METREL ES Manager

Instruction manual

Version 2.4.14

METREL®

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1 Welcome to Metrel ES Manager Help

Use the Bookmarks on the left side of the window to select or search for a topic. You can also select one of the following **Quick links** to start learning about ES Manager.

- Introduction
- Online support information
- End-User Licence Agreement
- Getting started

2 Introduction to Metrel ES Manager

2.1 What is Metrel ES Manager?

Metrel Electrical Safety Manager is a common PC software application for management of Metrel's new generation instruments. The wide palette of Metrel's electrical safety testers, portable appliance testers, machine testers and industrial safety testers can be managed by one single application. Together with the new generation of Metrel's instruments it forms a unified user interface– same view, same meaning.
The Metrel ES Manager enables pre-treatment of test an object structure and related measurements on the PC, uploading to the instrument, downloading of finished test results to the PC, viewing, editing archiving, generation and printing of various professional test reports.
Depending on the model or type of the target instrument, the user can create custom Auto Sequence® measurement tests and custom inspection tests. Auto Sequences® and also single tests, can be integrated into the custom created test object structures and then uploaded into the measurement instrument.
Professional reports are based on predefined templates according to the national standards or the rules of regulatory organisations where the user enters all the needed protocol data while the measurement results are automatically inserted into the predefined forms.

Functionality of the **Metrel ES Manager** PC software program depends on the licence key, which is always related to the serial number of the purchased instrument:

- BASIC licence
- PRO licence

In case of a new generation Metrel tester, the license key is stored in the instrument itself thus enabling the user to prepare professional report on any PC without the need of inserting the license.
Reports based on predefined templates according to the national standards or the rules of regulatory organisations are available with PRO licence only.

2.1.1 User Interface

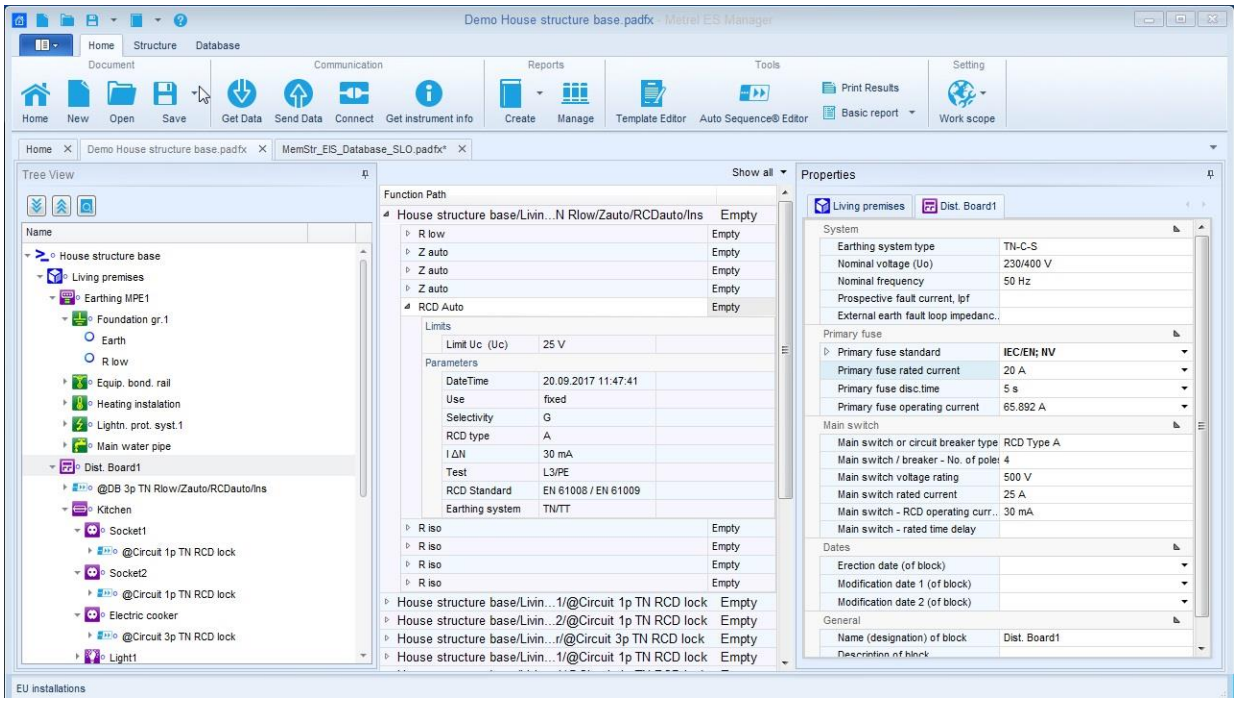

Figure 2.1: Main Window View

User interface main features:

- The Main window interface presentation fields organization allow quick selection of structure elements and test data using a Windows Explorer-like Tree View
- Properties of selected structure elements and test data are instantly displayed in multiple presentation fields of the Main window
- By dragging, docking and resizing the presentation fields of the Main window, the working environment may be customized in numerous ways

2.1.2 Connectivity

- Supports multiple Work Scopes simultaneously for electrical safety testers, portable appliance testers, machine testers and industrial safety testers
- USB and RS-232 serial data communication is supported

Note

Please note that some parts of program can be changed without notice in new software versions, and therefore might differ from the information in this manual. If you encounter such differences, we will gladly accept your e-mail with your suggestions and include or change the necessary information in our next hotfix or update.

3 End-User Licence Agreement

3.1 Important Notice

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By installing the software (hereinafter "the Software" or "Software"), you are accepting the following License Agreement.

4 Software Installation

4.1 System Requirements

Before installation, you should check that your system meets the following requirements:

Supported Operating Systems:

- Windows 10, 32-bit & 64-bit
- Windows 11, 32-bit & 64-bit

Installed System Memory (RAM):

- Windows 10, 11: 2 GB (4 GB recommended)

Hard Disk Space:

- At least 400 MB of free space for the installation files and documentation.
- Additional 280 MB (x86) or 610 MB (x64) of free space if Microsoft.NET Framework (4.0 or higher) is not previously installed.
- Additional disk space (20 GB recommended) is needed for downloading and saving ES Manager data files.

4.2 Installing the software

To install the software, download the application from Metrel Download centre and run the installation application by starting the `Setup.exe`. The second option is to run the installation application from the CD.
The installation wizard will guide you through the language selection used during installation procedure and the folder location selection, where ES Manager will be installed. The default location 'C:\Program Files (x86)\Metrel\MESM' is offered. Click on Browse for a user selected location if you want to change it. By default, 'Associate ES Manager with .padfx file extension' is checked. ES Manager will be started automatically, when a data structure file (*filename.padfx*) is opened from the PC file manager. By checking the Create a desktop shortcut, ES Manager can be started from a dedicated Desktop icon.

Before the final Install command is issued, a survey of selected Metrel ES manager options is presented, see *Figure 4.1: Survey of Metrel ES manager setup options*. Click Install to continue with the installation or Back if you want to change the settings.

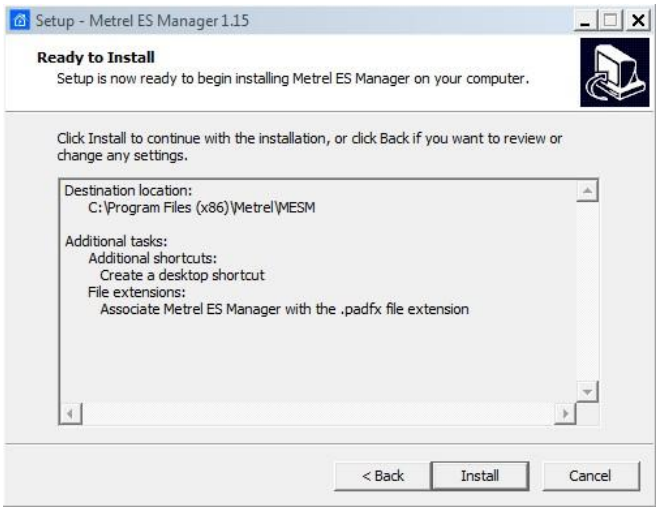


Figure 4.1: Survey of Metrel ES manager setup options

:

Before the installation is finished, the USB driver Installer wizard is opened, which will guide you through the Measurement instrument USB driver installation. Select Next to proceed with the installation. A survey of installed USB drivers is presented on the screen, see *Figure 4.2*. Select Finish to switch back to the ES Manager Installation wizard. Launch Metrel ES manager is checked by default, select finish to exit installation and start the Metrel ES manager.

Figure 4.2: Survey of Measurement instrument USB driver installation

4.3 Metrel ES Manager first use

When the Metrel ES manager is first launched, an Instrument pairing wizard (*Figure 4.3)* appears on the screen. It will guide you to set a default work scope. Licences purchased with your Metrel instrument will be automatically synchronized.
Connect your Metrel instrument to the PC and select Pair my instrument. Metrel ES Manager will automatically collect the instrument data and set the default work scope.
Automatic work scope setting can be skipped and set manually at first use or any time later, when the instrument is connected to the PC.

During Instrument pairing, Metrel ES manager can find firmware upgrade for the connected instrument, if the PC is connected to the internet.

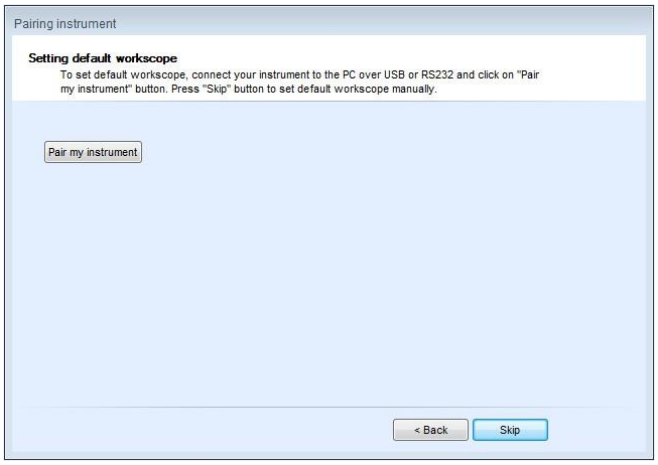


Figure 4.3: Instrument pairing wizard

4.4 Software updates

For automatic detection of the latest Metrel ES Manager update, internet connection is needed. If a new version of software is detected, ES Manager will display a message with a link in the bottom right corner of the screen during every start-up. By clicking on it is available to download and install the latest version of software Metrel ES Manager.

Figure 4.4: Update message and a link

Additional access to get new software update is from the About screen. For details regarding the new software version (new features, bugs fixed...) see Release notes.

Figure 4.5: About screen

5 Getting started

5.1 Quick guides and tutorials

5.1.1 Introductory Guides

Before starting to use Metrel ES Manager, here is some information about the basic features. The following sections will explain the way data are organized in Metrel ES Manager and show you how to use advanced features and perform your work effectively.

- Metrel ES Manager user interface Components
- Creating Data Structures
- Communication with Instruments
- Printing Results
- Creating Reports
- Manage Reports
- Report Templates
- Troubleshooting

6 User Interface Components

6.1 Introduction

After start-up, Metrel ES Manager Welcome screen appears with Menu tabs (❶) on the top and Home tab active in the working area (❷) by default. Multiple Data structure files are supported, each opened in separate tab within working area.
When connected to the internet, update status presented in bottom right corner (❸) is automatically checked.
Default Work Scope area is displayed in the bottom left corner of the window (❹). Check Work scope setting before starting a new data structure file. Failing to set the correct Work Scope will result in data upload failure. A new structure will have to be made from the beginning in the correct work scope in order to be able to upload it to the instrument. When existing data structure file is opened, Work scope is automatically set.

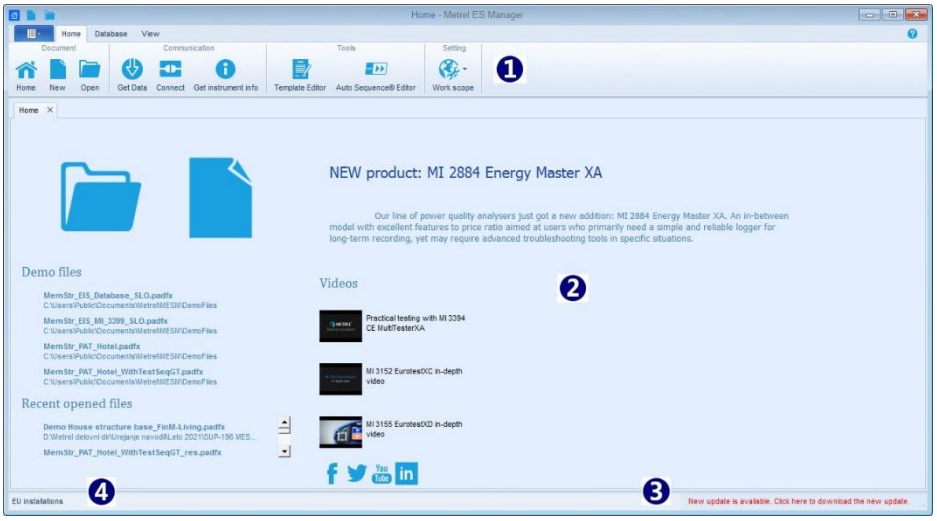


Figure 6.1: Metrel ES Manager Start-up screen

User options available from welcome screen Home tab working area are:

- : Open existing or start new data structure file
- **Demo Files**: Open embedded demo data structure files from the list
- **Recent opened files**: Open data file from the list
- **News**: Check Metrel News
- **Videos**: Watch Metrel videos on YouTube
- : Access Metrel pages on internet social media

6.2 Menu Tabs

Menus are organized in tab style, **Figure 6.2**. Each menu tab opens a subset of functions:

- **Home** menu tab is active by default, providing managing of data files, reports and communication with instruments, Work scope setting and access to additional tools.
- **Structure** tab provides Structure elements and Measurements to build custom object structure test database.
- **Database** tab provides Client Contacts data organization and Structure objects Name customization.

- **View** tab provide commands to organize view of working area; Tile vertically, Tile horizontally, Switch between Data structure tabs, Reset to originate view and Close all tabs – Data structure files.
- **Main** menu tab provides Metrel ES Manager Version data and Help file. Functions provided are data Import, Export and merging of data files. Settings should be checked before first start.

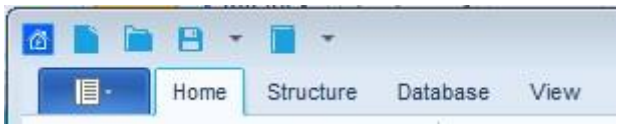


Figure 6.2: Menu tabs

6.2.1 Main tab menu functions

When Main tab is selected, drop down menu for function selection appear on the screen. Document handling and Report Creation functions are common with Home tab, other functions are specific and can be accessed from Main tab menu only. All functions, presented on **Figure 6.3**, are available only when Data structure file is opened.

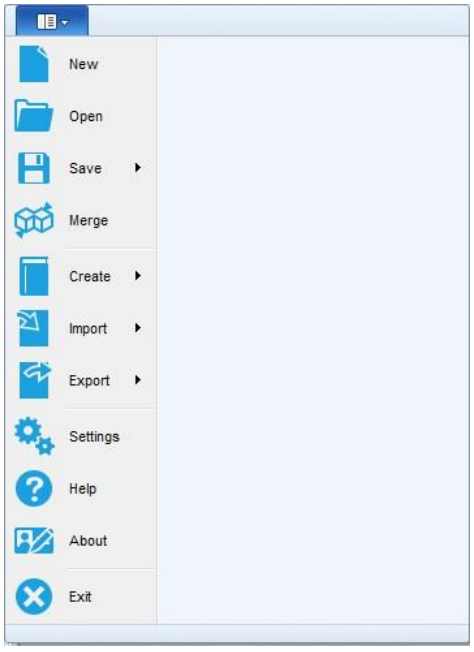
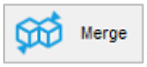
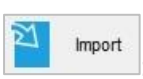


Figure 6.3: Main tab menu

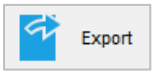
Main tab menu specific functions:

- 

: Combines two Metrel ES Manager Data structure files into single file. From Merge files menu, user can select master file and target file. All data are merged, same items contained in target file are overridden with master file items. When merging a file with attachments (e.g. from aMESM) and a file without attachments (e.g. from instrument) make sure that the master file is the file with attachments.
- 

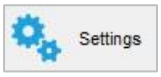
:Support for importing data from previous generation of management software;
Options:
Import EUL: import Euro Link PRO data structure files (EUL files for instruments EurotestXE)

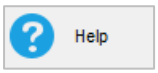
Import EUL structure only: import structure only from EUL files (instruments EurotestXA)
Import from PAT Link PRO: import data files exported from PATLink PRO
Import from aPAT: import data files exported from android application aPAT
Import from Excel: opens Excel to Metrel ESM file converter. Metrel Cloud tool provides wizard to set parameters to convert Excel (.xls) data to Data structure (.padfx) file format.

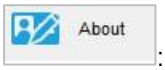
- 

: Support for exporting data to Excel or XML file format;

Options:
ToExcel Basic EIS export: exports power installations Structure and Test data to Excel table
ToExcel Basic PAT export: exports Structure, Test data and Appliance data to Excel table
ToXML Basic EIS export: exports power installations Structure and Test data to XML file
ToXML Basic PAT export: exports Structure, Test data and Appliance data to XML file
Pro Export: Licenced, user defined Test project Data structure export to Excel file format. Available, if tests was performed with Instrument with sufficient licence key rights. See chapter *10.1.3 Pro Export to Excel file format* for details.

- 

: Opens menu for setting general and global data, language, managing licences and printout headers. See Chapter 6.2.1.1 Settings Menu for details.
- 

: Opens Metrel ES Manager Help menu. PDF reader must be installed on PC for help file reading.
- 

: Metrel ES Manager version information and Check for software updates option.
- 

: Exits application.

6.2.1.1 Settings Menu

Settings Menu functions are organized in tab style, see **Figure 6.4: Settings Tabs example**.

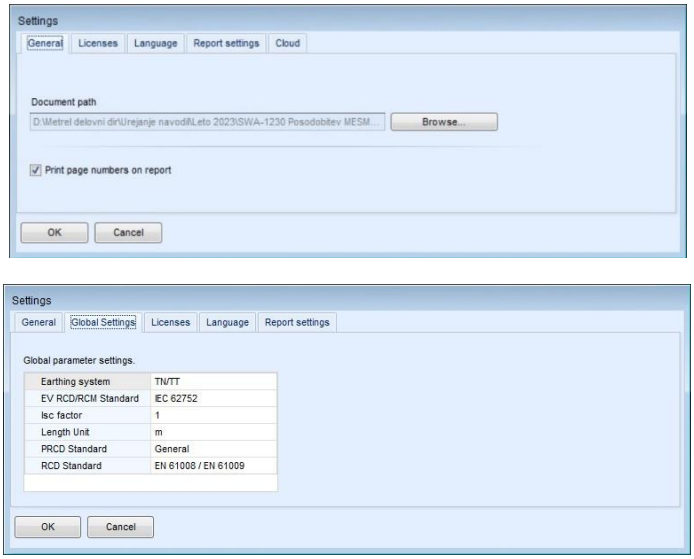


Figure 6.4: Settings Tabs example

General tab functions

Set default folder for Metrel ES Manager Documents. Use browser to select existing or set new folder on PC, then confirm selection.

Default document path is offered every time the document handling functions (Save, Save as, Open) are activated. It is also default search folder, when Upcoming retests Tool from home tab is activated.

Options: 

check box for automatic Report page numbering; uncheck if manual page numbering is required for Reports.

Global Settings tab

Global parameters setting. Presented parameters depends on Work scope setting.

Review current settings, if necessary set new with selection from drop-down list; confirm new selection.

Licences tab functions

Instrument serial number and it licence key must be entered to activate functionalities of the ES Manager software adjusted to individual measuring instrument. The serial number of the instrument, the set of associated license keys and it Feature set are shown in the table, see **Figure 6.5: Licenses tab menu.**

Options:

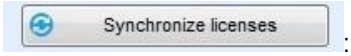
: Field for manual entry of instrument Serial Number

: Field for manual entry of associated License Key

: Add manual entry to the list

: Opens browser to import Licence key from the file; navigate to the folder location on the PC, select Licence file (*.lic) and Open it.

: Opens browser for exporting selected Licence key to the file; name the Licence file, navigate to the folder location on the PC and Save.



: Synchronize License keys with connected instrument.

Note:

Basic licence key offers limited managing of professional Reports, they could be filled with downloaded data, but printing is disabled.

PRO licence key offers full functionality of professional Reports associated with Licence key Feature set.

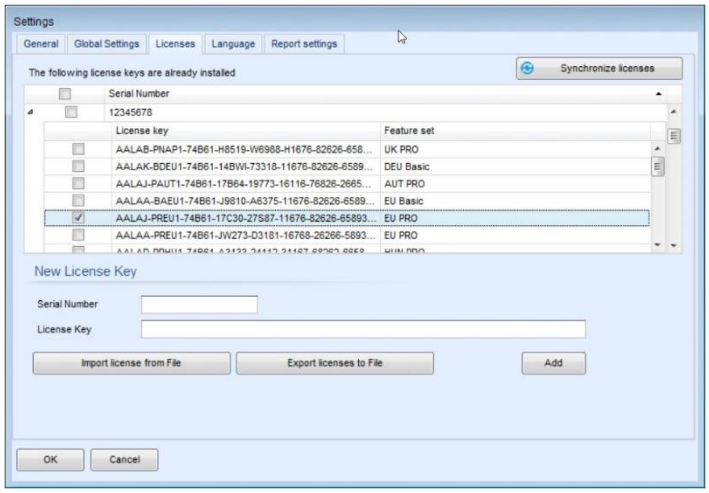


Figure 6.5: Licenses tab menu

Language tab

: Current language is marked with blue dot in selection field. Select user language from the list. New selection will take effect after Metrel ES Manager restart.

Report settings tab functions

User can define custom header logo, address fields content and data presentation printed on the Report document. Report setting is organized in tabs separately for:

Print results : Logo image can be chosen and address Field 1 and Field 2 can be selected from database.

Basic reports: two logos and measurement name presentation on report can be chosen.

Pro Report Export: measurement data, client data and address, responsible person data, Report data presentation can be set.

Cloud tab

For communication with Metrel Cloud, User API key should be generated in Metrel Cloud and copied into the API key field. Cloud tab setting option is available only for specific Work scope setting.

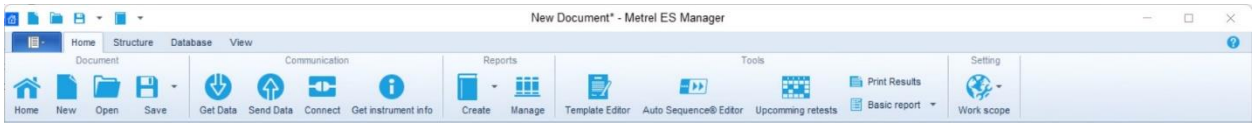
Option:

: Check to select Metrel Cloud as default save location.

6.2.2 Home tab functions

Home tab menu functions appearance depends on Work scope setting. Function groups provided are:

- Document
- Communication
- Reports
- Tools
- PV database explorer
- Setting



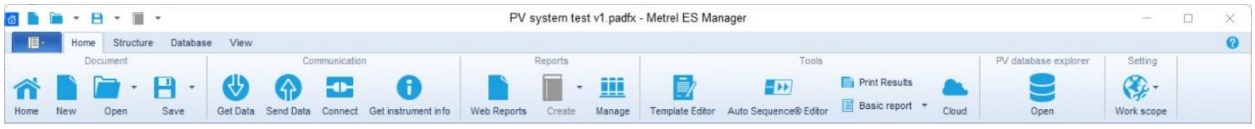
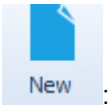
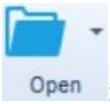


Figure 6.6: Home tab menu examples

Document menu

- 

: Navigates to welcome screen.
- 

: Creates a new, empty ES Manager document/database.
- 

: Opens an existing ES Manager document from default save location.
Options (for specific Work scope setting only):
Open from PC: appear when default save location is set to Cloud
Open from Cloud: appear when default save location is PC
- 

: Save the ES Manager document/database.
Options:
Save - Saves the currently focused ES Manager document file to the default save location. If the file has not been saved yet (data was downloaded from the instrument, or user created a new file), the user will be prompted to define a location and name for the file.
Save as - File will be saved under different name. The user is prompted to define a new location and name for the file.
Save to cloud: Saves the currently focused ES Manager document file to the Cloud (for specific Work scope setting only).

Communication functions

Communication menu contains commands related to downloading data from / uploading data to instruments.

- 

: Gets data from instrument.
- 

: Sends data to instrument.
- 

: Basic information and Firmware update status (if PC is connected to the internet) of the instrument are presented on the screen.
- 

: Opens menu window for managing transfer of group of data files between connected instrument and PC.

Reports functions

Reports tools group from Home menu tab are available only when Data structure file is opened.

- 

: Opens list of prescribed or standardized Report Forms.
Options:
Create Report: Creates Report based on selected Report form
Create from Template: Creates Report based on Report template file (*.rtmpl); user is prompted to set 'Date Filter' before opening to present tests performed within set date period only.

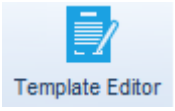
- 

: Opens list of existing reports for managing based on current selected data structure file.

- 

: Opens window with list of Web Report templates from Cloud. User is prompted first to save ES Manager document file to the Cloud, if not already. Select template and ***Create report*** command to open Web Report Editor application. Function is available for specific Work scope setting only.

Tools menu

- 

: Opens browser to navigate to the Report template files folder location on the PC. Selected Report template file (*.rtmpl) is opened in Report editor.

- 

: Opens menu window for managing Scheduled retests for appliance testing.
Note: Document path should be set first (see Chapter 6.2.1.1 Settings Menu); Scheduled retest editor will automatically search for appliances within Data structure files saved in the set folder location.

