

# Operating instructions

version 2.0

**Welcome to the world of the SDT Ultranalysis Suite**  
**This help has been structured to help you get the most out of your software**  
**dedicated**  
**to your SDT170 or SDT270 portable ultrasound instrument.**

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## Content

[Getting started](#)  
[Ultranalysis workspace](#)  
[Main functions](#)  
[Support and resources](#)

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## Getting started

Before you start working with *Ultranalysis Suite™*, this chapter gives you information on how to [install](#) and register your software.

In complement, get information about system requirement, updating and upgrading *Ultranalysis Suite™*.

## Ultranalysis workspace

For new users, *Ultranalysis Suite™* overview is described in the section [Exploring workspace](#).

The chapter [What's new](#) details the enhancements of *Ultranalysis Suite™* compare to DataManager.

## Main functions information

Main functions are described in the following chapters:

- [Create a database](#).
- [Create a Tree Structure](#).
- Create survey routines.
- [Create and assign alarms](#).
- Search and select data using the filter.
- Trend values.
- Analyse dynamics measurements.
- Print or export reports
- Upload and Download your device.

- Backup and restore the Database.
- Import your data from DataManager.

## Support and resources

### Resources

Take a few moments to visit SDT International website [www.sdt.be](http://www.sdt.be) and SDT NorthAmerica website [www.sdtnorthamerica.com](http://www.sdtnorthamerica.com) . You have access to applications information, explanation on sensors and accessories use.

ASNT certified training courses about the powerful of Ultrasound in the PDM programs are regularly organized in [North America](#) and [Europe](#).

### Technical and application support

Discover the advantages of SoundCare and SoftCare Support Programs: access to registered online user's group community website, access to updates, technical and application support by mail, or remote PC access and so more.

# Table of Contents

Introduction .....	1
Contact us.....	1
Different versions of Ultranalysis suite .....	1
Ultranalysis installation .....	3
Activation and registration of Ultranalysis suite.....	19
Updating upgrading Ultranalysis & version check .....	23
Discovering Ultranalysis workspace.....	25
Top Pane .....	31
Graph Pane .....	33
Load a Graph on the Graph Pane.....	35
Personalize Graph .....	37
Bottom Pane .....	41
Selection Tab .....	47
Alarm Tab .....	51
SDT270 Survey Tab .....	57
SDT170 Survey Tab .....	59
Interval Tab .....	61
Introduction to database and tree structure .....	63
Terms used .....	67
Creating and Editing a Database .....	73
Creating and Editing Tree structure .....	77
Backing up and restoring Database .....	85
Alarm overview .....	91
Create or edit Alarm.....	95
Attach Alarms to Measurements .....	99
SDT270 Surveys.....	103
SDT170 Surveys.....	105
Change Measurement order in a Survey .....	107
Reports .....	109
Tree Structure Report .....	111
Alarm Report.....	113
Survey Report.....	115
Missed Measurement report .....	119
Measurement Detail Report .....	121
Event List Report .....	123
Copyright .....	125
Index .....	127

# Introduction

## What's new regarding DataManager

### What's new?

For those who are familiar with *DataManager 2.0*, *Ultranalysis Suite™* will look strangely unfamiliar. Here is a list of things that are new:

- A more familiar windowed user workspace.
- Tree structure database vs. list format.
- Licensed copies vs. unrestricted copies.
- Powerful graphics and data analysis.
- Trending, time domain and frequency domain graph in a single interface.
- Multiple and combinable alarms.
- Same equipment in multiple surveys.
- Complete data traceability from Operator to Measurement.
- Reporting and exporting data functions.
- Customer's support service.
- Simpler network operation.

So, as an introduction, *Ultranalysis Suite™* is an entirely new software from SDT which has been designed specifically to:

- Enhance the operation of the existing users of SDT170s.
- Provide a new software platform to support all of the functions of the SDT270.
- Provide a coherent progression from old software to new software.

## Contact us

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Web page: <http://www.sdtnorthamerica.com>

Or find your local distributor, by consulting our [dealer network](#).

# Different versions of Ultranalysis suite

Functionality description for each version

Ultranalysis suite	<i>Trial version</i>	<i>Static version</i>	<i>Dynamic version</i>
<b><i>Tree structure management</i></b>			
Visualize data from Demo Database	✓	✓	✓
Create Database	▪	✓	✓
Create Tree Structure	▪	✓	✓
Copy paste, drag & drop	✓	✓	✓
Filter	✓	✓	✓
<b><i>Data management</i></b>			
Visualize data from Demo Data	✓	✓	✓
Visualize data from all databases	✓	✓	✓
Add measurement Data	✓	✓	✓
<b><i>Alarm management</i></b>			
Visualize points in alarm	✓	✓	✓
Absolute mode	✓	✓	✓
Safe mode	✓	✓	✓
Relative mode	✓	✓	✓
<b><i>Survey management</i></b>			
Create SDT170 Surveys	✓	✓	✓
Create SDT270 surveys	✓	✓	✓
Surveys personalised for each Operator	✓	✓	✓
<b><i>Communication</i></b>			
Upload data to SDT270 device		✓	✓

Download data from SDT270 device		✓	✓
Update, upgrade SDT270		✓	✓
Upload data to SDT170 device	✓	✓	✓
Download data from SDT170 device	✓	✓	✓
Update, upgrade Ultranalysis	✓	✓	✓
<b><i>Measurement Data analyse</i></b>			
Trending Graphs	✓	✓	✓
Time Domain representation	✓		✓
Frequency domain representation	✓		✓
Play wave files on computer	✓		✓
Export wave files	✓		✓

## Trial version

With the trial version, you are able to discover all the functionality of Ultranalysis using Demo Data database. Please note that the creation of a new database is blocked but that the modifications of Demo Data are allowed.

You are able to manage your SDT170, add nodes, create surveys, import data from DataManager, upload and download the collected data. The communication (upload and download) with the SDT270 are not allowed. After 30 days or 60 running, the Demo Database will be automatically restored to its original version: your modifications and your data will be erase.

## Static version

The static version contents all the functionality of Ultranalysis.

You have the possibility of involving you using Demo Data, create databases, nodes, surveys, operators.

You can upload and download data to as well SDT270 devices as SDT170 devices.

You are able to collect static measurements, and analyse them using trending graphs and alarms.

## Dynamic version

The dynamic version contains all the functionality of the Static version.

In addition, you are able to collect dynamic measurements (data acquisition of a signal evolution during a time) and then analyze them using time signal representation, frequency domain representation, markers and cursors.

# Ultranalysis installation

## Content

[System requirements](#)  
[Download Ultranalysis Suite™ Base Setup](#)  
[Extract Base Setup](#)  
[Run Base Setup](#)  
[Net Framework](#)  
[Crystal Report](#)  
[PostGreSQL](#)  
[Ultranalysis Suite™](#)

## System requirements

- Windows XP, Vista or Seven operating systems.
- 1 gigahertz (GHz) or faster processor.
- 280 MB available hard disk space
- USB 1.1 or higher port.
- Sound card and audio output (Dynamic version only).

## Download Ultranalysis Suite™ Base Setup

If you don't have it yet, you need to download "Ultranalysis Base Setup – Extractor.exe" file. It is available at this location:

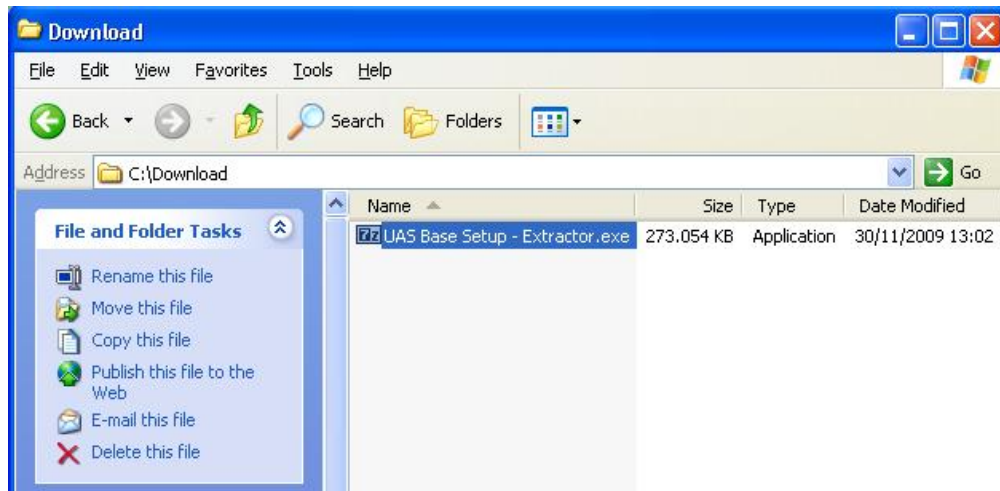
<ftp://ftp.sdt.be/pub/Software/Ultranalysis Suite/UAS Base Setup - Extractor.exe>

## Extract Base Setup

From you download folder ("C:\Download" is an example), double left click on the file "UAS Base Setup – Extractor.exe" to start the extraction of all setup files.

You should see this window:



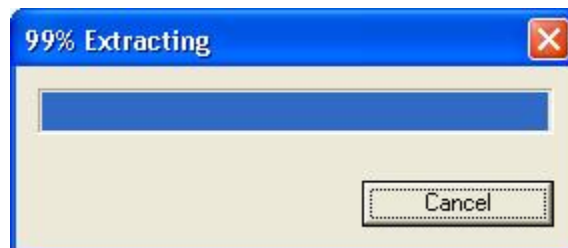


By default all files will be extracted at the same location as “UAS Base Setup – Extractor.exe” file; if you wish you may specify another location at your convenience.

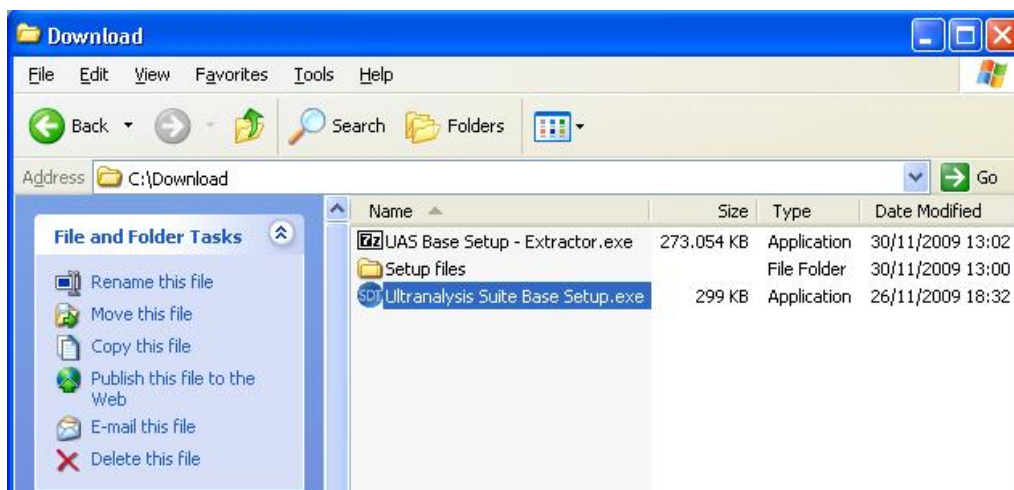
Click the “Extract” button to start the extraction.



The progress bar will show you the extraction progress, please wait until it's finished.



When the extraction is finished, you should see (in the folder location you have specified) the same new files as shown on the following Screenshot:

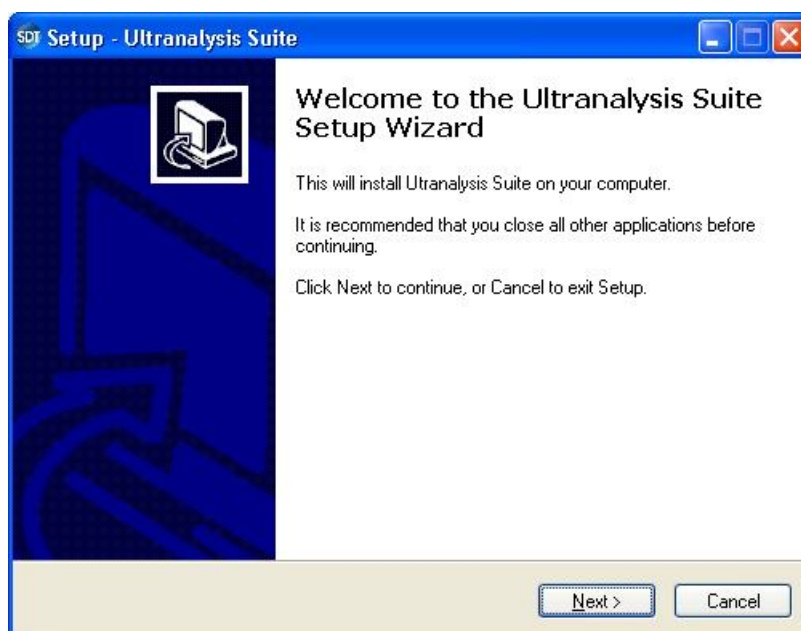


## Run Base Setup



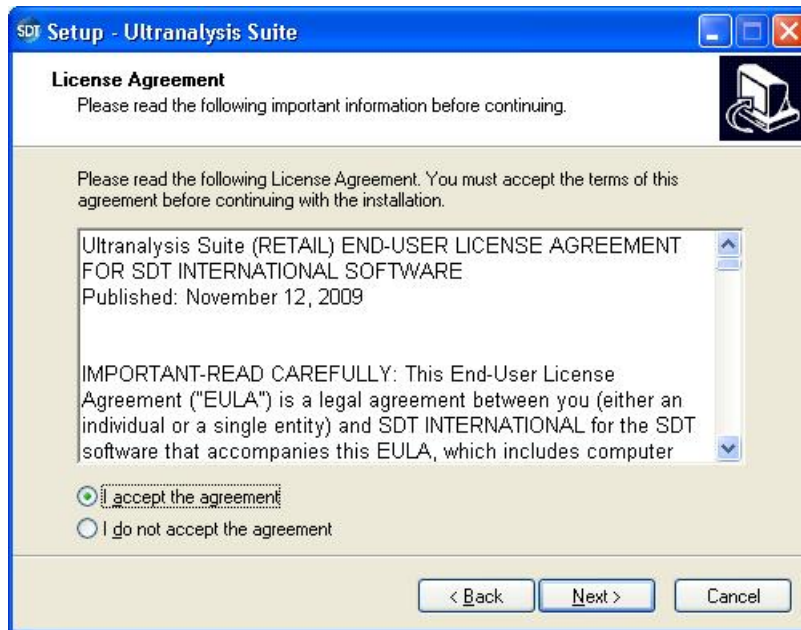
***You must have Administrator rights to proceed from here.***

Double click on the file "Ultranalysis Suite Base Setup.exe" to start Base Setup installation.  
You should see the following window:

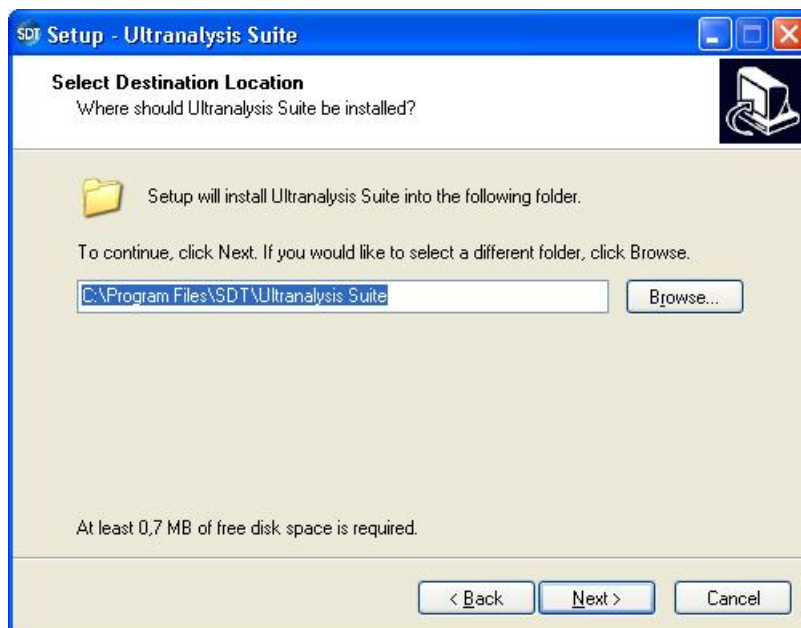


Click the **Next** button to continue.

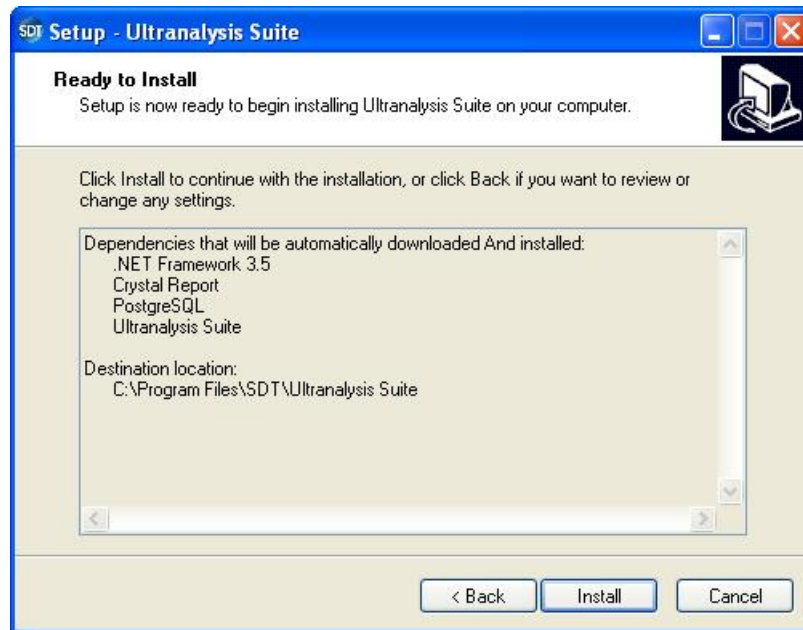
Read the End User License Agreement and if you agree with it, select "I accept the agreement".



Click the "**Next**" button to continue.



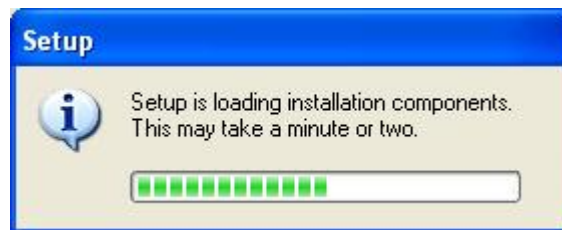
The install wizard asks you to choose a Destination folder as shown here.  
Click the "**Next**" button to continue.



This step will list all the components the Base Setup will install to your computer.  
Click the ***Install*** button to continue.

## Net Framework

If the Base Setup was required to install .NET Framework, you should see the following window:

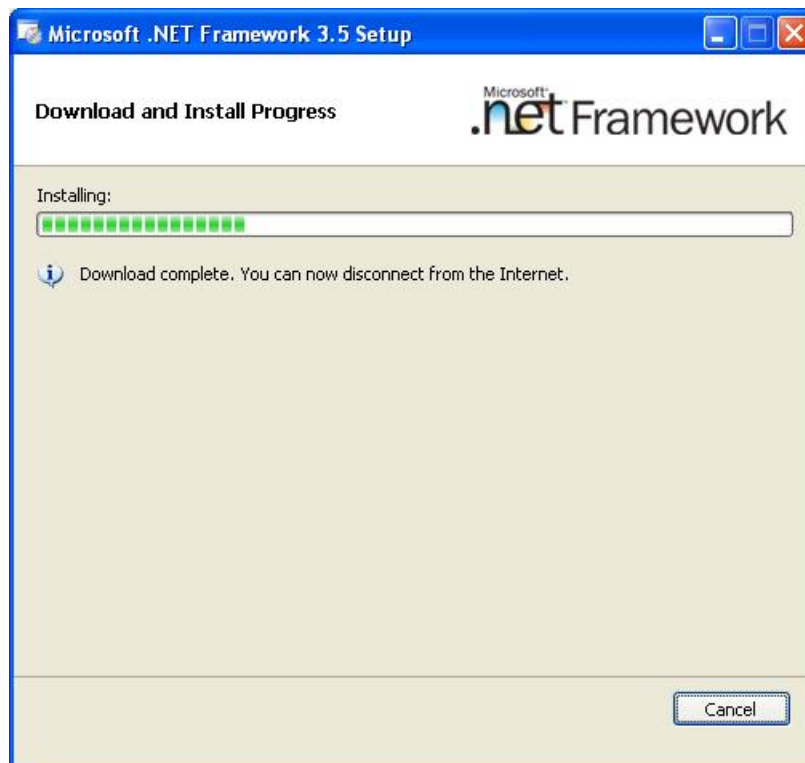


Depending on your computer performances, it could take few minutes.  
When the loading is finished, you should see the following window:



Read license terms and if you agree, select “I have read and accept the terms of the License Agreement”.

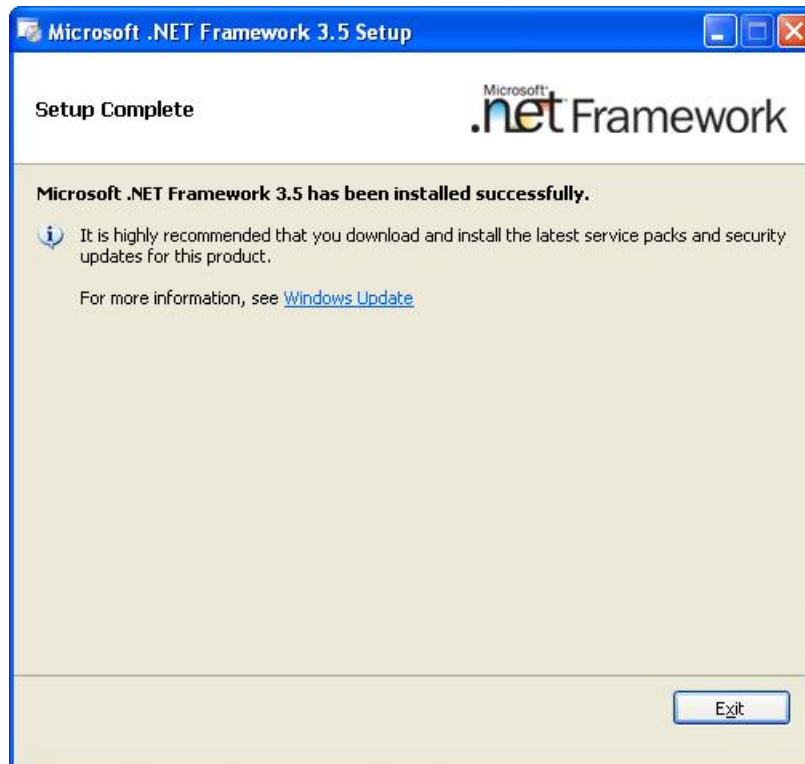
Click the “*Install*” button to continue.



Depending on your computer's performance, it could take few minutes.

Wait until it's finished.

When .NET Framework installation is finished, you should see the following window:

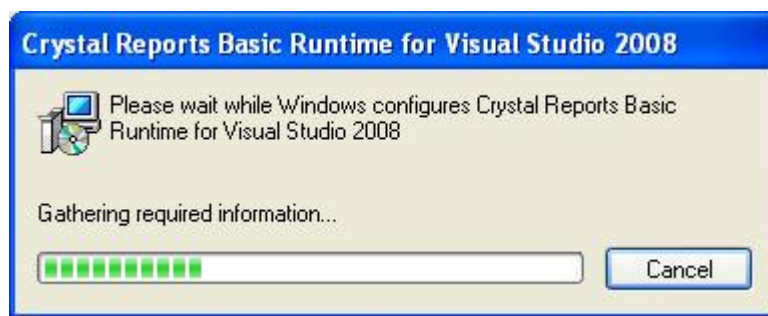


Depending on your operating system, you may be asked to restart your system, if so, please do. Wait for your system to fully restart. Then double left-click the file "**Ultranalysis Suite Base Setup.exe**" to continue the installation.

Click the "**Exit**" button to finish .NET Framework installation and continue with the next step of our Base Setup.

## Crystal Report

If the Base Setup needed to install Crystal Reports, you should see the following window:



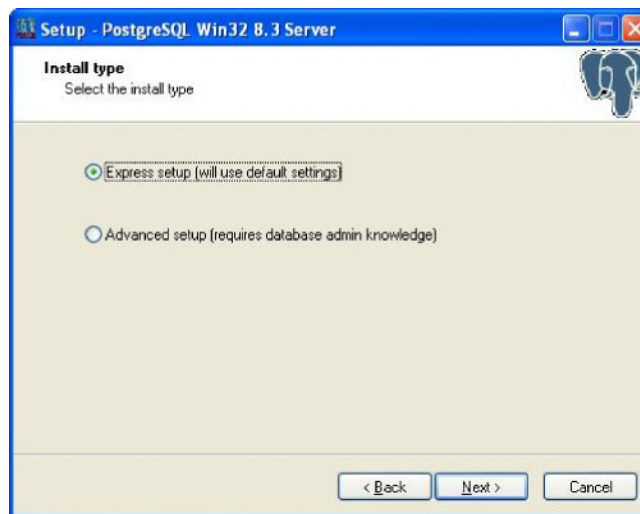
Depending on your system performance it could take a few minutes.

## PostgreSQL

If the Base Setup needed to install PostgreSQL database, you should see the following window:

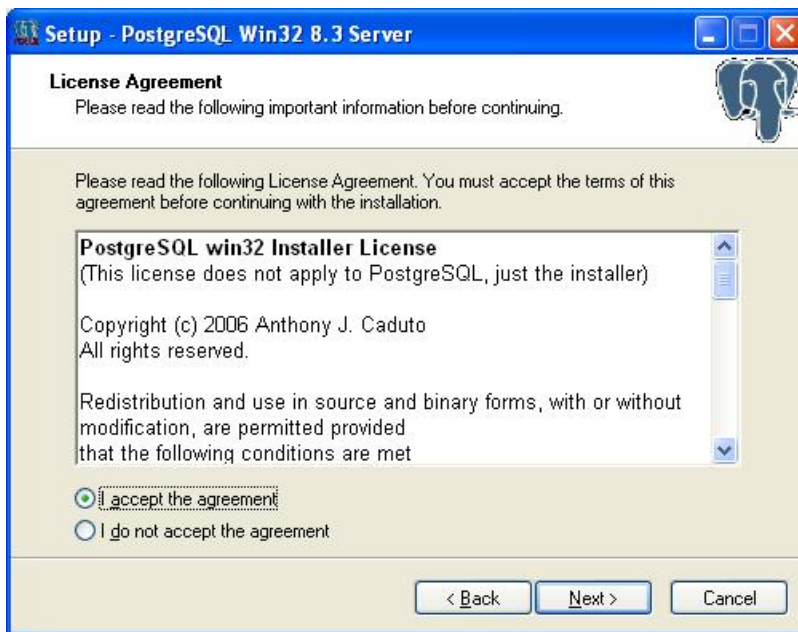


Click the “**Next**” button to continue.

