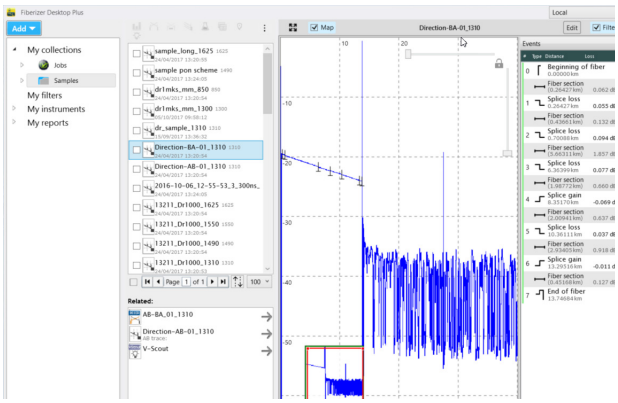
The Verification Experts

USER MANUAL



Fiberizer Desktop Plus

Please direct all questions to your local VeEX Sales Office, Representative, or Distributor. Or, contact VeEX technical support at www.veexinc.com.

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ABOUT THIS MANUAL

Every effort was made to ensure that the information contained in this user manual is accurate. Information is subject to change without notice and we accept no responsibility for any errors or omissions. In case of discrepancy, the web version will take precedence over any printed literature. The content in this manual may vary from the installed software version.

This user manual is suitable for novice, intermediate, and experienced users and is intended to help you successfully use the features and capabilities of the software. It is assumed that the user has basic computer experience and skills, and is familiar with Optical Fiber, telecommunication concepts, terminology, and safety.

For more technical resources, visit the VeEX, Inc. web site at www.veexinc.com.

If you need assistance or have questions related to the use of this product, call or e-mail our customer care department for customer support. Before contacting our customer care department, you must have your product serial number and software version ready. Please provide this number when contacting VeEX customer service.

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1. INTRODUCTION

Fiberizer Desktop Plus (FDT+) is a post-processing software designed to operate in a Windows 7 or higher PC environment. FDT+ allows users to access saved test results from fiber optics test measurements for analysis and report generation. The results can be saved locally or in the cloud using a Fiberizer Cloud account.

1.1. Fiberizer Desktop Plus functionality

Fiberizer Desktop Plus is designed to work with a variety of fiber optic measurement results:

- OTDR traces (`.sor` files), including uni-directional and bi-direction measurement analysis as well as batch processing of multiple trace files;
- Fiberscope measurement results (`.jpg` files);
- Optical loss measurement results (`.oxlts` files).

In addition to trace analysis and records management of uploaded test results, Fiberizer Desktop Plus can also do the following:

- retain links for bi-directional measurement results;
- establish links for uploaded bi-directional measurement results, even if the files were improperly uploaded;
- generate various types of reports, including merged measurement results reports;
- automatically establish links between OTDR traces and/or Fiberscope measurement results and generated reports.

2. FIBERIZER DESKTOP PLUS OVERVIEW

2.1. System requirements

The Fiberizer Desktop Plus application requires:

- Windows 7 or higher (x86/x64);
- the hardware that can support the .NET Framework 4.5 or higher;
- minimum 70 MB hard drive space to install the program (measurement results will require additional storage space).

2.1.1. Licensing and features

There are two types of license of Fiberizer Desktop Plus: Lite and Pro. The Lite license mainly lets you perform basic functions, like viewing analysis results and managing them and other files. The Pro license includes the following advanced functions:

- Automatic analysis with Pass/Fail threshold setting: the application can automatically analyze a trace for you and define the events (see Section Launching automatic analysis for details).
- V-Scout diagram generation: this function lets you present a trace as a simplified one-dimension flowchart (see Section Trace structure visualization (V-Scout graph) for details).
- Manage report templates: To generate a report, you need a template. The Lite version has a very basic set of report templates in which you can only delete events. To add or edit events, you need the Pro version (see Section Managing report templates for details).
- Complex reports: with the Pro version, your reports can consist of several pieces of information of different types (see Section Generating complex reports for details).
- Connection to Fiberizer Cloud: With this function you can work with your data from your Fiberizer Cloud account (see Section Connecting to Fiberizer Cloud and your projects in Fiberizer Cloud for details). This function is also necessary to back up your data from your PC to your Fiberizer Cloud account and to download your `.sor` files from Fiberizer Cloud to your PC in the `.csv` format.
- Comparing traces from batch and Reference trace application: While analyzing batch of traces, you may need to compare the events from each trace of the batch and apply the

reference trace to the other traces (see Section Batch analysis for details).

- Linking bi-directional measurement results manually: with this function you can define any two files as the results of one bi-directional measurement (see Section Linking bi-directional measurement results manually for details).

Use of Fiberizer Desktop Plus Pro features is available under our 30-day free trial program.

3. GETTING STARTED

3.1. Installing Fiberizer Desktop Plus

The Fiberizer Desktop Plus application runs under Windows 7 or higher. To install the application:

1. Find the `setup.exe` file on the CD supplied or download the installation file from the official VeEX site and launch it as Administrator.
2. Define the folder for installation, then click **[Continue]** (see the window shown below):

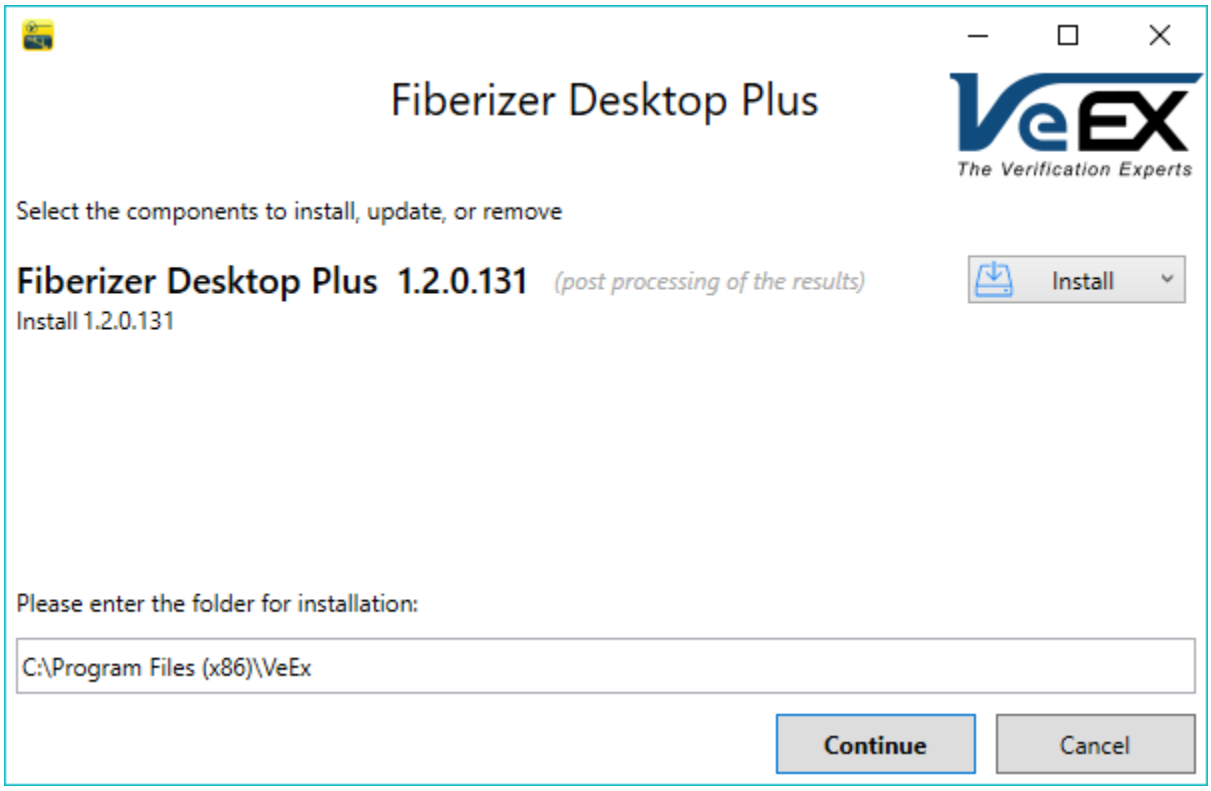


Figure 1. Installing Fiberizer Desktop Plus

After that follow the onscreen instructions until the installation is completed successfully.

3.2. Activating your license

To start Fiberizer Desktop Plus, go to **Start › All programs › VeEX › Fiberizer Desktop Plus**, or launch it any other standard Windows way.

To actually use the full functionality, you must activate your license. To do that, click the **[Settings]** icon in the top right corner (see the Figure below).