- 

: Opens Results report in Preview window, from which page layout could be edited before printing or exporting to pdf or image file.

- 

: Opens compact form of Results report in Preview window, from which page layout could be edited before printing or exporting to pdf or image file.
Option: 'Filtered basic report' allow user to set date filter for presented results.

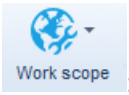
- 

: Tool for programming Auto Sequence® tests. Refer to individual Instruction Manual of instruments for more information.

- 

: Opens Metrel Cloud location, if User is already signed in. If not, Sign-in window is opened. Cloud is available for specific Work scope setting only.

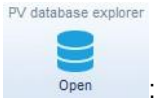
Setting menu

- 

: Choose the scope for applying working area from available menu of Work scopes: LV and HV installations safety testing, portable appliance testing, production line safety testing, industrial machine testing, PV testing... Structure elements, Measurements, Tools and Reports are adjusted to the selected area.

PV database explorer

PV database explorer is available only when Work scope Photovoltaic Region / PV testing or Safety of LV Installations (old instruments) is selected from Setting menu.

- 

: Opens PV database management window.

  Options:
  Public database: Comprehensive list of manufacturers and their PV module products with search function
  Private database: user configurable PV module database; User can select modules from Public database or manually enter Module
  List of Modules: user can create list of modules and save it to the file or open saved module list and save selected data to Private database location. List of Modules can be uploaded to the test instrument, see Chapter *8.2.2 Multiple file transfer options* for details.
  Module Data: Form for presentation of selected PV module data or manual entry of PV module data and saving it to database.

6.2.3 Structure Tab functions

Structure tab provides structure elements, Measurements and necessary editing commands to build custom tree-like structure of the test object. Function groups provided from Structure tab menu (**Figure 6.7)** are:

- Edit
- Structure
- Measurements
- Filtering

Elements of the tree structure can be equipped with planed measurements to be performed on test location. Structure elements available from Structure group, tests available from Measurements group and Filters from Filtering group depends on Work scope selection from Main tab / Setting menu.

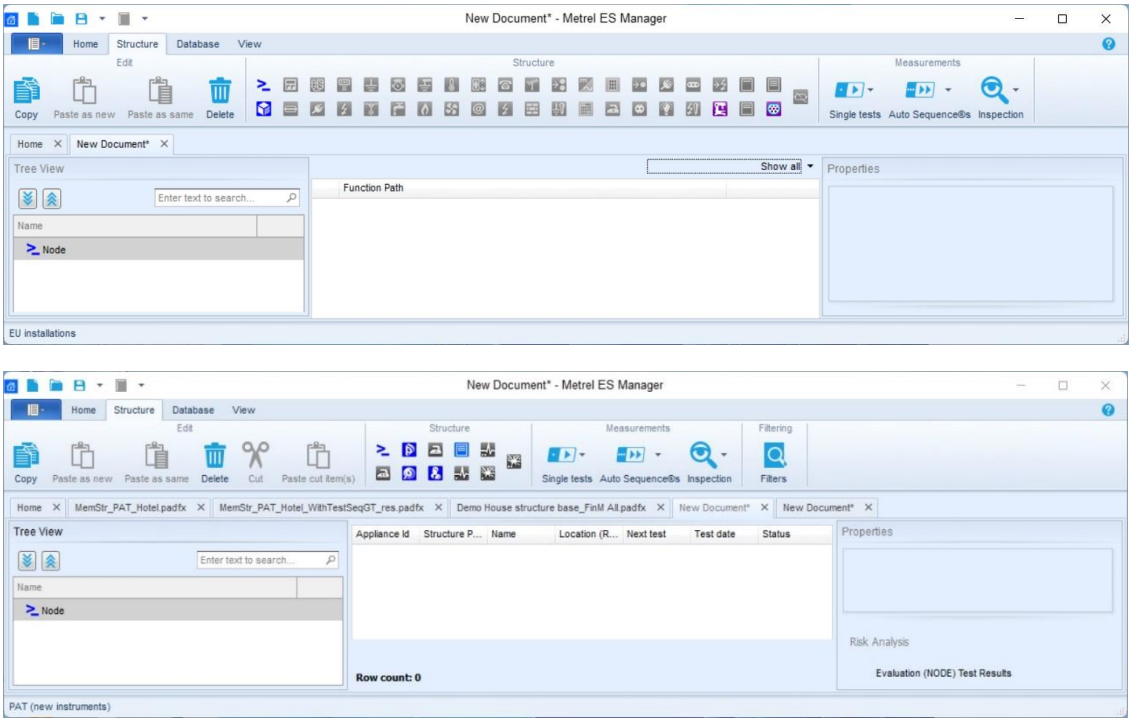


Figure 6.7: Structure tabs – Installations and PAT Work scope

Edit menu group

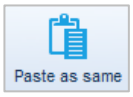
Basic editing command icons are provided in Edit menu group. By clicking on icon, command is executed on selected data structure element. By mouse right-clicking on data structure element, context sensitive menu appear on the screen, from which additional editing commands can be selected (**Figure 6.8.**) Depending on the node selected, different menu items which apply to that type of node will be displayed.

- 

: Copies selected data structure element together with all subtree data structure elements and associated measurements to the clipboard.
- 

: Paste data from the clipboard to the selected data structure element within existing or another data structure file. The results of measurement are not included. Measurements are

pasted as new empty measurements. Command is disabled if no data was copied or if the current selected element does not allow pasting.

- 

: Paste data from the clipboard to the selected data structure element within another data structure file. When within same file, command is executed as Paste as new; duplicates of unique elements are not allowed within same file. Command is disabled if no data was copied or if the current selected element does not allow pasting.
- 

: Deletes the currently selected data structure element together with all subtree data structure elements and associated measurements.
- 

: Cut the currently selected Appliance within Results area together with associated measurements to the clipboard. Only active in the Appliance testing Work scopes.
- 

: Paste cut items from the clipboard to the selected data structure element within existing or another data structure file. Command is disabled if no data was cat or if the currently selected element does not allow pasting. Only active in the Appliance testing Work scopes.

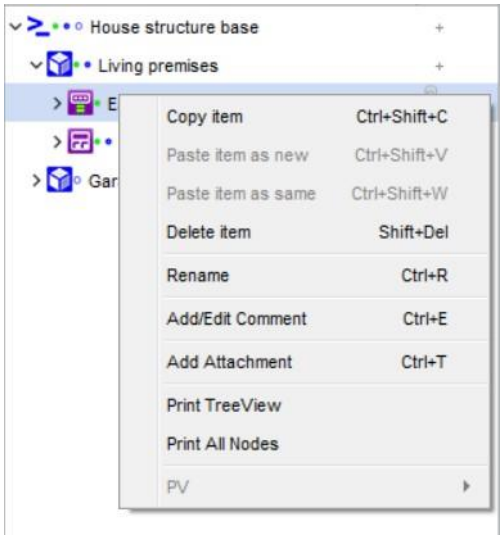


Figure 6.8: Context sensitive edit commands

Structure menu group

Menu group Structure contains all structure elements for design of custom specific Data structure for on-site testing. Structure group elements type depends on Work scope setting (**Figure 6.9**). With click on element it is inserted into the structure tree.
Structure elements are in hierarchical relationship. Parent element type (currently selected element within tree structure) define, which elements can be inserted as child elements, those elements are highlighted, and the rest of elements are dimmed. By positioning the mouse pointer to the element, its name and description are presented.

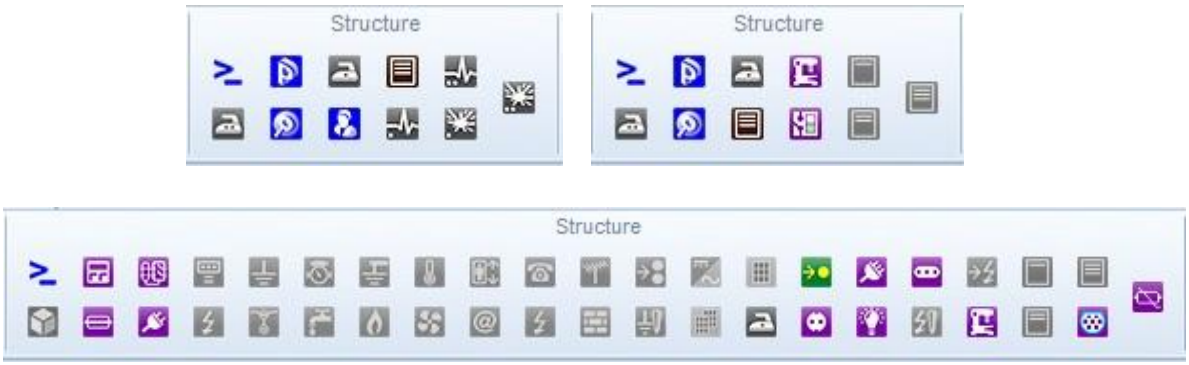
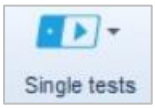


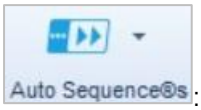
Figure 6.9: Structure elements – Work scope PAT, Production Line Testing and Installations

Measurements menu group

Measurements menu contains a selection of tools for attaching Single tests, Auto Sequence® tests and Inspections to the structure elements. Type of Measurements, appearing within each tool list, depends on Work scope setting.

- 

: Opens list of available single tests, select one by clicking on it name. It window appear on the screen, set parameters and limits and confirm. Single test is appended to the selected element within Structure tree.

- 

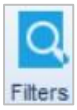
: Opens list of available Auto Sequence® tests, if Auto Sequence® Group file (*.atmpx) was opened before. Double-click on Auto Sequence® test append it to the selected element within Structure tree.
Option:
Browse for the Auto Sequence Group file: Open browser to navigate to the Auto Sequence® Group file folder location; select one and confirm selection to open it. The new Auto Sequence® Group file will replace the existing one. This menu is available by clicking on the triangle inside the button.
Note: Only one Auto Sequence® Group file can be opened at the same time.

- 

: Opens a list of available Inspections, select one by clicking on its name. A new window appears on the screen. Confirm the selection. The inspection is appended to the selected element within the Structure tree.

Filtering menu

Only active in the Appliance testing Work scopes.

- 

: Opens Custom filter design tab at the top of Result view area. See Chapter **6.3.3.1 Results view area for Appliance testing Work scope** for more details.

6.2.4 Database Tab

Frequently used data can be written to the organized tables provided in the Database tab. This data can be appended to the Structure elements or to the Print results header (see Settings / Printout headers).
Appearance of the Database tab menu (**Figure 6.10**) depends on the Work scope setting. Its main areas are:

- Contacts
- Structure names
- Custom Lists

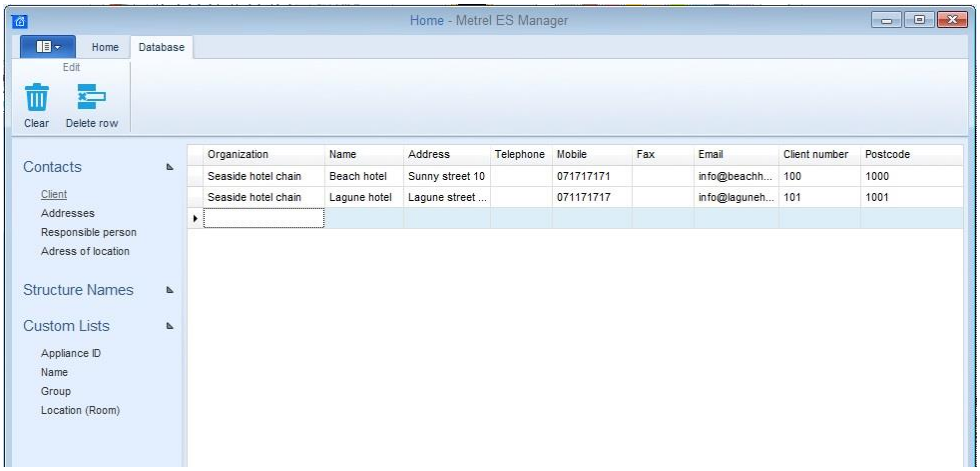


Figure 6.10: Database tab – Client list in Contacts group is selected

Contacts data lists

Organized tables are provided for custom Contacts data entry (Organization, Name, Address, Telephone, eMail etc.), which could be appended to the structure elements with simple selection from the drop-down list. Common to all Work scope settings (and their utility purposes) are:

- Client (element Client / PAT testing, element Location / Installations testing)
- Addresses (element Location / Installations testing, Header of Print results)
- Responsible person (element Location / Installations testing, Header of Print results)

All PAT testing regions have an additional table:

- Address of location (element Location / PAT testing)

Edit menu options:

- 

: Clear all data entry from selected Contacts list.
- 

: Delete selected row from the Contacts list

Structure Names data list

The Structure Names list is a fixed list of Elements, which could be used to build custom tree-like structure of the test object (**Figure 6.11**). User can customize the name of the Element under which it is presented within tree structure. Listed elements depends on Work scope setting.
Structure Names data columns are:

- **Picture**: graphic presentation of the element

- **Default name**: Metrel ES Manager Default Element name
- **Custom name**: User defined name of the element; select current Custom name and edit it.

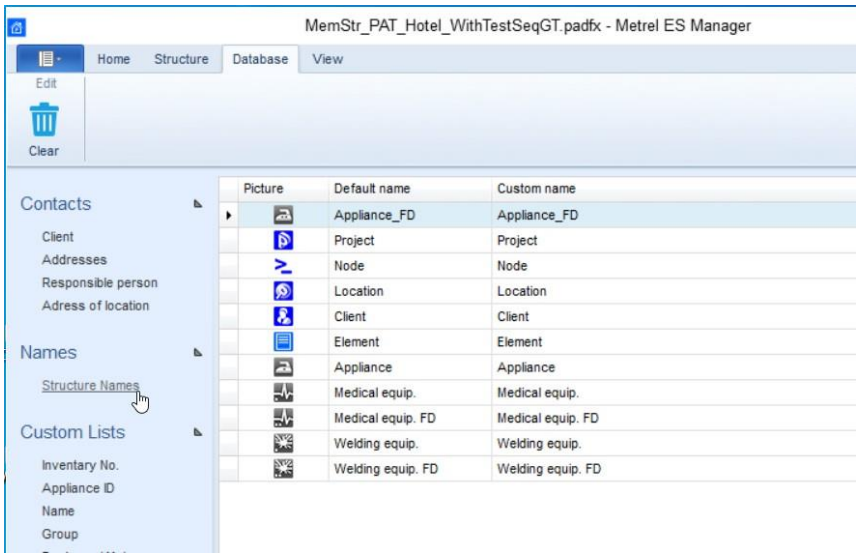


Figure 6.11: Structure Names

Edit options:

- 

: Structure Names list is set to default state. After the Warning confirmation, all Custom names are reset to default names.

Note:
A Custom name is always used to present Elements within a tree structure, when appended to the location. By default, the Custom name is the same as Default name of the element.

Custom Lists

Custom data lists (**Figure 6.12**) are provided for entry of frequently used data of test objects, which could be appended to the structure elements presenting electrical equipment, with simple selection from drop-down list:

- **Appliance ID** user can enter custom appliance ID
- **Name**: user defined name of electrical equipment
- **Group**: user defined name of appliance group (appliance testing work scopes only)
- **Location (Room)**: user defined name of the space location

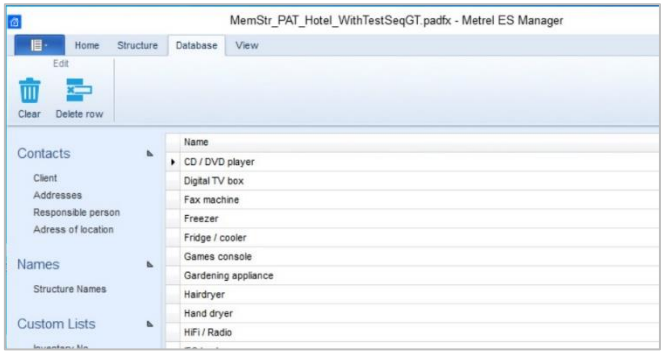


Figure 6.12: Custom list Name

By default, Appliance ID and Location (Room) lists are empty, Name and Group are partially filled, all ready for custom entry.

Edit menu options:

- 

: Selected list is restored to default state, custom entries are deleted.
- 

: Delete selected row from the list

6.3 Metrel ES Manager User workspace

User workspace is presented on the **Figure 6.13** below. Multiple Data structure files can be opened at the same time, independent of their Work scope setting. Their names are listed within the Document tab-strip (❶). The currently active Data structure file tab is highlighted.
The data structure file content is presented in three main areas within the user workspace, each providing special insight into the file data content, for easier navigation and data survey:

- **Tree View** window (❷)
- **Result view** area (❸),
- **Properties** window (❹)

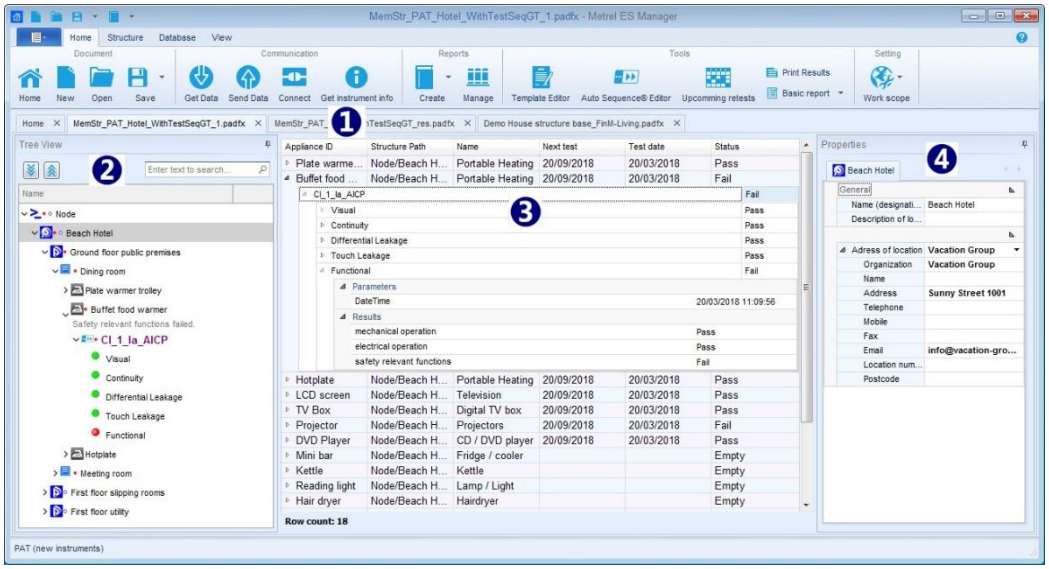


Figure 6.13: User workspace

6.3.1 User workspace management

The result view area is always in the centre of the User workspace and acts as a container (parent) window to which the Tree View window and the Properties window are appended. When a data structure file is opened or downloaded from the instrument, the Tree View and the Properties windows appear on the left and on the right side.
A user can manage the appearance of a workspace with:

- **Resize Tree view and Properties window width**: position the mouse marker on the window edge, when the arrow () appears, left click and drag it to the left or right.

- **Resize Result view columns**: position the mouse marker on the column on the left edge in the title bar, when arrow ( ) appear, apply left click and drag it to the left or right.

6.3.2 Tree View options

The tree view (**Figure 6.14**) allows you to navigate through the data structure and displays the status of the measurements performed on objects by adding measurement status symbols to object icons.

Use buttons under the title bar (❶) to navigate:

- : Expands all nodes of the data structure.
- : Collapses all nodes of the data structure
- Enter text to search... : Find panel (❷) to search for the text string entered in the field. All string appearances are highlighted within the data structure tree.

Use the triangle mark in front of the object to expand / collapse subtree nodes:

- : Structure object subtree is collapsed, click triangle mark to expand node.
- : Structure object subtree is expanded, click triangle mark to collapse node.

Right click on the structure element opens the menu window (❸) with commands:

- **Copy, Paste as new, Paste as same, Delete, Rename** items are functions for manipulating data structure objects and measurements.
- **Add / Edit Comment**: Write a short comment which appears as a string below a selected object (❹).
- **Add Attachment**: Add attachment to the selected object. Notification ( ) appear in the attachment column of the data structure tree. An attachment can be any data type (a picture, a text file, an object, etc). It can be opened, edited, or removed. Click on a notification to present a list of object attachments.
  Note:
  Attachments are only stored in the current data structure file and will not be sent to the instrument. When a data structure file with attachments is sent to the instrument and then downloaded back into a new data structure file, the attachments in the new data structure file will be lost. You will have to merge the downloaded file with the original file. Additionally, you may have the original file opened in MESM. When downloading, MESM will ask you whether you wish to merge the files or download the file as a new one.
- **Print TreeView:** opens the current Tree view (only selected nodes expanded) in a Preview manager window. The preview contains all standard functions for editing printable files, it is possible to edit the Header and the Footer, set the Background colour. Also, you can Export edited document in *.pdf format.
- **Print All Nodes:** expands all nodes and opens the Tree view in the Preview manager window.
- **Instrument data:** Data of the instrument with which measurements were performed. Available for finished measurements (single tests or Auto Sequence® tests) only.

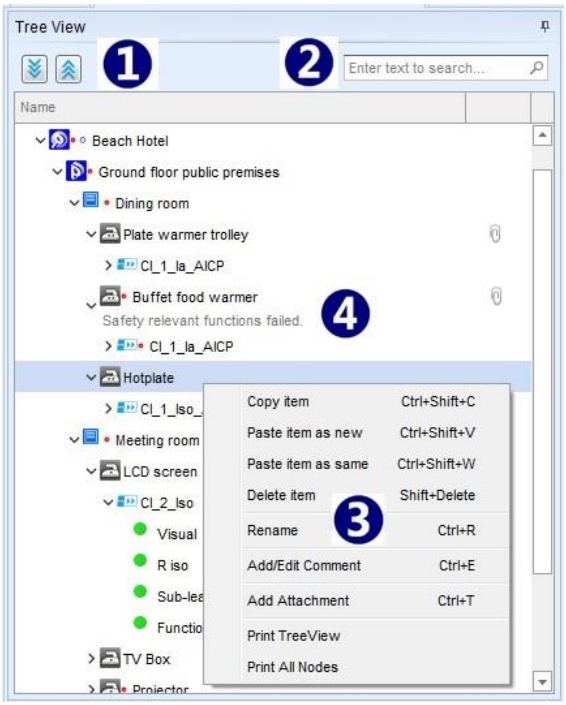


Figure 6.14: Tree View

Structure object test status indication

Auto Sequence® tests and other structure objects. Test status is indicated with a dot following the icon:

- : Empty status (not yet performed) measurement is associated with the object; click on the triangle in front to expand the branch and view the contents of the measurement.
- : Performed measurement with Fail status is associated with the object; click on the triangle in front to expand the node and view individual tests' statuses.
- : Performed measurement with Pass status has no special indication; click on the triangle in front to expand the node and view individual tests' statuses.
- : An object without a triangle mark in front has no measurements associated.
- : At least one measurement within the object subtree has a Fail status.
- There are measurements with Empty statuses and measurements with Fail statuses within the object subtree.

Single test measurement status indication

Measurement status is indicated with a circle in front of a Single test name.

- : A finished measurement with a passed test result performed by the instrument.
- : A finished measurement with a failed test result performed by the instrument.
- : A finished measurement with test results and no status performed by the instrument.
- : Empty measurement without any test results.
- : Virtual – A passed measurement with manually added test results on PC SW.
- : Virtual – A failed measurement with manually added test results on PC SW.

-  : Virtual – A finished measurement with manually added test results and no status on PC SW.

6.3.3 Results view area options

The Results view area is intended for a detailed survey of measurements associated with data structure elements. The Result view area appearance and options depend on the Work scope setting. See chapter *6.3.3.1 Results view area for Appliance testing Work scope* for additional options.

Display of measurement data (Figure 6.15: Results view area) is organized in table manner, including:

- **Function path** - object directory within a Tree structure and appended measurement names (❶). A left mouse click on the triangle at the beginning of the row expands (▷) or collapses (◢) the measurement data.
- **Measurement data** with Test name, Results, Sub-results, Parameters and Limits setting (❷).
- **Test status** column (❸).
- **Measurement test Date and Time** (❹).

The result view area is focused on the selected object within the Tree View; measurement results associated with the subtree structure of the selected object are presented.

Measurement data Filter: presentation can be filtered with a selection from a drop-down menu in the upper right corner:

- Show all **:** Results, Sub-results, Parameters and Limits setting are presented.
- Show results and subresults **:** only Results and Sub-results are presented.

Measurement status is written in the status column:

- **Pass**: finished measurements with passed test results.
- **Fail**: finished measurements with failed test results.
- **Nothing**: Finished measurements with test results and no statuses.
- **Empty**: Empty measurements without test results.

