SONOTEC


## User documentation

# SONAPHONE DataSuite

Modular software platform for preventive maintenance

Translation of the German original

Revision: 1.8 | 2023-05-12

# Content

# 1 Notes on this user documentation

This section describes the structure and representations of this user documentation to simplify the use of this user documentation.

## 1.1 General

This user documentation is an integral component of SONAPHONE DataSuite and has to be available at all times for any user.

This user documentation contains all necessary information to ensure proper and efficient use of SONAPHONE DataSuite.

## 1.2 Representations

### Illustrations

Illustrations used in this document do not always contain all details or special cases. Ideally, they only provide the essential information.

### Notes

Notes are marked as follows:

> **Note**
> Notes describe special information or point out particular features.

### Keyboard shortcuts

Available keyboard shortcuts are represented as follows:

| Keyboard shortcut | Representation |
|---|---|
| Key | RETURN |
| Key combination | SHIFT + RETURN |

### Inputs and outputs

Certain recurring symbols or descriptions marking possible inputs and outputs for users are used as follows:

| Input/output | Representation |
|---|---|
| Button | CANCEL |
| Dialog window | 'Window' |
| User interface element | **GUI element** |

### Icons

The following icons are used for visual emphasis:

| Icon | Function |
|---|---|
|  | indicates a link to external content |

### General widget icons

The SONAPHONE DataSuite widgets contain icons for the following general functions:

| Icon | Usage | Function |
|---|---|---|
|  | Menu | Opens a menu with further features. |
|  | Taking screenshots | Saves a widget with its content as screenshot.<br>Depending on the Web browser, the taken screenshot will be:<br>• copied to the computer's clipboard or<br>• shown as image in the Web browser to be saved manually. |
|  | Maximizing | Shows a widget in a zoomed-in window (modal window) over the user interface. |
|  | Zooming in modal windows | Expands a modal window to the dimensions of the visible area within the browser window. |
|  | Zooming out modal windows | Shrinks a modal window to its original size. |
|  | Closing | Closes a modal window. |

# 2 System overview

This section describes the functional principle, system requirements and installation types of SONAPHONE DataSuite.

## 2.1 Functional principle

The SONAPHONE DataSuite software is the central platform for organization, monitoring, evaluation and analysis of measurement data that have been collected at the respective machines and/or assembly groups of a plant/asset with SONAPHONE handheld units.

The SONAPHONE DataSuite is a web-based app that may be operated by all standard web browsers.

## 2.2 Installation types

SONAPHONE DataSuite may be installed in one of the following versions:

| Version | Description |
|---|---|
| SONAPHONE DataSuite - V | DataSuite viewer for desktop computer (installation on a local computer.) |
| SONAPHONE DataSuite - D | DataSuite full-mode version for desktop computer (installation on a local computer.) |
| SONAPHONE DataSuite - S | DataSuite full-mode version for company servers (installation on a server within a company network with proprietary administration.)<br>The databases of SONAPHONE DataSuite - S and SONAPHONE DataSuite - D are not mutually compatible. |

**Please mind the installation instructions**

For instructions and notes on the installation of different versions, please see System requirements and Installation and update.

## 2.3 System requirements

This section contains information on the requirements and conditions of systems on which SONAPHONE DataSuite is to be used.

### Desktop versions

The following requirements apply to the following versions:

- SONAPHONE DataSuite - D
- SONAPHONE DataSuite - V

#### Minimum requirements

| | |
|---|---|
| **Operating system** | Windows 7 |
| **Screen resolution** | 1280 × 800 |
| **RAM** | 1 GB |
| **Network** | 1 available network port (default: 8084)<br>**Additional available network port for the "SteamExpert" add-on module**<br>If the optional "SteamExpert" add-on module has been activated, the module's database requires an additional available network port (default: 8085). |
| **Hard disk space (for installation)** | 1 GB |
| **Internet connection** | At least once for activation after installation |
| **Additional software/environment** | Java 17 (will be included and automatically installed if not already in place)<br>**Java availability**<br>The Java Runtime Environment (JRE) by Eclipse Temurin supplied with the SONAPHONE DataSuite is the open-source Java SE implementation based on OpenJDK. |

| | |
|---|---|
| **Web browser** | Supported Web browsers:<br>• Mozilla Firefox (from version 72)<br>• Google Chrome (from version 80)<br>• Microsoft Edge (from version 80)<br>**Activate JavaScript!**<br>Activation of JavaScript in the Web browser is required for the use of SONAPHONE DataSuite.<br>• Before starting the SONAPHONE DataSuite, please make sure that JavaScript is activated in the Web browser. |

### Recommended system requirements

| | |
|---|---|
| **Operating system** | Windows 10 |
| **Screen resolution** | 1920 × 1200 |
| **RAM** | 4 GB |
| **Processor (CPU)** | Multicore CPU, 2.5 GHz or above |
| **Hard disk space (for installation)** | 500 GB or more (depending on the amount of recordings, images and voice memos) |
| **Web browser** | Google Chrome (from version 80) |

## Server version

### Minimum requirements for the server

| | |
|---|---|
| **Operating system** | Windows Server 2012, 2016, 2019 with graphical user interface (GUI) |
| **RAM** | 1 GB |
| **Network** | 1 available network port (default: 8084)<br>**Additional available network port for the "SteamExpert" add-on module**<br>If the optional "SteamExpert" add-on module has been activated, the module's database requires an additional available network port (default: 8085). |
| **Hard disk space (for installation)** | 1 GB |
| **Internet connection** | Required permanently |

| | |
|---|---|
| **Additional software/environment** | Active Directory server<br>Java 17 (will be included and automatically installed if not already in place)<br>**Java availability**<br>The Java Runtime Environment (JRE) by Eclipse Temurin supplied with the SONAPHONE DataSuite is the open-source Java SE implementation based on OpenJDK. |

### Recommended system requirements for the server

| | |
|---|---|
| **RAM** | 8 GB |
| **Hard disk space (for installation)** | 500 GB or more (depending on the amount of recordings, images and voice memos) |
| **Processor (CPU)** | Multicore CPU, 2.5 GHz or above |

### Recommended system requirements for client computers

| | |
|---|---|
| **Operating system** | Windows 10 |
| **Screen resolution** | 1920 × 1200 |
| **RAM** | 4 GB |
| **Processor (CPU)** | Multicore CPU, 2.5 GHz or above |
| **Web browser** | Supported Web browsers:<br>• Mozilla Firefox (from version 72)<br>• Google Chrome (from version 80)<br>• Microsoft Edge (from version 80)<br>**Activate JavaScript!**<br>Activation of JavaScript in the Web browser is required for the use of SONAPHONE DataSuite.<br>• Before starting the SONAPHONE DataSuite, please make sure that JavaScript is activated in the Web browser. |

# 3 Installation and update

This section contains instructions on correct installation of SONAPHONE DataSuite.

## 3.1 Installing desktop versions

The desktop versions of SONAPHONE DataSuite are installed on a desktop computer and must be registered/activated after installation. After completing installation, a number of login details need to be specified.

### Installation on a desktop computer

#### Description

The desktop version of SONAPHONE DataSuite shall be installed on a desktop computer that fulfills the requirements listed under System Requirements.

#### Procedure

1. Download the installation file to the desktop computer.

   > The link for downloading the installation file will be sent by email after purchase of the license.

2. Double-click the "DataSuite Setup.exe" installation file to start the installation.

   > **Security settings of the operating system**
   > After starting the installation, a Windows Defender notice may appear depending on the security settings of the operating system. In this case, please see the procedure description under Troubleshooting in the desktop versions.

   → The Installation Wizard opens.

3. In the Installation Wizard, click the **NEXT >** button.
   → The Installation Wizard switches to the installation directory selection.
4. Use the default installation directory (User\Documents\SONOTEC\SONAPHONE DataSuite) or choose a different installation directory.

   > **Permissions verification**
   > For installation in the default installation directory, no administrator rights are necessary. Installation in a different installation directory might require extended permissions depending on company-specific settings.

5. In the Installation Wizard, click the **NEXT >** button.
   → The Installation Wizard switches to folder creation in the Start menu.

6. Use the default folder (SONOTEC SONAPHONE DataSuite) or enter a different folder name.
7. In the Installation Wizard, click the **INSTALL>** button.
   → The SONAPHONE DataSuite is installed in the selected installation directory on the desktop computer.
   → After successful installation, the Installation Wizard switches to the completion screen.
8. In the completion screen, activate the **Run SONOTEC SONAPHONE DataSuite** checkbox.
9. Click the **FINISH** button.
   → The Installation Wizard closes. The SONAPHONE DataSuite is started in the Web browser with the address http://localhost:8084/SonaphoneDataSuite/ .

### Further information

During installation of SONAPHONE DataSuite, the software components are installed as follows:

| Component | Function/description |
|---|---|
| Program files | Program files are stored in the installation directory.<br>The directory "h2data" is part of the program files. This is where the database files are stored.<br>**Data backup**<br>Database files should be backed up regularly. |
| Event logs | Event logs (log files) are stored in the directory "User\Documents\SONOTEC\SONAPHONE DataSuite\logs" and are used for error documentation within the software, among other things. |
| Dependent components | The following components are installed during installation:<br>• Virtual server and web app (SONAPHONE DataSuite)<br>• Java Runtime Environment (Adopt OpenJDK 8) |

## Registration and activation

### Description

During the first startup of the SONAPHONE DataSuite, the software needs to be registered with a activation key and activated.

> **Internet connection required**
> For registration and activation of the SONAPHONE DataSuite, an internet connection is required.

### Procedure

After installation, the 'Product Registration and Activation' window opens.

1. Enter the activation key in the **Activation Key** field.

   > The activation key will be sent by email after purchase of the license.

2. Click the **ACTIVATE** button.
   → The validity of the activation key is checked. After successful validation, the SONAPHONE DataSuite is activated and started.

### Using the demo version

1. Do not fill in the **Activation Key** field.
2. Close the 'Product Registration and Activation' window.
   → The SONAPHONE DataSuite is started as demo version. The remaining usage days are displayed in the 'License Status' window.

   > The demo version may be used for 30 days. After expiration of the usage time, it is not possible to use the software again on the same computer without purchasing a license.

## Creating master password and user account

### Description

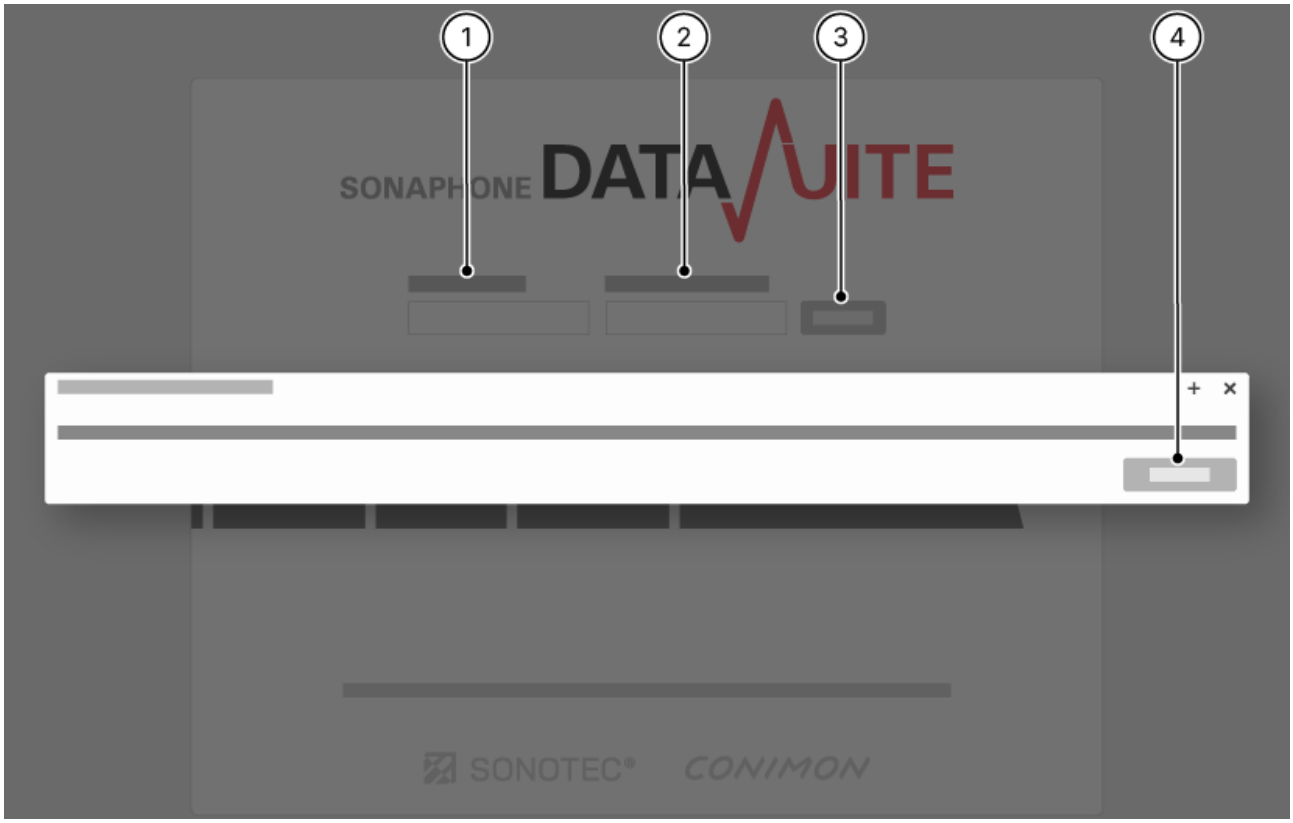
To be able to use the SONAPHONE DataSuite in a Web browser, a master password and user account need to be set up. Both of them are set up during the first startup after installation.

**Usage of the master password**

The master password is necessary to reset the user account password via the "Forgot password?" option in case the password got lost (see Resetting the password (desktop versions)). The master password is a security feature to prevent password reset without authorization.

### Master password setup

After registration/activation, the SONAPHONE DataSuite opens in a Web browser with the start screen and the 'Set master password' window:




1. Click the **CONTINUE** (4) button in the window.
2. Enter your preferred master password in the **Master password** (1) field.
3. Enter the same password again in the **Confirm master password** (2) field.

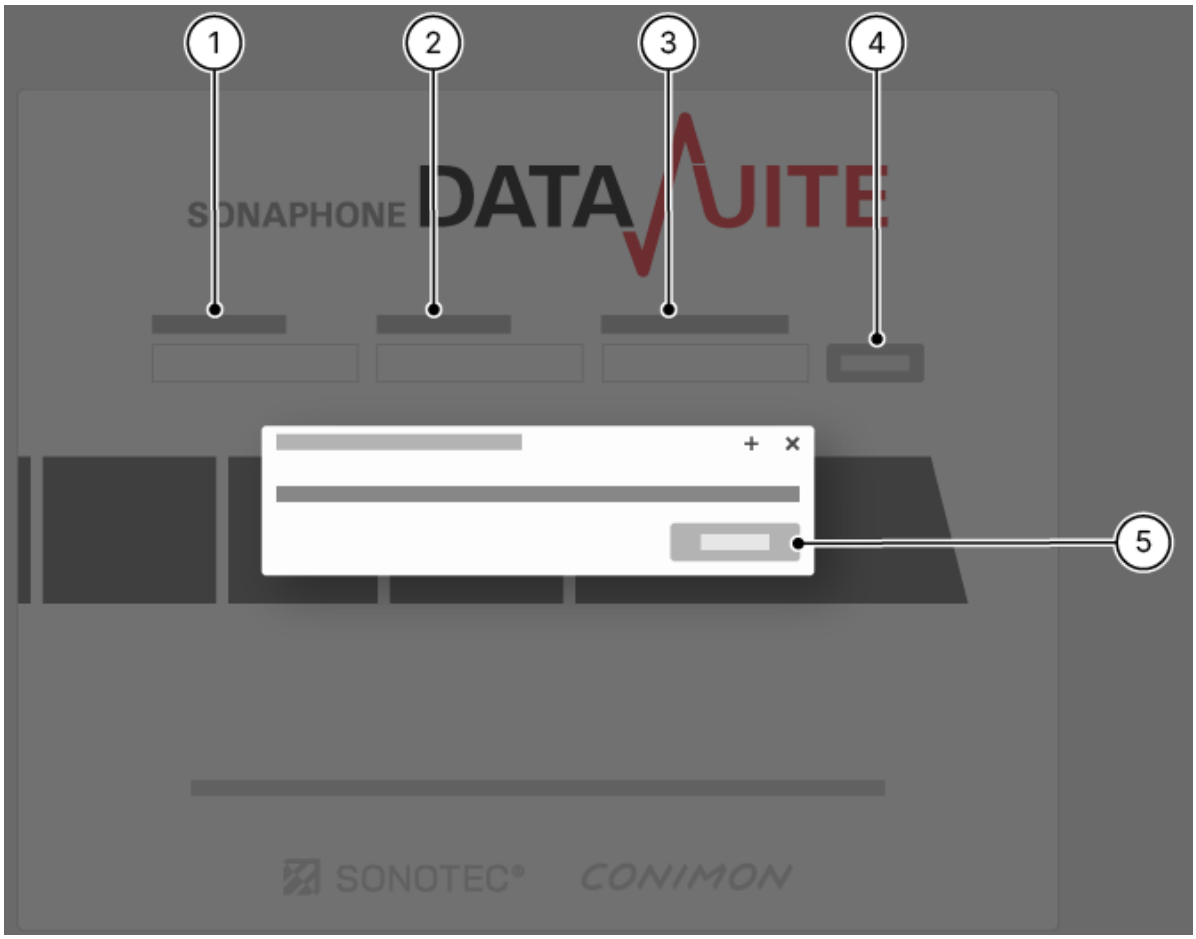
4. Click the **SUBMIT** (3) button.
   → The start page opens with the 'Set user account' window.

**Master password backup**

The master password is stored in the database in encryption and may not be accessed. This is why the master password should be backed up (e.g. in a password manager).

### Setting up a user account

After master password setup, the DataSuite start screen opens with the 'Set user account' window:




1. Click the **CONTINUE** (5) button in the window.
2. Enter the user name in the **New user** (1) field.

   **User name for multiple users**

   If the DataSuite version is supposed to be used by several users, a general user name should be assigned.

3. Enter your preferred password in the **Password** (2) field.

4. Enter the same password again in the **Confirm password** (3) field.
5. Click the SUBMIT (4) button.
   → The login page opens.
6. Log in with the details of the user account (see Login).

**Backup of user account details**

The user account details (user name and password) are stored in the database in encryption and may not be accessed. For editing or reset of the password, the master password is required. This is why the user account details should be backed up (e.g. in a password manager).

## Uninstalling desktop versions

### Description

The desktop versions may be uninstalled from the desktop computer via a wizard.

Uninstallation via Windows control panel ("Programs and Features") is deactivated because it requires administrator rights.

### Procedure

1. In the notification area, click the  icon (SONOTEC DataSuite) with a right-click.
   → A context menu opens.
2. In the context menu, click the item "Stop Server".
3. Restart the desktop computer.
4. In the Start menu folder of SONAPHONE DataSuite, click the "Uninstall" item.
   or
   In the installation directory of SONAPHONE DataSuite, double-click the file "Uninstall.exe".
   → The Uninstallation Wizard opens.
5. Execute the individual steps in the Uninstallation Wizard to uninstall SONAPHONE DataSuite.

### After uninstallation

After uninstallation of the desktop versions, some parts of the installation directory will remain to prevent data loss from overwriting or deletion. If the recorded measurement data are no longer needed after uninstallation, the installation directory including stored files may be manually deleted from the desktop computer as a whole.

## 3.2 Updating desktop versions

### Description

Update files of the SONAPHONE DataSuite desktop versions will regularly be provided to keep them up-to-date.

### Preparing an update

1. Download the update file to the desktop computer.

   > The link for downloading update files will be available after successful registration in the mysonaphone.com portal.

2. Back up the database files in the folder "h2data".

#### Closing the SONAPHONE DataSuite

1. In the notification area, click the  icon (SONOTEC DataSuite) with a right-click.
2. In the context menu, click the item "Stop Server".

### Performing an update

1. Double-click the "DataSuite Setup.exe" update file to start the update.

   > **Security settings of the operating system**
   > After starting the installation, a Windows Defender notice may appear depending on the security settings of the operating system. In this case, please see the procedure description under Troubleshooting in the desktop versions.

   → A dialog window for reading and confirming the license terms opens.
2. Read the license terms and click the **I AGREE** button for confirmation.
   → The Update Wizard opens.
3. In the Update Wizard, click the **NEXT >** button.
   → The Update Wizard switches to the installation directory selection.
4. Select the directory where the SONAPHONE DataSuite has been installed.

   > **Permissions verification**
   > For updating the installation in the default installation directory, no administrator rights are necessary. Updating an installation in a different installation directory might require extended permissions depending on company-specific settings.

5. In the Update Wizard, click the **NEXT >** button.
   → The Update Wizard switches to folder creation in the Start menu.
6. Use the default folder (SONOTEC SONAPHONE DataSuite) or enter a different folder name.

7. In the Update Wizard, click the **INSTALL>** button.
   → The database file is backed up.
   → The database file is migrated to the current file format.
   → SONAPHONE DataSuite is updated.
   → After a successful update, the Update Wizard switches to the completion screen.
8. In the completion screen, activate the **Run SONOTEC SONAPHONE DataSuite** checkbox.
9. Click the **FINISH** button.
   → The Update Wizard closes. The SONAPHONE DataSuite is started in the Web browser with the address http://localhost:8084/SonaphoneDataSuite/ .

## 3.3 Installing the server version

The server version of SONAPHONE DataSuite is installed on a server, linked to the Active Directory after installation, activated with a license key and started as a service.

**Installation by server administrator**
The server version must be installed by a server administrator on the client side.

## Installation on a server

### Description

The server version shall be installed on a server that fulfills the requirements listed underSystemvoraussetzungen. The installation needs to be run by a server administrator on the customer side.

**Differing databases for server and desktop versions!**

Due to differing user administration, the databases of SONAPHONE DataSuite - S and SONAPHONE DataSuite - D are not mutually compatible.

- Please note that during transition from desktop to server version, the desktop version's database cannot be migrated to the server version.

### Preparing the server

1. Install the server
2. Configure the Active Directory.
3. Set up the user groups (Active Directory) for DataSuite administrators and users.
4. Set up the users in the Active Directory and assign user groups.

**Assigning the DataSuite administrator**

For the use of the server version, at least on responsible person within the company needs to be assigned to the "DataSuite administrators" user group.

### Installing SONAPHONE DataSuite

**Installation with administrator rights**

The server version needs to be installed on the corresponding server with administrator rights.

1. Double-click the "DataSuite Setup.exe" installation file to start installation on the server.
   → The Installation Wizard opens.
2. In the Installation Wizard, click the **NEXT >** button to confirm the licensing requirements.
   → The Installation Wizard switches to the installation directory selection.
3. Use the default installation directory (C:\Programs\SONOTEC\SONAPHONE DataSuite) or choose a different installation directory.

   **Permissions verification**

   When using the default installation directory, the installation may continue directly. Installation in a different installation directory might require extended permissions depending on company-specific settings.
4. In the Installation Wizard, click the **NEXT >** button.
   → The Installation Wizard switches to folder creation in the Start menu.
5. Use the default folder (SONOTEC SONAPHONE DataSuite) or enter a different folder name.
6. In the Installation Wizard, click the **INSTALL >** button.
   → The SONAPHONE DataSuite is installed in the selected installation directory on the desktop computer.
   → After successful installation, the Installation Wizard switches to the completion screen.
7. Click the **FINISH** button.
   → The Installation Wizard closes.

### Setting up the Active Directory connection

Depending on the DataSuite version, the Active Directory connection will be set up either by script or manually.

### Communication with the Active Directory server

For communication with the Active Directory server, the following ports are used:

- Unsecured connection: Port 389
- Secured connection: Port 636

**Provide required certificates for secured connection with the Active Directory server!**

When using a secured connection with the Active Directory server, please make sure that all certificates required for the domain server are at hand before setting up the connection.

### By script (from DataSuite version 2.2.1)

1. In the installation directory, execute the file "ConfigAD.ps1".

   **Permissions verification**

   For execution of the script file, extended permissions might be necessary depending on company-specific settings.

2. Follow the instructions of the script.
   → After execution of all script steps, the settings file (ADConfig.json) will automatically be created and saved in the installation directory.

   When using more than one certificate, the following line must be executed separately for each certificate:

   ```
   .\jre\bin\keytool.exe -import -alias uniqueAliasName -file
   "path_to_certificate" -cacerts -storepass changeit -noprompt
   ```

### Manually (up to DataSuite version 2.2.0)

1. Open the file "ADConfig.json" in the installation directory with a text editor.
2. Enter the complete domain name in `realm`.
3. Enter the IP address or the DNS resolvable server name of the Active Directory server in `host`.
4. Enter the port number of the Active Directory server in `port` (default port: 389).
5. Enter the DN (distinguished name) of the search path base for users in the Active Directory in `searchBase`.
6. In `dataSuiteUserGroup`, enter the name of the user group of which the user names should be visible in the Registerkarte "Admin" .
7. Enter the DN (distinguished name) of the user groups in `groupRolesMap`.

> **Mind the spelling (upper/lower case)**
> Differing spelling in the DN (distinguished names) may lead to connection problems.
> - When entering the distinguished names, mind the specified spelling (upper/lower case).

```
{
    "realm": "domainComponent1.domainComponent2",
    "host": "HOSTNAME.domain",
    "port": "389",
    "searchBase": "CN=sni,DC=domainComponent2",
    "dataSuiteUserGroup": "Group_DataSuite-User",
    "groupRolesMap": {
        "CN=Group_DataSuite-
Admin,OU=organizationalUnitName,DC=domainComponent1,DC=domainComponent
2": "realmadmin",
        "CN=Group_DataSuite-
User,OU=organizationalUnitName,DC=domainComponent1,DC=domainComponent2
": "user"
    },
    "isSecured": "false"
}
```

**Codeblock 1 Example**

## Activation and startup

### Description

After installation, the SONAPHONE DataSuite must be activated on the server with an activation key and then started as a service.

> **Internet connection required**
> For activation of the SONAPHONE DataSuite, an internet connection is required.

### Activation

1. Run the file "SonotecDataSuite.exe" (in the DataSuite installation directory) as administrator.
   → The 'Product Registration and Activation' window opens.
2. Enter the activation key in the **Activation Key** field.

   > The activation key will be sent by email after purchase of the license.
3. Click the **ACTIVATE** button.
   → The validity of the activation key is checked. After successful validation, the SONAPHONE DataSuite is activated.

### Starting as a service

Run the file "StartDataSuiteService.bat" (in the DataSuite installation directory) as administrator.
→ SONAPHONE DataSuite is started as a service.