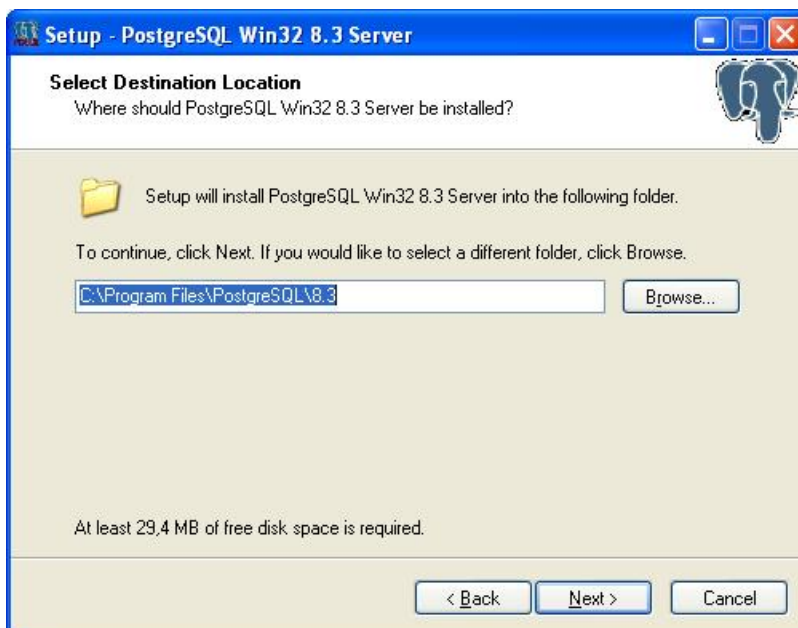


Select “Express setup” (this is the recommended default choice) and click the “**Next**” button to continue.





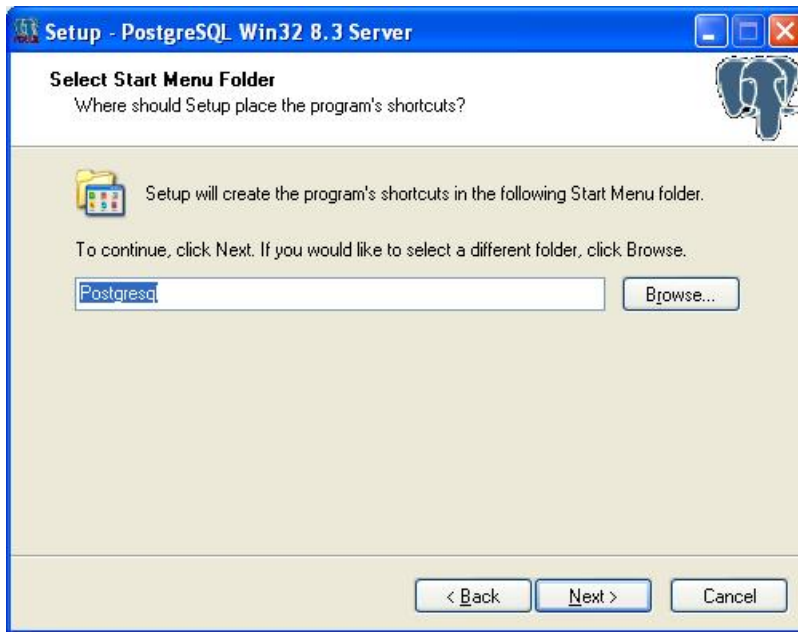
Select "I accept the agreement" and click the "**Next**" button to continue.



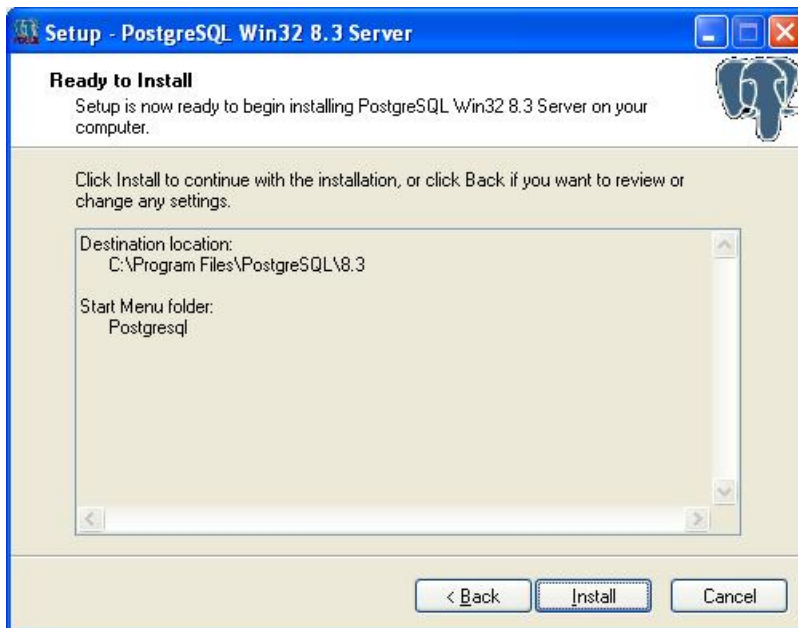
Select the Destination folder location.

Click the "**Next**" button to continue.

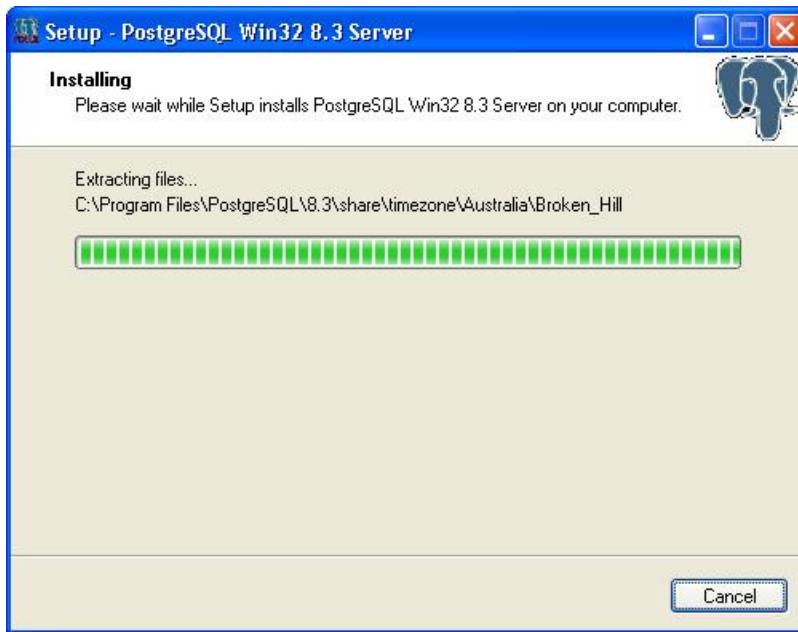




Select the start menu folder name and click the “**Next**” button to continue.

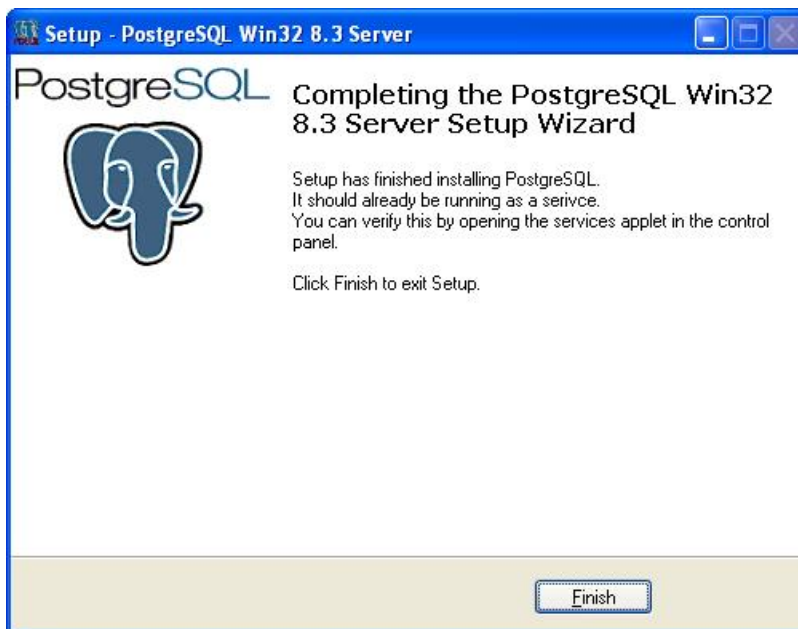


That window will list which component will be installed for the PostGreSQL installation. Click the “**Install**” button to continue.



Depending on your system's performance it could take a few minutes.

When PostgreSQL installation is finished you should see the following window:

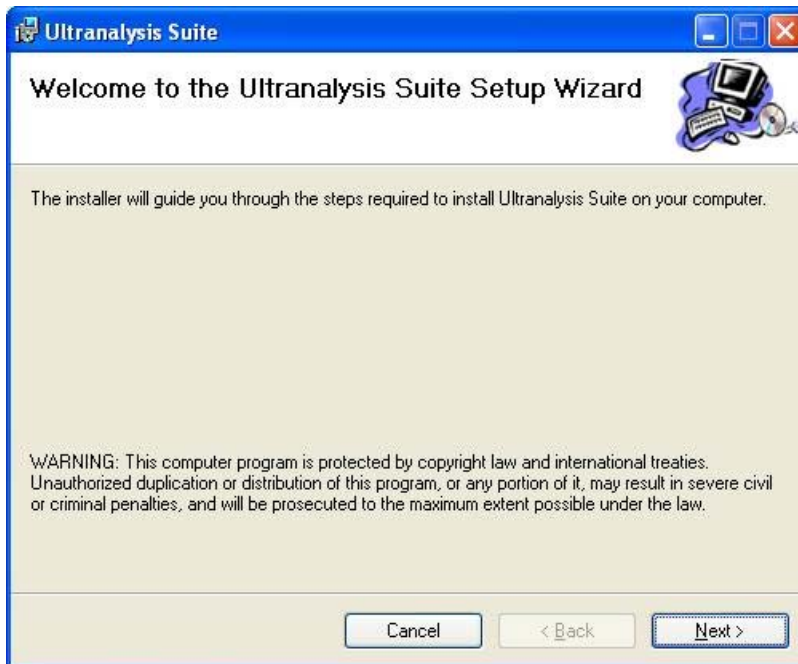


Click the **Finish** button to complete PostgreSQL installation and continue with our Base Setup.

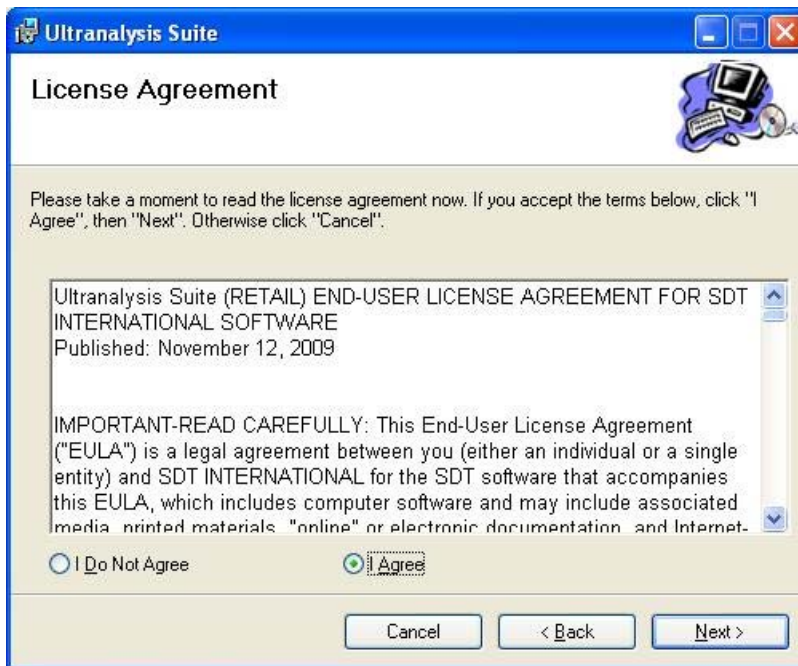
## Ultranalysis Suite™

The final part of Base Setup is the installation of Ultranalysis Suite.

You should see the following window:



Click the “**Next**” button to continue.

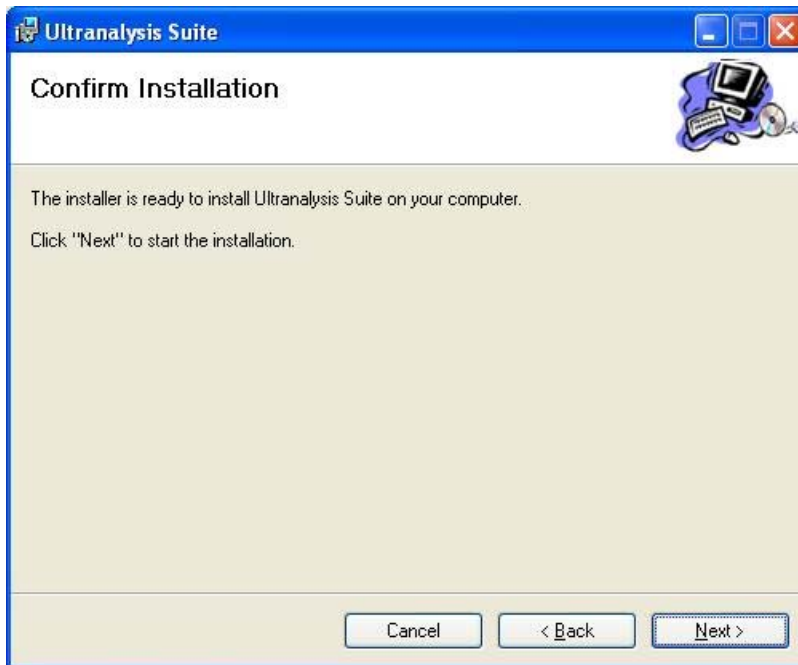


Read the End User License Agreement and if you agree with it, select “I Agree”.  
Click the “**Next**” button to continue.



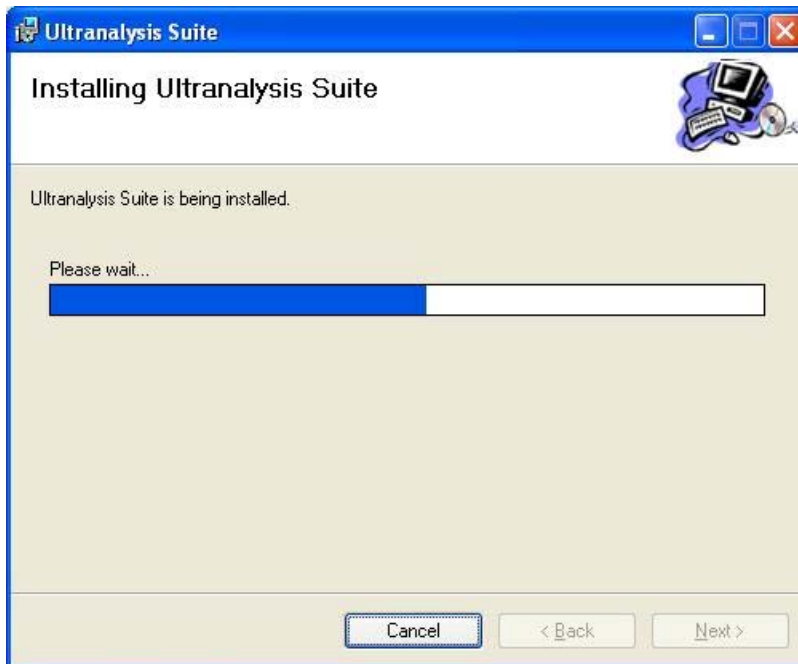
Select here the Destination folder location for Ultranalysis Suite™.

Click the “**Next**” button to continue.

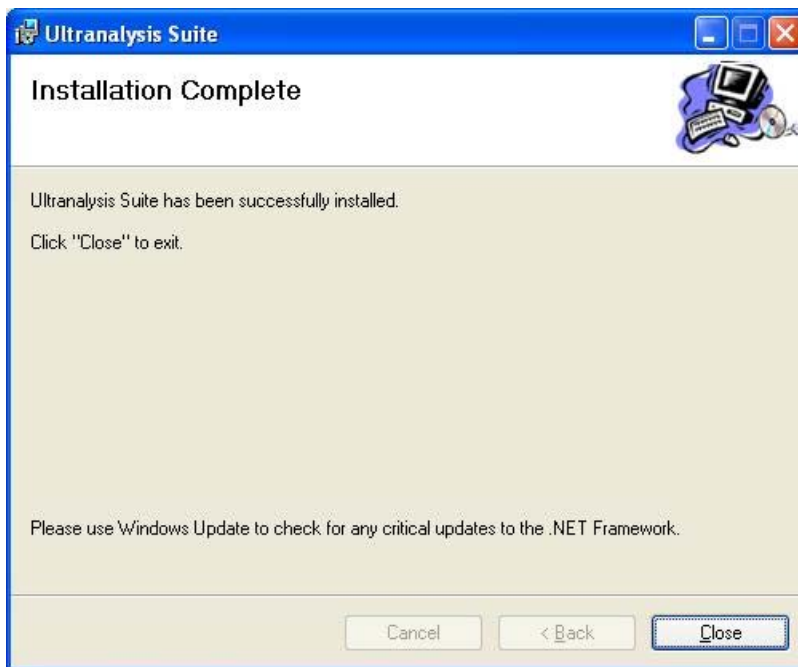


This window will list which component will be installed on your system.

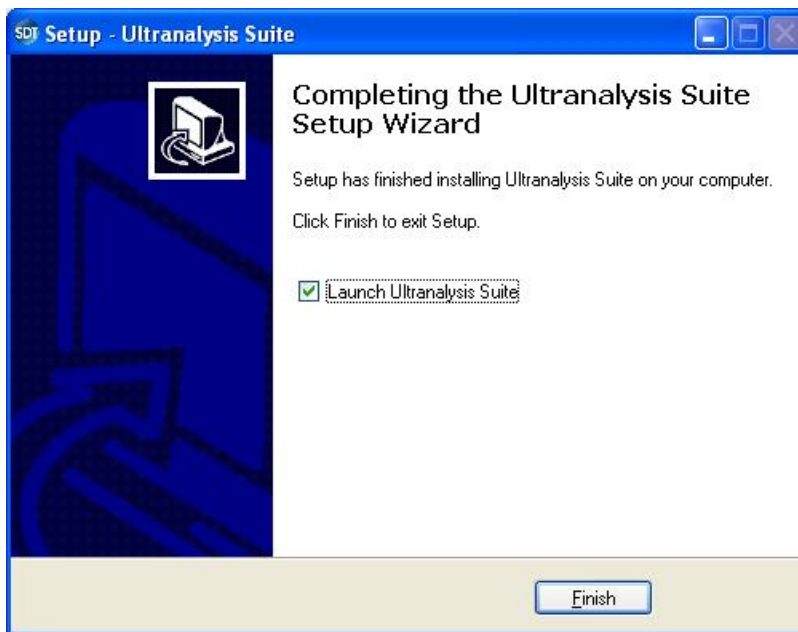
Click the “**Next**” button to continue.



This window will show you the installation progress of Ultranalysis Suite™. When it's finished, you should see the following window:



Click the “**Close**” button to finish Ultranalysis Suite™ installation.



That last window allows you to launch directly Ultranalysis Suite™ (by selecting “Launch Ultranalysis Suite”)

Click the “*Finish*” button to finish Base Setup.

# Activation and registration of Ultranalysis suite

Content:

[Serial number](#)  
[Hardware code](#)  
[Registration](#)  
[Activation](#)

## Serial number

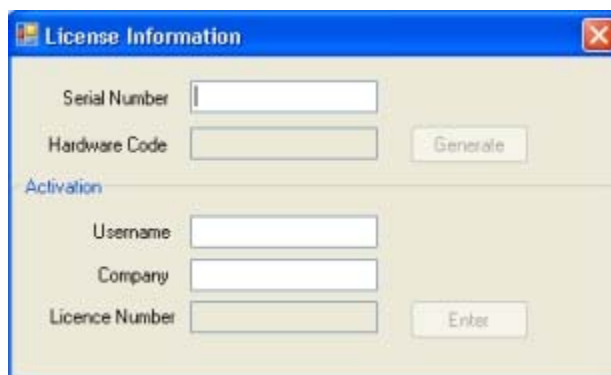
You previously received your serial number by e-mail:

```
Dear.  
  
A serial number has been generated:  
Company: My Company  
Customer: John Mouser  
  
Serial number: 123456789  
  
License Type: Update  
Support: 6 months setup support (free)  
Due date: January 13, 2011  
  
Goto www.sdt.be/license/OpenOffice/Activation.php to apply for your license number.
```

### *Standard e-mail of serial number attribution*

During the first launching of the Ultranalysis suite, the following license window opens automatically.

If you are using the trial version of the software, use the menu **Help / License set up**.

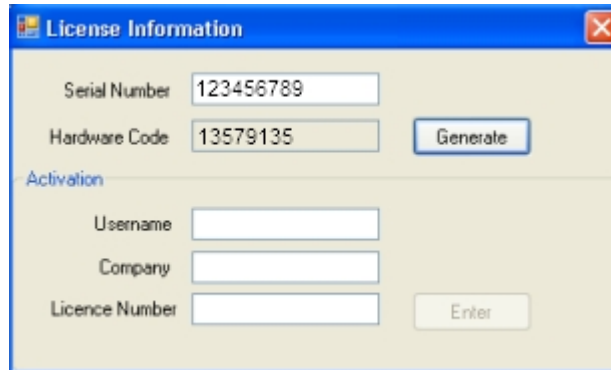
The image shows a screenshot of a software window titled "License Information". The window has a blue title bar with a close button (X) in the top right corner. The main area is light beige. It contains several input fields and buttons. At the top, there is a "Serial Number" field with a cursor in it. Below it is a "Hardware Code" field, and to its right is a "Generate" button. A section header "Activation" is in blue text. Below this, there are three more input fields: "Username", "Company", and "Licence Number". To the right of the "Licence Number" field is an "Enter" button.

*License information window*

Encode your serial number in the corresponding field.

## Hardware code

Generate your hardware code by clicking on the button "**Generate**":

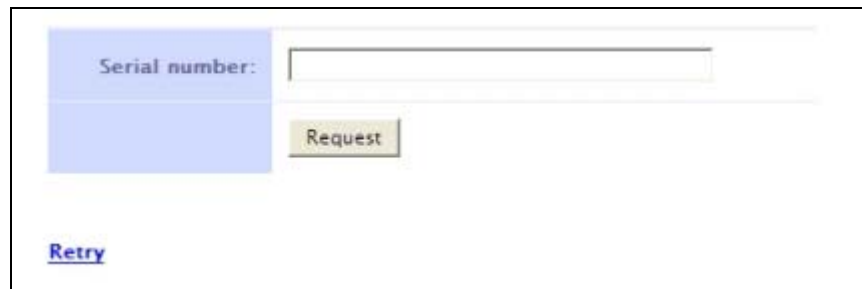
A screenshot of a Windows-style dialog box titled "License Information". It contains two input fields: "Serial Number" with the value "123456789" and "Hardware Code" with the value "13579135". To the right of the "Hardware Code" field is a button labeled "Generate". Below these fields is a section titled "Activation" which contains three more input fields: "Username", "Company", and "Licence Number". To the right of the "Licence Number" field is a button labeled "Enter".

*The hardware code has been generated*

## Registration of Ultranalysis Suite

Visit our server at the address [www.sdt.be/license/OpenOffice/Activation.php](http://www.sdt.be/license/OpenOffice/Activation.php).

Encode your serial number in the corresponding field and then click "**Request**":

A screenshot of a web-based registration form. It features a light blue header area with the text "Serial number:" followed by a text input field. Below the input field is a button labeled "Request". At the bottom left of the form, there is a link labeled "Retry".

*Type your serial number*

The server asks you to confirm your coordinates:



	This serial number is licensed to:
	Company: My Company
	Name: John Mouser
	Address: Address: State: None Country: Belgium
I have validated my information:	<input checked="" type="checkbox"/>
PC Hardware code:	<input type="text"/>
	<input type="button" value="Validate"/>

[Retry](#)

If information is correct, tick the box "***I have validated my information:***", type your hardware code in the corresponding field and click "***Validate***". The system sends you by e-mail your license number.

If information is incorrect, please contact your local dealer or SDT International.

```

Dear.

Company: My Company
Customer: John Mouser

Serial number: 123456789
Update license: 024680246

```

***Standard e-mail of license number attribution***

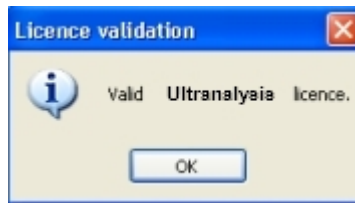
## Activation of Ultranalysis Suite

Come back to the license window of Ultranalysis Suite, type your license number in the regarding field and click "***Enter***". You can also add your user and company names:

The screenshot shows a Windows-style dialog box titled "License Information". It has a blue title bar with a close button. The dialog contains several input fields and buttons. At the top, there are fields for "Serial Number" (containing "123456789") and "Hardware Code" (containing "13579135"), with a "Generate" button to the right. Below these is a section titled "Activation" in blue. Under "Activation", there are fields for "Username" (containing "John Mouser"), "Company" (containing "My Company"), and "Licence Number" (containing "024680246"). To the right of the "Licence Number" field is an "Enter" button.