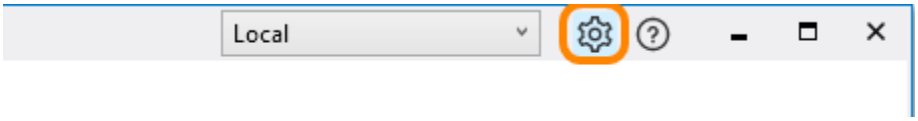


Figure 2. Settings Icon

In the resulting window click the **[About]** link, after which the window shown below appears:

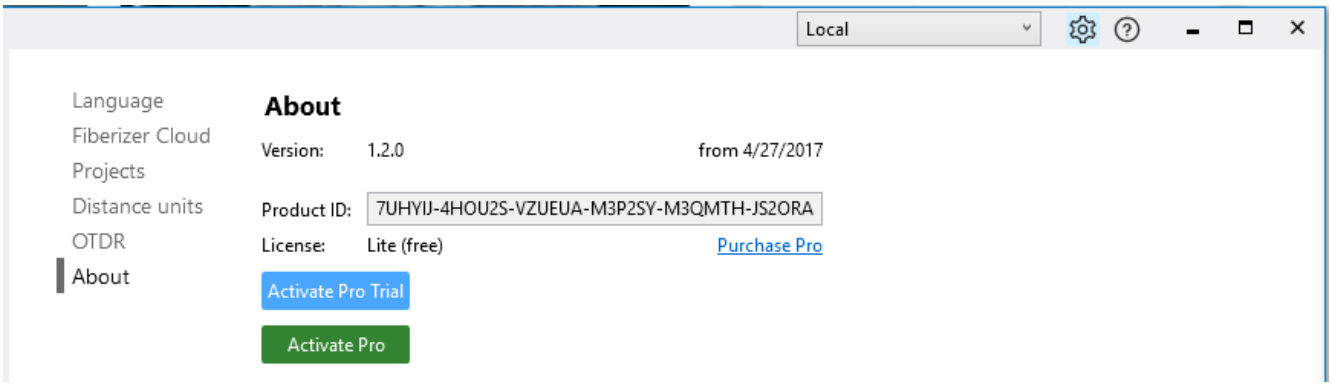


Figure 3. Activating a license

Click **[Activate Pro Trial]** to activate your 30-day free Pro Trial license or if you purchased this software, enter your Pro Product ID license and click **[Activate Pro]**. During the trial period (30 days) you can use the full range of the program functionality. The number of days passed is indicated in the **License** field (for example, 7/30).

3.3. Setting up your Fiberizer Desktop Plus

3.3.1. Selecting the language and distance units

To select the menu language, click the **[Settings]** icon (⚙) in the top right corner, then click **Language** and choose one from the list.

To select the distance units, click the **[Settings]** icon (⚙) in the top right corner, click **Distance units** and choose it from the list.

3.3.2. Connecting to Fiberizer Cloud and your projects in Fiberizer Cloud

To connect to the specialized cloud storage (Fiberizer Cloud), click the **[Settings]** icon (⚙) in the top right corner, then click the **[Fiberizer Cloud]** link. After that enter your credentials for the service and sign in.

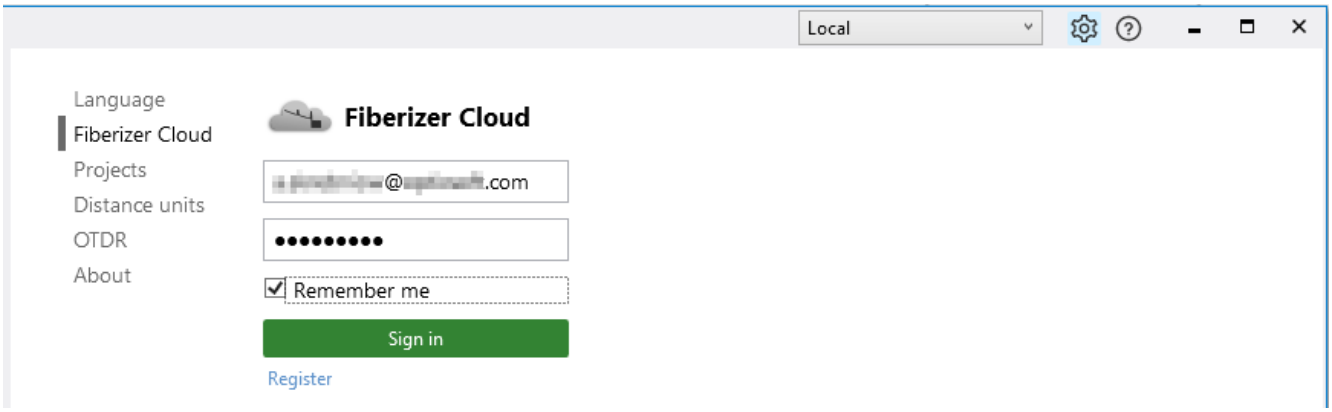


Figure 4. Signing in to Fiberizer Cloud

This instruction assumes you already have a valid Fiberizer Cloud account. If not, you can register in the cloud service directly from the application (see the **[Register]** *link).*

Fiberizer Cloud is a customizable service which lets users share their project. You can be either an owner or a member of a project. To connect to your projects, click the **[Settings]** icon (⚙) in the top right corner, then click the **[Projects]** link. This results in the list of your Fiberizer Cloud projects:

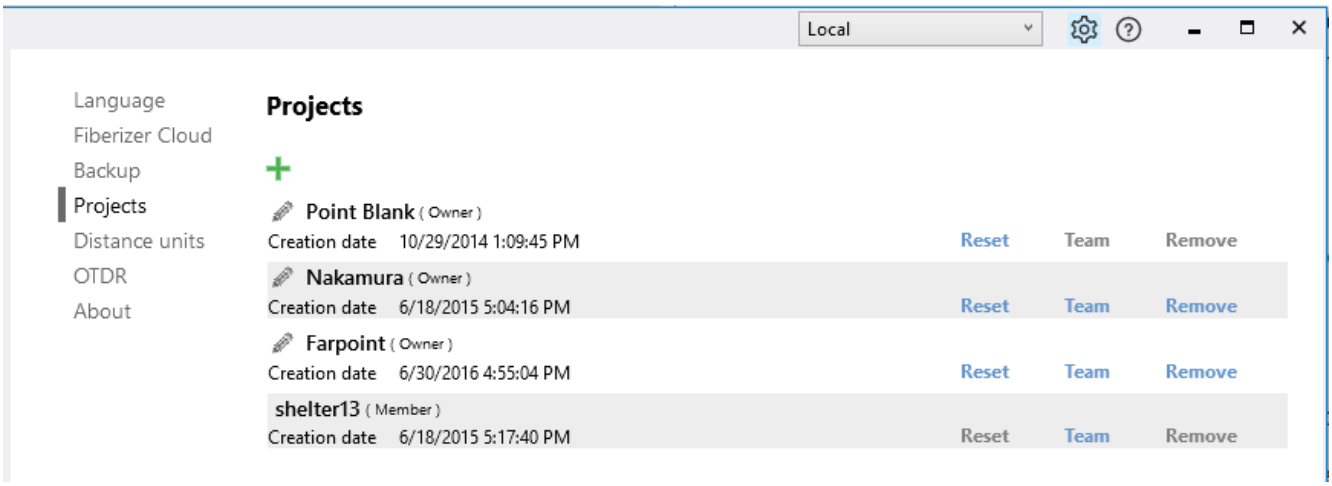


Figure 5. The list of your Fiberizer Cloud projects

Here you can:

- **Reset** a project, which deletes all its data;
- Add or remove **Team** members, if you are the project owner. If you are a member, you can view the list of Team members;
- **Remove** the project altogether;
- Create a project (➕);
- Rename a project (✎).

In Fiberizer Desktop Plus you can interact with one Fiberizer Cloud project at a time, or your local storage files. To switch to a project or your local storage, select it in the drop-down menu at the top (see, for example, the Figure above, where **Local** is selected).

3.3.3. Defining OTDR thresholds (Pass/Fail)

In this section you set Pass/Fail thresholds. They define if the trace conforms to your requirements (Pass/Fail thresholds, see Section Launching automatic analysis for details).

If you select the **[Pass/Fail thresholds]** checkbox, the Pass/Fail status is shown by the red-colored values in the **[Events]** tab, when you view the trace, and in the report.