## Uninstalling the server version

### Description

The server version may be uninstalled by an administrator via a wizard.

### Procedure

1. In the installation directory, run the file "StopDataSuiteService.bat" as administrator.
2. In the notification area, click the  icon (SONOTEC DataSuite) with a right-click.
   → A context menu opens.
3. In the context menu, click the item "Stop Server".
4. In the Start menu folder of SONAPHONE DataSuite, click the "Uninstall" item.
   or
   In the installation directory of SONAPHONE DataSuite, run the file "Uninstall.exe" as administrator.
   → The Uninstallation Wizard opens.
5. Execute the individual steps in the Uninstallation Wizard to uninstall SONAPHONE DataSuite.

### After uninstallation

After uninstallation of the server version, some parts of the installation directory will remain to prevent data loss from overwriting or deletion. If the recorded measurement data are no longer needed after uninstallation, the installation directory including stored files may be manually deleted from the server as a whole.

## 3.4 Updating the server version

### Description

The update needs to be run by a server administrator on the client side.

### Preparing an update

1. Download the update file to the desktop computer.

   The link for downloading update files will be available after successful registration in the mysonaphone.com portal.

2. Back up the database files in the folder "h2data".

#### Closing the SONAPHONE DataSuite

In the installation directory, run the file `StopDataSuiteService.bat`.

### Performing an update

**Update with administrator rights**

The server version needs to be updated on the corresponding server with administrator rights.

1. Double-click the "DataSuite Setup.exe" installation file to start the update on the server.
   → A dialog window for reading and confirming the license terms opens.
2. Read the license terms and click the **I AGREE** button for confirmation.
   → The Update Wizard opens.
3. In the Update Wizard, click the **NEXT >** button.
   → The Update Wizard switches to the installation directory selection.
4. Select the directory where the SONAPHONE DataSuite has been installed.

   **Permissions verification**

   When using the default installation directory, the update may continue directly. Updating an installation in a different installation directory might require extended permissions depending on company-specific settings.

5. In the Update Wizard, click the **NEXT >** button.
   → The Update Wizard switches to folder creation in the Start menu.
6. Use the default folder (SONOTEC SONAPHONE DataSuite) or enter a different folder name.
7. In the Update Wizard, click the **INSTALL>** button.
   → The database file is backed up.
   → The database file is migrated to the current file format.

→ The SONAPHONE DataSuite is installed in the selected installation directory on the desktop computer.
→ After a successful update, the Update Wizard switches to the completion screen.

8. Click the **FINISH** button.
   → The Update Wizard closes.

### Starting the SONAPHONE DataSuite

In the installation directory, run the file `StartDataSuiteService.bat`.

# 4 Defaults

This section contains instructions on default settings of the SONAPHONE DataSuite.

## 4.1 Starting up DataSuite

Depending on the installation type, different steps are required to start the SONAPHONE DataSuite.

### Starting up desktop versions

#### Description

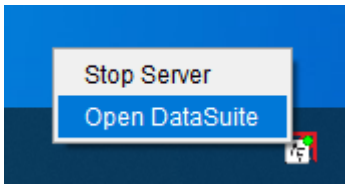
For using the SONAPHONE DataSuite, several components (virtual server, application and services) need to be started. The "Start Server" function allows for starting up all necessary components with a few clicks.

#### Procedure

1. In the Windows start menu, click the item **SONOTEC SONAPHONE DataSuite > Start Server**.
   → The virtual server starts up. As soon as the virtual server is running, the "Start Server" symbol is displayed in the notification area of the taskbar.
   → The starting address of the SONAPHONE DataSuite in the Web browser is "http://localhost:8084/SonaphoneDataSuite".

#### If the Web browser does not start automatically

1. Click the (SONOTEC DataSuite) icon with a right-click.
   → A context menu opens.
2. In the context menu, click the item **Open DataSuite**.




**Creating a shortcut**

For faster start-up, a shortcut to the "Start Server" function may be set in the taskbar or on the desktop.

## Starting up server version

### Description

The server version of SONAPHONE DataSuite is started in a web browser. For this purpose, the address provided by the server administrator must be used.

### Procedure

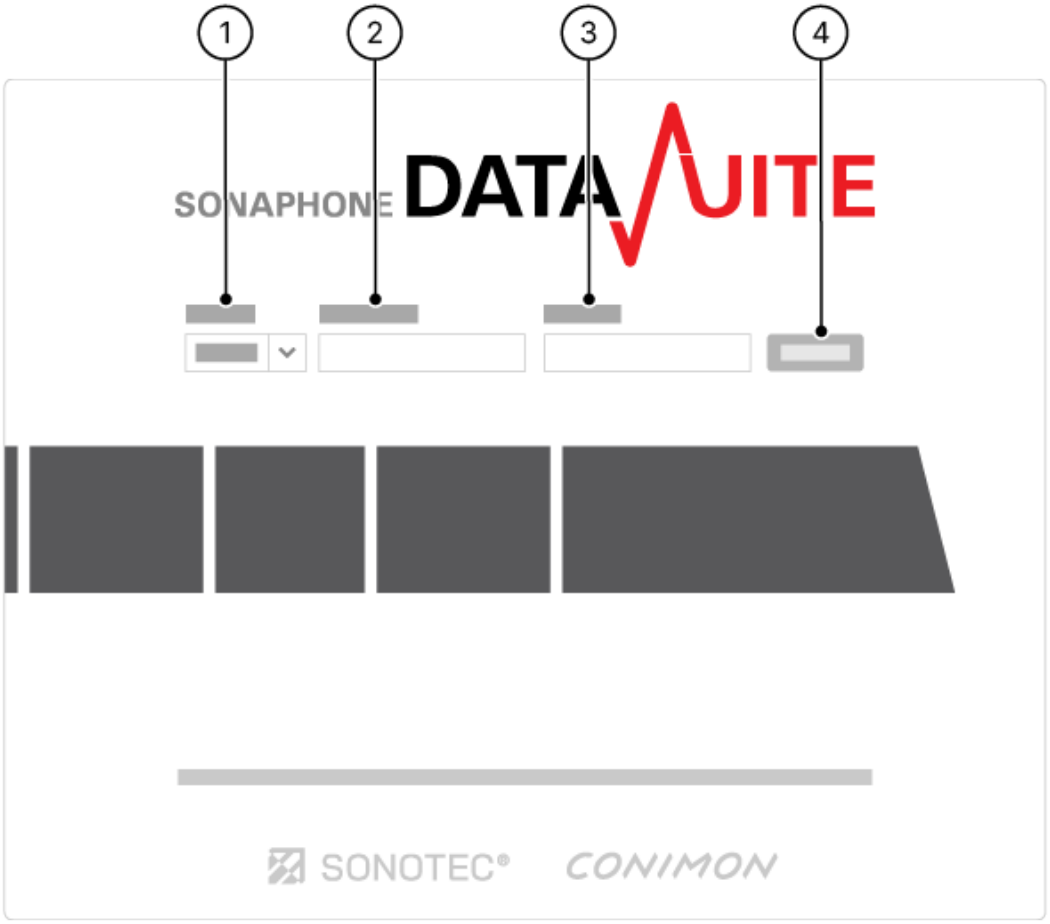
1. Open the SONAPHONE DataSuite's address with a web browser.
   → The login page opens.
2. Log in with user data (see "Login").
   → After the first login, a dialog opens in which:

| | |
|---|---|
| DataSuite administrators | Need to create a project.<br>**Assign users**<br>After creating the project, users must be assigned to this project. (see "Working with "Admin"") |
| Users | Need to select a project. |

## 4.2 Login

### Procedure

1. Open the SONAPHONE DataSuite's address with a web browser.
   → The login page opens.




2. Select the correct language of the user interface in the **Language** (1) field.
3. Enter the user name in the **User name** (2) field.
4. Enter the password in the **Password** (3) field.
5. Click the **LOGIN** (4) button.
   → After correct input of the login data, the DataSuite user interface loads with the "AssetExpert" tab.

## 4.3 Resetting the password (desktop versions)

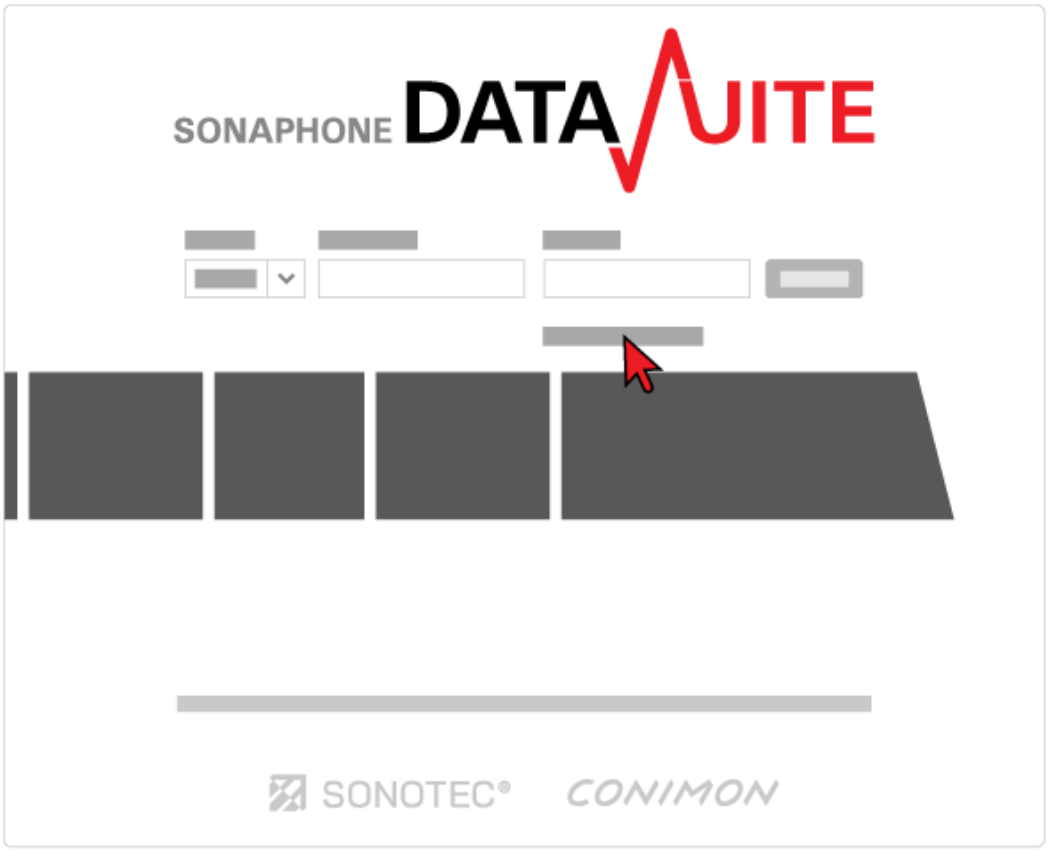
### Description

The password of the user account may be reset or modified with the master password.

> The master password is stored in the database in encryption and may not automatically be reset. If the master password is lost, a new one needs to be created in the database (see Troubleshooting in the desktop versions).

### Resetting the password

1. On the login page, click **Forgot password?**




→ The 'Reset password' window opens.

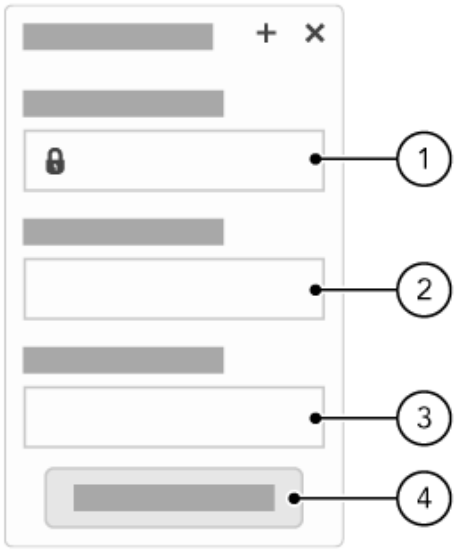



**Abbildung 1 Reset password window**

2. Enter the master password in the **Master password** (1) field.

   The master password is assigned during installation of SONAPHONE DataSuite.
   (see Creating master password and user account)

3. Enter a new password in the **New password** (2) field.
4. Confirm the new password in the **Confirm password** (3) field.
5. Click the **RESET PASSWORD** (4) button.
   → The window closes, the new password is saved. The login page of SONAPHONE DataSuite appears.

## 4.4 Managing licenses

### Description

Acquired add-on modules may be activated or deactivated in the SONAPHONE DataSuite. Add-on modules may be activated (unlocked for use) with the activation key provided after the purchase.

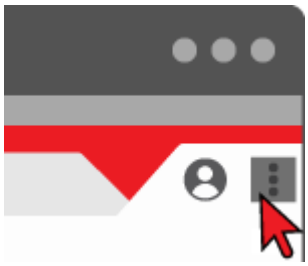
**Internet connection required!**

For activating add-on modules, a working internet connection is required.

- Before activating the modules, please make sure to have a working internet connection.

### Activating add-on modules

1. Click the "Menu" icon of the "User" tab.



2. Click the **Manage licenses** item.
   → The 'DataSuite module license management' window opens.
3. Enter the provided activation key in the dialog window.
4. Click the ACTIVATE button.
   → The activation key is validated. After successful validation, the particular module is activated. Activated modules are marked by check marks.
5. Click the OK button.
   → The window closes. The activated module may be used in the SONAPHONE DataSuite.

## 4.5 Defining the unit system

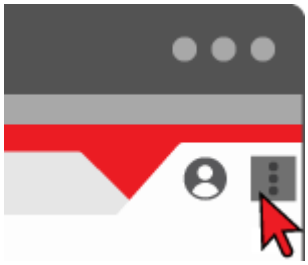
### Description

The SONAPHONE DataSuite may process and display measurement data in the following unit systems:

- Metric
- Imperial

### Procedure

1. Click the "Menu" icon of the "User" tab.



2. Click the **Select unit system** item.
   → The 'Select unit system' window opens.
3. Select the particular unit system from the list.

4. Click the CLOSE button.
   → The window closes. The selected unit system is applied.

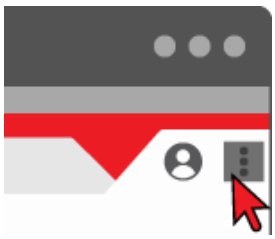
## 4.6 Managing projects

### Description

Projects offer the option to set up differing asset trees for differing tasks (e.g. differing locations, differing service customers). Within SONAPHONE DataSuite, any number of projects may be created and managed.

### Opening the project management

1. Click the "Menu" icon of the "User" tab.



2. Click the **Select project** item.
   → A project management window opens.

### Creating a project

1. Open the project management.
2. Enter a project name.
3. Enter a short description of the project.
4. Click the **CREATE** button.
   → The project is saved in the project list.

### Switching between projects

1. Open the project management.
2. Within in the project list, select the particular project.
3. Click the **SELECT** button.
   → The window closes. The selected project is loaded in the SONAPHONE DataSuite.

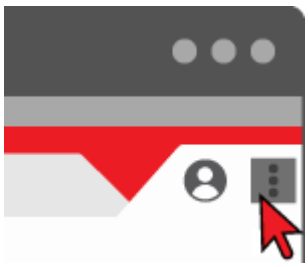
### Changing project name and project description

1. Open the project management.
2. Within in the project list, double-click the particular project.
   → The edit mode is activated.
3. Edit the project name.
4. Change the project description.
5. Click **Save**.
   → The edit mode is terminated, the name of the selected project is changed.

## 4.7 Logout

### Procedure

1. Click the "Menu" icon of the "User" tab.

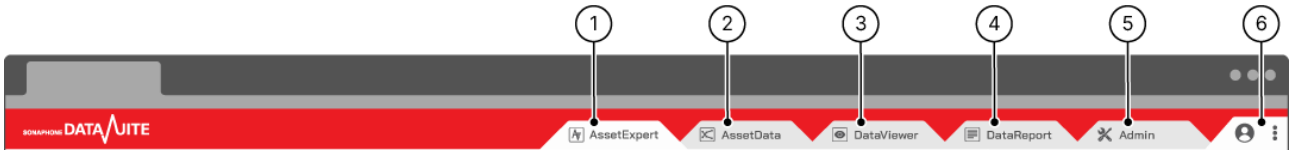


2. Click the **Logout** item.
   → SONAPHONE DataSuite is terminated. After the logout, the login page appears.

# 5 User interface

## 5.1 Organizational principle

The SONAPHONE DataSuite user interface is organized in tabs according to functions. The particular tasks of the tabs are represented in widgets.




| No. | Tab | Task | Available in SONAPHONE DataSuite | | |
|---|---|---|---|---|---|
| | | | D | V | S |
| 1 | AssetExpert | • For displaying the structure of an asset tree and measuring points within this asset tree.<br>• For planning of inspection routes within the asset tree.<br>• Synchronization of routes with the SONAPHONE handheld unit. | • | | • |
| 2 | AssetData | Shows details and analyses of measurements at a selected measuring point. | • | | • |
| 3 | DataViewer | • For importing unassigned measurements that have been recorded with a SONAPHONE handheld unit.<br>• Shows details and analyses of a selected unassigned measurement.<br>• Allows to assign unassigned measurements to existing asset trees and/or measuring points.<br>Assignment of unassigned measurements is not available in the version SONAPHONE DataSuite - V. | • | • | • |
| 4 | DataReport | For creation of test reports of asset trees, routes or individual measuring points. | • | | • |
| 5 | Admin | For assignment and management of users and user roles. | | | • |
| 6 | User | Shows the following information as a tooltip when hovering the mouse pointer over it:<br>• Name of the logged-in user<br>• User role of the logged-in user<br>• Selected project<br>Contains a menu with menu items on information and default settings. | • | • | • |

**Customizable display of the widgets**

For customization to individual work flows and tasks, each widget may be:

- unpinned to zoom in or
- scaled in width and height.

The scaled dimensions are saved and reused again at the next login.

# 6 User instructions

When using SONAPHONE DataSuite, please observe the following guidelines:

## 6.1 General guidelines

- It may be useful to lay-out the asset tree's basic structure before setting it up in the software to avoid tedious restructuring.
- All information in the asset tree may be edited in the Details widget at a later date.
- Images may be uploaded to DataSuite from your hard drive. For on-site display, these images have to be synchronized with the handheld unit. Please observe image dimension requirements to avoid unnecessarily large transfer data.
- When doing a route tour, images, text notes and voice memos may be recorded with the SONAPHONE. All information may be synchronized via the Additional Data widget.
- The ID of each measuring point can be entered in alphanumeric format. Depending on the definitions in the confirmation method, this information will be displayed as text or QR code on-site.
- User information that is required for login (user name, password) may only be edited after entering an administrator password.

## 6.2 Database backup

- The database is stored in the installation directory that was selected for storing program files during the installation. The default installation directory for desktop versions is "User\Documents\SONOTEC\SONAPHONE DataSuite".
- The directory "h2data" contains the database files that may be used for data backup.

## 6.3 Logging of program errors (log file)

- A log file documents software errors. In the desktop versions, the default folder for storing the log file is "User\Documents\SONOTEC\SONAPHONE DataSuite\logs".

# 7 "AssetExpert" tab

This section describes the functions and widgets of the "AssetExpert" tab.

## 7.1 "AssetExpert" overview

### Description

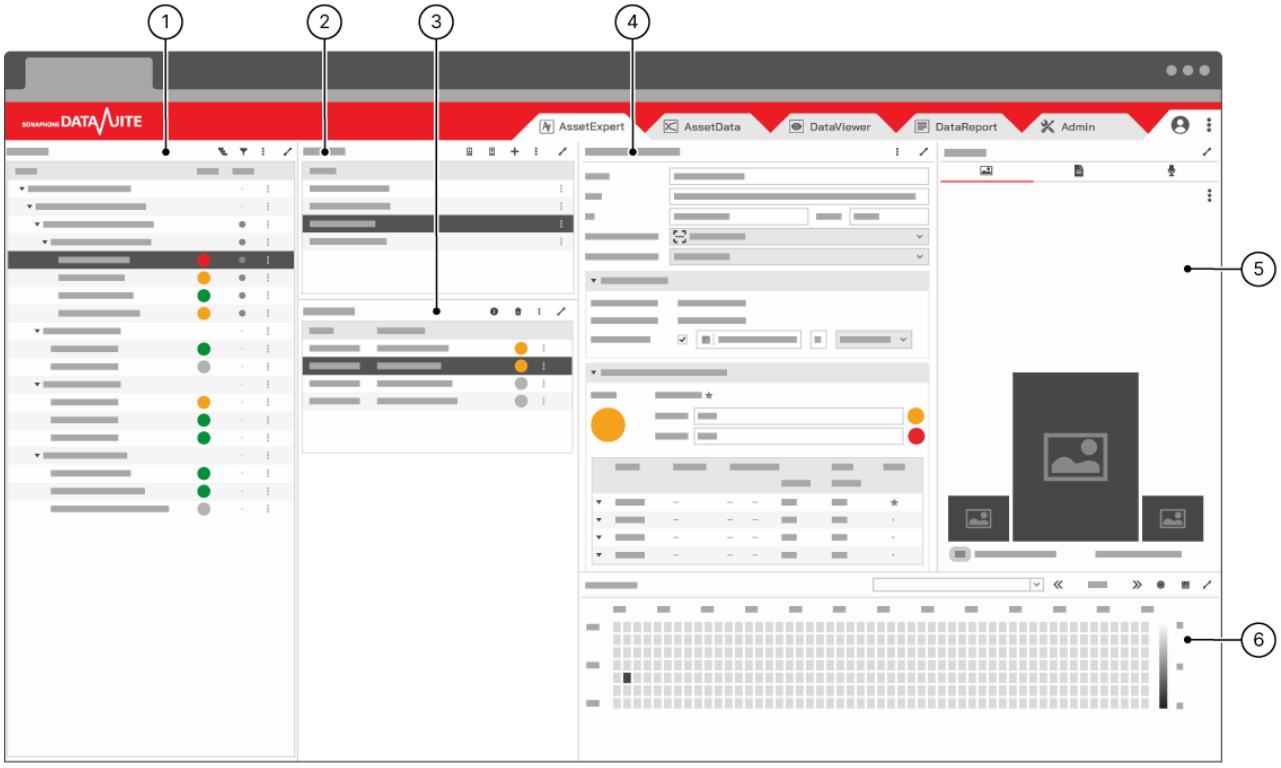
The "AssetExpert" tab shows a plant/asset in a structured manner and supports the planning of inspection routes and measuring points within the plant. The plant/asset is represented with all its components (levels) in the form of a tree.

Measuring points are structured within levels and defined by particular details.

Inspection routes contain a systematic compilation of several measuring points for individual sections of a plant/asset. Inspection routes may be imported or exported to synchronize them with a SONAPHONE handheld unit.

### Widgets

The "AssetExpert" tab contains the following widgets:



| No. | Widget | Function/description |
|---|---|---|
| 1 | "AssetExpert" Asset Tree | • Shows the plant/asset in the form of a tree.<br>• Allows for addition, editing or removal of levels and measuring points.<br>• The levels and measuring points that are part of the selected inspection route are marked with a dot. |
| 2 | "AssetExpert" Route List | • Shows all created inspection routes.<br>• Allows for editing, addition or removal of inspection routes.<br>• For synchronization of inspection routes with a SONAPHONE handheld unit (import or export of inspection routes). |
| 3 | "AssetExpert" Route Details | • Shows measuring points and relevant information of a particular inspection route.<br>• Allows for removal of individual or all measuring points of a particular inspection route. |
| 4 | "AssetExpert" Details | • Shows detailed information of the currently selected object (level, measuring point).<br>• Allows for the identification of a distinct measuring point by input of ID, confirmation method and application type.<br>• Allows for determination of threshold values for specific parameters (key metrics). |
| 5 | "AssetExpert" Additional Data | • Shows images, text notes and/or voice memos of a selected object (level, measuring point).<br>• Allows for addition of images, text notes and voice memos to the selected object. |
| 6 | "AssetExpert" Measurements | • Shows a calendar overview of all available measurement results of a particular measuring point.<br>• Allows for read-out of detailed data and analyses of the measurement result in the "AssetData" tab. |

## 7.2 "AssetExpert" widgets

This section describes the structure and functions of the widgets in the "AssetExpert" tab.