***Type the license number, your user and company names***

The application confirms your activation is successfully completed:



You are ready to use Ultranalysis Suite.

# Updating upgrading Ultranalysis & version check

## Content

[Updating](#)

[Upgrading](#)

[Ultranalysis software version](#)

## Updating

### Automatic update

If you are connected to Internet, Ultranalysis automatically checks if a new version is available:



*Automatic check of an Ultranalysis update*

Click on the message to recover the last version.

### Manual update

To recover the latest version of Ultranalysis, select Help / check for Updates.

After the warranty period of 6 months after the software installation, this functionality is reserved to our customers who have a valid SoundCare Support contract.

You need an Internet connection to realize this operation.

## Upgrading

To upgrade Ultranalysis Static to Ultranalysis Dynamic please contact SDT North America, SDT International or your local agent which will communicate you a serial number. To activate your upgrade version of Ultranalysis, refer to the section Software activation and registration.

## **Ultranalysis software version**

To check your software version, select Help / About.

# Discovering Ultranalysis workspace

## Content

[Overview](#)

[Hide or display Panes](#)

[Floating and docked Panes](#)

[Minimize or maximize a docked Pane](#)

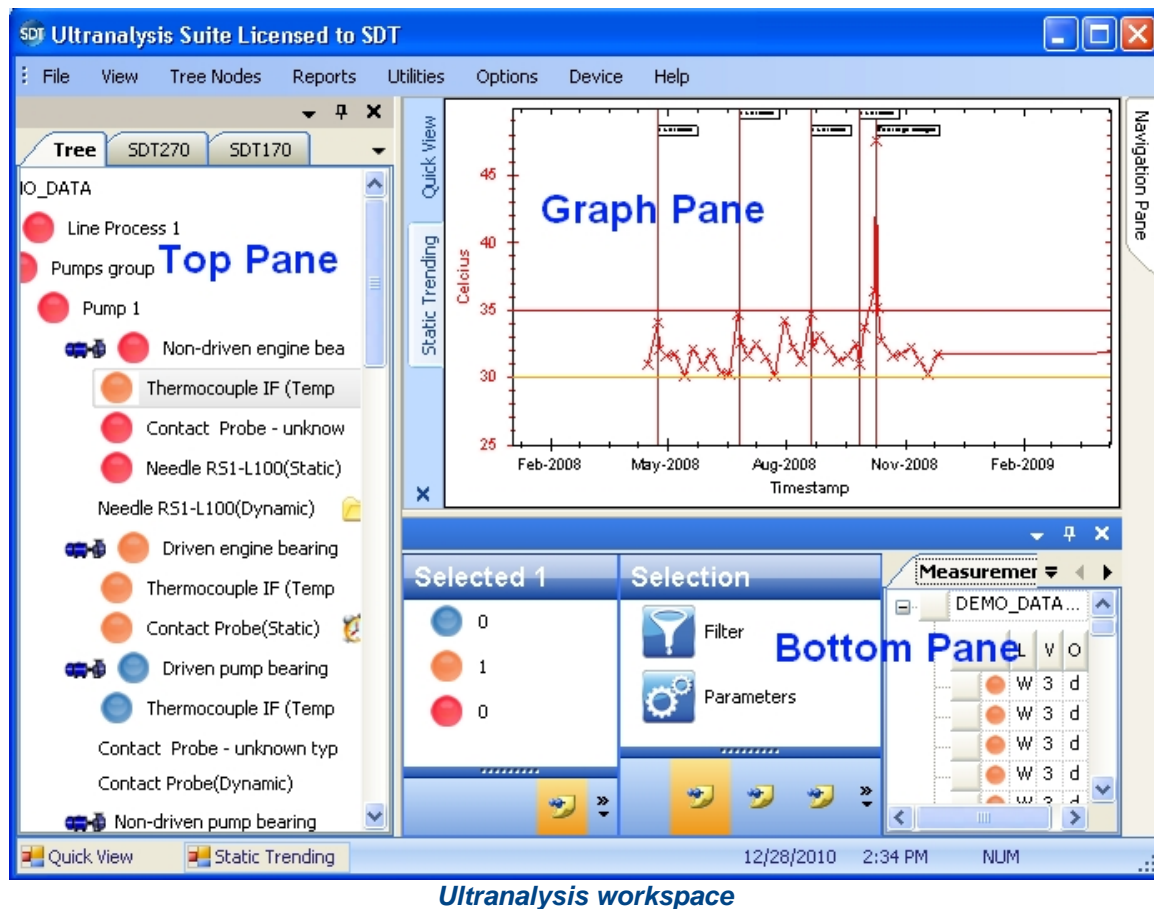
[Resize Panes](#)

## Overview

The Ultranalysis workspace includes 4 panes, menus and tool bars.

The basic format of the software is that there are four window panes:

- The Top Pane.  
In this Pane, the Nodes are represented by their name.  
It is used to navigate or carry out modifications on the tree structure, SDT270 surveys and SDT170 surveys.
- The Navigation Pane.  
In this Pane, the Nodes are represented by their image.  
It is used to navigate on the Tree Structure by images.
- The Graph Pane.  
It is used to display and analyze Trends, Time domains and Frequency domains graphs.
- The Bottom Pane.  
It is used to apply actions on a selection of Measurements. Using the filter, the Bottom Pane is a powerful tool to apply changes in mass.



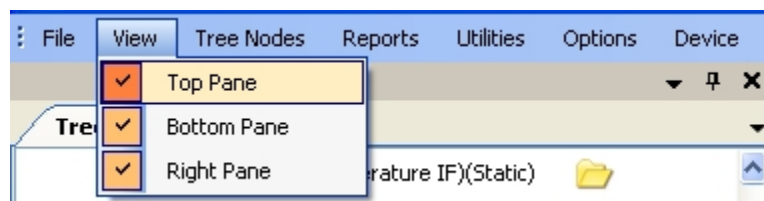
*Ultranalysis workspace*

As with most modern windowed programs, you have the option to move and to adjust the location and the size of these panes to suit yourself.

## Hide or display Bottom, Top and Image Navigation Panes

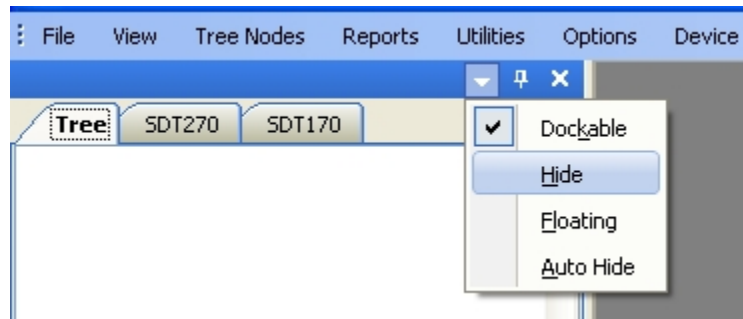
To hide one of these Panes:

- Select the menu **View** and untick the Pane you want to remove by a left mouse click. As an alternative, click on the close icon **X** on its title bar



*Hide or view the Panes using the menu View*


- Or left click on the down arrow icon **▼**, placed on right side of its title bar of the Pane. On the menu, select **Hide**. As an alternative, use the shortcut **[H]**.



***Hide a Pane using the down arrow icon***

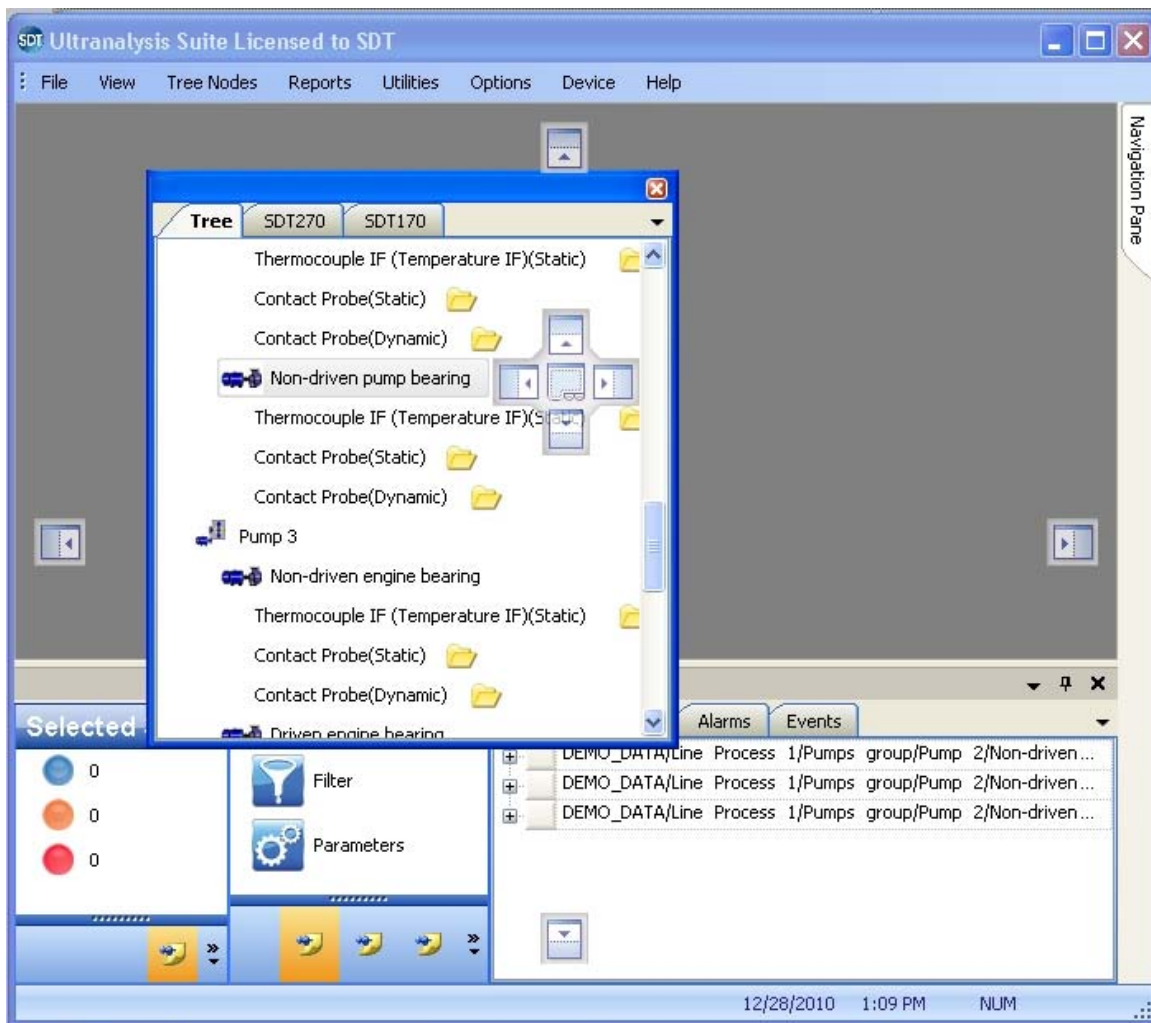
To re-view a hidden Pane, select the menu **View** and tick it by a left mouse click.

## Floating and docked Panes

To undock a Pane and place it floating inside Ultranalysis frame, left click on the down arrow icon  of its title bar and select **Floating**. As an alternative, use the shortcut [**F**].


You can now drag the Pane to the location you want on your desktop and resize it.

To return a floating Pane to a docked position, left click on its bottom bar and slightly drag it. Guides then appear on Ultranalysis frame. Drag the Pane upon a guide to dock it to place it in one side or in the middle of Ultranalysis frame. When the Pane is placed over a guide the designated area is shaded. Then release the mouse button.



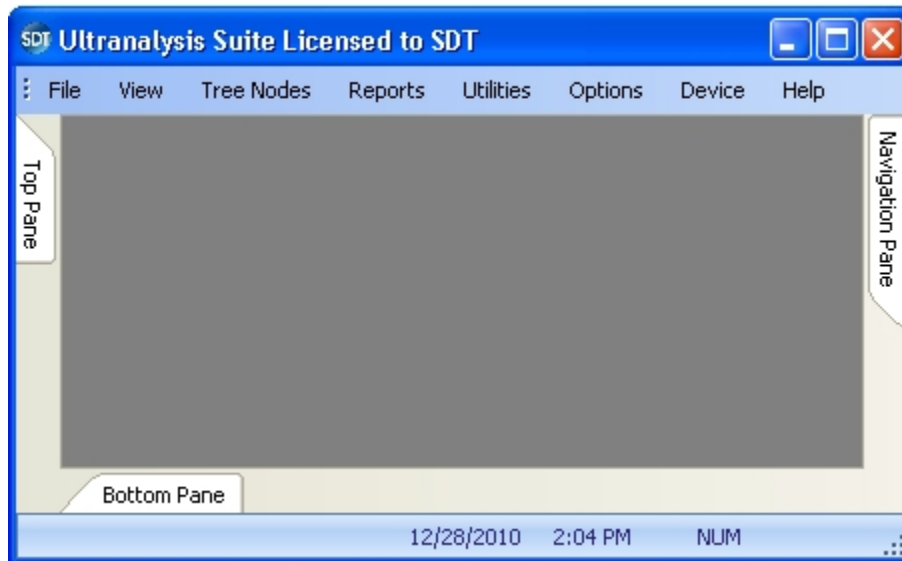
*Guides on UAS frame help you to re-dock a Pane*

## Minimize or Maximize a docked Pane


To minimize a docked Pane, left click on the down arrow of its title bar and select **Auto Hide**, or the shortcut [A]. As an alternative, click the pushpin icon  placed on the right of its title bar.

When a Pane is minimized, a tab with its name is placed on right, left or bottom of Ultranalysis frame, depending on your settings.






***Top Pane, Bottom Pane and Navigation Pane tabs  
placed on borders of UAS frame***

To maximize a docked Pane, click on its corresponding tab. Then left click on the pushpin icon  placed in its title bar, to keep it maximize.

## Re-size Bottom, Top or Image Navigation Panes

To re-size a Pane, place the mouse pointer on one of its border (right border for the Top Pane, top border for the Bottom Pane, left border for the Right Pane).

When it is correctly placed, the appearance of mouse pointer changes to this symbol .

Press and Hold the left mouse button and drag the window border to re-size the Pane.

Release the mouse button to complete the size modification.



***When the Panes are docked, only the right border of the Top Pane, the top border of the Bottom Pane, the left border of the Right pane can be dragged to re-size the corresponding Pane.***

---

### Related links

Top Pane  
Graph Pane  
Bottom Pane

## Top Pane

Content:

[Tree Tab](#)

[SDT270 Tab](#)

[SDT170 Tab](#)

### Tree Tab

**Tree tab** is used to create, modify or **navigate** inside the Tree Structure.

To navigate inside the Tree Structure, click on an element to select it, it is then highlight., and use the keyboard arrow keys:

- Going Up arrow to move to the next upper level
- Left arrow to close the sub levels linked to the selected element. You can perform the same by using right click, choosing ***Collapse All***.
- Right arrow to develop the sub levels linked to the selected element. You can perform the same action by using right click, choosing ***Expand All***.
- Going Down arrow to move to the next lower level.

### SDT270 Tab

The **SDT270 Tab** details the **Surveys** created for the **SDT270** using a 2 levels hierarchy:

- The first level is the Survey Name.
- The second level is the list of the Measurements attached to a survey with their complete path.

You can re-order the sequence of data collection and grouping Measurements into an order which is more efficient from a data collection point of view:

- Use [Shift] or [CTRL] to select multiple Measurements.
- Press and Hold the left button of your mouse on Measurements you want to move.
- Drag them to their desired destination.
- Drop them by releasing the left mouse button.

Surveys and Tree Structure are independents. Consequently, the re-order of Survey items does not affect, in any way, the Tree Structures and how the data is stored in the database. It just makes it easier for you to collect it.

### SDT170 Tab

The SDT170 is not able to work with:

- A 6 levels Tree Structure, but a 2 levels Structure with a format as "Survey Name / Measurement Point Name".
- Measurements which are the combination of the Sensor Name and settings.

Moreover the SDT170 doesn't accept inside a Survey to have two times the same Measurement Point Name.


For these reasons, Ultranalysis uses a conversion table to simplify its Tree Structure in a compatible format for the SDT170 and the SDT170 Tab details the surveys into the 2 views: the **Full Nodes Names View** and the **SDT170 Names View**.

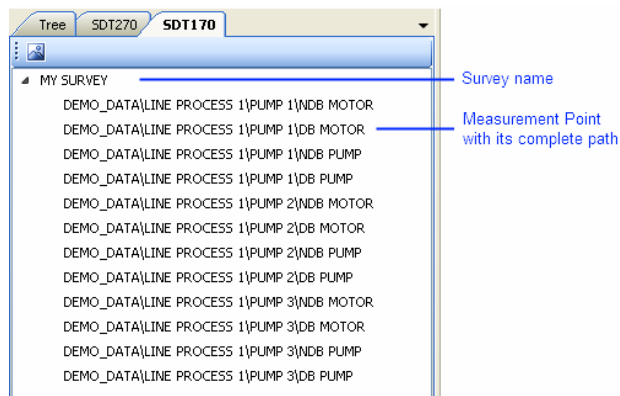
The **Full Node Name View** uses a 2 levels hierarchy:

- The first level is the Survey Name.
- The second level is the list of the Measurements Points attached to the survey with their complete path.

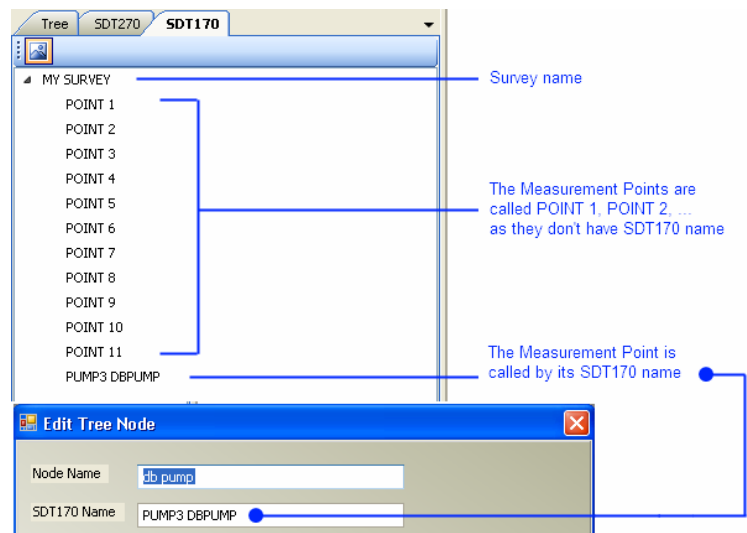
The **SDT170 Name View** uses a 2 levels hierarchy:

- The first level is the Survey Name.
- The second level is the list of the Measurement Points linked to the survey. Each Measurement point is called POINT1, POINT2, POINT3... when its Node don't have a SDT170 Name Or it is called by its SDT170 Name when its Node have one.

 **The numbering POINT1, POINT2, POINT3... is generated automatically by Ultranalysis.**



**Full Node Name view**



**SDT170 Name view**

## Related links

[Create and edit Tree Structures](#)

[Create SDT270 Surveys](#)

[Create SDT170 Survey](#)

# Graph Pane

## Content

[Graph area](#)

[Tabs area](#)

[Types of Tabs](#)

[Toolbar](#)

## Graph area

There are 4 different graph types:

- The Quick View Graph is automatically generated when a Measurement is highlighted in the Tree Structure.
- The Trending Graph of Static Measurement. This graph shows the evolution of data over a period.
- The Time Domain Graph of Dynamic Measurement. This graph shows the evolution of the signal with respect to time.
- The Frequency Domain Graph of Dynamic Measurement. This graph shows how much of the signal lies within each given frequency band over a range of frequencies.

You can load how many Graphs you need. But only one graph is displayed on the **Graph area**.

When adding a Graph, a new Tab is created. To select the Graph you want to be displayed on the Graph area, simply click on its corresponding Tab. This Tab is then highlighted.



***No changes can be applied to the Quick View Graph. So functions like zooming, re-scaling, overlaying are reserved to Static Trending, Time Domain and Frequency Domain Graphs.***

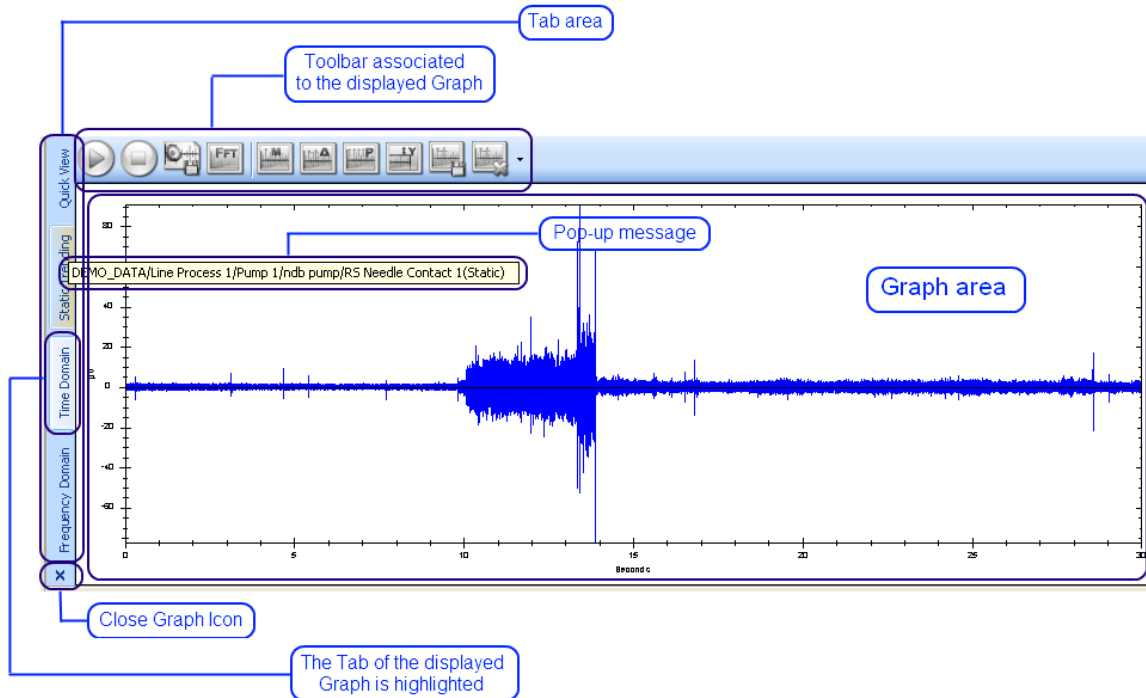
## Tabs area

The **Tab area** is located at the left side of the Graph workspace. It resumes all the Graphs open.

You can load the number of Graphs you want, but only is displayed in the Graph area. To switch between Graphs, select the Tab of the Graph you want to display on the Graph area simply by clicking on it. This Tab is now highlighted.

To help you to find the Graph you want to display, place the mouse pointer over a Tab. A pop-up message will indicate the Measurement and its path.

To remove a Graph, select its Tab and then click on the Close Tab Icon.



*Example of Graph Pane*

## Types of Tabs

There are 4 types of Tabs:

- The Quick View Tab is automatically created when a Measurement is highlight in the Tree Structure.
- The Trending Tab corresponds to the trend graph of Static Measurement. This graph shows the evolution of data over a period.
- The Time Domain Tab corresponds to the time signal graph of Dynamic Measurement. This graph shows the evolution of the signal with respect to time.
- The Frequency Domain Tab corresponds to the frequency signal graph of a Dynamic Measurement. This graph shows how much of the signal lies within each given frequency band over a range of frequencies.

## Toolbars

When a Time Domain Graph or a Frequency Domain Graph are open, a **Toolbar** is inserted on the top.

The toolbar icons are disabled for the Quick View Graph.

# Load a Graph on the Graph Pane

## Content

[Load Quick View Graph](#)

[Load Trending Graph](#)

[Load Time Domain Graph](#)

[Load Frequency Domain Graph](#)

## Load the Quick View Graph

You will notice that whenever in the Tree Structure you select a Measurement - Static Measurement or Dynamic Measurement - which contains data, *Ultranalysis Suite* automatically load a Trend Graph or a Time Domain Graph using the *Quick View* function.

The Quick View Graph is so automatically generated when a Measurement is highlighted in the Tree Structure without requiring an action from you. This feature lets you quickly view Graphs when navigation through the Tree Structure.

As the Quick View is not refreshed, any action is possible on it.

## Load a Trending Graph

Trending Graph displays Static Measurements over the time as a trend chart.

To load a Trending Graph:

- From the Tree Structure, highlight a Static Measurement and then push the enter key or
- From the Tree Structure, right click on a Static Measurement and then select Static Trend.

## Load a Time Domain Graph

Time Domain Graph displays the evolution of Dynamic Measurement with respect to time.

To load the **last** Time Domain Graph:

- From the Tree Structure, highlight a Dynamic Measurement and then push the enter key.

To load a specific Time Domain Graph:

- From the Tree Structure, highlight a Dynamic Measurement. Then on the Bottom Pane under the Tab "Measurements" select with a left click the chosen data from the drop down list. Right click on it and select Graph / Time Domain.

## Load a Frequency Domain Graph

The Frequency Domain Graph of Dynamic Measurement displays how much of the Dynamic Measurement lies within each given frequency band over a range of frequencies.

To load a Frequency Domain Graph from its Time Domain on the Graph Pane:

- Select the Time Domain Graph and then click on the "FFT" Icon.

To load a specific Frequency Domain from the Tree structure:

- Highlight a Dynamic Measurement. Then on the Bottom Pane under the Tab "Measurements" select with a left click the chosen data from the drop down list. Right click on it and select Graph / Frequency Domain.

# Personalize Graph

## Content

[Dragging](#)

[Zooming](#)

[Display or ignore Alarms Thresholds of Trending Graphs](#)

[Re-scaling Trending Graphs](#)

[Re-scaling Time Domain Graph](#)

[Re-scaling Frequency Domain Graph](#)

[Choosing the period range of trending Graph](#)

[Overlaying Trending Graphs](#)

[Changing Trending Graphs settings](#)

[Number of plotted points on a Time Domain Graph](#)

[Number of samples for Frequency Domain Graph](#)

[Windowing functions for Frequency Domain Graph](#)



***The actions described hereafter are disabled to the Quick View Graph.***

## Dragging

Place your mouse pointer anywhere inside the graph then hold down Ctrl + left mouse button and then drag the graph to the desired direction: left, right, up and down.

