

# USER MANUAL

Version 11 - 2025

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# **1. Operating instructions**

Welcome to the world of the SDT Ultranalysis<sup>®</sup> Suite.

This manual has been structured to help you get the most out of your software dedicated to your SDT340, SDT270 or LUBExpert portable ultrasound instrument.

# **1.1. Getting started**

Before you start working with Ultranalysis<sup>®</sup> Suite, this chapter gives you information on how to <u>install</u> and register your software.

In complement, get information about system requirements, updating and upgrading Ultranalysis<sup>®</sup> Suite.



# 2. Ultranalysis® installation

## 2.1. Minimum system requirements

- Compatible Operating Systems: Windows 8, 10, 11;
- Architecture 64 Bits only;
- 1.6 Gigahertz (GHz);
- 4 Go RAM;
- Minimum 500 MB available hard disk space;
- USB 1.1 or higher port;
- Sound card and audio output.

# 2.2. Download Ultranalysis® Suite 3 Base Setup

If you don't have it yet, you need to download "**Ultranalysis Base Setup** – Extractor.exe" file. The base setup is available on SDT website, section download/Software at <a href="https://sdtultrasound.com/support/software/">https://sdtultrasound.com/support/software/</a>

SDT Ultrasound Solutions	Ultrasound Industry Marine Products Training Support About Us Contact English <b>Q</b>
Software	
	SDT General
Product Manuals	SDT CONMONSense Tool Setup
Brochures	SDT Updater Setup
Software	RAPsodyBox SDT USB driver installer
Mobile Apps	
Product Certificates	SDT340
Management System	UAS3 Update Setup
Certificates	UAS3 Base Setup
White Papers	UAS Lite Base Setup UAS Lite Update Setup
Maritime Industry	
Calculators	LUBExpert
After-sales	UAS3 Update Setup
Products Datasheets	UAS3 Base Setup
Sensors Datasheets	SDT270
Training Videos	501270

# 2.3. Extract Base Setup

From your download folder, double click on the file "UAS 3 Base Setup – Extractor.exe" to start the extraction of all required files.

- → ~ <b>+ ↓</b>	> Th	is PC > Downloads		✓ ð Search I	Downloads	J
Quick access		Name	Date modified	Type	Size	
Desktop	*	UAS 3 Base Setup - Extractor.exe	09-06-20 10:58	Application	203.999 KB	
Downloads	A					
Documents	*					
Pictures	*					
Music						
Videos						
OneDrive						
💻 This PC						
Antwork 🔿						



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

Click "Extract" button to start the extraction.

<b>2</b> 7-Zip self-extracting archiv	/e	×
Extract to:		
C:\Users\murat\Desktop\		
	Extract	Cancel

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

22 95% Extracting			-		×
Elapsed time: Remaining time: Files: Compression ratio:	00:00:04 00:00:00 0	Total size: Speed: Processed: Compressed size:		4	211 M 9 MB/s 201 M
Extracting Setup files\					
dotNetFx40_Full_x86_x64.exe					_
	Background	Pause		Cancel	

When the extraction is finished, you should see (in the folder location you have specified) the following files:

·   ☑ <del>-</del>   =ile Home Share	Application Tools Downloads			- 0	~
	-				
· -> · - 1 🕂 · T	his PC > Downloads >		✓ Ö Search [	ownloads	م
📌 Quick access	Name	Date modified	Туре	Size	
📃 Desktop 🛛 🖈	📴 UAS 3 Base Setup - Extractor.exe	09-06-20 10:58	Application	203.999 KB	
Downloads *	SDT help files	14-02-19 17:14	File folder		
Documents 🖈	Setup files	20-12-19 15:19	File folder		
Pictures *	🚳 Ultranalysis Suite 3 Base Setup.exe	24-09-20 11:38	Application	587 KB	
Music					
-					
📕 Videos					
📥 OneDrive					
💶 This PC					
± mare					
🔿 Network					
- NELWOIK					

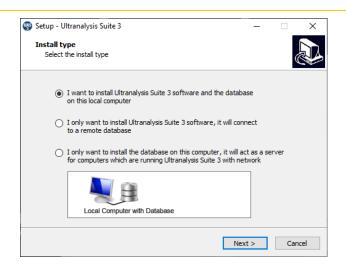
# 2.4. Run Base Setup

You must have Administrator rights to proceed from here.

Double click on the file "Ultranalysis Suite 3 Base Setup.exe" to start Base Setup installation. You should see the following window:



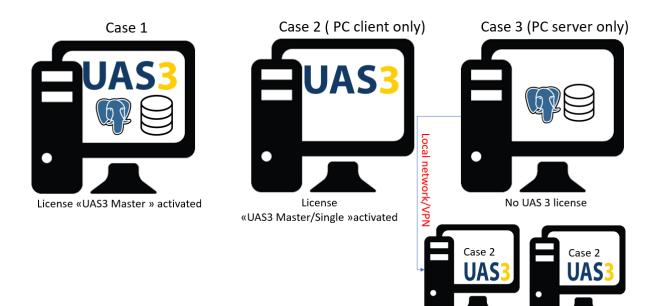
<u>(</u>)



Select the install type and click the **Next** button to continue.

3 types of installation are proposed depending on your network architecture.

- Case 1: the software (client) and the database (server postgreSQL) will be installed on this computer. UAS3 Master license will be mandatory to exclusively work on the local computer.
- Case 2: the software (client) will be installed on this computer, but you must also install the database on another computer running as a server. UAS3 Master/Single license will be mandatory to access the remote database.
- Case 3: the database will be installed on a computer running as a server. No license is required for this option, but you will need to install the software on the different clients (case 2).



1 « UAS3 Master » license + « UAS3 Single » per additional client

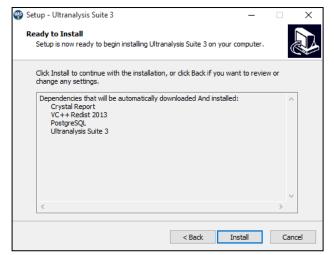
In selecting the first option (case 1), you should see the following window:





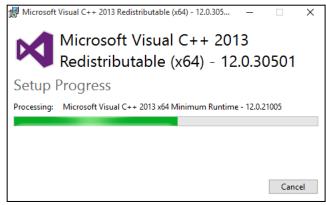
Read the End User License Agreement and if you agree with it, select "I accept the agreement". Click on **Next** to continue.

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



# 2.5. Microsoft Visual C++ Redist 2013

If the Base Setup requires to install the component "Microsoft Visual C++ 2013 Redistributable (x64)", you should see the following window:

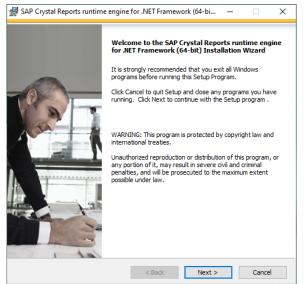


Depending on your computer performances, it could take few minutes.



# 2.6. Crystal Report

If the Base Setup needs to install the component "SAP Crystal Reports", you should see the following windows. Depending on your system performance it could take a few minutes. Click **Next** to continue.



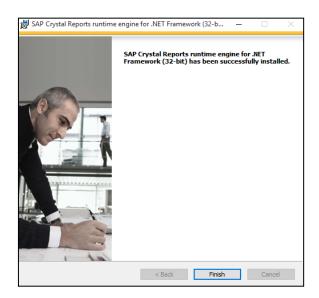
Read the End User License Agreement and if you agree with it, select "I accept the agreement". Click **Next** to continue.

😸 SAP Crystal Reports runtime engine for .NET Framework (32-b — 🗌 🗙	😸 SAP Crystal Reports runtime engine for .NET Framework (32-b — 🛛 🗙
License Agreement You must agree with the license to proceed.	Start Installation
ACROWLEDGE AND CONTINUES SOBJECTS "LICENSE AGREEMENT IMPORTANT-READ CAREFULLY: THIS IS A LEGAL AGREEMENT BETWEEN YOU AND SAP BUSINESSOBJECTS FOR THE SAP BUSINESSOBJECTS SOFTWARE ACCOMPANYING THIS AGREEMENT, WHICH MAY INCLUBE COMPUTER SOFTWARE, ASSOCIATED MEDA, RRINTED MATERIALS AND ONLINE OR ELECTRONIC DOCUMENTATION ("SOFTWARE"), BEFORE CONTINUING WITH THE INSTALLATION OF THE SOFTWARE YOU MUST READ, ACKNOWLEDGE AND ACCEPT THE TERMS AND CONDITIONS OF THE SOFTWARE LICENSE AGREEMENT THAT FOLLOWS ("AGREEMENT"). IF YOU DO NOT ACCEPT THE TERMS AND CONDITIONS OF THE AGREEMENT, YOU MAY RETURN, WITHIN THINTY (30) DAYS OF PURCHASE, THE SOFTWARE TO THE PLACE YOU OBTAINED IT FOR A FULL REFUND. 1. GRANT OF LICENSE. SAP BusinessObjects grants you a nonexclusive and limited isonase to use the Software products and functionalities for which you have paid the applicable fees solely for your internal business purposes and in accordance with the terms and conditions of this Agreement. The Software is licensed, not sold, to you. If you acquired this product as a special offer or as a promotional license included with another SAP BusinessObjects product, additional restrictions apply as V Implicable fees solely the License Agreement I do not accept the License Agreement	Are you ready to have the SAP Crystal Reports runtime engine for .NET Framework (32-bit) Installation Wizard begin the install? Press the Next button to begin the installation or the Back button to review the license agreement.
< Back Next > Cancel	< Back Next > Cancel



SAP Crystal Reports runtime engine	e for .NET Framework (32-b — 🗆 🗙
SAP Crystal Rep version for Microso	
SAP	© 2010 - 2016 SAP SE. All rights reserved.
Copying new files	
© 2010 - 2016 SAP	
Time remaining: 7 seconds	
	Cancel

Click the Finish button to finish to installation of Crystal Reports



# 2.7. PostGreSQL

If the Base Setup needs to install PostGreSQL database, you should see the following windows:

Setup	- 🗆 X	Setup	- 🗆 X
	Setup - PostgreSQL	Select Components	
U EDB	Welcome to the PostgreSQL Setup Wizard.	Select the components you want to install; clear Next when you are ready to continue.	r the components you do not want to install. Click Click on a component to get a detailed
PostgreSQL		V Posigresut, server  pgAnimi A  Stack Builder  Command Line Tools  VMware InstallBuilder	description
	< Back Next > Cancel	www.c.instanounder	< Back Next > Cancel

Please also make sure you have uninstalled the old version (Open the windows taskbar, type Control Panel, and select it from the results, Select Programs > Programs and Features.

Press and hold (or right-click) on PostgreSQL Database server (<13) you want to remove and select Uninstall.

Select **the recommended settings** and click the **Next** button to continue. The right window lists the default components being installed with the PostGreSQL installation. Only **PostgreSQL Server** is mandatory for UAS3.

Click **Next** to continue.

Existing installation       Pre Installation Summary         An existing PostgreSQL installation has been found at C\Program Files\PostgreSQL\13. This installation will be upgraded.       The following settings will be used for the installation:         In order to upgrade, we may need to restart the server. All connections to the server will need to be reestablished after the completion of the installation process.       Installation Directory: C\Program Files\PostgreSQL\13. Data Directory: C\Program Files\PostgreSQL\13. Data Directory: C\Program Files\PostgreSQL\13. Database Port: 5432         Database Port: 5432       Database Superuser: postgres         Database Port: 5432       Database Source: postgres         Database Source: postgres       Operating System Account: NT AUTHORITY\NetworkService         Database Source: postgres       Ported to the server installation Process.	
installation will be upgraded. In order to upgrade, we may need to restart the server. All connections to the server will need to be reestablished after the completion of the installation process. Installation Directory: C\Program Files\PostgreSQL\13 Data Directory: C\Program Files\PostgreSQL\13 D	
reestablished after the completion of the installation process. Server Installation Directory: C:\Program Files\PostgreSQL\13 Data Directory: C:\Program Files\PostgreSQL\13\data Database Port: 5432 Database Superser: postgres Operating System Account: NT AUTHORITY\NetworkService	
Command Line Tools Installation Directory: C:\Program Files\PostgreSQL\13 pgAdmin4 Installation Directory: C:\Program Files\PostgreSQL\13 Stack Builder Installation Directory: C:\Program Files\PostgreSQL\13	
VMware InstallBuilder VMware InstallBuilder KBack Next > Cancel	Cancel

If another installation is detected, you must uninstall it before installing the default settings for UAS3.

📲 Setup —	ı ×	💐 Setup	– 🗆 X
Ready to Install			Completing the PostgreSQL Setup Wizard
Setup is now ready to begin installing PostgreSQL on your computer.			Setup has finished installing PostgreSQL on your computer.
			Launch Stack Builder at exit?
VMware InstallBuilder		PostgreSQL	Stack Builder may be used to download and install additional tools, drivers and applications to complement your PostgreSQL installation.
< Back Next >	Cancel		< Back Finish Cancel

Finalize the installation by clicking Next.

**Untick** the Stack builder box, Click the **Finish** button to complete PostGreSQL installation and continue with the Base Setup.

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

The database service should be launched as a service, in Windows. Make sure that PostgreSQL Database server (v13) is locally running, in automatic mode, as follows:

All Apps Documents	Web More 🕶	R	Services							-	×
			File Action View	Help							
Best match			(= =) 🖂 😫	2 😼 🛛 📷 🕨 🗰 🖬 🕪							
Services App	C Run as administrator	<u>Q</u>	Services (Local)	😔 Services (Local)							
	Open file location	-		PostgreSQL Database Server 13.1	Name	Description	Status	Startup Type	Log On As		^
Apps		Services		Stop the service	Parental Controls	Enforces pa		Manual	Local Syste		
Services de composants	-⇔ Pin to Start	App		Pause the service		Manages pa		Manual (Trig	Local Service		
	- Pin to taskbar	797		Restart the service	Reer Name Resolution Prot	Enables serv		Manual	Local Service		
Search work and web					Reer Networking Grouping	Enables mul		Manual	Local Service		
Service - See work and web	results >	Doen .		Description:	Peer Networking Identity M			Manual	Local Service		
		S Run as administrator		PostgreSQL Database Server(x64) For		Enables rem		Manual	Local Service		
Folders (11+)				SDT application	Performance Logs & Alerts     Phone Service	Performanc		Manual	Local Service Local Service		
Documents - This PC (4+)		Open file location			Phone Service     Plug and Play	Manages th Enables a c	Running Running	Manual (Trig Manual	Local Service Local Syste		
Settings (2)		- Pin to Start			Program Pray Program Pray Pray Pray Pray Pray Pray Pray Pray	chables a c	Running	Automatic	Local Syste		
					PNRP Machine Name Public.	This convice	Kunning	Manual	Local Service		
		- Pin to taskbar			Portable Device Enumerator			Manual (Trig	Local Syste		- 64
					PostgreSQL Database Server		Rupping	Automatic	Network S		
					O Power		Running	Automatic	Local Syste		
					Print Spooler	This service	Running	Automatic	Local Syste		
					Printer Extensions and Notif	This service		Manual	Local Syste		
					ReintWorkflow_ce6ab89	Provides su		Manual	Local Syste		
					Reports Control Pa	This service		Manual	Local Syste		
					🖏 Program Compatibility Assi	This service	Running	Manual	Local Syste		
					Qualcomm Atheros WLAN		Running	Automatic	Local Syste		
,∽ service					Quality Windows Audio Vid		Running	Manual	Local Service		
· · · ·	<b>a a o</b>				Service Radio Management Service	Radio Mana	Running	Manual	Local Service		 ~
РО 🙆 🗄	💻 🔮 💽 👘	동일은 소설을 제 없는 것은 것이 같은 것이 같은 것이 같은 것이다.		Extended Standard							

Type Services in the windows task bar, right-click, run as administrator. Find the service postgresql-x64 and make sure that the service is running in automatic mode.

### 2.8. Ultranalysis<sup>®</sup> Suite 3

The final part of Base Setup is the installation of Ultranalysis<sup>®</sup> Suite 3. You should see the following window:

👹 Ultranalysis Suite 3		-		×
Welcome to the Ultranal	ysis Suite 3	Setup Wizard	1	SDT
The installer will guide you through the st	eps required to insta	il Ultranalysis Suite 3 o	n your co	mputer.
WARNING: This computer program is pre Unauthorized duplication or distribution or or criminal penalties, and will be prosecut	this program, or any	y portion of it, may resu	in sever	e civil
	Cancel	< Back	Nex	0

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.

🛃 Ultranalysis Suite 3	-		×
Select Installation Folder			5DT
The installer will install Ultranalysis Suite 3 to the following folder.			
To install in this folder, click "Next". To install to a different folder, enter it be Folder:	low or c	lick "Brov	vse".
C:\Phogram Files\S.D.T. INTERNATIONAL\Ultranalysis Suite 3\		Browse	
	0	isk Cost	
Cancel < Back		Next	в

Select here the Destination folder location for Ultranalysis<sup>®</sup> Suite. Click the **Next** button to continue.

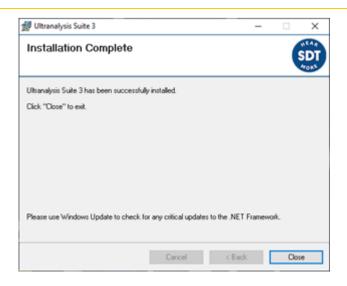
👷 Ultranalysis Suite 3			-		×
Confirm Installation					SDT SDT
The installer is ready to install Ultranalysis Click "Next" to start the installation.	Suite 3 on your co	mpuler.			
	Cancel	< Back		Nex	Ð

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

😾 Ultranalysis Suite 3	-		×
Installing Ultranalysis Suite 3			
Ultranalysis Suite 3 is being installed.			
Please wak			
Cancel < 84	ick	Nex	D

Click the **Next** button to continue.





Click the **Close** button to finish Ultranalysis<sup>®</sup> Suite 3 installation.



# **3. Activation and registration of Ultranalysis® Suite**

# **3.1.** Serial number

Your serial number has been communicated by e-mail:

	Type	Serial No	License No	Assigned to	Article code	Comment	PO
00-	UAS3	23456789	not yet activates	SDT. International, Murat Unal	FASETWUASS		
	2.0	Intell the sol Download Download Start the soc The loanse Electron Legan	Installer of the lab mitiatulation restruct computers hard Amore into torm will be common common preserve preserve	tons, ware code automatically opened			
			e the sectal manth	er of your Scenae.			

Figure 3-1: Specimen of e-mail containing the serial number

When Ultranalysis<sup>®</sup> Suite is launched for the first time, the following license window opens automatically.

🔮 Licence Info. U	Inlicensed version.		×
Language	English 🗸		
Serial Number		Trial Mode	
Hardware PC Code:		Generate	
Activation			
Username			
Company			
Licence Number		Enter	
Fiaure 3-	2: License inform	ation window	

Encode your serial number in the corresponding field. If you are using the trial version of the software, use the menu **Help / License set up**.

## **3.2.** Hardware code

Generate your hardware code by clicking on the button **Generate**. This code is unique and can only be used with your machine.



🔮 Licence Info. U	Inlicensed version.		×
Language	English 🔻		
Serial Number	123456789	Trial Mode	
Hardware PC Code:	60195791	Generate	
Activation			
Username			
Company			
Licence Number		Enter	

Figure 3-3: The hardware code has been generated

# **3.3.** Registration of Ultranalysis<sup>®</sup> Suite

Visit our server at the address <u>https://extranet.sdtultrasound.com/licenses/activate</u> Encode your serial number in the corresponding field and then click **Next step**:

License activation	on
License activation Step 1 of 3 Serial No ⑦	Quick guide           1. Install the software on the destination computer.           2. Generate your computer's hardware code:           • Start the software.           • The license info form will be automatically opened:           • External ModuRead version.
	Imgunge English     I

Figure 3-4: Type your serial number

Or click on the link at point 3. in the email received.

	License activation	on
Please verify the company & user information and tick	the checkbox.	Quick guide
License activation Step 2 of 3		Install the software on the destination computer.     Download installer of the latest version.     Download installation instructions.     Generate your computer's hardware code:
Serial No 123456789		<ul> <li>Start the software.</li> </ul>
License type UAS3		<ul> <li>The license info form will be automatically opened:</li> <li>Etcence info, Unlicensed version.</li> </ul>
	DT Ultranalysis Suite 3)	Language English
Please verify Yes, the company & user info (if not, please contact your deale	rmation displayed below is valid! r)	Serial Number 123456799 Trial Mode Hardware PC Code: 1857654321 Generate
Next step		Activation
Company information	1	Username Company Licence Number E(11)
Name SDT International		
Country Belgium		There, enter the serial number of your license.
Region N/A		<ul> <li>and click the "Generate" button.</li> <li>3. Next, on this page, enter the serial number of your license.</li> </ul>
ZIP & city 1190, Brussel		4. Enter the generated code in the field "hardware code" on this page
Address Humaniteitslaan, 415		5. Click next step on this page and you'll get a license number.
Phone +32(0)2.332.32.25		
User information		Getting started? Review user manual.
First name Murat		Watch tutorial videos.
Last name Ünal		
Language English		
Email		
Phone		
Mobile		

The webpage asks you to encode the hardware code and to confirm your contact information. The hardware code is a unique identifier that is specific to your PC and therefore, you can't replicate the installation, based on the same license, on other PCs. For multiple installations, you will need to purchase additional licenses to activate. Each supplementary installation will require a specific hardware code, based on the registration procedure.

Type your hardware code corresponding to your PC in the corresponding field.

If the other fields are correct, tick the box Yes, the company & user information displayed below are valid! and click 'Next step. The system sends you by e-mail your license number.

Dea	Dear Murat Ünal,								
The	The following license has been activated. [view on site]								
ID	Serial No	License no	Assigned to	Туре	Article code	Comment	PO no.		
<u>884</u>	123456789	1234567890123456789	SDT International, Murat Ünal	UAS3	FASFTWUAS3				

Figure 3-5: Standard e-mail of license number attribution

# 3.4. Activation of Ultranalysis<sup>®</sup> Suite

Come back to the license window of Ultranalysis<sup>®</sup> Suite, type your license number received by email in the dedicated field and fill in the required fields Username and Company then click **Enter**.

W Licence Info. U	Inlicensed version.		×
Language	English 👻		
Serial Number	217032220	Trial Mode	
Hardware PC Code:	60195791	Generate	_
Activation			
Activation Username	Murat		
	Murat SDT International		
Username		Enter	

Figure 3-6: License number, username and company

Congratulations, Ultranalysis<sup>®</sup> Suite is now activated. If the data is incorrect, please contact your local dealer or SDT International.

# 3.5. Unlocking additional feature "Bearing diagnosis"



Available since v 3.1925

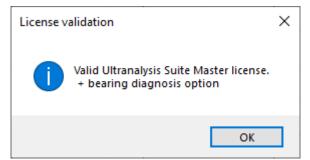
To get access to this advanced analysis tool (bearing database, periodic cursors), you must purchase an activation code that will be associated to your main license. Contact your local dealer or SDT with your Serial Number & Hardware code to get your activation code.

Once the default installation is activated, launch UAS3. On the top menu, click **Help(?)** then **License setup.** Enter your second validation code in the appropriate field and click **Enter.** 

🌚 Licence Info. Li	censed to user sdt	×
Serial Number	123456789	Trial Mode
Hardware PC Code	68303770	Generate
Activation		
Username	user	
Company	sdt	
Licence Number		
Bearing diagnosis	12345678912345678	Enter

Figure 3-7: activation of the bearing toolbox

If the code is valid, the following window should pop up.



Congratulations, you get access to the bearing toolbox.



# 4. Updating Ultranalysis<sup>®</sup> & version check

#### 4.1. Updating

#### Automatic update

If your PC is connected to the Internet, Ultranalysis<sup>®</sup> automatically checks if a new version is available. In case of update, a pop-up will appear at the right bottom of the software

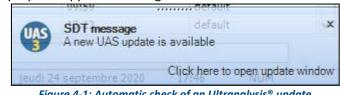


Figure 4-1: Automatic check of an Ultranalysis® update

Click on the message to download the latest version and follow the instructions. You will be invited to create a backup of your database.



SDT International strongly recommends ensuring regular backup to prevent against potential data loss for which we cannot be held responsible.

In some cases, the download step may be blocked by your IT restrictions. If so, contact your IT department.

#### Manual update

To recover the latest version of Ultranalysis®, select Help (?) / check for Updates. You need an Internet connection to realize this operation.

#### 4.2. License information

To check your license information, select Help (?) / License setup.

#### 4.3. Ultranalysis<sup>®</sup> software version

To check your software version, select Help (?) / About.



# **5. Introduction to Database/ Tree Structure**

# 5.1. Database definition

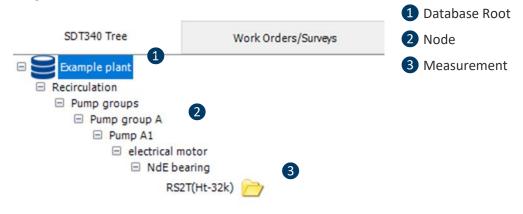
UAS3 is fundamentally used as a Database to manage your collection, processing, and analysis of data. A database is an integrated collection of logically related records or files consolidated into a common pool that provides data for one or more multiple uses. It is used to store and organize information 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.

# 5.2. Tree structure definition

UAS3 uses hierarchical database model in which the data is organized into a tree like structure. The content could be data collected with the SDT340, SDT270 or LUBExpert, comments, events, statuses, or external document.

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 Database 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.



## 5.2.1. Node

Node is a position in a tree between the database root and the Measurement. Each node has a unique parent (their upper level) and can have multiple children (their lower levels). UAS3 database can effectively contain a virtually unlimited number of nodes, regarding your computer

storage capacity. Each tree structure contains a default node named "Repair Workshop/Spare Parts".

#### 5.2.2. 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).

For each measurement point, you can decide the type of sensor you want to use. SDT340, SDT270 work with a variety of different sensors like Airborne and Structure borne Ultrasound probes, Accelerometer, Tachometer, Thermometer. LUBExpert works with one single sensor – LUBESense1.

However, the notion of sensor type is not sufficient for reliable comparison of data. For example, an RMS calculated between 10 and 1000 Hz is not comparable to an RMS calculated between 10 and

10000 Hz. This is the reason why UAS3 adds, to the sensor type, the parameters associated to the measurement.

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 UAS3, when it is created, regarding your selection.

Measurements can be **Static (indicators only)** or **Dynamic (signal)**. **Static measurement** 

A static measurement is one which is purely a single numerical value - a dB $\mu$ V value (RMS, maxRMS or Peak), linear value of ratio (Crest Factor), RMS velocity, Peak acceleration ... or a temperature are all static measurements.

Static measurements can be collected using either the SDT340, SDT270 or LUBExpert.

These values are normally logged for trending or alarm comparison.

#### **Dynamic measurement**

A dynamic measurement is an entire event recorded during defined data acquisition time, represented as Time domain or Frequency domain.

An example of 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.

This type of measurement would normally be analyzed by viewing and processing the time signal of perhaps the spectrum of the signal in UAS3.

## 5.3. Structure of a good database

A considerable amount of thought should go into the structure of your database. Spending some time in detailed consideration of nomenclature and organizational structure will help you to develop your database in the right way today.

#### NOTE!

It is highly recommended to introduce several assets into your database, and work with it for a day or two, in different situations, performing different tasks. If you are not completely satisfied, edit it, try it again. Once you are satisfied and tree structure is correctly reflecting organizational structure and it is suitable for required tasks, continue. Do not put yourself in a position of introducing 1000 assets and realizing then that it should be organized differently.

It may be that you have already been through this process with the development of your computerized maintenance management software (CMMS) database in which case you are likely to be using the same database structure in UAS3.

If you are not familiar with this topic, here are some issues to consider.

Consider when you are filling in an address form.

There can be several levels of information needed to define your address:

- Country;
- State, Province or Region;
- Town or City name;
- District name;
- Street or road name;
- House or Apartment number.

The database required to manage all 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 localized, with each lower level.



Consider how you might want to organize 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 organize the data into a hierarchical structure – this is what we call a tree.

Using UAS3, you can 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 only by your computer storage capacity.

You cannot open simultaneously several databases. One logical unit (process, location...) should be in one database/tree structure. You can upload only one database at a time in the SDT340, SDT270 or LUBExpert. This is an additional reason to create your database with logical nature of work in mind.

# 5.4. Number of levels

Inside UAS3 databases, you can organize the tree with a maximum of 6 levels. This means, 6 additional levels below your tree structure name. Final level (whether it is 2nd, 3rd, ... or 6th) allows you to define a measurement (sensor type, measurement settings). This is just to avoid confusion that might appear when counting levels (it could look like 8 if includes tree structure name and sensor/measurement level). This should be more than enough for most applications and will generally be more than is used by your CMMS program.

Careful consideration should be given to the use of these levels to maximize your ability to locate and describe a measurement point within your plant. Tree structure is there to make you do your job easily, so it needs to be built in a way that allows you to search, filter or view asset groups and assets in easiest way.

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 at 2nd, 3rd or 4th level, that is all you need to create. There is no requirement to invent levels just to make it up to 6. UAS3 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 and LUBExpert Database is identical to that of UAS3, but its screen can display only 5 levels at the time. SDT340 will display all levels defined in UAS3.

# 5.5. Choice of a reliable naming

In UAS3 database, as in 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 pump1.
- Pump1 is not the same as pump 1.
- Non-driven bearing is not the same as Nd bearing or/and bearing.

Being consistent is critically 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 the 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 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).

You might want to add a suffix that might help you easily filter assets according to certain criteria (as an example; electrical motor GL, where GL stands for Grease Lubricated, or exhaust fan OL, where OL stands for Oil Lubricated) and extract only assets that you need for certain task.

# 5.6. Considerations for Database construction

As you add more and more information, data, and measurements to any predictive maintenance database, the value and the cost 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. Cost related to the database represents hundreds of ours invested to populate it. Both value and cost are high, so make sure you build it in a way that will deliver benefit.

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:

- Bearings mounted next to belt pulleys.
- Drive end bearing of all 15 kW 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 equipment into one branch level (or Node).
- Regroup equipment from a process function into one branch level.
- Avoid regrouping machines regarding survey routines.



# 6. Creating and Editing Data Folders and Tree Structures

NOTE!

To assist you, SDT provided several examples in the Demo database included in UAS3. 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.

# 6.1. Creating a Database

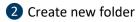
In top toolbar, click on File/Tree structure:

File View Tree N	odes Work Order,	/Survey Reports	Utilities	Options	Device	?	2	Tree Stru		acs work	S act/ Sur	vey Report	×	ies Options	DEVICE
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Folders & Tree structures management window with following functionalities will pop up:

Tree Structure List - murat(959218816)	×
Data Folder Tree Structure	
My Factory Example plant	
9	
Filter	

1 Edit folder name



- 3 Data folder info
- 4 Delete folder

- **5** Open selected tree structure
- 6 Create new tree structure
- Edit selected tree structure name
- 8 Delete selected tree structure
- 9 Databases (tree structures) contained in displayed folder
- 10 Name of the displayed data folder

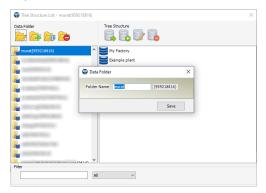
You can create as many data folders and tree structure (databases) as you need. Default data folder is named "mydatafolder". Now, you can start working on your **Data Folders** and **Tree Structures**.

#### 6.1.1. Editing data folder

Click on the drop-down menu (arrow) in Data Folder field, select a data folder and press Edit:

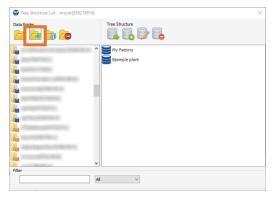


Edit window will pop up, where you can edit the Data Folder name and Save it:



#### 6.1.2. Create new Data Folder

To create a new data folder, click **Create New**:





New window will pop up:

Tree Structure List - murat(959218816)	K 🚳 Tree Structure List - murat(959218816)
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Since UAS3 supports SDT340, SDT270, and LUBExpert, you need to choose the instrument you will be using for the **Data Folder** you want to create. Note that type of data folder (SDT340 or SDT270 and LUBExpert is indicated by different Tree structure Icon color.

Enter the name of the **Data Folder** and **Tree Structure Name** and press **Save**. Your new **Data Folder** and its initial **Tree structure** is created.

#### 6.1.3. Data Folder info

Select Data Folder and click on Info:



#### 6.1.4. Deleting Data Folder

Select data folder and click on **Delete**:

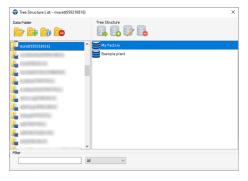
Tree Structure List - sdtt340(72028)	720)	$\times$
Data Folder	Tree Structure	
Delete di	Life folder X	
	Yes No	
.8816)	v	
Filter	All v	

Double check that you want to delete selected **Data Folder**, as you will be deleting all **Tree Structures** it contains.

#### 6.1.5. Open existing database (tree structure)

Select data folder (click on the drop-down menu in Data Folder field):





Once you choose desired folder, all tree structures it contains will be displayed:

Tree Structure List - murat(959218816)		×
Data Polder	Tree Structure	
	Exemple plant	
Piter A		

Select tree structure and select **Open**:

Tree Structure List - murat(959218816)	×
Data Polder	
murst(959218816)	
Example plant	
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## 6.1.6. Create new database (tree structure)

Select a *Data Folder* where you want to create a new Tree Structure:

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Data Molder	Tree : uture	
urat(959218816)	My Fattory Example plant	
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	~	
Filter	All V	



Click on Create New:



Enter **Tree Structure** name (the database name can contain up to 50 characters, including special characters) and click on **Save.** Your new **Tree Structure** is created.

#### 6.1.7. Edit database (tree structure)

If you want to edit the Tree Structure name, select it, and click on Edit



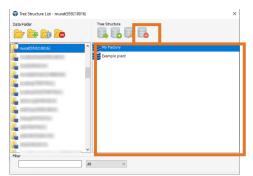
Tree Structure editing window will pop up.



Edit Tree Structure name and click on Save.

6.1.8. Delete database (tree structure)

Select Tree Structure and click on Delete:





A new window will pop up.

😗 Tree Structure List - mur	at(959218816)	$\times$
Data Folder	Tree Structure	
murat(959218816)	Wy Fetory     Bample plant	
	Delete tree structure ×	
	Ves No	
Filter	Al v	

Double check that you want to delete selected Tree Structure.

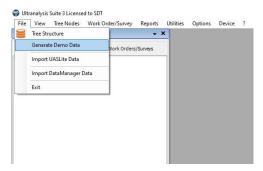
#### 6.1.9. Generate Demo Data

Demo Data is a training database created for you to practice and familiarize yourself with UAS3 features as well as practicing in signal analysis and recognizing certain most common findings. In order to have access to Demo Data, you need to generate it in any of the SDT270/LUBExpert folders.

Select existing or create new SDT270/LUBExpert Data Folder and open any of the tree structures.

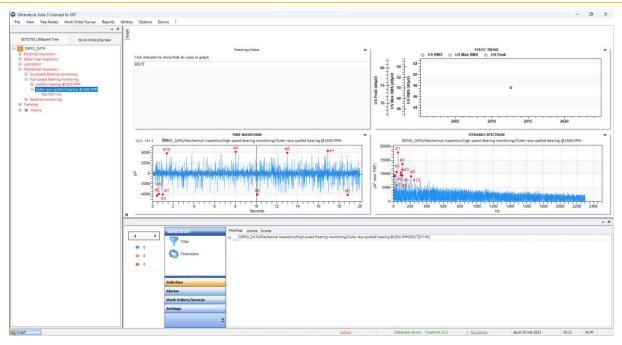
Tree Structure List - harisdemoplant(3098)	86317)	×
		^
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In top toolbar, click on File and select Generate Demo Data



Confirm, and your **Demo Data** will be generated in your UAS3:



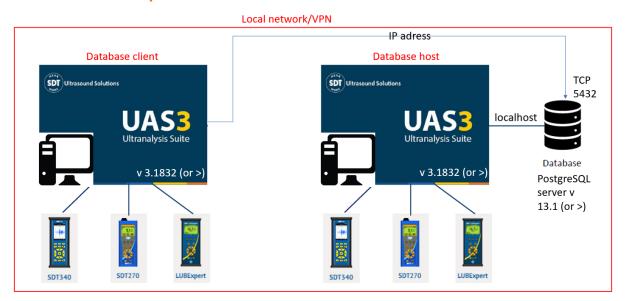


# 7. Remote access to the database on a local network

Feature available since version 3.1862.

## 7.1. Prerequisites

- At least, 2 PC (1 host + 1 client) with distinct licenses of UAS3 (V 3.1862) or more recent versions, are mandatory. Both are connected to the same network (local or VPN).
- PostgreSQL v13 is running on the host PC (windows sleep settings disabled, additional firewall settings might be required, please contact your IT team)
- The TCP port 5432 is open on the host PC and static IP address are assumed to be assigned on the local network.



# 7.2. Principle

# 7.3. Getting synchronized client/host(server)

Retrieve the host IP address:

On the host PC, in the search box on the windows taskbar, type **cmd** and press **enter**. In the new screen, type: **ipconfig /all** and press **enter** and retain the **IP v4 address**.

Connection-specific DNS Suffix		Home
Description		Intel(R) 82566DM-2 Gigabit Network Connection
Physical Address		00-1E-C9-7C-53-17
OHCP Enabled		Yes
Autoconfiguration Enabled		Yes
IPv6 Address		fd00::c0f9:cd4b:6214:c65d(Preferred)
Cemporary IPv6 Address		fd00::3cbb:82b:7143:f572(Preferred)
ink-local IPv6 Address	:	fe80::c0f9:cd4b:6214:c65d%5(Preferred)
IPv4 Address	:	192.168.0.6(Preferred)
Subnet Mask		255.255.255.0

If UAS3 is running on the host PC, you should directly see the default screen below. The location of the database is identified in the bottom bar.



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RS2T-from client					test_340dB/TEST-TREE/MECHANICAL/ACC100/Acc1
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Acc100(RW5 AirSense(Ht RS2T(focUS-	-32k) 🗁 -128k) 📂				test_340dB/TEST-TREE/MECHANICAL/RPM/RPM270

On the client PC, the last IP address will be used as settings to get synchronized with the distant database.

Launch UAS3 on the client PC then go to **Options/Database settings.** By default, UAS3 is synchronized in localhost, assuming PostgreSQL is running.

To change the default settings, tick **advanced settings** then **type the IP address** determined at the first step (192.168.0.17 for this example).

ॷ Database Se	tup	×		
Provider	PostGreSQL ∨ ✓ Advanced Settings			
Host	192.168.0.17		Completed	×
Port Database	5432 postgres		Database connection sett restart the application to	ings are saved sucessfully. Please use new settings.
Username Password	postgres			ОК
	Apply			

If the settings are correct, restart UAS3, and the client will be synchronized with the remote database.

You can verify that the synchronization is well established with the remote server. In the default screen of UAS3 Client, as in local configuration, you can browse and open a distant database/tree structure. The IP address of the remote database is identified in the bottom bar of the software, as follows:

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	AirSense()	it-32k) 🤭				W	ork Orders/Surveys		test_340dB/TEST-T			
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# 7.4. Notes

- Several users can interact simultaneously with the same database. A pop-up system informs in real time about the changes and invites the passive user to refresh the tree structure.
- A distant client can interact with the host database while UAS3 is not running on the host PC. Only PostgreSQL Database server is required to ensure the synchronization.
- Each time UAS3 is launched, the client retrieves the last updated database.
- An auto-reconnection system ensures the continuity of the distant service.
- To avoid potential conflict in the tree structure, do not edit the database while your instrument is in the field.

# 8. UAS3 Workspace

# 8.1. Overview

The UAS3 workspace includes 4 panes, menus, and tool bars.

#### 8.1.1. The Top Pane

In this pane, all your assets are represented in a tree structure hierarchy, by their name, containing all settings you defined. In Top Pane, you build your database, navigate through it, edit it, and define, edit, and manage all your surveys/work orders.