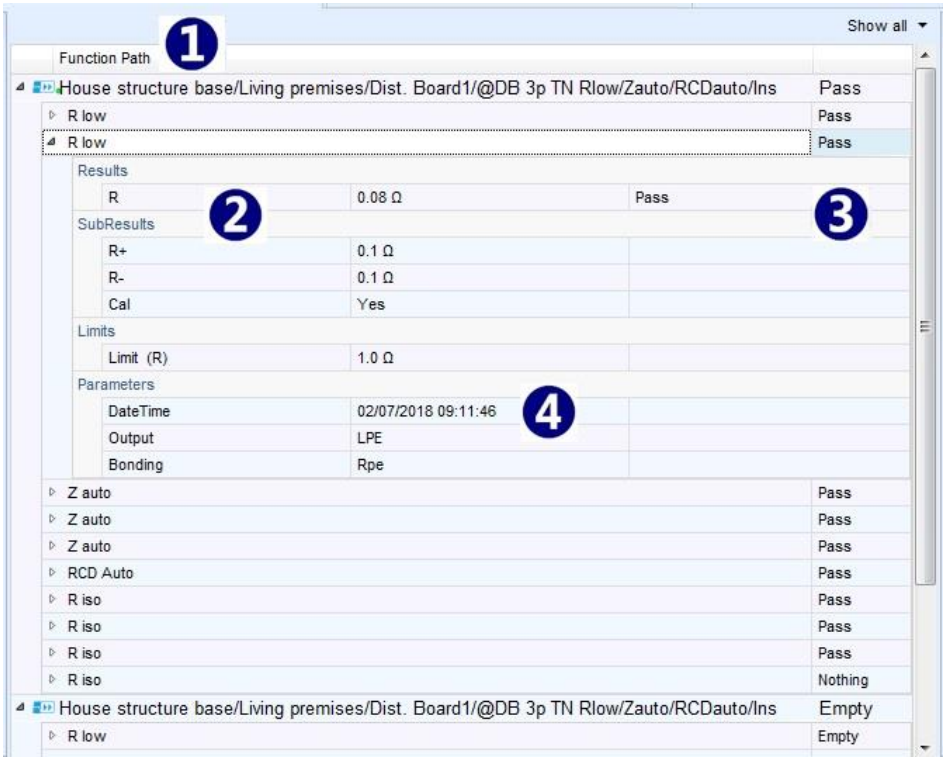


Figure 6.15: Results view area

Commands available with a right click on the data row are:

- **Edit**: edit test parameters and limits of empty measurements.
- **Print selected**: print Results of the selected Structure Object.
- **Print all**: print Results off all Structure Objects.
- **Expand all**: Expands all Function paths to see measurements data.
- **Collapse all**: Collapse measurements data to see Function paths only.
- **Show graphs:** Opens window for a graphic presentation of measurements results. Available for measurements which contain graphs.

Note:
Measurements with parameter sweep mode setting within the Safety of HV installations Protective Earthing Work scope.

6.3.3.1 Results view area for Appliance testing Work scope

When Work scope is set to Appliance safety testing, the Appliances table with extended information organized in additional table columns appear within the Result view area (**Figure 6.16**):

- **Appliance ID**: identification of the tested appliance.
- **Structure path**: Appliance directory within the Data Structure tree.
- **Name**: Appliance name.
- **Next test**: Date of next test for the Appliance with set Test period.
- **Test date:** Test Date from the instrument.
- **Status:** Test status

The Appliances table is focused on a selected object within the Tree View; measurement results associated with the appliances located within the subtree structure of a selected object are listed in the table.

Interactively, when a left click is applied on the Appliances table row within the Result view area, an adequate Tree view branch is expanded, and the selected item is highlighted.

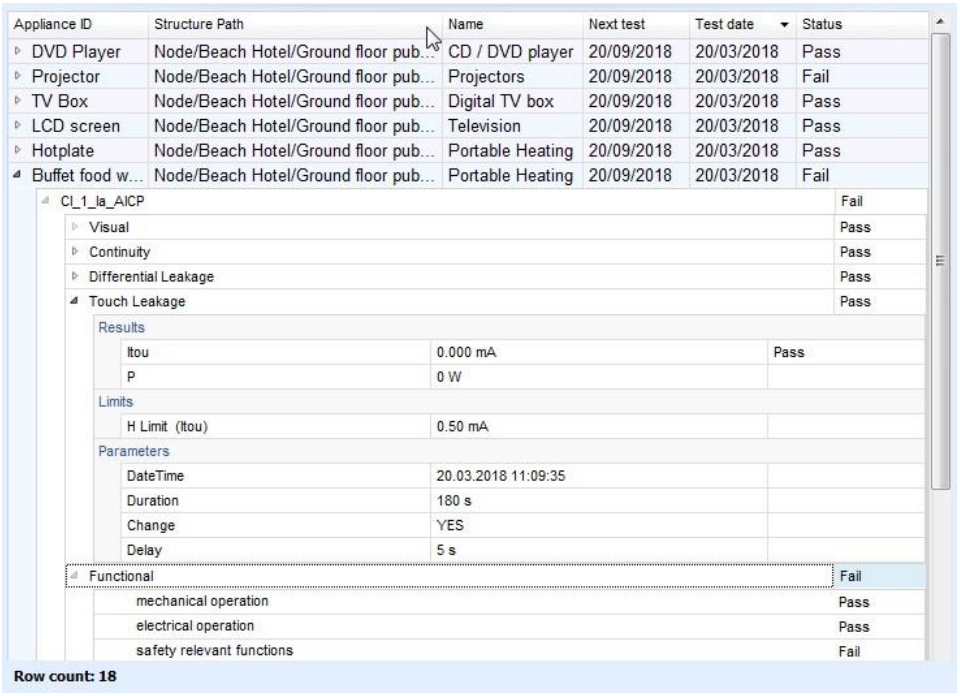


Figure 6.16: Appliance safety testing Results view area appearance

Sort order filter

- Test date: Click to the column name field to activate sort filter.

Each Appliances table column provides a sort filter. An active sort column is marked with an arrow on the left side of the column name field. Click again to reverse the sort order. The sort filter can only be active in one column at the same time.

Appliance table column filter

- Name: Position mouse over column name field and click filter sign appearing on the right-up corner of the cell to activate column filter.

Each column of the Appliance table contains a filter. After filter is selected, menu with filter options appears on the screen. Select the option and close the window to activate the filter. Active column filter remains marked with the blue filter sign within name field, see **Figure 6.17** below.

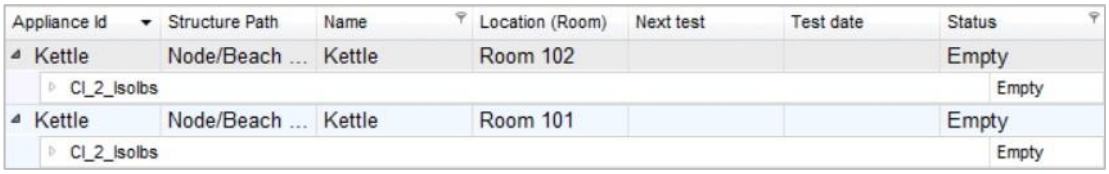


Figure 6.17: Results view area column filters – Name and Status are active.

More column filters can be active at the same time.
To remove column filter, select it and choose the Clear Filter command from filter settings menu.

Appliances table Custom Data filter

Custom Data filter can be active within any column of the Appliances table, one or more filters can be active at the same time.

- Custom filter: Right click within Results view area to open a menu window and check Custom filter option to open Custom filter design tab at the top of Result view area (❶), see **Figure 6.18**.
- Position mouse over any field within filter tab and click to open additional filter criteria or change or delete it.
- Options available for manage designed Custom Data filter are:
  Apply filter: Filter is applied to the Appliance data table, active data filters are marked within data column name field.
  Save filter: Menu is opened to Name and save filter in Filters folder of MESM application.
  Load filter: Load filter from Filters folder of MESM application.
  Save filter as: Menu is opened to Rename and save filter.
  New filter: Opens new filter tab with logic function relationship field by default.
- Row filter: Custom filter design is offered as a row beneath Address row of the Appliance table (❷), see **Figure 6.18**. Custom filter and Row filter are equivalent. Settings of the Custom filter are mirrored to the Row filter and vice versa.

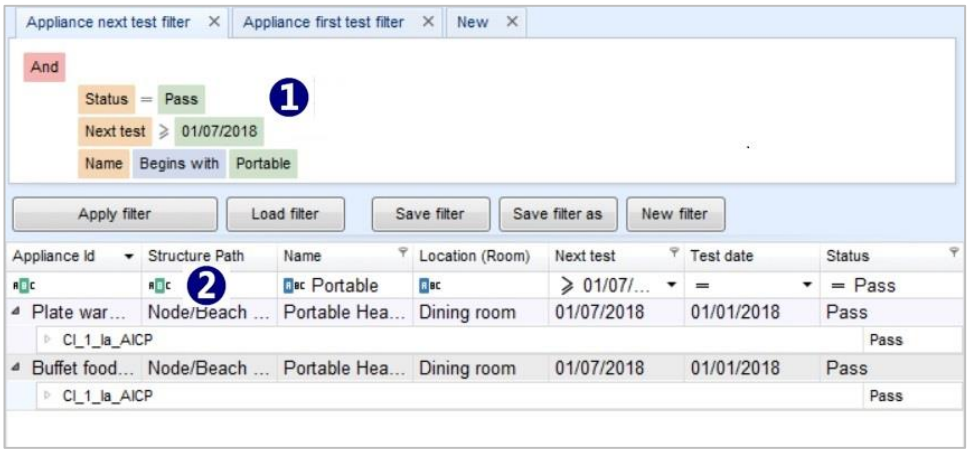


Figure 6.18: Appliance Custom Data filter design options

Appliances table Find filter

A right click within the Appliances table offers a menu window, from which a Find panel can be selected:

- Find panel A Field for Find filter is opened at the top of the Result view area (❶).
- (❷) Enter the string to be found within the Appliances table; search starts automatically.
- (❸) Found string appearances are highlighted and the Appliances table is filtered to the rows containing the found string.
- Remove the find filter and clear the entry field.

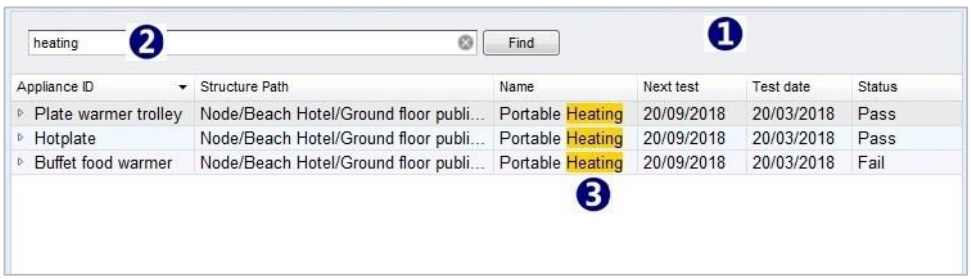


Figure 6.19: Appliance data Find filter design options

Appliances table commands

A right click within the Appliances table offers a menu window, from which the following commands can be selected:

- Clear filters : Clear all filters from the Appliances table.
- Delete item : Delete the selected item.
- Delete all : Delete all items from the appliances table.

6.3.4 Properties window options

The Properties window presents a description of the objects allocated within the Project Data Structure tree. The Properties window appearance depends on the Work scope setting and assigned properties to the object type.

Current Properties window view (**Figure 6.20**) is focused on the object selected in the Tree view:

- Selected object properties and properties of all parent objects within the data structure are presented in separate tabs within a Properties tab strip (❶). By default, the selected object tab is active. Click on the parent object tab to see its properties. Use arrows at the end of the tab strip to scroll between the tabs.
- A list of assigned properties to the object is presented on the left side (❷). Click on the entry field on the right side and write the property value.
- When a list of predefined properties is available, arrow appear at the end of entry field (❸). Click on the arrow to open a drop-down menu and select a property value.
- When work scope is set to PAT or Machine, switchgear and PAT testing, Risk Analysis statistics is promptly evaluated and presented within Properties window (❹). Error rate is ratio between FAIL and PASS number of tests. Current result can be printed or exported to *.pdf file; click on Print button to open page editor window.

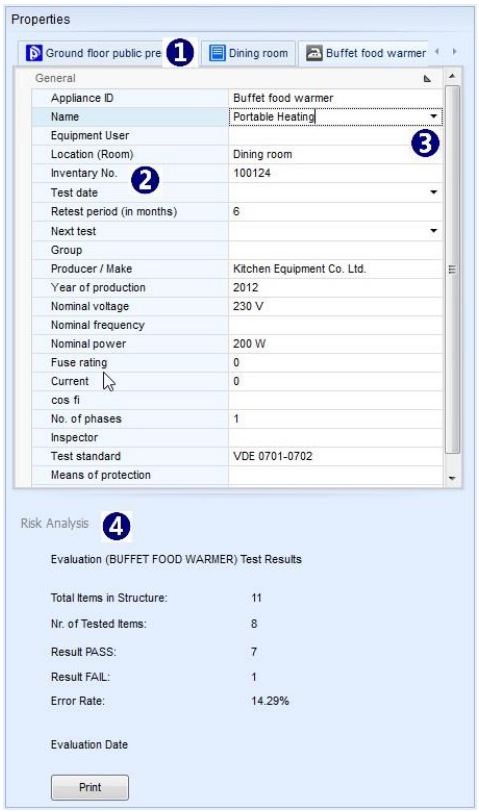


Figure 6.20: Properties window

7 Creating Data Structures

7.1 Considerations regarding new test project Data Structure

Metrel ES Manager supports creating a tree-like Data Structure of Test projects, with Objects under test located within the tree nodes in hierarchical relationship. Measurements can be appended to the Objects before uploading a Data structure file to the instrument.

Before opening a new Data Structure file of a Test project, consider on:

- **Work Scope**: Determine the Work scope of the Test project.
- **Data structure tree**: Determine the Data structure of the Test project - Test Objects and their hierarchical relationships within the tree-like project presentation.
- **Data lists with Properties**: Consider the Test Objects' properties to be described for consistent results' presentation and Test report creation.
- **Auto Sequence® tests**: For faster test execution, collect specified tests for each individual object and create an Auto Sequence® Group of tests. A Auto Sequence® test can contain custom created Inspection tests. Refer to individual Instrument Instruction manual for details.

7.1.1 Work scope Safety of LV Old_instruments considerations

The Metrel ES Manager supports managing of Test project data of the previous generation Installations testers, when Work scope Safety of LV Old_instruments is selected. Due to the limitations of those Instruments, the following should be considered, when creating Data structures to be uploaded as Test projects or downloading data from the Instrument:

- The data structure should have only one Node. Only objects under the first node of the Data structure are uploaded, objects under other Nodes are omitted.
- The data structure tree can have, beside the object Node, three hierarchical levels only. Object Node is omitted when the Data structure is uploaded to the Instrument.
- Measurements attached to the Data structure elements are not uploaded.
- Retest is not supported; when Data structure with finished measurements is uploaded for test repetition, only structure elements are uploaded, measurements are omitted.
- Only one Data structure file can be uploaded at the same time. Command Connect, intended for multiple file transfer, is not supported in previous generation testers. Uploading of new Data structure files deletes the existing Instrument memory content.
- Command option Download to New file should be chosen, when downloading Instrument memory data. If the option Download to Current opened File is chosen, the downloaded data appears under a new node, created within the existing opened file, data under the original node is deleted. The data contained in the already opened file could be lost.
- Creation of Group of Auto Sequence® tests is not supported.

7.2 Open new test project Data Structure

To open a new test project Data Structure file, follow the procedure:

- Optionally, set a Document path from the Main tab / Settings / General tab menu.
- Select the Home tab of the User workspace.
- Select Settings / Work scope from Home menu tab.

- Choose a New file from Home user workspace or Home tab (or Main tab).

New Data structure file *.padfx is opened with default file name *New Document**. The User Workspace area is empty, except a parent object *Node* is automatically placed to the Tree view. This is the starting point to creating a project Data Structure. It cannot be deleted, because at least one *Node* must exist within a structure tree. It can be renamed to reflect the subject of the Test project.

Before starting to create a Data structure, it is recommended to:

- Rename the file using the Save as command from the Home tab menu, to reflect the subject of the Test project.
- Open an adequate Auto Sequence® Group file (if available) containing the required tests for the project. Only one Auto Sequence® group file can be opened at the same time.

7.2.1 Creating a new Data structure

Creation of a new Data structure starts from a Tree view of a User workspace, **Figure 7.1** :

- Select the Structure tab menu (❶). Available Objects are highlighted within the Structure group menu.
- The default object Node is already selected within the Tree view. Click on the structure element within the Structure menu group to insert it to the structure tree. It appears as a structure element (❷), hierarchically is a child structure element under parent Node. To place another structure element, repeat the action.
- To expand the node, select an Object within the Tree view and click on the new Object within the Structure menu group. It appears as a child object under the selected one. To further expand the node, select the child object and repeat the action.
- To create a node subtree, select the node Object and repeat placing new objects as child items on the same level (❸). Child items are new nodes of the Object subtree.
- Describe the Objects in the Properties window of the User workspace (❹). When a Name property is entered, the default Object name within the Tree view is automatically updated.
  Each Object type has a dedicated set of properties, which can be manually entered or selected from the embedded or user created Database lists. Describe all the necessary properties to provide a detailed overview of the test results and well-defined Test Reports.
- Repeat the actions above until the determined test project Data structure is finished. Save the file.

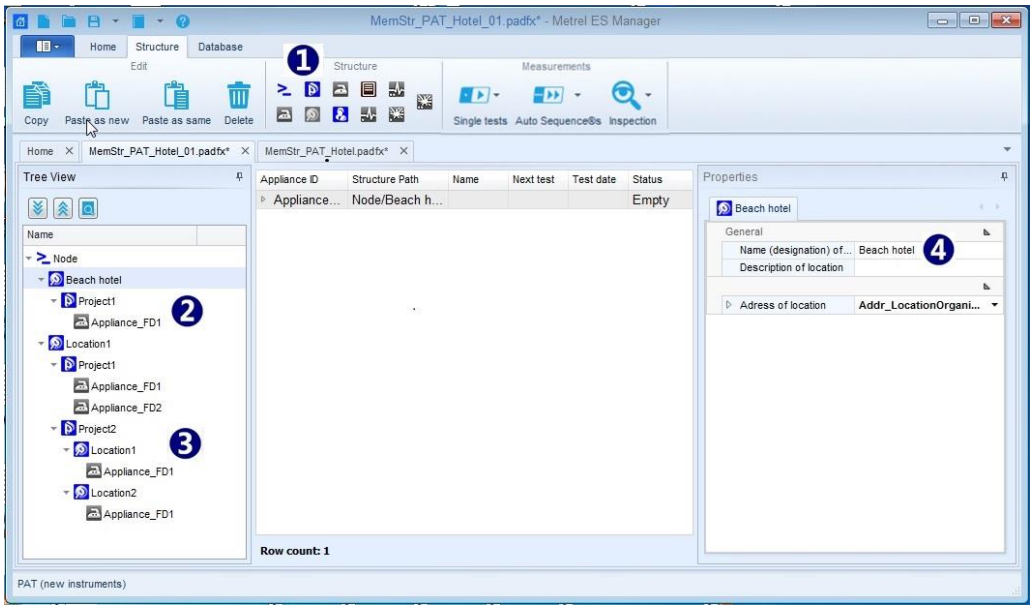


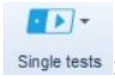
Figure 7.1: Creating new Data structure

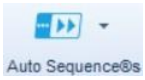
7.2.2 Appending measurements to the Data structure Objects

Accurate and reliable test results are insured, when required measurements are parameterized and appended to the test objects before uploading the test project Data structure to the instrument. The operator can start the tests from the instrument's Memory organizer and save the results under the same Object.

Procedure:

Select the Object and append empty measurements. From the Measurements group of the Structure tab menu, the user can select:

- 

: Clicking on the icon opens a list of available Single tests, organized in groups.
  - Expand single test groups and select a single test from the list by clicking on its name.
  - Single test settings window appears on the screen, with default parameters and limits value set.
  - Set parameters and limits according to the Test project requirements for the selected object.
  - Click OK to confirm the settings- The single test is appended to the selected Object.
  - Parameters and limits can be reviewed and set again later. Clicking on the Single test name within the Tree view presents its contents in the Result view. Double clicking on its name in the Result view opens the Single test settings window (❹) in **Figure 7.2**.
  - Reset parameters and limits and confirm new settings by clicking on the OK button.
- 

: **Optional command:**
  Clicking on the icon opens a list of available Auto Sequence® tests from the opened Auto Sequence® Group.
  - Expand the file folders to find the requested Auto Sequence® test.
  - Double-clicking on the Auto Sequence® test automatically appends it to the selected object.
  - If necessary, parameters and limits of the Auto Sequence® test can be reviewed and set later, **Figure 7.2**. Expand the Auto Sequence® test node in the Tree view (❶) to see its single test contents.
  - Select a Single test in the Tree view (❷) to present its content in the Result view area.
  - Double clicking on a Single test name in the Result view (❸) open its settings window (❹).
  - Reset the parameters and limits and confirm new setting by click on the OK button.
  - **Note**: The Auto Sequence® test with changed parameters and limits setting is not marked. To distinguish it from the original, the user can add a comment to its Name in the Tree view.

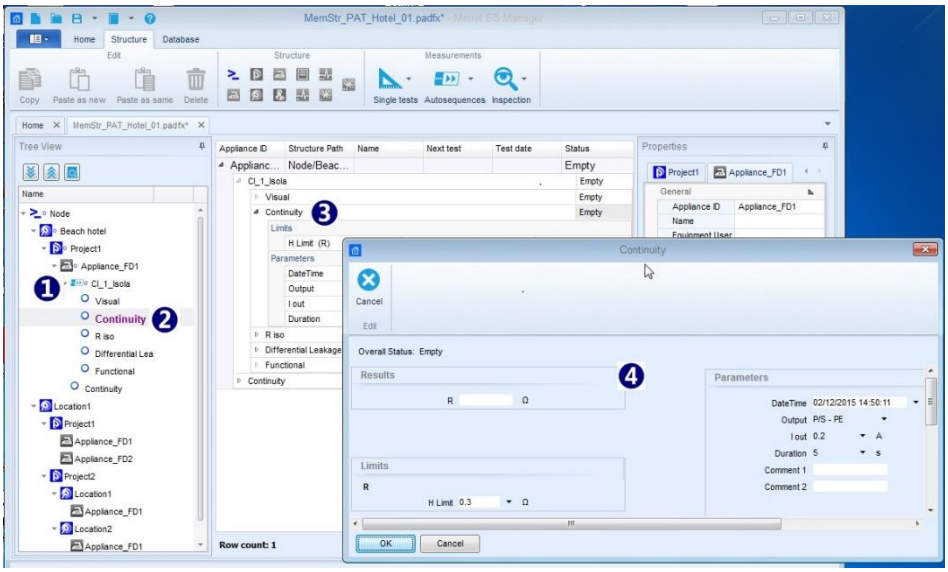
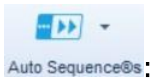


Figure 7.2: Edit Auto Sequence® test parameters and limits

- 

: Optional command: Browse for Group of Autotests file:
Clicking on the triangle offers a command to open a browser to navigate to the Auto Sequence® Group file folder location containing the requested Auto sequence® test; select the file and confirm the selection to open it. The new Auto Sequence® Group file will replace the existing one. Only one Auto Sequence® Group file can be opened at any time.

- 

: Clicking on the icon opens a list of available standardized Inspections, organized in groups.
  - Expand the Inspection group and select the Inspection from the list by clicking on its name.
  - The inspection window appears on the screen, with default Empty status of inspection items.
  - At the top of the tab you can add meta-data (date and time) to configurable inspections.
  - Click OK to confirm the inspection. It is appended to the selected Object.

7.3 Creating Data structures using Copy and Paste commands

If a part of a Data structure is repeated often, it is possible to create large structures with measurements in a fast and simple way simply with the help of Copy and Paste commands.
Objects from one Data structure can be copied to another test project Data structure file if the Work scope settings of both files are the same. Data structures can be new, without measurements, with appended empty measurements or downloaded from instruments with executed measurements.

Note the item identification rule, influencing paste commands behaviour:
Each Object and measurement inserted to the data structure gets an internal unique identification number. Only one item with the same unique identification number can exist within the same Data structure.

Commands are available from the menu window, appearing on the screen after right-clicking on the Object within the Tree view or from the Structure tab Edit menu:

- **Copy command:**
  - Selected an Object and all Objects located under the selected Object subtree structure are copied.
  - Measurements appended to the Objects, empty or executed, are also copied.
  - Properties of each copied Object are also copied.
- **Paste as new:**
  - Copied Object and all Objects located within its subtree are pasted to the new selected location.
  - Empty measurements appended to the objects are also pasted and remain unchanged.
  - Executed measurements are pasted as empty measurements!
  - All pasted Objects and Measurements get a new internal unique identification numbers!
  - Properties of each Object are pasted and remain unchanged!
- **Paste as same:**
  - Copied Object and all Objects located within its subtree are pasted to the new selected location.
  - Measurements appended to the Objects, empty or executed remain unchanged.
  - All pasted Objects and Measurements retain the same internal unique identification number!
  - Properties of each Object are pasted and remain unchanged!

Note:
When Paste commands are greyed out, pasting data to the selected location is not allowed due to hierarchical relationship between the copied object and the paste object or no data was copied before.

7.3.1 Copying and Pasting within the same Data structure file

Copy&Paste as new: a structure Object with sub-tree Objects **with empty measurements or without them**:

This command sequence is useful to expand Data structures with often repeated common nodes, e.g. a Hotel with multiple floors, each containing equally equipped rooms (**Figure 7.3**):

- Select an Object presenting node (❶) (First floor) and execute the Copy command
- Select a new location Object (❷) (Hotel) and execute the Paste as new command; repeat for each new node
  - Paste as new was repeated twice (❸), presenting two new nodes – hotel floors.
  - All objects within the pasted nodes have new unique identifications, but its names, Properties and appended measurements remains the same.
- Select each new object within the new nodes and update only their Properties (❹), which distinguish them from the copied node objects.