## Zooming

If you would like to zoom to a particular area, while holding the left mouse button, drag the mouse to form a rectangle. Once the rectangle is the size you would like, release the left mouse button to complete the zoom in.



## Display / Ignore Alarm Thresholds of Trending Graphs

Right click on the Trending graph and select Graph options, or from the toolbar select Options / Static Trend Settings. Then select the tab "Main Graph" and activate or not the check box "Show Alarms".

## Re-scaling a Trending Graph

This feature is very important in the case you want to compare Trending Graphs loaded in separate windows.

Right click on the Trending graph and select Graph options, or from the toolbar select Options / Static Trend Settings. Then select the tab "Main Graph" and activate the check box "Max Y" and type the same value for each graph you want to compare.

## Re-scaling a Time Domain Graph

This feature is very important in the case you want to compare Time Domain Graphs loaded in separate windows.

From the Toolbar on the top of the Graph Pane, click on the Y-scale Icon and type the Maximum and Minimum values. Repeat the same operation for each Time Domain Graph you want to compare.

## Re-scaling a Frequency Domain Graph

This feature is very important in the case you want to compare Time Domain Graphs loaded in separate windows.

From the Toolbar on the top of the Graph Pane, click on the Y-scale Icon and type the Maximum and Minimum values. Repeat the same operation for each Frequency Domain Graph you want to compare.

## Choosing the period range of Trending Graphs

The possibilities of period range for Static Measurements are:

- All Measurements which is the default setting.
- Most recent [number] Measurements. In this case, please type you much Measurements you want to display.
- Measurements under a period range. Two list boxes propose you to choose the starting and the ending dates.
- All Measurements from an event. A list box proposes you to choose one event.

Right click on the Trending graph and select Graph options, or from the toolbar select Options / Static Trend Settings. Then select the tab "General". Activate the option you want by highlighting its check box.

## Overlaying Trending Graphs

Right click on a Trending graph and select Overlay.

A window lists all the available Static Measurements. Highlight the check boxes of the Measurements you want to overlay.

To select quickly Measurements, you can activate the filter by using the shortcut [Ctrl + F].

## Trending Graph settings

You can change the background color and event color (General Tab), the X-axis color, the RMS/Value or Max RMS line color and display grid lines for the Main Graph (Main Tab) and the overlays (Overlay Tab).

Right click on the Trending graph and select Graph options, or from the toolbar select Options / Static Trend Settings. Then select the tab "General", "Main" and "Overlay" to activate the options you want or change the settings.

## Settings the number of plotted points on a Time Domain Graph

This feature makes it possible to improve the display speed of Time Domain Graphs, whatever the performances of your computer.

Choose the menu Options / Default Settings then select the tab "Domains Graphs". On "Time Domain" area select the number of points you want to display.



***This setting affects only the numbers of points plotted.  
The quality of your data collected by the SDT270 keeps unchanged.***

Regarding the resolution of the better monitors for computers, we advise you to choose the lowest limit of 1000 points.

## Setting the number of samples for Frequency Domain Graph

Choose the menu Options / Default Settings then select the tab "Domains Graphs". On "FFT" area, select the number of samples with which the spectrum will be calculate. A larger number of samples gives a finer spectral resolution.

## Setting the windowing function for Frequency Domain Graph.

Choose the menu Options / Default Settings then select the tab "Domains Graphs". On "FFT" area, select the windowing function you want to apply regarding your application.

To load a Trending Tab:

From the Tree Structure, highlight a Static Measurement and then push the enter key or

From the Tree Structure, right click on a Static Measurement and then select Static Trend.

## Bottom Pane

Content:

- [Overview](#)
- [Node selection from the Top Pane](#)
- [Tab of the selected Measurements](#)
- [Select Measurements in the Measurement list](#)
- [Develop a Measurement to see its measures](#)
- [Select a measure of a Measurement](#)
- [Edit a measure](#)
- [Delete a measure](#)
- [Mark as reference a measure](#)
- [Unmark as Reference a measure](#)

### Overview

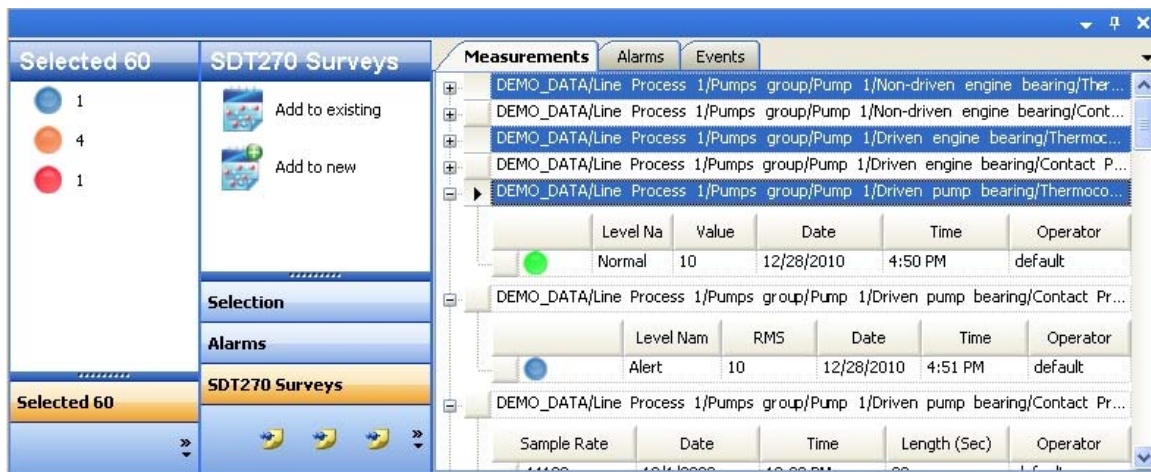
The Bottom Pane is a powerful tool to quickly and easily make a selection from a huge Tree Structure in order to select Measurements answering one or multiple criteria. More, its outstanding ability is to apply in mass various actions to a selection. For example, you can:

- Sort out all Measurements using the Needle RS1 from a group of similar equipment with the **Filter**.
- Select some or all filtered Measurements.
- Create a new Alarm and then apply it to them, with the **Alarm Tab**.
- Apply a data collection interval to this selection with the **Set Interval Tab**. With the Bottom Pane, these operations are realized in four clicks.

Performing the same job using the Top Pane would be extremely laborious: actions should be executed individually for each Measurement.

The Bottom Pane consists of two parts:

- The left side shows the number of measurements answering the choice criteria imposed, the number of Measurements in Alarm and the tabs of the available menus.
- The right side lists the Measurements answering the criteria. Each Measurement can be
  - Developed to visualize its recorded measures.
  - Selected or not before performing an action.



The left side shows the number of filtered Measurements and the number of Measurements in alarm.

The right side lists the filtered Measurements. Each measurement can be selected and developed to see the recorded measures.

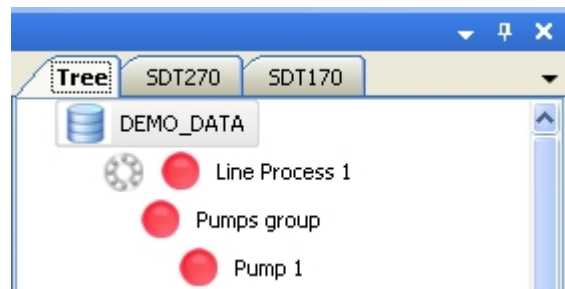
### *The Bottom Pane*

## Node selection from the Top Pane

The first action when using the Bottom Pane, is to highlight, in the Top Pane, a Node in order to select its sub Measurements you want to work with.

As it is simple to refine the selection with the *Filter*, we advise you to select the Tree Structure name, by making a left click on it, in the Top Pane. Using this tip, you will be sure not forgetting sub Nodes containing needed Measurements.

Then activate the Bottom Pane by clicking on its title bar.



*The Tree name is selected in the Top Pane*

## Tab of the selected Measurements

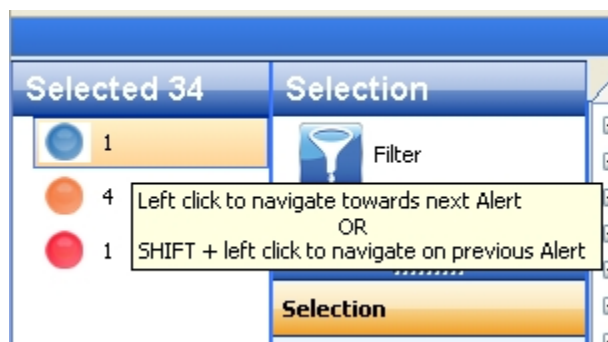
This tab shows:

- The total number of Measurements answering the selection criteria, 62 in the following example:
- The measurements that triggered an alarm, classified upon the severity level reach: Alert, Warning, Danger.



***Selected Measurement Tab  
and Measurements in alarm***

You can directly select, in the Top Pane, the Measurements in alarm by left clicking on one of severity level. The following **left click** will select the next Measurement. **Shift + left click** will select the previous one.



***Selection of the points in Alarm***

## Select Measurements in the Measurement list



*Before performing an action (assign or detach Alarms, Set an Interval, Insert in a Survey) you need to select first the desired Measurements in the Measurement list from the right side of the Bottom Pane.*

To select a Measurement, highlight it by a left click on its full name.

Use [**Shift**] and [**CTRL**] to select multiple Measurements.

## Develop a Measurement to visualize its measures

Click on the  to develop a Measurement branch and visualize its measures.

## Select a measure from a Measurement

Select a Data by clicking on it. It is then highlight.

With a right click, you can:

- Edit a measure.
- Delete a measure.
- Mark as Reference a measure.
- Unmark as Reference a measure.

## Edit a measure

Right click on a measure (Static or Dynamic) and select the menu **Edit**.

The following window is then displayed:

**Edit Ultrasound Static Measurement Data**

Sensor Name:

Time Stamp:

**Measurements**

RMS:  dBµV      Max RMS:  dBµV

**Parameters**

Amplification (dB):       LP Filter Freq (Hz):       Resonant Freq (Hz):       Mixer Frequency (Hz):

**Info**

Sensor Serial No.:       LC Time Stamp:

Instrument Serial No.:       LC Time Stamp:

**Extended**

RPM:       Sample Rate:

No. of Samples:       Wave File:

*Edit Data window*

You are able then to modify the different fields, except the **Sensor Name Field**.

## Delete a measure

Right click on a measure and select **Delete**. A confirmation message asks you to confirm the erase of this measure.

## Mark as Reference a measure

Right click on a measure and select *Mark as Reference*.

## Unmark as Reference a measure

Right click on a measure and select *Unmark as Reference*.

---

### Related links

[Selection tab](#)

[Alarm tab](#)

[SDT270 Survey Tab](#)

# Selection Tab

Content:

[Overview](#)

[Filter menu](#)

[Parameter menu](#)

## Overview

The **Selection Tab** contains two tools:

- The **Filter** menu to refine the selection.
- The **Parameter** menu to customize the columns displayed in the Measurement tab.

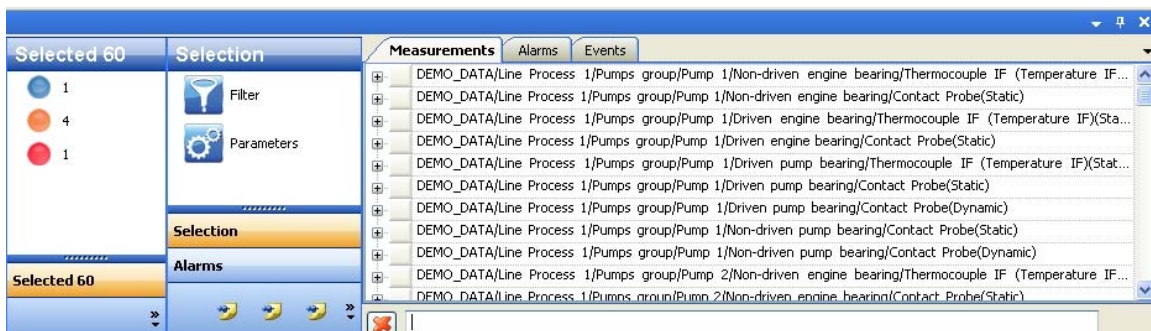


*Selection Tab containing Filter and Parameter menu*

## The Filter menu

Click on its icon to activate the Filter:  Filter

As an alternative, use the shortcut [**CTRL+F**]. A text field is then inserted inside the Bottom Pane.





***The filter is activated in the Bottom Pane and the text field is displayed***

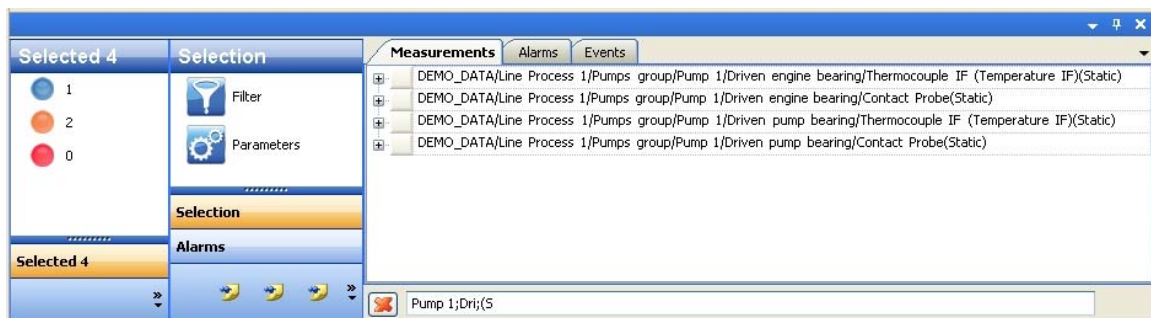
To only select the Measurements you want, you can now enter in the text field a string. The Bottom Pane will return all the Nodes, sub Nodes and Measurements that contains the string you have typed. For Example, when DEMO\_DATA is selected, typing the string "**Pump 1**" selects 10 Measurements which are all the Measurements that contains exactly the term "**Pump 1**" in their full name.



***The Filter is case sensitive: the string "pump 1" returns no matching Measurement, as "Pump 1 returns 10 matching Measurements.  
In a similar way, the filter is sensitive to the space character: the string "Pump1" returns also no matching Measurement.***

You are not obliged to type a full name to select efficiently Measurements. For example, typing the string "**(S)**" selects all the Static Measurements, "**(D)**" all Dynamic Measurements, in DEMO\_DATA.

You can also set multiple selection criteria by adding a semicolon ";" between two strings. The semicolon acts as an AND function. For example, typing "**Pump 1;Dri;(S)**" selects 4 Measurements, in DEMO\_DATA. These are the Measurements that contains in their full name the term "**Pump1**" AND the term "**Dri**" AND the term "**(S)**".



***Using semicolons as an AND functions in the Filter***



***The string order does not have influence on the final result: "(S;Dri;Pump 1" provides the same selection as "Pump 1;Dri;(S)".***



***Be care of inserting a space character between or after a semicolon: "Pump1 ;(S;Dri" results no matching Measurement, because there is no Measurement containing the term "Pump 1 " instead of the term "Pump 1".***


To shut off the Filter, click the close icon

## Parameter menu

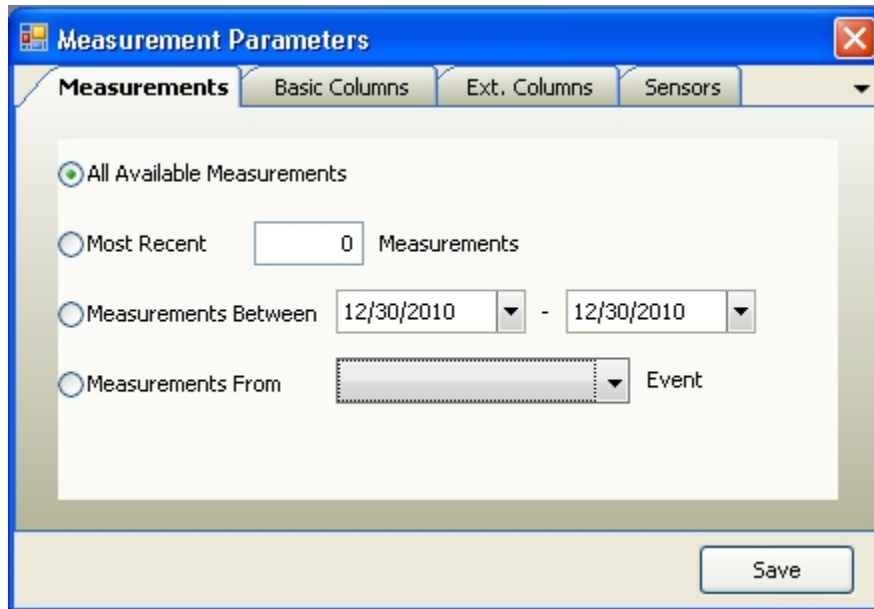
With the **Parameter menu**, you refine Measurement or data and customize the Measurement details by:

- Choosing the date range of data, with the **Measurement** tab.
- Choosing the information displayed for Static measurements, with the **Basic Column** tab.

- Choosing the information displayed for Dynamic measurements, with the **Ext. Column** tab.
- Selecting Measurements for a defined Sensor list, with the **Sensor** tab.

Click on its icon to open the  Parameters

The following window appears:



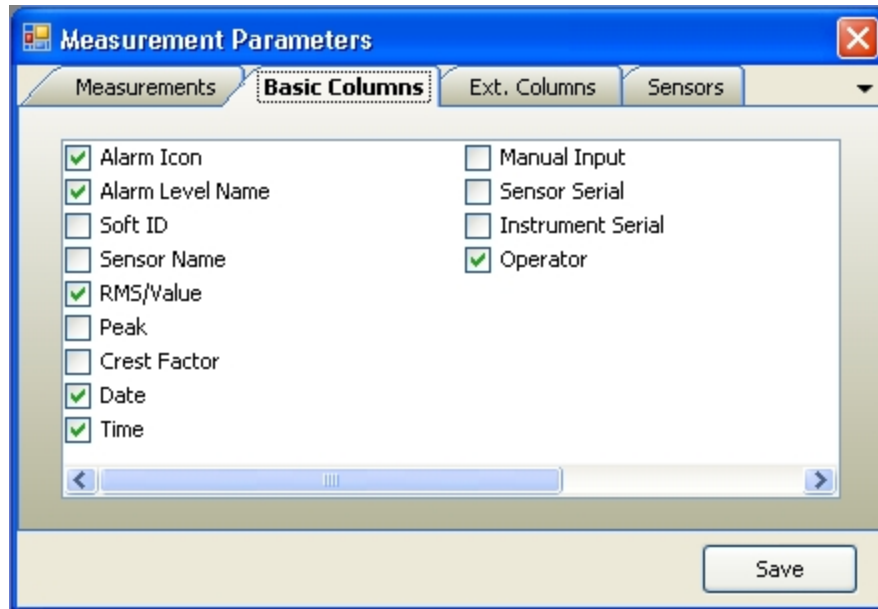
*The Parameter Menu, with Measurement tab selected*

- **Measurement tab**

Select the Measurement tab with a left click on it.  
Refine the data from the selected Measurements, choosing one option by ticking its radio button.

- **Basic Column tab**

Select the Basic Column tab with a left click on it.  
Select, by ticking their check box, the parameters, associated to data, which will be displayed.



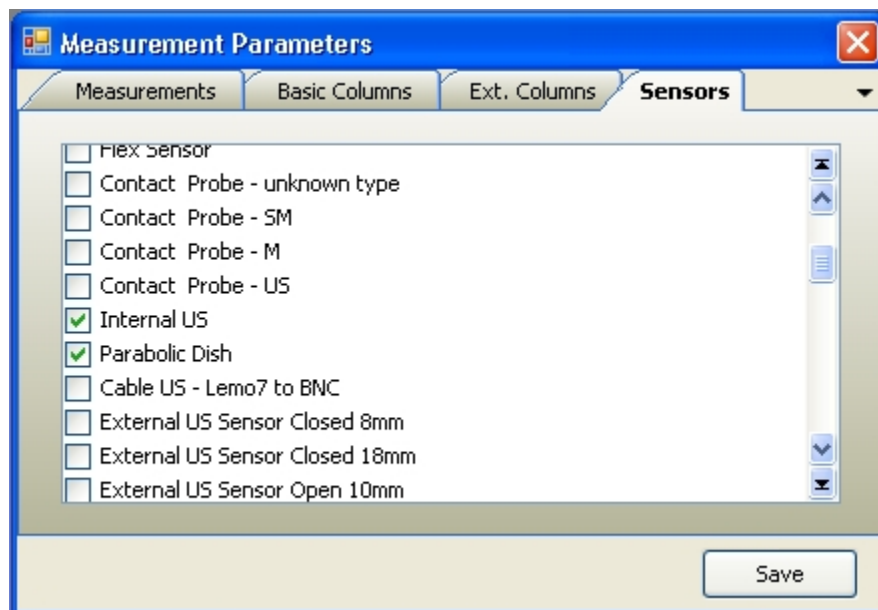
*Parameter menu with Basic with the Column tab selected*

- **Ext. Column tab**

As for Basic Column tab, select, by ticking their check box, the parameters, associated to data, which will be displayed.

- **Sensor tab**

Display only the Measurements you want by selecting the Sensors they use by ticking their check boxes.



*Measurement Parameter menu with the Sensor tab selected*

# Alarm Tab

Content:

[Overview](#)

[Points that triggered Alarms](#)

[Attach Measurements to an existing Alarm](#)

[Attach Measurements to a new Alarm](#)

## Overview

With the Alarm Tab, you can perform 4 actions:

- Obtain a list of the points that triggered an alarm, then create a survey or a report from this list.
- Assign an existing Alarm to the Measurements selected.
- Create then assign a new Alarm to the Measurements selected.
- Detach Alarm to the Measurements selected.



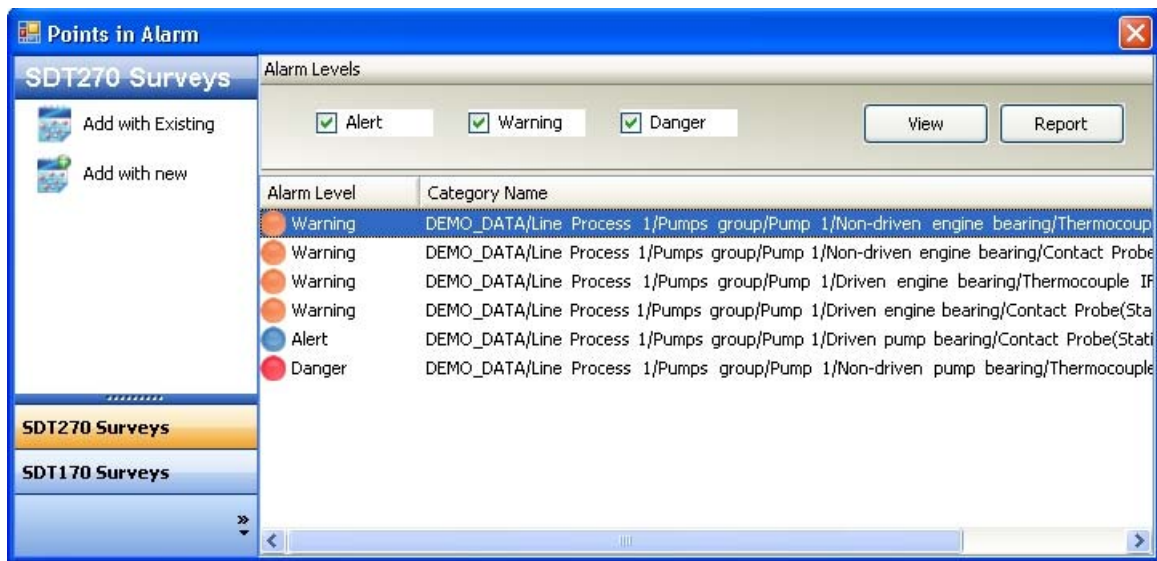
## Points that triggered Alarms

Click on its icon to  
open this menu:



Points in Alarm

The following window is then displayed:



*Points in Alarm menu*

Click first to **View** to display or refresh the list of concerned Measurements.

You can sort out the Measurement regarding the Alarm threshold reached: **Alert**, **Warning** and **Danger**, by ticking the corresponding check boxes. Then click **View** to refresh the list.

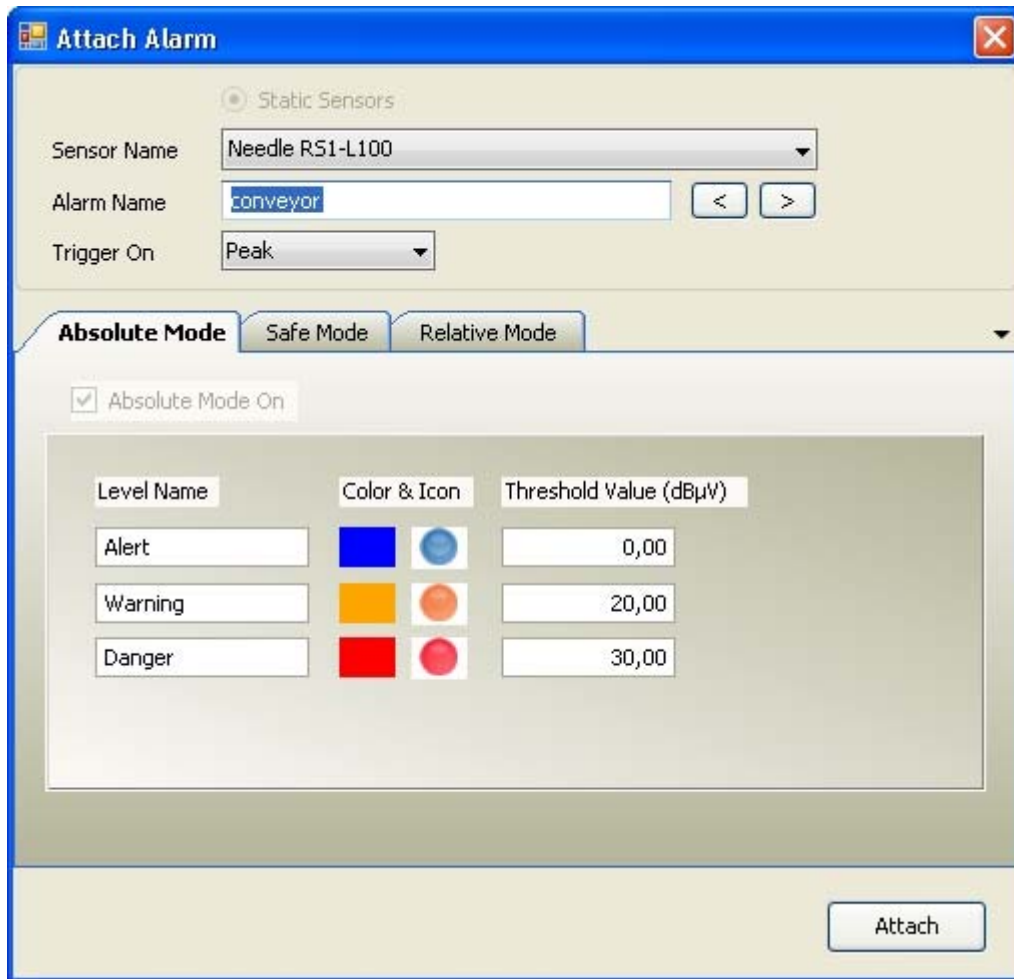
After selecting the wanted Measurements using [**SHIFT**] or [**CTRL**] + Left click:

- Generate a report including the selected Measurements, by clicking the **Report** button.
- Create a temporary new SDT270 or SDT170 survey including the selected Measurements, by clicking the **Add with new** button from the **SDT270 Surveys** tab, or the **SDT170 Surveys** tab.
- Add the selected Measurements to an existing Survey, by clicking the Add with existing button from the **SDT270 Surveys** tab, or the **SDT170 Surveys** tab.

