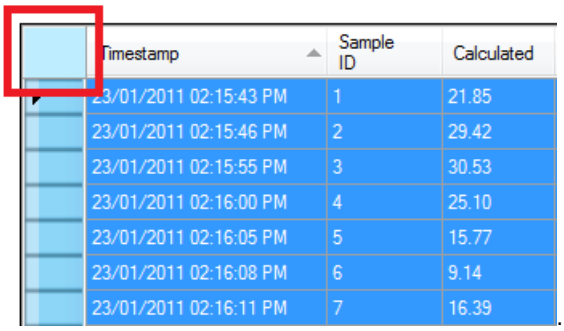
Note: It is recommended that this function is used with caution, as once the selected data has been deleted it cannot be recalled from the database.

1. Ensure the **Allow Sample Deletion** function is enabled in Advanced settings (Page 5-20).
2. Use the table row-selector column to select and highlight:
   - An **Individual** row.
   - A **Block** of rows:
     Select the first row required then drag the cursor to the last row required.
   - **Multiple blocks** of rows:
     Select the first block, hold down the Control key and select further blocks or rows.



Timestamp	Sample ID	Calculated
23/01/2011 02:15:43 PM	1	21.85
23/01/2011 02:15:46 PM	2	29.42
23/01/2011 02:15:55 PM	3	30.53
23/01/2011 02:16:00 PM	4	25.10
23/01/2011 02:16:05 PM	5	15.77
23/01/2011 02:16:08 PM	6	9.14
23/01/2011 02:16:11 PM	7	16.39

   - To select **All** the rows for deletion, select the top row-selector cell:



Timestamp	Sample ID	Calculated
23/01/2011 02:15:43 PM	1	21.85
23/01/2011 02:15:46 PM	2	29.42
23/01/2011 02:15:55 PM	3	30.53
23/01/2011 02:16:00 PM	4	25.10
23/01/2011 02:16:05 PM	5	15.77
23/01/2011 02:16:08 PM	6	9.14
23/01/2011 02:16:11 PM	7	16.39

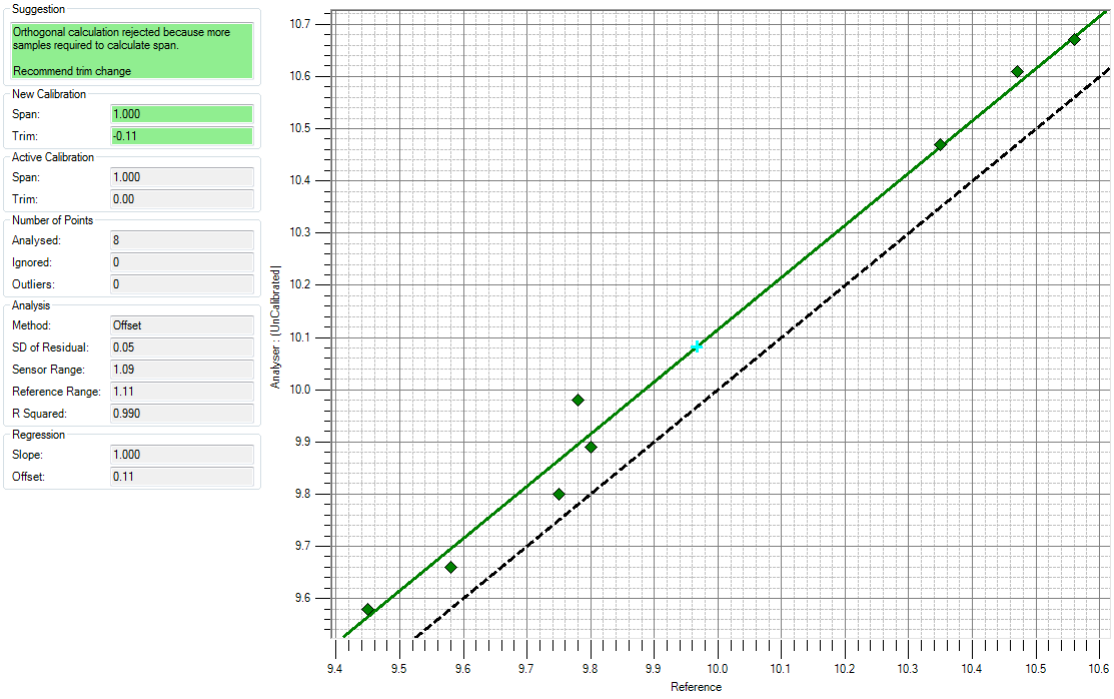
3. On the toolbar, select  .