#### 8.1.2. The Graph Pane

This pane displays your Trend, Time domain, Frequency domain, and four most recent measurements for viewing and analysis.

#### 8.1.3. The Bottom Pane

The bottom pane contains detailed information of each measurement (data collection) or Lubrication process at sensor level, all measurements within certain node, and allows you to filter and apply action on selection of measurements.

#### 8.1.4. The Navigation Picture Pane

In this pane, your tree structure nodes are represented with a picture you assigned to them, containing pins for each node within selected node, enabling you to navigate.

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# 8.2. Hide or show Panes

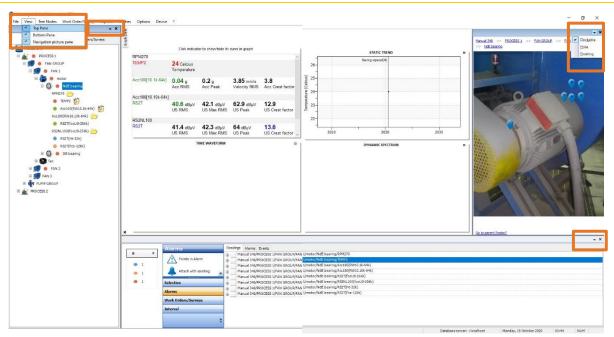
You can hide or show each of the panes in several ways:

Use the view menu in top tool bar and tick/untick the pane you want to hide/show.

Click X in right top corner of the pane.

Select **down arrow icon** in the right top corner of the pane, select hide or press **H**.





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

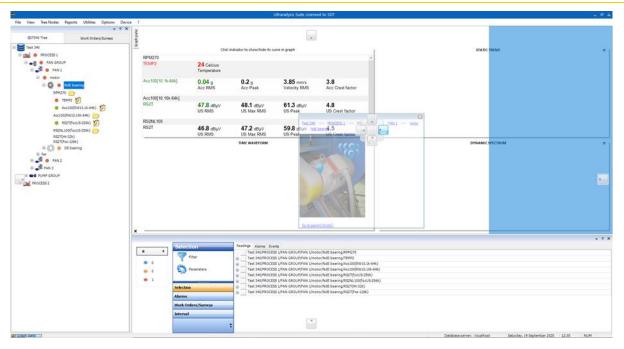
# 8.3. Floating and docked Panes

To undock a Pane and place it floating inside UAS3 frame, left click on the down arrow icon  $\square$  of its title bar and select **Floating**. As an alternative, press **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 UAS3 frame. Drag the Pane upon a guide to dock it to place it in one side or in the middle of UAS3 frame. When the Pane is placed over a guide the designated area is shaded. Then release the mouse button.



# 8.4. Minimize or maximize docked Panes

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 P 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 UAS3 frame, depending on your settings.

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Top Pane, Bottom Pane and Navigation Picture Pane tabs placed on borders of UAS3 frame and maximized when needed.

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.

# 8.5. Resize panes

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

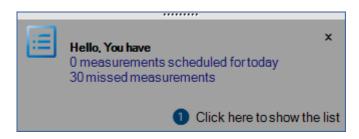
When it is correctly placed, the appearance of mouse pointer changes to this symbol ++. Press and hold the left mouse button and drag the window border to re-size the Pane. Release the mouse button to complete the size modification.

Note! 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.

### 8.6. To-do List

When you start UAS3, it will check if you have some data in missed measurements or never measured points. It that case, it will remind you showing a popup message.

That popup will be shown at the bottom right of the screen.



1 Click on the popup to select the options you want to apply to the missed measurements (see next picture).

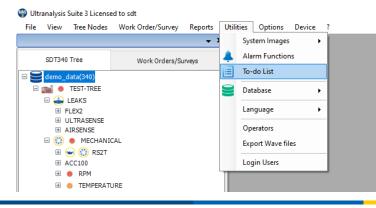
Scheduled Measurements Checking		
Hello, You	have	
0 measurements scheduled for today 30 missed measurements	2 Show Show 4 Add All to v	Add to work order      Add to work order  work order  Close

2 Click on show button to open the list of scheduled or missed measurements.

3 Click on this button to add scheduled or missed measurements to an existing work order or a new one.

4 Click on this button to add all scheduled and missed measurements to one existing work order or a new one.

You could also access that feature by clicking on Utilities/To-do List in top toolbar, as shown below:





# 9. System settings & System images

In **System Settings** menu, you will define certain settings that will make your work easier (not mandatory), but you will also need to introduce certain data that mandatory for work continuation.

In top toolbar, click **Options** and then **System settings**:

		Ultranalysis Suite Licensed to SDT	
File View Tree Nodes Work Order/Survey Reports Utilities	Options Device 7		
in the standard interaction of inputs and			
	System Settings		
SDT271/LU8Expert Tree Work Orders/Surveys	Static Trend Settings		
an un el construct una stelat prograf perveda	and increased and the second second		
E BENO_DATA	Database Settings		
		Click indicator to show/hide its curve in graph	STATIC TREND D
Bectrical inspection	RS1T		W US RHS 🔺 US Max RHS 🗰 US Peak
Ream trap inspection	Rati		<sup>35</sup> T 18.5 <sup>±</sup> 18.0 <sup>±</sup>
III Lubrication			
Mechanical inspection			34十 19.0 手 17.5 量
Is low speed Bearing monitoring			20-S 185- 17/0
Outer race spall on N254 @50 RFM			S 22+ S 10.5 S 17.0
RSIT(DYHt)			10-1 10-1 16.5
E Outer race spall on N204 @100 R9M			S
high speed Bearing monitoring			夏 31 + 是 17.5 半男 16.0日
(ii) Healthy bearing @1500 RPM RS1T(DY-Ht)			
			9 30 T g 17.0 T 9 15.5
Outer race spalled bearing @1500 RPM #S17(DY-Ht)			
PereDisht(Difett)			29+ = ****
			16.0
R52T(ST-Ht)			
(i) Gearbox monitoring			2005 2010 2015 2020
iii Healthy gearbox			
E Damaged gearbox		TIME WAVEFORM	D I DYNAMIC SPECTRUM D I
RELTION (R)	1.1.30.0 Play		R\$17(0KH0
8 Tretding			
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		in the second	
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	2 0		E
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	-10 -		
	-202		
	E State		· · · · · · · · · · · · · · · · · · ·
	-30		
	84		- The second
	-40	1.0 1.5 2.0 2.5 2.0 2.5 4.0 4.5 5	0 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
	0,0 0,5		5,0 0 200 400 600 800 1000 1200 1400 1600 1800 2000 2200
	×	Seconda	Ha
	1.0		
			+ * X
	100000	Readings Alarma Events	
	1		
		Filter	descontration-w0
	• •	Sampling Rate	Date Time Length (Sec) Operator
			12-50 \$ Certain
	- · · ·	Parameters 8000 20/07/2012	
	Selectio		
	Search	and the second se	
	Alarms		
	Work O	nders/Surveys	
	Interva		
T LONG WARK			Database server + localizet Database 2020 22-10 NLM

Settings management window will pop up.

By selecting first tab – General – you can choose Tree Structure Icon and Navigation Pin Icon for any of the Tree Structures within the Data Folder you currently use.

Click **Browse**, and select **Icon** from **System Images** (it will be later explained how to upload additional icons):

🚳 Syst	em Settings								×
General	Domain Graphs	Units	Printer		Connection	Tree View	Lubricants	Grease gun	s <b>v</b>
Tr	ee Structure DEI		Ά		-				
Tri Ice	ee structure		Brows	e					
	avigation 1 Icon	•	Brows	e					
									Save and close

By selecting next tab – **Domain Graphs** – you can select **Fast Preview** for your **Time Domain**. By selecting this option, Ultrasound signal displayed in **Time Domain** will be down sampled for fast loading, but at any moment, you can load full data by single click while viewing **Time Domain**.

In the same tab, you can adjust settings for FFT, both Number of Samples and Window Function.



🚳 System Settings		×
General Domain Graphs	nits   Printer   Sensors   Connection   Tree View   Lubricants   Grea	ise guns 🔻
Time Domain		
Fast preview(dow	neamplad signal)	
	isampreu signary	
FFT		
Number of Samples	12800 👻	
Window Function	RECTANGLE	
		Save and close

Next tab – Units – allows you to set unit for Temperature, Acceleration, Velocity, Grease weight, Frequency and Bearing size.

System Settings	Printer   Sensors   Connection   Tree View   Lubricants   Grease guns	
Temperature Unit	Frequency Unit	
Acceleration Unit	Bearing Unit	
Velocity Unit	K	
mm/s ▼ Grease weight Unit		
g 🗸		
	Save and	clos

Next tab – Printer – allows you to define paper size for printout:

System Setting					:
eneral Domain Gr	aphs Units Printer Se	ensors Connection	Tree View Lubrica	nts Grease guns	
	F	_			
Paper Size	A4				
				Sat	ve and close
				30	re and close

Next tab – **Sensors** – enables you to customize a list of sensors you use. The full list of sensors contains all sensors in SDT produce range, but you do not necessarily use all of them. In order to narrow the list offered to you while choosing the sensor, select sensors you have and only those sensors will be in the list. Additionally, if you use UAS3 to work with LUBExpert, select LUBExpert Mode and only LUBESense1 and TEMP2 will be shown.

🚳 System Settings	_		_		×
General   Domain Graphs	Units Printe	Sensors	Connection   Tree	View   Lubricants   Grease	guns
Available sensors	Select All				
RS2NL100		^	LUBExpert Mode	LUBExpert	
RS2T					
AC1					
ExtUS1					
FlexID1					
FlexID2					
HumT1					
IntUS1					
LUBEsense1					
MF1HP1k		~			
					Save and close

Next tab – **Connection** – In case you need to configure a Proxy Server, due to your company restriction, to connect to internet, fill the necessary information here:



System Settings	×
Seneral   Domain Graphs   Units   Printer   Sensor   Connection   Tree View   Lubricants   Grease guns	•
Enable proxy settings	
Proxy Settings	
Address	
Port	
Enable proxy authentication	
User Name Password	
Domain	
S	ave and close

Next tab – **Tree View** – contains setting for Tree Structure appearance in top pane, the way levels will be visually connected. Settings also contain a choice for preferred Dashboard type in case you are using LUBExpert alongside other instruments or SDT270 with LUBExpert features. Since LUBESense1 (sensor used by LUBExpert) results are displayed with specific graphs, and it is possible that within one node you might have multiple sensors or both Lubrication and Condition Monitoring results, you may choose the preferred dashboard to be displayed when you select Measurement Point, for fast data preview. Once you select sensor within that Measurement Point, a specific dashboard of that sensor will be displayed.

Items Connector Style	Dashboard Type	
None	<ul> <li>Standard</li> </ul>	
O Dotted	Lubrication	
O Dashed		
Solid		
○ Insert		
Raised		

Next tab – Lubricants – is a database of your Lubricants. For use of LUBExpert, populating this database is mandatory, as each Lubrication point must have Lubricant type assigned. Add Lubricant name in highlighted window (up to 12 characters) and click Add.

neral Domain Graphs	Units Prin	ter   Sensors	Connection	Tree Viev	ubricants G	ease guns	
Lubricants							
Mobilux EP 2	^	Add					
MOBILUX-EP2		Move up	1				
THERMAX PolySupreme							
grease1		Move down					
grease 2		Delete	1				
Sapphire 2							
11	*	Edit					

If you need to edit lubricant name, select Lubricant in the list, edit name in highlighted field and click on **Edit**. If you want to delete Lubricant, select it, and click on Delete. You can arrange how Lubricants appear in the list by selecting Lubricant and **Move up** and **Move down** buttons. Once you finished it, click on **Save and close**.

Lubricants				
Mobilux EP 2	^	Add		
MOBILUX-EP2	_	Move up	]	
THERMAX PolySupreme			]	
grease1		Move down		
grease 2		Delete	1	
Sapphire 2		-	THERMAX	
11	~	Edit	THERMAX	

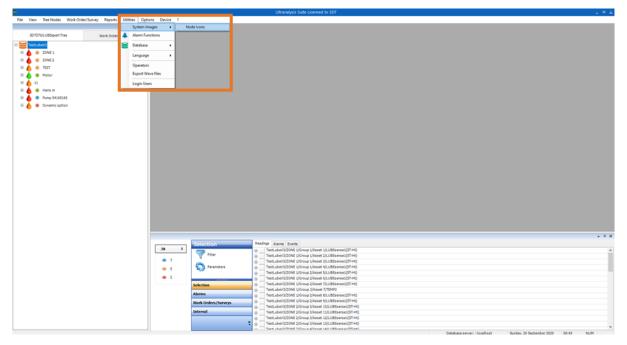


Last tab – **Grease guns** – is a database containing your Grease guns. Same as with Lubricants, if you are using LUBExpert or SDT270 with LUBExpert features, it is mandatory to populate this database, as each Lubrication point needs to have Grease gun assigned. Type Grease gun name (up to 5 characters) in **Grease gun ID** window, enter **Amount of grease per stroke** value (mandatory) and click on **Add**. To edit, select Grease gun from the list, change data and click on **Save changes**. Once finished, click on **Save and close**.

You can find more details about LUBExpert features and functions in the dedicated LUBExpert manual, embedded in your UAS3.



**Node Icons** (later explained in node setting), can be uploaded and managed in through **System images** feature. **Click on Utilities, System Images, Node Icons**.



A window will pop up where you can view existing Node Icons or upload new ones.

Upload New



>

View Icons 🔹 Delete



# **10. Creating and Editing Tree Structure**

As mentioned before, building a tree structure is like laying a foundation: If done correctly, all further actions will be much easier. Decide about Tree Structure logic and take following into consideration: What assets are connected by process? What assets are connected by location? What assets belong to the same type, or same manufacturer? What assets are redundancy?

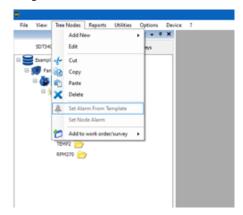
There are many criteria, but the target is always the same: Your data needs to be organized in a way that reflects reality. The tree structure needs to offer easy overview, filtering, and conclusion to one who uses it, as well as clean and straightforward work order/survey for one collecting data/inspecting. Take good care about names: lower case, upper case, space ... makes a difference.

Nomenclature needs to be decided, and whatever the decision is, all involved need to follow it. Otherwise, database will be useless, source of many frustrations and it will consume a lot of your time and time of those who need to collect data. Apart of proper creation of Tree Structure, each measurement point needs strictly defined measurement settings.

# 10.1. Adding Nodes

Note!

All functions explained here, done directly in the Tree Structure with right and left click, can also be executed from Top toolbar, selecting Tree Nodes, as shown below:



Each database/Tree Structure contains a node named "Repair Workshop/Spare Parts", that cannot be deleted or edited. The purpose of this node is to accommodate all assets that were dismounted and taken to the workshop for repair. A component (electrical motor...) is installed within the asset (Pump 1). So, the position of that motor in the database is Pump 1/motor. If that motor fails, it will be dismounted and sent to workshop, while the replacement motor will be installed to continue the operation. It is the same position (Pump 1/motor), but the motor is completely different, with different history and data. A dismounted motor will be repaired, and installed somewhere else. Soon, there is a mess, as the measurement history is not relevant. We want the data to follow the asset, wherever it is installed, and to make it easy for the user to manage. This default node will help you to make sure that the data follows the asset, and to easily manage the components that are in operation and in the workshop. This topic will be further explained later on in this manual.

Right click on the Database Name or on an existing Node. On the drop-down menu select Add New and then select Asset. Add Node Name (up to 30 characters). You can add Node Icon and Navigation Picture to your asset, as shown below.

	* X	Node Name	Asset 1			Work Order/Survey Reports Utilities Option
0 Tree Work Orders/Surveys					SDT340 Tree	Work Orders/Surveys
Add New	Asset	Node Icons		Add	Example plant	
<u></u>	Measurement Settings			Remove		
Cut Ctrl+X Copy Structure Only Ctrl+C	Reading Data					
Сору	Event					
Paste Ctrl+V		Navigation Picture	Add			
Expand All Collapse All			Remove			
Delete Del						
Set Alarm From Template Set Node Alarm Detach All Alarms			ALL STREET			
Add to Work Order/Survey						

Now there is a first level in your **Tree Structure.** At this point, we can add **Asset, Measurement Point** or **Measurement Settings** to already added **Asset 1**. Let us add another **Asset**, in this case an electrical motor. Right click on **Asset 1**, **Add New**, and select **Asset**. Same as in previous step, you can add **Node Icon** and **Navigation Picture**.

0 Tree Work Orders/Sur	veys	Node Name	motor			• X	
le plant					SDT340 Tree	Work Orders/Surveys	
Add New +	Asset	Node Icons	Sec.	Add	🗉 😂 Example plant		
Edit Ctrl+U	Mitaburement Form			Remove	E Asset 1		
Cut Ctrl+X Copy Structure Only Ctrl+C	Measurement Settings Reading Date				motor		
Copy	Event	Martinetter					
Paste Ctrl+V		Navigation Picture	Add				
Expand All			Remove				
Collapse All			A State of the sta				
Delete Del							
Set Alarm From Template							
Set Node Alarm							
Detach All Alarms							

At this stage, we added Asset, then we added an electrical motor that is part of that Asset. Now, let us add Measurement Point, a bearing. Right click on motor, Add New, and select Measurement Point.

	- ×	Node Name	NdE Bearing		- ×	
340 Tree Work Orders/Surveys		Node Name	NdE Bearing		SDT340 Tree Work Orders/Surveys	
mple plant t 1				_	Example plant	
iotor.		Node Icons	0	Add	B Asset 1	
Add New	Asset Measurement Point		6	Remove	NdE Bearing	
Edit Ctrl+U	WRASH COM				the bearing	
Cut Ctrl+X	Reading Data					
Copy Structure Only Ctrl+C Copy	Event	Navigation	Add			
Paste Ctrl+V		Picture	Picture Remove			
Expand All						
Collapse All						
Delete Del						
Set Alarm From Template						
Set Node Alarm						
Detach All Alarms						
Add to Work Order/Survey						

As you can see, we did not use all the available levels, as we did not need them. At this stage, we arrived at **Measurement Point**. Next (and only) thing we can do, and need to do, on **Measurement Point** is **Measurement Settings**. But first, let us **Edit** a **Node**.

### 10.2. Editing Nodes

In case you need to edit any of data you added to node, right click on **Node** you want to edit and select **Edit**. As we previously added **Asset 1**, we will change it now in **Fan 1**.

1340 1		rders/Surveys	Node Name	Fan 1		SDT340 Tree Work Ord	• ×
ample	plant					SUTURE Work Ord	ers/Surveys
	Add New		Node Icons		Add	E C Las	
	Edit (	Stri+U			Remove	motor	
		CBI+X				NdE Bearing	
	Copy Structure Only C Copy	.ti+C					
		Ctrl+V	Navigation	Add			
	Expand All		Picture	Picture Remove			
	Collapse All						
	Delete	Del					
	Set Alarm From Templat	te					
	Set Node Alarm		A GO A MALE				
	Detach All Alarms						
	Add to Work Order/Surv	rey 🔸					

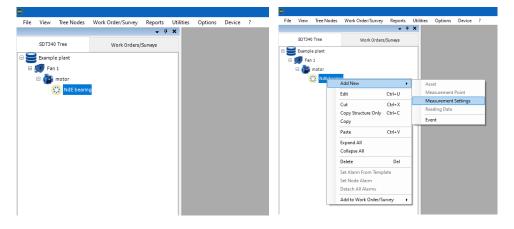
## **10.3.** Adding a Measurement Settings

Following **Tree Structure** architecture and naming importance, **Measurement Settings** are critically important and often partially determine the quality and usefulness of collected data. **Measurement Settings** contain information about the type of the sensor used, interval of data collection, acquisition time. In some cases, also filter frequency, sampling rate, emissivity. In case of Lubrication, **Measurement Settings** contain even more information. Let us see case by case.

Note that **Measurement Settings** can be added only to **Measurement Point** and cannot exist in same parent node at the same level as **Asset** or **Measurement Point**.

### 10.3.1. Measurement Settings for SDT340

In case of previously added **Motor NdE bearing** in **Fan 1**, we would like to define several different measurements that need to be collected regularly.



**Create a new Measurement Settings** by clicking on Add New/Measurement Settings, a new window that pops up will look like this:

🌚 Create New I	Measurement Settin	gs		×
Sensor Name	RS2T	~		
Sample rate	Sensor Name	^		
Filter frequency	AirSense FlexID2		30	
Measurement Nam	ParaDish2			
	RPM270 RS2NL100			
Interval	RS2NL300			
Acquisition time	RS2NL500			
Bearing reference	RS2T	×	×	
Reference rotating	g speed	×	RPM	
				Save

First, choose a sensor. In **Sensor Name** window, press arrow for drop down menu to show the compatible sensors. Select one sensor and continue with its settings. In this case, we will choose

**Ultrasound sensor** of type **RS2T**. The described procedure is relatively common to all available sensors.

Sensor Name	RS2T 🗸	
Sample rate	Ht-32Ksps	
Filter frequency	[36.1 - 40.7 KHz]	
Measurement Na	me R52T(Ht-32k)	
Interval		
Acquisition time	00:05	
Bearing referenc	e 💙 🗙	
Reference rotati	ng speed 🔀 RPM	

Next, we need to select **Sample Rate**. Left click on **Sample Rate** window arrow for drop down menu and select needed **Sample Rate**. You can choose between 32.000, 128.000, and 256.000 samples per second for contact sensors while Sampling rate for airborne sensors is fixed at 32.000 samples per second.



In practice, ultrasound signals are always acquired at 256 ksps and filtered then eventually heterodyned and/or down sampled, depending on user settings. User can acquire raw data (not audible, in Focus Mode on SDT340 with the compatible sensors only), heterodyned data (at 32 ksps on SDT340 or at 8 ksps on SDT270), audible and vibration data.

The **Measurement Name** is generated according to the selected sampling rate. The associated field cannot be modified by the user. **Filter Frequency Setting** for **Ultrasound** sensors is fixed at the displayed frequency band.

🍄 Create New	Measurement Settings	×
Sensor Name	RS2T V	
Sample rate	focUS-128Ksps	
Filter frequency	[36.1 - 40.7 KHz]	
Measurement Nam	ne RS2T(focUS-128k)	
Interval		
Acquisition time	00:05	
Bearing reference	• • ×	
Reference rotatin	ig speed 🗙 RPM	
	Sav	e

The mandatory field **Interval** defines how often data should be collected. It will help you organize your surveys/work orders better by being able to know what tasks need to be done in coming period. Interval definition is product of your understanding of the asset and needs to come from your Criticality Analysis, Failure Mode & Effect Analysis, DIPF Curve for certain asset and certain defects, sometimes even from Failure Rate and Root Cause Analysis. Interval too long can result in anomaly development not being detected at early stage, and interval too short will have a detrimental effect of your work optimization, spending your resources unnecessarily (in this case, manpower). **Interval** can be defined in **Hours, Days, Weeks**, and **Months**. Left click on time unit window, select unit, and enter your interval.

🌚 Create New	Measurement Settings	×
Sensor Name	RS2T	
Sample rate	focUS-128Ksps	
Filter frequency	[36.1 - 40.7 KHz]	
Measurement Nam	RS2T(focUS-128k)	
Interval		
Acquisition time	00:05 day(s) week(s)	
Bearing reference	month(s)	
Reference rotatin	g speed RPM	
	Save	

Finally, as mandatory fields, you need to define **Acquisition Time**. Acquisition time denotes duration of a single measurement, or length of a signal. **Acquisition Time** needs to be decided based on asset operation conditions. The primary factor affecting acquisition time is rotating speed (in case of rotating assets) or process itself. In case of rotating assets, we would like to record at least 3-5 revolutions, preferably up to 10 revolutions. As not all Assets inspected by Ultrasound are rotating, consider the process itself. Take hydraulic valve as example and consider that you need to wait for its operation as well as record the operation itself.

Not that in SDT340 maximum Acquisition Time depends on the following considerations:

- 32.000 samples per second maximum Acquisition Time is 600 seconds (10 minutes);
- 128.000 samples per second maximum Acquisition Time is 150 seconds (2 minutes and 30s);
- 256.000 samples per second maximum Acquisition Time is 75 seconds (1 minute and 15s).

Sensor Name RS2T   Sample rate Ht-32Ksps   Filter frequency [36.1 - 40.7 KHz]   Filter frequency [36.1 - 40.7 KHz]   Measurement Name RS2T(Ht-32k)   Measurement Name RS2T(Ht-32k)   Acquisition time 00:05   Open end Interval   Interval Image: Comparison of the second sec	💮 Create New	Measurement Settings	×
Sample rate   Filter frequency   [36.1 - 40.7 KHz]   Measurement Name   RS2T(Ht-32k)   Acquisition time   00:05   Open end   Interval   Bearing reference   Interval   Reference rotating speed   RPM	Sensor Name	RS2T	- 1
Measurement Name RS2T(Ht-32k)     Acquisition time 00:05     Open end     Interval     Bearing reference     Reference rotating speed     RPM	Sample rate	Ht-32Ksps	- 1
Acquisition time 00:05   Open end   Interval   Bearing reference   Omega   Reference rotating speed   RPM	Filter frequency	[36.1 - 40.7 KHz]	- 1
Interval Bearing reference Reference rotating speed Reference rotating speed Reference rotating speed	Measurement Nam	ne R52T(Ht-32k)	- 1
Bearing reference Reference rotating speed Reference rotating speed Reference rotating speed	Acquisition time	00:05 🕒 🖸 Open end	- 1
Reference rotating speed	Interval		- 1
	Bearing reference	<b>o ×</b>	
Save	Reference rotating	g speed 🗙 RPM	- 1
Save			- 1
		Save	

#### **OPEN-END** measurement **Acquisition time**

OPEN-END acquisition time means that the acquisition time is not pre-defined. Once a measurement is started, it will continue until the user stops it, or it reaches maximum acquisition time (depending on a sampling rate). It applies to SDT340, both to Ultrasound and Vibration measurements.

OPEN-END measurement can be set in UAS3 (as OPEN-END) and used in Tree Mode and Survey mode as such, once data transferred to SDT340. To use it in Free Mode in SDT340, settings can be done on the instrument itself.

OPEN-END measurement applies to all sensors.

On certain measurement settings, User can also associate a bearing reference to the measurement setting, by filling the latest optional fields **Bearing reference** and **Reference rotating speed.** These

fields will enable a visual analysis tool <sup>()</sup>, in the associated charts, that can be used to identify some predefined recurrencies, in the time waveform and/or in FFT/FFT envelope.

🌚 Edit Measure	ement Settings	×
Sensor Name	RS2T	
Sample rate	Ht-32Ksps	
Filter frequency	[36.1 - 40.7 KHz]	
Measurement Nan	ne RS2T(Ht-32k)	
Interval	2 month(s) 💌	
Acquisition time	00:05	
Bearing reference	• • ×	
Reference rotatin	ng speed 🛛 🗙 RPM	
	Save	



This option is explicitly available for the following sensors RS1T, RS1NL100-300-500, RS2T, RS2NL100-300-500, LUBESense1 and ACC100/AC1, defined in dynamic mode. Once defined for one compatible sensor, these settings are automatically inherited to the other settings and/or compatible sensors, defined within the same measurement point.

The four possible internal bearing defect frequencies are usually identified as follows:

- BPFO (Ball Pass Frequency Outer), refers to the number of impacts per row that pass-through a given point of the outer race each time the shaft makes a complete rotation.
- BPFI (Ball Pass Frequency Inner), refers to the number of impacts per row that pass-through a given point of the inner track each time the shaft makes a complete rotation.
- 2x BSF (Ball Spin Frequency) refers to the number of impacts that a rolling element generates each time the shaft makes a complete rotation. We often consider twice the frequency since the impact occurs on each ring.
- FTF (Fundamental Train Frequency) refers physically to the number of rotations that makes the cage each time the shaft makes a complete rotation.

For instance, in case of electric motors, user can easily refer to the name plate to identify the **Bearing reference** as well as the nominal/**Reference rotating speed**, that can be adjusted later.

Since v 1925, for a quick and easy identification of the detect, UAS3 includes a bearing toolbox as well as a bearing database containing more than 50,000 common references, expressed in order (i.e. at 1 Hz = 60 RPM/CPM). Please refer to section 3.5 to unlock this optional feature.

By default, the bearing toolbox is not enabled in the software. An additional license is required to unlock this feature.

🔮 Edit Measurement	Settings	þ
Sensor Name Sample rate Filter frequency Measurement Na Interval Acquisition time	Preature not enabled. Prease ask your SDT contact how to enable the option.	
Bearing reference	Feature not enabled RPM	

Once activated, by clicking on **O**, user can:

a) Browse the database to find the bearing reference that can be associated with the current measurement settings/point.

Bearing List	×	Bearing List					×
+2×		+2>	(				
Manufacturer /		Manufacturer /					
Reference BPFI (in order) BPFO (in order) BSF (in order) FTF (in order)	^	Reference	BPFI (in order)	BPFO (in order)	BSF (in order)	FTF (in order)	
Z 🛛		₹ 6208					
Manufacturer : DODGE (254 items)		Manufacturer : F	AFNIR (1 item)				
Manufacturer : FAFNIR (12120 items)		Manufacturer : F	AG (1 item)				
Manufacturer : FAG (2495 items)		I Manufacturer : C	GMN (1 item)				
Manufacturer : GMN (57 items)		Manufacturer : H	(OY (1 item)				
Manufacturer : INA (209 items)		Manufacturer : Man	ARC (1 item)				
Manufacturer : KOY (4653 items)		Manufacturer : N	NSK (1 item)				
Manufacturer : LINKBELT (327 items)		Manufacturer : N	NTN (1 item)				
Manufacturer : McGill (186 items)		🗉 Manufacturer : F	RHP (1 item)				
Manufacturer : MRC (1343 items)		B Manufacturer : S	SKF (3 items)				
Manufacturer : NDH (577 items)		6208	5.394	3.606	4.838	0.401	
Manufacturer : NSK (1143 items)		6208E	4.927 5.393	3.073	4.082	0.384	
Manufacturer : NTN (3277 items)		6208J		3.007	4.84	0.401	
III Manufacturer : Rexnord (77 items)	~	Manufacturer :	SNR (28 items)				
In case of unmatched reference, please refer to the bearing manufacturer's website to identify the characteristic frequencies.		SKF In case of unmatch identify the charac	ned reference, please ri steristic frequencies.	efer to the bearing ma	nufacturer's website t	to	
Then define a new "entry" in the database by clicking to button Cancel Select		Then define a new	"entry" in the database	e by clicking 🕇 button		Cancel	Select

In case of missing or uncomplete reference, user can also pick up the closest reference, even from another bearing' manufacturer while being aware that post-analysis could lead to inaccuracies/frequency shift.

🚯 Bearing List				×	Bearing List					
+2×					$+2\times$	(				
Manufacturer 4					Manufacturer /	1				
Reference	BPFI (in order) BPFO (in order)	BSF (in order) FT	F (in order)		Reference	BPFI (in order)	BPFO (in order)	BSF (in order)	FTF (in order)	
₹ 6208					Z					
Manufacturer : FAF	💦 🌚 Bearing		×		Manufacturer : M	McGill (186 items)				
Manufacturer : FAG	3 Manufacturer SDT Internation	al v			Manufacturer : M	MRC (1343 items)				
Manufacturer : GM	N	208 custom for motor			Manufacturer : N	NDH (577 items)				
Manufacturer : KO	Y Reference bearing name 6.	208 custom for motor			Manufacturer : N	NSK (1143 items)				
Manufacturer : MR	C Value must be refrenced at 1 Hz				Manufacturer : N	NTN (3277 items)				
Manufacturer : NSI	RPFL	BPEO			Manufacturer : F	Rexnord (77 items)				
Manufacturer : NTI	N				Manufacturer : F	RHP (755 items)				
Manufacturer : RH	BSF	FTF			B Manufacturer : S	BDT International (1 it	em)			
B Manufacturer : SKI	=				bearing name 6	õ   4.5	5.5	6	0.4	
6208	Calculator	Cancel	Ok		Manufacturer : 8	SEA (40 items)				
6208E	Calculator	Gancer	UK		Manufacturer : S	SKF (8818 items)				
6208J					Manufacturer : S	SNR (3403 items)				
Manufacturer : SNI	R (28 items)				Manufacturer : T	FIMKEN (1954 items)				



Prefer this option, especially if you already know the target frequencies expressed in order, through other systems or software. In case of doubt, please refer to the website of the bearing' manufacturer.

#### Calculator

Otherwise, click on and a new window, requiring advanced details used to calculate the characteristic defect frequencies, will pop-up.

Bearing Frequencies Ca	alculator	×
Number of rolling elements Contact angle (1) Pitch diameter (2) Rolling element diameter (3		
BPFI	BPFO	
BSF	FTF	Cancel Ok

Each bearing has its own geometric characteristics from which the following recurrencies/frequencies are calculated. Assuming capture with the appropriate sensor settings and specifications, these periodic signatures could appear in the spectrum and/or in the time waveform.

Once added from the bearing calculator or from manual entries, the custom bearing reference is added

in the database. User can edit a custom entry by clicking on 🗹 and/or delete it by clicking on 🗙.



Only custom references added by the user can be deleted. Custom references are shared with every tree structure created in the same data folder but not at the upper level (in case of several data folder)

In case, we choose Accelerometer, some details will be slightly different. Choose the sensor, in this case Acc100 (for 100 mV/g of type IEPE on SDT 340).

Create New Measurement Settings	Create New Measurement Settings
Sensor Name Acc100 Sample rate RW 32Ksps RW 52Ksps RW 4Ksps Measurement Name Acc100(RW5.1k-32k) Interval Acquisition time 00:05	Sensor Name         Acc100           Sample rate         RW 32Ksps           Filter frequency         [5 - 1000 Hz]           Measurement Na         [10 - 1000 Hz]           [10 - 1000 Hz]         [10 - 1000 Hz]           Interval         Acquisition time
Bearing reference SDT International - bearing name 62 X Reference rotating speed 100 X RPM	Bearing reference SDT International - bearing name 62 X Reference rotating speed 100 X RPM

Next, we need to select **Sample Rate**. Left click on **Sample Rate** window arrow for drop down menu and select needed **Sample Rate**. You can choose between 32.000 (RW 32 Ksps) and 64.000 (RW 64 Ksps) samples per second.

Ksps refers to Kilo samples per second (or kHz).

Filter Frequency Setting for Vibration sensor can be adjusted in three ranges:

- 5 1000 Hz
- 10 1000 Hz
- 10 10000 Hz

Measurement Name reflects your Frequency range settings as well as the sample rate, therefore considering different settings practically as different sensors, displaying it separately in **Measurement Point**.

Interval defines how often data needs to be collected, and it is a mandatory field. It will help you organize your surveys/work orders better by being able to know what tasks need to be done in coming period. Interval definition is product of your understanding of the asset and needs to come from your Criticality Analysis, Failure Mode & Effect Analysis, DIPF Curve for certain asset and certain defects, sometimes even from Failure Rate and Root Cause Analysis. Interval too long can result in anomaly development not being detected at early stage, and interval too short will have a detrimental effect of your work optimization, spending your resources unnecessarily (in this case, manpower). Interval in UAS3 Measurement Settings can be defined in Hours, Days, Weeks, and Months. Left click on time unit window, select unit, and enter the value in Interval window.

뗽 Create New	Measurement Settings	$\times$
Sensor Name	Acc100 ~	
Sample rate	RW 32Ksps	
Filter frequency	[5 - 1000 Hz]	
Measurement Nan	Acc100(RW5.1k-32k)	
Interval		
Acquisition time	00:05 day(s) week(s)	
Bearing reference	month(s)	
Reference rotatin	g speed 100 🗙 RPM	
	Save	

Finally, as mandatory fields, user needs to define **Acquisition Time**. Acquisition time is the duration of a single measurement. **Acquisition Time** needs to be decided based on asset operation conditions, as discussed above.

The remaining optional settings associated with the bearing database are identical to those discussed previously on RS2T and won't be aborded.

Not that in SDT340 maximum Acquisition Time depends on the following considerations:

- 32.000 samples per second maximum Acquisition Time is 600 seconds (10 minutes);
- 64.000 samples per second maximum Acquisition Time is 300 seconds (5 minutes).

If Temperature Sensor is selected, Interval and Emissivity need to be defined.

Considering **Interval**, all mentioned before applies. Of course, Interval for all different measurements taken on one Asset should be the same, for practical reason. If they differ as outcome of analysis, shortest Interval should be the choice.

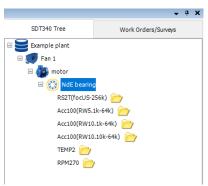
In regard to **Emissivity**, you can look up in publicly available material about **Emissivity** for each surface material or look up for procedure to measure it yourself. However, for comparison and trending purposes, leaving **Emissivity** at value 1 would not be a mistake, but consider that temperature value in your reading is not exact.

Create New Measurement Settings				
Sensor Name	TEMP2 V			
Category Name Survey	: TEMP2			
Interval	30 day(s) 💌			
Emissivity	1.00			
	Sav	e		

You can also add **RPM** sensor, in case you only need to define Interval. To perform the associated measurement, you will need to place reflective tape on the moving part.

👳 Create New I	Measurement Settings	×
Sensor Name	RPM270	
Category Name Survey Interval	8PH270	
	Save	]

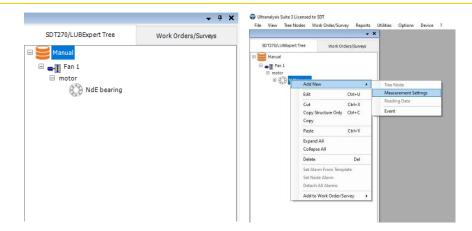
Now, when we added as many **Measurement Settings** in our **Measurement Point** as we need, it will look like this:



The folder icon, next to your sensor level means that it does not contain any data, yet.

#### 10.3.2. Measurement Settings for SDT270

When building Tree Structure for SDT270 and/or LUBExpert, there is a small difference; instead of Asset, Measurement Point and Measurement Settings, you will see Tree Node and Measurement Settings. In case of previously added **Motor NdE bearing** in **Fan 1**, we would like to define several different measurements that need to be collected regularly.



#### **Create Measurement Settings**

First, in **Sensor Name** field, press arrow for drop down menu. Only sensors you selected in System Settings will be displayed. Select a sensor and continue with settings. In this case, we will choose **Ultrasound sensor** of type RS2T.

Create New Measurement Settings	× Screate New Measurement Settings ×
Sensor Name RS2T	Sensor Name RS2T
Node Static W Heterodyned (HI) Raw (Rw)	Mode           Dynamic                • Heterodyned (Ht)             • Raw (Rw)
Messurement Name RS2T(ST-Ht) Survey Settings	Category Name RS2T(DY-Ht) Interval
Interval month(s) V	Acquisition time 5 sec
Acquisition Time 1 sec	Bearing reference StoF - 6208 X Reference rolating speed 1500 X RPM
S	Save

**Sample Rate** in SDT270 is fixed for all sensors, so you will not be setting it as a measurement parameter. However, there are additional settings that need to be done in SDT270 and LUBExpert that are not needed in SDT340, designed for dynamic acquisitions only.

Setting Dynamic or/and Static measurement mode.

When using SDT270 with Dynamic measurement feature, you need both Dynamic and Static settings in your Measurement Point (Tree Node). In case Static point is not defined it will be auto created with first measurement (if measurement is performed in Survey Mode, through Work Order).

**Measurement Name** will be generated, containing Sensor name, Measurement Mode (ST or DY, Static or Dynamic) and it will contain Ht or Rw (Heterodyned for Ultrasound and Raw for Vibration).

Interval defines how often data needs to be collected, and it is a mandatory field. It will help you organize your surveys/work orders better by being able to know what tasks need to be done in coming period. Interval definition is product of your understanding of the asset and needs to come from your Criticality Analysis, Failure Mode & Effect Analysis, DIPF Curve for certain asset and certain defects, sometimes even from Failure Rate and Root Cause Analysis. Interval too long can result in anomaly development not being detected at early stage, and interval too short will have a detrimental effect of your work optimization, spending your resources unnecessarily (in this case, manpower). Interval in UAS3 Measurement Settings can be defined in Hours, Days, Weeks, and Months. Left click on time unit window, select unit, and enter the value in Interval window.