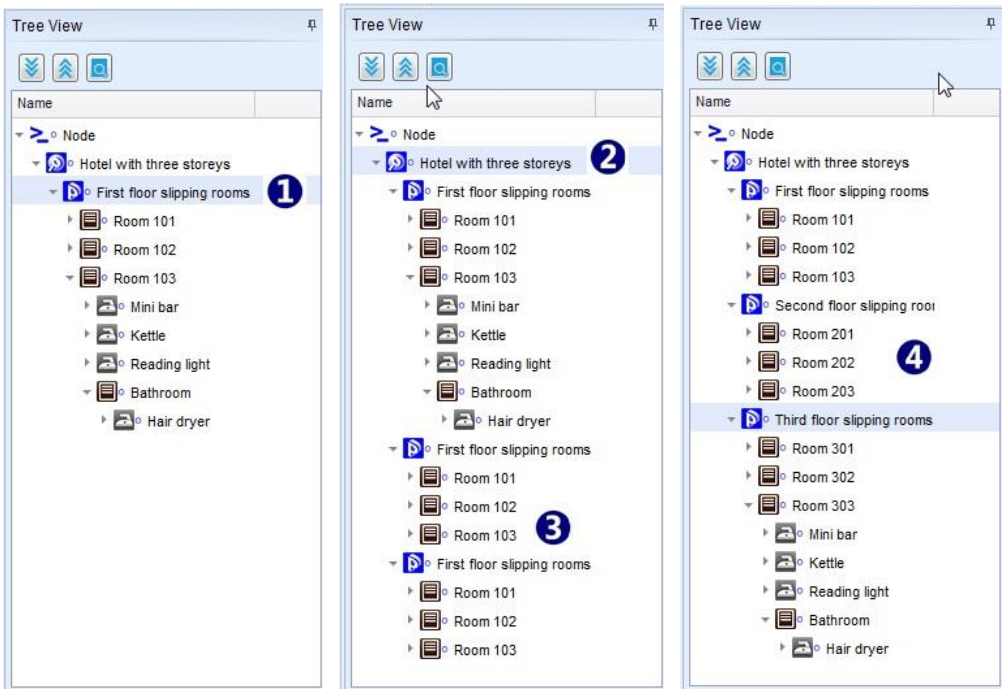


Figure 7.3: Copy&Paste as new operation within same Data structure - empty measurements appended

Copy&Paste as new: a structure Object with sub-tree Objects with finished measurements:

This commands sequence is useful when creating **new Data structures** with **same Objects and their Properties** and **same empty measurements** appended as source Data structure with finished measurements, to perform the same test project again on same or another equal location (**Figure 7.4**):

- Select the most presented parent Object in a data structure with finished measurements (❶) and execute the Copy command.
- Select a new location (new Node was inserted for demo) (❷) and execute the Paste as new command:
    - Pasted Data structure tree and Object properties remain the same, all objects have new internal unique identifications to distinguish them from source Objects.
    - All appended measurements are empty (❸), without results, parameters and limits settings remains the same as they were set in finished measurements.
      All measurements have new internal unique identification.

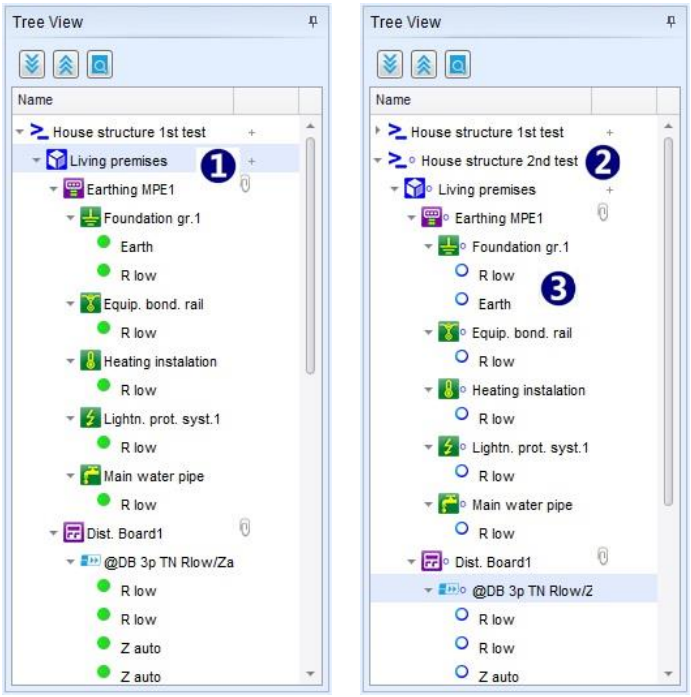


Figure 7.4: Copy&Paste as new operation within same Data structure - finished measurements with results

Copy&Paste as same:

Internal unique identification rule prevents the *Paste as same* command to execute within the same Data structure file. *Paste as same* command is executed as *Paste as new,* Information message (**Figure 7.5)** appear on the screen for a short time.

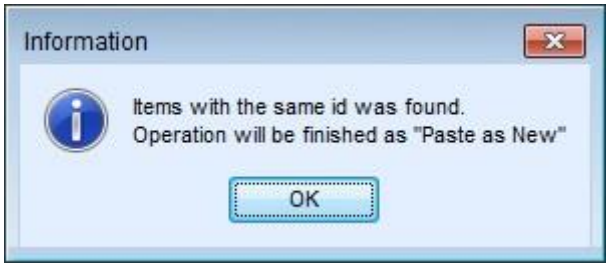


Figure 7.5: Copy&Paste as same within same Data structure – information message

7.3.2 Copy and Paste between different Data structure files

A source Data structure file and a target Data structure file should be opened at the same time. The same Work scope must be set for both the Source and the Target Data structure.

Copy&Paste command sequence execution always begin with the same procedure:

- Select a Source Data structure file tab to become active within the User workspace.
- Select the used most parent Object within the Tree View, which subtree structure should be copied and execute the **Copy** command.

Paste as new:

- Select a Target Data structure file tab to become active within the User workspace.
- Select a parent Object in the Tree view within the Target Data structure and execute the **Paste as new** command
  - The pasted Data structure tree and Objects properties remain the same as at the Source, all objects have new internal unique identification numbers to distinguish them from the Source Objects.
  - All appended measurements, empty or with results from the Source file, are empty, without results, parameters and limits settings remain the same as they were set in the Source file. All measurements have new internal unique identification numbers.

Execution of the Copy and Paste as new command sequence between different Data structure files has similar behaviour and usefulness as its execution within the same Data structure file, except that the Source data is not present in Target Data structure file. For use cases refer to chapter **7.3.1 Copying and Pasting within the same Data structure file.**

Paste as same:

The command's response depends on the Measurements' status, which are appended to the Source Data structure and on the internal Objects and measurements unique identification number within the Target Data structure.

Paste as same: The Source Data Structure **Objects with** appended **Empty Measurements** (or without):

- Select a Target Data structure file tab to become active within User workspace.
- Select a parent Object in the Tree view within Target Data structure and execute the **Paste as same** command
  - Search for the internal unique Object and Measurements identification number within the Target Data structure and comparison with the Source Data structure automatically starts.
- **Equal unique identifications** ware found: a merge confirmation information window **Figure 7.6** appears on the screen:
  - click OK to complete the Paste command with data merging after confirmation in the next step.
    Objects and Measurements keep the internal unique identification number.
  - click Cancel to stop the command's execution. The data will not be pasted.

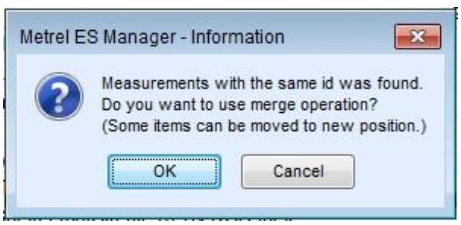


Figure 7.6: Merge confirmation information window

- **No equal unique identifications**: procedure continue with confirmation window, **Figure 7.7**
  - click Yes to complete the Paste command. Objects and Measurements keep the internal unique identification number.
  - click No to stop command's execution. The data will not be pasted.

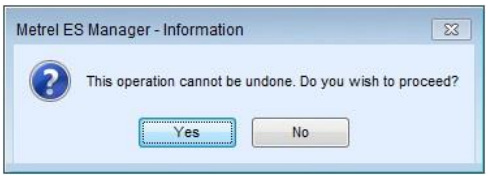


Figure 7.7: Paste as same confirmation information window

Paste as same: Source Data structure **Objects with** appended **Finished Measurements,** Target Data structure has empty measurements or finished measurements executed with different instruments:

- **No equal Object unique identifications within the Source and target Data structures**:
  - procedure is the same as described above.
- **Equal Object unique identifications within the Source and target Data structures**:
  - procedure starts the way same as described above until the Merge confirmation step.

Paste as same: Source Data structure **Objects only,** Target Data structure has empty measurements, finished measurements executed with different instruments or only a structure elements without any measurements.

- User is prompted to select the next Paste command step, **Figure 7.8**:
  - Merge duplicates using source data: Target Data structure Objects with equal identification are updated with the source data, the rest of them are pasted as same as the source data.
  - Relocate structure: the source data will be pasted to Target Data structure as an additional node subtree. New objects have new internal unique identification numbers.
- Conclude the paste command with a response to the Information message on the screen, already described above.

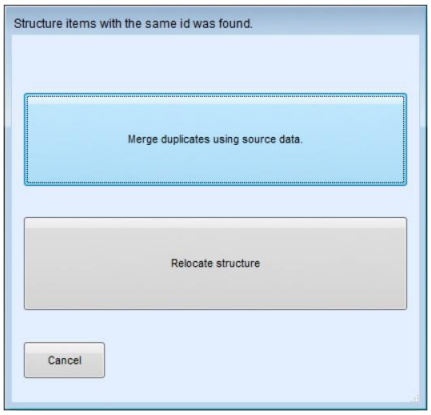


Figure 7.8: Paste as same option confirmation window

Merge: Case study example of the functionality:

Hotel with multiple rooms and floors – A test report for the hotel is needed.

A complete structure with measurements of the hotel is uploaded on multiple instruments. Each tester measures one floor only. Data from all instruments are downloaded to the Metrel ES Manager. The test report, if created now from individual Data structure file, will include complete structure but only with measurements for a single floor, which is not what is needed.

Using the Merge function, all downloaded Data structure files from different instruments can be merged into a single Data structure file containing the complete structure and the complete measurements. A complete Test project Report can now be created.

Relocate: Case study example of functionality:

Hotel with multiple rooms in multiple equal floors – A test report for the hotel is needed.
The same Data structure, covering only a single hotel floor and measurements is uploaded on multiple instruments. Each tester measures one floor only. Data from all instruments are downloaded to the Metrel ES Manager.
The test report, if created now from individual Data structure file, will include only single floor measurements, which is not what is needed.
Using the Relocate function, data from all floors can be combined into a single document file. Complete test report can now be created.

Merge functionality note:

Source Data structure **Objects** with appended **Empty Measurements, Target** Data structure **Objects** with appended **Finished measurements:**

- Merged Data structure and Objects remains the same, Empty Measurements are appended to an adequate Structure Objects in addition to the unchanged Finished Measurements.

7.3.3 Copy and Paste between different Work scopes

Data structures created in different Work scopes can be opened in User workspace at the same time. In general, content of Data structure cannot be copied to a Data structure created in another Work scope. However, there are exceptions for some structure objects, that are common within different Work scopes.
For example, structure objects such as Appliance, Appliance FD, Machine with sub objects, EVSE with sub objects are common within different Work scopes and can be copied and pasted between Data structures created in different work scopes.
Whenever Structure objects can be transferred between the Data structures of different Work scopes, this automatically means that all measurements can be transferred between the same Data structures too.
Sharing data between Data structures with different Work scope is subjected to changes as the Work scopes are permanently improved.

7.4 Creating Appliance periodic retest Data structure

When tested Appliances have the Property Retest period set, and the Data structure files with finished measurements already exist, the Upcoming retests tool can be used to create a Retest project Data structure file.

- Set the Document path (see Chapter 6.2.1.1 Settings Menu), where the Data structure files are saved.
- Set the PAT safety testing Work scope from the Home tab Settings menu, Upcoming retest editor icon appears within the Home tab Tools group menu.
- 

: Clicking on the icon opens a Scheduled retests editor menu window for editing Scheduled retests for appliance testing.

- Scheduled retest editor will automatically search for appliances within **all Data structure files** saved in the set folder location.

- **Scheduled retests editor Options (Figure 7.9):**
  - Filter retest dates: Display the elements which need to be re-tested, depending on the filter settings.
  - Reload: Reload Scheduled retest appliance list.
  - Create a *.padfx file: Create a new Data structure of elements which need to be re-tested. Use shift+click, ctrl+click, click&drag within the selection column on the left for multiple appliances selection. When selected appliances belong to more than one Data structure file only one new Data structure file with multiple nodes is created.
  - Open selected file: Opens a Data structure file associated with the selected appliances. Multiple Data structure files may be opened if the selected appliances belong to more than one Data structure file.
  - Close: Close the Scheduled retests editor.
  - Print preview: Opens the Scheduled retests list in Preview window, from which page layout could be edited before printing or exporting to a PDF or image file.
  - Print: Direct printing of Scheduled retests list.
  - to PDF: Create Scheduled retests list in PDF format; the user is prompted to select a folder and a file name.

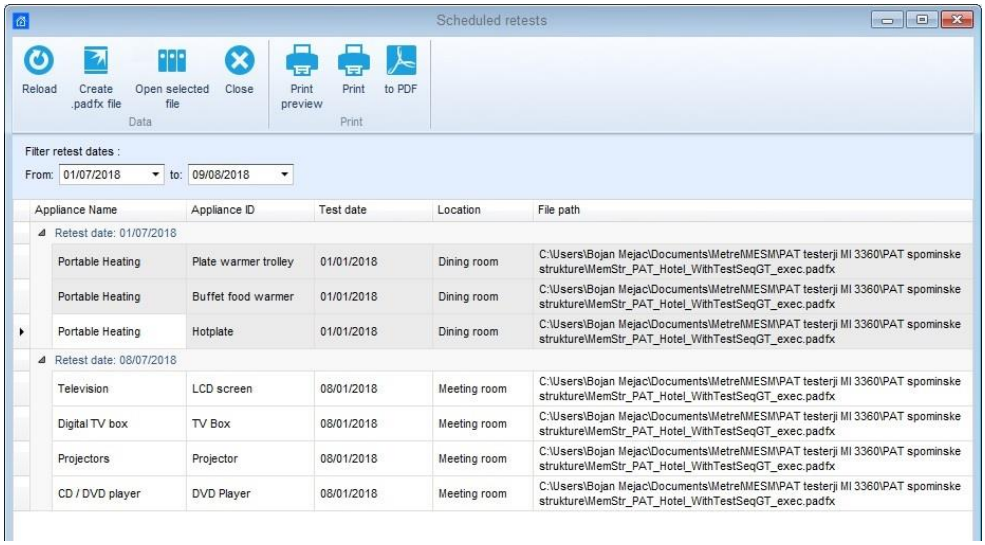


Figure 7.9: Scheduled retests editor menu

- From the scheduled retest appliance list select the Appliances to be retested and execute the **Create .padfx file**:
  - The retest Data structure file is opened in a new User workspace tab (❶) with the given default name New Document.
  - Appliances are presented in the same Tree view Data structure (❷), with same Objects' Properties (❸) as they were in the source Data structure. Beside the previous Finished Measurement same Empty Measurement are appended (❷).
  - In the Result view area, previous Finished Measurement results can be reviewed, and new Empty Measurement parameters and limits can be edited (❹).
- Use the Save As command option to give a name to the new Retest project with a Data structure file.

- The scheduler retest window automatically updates the list of appliances when measurements are performed on the instrument and downloaded back to the Metrel ES Manager.

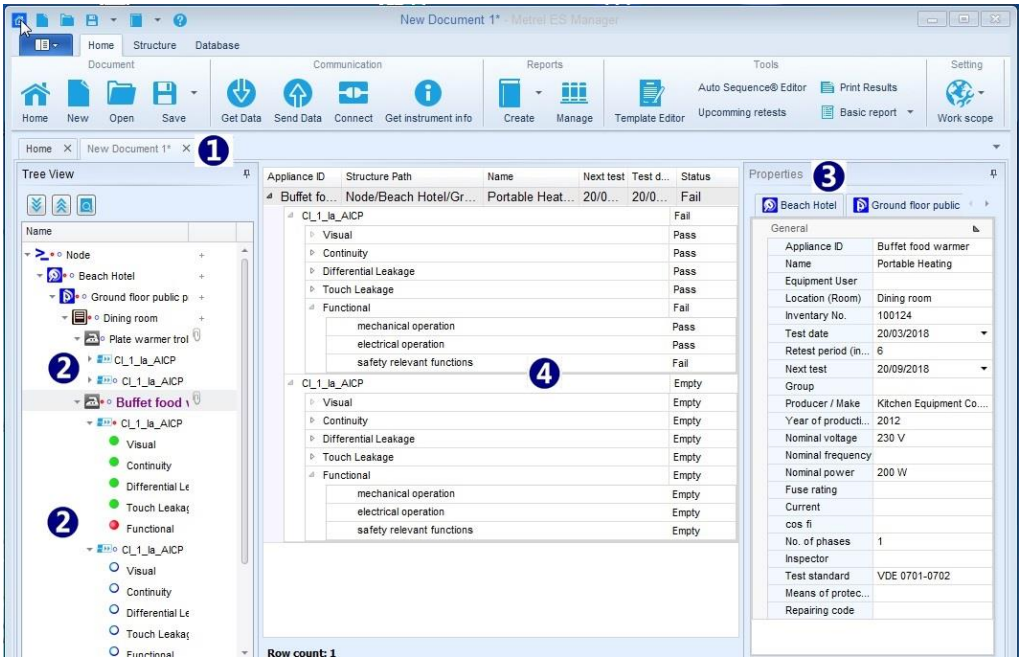


Figure 7.10: New Retest Data structure file

8 Communication with Instruments

8.1 Establishing communication with instruments

Communication with instruments is established via Serial port (RS-232 or USB) or Ethernet port.

- Click on 

, 

or 

opens a dialog box for setting parameters of communication, see **Figure 8.1: Setting communication**.
- From the drop-down list select a COM port, to which the instrument serial data port is connected.
  - Default serial data Baud rate is set to Auto, switch to Advanced tab to change it, if necessary.
- Enter Hostname or IP Address and Port number for Ethernet connection.

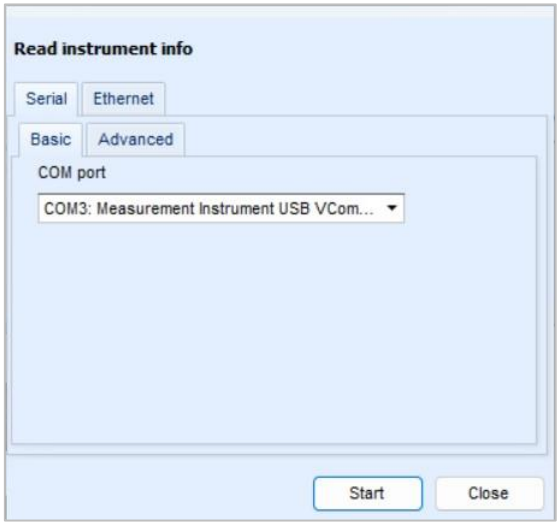


Figure 8.1: Setting communication

8.1.1 Instrument info

Basic information of the instrument (Name, Manufacturer, Type of instrument, Serial number, HW version, FW version, Calibration date, etc.) and Firmware update status can be obtained. If no data is displayed, see chapter Troubleshooting.

Options:

- Check for new updates: Check if new FW version exists.
  - Download: Download new instrument FW version
- View release notes: Open release notes related to instrument type.

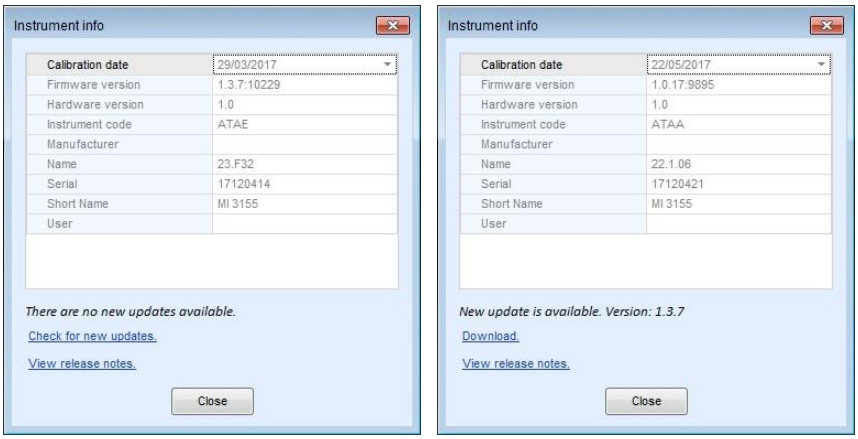


Figure 8.2: Instrument info screen options

8.1.2 Upgrading the Firmware

With new type of instruments there is a possibility within Metrel ES Manager to upgrade the firmware of your instrument with the latest version. An internet connection is needed. On the Instrument info screen click on the Download and follow the instructions link. A program (FlashMe) starts, which guides you through the upgrade procedure. For more information how this feature is supported for your instrument see the instrument's Instruction manual or contact your dealer.

Note

For detailed set up procedure please see the user manual of the attached instrument on your computer! User manuals can be downloaded from our Download centre [http://www.metrel.si /download-center.html].

8.2 Upload or download data files

Upload or download of Data structure project files can be selected from Communication group of the Home tab menu. Single file and multiple file transfer are supported.

8.2.1 Single file transfer options

- Get Data: Downloads data from the instrument. Currently active Data structure file in the instrument's Memory Organizer is downloaded.
  - If only the Home tab of User workspace is active, the downloaded file is opened in a new User workspace tab.
  - If a Data structure file is already opened within the User workspace, a Download options selection box is opened, **Figure 8.3**:
    Download to New file: new Data structure tab is opened in the User workspace
    Download to Current opened File: Objects data with equal unique identification are merged, the rest of them appear as new within the active Data structure file.

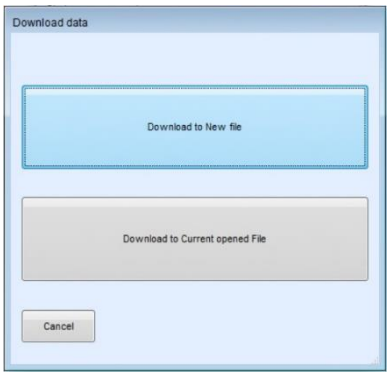


Figure 8.3: Download options selection box

- Send Data: Uploads Active Data structure file to the instrument.

8.2.2 Multiple file transfer options

Connect: Opens a file transfer menu window (**Figure 8.4)** for managing transfer of multiple files between the connected instrument and PC.

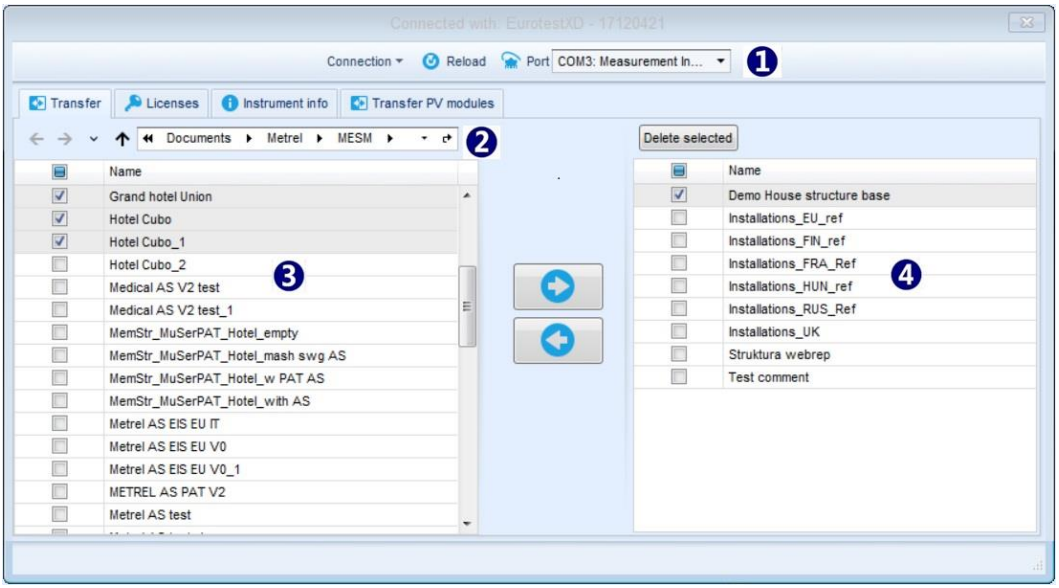


Figure 8.4: File transfer menu window

File transfer menu options:

- 1 Communication setting
  - Connection Select Serial data port or Ethernet connection with instrument
  - Host name / IP Type Host name or IP address to the entry field
  - Port Type Ethernet port number to the entry field
  - Port Select PC serial data port from the entry field list to which is connected instrument.
  - Reload Reload the data

- File transfer menu window contains dedicated tabs:
  - **Transfer** tab: Menu for multiple Data structure file transfer
  - **Transfer Autotests** tab: Auto Sequence® file transfer (available from Auto Sequence® Editor)
  - **Transfer PV modules** tab: Custom PV module files transfer menu (available if Work scope setting support it)
  - **Licenses** tab: List of Instrument licences
  - **Instrument** info tab: List of Instrument data
- **File transfer tab options ar**e:
  - ❷ PC file folder selection tool. Use arrows to navigate within structure and open folder content.
  - ❸ List of files within the selected folder. Check the square in front of the file name to select the files to be uploaded to the instrument.
  - ❹ List of files in the Instrument's memory. Check the square in front of the file name to select files to be downloaded to the PC folder.
- **File transfer tab Command options**:
  -  Upload selected items to the instrument.
  -  Download selected items to the PC folder.
  - 

Delete selected items from the instrument.

Transfer PV modules menu options:

- Transfer PV modules tab (**Figure 8.5**):
  - ❷ PC file folder selection tool. Use arrows to navigate to the Custom PV module files folder.
  - ❸ List of Custom PV module files within the selected folder. Check the square in front of the file name to select the files to be uploaded to the instrument.
  - ❹ List of Instrument modules. Check the square in front of the module name to be uploaded or downloaded to the instrument.