5.3.2 Using the graph view

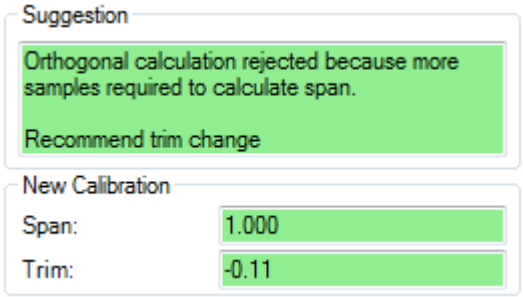
1. Select the Graph View tab.
2. On the toolbar, select your required graph view from the list box.

Uncalibrated plot

Select  to plot data from the **Calculated** and **Reference** columns of the data grid with a best-fit line applied.

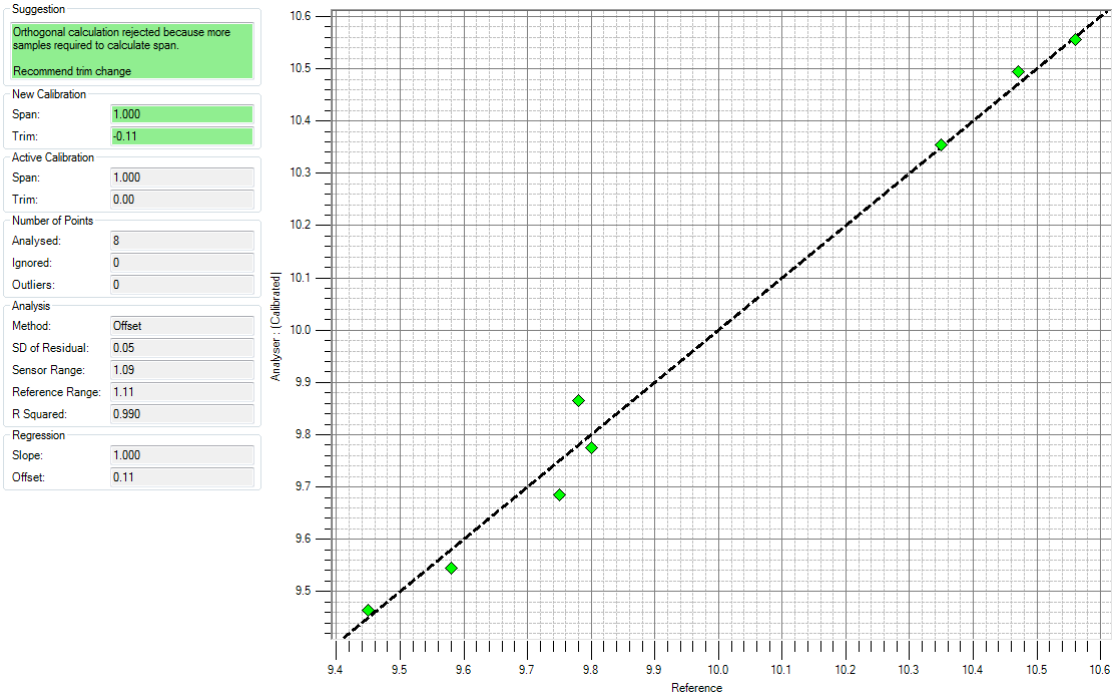


If a new calibration is required, the values will be displayed in the **New Calibration** box (highlighted in green). If the new calibration settings look valid, then these should be uploaded (Page 5-18) to the analyser.