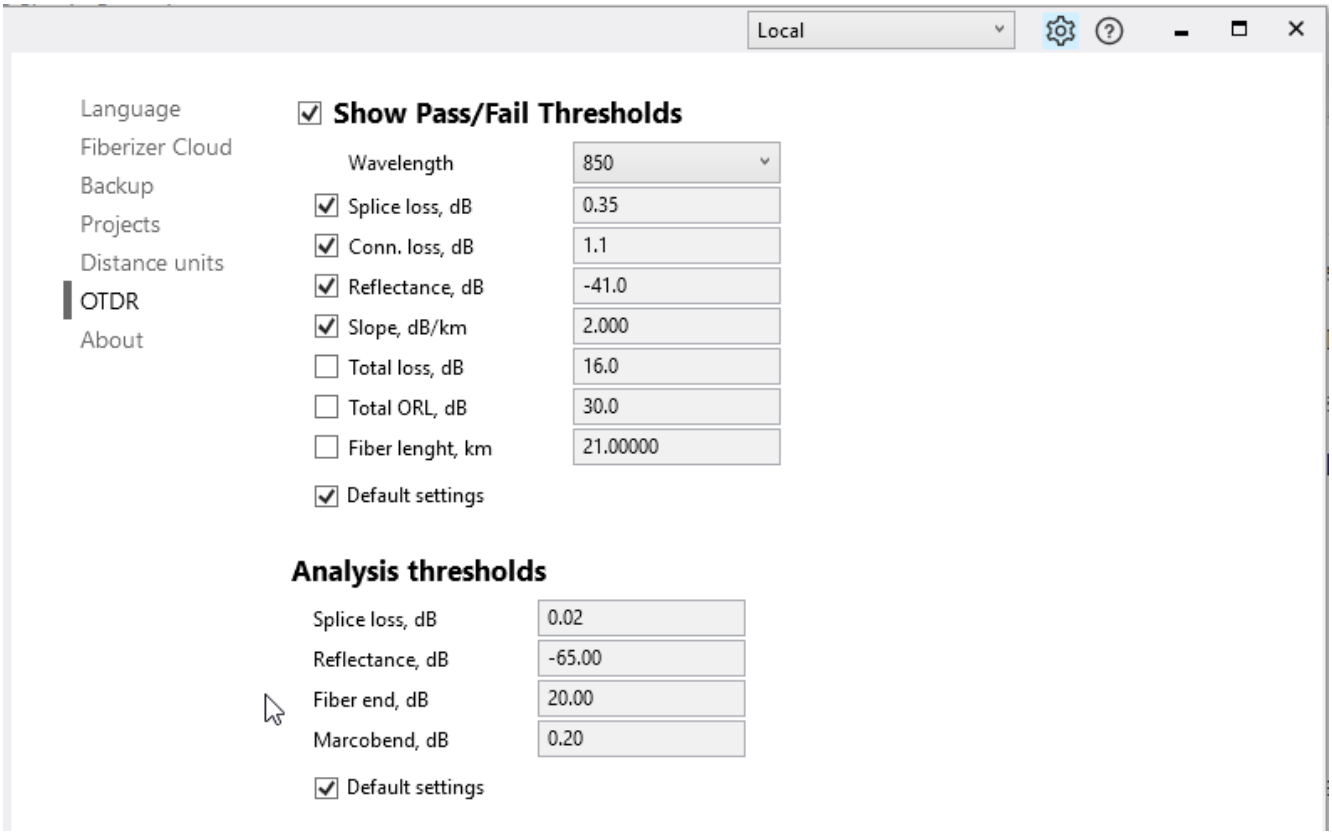


Figure 6. Thresholds in Settings

To apply the default Pass/Fail threshold values to the trace events and the trace in general, select the **[Default settings]** checkbox. To define your own Pass/Fail threshold values, unselect the **[Default settings]** checkbox and edit the necessary fields. Then select the checkboxes for the parameters you want to apply. The set of the parameters selected is the same for every wavelength, while the parameter values can differ for each wavelength.

In this case some event or trace parameter may get greater than the corresponding threshold (or smaller for the Fiber length). When you view a trace, they and the tab containing them are highlighted red.

3.3.4. Defining OTDR analysis thresholds

In the same interface section (see the Figure above) you can also define the automatic analysis sensitivity if the Standard option is selected (Analysis thresholds, see Section Launching automatic analysis for details).

The Analysis thresholds define the level from which an inclusion is identified as an event, so that only events with parameters greater than the defined are recognized during the automatic analysis. The values set here are applied if the Standard option is selected (Analysis thresholds, see Section Launching automatic analysis for details).

Here you can also select Default settings, or set your own values if the Default settings checkbox is unselected.

Analysis threshold settings directly influence your measurement results. To set your own values, you have to have relevant experience and training in fiber optics metrology. Otherwise, we recommend you keep the default settings.

The Macrobend threshold is used for V-Scout analysis (see Section Trace structure visualization (V-Scout graph) for details).

4. INTERFACE OVERVIEW

4.1. Interface sections

To get acquainted with the Fiberizer Desktop Plus interface, start the application by going to **Start › All programs › VeEX › Fiberizer Desktop Plus**, or launch it any other standard Windows way. After you tune the application to your needs (see Sections Activating your license and Setting up your Fiberizer Desktop Plus), you see a picture similar to the one below:

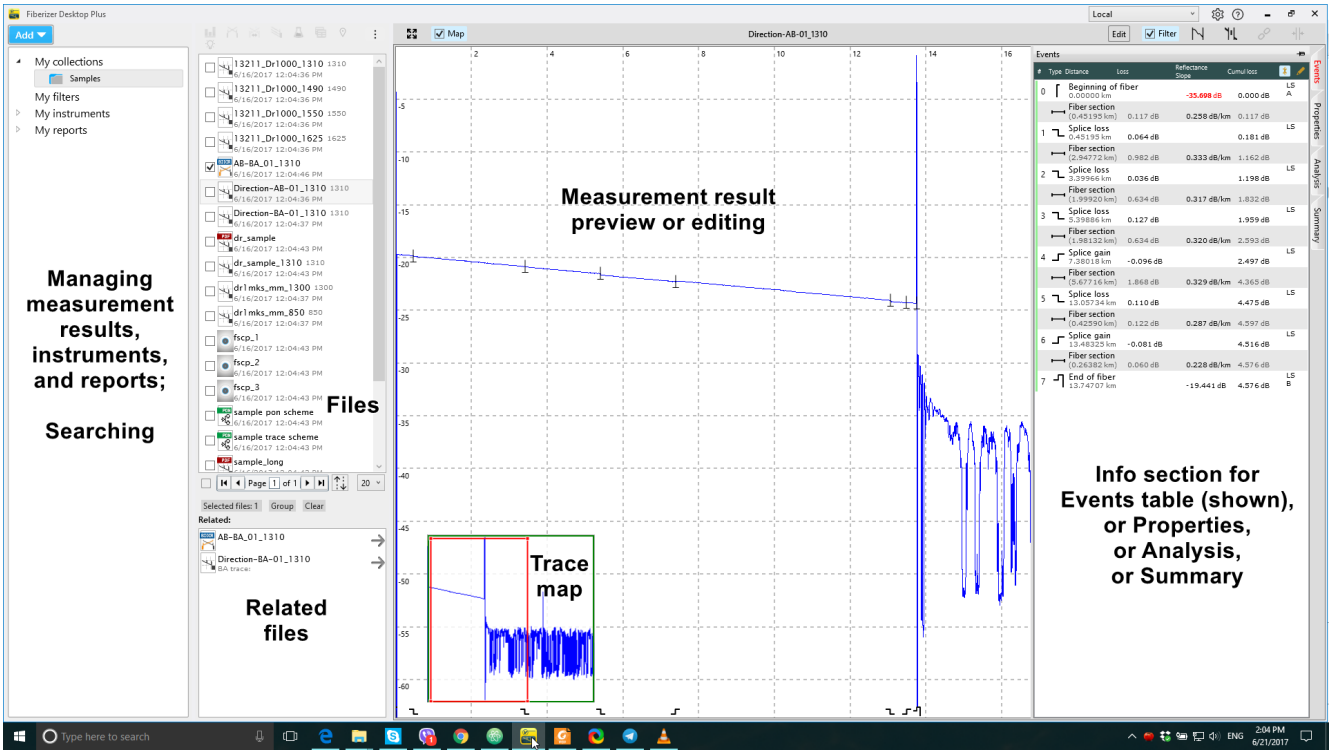


Figure 7. Fiberizer Desktop Plus interface sections

Initially the application has several sample files of every type it works with. We recommend you click those files in the **Files** section, items in the **Managing measurement results…** section, and familiarize yourself with the general operation of the software.

As shown in the Figure above, the Fiberizer Desktop Plus interface has several distinct parts:

- **Managing measurement results…**: navigate through or manage your collections, upload bidirectional and unidirectional measurement results (`.sor` files) to them; search files with the help of filters; manage your OTDRs; manage your templates for reporting; add new items to your sets of collections, instruments, etc.
- **Files**: navigate through or manage your files (measurement results etc.) as well as

perform individual and group actions on them, and select files for editing, with the help of the icons above the section, including the **[Further items]** icon (⋮).

- **Related files**: view files related to the one highlighted in the **Files** area, which can be reports for `.sor` files, the opposite measurement results for bi-directional files, etc.
- **Measurement results preview or editing**: this is the main area where you can work with reports, analyze traces, and perform many other actions.
- **Trace map**: thumbnail view of your trace and change the preview scale.
- **Info section**: available when you preview or edit a `.sor` file. Here you can get four types of information: Event table, Properties, Analysis, and Summary, with some editable fields in each section when in Edit mode. The section border can be moved to your convenience or pinned.
- **Trace analysis icons**: available when you preview or edit a `.sor` file and located immediately above the **Info** section. You can apply the filter to the analyzed trace, select the analysis method (2-point or 5-point), and manage markers during analysis.
- **Application menu**: located at the top right corner. Besides the standard Windows icons, it has the **[Help]** icon, the **[Settings]** icon, and the drop-down menu for selecting Fiberizer Cloud projects or the Local storage.