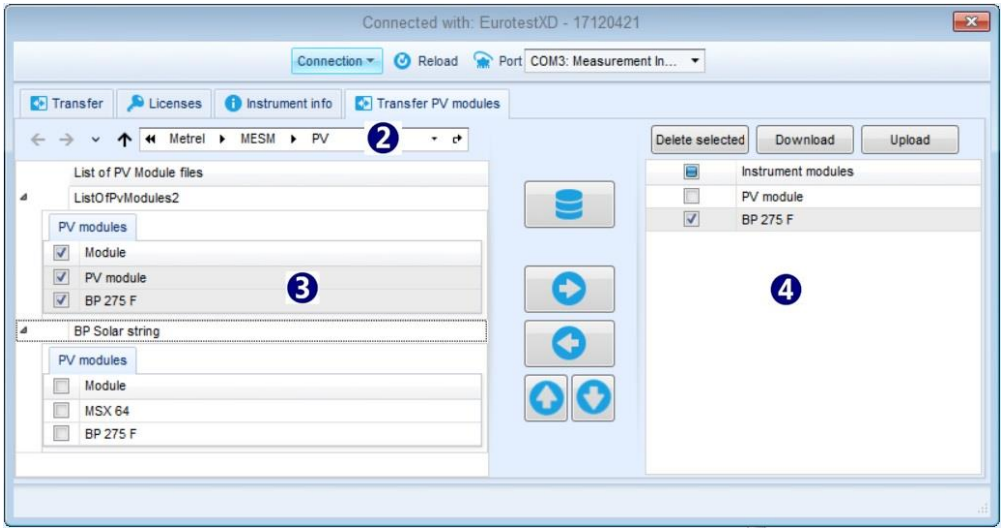


Figure 8.5: Transfer PV modules menu window

- Transfer PV modules tab commands
  -  Opens PV database management window.
  -  Move selected PV module from PV module file to Instrument modules list.
  -  Save selected PV modules from Instrument modules list to Custom PV module file. Browser is opened to navigate to the PC folder location.
  -  Navigate through List of PV Module files.
  - 

Delete selected PV modules from the Instrument modules list.
  - 

Download PV modules from the instrument to Instrument modules list.
  - 

Upload selected PV modules from Instrument modules list to the instrument.

9 Printing results

9.1 Printing results options

Metrel ES Manager provides two simple print formats for Test project Results printout, available from the Tools group of the Home tab menu:

- Print results,
- Basic report with the Filtered basic report option.

Before starting to create Test project Results, consider preparing:

- A data base Addresses list – frequently used Customer data printed in the Results header.
- A data base of Responsible persons list – frequently used Operator data printed in the Results header.
- Logos to be printed within Results header

9.1.1 Print results format

Create Header of Test project Results document first:

- Select Report settings tab of Settings menu from the Main tab menu list.
- Select Printout results tab (**Figure 9.1)** to open Header setup options:
  - **Change logo image**: Opens a browser to navigate to the logos image folder. Select a logo and Open it.
  - **Clear logo image**: Delete the existing logo.
  - **Field 1**: Manually type Customer data or select it from a drop down list. A list of addresses from the MESM internal database is offered.
  - **Field 2**: Manually type the Responsible person name or select it from a drop-down list. A list of responsible persons from the MESM internal database is offered.

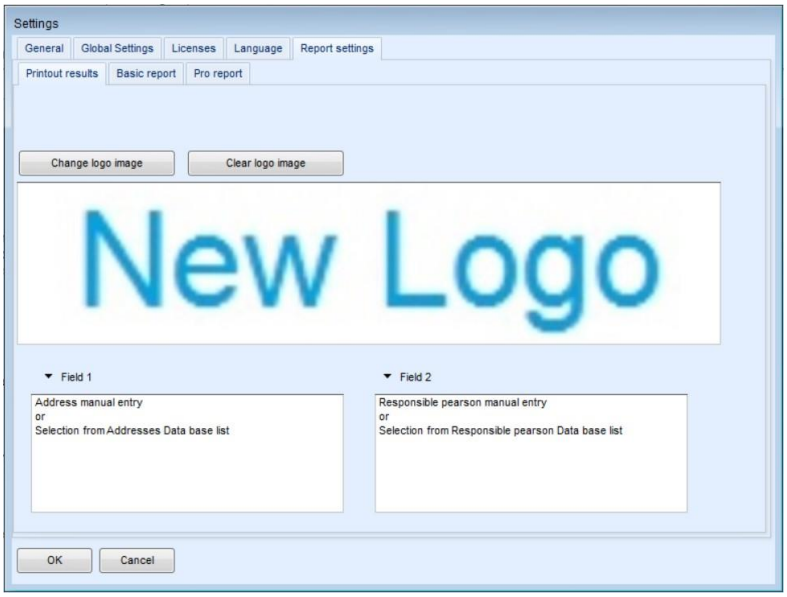


Figure 9.1: Print results Header setup

- Open a test project Data structure file and within the Tree view select a node, for which data should be generated. Select Node to print all results, select Measurement to print results of only one test.
- Clicking on Print Results within the Tools group of the Home menu tab opens Test project Results document in Preview manager window, **Figure 9.2** and **Figure 9.3**.

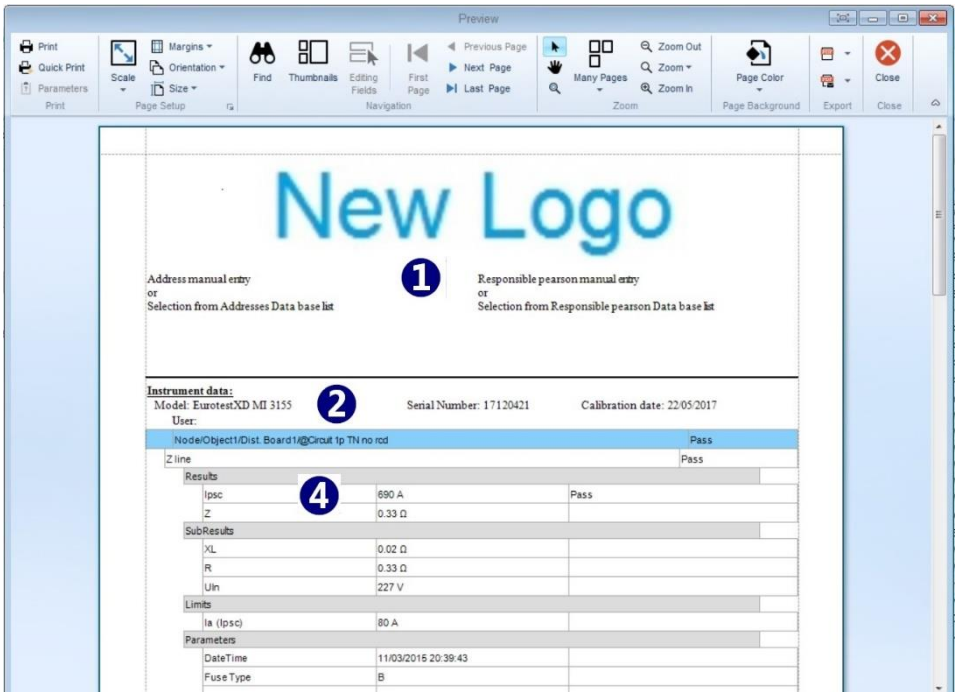


Figure 9.2

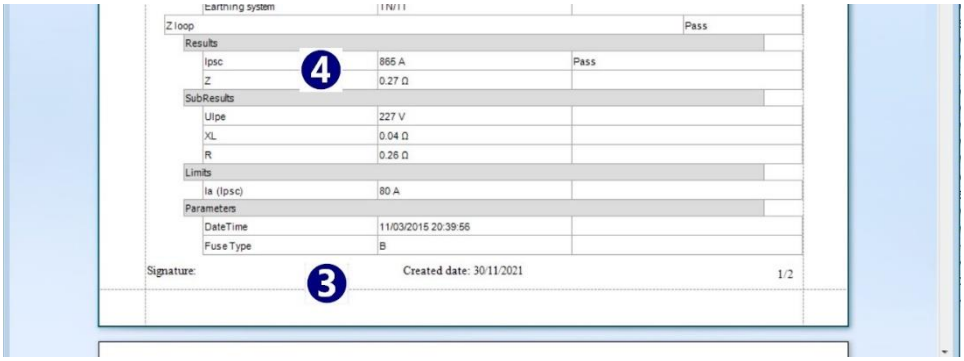


Figure 9.3: Print Results document format preview

- **Header** of Test project Results document appears at the top of the first page:
  - Test site, Operator data and Logo (❶) are as set in Printout results tab of the Settings menu.
- **Instrument data** (❷) was set automatically when the Data structure file was downloaded.
- **Footer** of Test project Results document (❸) appears at the bottom of each page and contains:
  - Signature field – entry by hand.
  - Created date is set automatically.
  - Page numbering is set automatically.

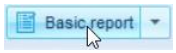
- Measurement Results with Parameters and Limits are presented in table (❹), equipped with individual test result status, each table starts with a Measurement path within a Data structure tree and overall status indication.
- Edit Results document page layout and print it using the Preview manager commands.

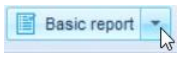
NOTE:
Preview manager, besides the page editing and navigation commands, provides an Export group with options:

- Export to PDF file: Creates a report and opens the explorer browser window to save the document locally in a PDF file format.
- Export to Image file: Creates a report and opens the explorer browser window to save the document locally in an image file format (selectable from a menu).
- E-Mail as PDF file: Creates a file in PDF format and attaches it to an E-Mail message.
- E-Mail as Image file: Creates an image file and attaches it to an E-Mail message.

9.1.2 Basic report format

Options available from the Tools group of the Home menu tab are:

- 

Click on icon: **Basic report.**
- 

Click on arrow: **Filtered Basic report.**

Reports could be printed with a complete data structure or with selected data structure objects only.

9.1.2.1 Creating Basic report

Select Logo images to be printed in the Basic report document Header first:

- Select Report settings tab of Settings menu from the Main tab menu list.
- Select the Basic report tab (**Figure 9.4)** to open Logo setup options:
  - **Browse**: Opens a browser to navigate to the logos image folder; selects a logo and opens it.
  - **Clear logo image**: Deletes an existing logo.
  - **Logo 1**: Upper logo on the right side of the header.
  - **Logo 2**: Bottom logo on the right side of the header.
  - **Number of printed characters**: Specify the number of printed measurement name characters on the report. If set to -1 all measurement name characters are printed.

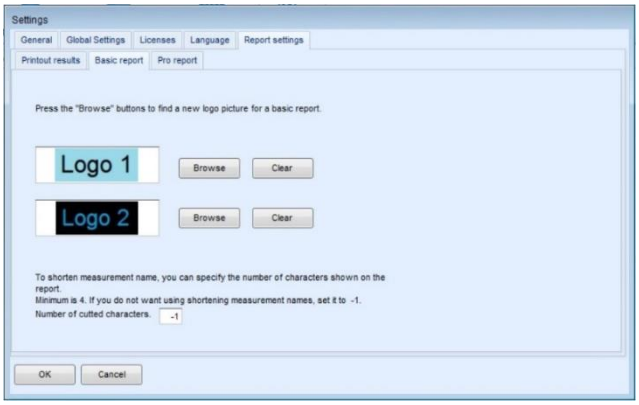


Figure 9.4: Basic report header logo setup

- Open test project Data structure, select Node to print all results, select Measurement to print results of only one test.
- Clicking on Basic report within the Tools group of the Home menu tab opens the Test project's Basic report document in Preview manager window, **Figure 9.5**.
- **Editing fields**: Header and Footer of the Test project Basic report document has user editable fields, click on an icon in the Navigation command group of the Preview manager to highlight them.
- **Header** of Test project Basic report document (❶) appear on the top of each page:
  - Logo 1 and Logo 2 are as set in the Basic report tab of the Settings menu.
  - Editable fields (highlighted pastel blue) should be entered manually.
- Complete **Instrument data** (❷) appears at the beginning of the Results list on the first page only. The instrument data parameters are set automatically when Data structure file is downloaded.
- **Footer** of the Test project Basic report document (❸) appears at the bottom of each page and contains:
  - Signature field – entry by hand.
  - Page numbering is set automatically.
  - Editable fields (highlighted pastel blue) should be entered manually, including Date field.
- **Results** (❹) are presented in two table rows:
  - The first row begins with the Object icon, followed by the Object location path within the Data structure and instrument's serial number.
  - The second row begins with Measurement description, test date and overall status Results, parameters, limits of each individual test are presented one by one in a string.
- **Edit** the Results document page layout and print it using the Preview manager commands.

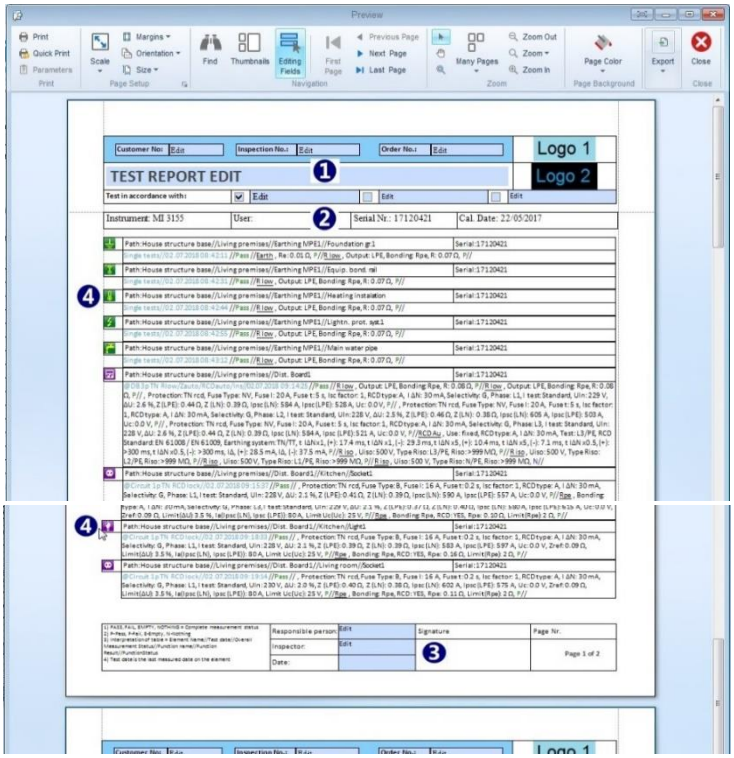


Figure 9.5: Basic report document format preview

NOTE:
The Preview manager, besides the page editing and navigation commands, provides an Export group with options:

- Export to PDF file: Creates a report and opens the explorer browser window to save the document locally in a PDF file format.
- Export to Image file: Creates a report and opens the explorer browser window to save the document locally in an image file format (selectable from a menu).
- E-Mail as PDF file: Creates a file in PDF format and attaches it to an E-Mail message.
- E-Mail as Image file: Creates an image file and attaches it to an E-Mail message.

9.1.2.2 Creating Filtered Basic report

The procedure of creating Filtered Basic reports is the same as creating a Basic report, except that Filter options (**Figure 9.6**) can be set. A filter settings window appears on the screen after Filtered Basic report command is selected:

- **Use data from / to**: sets the range of dates (❶), within which the Measurements are included in report.
- **Include Sub results**: by default, Measurement Sub results are not presented in the Filtered Basic report format; click the check box (❷) to include them.
- **Include Limits**: by default, Measurement Limits are not presented in the Filtered Basic report format; click the check box (❸) to include them. By including the Limits, including of Sub results is set by default.
- Confirm the settings to open the Test project Filtered Basic report document in the Preview manager window.

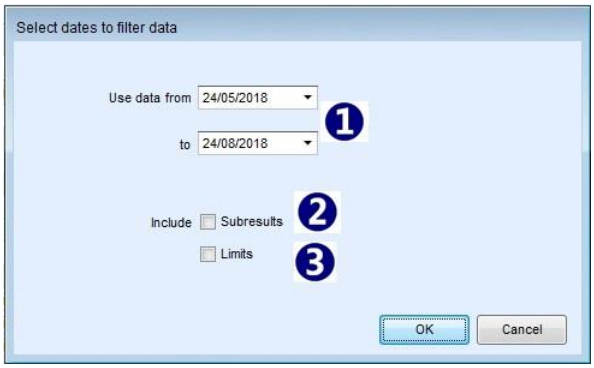


Figure 9.6: Setting window of Filtered Basic report

10 Creating Reports

10.1 Creating Reports

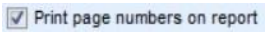
Metrel ES Manager supports comprehensive test reports that consist of inspection pages and test result pages. Reports are Data structure forms, based on predefined templates according to national standards or the rules of regulatory organisations. Created reports are saved in the reports subdirectory of the Data structure file. Printing and PDF creating functionality of the Reports depends on the instrument's licence key privileges. Each preformed measurement is equipped with meta-data of the S/N of the instrument that performed the measurement. If a Report form is not licenced, it launches in demo mode within the Report creating wizard. An appropriate message appears at the right bottom of the wizard window.

10.1.1 Creating new Reports Step by Step

New Reports can be created from a Data structure file downloaded from the instrument with the report wizard in the Reports menu. The Report wizard is a step-by-step tool for completing the final report in a "what you see is what you get" manner. Each page of the report is shown with a click on the Next button to navigate. On the pages some fields are filled in advance with measurements and other fields are filled manually. Fields which must contain addresses and dates have drop down menus with pre-stored addresses in the Database Tab or calendar for dates.

NOTE:

By default, automatic Reports page numbering is active.

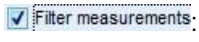
Uncheck the 

field in the General tab of the Main tab Settings menu, if manual page numbering is required for Reports. The new setting will be permanently stored.

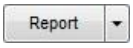
10.1.1.1 Select Report Format

The user can select a pre-prepared Report form:

- Open a test project Data structure file and within the Tree view, select an appropriate structure element for which the test Report should be created. Reports that can be created from the corresponding structure elements are appropriately marked.
- Click on the 

icon within the Reports group of the Home menu tab to open a Report form selector dialog box, **Figure 10.1**.
- 

: By default, the Date filter is not active, all measurements are included in the Report. Check the 'Filter measurements' box and set a date period to include only the Measurements performed within the selected date period.
- Select a Report form from the list and click on the 

button in the Report selection box. The selected Report form is opened in the Report Wizard Editor Screen for editing.
- Clicking on the arrow next to the 

Report button offers additional options: *Create PDF report* and *Print report*, both without further editing possibility. This is suitable for large data structures, editing of which can exceed PC RAM capacity.

NOTE:
Available Report forms are presented in blue background and depend on the properties of the selected Data structure object. In addition to the Report form name, available number of Licenced reports and available number of All Reports are presented.
Licenced:0 mean that there are insufficient licence privileges and the Report can be presented in demo mode only.
If number following All: is >1, it means that the subtree structure of the selected object contains more than one object. For each, an individual report is created. The same applies, if more than one object is selected within the Data structure.

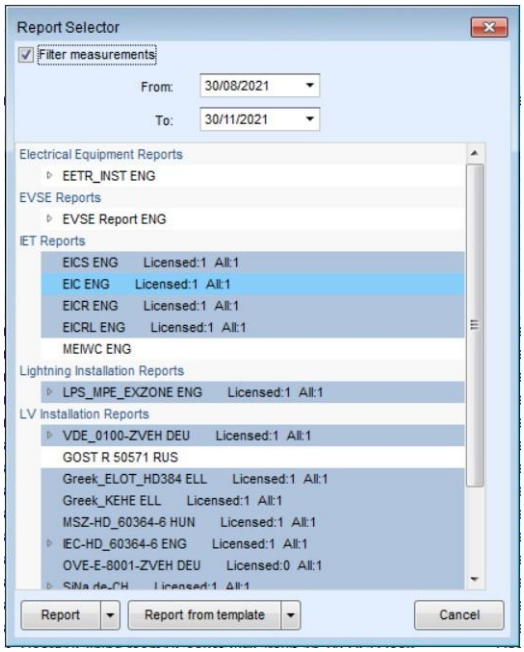


Figure 10.1: Report form selector box

10.1.1.2 Report Wizard Editor Screen

The selected Report form is opened in the Report Wizard Editor Screen, presented on **Figure 10.2**:
Editing options which are selectable from menu at the top of the page are:

- Commands organized in Groups are available at the top of Report wizard screen (❶).
- Report form page layout (❷).
- Page selector (❸): You can choose which pages you want to view, print or save to pdf.
- Database list buttons (❹): click to open a Database list to enter data to the nearest field.

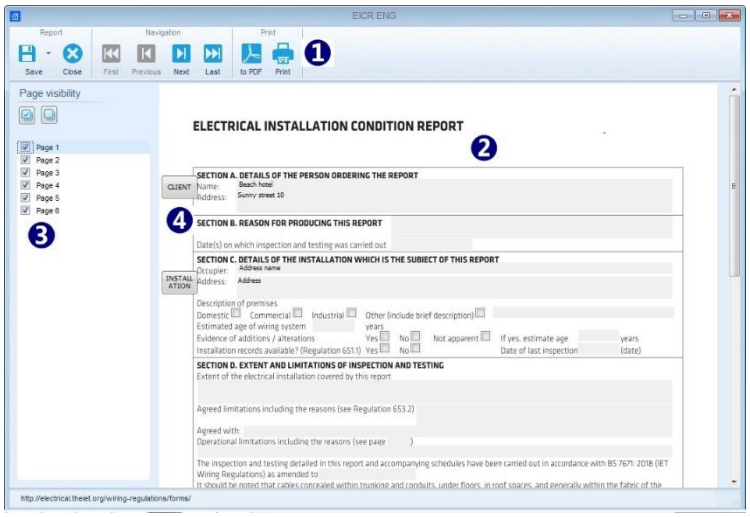


Figure 10.2: Report Wizard Editor Lookout

10.1.1.3 Check and Fill Report Pages

All pages are like an original report and are shown in "what you see is what you get" style.

Navigation through the Report form:

At every step you can go one page back or one page forward, to the end or to the beginning of the document using commands from the Navigation group.

Select the page from Page selector to jump to the desired page.

User data entry:

The user can click on every field on the page and modify it.

Click on buttons on the left side of the page to open a Database list associated with the nearest field.

The following figure shows how to, after click to date field, pick a date from the calendar (❶) and select an address from the database (❷).

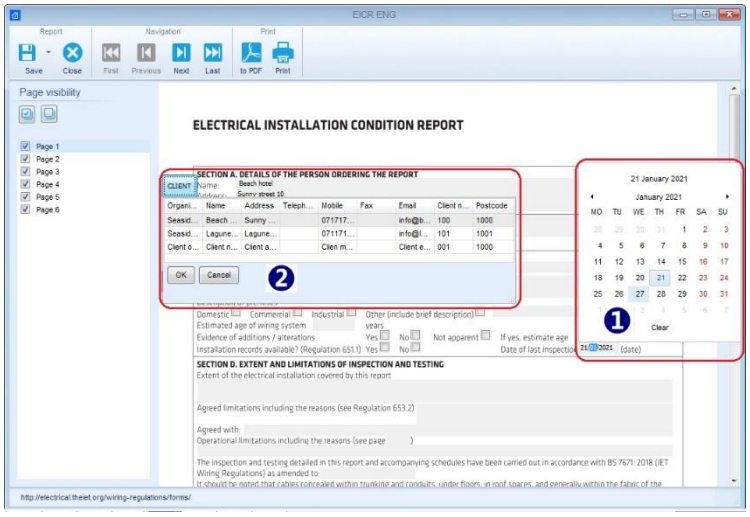


Figure 10.3: Pick a date from calendar and select an address from the database example

Measurements data:

Data structure file Measurements downloaded from Metrel instruments (❸) and ticks (❹) are automatically filled in the table.

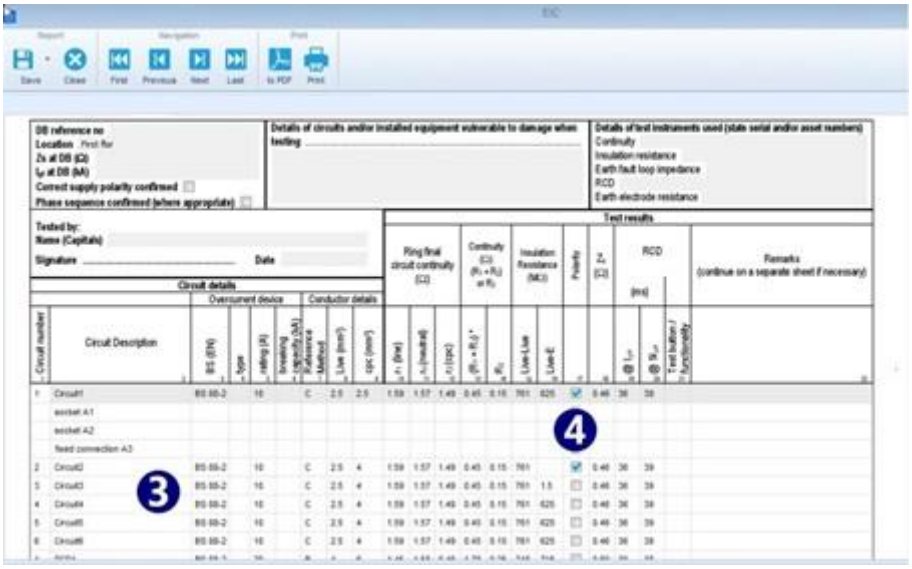


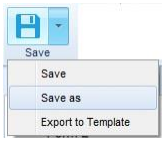
Figure 10.4: Measurements with results are automatically filled in the report

10.1.2 Exporting or printing final report

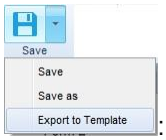
After completing all pages, the user can choose the preferred output format of the final report. Available options are:

- 

: **Save:** Save the Report under same name within the Data structure file.

- 

Save as - Save the Report under a different name within the Data structure file.

- 

: **Export to template:** Save the Report to the selected folder as an external template file (*.rtmpl) to be used for report creation on other Data structure files in the same work scope region.

- 

: Printing the report.