Sensor Name	RS2T	· · ·	
Mode		-	
	Static	~	
	Heterodyn	ed (Ht) 🗌 Rave (Rer)	
Reasurement	iame RS2T(5	ST-Ht)	
Survey Settin	çs		
No. of Concession, Name		month(s) ~	
Interval		hour(s)	
Acquisition T	ime	_1 day(s) week(s)	

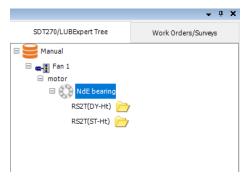
Finally, you need to define **Acquisition Time**. Acquisition time is the duration of a single measurement, recorded reading. **Acquisition Time** needs to be decided based on asset operation conditions. The primary factor affecting acquisition time is rotating speed (in case of rotating assets) or process itself. In case of bearings, we would like to record at least 3-5 revolutions, preferably up to 10 revolutions. As not all Assets inspected by Ultrasound are rotating, consider the process itself. Take hydraulic valve as example and consider that you need to wait for its operation as well as record the operation itself.

Create New Measurement Settings	×
Sensor Name RS2T	
Mode Static Heterodyned (Ht) Raw (Rw)	
Measurement Name RS2T(ST-Ht)	
Survey Settings Interval 30 day(s) V	
Acquisition Time 80 sec	
	Save
	Dave

Note that the maximum Acquisition Time for SDT270 is limited at 80 seconds.

Now, if you prepare settings for Dynamic readings, add new settings with all equal parameters except Measurement Mode – choose Static. Or vice versa.

Your settings will look like this:



In case we choose Accelerometer AC1, some details will be different.



Create New	Measurement Settings	×	Create New Measurement Settings	×
Sensor Name Filter frequency Node Measurement Na	LUBEscence:           Caruta           Caruta           PrestD1           PrestD2           PrestD2           PrestD2           PrestD2           PrestD2           PrestD2           PrestD2           PrestD4           PrestD42           PrestD42           PrestD42           PrestD42		Sensor Name Act	
Survey Setting Interval Acquisition Tin	month(s)		Surver Settings Interval  Acquisition Time  I  Sec	
		Save	Save	

**Sample Rate** in SDT270 is fixed, so there will be no settings displayed.

**Filter Frequency Setting** for **Vibration** sensor in SDT270 can be adjusted in two ranges (compared to 3 ranges in SDT 340):

- 10 1000 Hz
- 10 10000 Hz

Preate New Measurement Settings	X Gerate New Measurement Settings X
Sensor Name AC1  Filter frequency [10 Hz - 1 KHz]  Mode	Sensor Name AC1  Filter frequency [10 Hz - 1 KHz]  Mode Mode
Static           Heterodyned (Ht)           Raw (Rw)	
Interval  Acquisition time  S sec	Reference rolating speed 0 X RPM
Save	Save

Once **Dynamic** or **Static** mode is selected (same approach as with Ultrasonic sensors), **Measurement Name** will reflect your Frequency range settings, therefore considering different Frequency range practically as a different sensor, displaying it separately in **Measurement Point**.

Interval and Acquisition Time are set equally as in Ultrasonic sensor.

The optional fields, **Bearing reference** and **Reference rotating speed** are exclusively available in **Dynamic** measurement mode as in Ultrasonic contact sensor RS2T, LUBESense1 and RS2NL100-300-500.



The bearing toolbox is exclusively available in Dynamic measurement mode, with the compatible sensors.

#### If Temperature Sensor is selected, Interval and Emissivity need to be defined.

Considering **Interval**, all mentioned before applies. Of course, Interval for all different measurements taken on one Asset should be the same, for practical reason. If they differ as outcome of analysis, shortest Interval should be the choice.

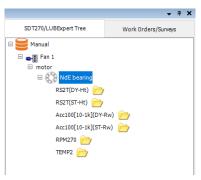
In regard to **Emissivity**, you can look up in publicly available material about **Emissivity** for each surface material or look up for procedure to measure it yourself. However, for comparison and trending purposes, leaving **Emissivity** at value 1 would not be a mistake, but consider that temperature value in your reading is not exact.

Create New Measurement Settings				
Sensor Name	TEMP2			
Category Name Survey	ТЕМР2			
Interval	30 day(s) 🔽			
Emissivity	1.00			
	Save			

You can also add **RPM** sensor, in case you only need to define Interval. To execute the measurement, you will need to place reflective tape, so please refer to SDT340/270 manual.

💩 Create New	Measurement Settings	×
Sensor Name	RPM270	$\bigcirc$
Category Name	RPM270	
Survey	RPH270	
Interval	30 day(s) 💌	
		Save

Now, when we added as many **Measurement Settings** in our **Measurement Point** as we need, it will look like this:



The folder icon next to your sensor level means that it does not contain any data yet.

### **10.3.3.** Measurement Settings for LUBExpert

#### **Assigning LUBExpert Sensors**

If you followed the instructions to go into LUBExpert Mode, the list of available sensors should only be two (LUBESense1 and TEMP2). The other sensors are still visible but inactive. Choose LUBESense1 to create an ultrasound measurement node and TEMP2 to create a temperature measurement node as required. The settings related to TEMP2 common to SDT340 and SDT270 have been described in the previous sections.

For ultrasound measurements, as described above, UAS3 gives you two modes, either **Static** or **Dynamic** and for temperature you can only set the measurement **Interval** and the **emissivity**.

ensor Name	LUBEsense1 🗸	
lode		
	Static	
	Static	
	Dynamic Raw (	Rw)



LUBExpert instrument, in standard version, does not measure Dynamic data, but LUBExpert Dynamic does. Go to System Info/License Info, if **D** is assigned as **option**, you can pick up dynamic data or contact us to unlock this feature.

In case you operate with LUBExpert standard, choose Static measurement settings, otherwise your instrument will not recognize Dynamic settings. LUBExpert Dynamic will accept Dynamic measurement settings and collect Dynamic data during grease replenishment process.

Same happens if you are using an SDT270DU with the LUBExpert App installed, choosing Dynamic here will instruct your SDT270DU to collect both Dynamic and Static data simultaneously.

Oreate New Measurement Settings     X     X	Create New Measurement Settings
Sensor Name LUBEsense1	Sensor Name LUBEsense1
Mode	Mode
Static	Dynamic
Heterodyned (Ht)     Raw (Rw)	Heterodyned (Ht) Raw (Rw)
Category Name LUBEsense1(ST-Ht)	Category Name LUBEsense1(DY-Ht)
Interval 1	Interva 1
Grease Name	Grease Nan 2
Grease Gun 3	Grease Gu 3
Bearing • O	Bearing 🚺 🔹 🗘 🤇
Bearing OD 0.00 mm Rotating speed 0 RPM	Bearing OD 0.00 mm Rotating speed 0 RPM
Bearing ID 0.00 mm Replenishment Side 🗸 6	Bearing ID 0.00 mm Replenishment Side 6
Bearing width 0.00 mm Acquisition Time 8 0 v sec	Bearing width 0,00 mm Acquisition Time 8 0 v sec
Adjusted calculated grease quantity 0.00 😡 g Shots 0	Adjusted calculated grease quantity 0.00 😡 g Shots 0
Injection steps: 1st 0 2nd 0 rest 0 Shots	Injection steps: 1st 0 2nd 0 rest 0 Shots
Stabilization time 0 sec	Stabilization time 0 sec
Copysettings Save	Copy settings Save

### Setting the interval of data collection 1

For LUBESense1, in both modes, the choice to set your preferred data collection **Interval** in months, weeks, days, or hours is made here

Note that this field is not intended to be the re-greasing interval. This field is your data collection interval. Condition assessment based on measured ultrasound data will be the trigger to perform grease replenishment (or not) as well as the quantity of grease required to restore an optimal lubrication regime to the bearing.

#### Setting Grease Name 2

Earlier we described how to define a list of all the lubricant types used in your plant under "Lubricant Management". With the "Create New Measurement" dialogue box open, here you select the grease name for this bearing using the drop-down box beside field **Grease Name**.

Interval	45 day	/(s) 🗸
Grease Name		~
Grease Gun	MOBILUX EP 3 Mobilux EP 2	^
Bearing	AN 23 - 1A Mobile 3	
Bearing OD	Mobile 4 Exxon 3	otating spee
Bearing ID	AN 241 OLYMP K2K 30	v eplenishment
Bearing width	0.00 mm	Acquisition tim

#### Setting Grease Gun 3

Earlier we described how to manage your inventory of grease guns under "Grease Gun Management". In that section, you named your grease gun and entered its grease nominal quantity per stroke. Now, as you create measurement collection points in UAS3, it is important to assign the correct grease gun to the correct asset. Click on the drop-down box and scroll to the grease gun name to be used.

Survey Settings			
Interval	45 day(s	5) ~	
Grease Name	Mobilux EP 2	~	
Grease Gun	Blue	✓ 2.00 g/sh	ot
Bearing	Blue Green	^	
Bearing OD	G 002	otating spee	ed
Bearing ID	G001 Red	eplenishmen	it
Bearing width	Silv RED1	v cquisition tin	ne

#### Assigning bearing data to Lube point 4

UAS3 manages a bearing database containing the dimensions of common references that are required to estimate the theorical amount of grease, in term of free volume available in the bearing.

In the field **Bearing**, you must assign the first bearing data to the lube point, so all the necessary and

automatic settings are then filled by UAS3. By clicking —, you will see all the bearing references currently available within the UAS3 bearing database. Use the search bar to find your reference.

Alternatively, in case of missing reference, you can click "CREATE" 💶 and add new bearing

references. Click "EDIT" or "DELETE" **CAN** to manage your own references.



Create New Measurement S	Settings	×	]
Sensor Name LUBEsense1	V 🍋	Bearing	×
		Bearing Name	
Mode		Bearing OD	mm
Static	$\sim$	Bearing ID	mm
	ed (Ht) O Raw (Rw)	Bearing width	mm
Heterodyne	ed (Ht) O Raw (Rw)	Bearing Type	
Category Name LUBEse	ense1(ST-Ht)	bearing type	
Interval			
Grease Name	$\sim$		
Grease Gun	$\checkmark$		
Bearing	🚳 Bearings		Cancel Ok
Bearing OD 0.00	Search:	-	
Bearing ID 0.00			
Bearing width 0.00	Name OD (mm)	ID (mm) Width (mm	n) Type
		2617 163 30 290	240/630ECJ W33
Adjusted calculated grease quant		812 182	MM82 et MM92 même encombrement, mais 64 billes con
Injection steps: 1st		0 5	Single-row deep groove ball bearings
		0 6	Single-row deep groove ball bearings
Stabilization time 0		0 8	Single-row deep groove ball bearings
	■ 6200 30 1	0 9	Single-row deep groove ball bearings
Copy settings Paste se	<b>6300</b> 35 1	0 11	Single-row deep groove ball bearings
Copysettings Paste se	6801 21 1	2 5	Single-row deep groove ball bearings
	<		>
			Cancel Select

In case you do not know the type of bearing installed, create a new one with a temporary name and approximate size and input accurate data at the first possible opportunity.

In **Dynamic** mode, user can also select, with  $\bigcirc$ , the fault frequencies of the concerned bearing, which differs from the last bearing database. This part already discussed earlier won't be aborded. Users can refer to the last sections dedicated to SDT340 and SDT270, to get further information.

P Create New	Measurement Settings		×
Sensor Name	LUBEsense1	· 🏹	
Mode			
	Dynamic	~	
	• Heterodyned (Ht)	O Raw (Rw)	
Category Name	LUBEsense1(D	Y-Ht)	
Interval		~	
Grease Name		$\sim$	
Grease Gun		$\sim$	
Bearing 🚺	- O	0 X O	
Be		O X	1 M
Be Click left beating size feature.	aring icon to select for lubrication sulate adjusted tity	This not mandatory Click right bearing icon to select an equivalent bearing frequency caracteristics for post processing. A list of equivalent bearings will be shown. Click on remove icon to unselect the equivalent bearing	c
		Close	



A use case applied on reference SKF 6208 is explained hereunder:



Where "6208", on the left, refers to the standard dimensions used to compute the amount of grease. This entry is mandatory and will be used, in LUBExpert, during grease replenishment process.

"SKF – 6208" refers to the specific manufacturer reference, having its own defect frequencies. This optional entry will be used for further analysis and diagnostic, in UAS3.

#### Setting rotating speed 5

In order to complete the setup, UAS3 also needs information about the rotating speed of the selected lubrication point. In case you are not sure about the rotating speed, or it is variable, set the lowest expected rotating speed.

#### Side or Annular replenishment 6

Choose grease replenishment configuration: side or annular. Select "side" or "annular" from the drop-down menu. Note! If you chose to edit calculated grease quantity manually, this field will be blocked.

Rotating speed	1450		RPM
Replenishment	Side	~	
A conviciliant lines	Side		
Acquisition time	Annular		sec

Once you have selected a bearing as well as its replenishment position, OD, ID and Width are defined, and grease quantity is calculated and adjusted according to selected grease pump output. This quantity is used as a safety point only in case of "Suspected Bearing Failure" status and to provide automatic recommendation to "Shorten Interval" that you have selected. Based on asset data selected at this point, UAS3 is also able to calculate steps in your guided lubrication process. In this example, step one will be 5 shots injection, step two 3 shots, step 3 and all following steps 2 shots.

### Manual input of grease quantity 🕖

By default, once the required field is filled, the prescribed amount of lubricant is estimated under purely geometric considerations, corresponding to approximately 30% of the free volume in the bearing.

The user can manually change this initial prescription (for example, in case of internal procedures

based on adjusted amount of lubricant). Choose and enter your adjusted prescription. In this case, all pre-calculations will be done based on your input. Manually edited quantity will be shown in Italic. If you want to go back to automatically calculated qty, simply press the "go back" arrow. Note that the bearing must be selected, at least a temporary one, with an approximate size.

#### Acquisition time 8

Based on rotating speed, UAS3 will automatically calculate minimum and recommended acquisition time. Recommended time is the result of positive experiences, but if desired, you can choose minimum time or any other acquisition time, but not less than minimum time and not greater than 80 seconds.

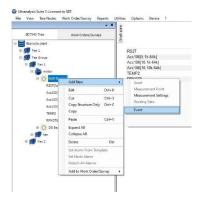
Based on previously inserted data, UAS3 automatically calculates the **stabilization time** and the **injection steps**, that will be automatically applied in LUBExpert, to ensure consistent comparisons between each step.

Press "SAVE" and all settings for the selected asset are ready. These settings are assigned to the selected lubrication point and go with it when workorders are transferred to your LUBExpert instrument. No further settings need to be done (nor can be done) in LUBExpert once in the field. This enables your grease technician to have comfortable, fast, and safe work in the field, as well as tight work control and dependable data for the Lubrication Manager.

# 10.4. Adding an Event

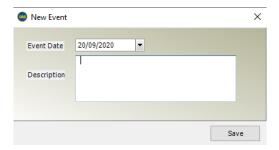
**Event** is additional textual information assigned to asset. It contains a certain message (what) and date (when). Events can be added in UAS3 and in instrument itself (as automatic or manually added messages). Adding events has a great value for better understanding of data and for easier use of database. They represent certain observations or comments, some action that is important to be logged, represent Lubrication decision flow, but are also highly valuable as flags in time making your searches or analytics easier.

Event can be assigned to **Asset, Measurement Point** (SDT340), and **Tree Node** (SDT270 & LUBExpert). Even can not be added at sensor level.



Right click on Tree Node, choose Add New and click on Event.

### Event window will pop up:



**Enter** Description of **Event** and click on **Save**. Even is added and it will be displayed in **Static Trend** and **Bottom Pane**, and it can be used in data filtering.

Manually added events in UAS3, or manually added messages in instrument (both treated as events) are marked with (M).

Automatically added messages in instrument (LUBExpert) are equally treated as events and marked with (A).

### **10.5.** Copying and Pasting Nodes

Once engaged in building a database, you will often face similar equipment, similar configurations, sometimes practically identical groups, or processes. Obviously, there will be lots of copy/paste at

certain point. You can cut, copy and paste Measurement Settings (Sensor level), Asset Component, Asset or entire group (branch). Look at situation below:

In our Database Root, Example Plant, we created a Fan Group. Within Fan Group we have Fan 1 containing motor and fan. Both motor and fan contain one Measurement Point each, with detailed Measurement Settings. But, in reality, we have several fans in this Fan Group, both motor and fan have two bearings, of course, and throughout the plant, we have several Fan Groups like this one.



Let us start with completing motor and fan. Right click on NdE bearing (or use Top toolbar commands), move one level up (parent node, motor) and paste it. Note that there are two tools: Copy Structure Only – Structure will be copied with all settings, but measurement data will not be copied, very useful when building Tree Structure or expanding it.

Copy – Entire point will be copied, including measurement data. Very useful when component or Asset are moved to a different location, or when partial backup needs to be done.

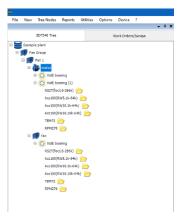
9										
File	View	Tree Nodes	Reports	Utilities	Options	Device	?		-	
								•	4	
		SDT340 Tree			W	lork Orden	s/Surveys			
3	Exampl	e plant								
	Far	Group								
		Fan 1								
	=	motor								
	1	🗉 💮 NdE E	Add	lew		•				
		RS2T(fr	Edit		Ctrl+I	,				
		Acc100	Cut		Ctrl+)					
		Acc100 Acc100	Сору	Structure O	nly Ctrl+0	-				
		TEMP2	Сору							
		RPM27	Paste		Ctrl+	1				
	8	fan	Expan	d All						
		NdE t	Collap	se All						
		RS2T(fe	Delete		De					
		Acc100	Set Al	arm From Te	emplate					
		Acc100		ode Alarm						
		Acc100	Detac	h All Alarms						
		TEMP2	Add t	o Work Orde	er/Survey	•				
		RPM270	$\sim$							



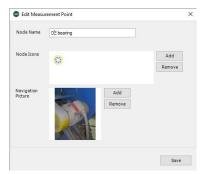
Select one level up (parent node, motor) and click on Paste.

_							• ×
		SDT340 Tree			Work Orde	rs/Surveys	
18	-	le plant					
	Far						
в	Far	Fan 1					
		a mot					
		• 💮	Add New	•	-		
		R	Edit	Ctrl+U	-		
		A	Cut	Ctrl+X			
		A	Copy Structure Only Copy	Ctrl+C			
		^	Paste	Ctrl+V			
		T	Expand All	Curr I			
		u 🐑	Collapse All				
		🗊 fan	Delete	Del			
	8 🝠	Fan 2	Set Alarm From Temp	late			
			Set Node Alarm				
			Detach All Alarms				
			Add to Work Order/Se	urvey >	1		

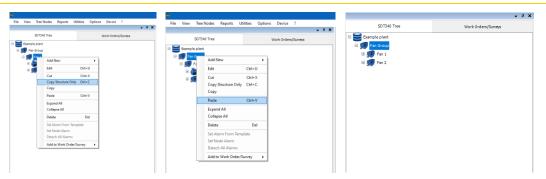
NdE bearing is now pasted in Node motor, with name NdE bearing (1).



Now right click on newly pasted NdE bearing (1) and select Edit and rename it to DE bearing.



Now we have completed motor and fan, but we might want to copy/paste entire Fan 1, as we have more than one Fan in Fan Group. Process is same. Right click on Fan 1, select **Copy Structure Only** (if we don't want to copy measurement data as well), right click on Fan Group (parent node) and select **Paste. Edit** the name (example Fan 2).



Note!

Sensor Level (Measurement) cannot be pasted into the **Node** that already contains same **Measurement Name** or **Category Name**.

*Sensor Level* (Measurement) cannot be pasted into the **Node** that contains other nodes, it can only be pasted into **Measurement Point** level.

If you need to copy/paste certain nodes into another Tree Structure, the process is same as shown here for copy/paste within same Tree Structure. **Copy Node** you need, open another **Tree Structure** and **Paste** it.

### 10.6. Asset Status

This feature enables the user to choose the status of the asset

- In operation
- Redundancy
- In workshop

The status is very important for numerous reasons:

- It will reset the Interval compliance indicator (explained later on in this manual), as the asset in the workshop is not operating and cannot be monitored, and it will come out of the workshop in a different condition (repair) or to the other position
- It will improve data management:

The data follows the asset, not the location where it is installed. Often, a component (electrical motor...) is installed with a Pump (Pump 1). So, the position of the motor in the database is Pump 1/motor. If that motor fails, it will be dismounted and sent to workshop, while the replacement motor will be installed to continue the operation. It is the same position (Pump 1/motor), but the motor is completely different, with different history and data. The dismounted motor will be repaired, and installed somewhere else. Soon, there is a mess, as the measurement history is not relevant. We want the data to follow the asset, wherever it is installed, and to make it easy for the user to manage.

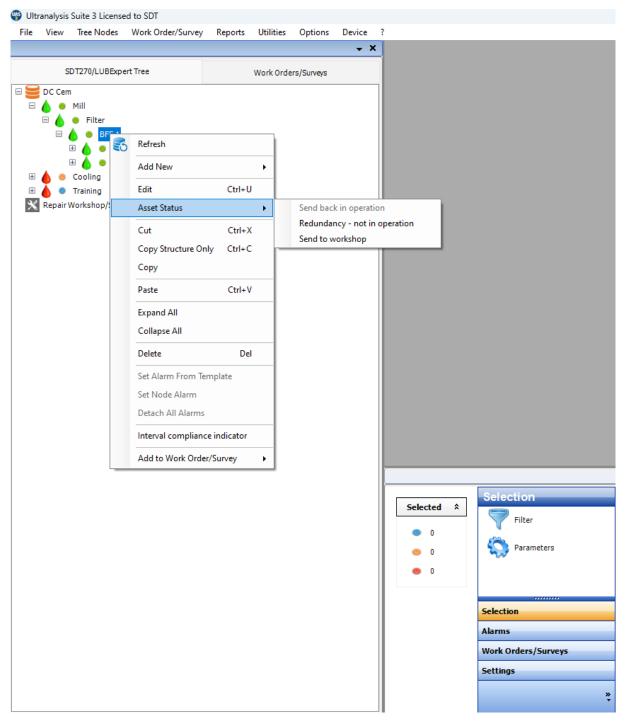
**In Operation** means that the asset is in normal operation, in use as planned, and physically at the position same as the one in the database.

**Redundancy** – **not in operation** will keep the node and sub-nodes at the same position in your database, but they will be highlighted in grey. The data is, of course accessible. This applies to backup machines that are not normally operating but are in place and operated from time to time. It will be visible in your work orders, and interval calculation will work normally. It is an assumption and

expectation that the interval for the backup asset will not be the same (and certainly not in the same work order) as for the normally operating asset.

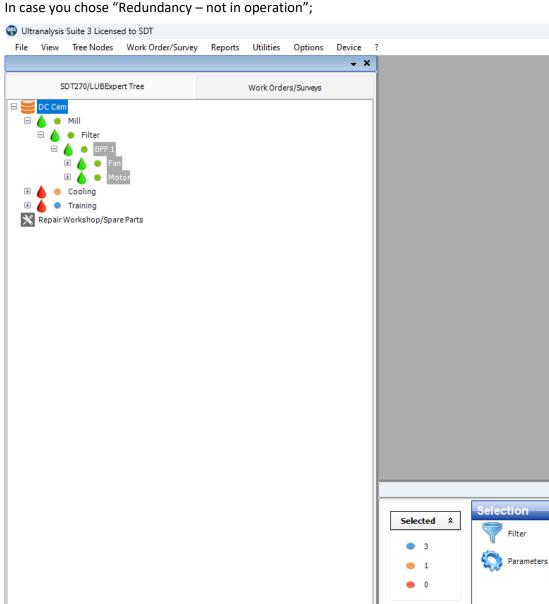
**In Workshop** status means that we send the asset to the Repair Workshop/Spare Parts node. Once the component (or the entire asset) is dismounted, simply assign the "In workshop" status and it will be moved to the Workshop node, with all its historical data. While the asset/component is in the Repair Workshop/Spare Parts node, it will not be visible in the work orders/surveys, and the interval reminders will be inactive. Once repaired and sent to operation again, simply send it back to operation (to its original location, or any other).

Right-click on the asset or the component it operates, select "Asset Status", and select the one of the statuses:



This asset is In Operation, and it can be set as Redundancy or sent to Workshop.





In case you chose "Redundancy – not in operation";

The chosen asset/component is highlighted in grey.

In case you choose "Send to workshop", the asset/component will be moved to Repair Workshop/Spare Parts node. Note that you can send an asset/component to the Workshop node by drag and drop.

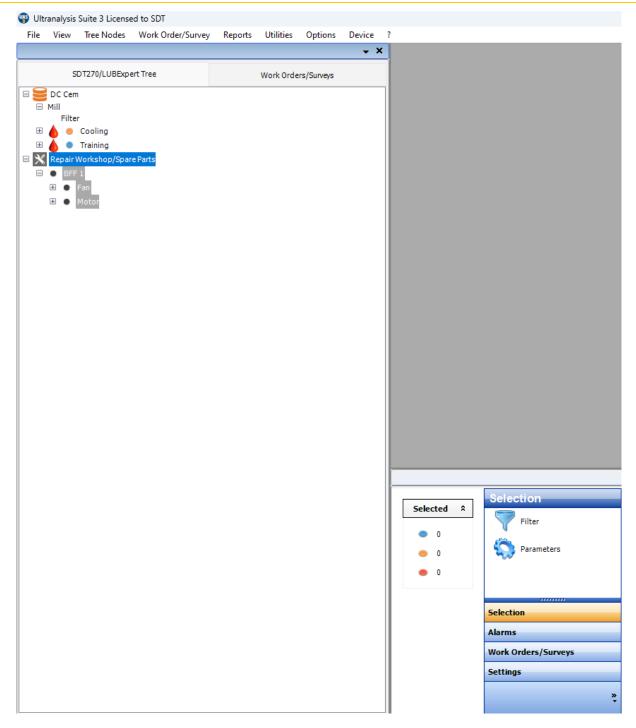
Selection Alarms

Settings

Work Orders/Surveys

» ₹

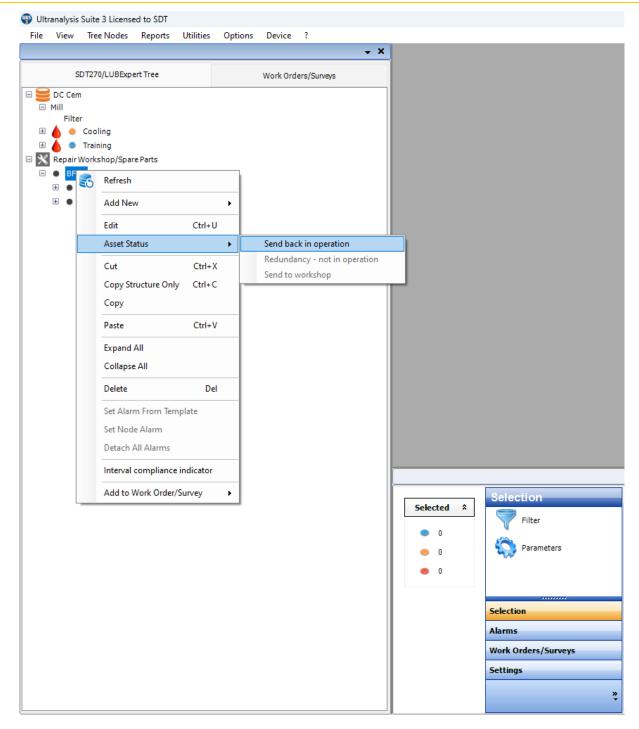




If the asset/component status is changed, being sent back to operation, right-click on the asset, select "Asset Status" and select "Send back in operation".

If it was Redundancy, it would not change its location in the database, of course, it will just not be highlighted in grey.

If it was in the Workshop node, you need to confirm where is this asset/component being sent back in operation;





The following message will pop-up:

P Asset Status	×
Asset Status i	- 1
To send it to it's original location (DC Cem/Mill/Filter/), dick here	- 1
To send it to it's original location, dick here	- 1
To send it to other location ,click here	- 1
Confirm	- 1

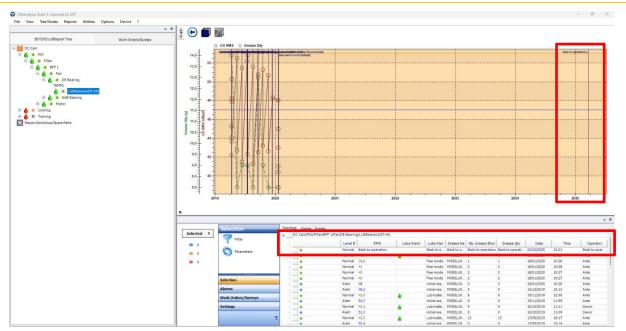
In case the asset/component is being sent to its original location, select this option and confirm.

In case that is being sent to another location, select that option, confirm, and the following message will appear:

P Asset Status		×
Asset Status i		
Please right click on the location where you want to send this asset to operation, and click "paste"		
Back	Ok	

Click Ok, right click on the node in your tree structure where this asset/component will be installed back to operation, and select "paste".

Once the asset/component is sent back in operation, bottom pane status and an event will be automatically generated;



# 10.7. Drag and drop Data

Measurement Settings (Sensor Level) can be copied from Bottom Pane into the Tree Structure. 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 Location on the Top Pane.

Hoover your mouse over desired location in the Tree Structure, and it will open child nodes down to the measurement level where you can paste. Drop the data by releasing the left button of the mouse. Equally, you can drag and drop data within the Tree Structure.

### **10.8.** Insert a Static Data

UAS3 allows you to insert static data manually. Right click on a Static Measurement. On the dropdown menu, select Add New/Reading Data.

The following window is displayed:

New Ultrasound Static Measurement Data					
Sensor Name LUBEsense1 Time Stamp 21/09/2020 00:3	3				
Calculated static values					
US RMS	US MaxRMS	US Peak dBµV	US Crest Factor		
Nb Grease shot	Grease Qty				
Parameters Amplification (dB)	LP Filter Freq	Mixer Frequency (Hz)			
Info Extended					
Sensor Serial No.	Last CAL Time Stamp Last CAL Time Stamp	RPM Samp	Isource 😹		
			Save		



The field **Sensor Name** is filled automatically by UAS3.

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.

### **10.9.** Import Dynamic Data or Wave file

You can import a wave file into UAS3, and you will be able to analyze the time signal and eventually the spectrum. However, it is possible that values (amplitudes) will not be accurate since not all data (amplification for instance) will not be available.

To import Dynamic Data, right click on a Dynamic Measurement.

On the drop-down menu, select Add New/Reading Data.

The following window is displayed:

New Ultrasound Dynamic	Measurement Data		×
Sensor Name RS1T Time Stamp 21/09/2020	)0:44 <b>v</b>		
Calculated static values			
US RMS dBµV	US MaxRMS dBµV	US Peak dBµV	US Crest Factor
Parameters Amplification (dB)	LP Filter Freq	Mixer Frequency (Hz)	
Info		Extended	
Sensor Serial No.	Last CAL Time Stamp Last CAL Time Stamp		ng Rate
			Save

Click the browse button ...., placed under the field **Signal Source** and then select the name of the wave file and its location.

Click **Save** to finish the operation.

### 10.10. Working with Work Orders/ Surveys

Work Order/Survey is an organized task extracted from Tree Structure. It contains selected Assets and Measurement Points in pre-defined order, all Measurement Settings and Alarms, allowing field operator to execute data collection in clear, fast and an efficient manner. Clear, fast, and efficient also results in Safe, by minimizing field work. Executing task through Work Order/Survey assures that data is collected using same settings, thus being comparable for further analysis.

Work Order/Survey is created by selecting and adding items from your Tree Structure.

- One item can be in several Work Order/Survey.
- Work Order/Survey does not affect Tree Structure.
- You can create as many Work Order/Survey as you need, no limitations.
- Work Order/Survey can contain items from one Tree Structure only.

Work Order/Survey must be designed with practicality of field work in mind. Way the Assets are organized in Tree Structure should reflect needs of person using UAS3, to be able to overview Data in most efficient and logical manner.

The way the **Measurement Points** are organized in **Work Order/Survey** must reflect needs of person using instrument in the field, they should be set in logical order that reflect reality of work.

Those two aspects do not necessarily align. The needs might be different. For that reason, you are able to organize your **Work Orders/Surveys** in different ways and independently of the **Tree Structure** sequence.

In practice, you need to consider several aspects:

- What Assets are in the same area?
- What Assets operate at the same time?
- What is the best sequence of data collection, regarding ability to approach Asset?
- What are the competences and clearances of field technician (electrician? mechanic? process?)
- What Assets require data collection at the same or similar interval?
- How much time will it take to execute a Work Order/Survey (do not make it a big, boring job, multiple smaller tasks are more likely to get done properly)?

Best practice is to consult field team and understand what the safest, most comfortable, and most efficient way is to collect data in the field. As a person generating **Work Orders/Surveys**, you should create one, walk it yourself, consult others, adjust it, and only then consider it final.

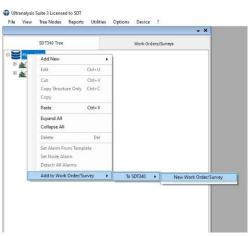
Items can be added to Work Order/Survey in several ways.

- Add items from the Tree Structure (using mouse right click or Top toolbar commands)
  - You can add single measurement
  - You can add any tree node and it will contain all child nodes
- Add items from the **Bottom Pane** 
  - Select items and add them
  - $\circ$  ~ Filter items based on certain criteria and add them
- Add items from **To-Do** List
  - $\circ$   $\;$  Search items by their data collection due date and add them

Here is how to do it:

#### 10.10.1. Add entire Tree Structure to Work Order/Survey

Right click on 1<sup>st</sup> level of **Tree Structure**, **Database root** and select **Add to Work Order/Survey**, choose instrument you work with, and choose if you want to add items to **New Work Order/Survey** or to **Add to Existing**.





Work Order/Survey window will pop up where you need to assign Work Order/Survey Name.

Use a name that is intuitive and can be easily understood by everyone.

Once a name is assigned, press Save.

Work Order/Survey	×	🚳 Work Order/Survey	×
Work Order/Survey Name		Work Order/Survey Name	Entire Plant
Save	e		Save

Your Work Order/Survey is generated. It is placed in Top Pane, in Work Orders/Surveys tab.

#### 10.10.2. Add certain Nodes from Tree Structure to Work Order/Survey

Right click on the **Node** you want to add and select **Add to Work Order/Survey**, choose instrument you work with, and choose if you want to add **Node** to **New Work Order/Survey** or to **Add to Existing**.

SDT340	Tree			ork Orders/			
anual 340	nec			ork orders/:	surveys		
enual 340	1.00						
PROCESS :	Add New		+				
	Edit	Ctrl+U					
	Cut	Ctrl+X					
	Copy Structure Only	Ctrl+C					
	Сору		_				
	Paste	Ctrl+V					
	Expand All						
	Collapse All		_				
	Delete	Del					
	Set Alarm From Templ Set Node Alarm	late					
	Detach All Alarms						
-	Add to Work Order/Su	INEV	•	To SDT	340 +	New Work Order	15
Bu						Entire Plant	Junyey
					L.	Linure Plant	_

Work Order/Survey window will pop up where you need to assign Work Order/Survey Name.

Use a name that is intuitive and can be easily understood by everyone.

Once a name is assigned, press **Save**.

Work Order/Survey X	Work Order/Survey ×
Work Order/Survey Name	Work Order/Survey Name Process 1
Save	Save

This new Work Order/Survey is added to list of Work Orders/Surveys:



	* ü )
SDT340 Tree	Work Orders/Surveys
Entire Plant     Process 1	

You can do the same with any portion or single item from your Tree Structure.

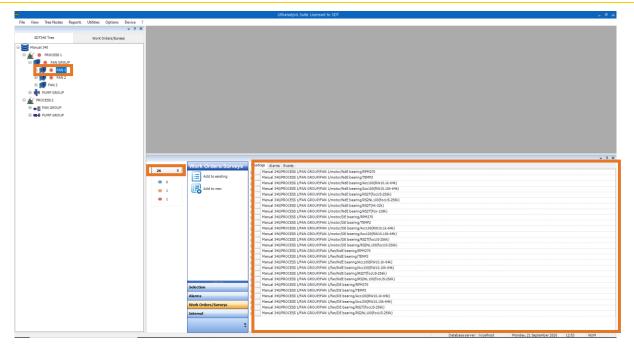
However, if you try to add an item to existing Work Order/Survey, and that item already exists there, UAS3 will warn you that item will be duplicated and ask for confirmation.