Calibrated plot

Select  to plot data from the **Calibrated** and **Reference** columns of the data grid with the suggested calibration applied.



If the new calibration settings look valid, then these should be uploaded (Page 5-18) to the analyser.

Residuals plot

Select  to plot data from the **Residuals** columns of the data grid against time.

Use this plot to reveal any systematic trends in the calibration calculations.

Viewing plot point data

Within the graph display area, position the cursor over any graphical element to view its associated data value or label.

Graph elements

The following elements may be included in a graph (except Residuals):

Element	Description
Outlier	A point statistically determined to be outside the 'normal' range of values.
Perfect calibration line	A line whose position indicates where points from a perfectly calibrated analyser would lie. An analyser is considered to be perfectly calibrated when the analyser reading matches the reference value for the sample.
Best-fit line	If a change in calibration is statistically valid, this line will be displayed running through the plot.

Each sample set is represented on the graph using different colour points.

Reference values are shown on the horizontal axis.

The left-hand region of the graph display dynamically provides:

- a **Suggestions** box

- a **New Calibration** box - if new calibration settings are required, these will appear in this box highlighted in green
- an **Active Calibration** box - this displays the current span and trim used to calculate the analyser measurement data
- a statistical **Analysis** of the sample data

Changing the graph appearance

The following actions override the generic system settings (Page 7-1).

1. Right-click the graph and select Configure.
2. Select the graphical item you wish to change.
3. Use the tick boxes (where provided) to enable or disable the associated item.
4. Use the list boxes presented to choose your required attribute.
5. To restore factory settings, click Restore Defaults.

Deleting samples

1. Ensure the **Allow Sample Deletion** function is enabled in Advanced settings (Page 5-20).
2. Drag a Selection Region around the points you wish to delete.
3. Select Delete from the pop-up.

Excluding samples from analysis

To exclude an individual sample point from the analysis, locate and select it on the graph. This is a toggle-action control.

By default, **Red Crosses** indicate the points being excluded (ignored).

To **Exclude** (Ignore) a series of points:

1. Drag a Selection Region around the points you to exclude.
2. Select Ignore from the pop-up.

To **Include** a series of points:

1. Drag a Selection Region around the points you wish to include.
2. Select Unignore from the pop-up.

Graph view zooming functions

- To **Zoom In**:
  1. Drag a Selection Region around the area of interest.
  2. Select Zoom from the pop-up.
  3. As required, repeat the zoom operation to increase the levels of display magnification.
- To **Zoom Out**, right-click the graph and select either:
  - Zoom Out, to return to the original graph scale.
  - Zoom Back, to step back one magnification level.

Hiding negative sample values

Right-click the graph and select Hide Negatives. This is a toggle-action control.

Showing the graph origin

To rescale and redraw the graph to show the origin point (0,0) right-click the graph and select Show Origin. This is a toggle-action control.

Use this function to aid visualisation of the measurement data.

5.3.3 Using the advanced view

The Advanced view provides additional processing options that allow you to combine data sets collected with different **Span** and **Trim** values.

This is especially useful when developing a calibration over time, as it allows you to process all the data by removing the effects of historical span and trim changes.