## Attach Measurements to an existing Alarm

Select, from the right side list, the desired Measurements and click on the **Attach with existing** button.



The following window is then displayed:



The "Attach Alarm" window is a software interface for configuring alarms. It features a blue title bar with the text "Attach Alarm" and a close button. The main area is divided into sections. At the top, there's a radio button for "Static Sensors". Below this, there are three fields: "Sensor Name" (a dropdown menu showing "Needle RS1-L100"), "Alarm Name" (a text box containing "conveyor" with navigation buttons "<" and ">" to its right), and "Trigger On" (a dropdown menu showing "Peak"). Below these fields are three tabs: "Absolute Mode" (selected), "Safe Mode", and "Relative Mode". Under the "Absolute Mode" tab, there is a checked checkbox labeled "Absolute Mode On". Below the checkbox is a table with three columns: "Level Name", "Color & Icon", and "Threshold Value (dBμV)". The table contains three rows: "Alert" with a blue square and a blue circle icon and a threshold of "0,00"; "Warning" with an orange square and an orange circle icon and a threshold of "20,00"; and "Danger" with a red square and a red circle icon and a threshold of "30,00". At the bottom right of the window is an "Attach" button.

Level Name	Color & Icon	Threshold Value (dBμV)
Alert	Blue square and circle	0,00
Warning	Orange square and circle	20,00
Danger	Red square and circle	30,00

*Attach Alarm window*

Choose the right Alarm Name by scrolling with the Previous  and the Next  buttons. Then click **Attach**.



***The settings of the selected existing Alarm can't be changed from this window.***

## Attach Measurements to a new Alarm

Select, from the right side list, the desired Measurements and click on the **Attach with new** button.

The following window is then displayed:

**Create New Alarm**

☒ Static Sensors

Sensor Name: Accelero 100mV/G

Alarm Name:

Trigger On: Acceleration

**Absolute Mode** | Safe Mode | Relative Mode

☐ Absolute Mode On

Level Name	Color & Icon	Threshold Value (G)
Alert		0,00
Warning		0,00
Danger		0,00

Save

**Create Alarm window**

Choose a consistent name for the Alarm. Think about how to make this name understandable to others who might be using your alarms in the future – or even for yourself when you have forgotten. “Tom’s Alarm 1” for example does not tell me a great deal whereas “alarms for conveyors” is a big help.

For ultrasound data, you can trigger the Alarm on the RMS value or the Max RMS value.

For accelerometers, you can trigger the Alarm on the acceleration or the velocity.

**Ultranalysis automatically adds to the Alarm name the Measurement information as "/Sensor type(Static)". In example, if you encode "alarms for conveyor" choosing the RS Needle contact 1, the Alarm name will be "alarms for conveyor/RS Needle contact 1(Static)/RMS or Max RMS".**

**For ultrasonic sensors, if you want to trigger on the RMS and on the max RMS values, you need to create 2 separate Alarms. In a similar way, you need to create 2 separate Alarms to trigger on acceleration and velocity.**

Then you have the possibility to activate the **Absolute mode** and/or the **Safe mode** and/or the **Relative mode**, clicking on the corresponding tab.

## Activate the Absolute mode

Select the tab Absolute mode, then click the check box Absolute mode on to activate it.

Encode the threshold values for Warning, Danger and Alert levels.



***You do not necessary need to use all three. To ignore one Alarm level, encode "0" to its threshold value.***

You now have the choice to activate the Safe mode and/or the Relative mode, or to click Save for using uniquely the Absolute mode.

## Activate the Safe mode

Select the tab Safe mode, then click the check box Absolute mode on to activate it.

Encode the lower and upper threshold values.

You now have the choice to activate the Absolute mode and/or the Relative mode, or to click Save for using uniquely the Safe mode.

## Activate the Relative mode

Select the tab Relative mode, then click the check box Relative mode on to activate it.

You are able to activate the Growing Up and/or the Growing Down changes by clicking on the regarding check boxes. Then encode the Danger and the Warning Thresholds (if needed) values you want.

Select on which value alarm must be calculated while choosing the check box:

- Previous Value or
- First Value or
- Reference Value. In this case, a new window opens in order to select the Reference value you want to use. Only the selected Measurement appears in the list.



# SDT270 Survey Tab

Content:

[Overview](#)

[Add Measurements to an existing SDT270 Survey](#)

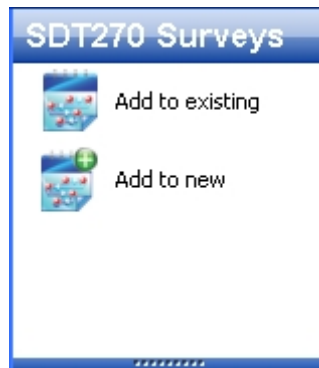
[Add Measurements to a new ST270 Survey](#)

## Overview

With the SDT270 Survey Tab, you can perform 2 actions:

Add Measurements to an existing SDT270 Survey.

Add Measurements to a new SDT270 Survey.



*SDT270 Survey Tab*

## Add Measurements to an existing SDT270 Survey

Select the desired Measurements, then click on the **Add to existing** button.

From the displayed window, select the right Survey and click on **Attach**.

## Add Measurements to a new SDT270 Survey

Select the desired Measurements, then click on the **Add to new button**.

On the displayed window, type a name for the Survey then click on **Save**.

# SDT170 Survey Tab

Content:

[Overview](#)

[Add Measurements to an existing SDT170 Survey](#)

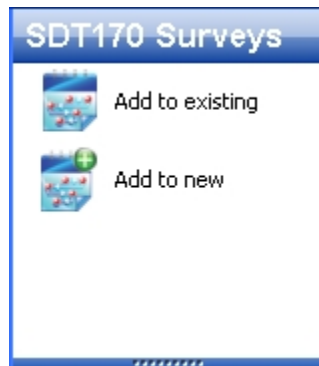
[Add Measurements to a new SDT170 Survey](#)

## Overview

With the SDT170 Survey Tab, you can perform 2 actions:

Add Measurements to an existing SDT170 Survey.

Add Measurements to a new SDT170 Survey.



*SDT170 Survey Tab*

## Add Measurements to an existing SDT170 Survey

Select the desired Measurements, then click on the **Add to existing** button.

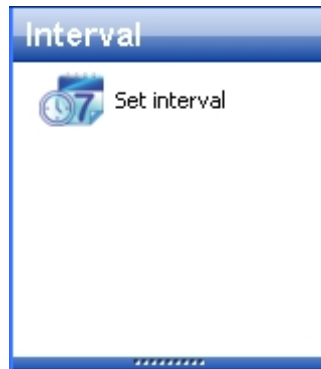
From the displayed window, select the right Survey and click on **Attach**.

## Add Measurements to a new SDT170 Survey

Select the desired Measurements, then click on the **Add to new button**.

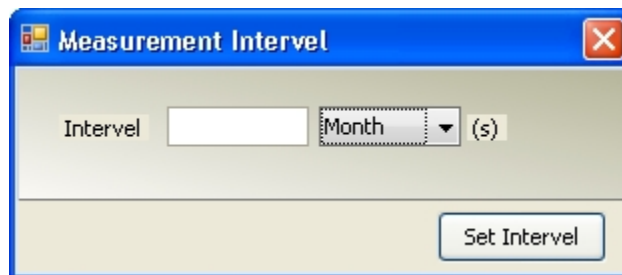
On the displayed window, type a name for the Survey then click on **Save**.

## Interval Tab



*Interval Tab*

Select the desired measurements, then click on the **Set interval** button.  
The following window is displayed:



*Set Measurement Interval window*

Encode an **Interval** and select from the drop down list, a periodicity in Month, Week, Day or Hour.  
Then click on **Set Interval**.

# Introduction to database and tree structure

## Contents

- [Database definition](#)
- [Tree structure definition](#)
- [Structure of a good database](#)
- [Numbers of levels](#)
- [Choice of a reliable naming](#)
- [Considerations for database construction](#)

## Database definition

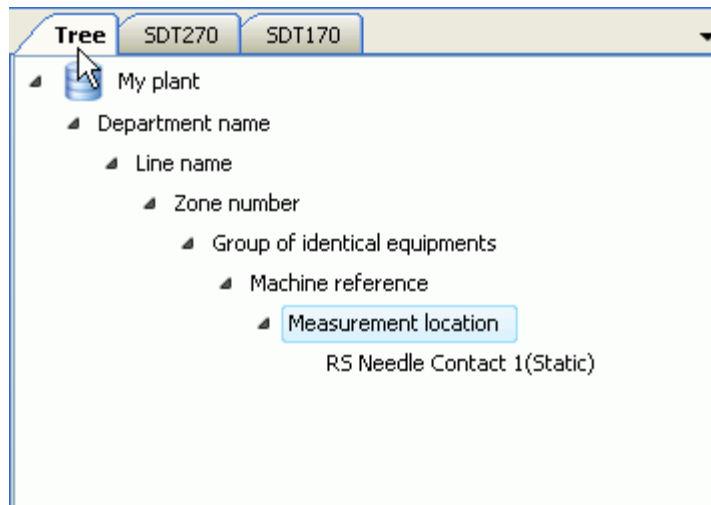
*UltrAnalysis* is fundamentally used as a **Database** to manage your collection, processing and analysis of data. A database is an integrated collection of logically-related records or files consolidated into a common pool that provides data for one or more multiple uses. It is used to store and organise information in such a way as to make it easy to retrieve.

Imagine a library where you know all the books you need are located but you have no logical way of finding them – it would be a nightmare. In the same way, many databases are created in such a way that only their creator knows how to find information. As predictive maintenance departments are typically comprised of team members relying on integrated data, this would not be a good database.

## Tree structure definition

*Ultranalysis suite* uses hierarchical database model in which the data is organized into a **tree** like **structure**. The content could be data collected with the SDT270 or SDT170, comments, or external document (image, thermogram).

The **tree structure** is the way of representing the hierarchical nature of the Database. It is named a tree structure because the representation looks like a tree. In this type of structure, The Database name, also called the "root", is the top of the tree structure and the **Measurements**, also called the "leaves", are at the end. A Measurement is the combination between a sensor choice and Measurement settings. The branches between the Database name and the Measurements Categories are called **Nodes**.



***Example of a tree structure in Ultranalysis***

## Structure of a good database

A considerable amount of thought should go in to the structure of your database. Some time spent now considering what sort of information you might want from your database in the future, will help you to develop your database in the right way today.

It may be that you have already been through this process with the development of your computerised maintenance management software (CMMS) database in which case you are likely to be using the same database structure in *UltrAnalysis Suite*.

If you are not following an existing structure, here are some items to consider.

Consider when you are filling in an address form. There can be several levels of information needed to define your address:

1. Country.
2. State, Province or Region.
3. Town or City name.
4. District name
5. Street or road name.
6. House or Apartment number.

The database required to manage all of this data would require 6 levels in order to fully describe the location of each house or apartment.

Notice how the structure starts at the top, with the country, and moves down becoming more specific , or localised, with each lower level.

Consider how you might want to organise and search through this database to:

- Find a particular house on a particular street.
- Find all houses on that street.
- Find all the streets in a particular district with the same name.

An important function of the database then, is to organise the data into a hierarchical structure – this is what we call a tree.

## Number of levels

Inside *UltrAnalysis* databases, you can organize the tree with a maximum of 6 levels. This should be more than enough for the majority of applications and will generally be more than is used by your CMMS program.

Careful consideration should be given to the use of these levels so as to maximise your ability to locate and describe a measurement point within your plant.

Whilst we have 6 levels, you do not need to use all 6 all of the time. If you can define your measurement point location in 2, 3 or 4 levels, that is all you need to create. There is no requirement to invent levels just to make it up to 6. *UltrAnalysis* is flexible enough to identify measurements wherever they may be in the tree structure which gives you tremendous flexibility in your database design.



***The SDT270 Database is identical to that of Ultranalysis, but its screen is able to display only 5 levels at the same time. The SDT170 works with two levels only.***

## Choice of a reliable naming

In *UltrAnalysis Suite*, as with most databases, the use of upper, lower case and space character can be used as a distinguishing characteristic which can be used to filter through large amounts of data quickly:

- ***Pump 1*** is not the same as ***pump 1***.
- ***pump 1*** is not the same as ***pump1***.
- ***Non-driven bearing*** is not the same as ***Nd bearing*** or ***nd bearing***.



***Being consistent is very important when you are creating a database. It helps you to keep track and it helps the database search engine to find what you are looking for in future. It is important that you develop a standardized naming system and stick to it.***

Think of terms you can use within your own plant or organization which will convey meaning. Abbreviation is often required, so make sure that the abbreviations you use are consistent and understood by all involved.

Consistency between the maintenance department and operators is also sometimes important. If you have a conveyor feed into a zoned oven for example, do you number the Recirc fans from the infeed end forward or from the outfeed end backwards? Is your system consistent with what the operators call them?

One simple naming system is to use capitals for Areas, Processes, Functions (Recirc Fan, Boiler Feed Water Pump) and lower case letters for components inside one of these functional units (motor, pump, fan, gearbox, bearing).

## Considerations for Database construction

As you add more and more information, data, measurements to any predictive maintenance database, the value of the database increases. That value is based upon the knowledge locked away inside it about the reliability of components, systems and methods used in your plant.

As you build your database then, plan ahead a little bit by putting information in now which will make it easy for you to do some digging in the future. Consider some of these real-life database searches and their implications in the database construction. In example, show me:

- The bearings mounted next to belt pulleys.
- The drive end bearing of all 15kW motors on site.
- Pump drive end bearing.
- Conveyor roll bearings using *ABC* grease.

One way to build an efficient database is to:

- Regroup all identical equipments into one branch level (or Node).
- Regroup equipments from a process function into one branch level.
- Avoid regrouping machines regarding survey routines.

In addition to searching the database hierarchy, you can also perform a search based upon keywords stored in a free form information field associated with a node.

---

### Related links

[Terms used](#)

[Creating and editing a Database](#)

[Creating and editing a Tree structure](#)

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## Terms used

*if you are not accustomed with database, we advise you to consult in first the chapter [Getting started](#).*

### Content

[Database](#)

[Node](#)

[Sensor name](#)

[Measurement](#)

[Static measurement](#)

[Dynamic measurement](#)

[Interval](#)

[Traffic light indicators](#)

## Database

You are able to create multiple databases. Each database is characterized by its name and has its own tree structure.

In a tree structure model the database name is equivalent to the database root.

The number of databases is limited to your computer storage capacity.



***You cannot open simultaneously several databases. It is then disadvised placing similar equipments into different databases because measurement comparison will be impossible.***

***You can upload only one database towards the SDT270 or the SDT170. It is then disadvised placing the same equipment in several databases.***

## Node

A node is a position in a tree between the database root and the Measurement. Each nodes have a unique parent (their upper level) and can have multiple child (their lower levels)

Going back to our [global address analogy](#), the name of your Town or City would be a Node. There will be multiple nodes at that level listing all of the Town or Cities in your State or region. It is a node because the nodes representing all of the Districts in your Town or City branch off beneath it.



An *UltrAnalysis Suite* database can effectively contain a virtually unlimited number of nodes, regarding your computer storage capacity.

## Sensor name

For each measurement point, you can decide the type of sensor you want to use. The SDT270 and the SDT170 work with a variety of different sensors like Airborne and Structure borne Ultrasound probes, Tachometer, Thermometer.

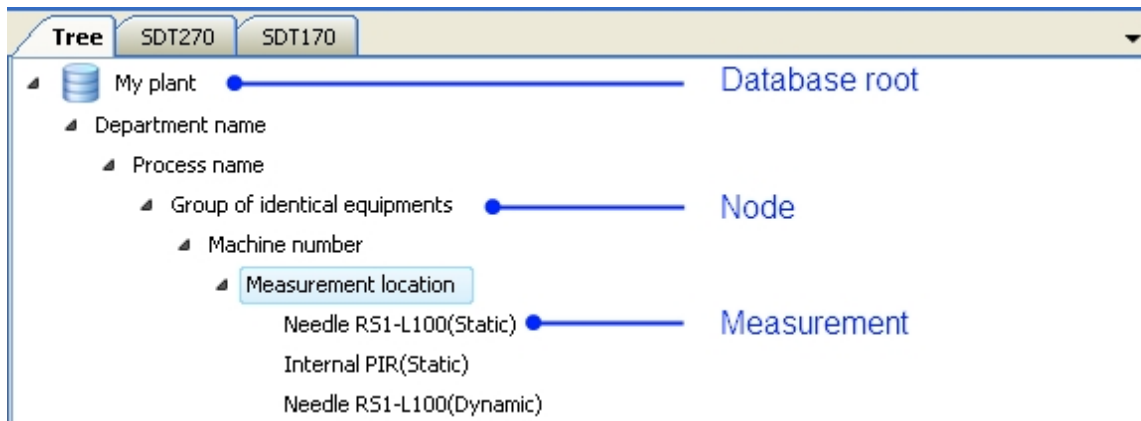
However, the notion of sensor type is not sufficient for reliable comparison of data. For example a RMS calculated between 10 and 1000 Hz is not comparable to a RMS calculated between 10 and 10000 Hz. This is the reason why, Ultranalysis suite adds, to the sensor type, the parameters associated to the measurement. This combination of the sensor type and the parameters is called the Measurement. It is explained hereafter.

## Measurement

The Measurement combines a sensor choice (by example the Needle RS1 or Parabolic dish) and a set of specific parameters (by example Static or Dynamic measurement, the Mixer Frequency, the bandwidth).

A Measurement is the end leave of the tree structure. Consequently, no sub level can be assigned to a Measurement.

The Measurement name is generated automatically by Ultranalysis, when it is created, regarding your selection.



*Terms used in the tree structure*

## Static measurement

A static measurement is one which is purely a single numerical value - a dB $\mu$ V value or a temperature are both static measurements.

Static measurements can be collected using either the SDT170 or SDT270.

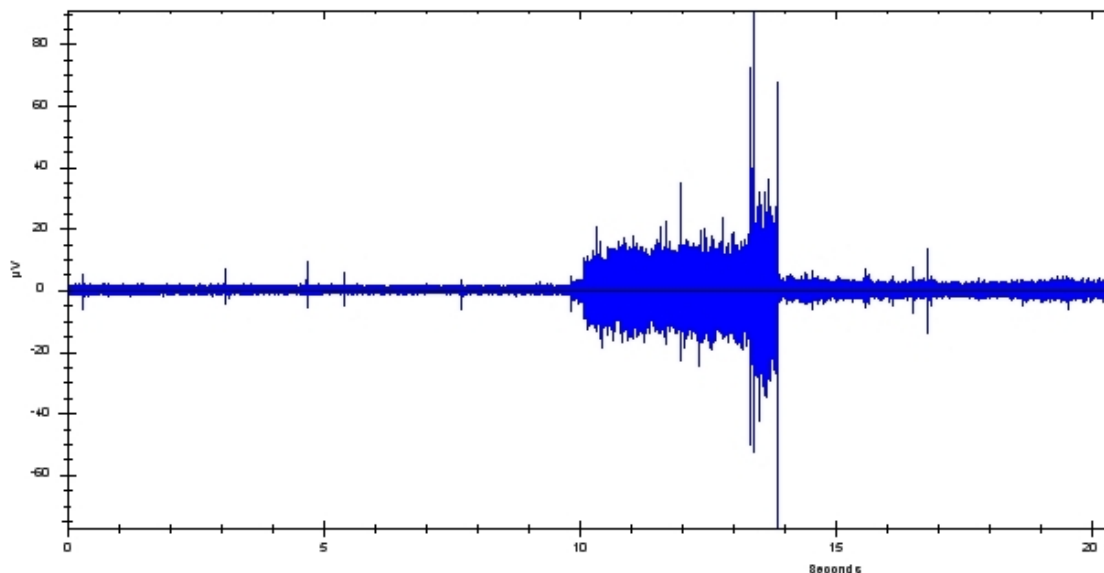
These values are normally logged for trending or alarm comparison.

## Dynamic measurement

A dynamic measurement is a collection of measurements during a chosen period. An example dynamic measurement would be a recording of the ultrasonic signal from a bearing, or a recording of the collection of close and purge phases of a steam trap.

Dynamic measurements are collected directly by the SDT270. Only wave files are collected by the SDT170 in association with some WAV file recorder like to Roland R09.

This type of measurement would normally be analyzed by viewing and processing the time signal of perhaps the spectrum of the signal in *UltrAnalysis Suite*.



*Dynamic measurement collected from a steam trap by the SDT270*

## Interval

If you are relying upon data being updated constantly to provide you with up-to-the-minute condition information, this *Measurement Interval* definition is very important.

A routine measurement can have a measurement interval defined for it in units of hours, days, weeks or months.

*Ultranalysis Suite* uses this interval to identify for you any measurements which are overdue.

If you want to schedule monthly readings, then you might enter the number 1 in the left-hand box and select *Month* in the drop down selection in the right-hand box. This interval is calculated from the date of the last stored reading. So for example, if you take a reading on January 1st, the measurement would become overdue on February 2nd.



***If you are taking readings roughly, but not absolutely, monthly – try changing the interval to 3 weeks rather than 1 month. When you go back on February 1st, all the measurements you took on January 1st would now be due.***

***The Copy / Paste function applies the interval defined from the source to the destination.***

Later on you will see how you can use this measurement interval as a filter for loading surveys only of points overdue and also how to produce management reports telling you how many measurements are overdue in your database.

## Traffic light indicators

Inside the tree structure, the traffic lights indicators show the alarms triggered by the last stored measurement. The highest alarm level is always priority. It automatically affects the upper parent nodes of the concerned Measurement.

According to an ascending order of importance, the default alarm indicators are green (no alarm), blue (Warning level), orange (Alert level) and red (Danger level):

**Green** there is data stored at this measurement point and it is not in alarm.

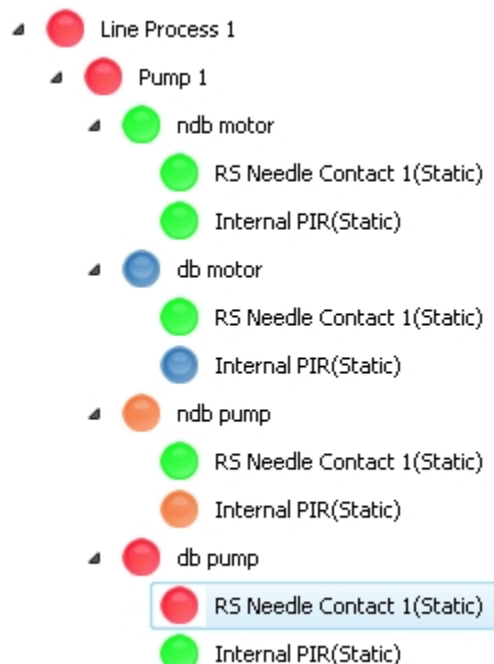
**Blue** there is data stored at this measurement point and there is a *Warning alarm* active.

**Orange** there is data stored at this measurement point and there is a *Alert alarm* active (there may also be a *Warning alarm* active, but the highest level alarm is indicated).

**Red** there is data stored at this measurement point and there is a *Danger alarm* active (there may also be an *Alert alarm* or *Warning alarm* active, but the highest level alarm is indicated).



**You can choose for each alarm separately the number of levels you want to use by deactivating the Warning or the Alert or the Danger level.**



**Traffic light priority: the danger level on db pump / RS Needle contact 1 turns red its parent nodes, Pump 1 and Line Process 1.**

---

**Related links**

[Creating and editing a Database](#)

[Creating and editing a Tree Structure](#)

# Creating and Editing a Database

*if you are not accustomed with database, we advise you to consult in first the chapters [Getting started](#) and [terms used](#).*

*To assist you, SDT provided several examples in the Demo database included in **Ultranalysis**.*

*You have the possibility of involving you without risk within the Demo Database. You can [load](#), test functionality, modify and then [restore](#) Demo database to its original version.*

## Content

[Creating a Database](#)

[Editing a Database](#)

[Opening a Database](#)

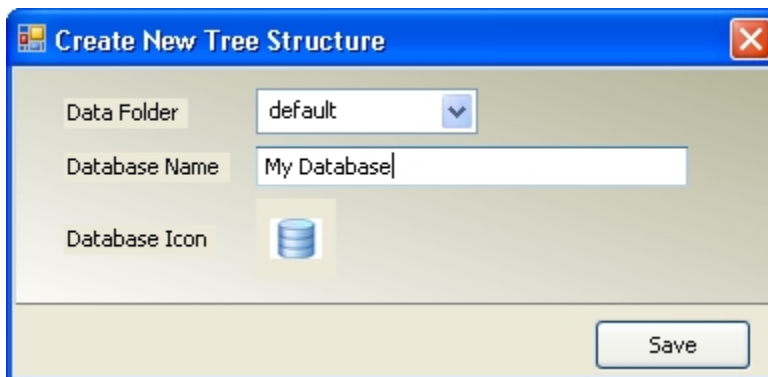
[Open Demo Database](#)

[Restore Demo Database](#)

[Deleting a Database](#)

## Create a Database

Click on **File / Tree structure** and then **New**.