You can arrange the section sizes to your convenience by grabbing and moving the borders between the major interface sections.

4.2. Menus and control elements

In addition to the visible menu described above, the Fiberizer Desktop Plus operations rely heavily on context (right-click) menus. Besides, some elements of the visible menu become active only in appropriate context.

4.2.1. Managing Results… Section menus and control elements

To add an item into the application database, click the **[Add]** button above the section, then select the necessary item and follow the onscreen instructions.

Theoretically speaking, you can manually add a file to the working folder in your installation folder, and the file will be visible in the application. However, in this case the item you have added this way is not going to have proper database relations. For example, two bi-directional measurement results are not going to be associated with each other. While in many cases such an association is possible to establish later via the application menu, we strongly recommend you to add files with the help of the **[Add]** *button as described above.*

More actions are available if you right-click an item in the section, or click the small triangle which appears if you hover your mouse right to the item. The action produces the following context menus:

- For **My collections**: Add collections, Add files; Create BiDir relations, Move the item; Copy, Paste, Remove, Rename; Download the item to your HDD.
- For **My filters**: Edit; Remove, Rename.
- For **My instruments**: if you click **My instruments** proper, you can add an OTDR or an RTU (Remote Test Unit). If you click an instrument, you can edit it or remove it.
- For **My reports**: Show (preview) the template, Edit; Remove, Rename; Download the template.

4.2.2. Files Section menus and control elements

A file in this section can be managed (copied, deleted, moved, and renamed). Besides, any measurement result file can be previewed and undergo certain operations (analyze, create a report, etc.) Events in a trace as an OTDR measurement result can also be edited.

- To **manage** a file within a group of files, select it by checking the box to the left of the file name. Then click the **[Further items]** icon (⋮) and select an item you need (Move to, Copy, Paste, Delete, Download). Some of those actions and some more (for example, Rename) can also be done with just one file, if you right-click it. In case of right-click the set of actions available varies according to the file type.

The number of files selected is indicated below the section. The above actions are performed to **all the files selected**.

- To **preview** a measurement result or a report, just click it. The preview appears in the **Measurement result preview…** section.
- To **automatically analyze** measurement results or create a report, select a file by checking the box to the left of the file name. The appropriate icons in the menu above the **Files** section become active. If you select a file group, you can also perform actions appropriate to a batch of traces and bi-directional measurement results (Perform bi-directional analysis, Create bi-directional relations, Compare batch of traces).

The number of files selected is indicated below the section. The above actions are performed to **all the files selected**.

- To **edit** events in a trace, hover your mouse over a file name and then click the pencil icon which appears at the right (see Section Launching automatic analysis for details).

4.2.3. Related Files Section menus and control elements

If two or more files are properly related in the Fiberizer Desktop Plus database, the related files are shown here. To preview the related file, just click it. To perform any other actions, click the arrow to the right, which shows the file in the **Files** section, where you can work with it as described in Section Files Section menus and control elements.

> *To make sure such files are properly related, we strongly recommend you add files with the help of the* **[Add]** *button. In case the files have been added manually to the working folder in your installation folder, establish proper relations between them before any actions with them (see Section Adding (uploading) bi-directional measurement results for details).*

4.2.4. Measurement Results Preview… Section menus and control elements

When you preview a measurement result or a report, you can change the trace scale in several ways:

- Moving the sliders at the top right corner (highlighted in the Figure below on the right), separate for vertical and horizontal scaling. If you click the **[Lock]** icon, the sliders move together. To return to 100% view, click the **[Magnifying glass]** icon ( ).

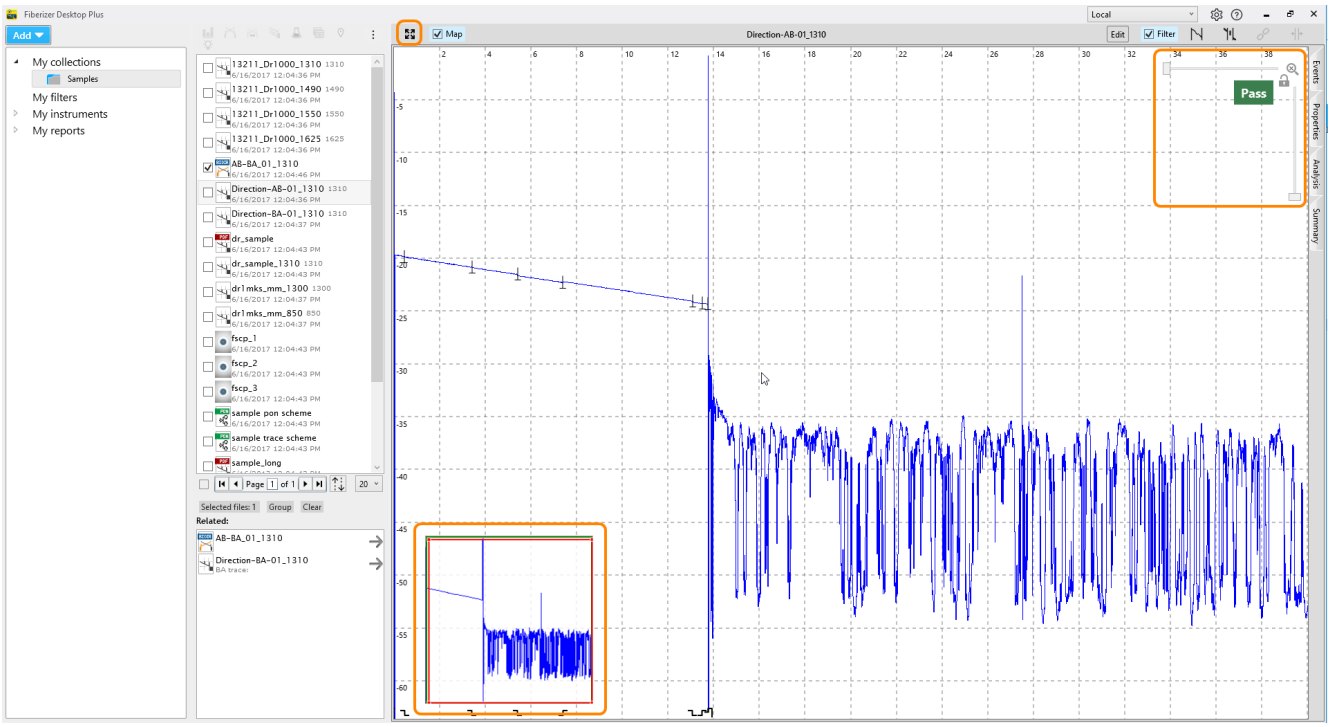


Figure 8. Changing the trace preview scale

- Moving the red borders in the **Trace map** section (highlighted in the Figure above at the

bottom). You can also grab and move the border corners.

To hide the Trace map, unselect the **[Map]** *checkbox above the* **Measurement results preview…** *section.*

- Clicking the **[Expand Measurement result preview area]** icon (highlighted in the Figure above on the left), or pressing `Ctrl`+`Shift`+`f`.

4.2.5. Info section (Event table, Properties, Analysis, Summary)

This section shows the trace parameters contained in the `.sor` file. The parameters are grouped into several tabs (see it in the Figure below, on the right). The section left border is movable, and the section can be docked if you click the pin icon at the top right corner.