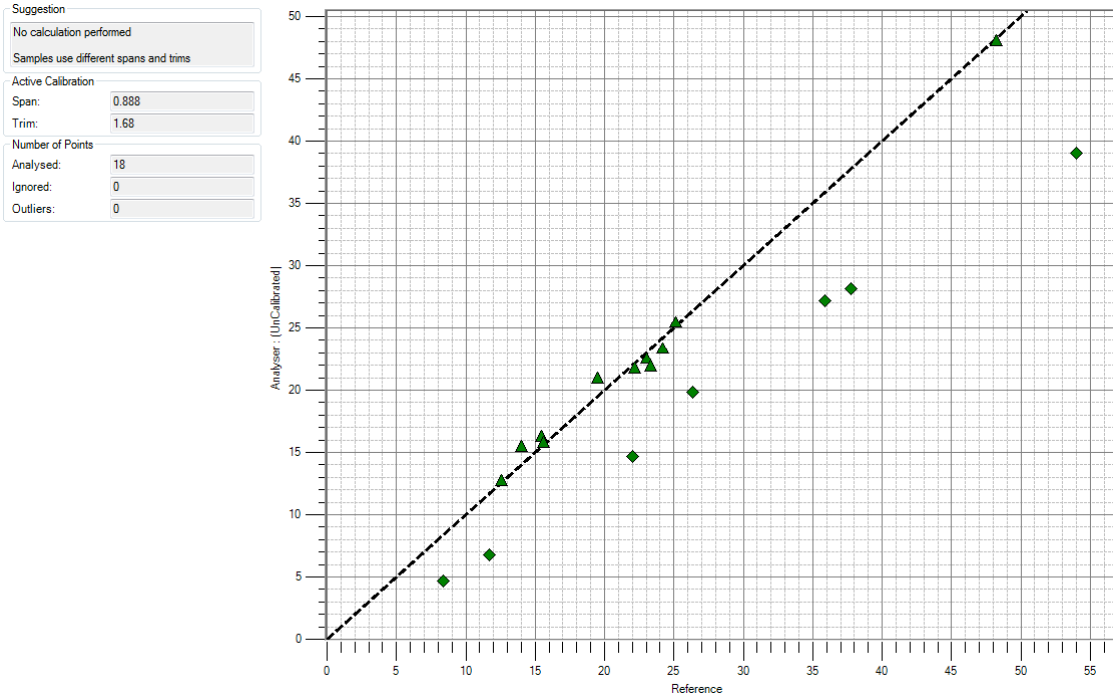
To activate these further options, ensure **Show Advanced View** is selected in Advanced Settings (Page 5-20). However, it is recommended that this option is not enabled for general use.

On the toolbar, select your required advanced view from the list box.

Where appropriate, the following options simply recalculate the filtered data and can be applied to both Linefit and Residual plots.

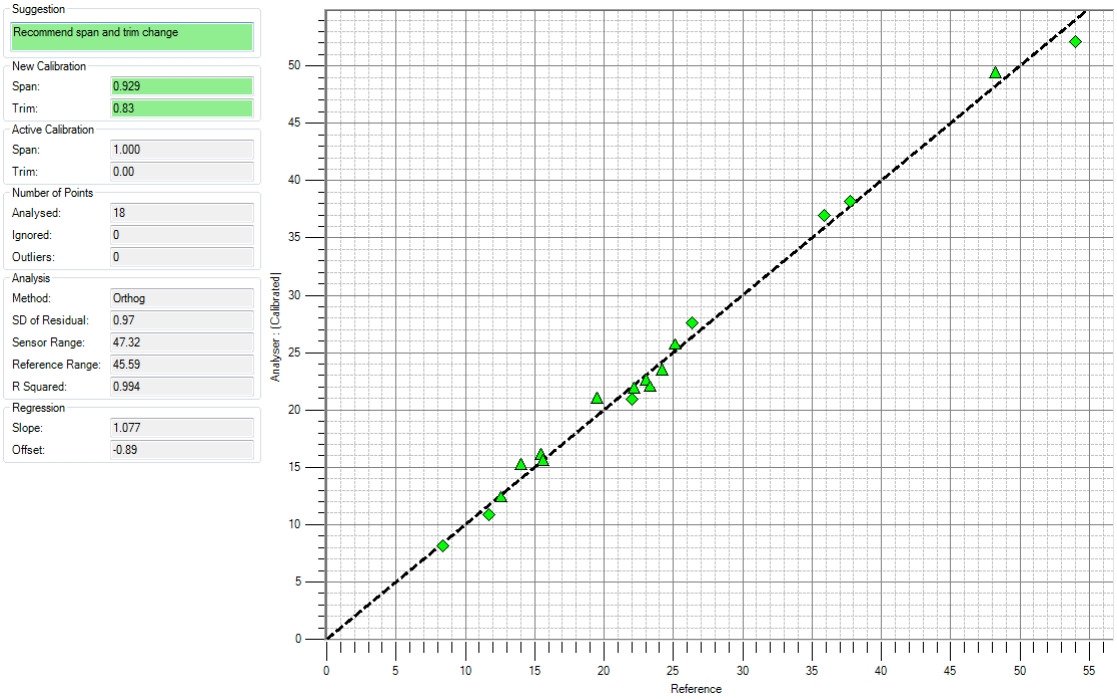
Original calibration

Select  and  to plot the actual analyser data, as collected.