Fill up the text box **Database Name** with the name you have chosen and click on **Save**.



*By default, the Databases are placed in the Data Folder called "default". However, you can arrange at your convenience your databases in multiple Data Folders.*

*To create a new Data Folder, replace "default" by its chosen name. You can perform this operation only when creating a Database.*

*To select an existing Data Folder, choose it using the drop down list.*

## Edit a database

Click on **File / Tree structure**. Select the database you want to modify and then click on **Edit**. Fill up the text box with the new name and click on **Save**.



*The database name can contain up to 50 characters, including special characters.*

## Open Demo Database

To open the Demo database, click on **File / Tree structure**. Select Demo\_data and then click **Open**.

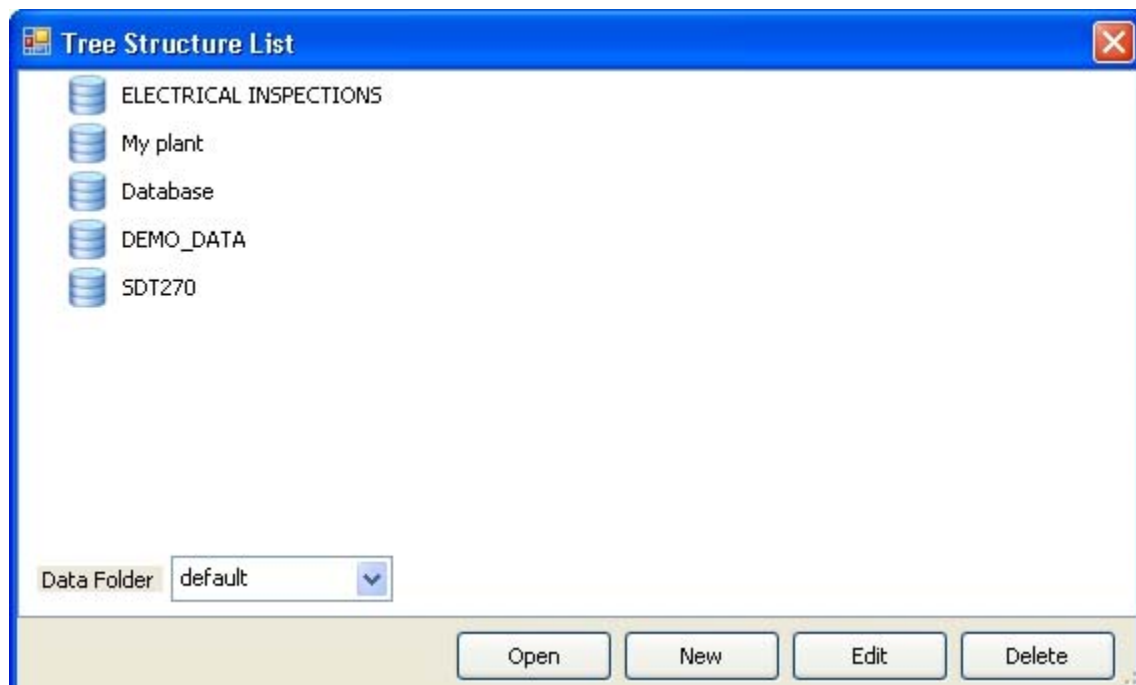
Or press F12.

## Restore Demo Data database

To restore Demo database from its original version press **F12**, or select the menu **File / Generate Demo Data**.

## Open a database

Click on **File / Tree structure**. If needed, choose the right Data Folder using the regarding drop down list. Then, select the Database and click on **Open**.



## Delete a database

Click on ***File / Tree structure***. Select the database you want to remove and then click on ***Delete***. All the data included inside this database will be also deleted.

---

### Related links

[Getting started](#)

[Terms used](#)

[Create and Edit Tree structure](#)

[Backup and Restore Database](#)

## Creating and Editing Tree structure

*if you are not accustomed with database, we advise you to consult in first the chapters [Getting started](#) and [terms used](#).*

*Don't worry too much about making mistakes because most of the modifications you might want to do later on are simple moves, edits, copy, paste activities which will not affect stored data.*

*To assist you, SDT provided several examples in the Demo database included in Ultranalysis.*

*you have the possibility of involving you without risk within the Demo database. You can [load](#), test functionality and then [restore](#) Demo database without change.*

### Content

[Adding Nodes](#)

[Editing Nodes](#)

[Adding a Measurement](#)

[Adding an Interval of data collection](#)

[Customizing the sensor list](#)

[Adding an Event](#)

[Copying and Pasting Nodes into the same Tree Structure](#)

[Copying Nodes from a Tree Structure and pasting them into another Tree Structure](#)

[Drag and drop Data](#)

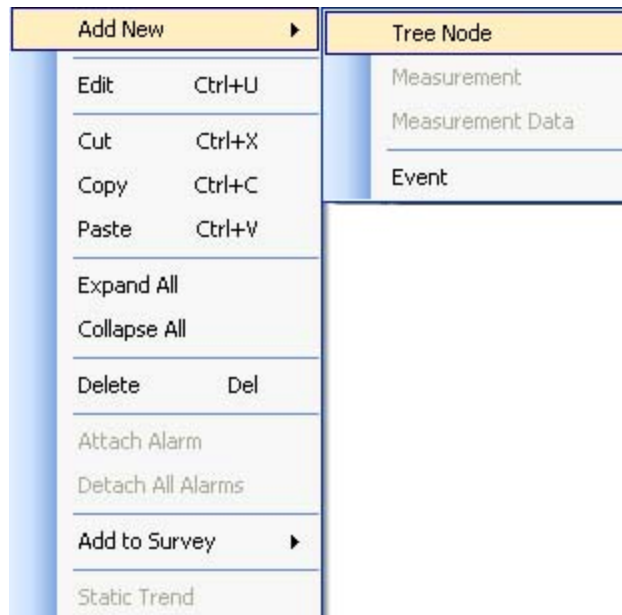
[Insert a Static Data](#)

[Import a Dynamic Data or Wave file.](#)

## Adding Nodes

Right click on the Database Name or on an existing Node. On the drop down menu select **Add New** and then **Tree Node**.





## Node Name field

Type the name of the new Node and then click Save. The node you have created will be added as a sub Node (also called a child) of the Database or the existing Node you have selected.



***The node name can contain up to 30 characters. Only 22 characters will be displayed on the SDT270 screen.***

***The tree structure can have a maximum of 6 levels of Nodes.***

## SDT170 Name field

Only users of SDT170 device need to use this field.

We advise you keeping empty this field name. For more information, please refer to the chapter SDT170 Survey.

The working of the SDT170 is radically different from than of the SDT270:

The SDT170 works with 12 characters (capital letters) instead of 22 for the SDT270 (capital and tiny).

The SDT170 don't have a inboard Database contrary to the SDT270.

The SDT170 works with a 2 level structure. The first level is a Survey name, the second is a Measurement point. The SDT270 uses a 6 level structure and a Measurement associated to the last level. Consequently the SDT270 informs the operator which sensor and setting he needs to use for each Measurement Point. The SDT170 doesn't know which sensor to use.

For the SDT170, equipment is linked to a Survey. For the SDT270, surveys and equipment are completely separated. Consequently, equipment can be associated to multiple surveys, which is impossible using the SDT170.

For all these reasons, Ultranalysis converts the tree Structure in a compatible format for the SDT170 when creating a Survey for this device. The SDT170 Name is the name display by the device in survey mode.

## Node Icon

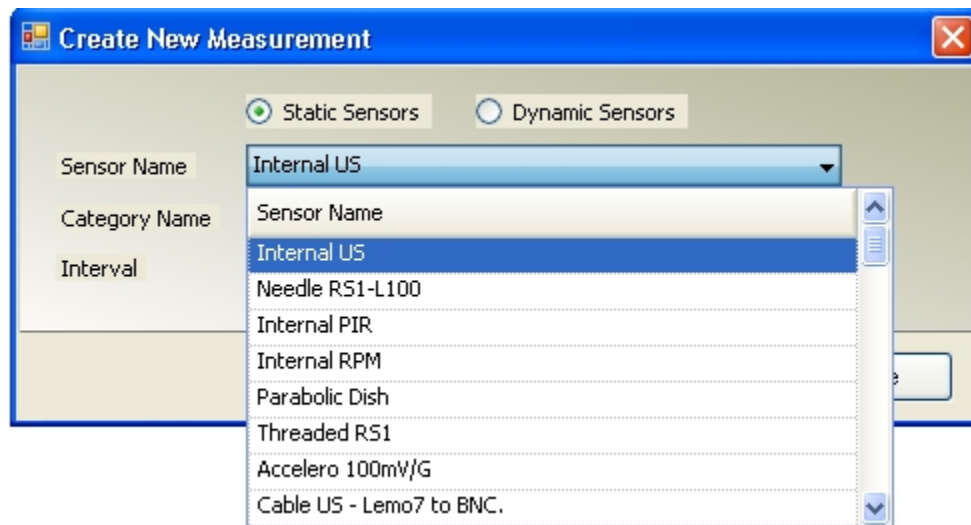
If desired, you can also add a Node Icon from your library to help you to locate where you are into your tree structure.

## Editing a Node

To edit an existing Node, select it and then use the shortcut [Ctrl+U] or right click and select Edit. You have the possibility to rename the Node and update the Node Icon.

## Adding a Measurement

On the tree structure, right click on an existing Node. On the drop down menu select **Add New** and then **Measurement**. On the displayed window, choose between **Static** or **Dynamic** Sensor, then the Sensor Name within the drop down menu. The field Category Name is added automatically by Ultranalysis according to your choices and displayed on the tree structure.



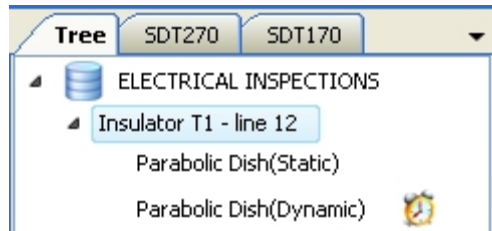
*Adding a Measurement*

## Interval

With the **Interval** option, you can fix a periodicity of data collection in **Hours**, **Days**, **Weeks** and **Months**. This field is not mandatory. However, if you use this information, you will be able to find easily the measurements which the interval is exceeded visually on the Tree Structure (a clock icon is placed after the Measurement), or using the **Missed Measurement Report**.



*The Copy / Paste function applies the interval defined from the source to the destination.*



*Click icon in the Tree Structure*

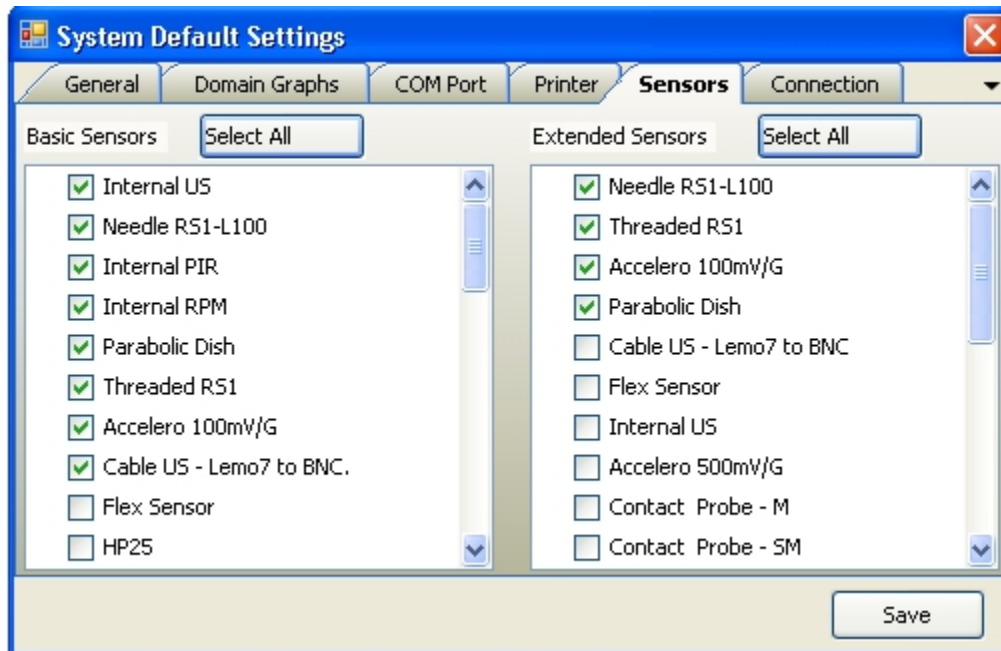
## Customizing the sensor list

You can narrow the sensor list, keeping only those you have.

Select the menu **Options / Default settings**. On the displayed window, click the tab **Sensors**.

Untick the unnecessary sensors for static measurements (left column called **Basic Sensors**). In a similar way, customize the sensor list for dynamic measurements (right column called **Extended Sensors**).

You are able also to rearrange the order of the sensors inside the list, based on the ones you use most often. For example, to place in first position the Needle RS1-L100 for dynamic measurements, simply drag and drop it in the top of the right column **Extended Sensors**.



*Customizing the sensor list*

## Adding a Event to a Measurement Point



**You can insert an event to a Measurement Point.**  
**The Measurement Point is the parent node of a Measurement.**

Right click on a Measurement Point. On the drop down menu select **Add New** and then **Event**.

***Add an Event***

With the drop down list Event Date, set the ***Event Date***.

Type the description of the Event in the ***Description*** field and then click ***Save***.

 ***The Messages, recorded in the SDT270 during Data collection, are inserted in Ultranalysis Suite as Events.***

The Events are useful to quickly refine data range, when historical values are numerous. For example, you could prefer to display only the measures starting from the Event ***Bearings changed*** on a trending graph.

In a similar way, you would appreciate to quickly compare the status of 2 machines by plotting their graphs starting individually from their last refurbishment.

***Data selection from a Event in the bottom pane, using the menu Parameters***

## Copying and pasting Nodes into the same Tree structure

Select the Node you want to duplicate and then:

Use the shortcut [**Ctrl+C**] or right click and select **Copy**.

Select the destination Node and then use the shortcut [**Ctrl+V**] or right click and select **Paste**.

The pasted Node is named as "Source Node name (1)". Use the function [Editing a Node](#) to rename it.



**The Paste function inserts a sub level Node of the destination Node.**  
**To create a group of equipments, when pasting don't forget to select the upper level Node of the equipment you want to duplicate to keep each element of this group at the same branch level.**

<p>Selection of the Node "Equipment 1" to be copied</p>	<p>Selection of "Group of identical equipments" as destination.  The destination Node is the upper level of "Equipment 1" to keep the elements at the same level branch.</p>	<p>After pasting, the created Node created is called as "Source Node name (1)", in this example "Equipment 1(1)". The Copy and Paste function includes the sub Nodes and Measurement category: Measurement location and RS Needle Contact 1(Static).</p>
---	--	--

**Copy and Paste function: the three steps detailed.**

## Copying a Node from a Tree Structure and pasting it into another

Select the Node you want to duplicate and then:

Use the shortcut [**Ctrl+C**] or right click and select **Copy**.

Open the Database in which you want to paste it, using the menu **File / Tree Structure**.

Select the destination Node and then use the shortcut [**Ctrl+V**] or right click and select **Paste**.

The pasted Node is named as "Source Node name (1)". Use the function [Editing a Node](#) to rename it.



**The Copy function includes all sub Nodes, Measurement Categories and Intervals of the selected Node.**  
**The Paste function duplicates at the destination Node the Node previously copied with all its sub Nodes, Measurement Categories and Intervals.**

## Drag and drop data from one Measurement to another

From the Bottom Pane, to select the data you want to move, press and hold on the left button of your mouse.

Use **Shift** and **Ctrl** to select multiple data.

Drag the data to the desired Measurement on the Top Pane.

Drop the data by releasing the left button of the mouse.



**The destination Measurement must be the same type as the origin Measurement.**

## Insert Static Data manually

Right click on a Static Measurement. On the drop down menu, select **Add New / Measurement Data**.

The following window is displayed:

### *Insert a Static Data*

The field **Sensor Name** is filled automatically by Ultranalysis Suite.

Choose the date of the Data by clicking the drop down menu **Time Stamp**.

Please fill the field **RMS** (for US sensors and accelerometers), or **Value** (for the other sensors) with a numerical value. This field is mandatory while the following are optional. Click **Save** to finish the operation.

## Import a dynamic Data (wave file)



*You can import a wave file, for example recorded by the SDT170 and the Roland R09.*

*You will be able to analyse with Ultranalysis the time signal and eventually the spectrum. However, the Y axis will be without physical unit.*

Right click on a Dynamic Measurement. On the drop down menu, select **Add New / Measurement Data**.

The following window is displayed:

Please fill the field **RMS** with a numerical value. This field is mandatory while the following are optional.

Click the browse button placed under the field **Wave File** and then select the name of the wave file and its location.

Click **Save** to finish the operation.

# Backing up and restoring Database

Content:

[Backing up a Tree Structure](#)

[Restoring a Tree Structure](#)

[Backing up Measurement Data](#)

[Restoring Measurement Data](#)

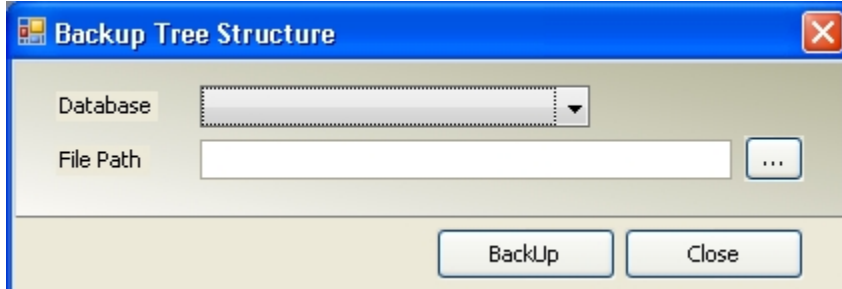
[Backing up full UAS Database](#)

[Restoring full UAS Database](#)

## Backing up a Tree Structure

To backup a Tree structure of one Database, select the menu **Utilities / Database / Backup / Tree Structure**.

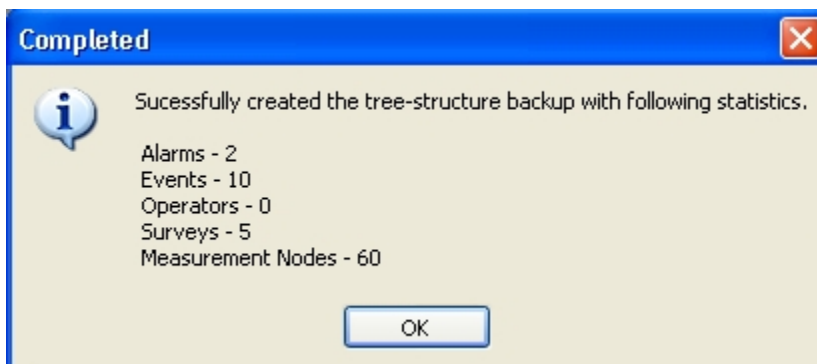
You will see the following window:



Select now the wanted Database, using the drop down list. Then choose the name and the destination of the backup file by clicking the browse button (...).


Finish the operation by clicking **BackUp**.

A confirmation message resumes the saved elements:





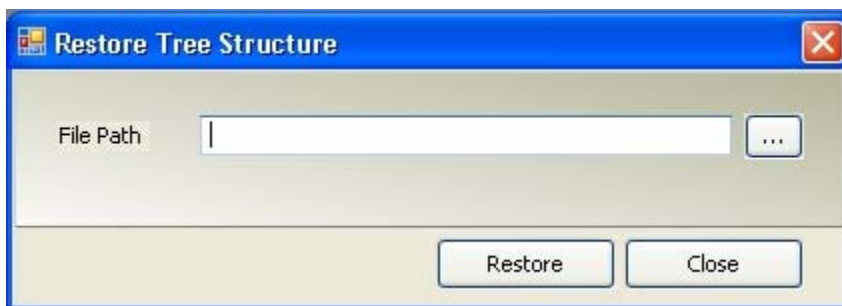
Click **OK**.


 *This operation performs the backup of the Tree Structure of one Database. It saves also the events, the operators, the surveys and the alarms linked to this specific Tree Structure. It doesn't backup measurement data.*

## Restoring a Tree Structure

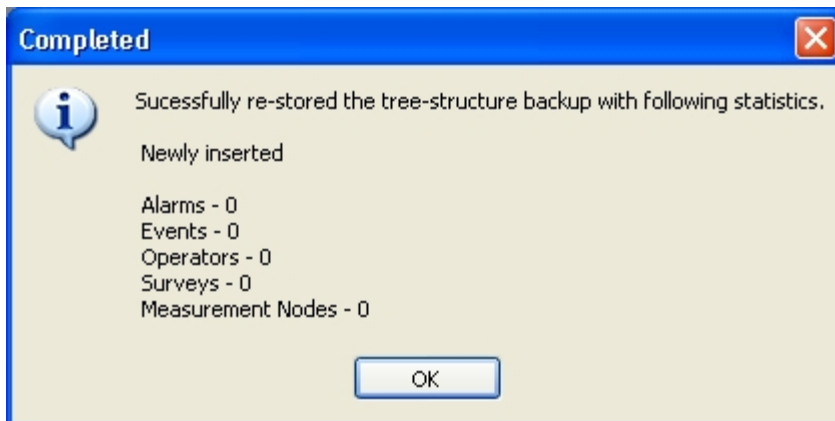
To restore a Tree Structure of one Database, select the menu **Utilities / Database / Restore / Tree Structure**.

You will see the following window:



Choose the backup file and its location, using the browse button . Then click on **Restore**.

A confirmation message resumes the restored elements:

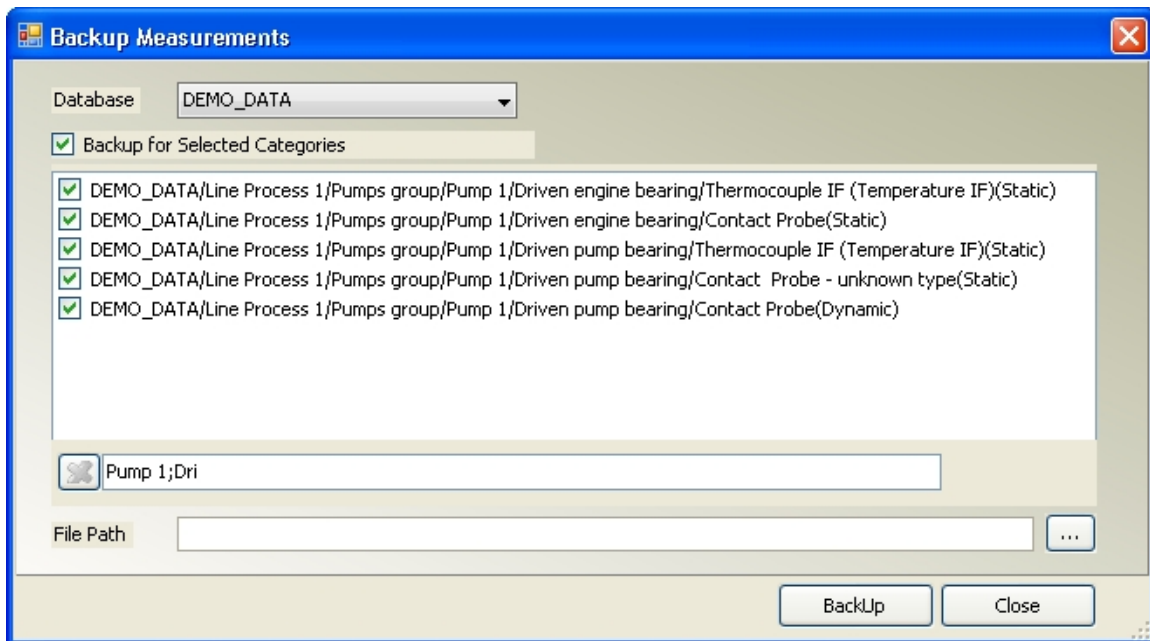


Click **OK**.

## Backing up Measurement Data

Select the menu **Utilities / Database / Backup / Measurement Data**.

You will see the following window (the filter is activated by **CTRL+F**):



Select the concerned Database by using the drop down list.

By default, all the Measurements will be saved. If you want to save only some Measurements, tick the check box **Backup for Selected Categories** and then select the concerned Measurements in the list box below:

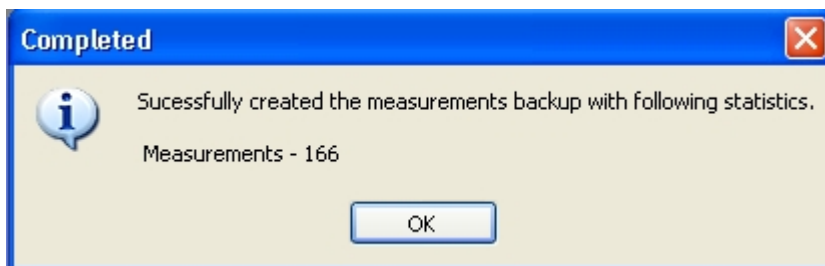
- By manually ticking the regarding check boxes.
- By using the Filter (CTRL+F).



***The filter is case sensitive.  
Use semicolons to add boolean operators AND.***

Choose the name and the destination of the backup file by clicking the browse button (...). Then click on **BackUp**.

A confirmation message resumes the saved Measurements:



Click **OK**.