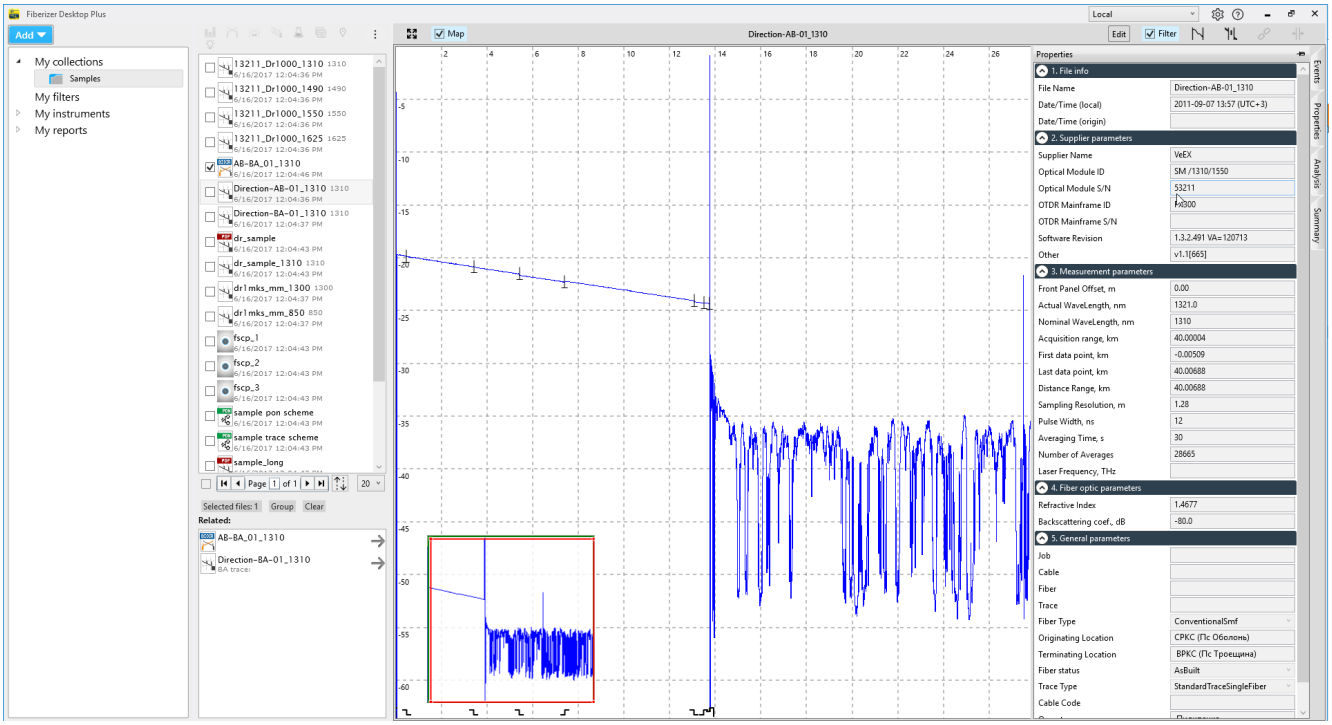


Figure 9. Information Section with Properties shown

4.2.6. Synchronize button

An important part of the Fiberizer Desktop Plus menu is the **[Synchronize]** button located in the system tray.

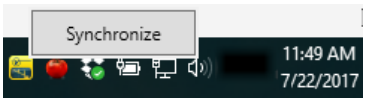


Figure 10. Synchronize button in the System tray

It synchronizes manual changes the user may have done in the Fiberizer Desktop Plus local

folder, with the database structure (see Section Adding (uploading) files). Automatic synchronizing also takes place when Fiberizer Desktop Plus relaunches.

5. DATA MANAGEMENT

5.1. Operations with measurement results and reports

The Fiberizer Desktop Plus application works with:

- The results of trace measurement, including bi-directional: `.sor` files, Versions 1.0, 1.1, 2.0, compliant with the universal Telcordia GR-196 and SR-4731 format;
- Reports generated from the trace measurement results, in the PDF and MS Excel formats;
- V-Scout files (see Section Trace structure visualization (V-Scout graph) for details);
- Virtual trace schemes (see Section Creating virtual network schemes for details);
- The results of OLTS measurement (see Section OLTS measurement view for details);
- Fiberscope measurement results (see Section Fiberscope measurement view).

5.1.1. Adding (uploading) files

To add (upload) a file or a group of files into Fiberizer Desktop Plus, click the **[Add]** button at the top left corner, select the necessary file type as shown in the Figure below, and then in the standard MS Windows interface choose file(s) to add. The file(s) are added to the collection previously selected. If no collection has been selected, the file(s) are added to the root collection (My collections).

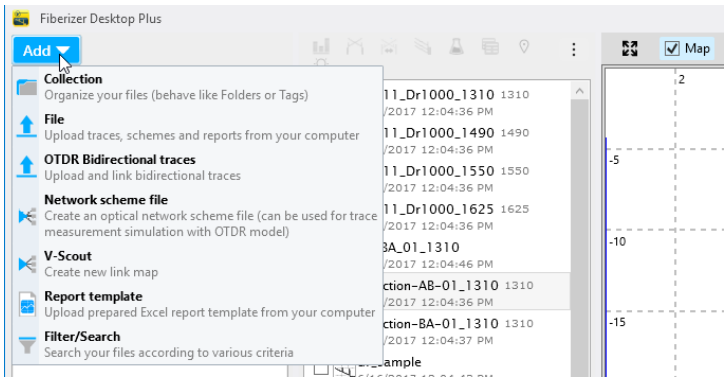


Figure 11. Adding an item to the database

Alternatively, you can right-click the necessary collection (or hover your mouse right to the collection name and click the small triangle appearing), then select **[Add files]**, as shown in the Figure below.

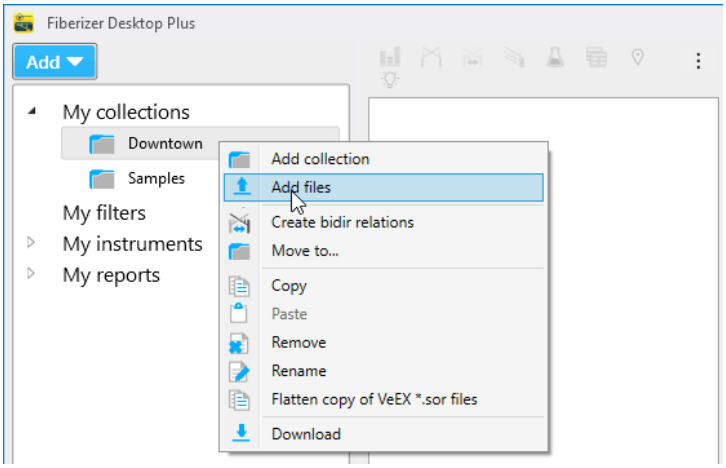


Figure 12. Adding an item to the database via context menu

If for some reason you have copied files directly to the application working folder bypassing the **[Add]** *menu (via the Windows Explorer, for example), the files are NOT visible in the application until they are synchronized with the application database. Automatic synchronizing takes place when Fiberizer Desktop Plus relaunches. To manually synchronize files without relaunch, click the* **[Synchronize]** *button in the system tray (see Section Synchronize button).*

Bi-directional measurement results, as well as report templates, must be uploaded via separate menu items, **[OTDR Bidirectional traces]** *and* **[Report template]** *respectively. If you fail to do so, the data is NOT going to have proper relations in the database and their links with other files will NOT be recognized. However, the application lets you establish bidirectional relations between any two files manually (see Section File naming for bi-directional measurement results for details).*

5.1.2. Adding (uploading) bi-directional measurement results

Fiberizer Desktop Plus works with bi-directional measurement results, letting you make your analysis and report more accurate. To add (upload) bidirectional measurement results:

1. Click a collection you want to add your bi-directional measurement results to;
2. Click the **[Add]** button, and then click **[OTDR Bidirectional traces]**. This results in the Wizard form shown below:

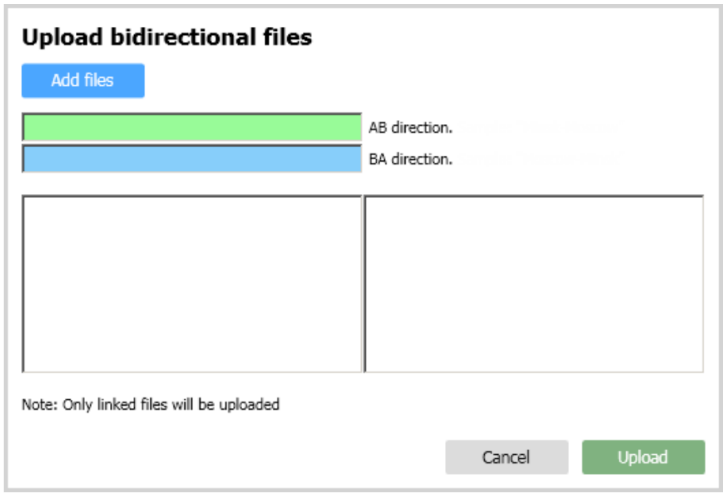


Figure 13. The Wizard to upload bi-directional files

3. Click **[Add files]**. This results in a standard 'File Explorer' styled window. Choose files to add, and then click **[Open]**. Files can be added in several batches from different folders. If your measurement results are properly named, they are automatically parsed into pairs and moved to the right as shown below:

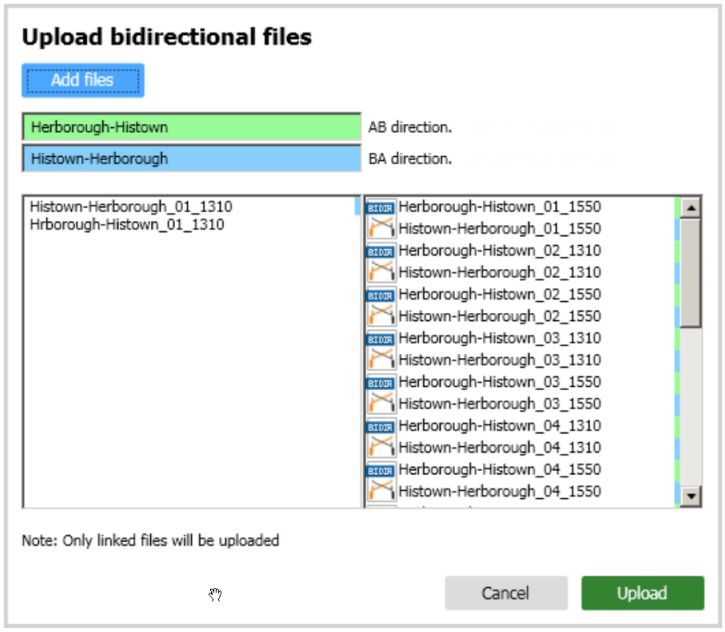


Figure 14. The Wizard has parsed pairs of bi-directional files

Note that in the Figure above there are two files which remain on the left. The application cannot parse them, because one letter missing in the file name. For file naming recommendations, see Section File naming for bi-directional measurement results.