Normalised calibration (recommended)

Select  and  to perform a calibration on datasets collected with differing span and Trim values and plot the analyser data recalculated to a Span of 1 and a Trim of 0.



Last calibration (use with caution)

Select  and  to display a plot of the analyser data recalculated to the last Span and Trim used.

5.3.4 Uploading a calibration

The Upload Calibration icon on the toolbar only becomes active if a change in calibration is suggested.

1. On the toolbar, select  .
   The following calculated calibration values are displayed (they cannot be modified):
   - **Channel**
   - **Name**
   - **Span**
   - **Trim**
   - **Application Code**
2. Using the list box, select the analyser Product the new calibration will be applied to.
3. If a new product is required:
   1. Using the list box, select the product you wish to copy.
   2. Select New.
   3. Enter a suitable name for the product.
   4. Select OK. A copy of the currently selected product is created on the analyser and the list box is immediately updated.
4. Select Apply to immediately upload the new calibration values.

5 Select Save Script to save the calibration as a self-executing script file.

This feature provides a convenient way of creating new calibrations off-line that can then be applied at a later date.

5.4 Common functions

To avoid unnecessary repetition, topics covering the functions that are are common between the History (Page 5-6) and Linefit (Page 5-12) analysis tools have been grouped under this heading and are referred to when appropriate.

5.4.1 Importing sample data

1 Ensure the **Allow Sample Import** function is enabled in Advanced Settings (Page 5-20).

2 Select the database (Page 5-3) you wish to import sample data into.

3 On the History or Line Fit toolbar, select  .

4 Select  .

5 Navigate to the source folder.

6 Select the required file.

7 Select Open.

5.4.2 Exporting currently selected sample data

1 On the History or Line Fit toolbar, select  .

2 Select  .

3 Navigate to your required destination folder.

4 Enter a suitable File name.

5 Select Save.

Note: The .smp file created on export has a format specific to InfraLab Manager and only files of this type can be imported into the system.

5.4.3 Saving currently selected sample data to Excel

1 On the History or Line Fit toolbar, select  .

2 Select  .

3 Navigate to your required destination folder.

4 Enter a suitable File name.

5 Select Save.

Note: The .xml file created cannot be imported back into the InfraLab Manager system.

5.4.4 Printing sample results

1 Select the required tab to print.

2 On the toolbar, select the required graph or product/constituent view.

3 On the toolbar, select  .

4 Use the controls provided on the Print preview toolbar to navigate and print the displayed document to your default printer.

5.4.5 Advanced settings

1 Log on as an Administrator.

2 On the History or Line Fit toolbar, select  .

3 Select the following functions, as required:

- **Show Advanced View**

  This option enables further graph displays in the History and Linefit analysis tools. It is recommended that this option is not enabled for general use.

- **Allow Sample Import**

- **Allow Sample Deletion**

  Samples selected for deletion will be removed **permanently** from the database.

4 A further option is displayed in the Linefit tool:

- **Display Linefit Options**

  Select this to modify the settings, as required.