### "AssetExpert" Asset Tree

#### Structure


#### Description

| No. | Type | Function/description |
|---|---|---|
| 1 | Toggle display of measuring points (quick action) | Hides or unhides the measuring points within the asset tree (expands or collapses levels). |
| 2 | Filter (quick action) | Opens a window for filtering the displayed objects in the asset tree according to the following criteria:<br>• Application (e.g. Steam Trap Testing, Bearing monitoring, ...)<br>• Status<br>• Route (e.g. current/selected route) |

| No. | Type | Function/description |
|---|---|---|
| 3 | Widget menu | Opens a menu for selection of all available widget functions. The following functions are available:<br>• **Take a screenshot**<br>• **Toggle display of measuring points**<br>• **Filter** |
| 4 | Context menu | Opens a menu for selection of asset tree functions that are available at the particular position (level or measuring point).<br>Depending on availability, the menu items are activated or grayed out. The following menu items are generally available:<br>• Add level<br>• Add measuring point<br>• Delete<br>• Copy<br>• Cut<br>• Paste<br>• Move up<br>• Move down |
| 5 | Marking | Indicates all levels and measuring points of a particular route. |
| 6 | Status | Indicates for a particular measuring point:<br>• the set application type by a specific symbol<br>• the current status in relation to the set threshold values |
| 7 | Mini statistics | Shows the number of all measuring points within a level sorted by current status in relation to the indicated threshold values:<br>• gray = no threshold set or no measurement values available<br>• green = current measurement value below warning limit<br>• yellow = current measurement value above warning limit<br>• red = current measurement value above alert limit<br>Only visible when the level is closed (collapsed). |
| 8 | Measuring point | Shows the name of the measuring point. |
| 9 | Current item | Marks the item (level or measuring point) that has been selected in the asset tree. |
| 10 | Level | Shows the name of the level and its position within the asset tree. |
| 11 | Root | Shows the name of the project (e.g. the plant/asset). |

## "AssetExpert" Route List

### Structure

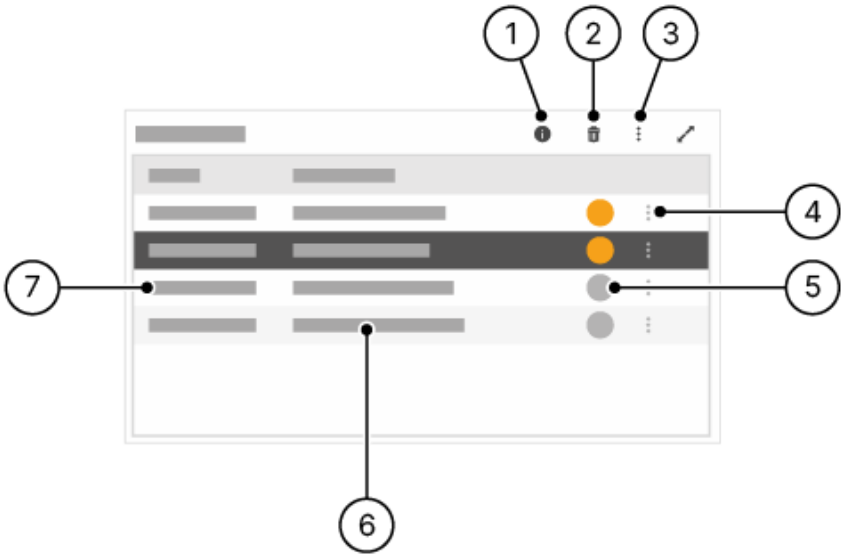

### Description

| No. | Type | Function/description |
|---|---|---|
| 1 | Data exchange (quick actions) | Contains the following functions depending the software version:<br>SONAPHONE DataSuite - D<br>• (Download data to SONAPHONE): Transfers the data of the selected route directly to a SONAPHONE handheld unit connected to the personal computer.<br>• (Upload data from SONAPHONE): Opens the 'Upload data from SONAPHONE' window for selection and upload of route data of a SONAPHONE handheld unit connected to the desktop computer.<br>SONAPHONE DataSuite - S<br>• (Download data to hard drive): Creates a ZIP file of the selected route for saving on the personal computer's hard drive.<br>• (Upload data from hard drive): Opens the 'Upload asset data' window for selection and upload of route data from the personal computer's hard drive. |
| 2 | Create route (quick action) | Opens the 'Add new inspection route' window for creation of a new route. |
| 3 | Widget menu | Opens a menu for selection of all available widget functions. The following functions are available:<br>• **Download Data to SONAPHONE** (SONAPHONE DataSuite - D only)<br>• **Upload Data from SONAPHONE** (SONAPHONE DataSuite - D only)<br>• **Download Data to Hard Drive**<br>• **Upload Data from Hard Drive**<br>• **Create route**<br>• **Edit route** = opens the 'Edit current inspection route' window for editing the route details. |

| No. | Type | Function/description |
|---|---|---|
| 4 | Context menu | Opens a menu with functions for editing or deleting the particular route. |
| 5 | Current route | Marks the selected route. |

## "AssetExpert" Route Details

### Structure

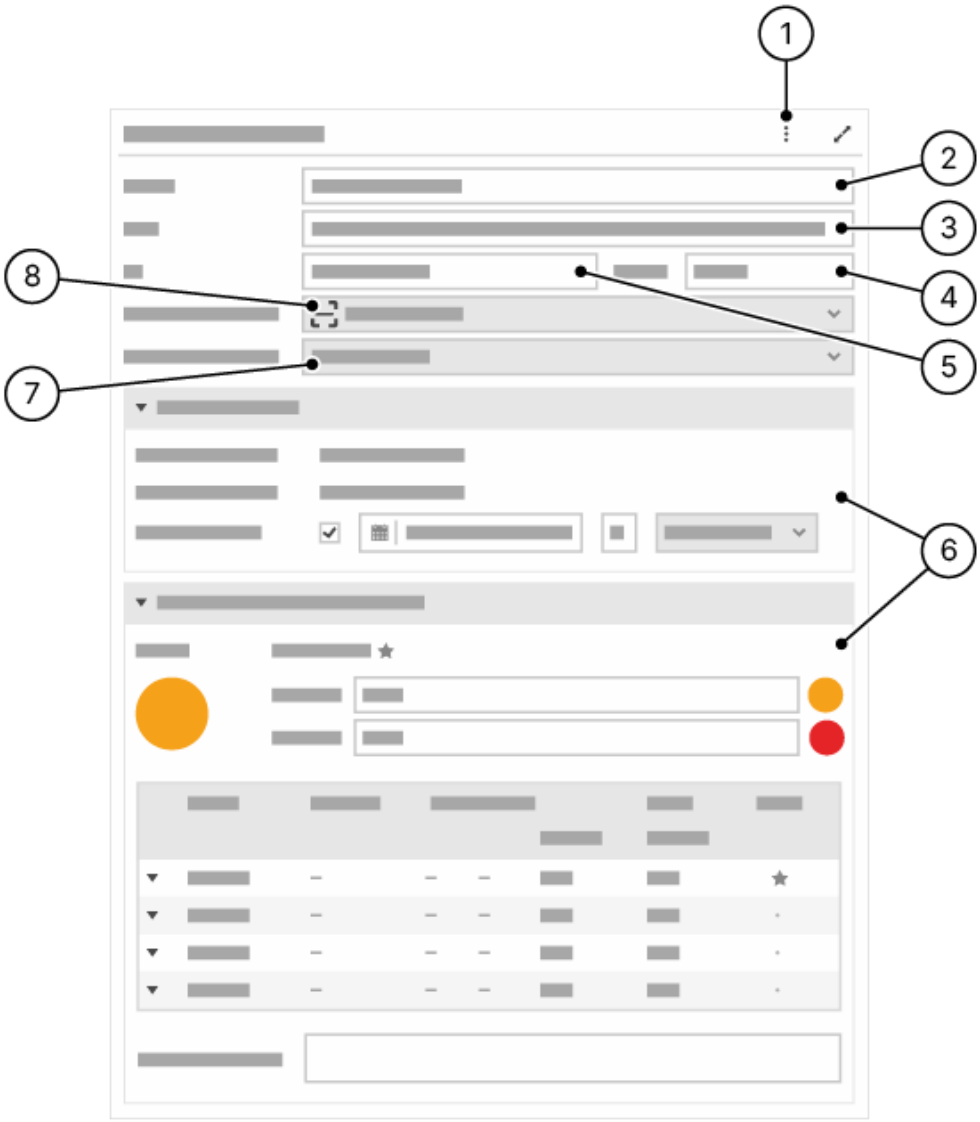



### Description

| No. | Type | Function/description |
|---|---|---|
| 1 | Information on the current route | Opens the 'Route Information' window with details on the selected route. |
| 2 | Remove all measuring points from this route | Opens the 'Remove all measuring points' window for removal of all measuring points from the selected route. |
| 3 | Widget menu | Opens a menu for selection of all available widget functions. The following functions are available:<br>• **Information on the current route**<br>• **Remove all measuring points from this route** |
| 4 | Context menu | Opens a menu for deletion of the particular measuring point. |
| 5 | Status | Indicates for a particular measuring point:<br>• the application type with a specific symbol<br>• the current status in relation to the set threshold values |
| 6 | Measuring point | Shows the name of the measuring point. |
| 7 | Level | Shows the name of the specific level containing the particular measuring point. |

## "AssetExpert" Details

### Structure




### Description

| No. | Type | Function/description | Available for |
|---|---|---|---|
| 1 | Widget menu | Opens a menu for selection of all available widget functions.<br>The following functions are available:<br>• Take a screenshot<br>• **Save as measuring point template**<br>• Manage measuring point templates<br>• **Steam trap database** (measuring points with "Steam Trap Testing" application type only) | |

| No. | Type | Function/description | Available for |
|---|---|---|---|
| 2 | Name | Displays the name and allows for editing. | Root (project), level, measuring point |
| 3 | Path | Shows the path (position within the project hierarchy). | Level, measuring point |
| 4 | Suffix | Displays the identification code extension and allows for editing. | Measuring point |
| 5 | ID | Displays the identification code and allows for editing. | Root (project), level, measuring point |
| 6 | Parameter groups | Contains parameters grouped according to functions.<br>Depending on the application type, differing parameter groups are available. | Measuring point |
| 7 | Application | Set-up of type of application. The following applications are available:<br>• Machine condition monitoring<br>• Steam trap testing<br>• Leak detection<br>• Electrical inspection<br>• Lubrication check<br>• Bearing monitoring<br>• Valve testing<br>• Tightness testing<br>• Miscellaneous | Measuring point |
| 8 | Confirmation method | Set-up of the confirmation method of the ID during on-site measurement. The following confirmation methods are available:<br>• None<br>• Scan (e.g. confirmation by QR code)<br>• Visual (confirmation by reading) | Measuring point |

## Parameter groups

### Measurement cycle

This parameter group is available for measuring points of all application types and contains the following parameters:

| Parameter | Function/description |
|---|---|
| Previous measurement | Shows the date of the previous measurement. |
| Next measurement | Shows the date of the next due measurement (depending on the set time interval) |
| Route cycle | Determination of a time interval for recurring measurements |

### Thresholds and key metrics

This parameter group is available for measuring points of all application types and contains the following parameters:

| Parameter | Function/description |
|---|---|
| Threshold values | Displays the warning limit (yellow) and the alert limit (red) for a particular key metric and allows for editing.<br>The section **Status** shows:<br>• the set application type by a specific symbol<br>• the status of the current measurement with a particular color<br>  ○ gray = no threshold set or no measurement values available<br>  ○ green = current measurement value below warning limit<br>  ○ yellow = current measurement value above warning limit<br>  ○ red = current measurement value above alert limit<br>For measuring points with "Steam Trap Testing" application type, the status may be determined by either the threshold values or the **state**. The state is defined by a measuring point rating. |
| Key metrics | Up to four key metrics may be:<br>• selected from a predefined quantity of several measuring units and<br>• displayed with a reference value, up to three previous measurement values and the current value.<br>One key metric may be marked as command variable. Threshold values may be determined for the marked key metric. |
| Maintenance action | Input of a scheduled or necessary maintenance task |

### Steam trap

**Availability with "SteamExpert" add-on module**
This parameter group is only available with activated "SteamExpert" add-on module.

This parameter group is available for measuring points of the "Steam Trap Testing" application type and contains the following parameters:

| Parameter | Function/description |
|---|---|
| Manufacturer | Shows the name of the manufacturer of the selected steam trap.<br>The name will be entered automatically when selecting a steam trap. |
|  | Opens the 'Steam trap database' window for selection of a predefined steam trap. |
| Model | Shows the model of the selected steam trap.<br>The model will be entered automatically when selecting a steam trap. |
| Trap type | Shows the type of the selected steam trap.<br>The type will be entered automatically when selecting a steam trap. |
| Nominal size [DN/NPS] | Setting the steam trap nominal size in predefined dimensions. |
| Usage | Setting the steam trap application. |
| Mounting position | Setting the steam trap mounting position:<br>• horizontal<br>• vertical |
| Type of connection | Setting the steam trap connection type:<br>• Screwed socket<br>• Flanged<br>• Socket weld<br>• Butt weld<br>• Tri-clamp |

### Configuration

**Availability with "SteamExpert" add-on module**

This parameter group is only available with activated "SteamExpert" add-on module.

This parameter group is available for measuring points of the "Steam Trap Testing" application type and contains the following parameters:

| Parameter | Function/description |
|---|---|
| Operating pressure | • $p_1$ = value to be entered (relative upstream pressure upstream of the steam trap)<br>• $p_2$ = value to be entered (relative back pressure downstream of the steam trap) |
| Outside temperature (expected) | • $T_1$ = value calculated from $p_1$<br>• $T_2$ = value calculated from $p_2$<br>**Basis of valuation**<br>The values are calculated based on the p-T diagram as well as the Magnus formula for determination of inside temperature minus 10% for calculation of the expected outside temperature on the pipe upstream and downstream of the steam trap. |
| Emissivity | • $\varepsilon_1$ = value to be entered (according to pipe surface upstream of the steam trap)<br>• $\varepsilon_2$ = value to be entered (according to pipe surface downstream of the steam trap) |

### Calculator for estimation of steam loss

**Availability with "SteamExpert" add-on module**
This parameter group is only available with activated "SteamExpert" add-on module.

This parameter group is available for measuring points of the "Steam Trap Testing" application type and contains the following parameters:

| Parameter | Function/description |
|---|---|
| Average orifice size | Shows the value calculated from the "Steam trap type" and "Nominal size" information ("Steam trap" parameter group). |
| Pressure differential | Shows the value calculated from the values indicated in the "Configuration" parameter group for the operating pressures upstream and downstream of the steam trap. |
| Correction for closed system | For entering an individual correction value for closed systems if the relative back pressure downstream of the steam trap $p_2$ is higher than 0 bar g. |
| Correction for real leak size | For entering an individual correction value for the actual steam loss. |
| Productive working hours | For entering the production hours per year. |
| Cost of steam | For entering the cost of steam per ton. |
| Steam loss per hour | Shows the calculated value of steam loss per hour. |
| Steam loss per year | Shows the calculated value of steam loss per year. |
| Costs of steam loss per year | Shows the calculated value of costs of steam loss per year. |

### Measurement configuration

This parameter group is available for measuring points of all application types (except "Steam trap testing") and contains the following parameters:

| Parameter | Function/description |
|---|---|
| Audio mode | Setting the mode for making the ultrasonic signal audible. The following modes are available:<br>• Heterodyne<br>• Phase vocoder<br>**Audibility of the ultrasonic signal**<br>Further information on the audibility of the ultrasonic signal may be found in the FAQs on sonotec.eu under: FAQ-G2. |
| Center frequency<br>(in "Heterodyne" audio mode) | Entering the center frequency within a range of 3 ... 126 kHz. |
| Upper/Lower limit<br>(in "Phase vocoder" audio mode) | Entering the upper and lower cutoff frequency of the bandpass within a range of 1 to 128 kHz.<br>The difference between upper and lower cutoff frequency must be at least 4 kHz. |
| Sampling rate | Setting the sampling rate in milliseconds in predefined values. |

### Application symbols

The application type selected for a particular measuring point is indicated by a symbol as follows:

| Symbol | Application |
|---|---|
|  | Machine condition monitoring |
|  | Steam trap testing |
|  | Leak detection |
|  | Electrical inspection |

| Symbol | Application |
|---|---|
|  | Lubrication check |
|  | Bearing monitoring |
|  | Valve testing |
|  | Tightness testing |
|  | Miscellaneous |

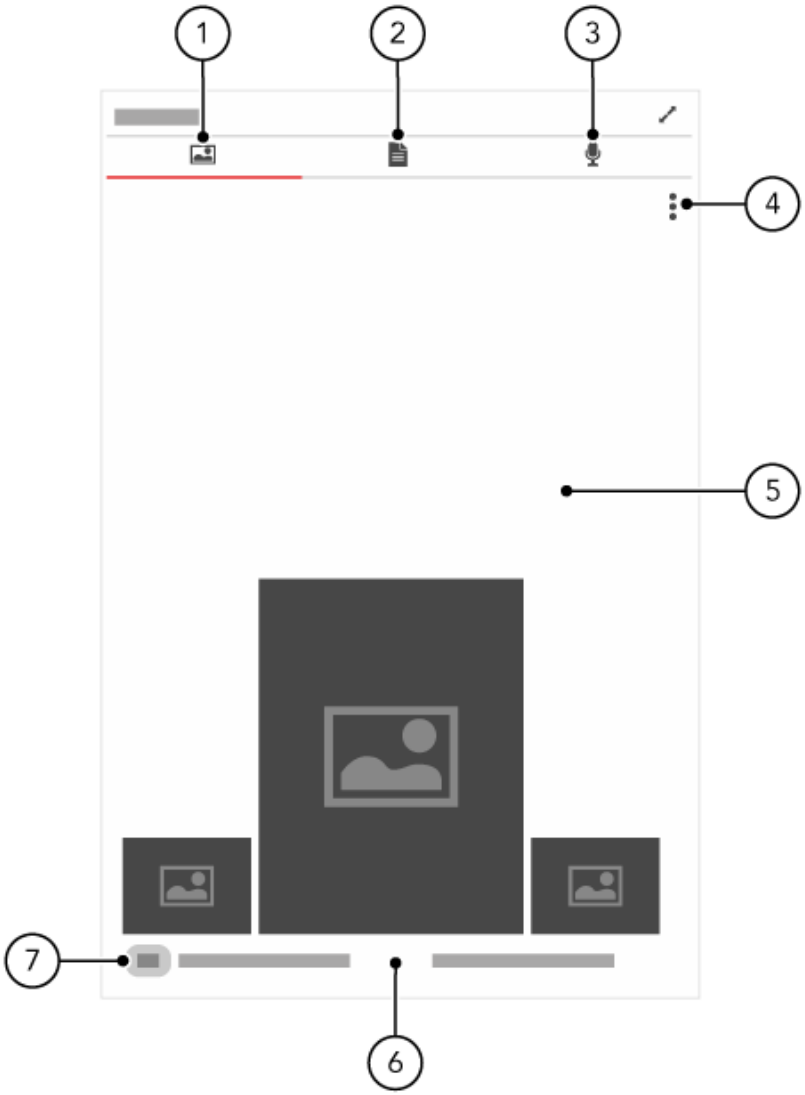
### Confirmation method symbols

The confirmation method selected for a particular measuring point is indicated by a symbol as follows:

| Symbol | Confirmation method |
|---|---|
|  | None |
|  | Scan |
|  | Visual |

## "AssetExpert" Additional Data

### Structure



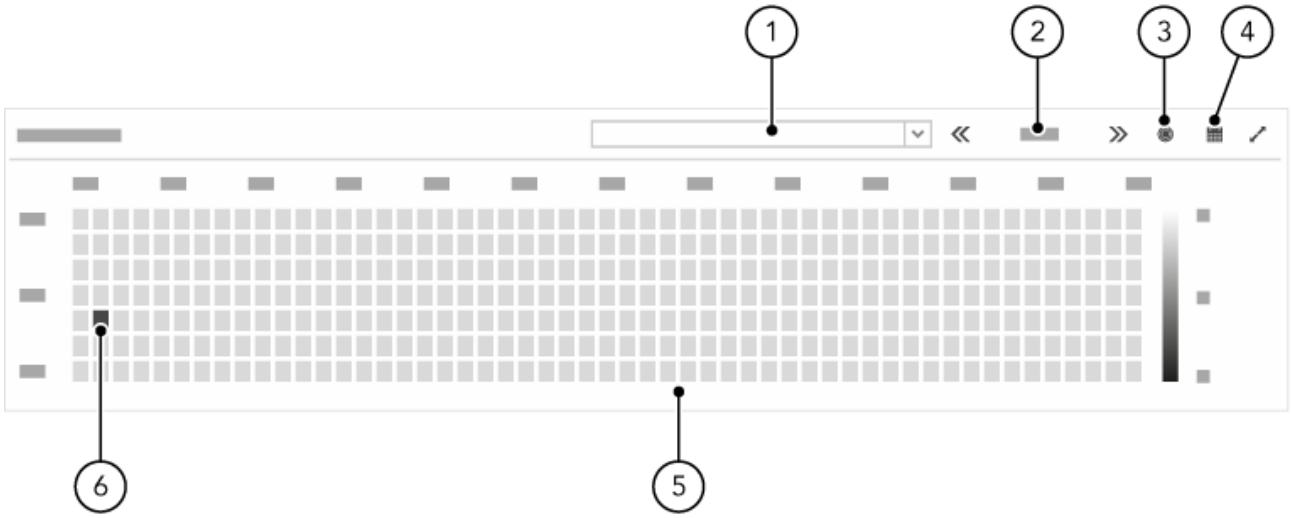

### Description

| No. | Type | Function/description |
|---|---|---|
| 1 | Images | Section for image management of a particular object (level or measuring point). |
| 2 | Text notes | Section for text note management of a particular object (level or measuring point). |

| No. | Type | Function/description |
|---|---|---|
| 3 | Voice memos | Section for voice memo management of a particular object (measuring point).<br><br>**Voice memos are available for measuring points only**<br>Voice memos are recorded with a SONAPHONE handheld unit and may be played in the SONAPHONE DataSuite. This functionality applies to measuring points only. |
| 4 | Widget menu | Opens a menu for selection of all available widget functions. The following functions are available:<br>• **Add** = opens a window for upload of image data (diagrams, photos) or for adding text notes.<br>• **Favourite (images only)** = sets the selected image on top position in the database. This image will be displayed first on the SONAPHONE handheld unit.<br>• **Delete** = deletes the particular media file.<br><br>**Possible data loss by direct deletion of data!**<br>Images and text notes will be deleted directly without confirmation prompt. This may lead to data loss.<br>• Before deletion of an image or text note, please make sure that these may indeed be deleted. |
| 5 | Overview | Shows a preview of the data within the selected section. |
| 6 | Image data | Shows the following information for the particular image:<br>• File name<br>• Date of saving the image with the object (level or measuring point) |
| 7 | Image counter | Shows the total number of images and the position of the particular image within the database. |

## "AssetExpert" Measurements

### Structure




### Description

| No. | Type | Function/description |
|---|---|---|
| 1 | Measurement selection | Opens the "AssetData" tab containing analyses of the selected measurement. |
| 2 | Calendar year selection | Toggles the calendar view to the selected year.<br>**Only periods with available measurements selectable**<br>Only calendar years may be selected that contain actual measurements. |
| 3 | Go to current year | Toggles the calendar view to the current year. |
| 4 | Measurement Selection | Opens the 'Measurement Selection' window for selection of available measurements. |
| 5 | Calendar view | Shows a calendar year ordered by months and weeks. |
| 6 | Available measurement | Marks the days with available measurements. |

# 8 "AssetData" tab

This section describes the functions and widgets of the "DataViewer" tab.

## 8.1 "AssetData" overview

### Description

The "AssetData" tab shows details of a measurement for a particular measuring point and contains diagrams for the analysis of measurement results.

### Widgets

The "AssetData" tab contains the following widgets:


| No. | Widget | Function/description |
|---|---|---|
| 1 | "AssetData" Asset Tree | • Shows the complete structure tree of the plant/asset. The levels and measuring points that are part of the selected inspection route are marked with a dot within the structure tree.<br>• Allows to filter the view to display only the levels and measuring points contained in the particular inspection route. |

| No. | Widget | Function/description |
|---|---|---|
| 2 | "AssetData" Measurements | • Shows a list of the measurements with time stamp for the particular measuring point.<br>• Allows to select and display up to 8 specific parameters (key metrics).<br>• Allows to determine a reference measurement (e.g. after a new installation or after maintenance) for comparison to actual key metrics. (see "AssetExpert" Details, type "Key metrics"). |
| 3 | "AssetData" Time Signal, Level Graph and Spectrogram | • Shows the trend of measurement values over time and the intensity of the ultrasonic signal in diagrams.<br>• Allows to play the ultrasonic signal within an audible range.<br>• Contains metadata (e. g. recording date, tester name, ...) of the currently selected measurement. |
| 4 | "AssetData" Trending | • Shows the time-based history of the measurement values and parameters as well as the threshold values (warning limits, alert limits) of the measured quantity acting as command variable in a diagram.<br>• Supports the monitoring of the state of a test object. |
| 5 | "AssetData" Details | • Shows some information on the currently selected object (plant/asset, level, measuring point). |

## 8.2 "AssetData" widgets

This section describes the structure and functions of the widgets in the "AssetData" tab.