After you click **[Upload]**, in the collection you have initially selected the application Wizard creates two direction collections and wavelength collections within each direction collection (see an example below).

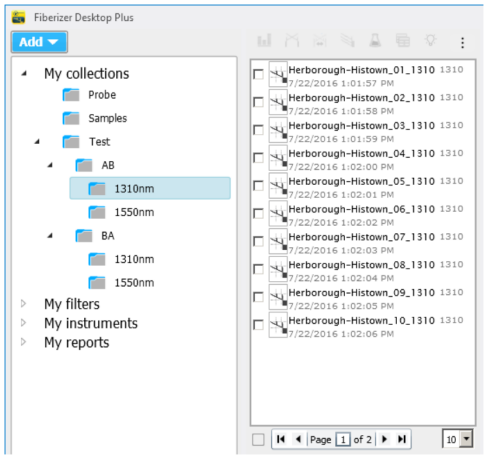


Figure 15. Bi-directional measurement results are sorted within the collection

5.1.3. File naming for bi-directional measurement results

We advise that the file names contain:

- A variable part at the beginning. That part must be in the ‘AAABBB’ and ‘BBB-AAA’ fashion (see the example, ‘Herborough’ and ‘Histown’ in examples above), or just the ‘AAAAA’ and ‘BBB’ fashion. If so, our application is most likely to link the files automatically, provided the constant part is present.
- A constant part at the end. That part must be the same in both files (see the example, the ‘_01_1550’ part in the top two files in the previous Section).

If the beginning part does not follow the above fashions, you can set the beginning part templates for each direction in the green and blue field respectively. Just type the beginning part in the green or blue field, and matching files are detected automatically, provided the constant part is present.

We recommend using VeEX OTDRs for proper file naming. For further information about VeEX devices, contact your local VeEX representative.

5.1.4. Linking bi-directional measurement results manually

You can manually link as bi-directional measurement results any two files. For that, upload them one by one with the procedure described in Adding (uploading) bi-directional measurement results.

Besides, you can manually link as bi-directional measurement results any two files which are already uploaded to Fiberizer Desktop Plus. For that, select the two files, then click the **[Create bidir relations]** icon (highlighted in the Figure below), and follow the onscreen instructions.

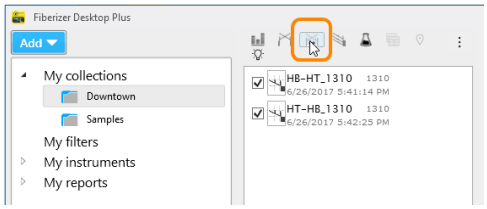


Figure 16. Linking bi-directional files manually

5.1.5. Other actions with files

To copy, delete, or rename a single file, right-click it and select the necessary option as shown in FIGURE 3-8 below.

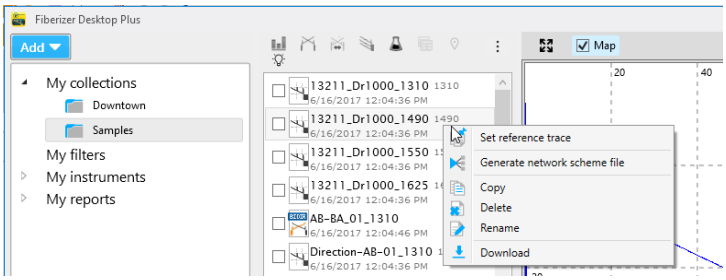


Figure 17. Actions with a single file via context menu

To manage a group of files, you must first select them by clicking the checkboxes to the left of the file names. Files are shown in pages, and the Check all checkbox (un)selects all files on the current page. You can select files on several pages (see the Figure below).

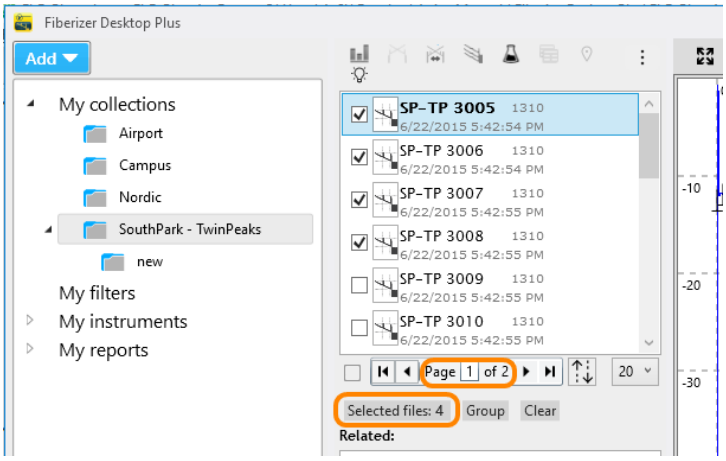


Figure 18. Selecting files for moving and other operations

Actions described below apply to all files selected, not only those which are visible on the current page.

To get the action menu, click the the **[Further items]** icon (⋮ above the file list. The options are: **[Move to]**, **[Copy]**, **[Paste]** (if there have been files selected for copying), **[Delete]**, **[Download]**.

5.2. Managing collections

Collections provide a convenient method for organizing your measurement results and other files. Just as with folders in a regular file management system, you can create several layers of collections for your files.

To add a collection, select the collection you want to put it in. After that click **Add › Collection**, then enter the new collection name and click **[Create]**. You can also right-click an existing collection and select **[Add collection]**.

To move or copy a collection, or to rename it, right-click it and select the necessary option.

To download a complete collection to your HDD as a `.zip` archive, right-click it and select **[Download]**.

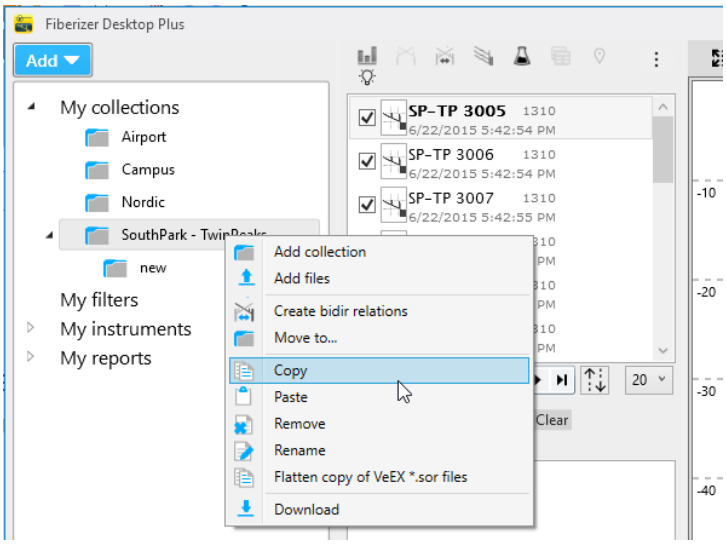


Figure 19. Managing your collections

To delete a collection, right-click it and select **[Remove]**.

> *If you delete a collection, its contents are also deleted!*

5.3. Managing instruments (OTDRs)

This functionality lets you conveniently keep records of your OTDR inventory, and use the devices for generating traces for virtual networks (see Section Modeling the trace with a virtual network).

To add an OTDR, right-click the **[My instruments]** link in the **Managing measurement results, instruments…** section, then select **[Add OTDR]** as shown below.

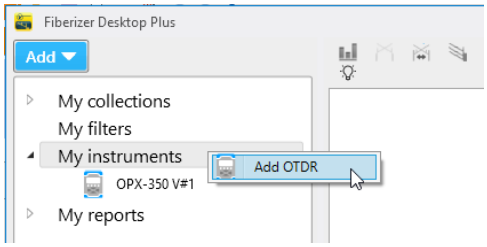


Figure 20. Adding an OTDR

This results in the form shown in the form shown below. To edit any field in the form, double-click it and enter or select a value.