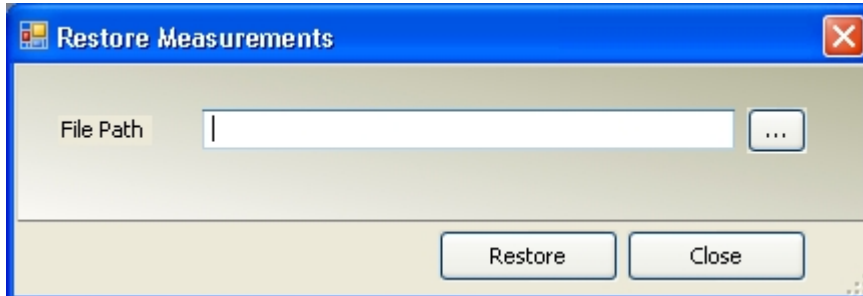



***This operation performs only the backup of Measurement Data.  
This backup doesn't save the Tree Structure, the surveys, the alarms, the events, and the operators.***

## Restoring Measurement Data

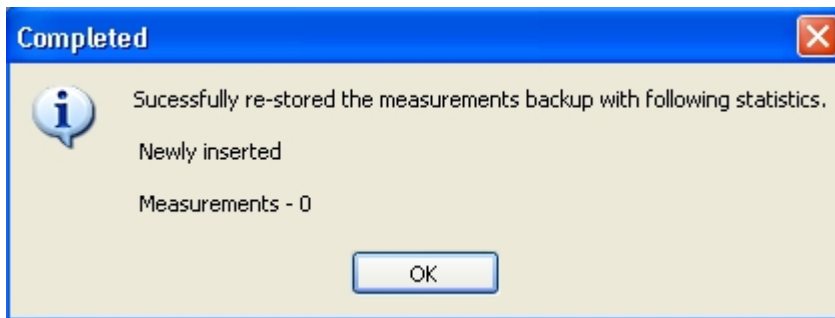
To restore Measurement Data, select the menu **Utilities / Database / Restore / Measurement Data**.

You will see the following screen:



Choose the backup file and its location, using the browse button . Then click on **Restore**.

A confirmation message resumes the restored Measurement Data:

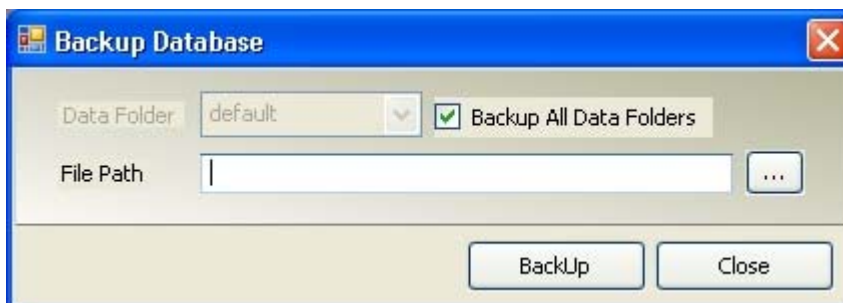


Click **OK** to finish.


## Backing up full UAS Database

To backup full UAS Database, select the menu **Utilities / Database / Backup / Full UAS Database**.

You will see the following window:

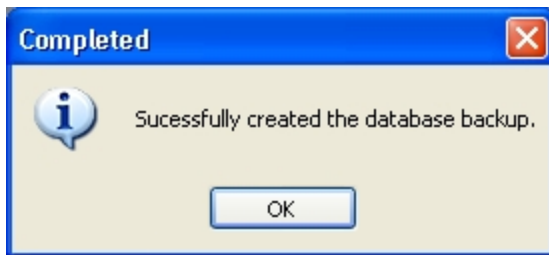


UAS proposes you to backup all the Data Folders. If you prefer to backup only one Database Folder, untick the check box **Backup All Data Folders** and use the regarding drop down list to select the wanted Folder.

Then choose the name and the destination of the backup file by clicking the browse button .

Finish the operation by clicking **BackUp**. This process takes a few seconds, depending on the performances of your computer and the size of the database.

A message confirms that the backup has been completed:



Click **OK** to finish.



*This full backup saves the Tree Structure, the Measurements Data, the Alarms, the surveys, the events and the operators.*

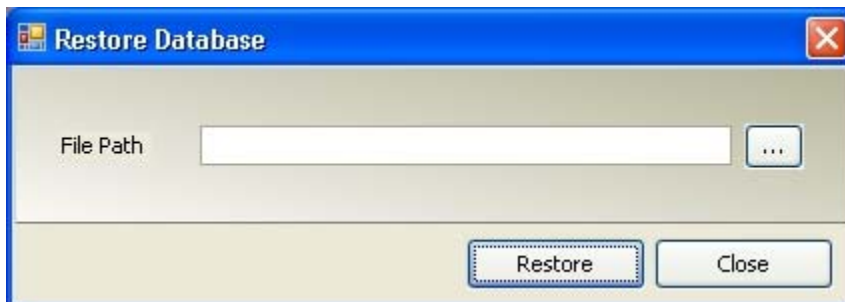
## Restoring Full UAS Database.




*This restore function erases existing data in UAS.  
It replaces them with those contained in the backup.*

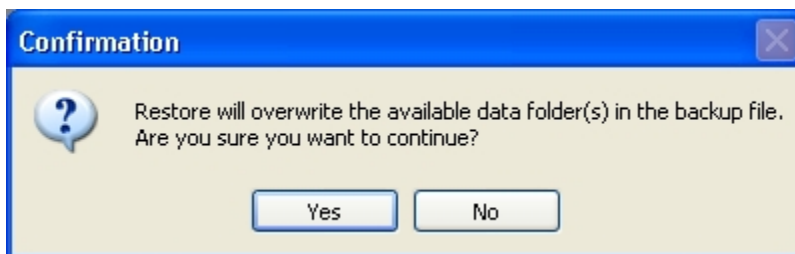
To restore Full UAS Database, select the menu **Utilities / Database / Restore / Full UAS Database**.

You will see the following screen:



Choose the backup file and its location, using the browse button . Then click on **Restore**.

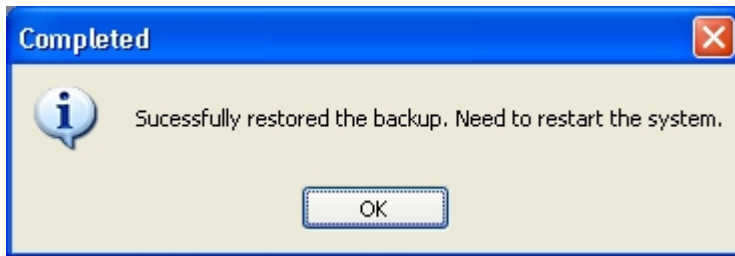
A warning message prevents that you will overwrite data with those contained in the backup:



Click **Yes** to accept.

This process takes a few seconds, depending on the performances of your computer and the size of the database.

A message confirms that the backup has been completed:



Click **OK**. This action will close Ultranalysis Suite.

# Alarm overview

## Content

- [Introduction](#)
- [Traffic light indicators](#)
- [Alarms priority](#)
- [Absolute mode](#)
- [Why using Absolute mode](#)
- [Safe mode](#)
- [Why using Safe mode](#)
- [Relative mode](#)
- [Why using Relative mode](#)

## Introduction

The Alarms are associated to the Static Measurements only. They can be assigned to several Measurement points using the same Measurement. In example, you can create a single Alarm for the Measurement Category RS Needle Contact 1 (Static) and associated it to the all bearings of group of similar equipment.

The Alarm criteria are associated to RMS, Max RMS and Max/ Min RMS Ratio for SDT270 data, only to RMS for SDT170 data.

The software has 3 modes of alarm described hereafter, making it possible to answer to the very large majority of Predictive Maintenance applications:

- The Absolute mode.
- The Safe mode.
- The relative mode.

Moreover, you have the possibility to apply for each measurement point from 1 to 3 Alarms mode.

The implementation of an Alarm includes 2 steps:

- The Alarm creation for a Measurement.
- The assignation of the alarm to one point or a group of points using this specific Measurement.

## Traffic light – Tree structure

The Traffic light indicators displayed on the tree structure are based on the alarm status for the last stored measurement. When multiple alarms are associated to a measurement point, the traffic light colour is based on the priorities.

## Alarms priority

Ultranalysis uses two priorities:

The Alarms priority – Safe mode is priority to Absolute mode that is priority to Relative mode.

The level priority – Danger level is priority to Alert level that is priority to Warning level.

### Absolute mode Alarm

The Absolute Alarm mode is what we might consider to be a traditional type of alarm. The measurement is compared to 3 absolute thresholds defining 3 Alarm levels:

- Warning
- Alert
- Danger



***You do not necessary need to use all three. To ignore one Alarm level, encode its threshold value to "0".***

One level is triggered when the when the last data is higher than its threshold value.

## Why using Absolute mode

The Absolute Alarm mode is well suited to bearings monitoring when data history is available: when the typical bath curve is known, one easy way to detect bearing wearing or lack of lubrication is to adopt the Absolute Alarm mode. In this example the Alarm levels are established compared to the base line.

### Safe mode Alarm

The safe mode Alarm is a windowed type alarm: inside the window, the data is considered as "good", outside as "bad". So the last recorded data is on alarm when it is lower than the low threshold or greater than the upper threshold.

The Safe mode is first designed to trap wrong readings. With any mechanical measurement, there is always the possibility of taking a bad reading. In the instrument manuals, you will find useful advice on how to take good readings and how to avoid taking bad ones.

## Why using Safe mode

The Safe mode could be also useful for steam traps monitoring when applied to upstream and downstream temperatures data:

- A low upstream temperature indicates a failure of a trap remaining closed.
- A high downstream temperature indicates a failure of a trap remaining open.

This temperature Alarm is an excellent complementary indicator of the ultrasound readings to build a reliable diagnosis on steam traps.

### Relative mode Alarm

This Alarm is called relative because the last data is compared to a predefined value:

- The previous data (for this Measurement and for this Measurement location).
- A reference value (for this Measurement, but for any chosen Measurement location).
- The first stored data (for this Measurement and for this Measurement location).

Relative Alarms can be set for increasing and/or decreasing changes. Two levels of change, Alert and Danger, can be defined for each direction.

When dealing with linear measurements, such as a speed or a temperature, a Relative Alarm is a percentage change. When dealing with decibel measurements, a relative alarm is a dB $\mu$ V change.

## Why using Relative mode

The Relative mode Alarm is useful when starting a Predictive Maintenance program on a group of identical equipments when no historical data are available. Locate one of the lowest data coming from the first data collection. One method to detect a bearing wear is to set a relative growing up Alarm relative to this data and to apply it on all the equipments of the group.

During the running in period, the Relative mode Alarm is also useful to detect an infant mortality for new or refurbished equipment by applying a Relative Alarm set with an increasing change compared to previous.

In a similar way, you can detect the imminent breakage of equipment during its end of life period by using a Relative Alarm set with a decreasing change compared to previous.

Finally, you can use the relative mode to improve your lubrication periodicity. Ask your grease Man to record a data before and after lubrication. With a Relative Alarm set with a decreasing change compared to previous, you easily pinpoints the equipments for which the lubrication periodicity must be reduced.



# Create or edit Alarm

*if you are not accustomed with Alarms, we advise you to consult in first the chapter [Alarms overview](#).*

## Content

- [Create Alarm](#)
- [Activate Absolute mode](#)
- [Activate Safe mode](#)
- [Activate Relative mode](#)
- [Edit Alarm](#)
- [Delete Alarm](#)

## Create an Alarm

Choose **Utilities / Alarms** Menu. On the next window, click **New**.

The following window is displayed:

Level Name	Color & Icon	Threshold Value (G)
Alert	Blue circle	0,00
Warning	Orange circle	0,00
Danger	Red circle	0,00

**Create Alarm window**

Select a sensor from the drop down list **Sensor Name**.

Choose a consistent name for the Alarm. Think about how to make this name understandable to others who might be using your alarms in the future – or even for yourself when you have forgotten. “Tom’s Alarm 1” for example does not tell me a great deal whereas “alarms for conveyors” is a big help.

For ultrasound data, you can trigger the Alarm on the RMS value or the Max RMS value.

For accelerometers, you can trigger the Alarm on the acceleration or the velocity.



***Ultranalysis automatically adds to the Alarm name the Measurement information as "/Sensor type(Static). In example, if you encode "alarms for conveyor" choosing the RS Needle contact 1, the Alarm name will be "alarms for conveyor/RS Needle contact 1(Static)/RMS or Max RMS".***



***For ultrasonic sensors, if you want to trigger on the RMS and on the max RMS values, you need to create 2 separate Alarms. In a similar way, you need to create 2 separate Alarms to trigger on acceleration and velocity.***

Then you have the possibility to activate the **Absolute mode** and/or the **Safe mode** and/or the **Relative mode**, clicking on the corresponding tab.

## Activate the Absolute mode

Select the tab Absolute mode, then click the check box Absolute mode on to activate it.

Encode the threshold values for Warning, Danger and Alert levels.



***You do not necessary need to use all three. To ignore one Alarm level, encode “0” to its threshold value.***

You now have the choice to activate the Safe mode and/or the Relative mode, or to click Save for using uniquely the Absolute mode.

## Activate the Safe mode

Select the tab Safe mode, then click the check box Absolute mode on to activate it.

Encode the lower and upper threshold values.

You now have the choice to activate the Absolute mode and/or the Relative mode, or to click Save for using uniquely the Safe mode.

## Activate the Relative mode

Select the tab Relative mode, then click the check box Relative mode on to activate it.

You are able to activate the Growing Up and/or the Growing Down changes by clicking on the regarding check boxes. Then encode the Danger and the Warning Thresholds (if needed) values you want.

Select on which value alarm must be calculated while choosing the check box::

- Previous Value or
- First Value or
- Reference Value. In this case, a new window opens in order to select the Reference value you want to use. Only the selected Measurement appears in the list.

You now have the choice to activate the Absolute mode and/or the Relative mode, or to click Save for using uniquely the Safe mode.

## Edit an existing Alarm

Choose Utilities / Alarms functions. On the new window displayed, select the Alarm you want to modify and then select Update.

You can now modify the threshold values for an existing mode or adding a new one as described in the chapters Activate the Safe mode, Activate the Relative mode or Activate the Absolute mode.

## Delete an existing Alarm

Choose Utilities / Alarms functions. On the new window displayed, select the Alarm to remove and then select Delete.

---

### Related links

[Attach Alarms](#)

# Attach Alarms to Measurements

*if you are not accustomed with Alarms, we advise you to consult in first the chapter [Alarms overview](#).*

*You can first create an Alarm and then attach one Measurement to this existing Alarm from the Top Pane.*

*You can also select a group of Measurements and then attach them to a new or an existing Alarm from the Bottom Pane.*

## Content

[Attach a single Measurement to an existing Alarm](#)

[Attach numerous Measurements to an existing Alarm](#)

[Select numerous Measurements and attach them to a new Alarm](#)



## Attach a single Measurement to an existing Alarm

To attach the Alarm to a single Measurement, from the Top Pane, select it on the tree structure, right click and then select **Attach Alarm**.


The following window is displayed:

Level Name	Color & Icon	Threshold Value (dBuV)
Alert	Blue square and circle	0,00
Warning	Yellow square and circle	20,00
Danger	Red square and circle	30,00

*Attach Alarm window*

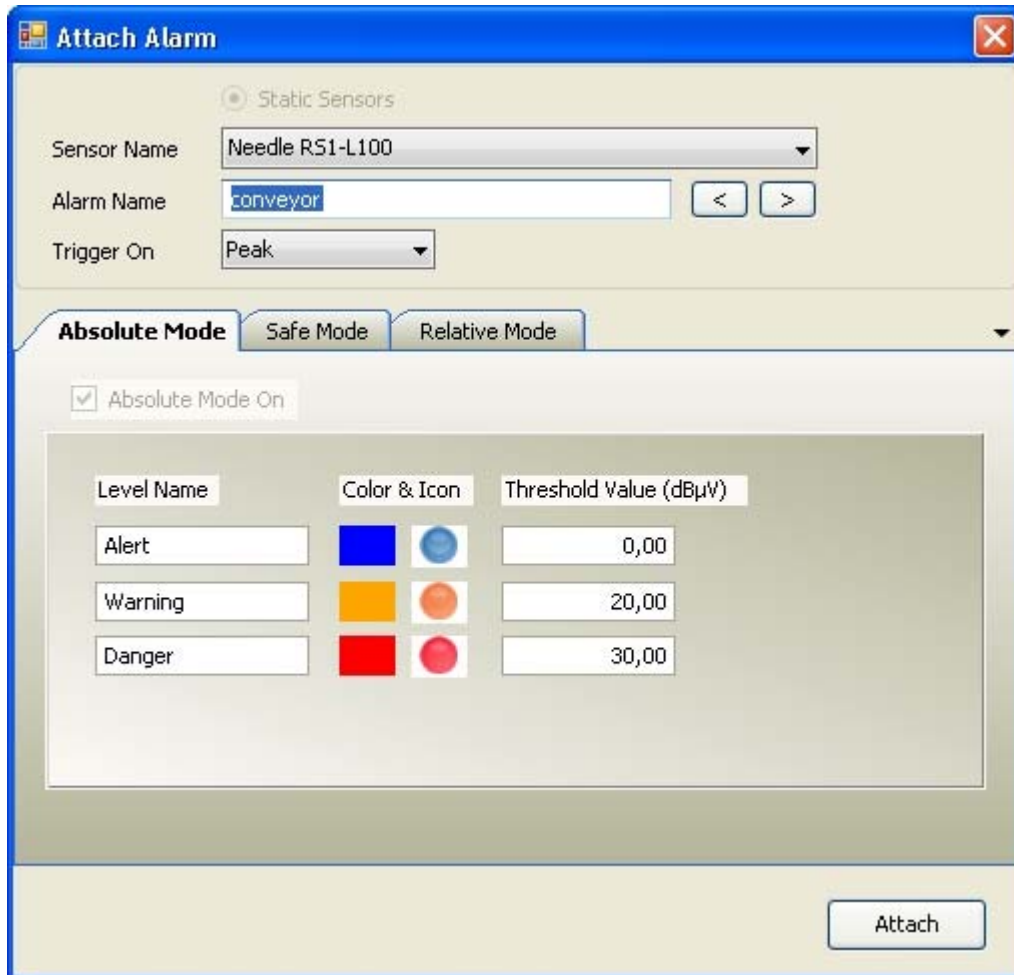
Choose the right Alarm Name by scrolling with the Previous  and the Next  buttons. Then click **Attach**.

## Attach numerous Measurements to an existing Alarm

 *If you are not accustomed with the use of the Bottom Pane, we advise you to consult first its related [topic](#).*




From the Bottom Pane, select the desired Measurements. Select the **Alarm** tab and then the **Attach with existing** button.

The following window is then displayed:





The 'Attach Alarm' window is shown with a blue title bar and a close button. It contains the following elements:

- Static Sensors** (selected):
  - Sensor Name: Needle RS1-L100
  - Alarm Name: conveyor (with Previous and Next buttons)
  - Trigger On: Peak
- Mode Selection**:
  - Absolute Mode (selected)
  - Safe Mode
  - Relative Mode
- Absolute Mode On** (checked checkbox)
- Threshold Table**:
 

Level Name	Color & Icon	Threshold Value (dBμV)
Alert		0,00
Warning		20,00
Danger		30,00
- Attach** button at the bottom right.

**Attach Alarm window**

Choose the right Alarm Name by scrolling with the Previous  and the Next  buttons. Then click **Attach**.

 *The settings of the selected existing Alarm can't be changed from this window.*

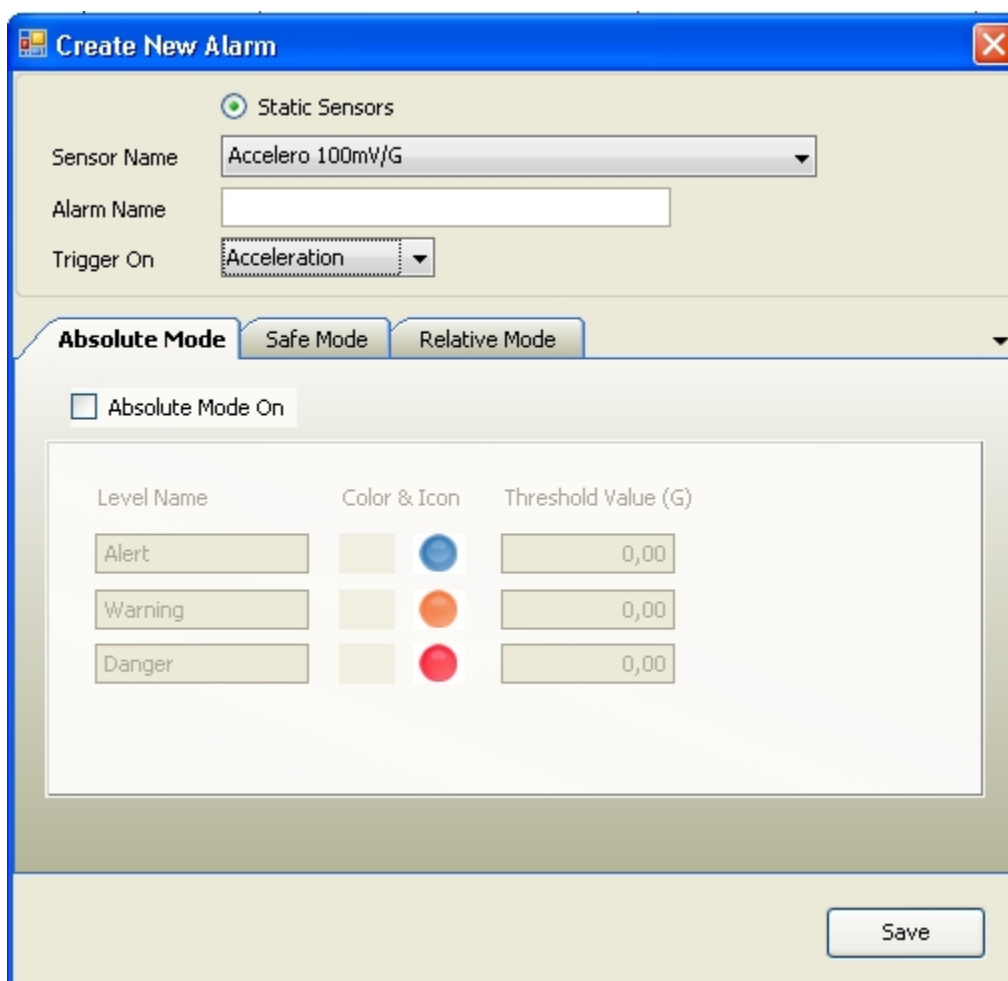
## Attach numerous Measurements to a new Alarm






*If you are not accustomed with the use of the Bottom Pane, we advise you to consult first its related [topic](#).*

From the Bottom Pane, select the desired Measurements. Select the **Alarm** tab and then the **Attach with new** button.

The following window is then displayed:



The "Create New Alarm" dialog box is shown. It has a title bar with a close button. Inside, there's a "Static Sensors" section with a radio button selected. Below it, "Sensor Name" is set to "Accelero 100mV/G", "Alarm Name" is an empty text box, and "Trigger On" is set to "Acceleration". There are three tabs: "Absolute Mode" (selected), "Safe Mode", and "Relative Mode". Under "Absolute Mode", there's a checkbox "Absolute Mode On" which is unchecked. Below this is a table with three columns: "Level Name", "Color & Icon", and "Threshold Value (G)". The table has three rows: "Alert" with a blue icon and threshold "0,00", "Warning" with an orange icon and threshold "0,00", and "Danger" with a red icon and threshold "0,00". A "Save" button is at the bottom right.

Level Name	Color & Icon	Threshold Value (G)
Alert		0,00
Warning		0,00
Danger		0,00

**Create Alarm window**

Choose a consistent name for the Alarm. Think about how to make this name understandable to others who might be using your alarms in the future – or even for yourself when you have forgotten. “Tom’s Alarm 1” for example does not tell me a great deal whereas “alarms for conveyors” is a big help.

For ultrasound data, you can trigger the Alarm on the RMS value or the Max RMS value.

For accelerometers, you can trigger the Alarm on the acceleration or the velocity.



*Ultranalysis automatically adds to the Alarm name the Measurement information as "/Sensor type(Static)". In example, if you encode "alarms for conveyor" choosing the RS Needle contact 1, the Alarm name will be "alarms for conveyor/RS Needle contact 1(Static)/RMS or Max RMS".*



*For ultrasonic sensors, if you want to trigger on the RMS and on the max RMS values, you need to create 2 separate Alarms. In a similar way, you need to create 2 separate Alarms to trigger on acceleration and velocity.*

Then you have the possibility to activate the **Absolute mode** and/or the **Safe mode** and/or the **Relative mode**, clicking on the corresponding tab.

### Activate the Absolute mode

Select the tab Absolute mode, then click the check box Absolute mode on to activate it.

Encode the threshold values for Warning, Danger and Alert levels.



*You do not necessary need to use all three. To ignore one Alarm level, encode "0" to its threshold value.*

You now have the choice to activate the Safe mode and/or the Relative mode, or to click Save for using uniquely the Absolute mode.

### Activate the Safe mode

Select the tab Safe mode, then click the check box Absolute mode on to activate it.

Encode the lower and upper threshold values.

You now have the choice to activate the Absolute mode and/or the Relative mode, or to click Save for using uniquely the Safe mode.

### Activate the Relative mode

Select the tab Relative mode, then click the check box Relative mode on to activate it.

You are able to activate the Growing Up and/or the Growing Down changes by clicking on the regarding check boxes. Then encode the Danger and the Warning Thresholds (if needed) values you want.

Select on which value alarm must be calculated while choosing the check box::

- Previous Value or
- First Value or
- Reference Value. In this case, a new window opens in order to select the Reference value you want to use. Only the selected Measurement appears in the list.

---

### Related links

[Create or edit Alarms](#)

[Alarm overview](#)

# SDT270 Surveys

## Content

[General considerations](#)

[Creating SDT270 Survey](#)

[Add Measurements to existing Survey](#)

## General considerations

Collecting data is boring, really boring. Or at least it can be if you have a lot of it to do. Far too often, good intentions of starting out collecting all of this valuable data are swept away by the overwhelming desire to find something else to do because this is so boring.

Try to keep your surveys to within the natural rhythms of the working day. For example, if you have a mid-morning break, a lunch break and a mid-afternoon break, there are 4 natural segments to the working day. By keeping the length of a survey to fit into one or perhaps two of these segments, the task of data collection is not so onerous – and if it is not so onerous, it might well continue to be done!

## Creating SDT270 Surveys

### Select Data from the Tree Structure

Right click on the required group of equipments you wish to take reading on. All the Measurements placed under the highlighted node are selected.

Select Add to Survey / SDT 270 / New. Choose a name for your survey and click on Save.

### Select Data from the Bottom Pane

Select From the Tree Structure a Node above the items you wish to take reading on, or select the Database. From the Bottom Pane, use the filter to keep the desired Measurements. Then highlight the Measurements using [**Shift**] + Click or [**Ctrl**] + Click. Click on the **SDT270 Survey** tab and then click on the Icon **Add to New Survey**. Choose a name for your survey and click on **Save**.