6 Other tools

6.1 Using the Simple display tool

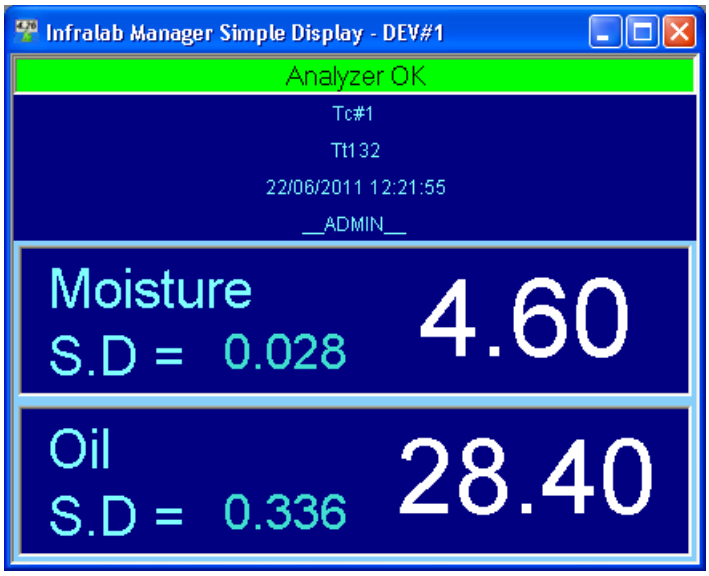
The Simple Display tool provides remote management facilities to view current measurement values and/or analyser status.

Drag the required analyser item from the Explorer onto the Simple display Toolbox icon 

.

Measurement values

Once a sample has been taken on the displayed InfraLab analyser, measurement values are shown for each analyser channel.



Channel values shown in:

- **Red** - indicates the associated limits have been exceeded.
- **Yellow** - indicates the associated Standard Deviation (SD) has been exceeded.

Analyser status

The analyser status display shows active warnings and errors, including self-test fault conditions. If an error and a warning occur simultaneously, the error condition message will override the display of the warning message until the error is cleared.

Status messages are colour-coded:

- **Red** - Error condition.
- **Yellow** - Warning message.
- **Green** - OK.

6.2 Using the Utilities tool

Apart from configuring the IP parameters (Page 4-1) of a networked analyser, it is strongly recommended that the Utilities tool is **only** used when troubleshooting or diagnosing operational issues under supervision by NDC technical staff.

When required, drag the required InfraLab analyser from the Explorer onto the Utilities Toolbox icon  .

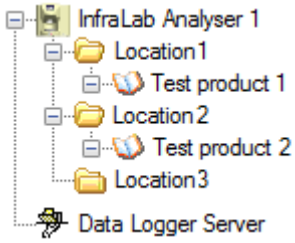
6.3 Using the Product Manager tool

The Product Manager is an optional system tool enabled with a license. The Product Manager allows you to manage multiple product sampling across multiple production lines by overcoming the inherent product-limitations of individual analysers.

To activate Product Manager:

1. Obtain the necessary license keys from NDC (two key files are sent, one to **Add**, one to **Remove**).
2. Place the key files in an appropriate folder on the system host PC.
3. Shutdown the InfraLab Manager system.
4. Double-click the **Add InfraLab Product Manager** file to activate the license.
5. Restart the InfraLab Manager system.

When Product Manager is activated:

- A further icon is displayed on the Toolbox strip:
  
- The Explorer is modified to display a series of **Location** and **Product** items for each connected analyser and the e-Series Server icon is removed:
  

Location items are typically used to identify the actual production environment locations where product sampling takes place.

Many levels of location and sub-location items can be created within the system to cater for multiple product sampling across multiple production lines.

Product items are typically used to identify the product at the relevant locations.

All Location and Product items are stored within the Product Manager and are not passed to any of the connected analysers.

Using the Product Manager

To select a product, double-click on the Product item in the Explorer. This action does the following:

- Loads the Product and Location information to the relevant InfraLab analyser (if on-line), preparing it to take a sample.
- Displays the History tool with the data filtering configured for the selected Product and Location.

Creating and editing the Product Manager Explorer tree

The Product Manager tree displayed in Explorer cannot be edited directly. However, you can expand and collapse any Analyser and Location branches using the **-** and **+** icons provided, or selecting **Expand all** or **Collapse all** from the right-click context menu.