### "AssetData" Asset Tree

#### Structure

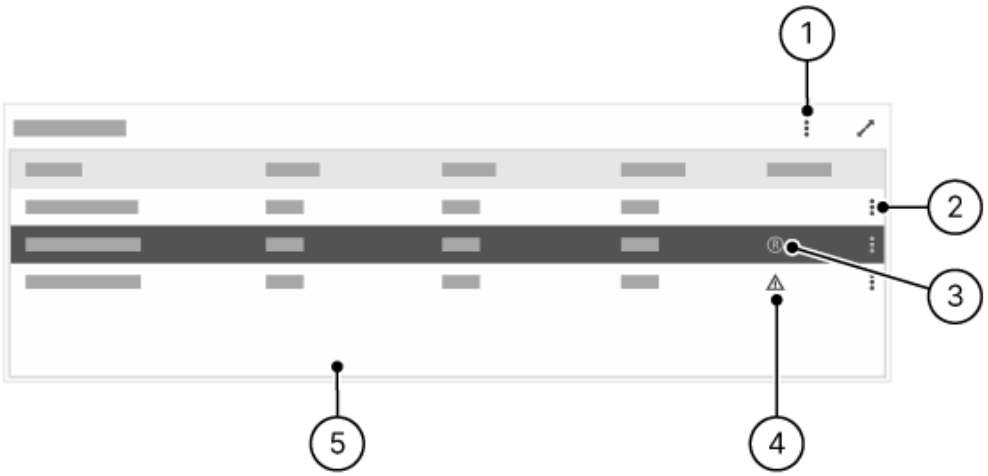

#### Description

| No. | Type | Function/description |
|---|---|---|
| 1 | Toggle display of measuring points (quick action) | Hides or unhides the measuring points within the asset tree (expands or collapses levels). |
| 2 | Filter (quick action) | Opens a window for filtering the displayed objects in the asset tree according to the following criteria:<br>• Application (e.g. Steam Trap Testing, Bearing Inspection, ...)<br>• Status<br>• Route (e.g. current/selected route) |

| No. | Type | Function/description |
|---|---|---|
| 3 | Widget menu | Opens a menu for selection of all available widget functions. The following functions are available:<br>• **Take a screenshot**<br>• **Toggle display of measuring points**<br>• **Filter** |

## "AssetData" Measurements

### Structure



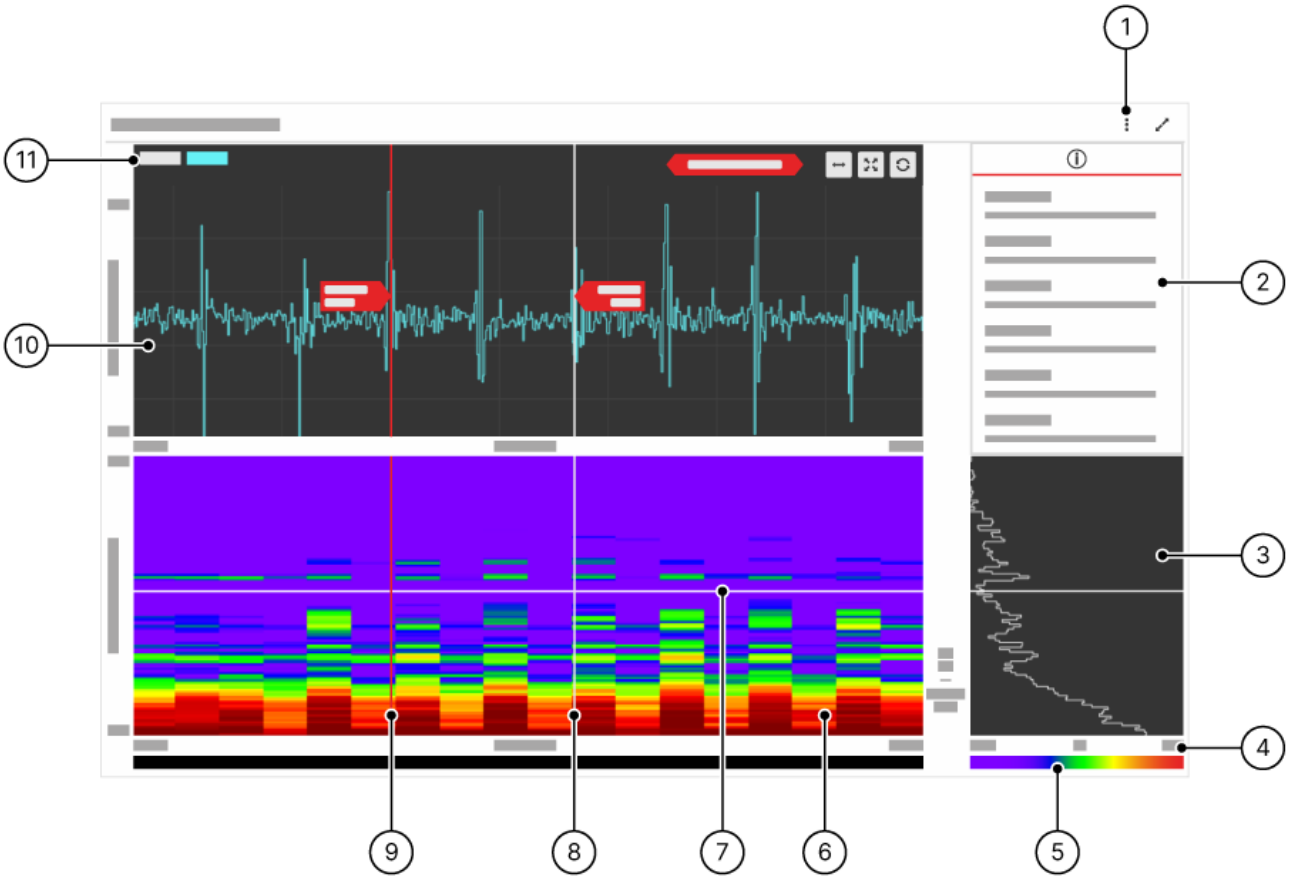

### Description

| No. | Type | Function/description |
|---|---|---|
| 1 | Widget menu | Opens a menu for selection of all available widget functions. The following functions are available:<br>• **Take a screenshot**<br>• **Select key metrics** |
| 2 | Context menu | Opens a menu for selection of all available measurement functions. The following functions are available:<br>• **Delete**<br>• **Set as reference** |
| 3 | Reference | Indicates the measurement selected as reference. |

| No. | Type | Function/description |
|---|---|---|
| 4 | Deviation | Indicates deviations of the measurement configuration from the reference measurement. Hovering the mouse pointer over it will show a tooltip that lists the deviations. The following parameters will be checked for deviations from the reference measurement:<br>• Sampling rate<br>• Bandpass<br>• Center frequency<br>• Used sensor |
| 5 | List view | Shows all recorded measurements as a table.<br>By default, the table view is sorted by date with the current measurement on top position. By clicking a column header, all measurements may be sorted by respective criteria in either ascending or descending order. |

## "AssetData" Time Signal, Level Graph and Spectrogram

### Structure




### Description

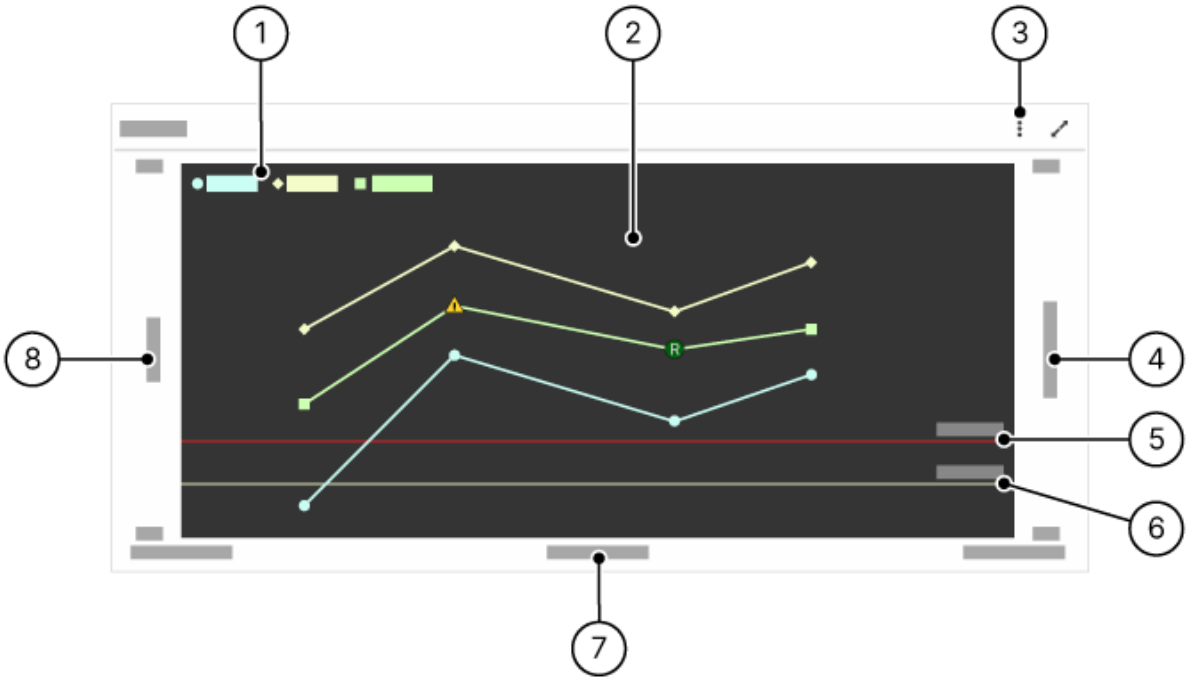
| No. | Type | Function/description |
|---|---|---|
| 1 | Widget menu | Opens a menu for selection of all available widget functions. The following functions are available:<br>• **Take a screenshot - Full Widget**<br>• **Take a screenshot - Level Graph**<br>• **Take a screenshot - Time Signal**<br>• **Take a screenshot - Spectrogram**<br>• **Select key metrics**<br>• **Download CSV** |
| 2 | Information | Shows information on the current measurement |
| 3 | Spectrum | • Shows the power spectrum in dB according to the selected position (Y-cut) within the spectrogram.<br>• By editing the adjustable axes' side values, the view may be zoomed in or out. |

| No. | Type | Function/description |
|---|---|---|
| 4 | Adjustable axes' side values | • Indicated by values in input fields<br>• May be edited manually after clicking the particular input field.<br>• Allow for scaling of the axes within:<br>  ○ Spectrum<br>  ○ Spectrogram<br>  ○ Time signal<br>  ○ Level and temperature chart<br>• Allow for "locking" the frequency (input field between spectrogram and spectrum). |
| 5 | Color chart | Maps the level values with specific colors. |
| 6 | Spectrogram | • Shows the intensity of the ultrasonic signal of the selected measurement in spectra over time.<br>• Click the diagram to listen to the ultrasonic signal with an audible frequency.<br>• A particular segment may be zoomed in. For zooming in, draw a selection rectangle over the particular segment while pressing the mouse button.<br>• By editing the adjustable axes' side values, the view may be zoomed in or out. |
| 7 | Frequency cursor | May be positioned freely within the spectrogram or spectrum by using the mouse. For the selected position, the measurement values of frequency and level between spectrogram and spectrum will be shown. |
| 8 | Time cursor 1 | May be positioned freely within time signal, level graph or spectrogram by using the mouse. For the selected position, the measurement values of the activated key metrics will be shown in the legend. |
| 9 | Time cursor 2 | • Is hidden by default and may be unhidden resp. hidden again by a button in the legend.<br>• May be positioned freely within time signal, level graph or spectrogram by using the mouse. For the selected position, the level and time measurement values will be shown on both time cursors. |
| 10 | Time signal / level and temperature chart | • Shows the value trends of the selected measurement over time.<br>• Click the diagram to listen to the ultrasonic signal with an audible frequency.<br>• A particular segment may be zoomed in. For zooming in, draw a selection rectangle over the particular segment while pressing the mouse button.<br>• By editing the adjustable axes' side values, the view may be zoomed in or out. |

| No. | Type | Function/description |
|---|---|---|
| 11 | Legend | • Describes the color coding of the activated key metrics (within level graph) or time and time signal (within time signal).<br>• Shows the measurement values at the current position of the time cursor 1.<br>• Allows for unhiding/hiding activated key metrics within the level graph by clicking the corresponding key metric.<br>• Shows the time and frequency of the area between both time cursors if time cursor 2 has been activated.<br>• Contains buttons for the following functions:<br>○  : Unhiding/hiding time cursor 2<br>○  : Resetting the zoom (active only with applied zoom)<br>○  : Switching between time signal and level graph |

## "AssetData" Trending

### Structure



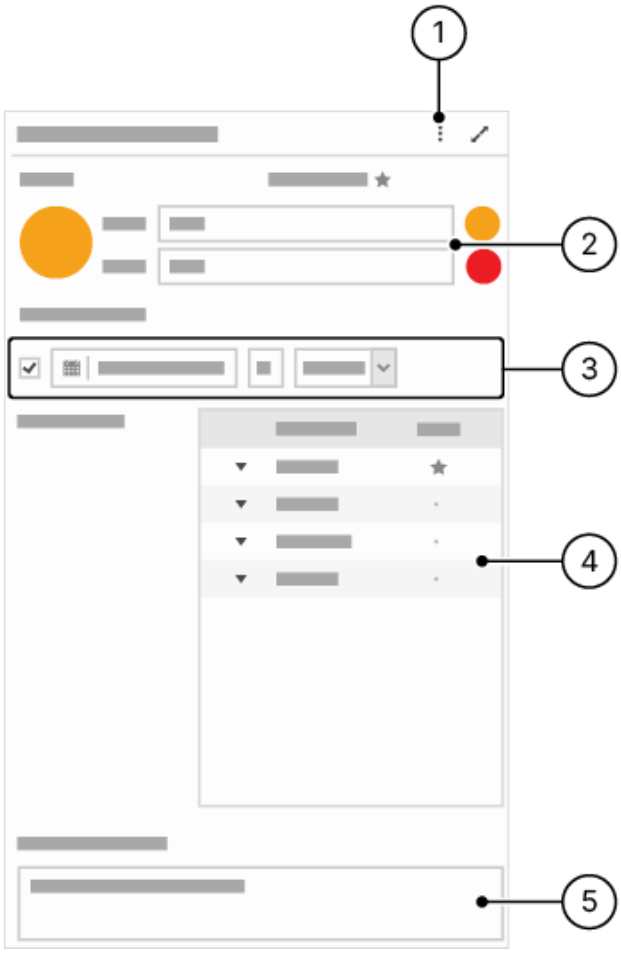

### Description

| No. | Type | Function/description |
|---|---|---|
| 1 | Legend | Shows the applied key metrics. Clicking a particular key metric toggles the metric's display within the trend diagram. |
| 2 | Trend diagram | • Shows the measurement results of the applied key metrics as time-based trend.<br>• Indicates the reference measurement on the command variable.<br>• Indicates deviations of the measurement configuration from the reference measurement on the command variable.<br>• A particular segment may be zoomed in.<br>• Shows a summary (measured quantity, time stamp, measurement value) of the measurement as tooltip<br>For zooming in, draw a selection rectangle over the particular segment while pressing the mouse button. After zooming in, the **RESET ZOOM** button appears to reset the display of the trend diagram to default zoom. |
| 3 | Widget menu | Opens a menu for selection of all available widget functions. The following functions are available:<br>• **Take a screenshot**<br>• **Select key metrics** |
| 4 | Key metrics | Shows the selected key metrics. |

| No. | Type | Function/description |
|---|---|---|
| 5 | Alert limit | Shows the alert limit as horizontal line. |
| 6 | Warning limit | Shows the warning limit as horizontal line. |
| 7 | Time (date/time) | Shows the basic parameters of the time stamp on the scale. |
| 8 | Command variable | Shows the key metric determined as command variable. |

## "AssetData" Details

### Structure




### Description

| No. | Type | Function/description |
|---|---|---|
| 1 | Widget menu | Opens a menu for selection of all available widget functions. The following functions are available:<br>• **Take a screenshot** |
| 2 | Threshold values | Displays the warning limit (yellow) and the alert limit (red) for a particular key metric and allows for editing. |
| 3 | Inspection Cycle | Determination/editing of a time interval for recurring inspections |
| 4 | Key metrics | Up to 8 key metrics may be selected from a predefined quantity of several measuring units. One key metric may be marked as command variable. Threshold values may be determined for the marked key metric. |

| No. | Type | Function/description |
|---|---|---|
| 5 | Maintenance action | Input/editing of a scheduled or necessary maintenance task |

# 9 "DataViewer" tab

This section describes functions and widgets of the "DataViewer" tab.

## 9.1 "DataViewer" overview

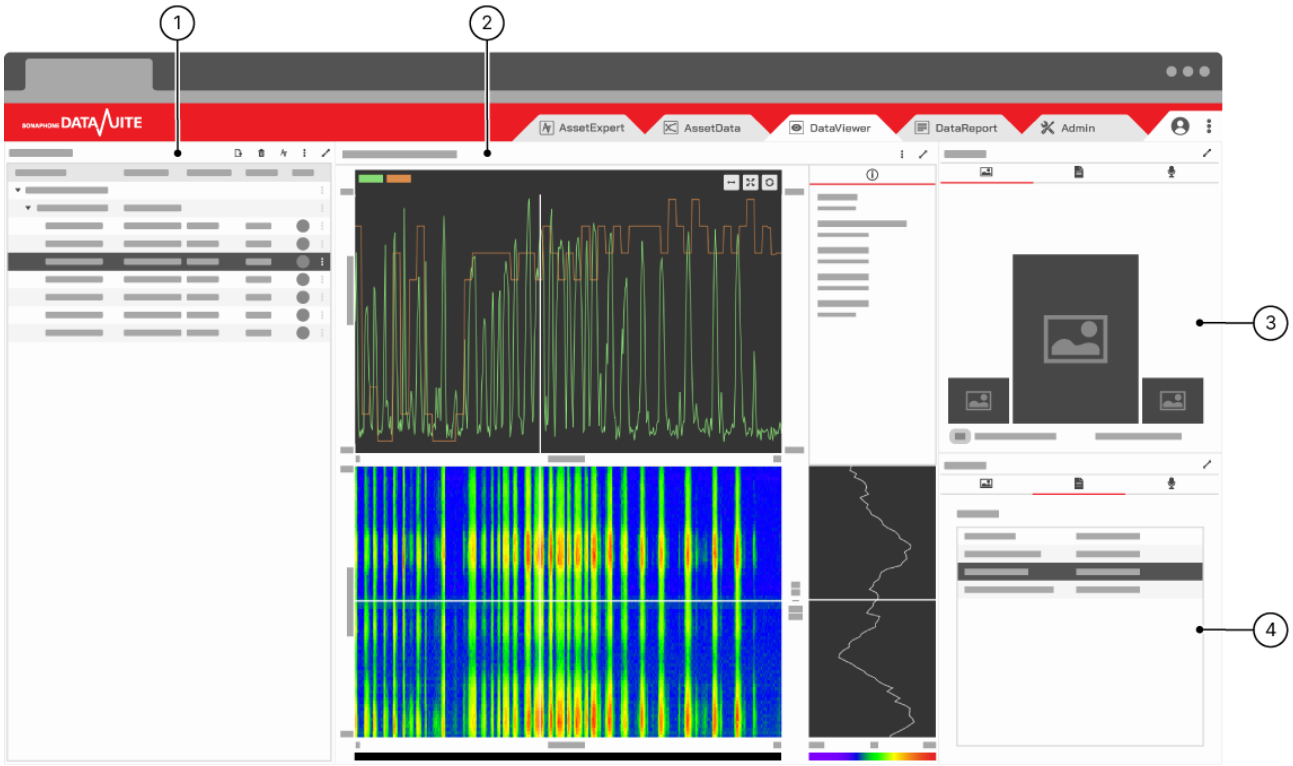
### Description

With a SONAPHONE handheld unit, measurements may be recorded independently from asset tree and/or measuring points. These "unassigned measurements" may be exported as ZIP files with the corresponding SONAPHONE apps (LevelMeter app, SteamExpert app).

In the "DataViewer" tab, the ZIP files with unassigned measurements may be imported, analyzed and assigned to existing asset trees and/or measuring points.

### Widgets

The "DataViewer" tab contains the following widgets:



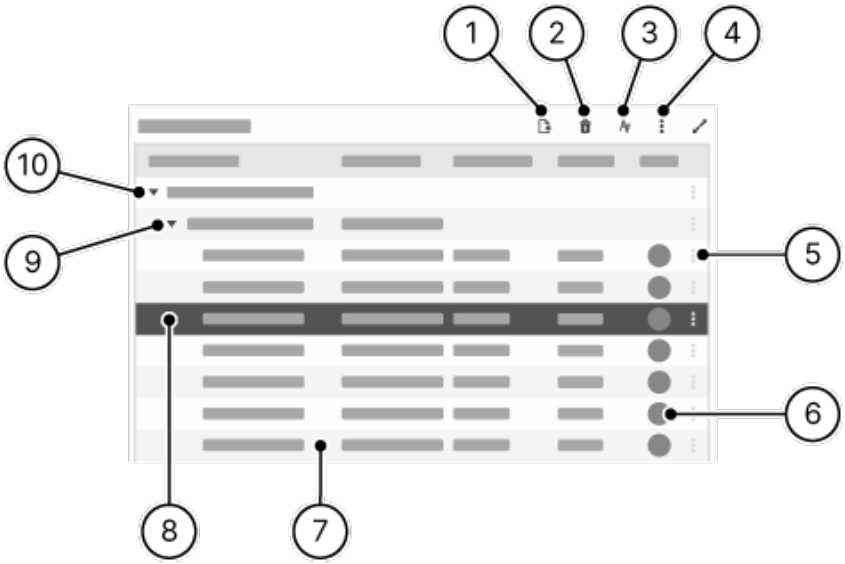
| No. | Widget | Function/description |
|---|---|---|
| 1 | "DataViewer" Unassigned Measurements | • Allows for importing unassigned measurements that have been recorded with a SONAPHONE handheld unit.<br>• Shows the imported measurements as a list.<br>• Allows for management (selection, deletion) of unassigned measurements.<br>• Allows to assign unassigned measurements to existing asset trees and/or measuring points.<br>Assignment of unassigned measurements is not available in the version SONAPHONE DataSuite - V. |
| 2 | "DataViewer" Time Signal, Level Graph and Spectrogram | Shows details and analyses of a selected unassigned measurement. |
| 3 | "DataViewer" Additional Data (instance 1) | • Shows additional data (photos, text notes or voice memos) saved with a selected unassigned measurement.<br>• Displaying two instances allows for comparison of differing additional data (e.g. photos and text notes). |
| 4 | "DataViewer" Additional Data (instance 2) | • Shows additional data (photos, text notes or voice memos) saved with a selected unassigned measurement.<br>• Displaying two instances allows for comparison of differing additional data (e.g. photos and text notes). |

## 9.2 "DataViewer" widgets

This section describes the structure and functions of the widgets in the "DataViewer" tab.

### "DataViewer" Unassigned Measurements

#### Structure



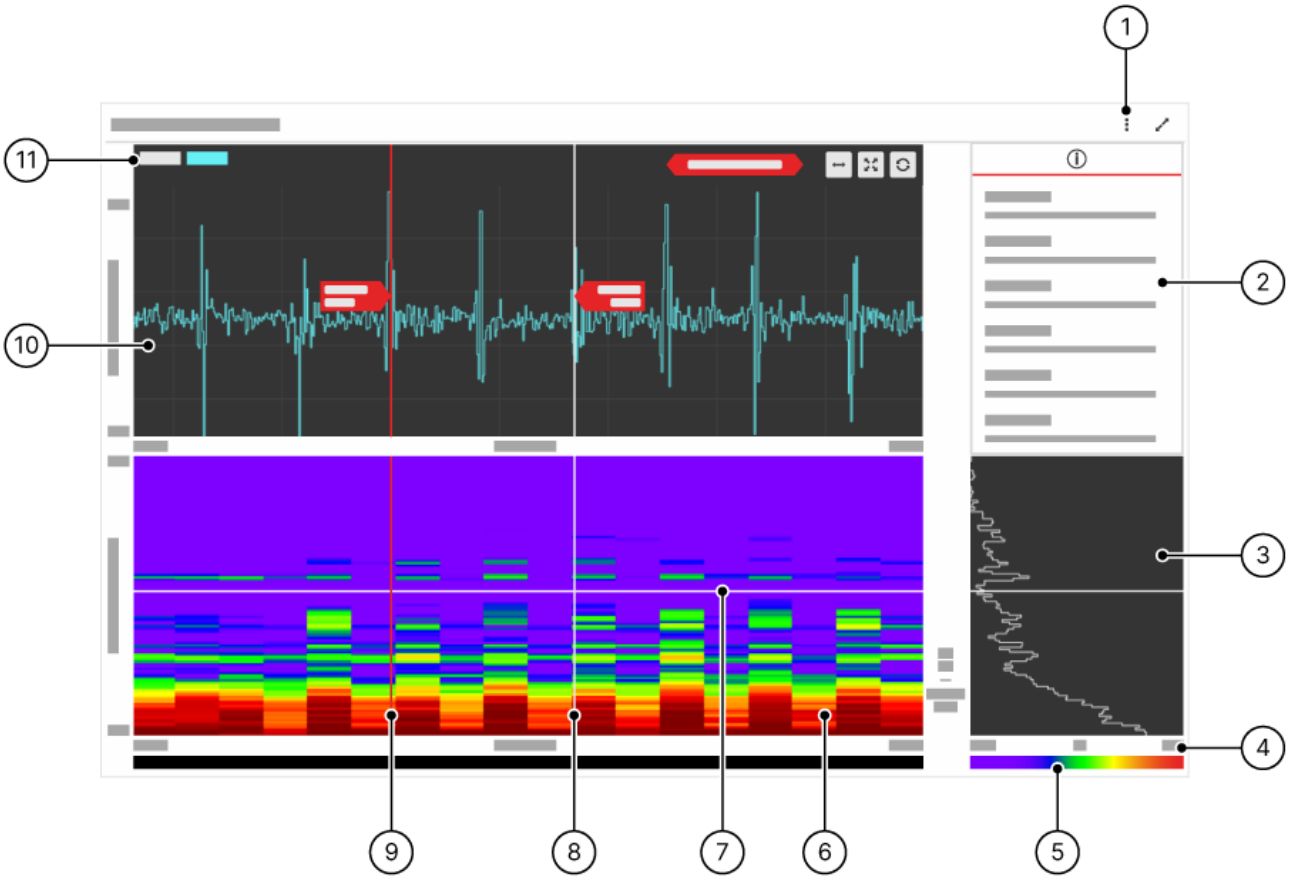

#### Description

| No. | Type | Function/description |
|---|---|---|
| 1 | Import unassigned measurements (quick action) | Opens the 'Import unassigned measurements' window for selection and import of ZIP files with unassigned measurements.<br>Only ZIP files of the "LevelMeter App" or the "SteamExpert App" may be imported. |
| 2 | Delete all measurements (quick action) | Opens the 'Delete all measurements' window with a confirmation prompt for deletion of all measurements. |
| 3 | Assign measurements (quick action) | Opens a window to assign unassigned measurements to an asset tree or to measuring points in the "AssetExpert" Tab.<br>Assignment of unassigned measurements is not available in the version SONAPHONE DataSuite - V. |

| No. | Type | Function/description |
|---|---|---|
| 4 | Widget menu | Opens a menu for selection of all available widget functions. The following functions are available:<br>• **Import unassigned measurements**<br>• **Delete all measurements**<br>• **Assign measurements** |
| 5 | Context menu | Opens a menu with a function for deletion of the corresponding object (ZIP file, folder or unassigned measurement). |
| 6 | Application type | Indicates the application type set for a measurement by a symbol. |
| 7 | Measurement | Shows the following data of an unassigned measurement:<br>• Name<br>• Date and time of recording |
| 8 | Active object | Indicates the currently selected object (ZIP file, folder, unassigned measurement). |
| 9 | Folder | Shows the following data for folders in which measurements are saved:<br>• Name of folder<br>• Date and time of creation |
| 10 | ZIP file | Shows the file name of the imported ZIP file. |