- 

: Export the Report in PDF format. The user is prompted to select a folder and the file name.

Note

Printing the report directly to a printer may not work for some older printer models. In Such case choose print to PDF. A PDF version will be created and can be printed using the Adobe® Acrobat reader®, available from [http://get.adobe.com/uk/reader].

10.1.3 Pro Export to Excel file format

The Pro Export function enables data exporting from Test project Data structure files to an Excel table for further processing.
Availability of the Pro export function depends on the instrument's licence key privileges.
The instrument's basic licence do not allow executing the Pro export function.
The Pro export function is accessed from the drop-down menu of the ES Manager Main tab, as presented in **Figure 10.5**. It is active only when Test project Data structure file is opened.
A user can select the range of objects for which the data will be exported to an Excel spreadsheet. With the selection of an object within the Data structure tree, only the data of the selected object and it's subtree objects and associated measurements data will be exported. With selection of the structure object Node, a complete Data structure will be exported.

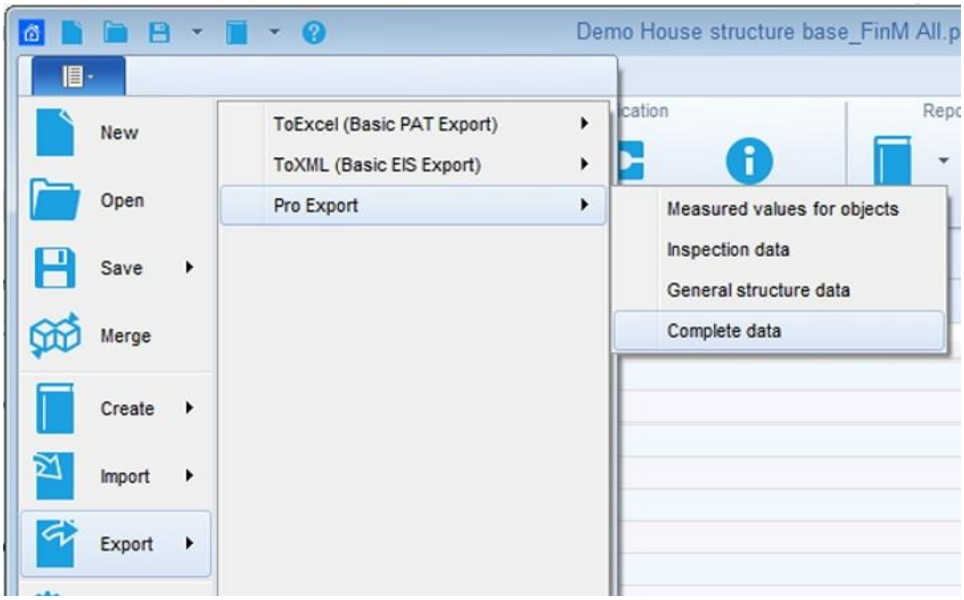


Figure 10.5: Pro export function selection menu

The user can select between four basic Excel table column layouts options:

- **Measured values for objects:** user selectable data is limited to Measurement data.
- **Inspection data:** user selectable data is limited to Inspections data.
- **General structure data:** user selectable data is limited to Structure data.
- **Complete data:** all Measurements, Inspections and Structure data can be selected by the user.

After the table layout is selected, a preview appears in an Export form window, presented in **Figure 10.6**.

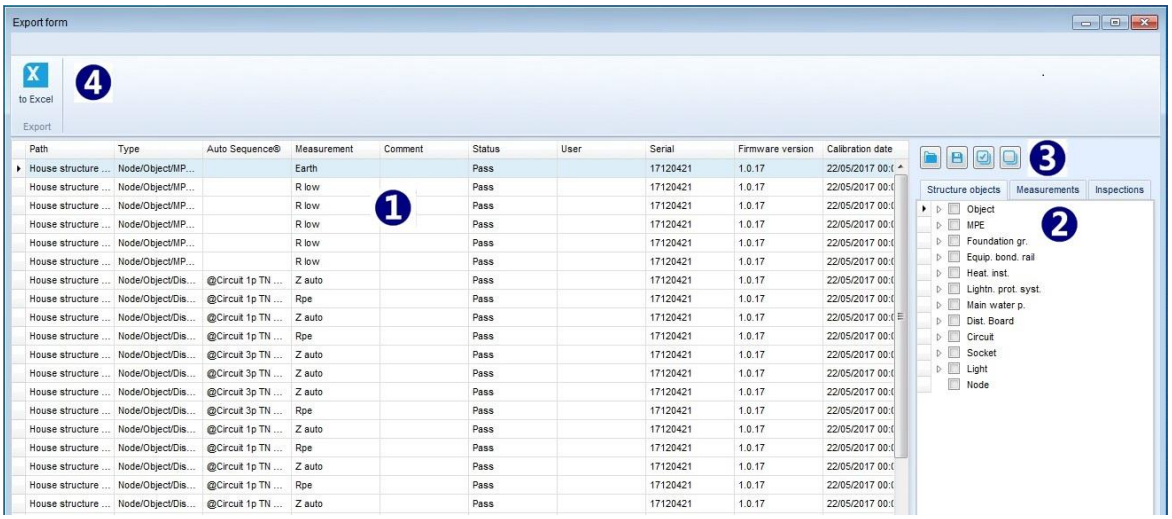


Figure 10.6: Export form table data content preview window

Export form window options offered to the user are:

- Table data content preview area (❶).
- Data tabs - User data column selection checkboxes organized in tabs (❷).
- Function buttons (❸).
- Command strip (❹).

Table data content preview area

Test measurement data appears in a separate row for each single test appended to the objects within the selected Data structure tree. By default, the following data columns are offered:

- **Path**: Description of the Data structure path to the tested object.
- **Type**: Type description of the Objects within the path.
- **Auto Sequence®**: Name of the Auto Sequence® appended to the test object.
- **Measurement**: Single test name.
- **Comment**: Comment added to the test.
- **Status**: Status of the single test.
- **User**: Instrument username.
- **Serial**: Instrument's serial number.
- **Firmware version**: Instrument's firmware version.
- **Calibration date**: Instrument's calibration date.

The user can add additional data columns with the selection of checkboxes within the Data tabs.

Data tabs

The user can add custom selected data columns to the default table with the selection of a checkbox in front of the Data name listed within the three groups of Data tabs:

- Structure objects
- Measurements
- Inspections

Data is selected with click on the empty square checkbox in front of the Name of the data. The selection is marked with a tick. To un-select data, click on the square with the tick in front of it again.

When data common with other objects or measurements is selected, it appears selected for all objects and measurements. If a selection of such data is cleared, a warning message 'Duplicates were found' appears. The user should confirm the un-selection of data within all objects and measurements.
A triangle in front of the data checkbox represents, that sub data for an individual selection exists. Click on the triangle to open a sub data list. Click on the sub data checkbox to select it. The upper level data checkbox appears filled with blue colour representing, that only a part of the sub data is selected. Select the checkbox on the upper level to select all sub data.

Function buttons

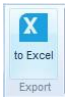
Save filter: After custom selection of export data columns is finished, the user can save the selection as a *filename.filter* file. Clicking on the Save filter button opens a browser, where the user can select the save folder and define the file name.

Load filter: Saved data columns filter can be loaded to other Data structure files to achieve the same user data export selection. Clicking on the Load filter button opens a browser, where the user can browse to the folder with the saved filter files and select the appropriate one. Only one filter file can be applied at the same time. Loading of another filter file will overwrite the previous filter file data.

Check all: Selects all available user selectable data for export.

Uncheck all: Clear all user selections of the data to be exported.

Command 'to Excel'



to Excel: After all user defined data for export is selected, click on the button within the command strip to create an Excel file. A browser is opened, where the user can select the save folder and define the file name.

10.2 Creating Web Reports

User can create, manage and archive Reports of Test project measurements with WebReports application. The application is a part of the Metrel Ecosystem platform, using the same user repository as Metrel Cloud. Before first use, new user must first register Metrel Cloud account and then enter WebReports License key to Cloud account.
WebReports application is available only when Work scope Photovoltaic Region / PV testing is selected from Home tab Setting menu.
For an easy start different pre-defined report templates are offered by Metrel. They can be used as they are or be modified and used as personal templates. The tool enables to create customized reports suited to one's personal demands. New templates can be made from scratch.
WebReports templates are accessed from Metrel ES Manager Home tab Reports menu:

- 

: Web Report command is active when Data structure file with appended measurements is opened.
    - **Option**: Data structure file was opened from storage location other than Cloud: browser is opened first to navigate and save Data structure file to Cloud folder.

- **Option**: Data structure file was opened from Cloud storage:
  Report Selector window with available list of graphic Report template files is opened, see **Figure 10.7**. A convenient tool is available to search for pre-made Report template.

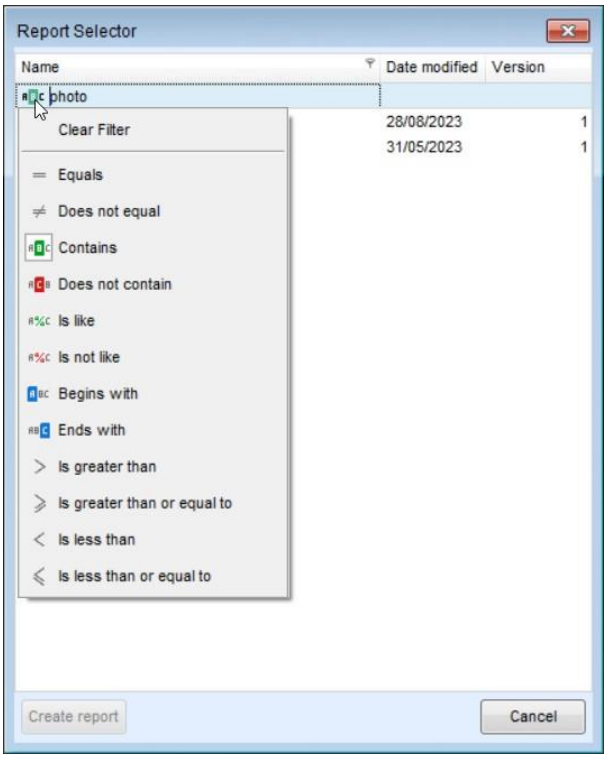


Figure 10.7: Report Selector window with Find tool opened

Command options:

- Create report: Select appropriate Report graphic template and confirm. WebReports editor is opened.
- Cancel: Dismiss Report Selector window

Refer to WebReports User Manual for details on how to create templates and edit, manage and archive reports.

11 Manage Reports

11.1 Manage Reports

Manage Reports tool from the Reports tools group of the Home menu tab is available, when a Data structure file is opened. All previously created and saved reports associated with the opened Data structure file can be managed:

- 

: Clicking on the icon opens a list of existing reports (**Figure 11.1**) for managing. Each report can be opened for editing, deleted, or re-created (❶):
  - : Delete Report
  - : Open Report
  - : Re-create Report (Update with new data from a file)
- 

: Refresh list of existing Reports

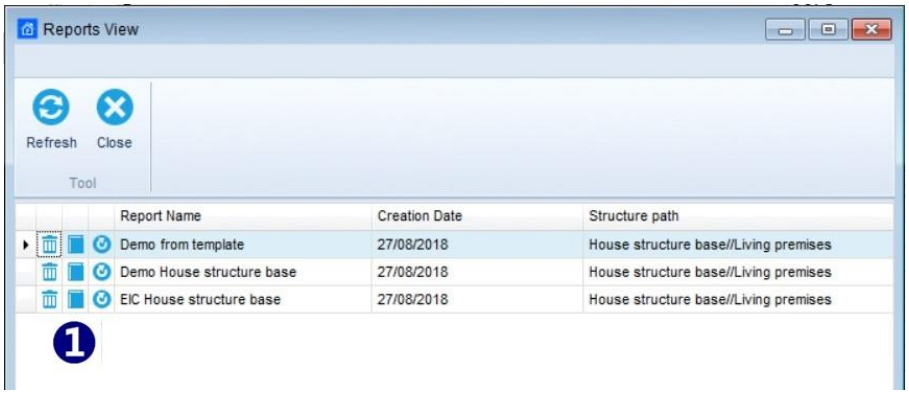


Figure 11.1: Manage reports window

11.2 Re-create Reports

All existing or saved reports can be re-created via the Re-create button. Re-creation of a report updates the selected report with new data from the opened Data structure file. All earlier data in the report that was not updated remains unchanged.

- 
Recreate Report: Clicking on the icon within a row of the Report to be re-created opens a warning message first, see **Figure 11.2:**
  - Some data can be modified or overwritten: After new downloading of the Data structure file from the instrument, recreated Report is refreshed with new test data; confirm to continue.
  - Next, the user is asked to set the 'Date Filter' before recreation. Select YES and set the date period and confirm or select NO to continue.

- A re-created report form is opened in the Report Wizard Editor Window. To perform further necessary editing of the report fields, save it or export it as a template.

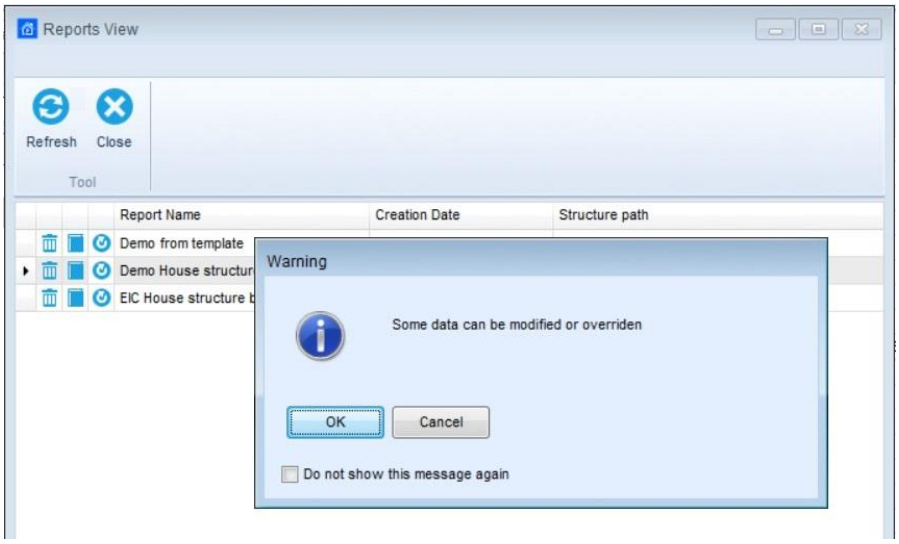
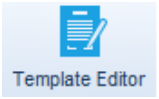


Figure 11.2: Re-create reports

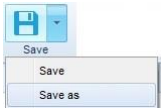
12 Report Templates

12.1 Editing Report Templates

Report templates ("*.rtmpl" file) are generated from Create Report wizard by using 'Export to template' Report export option. These external Report templates can be used for report creation on other Data structure files (Projects) in the same work scope region.
A template editor is available from the Tools group of the Home tab menu:

- 

: Opens a browser to navigate to the Report template files folder location on the PC. The selected Report template file (*.rtmpl) is opened in the Report template editor window, **Figure 12.1**:
  - Commands are available at the top of the Report Template editor screen (❶).
  - Page selector (❷): each Report Template page can be selected for layout presentation on the screen.
  - Report Template page layout (❸).
  - Database list buttons (❹).
- **Navigation through the Report Template**:
  - At every step you can go one page back or one page forward, to the end or to the beginning of the document using the commands from the Navigation group.
  - Select a page within Page selector to jump to the desired page.
- **User data entry**:
  - The user can click on every field in the page and modify it.
  - Click on the buttons on the left side of the page to open the associated Database list.
- 

: **Save:** Save the Report Template under same name.
- 

Save as: Save the Report Template under a different name.

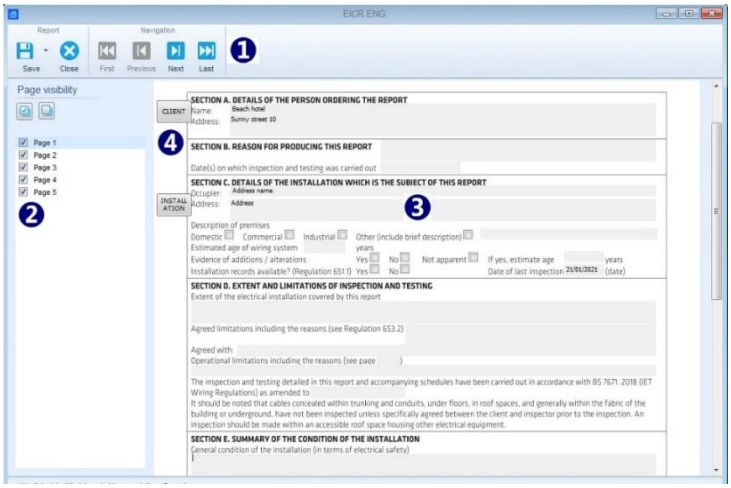
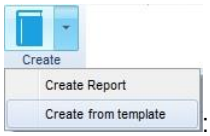


Figure 12.1: Report Template Editor

12.2 Using Report Templates

Saved templates can be used with the **Create from template** option from the Reports group of the Main tab menu. When a Data structure is opened, the following options are available:

- 

: Opens a browser to navigate to the external Report Template file folder. Select one template file and click Open.
- An information window appears. The user is asked to filter the data with a 'Date Filter' before opening. Select YES and set the date period and confirm, or NO to continue.
- A report Template is opened in the Report Wizard Editor Screen:
  - Measurements associated with the measurements within the opened Data structure are updated, other measurements are added to the Report.
  - Other previous data remains unchanged.
  - Data structure form remains the same and cannot be changed.
  - User editable fields can be edited.
- Created Report can be Saved or Exported as a template.
- Created Report can be printed to a PDF file format or directly to a Printer.

13 Troubleshooting

13.1 Introduction to troubleshooting

This chapter contains information that might be helpful if you encounter problems while working with Metrel ES Manager. If you don't find the help required to troubleshoot your problems, you can contact us directly. Check the Online support information for information on how to reach us.
Your comments will help us improve our product and update the manuals with any necessary information.

13.2 Instrument connection troubleshooting

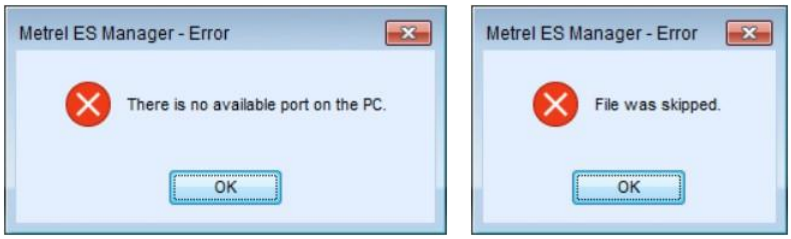


Figure 13.1: Instrument hardware connection and driver error message

If the instrument is switched on and it settings are configured correctly, and the communication still does not work, please check the following:

- Make sure that the cable is not broken and that the connectors are inserted properly.
- Check that correct PC COM port is selected
- Make sure that you close all other applications that might be using the port. You can also try restarting Windows and the instrument connected to make sure that all such applications are closed.
- If none of this helps, there might be a problem with the device driver for the port you are using. You could try to reinstall or repair the Metrel ES Manager to make sure that your USB drivers are up to date.

13.3 Reporting problems to Metrel

This section deals with unexpected problems, errors and exceptions that may occur during usage of Metrel ES Manager. If you have encountered an error while using Metrel ES Manager, the best thing to do is to report this issue to your local distributer.

13.3.1 Bug report checklist

This section contains a brief list of items which your bug report should contain. For detailed information about each step, consult the next section.
Regardless of the problem you are reporting, the minimum amount of information we need is:

- A short description of the problem and, most importantly, steps needed to reproduce it.
- Metrel ES Manager log file (located in the *C:\Program Files (x86)\Metrel\MESM\logs* folder).

Error log file (located in the C:\Users\%userprofile%\AppData\Roaming\IonSeriLog\Ion.Translator folder).

14Online support information

14.1 How to get support?

14.1.1 Contact your local distributer!

Most issues can be solved by your local distributor. This support is accessible in your local language. Find the closest distributor here: https://www.metrel.si/en/locations/

14.1.2 Contact us directly

Metrel d.o.o.Slovenia
Ljubljanska cesta 77
Horjul, SI-1354 Slovenia
Phone: +386 1 7558 200
Fax: +386 1 7549 226
E-mail: support@metrel.si

Web site: www.metrel.si [http://www.metrel.si/]

14.1.3 Use the online contact form

You can also contact us using our Contact form [https://www.metrel.si/en/contact/]. This web page also contains a map of our distributer network and a route to Metrel Company's headquarters.

Appendix A Instrument Work scope mapping table

Work Scope	Region	Profile / Instrument
Safety of Electrical Equipment I	Machine, Switchgear and PAT testing EU	AUAA [MI 3325 EU]
Safety of Electrical Equipment I	Machine, Switchgear and PAT testing EU	AUAJ [MI 3325 DEU]
Safety of Electrical Equipment I	Machine, Switchgear and PAT testing UK	AUAB [MI 3325 UK]
Safety of Electrical Equipment I	Machine, Switchgear and PAT testing AUS, NZ	AUAD [MI 3325 AUS]
Safety of Electrical Equipment I	Machine, Switchgear and PAT testing Hungarian	AUAE [MI 3325 HUN]
Safety of Electrical Equipment I	Machine, Switchgear and PAT testing Austrian	AUAF [MI 3325 AUT]
Safety of Electrical Equipment I	Machine, Switchgear and PAT testing Finnish	AUAG [MI 3325 FIN]
Safety of Electrical Equipment I	Machine, Switchgear and PAT testing Russian	AUAH [MI 3325 RUS]
Safety of Electrical Equipment I	PAT (new instruments)	CBAB [MI 3340 ANG]
Safety of Electrical Equipment I	PAT (new instruments)	CBAC [MI 3340 UK]
Safety of Electrical Equipment I	PAT (new instruments)	CBAD [MI 3340 AUS]
Safety of Electrical Equipment I	PAT (new instruments)	AOAB [MI 3360 ANG]
Safety of Electrical Equipment I	PAT (new instruments)	AOAC [MI 3360 F ANG]
Safety of Electrical Equipment I	PAT (new instruments)	AOAD [MI 3360 M ANG]
Safety of Electrical Equipment I	PAT (new instruments)	AOAE [MI 3360 25A ANG]
Safety of Electrical Equipment I	PAT (new instruments)	AOAG [MI 3360 UK]
Safety of Electrical Equipment I	PAT (new instruments)	AOAH [MI 3360 F UK]
Safety of Electrical Equipment I	PAT (new instruments)	AOAI [MI 3360 M UK]
Safety of Electrical Equipment I	PAT (new instruments)	AOAF [MI 3360 25A UK]
Safety of Electrical Equipment I	PAT (new instruments)	AOAN [MI 3360 DEU]
Safety of Electrical Equipment I	PAT (new instruments)	AOAO [MI 3360 F DEU]
Safety of Electrical Equipment I	PAT (new instruments)	AOAP [MI 3360 M DEU]
Safety of Electrical Equipment I	PAT (new instruments)	AOAQ [MI 3360 25A DEU]
Safety of Electrical Equipment I	PAT (new instruments)	AOAK [MI 3360 AUS]
Safety of Electrical Equipment I	PAT (new instruments)	AOAL [MI 3360 F AUS]
Safety of Electrical Equipment I	PAT (new instruments)	AOAM [MI 3360 M AUS]
Safety of Electrical Equipment I	PAT (new instruments)	AOAJ [MI 3360 25A AUS]
Safety of Electrical Equipment I	PAT (new instruments)	EFAB [MI 3365 ANG]
Safety of Electrical Equipment I	PAT (new instruments)	EFAC [MI 3365 F ANG]
Safety of Electrical Equipment I	PAT (new instruments)	EFAD [MI 3365 M ANG]
Safety of Electrical Equipment I	PAT (new instruments)	EFAE [MI 3365 25A ANG]
Safety of Electrical Equipment I	PAT (new instruments)	EFAF [MI 3365 AUS]
Safety of Electrical Equipment I	PAT (new instruments)	EFAG [MI 3365 UK]
Safety of Electrical Equipment I	PAT (new instruments)	EFAH [MI 3365 F AUS]
Safety of Electrical Equipment I	PAT (new instruments)	EFAI [MI 3365 F UK]
Safety of Electrical Equipment I	PAT (new instruments)	EFAJ [MI 3365 M AUS]
Safety of Electrical Equipment I	PAT (new instruments)	EFAK [MI 3365 M UK]
Safety of Electrical Equipment I	PAT (new instruments)	EFAL [MI 3365 25A AUS]
Safety of Electrical Equipment I	PAT (new instruments)	EFAM [MI 3365 25A UK]
Safety of Electrical Equipment I	PAT (new instruments)	EFAN [MI 3365 DEU]
Safety of Electrical Equipment I	PAT (new instruments)	EFAO [MI 3365 F DEU]