#### 10.10.3. Add items from Bottom Pane to Work Order/Survey

Bottom Pane displays all measurements contained in Tree node you selected:

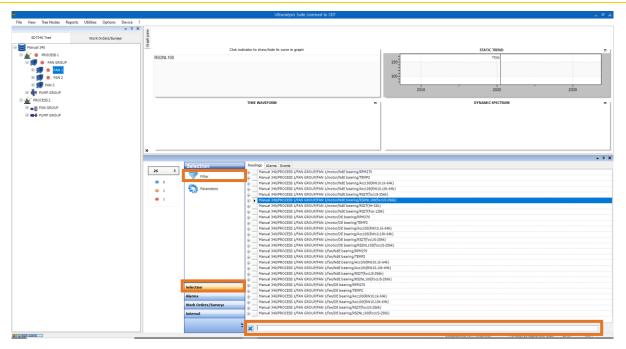
<b></b>			Ultranalysis Suite Licensed to SDT		_ = ×
File View Tree Nodes	Reports Utilities Options Device	2			
	- 4 3				
	• • •	^			
SDT340 Tree	Work Orders/Surveys				
B Manual 340					
🗉 🏦 💿 PROCESS 1					
🗉 🗾 兽 FAN GROUP					
🗉 🏹 PUMP GROUP					
E PROCESS 2					
🗄 🕳 📕 FAN GROUP					
E COUP GROUP					
					<b>→</b> ₽ Χ
		Mark Orders (During	Readings Alarms Events		
		291 * Work Orders/Surve			
		291 *	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RPM270		^
		Add to existing	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/TEMP2		
			Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/Acc100(RW10.1k-64k)		
		<ul> <li>Add to new</li> </ul>	<li>Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/Acc100(RW10.10k-64k)</li>		
		- · · · · · · · · · · · · · · · · · · ·	<ul> <li>Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2T(focUS-256k)</li> </ul>		
		• 2	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2NL100(focUS-256k)		
			Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2T(Ht-32k)		
			Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2T(Fcs-128k)		
			Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/RPH270		
			Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/TEMP2		
			Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/Acc100(RW10.1k-64k)		
			Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/Acc100(RW10.10k-64k)		
			<ol> <li>Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/RS2T(focUS-256k)</li> </ol>		
			<ul> <li>Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/RS2NL100(focUS-256k)</li> </ul>		
			Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/NdE bearing/RPM270		
			Manual 340/PROCESS 1/FAN GROUP/FAN 1/Fan/NdE bearing/TEMP2		
			<ul> <li>Manual 340/PROCESS 1/FAN GROUP/FAN 1/Fan/NdE bearing/Acc100(RW10.1k-54k)</li> </ul>		
			Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/NdE bearing/Acc100(RW10.10k-64k)		
			Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/NdE bearing/RS2T(focUS-256k)		
			Manual 340/PROCESS 1/FAN GROUP/FAN 1/Fan/NdE bearing/RS2NL100(focUS-256k)		
		Selection	Hanual 340/PROCESS 1/FAN GROUP/FAN 1/Fan/DE bearing/RPM270		
		Selection	Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/DE bearing/TEMP2		_
		Alarms	Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/DE bearing/Acc100(RW10.1k-64k)		
			Manual 340/PROCESS 1/FAN GROUP/FAN 1/Fan/DE bearing/Acc100(RW10.10k-64k)		
1		Work Orders/Surveys	Manual 340/PROCESS 1/FAN GROUP/FAN 1/Fan/DE bearing/RS2T(focUS-256k)		
		Interval	<ul> <li>Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/DE bearing/RS2NL100(focUS-256k)</li> </ul>		
			Manual 340/PROCESS 1/FAN GROUP/FAN 2/motor/NdE bearing/RPM270		·····
			Manual 340/PROCESS 1/FAN GROUP/FAN 2/motor/NdE bearing/TEMP2		
			Bo Manual 340/PROCESS L/RAK GROUP/FAN 2/motor/NdE bearing/TEMP2     Manual 340/PROCESS L/RAK GROUP/FAN 2/motor/NdE bearing/temp     Chat (Microsoft learns		~



From Bottom Pane you can select any measurement (left click on the measurement), selecting Work Order/Surveys in the Toolbox and add it to new Work Order/Survey or to existing one, as below:

SDT340 Tree Work Orders/Surve	2				
Manual 340	8				
		to show/hide its curve in graph		STATIC TREND	
PROCESS 1	RS2NL100		E a a a a a a a a a a a a a a a a a a a	TT(M)	
FAN GROUP			150-		
🗉 💓 👄 FAN 1					
🗷 💓 兽 FAN 2			100	1	
🗉 💓 FAN 3			1 1 1	,, , ,, , ,, , ,, , ,, , ,, , ,, , , , , , , , , , , , , , , , , , , ,	
FUMP GROUP			2010	2020	2030
PROCESS 2					
FAN GROUP	TIN	ME WAVEFORM 6	°	DYNAMIC SPECTRUM	
PUMP GROUP					
	×				
			Work Order/Survey	×	
	Inter to a strength of the second sec	adings Alarms Events			
	26 \$	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RPM270	Work Order/Survey Name		
	Add to existing	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/TEMP2	Work or de / survey maile		
	• •	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/Acc100(Ri	N10.1k-64k)		
	- 1 Ed Add to new	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/Acc100(RI	W10.10k-64k)	Save	
	• 1	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2NL100	(focUS-256k)	la construction de la construction	
		Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2T(Fcs-	420010	(	
		Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS21(PCs- Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/RPM270	128K)		
		Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/TEMP2			
		Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/Acc100(RW	10.1k-64k)		
	E.	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/Acc100(RW	10.10k-64k)		
		Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/RS2T(focUS			
	(B)	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/RS2NL100(1	focUS-256k)		
		Manual 340/PROCESS 1/FAN GROUP/FAN 1/Fan/NdE bearing/RPM270			
		Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/NdE bearing/TEMP2 Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/NdE bearing/Acc100(RW10	1 (k. 64k)		
		Manual 340/PROCESS 1/FAN GROUP/FAN L/fan/NdE bearing/Acc100(RW10			
		Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/NdE bearing/RS2T(focUS-			
		Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/NdE bearing/RS2NL100(fo			
	Selection	Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/DE bearing/RPM270			
		Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/DE bearing/TEMP2			
	Alarms	Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/DE bearing/Acc100(RW10.			
	Work Orders/Surveys	Manual 340/PROCESS 1/FAN GROUP/FAN 1/Fan/DE bearing/Acc100(RW10. Manual 340/PROCESS 1/FAN GROUP/FAN 1/Fan/DE bearing/RS2T(focUS-25)			
	Interval	Manual 340/PROCESS 1/FAN GROUP/FAN L/Tan/DE bearing/RS2 (1000342) Manual 340/PROCESS 1/FAN GROUP/FAN L/Tan/DE bearing/RS2NL100(foc			

Instead of selecting items individually, you can Filter them by certain criteria and add them as a group. Select Selection in the Toolbox, select Filter, and small Filter window will appear at the bottom of Bottom Pane, as below:



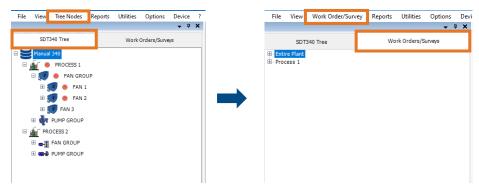
Use the Filter window to enter criteria. As you enter one criterion, the list will be narrowed to all items containing criteria (word) you entered. Use ";" to add more criteria and narrow your search further.

Once you are done with filtering, you can select from the list in Bottom Pane, and add it to Work Order/Survey. To select multiple items, use "shift" or "ctrl".

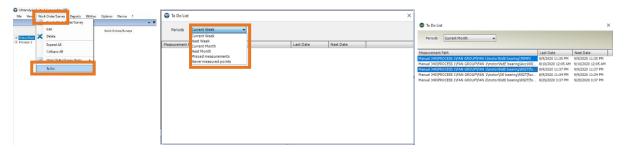
#### 10.10.4. Add items from To-Do List to Work Order/Survey

**To-Do List** contains items based on data collection due date (based on interval you defined in settings). Due date consideration for each item starts with the first data collection.

In **Top Pane**, select **Work Orders/Surveys** tab and **Work Order/Survey** button will appear in **Top toolbar** instead of **Tree Nodes**.



Left click on **Work Order/Survey** in **Top toolbar** and left click on **To Do**. **To Do** window will appear, where you can select period or two additional criteria; Missed measurements and Never measured points.



Once criteria are selected, all items that meat criteria will appear. The due date is quite clear criteria, and it filters data collection scheduled in period you choose, according to their set interval (consider that interval starts the count once first ever measurement has been taken). Missed measurement is a very useful criteria, as it will filter out all data collection tasks with past due date (as those do not fall into previously mentioned criteria). Never measured points criteria filters out all measurement points with no data (newly introduced to database, newly installed assets ...) reminding you that it needs to be done. From this window, you can select filtered points (single or multiple select) and with right click add them to new or existing Work Order/Survey.

#### 10.10.5. Change Measurement order in Work Order/Survey

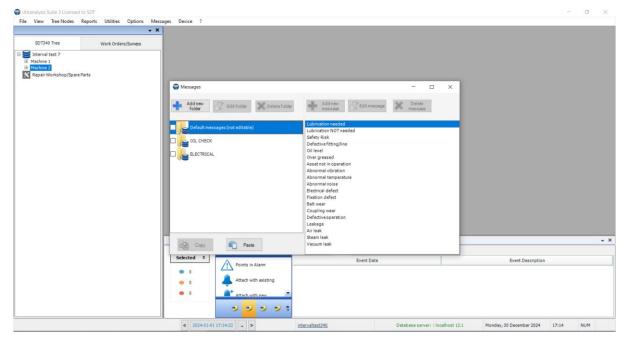
You can re-order the sequence of data collection and grouping Measurements into an order which is more efficient from a data collection point of view simply by selecting a Measurement and while holding the left mouse button, dragging it to a new position and then release the left mouse button.

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

# 10.11. Messages in the SDT340 folders

The messaging system for the SDT340 is different than one in the SDT270/LUBExpert, it is customizable and set in UAS3.

In the Top toolbar you will see a tab "Messages". Click on the tab to open a messages workspace;





The default folder cannot be edited or deleted (as well as messages in that folder), as it contains all messages necessary for certain functions.

Select "Add new folder" and you can add as many different folders as you need. As you can see in this example, folders are organized by applications.

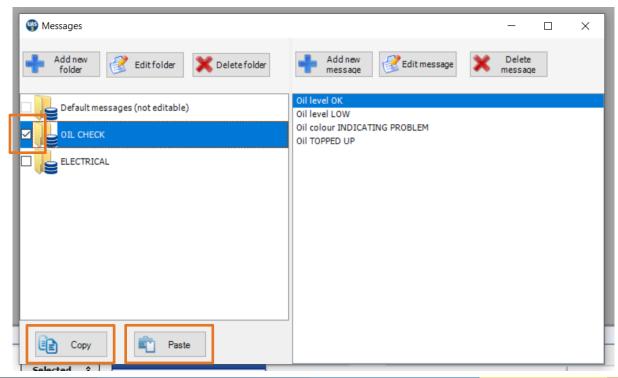
That can, of course, be differently organized.

Select any folder,

😗 Messages	- 🗆 X
Add new folder Edit folder X Delete folder	Add new message Edit message Delete message
Default messages (not editable)	Oil level OK Oil level LOW
	Oil colour INDICATING PROBLEM Oil TOPPED UP
Copy Paste	

and add all the messages you want to have as a standard in your SDT340. All folders that you add can be edited or deleted, the same as the messages in that folder.

If the same messages are used in several tree structures, you do not need to write them again. Simply select that folder (checkbox), and copy the entire folder. In the other tree structure, simply paste it.





# **10.12.** Importing Lubrication Bearing

You can import the user defined bearing from a delimited file or from the clipboard. A delimited file is a stream text file of records, which consists of fields that are ordered by column and separated by a character separator.

In this case the file must mandatorily contain four fields: the bearing name, the bearing inner diameter, the bearing outer diameter and the bearing width.

Each line contains one bearing data.

The first line could contain the name of the fields also separated by the same separator.

Example of data:

Name;Inner Diameter;Outer Diameter;Width 6800;10;19;5 6900;10;22;6 6000;10;26;8 6200;10;30;9 6300;10;35;11 6801;12;21;5 6901;12;24;6 16001;12;28;7 6001;12;28;7 6001;12;28;8 6201;12;32;10 6301;12;37;12 6802;15;24;5

In this example the first line contains the field's name. The separator is a semicolon.

UAS3 already contains an embedded bearing database which cannot be changed.

You could create a user defined bearing from the bearing database list when you want to attach a bearing to a measurement setting. See UAS3 user manual chapter **10.3.3 Assigning bearing data to Lube point**.

To start the importation, click on **Utilities/Bearing Database/Import Lubrication Bearing** in the top toolbar, as shown below:



🌚 Ultranalysis Suite 3 License	ed to sdt						
File View Tree Nodes	Work Order/Survey Reports	Utili	ties Opti	ons	Device	?	
	•	3	System In	nages	I	•	
SDT340 Tree	Work Orders/Surveys	4	Alarm Fur	nctions			
e demo_data(340)		8	Database		I		
			Bearing D	atabase	2		
			Language	2	I		
AIRSENSE			Operators	;			
E 😳 🖲 MECHANI E 🝚 😳 RS2T	LAL		Export Wa	ave files	;		
<ul> <li></li></ul>			Login Use	ers		Ц	
🗄 😑 TEMPERATI	JRE						

The list of existing bearings will be shown as below:

	∧ Ľ °	arch:			
Name	OD (mm)	ID (mm)	Width (mm)	Туре	
6800	19	10	5	Single-row deep groove ball bearings	
<b>a</b> 6900	22	10	6	Single-row deep groove ball bearings	
ai 6000	26	10	8	Single-row deep groove ball bearings	
<b>a</b> 6200	30	10	9	Single-row deep groove ball bearings	
di 6300	35	10	11	Single-row deep groove ball bearings	
a 6801	21	12	5	Single-row deep groove ball bearings	
d 6901	24	12	6	Single-row deep groove ball bearings	
3 16001	28	12	7	Single-row deep groove ball bearings	
<b>a</b> 6001	28	12	8	Single-row deep groove ball bearings	
6201	32	12	10	Single-row deep groove ball bearings	
6301	37	12	12	Single-row deep groove ball bearings	
<b>a</b> 6802	24	15	5	Single-row deep groove ball bearings	
<b>a</b> 6902	28	15	7	Single-row deep groove ball bearings	
3 16002	32	15	8	Single-row deep groove ball bearings	
d 6002	32	15	9	Single-row deep groove ball bearings	
d 6202	35	15	11	Single-row deep groove ball bearings	
d 6302	42	15	13	Single-row deep groove ball bearings	
d 6803	26	17	5	Single-row deep groove ball bearings	
<b>a</b> 6903	30	17	7	Single-row deep groove ball bearings	
a) 16003	35	17	8	Single-row deep groove ball bearings	

1 Click on the button represented by a down arrow to open the import screen feature.

ॷ Import bear	ings				×
i 💽 💼					
2 3 Field Delimiter	Semicolon	~	First line is columns name	Bearing Unit	mm 🔻
				Cancel	Import

2 Click on this button to select a file to import.

**3** Click on this button to import data from the Clipboard.

Here after is the example of data imported from the Clipboard. The separator does not correspond to the selected one.

4 Select the corresponding separator and check if the first line contains text data (often the name of the columns)

🔮 Import bearin	ngs			×
P 👘 🧕	ata imported from C	lipboard		
Field Delimiter	Comma ~ Comma	First line is columns name	Bearing Unit	mm 💌
None Name;Inner Di 6800;10;19;5 6900;10;22;6	Semicolon Tabulation			
6000;10;26;8 6200;10;30;9 6300;10;35;11 6801;12;21;5				
6901;12;24;6 16001;12;28;7 6001;12;28;8				
6201;12;32;10 6301;12;37;12 6802;15;24;5				
			Cancel	Import

Once you select the correct separator, check the content of the first line and the unit of bearing measure (mm or inches). You are now ready to configure the column content.

5 All columns are marked as None.

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Field Delimiter	Semicolon v	First line is a	columns nam <del>e</del>	Bearing Unit	mm 💌	
None 5	None	None	None			
Name	Inner Diameter	Outer Diame	Width			
6800	10	19	5			
900	10	22	6			
000	10	26	8			
200	10	30	9			
6300	10	35	11			
801	12	21	5			
5901	12	24	6			
6001	12	28	7			
5001	12	28	8			
6201	12	32	10			
6301	12	37	12			
5802	15	24	5			
	-	Clipboard		Cancel	Import	
Pimport bea	rings Data imported from ( Semicolon ~	1	columns name	Cancel	Import mm •	
Import bea	Data imported from ( Semicolon ~	First line is a				
Pimport bea	Data imported from ( Semicolon ~	First line is o	None			
Import bea	Data imported from ( Semicolon ~ 6 None	✓ First line is a None Juter Diame	None Width			
Import bea	Data imported from ( Semicolon ~ 6 None None Bearing Name	✓ First line is of     None     Juter Diame     19	None Width 5			
Import bea	Data imported from ( Semicolon None None Bearing Name Bearing OD	None     Uter Diame     19     22	None Width 5 6			
Import bea	Data imported from ( Semicolon None Bearing Name Bearing OD Bearing ID	Image: None       None       Uter Diame       19       22       26	None Width 5 6 8			
Import bea	Data imported from ( Semicolon Conce Bearing Name Bearing OD Bearing ID Bearing width	✓  First line is of    None    Juter Diame    19    22    26    30	None Width 5 6 8 9			
Import bea	Data imported from ( Semicolon Conce Bearing Name Bearing OD Bearing ID Bearing width 10	Image: None       None       19       22       26       30       35	None           Width           5           6           8           9           11			
Import bea	Data imported from ( Semicolon None Bearing Name Bearing OD Bearing ID Bearing width 10 12	Image: None           None           19           22           26           30           35           21	None Width 5 6 8 9 11 5			
Import bea	Data imported from ( Semicolon None Bearing Name Bearing OD Bearing ID Bearing width 10 12 12	Image: None           None           19           22           26           30           35           21           24	None Width 5 6 8 9 11 5 6			
Import bea	Data imported from ( Semicolon None Bearing Name Bearing OD Bearing ID Bearing width 10 12 12 12 12	None           19           22           26           30           35           21           24           28	None Width 5 6 8 9 11 5 6 6 7			
Import bea     I	Data imported from ( Semicolon None Bearing Name Bearing OD Bearing ID Bearing width 10 12 12 12 12 12	None         Nuter Diame         19         22         26         30         35         21         24         28         28	None Width 5 6 8 9 11 5 6 7 8			
Import bea     I	Data imported from ( Semicolon None Bearing Name Bearing OD Bearing ID Bearing width 10 12 12 12 12 12 12 12	None         Nuter Diame         19         22         26         30         35         21         24         28         28         32	None Width 5 6 8 9 11 5 6 7 8 8 10			
Import bea	Data imported from ( Semicolon None Bearing Name Bearing OD Bearing ID Bearing width 10 12 12 12 12 12	None         Nuter Diame         19         22         26         30         35         21         24         28         28	None Width 5 6 8 9 11 5 6 7 8			

6 Click on the column header to open a list which display five choices for the column content. You must tell UAS3 where is the column for the bearing name, the bearing inner diameter, the bearing outer diameter and the bearing width.

🌚 Import bearin	ngs				×
P 💼 😡	ata imported from (	Clipboard			
Field Delimiter	Semicolon V	First line is colum	ins name	Bearing Unit	mm 🔻
Bearing Name	Bearing ID	Bearing OD	Bearing	width	
Name	Inner Diameter	Outer Diameter	Widt	h	
6800	10	19	5		
6900	10	22	6		
6000	10	26	8		
6200	10	30	9		
6300	10	35	11		
6801	12	21	5		
6901	12	24	6		
16001	12	28	7		
6001	12	28	8		
6201	12	32	10		
6301	12	37	12		
6802	15	24	5		
				Cancel	Import 7

You can start the importation.

Useful information: UAS3 retains the last configuration and last imported file. When you start importing next time, UAS3 will automatically open the last file and apply the last configuration. In this case, you don't have to configure each time you plan to import similar bearing data.

Important: UAS3 already contains an embedded bearing database. Those bearings cannot be replaced or deleted.

If you want to import a user defined bearing with the same name and different characteristics, you should rename it before.

# **11. Managing Alarms**

Alarms are a highly important aspect of Condition Monitoring, Condition Based Lubrication, and virtually any kind of measurement that needs to be compared with previous condition or any reference value. Alarms make managing database, decisions, and tasks much easier, and in some cases, they determine the field work. UAS3 offers an excellent alarm system, covering all your needs, and still easy to work with. Alarms thresholds should be set based on data, understanding assets behavior and condition. This is a topic of our training, so feel free to contact us.

As an introduction, let us start with **basic rules**, instructions:

- If working with SDT270 or LUBExpert database, Alarms can only be attached to Static measurement, as there are both Dynamic and Static
- If working with SDT340 database, Alarms can be attached Measurement, as there is no difference between Dynamic and Static, it is unique measurement point.

#### Types of Alarms:

- Absolute
  - Absolute Alarm monitors measurement value and compares it with defined alarm thresholds, triggers if measured value exceeds thresholds.
- Safe
  - Safe Alarm monitors measurement value and checking if it is within defined range, where lower and upper threshold is defined.
- Relative
  - Relative alarm monitors relationship of the measured value with first measurement, previous measurement, or referent measurement, whether increasing or decreasing.

#### Alarms monitor indicators:

- RMS
- Max RMS
- Peak
- Crest Factor

#### Alarms differ by way they are created and managed:

- Alarms in Template
  - This is where you create your alarms to use them frequently, on many assets.
     Consider it as "alarm bank". You create an alarm, save it, and apply it when and where you need it.
- Node Alarms
  - Locally created alarm (in the measurement itself). It is not saved in the "alarm bank", it is considered custom. If needed, it can be transformed to template alarm.

# **11.1.** Creating Alarm in Template

In Top toolbar, left click on Utilities and select Alarm Functions, as below:



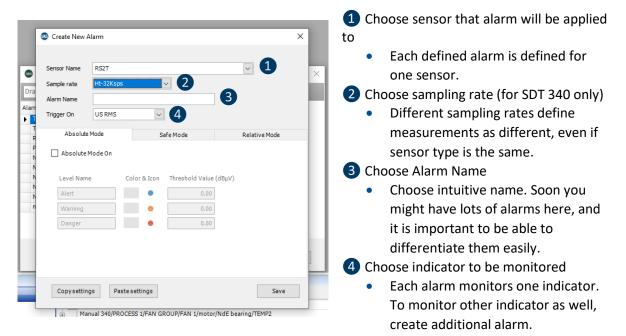


Right click Alarm Functions and Alarm List window will pop up, for alarm management:

ag a column header here to group by that column.	
m Name	Trigger On
Threaded\RS2T\USRMS	USRMS
THreaded PEAK\RS2T\USPeak	USPeak
RMS Vel\Acc100[5.1k-64k]\RMSSpeed	RMSSpeed
Peak Acc\Acc100[5.1k-32k]\PeakAcceleration	PeakAcceleration
NEW ALARM PEAK\RS2T\USPeak	USPeak
NEW ALARM CF\RS2T\USCrestFactor	USCrestFactor
NEW ALARM maxRMS\RS2T\USMaxRMS	USMaxRMS
NEW ALARM RMS\RS2T\USRMS	USRMS
NewNew RMS\RS2T\USRMS	USRMS
negative alarm\RS2T\USRMS	USRMS

Here, you see **Alarms** that you already created. You can delete them, update them (change the settings), or create new ones.

First, let us create New Alarm. Left click on New Alarm (at the bottom of Alarm List window):



**S** Here we decided to create and alarm for RS2T sensor, for the measurement of 32.000 samples per second, we gave it a name "Fan motor NdE RMS" (as we need it for that position), and this alarm will monitor RMS value.

Sample rate Alarm Name Trigger On	RS2T Ht-32Ksps Fan motor US RMS				5
Absolute M	lode	Safe	e Mode	Relative M	ode
Absolute Me	ode On	Color & Icon	Threshold Value (di	BμV)	
Alert Warning		•	0.00		

Now we can define Alarm's thresholds, starting with Absolute Mode, as below:

Sensor Name Sample rate	RS2T Ht-32Ksps			~
Alarm Name Trigger On	Fan motor Ndi	E RMS	8	
6 Absolute	Mode	Sa	fe Mode	Relative Mode
Level Name	e Col	or & Icon	Threshold Value (dBµV)	
	e Col	or & Icon		0
Alert	e Col	or & Icon	15.00	0

**6** Left click on Absolute Mode On checkbox to activate this alarm Mode.

Enter alarm threshold values for Alert, Warning and Danger. Warning value must be higher than Alert value and Danger value higher than Warning value.

8 If we plan to ad Safe Mode and Relative Mode, we will click on their tabs, and not save the alarm yet.

**9** If we plan to add only Absolute Mode, we will click on Save.

**(1)** If we plan to add more alarms with similar settings, we can use Copy settings/Paste settings function.



Let us add Safe Mode as well:

**11** Left click on Safe Mode On checkbox to activate this alarm mode.

Denter alarm threshold values for Lower and Upper Limit and confirm if threshold should be included.

(B) If we plan to add Relative Mode as well, we will click on its tab, and not save the alarm yet.

(4) If we plan to add only Absolute and Safe Mode, we will click on Save.

(5) If we plan to add more alarms with similar settings, we can use Copy settings/Paste settings function.

Sensor Name	RS2T		~
Sample rate	Ht-32Ksps	~	
Alarm Name	Fan motor N	IdE RMS	
Trigger On	US RMS	~	13
Absolute	Mode	Safe Mode	Relative Mode
Good Level	Threshold Valu	ies (dBµV)	9
Lowe	Threshold Valu er Limit	ies (dBµV) 5.00 🗹 Include Lowe 50.00 🗹 Include Uppe	
Lowe	er Limit	5.00 Include Lowe	er Limit Value

Add Relative Mode also:

	RS2T		$\sim$
Sample rate	Ht-32Ksps		
Alarm Name	Fan moto	r NdE RMS	
Trigger On	US RMS	~	
Absolu	te Mode	Safe Mode	Relative Mode
	asing	Warning when value increases by	3.00
			Threshold Value (dBµV)
		Danger when value increases by	6.00
	asing	Danger when value increases by Warning when value decreases by	0.00
	asing	-	
	-	Warning when value decreases by Danger when value decreases by	0.00

**(b**Left click on Relative Mode On checkbox to activate this alarm mode.

**D**Enter alarm threshold values for Lower and Upper Limit and confirm if threshold should be included.

18 Define reference for comparison.

(1) If we finished setting, we will press Save.

(2) If we plan to add more alarms with similar settings, we can use Copy settings/Paste settings function.

Our Alarm is defined:

Same way, we can define alarms based on other indicators and on other sensors.

Four alarms can be attached to one single measurement, one per each indicator, each alarm in three different modes, providing excellent coverage.

rag a column header here to group by that column.	
arm Name	Trigger On
Threaded\RS2T\USRMS	USRMS
THreaded PEAK\RS2T\USPeak	USPeak
RMS Vel\Acc100[5.1k-64k]\RMSSpeed	RMSSpeed
Peak Acc\Acc100[5.1k-32k]\PeakAcceleration	PeakAcceleration
NEW ALARM PEAK\RS2T\USPeak	USPeak
NEW ALARM CF\RS2T\USCrestFactor	USCrestFactor
NEW ALARM maxRMS\RS2T\USMaxRMS	USMaxRMS
NEW ALARM RMS\RS2T\USRMS	USRMS
NewNew RMS\RS2T\USRMS	USRMS
negative alarm\RS2T\USRMS	USRMS
Fan motor NdE RMS\RS2T\USRMS	USRMS

New Update Delete

# **11.2.** Assigning Alarm from Template to single measurement

Alarm from Template can be assigned to single measurement in several ways, but directly by selecting a measurement in Tree Structure is certainly the most simple and straightforward.

To do that, right click on measurement (in case you are working with SDT270 or LUBExpert, choose Static measurement) and select **Set Alarm from Template**:

								×
			-				-	 
	SD	T340 Tree		W	ork Ord	ers/Surv	ŊS	
8	Manua	1340						
	£ .	PROCESS 1						
	0	🗧 FAN GRO	NUP					
	8	🖲 🗧 FAN	1					
		🗆 🎒 🔹 n	notor					
		• Q •	NdE bear	ing				
		RPM	_					
		•	TEMP2					
		٠	Acc100(RV	/10.1k-54k)	Ø			
		Acci	00(RW10.1)	0k-64k) 📄				
			RS2T(focU	5-256k)				
		RS21	VL100(focU					
			NL 100(focU RS2T(Ht-3:	5-256k) 📄				
			RS2T(HL-3	5-256k) 📄			•	
		RSZ	RS2T(HL-3	s-256k) 📂 2k) Id New		Ctrl+U		
	E (		RS2T(HL-3) Ad Ed	s-256k) 📂 2k) Id New It		Ctrl+U Ctrl+X		
		0 (Q) (0	RS2T(HL-3) Ad Ed 2 Cu	s-256k) 📂 2k) Id New It				
	8	() () () () () () () () () () () () () (	R52T(HI-3: Ad Ed 2 Cu Co	s 256k) 📂 2k) id New it e py Structure		Ctrl+X		
Æ	8 <b>6</b>	E G fan Fan S	RS2T(HI-3) Ad Ed Cu Co	s 256k) 📂 2k) id New it t py Structure	Only	Ctrl+X		
æ	8 <b>6</b>	E C Fan Fan 3 PUMP GROUP	R52T(HI-3) Ad Ed Cu Co Pa	s-256k) 🦳 2k) Id New It t py Structure Py	Only	Ctrl+X Ctrl+C		
æ	8 <b>6</b>	E C Fan Fan 3 PUMP GROUP	RS2T(HE-3) Ad Ed Cu Co Co Pa Exp	s 256k) 🦳 2k) Id New it £ py Structure py ste	Only	Ctrl+X Ctrl+C		
æ	8 <b>6</b>	E C Fan Fan 3 PUMP GROUP	RS2T(HI-3) Ad Ed Co Co Pa Exp Co	s-256k) 📂 2k) it t t py Structure py ste pand All	Only	Ctrl+X Ctrl+C		
æ	8 <b>6</b>	E C Fan Fan 3 PUMP GROUP	RS2T(Ht-3) Ad Ed C Cu Co Co Co De	s-256k) 2k) 2k) it t py Structure py ste pand All Ilapse All	Only	Ctrl+X Ctrl+C Ctrl+V Ctrl+V		
Ð	8 <b>6</b>	E C Fan Fan 3 PUMP GROUP	RS2T(HI-3) Add Ed Co Co Pa En Co De Set	s-256k) 2k) k k t py Structure py stre pand All labse All labse	Only Temple	Ctrl+X Ctrl+C Ctrl+V Ctrl+V		
æ	8 <b>6</b>	E C Fan Fan 3 PUMP GROUP	RS2T(HI-3) Add Edd 2 Co Co Co Co Co Co Co Co Co Co Set Set Set	s-256k) 2k) k k t t py Structure py stre pand All lete Alarm From	Only	Ctrl+X Ctrl+C Ctrl+V Ctrl+V		

And Attach Alarm window will pop up:

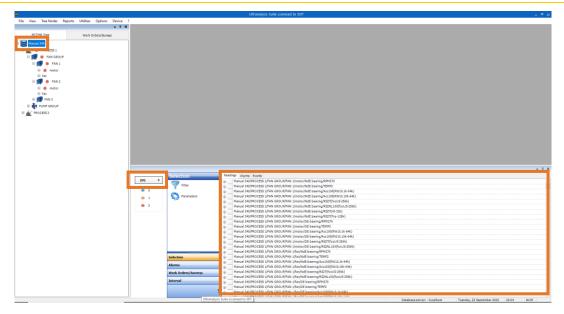
ample rate	Ht-32Ksps		~	
larm Name	Fan motor	NdE CF		< >
rigger On	US Crest F	actor 🗸		
Absoluti	e Mode	Si	afe Mode	Relative Mode
Level Nar	1e	Color & Icon	Threshold Value (di	BμV)
Alert Warning		Color & Icon	6.00	8µV)
Alert		Color & Icon	6.00	8µV)

UAS3 automatically filters available Alarms for the sensor in the measurement you selected, making search much faster and easier. All you need to do now is browse through the alarm using left and right arrows in Alarm Name field and look for the alarm you created for this measurement point. Once you find the right alarm, simply click Attach. An alarm is attached and you can proceed attaching other alarms if needed.

# **11.3.** Assigning Alarm from Template to multiple measurements

Alarm from Template can be assigned to multiple measurements from the Bottom Pane.

To do that, select the node in your Tree Structure that contains all that you want to find and add alarm to. Left click on that node and look at the Bottom Pane.



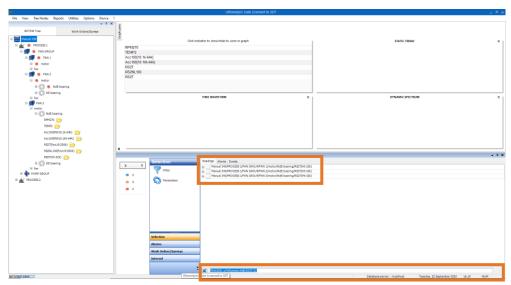
I selected Database Root, 1<sup>st</sup> level, and all measurement it contains are now displayed in Bottom Pane. All 291 of them, as you can see right above the traffic lights.

Next thing you need to do is to filter measurements you are interested in. Let us say that you want all NdE bearings on all electrical motors on fans, measured with RS2T sensor at 32.000 samples per second, in Process 1.

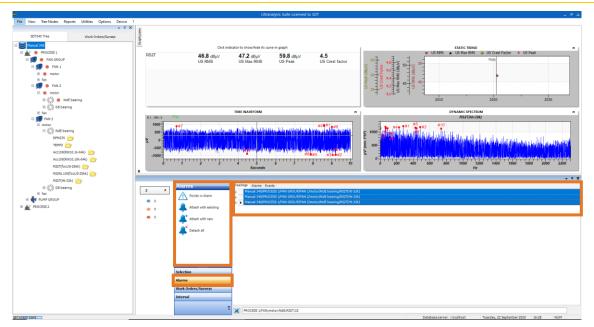
Left click on Selection in Bottom Pane toolbox and select Filter. Search bar on the bottom of Bottom Pane will appear and you should enter search criteria. NOTE! If you work with SDT270 or LUBExpert, add additional criteria: ST (to filter out Static measurements only).

#### In this case: PROCESS 1; FAN; motor; NdE; RS2T; 32

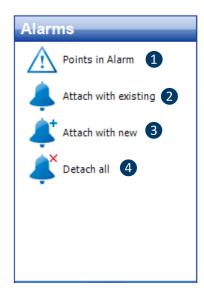
We filtered out all measurement that comply with criteria, and here they are, three of them:



Now, you need to select all three measurements by using **shift** or **ctrl**. Then left click **Alarms** tab in **Bottom Pane** toolbox.



Alarm field appears in Bottom Pane toolbox. Let us examine offered commands:



1 Show all points in alarm

2 Attach existing alarm to selected measurements

3 Attach with new alarm (direct link to creating a new alarm)

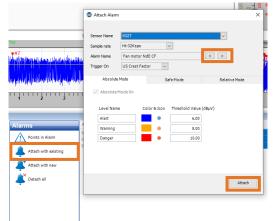
4 Detach all existing alarms from selected, measurements

Since you already created **Alarm**, you should choose **Attach with existing** (left click on it), and Alarm windows will appear.

Select alarm you want to attach (browse through the alarm list with arrows in Alarm Name field) and click on Attach.

Alarm is now attached to all three measurements.

Repeat it if you want to attach more alarms.





### **11.4.** Setting Node alarm to measurement point

As mentioned before, **Node Alarm** is a locally created alarm (in the measurement itself). It is not saved in the "alarm bank" and it is considered custom. If needed, it can be transformed to template alarm.

Let us see how you will create/assign this alarm:

Right click on measurement you want assign Node Alarm to and choose Set Node Alarm, as below:

File View Tree Nodes Report	ts Utilities Options Device ?		🚳 Set Node Al	arm & Attach				×
SDT340 Tree Manual 340 PROCESS 1 FAN GROUP FAN GROUP FAN GROUP SOUTH AND FAN CROUP FAN CROU			Sensor Name Sample rate Trigger On	RS2T focUS-128Ks US RMS	sps 🔽	<ul> <li>Alarm Is Not A</li> </ul>	↓ ttached	
Acc100(	RW10.1k-64k)		Absolut	e Mode	Sa	fe Mode	Relative Mode	
😑 R52T(Fo	cUS-256k) 📂	Set Node Alarm window will pop up	Absolute	Mode On				
(R) 🙆 😐 DE 1	Add New •		Level Nan	ne C	Color & Icon	Threshold Value	(dBµV)	
III 🕥 fan	Edit Ctrl+U		Alert		•	0.00	1	
III 💓 🌒 FAN 2 III 💓 FAN 3 III 🚮 PUMP GROUP	Cut Ctrl+X Copy Structure Only Ctrl+C Copy		Warning		•	0.00	]	
E A PROCESS 2	Paste Ctrl+V		Danger		•	0.00		
	Expand All Collapse All						1	
	Delete Del							
	Set Alarm From Template							
	Set Node Alarm Detach All Alarms							
	Add to Work Order/Survey +		Cop	y to alarm list			Attach to node	

Process of defining alarm parameters is the same as it is in Alarm in Template:

- Sensor field and Sample Rate fields are not editable it is the same sensor and same Sample Rate as in measurement point you selected.
- You need to choose the indicator you want your Alarm to monitor: RMS, max RMS, Peak, and Crest Factor.
- Activate and assign thresholds to Absolute, Safe and Relative Mode, or just one or two of them.

🚳 Set Node Alarm & Attach		×	🐵 Set Node Alarm & Attach		$\times$	🚳 Set Node Alarm & Attacl	1	×
Sensor Name RS2T Sample rate focUS-128Ksps v Trigger On US RMS v A	w arm Is Hot Attached		Sensor Name RS2T Sample rate focUS-128Ksps v Trigger On US RMS v Alarm	S Not Attached		Sensor Name R52T Sample rate focUS-128 Trigger On US RMS	Ksps 🗸 Alarm Is Not Atta	sched
Absolute Mode Safe M	o de Relative Mode		Absolute Mode Safe Mode	Relative Mode		Absolute Mode	Safe Mode	Relative Mode
Absolute Mode On			☑ Safe Mode On			Relative Mode On		
Level Name Color & Icon Th Alet • • • • • • • • • • • • • • • • • • •	eshold Value (dBµV) 35.00 42.00 50.00			ude Lower Limit Value ude Upper Limit Valud		Increasing Decreasing Compared with Previous Value	Warning when value increases by Danger when value increases by Warning when value decreases by Danger when value decreases by O First Value O Reference Va	Threshold Value (dB,v/)
Copy to alarm list	Attach to node	]	Copy to alarm list	Attach to node		Copy to alarm list		Attach to node

All is set, and now click on **Attach to node** and your **Node Alarm** monitoring RMS is attached and active. Now you can add another alarm, monitoring another indicator.

Node alarm is assigned to selected node only and does not exist in Templates ("Alarm Bank").

When you try to assign next Node Alarm to same measurement (after you assigned one as in previous example), you will be warned about alarm that is already assigned, as below:

Set Node Alarm & Attach Sensor Name Sample rate focUS-128Ksps Trigger On US RMS Alarm Is Attached	×	Set Node Alarm & Attach  Sensor Name RS2T Sample rate focUS-128Ksps Trigger On US Feak Alarm Is Not Attached	>
Absolute Mode Safe Mode Ru Absolute Mode On Level Name Color & Icon Threshold Value (dBµV) Alert 35.00 Warning 42.00 Danger 50.00	Alarm on RMS indicator is already attached. Change indicator and see if another indicator can be attached.	Level Name Color & Icon Threshold Value (dBµV)	de

If, at any moment, you decide to use this **Node Alarm** for other measurement positions as well, click on **Copy to alarm list**, and you can add it to template:

Set Node Alarm & Attach	×	Create New Alarm
Sensor Name RECT Sample rate focUS-128Ksps Trigger On US RMS V Alarm Is Attached Absolute Mode Safe Mode Relative Mo Absolute Mode On Level Name Color & Icon Threshold Value (dBpV) Alert 35.00 US relative Mode 0 Level Name Solute Mode 0 Level Name Solute Mode 0 Solute Mode 0 Level Name Solute Mode 0 Solute M	window will pop	Create New Alarm  Sensor Name RS2T  Alarn Trigger On US RMS  Absolute Mode Color & Loon  Level Name Color & Loon  Level Name Color & Loon Color & L
Copy to alarm list Attach to no	de	Copysettings Paste settings Save

# **11.5.** Detaching Alarms

Alarm can be detached from a single measurement or multiple measurement.

Same as attaching alarm in Tree Structure, right click on measurement and select Detach All Alarms.

SDT340 Tree	Work On	ders/Surveys	
Manual 340			
E AT . PROCESS 1			
E 🗊 💿 FAN GROUP			
🗄 🇊 🗧 FAN 1			
🗉 🍓 😐 mator			
0 0 . N	dE bearing		
RPM270	-		
· TEM	192 123		
	100(RW10.1k-64k)		
Acc100(R			
🕚 R52	T(focUS-256k)		
🕚 R52	T(focUS-256k) D(focUS-256k) 🔭		
<ul> <li>R52</li> <li>R52NL10</li> <li>R52NL10</li> </ul>	T(FocUS-256k) 0(focUS-256k) 🔭 Add New		•
RS2NL 10 RS2NL 10 RS2 RS2 RS2	T(focus-256k) 0(focus-256k) 📂 Add New Edit	Ctrl+U	•
R52WL 10     R52WL 10     R52WL 10     R52WL 10     R52WL 10     R52WL 10     R52     WL 00     R52     WL 00     R52     WL 00     WL 00     R52     R52     WL 00     R52     WL 00     R52     R5     R52     R52     R5     R52     R5     R52     R5     R5     R52     R5     R	T(focus-256k) 0(focus-256k) 📂 Add New Edit	Ctrl+U Ctrl+X	•
● R52 R52VL10 ● R52 ● R52 ■ 🚳 ● D1 ■ 🚳 fan	T(focUS-256k) o(focUS-256k) Add New Edit	Ctrl+X	•
● R52 R52NL10 ● R52 ● ② ● D1 ● ③ ● D1 ● ③ Fan ● ● Fan 2	T(FocUS-256K) O(FocUS-256K) Add New Edit Cut	Ctrl+X	•
R52NL 10     R22NL 10     R2     R2     R	T(FocUS-256K) (FocUS-256K) Add New Edit Cut Copy Structure Or	Ctrl+X	•
RSZ RSZNI ID RSZNI ID	T(FocUS-256K) (FocUS-256K) Add New Edit Cut Copy Structure Or Copy	Ctrl+X nly Ctrl+C	•
R52NL 10     R22NL 10     R2     R2     R	T(Focus-256k) a(docus-256k) Add New Edit Cut Copy Structure Or Copy Paste	Ctrl+X nly Ctrl+C	•
RSZ RSZNI ID RSZNI ID	T(Focus-256k) S(Focus-256k) Add New Edit Cut Copy Paste Expand All	Ctrl+X nly Ctrl+C	•
RSZ RSZNI, 10 RSZNI, 10 RZZNI, 10 RZ	T(FocUS-256K) o(FocUS-256K) Add New Edit Cut Copy Structure Or Copy Pate Expand All Collopse All	Ctrl+X aly Ctrl+C Ctrl+V Del	•
RSZ RSZNI ID RSZNI ID	T(focus-256k) (focus-256k) Add New Edit Cut Copy Paste Expand All Collapse All Delete	Ctrl+X aly Ctrl+C Ctrl+V Del	•



If there is more than one alarm attached to measurement point, and single or more alarms should be removed, not all:

Left click on measurement in Tree Structure.