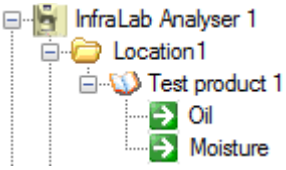
If the built-in system security (Page 7-1) option has been enabled, the ability to edit the Product Manager is set as a user Privilege. Therefore, log on as an Administrator to enable this feature.

1. Open the Product Manager editor by doing one of the following:
   - Drag any analyser item displayed in the Explorer onto the Product Manager Toolbox strip icon.
   - Select the Product Manager Toolbox strip icon.

   The window displayed in the workspace is where all editing actions are carried out.
2. Select the Allow Edit tick box.
3. Expand the Analyser, Location and Product branches, as required.

Using the right-click context menu functions

1. Right-click an item in the Product Manager tree.
2. Select from the following functions:

Function	Items	Description of use
Add sub-location	Analyser and Location	Select to insert a new sub-location. Type a suitable name in the label field.
Rename	Location and Product	Select to edit the item name field. Type new text as required.
Delete	Location and Product	Select to delete the highlighted item. Confirm the deletion when prompted.
Add Product	Analyser and Location	Select to insert a new product. Type a suitable name in the label field. If an analyser is connected, the system reads the currently active channel names and dynamically enters them below the product item, as shown: 
Expand all	All	Expand everything below this point.
Collapse all	All	Collapse everything below this point.

Managing the channel parameters

1. Select the required channel name icon to display the associated parameters.
2. Edit the values, as required.

7 Configuring InfraLab Manager

7.1 Setting the interface language

1. On the toolbar, select  .
2. Select the General tab.
3. Choose a Language from the list box.

7.2 Setting display colours and styles

1. On the toolbar, select  .
2. Select the Colours and Styles tab.
3. Select the graphical item you wish to change.
4. Use the tick boxes (where provided) to enable or disable the associated item.
5. Use the list boxes presented to choose your required attribute.
6. To restore factory settings, click Restore Defaults.

7.3 Configuring the system security

During installation setup, the built-in security feature is disabled. This means that anyone can use the system with full access to all functions.

If the security feature is enabled, all users will need a User Account that enables them to log on to the InfraLab Manager system. Access to certain system functions is controlled by user Privileges (Page 7-2).

To enable security, do the following:

1. On the toolbar, select  .
2. Select the Security tab.
3. Set the Enabled tick box.

If you are enabling the security feature for the first time, follow the on-screen instructions provided to complete the process.

7.4 Managing user accounts

The following User Account management functions are required only if the security feature has been enabled.

7.4.1 User groups and privileges

User Groups

The system has four built-in User Groups that can contain a number of individual User Accounts:

- **No Privileges**
- **Users**
- **Power users**
- **Administrators**

Privileges

Each user group has a default set of privileges that grant varying levels of configuration access to system functions. Each user account may be configured to inherit privileges from the group in which it is located, or to have independent privileges.

Note: During installation setup, both a default Administrator and a Guest user account are created in their respective user groups. By default, the default Administrator has all privileges assigned.

7.4.1.1 Managing user groups and privileges

1. Log on as an Administrator.
2. On the toolbar, select  .
3. Select the Security tab.
   User groups and user accounts are displayed in the lower region of the configuration window.
4. To expand a user group to show individual user accounts, select the **+** symbol.
   Privileges are displayed in the upper region of the configuration window when a user group or user account is selected.

Assigning group privileges

1. Right-click the user account.
2. If you wish to assign group privileges, select Use group privileges.
   The user account icon changes to  .
   The account inherits the current user group privileges, and independent selections are disabled. If the account is moved to another user group it inherits the privileges of that group.

Changing user group privileges

You can change the user group privileges from the factory-defaults using the following procedure. Any changes made will be inherited by all group-privilege assigned user accounts located in the group.

1. Select the user group.
2. Operate the various toggle-action privilege buttons, as required:
   A **Red Cross** indicates the privilege is not granted.
   A **Green Tick** indicates the privilege is granted.