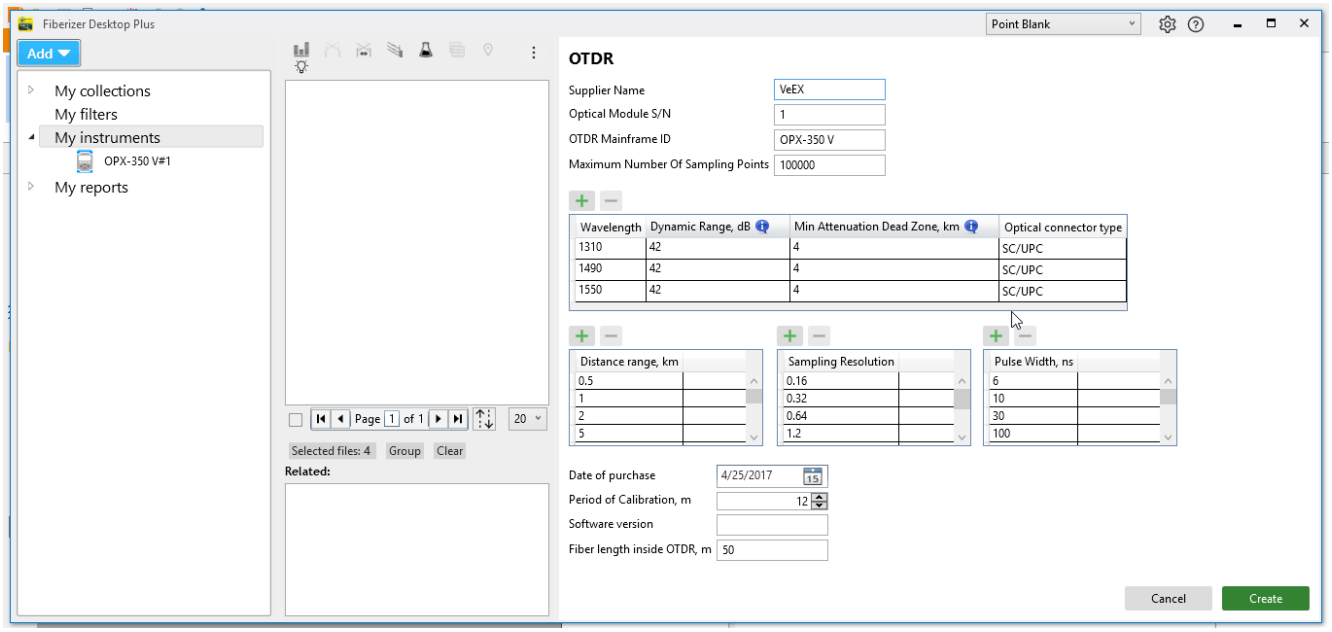


Figure 21. Filling in or editing an OTDR info form

To edit an existing OTDR record, right-click it and select **[Edit]**, then edit the form above. To remove an OTDR record from the list, right-click it and select **[Remove]**, then follow the onscreen instructions.

5.4. Managing report templates

To generate a report (see the procedure described in Section Trace reporting), you need a template. Fiberizer Desktop Plus initially has several report tempates for major use cases. Those templates can be customized to your needs, and more templates can be added.

If you need a template for a special use case, contact your local VeEX representative.

Uploading a template is very similar to adding any other file or instrument to your Fiberizer Desktop Plus. Click **Add › Report template** at the top left corner as shown below.

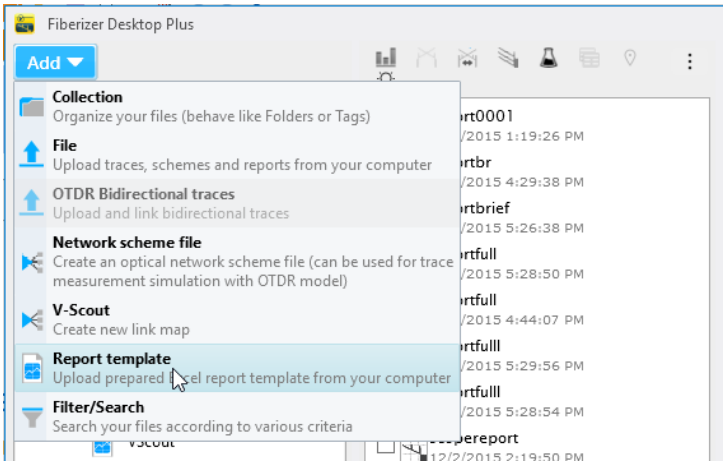


Figure 22. Adding a report template

In the resulting form locate the necessary file, select it, and click **[Open]**. As a result, the template is uploaded.

To view or edit an uploaded template, right-click its name, then choose the necessary item (see below).

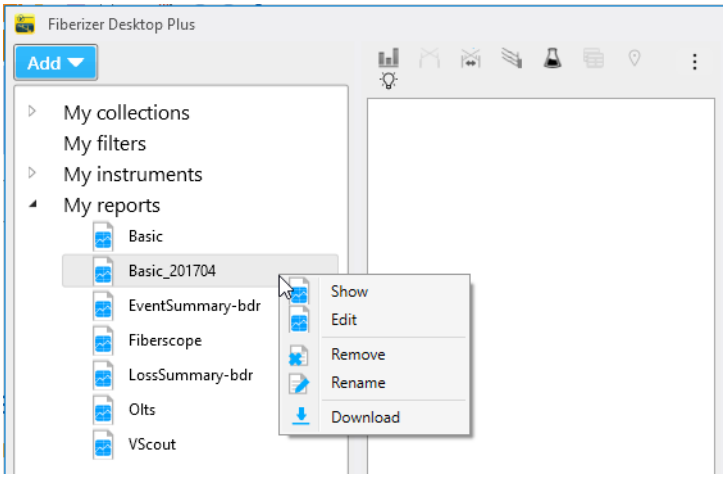


Figure 23. Actions with a report template

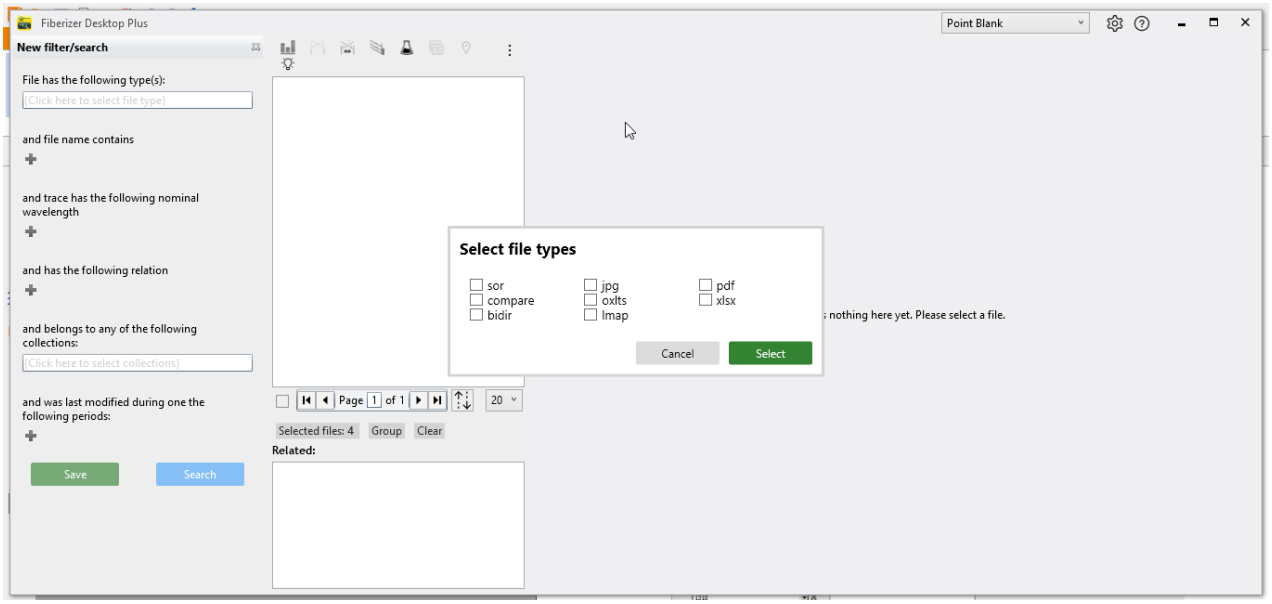
Please note that in order to edit a template, you must understand how templates work and how template variables are used. If your template is made incorrectly, you can have an error while generating a report, or have your data presented incorrectly in the report. For example, if you decide to replace the logo, you have to make the new logo the same size and place it as in the original. You can also order a template via your local VeEX representative, customized to your needs.

With the help of the same context menu you can rename the template, remove it from Fiberizer Desktop Plus, or download it to your PC in Excel format.

5.5. Searching in Fiberizer Desktop Plus database

Fiberizer Desktop Plus is equipped with powerful search functionality, allowing you to find practically everything in the application database. To quickly find a measurement result, a report, or any other file:

1. In the main screen click **Add › Filter/Search**. The form similar to the one shown below appears as a result.



2. Fill in the fields. Note that you can add several fields for certain search parameters (like the fields for the file name or wavelength), by clicking the plus icon. In this case the fields with the OR operator appears.
3. Click the **[Search]** button to get the results. To save this search as a filter for further use, click **[Save]**.

To go back to the main screen, close the form by clicking the **[Close]** icon to the right of the form heading (⊠).

6. TRACE ANALYSIS AND EDITING

After you uploaded a trace or a batch of traces, or Fiberscope images (see Sections Adding (uploading) files or Adding (uploading) bi-directional measurement results), you can analyze them automatically and edit manually. After you finish analysis and editing, you can generate a report (see the procedure described in Section Trace reporting).