In **Bottom Pane** select **Alarms** tab and you will have all attached alarms displayed:

1 *	Alarms	Reading: Alarms Events
• 0	Points in Alarm	Node Alarm USRMS
• 0	Attach with existing	
• 0	Selection	
	Alarms	
	Work Orders/Surveys	
	Interval	
	ŝ	
		Database server: : localhost

Right click on each of the alarms enables you do detach single alarm, while leaving all other alarms attached.



Alarm can also be detached in **Bottom Pane**, where you can also detach alarm from multiple measurement points. Select measurement in the same way as you selected them in attaching process and click on **Alarms** in **Bottom Pane** toolbox.

Simply click on **Detach all**, and alarms will be removed from all selected





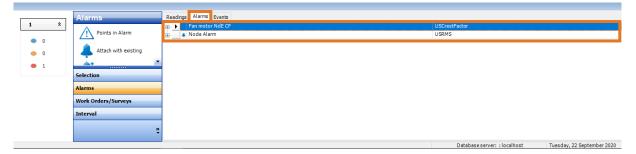
measurements.

# **11.6.** Overview of attached alarms

To overview alarms attached to measurement point, left click on measurement point.

SD1340 Tree	Work Orders/Surveys
E S Manual 340	
🗟 🔬 😑 PROCESS 1	
E 🗊 🗧 FAN GROUP	
🗄 🗊 💩 FAN 1	
🗟 😆 motor	
🗏 🔘 😆 Nd	Ebearing
RPM270	
TEM	P2 1
e Acci	00(RW10.1k-64k)
Acc100(R)	N10.10k-64k) 📂
RS2 8	n(focus-256k)
R52NL100	(focUS-256k)
R521	r(He-32k)
RS21	T(Fcs-128k)
H 8,9 😐 01	bearing
Ill fan	
🗉 💓 💿 FAN 2	
E FAN 3	

In the **Bottom Pane** select **Alarms** tab and you will have all attached alarms displayed. The small bell icon indicates **Node Alarm**, while alarm without bell icon is **Alarm from Template**.



	Alarms	Readings Alarms Events		
1 *		👜 🕨 🕴 Fan motor NdE CF	USCrestFactor	
• 0	Points in Alarm		Level Name	Value
	Attach with existing		Alert	6
• 0	<b>—</b>		Warning	8
• 1	<b></b> +	•	Danger	10
	Selection	Node Alarm	USRMS	
	Alarms		Level Name	Value
	Work Orders/Surveys		Alert	30
	none orders/surreys	• •	Warning	36
	Interval	L	Danger	42
	*			
	L.		Databas	a server: : localhost Tuesday, 22 Sentember 2020

Left click on small "+" in a box next to alarm name and details about assigned alarm will be displayed.

# **11.7.** Alarm status displayed

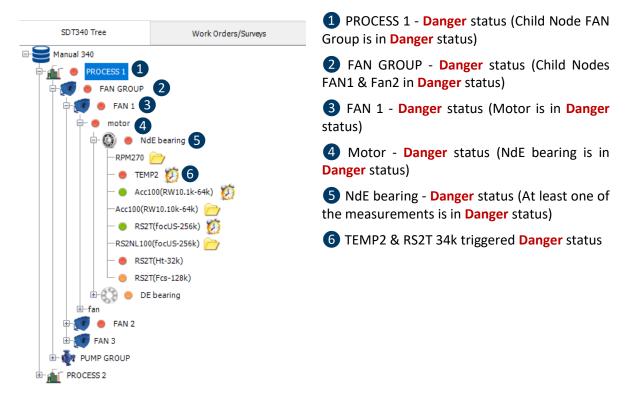
Once an alarm is triggered by measurement outside of alarm threshold, it will be displayed in several ways and several places.

#### 11.7.1. Alarm status displayed in Tree Structure through Traffic lights

- No traffic light Alarm not assigned or assigned but still no measurement recorded.
- Green Alarm assigned, but not triggered.
- Blue Alert
- Orange Warning
- Red Danger

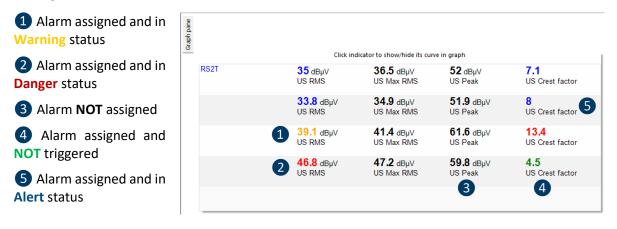


Alarms are triggered at measurement level, but they are transferred through hierarchy to each **Parent Node.** Each **Parent Node** will be assigned with the highest triggered alarm among all measurement points in all child nodes.



#### 11.7.2. Alarm status displayed in measurement Matrix

Once an alarm is triggered by measurement outside of alarm threshold range, it will also be displayed in measurement Matrix. Indicator triggering alarm will be displayed in color corresponding with triggered alarm level. In case as below, Matrix is showing four most recent readings and showing us alarm status for each indicator:



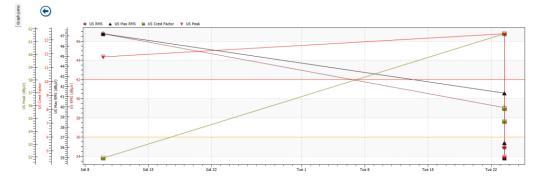
#### 11.7.3. Alarm status displayed in Bottom Pane

When measurement is selected in **Tree Structure, Bottom Pane** displays readings details in **Readings** tab. **Traffic lights** indications represent alarm status. No matter how many indicators have assigned alarm or how many of them are triggered to any status, highest alarm level be displayed in front of the reading data, as shown below:

	Lough Name	RMS	Peak	Crest Factor	Sampling Rate	Date	Time	Length (Sec)	Operato
•	Alert	34.95	51.99	7.11	32000	23/09/2020	11:32	10	default
•	Warning	33.8	51.9	8.04	32000	23/09/2020	11:31	10	default
•	Danger	39.06	61.63	13.45	32000	23/09/2020	11:31	10	default
•	Danger	46.8	59.8	4.47	32000	09/08/2020	23:35	10	default

#### 11.7.4. Alarm status displayed in Static Trend Graph

Alarm threshold levels are shown in **Static Trend Graph** as lines in color corresponding with alarm level (Red, Orange and Blue), as below:



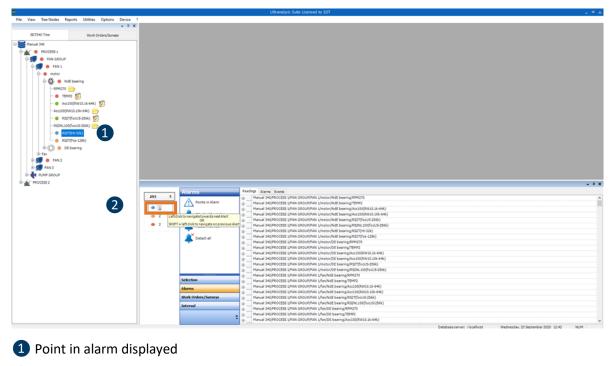
# **11.8.** Shortcut to points in alarm

**Bottom Pane** toolbox contains an interactive **Traffic Lights Tool** that displays the total number of measurements in alarm for each alarm level.

		*
Alarms	Readings Alarms Events	
293 *	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RPM270	
Points in Alarm	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/TEMP2	
• 1	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/Acc100(RW10.1k-64k)	
2 Attach with existing	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/Acc100(RW10.10k-64k)	
	Hanual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2T(focUS-256k)	
2 Attach with new	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2NL100(focUS-256k)	
T	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2T(Ht-32k)	
Detach all	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2T(Fcs-128k)	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/RPM270	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/TEMP2	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/Acc100(RW10.1k-64k)	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/Acc100(RW10.10k-64k)	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/RS2T(focUS-256k)	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/RS2NL100(focUS-256k)	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/NdE bearing/RPM270	
Selection	Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/NdE bearing/TEMP2	
Alarms	Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/NdE bearing/Acc100(RW10.1k-64k)	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/NdE bearing/Acc100(RW10.10k-64k)	
Work Orders/Surveys	Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/NdE bearing/RS2T(focUS-256k)	
Interval	Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/NdE bearing/RS2NL100(focUs-256k)	
Interver	a Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/DE bearing/RPM270	
	Annual 340/PROCESS 1/FAN GROUP/FAN 1/fan/DE bearing/TEMP2	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/DE bearing/Acc100(RW10.1k-64k)	
	Database server: : localhost Wednesday, 23 September :	2020 12:30 NUM

Left click on alarm level and your Tree Structure will open the measurement in alarm, as below:





2 Left click on alarm indicator

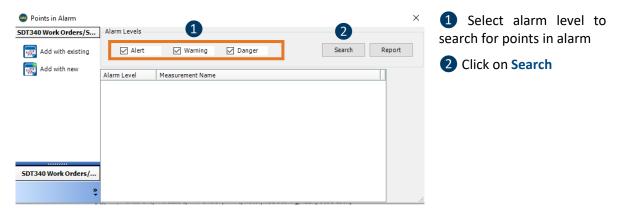
If there is more than one point in alarm at certain alarm level, every time you left click on alarm indicator, next measurement in alarm will be displayed.

# **11.9.** Overview and action on points in alarm

In Bottom Pane toolbox, left click on Alarms and select Points in Alarm:

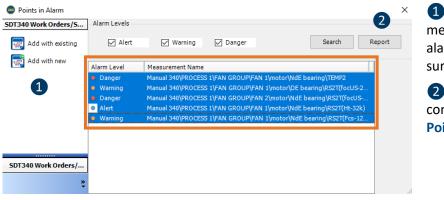
		*
Alarms	Readings Alarms Events	
93 *	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RPM270	
Points in Alarm	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/TEMP2	
• 1	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/Acc100(RW10.1k-64k)	
2 Attach with existing	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/Acc100(RW10.10k-64k)	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2T(focUS-256k)	
2 Attach with new	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2NL100(focUS-256k)	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2T(Ht-32k)	
Cetach all	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2T(Fcs-128k)	
<b>—</b>	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/RPM270	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/TEMP2	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/Acc100(RW10.1k-64k)	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/Acc100(RW10.10k-64k)	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/RS2T(focUS-256k)	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/RS2NL100(focUS-256k)	
Selection	Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/NdE bearing/TEMP2	
Alarms	Manual 340/PROCESS 1/FAN GROUP/FAN 1/Fan/NdE bearing/Acc100(RW10.1k-64k)	
	Annual 340/PROCESS 1/FAN GROUP/FAN 1/fan/NdE bearing/Acc100(RW10.10k-64k)	
Work Orders/Surveys	Manual 340/PROCESS 1/FAN GROUP/FAN 1/Fan/NdE bearing/RS2T(FocUS-256k)	
Interval	Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/NdE bearing/RS2NL100(focUs-256k)	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/Fan/DE bearing/RPM270	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/DE bearing/TEMP2	
	Annual 340/PROCESS 1/FAN GROUP/FAN 1/fan/DE bearing/Acc100(RW10.1k-64k)	
	Database server: : localhost Wednesday, 23 September 2020 12:30 NU	JM

Points in Alarm window will pop up:





All measurement points in selected alarm(s) will be displayed. Select measurement point(s).



1 Add selected measurement point in alarm to existing or new survey

2 Generate Report containing all selected Points in Alarm

# **12. Interval Compliance Indicator (ICI)**

# 12.1. Overview

This feature evaluates the regularity of the data collection. It is a good indicator of a program maturity and seriousness, but more importantly, it tells you how valid your data is, how sure you can be about your alarm levels calculation ... etc.

Soon, it will be one of the conditions to use some upcoming features.

ICI compares the scheduled data collection date with the actual data collection date.

The bigger the delay, the less compliance there will be, of course.

Additionally, there will be "DATA NOT COLLECTED" row in the bottom pane, and a "hole" in the trend if the delay is an entire interval after the scheduled time. As an example, I collect data on January 1st, and interval is 1 month. So, my next data collection is scheduled on February 1st. If I do not collect data until March 1st (one full interval delay), the bottom pane line where February 1st data should be, will have "DATA NOT COLLECTED" as a status. Of course, that does not re-schedule March 1st measurement that should be taken on time.

This prevents many of the problems with data validity in many programs with handheld devices. We know that if we set interval at one month, and with continuous delays we can end up with 9 or 10 measurements that year. It is quite questionable if that data can be trusted ... and that is quite benign case compared to anarchy that we can often see.

ICI can be activated and deactivated.

Once activated, it will start the evaluation from the next collected data.

Once deactivated, it is reset and will not consider history anymore.

Once re-activated, It will start from scratch, disregarding what happened before

ICI can be set on each measurement point separately, or set in the parent node and applied to all sub-nodes.

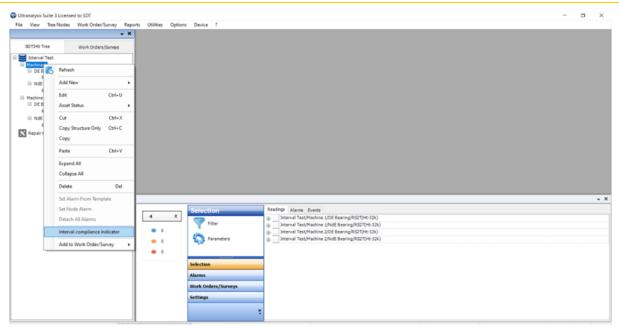
If the interval is changed, that does not impact the previous calculation, and it will continue evaluation based on the new interval.

ICI is not mandatory, but it is very useful. It is a good idea to motivate team to start using it immediately, to make sure that with new features coming, they will have valid and confirmed data for analysis.

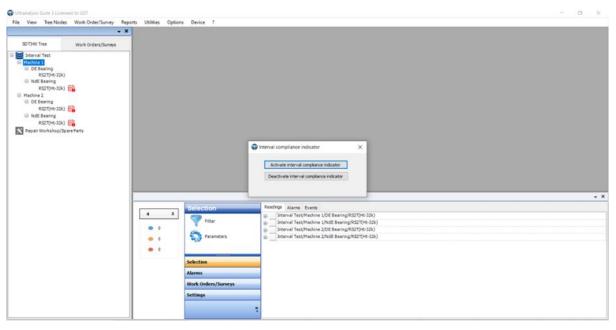
# 12.2. Activating ICI

Right-click the node where you want to activate ICI. It will include all sub-nodes and measurement points. Of course, you can activate ICI on measurement point level as well, each measurement point individually.



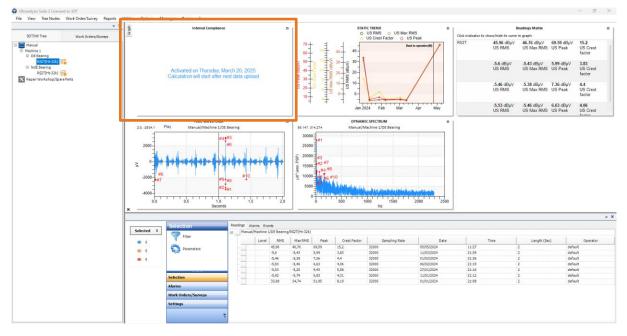


#### Command box will appear:



Activate ICI.

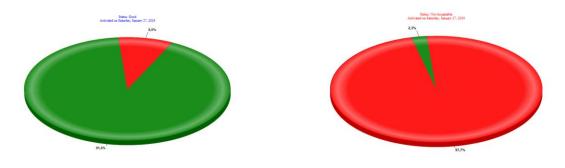




#### The ICI gadget will be displayed in the graph pane, containing all necessary information:

You can choose to hide or show the ICI gadget in the graph pane. Select "Options" in the top toolbar and make your selection. The evaluation will start after the first data collection following activation.

Based on compliance with pre-defined interval, ICI will evaluate the practice as Excellent, Good, Barely Acceptable, or Not Acceptable.



For easier following and executing planned tasks, To-Do list message pops up with scheduled and missed measurements list that can be directly transformed into a work order.

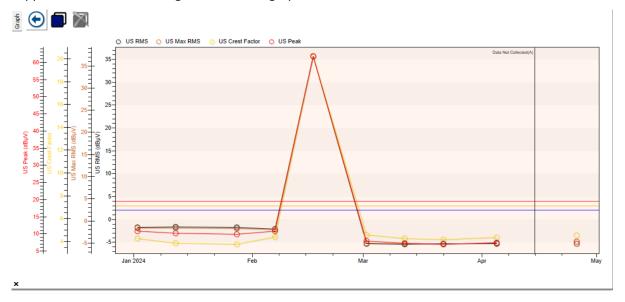
In case of missed measurement, a small calendar icon will appear next to the measurement point (top pane), showing overdue.

If data collection is late more than one entire interval, that scheduled data collection will be considered as fully missed and declared as "Data Not Collected".

Interval TEST 8/Machine 2/NdE Bearing/RS2T(Ht-32k)											
		Level Name	RMS	Max RMS	Peak	Crest Factor	Sampling	Date	Time	Length (	Operate
		Danger	-5,33	-5,13	7,77	4,54	32000	25/04/2024	20:38	2	default
	٠	Danger	Data not c	Data not c	Data not c	Data not c	Data no	14/04/2024	20:36		Data n
	۲	Danger	-5,28	-5,06	7,5	4,39	32000	04/04/2024	20:36	2	default
	•	Danger	-5,34	-5,21	7,05	4,17	32000	21/03/2024	20:33	2	default
		Danger	-5,36	-5,19	7,28	4,28	32000	11/03/2024	20:28	2	default
		Danger	-5,3	-5,06	7,9	4,59	32000	01/03/2024	20:25	2	default
		Danger	35,65	37,16	61,76	20,21	32000	16/02/2024	20:15	2	default
	•	Danger	-2,09	-1,97	10,83	4,41	32000	06/02/2024	20:07	2	default
		Warning	-1,75	-1,67	9,86	3,79	32000	27/01/2024	20:02	2	default
		Warning	-1,65	-1,6	10,13	3,87	32000	11/01/2024	19:58	2	default
		Danger	-1,78	-1,63	10,76	4,26	32000	01/01/2024	19:54	2	default

This status will take place of the expected measurement data in the bottom pane;

It will also generate an event that can be seen in the trend graph, where the measurement data was supposed to be, thus leaving a "hole in the graph"



If the asset/component is set to Workshop node, meaning that it is not in operation at all, ICI will reset.

ICI can be deactivated and all statuses connected with it will disappear. Right-click on the node, select Interval Compliance Indicator and deactivate it.



# 13. Upload and download between UAS3 and your SDT Instrument

Instrument (SDT340, SDT270 or LUBExpert) functions as slave to the UAS3 software.

That practically means that Instrument receives Database, Work orders, Alarms, and all other information to work with, from UAS3. Instrument will work with what was uploaded. To make it simple and practical:

- Instrument can work with one database (Tree Structure) at the time, the one uploaded;
- UAS3 uploads one database (Tree Structure) to instrument at the time;
- Once database (Tree Structure) uploaded, it contains all information from UAS3 database;
- Uploading new database (Tree Structure) deletes existing one in the instrument;
- Instrument can "serve" several UAS3 software, always downloading data to same one.

In practical operation, when we decide to collect data, inspect or replenish grease, we will upload that database (Tree Structure) and our instrument is ready to collect data using settings defined in Tree Structure, store data in exact positions, execute work orders, react to assigned alarms.

Once instrument is connected to UAS3 via USB cable, left click on Device in top toolbar and there are several actions you can perform:

9		Ultranalysis Suite Licensed to SDT
File View Tree Nodes Reports Utilities Options	Device ?	
	SDT340 +	Upload from PC to S0T340
SD T340 Tree Work Orders/Survey		Download from SDI340 to PC
E Manual 340		Update Firmware Upload key
🕀 🔬 🗧 PROCESS 1		Oproad key
🕂 🛒 🔶 FAN GROUP		
in 💷 🔺 FAN 1		

Instrument update and upgrade functions:

- Upload key when instrument is upgraded with new functionalities, purchased key needs to be uploaded, this function enables that;
- Update firmware as our users, in case of updates on instrument's firmware, you will be informed to perform update, this function enables that.

Database and collected data transfer:

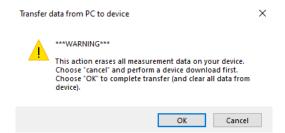
- Upload from PC to SDT340 this function performs transfer of database (Tree Structure) from your UAS3 to your instrument. It is performed as follows:
  - Power on your instrument and connect it with you PC via USB cable;
  - Left click on Upload from PC to SDT340 and transfer window will pop up.

	SDT device is ready.	e
<ul><li>USB</li><li>Custom</li></ul>	192, 168, 210, 1	Transfer Close



The instrument is properly connected and recognized, and you need to press Transfer button.

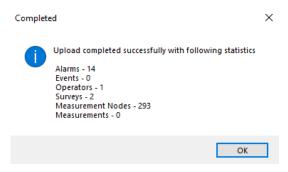
Following message will pop up every time transfer from PC to instrument is attempted:



In case you have data from previous data collection/inspection, new upload will erase it, so make sure that data from instrument is downloaded. If it is, press **Ok** and transfer will begin:

💩 Upload fr	om PC to SDT340	×
	SDT device is ready.	C
<ul> <li>USB</li> <li>Custom</li> </ul>	192.168.210.1	Transfer Close
Exporting sur	veys.	

Once finished, data transfer confirmation will pop up:



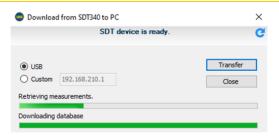
Data is transferred and you are ready for fieldwork (from the data standpoint).

- Download from SDT340 to PC this function performs transfer of collected data from your instrument to UAS3. It is performed as follows:
  - Power on your instrument and connect it with you PC via USB cable;
  - Left click on **Download from SDT340 to PC** and transfer window will pop up.

💩 Download	d from SDT340 to PC		Х
	SDT device is ready.		C
<ul> <li>USB</li> <li>Custom</li> </ul>	192. 168. 210. 1	Transfer Close	

The instrument is properly connected and recognized, and you need to press Transfer button.





Once finished, data transfer confirmation will pop up:

Complet	ed	×
	Transfer completed successfully with following statistics Newly inserted	
	Alarms - 0 Events - 0 Operators - 0 Surveys - 0 Measurement Nodes - 0 Measurements - 0	
	ОК	

Your collected data is now in UAS3, ready to be overviewed and analyzed.

#### NOTE!

In case following window appears:

	rom PC to SDT340 IDT device seems to be conn	ected to the computer.
USB     Custom	192.168.210.1	Transfer Close

Check if the instrument is powered on, check connection and click on refresh icon in top right corner.

Do not change database while instrument is collecting data in the field.

In case you are not downloading to same PC where it was uploaded from, and database will not be recognized, UAS3 will create Rescue Node, so you will not lose your data. Copy data from Rescue Node and paste it to the right place (using backup procedure, explained later).



# 14. Data overview and analysis - Top, Graph, and Bottom Pane

Once collected data is downloaded to UAS3, it should be overviewed, alarms acknowledged, analysis done if needed – data should be used for what their purpose is: better understanding of asset's condition and extracting actionable conclusions from collected data.

PROCESS 2

3

Task of UAS3 in that process is to display all collected data in most optimal and useful way and provide tools to work with data.

# 14.1. Top Pane

Instrument tab (SDT340 or SDT270/LUBExpert)

2 Tree Structure in collapsed state

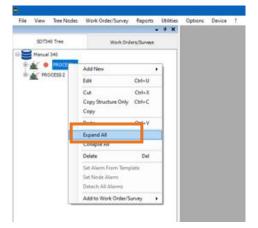
Primary nodes displayed.

Alarm indicator active, showing **DANGER** alarm condition of at least one of the nodes within (in this case) PROCESS 1.

3 Number of measurements within selected Node

**4** Number of measurements in alarm, shown per alarm level, interactively opening measurement (as explained in Managing Alarms section)







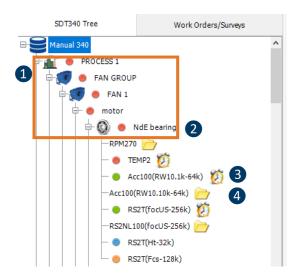
Selecting Nodes, opening child Nodes, or closing to Parent node can also be done using arrows on your keyboard, as follows:

Up – moves selection up through opened items.

- Down moves selection down through opened items.
- Right opens nodes and measurements contained in selected item.
- Left closes nodes and measurements contained in selected item.



Tree Structure itself contains important additional information:



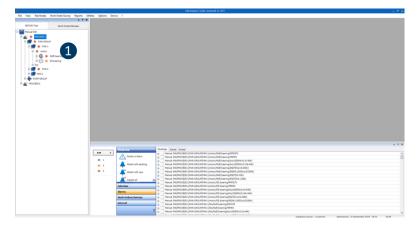
1 Alarm status of the Node

2 Alarm status of the measurement, where data triggered alarm

**3** Clock icon indicating that data collection is overdue, based on assigned interval

**4** Folder icon, indicating that measurement point does not contain any data

To display data for each of nodes or measurement, select it and data available for that node or measurement will be displayed in Graph Pane and Bottom Pane:





þ.		Ultranutysis Suite Licensed to SDT	
File View TreeNodes WorkOrder/Survey Reports Utilities Options Dev	(e )		
+ # X			
SD TD 40 Tree Work Orders Turners			
E Manual 340			
0 🔬 🔸 MOCESS I			
🔆 🛒 🗧 FAN GROUP			
0 🐨 🔸 FAN1			
0 0 • Nit bearing			
B () O DEbearing			
a ta			
0 🛒 😐 Fax 2			
0- 10 FAN 3			
ile 🛓 PROCESS 2			
			- 1 8
34 8	Alarma	efrigi Alama Events	
14 A	Points in Alarm	Manual JAG/RECESS L/RAN GROUP/FAIL Linets/NatE bearing/RM9255 Manual JAG/RECESS L/RAN GROUP/FAIL Linets/NatE bearing/TEM92	
• 1	213	Manual 340/RECESS URAN GROUP/RAN Linetor/Nell Searing/TEM2 Manual 340/RECESS URAN GROUP/RAN Linetor/Nell Searing/Act/00(2805.5k-64k)	
• 1	Attach with existing	Manual Applied Links (BAB 480/BAB Linksto/HBE bearing/Acc200/BIB3.28-446)	
		Manual 340/RROCESS 1/KAN GROUP/KAN L/motor/NdE bearing/RSIT/Soci/5-259k)	
• 1	Attach with new 0	Manual 340/MOCESS L/KAN GROUP/FAN L/notur/NdE bearing/RSINL000/oc/5-2544)	
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Manual Jed/REOCESS L/KAN GROUP/KAN L/Instan/NdE bearing/RSET(H=32k)	
	🔎 Detach all 🛛 💌 🔍	Manuel 240/RECCESS L/RAN GROUP/FAIN L/Inster/NoE bearing/RSI/(Yos-CBN) Manuel 240/RECCESS L/RAN GROUP/FAIN L/Inster/CE bearing/RSI/(Yos-CBN)	
	Selection	Manual 340/RECESS URAN GROUP/PAN Unoto/OE bearing/REPG20 Manual 340/RECESS URAN GROUP/PAN Unoto/OE bearing/REP92	
		Manual September (Jan Gaburiyan Linutur) (E barring laccia) (MNIS, 14-64)	
	Alarms	Manuel 340/WROCESS L/WAN GROUP/PAN L/metor/DE bearing/Recc00(RWU). 104-64k)	
	Work Orders/Surveys	Manual 340/RROCESS L/RAN GROUP/PAN L/motor/DE bearing/RS21(FocUS-2568)	
	Interval	Manual 340/MOCESS L/MAN GROUP/AN L/metu/OE bearing/RS2NL100/FevUs 258k)	
	and the second s		

1 When Node containing other nodes, but not directly measurements is selected, Graph Pane does not display data, and Bottom Pane displays all measurements within selected Node

SDT340 Tree Work 0	rders/Surveys							
Manual 340		Click in	ndicator to show/hide its i	curve in graph		1	STATIC TREND	
PROCESS 1	RPM270					<u>^</u>		
B 🛒 🔸 FAN GROUP B 🛒 🗧 FAN 1	TEMP2	24 Celcius Temperature						
	Acc100[10.1k-64k]	0.04 g Acc RMS	0.2 g Acc Peak	3.85 mm/s Velocity RMS	3.8 Acc Crest factor			
RPM270	Acc100[10_10k-64k]							
<ul> <li>TEMP2 100</li> <li>Acc100(RW10.1k-64k) 100</li> </ul>	RS2T	40.6 dBµV US RMS	42.1 dBµV US Max RMS	62.9 dBpV US Peak	12.9 US Crest factor			
Acc108(RW10.10k-64k)	R52NL100							
RS2T(FocUS-256k) RS2NL100(FocUS-256k)	RS2T	41.4 dBµV US RMS	42.3 dBµV US Max RMS	64 dBµV US Peak	13.6 US Crest factor			
RS2T(Ht-32k) RS2T(Fcs-128k)			TIME WAVEFORM				DYNAMIC SPECTRUM	
III (2) • DE bearing III (2) fan III (2) • FAN 2 IIII FAN 3 • FUMP GROUP								
III 😧 🐠 DE bearing III 💇 Fan III 💓 🗧 FAN 2 IIII 🛒 FAN 3 IIII PUMP GROUP								
	8 2	arma A Point in Alem		PROCESS 1/FAN GROUP/F	Ari Unotoji/di bearing/i			
III 😧 🐠 DE bearing III 💇 Fan III 💓 🗧 FAN 2 IIII 🛒 FAN 3 IIII PUMP GROUP	8 2	Points in Alarm	<ul> <li></li></ul>	/PROCESS 1/FAN GROUP/F /PROCESS 1/FAN GROUP/F /PROCESS 1/FAN GROUP/F	AN 1/motor/NdE bearing/Ti AN 1/motor/NdE bearing/A	EMP2 cc100(RW10.1k-64k)		
		1	Manual 340/	/PROCESS 1/FAN GROUP/F /PROCESS 1/FAN GROUP/F /PROCESS 1/FAN GROUP/F /PROCESS 1/FAN GROUP/F	AN 1/motor/NdE bearing/T AN 1/motor/NdE bearing/A AN 1/motor/NdE bearing/A	EMP2 cc100(RW10.1k-64k) cc100(RW10.10k-64k)		
		Points in Alarm	Manual 340)     Manual 340)	PROCESS L/FAN GROUP/F PROCESS L/FAN GROUP/F PROCESS L/FAN GROUP/F PROCESS L/FAN GROUP/F PROCESS L/FAN GROUP/F PROCESS L/FAN GROUP/F PROCESS L/FAN GROUP/F	AN 1/motor/NdE bearing/T AN 1/motor/NdE bearing/A AN 1/motor/NdE bearing/A AN 1/motor/NdE bearing/R AN 1/motor/NdE bearing/R AN 1/motor/NdE bearing/R	EMP2 cc100(RW10.1k-64k) cc100(RW10.10k-64k) S2T(focUS-256k) S2TL100(focUS-256k) S2TL100(focUS-256k) S2T(Ht-12k)		
<ul> <li>B O fan</li> <li>B O fan</li> <li>B O FAN 2</li> <li>B FAN 3</li> </ul>		Points in Altern Attach with existing lection	Manual 340)     Manual 340)	PROCESS L/FAN GROUP/F PROCESS L/FAN GROUP/F PROCESS L/FAN GROUP/F PROCESS L/FAN GROUP/F PROCESS L/FAN GROUP/F PROCESS L/FAN GROUP/F PROCESS L/FAN GROUP/F	AN 1/motor/NdE bearing/T AN 1/motor/NdE bearing/A AN 1/motor/NdE bearing/A AN 1/motor/NdE bearing/R AN 1/motor/NdE bearing/R	EMP2 cc100(RW10.1k-64k) cc100(RW10.10k-64k) S2T(focUS-256k) S2TL100(focUS-256k) S2TL100(focUS-256k) S2T(Ht-12k)		

2 When Node containing measurements is selected, Graph Pane shows Matrix, containing most recent reading for each sensor contained, but not displaying Static Trend Graph, Time domain and Frequency domain. Bottom Pane contains all measurements in selected Node and Events displayed when Events tab is selected.

# 14.2. Bottom Pane

Bottom Pane contains huge amount of data related to collected data (readings), Alarms and Events.

As mentioned above, displayed data depends on selected Node level.

At any level higher than measurement point, **Bottom Pane** will display all measurement points selected **Node** contains and all Events assigned to selected **Node**.



#### 14.2.1. Visualization

	Alarms Deadrigs Alarms Events	* 0 X
SDT343 Tree         Work Orders/Surveys           Image: Surveys         Image: Surveys           Image: Surveys         <	2         Manual 34(MPGCESS 1)/KM GG00/MAX (http://kE basing/BM279           1         Annual 34(MPGCESS 1)/KM GG00/MAX (http://kE basing/BM279           1         Annual 34(MPGCESS 1)/KM GG00/MAX (http://kE basing/BM279           4         Annual 34(MPGCESS 1)/KM GG00/MAX (http://kE basing/BM279           6         Annual 34(MPGCESS 1)/KM GG00/MAX (http://kE basing/BM279           6         Annual 34(MPGCESS 1)/KM GG00/MAX (http://kE basing/BM279           6         Annual 34(MPGCESS 1)/KM GG00/MAX (http://kE basing/BM279           7         Manual 34(MPGCESS 1)/KM GG00/MAX (http://kE basing/BM279           8         Annual 34(MPGCESS 1)/KM GG00/MAX (http://kE basing/BM279           9         Manual 34(MPGCESS 1)/KM GG00/MAX (http://kE basing/BM279	
G I • FAN 1	1	
⊕-@ ● N<2E bearing ⊕-6% ● DE bearing ⊕-fan	Selection Airms	
0: 💓 兽 FAN 2 G- 💓 FAN 3	Work Orders / Surveys Interval	
<ul> <li>In the property of the process 2</li> <li>In the process 2</li> </ul>	2	

1 Node (not measurement) is selected

2 If Readings tab is selected, Bottom Pane displays all measurement points Node contains

			4	
SDT340 Tree Work Orders/Surveys		Alarms	Readings Alarme Events	* 7 X
G S Manual 340	8 2	Points in Alarm	Event Date	Event Description
PROCESS 1	• 1		20/06/2020 18:22:00	Bearing replaced(M)
e FAN GROUP	• 1	Attach with existing		
🕂 💓 🔸 FAN 1	• 1	Attach with new		
		Detach all		
III-8,78 😑 DE bearing		Selection		
D-fan D: 🗊 🔴 FAN 2		Alarms		
10 10 FAN 2 10 10 FAN 3		Work Orders/Surveys		
D- TR PUMP GROUP		Interval		
B- ▲ PROCESS 2		:		
				Database server: : localhost Wednesday, 23 September 2020 19:21 NUM

**3** Node (not measurement) is selected

4 If Events tab is selected, Bottom Pane displays all Events added to selected Node. Event can be edited if right click on selected event.

If measurement is selected, Bottom Pane displays all readings and alarms.

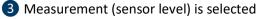
Events are not assigned to measurement at the sensor level, but to node (asset, component, or non-repairable item):

SDT340 Tree Work Orders/Surveys	1 2	Alarms 2		ilarms Events al 340/PROCESS 1/FAN GROUP/FAI	N 1/motor/NdE bearing	g/R52T(Ht-32k)						<b>↓</b> ₽ )
Hermal 340	• 1	Points in Alarm		Level Name	RMS	Peak	Crest Factor	Sampling Rate	Date	Time	Length (Sec)	Operator
E- C FAN GROUP		Attach with existing	- •	Alert	34.95	51.99	7.11	32000	23/09/2020	11:32	10	default
	• 0		- •	Warning	33.8	51.9	8.04	32000	23/09/2020	11:31	10	default
🗁 💓 😐 FAN 1	• •	Attach with new	•	Danger	39.06	61.63	13.45	32000	23/09/2020	11:31	10	default
🖃 😑 matar 🕒 🚳 🖷 NdE bearing			•	Danger	46.8	59.8	4.47	32000	09/08/2020	23:35	10	default
- #PH272 (***) - TEMP2 (***) - Accuto(towns.18:444) (***) - REST(40:45:2644) (***) - REST(40:45:2644) (***) - REST(40:45:2644) (***) - REST(40:45:2644) (***) - REST(40:45:2644) (***) - REST(40:45:2644) (***)		Selection Alarms Work Orders/Surveys Interval										
IR-🛞 😑 DEbearing	_							Databas	e server: : localhost	Wednesday, 2	3 September 2020 20:08	NUM

1 Measurement (sensor level) is selected

**2** If Readings tab is selected, Bottom Pane displays all reading data for all readings unless otherwise set (most recent, in certain period)

SDT340 Tree Work Orders/Sarveys		Alarms	Readings Alarms Events 4			+ # X
E S Menual 340	1 *	<u>^</u>	- Fan motor NdE CF		USCrestFactor	
🖙 🛓 😐 PROCESS 1	• 1	Points in Alarm		Level Name		Value
E-10 FAN GROUP		Attach with existing	- •	Alert		6
🗁 🛒 😑 FAN 1	• •	<b>—</b>	•	Werning		8
🗁 📵 motor	• •	Attach with new	•	Danger	1	10
🕡 🙆 😐 NdE bearing		-	의 🔺 Node Alarm		USRMS	
- RPM270		🔎 Detach all 💌	T	Level Name		Value
— 🖷 темра 🎁		Selection		Alet		30
- e Acc100(RW10.1k-64k) 💋		Selection		Warning		36
-Acc100(RW10.10k-64k)		Alarms	L i	Danger	4	42
e RSZT(FocUS-236k)		Work Orders/Surveys				
-R52NL100(fecUS-250k) 🤭		Interval				
- • RS21(HL-S2k) - • RS21(HL-S2k)						
		÷				
IB-600 Of bearing		Ultr	analysis Suite Licensed to SDT		Database server: : localhost	Wednesday, 23 September 2020 20:13 NUM



4 If Alarms tab is selected, Bottom Pane displays all alarms assigned to this measurement point, including details



#### 14.2.2. Customizing Toolbox

Bottom pane Toolbox provides several tools to apply action on selected items in Bottom Pane. Tools display can be customized by removing or adding tools.

Selection
Filter
Parameters
Selection
Alarms
Work Orders/Surveys
Interval
»

	Alarms	Readings Alarms Events	
8 💲	A	Manual 340/PROCESS 1/FAI	N GROUP/FAN 1/motor/NdE bearing/RPM270
100	Points in Alarm	Hanual 340/PROCESS 1/FAM	N GROUP/FAN 1/motor/NdE bearing/TEMP2
• 1			N GROUP/FAN 1/motor/NdE bearing/Acc100(RW10.1
• 1	Attach with existing		N GROUP/FAN 1/motor/NdE bearing/Acc100(RW10.1
-			N GROUP/FAN 1/motor/NdE bearing/RS2T(focUS-250
• 1	Selection	T	N GROUP/FAN 1/motor/NdE bearing/RS2NL100(focU
	Alarms		N GROUP/FAN 1/motor/NdE bearing/RS2T(Ht-32k) N GROUP/FAN 1/motor/NdE bearing/RS2T(Fcs-128k)
	Work Orders/Surveys		
	Interval	1	
	\$	Show More Buttons	
	Datal ase serve		ober 2020 13:38 NUM
		Navigation Pane Options	
			Ht Salartian
		Add or Remove Buttons	Jelecuon
			Marms
			Work Orders/Surveys

Click on arrow at the bottom to hide or show tools

All tools displayed

Selection	Readings Alarms	Events									•		
1 *	B Manual 340/PROCESS I/FAN GROUP/FAN 1/motor/NdE bearing/RS2T(H-32k)												
1     Filter		Level Name	RMS	Max RMS	Peak	Crest Factor	Sampling Rate	Date	Time	Length (Sec)	Opera		
	•	Alert	34.95	36.46	51.99	7.11	32000	23/09/2020	11:32	10	default		
	0	Warning	33.8	34.94	51.9	8.04	32000	23/09/2020	11:31	10	default		
• 0		Danger Danger	39.06 46.8	41.37 47.23	61.63 59.8	13.45 4.47	32000 32000	23/09/2020 09/08/2020	11:31 23:35	10	default default		
	<u>ا</u>	Danger	40.0	17.25	39.0	1.00	52000	03/00/2020	20.00	10	Gerouit		
Selection													
Alarms													

As mentioned, if measurement (sensor level) is selected, Bottom Pane contains reading data.