## Add Measurements to an existing Survey

### Select Data from the Tree Structure



Right click on the required group of equipments you wish add. All the Measurements placed under the highlighted node are selected.

Select Add to Survey / SDT 270. From the drop down list, choose the concerned Survey and then click on it.

### Select Data from the Bottom Pane

Select from the Tree Structure a Node above the items you wish to take reading on, or select the Database. From the Bottom Pane, use the filter to keep the desired Measurements. Then highlight the Measurements using [**Shift**] + Click or [**Ctrl**] + Click. Click on the **SDT270 Survey** tab and then click on the Icon **Add to existing Survey**. Choose a name for your survey and click on **Attach**.

# SDT170 Surveys

## Content

[Create SDT170 Survey](#)

[Add Measurements to an existing SDT170 Survey](#)

## Creating SDT170 Surveys

### Select Data from the Tree Structure

Right click on the required group of equipments you wish to take reading on. All the Measurements placed under the highlighted node are selected.

Select Add to Survey / SDT 170 / New. Choose a name for your survey and click on Save.

### Select Data from the Bottom Pane

Select on the Tree Structure, a Node above the items you wish to take reading on, or select the Database. From the Bottom Pane, use the filter to keep the desired Measurements. Then highlight the Measurements using Shift + Click or Ctrl + Click. Select the button SDT170 Survey and then click on the Icon Add to New Survey. Choose a name for your survey and click on Save.

## Add Measurements to an existing Survey

### Select Data from the Tree Structure

Right click on the required group of equipments you wish add. All the Measurements placed under the highlighted node are selected.

Select Add to Survey / SDT 170. From the drop down list, choose the concerned Survey and then click on it.

### Select Data from the Bottom Pane

Select from the Tree Structure a Node above the items you wish to take reading on, or select the Database. From the Bottom Pane, use the filter to keep the desired Measurements. Then highlight the Measurements using Shift + Click or Ctrl + Click. Select the button SDT170 Survey and then click on the Icon Add to Add to existing Survey. Select the concerned Survey and click on Attach.

## Change Measurement order in a Survey

### Change Measurement order

From the Tab SDT270 or the Tab SDT170 of the Top Pane, select the concerned Survey name.

You can re-order the sequence of data collection and grouping Measurements into an order which is more efficient from a data collection point of view simply by selecting a Measurement and while holding the left mouse button, dragging it to a new position and then release the left mouse button.

This does not affect in any way the Tree Structure and how the data is stored in the database, it just makes it easier for you to collect it.

# Reports

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[Tree Structure Report](#)

[Alarm Report](#)

[Survey Report](#)

[Missed Measurement Report](#)

[Measurement Detail Report](#)

[Event List Report](#)

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# Tree Structure Report

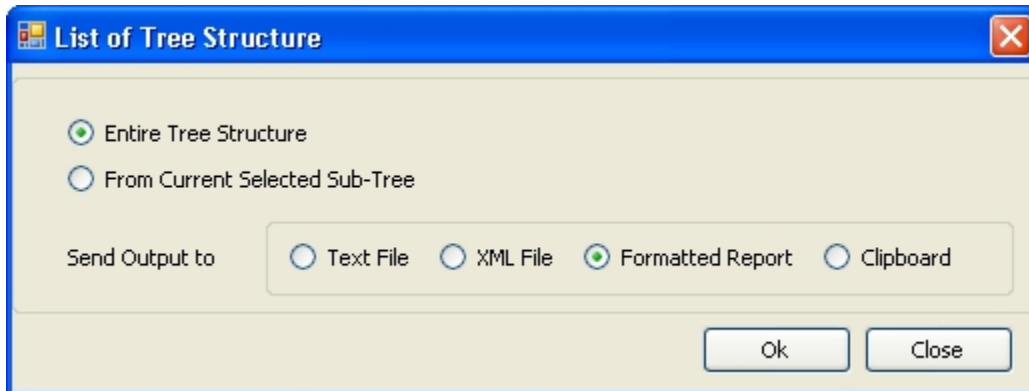


*Only the Report of the Tree Structure pertaining to the Database currently open is accessible.*

*If you want to generate the Report of another Tree structure, please first open the regarding Database.*

Select the menu **Reports / Tree Structure**.

The following window is displayed:



*Tree Structure Report window*

You may prefer to generate a Report of the **Entire Tree structure** or a Report starting from the **Current Selected Sub-Tree**, by ticking the appropriate radio button.

For the format of the Report, you can choose between Text File, XML File and Formatted Report. You can also insert the content of the Report inside the Clipboard.

Click **Ok** to generate the report.



## Tree Structure Report

Database Name : My plant

From Selected Node : My plant

Report Date 16/12/2010

Path
Measurement
My plant/Department name/Process name/Group of identical equipments/Machine number/Measurement location/Internal PIR(Static) Internal PIR(Static)
My plant/Department name/Process name/Group of identical equipments/Machine number/Measurement location/Needle RS1-L100(Dynamic) Needle RS1-L100(Dynamic)
My plant/Department name/Process name/Group of identical equipments/Machine number/Measurement location/Needle RS1-L100(Static) Needle RS1-L100(Static)

### *Example of formatted report*

## Related link

[Create and edit a Database](#)

# Alarm Report



*Alarms are common to all Databases. Therefore, you can include any chosen Alarm in the Reports, whatever the currently open Database.*

Select the Menu **Reports / Alarms**.

The following window is displayed:

**Alarm Report window**

To activate the filter, use **CTRL+F**.

The Report will show or hide the measurements locations concerned, by ticking or not the regarding check box.

For the format of the report, you can choose between Text File, XML File and Formatted Report. You can also insert the content of the Report inside the Clipboard.

Click **Ok** to generate the report.



## Alarms

Database Name : My plant

Report Date : 16/12/2010

conveyor			
Sensor Name	Ultrasound (Static)/Needle RS1-L100	Using	Peak
Absolute Mode - ON			
Level	Color	Value Range	Unit
Warning	Orange	]20 ; 30]	dB $\mu$ V
Danger	Red	]30 ; + $\infty$ [	dB $\mu$ V
Concerned Points			
Path			
Measurement Node			
My plant/Department name/Process name/Group of identical equipments/Machine 1/Measurement location Needle RS1-L100(Static)			
My plant/Department name/Process name/Group of identical equipments/Machine 2/Measurement location Needle RS1-L100(Static)			
My plant/Department name/Process name/Group of identical equipments/Machine 3/Measurement location Needle RS1-L100(Static)			

*Example of formatted Alarm Report  
including the concerned points*

## Related links

[Create and edit Alarms](#)



# Survey Report

The software offers the possibility to generate a report of:

- SDT270 surveys.
- SDT170 surveys.
- The last survey uploaded in a specific SDT170.



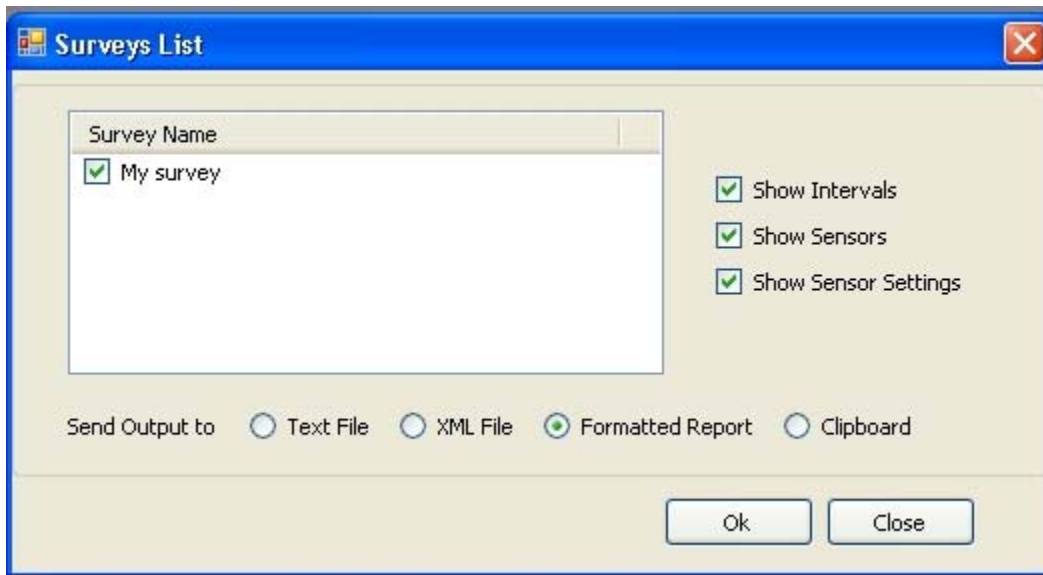
*Only the Surveys Reports pertaining to the Database currently open are accessible.*

*If you want to generate a Report created in another Database, please open first.*

## SDT270 Survey Report

Select the Menu **Reports / Survey / SDT270 Surveys**.

The following window is displayed:



***SDT270 Survey Report menu***

Use **CRTL+F** to activate the filter.

You can decide to show, or hide, in the Report, the used **Intervals**, the **Sensors**, and the **Sensor Settings**, by ticking, or not, the regarding check boxes.

Click **Ok** to generate the Report.



## Survey Detail List

Database Name : My plant

Report Date 16/12/2010

Survey Name

My survey

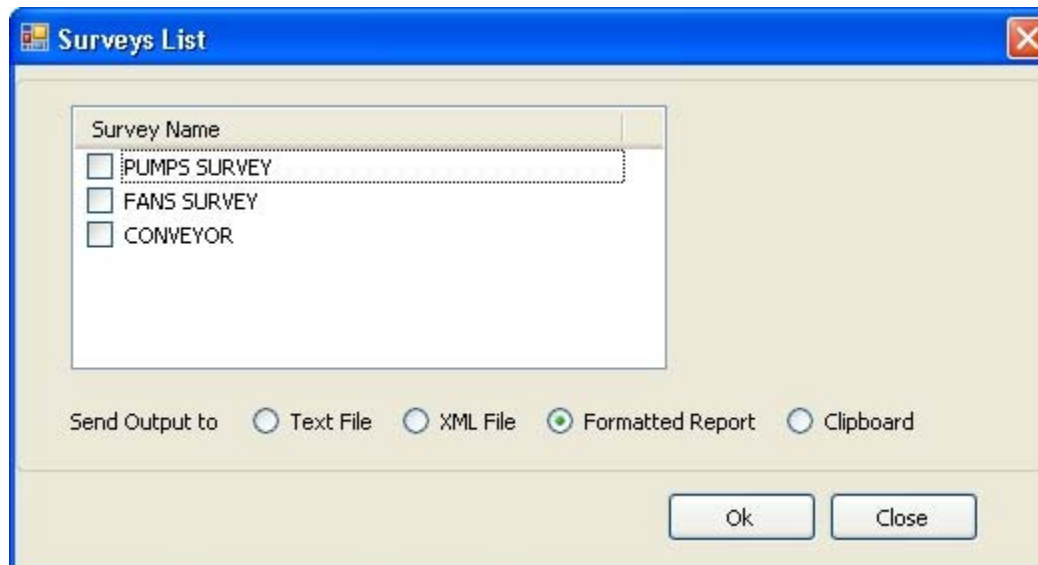
Measurement	Interval	Period	Sensor Name	Unit
My plant/Department name/Process name/Group of identical equipments/Machine 1/Measurement location/Needle R51-L 100(Static)				
	1	Day	Needle R51-L100	dBµV
My plant/Department name/Process name/Group of identical equipments/Machine 1/Measurement location/Internal PIR(Static)				
			Internal PIR	Celcius
My plant/Department name/Process name/Group of identical equipments/Machine 1/Measurement location/Needle R51-L 100(Dynamic)				
			Needle R51-L100	dBµV
My plant/Department name/Process name/Group of identical equipments/Machine 2/Measurement location/Needle R51-L 100(Static)				
	1	Day	Needle R51-L100	dBµV
My plant/Department name/Process name/Group of identical equipments/Machine 2/Measurement location/Internal PIR(Static)				

*Example of SDT270 Survey Report.*

## SDT170 Survey Report

In a similar way, you can generate a SDT170 Survey Report, choosing the menu **Reports / Surveys / SDT170 Surveys**.

Then the following window is displayed:



*SDT170 Survey Report menu*

As you know, the SDT170 uses only a two level structure, while Ultranalysis Suite manages a six level structure. For this reason, the SDT170 Survey Report provides both the full path of the measurement used in Ultranalysis Suite and the name displayed on the SDT170 screen. This Report will be useful to the operator responsible of the data collection following a Survey.



### Survey Detail List

Database Name : My plant

Report Date 16/12/2010

Survey Name

TEST

Measurement

SDT 170 Name

My plant/Department name/Process name/Group of identical equipments/Machine 1/Measurement location

POINT 1

My plant/Department name/Process name/Group of identical equipments/Machine 2/Measurement location

POINT 2

My plant/Department name/Process name/Group of identical equipments/Machine 3/Measurement location

POINT 3

### *Example of SDT170 Survey Report*

## Report of the last uploaded Survey in a SDT170

Select the menu Reports / Surveys / SDT170 Uploads. An extra level asks you to choose one of your SDT170 by selecting its serial number.



*This menu allows you to generate the last Survey uploaded in each SDT170 you use.*



## Survey Detail List for Device No - 170990848

Database Name : DEMO\_DATA

Report Date 22/12/2010

Survey Name

CONVEYOR

Measurement

SDT 170 Name

DEMO\_DATA/Line Process 1/Pumps group/Pump 2/Non-driven engine bearing

POINT 1

DEMO\_DATA/Line Process 1/Pumps group/Pump 2/Driven engine bearing

POINT 2

DEMO\_DATA/Line Process 1/Pumps group/Pump 2/Driven pump bearing

POINT 3

DEMO\_DATA/Line Process 1/Pumps group/Pump 2/Non-driven pump bearing

POINT 4

*Example of report of the last survey upload in a SDT170*

### Related links

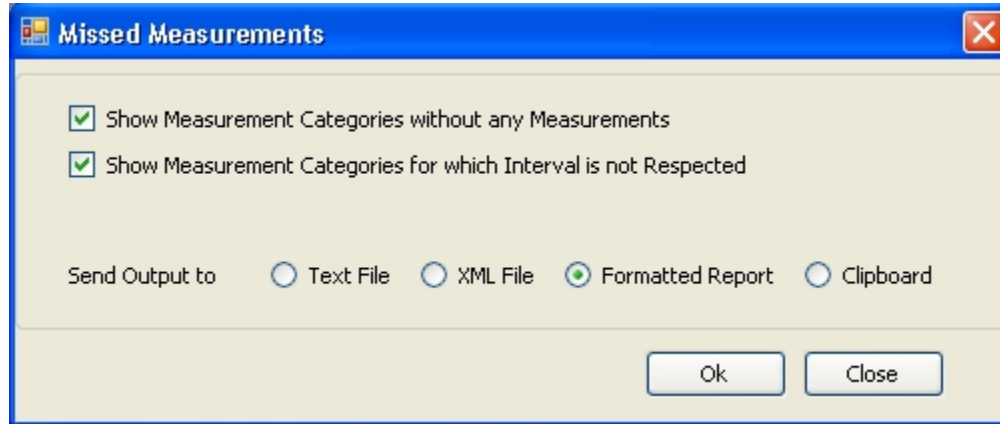
[Create a SDT170 Survey](#)

[Create a SDT270 Survey](#)

## Missed Measurement report

Select the menu **Reports / Missed Measurement Report**.

The following window is displayed:



***Missed Measurement Report menu***

The Report will show, or hide, the ***Measurements without any Data*** and the ***Measurements for which the data collection interval is exceeded***, by ticking or not the regarding check boxes.

For the format of the report, you can choose between Text File, XML File and Formatted Report. You can also insert the content of the Report inside the Clipboard.

Click **Ok** to generate the Report.



## Missed Measurements

Database Name : DEMO\_DATA

Report Date 22/12/2010

Path		
Measurement Node Name	Last Measurement	Delay
DEMO_DATA/Line Process 1/Pumps group/Pump 1/Driven engine bearing		
Thermocouple IF (Temperature IF)(Static)	7/12/2010	15 Days
Contact Probe(Static)	7/12/2010	15 Days
DEMO_DATA/Line Process 1/Pumps group/Pump 1/Driven pump bearing		
Thermocouple IF (Temperature IF)(Static)	7/12/2010	15 Days
Contact Probe - unknown type(Static)	Never Measured	N.A.
DEMO_DATA/Line Process 1/Pumps group/Pump 1/Non-driven engine bearing		
Thermocouple IF (Temperature IF)(Static)	2/12/2010	20 Days
Contact Probe - unknown type(Static)	2/12/2010	20 Days
DEMO_DATA/Line Process 1/Pumps group/Pump 1/Non-driven pump bearing		
Thermocouple IF (Temperature IF)(Static)	Never Measured	N.A.

### *Example of Missed Measurement*

#### Related link

[Set interval to data collection.](#)

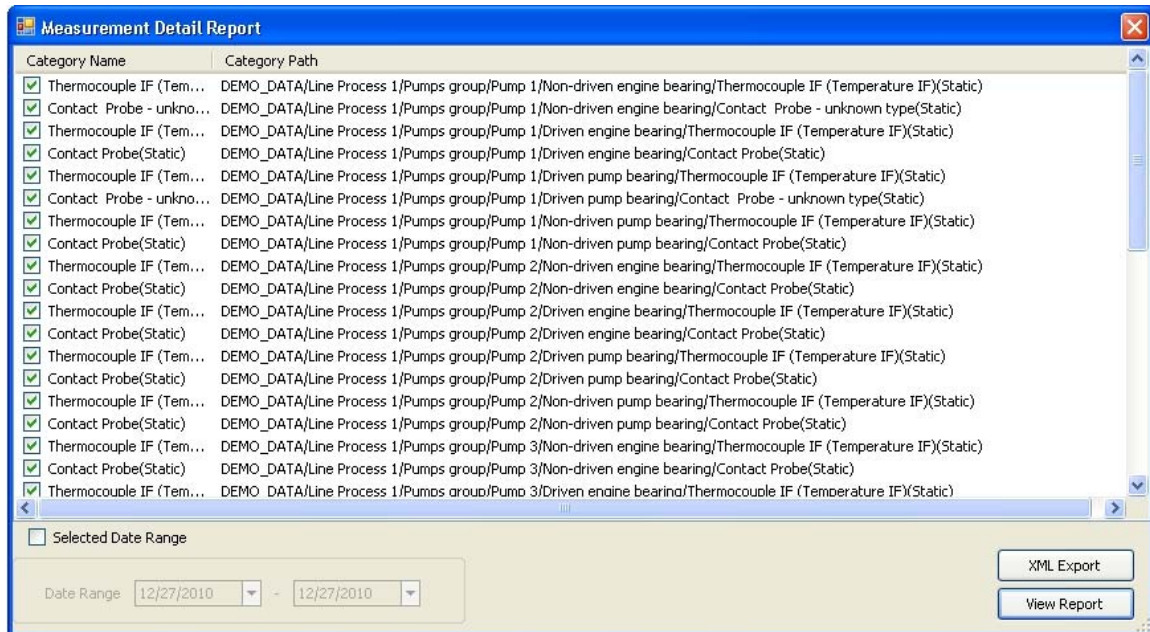
# Measurement Detail Report



*This Report provides a list of the data recorded for selected Measurements, from a range of dates.*

Select the menu **Reports / Measurement Details**.

The following window is displayed:








## **Measurement Details - Selection of Measurements before creating the report**

Select the desired Measurements by ticking the regarding check boxes, or use the Filter **CTRL+F**.

You can refine your search by selecting a **Data Range**.

Then click the button **XML Export** or the button **View Report**.

<div>  <div> <b>Measurement Details</b> </div> <div>                     Database Name : DEMO_DATA                      Report Date : 12/27/2010                 </div> </div>					
DEMO_DATA/Line Process 1/Pumps group/Pump 1/Driven pump bearing/Thermocouple IF (Temperature IF)(Static)					
Alarm Level	Date	Time	Unit	Value	Sensor Name
 Normal	2/18/2009	3:30 PM	Celcius	20	Thermocouple IF (Temperature IF)
 Danger	3/16/2010	9:43 AM	Celcius	40	Thermocouple IF (Temperature IF)
 Alert	4/15/2010	3:30 PM	Celcius	31	Thermocouple IF (Temperature IF)
 Alert	12/7/2010	3:29 PM	Celcius	25	Thermocouple IF (Temperature IF)

***Example of Measurement Detail Report***



# Event List Report



*This Report provides a list of the events recorded for parent nodes of Measurements, called Measurement Points, from a range of dates.*

Select **Reports / Event**.

The following window is displayed:

The screenshot shows a window titled "Event List" with a table containing two columns: "Node Name" and "Node Path". There are two rows of data, both with checked checkboxes in the first column. Below the table, there is a section for "Selected Date Range" with two date pickers set to "12/27/2010". To the right of the date range section are two buttons: "XML Export" and "View Report".

Node Name	Node Path
<input checked="" type="checkbox"/> Non-driven engine bea...	DEMO_DATA/Line Process 1/Pumps group/Pump 1/Non-driven engine bearing
<input checked="" type="checkbox"/> Driven engine bearing	DEMO_DATA/Line Process 1/Pumps group/Pump 1/Driven engine bearing

☐ Selected Date Range

Date Range: 12/27/2010 - 12/27/2010


XML Export  
View Report

## ***Event List selection***

Select the desired Measurements by ticking the regarding check boxes, or use the Filter **CTRL+F**.

You can refine your search by selecting a **Data Range**.

Then click the button **XML Export** or the button **View Report**.

	<b>Events</b>
Database Name : DEMO_DATA	
Report Date 12/27/2010	
Path	
Event Date	Description
DEMO_DATA/Line Process 1/Pumps group/Pump 1/Non-driven engine bearing	
4/23/2008	Lubrication
6/25/2008	Lubrication
8/20/2008	Lubrication
9/26/2008	Lubrication
10/9/2008	Bearings changed

*Example of Event List Report*

**Related link**

[Add an Event](#)

# Copyright

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The information herein is believed to be accurate to the best of our knowledge.

Due to continued research and development, specifications of this product can change without prior notice.



# Index

<b>A</b>	Mark as Reference .....	56
Absolute mode Alarm .....	Unmark as Reference .....	56
Activate .....	Database.....	71
Description .....	Backup .....	90
Why using Absolute mode .....	Considerations for Database construction	
Alarms.....	.....	73
Alarms in the Bottom Pane .....	Create.....	79
Alarms priority .....	Definition .....	71
Attach numerous Measurements to new	Demo Database .....	82
.....	Open .....	80
Attach numerous to existing.....	Restore .....	80
Attach single Measurement to existing	Edit .....	80
Create .....	Open.....	80
Edit .....	Rename.....	80
Introduction .....	Restore.....	90
Modify.....	Structure of a good Database .....	72
Report .....		
	<b>F</b>	
<b>B</b>	Frequency Domain Graph	
Bottom Pane .....	Definition .....	41, 44
Alarm Tab.....	Display.....	47
Filter .....	Load .....	47
Interval Tab .....	Re-scale .....	50
SDT170 Survey Tab .....		
SDT270 Survey Tab .....	<b>G</b>	
Selection Tab .....	Graph	
	Dragging.....	49
<b>C</b>	Zooming .....	49
Contact us.....	Graph Pane.....	41, 44
Copyright .....	Graph area .....	41, 44
	Tabs area .....	41, 44
<b>D</b>		
Data	<b>H</b>	
Delete.....	Help manual	
Drag and drop .....	Update .....	30
Edit .....	Version .....	129

## M

Measurement.....	76
Add.....	84
Attach to existing Alarm .....	105
Attach to new Alarm.....	106
Create .....	84
Data detail Report .....	124
Dynamic Measurement.....	76
Import a wave file.....	88
Insert a Static Data .....	88
Interval .....	77
Report of missed data during collection .....	122
Static Measurement.....	76

## N

Node .....	71
Add.....	82
Add an Event.....	85
Copy.....	82
Copy paste into different databases .....	87
Create .....	82
Definition .....	75
Edit .....	84
Paste .....	86
Reliable naming .....	73
Rename.....	84

## Q

Quick View Graph	
Definition .....	41, 44
Load .....	47

## R

Relative mode Alarm .....	102
Activate .....	99
Description .....	102
Why using Relative mode .....	102
Reports .....	113
Alarm Report.....	116

Event List Report.....	126
Measurement detail Report.....	124
Missed Measurement Report .....	122
Survey report.....	118
Tree Structure Report .....	114

Resources.....	2
----------------	---

## S

Safe mode Alarm .....	102
Activate.....	99
Description .....	102
Why using Safe mode .....	102
SDT International.....	30
SDT North America.....	30
Sensors	

Customize sensor list .....	85
-----------------------------	----

Support .....	2
---------------	---

## Surveys

Add Measurements to existing SDT170 Survey.....	111
Add Measurements to existing SDT270 Survey.....	109
Create SDT170 Survey .....	111
Create SDT270 Survey .....	109
Report.....	118

## T

Time Domain Graph	
Definition .....	41, 44
Display.....	47
Load .....	47
Number of plotted points .....	51
Re-scale .....	50
Top Pane .....	38
SDT170 Tab.....	38
SDT270 Tab.....	38
Tree Tab.....	38
Tree structure.....	71
Add a Measurement.....	84
Add Node .....	82

Collapse All .....	38	<b>U</b>	
Copy and Paste .....	86	Ultranalysis	
Customize sensor list.....	85	Dynamic version.....	3
Edit Node .....	84	Software installation .....	5
Expand All .....	38	Software version.....	31
Navigate inside.....	38	Static version.....	3
Number of levels .....	73	Trial version.....	3
Report .....	114	Update.....	30
Traffic light indicators .....	77	Upgrade.....	30
Trending Graph		Ultranalysis Dynamic .....	30
Definition .....	41, 44	Ultranalysis Static .....	30
Display .....	47	<b>W</b>	
Display Alarms Thresholds .....	49	Workspace .....	33
Load .....	47	Floating and docked Panes.....	35
Overlay.....	50	Hide or display Panes .....	34
Period range.....	50	Minimize, maximize Panes.....	36
Re-scale .....	49	Overview .....	33
Settings .....	50	Resize Panes .....	37