## "DataViewer" Time Signal, Level Graph and Spectrogram

### Structure




### Description

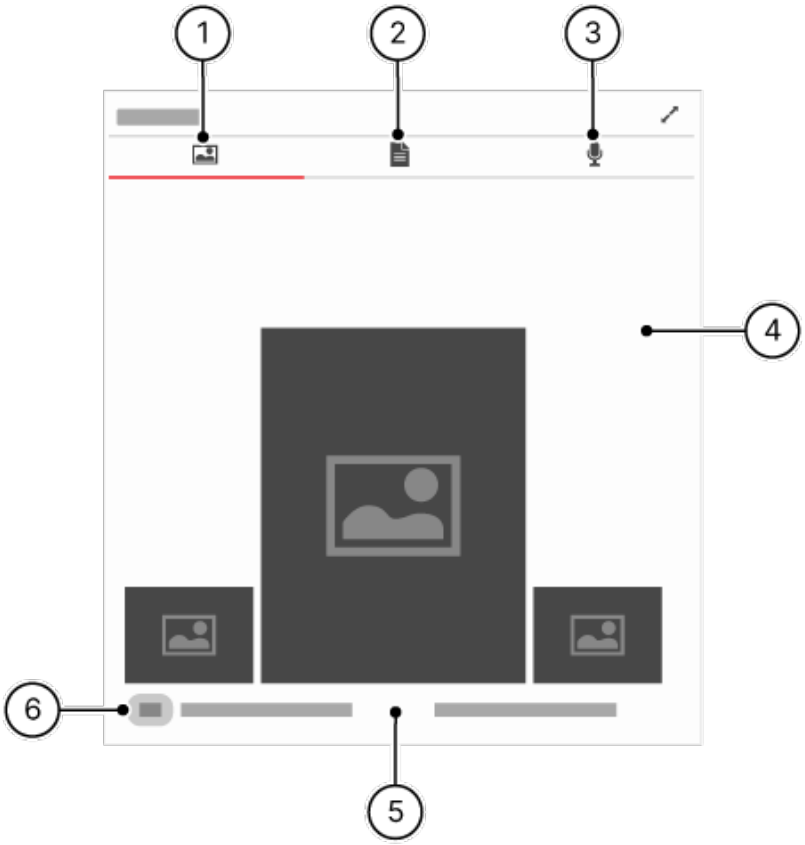
| No. | Type | Function/description |
|---|---|---|
| 1 | Widget menu | Opens a menu for selection of all available widget functions. The following functions are available:<br>• **Take a screenshot - Full Widget**<br>• **Take a screenshot - Time Signal**<br>• **Take a screenshot - Spectrogram**<br>• **Select key metrics**<br>• **Download CSV** |
| 2 | Information | Shows information on the current measurement |
| 3 | Spectrum | • Shows the power spectrum in dB according to the selected position (Y-cut) within the spectrogram.<br>• By editing the adjustable axes' side values, the view may be zoomed in or out. |

| No. | Type | Function/description |
|---|---|---|
| 4 | Adjustable axes' side values | • Indicated by values in input fields<br>• May be edited manually after clicking the particular input field.<br>• Allow for scaling of the axes within:<br>  ○ Spectrum<br>  ○ Spectrogram<br>  ○ Time signal<br>  ○ Level and temperature chart)<br>• Allow for "locking" the frequency (input field between spectrogram and spectrum). |
| 5 | Color chart | Maps the level values with specific colors. |
| 6 | Spectrogram | • Shows the intensity of the ultrasonic signal of the selected measurement in spectra over time.<br>• Click the diagram to listen to the ultrasonic signal with an audible frequency.<br>• A particular segment may be zoomed in. For zooming in, draw a selection rectangle over the particular segment while pressing the mouse button.<br>• By editing the adjustable axes' side values, the view may be zoomed in or out. |
| 7 | Frequency cursor | May be positioned freely within the spectrogram or spectrum by using the mouse. For the selected position, the measurement values of frequency and level between spectrogram and spectrum will be shown. |
| 8 | Time cursor 1 | May be positioned freely within time signal, level graph or spectrogram by using the mouse. For the selected position, the measurement values of the activated key metrics will be shown in the legend. |
| 9 | Time cursor 2 | • Is hidden by default and may be unhidden resp. hidden again by a button in the legend.<br>• May be positioned freely within time signal, level graph or spectrogram by using the mouse. For the selected position, the level and time measurement values will be shown on both time cursors. |
| 10 | Time signal / level and temperature chart | • Shows the value trends of the selected measurement over time.<br>• Click the diagram to listen to the ultrasonic signal with an audible frequency.<br>• A particular segment may be zoomed in. For zooming in, draw a selection rectangle over the particular segment while pressing the mouse button.<br>• By editing the adjustable axes' side values, the view may be zoomed in or out. |

| No. | Type | Function/description |
|---|---|---|
| 11 | Legend | • Describes the color coding of the activated key metrics (within level graph) or time and time signal (within time signal).<br>• Shows the measurement values at the current position of the time cursor 1.<br>• Allows for unhiding/hiding activated key metrics within the level graph by clicking the corresponding key metric.<br>• Shows the time and frequency of the area between both time cursors if time cursor 2 has been activated.<br>• Contains buttons for the following functions:<br>  ○ : Unhding/hiding time cursor 2<br>  ○  : Resetting the zoom (active only with applied zoom)<br>  ○  : Switching between time signal and level graph |

## "DataViewer" Additional Data

### Structure




### Description

| No. | Type | Function/description |
|---|---|---|
| 1 | Images | Section for preview of images of a selected object (folder or measurement). |
| 2 | Text notes | Section for preview of text notes of a selected object (folder or measurement). |
| 3 | Voice memos | Section for listening to voice memos of a selected object (folder or measurement). |
| 4 | Overview | Shows a preview of the data within the selected section. |
| 5 | Image data | Shows the following information for the particular image:<br>• File name<br>• Date of saving the image with the object (folder or measurement). |
| 6 | Image counter | Shows the total number of images and the position of the particular image within the database. |

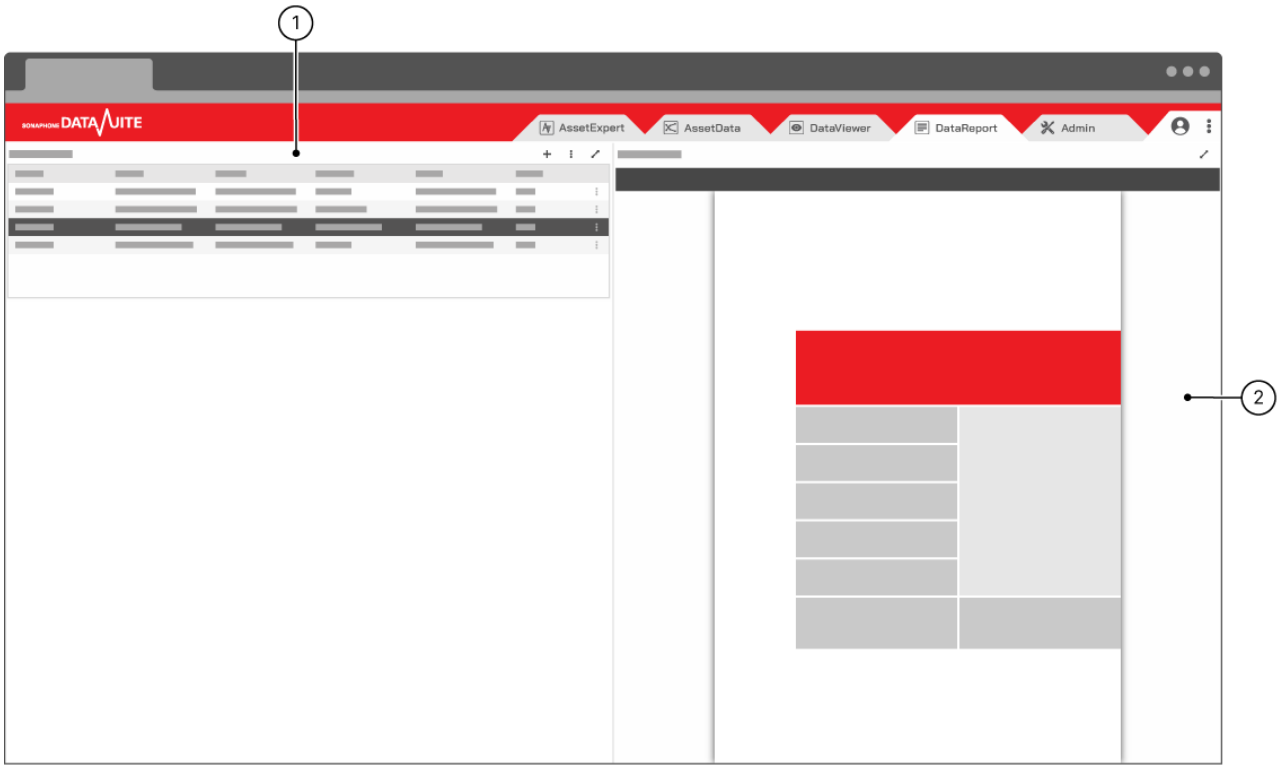
# 10 "DataReport" tab

## 10.1 Description

In the "DataReport" tab, reports of measurements within an asset tree, on a selected route or at a selected measuring point may be created and managed.

## 10.2 Widgets

The "DataReport" tab contains the following widgets:




| No. | Widget | Function/description |
|---|---|---|
| 1 | Report List | • For report creation (see Creating a report).<br>• Shows a list of all created reports.<br>• Allows for management of created reports (see Managing reports). |
| 2 | Report Preview | Shows a preview of the report selected in the Report List. |

# 11 "Admin" tab

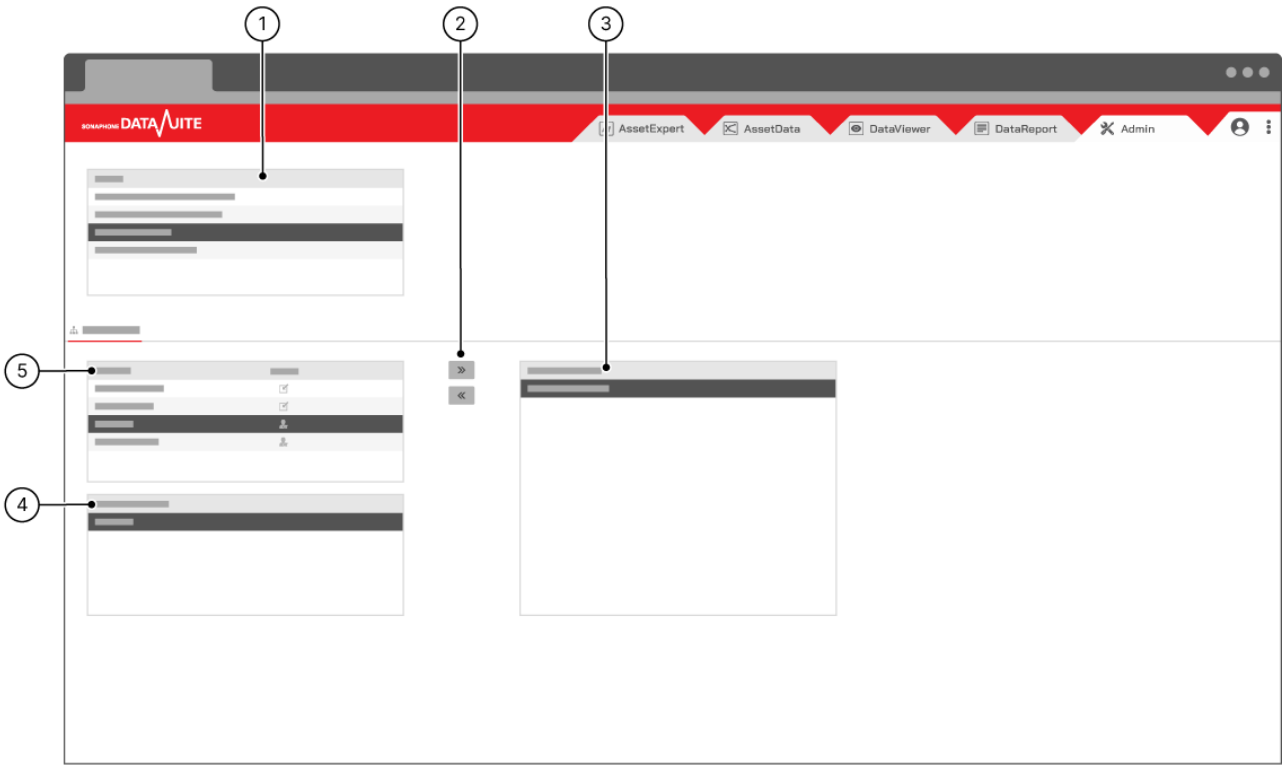
## 11.1 Description

In the "Admin" tab, predefined user roles may be assigned to users and users may be assigned to created projects. These assignments may only be executed by users that have been assigned administrator roles.

**Availability**
Assignment of users and user roles is only available in the SONAPHONE DataSuite - S version.

## 11.2 Areas

The "Admin" tab contains the following areas:




| No. | Area | Function/description |
|---|---|---|
| 1 | Project | • Shows a list of all created projects.<br>• For selection of a project. |
| 2 | Role assignment | For assigning predefined user roles to selected users. |

| No. | Area | Function/description |
|---|---|---|
| 3 | Assigned roles | Shows a list of user roles that have been assigned to a selected user in a selected project. |
| 4 | Available roles | Shows a list of all predefined user roles. |
| 5 | User | • Shows a list of all users available in the Active Directory.<br>• Allows for "Importing" users from the Active Directory to SONAPHONE DataSuite.<br>• For assigning users to a selected project. |

# 12 "User" tab

## 12.1 Description

The "User" tab shows the user name of the currently logged-in user.

The tab menu offers the following information and menu items:

| Information/item | Description/function | Availability in SONAPHONE DataSuite | | |
|---|---|---|---|---|
| | | D | V | S |
| User name | Shows the name of the logged-in user. | | | • |
| User role | Shows the role of the logged-in user. | | | • |
| Project name | Shows the name of the currently selected project. | | | • |
| **Reload** | Reloads the whole window. | | | • |
| **Select Project** | Opens a dialog window for creating, managing and selecting projects.<br>(see "Managing projects") | • | | • |
| **Select unit system** | Opens a dialog window for setting the unit system to be used.<br>(see "Defining the unit system") | • | • | • |
| **Link to online manual** | Opens the online manual in a new browser tab/window. | • | • | • |
| **About DataSuite** | Opens a dialog window with information on the installed DataSuite version. | • | • | • |
| **Manage licenses** | Opens a dialog window for managing add-on module licenses.<br>(see "Managing licenses") | • | • | • |
| **Logout** | Logs out the user and terminates DataSuite.<br>(see "Logout") | • | • | • |

# 13 Add-on modules

Optional add-on modules may be purchased to extend the SONAPHONE DataSuite's functions for capture and documentation of different applications.

## 13.1 SteamExpert

### Description

The "SteamExpert" add-on module provides detailed functions and information for testing and documentation of measuring points of the "Steam trap testing" application type.

### Further information

For explanations on the use of the "SteamExpert" add-on module, please also see the following descriptions and/or instructions:

| Information/task | Description/instruction |
|---|---|
| Activating the add-on module | Managing licenses |
| Parameter groups in the "AssetExpert" Details widget | • Parameter group "Steam trap"<br>• Parameter group "Configuration"<br>• Parameter group "Calculator for estimation of steam loss" |
| Managing measuring point details | • Determining the steam trap<br>• Managing steam trap definitions<br>• Determining the configuration<br>• Determining command variable and threshold values<br>• Setting up steam loss estimation |
| Managing measuring point templates for steam trap testing | Managing measuring point templates |
| Using a template for creating a steam trap testing report | Creating a report |
| Changing the status (traffic light indicator) via the state | Changing the state |

# 14 Working with "AssetExpert"

This section contains instructions on working with the "AssetExpert" tab. The structure and order of these instructions follow the typical (recommended) work flow.

## 14.1 Creating an asset tree

The asset tree represents the structure of a plant and gives a summary of all relevant measuring points. The structure to be created depends on the company's guidelines and may be based on the following systems, among others:

- Identification System for Power Stations (KKS)
- Reference Designation System for Power Plants (RDS-PP)

### Editing the name

#### Description

After creation of a project, the selected project name will automatically be used as name in the asset tree. The name of the asset tree (e.g. name of a power plant or factory) may be edited at a later date independently from the project name.

#### Procedure

1. In the "Asset Tree" widget, click the root entry.

   → The root entry is highlighted.
2. Enter the preferred asset tree name in the **Name** field of the "Details" widget.

#### Further information

For editing the asset tree name, please also see the description of the following widgets:

- "AssetExpert" Asset Tree
- "AssetExpert" Details

## Creating a level

### Description

Levels visualize several sections/systems and their respective subtrees.

**Meaningful lay-out of the asset tree basic structures in advance**
Before setting up the asset tree, the basic structure should be thoroughly devised to avoid unnecessary adjustments.

### Procedure

1. Click the "Context menu" item of the root element.
2. Click the **Add level** item.
   → The 'Add Level' window opens.
3. Enter the name of the level in the **Name** field.
4. Click the **ADD ASSET** button.
   → The window closes, the level is created within the asset tree.

### Further information

For the creation of a level, please also see the description of the following widget:

- "AssetExpert" Asset Tree

## Creating a measuring point

### Description

All measuring points should be organized in levels. Measuring points (including type of application and status) are the final position of a subtree. The creation of further levels or measuring points is not possible underneath a measuring point.

A plant or a machine may consist of several measuring points, e. g. all bearings of a set of machines (drive machine and work machine).

### Procedure

1. Click the "Context menu" icon of a level.
2. Click the **Add measuring point** item.
   → The 'Add measuring point' window opens.
3. Enter the name of the measuring point in the **Name** field.
4. In the **Template** field, select a saved configuration for the measuring point (if available).
5. In the **Application** list, select the intended application type for the measuring point.
6. Click the **ADD ASSET** button.
   → The window closes, the measuring point is created within the asset tree.

**Further information**

For the creation of a measuring point, please also see the following descriptions and/or instructions:

- "AssetExpert" Asset Tree
- "AssetExpert" Details
- Managing measuring point templates

## 14.2 Editing an asset tree

After creation, the structure of the asset tree (levels and measuring points) can be easily extended. Thus, parts of the asset tree that are identical in design and are to be tested with the same method can easily and rapidly be duplicated by copy and paste.

> **Meaningful lay-out of the basic structures in advance**
> The more specific the basic structure of the levels or measuring point to be copied are designed, the fewer information has to be added at a later date.

### Copying a level/measuring point

**Description**

When copying a level, the name and the complete subtree of this level including measuring points will be copied. After copying a level, the level name has to be edited when needed.

When copying a measuring point, the following detail information is copied:

- Name
- Confirmation method
- Application
- Inspection cycle
- Measured quantities in the table
- Command variable for threshold values (warning and alert limit)
- Threshold values (warning and alert limit)
- Selected measured quantities (key metrics) displayed in the widgets "AssetData" Time Signal, Level Graph and Spectrogram, "AssetData" Measurements and "AssetData" Trending.

### Procedure

1. Click the "Context menu" icon of the particular level or measuring point.
2. Click the **Copy** item.
   → After successful copying, the message "Copied subtree to clipboard" appears in the bottom right corner of the DataSuite interface.
3. Click the "Context menu" icon of the asset tree or a particular level.
4. Click the **Paste** item.
   → The copied level or measuring point is inserted underneath the selected position within the project or selected level.
   → After successful insertion, the message "Pasted subtree from clipboard" appears in the bottom right corner of the DataSuite interface.

### Further information

For copying a level or measuring point, please also see the description of the following widget:

- "AssetExpert" Asset Tree

## Moving a level/measuring point

### Description

Levels and measuring points may be moved by Drag and Drop or by Cut and Paste. This allows for restructuring asset tree subtrees.

### Using Drag and Drop

Use the mouse to drag a measuring point or a level to the particular position (e. g. another level) within the asset tree and drop it there.

### Using the context menu

1. Click the "Context menu" icon of the particular level or measuring point.
2. Click the **Cut** item.
   → After successful cutting, the message "Cut and copied subtree to clipboard" appears in the bottom right corner of the DataSuite interface.
3. Click the "Context menu" icon of the asset tree or a particular level.
4. Click the **Paste** item.
   → The copied level or measuring point is inserted underneath the selected position within the project or selected level.
   → After successful insertion, the message "Pasted subtree from clipboard" appears in the bottom right corner of the DataSuite interface.

### Further information

For moving a level or measuring point, please also see the description of the following widget:

- "AssetExpert" Asset Tree

## Sorting level/measuring points

### Description

By moving levels and measuring points, the asset tree may be resorted if necessary. Using Drag and Drop allows for sorting the order and/or changing the structure of levels and/or measuring points. By using the context menu, only the order may be resorted.

### Using Drag and Drop

Use the mouse to drag a measuring point or a level to the particular position (e. g. another level) within the asset tree and drop it there.

### Using the context menu

1. Click the "Context menu" icon of the particular level or measuring point.
2. Depending on the required order, click the **Move up** or **Move down** items.
   → The selected level or measuring point is moved by one position.

> **Moving a measuring point**
> Measuring points may only be moved up or down within their respective levels.

### Further information

For sorting levels or measuring points, please also see the description of the following widget:

- "AssetExpert" Asset Tree

## Deleting a level/measuring point

### Description

Created levels or measuring points may be deleted from the asset tree.

**Data loss during deletion**

When deleting levels or measuring points, all data concerning the level or measuring point will be deleted.

**Loss of subtrees**

When deleting a level, all sublevels and measuring points in this level will be deleted including all data.

### Procedure

1. Click the "Context menu" icon of the level or measuring point to be deleted.
2. Click the **Delete** item.
   → The 'Delete' window opens to confirm the deletion.
3. Click the CONFIRM button.
   → The window closes. The selected level or measuring point including all data is deleted from the asset tree.
   → After successful deletion, the message "Deleted [name of the deleted object]" appears in the bottom right corner of the DataSuite interface.

### Further information

For the deletion of a level or measuring point, please also see the description of the following widget:

- "AssetExpert" Asset Tree

## 14.3 Managing level details

During creation of a level, the following information can be entered:

- Name
- ID
- Additional information (photos, text notes)

This information may be edited after creation or the whole level may be deleted.

### Editing level details

#### Description

The following level details may be edited after creation of a level:

- Name
- ID

#### Procedure

1. In the "Asset Tree" widget, click the particular level.

   → The level is highlighted. The level details are displayed in the "Details" widget.
2. Name and/or ID may now be edited in the "Details" widget.

#### Further information

For editing level details, please also see the description of the following widgets:

- "AssetExpert" Asset Tree
- "AssetExpert" Details

## Managing level additional data

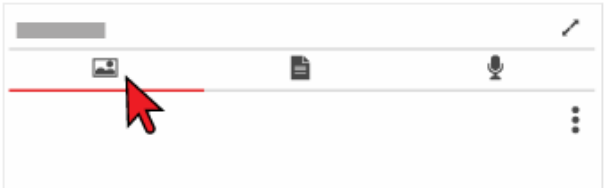
### Description

For each level, additional data in the form of images (photos, diagrams) and/or text notes can be managed in the SONAPHONE DataSuite.

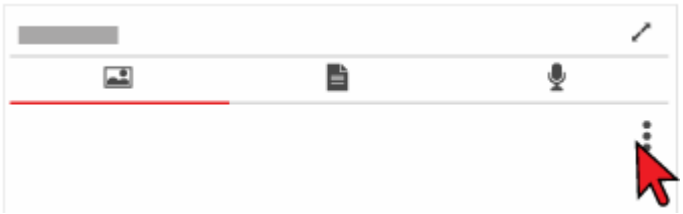
### Adding additional data

1. In the "Asset Tree" widget, click the particular level.

2. In the "Additional Data" widget, select the particular section (image or text notes).



3. Click the "Widget menu" icon in the selected section.



4. Click the **Add** item.
   → A window opens in which depending on the selected section:
   - an image may be uploaded, or
   - a text note may be entered.

### Deleting additional data

**Direct deletion of data!**
Images and text notes will be deleted directly without further notice.

1. In the "Asset Tree" widget, click the particular level.
2. In the "Additional Data" widget, select the particular section (images or text notes).
3. Click the particular image or text note in the selected section.
   → The image or the text note is selected.
4. Click the menu icon in the selected section.
5. Click the **Delete** item.
   → The selected image or text note is deleted.

### Further information

For the management of additional data, please also see the description of the following widgets:

- "AssetExpert" Asset Tree
- "AssetExpert" Additional Data

## 14.4 Managing measuring point details

During creation of a measuring point, the following information can be entered:

- Name
- ID
- Confirmation method
- Application
- Inspection cycle
- Measured quantities in the table
- Command variable for alert thresholds
- Alert threshold values
- Additional information (photos, text notes)

All these information details may be edited after creation of a measuring point.

### Editing master data

**Description**

The following measuring point details may be edited after creation of a measuring point:

- Name
- ID
- Confirmation method
- Application

The measuring point ID ensures that the examiner performs measurements at the correct point of measurement on-site. The ID may include alphanumeric information.

The confirmation method determines the kind of confirmation on-site as follows:

- **None:** No confirmation will be performed at the point of measurement.
- **Visual:** The alphanumeric information is displayed on the SONAPHONE handheld unit to manually confirm its concurrence to the information on-site by reading it.
- **Scan:** The alphanumeric information is automatically confirmed via QR code with the help of the SONAPHONE handheld unit's camera function.

The application determines the measurement method as well as the assigned sensors for the measurement on-site (ultrasound of solid masses or in air, infrared temperature). For visual support, the type of application is displayed as an icon.

### Procedure

1. In the "Asset Tree" widget, click the particular measuring point.

   → The measuring point is highlighted. The "Details" widget displays the measuring point details.
2. In the "Details" widget, complete the necessary modifications.

### Further information

For editing measuring point details, please also see the description of the following widgets:

- "AssetExpert" Asset Tree
- "AssetExpert" Details

## Determining the measurement cycle

### Description

An measurement cycle is only defined for inspections that repeat after a fixed time interval. Based on a start date, a cycle for a repeat inspection may be determined. The following interval types may be chosen for this cycle:

- annually
- monthly
- daily
- hourly

### Procedure

1. In the "Asset Tree" widget, click the particular measuring point.

→ The measuring point is highlighted. The "Details" widget displays the measuring point details.

2. In the "Details" widget, proceed as follows to determine the measurement cycle:
    a. Activate the **Route Cycle** checkbox.

    b. Click the calendar icon and pick a start date.

    c. Enter the interval value.

    d. Select the interval type.

### Further information

For determination of the measurement cycle, please also see the description of the following widgets:

- "AssetExpert" Asset Tree
- "AssetExpert" Details

## Determining key metrics

### Description

Up to four key metrics may be determined for each measuring point from all available measured quantities. These key metrics are displayed with the current and the previous three measured values in a summary. The summary is transferred to the SONAPHONE handheld unit and provides important information on-site for the evaluation of the measurements.

For all key metrics, a reference value based on a measurement may be determined in the "DataViewer" Measurements widget. The indicated reference values compare current values to the normal operating conditions of an asset/plant component or a machine (e. g. for new installations or after repair).

### Procedure

1. In the "Asset Tree" widget, click the particular measuring point.

   → The measuring point is highlighted. The "Details" widget displays the measuring point details.
2. In the "Details" widget, click the empty section of a key metric.

→ The 'Key Metric Selection' window opens with all available measured quantities.

3. The key metrics to be shown may be selected by activating the checkbox.

   Up to 4 key metrics may be activated.

4. Click the **OK** button.
   → The window closes, the selected key metric is transferred to the summary.

**Further information**

For determination of key metrics, please also see the description of the following widgets:

- "AssetExpert" Asset Tree
- "AssetExpert" Details

## Determining command variable and threshold values

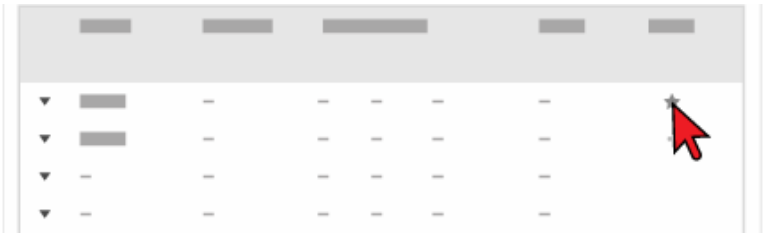
### Description

A key metric (measured quantity) from the summary is determined as command variable. The command variable controls the traffic light indicators in the status display. Assigned limits (switchover points) are determined via the threshold values.

When creating a measuring point or deleting a measured quantity from the summary, a measured quantity will automatically be determined as command variable.