Exact data to be displayed can be customized by selecting **Selection** in Bottom Pane toolbar, then selecting **Parameters.** 

Measurement Parameters window will pop up.

Measurement Parameters		×
Measurements	Columns	Measurement nodes
All Available Measurements		
Most Recent 0 Measur	ements	
Measurements Between 02/02/2012	<ul> <li>▼ - 02/02/2012</li> <li>▼</li> </ul>	
O Measurements From	✓ Event	
		Save

First tab, Measurements, enables you to define measurements you want to see:

- All Available Measurements all measurements will be displayed, entire history;
- Most Recent allows you to enter how many most recent measurements should be displayed;

- Measurement Between allows you to set date range to display measurements;
- Measurements From allows you to select the event and display measurements only after that event.

The second tab, **Columns**, enables you to define data to be displayed in Bottom Pane.

It is slightly different for SDT340, SDT270 and LUBExpert, so both will be explained.

🐵 Measurement Paramete	ers		×
Measurements		Columns	Measurement nodes
RPM     Ultrasound	<ul> <li>Temperature</li> <li>Vibration</li> </ul>		
Soft ID         Sensor Name         Date         Time         Manual input         Sensor S/N         Instrument S/N         File Name         Ø Sampling Rate         Length (Sec)	9 Op Ala 9 Lev 9 RM 9 Ma 9 Pei	x RMS	Save

#### 14.2.4. SDT 340 Measurement Parameters/Columns

You can decide what to display different data for each sensor. Select sensor (RPM, Temperature, Ultrasound, Vibration) and check all data you want to display in the bottom pane. It is a matter of practicality and personal affinity, some users want to see all, some want to see only certain items.

#### 14.2.5. SDT 270 Measurement Parameters/Columns

🐵 Readings		×	😵 Readings			×
Readings Static Columns	Dynamic Columns	Measurement nodes	Readings	Static Columns	Dynamic Columns	Measurement nodes
	Temperature		Ultrasound			
O Humidity	Ultrasound (LUBEsense 1)	/ibration	○ Vibration			
	Manual input Sensor S/N Instrument S/N Operator Length (Sec)		Soft ID Sensor Name Time Manual input Sensor S/N Instrument S/N File Name Sampling Rate Length (Sec)	Віс	s Per Sample erator	
		Save				Save

Since measurements in SDT270 and LUBExpert are separate for Dynamic and Static mode, the same applies for Columns. In both Static and Dynamic columns settings, select sensor and after that check all data you want displayed. What you see on screen as checked is just a personal affinity, you should customize it any way you find most suitable.

Third tab, **Measurements Nodes**, enables you to select measurement nodes, sensors, for which measurement data you want to be displayed.

Measurements	Columns	Measurement nodes
Select the measurement nodes for wh you want to see measurements' data	ich	
✓ ParaDish2 ✓ FlexID2		
☑ RS2NL100 ☑ RS2NL300 ☑ RS2NL500 ☑ RS2T		
☑ AirSense ☑ UltraSense ☑ RPM270		
☑ RFM270 ☑ TEMP2 ☑ Acc		

#### 14.2.6. Toolbox - Selection - Filter

			<b>,</b> ф
	Selection	Readings Alarms Events	
в *		B: Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RPM270	
	Filter	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/TEMP2	
• 1		🖶 Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/Acc100(RW10.1k-64k)	
• 1	Parameters	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/Acc100(RW10.10k-64k)	
-		Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2T(focUS-256k)	
• 1		Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2NL100(focUS-256k)	
		🜐 Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2T(Ht-32k)	
	Selection	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2T(Fcs-128k)	
	Alarms		
	Work Orders/Surveys		
	Interval		
		2	
		Database server: : localhost Thursday, 24 September 2020 14:12 NUM	

The filter function was explained before, in the section about creating a Work Order/Survey, as well as in Alarm section. Filter serves a purpose to search group of items based on certain criteria.

Left click on filter and filter bar will appear at the bottom of Bottom Pane, as below:

		X
	Selection	Readings Alarms Events
8 *		Hanual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RPM270
	Filter	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/TEMP2
• 1		Banual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/Acc100(RW10.1k-64k)
• 1	Parameters	Hanual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/Acc100(RW10.10k-64k)
		Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2T(focUS-256k)
• 1		Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2NL100(focUS-256k)
		Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2T(Ht-32k)
	Selection	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2T(Fcs-128k)
	Alarms	
	Work Orders/Surveys	
	Interval	
	*	×
		Database server: : localhost Thursday, 24 September 2020 14:08 NUM

Enter criteria separated by ";" and no spacing. All items displayed in Bottom Pane will be filtered based on criteria. You can select them individually or multiple (use shift or ctrl) and you can apply other tools on selected group.

#### 14.2.7. Toolbox – Alarms

As already explained in the section about alarms, Bottom Pane toolbox contains tools and functionalities to apply alarms on multiple items.



-	
Alarms	Readings Alarms Events
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RPM270
Points in Alarm	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/TEMP2
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/Acc100(RW10.1k-64k)
Attach with existing	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/Acc100(RW10.10k-64k)
	B Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2T(focUS-256k)
Attach with new	ii) Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2NL100(focUS-256k)
	ii) Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2T(Ht-32k)
C Detach all	B. Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2T(Fcs-128k)
Selection	
Alarms	
Work Orders/Surveys	
Interval	
	2

Please refer to Managing Alarms section, where functionalities are explained in detail.

#### 14.2.8. Toolbox – Work Orders/Surveys

		<b>▼</b> ₽
Work Orders/Survey	s Readings Alarms Events	
*	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RPM270	
Add to existing	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/TEMP2	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/Acc100(RW10.1k-64k)	
Add to new	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/Acc100(RW10.10k-64k)	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2T(focUS-256k)	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2NL100(focUS-256k)	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2T(Ht-32k)	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE bearing/RS2T(Fcs-128k)	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/RPM270	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/TEMP2	
Selection	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/Acc100(RW10.1k-64k)	
Selection	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/Acc100(RW10.10k-64k)	
Alarms	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/RS2T(focUS-256k)	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/RS2NL100(focUS-256k)	
Work Orders/Surveys	Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/NdE bearing/RPM270	
Interval	Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/NdE bearing/TEMP2	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/NdE bearing/Acc100(RW10.1k-64k)	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/NdE bearing/Acc100(RW10.10k-64k)	
	Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/NdE bearing/RS2T(focUS-256k)	
	Database server: : localhost Thursday, 2-	24 September 2020 16:09 NUM

Please refer to Add items from Bottom Pane to Work Order/Survey section.

#### 14.2.9. Toolbox – Interval & Acquisition time

As explained previously, setting intervals is both mandatory and very useful, enabling numerous other functions as well as making work much easier and better organized. While Interval is set in each measurement point settings individually, in Bottom Pane it can be done both for individual and multiple measurements.

		·
	Settings	Readings Alarms Events
56 *		DZ-PRO/Blasting/Electrical motor 1/NdE Bearing/Vertical/RS2NL100(focUS-256k)
	7 Interval	DZ-PR0/Blasting/Electrical motor 1/NdE Bearing/Vertical/Acc100(RW5.1k-64k)
• 1		DZ-PRO/Blasting/Electrical motor 1/NdE Bearing/Vertical/Acc100(RW10.1k-64k)
. 3	( <sup>1</sup> Acquisition time	DZ-PRO/Blasting/Electrical motor 1/NdE Bearing/Vertical/Acc100(RW10.10k-64k)
	$\smile$	DZ-PRO/Blasting/Electrical motor 1/NdE Bearing/Horizontal/Acc100(RW5.1k-64k)
9		DZ-PRO/Blasting/Electrical motor 1/NdE Bearing/Horizontal/Acc100(RW10.1k-64k)
		DZ-PRO/Blasting/Electrical motor 1/NdE Bearing/Horizontal/Acc100(RW10.10k-64k)
		DZ-PRO/Blasting/Electrical motor 1/NdE Bearing/Axial/Acc100(RWS.1k-64k)
		DZ-PRO/Blasting/Electrical motor 1/NdE Bearing/Axial/Acc100(RW10.1k-64k)
	Selection	DZ-PRO/Blasting/Electrical motor 1/NdE Bearing/Axial/Acc100(RW10.10k-64k)
		DZ-PRO/Blasting/Electrical motor 1/DE Bearing/RS2NL100(focUS-256k)
	Alarms	DZ-PRO/Blasting/Electrical motor 2/NdE Bearing/Vertical/RS2NL100(focUS-256k)
	Work Orders/Surveys	D2-PRO/Blasting/Electrical motor 2/NdE Bearing/Vertical/Acc100(RW5.1k-64k)
	Hore orders/ surveys	D2-PRO/Blasting/Electrical motor 2/NdE Bearing/Vertical/Acc100(RW10.1k-64k)
	Settings	DZ-PRO/Blasting/Electrical motor 2/NdE Bearing/Vertical/Acc100(RW10.10k-64k)
		DZ-PRO/Blasting/Electrical motor 2/NdE Bearing/Horizontal/Acc100(RWS.1k-64k)
		D2-PRO/Blasting/Electrical motor 2/NdE Bearing/Horizontal/Acc100(RW10.1k-64k)
		a. D7-PRO/Blastino/Flertrical motor 2/NdE Bearino/Horizontal/Acc100/RW10.10k-64k)
		Database server: : localhost 🕴 <u>No Device</u> Wednesday, 24 November 2021 08:42 NUM

Select items in **Bottom Pane** you want to apply action to (using **Filter** or manually), left click on Interval in **Bottom Pane** toolbox and left click on **Set Interval** tool. **Measurement Interval** window will pop up, to set interval.

Measurement Interval	×
Interval	3 Week 🔻
	Set Interval



Enter time unit, enter intended interval, and click on **Set Interval**. Interval is now changed in all selected measurements.

This is very useful function, and it becomes very handy in situations when data shows possible problem or deterioration on some assets, when first action needs to be to shorten the interval.

In the same menu, you can set/change acquisition time for multiple measurement points. Select a node (asset/group of assets) and select "Settings" and "Acquisition time" in the bottom toolbox.

ile	View	Tree Nodes	Reports	Utilities	Options	Device	Settings
						- ×	
	SDT34	10 Tree		Work Ord	ers/Surveys		7 Interval
	DZ-PRO						
-	🛛 Blas						( Acquisition time
8	🖻 🎒	Electrical r					-
13	ŧ-	Electrical r					
	±-00	Electrical r	notor 3				
T'I		Line 8					
Ι.		Line 1 FAN					
T	<b>−</b>	<ul> <li>Motor NdF</li> </ul>					
1.5	-Ő	Motor DE					Selection
		Line 2 FAN					Selection
	-0	Motor NdB	£				Alarms
							Alarins
000	0 to	Motor DE					
0-1	<b>₽-</b> Õ	Motor DE Line 11 FAN					Work Orders/Surveys
<b>-</b>		Line 11 FAN NdE Bearin	ıg				Work Orders/Surveys
<b>-</b>		Line 11 FAN NdE Bearin Axial	ıg				
0-		Line 11 FAN NdE Bearin Axial Horizontal	ng				Work Orders/Surveys Settings
<b>-</b>		Line 11 FAN NdE Bearin Axial					

Acquisition time settings menu will pop up:

Sensor Name	RS2NL100	
Sample rate	HtTF-32Ksps	
Acquisition time	00:05	
Il sensors RS2NL1	00(HtTF-32Ksps) for DZ-PRONBLa	isting
Category Path		Acquisition time

Select sensor and sampling rate to have all matching measurement settings (nodes) displayed:

et acquisition time	×	Set acquisition time		
Select the configuration for which you want to modify	y the acquisition time	Select the configurat	ion for which you want to modify the ac	quisition time
Sensor Name RS2NL100		Sensor Name	RS2NL100	
Sample rate HtTF-3 RS2NL100		Sample rate	focUS-256Ksps	
Acquisition time		Acquisition time	HtTF-32Ksps focUS-128Ksps	
Il sensors RS2NL100(HtTF-32Ksps) for DZ-PROVE	Blasting	All sensors RS2NL1	focUS-256Ksps 00(focUS-256Ksps) for DZ-PRO/Blasti	ina
a sensera roznic rodini a sznapaj ter DZ-1 not				-
	Acquisition time	Category Path		Acquisition time
	-	Category Path	\Electrical motor 1\NdE Bearing\Vertica	Acquisition time
	-	Category Path DZ-PRO\Blasting DZ-PRO\Blasting	NElectrical motor 1\NdE Bearing\Vertica	Acquisition time al\RS2NL10 5 sec 100(focUS 5 sec
	-	Category Path DZ-PRO\Blasting DZ-PRO\Blasting DZ-PRO\Blasting	IElectrical motor 1\NdE Bearing\Vertica IElectrical motor 1\DE Bearing\RS2NL IElectrical motor 2\NdE Bearing\Vertica	Acquisition time al\RS2NL10 5 sec 100(focUS 5 sec al\RS2NL10 5 sec
	-	Category Path DZ-PRO/Blasting DZ-PRO/Blasting DZ-PRO/Blasting DZ-PRO/Blasting DZ-PRO/Blasting	NElectrical motor 11NdE Bearing/Verticc NElectrical motor 11DE Bearing/RS2NL NElectrical motor 21NdE Bearing/Verticc NElectrical motor 21DE Bearing/RS2NL	Acquisition time allRS2NL10 5 sec 100(focUS 5 sec alRS2NL10 5 sec 100(focUS 5 sec
	-	Category Path ✓ DZ-PRO/Blasting ✓ DZ-PRO/Blasting ✓ DZ-PRO/Blasting ✓ DZ-PRO/Blasting ✓ DZ-PRO/Blasting	NElectrical motor 11NdE Bearing/Vertica IElectrical motor 11DE Bearing/RS2NL NElectrical motor 21NdE Bearing/Verticat IElectrical motor 21DE Bearing/RS2NL NElectrical motor 31NdE Bearing/Verticat	Acquisition time           allRS2NL10         5 sec           100(focUS         5 sec           allRS2NL10         5 sec           100(focUS         5 sec           allRS2NL10         5 sec
	-	Category Path ✓ DZ-PRO/Blasting ✓ DZ-PRO/Blasting ✓ DZ-PRO/Blasting ✓ DZ-PRO/Blasting ✓ DZ-PRO/Blasting	NElectrical motor 11NdE Bearing/Verticc NElectrical motor 11DE Bearing/RS2NL NElectrical motor 21NdE Bearing/Verticc NElectrical motor 21DE Bearing/RS2NL	Acquisition time           allRS2NL10         5 sec           100(focUS         5 sec           allRS2NL10         5 sec           100(focUS         5 sec           allRS2NL10         5 sec
Category Path	-	Category Path ✓ DZ-PRO/Blasting ✓ DZ-PRO/Blasting ✓ DZ-PRO/Blasting ✓ DZ-PRO/Blasting ✓ DZ-PRO/Blasting	NElectrical motor 11NdE Bearing/Vertica IElectrical motor 11DE Bearing/RS2NL NElectrical motor 21NdE Bearing/Verticat IElectrical motor 21DE Bearing/RS2NL IElectrical motor 31NdE Bearing/Verticat	Acquisition time           allRS2NL10         5 sec           100(focUS         5 sec           allRS2NL10         5 sec           100(focUS         5 sec           allRS2NL10         5 sec

All matching measurement settings will be selected automatically. If you want to change the acquisition time for just some of them, you can de-select them individually. Next, enter the new acquisition time and select the "Set acquisition time" button in the bottom right corner.

Set acquisition time	×	Set acquisition time	×
Select the configuration for which you want to modify the acquisition time		Select the configuration for which you want to modify the acquisition time	
Sensor Name RS2NL100		Sensor Name RS2NL100	
Sample rate focUS-256Ksps v		Sample rate focUS-256Ksps	
Acquisition time		Acquisition time 00:10	
All sensors RS2NL100(focUS-256Ksps) for DZ-PRO/Blasting		All sensors RS2NL100(focUS-256Ksps) for DZ-PROBlasting	
Category Path	Acquisition time	Category Path	Acquisition time
DZ-PRO\Blasting\Electrical motor 1\NdE Bearing\Vertical\RS2NL10	5 sec	✓ DZ-PRO\Blasting\Electrical motor 1\NdE Bearing\Vertical\RS2NL10	
DZ-PRO\Blasting\Electrical motor 1\DE Bearing\RS2NL100(focUS	5 sec	✓ DZ-PRO\Blasting\Electrical motor 1\DE Bearing\RS2NL100(focUS	10 sec
DZ-PRO\Blasting\Electrical motor 2\NdE Bearing\Vertical\RS2NL10	5 sec	DZ-PRO\Blasting\Electrical motor 2\NdE Bearing\Vertical\RS2NL10	10 sec
DZ-PRO\Blasting\Electrical motor 2\DE Bearing\RS2NL100(focUS	5 sec	DZ-PRO\Blasting\Electrical motor 2\DE Bearing\RS2NL100(focUS	10 sec
DZ-PRO\Blasting\Electrical motor 3\NdE Bearing\Vertical\RS2NL10	5 sec	DZ-PRO\Blasting\Electrical motor 3\NdE Bearing\Vertical\RS2NL10	10 sec
DZ-PRO\Blasting\Electrical motor 3\DE Bearing\RS2NL100(focUS	5 sec	DZ-PRO\Blasting\Electrical motor 3\DE Bearing\RS2NL100(focUS	<u>10 sec</u>
<	>	٢	>
s	Set acquisition time	s	Set acquisition time

The acquisition time for all selected measurement settings is now set to new value.

#### 14.2.10. Edit, Delete, Exclude from Trend and setting measurement as reference

There are additional actions that can be taken in measurement itself:

- Edit opens measurement details to be overviewed;
- Mark as Reference sets measurement as reference, to be used in Relative Alarm settings;
- Unmark as Reference cancels the reference setting;
- Delete select reading and use "delete" on you keyboard;
- Colored highlight warns you that highlighted measurement has different acquisition time than one in current settings;
- Exclude from Static Trend Graph this allows you to hide measurement from the graph and it is particularly useful to hide measurement with different acquisition time and have a consistent trend.

										• ×
	Selection	Readings Alarms	Events							
1 *	Filter	Vetropack In	spect/Ventola 34/fan DE b	earing/Ultrasound/RS1	T(ST-Ht)					
• 0	W Pricer		Level Name	RMS	Peak	Crest Factor	Sensor Name	Date	Time	Length (Sec)
• 0	Parameters	•••	Normal	22	35,1	4,52	RS1T	29/08/2017	16:26	15
- •		<b>}</b> 😐	Normal		48.7	5 62	RSIT	29/08/2017	16:24	15
. 0		•	Danger	85,7	Edit	Ctrl+U	RS1T	29/08/2017	14:21	15
		•	Alert	42	Mark as Referen	nce	RS1T	29/08/2017	13:46	60
					UnMark as Refe	rence				
	Selection						-			
	Alarms				Exclude from S	tatic Trend Graph				
	Alaritis						_			
	Work Orders/Surveys									
	Interval									
	÷									
							Da	tabase server: : localhost	Thursday, 17 December 2020	01:25 NUM

Left click on measurement to select it, then right click to open available functions.

When Edit is selected, window with additional measurement information will pop up, as below:

Edit Ultrasound Static Measurer	ment Data		×
Sensor Name RS1T Time Stamp 29/10/2014 08:00 Calculated static values			
USRMS	US MaxRMS	US Peak	US Crest Factor
33.70 dBµV	34.10 dBµV	46.30 dB	
Parameters			
Amplification (dB)	LP Filter Freq	Mixer Frequency (Hz)	
60	[0 - 2.3] KHz	38460	
Info		Extended	
Sensor Serial No.	Last CAL Time Stamp	RPM Sar	npling Rate
89130411	•		
Instrument Serial No.	Last CAL Time Stamp	No. of Samples Sig	nal source 🔉
270120287	15/09/2014 15:00 💌		
			Close

This window offers some additional information about measurement (amplification, mixer frequency, filter, calibration data ...).

When Mark as Reference is selected, measurement will be marked with no further dialog.

When Unmark as Reference is selected, measurement will be unmarked with no further dialog.

To **Delete** measurement, left click to select the measurement and press **Delete** on your PC keyboard and confirmation will be required.



All measurements with **different acquisition time** than one set in current settings will be highlighted so you can easily spot them.

	Selection		Alarms								
*	Filter	E Ve	stropack Ir	nspect/Ventola 34/fan DE b	earing/Ultrasound/RS	1T(ST-Ht)					
0	V me			Level Name	RMS	Peak	Crest Factor	Sensor Name	Date	Time	Length (Sec)
	Parameters	-	•	Normal	22	35,1	4,52	RS1T	29/08/2017	16:26	15
0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			Normal	33,7	48,7	5,62	RS1T	29/08/2017	16:24	15
0				Danger	85,7	98,8	4,52	RS1T	29/08/2017	14:21	15
			•	Alert	42	69,5	23,71	RS1T	29/08/2017	13:46	60
	Selection										
	Alarms										
	Alarms Work Orders/Surveys										



If necessary, measurements can be hidden in Static Trend Graph (not deleted). For consistency of the trend, excluding measurements with significantly different acquisition time is a good thing to do. Note that those measurements are not there as a mistake; In certain suspicious situations it is a good practice to collect longer acquisition time data.

To exclude measurement from Static Trend Graph, select the measurement, right click on it and select "Exclude from Static Trend Graph."

^	Filter	B	Vetropack 1	nspect/Ventola 34/fan DE b	earing/Ultrasound/RS	1T(ST-Ht)					
	T Filter			Level Name	RMS	Peak	Crest Factor	Sensor Name	Date	Time	Length (Se
	Parameters		•	Normal	22	35,1	4,52	RS1T	29/08/2017	16:26	15
	20	-	•	Normal	33,7	48,7	5,62	RS1T	29/08/2017	16:24	15
		-	•	Danger	85,7	98,8	4,52	RS1T	29/08/2017	14:21	15
			•	Alert	42	69,5	23,71	RS1T	Edit	Ctrl+U	60
	Selection								Mark as Reference		
	Alarms								UnMark as Reference		
	Work Orders/Surveys								Exclude from Static Tren	d Graph	
	work Orders/Surveys										
	Interval										
		*									

Measurement will be hidden from Static Trend Graph and it will be displayed differently.

Selection	• <u> </u>	Vetropack I	nspect/Ventola 34/fan DE b	earing/Ultrasound/RS	1T(ST-Ht)					
Filter			Level Name	RMS	Peak	Crest Factor	Sensor Name	Date	Time	Length (Sec
Parameters		•	Normal	22	35,1	4,52	RS1T	29/08/2017	16:26	15
Parameters		•	Normal	33,7	48,7	5,62	RS1T	29/08/2017	16:24	15
		•	Danger	85,7	98,8	4,52	RS1T	29/08/2017	14:21	15
Selection										
Alarms										
Work Orders/Surveys										
Interval										

At any moment, you can include measurement back to Static Trend Graph following same process. The indicator's (RMS, maxRMS, PEAK, and CREST FACTOR) font color will correspond to its alarm status.

• 0	Filter			Level Nam	RMS	Max RMS	Peak	Crest Factor	Sampling Rate	Date	Time	Length (Sec)	Operato
	Parameters			Danger	-5,33	-5,13	7,77	4,54	32000	25/04/2024	20:38	2	default
0	Mar Handhieters	-		Danger	-5,28	-5,06	7,5	4,39	32000	04/04/2024	20:36	2	default
• 1				Danger	-5,34	-5,21	7,05	4,17	32000	21/03/2024	20:33	2	default
				Danger	-5,36	-5,19	7,28	4,28	32000	11/03/2024	20:28	2	default
				Danger	-5,3	-5,06	7,9	4,59	32000	01/03/2024	20:25	2	default
	Selection			Danger	35,65	37,16	61,76	20,21	32000	16/02/2024	20:15	2	default
		-		Danger	-2,09	-1,97	10,83	4,41	32000	06/02/2024	20:07	2	default
	Alarms			Danger	-1,75	-1,67	9,86	3,79	32000	27/01/2024	20:02	2	default
	Work Orders/Surveys	-	•	Danger	-1,65	-1,6	10,13	3,87	32000	11/01/2024	19:58	2	default
		_	•	Danger	-1,78	-1,63	10,76	4,26	32000	01/01/2024	19:54	2	default
	Settings												

Note: By clicking on a column header of the indicator, you can hide/show that indicator in the trend graph.

1-

## 15. Graph Pane

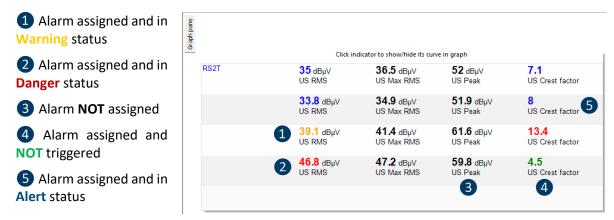
Graph Pane contains Matrix with recent measurements, Static Trend Graph, Time Domain and Frequency Domain, all of them essential tools for signal understanding and signal development monitoring. All available tools are powerful help in delivering actionable conclusions and still easy and practical in daily use. Here are the details about them.

## 15.1. Matrix

Matrix shows four most recent readings, all four indicators (RMS, maxRMS, Peak and Crest Factor) for Ultrasound and Vibration and additionally, Added Grease quantity for LUBESense1 sensor (LUBExpert and SDT 270 with LUBExpert features).

Reading data is sorted from most recent to oldest, top to bottom.

Each Ultrasound and Vibration indicator is being displayed in color corresponding with alarm status, as in picture below:



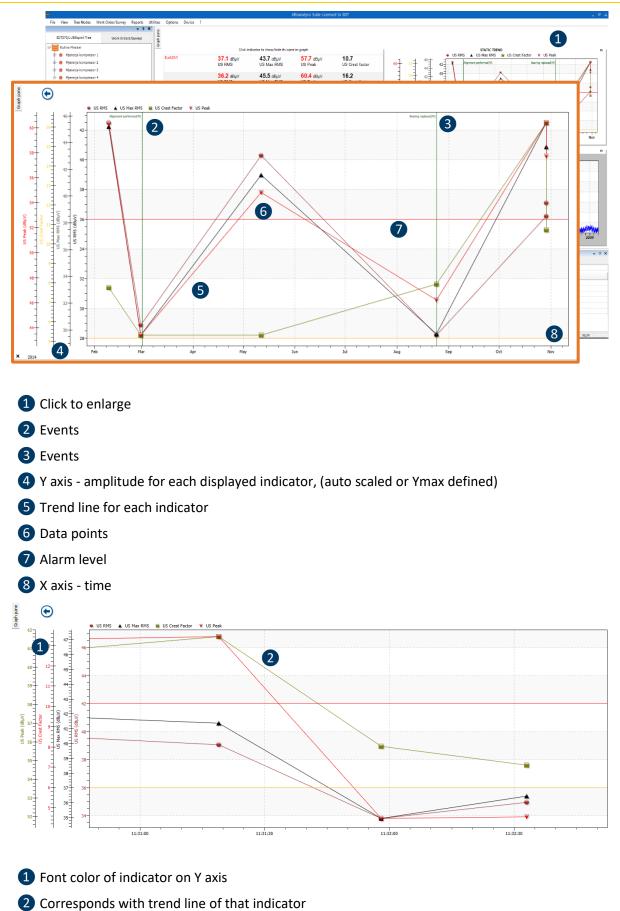
By right clicking on indicator, you hide or show it in Static Trend Graph, focusing on indicator most important for the purpose of analysis.

The same can be done by clicking on a column header of each indicator in the bottom pane.

## 15.2. Static Trend Graph

Static trend graph plots reading values in respect to time they were collected. It can be understood as a plot describing behavior in time. Values being table, trending down or trending up, are essential information for understanding asset health. Static Trend Graph contains lots of information and can be easily customized. Here is an example of Static Trend Graph, so we can explain all details:





You can customize your Graphs.

#### 15.2.1. Define reading data to display

Left click on Options and then Graph & Static Trend settings in top toolbar, as shown in picture below:

Ultranslysis Suite 3 Licensed to S01 le View Tree Nodes Work: 201270/LUBDpart Tree Katina Hesser			Options Device System Settings Graph & Static Database Setting	rend Settings	dicator to show/hide	its curve in graph					STATIC TREF	0	-	٥
🕀 😑 Mjerenja kompresor 1			ExtUS1	37.1 dBaV	43.7 dBuV	57.7 dByV	10.7		100 - 100 -	100 100		RMS 😑 US Crest Factor		_
🕀 😑 Mjerenja kompresor 2				US RMS	US Max RMS	B US Peak	US Cres	t factor	10 - 10 -	80 - 80	Alignment performed)	6 Georing rep	faced(M)	
🕀 😑 Mjerenja kompresor 3				36.2 dBuV	45.5 dBuV	60.4 dBuV	16.2							
Mjerenja kompresor 4     Power off measurement				US RMS	US Max RMS	US Peak	US Cres	t factor	M 40 40 40		N			
B-Before power off B- O Bektro Motor DE				28.2 dBpV US RMS	29.7 dBpV US Max RMS	46.2 dBpV S US Peak	7.9 US Cres	t factor	20 0 20	20 50 20	1			
Bektro Motor NDE     Kompresor DE     Kompresor NDE     Kompresor NDE     Vertől				40.3 dBµV US RMS	<b>41.6</b> dBµV US Max RMS	54.8 dBµV S US Peak	5.3 US Crest factor	2014		Mar Apr May	lay Jun Jul A	ig Sep Oct		
B-Vijak 1 NDE B-Vijak 2 NDE		II. 1			TIME WAVEFORM						DYNAMIC SPEC	TOUL		
C = O So(4a → DetUS(DY+H1) Ø → DetUS(DY+H1) Ø → Price (DSUS(DY+H2) Ø ↔ Price (DSUS(DY+H2) Ø ↔ Ute Rpisg ↔ Ute Rpisg ↔ vijøk 2 DE	3	×	≤ _500 -1000	Vjedstronovalstvo v Narodna programa i por z	Ala a a a a a a a a a a a a a a a a a a	6 7		(4) <b>(44)</b> 10	1200 #2 1900 #41 #4 1900 #45 #5 1900 #43 1900 #45 1900 #45 1	-   41/10-10-10- - 460 - 660		100 100 100 100	1950 2050	
		l c		erval	Readings Alams									
		11	1 *	Set interval	B. Kutina Nazza	n/Mjerenja kompresor 4/Spo			1					
			••			Level Name	RMS	Peak	Creat Pactor	Sensor Nerre	Date	Time		igth (Sec)
			• •			Danger Danger	37,1 36,2	57,7 50,4	10,72	BeUS1 BeUS1	29/10/2014 29/10/2014	00:05	10	
			• 1			Danger	28,2	45,2	7,94	DeUSL	29/08/2014	34:45	10	
					-	Danger	40,3	54,8	5,31	BeUS1	11/05/2014	15:05	10	
					•	Danger	25,9	43,4	5,31	BeUS1	28/02/2014	14:19	10	
			Alar Wor	ction ms k Orders/Surveys rval	•	Datper	42,5	60,3	7,78	DEUSI	09/02/2014	38:32	10	
Graph pane				\$						D	atabaseserveri i localhost	Thursday, 17 December	r 2020 02:15	N

Graph & Static trend – Default Options window will pop up:

	Graph and Static trend - Default Options	×	<ol> <li>Select tab General</li> </ol>
1	General Static Trend Graph Export Image Number of Measurements to Show		
	Aumori of Messurements to Snow     (a) Al Available Messurements		2 All available data will be displayed
	O Most Recent   Measurements		3 Most recent X readings will be displayed
	Measurements Under     17/12/2020     International internatione international international international internatione i		Only readings in defined date range will be displayed
			<b>5</b> Only readings since selected interval will be displayed
			6 Confirm settings
	Statictrend General Options		
	Apply Settings Save & Close		

#### 15.2.2. Define Static Trend visual & Y scale settings

Left click on Options and then Graph & Static Trend settings in top toolbar and Graph & Static trend – Default Options window will pop up.

- 1 Select Static Trend tab
- 2 Select readings type (Ut, Vib, TEMp ...)
- 3 Select color scheme

6 Apply selected settings

7 Save settings and close the menu

- 4 Select color for each indicator
- **5** Define Y scale
  - If left unchecked, Y axis will auto scale
  - If checked, max Y value needs to be defined and scale will be displayed from -15 to "defined value" dBµV

ld 🔄 italic 🗌 underline
<b>,</b>
IS MaxRMS
Show US Max RMS
Max Y 100
JS Crest Factor
Show US Crest Factor
Line Color Gold 🗸
Max Y 100

#### 15.2.3. Define basic visuals of Time Domain, Frequency Domain and Initial-Base Line graph

This menu allows you to set up a visual for each of mentioned graphs:

Graph and Static trend - Default Options General Static Trenc Graph E nage	×	1 Select Graph tab
Settings related to:  Time Domain Frequency Domain Initial-Base Line		2 Select type of the graph you want to apply settings to
-		3 Select color scheme
Desk Background White  Label & Text Black	Graph Background White Scaph Foreground Black	4 Apply selected settings
Label Font Arial V Line Color Dodger8lue V	i bold _ italic _ underline	<b>5</b> Save settings and close the menu
	4 5	
	Apply Settings Save & Close	

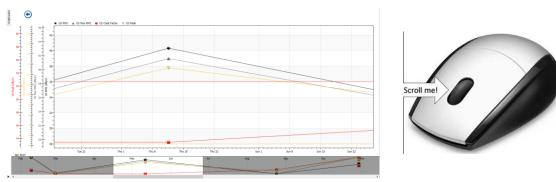
#### 15.2.4. Define preferred settings for image export (Graph export)

This menu allows you to save your preferred setting for image export. Once you select exporting image, those settings will be offered as default, but you can still change them in export menu

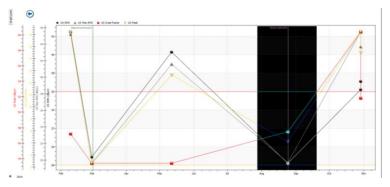
eneral Static Tre	nd Graph Exp	ort Image			
Export					
O EMF	WMF OB	MP OJPG	PNG	○ Text/Data	
Export Destination	1				
ClipBoard	◯File	OPrin	nter		
	Brows	•			
	brows				
Export Size		-		-	
Pixels	OMillimete	rs ()	Inches	OPoints	
Width	12	80 /	768		
DPI	3	00 🔽 Large	Font		
		e corgo	. i olic		

#### 15.2.5. Zoom

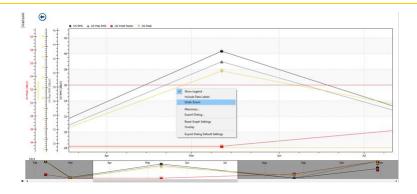
Place mouse pointer in graph and scroll mouse wheel to zoom in and zoom out. Zoom bar at the bottom of the graph shows you where the part of the graph you are looking at is positioned in entire graph. Hold the non shaded part and move it left and right to dee other parts of the graph.



Another way to zoom in is to hold a left click on your mouse and drag to form a rectangle. Selected areas will be displayed. To zoom out, use the mouse wheel.

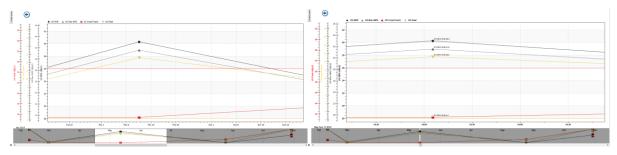


To undo zoom and go back to original full view, right click within the graph area, and choose **Undo Zoom** function, as below:



#### 15.2.6. Show/Hide Labels

Labels containing date, time, and value for each datapoint can be shown or hidden. Right click anywhere within the graph area and select **Include Data Labels**.



#### 15.2.7. Maximize

Right click anywhere in the graph area and select **Maximize**; graph will be displayed full screen. To exit full screen, press *esc* or click in top left corner of the graph.

#### 15.2.8. Export graph

Right click anywhere in the graph area and select **Export Dialog; Export Control** window will pop up. Choose your settings and export graph.

Export Cor	Export Control X							
Export EMF	<b>○</b> WMF	OBMP	⊖ JPG		⊖ SVG	◯ Text / Data		
	C. Dionac							
Export Siz	e Width: 152.4 DPI: 300	Millimete	rrs OI 101.600 Large F	Millimete	⊖ Points ars	Export		

#### 15.2.9. Overlay Graph

Right click anywhere in the graph area and select **Overlay**; Overlay Graph window will pop up.

Choose the measurement point you want to overlay with current graph, choose indicators to show and confirm settings. To cancel overlay, follow the same path and uncheck selected overlay measurement points.



<b>9</b> 00	Overlay graph erlay With		×
	Source Measurement ExtUS1(ST-Ht) Overlay with kutma Messer/Mjerenja kompresor 1/Elektro Motor DE/Acc1000 kutma Messer/Mjerenja kompresor 1/Elektro Motor DE/Acc1000 kutma Messer/Mjerenja kompresor 1/Elektro Motor NDC/Acc100 kutma Messer/Mjerenja kompresor 1/Elektro Motor NDC/Acc100 kutma Messer/Mjerenja kompresor 1/Elektro Motor NDC/Acc100 kutma Messer/Mjerenja kompresor 1/Elektro Motor NDC/Acc100	10-10k](ST -+Ht) 0[10-1k](ST 0[10-10k](S 100(ST-Ht)	
	Kutha Messer/Mjerenja kompresor 1/Kompresor DE/Acc100[10           Kutha Messer/Mjerenja kompresor 1/Kompresor DE/Acc100[10           Kutia		
		Apply Set	tings

#### 15.2.10. Accessing settings menu directly from graph

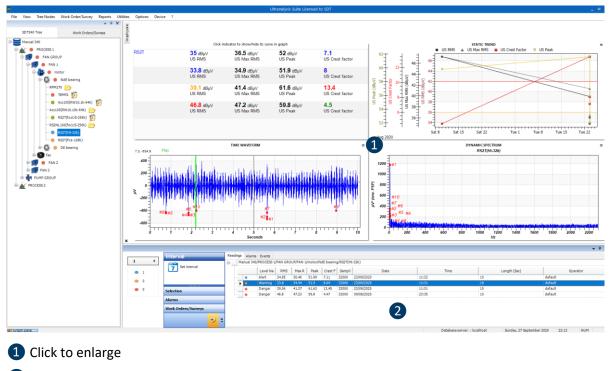
Left double click within the graph, and you will access settings menu directly. When settings assessed directly from the graph, it is locked to that graph type. That means that change is possible for that type only. Same shortcut is available for following graph types: Time Domain, Frequency Domain, Static Trend and Initial-Base line in case of Lubrication.

	trend - Default Options			
General Static Trend	Graph			
Settings related to:	Time Domain			
	Frequency Domain			
	Initial-Base Line			
	O Initial-Dase Line			
Desk Background	White	~	Graph Background	d White 🗸
Label & Text	Black	~	Graph Foreground	Black 🗸
	_			
Label Font	Arial		bold italic	underline
Line Color	DodgerBlue	$\sim$		
			Apply Settings	Save & Close

## **15.3.** Time Domain Graph

Time Wave Form is fundamental way of representing an event collected through Dynamic measurement. It plots amplitude in time, thus giving us a clear view on what happened and when. Select the measurement you want to see and click on enlarge.