Safety of Electrical Equipment I	PAT (new instruments)	EFAP [MI 3365 M DEU]
Safety of Electrical Equipment I	PAT (new instruments)	EFAQ [MI 3365 25A DEU]
Safety of Electrical Equipment I	PAT (new instruments)	EFAR [MB 3365 DEU]
Safety of Electrical Equipment I	PAT (new instruments)	EFAS [MB 3365 F DEU]
Safety of Electrical Equipment I	PAT (new instruments)	EFAT [MB 3365 M DEU]
Safety of Electrical Equipment I	PAT (new instruments)	EFAU [MB 3365 25A DEU]
Safety of Electrical Equipment II	Production Line Testing	ANAA [MI 3394 ANG]
Safety of Electrical Equipment II	Production Line Testing	ANAB [MI 3394 DEU]
Safety of Electrical Equipment II	Production Line Testing	ANAD [MI 3394 POL]
Safety of Electrical Equipment II	Production Line Testing	ANAC [MI 3394 ESP]
Safety of HV Installations	Transformer	APAA [MI 3280 ANG]
Safety of HV Installations	Transformer	AKAB [MI 3281 ANG]
Safety of HV Installations	Protective Earthing	ARAD [MI 3290 X]
Safety of HV Installations	Protective Earthing	ARAB [MI 3290 GF]
Safety of HV Installations	Protective Earthing	ARAA [MI 3290 GL]
Safety of HV Installations	Protective Earthing	ARAC [MI 3290 GP]
Safety of HV Installations	Protective Earthing	ARAF [MI 3290 GH]
Safety of HV Installations	Protective Earthing	ARAE [MI 3290 G]
Safety of HV Installations	Protective Earthing	AXAA [MI 3295M - EU]
Safety of LV Installations	UK Installations	ALAB [MI 3152 UK]
Safety of LV Installations	EU Installations	ALAA [MI 3152 ANG]
Safety of LV Installations	EU Installations	ALAI [MI 3152 CHE]
Safety of LV Installations	EU Installations	ALAK [MI 3152 DEU]
Safety of LV Installations	EU Installations	ALAM [MI 3152 DNK]
Safety of LV Installations	EU Installations	ALAN [MI 3152 SVN]
Safety of LV Installations	EU Installations	ALAO [MI 3152 POL]
Safety of LV Installations	EU Installations	ALAP [MI 3152 CZE]
Safety of LV Installations	EU Installations	ALAR [MI 3152 NLD]
Safety of LV Installations	EU Installations	ALAS [MI 3152 SVK]
Safety of LV Installations	EU Installations	ALAV [MI 3152 ISR]
Safety of LV Installations	French Installations	ALAG [MI 3152 FRA Sefram]
Safety of LV Installations	AUS/NZ Installations	ALAT [MI 3152 NZL]
Safety of LV Installations	AUS/NZ Installations	ALAU [MI 3152 AUS]
Safety of LV Installations	Hungarian Installations	ALAD [MI 3152 HUN]
Safety of LV Installations	Austrian Installations	ALAJ [MI 3152 AUT]
Safety of LV Installations	Finnish Installations	ALAC [MI 3152 FIN]
Safety of LV Installations	Russian Installations	ALAL [MI 3152 RUS]
Safety of LV Installations	EU Installations	AMAA [MI 3152H ANG]
Safety of LV Installations	EU Installations	AMAD [MI 3152H CHE]
Safety of LV Installations	EU Installations	AMAE [MI 3152H POL]
Safety of LV Installations	EU Installations	AMAC [MI 3152H CZE]
Safety of LV Installations	EU Installations	AMAF [MI 3152H SVK]
Safety of LV Installations	Russian Installations	AMAB [MI 3152H RUS]
Safety of LV Installations	UK Installations	ATAB [MI 3155 UK]
Safety of LV Installations	EU Installations	ATAA [MI 3155 ANG]

Safety of LV Installations	EU Installations	ATAJ [MI 3155 CHE]
Safety of LV Installations	EU Installations	ATAO [MI 3155 DNK]
Safety of LV Installations	French Installations	ATAI [MI 3155 FRA]
Safety of LV Installations	AUS/NZ Installations	ATAK [MI 3155 NZL]
Safety of LV Installations	AUS/NZ Installations	ATAC [MI 3155 AUS]
Safety of LV Installations	Hungarian Installations	ATAG [MI 3155 HUN]
Safety of LV Installations	Austrian Installations	ATAF [MI 3155 AUT]
Safety of LV Installations	Finnish Installations	ATAH [MI 3155 FIN]
Safety of LV Installations	Russian Installations	ATAD [MI 3155 RUS]
Safety of LV Old_Installations	Installations (old instruments for UK)	AEAB [MI 3100 SE - UK1]
Safety of LV Old_Installations	Installations (old instruments, standard versions)	AEAA [MI 3100 SE - ANG1]
Safety of LV Old_Installations	Installations (old instruments, standard versions)	AEAD [MI 3100 SE - CZE1]
Safety of LV Old_Installations	Installations (old instruments, standard versions)	AEAE [MI 3100 SE - NLD1]
Safety of LV Old_Installations	Installations (old instruments, standard versions)	AEAL [MI 3100 SE - NLD2]
Safety of LV Old_Installations	Installations (old instruments, standard versions)	AEAG [MI 3100 SE - GRC]
Safety of LV Old_Installations	Installations (old instruments for D, CH)	AEAF [MI 3100 SE - CHE1]
Safety of LV Old_Installations	Installations (old instruments for AUS/NZ)	AEAJ [MI 3100 SE - NZL1]
Safety of LV Old_Installations	Installations (old instruments for Hungary)	AEAI [MI 3100 SE - HUN1]
Safety of LV Old_Installations	Installations (old instruments for Finland)	AEAM [MI 3100 SE – FIN]
Safety of LV Old_Installations	Installations (old instruments, Russian versions)	AEAC [MI 3100 SE - RUS1]
Safety of LV Old_Installations	Installations (old instruments, standard versions)	AFAC [MI 3100B SE - ITA1]
Safety of LV Old_Installations	Installations (old instruments for D, CH)	AFAB [MI 3100B SE - CHE1]
Safety of LV Old_Installations	Installations (old instruments for D, CH)	AFAA [MI 3100B SE - DEU1]
Safety of LV Old_Installations	Installations (old instruments for AUS/NZ)	AFAE [MI 3100B SE - NZL1]
Safety of LV Old_Installations	Installations (old instruments for UK)	ABAB [MI 3102 BT - UK1]
Safety of LV Old_Installations	Installations (old instruments, standard versions)	ABAA [MI 3102 BT - ANG1]
Safety of LV Old_Installations	Installations (old instruments, standard versions)	ABAJ [MI 3102 BT - GRC1]
Safety of LV Old_Installations	Installations (old instruments, standard versions)	ABAD [MI 3102 BT - NLD1]
Safety of LV Old_Installations	Installations (old instruments, standard versions)	ABAE [MI 3102 BT - CZE1]
Safety of LV Old_Installations	Installations (old instruments for D, CH)	ABAG [MI 3102 BT - CHE1]
Safety of LV Old_Installations	Installations (old instruments for France)	ABAI [MI 3102 BT - FRA1]
Safety of LV Old_Installations	Installations (old instruments for AUS/NZ)	ABAC [MI 3102 BT - NZL1]
Safety of LV Old_Installations	Installations (old instruments for Hungary)	ABAO [MI 3102 BT - HUN1]
Safety of LV Old_Installations	Installations (old instruments for Austria)	ABAM [MI 3102 BT - AUT1]
Safety of LV Old_Installations	Installations (old instruments for Finland)	ABAK [MI 3102 BT - FIN]
Safety of LV Old_Installations	Installations (old instruments for UK)	ACAB [MI 3102H BT - UK1]
Safety of LV Old_Installations	Installations (old instruments, standard versions)	ACAA [MI 3102H BT - ANG1]
Safety of LV Old_Installations	Installations (old instruments, standard versions)	ACAE [MI 3102H BT - LTU1]
Safety of LV Old_Installations	Installations (old instruments, standard versions)	ACAH [MI 3102H BT - ESP]
Safety of LV Old_Installations	Installations (old instruments, standard versions)	ACAD [MI 3102H BT - CZE1]
Safety of LV Old_Installations	Installations (old instruments for D, CH)	ACAF [MI 3102H BT - CHE]
Safety of LV Old_Installations	Installations (old instruments for Hungary)	ACAG [MI 3102H BT - HUN1]
Safety of LV Old_Installations	Installations (old instruments, Russian versions)	ACAC [MI 3102H BT - RUS1]
Safety of LV Old_Installations	Installations (old instruments, Russian versions)	ADAA [MI 3102H SE - RUS1]
Safety of LV Old_Installations	Installations (old instruments, EU versions)	BEAA [MI 3108 PV - EU]

Safety of LV Old_Installations	Installations (old instruments, UK versions)	BEAB [MI 3108 PV - UK]
Safety of LV Old_Installations	Installations (old instruments, D, CH versions)	BEAC [MI 3108 PV - SVICA]
Safety of LV Old_Installations	Installations (old instruments, AU versions)	BEAD [MI 3108 PV - AUS]
Safety of LV Old_Installations	Installations (old instruments, FR versions)	BEAE [MI 3108 PV - FRA]
Safety of LV Old_Installations	Installations (old instruments, HU versions)	BEAF [MI 3108 PV - HUN]
Safety of LV Old_Installations	Installations (old instruments, AT versions)	BEAG [MI 3108 PV - AUT]
Safety of LV Old_Installations	Installations (old instruments, FIN versions)	BEAH [MI 3108 PV - FIN]
Safety of LV Old_Installations	Installations (old instruments, RU versions)	BEAI [MI 3108 PV - RUS]
Safety of LV Old_Installations	Installations (old instruments, EU versions)	BFAA [MI 3109 PV Lite - EU]
Safety of LV Old_Installations	Installations (old instruments, UK versions)	BFAB [MI 3109 PV Lite - UK]
Safety of LV Old_Installations	Installations (old instruments, AU versions)	BFAC [MI 3109 PV Lite - AUS]
Safety of LV Old_Installations	Installations (old instruments, D, CH versions)	BFAD [MI 3109 PV Lite - DEU]
Safety of LV Old_Installations	Installations (old instruments, FR versions)	BFAE [MI 3109 PV Lite - FRA]
Safety of LV Old_Installations	Installations (old instruments, HU versions)	BFAF [MI 3109 PV Lite - HUN]
Safety of LV Old_Installations	Installations (old instruments, AT versions)	BFAG [MI 3109 PV Lite - AUT]
Safety of LV Old_Installations	Installations (old instruments, FIN versions)	BFAH [MI 3109 PV Lite - FIN]
Safety of LV Old_Installations	Installations (old instruments, RU versions)	BFAI [MI 3109 PV Lite - RUS]
Safety of LV Old_Installations	Installations (old instruments for UK)	AJAC [MI 3125 BT - UK2]
Safety of LV Old_Installations	Installations (old instruments, standard versions)	AJAB [MI 3125 BT - DNK1]
Safety of LV Old_Installations	Installations (old instruments for D, CH)	AJAJ [MI 3125 BT - CHE4]
Safety of LV Old_Installations	Installations (old instruments for D, CH)	AJAA [MI 3125 BT - DEU1]
Safety of LV Old_Installations	Installations (old instruments for AUS/NZ)	AJAN [MI 3125 BT - AUS3]
Safety of LV Old_Installations	Installations (old instruments for Austria)	AJAS [MI 3125 BT - AUT]
Safety of LV Old_Installations	Installations (old instruments for D, CH)	AIAM [MI 3125B - CHE2]
Safety of LV Old_Installations	Installations (old instruments for D, CH)	AIAD [MI 3125B - DEU2]
Safety of LV Old_Installations	Installations (old instruments for D, CH)	AIAK [MI 3125B - DEU5]
Safety of LV Old_Installations	Installations (old instruments for D, CH)	AIAL [MI 3125B - DEU6]
Safety of LV Old_Installations	PAT (old instruments, standard versions)	AQAA [MI 3309 BT ANG1]
Safety of LV Old_Installations	PAT (old instruments, standard versions)	AQAF [MI 3309 BT UK1]
Safety of LV Old_Installations	PAT (old instruments, standard versions)	AQAD [MI 3309 BT CHE1]
Safety of LV Old_Installations	PAT (old instruments, standard versions)	AQAH [MI 3309 BT CZE1]
Safety of LV Old_Installations	PAT (old instruments for AUS/NZ)	AQAG [MI 3309 BT NZL1]
Industry	General	AYAB [MI 3211 ANG]
Industry	General	BHAB [MI 3215 ANG]
Industry	Industry	AVAB [MI 3288 EI]
Photovoltaic	PV testing	EEAB [MI 3114 ANG]
Photovoltaic	PV testing	BBAB [MI 3115 ANG]
Photovoltaic	PV testing	BJAB [MI 3116 ANG]
Vehicles	EV	CDAB [MI 3132 ANG]

Appendix B PV Post Processing Analysis

PV Post Processing Analyse is an extension of Metrel ES Manager and is intended for deeper analysis of I/U characteristics of PV modules and strings.

B.1 Opening Post Processing Analysis

After the Data structure file with finished PV test measurements is opened, position mouse pointer on the structure element with I/U measurement and apply right click. When menu window appears on the screen, select *PV/Post processing analyse* command (see Figure B.1) to automatically open Post Processing Analyse window.

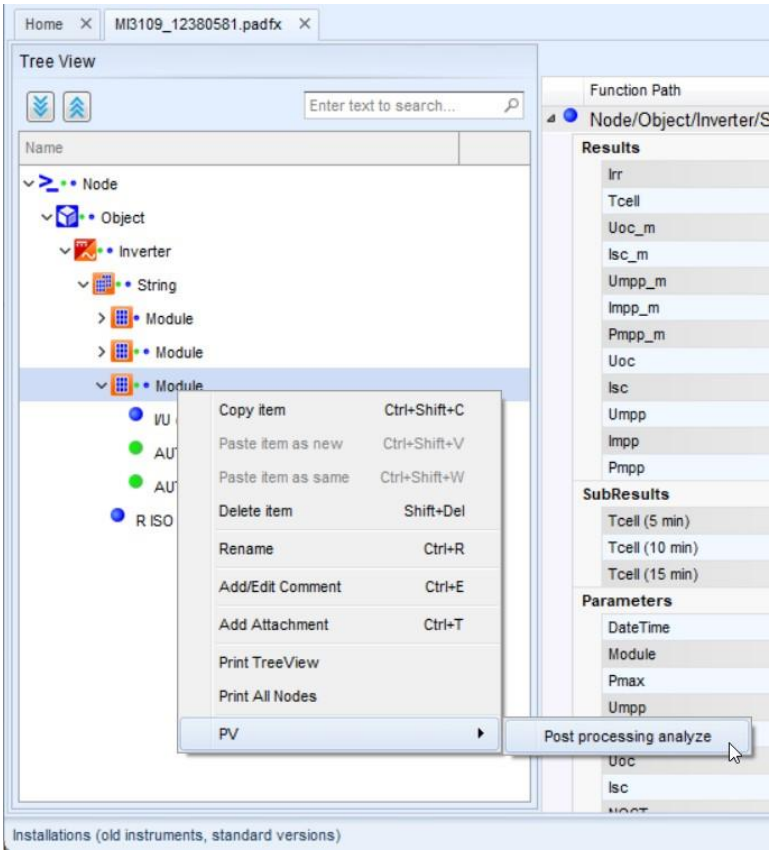


Figure B.1: Post Processing Analyse opening command

B.2 Post Processing Analyse actions

Post Processing Analyse window is presented on Figure B.2. The results are presented in graphical form at the top of the window and numerical form in the table beneath. On the left, Module data, Instrument data, Results, Environmental conditions and values for STC calculation are listed. At the header row is a command for opening PV module database.

Actions, which can be performed, are:

- Analysis of graphical representation of the measured I/U and power characteristic of the module or string.
- Checking and setting of some parameters needed for STC calculations.
- Replacing the module data with data from private or public module DB.

- Maintenance of private module DB.

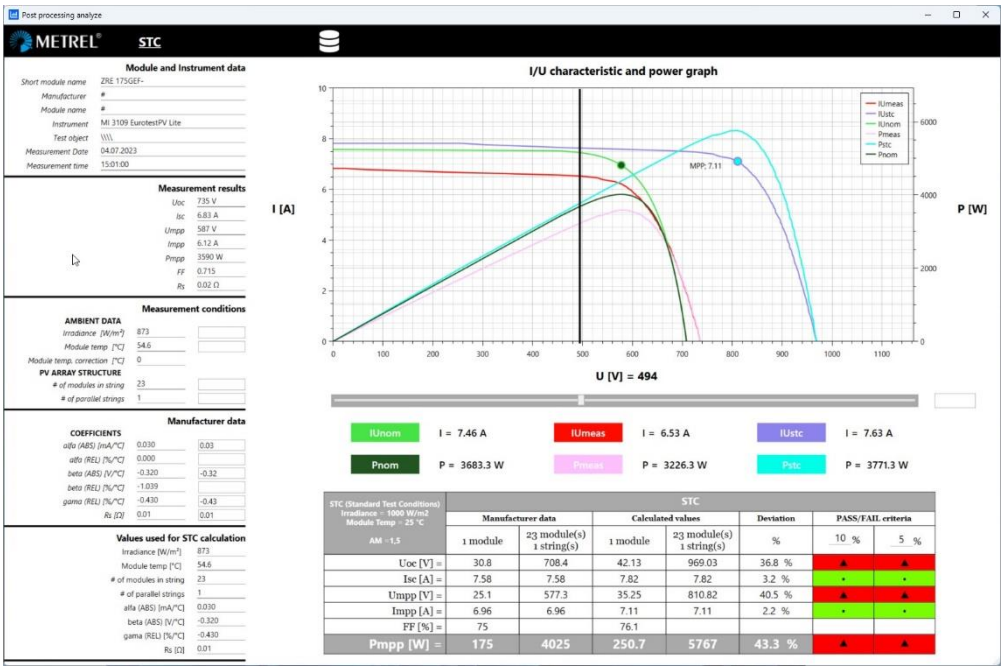


Figure B.2: Post Processing Analyse window

B.2.1 Graphical analysis of I/U characteristic and Power graph

Module or string results are presented in the graph, see Figure B.3. Presented curves of different colours are:

- IUnom Nominal I/U characteristic
- IUmeas Measured I/U characteristic
- IUstc The STC I/U characteristic
- Pnom Nominal Power characteristic
- Pmeas Measured Power characteristic
- Pstc The STC Power characteristic

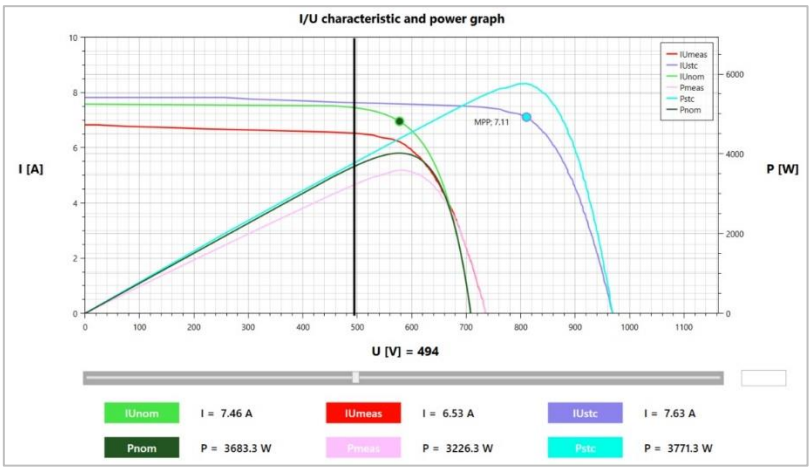


Figure B.3: I/U characteristic and Power graph

Click on slide bar handle and move vertical bar within graph to the interested X-axis voltage position. Values listed left of the curve colour marks represent values at the cross section with vertical bar.

B.2.2 Numerical Analysis

The final results are listed in the STC (Standard Test condition) table, see Figure B.4.

STC (Standard Test Conditions) Irradiance = 1000 W/m2 Module Temp = 25 °C AM =1,5	STC						
	Manufacturer data		Calculated values		Deviation	PASS/FAIL criteria	
	1 module	23 module(s) 1 string(s)	1 module	23 module(s) 1 string(s)	%	10 %	5 %
Uoc [V] =	30.8	708.4	42.13	969.03	36.8 %	▲	▲
Isc [A] =	7.58	7.58	7.82	7.82	3.2 %	•	•
Umpp [V] =	25.1	577.3	35.25	810.82	40.5 %	▲	▲
Impp [A] =	6.96	6.96	7.11	7.11	2.2 %	•	•
FF [%] =	75		76.1				
Pmpp [W] =	**175**	**4025**	**250.7**	**5767**	**43.3 %**	▲	▲

Figure B.4: STC table

Data listed in columns under STC header are:

- Manufacturer data: Data for one module and for the measured string are listed.
- Calculated values: STC values of the module and string.
- Deviation: Deviations between STC results and manufacturer data are listed.
- PASS/FAIL criteria: The comparison results are also represented as Pass/Fail semaphores with two user defined threshold levels. To modify this levels just modify the values in the % fields.

B.3 Changing test parameters

PV Post Processing Analyse extension provides tools for changing parameters after test is finished. User can change:

- **Ambient data:** in case that the synchronization was not performed or failed or you don't have the Metrel's PV remote unit (A 1378) and you have data from other sources.
- **PV module data and array structure:** it often happens that at the time of measurement all the needed technical information about the PV installation is not available.
- **Temperature coefficients:** This data are also not always available when performing the measurement. The problem is also that the manufacturers provide this data in two different forms: in absolute or in relative form. Here you can enter the correct value in one of both forms.

STC calculation is then performed with these changed values.
The measured numerical values are represented in the "Measurement results" table, see Figure B.5.

Measurement results	
Uoc	735 V
Isc	6.83 A
Umpp	587 V
Impp	6.12 A
Pmpp	3590 W
FF	0.715
Rs	0.02 Ω

Figure B.5: Measurement results table

B.3.1 Changing Ambient Data and PV Array data

Ambient data and PV Array data are presented in table Measurement conditions, see Figure B.6. Squares on the left side of the table present fields for manual data entry. In the presented table, number of modules in string was manually corrected.

	Measurement conditions	
AMBIENT DATA		
Irradiance [W/m²]	873	
Module temp [°C]	54.6	
Module temp. correction [°C]	0	
PV ARRAY STRUCTURE		
# of modules in string	23	32
# of parallel strings	1	

Figure B.6: Measurement conditions table

B.3.2 Module data change

Module coefficients and serial resistance are presented in table Manufacturer data table, see Figure B.7. Squares on the left side of the table present fields for manual data entry.

	Manufacturer data	
COEFFICIENTS		
alfa (ABS) [mA/°C]	0.030	0.03
alfa (REL) [%/°C]	0.000	
beta (ABS) [V/°C]	-0.320	-0.32
beta (REL) [%/°C]	-1.039	
gama (REL) [%/°C]	-0.430	-0.43
Rs [Ω]	0.01	0.01

Figure B.7: Manufacturer data table

B.3.3 Parameters for STC calculation

The final values as used for the STC calculation are listed in the Used parameters for STC calculation table, see Figure B.8. Manually entered values and parameters are preferentially used for STC calculation.

Values used for STC calculation	
Irradiance [W/m²]	873
Module temp [°C]	54.6
# of modules in string	32
# of parallel strings	1
alfa (ABS) [mA/°C]	0.030
beta (ABS) [V/°C]	-0.320
gama (REL) [%/°C]	-0.430
Rs [Ω]	0.01

Figure B.8: Used parameters for STC calculation table

After each parameter manual entry, all STC table data are promptly recalculated and updated and presented in I/U characteristic and Power graph also.

Three values for module serial resistance (Rs) are available, if all entered. Below are listed in priority order used for STC calculation:

1. Manually entered value
2. Measured value
3. Value from manufacturer data

B.4 PV module database handling

PV module name and test instrument data are presented in the table at the left-top of the PV Post Processing Analyse window, see Figure B.9.

Module and Instrument data	
Short module name	ZRE 175GEF-
Manufacturer	#
Module name	#
Instrument	MI 3109 EurotestPV Lite
Test object	\\\\
Measurement Date	04.07.2023
Measurement time	15:01:00

Figure B.9: Module and Instrument data table

If module data were obtained from instrument the fields "Manufacturer" and "Module Name" contain a "#".This is because the instrument can't store this information. Instrument stores only the "Short module name" which is limited to 14 characters and must be unique in the Private DB. In the Public DB you get also the "Manufacturer" and the longer "Module name".

PV module DB handling window provides tools to perform following actions:

- Review of test project module data
- Save test project module data to Private DB
- Replace test project module with another one from Private DB or Public DB

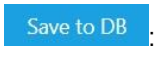
Opening PV module database handling window:

-  Click database icon within header to open Save and Find database data window, see Figure B.10.

Save and Find database data window contains two sub-windows:

- Database Related Information with switch between Public database and Private database on the left.
- Module data review on the right, with database handling commands at the bottom.

Test project module data review:
By default, after Save and Find database data window is opened, test project module name and it related detailed data are listed in Module data sub-window.



: **Save module data to Private DB.**
Before saving, test project module can be renamed and any of related data can be changed. If module with same name already exist in DB, warning message appear on the screen and user must confirm replacement of existing parameters or cancel operation.

Import: **Import selected module to the PV Post Processing Analyse extension**

Test project module data are replaced with Imported module data. User can select new PV module in Public DB or in Private DB. Selected module name and data are presented in Module data sub-window. Click on Import command and the selected module data are loaded and the recalculation to STC values is immediately executed.