### Determining the command variable

1. In the "Details" widget, click the "Status" column of the particular measured quantity.



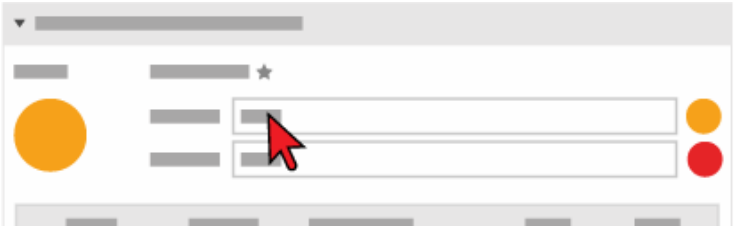
→ The measured quantity is marked with an asterisk and determined as command variable.

### Determining threshold values

Threshold values determine the limits of the command variables. These limits control the status (traffic light indicator) of a measuring point.

If no threshold values are determined for a measured quantity or a specific measuring point has had no measurements so far, the status display (traffic light indicator) remains gray.

1. In the "Details" widget, enter the specific value for the warning limit in the Status section.



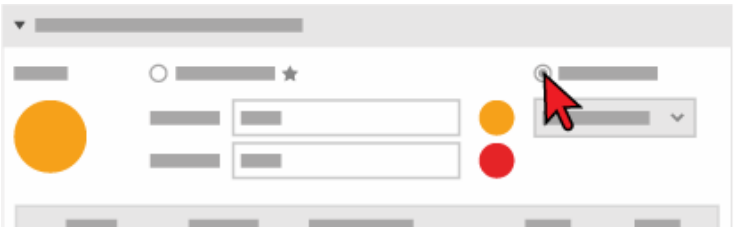
2. In the "Details" widget, enter the specific value for the alert limit in the Status section.

### Setting the state

For measuring points with "Steam trap testing" application type, the status (traffic light indicator) may alternatively be set via the state. A measuring point state has to be set manually. A number of predefined states are available.

> **Availability with "SteamExpert" add-on module**
> Setting the state of steam traps is only available with activated "SteamExpert" add-on module.

1. In the "Details" widget in the Status section, activate the State option.



2. Select the particular state in the list.

### Further information

For determination of the command variable and threshold values, please also see the description of the following widget:

- Details "AssetExpert"

## Determining the steam trap

### Description

For measuring points with "Steam Trap Testing" application type, a steam trap must be determined. A steam trap is determined by the following parameters:

- Manufacturer (name of manufacturer)
- Model (model designation)
- Trap type (predefined type)
- Nominal size (predefined diameters)
- Usage (predefined usage)
- Mounting position (predefined mounting position "horizontal" or "vertical")
- Type of connection (predefined connection types)

The manufacturer, model and steam trap type parameters are managed and selected in the steam trap database. The nominal size, usage, mounting position and connection type values may be selected from predefined values.

> **Availability with "SteamExpert" module**
> The steam trap settings are only available with activated "SteamExpert" module.

### Procedure

1. Create or select a measuring point with "Steam Trap Testing" application type.
2. In the **Steam trap** parameter group, click the  (Steam trap database) icon.
   → The 'Steam trap database' window opens with a list of predefined steam traps.
3. Select the particular steam trap.

   > **Restricting the list**
   > By entering a designation in the **Filter** field, the list of displayed steam traps may be restricted. Filters may be set for manufacturer, model or steam trap type.

4. Click the APPLY button.
   → The window closes. The **Manufacturer**, **Model** and **Trap type** fields are filled in depending on the selection.
5. Choose the respective values in the **Nominal Size**, **Application**, **Mounting position** and **Type of connection** lists.

### Further information

For determining a steam trap, please also see the following descriptions and/or instructions:

- "AssetExpert" Details
- Creating a measuring point

## Managing steam trap definitions

### Description

For measuring points with "Steam Trap Testing" application type, steam trap definitions are available. The following information is part of each steam trap definition:

- Manufacturer (name of manufacturer)
- Model (model designation)
- Trap type (predefined type)

Steam trap definitions may be deleted, added or edited in the "AssetExpert" Details widget.

**Availability with "SteamExpert" module**

Deletion, adding or editing of steam trap definitions is only available with activated "SteamExpert" module.

### Deletion

**Possible data loss by direct deletion of data!**

Steam trap definitions will be deleted directly without confirmation prompt. This may lead to data loss.

- Before deletion of a steam trap definition, please make sure that this steam trap definition may indeed be deleted.

1. Create or select a measuring point with "Steam Trap Testing" application type.
2. In the **Steam trap** parameter group, click the (Steam trap database) icon.
   → The 'Steam trap database' window opens with a list of available steam trap definitions.
3. Select the particular steam trap definition.

   **Restricting the list**

   By entering a designation in the **Filter** field, the list of displayed steam trap definitions may be restricted. Filters may be set for manufacturer, model or steam trap type.
4. Click the DELETE SELECTION button.
   The selected steam trap definition is deleted.

### Adding

1. Create or select a measuring point with "Steam Trap Testing" application type.
2. In the **Steam trap** parameter group, click the (Steam trap database) icon.
   → The 'Steam trap database' window opens with a list of available steam trap definitions.
3. Click the **ADD TRAP TYPE** button.
   → The 'Add trap type' window opens.
4. Enter the name of the manufacturer in the **Manufacturer** field.
5. Enter the model designation in the **Model** field.
6. Select a predefined type in the **Trap type** field.
7. Click the **ADD TRAP TYPE** button.
   → The window closes. The selected steam trap definition is added.

### Editing

1. Create or select a measuring point with "Steam Trap Testing" application type.
2. In the **Steam trap** parameter group, click the (Steam trap database) icon.
   → The 'Steam trap database' window opens with a list of available steam trap definitions.
3. Double-click the particular steam trap definition.
   → The edit mode is activated.

   **Restricting the list**
   By entering a designation in the **Filter** field, the list of displayed steam trap definitions may be restricted. Filters may be set for manufacturer, model or steam trap type.
4. Edit the manufacturer, model and/or steam trap type details.
5. Click **Save**.
   → The edit mode is terminated, the selected steam trap definition is changed.

### Further information

For deletion, adding or editing steam trap definitions, please also see the following descriptions and/or instructions:

- "AssetExpert" Details
- Creating a measuring point

## Determining the configuration

### Description

For measuring points with "Steam Trap Testing" application type, additional parameters may be determined. The following information is part of each steam trap:

- Operating pressure (relative pressure)
- Emissivity

> **Availability with "SteamExpert" module**
> The steam trap settings are only available with activated "SteamExpert" module.

### Procedure

1. Create or select a measuring point with "Steam Trap Testing" application type.
2. In the **Configuration** parameter group, enter the following values:
    - Operating pressure $p_1$ (relative upstream pressure upstream of the steam trap)
      → The expected temperature $T_1$ is calculated from $p_1$.
    - Operating pressure $p_2$ (relative back pressure downstream of the steam trap)
      → The expected temperature $T_2$ is calculated from $p_2$.
    - Emissivity $\varepsilon_1$ (according to pipe surface upstream of the steam trap)
    - Emissivity $\varepsilon_2$ (according to pipe surface downstream of the steam trap)

> **Basis of valuation**
> The values are calculated based on the p-T diagram as well as the Magnus formula for determination of inside temperature minus 10% for calculation of the expected outside temperature on the pipe upstream and downstream of the steam trap.

### Further information

For determining the configuration, please also see the following descriptions and/or instructions:

- "AssetExpert" Details
- Creating a measuring point

## Setting up steam loss estimation

### Description

For measuring points of the "Steam trap testing" application type, a steam loss estimation may be set. Steam loss estimation is possible for steam traps with known steam trap type and a nominal size of more than 10.

> **Availability with "SteamExpert" add-on module**
> Steam loss estimation is only available with activated "SteamExpert" add-on module.

### Procedure

1. Create or select a measuring point with "Steam Trap Testing" application type.

   > A known steam trap type must be assigned within the steam trap definition.

2. In the **Steam trap** parameter group, set a Nominal Size > 10.
3. In the **Configuration** parameter group, enter the Operating pressure and Emissivity values.
4. In the **Thresholds and key metrics** parameter group, activate the **State** option.
5. Select the **Faulty - Leak** state.
6. In the **Calculator for Estimation of Steam Loss** parameter group, enter the particular values in the corresponding fields.
   → Steam loss and the resulting costs will be calculated and displayed.

### Further information

For setting up the steam loss estimation, please also see the following descriptions and/or instructions:

- Details "AssetExpert"
- Creating a measuring point
- Determining the steam trap
- Determining the configuration
- Determining command variable and threshold values

## Determining the measurement configuration

### Description

In the measurement configuration, the audio mode may be set. The audio mode is used to render the ultrasonic signal audible and to generate the time signal. The measurement configuration may be set for measurement points with the following application types:

- Machine condition monitoring
- Lubrication check
- Bearing monitoring

### Procedure

1. Create a measuring point of the "Machine condition monitoring", "Lubrication check" or "Bearing monitoring" application type.
2. In the **Measurement configuration** parameter group, select the particular audio mode in the **Audio mode** field.
3. Depending on the selected audio mode, enter the center frequency or bandpass values as follows:

| with selected auto mode: | enter the values for ... |
|---|---|
| Heterodyne | Center frequency within a range of 3 ... 128 kHz. |
| Phase vocoder | Enter the upper and lower cutoff frequency within a range of 1 ... 128 kHz.<br>**Mind the minimum bandwidth**<br>The difference between the values of upper and lower cutoff frequency must be at least 4 kHz. |

4. In the **Sampling rate** field, select a predefined value.

**Audibility of the ultrasonic signal**
Further information on the audibility of the ultrasonic signal may be found in the FAQs on sonotec.eu under: FAQ-G2.

## Managing measuring point templates

### Description

Customized measuring point details may be saved as measuring point template. Measuring point templates may be used for creating a measuring point or may be applied to existing measuring points. This simplifies the creation or modification of several measuring points with similar characteristics. The following details are saved in a measuring point template:

- Confirmation method
- Application
- Inspection cycle information (parameter group **Measurement cycle**)
- Defined key metrics (see measured quantities in table)
- Command variable for threshold values (warning and alert limit)
- Threshold values (warning and alert limit)
- Stream trap parameters (parameter group **Steam trap**)
- Operating pressures, expected outside temperatures and emissivity (parameter group **Configuration**)
- Key metrics for diagram view ("AssetData" Details)

**Availability with "SteamExpert" module**

The parameters of the **Steam trap** and **Configuration** parameter groups are only available with activated "SteamExpert" module.

### Creation

1. Select a measuring point with the required details.
   → The measuring point details are displayed in the "Details" widget.
2. Click the "Widget menu" icon of the "Details" widget.
3. Click the **Save as measuring point template** item.
   → The 'Save as measuring point template' window opens.

4. Enter a name for the template in the **Template name** field.

5. Click the **ADD** button.
   → The window closes. The template is saved with the entered name.

### Deletion

**Possible data loss by direct deletion of data!**

Measuring point templates s will be deleted directly without confirmation prompt. This may lead to data loss.

- Before deletion of a measuring point template, please make sure that this measuring point template may indeed be deleted.

1. Click the "Widget menu" icon of the "Details" widget.
2. Click the **Manage measuring point templates** item.
   → The 'Manage measuring point templates' window opens.
3. Click the "Context menu" icon of the particular measuring point template.

4. Click the **Delete template** item.
   → The template is deleted.

### Applying to existing measuring point

1. Select the particular measuring point.
   → The measuring point details are displayed in the "Details" widget.
2. Click the "Widget menu" icon of the "Details" widget.
3. Click the **Manage measuring point templates** item.
   → The 'Manage measuring point templates' window opens.
4. Mark the particular template.

5. Click the APPLY TO ASSET button.
   → A security alert warns that existing settings of the measuring point will be overwritten.
6. Click the CONFIRM button of the security alert.
   → The security alert closes. All settings of the measuring point template will be applied to the selected measuring point.

### Further information

For managing measuring point templates, please also see the description of the following widgets:

- "AssetExpert" Asset Tree
- "AssetExpert" Details

## Managing measuring point aditional data

### Description

For each measuring point, additional data in the form of images (photos, diagrams), text notes or voice memos can be managed in the SONAPHONE DataSuite.

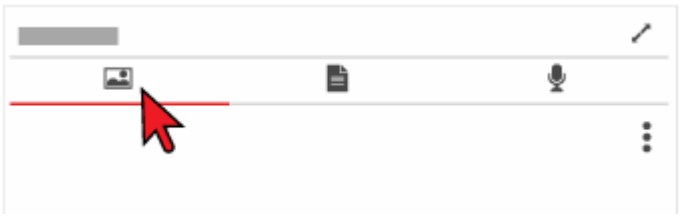
**Voice memos for measuring points only**

Voice memos are recorded with a SONAPHONE handheld unit and may be played and deleted in the SONAPHONE DataSuite. This functionality applies to measuring points only.

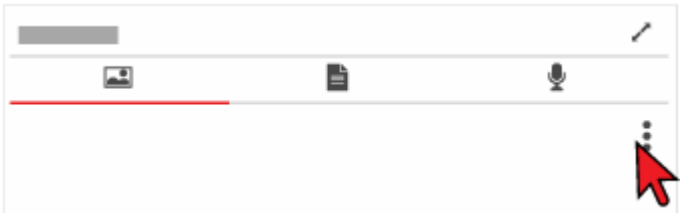
### Adding additional data

1. In the "Asset Tree" widget, click the particular measuring point.

   → The measuring point is highlighted.
2. In the "Additional Data" widget, select the particular section (images or text notes).



3. Click the "Widget menu" icon in the selected section.



4. Click the **Add** item.
   → A window opens in which depending on the selected section:
   - an image may be uploaded, or
   - a text note may be entered.

### Deleting additional data

**Possible data loss by direct deletion of data!**

Images and text notes will be deleted directly without confirmation prompt. This may lead to data loss.

- Before deletion of an image or text note, please make sure that these may indeed be deleted.

1. In the "Asset Tree" widget, click the particular measuring point.
2. In the "Additional Data" widget, select the particular section (images, text notes or voice memos).
3. Click the particular image, text note or voice memo in the selected section.
   → The image, text note or voice memo is selected.
4. Click the "Widget menu" icon in the selected section.
5. Click the **Delete** item.
   → The selected image, text note or voice memo is deleted.

### Setting an image as favourite

From all images added to a measuring point, a particular diagram or photo may be selected as favourite. The image selected as favourite will be displayed at the top in the AssetExpert app on the SONAPHONE.

1. In the "Additional Data" widget, select the section "Images".
2. Click the particular image.
   → The image is selected.
3. Click the "Widget menu" icon.
4. Click the **Favourite** item.
   → The selected image is determined as favourite.

### Playing back voice memos

1. In the "Additional Data" widget, select the section "Voice memos".
2. Click the particular voice memo in the list.

→ The voice memo is highlighted.

3. Click the Play icon of the integrated audio player.

→ The particular voice memo is played.

### Further information

For the management of additional data, please also see the description of the following widgets:

- "AssetExpert" Asset Tree
- "AssetExpert" Additional Data

## 14.5 Managing routes

Routes constitute a detailed work plan for examiners and are transferred to a SONAPHONE handheld unit for processing in accordance with specific maintenance schedules.

### Creating/editing a route

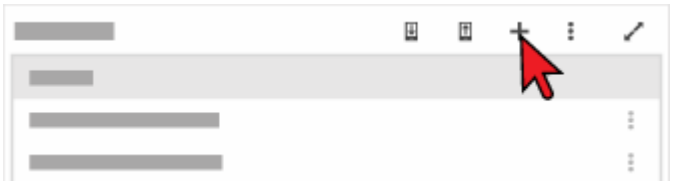
**Description**

Within a project (resp. a plant), any number of routes may be created. The following data are part of a route:

- Route name (required)
- Description (optional)
- Measurement cycle (optional)
- Creation date (will be saved automatically when creating a route)
- Creator (creator's user name; will be saved automatically when creating a route)
- Project (will be saved automatically when creating a route)

### Creating routes

1. In the header of the "Route List" widget, click the plus icon.



→ The 'Add new inspection route' window opens.

2. Enter a route name in the **Route name** field.
3. Optional: Enter a short description in the **Description** field.
4. Optional: Activate the **Route cycle** checkbox to define a measurement cycle for the route.
5. Click the **ADD** button.
→ The window closes, the route is added.

### Editing routes

1. Click the "Context menu" icon of the particular route.
2. Click the **Edit route** item.
   → The 'Edit current inspection route' window opens.
3. Optional: edit the route name in the **Route name** field.
4. Optional: edit the short description of the route in the **Description** field.
5. Optional: activate or deactivate the **Route cycle** checkbox.
6. Click the SAVE CHANGES button.
   → The window closes, all route edits are saved.

### Deleting routes

**Possible data loss by direct deletion of data!**

Routes will be deleted directly without confirmation prompt. This may lead to data loss.

- Before deletion of a route, please make sure that this route may indeed be deleted.

1. Click the "Context menu" icon of the particular route.
2. Click the **Delete route** item.
   → The route is deleted.

### Further information

For creating/editing a route, please also see the description of the following widget:

- "AssetExpert"Route List

## Adding measuring points to a route

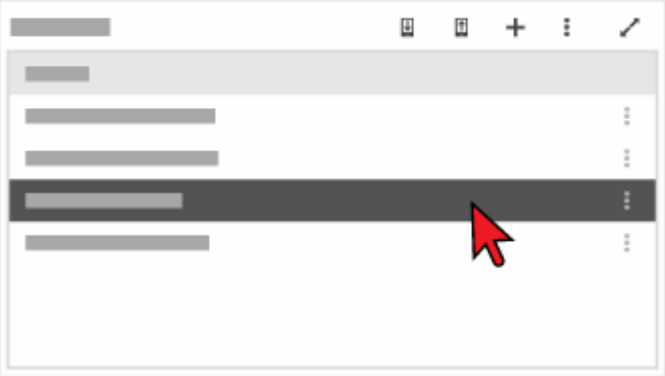
### Description

Individual measuring points from differing levels of the asset tree may be inserted into a route.

Levels may also be added to a route. When adding levels, all measuring points in this level and its sublevels are added to the route.

### Procedure

1. In the "Route List" widget, click the particular route.



→ The route is highlighted.

2. Add particular measuring points or levels to the route by:
    - Drag and Drop from the "Asset Tree" widget to the "Route Details" widget.
    - Selecting them in the "Asset Tree" widget's Route column.

**Filtering the asset tree**

By filtering, the "Asset Tree" widget's view may be restricted to those measuring points that correspond to the filter criteria. This enhances the view's clarity.

→ The added measuring points are displayed in the "Route Details" widget.

### Further information

For adding measuring points to a route, please also see the description of the following widgets:

- "AssetExpert" Asset Tree
- "AssetExpert" Route List
- "AssetExpert" Route Details

## Determining measuring point order

### Description

Within a route, the order of measuring points may be determined and thus can be matched to the chronological or logical processing steps of the inspection. The determined order of the measuring points is displayed on the SONAPHONE handheld unit for processing.

### Determine order

For determining the order, the individual measuring points have to be sorted in the "Route Details" widget by using Drag and Drop.

## Removing measuring points from a route

### Description

Measuring points may be removed from the route list without being deleted from the asset tree. For removing measuring points, the following options are available:

#### Within the "Route Details" widget

#### Via the computer's keyboard

1. In the "Route Details" widget, click the particular measuring point.

   → The measuring point is highlighted.
2. On the computer's keyboard, press the Del key.
   → The selected measuring point is removed from the route.

#### Via the measuring point menu

1. Click the "Context menu" icon of the particular measuring point.
2. Select the item **Remove measuring point from this route**.
   → The selected measuring point is removed from the route.

### Via empty route list

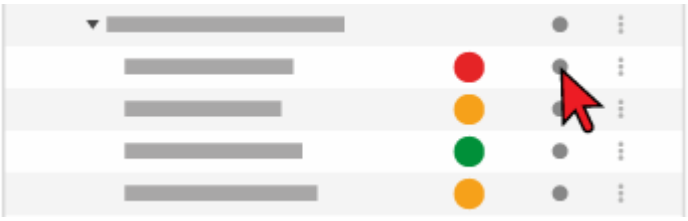
1. In the header of the "Route Details" widget, click the "Remove all measuring points from this route" icon.

→ The 'Remove all measuring points' window opens to confirm the removal.

2. Click the OK button.
→ The window closes. All measuring points are removed from the selected route.

### Within the "Asset Tree" widget

By clicking the measuring point marker in the Route column, the measuring point is removed from the selected route.



By clicking the marker of a level, all measuring points within this level that are part of the selected route may be removed from the route at once.

### Further information

For the removal of measuring points, please also see the description of the following widgets:

- "AssetExpert" Asset Tree
- "AssetExpert" Route Details

## 14.6 Synchronizing routes

All route data are compiled in container files (ZIP format) and synchronized with the SONAPHONE handheld unit via the desktop computer. For this, the SONAPHONE handheld unit has to be connected to the desktop computer via a USB cable.

### Downloading route data to desktop computer

#### Description

For walking along the measuring points and collection of measurement and inspection data, the created routes have to be transferred to a SONAPHONE handheld unit. The route data need to be saved in a container file (ZIP) to be transferred. Before transferring it to the SONAPHONE handheld unit, the container file has to be saved to the desktop computer .

#### Saving route data on the desktop computer

1. In the Widget menu of the "Route List" widget, click the item **Download Data to Hard Drive**.
   → A standard window for saving files opens.
2. Choose the saving location.

   **Automatic file name**

   Descriptive names allow for a concise file structure and support a fast retrieval of files. Thus, the software will suggest the route name during manual saving on the desktop computer. Alternatively, an individual file name may be entered.
3. Save the file on the desktop computer.

#### Transferring route data to the SONAPHONE handheld unit

1. Connect the SONAPHONE handheld unit to the desktop computer via a USB cable.
   → The SONAPHONE handheld unit is shown in the computer's file system.
2. Find the saving location of the route file (ZIP) and copy the route file to the computer's clipboard.
3. Switch to the SONAPHONE handheld unit's directory tree.
4. Go to the "Routes > Import" directory.
5. Paste the route file from the computer's clipboard.

#### Further information

For the download of route data, please also see the description of the following widget:

- "AssetExpert" Route List

## Uploading route data from desktop computer

### Description

For evaluation, the collected measurement and inspection data of a route have to be transferred from the SONAPHONE handheld unit to the desktop computer and uploaded to the SONAPHONE DataSuite. In the SONAPHONE handheld unit, all route data are saved in a container file (ZIP). The container file needs to be copied to the desktop computer before being uploaded to the SONAPHONE DataSuite.

**Upload exported data only!**

Route data may only be uploaded to the SONAPHONE DataSuite after being exported from a SONAPHONE handheld unit.

### Transferring route data from the SONAPHONE handheld unit

1. Connect the SONAPHONE handheld unit to the desktop computer via a USB cable.
   → The SONAPHONE handheld unit is shown in the computer's file system.
2. Switch to the SONAPHONE handheld unit's directory tree.
3. Go to the "Routes > Export" directory.
4. Copy the route file (ZIP) to the computer's clipboard.
5. Go to your preferred saving location of the computer.
6. Paste the route file from the computer's clipboard.

### Uploading route data from desktop computer

1. In the Widget menu of the "Route List" widget, click the item **Upload Data from Hard Drive**.
   → The 'Upload asset data' window opens.
2. Click the **CHOOSE FILE AND UPLOAD** button.
   → A standard window for opening files opens.
3. Find the saving location of the route file (ZIP).
4. Select the route file and open.
   → The route file is processed and uploaded. After the upload, the collected measurement and inspection data are available in the SONAPHONE DataSuite.

### Further information

For the upload of route data, please also see the description of the following widget:

- "AssetExpert" Route List

# 15 Working with "AssetData"

This section contains instructions on working with the "AssetData" tab. The structure and order of these instructions follow the typical (recommended) work flow.

## 15.1 Preparing an analysis

Measurements for a particular measuring point may be analyzed and evaluated in the "AssetData" tab. All analyses and evaluations in the "AssetData" require specific preparations.

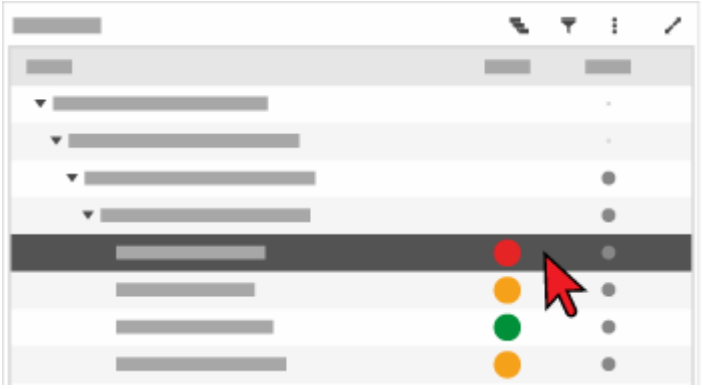
### Selecting measuring points for the analysis

#### Description

For each measuring point, measurement data will be saved. To analyze the measurement data, the particular measuring point has to be selected.

#### Procedure

In the "Asset Tree" widget, click the particular measuring point.



#### Filtering the asset tree

By filtering, the "Asset Tree" widget's view may be restricted to those measuring points that correspond to the filter criteria. This enhances the view's clarity.

1. In the "Asset Tree" widget, click the "Filter" icon.

   → The 'Filter' window opens.

2. Select the particular filter criteria in the window.

3. Click the **FILTER** button.
   → The window closes. The Asset Tree view is restricted according to the filter criteria.

### Further information

For the selection of a measuring point, please also see the description of the following widget:

- "AssetData" Asset Tree

## Selecting measurements

### Description

A particular measuring point may comprise several measurements. To analyze the measurement data, a specific measurement has to be selected.

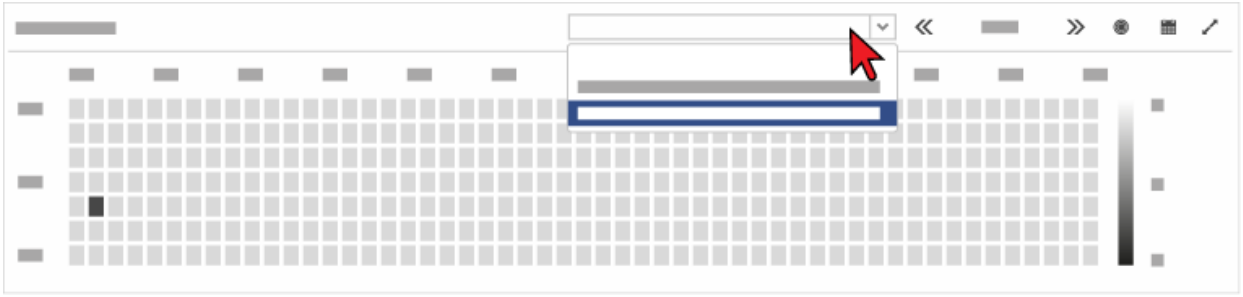
### Procedure

In the "Measurements" widget, click the specific measurement.