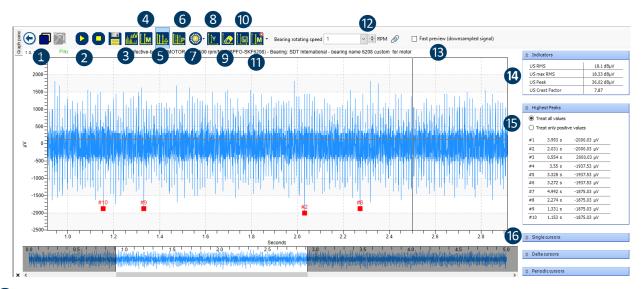
2 Select measurement

Time Domain window will be enlarged, and all-Time Domain tools will be displayed and active. Users can zoom in and out by using the scroll wheel of the mouse.



Some of the buttons available in the tool bar are not necessarily common to all sensors.

SDT strongly encourages user to maintain the software up to date to get the most advanced features.



Add/remove the current chart (including comments and cursors) for reports

2 Play back/stop audio signal (heterodyned or vibration). Export signal in standard format .wav (16 bits). Note that signals acquired in focus mode are not audible/heterodyned.

**3** Switch to frequency domain

4 Add single cursor with comment

- **5** Add delta cursor
- 6 Add periodic cursor (slide by clicking P1, rescale by clicking any other cursors)

Add predefined time cursors depending on the selected bearing given in measurement settings

<b>0</b> -	
S	peed Modulation (ω)
B	PFI
В	PFO
B	SF
F	TF



9 Hide portion of the signal

Save cursors/current analysis/rotating speed

11 Remove cursors

Adjust the bearing rotating speed (reference rotating speed defined in measurement settings by default. User can also link this field with an existing measurement node in RPM that can be manually edited. UAS3 will retrieve the 3 nearest acquired values around the current measurement).

Brast preview (reduce the number of samples displayed in the graph)

14 Indicators

15 List of the 10 highest peaks in signal

16 Cursors details

#### 15.3.1. Play Audio

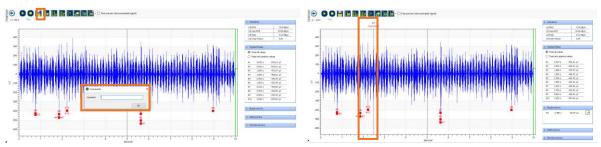
Left click on **Play/ Stop** to play-back audio signals. The green line will visually indicate progress, so you can connect what you hear and what you see in the signal.

#### 15.3.2. Export Wav File

Left click on save icon and export wav file/audio of selected reading.

#### 15.3.3. Add Single Cursor/Comment

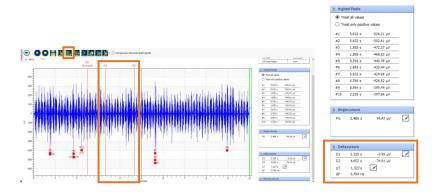
Left click on indicated tool, and Comment window will pop up, add comment, and left click in signal area to add comment. Move comment to other position, if necessary, by holding left click, moving it to new position and release.





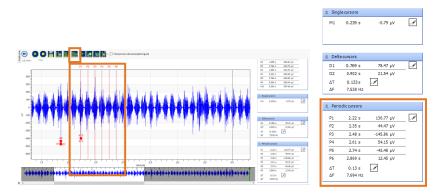
#### 15.3.4. Add Delta Cursor

Left click on indicated tool, then left click in signal area to place the cursor. Move **D1** (lead cursor) to needed position and move **D2** to define  $\Delta$ . In a signal descriptor on the right side, cursor details will be displayed; position in time, amplitude,  $\Delta t$  (time) and corresponding  $\Delta f$  (frequency)



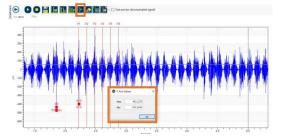
#### 15.3.5. Add Periodic Cursor

Left click on indicated tool, then left click in signal area to place the cursor. Left click and hold on P1 to move it to needed position, then left click and hold any of other cursors (P2-P6) to adjust the  $\Delta t$ . Alternatively, set both P1 position and  $\Delta t$  in cursor details on the right side. Cursor details display; position in time, amplitude,  $\Delta t$  (time) and corresponding  $\Delta f$  (frequency).



#### 15.3.6. Set Y Scale

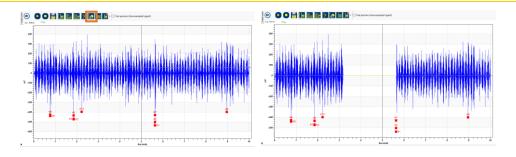
This tool allows you to set **Y scale**, for purpose of comparison or overlaying graphs. Left click on indicated tool, and **Y Axis Values** window will pop up. Set Y scale and confirm by pressing **Ok**.



#### **15.3.7.** Delete Portion of the Signal

This function enables you to temporarily delete the portion of the signal (by delete, meaning is that selected portion is set to amplitude zero), for the purpose of analysis. Indicators will automatically be recalculated based on new TWF values. Zoom on portion of the signal you want to delete and press on indicated tool. Note, deleted portion of the signal will be exactly that on the screen. By selecting any other measurement and coming back to the processed signal, delete action will be reverted.





#### 15.3.8. Save Cursors

This function allows you to save cursors you have set in TWF.

#### 15.3.9. Remove Cursors

This function allows you to remove individual cursor (click on small arrow on right side of the tool), or all cursors.

#### 15.3.10. Indicators for Selected Signal (TWF)

This window displays indicators (RMS, max RMS, Peak and Crest Factor) for selected TWF.

15.3.11. List of highest Peaks in Signal

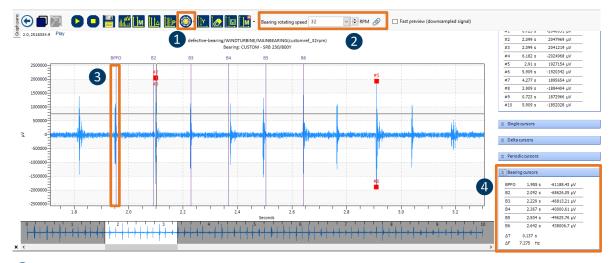
This window displays 10 highest Peaks in selected TWF, in descending order. You can choose to display all values or only positive values.

#### 15.3.12. Cursors for bearing analysis

This button displays the periodicity associated with the bearing defects (BPFO, BPFI, BSF, FTF or in speed), at a given rotating speed, in selected TWF.

The example below summarizes step-by-step, the manipulations confirming a BPFO at 32 rpm, on a custom bearing reference.

The custom bearing reference as well as the reference rotating speed have been defined first in the measurement node to historicize the acquired data.



1 Select one possible defect based on the bearing reference defined in measurement settings

2 Define or adjust the rotating speed. If defined with available readings taken on dates corresponding to the current measurements, user can retrieve the rotating speed from an existing measurement node, by clicking on

A new window showing the tree structure will pop-up, in which **the current measurement node**, the **current measurement setting**, and the existing measurement settings dedicated to rotating speed acquisitions **RPM270** are displayed in color.

▲ defective-bearing         ∧           ■ ➡ MOTOR 1 at 1500 rpm         ∧           ▲ NOTOR 1 at 1500 rpm         ∧           ▲ NOTOR 1 at 1500 rpm         ↓           ■ ₩ DE(EFPC-SKF6208)         ↓           ■ ₩ DIDE(EFPC-SKF6208)         ↓           ■ ₩ MULTI         ■           ■ ₩ MULTI         ■           ■ ₩ MULTI         ■           ■ ₩ MULTI         ■           ■ ₩ MURTI         ₩           ■ ₩ MURTI         ■           ■ ₩ MURTI         ₩           ■ ₩ MURI         ₩           ■
NDE(BPFO-SKF5209)           DE(BSF-SKF5209)           DE(BSF-SKF5209)           MUTT           RPM270           MOTOR 24 100 (pm)           DE(DE(T-NTN-N204))           DE(DE(T-NTN-N204))           DE(DE(T-NTN-N204))           DE(DE(T-NTN-N204))           DE(DE(T-NTN-N204))           DE(DE(T-NTN-N204))           DE(DE(T-NTS))           MAINBEARING(castowed_32pm)           PS777H-333           ITUM270           GEHERATRICE           MOTOR           MOE(DE(F)-NTN-N204_range500-1000-1500-3000)           DE(DE(F)-SKF63)2Erpm3000)           RPM270           GEARING QUTT           REARING QUT           REARD
MULTI     RPW270     MOTOR 2 at 100 rpm     MOE/TF-NTN-N204)     MOE/TF-NTN-N204)     WIND TURBINE     MAINBEARING (customref_32pm)     REST/Irk-320     GENERATRICE     MOTOR     MOTOR     MOTOR     MOTOR     DE/FF-SKF6312Erpm3000)     RPW270     GEARROXUIn=000/rpm.SKF1211)     @ BEARING OUT     RPW270
MULTI         RPM270           MOTOR 2 at 100 rpm         MOTOR 2 at 100 rpm           WINDT QUENTE-NTIN-N204)         WINDT URBINE           WINDT URBINE         MAINBEARING (customref_32pm)           RST/RH-320         GENERATRICE           MOTOR         DE(FFF-HTN-N204_range500-1000-1500-3000)           © DE(FFF-HTN-N204_range500-1000-1500-3000)         DE(FFF-HTN-N204_range500-1000-1500-3000)           © DE(FFF-SRF6312Erpm3000)         RPM270           © GEARING COUT         BEARING OUT           RPM270         DEARING OUT
MOTOR 2 at 100 rpm     NDE(FTF-NTN-N204)     NDE(FTF-NTN-N204)     NOE(FTF-NTN-N204)     SOURCEARTING     NAINBEARING (customed_32pm)     RSZ(TH-324)     GENERATRICE     MOTOR     SOURCEARTING     DE(EFTF-SKF6312Erpm3000)     RHM270     GEARBOC(In-5000rpm.cut=500rpm.SKF1211)     SEARING OUT     RHM270     BEARING OUT     REARDOCUT
NDE(FT-K/TI-N204)           WIND TUBBINE           WIND TUBBINE           WIND TUBBINE           WIND TUBBINE           REMAZOT           GENERATRICE           MOTOR           NDE(FTF-SKF5312Epm, 3000)           RPMZZ0           GEARCON           BEARING IN           BEARING OUT           RPMZ20
DE(NTN-N204.find the defect)     WINDT URBINE     S27T(H-3.32)     ROMINECARING(customed_32rpm)     S27T(H-3.32)     GENERATRICE     MOTOR     GENERATRICE     MOTOR     DE(EFFI-SKF6312Erpm3000)     RPM270     GEARBC(In-5000rpm.cul=500rpm.SKF1211)     EEARING OUT     RPM270
WINDTURBME           ■ WINDTURBME           ■ Statistical Reg (castornef_32pm)           ASZT/rHx-32k)           GENERATRICE           ■ MOTOR           ● DE(FTF-SKF6312Erpm:0000)           RPM270           ■ GEARDON_com=500rpm_SKF1211)           ● BEARING IN           ■ WE BEARING OUT           ■ RPM270
Imanuelse ARIHG (customed_32pm)           PS277/Ph-324)           Imax20           GENERATRICE           Imax20           Imax20           GENERATRICE           Imax20           Imax20           GENERATRICE           Imax20           GENERATRICE           Imax20           GENERATRICE           Imax20           GENERATRICE           GENERATRICE           GENERATRICE           GENERATRICE           GEARING/Imax200pm.cut=500rpm.SKF1211)           Imax20           BEARING OUT           RPM270
RSZTIFA 32A           IRUMIZIO           GENERATRICE           MOTOR           DE(FTF-SKF6312Erpm3000)           RPMZZO           GEARING IN           BEARING OUT           RPMZZO
INTRAZZO           GENERATRICE           MOTOR           INDE(BFF1-TIN-N204_range500-1000-1500-3000)           DE(FF1F-SKF6312Epm3000)           RPM270           GEARENCIN-5000rpm,skF1211)           BEARING IN           BEARING OUT           RPM270
GENERATRICE           MOTOR           WDTOR           DE(ETF-KXF6312Erpm3000)           RPM270           GGARBXOKm=000rpm.cut=500rpm.SKF1211)           BEARING IN           W           BEARING OUT           RPM270
MOTOR     MDE(BFFI-NTN-N204_range500-1000-1500-3000)     MDE(EFTF-SKF6312Epm:000)     RPM270     GEARBOX(m-5000rpm.cut=500rpm.SKF1211)     BEARING IN     BEARING OUT     RPM270
NDE(BPFI-NTN-N204_range500-1000-1500-3000)           DE(FTF-SxF6312Erpm3000)           RFM270           GEARBOX(in=500rpm.out=500rpm.SKF1211)           BEARING IN           BEARING OUT           RPM270
DE(FTF-SKF6312Erpm3000)     RFM270     GGARBCX(in-5000rpm.cut=500rpm.SKF1211)     GGARBCX(in-5000rpm.cut=500rpm.SKF1211)     BEARING INI     BEARING OUT     RFM270
GEARBOX(m-5000rpm,cut=500rpm,SKF1211) BEARING IN BEARING OUT RPM270
GEARBOX(im-5000rpm.cut=500rpm.SKF1211)  EEARING IN  EEARING OUT  RPM270
BEARING IN
BEARING OUT RPM270
RPM270
MOTOR-EQCUSMODE(SKE6208)
NDEat1500rpm NDEat1600rpm
NDEdulouidin
Cancel Select
ouncer

Once the appropriate RPM270 is selected, apply the change by clicking on the drop menu of Bearing rotating speed, select the new entry, that is identified with the time format. Click the save button on the chart to maintain these settings.

**3** Click on one impact in the TWF to display the bearing periodic cursor associated with the theoretical defect

4 Check if the selected defect is periodically confirmed (in this case BPFO). The coordinates of each periodic cursors are summarized in table "Bearing cursors".

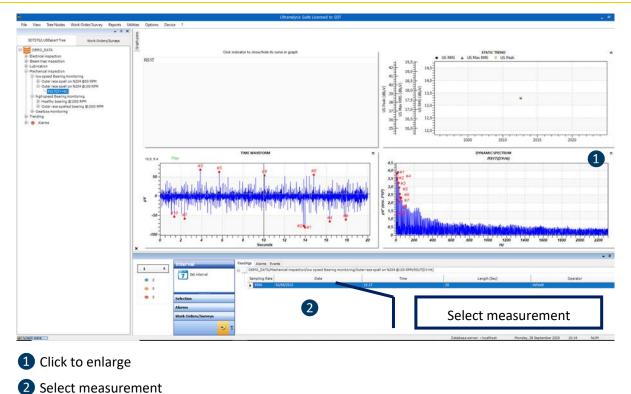
Note Prefer this approach for slow speed applications from which the periodic impacts can be more easily identified in the TWF.

## 15.4. Frequency Domain Graph

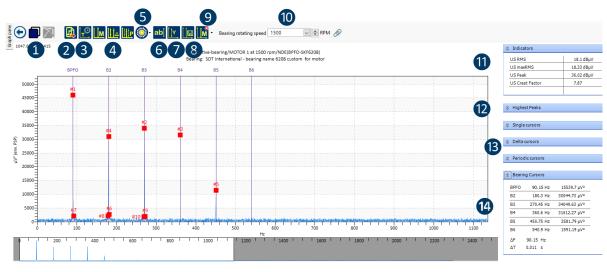
The Frequency Domain Graph of Dynamic Measurement displays how much of the Dynamic Measurement lies within each given frequency band over a range of frequencies. Select the measurement you want to see and click on enlarge or switch from TWF to the frequency

domain by clicking on





Frequency domain window will be enlarged, and the compatible tools will be displayed in the top bar menu:



1 Add/remove the current chart (including comments and cursors) for reports

2 Export TWF signal in standard format .wav (16 bits). Note that signals acquired in focus mode are not audible/heterodyned.

3 Switch to time domain

4 Add custom single/delta/harmonic cursors

**5** Add a predefined defect cursor (if compatible settings) linked to the bearing reference defined in measurement settings

6 Add a comment at specific coordinate

**7** Set Y axis

8 Save cursors and comments

9 Remove cursors

Adjust the rotating speed by clicking on

Users can also correlate this field with an existing measurement node in RPM. By clicking on @, as described above, UAS3 will retrieve the 3 nearest acquired speed values from the selected measurement setting of type RPM270.

1 Indicators

12 List of the 10 highest spectral amplitudes

13 Details for the custom spectral cursors

14 Details for the specific bearing cursors

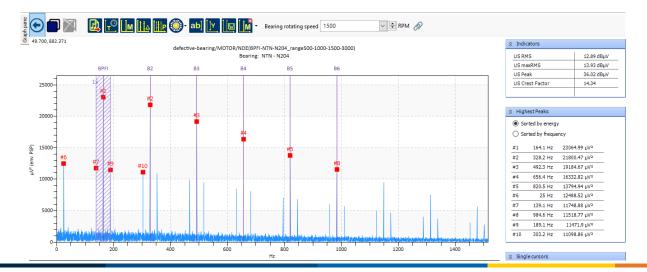
Some spectral patterns, such as those related to Imbalance or misalignment can be identified by using cursor "speed modulation". Some other common spectral patterns associated with modulated signals can be identified by using the double sideband option.

To use it, proceed as follows:

- 1) Place or identify the main pattern associated with the bearing defect
- Control + left click (1x, 2x or 3x) on the fundamental frequency or its harmonics (ex: B1, B2, B3, B4, B5 or B6) to display in a hatched area, the sidebands relating to the modulation at the rotating speed (1x). The second (2x) and the third (3x) sideband are based on the harmonics of the rotating speed.

In the example below, BPFI (#1=164 Hz + harmonics) is confirmed at 1500 rpm (or #6 = 25Hz = 1x) on a bearing of type N204. The sideband cursor (1x), displayed around the fundamental frequency of BPFI confirms a modulation at the rotating speed since, in this concrete case:

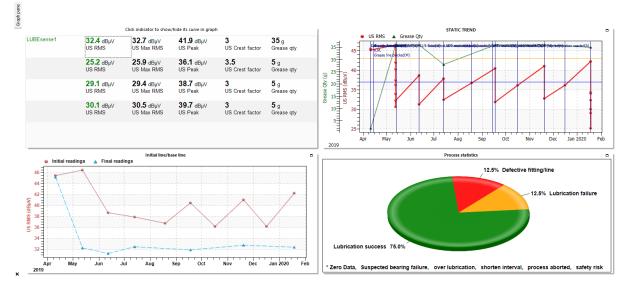
- #7 = 139 Hz = #1 #6 = 164 Hz 25 Hz
- #9 = 189 Hz = #1 + #6 = 164 Hz + 25 Hz



This pattern (BPFI +/- 1 x) can also be observed on harmonics B2, B3, ...



## 15.5. Specific LUBExpert Graphs



For detailed manual about specific functions of LUBExpert feature in UAS3, please refer to LUBExpert Manual.

Position of all graphs in the graph pane both in the SDT340 and the SDT270/LUBExpert folders can be arranged by simply moving them (drag and drop).

## 16. Reports

Reports are very important tools when findings, conclusions and situations need to be communicated. There are several report topics on the menu, for different purposes.

### **16.1.** 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.

Following window is displayed:

List of Tree Structu	re			×
<ul> <li>Entire Tree Struct</li> <li>From Current Sel</li> </ul>				
Send Output to	🔘 Text File	🔿 XML File	Formatted Report	O Clipboard
			Ok	Close

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 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.

Report Viewer	- 6 ×
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## 16.2. Alarms 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 windows is displayed:

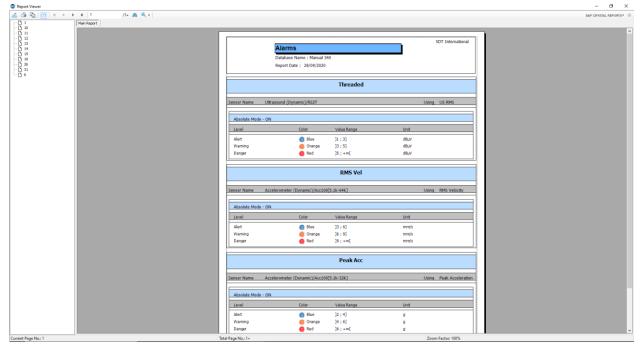
Alarm Name		^		
Fan motor NdE CF\RS2T\USCr Fan motor NdE maxRMS\RS2T Fan motor NdE maxRMS\RS2T Threaded\RS2T\USRMS RMS Vel\Acc100[5.1k-64k]\RM Feak AccVac100[5.1k-34k]	USMaxRMS		Show Points Concerned	
	eak	~ _		
Send Output to 🔿 Text File	🔿 XML File 💿 For	natted Report	Clipboard	
			Ok Close	

To activate the filter, use **CRTL+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.



## 16.3. Work Orders/Surveys Report

The software offers the possibility to generate a report of: 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.



Select the Menu Reports / Work Orders/Surveys / SDT270/LUBExpert (or SDT340) Work Orders/Surveys.

The following window is displayed:

Entire Plant				<ul> <li>✓ Show Intervals</li> <li>✓ Show Sensors</li> <li>✓ Show Sensor Settings</li> </ul>
Send Output to	🔿 Text File	🔿 XML File	Formatte	d Report 🔿 Clipboard

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.

w Report Viewer		- 0 ×
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Main Report		
	Survey Detail List Database Name : Nanual 240 Report Date 28/09/2020	SOT International
	Survey Name	
	Entire Plant	
	Measurement	
	Interval Period SensorName	Unit
	Manual 340\PROCESS 1\FAN GROUP\FAN1\motor\NdE bearing\RPM270	
	1 Month RPM270 Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/jvdE bearing/18942	RFM
	1 Month TEMP2 Manual 340/PROCESS 1\FAN GROUP(FAN 1)motor/NdE bearing/Act100(RW10.1k-6Hk)	Celdus
	1 Month Acc100[10.1k-64k] Manual340(PROCESS1\FAN GROUP(FAN1)motor/NdE bearing/Acc100(RW10.10k-64k)	G-m/s
	1 Month Acc100[10.10k-64k] Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE beam/gRSZ f(fodJS-256k)	Gimjs
	1 Month RS2T Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/NdE beamg/RS2NL100(FocU5-256k)	dBuV
	1 Month R52NL100 Manual 340 (PROCESS 1 \FAN GROUP \FAN 1 \motor \NdE bearing RS2T (H+53) k)	dBuV
	30 Day RS2T Manual340[PROCESS1\FAN GROUP(FAN1]motor/NdE beamg/RS2T(For-128k)	dBuV
	RS2T Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing/RPM270	dByW
	1 Month RPM270 Manual 340 (PROCESS 1\FAN GROUP\FAN 1)motor) DE bearing (TBMP2	RPM
	1 Month TEMP2 Manual 3401/PROCESS 11/FAN GROUP/FAN 1 (motor) DE bearing/Acc100 (RW10.1k-64k)	Celas
	1 Month Acc100[10.1k-64k] Manual 340[PROCESS 1]FAN GROUP[FAN1]motor1DE bearingAcc100(RW10.10k-64k)	Gmps
	I Month Acc100[10.16k-44k] Manual340\PROCESS1\FAN GROUP\FAN1\motor\DE.beamg\PR37[fod.b5256k)	G-m/b
	1 Month R52T Manual 340/PROCESS 1/FAN GROUP/FAN1/motor/DE bearing/R52M_100(focJS-255k)	dB <sub>b</sub> w
Current Page No.: 1 Tot		Zoom Factor: 100%

### **16.4.** Missed Measurements Report

Select the menu Reports / Missed Measurement Report.

The following window is displayed:

Missed Measure	ments				×
Show Measure			Respected		
Send Output to	🔿 Text File	🔿 XML File	Formatted Report	O Clipboard	
			Ok	Close	



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.

Report Viewer					– ø ×
🚜 📇 🕞 🕜 K 🗸 🕨 H 1 /4+ 🏔 🔍	•				SAP CRYSTAL REPORTS * 🔄
Manual 340/PROCESS 1/FAN GROUP/FAN 1/Jan/DE bearing	Main Report				
Manual 340/PROCESS 1/FAN GROUP/FAN 1/fan/NdE bearing     Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/DE bearing					
Manual 340/PROCESS 1/FAN GROUP/FAN 1/motor/Vide bearing					
Manual 340 PROCESS 1 PAN GROUP FAN 2 Ign DE bearing				SDT International	
Manual 340/PROCESS 1/FAN GROUP/FAN 2/fan/WdE bearing				SD1 International	
Manual 340/PROCESS 1/FAN GROUP/FAN 2/motor/DE bearing		Missed Measureme	nts		
Manual 340/PROCESS 1/FAN GROUP/FAN 2/motor/WdE bearing		Database Name : Manual 340			
Manual 340/PROCESS 1/FAN GROUP/FAN 3/fan/DE bearing					
- Manual 340/PROCESS 1/FAN GROUP/FAN 3/fan/WdE bearing		Report Date 28/09/202	0		
Manual 340/PROCESS 1/FAN GROUP/FAN 3/motor/DE bearing					
Manual 340/PROCESS 1/FAN GROUP/FAN 3/motor/VidE bearing					
Manual 340/PROCESS 1/PUMP GROUP/PUMP 1\fan\DE bearing		Path			
Manual 340/PROCESS 1/PUMP GROUP/PUMP 1/fan/NdE bearing		Faul			
Manual 340/PROCESS 1/PUMP GROUP/PUMP 1/motor/DE bearing		Measurement Node Name	Last reading	Delay	
Manual 340/PROCESS 1/PUMP GROUP/PUMP 1/motor/WdE bearing     Manual 340/PROCESS 1/PUMP GROUP/PUMP 2/fan/DE bearing					
Manual 340 PROCESS 1PUMP GROUP PUMP 2 framUse bearing     Manual 340 PROCESS 1PUMP GROUP PUMP 2 (fan Wide bearing		Manual340\PROCESS 1\FAN GROUP\FAN 1\fan\DE bearin	a		
Manual 340/PROCESS 1/PUMP GROUP/PUMP 2(ran (vide bearing)		RPM270	Never Measured	N.A.	
Manual 340/PROCESS 1/PUMP GROUP/PUMP 2/motor/WdE bearing		TEMP2	Never Measured	N.A.	
Manual 340/PROCESS 1/PUMP GROUP /PUMP 3/fan/DE bearing		Acc100(RW10.1k-64k)	Never Measured	N.A.	
- C Manual 340/PROCESS 1/PUMP GROUP/PUMP 3\/fan\NdE bearing		Acc100(RW10.10k-64k)	Never Measured	N.A.	
Manual 340/PROCESS 1/PUMP GROUP/PUMP 3/motor/DE bearing		RS2T(fodJS-256k)	Never Measured	N.A.	
Manual 340/PROCESS 1/PUMP GROUP/PUMP 3/motor/WdE bearing		RS2NL100(fodUS-256k)	Never Measured	N.A.	
Manual 340/PROCESS 2/FAN GROUP/FAN 1/fan/DE bearing		Harteroup outpracting			
Manual 340/PROCESS 2/FAN GROUP/FAN 1/fan/VidE bearing		Manual340\PROCESS 1\FAN GROUP\FAN 1\fan\NdE bear	ing		
Manual 340/PROCESS 2/FAN GROUP/FAN 1/motor/DE bearing     Manual 340/PROCESS 2/FAN GROUP/FAN 1/motor/WdE bearing		RPM270	Never Measured	N.A.	
Manual 340/PROCESS 2/PAN GROUP /PAN 1(hotor fue: bearing     Manual 340/PROCESS 2/FAN GROUP /FAN 2(fan/DE bearing		TEMP2	Never Measured	N.A.	
Manual 340 PROCESS 2 PAN GROUP FAN 2 fan Wet bearing		Acc100(RW10.1k-64k)	Never Measured	N.A.	
Manual 340/PROCESS 2/FAN GROUP/FAN 2/motor/DE bearing		Acc100(RW10.10k-64k)	Never Measured	N.A.	
Manual 340/PROCESS 2/FAN GROUP/FAN 2/motor/WdE bearing		RS2T(fodJS-256k)	Never Measured	N.A.	
Manual 340/PROCESS 2/FAN GROUP/FAN 3/fan/DE bearing		RS2NL100(FodUS-256k)	Never Measured	N.A.	
Manual 340/PROCESS 2\FAN GROUP\FAN 3\fan\WdE bearing					
Manual 340/PROCESS 2/FAN GROUP/FAN 3/motor/DE bearing		Manual 340 PROCESS 1 FAN GROUP FAN 1 motor DE bea	iring		
<ul> <li>Manual 340/PROCESS 2/FAN GROUP/FAN 3/motor/vide bearing</li> </ul>		RPM270	Never Measured	N.A.	
Manual 340/PROCESS 2/PUMP GROUP/PUMP 1\fan\DE bearing     Manual 340/PROCESS 2/PUMP GROUP/PUMP 1\fan\WdE bearing		TEMP2	Never Measured	N.A.	
Manual 340/PROCESS 2/PUMP GROUP PUMP 1/translate bearing     Manual 340/PROCESS 2/PUMP GROUP PUMP 1/translate bearing		Acc100(RW10.1k-64k)	Never Measured	N.A.	
Manual 340/PROCESS 2/PUMP GROUP/PUMP 1/motor WdE bearing		Acc100(RW10,10k-64k)	Never Measured	N.A.	
Manual 340/PROCESS 2/PUMP GROUP/PUMP 2/fan/DE bearing		RS2T(fodJS-256k)	09/08/2020	49 Davs	
Manual 340/PROCESS 2/PUMP GROUP/PUMP 2\fan\NdE bearing		RS2NL100(fodUS-256k)	Never Measured	N.A.	
Manual 340/PROCESS 2/PUMP GROUP/PUMP 2/motor/DE bearing					
Manual 340/PROCESS 2/PUMP GROUP/PUMP 2/motor/WdE bearing		Manual 340 PROCESS 1 FAN GROUP FAN 1 motor NdE be	aring		
Manual 340/PROCESS 2/PUMP GROUP/PUMP 3/fan/PE bearing		RPM270	Never Measured	N.A.	
Manual 340/PROCESS 2/PUMP GROUP /PUMP 3/fan/NdE bearing		TEMP2	09/08/2020	49 Days	
Manual 340/PROCESS 2/PUMP GROUP/PUMP 3/motor/DE bearing Manual 340/PROCESS 2/PUMP GROUP/PUMP 3/motor/WdE bearing		Acc100(RW10.1k-64k)	10/08/2020	49 Days	
<ul> <li>Manual 340/PROCESS 2/POMP GROUP /POMP 3/motor (Vide bearing)</li> </ul>		Acc100(RW10.10k-64k)	Never Measured	N.A.	
		RS2T(fodJS-256k)	09/08/2020	49 Davs	
		RS2NL100(fodUS-256k)	Never Measured	N.A.	
		RS2T(Fcs-128k)	09/08/2020	49 Days	
		Manual340\PROCESS 1\FAN GROUP\FAN 2\fan\DE bearing	0		
		RPM270	Never Measured	N.A.	
		TEMP2	Never Measured	N.A.	
		Acc100(RW10.1k-64k)	Never Measured	N.A.	
		Acc100(RW10.10k-64k)	Never Measured	N.A.	
		RS2T(fodJS-256k)	Never Measured	N.A.	v
Current Page No - 1	Total Rage No : 4a	1		Zoom Factor: 100%	

## 16.5. Measurement Details 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 Re	eport	×
Measurement Name	Measurement Path	^
✓ RPM270 ✓ TEMP2 ✓ Acc100(RW10.1k-64k)	Manual 340\PROCESS 1\FAN GROUP\FAN 1\motor\NdE b Manual 340\PROCESS 1\FAN GROUP\FAN 1\motor\NdE b Manual 340\PROCESS 1\FAN GROUP\FAN 1\motor\NdE b	l
<ul> <li>✓ Acc100(RW10.10k-64k)</li> <li>✓ RS2T(focUS-256k)</li> <li>✓ RS2NL100(focUS-256k)</li> <li>✓ RS2T(Ht-32k)</li> </ul>	Manual 340\PROCESS 1\FAN GROUP\FAN 1\motor\NdE b Manual 340\PROCESS 1\FAN GROUP\FAN 1\motor\NdE b Manual 340\PROCESS 1\FAN GROUP\FAN 1\motor\NdE b Manual 340\PROCESS 1\FAN GROUP\FAN 1\motor\NdE b	
Selected Date Range	Manual 340/PROCESS 1/EAN GROUP/EAN 1/motor/NidEh	
Date Range 28/09/2020	▼         -         28/09/2020         ▼         View Report	

You can refine your search by selecting a Data Range.

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



1 1 /2 A C + H 1 /2 A C +							SAP CRYS
340/PROCESS 1/FAN GR Mein Report 340/PROCESS 1/FAN GR							
I 340/PROCESS 1/FAN GR I 340/PROCESS 1/FAN GR							
I 340/PROCESS 1/FAN GR							
I 340/PROCESS 1/FAN GR I 340/PROCESS 1/FAN GR							
I 340/PROCESS 1/FAN GR					s	DT International	
			surement				
				e: Manual 340			
		Repo	rt Date :	28/09/2020			
	Amoual 3	INPROCESS 1	FAN GROUP	FAN1/motorINdE bearing/TEMP2			
	AlarmLevel	Date	Time	Temperature	Sensor S/N	Device S/N	
				Celcius			
	O Danger	09/08/2020		24	0	0	
		IMPROCESS 1	IFAN GROUP	FAN1/motoriNdE bearing/Acc100(RW10.1k-64k)			
	AlarmLevel	Date	Time	9	SensorSIN	Device S/N	
	Normal	09/08/2020 10/08/2020	23:30	0.19 0.04	0	284180012 284180012	
	Manual 34	0PROCESS 1	FAN GROUP	FAN1/motorINdE bearing/RS2T(focUS-256k)			
	AlarmLevel	Date	Time	alluV	Sensor S/N	Device S/N	
	Normal	09/08/2020	23:31	47.18	532190673	284180012	
	Normal	09/08/2020	23:37	47.81	532190673	284180012	
	👄 Manual 34	0PROCESS 1	FAN GROUP	FAN1/motor/DE bearing/RS2T(focUS-256k)			
	Alarm Level	Date	Time	40uV	Sensor S/N	Device S/N	
	Warning	09/08/2020	23.34	47.11	532190673	284180012	
	🔴 Manual 34	INPROCESS 1	FAN GROUP	FAN2motor/NdE bearing/RS2T(focUS-256k)			
	AlarmLevel	Date	Time	48uV	Sensor SN	Device S/N	

## 16.6. Events 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:

Node Name     Node Path <ul> <li>DE Bearing</li> <li>DC Cem\/Mill\Filter\BFF 1\Fan\/DE Bearing</li> <li>NdE Bearing</li> <li>DC Cem\/Mill\Filter\BFF 1\Fan\/DE Bearing</li> <li>DE Bearing TBD</li> <li>DC Cem\/Mill\Filter\BFF 1\Motor\DE Bearing TBD</li> <li>NdE Bearing TBD</li> <li>DC Cem\/Mill\Filter\BFF 1\Motor\DE Bearing TBD</li> <li>DE Bearing</li> <li>DC Cem\/Cooling\CF 1\Fan\/DE Bearing</li> <li>DE Bearing</li> <li>DC Cem\/Cooling\CF 1\Fan\/DE Bearing</li> <li>DE Bearing</li> <li>DC Cem\/Cooling\CF 2\Fan\/DE Bearing</li> <li>NdF Bearing</li> <li>DC Cem\/Cooling\CF 2\Fan\/DE Bearing</li> <li>VME Export</li> </ul>	🥌 Event List		$\times$
MdE Bearing       DC Cem/Will/Filter/BFF 1/Fan/WdE Bearing         DE Bearing TBD       DC Cem/Will/Filter/BFF 1/Motor/DE Bearing TBD         NdE Bearing TBD       DC Cem/Will/Filter/BFF 1/Motor/WdE Bearing TBD         DE Bearing       DC Cem/Cooling/CF 1/Fan/DE Bearing         DKB Bearing       DC Cem/Cooling/CF 1/Fan/DE Bearing         DE Bearing       DC Cem/Cooling/CF 1/Fan/WdE Bearing         DE Bearing       DC Cem/Cooling/CF 2/Fan/WdE Bearing         NdF Bearing       DC Cem/Cooling/CF 2/Fan/WdE Bearing         Selected Date Range       XML Export	Node Name	Node Path	^
DE Bearing TBD       DC Cem\/\u00edul/Filter\/BFF 1\/\u00eductv\/DE Bearing TBD         NdE Bearing TBD       DC Cem\/\u00edul/Filter\/BFF 1\/\u00eductv\/dE Bearing TBD         DE Bearing       DC Cem\/Cooling\/CF 1\/Fan\/DE Bearing         DE Bearing       DC Cem\/Cooling\/CF 1\/Fan\/DE Bearing         DE Bearing       DC Cem\/Cooling\/CF 1\/Fan\/DE Bearing         DE Bearing       DC Cem\/Cooling\/CF 2\/Fan\/DE Bearing         DE Bearing       DC Cem\/Coolinn\/CF 2\/Fan\/DE Bearing         NdE Bearing       DC Cem\/Coolinn\/CF 2\/Fan\/DE Bearing         NdE Bearing       DC Cem\/Coolinn\/CF 2\/Fan\/DE Bearing         De Bearing       DC Cem\/Coolinn\/CF 2\/Fan\/DE Bearing         NdE Bearing       DC Cem\/Coolinn\/CF 2\/Fan\/DE Bearing         NdE Bearing       DC Cem\/Coolinn\/CF 2\/Fan\/DE Bearing         ML Export	DE Bearing	DC Cem\Mill\Filter\BFF 1\Fan\DE Bearing	
MdE Bearing TBD       DC Cem/Will/Filter/BFF 1/Wotor/WdE Bearing TBD         DE Bearing       DC Cem/Cooling/CF 1/Fan/DE Bearing         MdE Bearing       DC Cem/Cooling/CF 1/Fan/WdE Bearing         DE Bearing       DC Cem/Cooling/CF 1/Fan/WdE Bearing         DE Bearing       DC Cem/Cooling/CF 2/Fan/WdE Bearing         DE Bearing       DC Cem/Cooling/CF 2/Fan/WdE Bearing         NdE Bearing       DC Cem/Cooling/CF 2/Fan/WdE Bearing         Selected Date Range       XML Export	✓ NdE Bearing	DC Cem\Mill\Filter\BFF 1\Fan\NdE Bearing	
DE Bearing       DC Cem\Cooling\CF 1\Fan\DE Bearing         NdE Bearing       DC Cem\Cooling\CF 1\Fan\VdE Bearing         DE Bearing       DC Cem\Cooling\CF 2\Fan\VdE Bearing         DE Bearing       DC Cem\Cooling\CF 2\Fan\VdE Bearing         NdE Bearing       DC Cem\Cooling\CF 2\Fan\VdE Bearing         Selected Date Range       XML Export	DE Bearing TBD	DC Cem\Mill\Filter\BFF 1\Motor\DE Bearing TBD	
✓ NdE Bearing     DC Cem\Cooling\CF 1\Fan\VdE Bearing       ✓ DE Bearing     DC Cem\Cooling\CF 2\Fan\DE Bearing       ✓ NdE Bearing     DC Cem\Cooling\CF 2\Fan\DE Bearing       ✓ NdE Bearing     DC Cem\Cooling\CF 2\Fan\DE Bearing       ✓ Selected Date Range     XML Export	✓ NdE Bearing TBD	DC Cem\Mill\Filter\BFF 1\Motor\WdE Bearing TBD	
DE Bearing     DC Cem\Cooling\CF 2\Fan\DE Bearing       NdE Bearing     DC Cem\Cooling\CF 2\Fan\DE Bearing       Selected Date Range     XML Export	DE Bearing	DC Cem\Cooling\CF 1\Fan\DE Bearing	
NdF Bearing DC.Cem\Cooling\CE_2\Fan\NdF Bearing Selected Date Range XML Export Date Range 28/09/2020	✓ NdE Bearing	DC Cem\Cooling\CF 1\Fan\NdE Bearing	
Selected Date Range XML Export Date Range 28/09/2020	DE Bearing	DC Cem\Cooling\CF 2\Fan\DE Bearing	
Date Range 28/09/2020 - 28/09/2020 -	NdF Bearing	DC.Cem\Cooling\CE_2\Ean\NdE_Bearing	$\sim$
Date Range 28/09/2020 💌 - 28/09/2020 💌	Selected Date Range		
Date Range         28/09/2020           28/09/2020           View Report         View Report		XML Export	
hen report	Date Range 28/09/2	020 - 28/09/2020 - View Report	
		nen report	_

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

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

2,026 Mein Report		SAP OVVERAL REPORTS
2,029 3,033 2,034 2,038 2,040	Events	SOT International
2,043	Database Name : DC Cem	
2,040 2,051	Report Date 28/09/2020	
2,054		
2.062	Path	
2,064 2,067	Event Date Description	
2,009	DC Carri[Cooling](//1)/Parl/DE Bearing	
	18/00/2019 Lubrication needed	
	11/04/2019 Alarm defined22/6 Base	
	11/06/2019 Lubrication needed	
	18/04/2019 Lubrication needed	
	12/05/2019 Lubrication needed	
	17/09/2009 Lubrication needed	
	13/09/2019 Lube team assigned; Ante & Davor	
	13/07/2019 Lubrication needed	
	16/10/2019 Lubrication needed	
	19/11/2019 Lubrication needed	
	16/12/2019 Bearing replaced	
	16/12/2019 Lubrication NOT needed	
	18/01/2820 Lubrication needed	
	18/01/2020 Pixation-defect	
	18/01/2620 Lubrication needed	
	17/09/2009 #Lanconad to Of Lamen A Signer (Cristing) Report Incorred by eng Luka	
	DC Cerri/Cooling)(/F1)Fan/MdEllearing	
	18/00/2019 Lubrication needed	
	11/D4/2018 Alarm define 31/E Base	



### 16.7. Lube Report

Specific report for LUBExpert functionalities is explained in detail in the LUBExpert Manual.