Assigning individual privileges

1. Right-click the user account.
2. If you wish to assign independent privileges, deselect Use group privileges.

   The user account icon changes to  .
3. Operate the various toggle-action privilege buttons, as required:
   A **Red Cross** indicates the privilege is not granted.

   A **Green Tick** indicates the privilege is granted.

   Independent privileges override any group privileges even if the user account is moved to another user group.

Resetting privileges

This function restores privileges to factory default settings.

1. Right-click the required user group or user account.
2. Select Reset privileges:
   - For a **Group**, only the users with group privileges will be reset.
   - For **User Accounts**, only the selected account will be reset.

   If required, use the Reset privileges of all users in this group option to restore every user to default settings.

7.4.2 Adding a user account

1. Log on as an Administrator.
2. On the toolbar, select  .
3. Select the Security tab.
4. Select the user group to which you wish to add the new user.
5. Select Add User and an appropriate privileges (Page 7-2) option:
   - **Group**
   - **Independent**
6. Type the required user name (to replace **NewUser'N'**) and press Enter.
   This entry is not case-sensitive.
7. Optionally, set a Password (Page 7-3).

To allow access to the software, all user accounts are automatically enabled (Page 7-4) when added to the system.

7.4.3 Setting and changing passwords

If you are logging on as the default Administrator for the first time, note there is no password set (blank).

For any user

1. Log on as an Administrator.
2. On the toolbar, select  .
3. Select the Security tab.
4. Right-click the user whose password you wish to set or change.
5. Select Change password.

6 Enter the new password in the New and Confirm password fields.
This entry is case-sensitive.

7 Select OK.

For the current user

1 On the toolbar, select  .

2 Enter the new password in the New and Confirm password fields.
This entry is case-sensitive.

3 Select OK.

7.4.4 Clearing passwords

1 Log on as an Administrator.

2 On the toolbar, select  .

3 Select the Security tab.

4 Right-click the user whose password you wish to clear.

5 Select Clear password.

7.4.5 Deleting a user account

1 Log on as an Administrator.

2 On the toolbar, select  .

3 Select the Security tab.

- To delete an **Individual** account:
  1. Right-click the user account you wish to delete.
  2. Select Delete.
  3. Select Yes when prompted.
- To delete **All User** accounts in a group:
  1. Right-click the user group you wish to delete the users from.
  2. Select Delete > Delete all users in group.

7.4.6 Renaming a user account

1 Log on as an Administrator.

2 On the toolbar, select  .

3 Select the Security tab.

4 Right-click the user account you wish to rename.

5 Select Rename.

6 Type the new user name (to replace existing) and press Enter.

7.4.7 Enabling and disabling a user account

1 Log on as an Administrator.

2 On the toolbar, select  .

3 Select the Security tab.

4 Right-click the user account.

- To **Enable** an account, select Enabled and ensure the control is ticked.
- To **Disable** an account, select Enabled and ensure the control is not ticked.
  The user account icon displays a red exclamation mark when disabled.

7.4.8 Moving user accounts

1 Log on as an Administrator.

2 On the toolbar, select  .

3 Select the Security tab.

4 Select the user account you wish to move and drag it to the destination user group.

5 If required, modify the moved user privileges (Page 7-2).

7.4.9 Using windows user accounts

You can use existing Windows user accounts on the host PC as the basis for InfraLab Manager user accounts, as follows:

1 Log on as an Administrator.

2 On the toolbar, select  .

3 Select the Security tab.

4 Use the Auto Add to group list box to select the user group the accounts will be automatically added to.

5 Set the Auto enable new Windows accounts tick box if you want all new accounts to be automatically enabled when created. Otherwise, by default, all new accounts are disabled (Page 7-4).

6 Set the Use Windows user account tick box.

Accounts are added with the name format: *computername**username* and any existing Windows user account passwords will be used (these cannot be modified in InfraLab Manager).

New user accounts are automatically added whenever new Windows accounts are created on the host PC.

Manually adding new users

New users can also be added by following the Adding a user account (Page 7-3) procedure. Be aware of the new account name format.