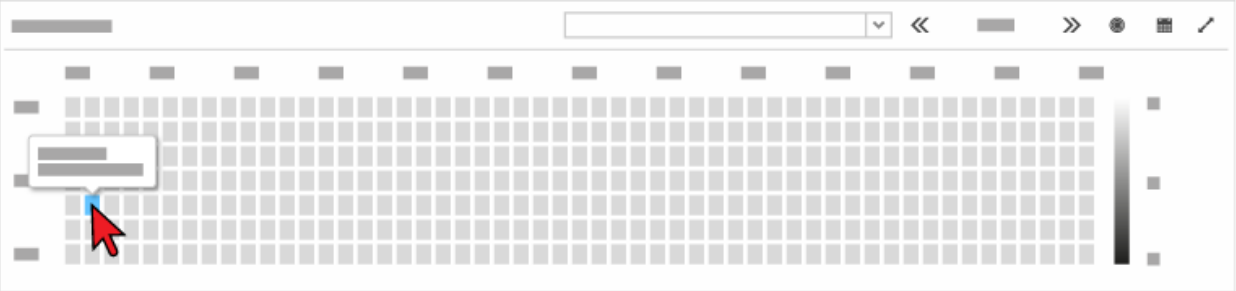
### Selection of measurements in the "AssetExpert" tab

Alternatively, measurements may also be selected in the "AssetExpert" tab's "Measurements" widget as follows.

- Within the pick list



- By clicking a marked day in the calendar



After selecting the measurement, the SONAPHONE DataSuite automatically switches to the "AssetData" tab.

**Further information**

For the selection of measurements, please also see the description of the following widgets:

- "AssetData" Measurements
- "AssetExpert" Measurements

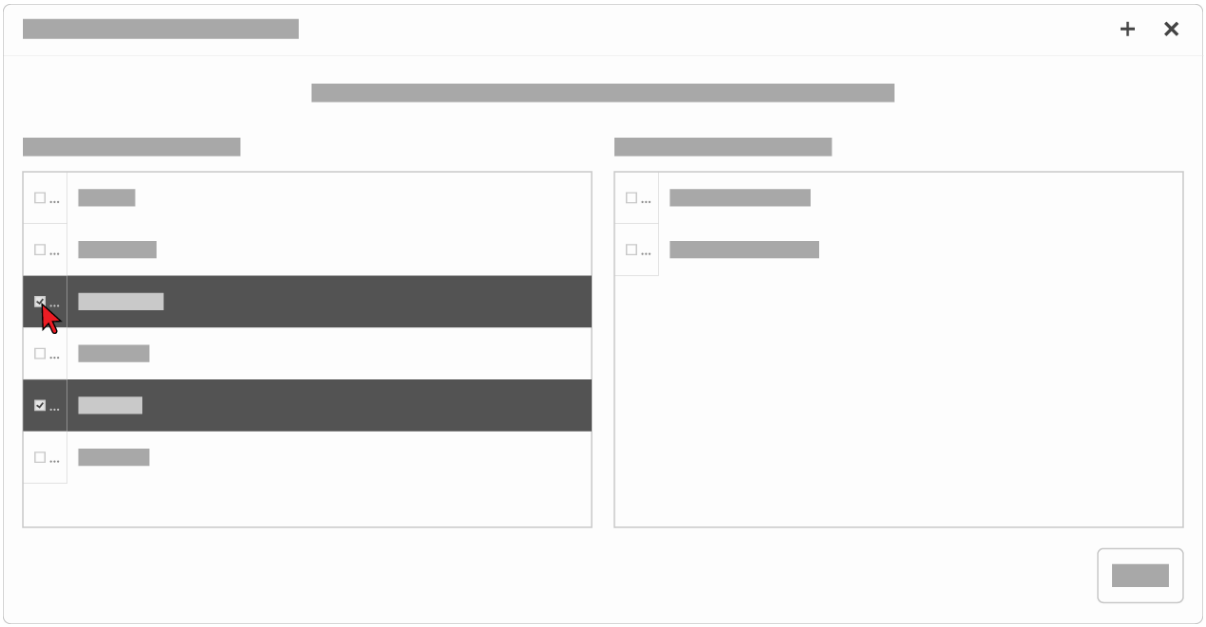
## "AssetData" determining key metrics for the diagram view

### Description

For each particular measuring point, the key metrics to be shown in the "Measurements", "Trending" and "Time Signal, Level Graph and Spectrogram" widgets are selectable.

### Procedure

1. In the "Measurements", "Trending" or "Time Signal, Level Graph and Spectrogram" widgets, click the "Widget menu" icon.
2. Click the **Select Key Metrics** item.
   → The 'Selection of Key Metrics to be displayed' window opens.



3. The key metrics to be shown may be selected by activating the checkbox.

> Up to 8 key metrics may be selected.

4. Click the OK button.
   → The dialog window closes, the selected key metrics are applied. The selection is saved.

### Further information

For determination of key metrics, please also see the description of the following widgets:

- "AssetData" Measurements
- "AssetData" Time Signal and Spectrogram
- "AssetData" Trending

## 15.2 Managing measurements

Measurements of a measuring point are shown in the "AssetData" Measurements widget including time stamp and determined key metrics and may be managed there.

### Determining a measurement as reference

#### Description

The "AssetData" Measurements widget offers options to determine a specific measurement as reference. With the selected reference measurement, current measurement values may be compared to the normal operating conditions of a plant component/machine (e.g. for new installations or after repair). The trend of the current values is shown in the "AssetData" Trending and "AssetExpert" Details widgets.

The reference measurement determination may be edited as necessary.

#### Procedure

1. In the "AssetData" Measurements widget, click the "Context menu" icon of the particular measurement.
2. Click the **Set as reference** item.
   → The measurement is applied as reference. It is marked with a ® symbol.

#### Further information

For determining a measurement as reference, please also see the description of the following widget:

- "AssetData" Measurements

### Deleting a measurement

#### Description

Measurements of a measuring point may be deleted in the "AssetData" Measurements widget.

#### Procedure

1. Click the "Context menu" icon of the particular measurement.
2. Click the **Delete** item.
   → The 'Delete measurement' window opens where you may confirm or cancel the deletion.
3. Click the CONFIRM button.
   → The measurement is deleted. → After successful deletion, the message "Measurement deleted" appears in the bottom right corner of the DataSuite interface.

### Further information

For deleting a measurement, please also see the description of the following widget:

- "AssetData" Measurements

## 15.3 Evaluating measurement results

Measurement results may be viewed, read out and evaluated in the "AssetData" Trending and "AssetData" Time Signal and Spectrogram widgets.

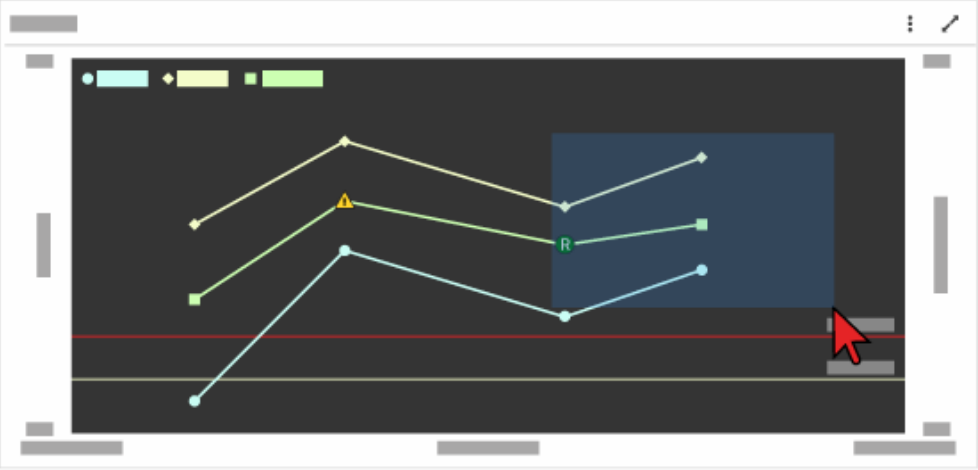
### Viewing measurement value trends

#### Description

The "AssetData" Trending widget shows the development of measurement values over time in a diagram. The time period for this display may be customized. For each measurement, a summary is available.

#### Adjusting the time period (zoom)

1. Draw a selection rectangle over the particular segment while pressing the mouse button.



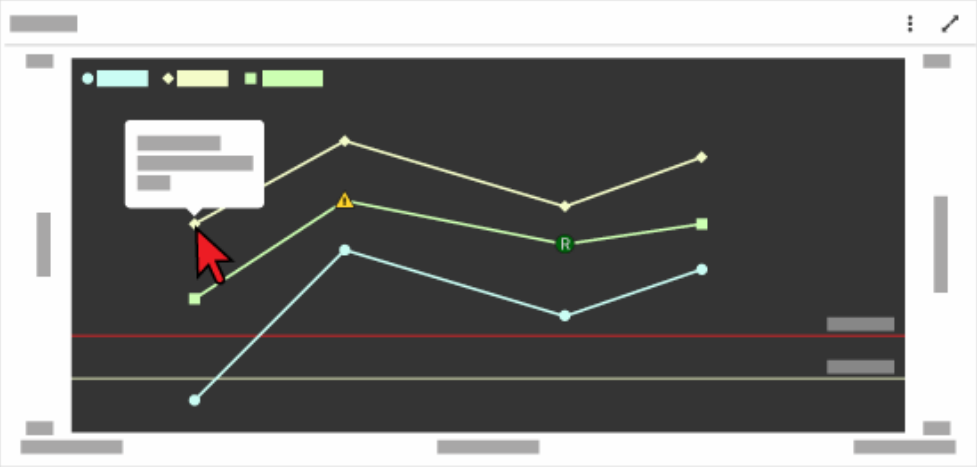
2. Release the mouse button.
   → The selected segment is zoomed in within the diagram. The **RESET ZOOM** button appears within the diagram.

**Resetting the Zoom**

Clicking the **RESET ZOOM** button resets the display of the trend diagram to the default zoom.

#### Showing the measurement summary as a tooltip

Move the mouse pointer to a measurement (beginning, corner or end of a trend line).
→ The particular measurement's summary is shown as a tooltip.



#### Further information

For viewing measurement value trends, please also see the description of the following widget:

- "AssetData" Trending

### Analyzing measurement values

#### Description

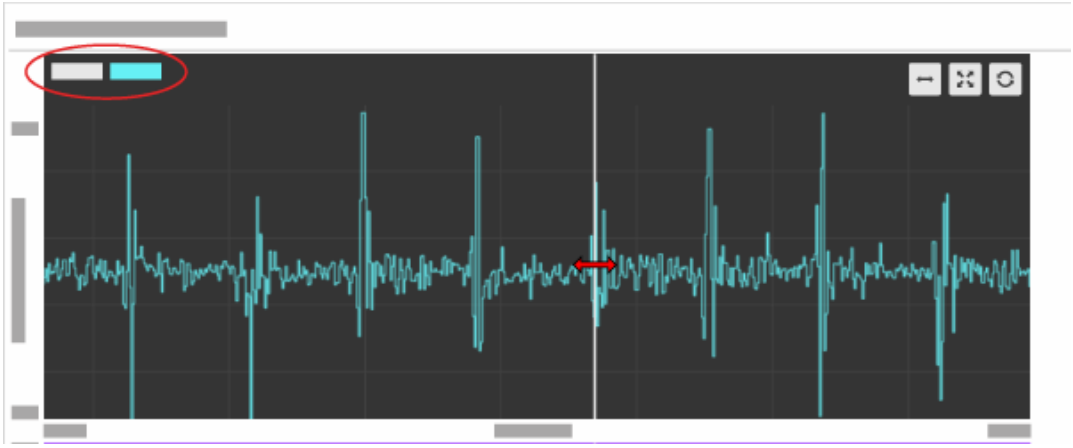
The "AssetData" Time Signal, Level Graph and Spectrogram widget shows the trend of measurement values over time and the intensity of the ultrasonic signal of a selected measurement. It also shows information on the current measurement.

The shown measurement value segment may be edited. The measurement values may be read out on the time cursors, the axes and between the spectrogram and spectrum.

### Reading out measurement values

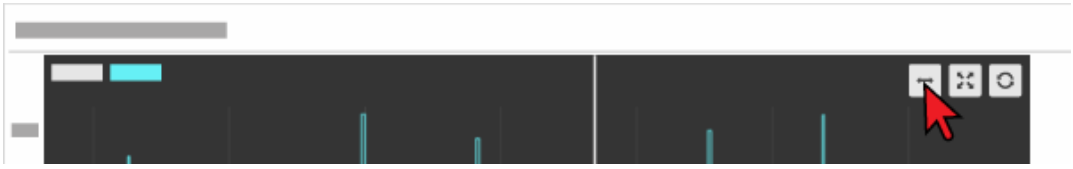
#### Within time signal or level graph using a time cursor

1. While pressing the mouse button, move the time cursor to the left or right to the particular position.
   → Depending on the position, the corresponding measurement values are shown in the legend.

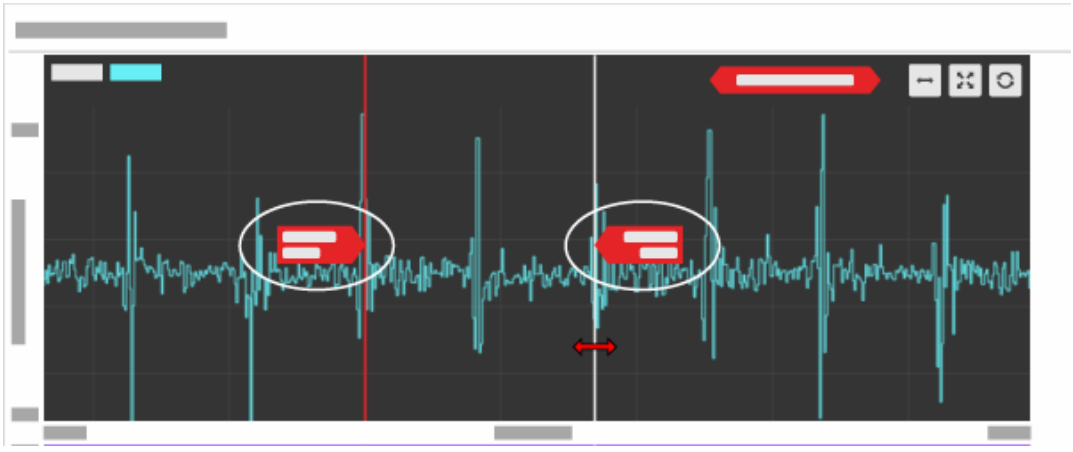


#### Within the time signal using two time cursors

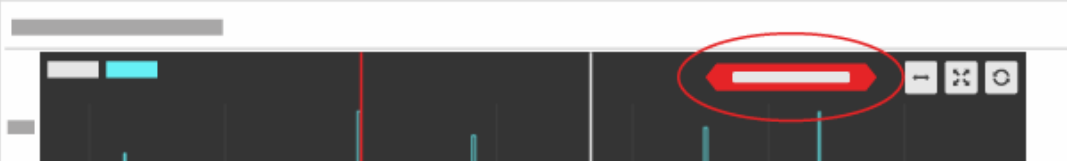
1. Unhide time cursor 2.



2. While pressing the mouse button, move the time cursors to the left or right to the particular position.
   → Depending on the position, the measurement values corresponding to the time and level are shown at the time cursors.



   → In the time signal's header, the time difference and the corresponding repetition frequency of the area between the two time cursors is shown.



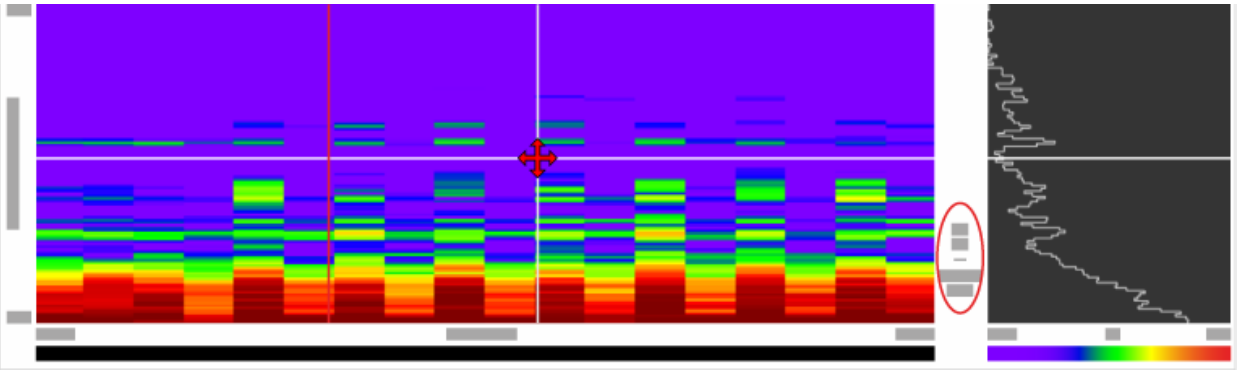
**Using time cursor 2 within the level graph**

Time cursor 2 may also be used within the level graph. Time difference and repetition frequency will only be shown for the level "L".

### Within the spectrogram

1. While pressing the mouse button, move the cursors as follows:
    - time cursor 1, time cursor 2 or frequency cursor, separately
    - time cursor 1 and frequency cursor simultaneously at their intersection

→ Depending on the position of time cursor 1 and frequency cursor, the corresponding measurement values of frequency and level are shown between spectrogram and spectrum.



**Display of time difference and repetition frequency**

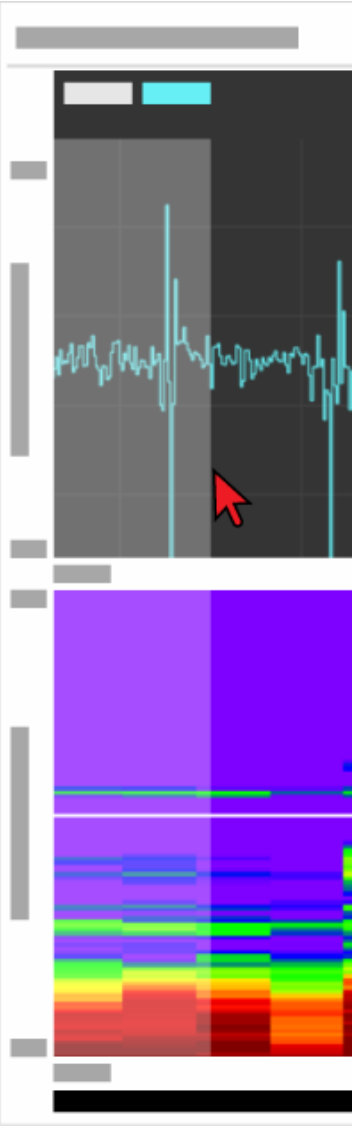
When moving the time cursors within the spectrogram, the time cursors will simultaneously be moved within the time signal/level graph. There, time difference and repetition frequency will be shown if:

- time signal has been selected, or
- level graph has been selected and only level "L" is active.

### Adjusting the timeline segment (zoom)

#### With the mouse

1. Draw a selection rectangle over the particular time section (within time signal, level graph or spectrogram) while pressing the mouse button.



2. Release the mouse button.
   → The selected segment is zoomed in within the diagram. The "Reset zoom" button ( ) is activated in the diagram.

**Resetting the zoom**
Clicking the "Reset zoom" button resets the display of the diagrams to the entire measurement duration.

### By editing the axes' side values

1. Click the input field of the particular axes' side value.
2. Enter the new value.
3. Press the **RETURN** button on the keyboard.
   → The entered value is applied, the segment shown in the diagrams is adjusted. The "Reset zoom" button is activated in the diagram.

### Signal play-back

Click the time signal, the level graph or the spectrogram to listen to the ultrasonic signal with an audible frequency.

### Viewing meta data

The "Information" section offers options for viewing meta data of the current measurement.

### Further information

For analyzing measurement values, please also see the description of the following widgets:

- "AssetData" Time Signal, Level Graph and Spectrogram
- "AssetExpert" Additional Data

## 15.4 Deriving actions to be taken

After viewing and evaluating the measurement results, actions to be taken may be derived within the Details "AssetData" widget and the following settings for the measuring point may be edited:

- Command variable
- Threshold values
- Inspection cycle (time interval for recurring inspections)
- Maintenance action

### Adjusting command variable and threshold values

#### Description

For adjusting the status display (traffic light indicator), the command variable and/or the threshold values of the command variable may be edited.

> **Adjustment of Measuring Point Details**
> Command variable and/or threshold values (measuring point details) of a specific measuring point are edited. After editing, the current values of these measuring point details are available within the whole SONAPHONE DataSuite and are shown with the edited values in the "AssetExpert" Details widget.

#### Editing the command variable

In the "Details" widget, click the particular measured quantity in the Status column of the summary.

→ The measured quantity is marked with an asterisk and determined as command variable.

### Editing threshold values

1. In the "Details" widget, enter the specific value for the warning limit in the Status section.

2. In the "Details" widget, enter the specific value for the alert limit in the Status section.

### Changing the state

> **Availability with "SteamExpert" add-on module**
> Changing the state of steam traps is only available with activated "SteamExpert" add-on module.

1. In the "Details" widget, select the particular state in the list of available states.

### Further information

For adjusting the command variable and threshold values, please also see the following descriptions and/or instructions:

- "AssetData" Details
- "AssetExpert" Details
- Determining command variable and threshold values

## Adjusting measurement cycle

### Description

For inspections that repeat after a fixed time interval, start date and interval type may be edited. If necessary for the analysis result, a measurement cycle for a specific inspection may also be defined retroactively.

**Adjustment of measuring point details**

The measurement cycle (measuring point detail) is edited for a particular measuring point. After editing, the current values of the measurement cycle are available within the whole SONAPHONE DataSuite and are shown with the edited values in the "AssetExpert" Details widget.

### Procedure

In the "Details" widget, proceed as follows to adjust the measurement cycle:

1. Activate/deactivate the **Route Cycle** checkbox.

2. Click the calendar icon and edit the start date.

3. Edit the interval value.

4. Edit the interval type.

### Further information

For adjusting the measurement cycle, please also see the following descriptions and/or instructions:

- "AssetData" Details
- "AssetExpert" Details
- Determining the measurement cycle

## Determining maintenance actions

### Description

Scheduled or necessary maintenance tasks that are derived from the evaluation of the measurement results, may be entered or edited as maintenance actions for a specific measuring point.

**Adjustment of measuring point details**

The maintenance action (measuring point details) is edited for a specific measuring point. After editing, the current information on the maintenance task is available within the whole SONAPHONE DataSuite and is shown with the edited values in the "AssetExpert" Details widget.

### Procedure

1. In the "Details" widget, click the **Maintenance action** input field.

2. Enter the particular text or edit the existing text.
   → The text is applied directly during input.

### Further information

For determining maintenance actions, please also see the following descriptions and/or instructions:

- "AssetData" Details
- "AssetExpert" Details
- Determining command variable and threshold values

# 16 Working with "DataViewer"

This section contains instructions on working with the "DataViewer" tab. The structure and order of these instructions follow the typical (recommended) work flow.

## 16.1 Preparing Measurement Data Analysis

Measurement data of unassigned measurements may be imported, analyzed and evaluated in the "DataViewer" tab. All analyses and evaluations in the "DataViewer" tab require specific preparations.

### Importing unassigned measurements

#### Description

Unassigned measurements recorded with a SONAPHONE handheld unit must be saved as a ZIP file in the corresponding app (LevelMeter app, SteamExpert app) of the SONAPHONE handheld unit and must be imported to the SONAPHONE DataSuite afterwards. It is possible to import either a single ZIP file or several ZIP files at once.

#### Preparing an import

1. Save the particular folder with unassigned measurements as a ZIP file in the corresponding app of the SONAPHONE handheld unit.
2. Connect the SONAPHONE handheld unit to the desktop computer via USB.
3. Transfer the ZIP file from the SONAPHONE handheld unit to the desktop computer.

#### Importing unassigned measurements

1. In the "DataViewer" Unassigned Measurements widget, click the "Import unassigned measurements" icon.

   → The 'Import unassigned measurements' window opens.
2. Click the **CHOOSE** button.
   → A standard window for file selection opens.
3. Select the particular single ZIP file or multiple ZIP files.

4. Click the **OPEN** button to confirm the selection.
5. In the 'Import unassigned measurements' window, click the **IMPORT** button.
   → The window closes. The selected ZIP file or multiple ZIP files are imported.

#### Further information

For the import of unassigned measurements, please also see the description of the following screen:

- "DataViewer" Unassigned Measurements

### Selecting an unassigned measurement

#### Description

A ZIP file may contain multiple unassigned measurements in several folders. For analysis of the measurement data, an unassigned measurement has to be selected.

#### Procedure

In the "Unassigned Measurements" widget, click the specific measurement.

#### Further information

For the selection of an unassigned measurement, please also see the description of the following widget:

- "DataViewer" Unassigned Measurements

## "DataViewer" determining key metrics for the diagram view

### Description

The key metrics to be displayed in the "DataViewer" Time Signal, Level Graph and Spectrogram widget are selectable for each unassigned measurement.

### Procedure

1. Click the "Widget menu" icon in the "Time Signal, Level Graph and Spectrogram" widget.
2. Click the **Select Key Metrics** item.
   → The 'Selection of Key Metrics to be displayed' window opens.

3. The key metrics to be shown may be selected by activating the checkbox.

   Up to 8 key metrics may be selected.

4. Click the OK button.
   → The dialog window closes, the selected key metrics are applied. The selection is saved.

### Further information

For determination of key metrics, please also see the description of the following widget:

- "DataViewer" Time Signal, Level Graph and Spectrogram

## 16.2 Analyzing measurement data

### Description

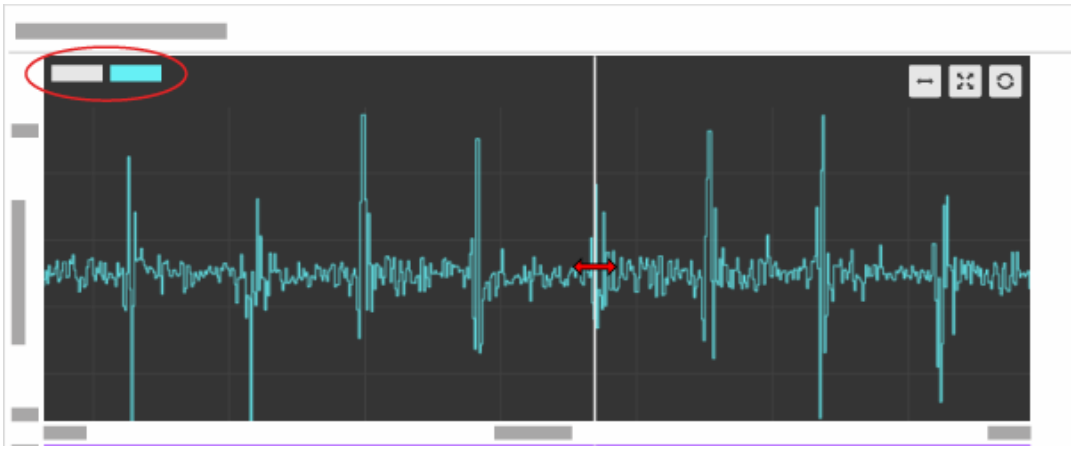
The "DataViewer" Time Signal, Level Graph and Spectrogram widget shows the trend of measurement values over time and the intensity of the ultrasonic signal of a selected unassigned measurement. It also shows information on the current measurement.