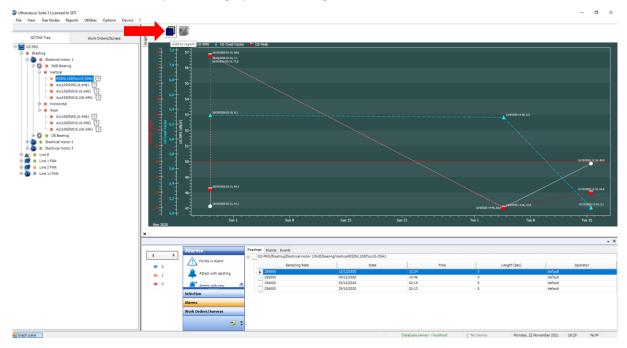
### 16.8. Asset Condition Report

The Asset Condition report is a fully customizable report that includes all necessary information. It is ideal tool for all involved: end user, service provider, CM technician or engineer, Reliability team, management. The report contains all information already available in UAS3, as well as pre-defined fields to enter conclusions such as condition, recommendations, situation, description, criticality and other.

Creating a report is fast, easy, and very intuitive. Once you decide what you want to report (what asset, group of assets, or only measurement point), select the graphs you want to include in your report (if any):

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			Accessed 0.33 5	6.9 <sub>5</sub> 6.02mm	27	
			Active Const. C.S., Active	3.6. 5.97	7.2 40.0ml bay	
		The second				
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	Discout Patrice gives from		Alarma Alarma	Testing store care		
	28 2 Monthly Strategy and State and States a		A MAN ARE			
	Comparison of the second			<ul> <li>MARQUE STREET STREET STREET</li> <li>MARQUE STREET STREET STREET STREET</li> </ul>	kang latupatén Kabu	
			•••			
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	Menton Control Conception and and Control Cont		A factor			
	and the second s		shees	U MPOTENCIAL PERSONS INC.	In also had the second	
	and categories and a second se		Nation Same	<ul> <li>SOME that against her make \$5.000</li> <li>SOME that and all her make \$50.000</li> </ul>	In which water and the	
	<ul> <li>Control Control C</li></ul>					,
	S 7 Control Street American Children Charles (1997)			Contraction and a second state	toright of a transfer to	

Select the measurement point, the graph, and enlarge it:



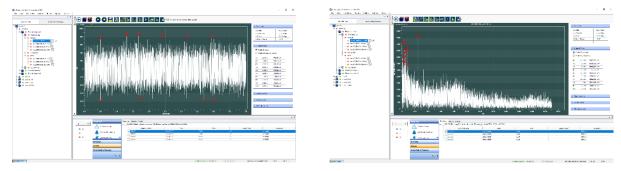
To add a specific graph to the report, simply select the button "Add to report". The selected graph will be included in your report once you enter all the other information.

To remove the graph from the report, in case you changed your mind, or it was added by mistake, use the button "Remove from report".

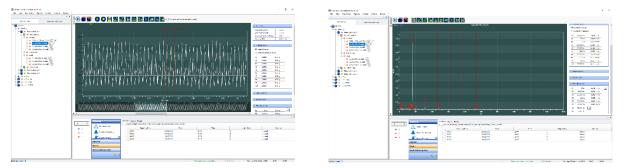


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	2010 2010 2010 2010 2010 2010 2010 2010						
	5,4 5,2 5,2 5,0 1 5,0 1 5,0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	18/29/2008 82:13, 44.3 18/29/2008 82:13, 47,1 Sun 1	Sun 8	Sun 15	5un 22	The I The	
	0     1     0     Selecti Alarma	Points in Alarm Attach with existing Attach with new	Atarms Events PRO/Bitsting/Electrical motor 1/No Sempling Rate 256000 256000 256000	2E Beering/Vertice)(RENL100(*ocU5-256k) 16(12)/2020 04/12/2220 29(10)/2220 29(10)/2220	1204 1444 0219 0213	Length (Sec) 5 5 5 5	Coentor default default default default

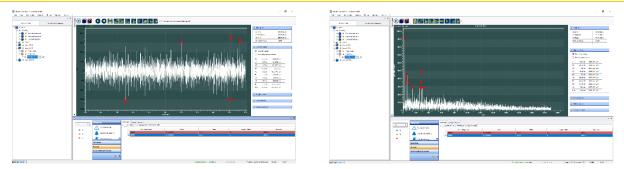
You can do the same with all graphs in your UAS3: TWF & Spectrum for both Ultrasound and Vibration, Temperature, RPM, as well as with all graphs specific to LUBExpert.



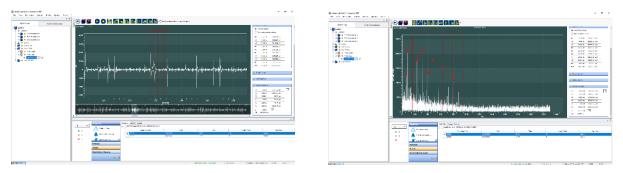
Once you set cursors in your graph and add it to report, the graph will be added with cursors and numeric descriptors, for all cursors and markers, disregarding if cursors are saved or not.



There is no limitation on the number of graphs to be added to the report for each specific measurement point, or altogether. If you add several TWF and Spectra (as an example) from one measurement point, they will be displayed chronologically, newest first, TWF and corresponding Spectrum one after another.



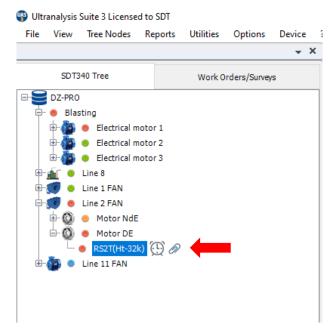
TWF and Spectra of June 30, 2021, Line 2 FAN/Motor DE



TWF and Spectra of September 17, 2021, Line 2 FAN/Motor DE: same measurement point

All graphs will be displayed exactly as you set them (color, options, zoom ...).

Note: The small paperclip icon next to the measurement settings (sensor level) indicates that this node contains graph(s) selected for reporting.



# Important: Once you switch to another tree structure, another folder or restart your UAS3, graphs you selected for reporting will be de-selected.

Apart from the selected graphs, the report will display all measurement data, alarms settings, alarm status, measurement settings like interval, acquisition time, sampling rate, software license number, sensor serial number, instrument serial number, operator name. All historical data will be displayed unless otherwise set in report settings (selected date range).

Once you have selected all the graphs you want to display, select "Reports" in the top toolbar, and select "Asset Condition":

SDT340 Tree Alarms Work Orders/Surveys > D2-PRO Missed Measurements Blasting Measurements	Graph pase		icator to show/hide its cun	ve in graph		1		STATIC TREND	
Blasting Measurement Details     Bectrica m Events     NdE e Lube	RS2NL100	49.9 dBµV US RMS	50.3 dBµV US Max RMS	64 dBµV US Peak	5.1 US Crest factor	<b>11</b> 7,0 = 56	40/29/2020 02:19, 56,8	US PROK	
Ventur     Asset Condition		47 dBµV US RMS	49.3 dBµV US Max RMS	63 dBµV US Peak	6.3 US Crest factor	<b>n 1 65 2 5</b>	1		12/4/2020 14-46, 0,3
Acc100(RW10.1k-64k)     Acc100(RW10.1k-64k)		56.8 dBµV US RMS	57.6 dBµV US Max RMS	<b>72.8</b> dBµV US Peak	6.3 US Crest factor				
Herizontal     Herizontal     Herizontal     Herizontal     DEBearing     DEBearing     Edetrical motor 2     DEE Bectrical motor 3		47.1 dByV US RMS	47.6 dBµV US Max RMS	64.2 dBµV US Peak	7.1 US Crest factor	**	10/25/2020 02:13 64.2		12/15/2020 12:35, 45.9 12/15/2020 12:35, 46.0 12/15/2020 12:24, 5, 1- 14:44, 55.8 Tue 1 Tue 8 Tue 15
e Line 8 e Line 1 FAN Line 2 FAN			TIME WAVEFORM			Nov 2020		DYNAMIC SPECTRUM	
<ul> <li>Motor DE</li> <li>Motor DI</li> <li>SST(H-32k) (∰ Ø</li> <li>Une 11 FAN</li> <li>Ø</li> <li>Nel Elearing</li> </ul>	1500 1000 500 ≥ 0	and the plan of the plan is th	Maladela Mahamada		i en 14 estrephetics	5000 5000 4000 3000			
Motor DE     S2T(H-32k) (1) (2) (2)     S2T(H-32k) (1) (2) (2)     Une 11 FAN     Mode Bearing		nadonakon filikansin dan padina filipinaat 2 os os	Seconds				digad yildi da yildi da yildi Magaza wana kata kata kata 400 - 100 - 100	19 ali ta' fa di fa di li ta di si di sa 19 ali 19 ali 19 ali 19 ali	elestati (des 1990 - Josef Statuti (des 1980 - Josef Szaka
<ul> <li>Motor DE</li> <li>Motor DI</li> <li>SST(H-32k) (∰ Ø</li> <li>Une 11 FAN</li> <li>Ø</li> <li>Nel Elearing</li> </ul>	×	larms	Seconds Readings Alarms Even	nts			dig di ginda di di angan di di Mangangan sama da da da di di Mangangan sama di sama di		el Chaligneith de Sa (Jaa Hand Harl (Mart I) Hanna 2000 2210 2400
Motor DE     S2T(H-32k) (1) (2) (2)     S2T(H-32k) (1) (2) (2)     Une 11 FAN     Mode Bearing			Seconds Readings Alerms Eve	nts	ing/Vertical/RS2NL100(focUS-2: Date	56k)	d pa jui a dan dan dan dan dan dan dan dan dan d		Operator
Motor DE     RST(H-32k) (1) (2)     RST(H-32k) (1)     D     Une 11 FAN     O     One 11 FAN     O		larms	Seconds Readings Alarms Even D2-PR0/Blasting/ 256000	nts Electrical motor 1/NdE Bea	ing/Vertical/RS2NL100(FocUS-2 Date 15/12/2020	56k) 12:34		Hz	Operator default
Motor DE     RST(H-32k) (1) (2)     RST(H-32k) (1)     D     Une 11 FAN     O     One 11 FAN     O		Arms Points in Alarm Attach with existing	Seconds  Readings Alerms Even  D2-PRO/Blasting/  256000  256000	nts Electrical motor 1/NdE Bea	ing/Vertical/RS2NL100(focUS-2 Date 15/12/2020 04/12/2020	56K) 12:34 14:46	Time	Hz Length (Sec) S	Operator defoult defoult
Actor HE     Control HE     Con		Arms Points in Alarm	Seconds Readings Alarms Even D2-PR0/Blasting/ 256000	nts Electrical motor 1/NdE Bea	ing/Vertical/RS2NL100(FocUS-2 Date 15/12/2020	56k) 12:34	Time	Hz	Operator default

#### The report settings menu will open with various options:

Witranalysis Suite 3 Licensed to SDT								- 0 ×
File View Tree Nodes Reports Utilities Options	Device ?							
	* X 4							
SDT340 Tree Work Orders/Surveys								
	8	All de la Allante						
e Blasting	Report					)	US Peak	
🕂 🎒 😐 Electrical motor 1	B-[] DZ+R0							
- 🔘 😐 NdE Bearing	- Biasting	Location	DZ-PRO					
- O Vertical	- Bectrical motor 1							
- • RS2NL100(focUS-256k) 🕀 🔗	- O NdE Bearing	Diticality(*):	Type Here					
-	- Vertical							12/4/2020 14:46, 6,3
Acc100(RW10.1k-64k)	- Horizontal							
<ul> <li>Acc100(RW10.10k-64k)</li> </ul>	- Axial	Description (*):		Condition (*) :				
- Horizontal	DE Bearing							12/15/2020 12:34, 49 9.*
🕀 😑 Axial	E- Bectrical motor 2			Type Here				12/15/2020 12:34 64,0
DE Bearing	🕀 🗌 🔕 😐 NdE Bearing							12/15/2020 12:32 64,0 12/15/2020 12:34:6,1 63,0
🗄 🍈 😐 Electrical motor 2	- Vertical						12/4/2020 14:46,1	63,0
🕀 🍈 😐 Electrical motor 3	- Horizontal							1 Tue 8 Tue 15
🕀 🔬 😐 Line 8	- Axis							/
🕀 💷 😐 Line 1 FAN	🗌 🔘 😐 DE Bearing						TRUM	
🕀 🛒 🗧 Line 2 FAN	🗄 🗌 🥶 😐 Electrical motor 3	Situation (*) :	Type Here				cUS-256k)	
🕒 🚳 😐 Motor NdE	🕀 🛄 🔕 😐 NdE Bearing						i	
- O • Motor DE	- Vertical							
🕒 🗧 RS2T(Ht-32k) 💮 🔗	- Horizontal	Recommendation (*):		Comments (*) :			· · · · · · · · · · · · · · · · · · ·	
🗄 🌆 🔍 Line 11 FAN	- Axial							
O      O	DE Bearing	Type Here		TypeHere				
🖽 😡 🗧 DE Bearing	E-							
	E-TUDER							
	🕀 🔄 😐 gearbox						1 1 1	
	Input shaft     OE Bearing						initial difference of the	والمستعملية والمستعملية والمتعادية والمتعا
	O Sessing						and the second standard stands	
	B- Output shaft 1			Status				2000 2200 2400
	DE Bearing		Select image				Hz 1400 1000 1000	2000 2200 2400
	- NdE Bearin		Use navigation picture	Alarm:				
	- Output shaft 2		Use navigation picture					
	DE Bearing							
	- NdE Bearing			Lubri cati on:				
	- S e Line 1 FAN						Length (Sec)	Operator
	- Motor NdE							uperator
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	🗇 🗌 🛒 😐 Line 2 FAN	Date Range 22/11/20	021 ¥ · 22/11/2021 ¥				de	fault
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	Work Order	1 3410275						
		步 :						
🚝 Graph pane					Database server: : localhost	🖞 No Device	Monday, 22 November 20	021 19:54 NUM

Now, select "Settings" in the bottom right corner of the report menu to enter basic information:



	bute × *		
50/349 free  Work Orders/2  FR0  Extrans		Lection: D/ PHD Criscaliny(?): Tp0: 1909 Criscaliny(?): Corpany Iame: 301 Tenel AssetOwner: 020 FHD Trapact Name: 1001 Tenel AssetOwner: 020 FHD Corpany Iame: 1005/07 Corpany Iame: 1005/07 Corpany Iame: 1005/07 Corpany Iame: 1005/07 Corpany Iame: 1005/07 Corpany Iame: 1005/07 State Corpany Iam	X         US Peak           Unreaded and L3         Unreaded and L3           Unrea
		SDT DZ - Pro MORE sistenet Date Sarge Date Sarge 2010221 * - 2010221 *	Initial point of the set of the
	<	Samera S 2	View Report default

Enter all the necessary data and select "Save and Close" in the bottom right corner. The information you have entered in the basic settings will be displayed in the report.

Next, select the assets and measurement points you want to report. Simply check the box and the selected node will be included in the report. Selecting a node will include all child nodes automatically, but you can de-select some of them individually. Another way to go is to select the exact point, and all parent nodes will be selected automatically. You cannot de-select the parent node, as the report must show the path of the system/assets/component/part...measurement point.

🚭 Report				×
DZ-PRO	Location:	DZ-PRO		
Control Provided Heating     Control Pro	Criticality (*) :	Type Here		
Horizontal	Description (*) :		Condition (*) :	
DE Bearing     D	Type Here		Type Here	
	Situation (*) :	Type Here		
	Recommendation (*) :		Comments (*) :	
	Type Here		Type Here	
		Select image Use navigation picture	Status Alarm:	
			Lubrication:	
	Selected Date Ran Date Range 22/11/20;			Settings View Report

Note that the graphs you have selected for reporting will only be displayed if the node they belong to is selected for reporting.



w Tree Nodes Reports Utilities Optio	w x				-	
DT340 Tree Work Orders/S					DZ-PRO	0.0
	Prent     P	output of entire facility Might cause completes	D2.4900 High secondly line with most impact to production secondly and which is to before stopped to second the second se	Condition (*) : Not ecosphale for continuous operation. High postabilities of file ecositical motor 1 in blastry section and enhaust fain in the 2	×	•••
Line 2 FAN Motor NGE Motor DE SEXT(m-32k) (1) Nel Bearing DE Bearing	Line 11 FAN	Situation (*) Recommendation (*) Schedule ne cessary ma continuing monitoring o	Electrical motor1, in biasting area and ex both assets are critical for operation of er internance as soonest possible time, while in dayly basis.		~	
			Select image	Status Alam: Lubrication:		
		Date Range 22/11/202	ge 21 - 22/11/2021 -		Settings View Report	
	Alarms Work 0	ders/Surveys	DZ-PR0/Blasting/Electrical motor 1/NdE B D2-PR0/Blasting/Electrical motor 1/NdE B D2-PR0/Blasting/Electrical motor 1/DE Bea D2-PR0/Blasting/Electrical motor 2/NdE Be	ering/Axial/Acc100(RW10.10k-64k) ing/RS2NL100(focUS-256k)		

Next, select each node and enter your report content (your conclusions, diagnosis, recommendations, asset condition, descriptions). Here is the example:

For database root DZ-PRO, in this example: finishing and assembly line; you can enter all necessary data, your findings and conclusions, to move on to the specific process and assets it contains:

Ultranalysis Suite 3 Licensed to SDT File View Tree Nodes Reports Utilities Options Dev	ne ?						- o ×
	- ×						
D2-940     D2-940     D2-940     D3-950     D3-950     D4-950     D5-950     D5-950     D5-950     D5-950     D5-950     D5-950     D5-950     D5-950     D5-950     D5-95     D5-950     D5-95     D5-9	Provide the set of the set	Location: Diticality(*): Description(*): Final blasting proces	D2-PR0 (Bassing High s of this Studi Identitis Edition Essentibly	Condition (*): No ecopytable for continuous operation. Deficit desceled in Econtral moor 1	]	< vD	
Image         Limas           Image         Difference           Imagee         Difference           Imagee         Difference           Imagee         Difference      <	⊕         □         0         Mater Nit           ↓         ↓         ●         Mater Nit	Situation (*) : Recommendation (*) : Schedule necessary m cantinuing monitoring	aintenance at sconest possible time, while	Sang and failure of Electrical model 2 will cause major stoppage. Conversing (*): Conversing (*): Conduct of Fill carrical model to be detendentied, so it was not addressed in the other target from stop 2 has detendentied, so it was not addressed and urgent action is mediad.		TRUM	e
			Select image Use navigation picture	Status Alam:		ength (Sec)	v ) Operator
		Date Range 28/11/2	inge 121 - 23/11/2021 -		Settings View Report		default default
ef Graph pane	Alerms Work Order	s/Surveys		Databaseseven Hoofhoat	🕴 No Device	Tuesday, 23 Nov	ember 2021 00:02

In this case, blasting process, followed by the assets:



01340 Tree Work Orders/Surveys	2					
01340 Tree Work Orders/Surveys						
lasting @ Repor	t	And to Andre a she wild, the proof and the		>		
Electrical motor 1	03.020					
	Basting	rs DZ-PRO\Blasting\Electrical motor 1				
	Critical	ity (*) High				
- 🙍 Acc100(RW5.1k-64k) 🕀 🔗	Vertical					
- 🗧 Acc100(RW10.1k-64k)	- de Horizontal					
- e Acc180(RW10.16k-64k)		ntion (*) :	Condition (*):			
🕀 😑 Horizontal		al motor driving one of the ejectors, highly critical for continuatio	n Not acceptable for continuous operation.			
🕀 😆 Axial 🛞		uction, as well as product quality	Advanced damage detected on NDE bearing.			
🕒 🔕 😐 DE Bearing 🛛 🕀	🗌 🤷 Bectrical motor 3					
Electrical motor 2	🛓 😐 Line 8					
	🛒 😐 Line 1 FAN					
	🗊 🔹 Line 2 FAN				-	
Line 1 FAN	🗌 🔕 🧧 Motor NdE				TRUM	
	🖸 🔕 🗧 Motor DE Situati	on (*): As damage on NDE bearing has advanced,	causing collateral damage, progression of deterioration has accelerated.		1.1.1	
Motor NdE     Motor NdE	Une 11 FAN					
- • RS2T(Ht-32k) (1)	Recomm	sendation (*):	Comments (*):			
Line 11 FAN	Schedul	e replacement of Electrical motor 1 at soonest possible time.	Short lifecycle of current motor indicates possibility of failure induced by			
NdE Bearing		e monitoring on daily basis.	inadequate installation. RCA needed.			
DE Bearing						
		Select image	Status			
		Use navigation picture	Alam:		-	
			Lubrication			
	-		and the second sec			
					Length (Sec)	Operator
	Sel	lected Date Range		Settings		default
	Date 6	ange 23/11/2021 💌 - 23/11/2021 💌			and the second se	default
	Date	and [ Fraction 1.1 - [ Fraction 1.1 - [ -		View Report		
				wew sepore		
	Alarms				_	
	Work Orders/Surveys					

Electrical motors, measurement points and measurement settings.

Annual State State State     Annual	2 Gg-4	lots Stitution			Mill der Landen, Synk Laten Lane 2009 Mill Derland, Son 2009 Mill Derland, S		Lodin. Nothing Street Street		×	- a ×
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	n Canal a Garage	Notes 17 Version and a description of the second se	<ul> <li>The set is been when you and the set of th</li></ul>				An age	ana ana		
		Not not	44	rate (or)			- Telefor Handbauge Fair for your		Januar Januar	an (m) Frida Frida
al i net san	Set 54	n The wa	Dates was being	2 in time (Screen, 25 seeder 20) (an 5)	a rat w	Vieta	5 I	jadnersten Seber	2 na familier	Sarany, 20,5 sealer Jan. Jan. 1

Or in continuation, Line 2 Fan

Note: If you close the report menu at this stage, all data you entered will be saved even if you change the tree structure, folder, or restart UAS3. Once you open that particular tree structure and Asset Condition report, the data will be there.

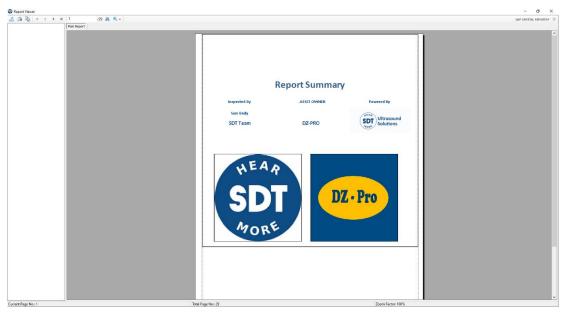
If you close the report menu, you can go through your tree structure and add more graphs or remove graphs you do not want, and your report preparation will be updated.

Once you are done with your report, select "View report" in the bottom right corner:

Ultranalysis Suite 3 Licensed to S07							- 5 X
File View Tret Nodes Reports Utilities Optiones 5013140 Tres Wark Online(Sinne Comes Comes Biostrice	- × 8					•	8
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						migth (Sac)	Openation
		Selected Date Range			Settings		cefault Cofoult
		Date Range 20/11/2021	v - 23/11/2021 v		Vice Report		cease
	Adarms Work Orde	ers/burvess 12					
Graph pine				Detabase server: : localhoat	V No Device	Tuesday, 23 November	ber 2621 (0:04



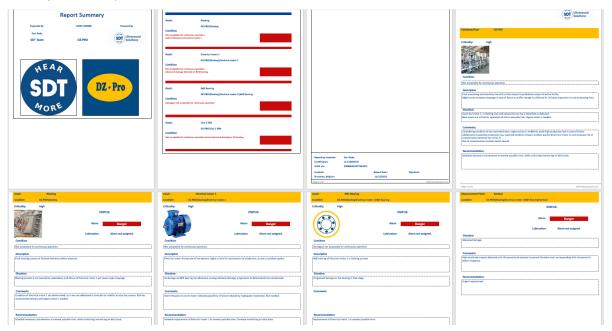
Your report will be displayed in the Report Viewer, and you can make a final check before exporting or printing it.



In the top left corner, you can choose to copy the currently displayed page, print the entire report, or export it in different formats:

🚳 Report Viewe	er			
🕹 🎒 🖒	H I F H	1	/29 🏦 🔍 🗸	
		Main Report		

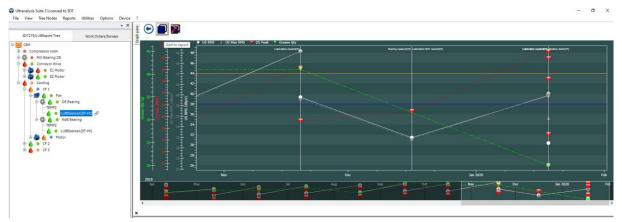
#### Your report is completed!





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						Hausannet fuit. Holmail Laattat. ELPHOplandgi serua onar (1881 humpharana	
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When reporting LUBExpert data, there is no difference in the settings. You will select all graphs you need, all measurement points you need, enter your conclusions and recommendations and generate the report:

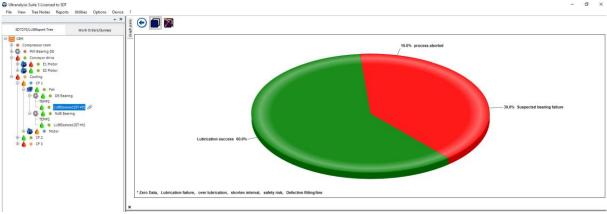


Static trend with all data,

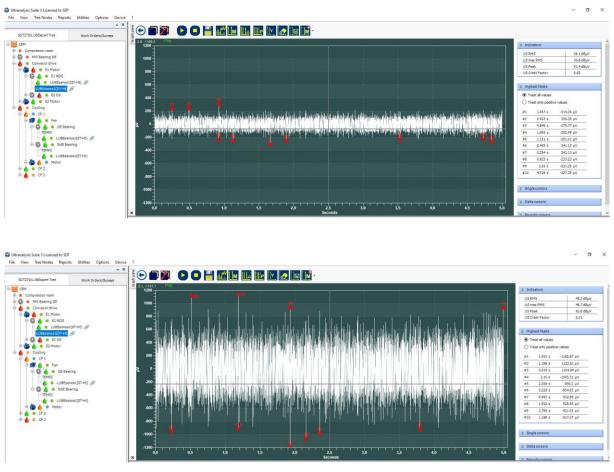


Initial/Base line graph,

- o ×



**Process statistics** 



TWF and/or Spectra before and after lubrication (in case you are using LUBExpert Dynamic).

All data relevant to the lubrication process will be displayed.

Examples are showing rotating equipment, but your Asset Condition report is equally useful for electrical equipment, valves, hydraulics, or any other application.

## **17.** Assigning operators and users

UAS3 allows you to assign instrument operators and UAS3 users. It is often useful to do so, if there are several users and operators, when traceability and control is necessary.

## 17.1. Assigning Instrument Operator

Click on Utilities/Operators and following window will pop up:

Drag a column header here to gi	oup by that column.
Operator Name	Is Active
Ante	
Davor	
Benoit	

Γ	New	Undate	Delete
	New	Update	Delete

You can add New operator, Delete operator, or Update selected operator details, as follows:

🚳 Edit Operator			$\times$
Operator Name Ante		Operator Active	
DC Cem Initial stage r	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	DC Cem	
		Save	

Here, you can assign specific Tree Structures to selected operator.

## 17.2. Assigning UAS3 User

Click on Utilities/Login Users and following window will pop up:

🚳 Login Users							×
Drag a column hea	der here to group	by that col	umn.				
User name	Login	Is Active	Is Admin	Can Read	Can Write	Remote Team	

New User Update User Delete User



Click on New User and following window will pop up:

lser name		
ogin		
assword		Is Active
onfirm Password		Is Admin
	Allow Write	Remote Team

If none of the boxes defining user's rights (*Is Admin, Allow Write, Remote Team*) are checked, the user will have *read-only* access.

Is Admin – The user has full access, including the right to administrate other users.

<u>Allow Write</u> – The user has full access to read and modify the database but cannot administrate other users.

<u>*Remote team*</u> – The user has access to read data, upload, download and create backup, but cannot modify the database or administrate other users.

Add user, define status and click on Save User.

You can also Update users' details and Delete User.



## **18. Backing up and Restoring Database**

Data contained in UAS3 can be backed up and restored, for two main purposes. First is to save a backup of your data in case of mishap. The second reason is to share data with another user, whether a colleague in your team or a consultant for support.

## **18.1.** Backing up Full UAS Database

UAS3 is creating a backup of a database with all its details. Entire Tree Structure, all Settings, all Alarms, all Measurements.

UAS3 is backing up a Data Folder as a minimum unit of backup, with its entire content.

Click on Utilities/Database/Backup/Full UAS Database in top toolbar, as shown below:

Ultranalysis Suite 3 Licensed to SDT		
File View Tree Nodes Reports	Utilities Options Device ?	
	System Images 🔹 🗙	
SDT340 Tree	Alarm Functions	
🗆 <mark>Serve demo_data(340)</mark>	😑 Database 🔹 😽 Ba	ckUp
🗆 📷 😑 TEST-TREE	Language 🔸 🛃 Re	store
🗉 🅁 LEAKS	Operators Exi	port XML 🔸
🗉 🍪 🛑 MECHANICAL	Export Ways files	·
🗉 😔 🌑 LUBRICATION	Im	port XML
🗉 🐑 STEAM TRAP	Login Users	
I 🗲 ELECTRICAL		
🗉 🐻 VALVES		
II 📥 TIGHTNESS		
🗉 🤕 😑 HYDRAULICS		

Following window will pop up:

🥶 Backup Data	abase		×
🗹 Backup Al	l Data Folders		
Data Folder	test340(450177119) (	SDT340)	-
File Path			
		BackUp	Close

*NOTE!* In case that **Backup All Data Folders** is checked, all data folders (entire content of your UAS3) will be backed up. This is very useful to do on a regular basis and preserve your data in case of mishap.

If you want to backup only one Data Folder, for purpose of sharing with you colleagues or with consultant/support, uncheck this field, as below:

Backup Dat	abase		×
Backup A	l Data Folders		
Data Folder	test340(450177119)	(SDT340)	•
File Path			
		BackUp	Close

Now, only displayed Data Folder will be backed up [test 340 (450177119) (SDT340)]. By clicking on arrow next to the Data Folder name, drop down menu will enable you to choose any other folder.

In next step, choose destination and	l name for your ba	ckup file, by pr	essing	 , and pres	ss <mark>Backup</mark>
🌚 Backup Dat	abase		×		
Backup Al	l Data Folders				
Data Folder	test340(450177119) (SDT340	) <del>,</del>	·		
File Path	C:\Users\haris\Desktop\Bac	ckup Test.badkup			
		BackUp C	lose		

Your backup has been created.

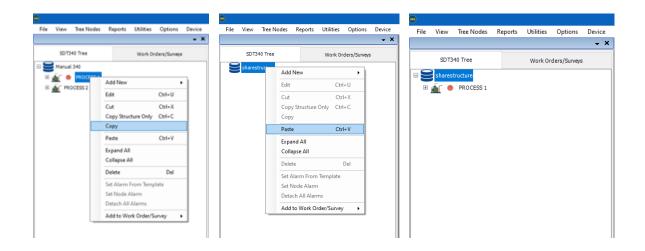
#### NOTE!

If you want to create a backup of a Tree Structure that is within Data Folder containing more different Tree Structures, or you want to backup only a part of the Tree Structure, you can do following:

- Create a new Tree Structure in new Data Folder;
- Copy nodes from Tree Structure you want to backup (Structure only, or with Data, depending on what you want to backup and share);
- Paste Nodes in newly created Tree Structure in new Data Folder;
- Backup new Data Folder.

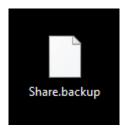
As shown below:

🥌 Create New DataFo	older	×	Tree Structure List - sharefolder(450177119) (SDT340)	×
Select the device O SDT2XX Data Folder Tree Structure Name Tree structure Icon	SDT340  sharefolder  sharestructure		Data Folder     sharefolder(450177119) (SDT340)     Create New       Sharestructure	Info Delete
		Save	Tree Structure Open Create New Edit Delete	



Copied Node is now in a new Tree Structure within the new Data Folder. Now you can backup the new Data Folder and it contains only what you intended to share.

Your backup file is ready to be sent:

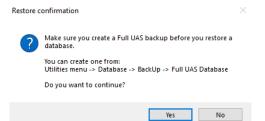


## **18.2.** Restoring Full UAS Database

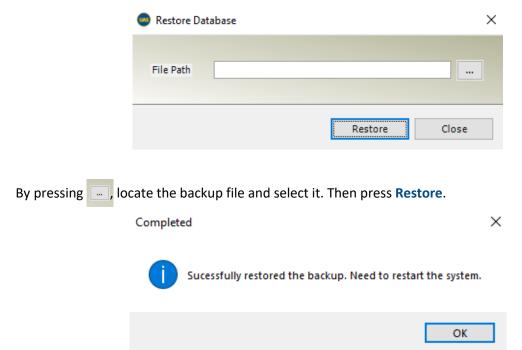
When you need to restore backup in your UAS3, click on **Utilities/Database/Backup/Full UAS Database in top toolbar**, as shown below:

File     View     Time Nodes     Reports       SD/149 Tree     Image: Strategy of the strategy of t	Uteller Option Device ? System Image:  Adam Functions  Device ?  Language   Coperation Egapet Wave files Login Users

Warning window will pop up, and it I always good to make a backup of your data first, of course.



Once you confirm, Restore Database window will pop up:

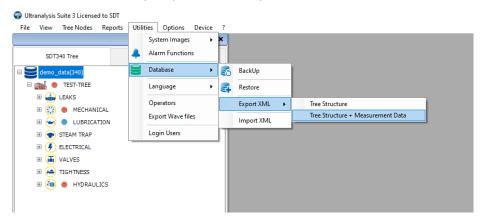


Open your Data Folders and look for restored folder.

### **18.3.** Export XML, Tree Structure or Tree Structure & Measurements

This function enables you to export tree structure only or export it with selected measurement data. This becomes very useful when operation is running on several different locations and regular refreshment of data in supervisor's or analysts' database is needed, as well as in all cases when data needs to be shared on regular basis without need to send large files.

Click on Utilities/Database/Backup/Export XML in top toolbar, as shown below:



And choose if you want to export Tree Structure only, or Tree Structure + Measurement data.

Exporting Tree Structure will do exactly that, export only tree structure, without any measurement data, and it can be restored in any UAS3 software:

Export Tree Structure and Measurement data			
Tree Structure File Path	demo_data(340)	]	
	BackUp Close		

Select a File path and backup your data.

Exporting Tree Structure + Measurement data will export Tree Structure, but it will also include measurement data that you select to export.

Export Tree Structure and Measurements' data			
Tree Structure demo_data(340)  Backup for Selected Measurements			
demo_data(340)(TEST-TREE\LEAKS\FLEX\FlexID2(Ht-32k)           demo_data(340)(TEST-TREE\LEAKS\LLTRASENSE\LltraSense(Ht-32k)           demo_data(340)(TEST-TREE\LEAKS\LLTRASENSE\LltraSense(Ht-32k)           demo_data(340)(TEST-TREE\LEAKS\LLTRASENSE\LltraSense(Ht-32k)           demo_data(340)(TEST-TREE\LEAKS\LLTRASENSE\LltraSense(Ht-32k)           demo_data(340)(TEST-TREE\LEAKS\LLTRASENSE\LltraSense(Ht-32k)           demo_data(340)(TEST-TREE\LECHANICAL\RS2TRS2T(ft-32k)           demo_data(340)(TEST-TREE\LECHANICAL\RS2TRS2T(focUS-256k)           demo_data(340)(TEST-TREE\LECHANICAL\LACC10(XC:100(Xc:100(KK): 1k-32k))           demo_data(340)(TEST-TREE\LECHANICAL\LACC100(LACC100(KK): 1k-32k)           demo_data(340)(TEST-TREE\LECHANICAL\LACC100(LACC100(KK): 1k-32k)           demo_data(340)(TEST-TREE\LECHANICAL\LACC100(LACC100(KK): 1k-32k)           demo_data(340)(TEST-TREE\LECHANICAL\LACC100(LACC100(KK): 10.1k-32k)           demo_data(340)(TEST-TREE\LECHANICAL\LACC100(LACC100(KK): 10.1k-32k)			
< >>			
Readings between 18/11/2020 - 18/12/2020 -			
File Path			
BackUp Close			



Various tools are available to help you select data you need to export and backup.

You can select the option to backup selected measurements and select them individually or using filter.

You can also select to export, and backup measurements filtered by date.

Once you export and backup your data, it is ready to be sent and restored in another UAS3 software.

NOTE:

In case that exported tree structure and import target tree structure are not identical (target tree structure was altered), difference will be overwritten by import or additional nodes will be added, and measurement data will be inserted. To make sure that everything runs smoothly, and any possible confusion is avoided, use "login users" function and assign rights to each user in regard to administrate, write or read only. That way, you can be sure that tree structures in multiple locations will be the same, and data will be easily updated with simple export/import.

## **19. Responsibility limits**

Neither the company SDT International, nor any related company, will in any circumstances be liable for any damages, including, without limitation, damages for loss of business, business interruption, loss of information, defect of the UAS3 loss of time, financial or material loss or any other indirect or consequential loss arising out of the use, or inability to use this product, even when it has been warned of possible damages.

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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.



11	HTR 20/03/2025	Major updates	CGI
10	CGI 31/10/2023	To-do list + import bearing parameters chapters added	MUN
09	MUN 24/05/2023	Updated screens	GGH
08	CMA 30/08/2022	Update "Bearing toolbox" (activation and functioning)	CGI
07	HTR 24/11/2021	UAS3 Report	CGI
06	CMA 28/08/2021	Major updates (network settings)	HTR
05	CMA 04/05/2021	Additional info on network/pgsql	HTR
04	CGI 18/12/2020	UAS3 improvements	HTR
03	CGI 27/10/2020	Compatible with Windows 8, 8.1, 10 - 64 Bits	HTR
02	CGI 21/10/2020	Changed blurry screenshots	HTR
01	CGI 13/10/2020	Original version	HTR
Revision	Writer	Nature of modification	Approved