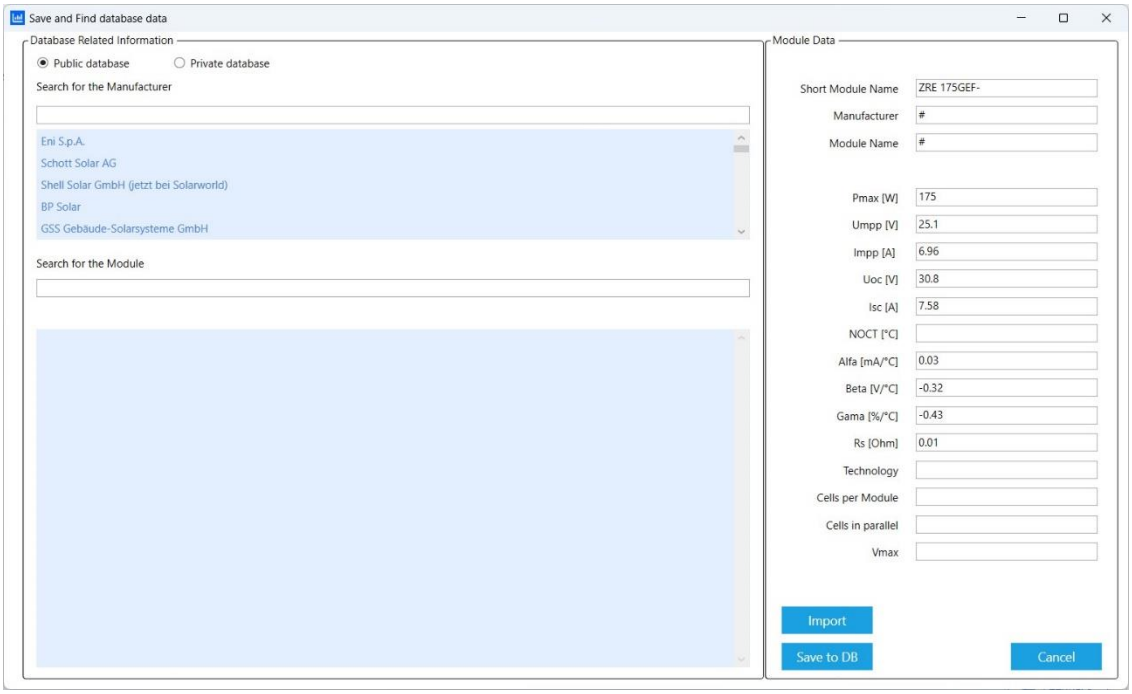


Figure B.10: PV Module database handling window

Cancel: **Close Save and find database data window.**

Appendix C Excel to Metrel ESM file converter instructions

C.1 Dashboard screen

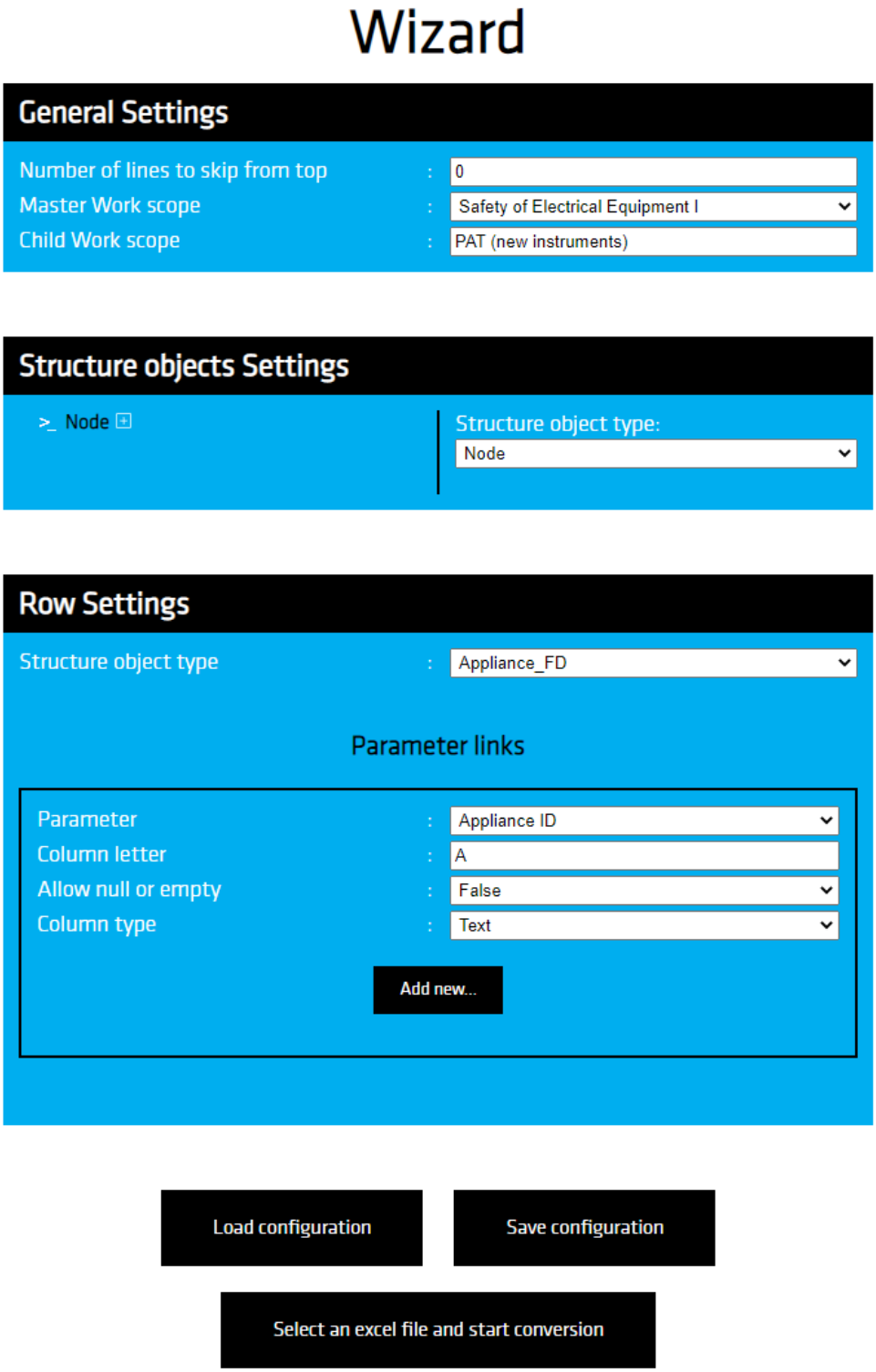


Figure C.1: Dashboard screen of web service wizard - fixed part

General Settings	
Enables basic settings for creation of .padfx files.	
Number of lines to skip from top	Defines how many lines in the excel file will be skipped (starting, line 1).
Master Work scope	Defines the master and child Work scope for created .padfx file. Correct Work scope must be selected in order to enable files transfer to the desired instrument.
Child Work scope	
Structure objects Settings	
Enables the creation of a basic structure, where the structural elements with relevant data will be imported.	
Structure object type	Enables selection of corresponding structural elements for the relevant structural level.
Row Settings	
Enables to define data structure from excel file, to be linked to the corresponding parameters of the selected structural element.	
Parameter links	
Each configuration is corresponding to relevant column from source excel file.	
Parameter	Enables selection of parameter linked to the corresponding structural element. Each parameter can be linked only to one column letter in the source excel file.
Column letter	Defines the column in the source excel file.
Allow null or empty	Defines criteria for specific cell. True = allows empty cells in specific column. False = forbids empty cells in specific column.
Column type	Defines criteria for specific cell. Text = cell data can contain letters, numbers, and special characters such as ! or &. Date & time = cell data shall be in following format *dd.mm.yyyy hh:mm:ss*.
Add new...	Allows adding of the set parameters to the list.
Load configuration	Enables to load user configuration from file.
Save configuration	Enables to save set configuration to file.
Select an excel file and start conversion	Enables selection of source excel file, conversion to .padfx is started automatically if no exceptions are found.

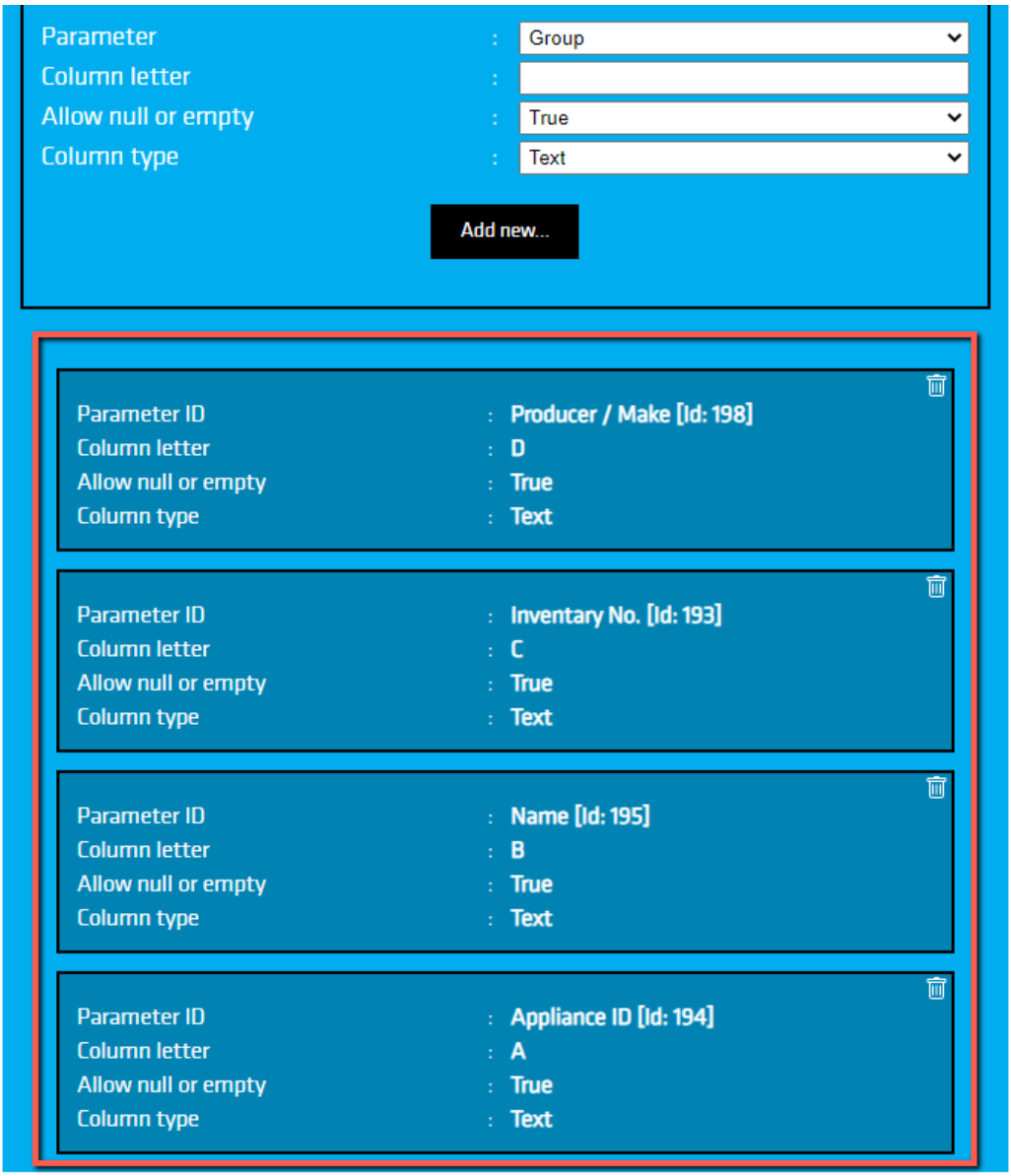
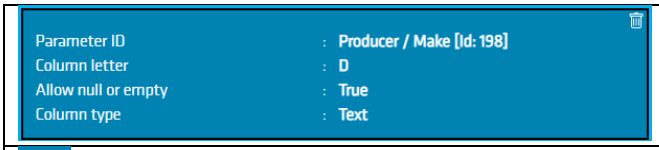
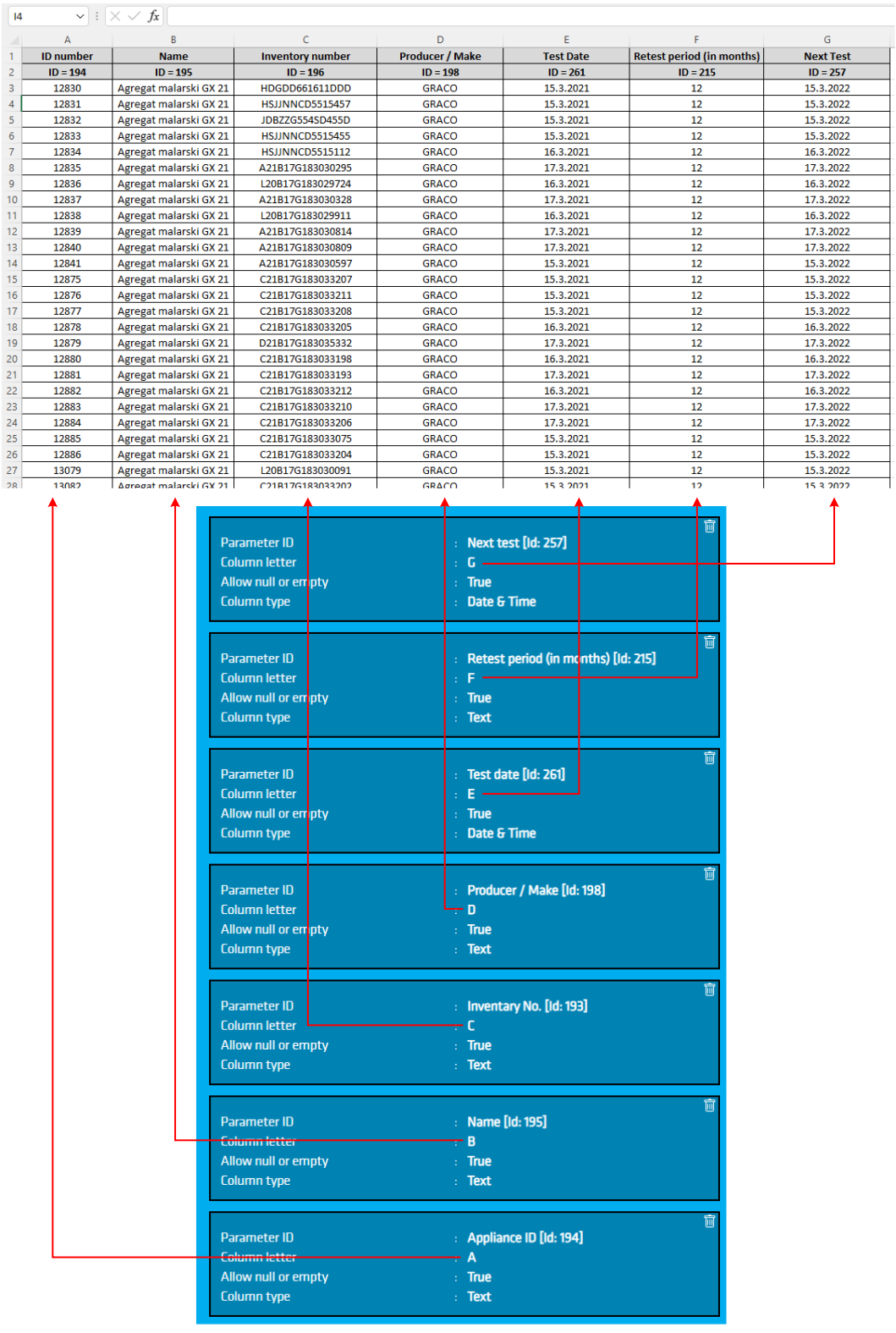


Figure C.2: Dashboard screen of web service wizard - user defined part

	A field with user-set parameters, each section defines its own column in excel.
	Allows removal of specific section.

C.2 Importing example

First prepare the excel file, put the data into the correct format. Data shall be arranged in columns, all cells except dates shall be categorized as General. Cells containing dates shall be categorized as Date and formatted as *dd.mm.yyyy*.



	A	B	C	D	E	F	G
1	ID number	Name	Inventory number	Producer / Make	Test Date	Retest period (in months)	Next Test
2	ID = 194	ID = 195	ID = 196	ID = 198	ID = 261	ID = 215	ID = 257
3	12830	Agregat malarski GX 21	HDGDD661611DDD	GRACO	15.3.2021	12	15.3.2022
4	12831	Agregat malarski GX 21	HSJJNNCD5515457	GRACO	15.3.2021	12	15.3.2022
5	12832	Agregat malarski GX 21	JDBZZG554SD455D	GRACO	15.3.2021	12	15.3.2022
6	12833	Agregat malarski GX 21	HSJJNNCD5515455	GRACO	15.3.2021	12	15.3.2022
7	12834	Agregat malarski GX 21	HSJJNNCD5515112	GRACO	16.3.2021	12	16.3.2022
8	12835	Agregat malarski GX 21	A21B17G183030295	GRACO	17.3.2021	12	17.3.2022
9	12836	Agregat malarski GX 21	L20B17G183029724	GRACO	16.3.2021	12	16.3.2022
10	12837	Agregat malarski GX 21	A21B17G183030328	GRACO	17.3.2021	12	17.3.2022
11	12838	Agregat malarski GX 21	L20B17G183029911	GRACO	16.3.2021	12	16.3.2022
12	12839	Agregat malarski GX 21	A21B17G183030814	GRACO	17.3.2021	12	17.3.2022
13	12840	Agregat malarski GX 21	A21B17G183030809	GRACO	17.3.2021	12	17.3.2022
14	12841	Agregat malarski GX 21	A21B17G183030597	GRACO	15.3.2021	12	15.3.2022
15	12875	Agregat malarski GX 21	C21B17G183033207	GRACO	15.3.2021	12	15.3.2022
16	12876	Agregat malarski GX 21	C21B17G183033211	GRACO	15.3.2021	12	15.3.2022
17	12877	Agregat malarski GX 21	C21B17G183033208	GRACO	15.3.2021	12	15.3.2022
18	12878	Agregat malarski GX 21	C21B17G183033205	GRACO	16.3.2021	12	16.3.2022
19	12879	Agregat malarski GX 21	D21B17G183035332	GRACO	17.3.2021	12	17.3.2022
20	12880	Agregat malarski GX 21	C21B17G183033198	GRACO	16.3.2021	12	16.3.2022
21	12881	Agregat malarski GX 21	C21B17G183033193	GRACO	17.3.2021	12	17.3.2022
22	12882	Agregat malarski GX 21	C21B17G183033212	GRACO	16.3.2021	12	16.3.2022
23	12883	Agregat malarski GX 21	C21B17G183033210	GRACO	17.3.2021	12	17.3.2022
24	12884	Agregat malarski GX 21	C21B17G183033206	GRACO	17.3.2021	12	17.3.2022
25	12885	Agregat malarski GX 21	C21B17G183033075	GRACO	15.3.2021	12	15.3.2022
26	12886	Agregat malarski GX 21	C21B17G183033204	GRACO	15.3.2021	12	15.3.2022
27	13079	Agregat malarski GX 21	L20B17G183030091	GRACO	15.3.2021	12	15.3.2022
28	13082	Agregat malarski GX 21	C21B17G183033202	GRACO	15.3.2021	12	15.3.2022

Figure C.3: Correlation between Excel & Parameter links

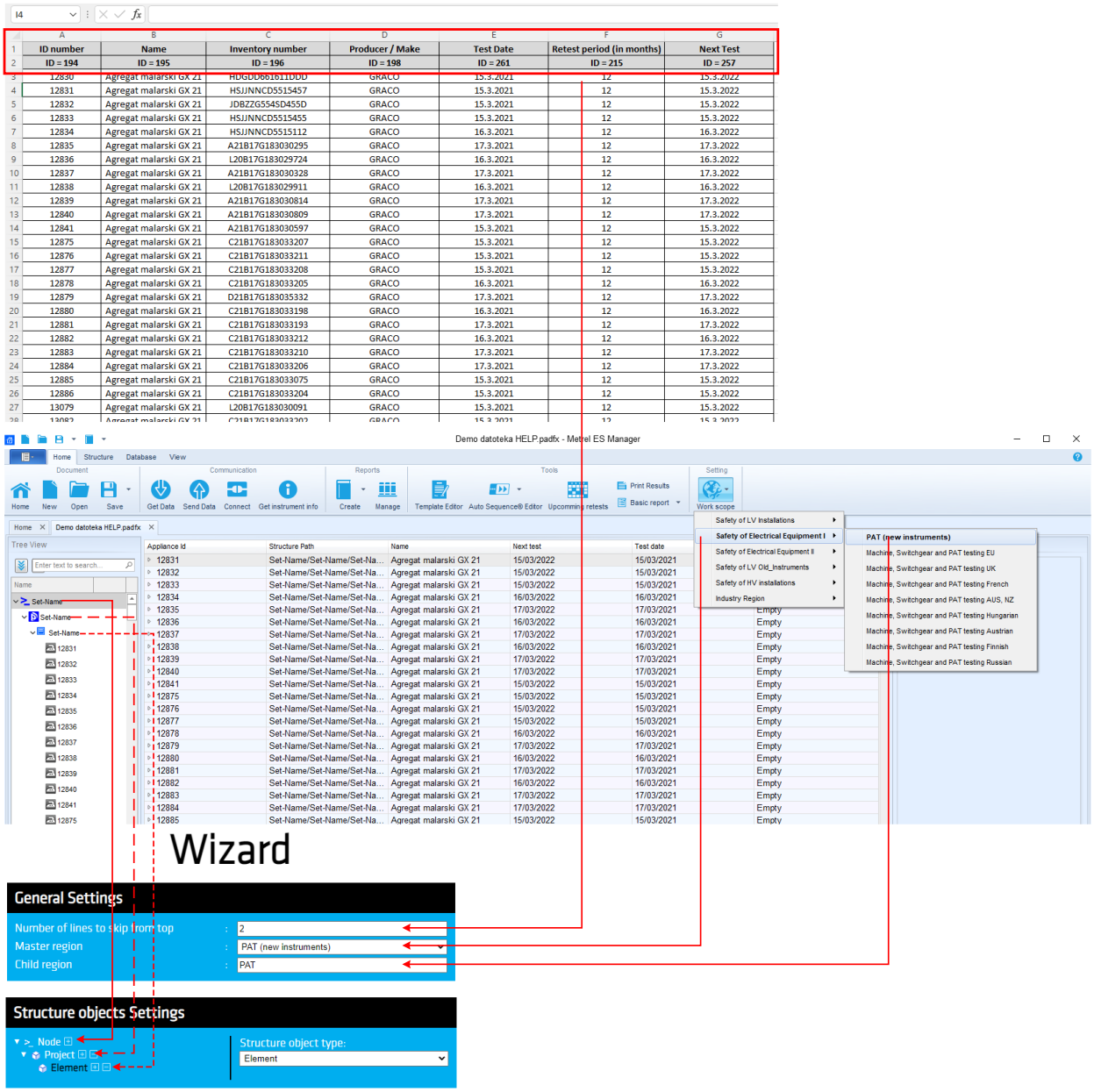


Figure C.4: Correlation between MESM, Excel, and Wizard

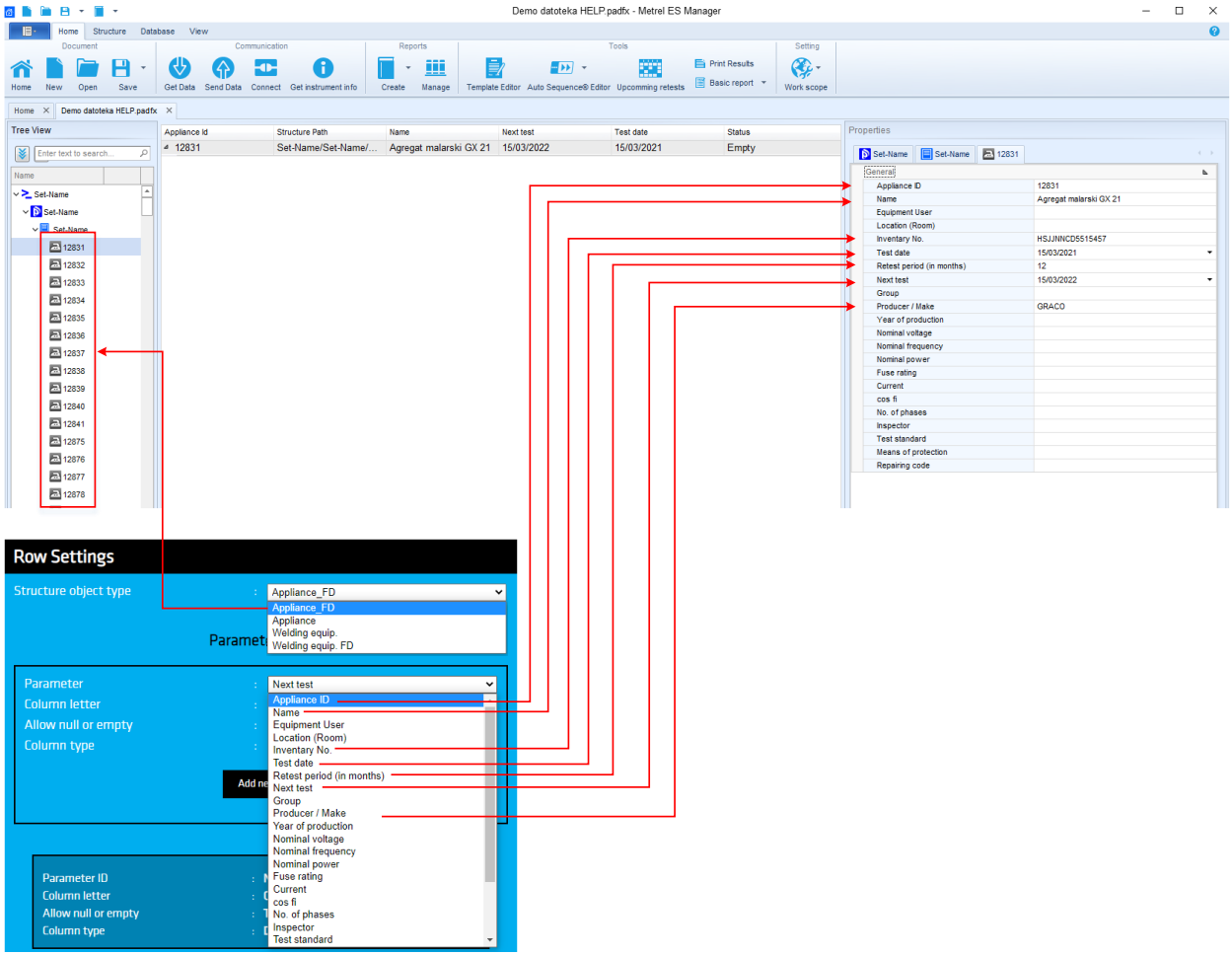


Figure C.5: Correlation between MESM & Wizard