The shown measurement data segment may be edited. The measurement data may be read out on the axes and between the spectrogram and spectrum.

### Reading out measurement values

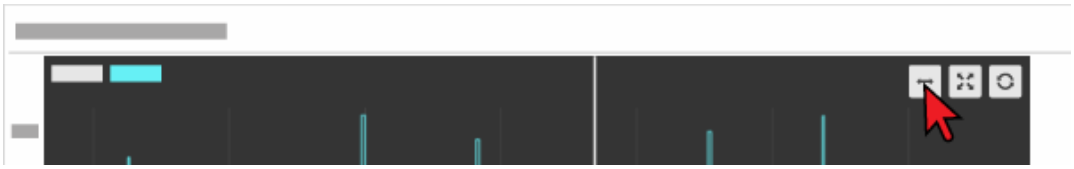
#### Within time signal or level graph using a time cursor

1. While pressing the mouse button, move the time cursor to the left or right to the particular position.
   Depending on the position, the corresponding measurement values are shown in the legend.



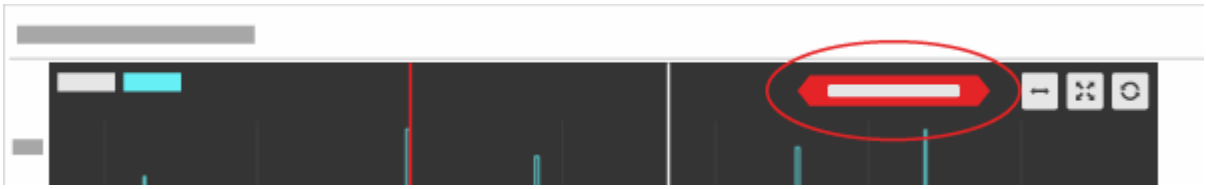
### Within the time signal using two time cursors

1. Unhide time cursor 2.



2. While pressing the mouse button, move the time cursors to the left or right to the particular position.
   → Depending on the position, the measurement values corresponding to the time and level are shown at the time cursors.

   → In the time signal's header, time and frequency of the area between the two time cursors is shown.



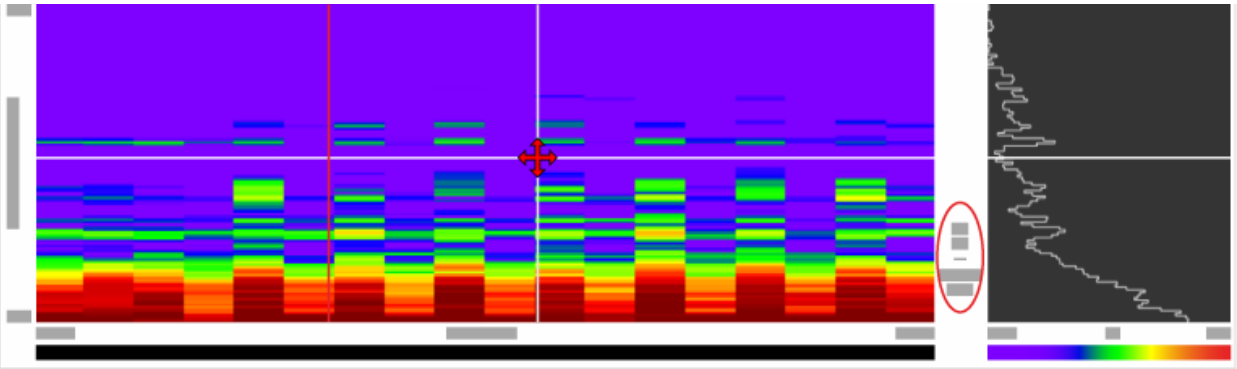
**Using time cursor 2 within the level graph**

Time cursor 2 may also be used within the level graph. Since multiple key metrics may be displayed in the level graph, no information will be shown at the time cursors and in the header.

**Within the spectrogram**

1. While pressing the mouse button, move the cursors as follows:
    - time cursor 1, time cursor 2 or frequency cursor, separately
    - time cursor 1 and frequency cursor simultaneously at their intersection

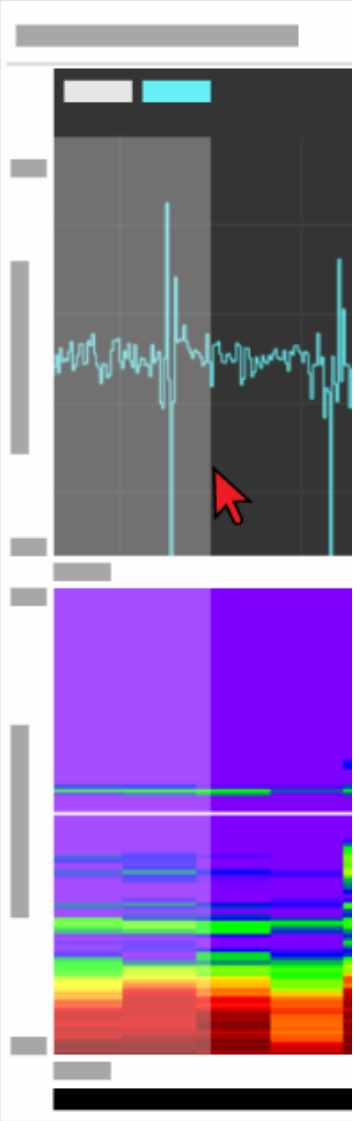
→ Depending on the position of time cursor 1 and frequency cursor, the corresponding measurement values of frequency and level are shown between spectrogram and spectrum.



## Adjusting the timeline segment (zoom)

### With the mouse

1. Draw a selection rectangle over the particular segment (within time signal, level graph or spectrogram) while pressing the mouse button.



2. Release the mouse button.
   → The selected segment is zoomed in within the diagram. The "Reset zoom" button ( ) is activated in the diagram.

**Resetting the zoom**
Clicking the "Reset zoom" button resets the display of the diagram to the default zoom.

**By editing the axes' side values**

1. Click the input field of the particular axes' side value.
2. Enter the new value.
3. Press the **RETURN** button on the keyboard.
   → The entered value is applied, the segment shown in the diagrams is adjusted. The "Reset zoom" button is displayed in the diagram.

### Signal play-back

Click the time signal or the spectrogram to listen to the ultrasonic signal with an audible frequency.

### Viewing meta data

The "Information" section offers options for viewing meta data of the current measurement.

### Viewing additional data

Additional data of the current measurement may be viewed and compared in the two instances of the "Additional Data" widget.

### Further information

For analyzing measurement values, please also see the description of the following widgets:

- "DataViewer" Time Signal, Level Graph and Spectrogram
- "DataViewer" Additional Data

## 16.3 Managing measurement data

The measurement data analysis determines their quality. Depending on the quality, measurement data may be discarded or saved in the SONAPHONE DataSuite for further use.

### Assigning measurements

#### Description

Folders or unassigned measurements may be assigned to the asset tree or to single measuring points by Drag and Drop for further use in the SONAPHONE DataSuite.

**Availability**

Assignment of folders or unassigned measurements is available in the following versions:

- SONAPHONE DataSuite - D
- SONAPHONE DataSuite - S

#### Procedure

1. In the "DataViewer" Unassigned Measurements widget, click the "Assign measurements" icon.

   → The window for assignment of folders or unassigned measurements to a position within the asset tree opens.
2. Move the particular objects (folder or unassigned measurements) by Drag and Drop to their target position.
   → The objects are copied to their target position in the asset tree.
   → After successful assignment, the message "Measurement was assigned" appears in the bottom right corner of the DataSuite interface.
3. Close the window for assignment of folders or unassigned measurements.
   → The assignment is complete. The objects are available in the AssetExpert and AssetData tabs for further processing.

### Assignment functions

Objects (folders or unassigned measurements) may be assigned differing functions within the asset tree. The functions depend on the kind of object and the target position within the asset tree that the objects have been dragged to.

### Single unassigned measurement

| Target position by Drag and Drop | Result |
|---|---|
| Dragging to a measuring point | The measurement is integrated to the measuring point. |
| Dragging to a level or to root | The 'Add measuring point' window opens. The Name and Application fields are pre-filled.<br>After confirmation of the window, a new measuring point with subordinate measurement is created. |

### Folder with multiple unassigned measurements

| Target position by Drag and Drop | Result |
|---|---|
| Dragging to a measuring point | All measurements contained in the folder are integrated to the measuring point. |
| Dragging to a level or to root | The 'Add measuring point' window opens. The Name and Application fields are pre-filled.<br>After confirmation of the window, a new measuring point with subordinate measurements is created. |

### Further information

For assignment of measurements, please also see the following descriptions and instructions:

- "DataViewer" Unassigned Measurements
- "AssetExpert" Tab
- "AssetData" Tab
- Creating a measuring point

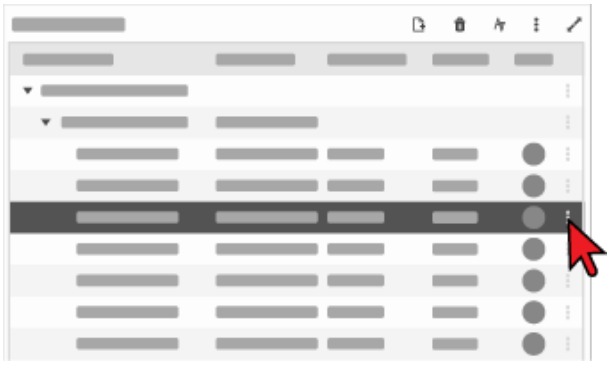
## Deleting ZIP files, folders or unassigned measurements

### Description

ZIP files, folders or unassigned measurements that are no longer needed may be deleted from the SONAPHONE DataSuite.

### Procedure

1. In the "DataViewer" Unassigned Measurements widget, click the "Context menu" icon of the particular object (ZIP file, folder or unassigned measurement).



   → A window for confirmation of the deletion opens.
2. Click the **CONFIRM** button.
   → The window closes. The selected object is deleted.

### Further information

For deleting ZIP files, folders or unassigned measurements, please also see the description of the following widget:

- "DataViewer" Unassigned Measurements

# 17 Working with "DataReport"

This section contains instructions on creation and management of reports.

## 17.1 Creating a report

### Description

A report contains lists, summaries and details of current measurement data and may be generated for the following objects:

- Asset tree including all objects
- Asset tree including objects of certain applications and/or status
- Selected route
- Selected measurement point

### Templates for report output

Depending on the selected objects, the measurement data may be output in a report in different ways. At the moment, the following templates are available for report output:

- Generic: for reports containing measurement data of differing applications (e. g. leak detection, bearing monitoring, ...)
- SteamExpert: for reports containing measurement data of the "Steam Trap Testing" application

**Availability with "SteamExpert" module**
The "SteamExpert" template is only available with activated "SteamExpert" module.

### Creating an asset tree report

1. Click the plus icon in the "Route List" widget ("DataReport" Tab).
   → The Report creation wizard opens.
2. Select the particular template.
3. Select "Asset tree" as data source.
4. Optional: Filter measurement data to be evaluated in the report by application and/or status (multiple selection possible).
5. Enter a report name.
6. Optional: Enter additional information on the report (creator name, address, comment).
7. Optional: Add a personal logo graphic.
8. Click the **GENERATE** button.
   → The report is generated, saved in the Report List and displayed in the Report Preview.

### Creating a report for a selected route

1. Click the plus icon in the "Report List" widget.
   → The Report creation wizard opens.
2. Select the particular template.
3. Select "Route" as data source.
4. Select the particular route.
5. Enter a report name.
6. Optional: Enter additional information on the report (creator name, address, comment).
7. Optional: Add a personal logo graphic.
8. Click the **GENERATE** button.
   → The report is generated, saved in the Report List and displayed in the Report Preview.

### Creating a report for a selected measuring point

1. Select the particular measuring point (in widget "AssetExpert" Asset Tree, "AssetData" Asset Tree or "AssetExpert" Route Details).
2. Click the plus icon in the "Report List" widget.
   → The Report creation wizard opens.
3. Select the particular template.
4. Select "Selected measuring point" as data source.
5. Enter a report name.
6. Optional: Enter additional information on the report (creator name, address, comment).
7. Optional: Add a personal logo graphic.
8. Click the **GENERATE** button.
   → The report is generated, saved in the Report List and displayed in the Report Preview.

## 17.2 Managing reports

### Description

All created reports are shown as a list in the "Report List" widget. Each report may be downloaded from the SONAPHONE DataSuite or may be deleted.

### Download

1. Click the "Context menu" icon of the particular report.
2. Click the **Download** button.
   → A dialog window for saving the report as a PDF file opens.
3. Set saving location and file name.
4. Save the report.

### Deletion

1. Click the "Context menu" icon of the particular report.
2. Click the **Delete** item.
   → The 'Delete' window opens where you may confirm or cancel the deletion.
3. Click the CONFIRM button.
   → The report is deleted.

# 18 Working with "Admin"

This section contains instructions on user management in the server version.

**Availability with server version**
The "Admin" tab is only available within the server version.

**Only available for DataSuite administrators**
Working with the "Admin" tab is only available to users defined as DataSuite administrators (user group: "realmadmin") in Active Directory.

## 18.1 Managing users

### Description

Differing users and user roles allow to define responsibilities and permissions for individual projects and differing use scenarios.

### Importing users

Users that are transmitted to the SONAPHONE DataSuite from Active Directory will automatically be recognized by the software. To be assigned to particular projects, users need to be imported to DataSuite.

Click the "Import" (☑) icon of the particular user in the **User** list.

→ The user is imported to SONAPHONE DataSuite. The icon switches to "User imported" ( ) state.

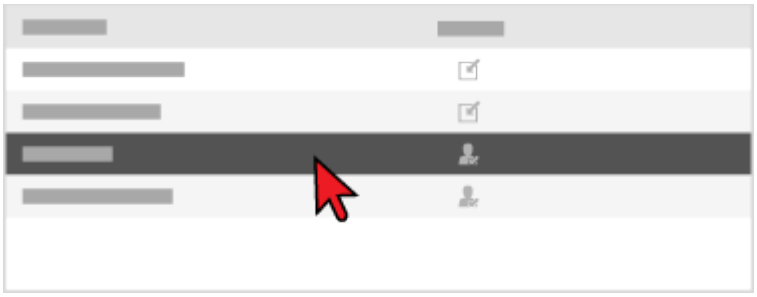
### Assigning users to projects by user role

Users that have been imported to the SONAPHONE DataSuite from Active Directory may be assigned to one or more projects.

1. Click the particular project in the **Project** list.

→ The project is selected.

2. Click the particular imported user in the **User** list.



→ The user is marked.

> Each user assigned to a project needs a user role. User roles manage user rights (see List of user roles).

3. Click the particular user role in the **Available Roles** list.
4. Click the » button.
→ The selected user role is moved to the **Assigned Roles** list and assigned to the user. The user is assigned to the selected project including the user role.

## 18.2 List of user roles

### Description

User rights for SONAPHONE DataSuite are predefined by user groups in the Active Directory and managed by user roles of SONAPHONE DataSuite. For this, permission levels are defined within the available user roles.

### User groups and user roles

The assignment of users to the Active Directory user groups affects the allocation of possible permission rights of user roles in the SONAPHONE DataSuite.

| User group within Active Directory for: | User role of SONAPHONE DataSuite | Description |
|---|---|---|
| user | Operator | • Viewing all measuring points and corresponding data<br>• Synchronizing routes<br>• Using analysis tools |
| | Lead Maintenance | Viewing, editing and analyzing data (measuring points with measurement data, routes, asset tree, additional data) |
| realmadmin | DataSuite administrator | All permissions plus:<br>• Managing projects<br>• Managing users |

### Permission levels

The user roles of the SONAPHONE DataSuite offer the following permission levels:

| Permission level | Function/description |
|---|---|
| None | Hides corresponding contents (e.g. tabs, widgets, menus, menu items etc.). |
| View | Unhides corresponding contents. Users may not edit the contents. |
| Edit | Unhides corresponding contents. Users may edit the contents. |
| Control | Only available for users of the "DataSuite administrator" user group.<br>Applies to the following functions:<br>• Managing projects<br>• Managing users |

## User roles and permission levels

### Login page

| Function | Operator | Lead maintenance | DataSuite administrator |
|---|---|---|---|
| Login | Login with user name and password | Login with user name and password | Login with user name and password |
| Language | **Edit**<br>• Changing the language | **Edit**<br>• Changing the language | **Edit**<br>• Changing the language |

### "Admin" tab

| Function | Operator | Lead maintenance | DataSuite administrator |
|---|---|---|---|
| Show tab | **None** | **None** | **View**<br>• Show |
| Using tab functions | **None** | **None** | **Edit/Control**<br>• Managing users |

### "User" tab menu

| Menu option | Operator | Lead maintenance | DataSuite administrator |
|---|---|---|---|
| Choose Project | **View**<br>• Displaying and selecting assigned projects | **View**<br>• Displaying and selecting assigned projects | **View/Edit/Control**<br>• All viewing rights<br>• Managing projects |
| Choose unit system | **Edit**<br>• Switching the unit system | **Edit**<br>• Switching the unit system | **Edit**<br>• Switching the unit system |
| Manage licenses | **View**<br>• Showing the 'DataSuite module license management' window | **View**<br>• Showing the 'DataSuite module license management' window | **View/Edit**<br>• All viewing rights<br>• Managing licenses |

### "AssetExpert" widgets

| Widget | Operator | Lead maintenance | DataSuite administrator |
|---|---|---|---|
| Asset Tree | **View**<br>• Display and navigation<br>**Edit**<br>• Taking screenshots | **View/Edit**<br>• All viewing rights<br>• Taking screenshots<br>• Creating an asset tree<br>• Editing an asset tree | **View/Edit**<br>• All viewing rights<br>• All editing rights |
| Route List | **View**<br>• Display and navigation<br>**Edit**<br>• Synchronizing routes | **View/Edit**<br>• All viewing rights<br>• Synchronizing routes<br>• Managing routes | **View/Edit**<br>• All viewing rights<br>• All editing rights |
| Route Details | **View**<br>• Display and navigation | **View/Edit**<br>• All viewing rights<br>• Removing measuring points from a route | **View/Edit**<br>• All viewing rights<br>• All editing rights |
| Details | **View**<br>• Display and navigation<br>**Edit**<br>• Taking screenshots | **View/Edit**<br>• All viewing rights<br>• Taking screenshots<br>• Managing measuring point details | **View/Edit**<br>• All viewing rights<br>• All editing rights |
| Additional data | **Edit**<br>• Managing level additional data<br>• Managing measuring point aditional data | **Edit**<br>• Managing level additional data<br>• Managing measuring point aditional data | **View/Edit**<br>• All viewing rights<br>• All editing rights |
| Measurements | **Edit**<br>• All functions available | **Edit**<br>• All functions available | **View/Edit**<br>• All viewing rights<br>• All editing rights |

### "AssetData" widgets

| Widget | Operator | Lead maintenance | DataSuite administrator |
|---|---|---|---|
| Asset Tree | **View**<br>• Display and navigation<br>**Edit**<br>• Taking screenshots | **View/Edit**<br>• All viewing rights<br>• Taking screenshots | **View/Edit**<br>• All viewing rights<br>• All editing rights |
| Measurements | **View**<br>• Display and select<br>**Edit**<br>• Taking screenshots<br>• "AssetData" Determining Key Metrics for the Diagram View | **View/Edit**<br>• All viewing rights<br>• All editing rights | **View/Edit**<br>• All viewing rights<br>• All editing rights |
| Trend | **View**<br>• Display of trend lines<br>**Edit**<br>• Taking screenshots<br>• Viewing measurement value trends<br>• "AssetData" Determining Key Metrics for the Diagram View | **View/Edit**<br>• All viewing rights<br>• All editing rights | **View/Edit**<br>• All viewing rights<br>• All editing rights |
| Time Signal and Spectrogram | **View**<br>• Display and navigation<br>**Edit**<br>• Taking screenshots<br>• Analyzing measurement values<br>• "AssetData" Determining Key Metrics for the Diagram View | **View/Edit**<br>• All viewing rights<br>• All editing rights | **View/Edit**<br>• All viewing rights<br>• All editing rights |
| Details | **View**<br>• Displaying measuring point details<br>**Edit**<br>• Taking screenshots | **View/Edit**<br>• All viewing rights<br>• Taking screenshots<br>• Deriving actions to be taken | **View/Edit**<br>• All viewing rights<br>• All editing rights |

### "DataReport" widgets

| Widget | Operator | Lead maintenance | DataSuite administrator |
|---|---|---|---|
| Report List | **View**<br>• Selecting a report<br>• Managing reports (download only)<br>**Edit**<br>• Creating a report | **View/Edit**<br>• All viewing rights<br>• All editing rights | **View/Edit**<br>• All viewing rights<br>• All editing rights |
| Report Preview | **View**<br>• Display and navigate report | **View**<br>• Display and navigate report | **View**<br>• Display and navigate report |

# 19 Troubleshooting

This section contains descriptions of potential errors that may occur while working with SONAPHONE DataSuite as well as instructions for rectification.

## 19.1 Troubleshooting in the desktop versions

| Potential error | Potential rectification |
|---|---|
| During installation a note saying "The computer has been protected by Windows" occurs.<br>  | You may ignore this note.<br>1. In the note window, click the **More info** link.<br>→ The RUN ANYWAY button is displayed.<br>2. Click the RUN ANYWAY button and start installation. |
| The software does not start after installation or update. | Some antivirus programs might move the "SonotecDataSuite.exe" file to the quarantine folder without notification.<br>1. Restore the "SonotecDataSuite.exe" file from the quarantine folder of the antivirus program.<br>2. Restart SONAPHONE DataSuite. |

| Potential error | Potential rectification |
|---|---|
| The update to version 2.2.2 fails. | 1. Back up the folder "h2data" in "C:\Users\User.Name\Documents\SONOTEC\SONAPHONE DataSuite".<br>2. In the "h2data" directory, delete the following contents:<br>○ directory "sonotec"<br>○ files "sonotec.mv.db" and "sonotec_original.mv.db"<br>3. In the "h2data" directory, rename the backup file ("sonotec.mv.db.XXX.bck") with the latest modification date to "sonotec.mv.db".<br>4. Start the installation to version 2.2.3. |
| All login details (user account and master password) have been forgotten | All login details are stored in the database with encryption. The database is stored in the installation directory under "h2data" in the "sonotec.mv.db" file.<br><br>1. Back up the database file in the folder "h2data" (see "Database backup" in User instructions).<br>2. Send the back up of the database to SONOTEC.<br>→ In consultation with the client, SONOTEC may generate new login details and store them in the database file.<br>3. Copy the new database file from SONOTEC to the folder "h2data" and overwrite the old database file with the new database file including the new login details.<br>4. Start the software and log in with the new login details. |
| The software cannot be uninstalled via Windows control panel. | see Uninstalling desktop versions |
| The software does not update. | 1. In the notification area, click the  icon (SONOTEC DataSuite) with a right-click.<br>→ A context menu opens.<br>2. In the context menu, click the item "Stop Server".<br>3. Restart the desktop computer.<br>4. Double-click the update file to start the update.<br>5. Start up the SONAPHONE DataSuite (see Starting up desktop versions). |

## 19.2 Troubleshooting in the server version

| Potential error | Potential rectification |
|---|---|
| The software does not uninstall | see Uninstalling the server version |
| The software does not update | 1. In the installation directory, run the file "StopDataSuiteService.bat" as administrator.<br>2. In the notification area, click the  icon (SONOTEC DataSuite) with a right-click.<br>→ A context menu opens.<br>3. In the context menu, click the item "Stop Server".<br>4. Run the update file as administrator.<br>5. In the installation directory, run the file "StartDataSuiteService.bat" as administrator. |
| The software does not start | During installation, SONAPHONE DataSuite is assigned to the standard port 8084. If this port is already used by another software, this can lead to startup problems of the SONAPHONE DataSuite.<br>1. In the installation directory, run the file "StopDataSuiteService.bat" as administrator.<br>2. In the notification area, click the  icon (SONOTEC DataSuite) with a right-click.<br>→ A context menu opens.<br>3. In the context menu, click the item "Stop Server".<br>4. In the installation directory, open the file "SonotecDataSuite.l4j.ini" with a text editor.<br>5. Navigate to the line "-Dserver.port=8084".<br>6. Change the port address.<br>Port address 8085 is used by another DataSuite service.<br>• Change the port address to 8086 or higher.<br>7. In the installation directory, run the file "StartDataSuiteService.bat" as administrator. |

# 20 Disclaimer and legal requirements

The software is a state-of-the-art product that adheres to all applicable safety regulations and has been tested at the manufacturer's site before delivery. Errors can never be ruled out. SONOTEC GmbH is in no way liable for any direct or indirect damage, especially damage on other software, damage on hardware, damage by downtime, damage by software malfunction as well as damage or loss of measurement and test data.

It lies within the responsibility of the user to ensure that the software is installed properly and used in a manner that does not impair safe operation.

## 20.1 Modifications and alterations

Partial or complete modifications of the software are prohibited. No modifications to the software must be made or commissioned to third parties. The software may not be disassembled, decrypted or decompiled in full or in part.

SONOTEC GmbH will not be liable for damage and resulting consequences arising from non-authorized modifications of the software.

## 20.2Data safety

### Data loss

The loss of measurement data may lead to incomplete measuring chains or misinterpretations.

- Always make sure to backup measurement data regularly on external data media.
- Back up your measurement data before updating the software or resetting the device to factory settings.

### Cyber security measures

Based on analysis of vulnerabilities according to IEC 62443-4-1 and IEC 62443-4-2, no cyber security measures are necessary for the product.

However, a cyber attack on the product and its environment can never be completely ruled out.

Thus, we strongly recommend to implement safety measures (e.g. anti-virus programs, firewalls, access restrictions) against potential cyber attacks within the product environment.

## 20.3 Copyright

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Content Revision: 1.8 | 2023-05-12
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