6.1. Viewing a trace

To view a trace, just click it in the **Files** section.

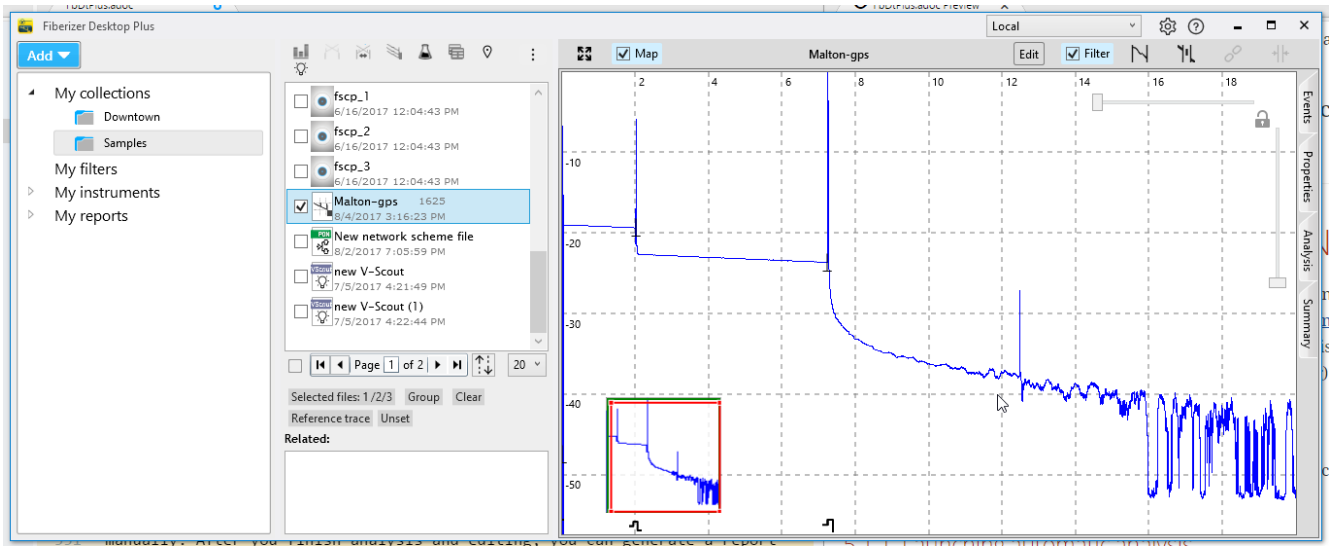


Figure 24. Viewing a trace

If the trace has GPS information, you can see the map with the place of measurement marked. For that, click the GPS icon above the **Files** section (see the Figure below). The icon is active only if the trace has GPS information.

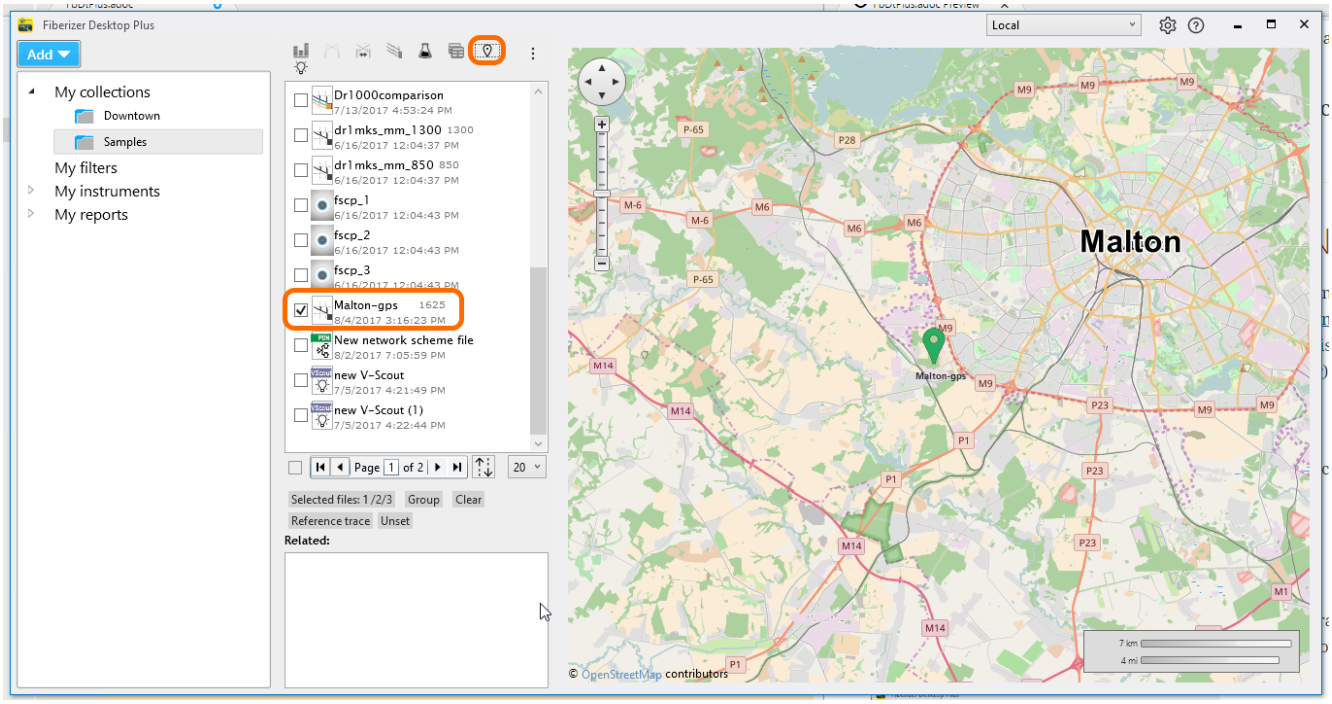


Figure 25. Viewing the map for a trace with GPS

6.2. Automatic analysis (single trace)

Fiberizer Desktop Plus can analyze your trace automatically, according to the thresholds selected.

6.2.1. Launching automatic analysis

To launch automatic analysis:

1. Enter the editing mode by hovering your mouse over the trace file, and then clicking the pencil icon which appears on the right (see the Figure below). Alternatively, you can press `Ctrl`+`Shift`+`e` to enter the editing mode.

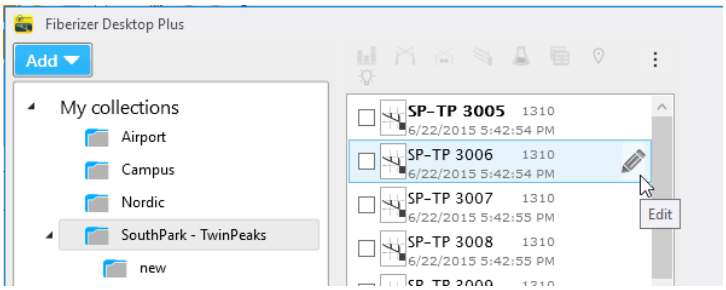


Figure 26. Launching the editing mode for a trace

2. Click the flask icon in the top right corner of the screen (see below).

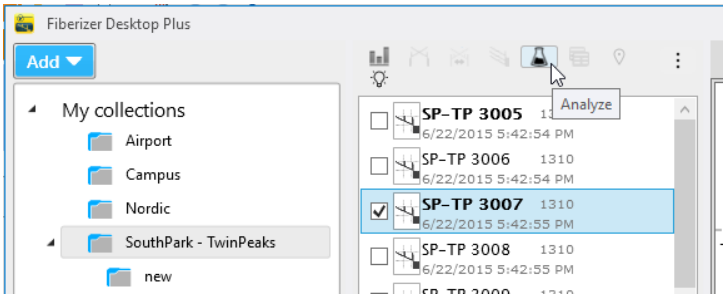


Figure 27. Launching automatic analysis for a trace

3. In the form which appears as a result (see below), select the type of thresholds to be applied to automatic analysis.

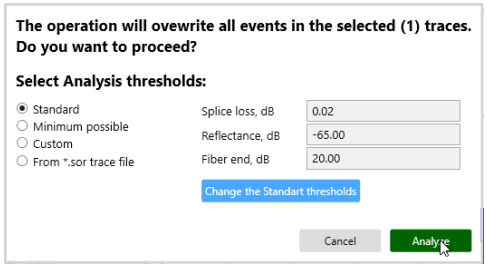


Figure 28. Selecting thresholds for automatic analysis

Standard: the application applies the thresholds set in the Settings (see Section Defining OTDR analysis thresholds for details). You can change those thresholds if you click the **[Change the Standard thresholds]** button.

Minimum possible: the application uses a proprietary algorithm to analyze the trace and to define the minimum possible thresholds, then applies them to the trace.

Custom: the user sets their own thresholds.

From the trace file: the application applies the thresholds from the `.sor` file. Those thresholds are saved there during the OTDR measurement.

The analysis results are trace events. They are marked on the trace and projected to the bottom of the screen with the marks showing the event types (⌈ for fiber beginning, ⌐ for splice loss, etc.) Full event details are provided in the event table on the right (see below).

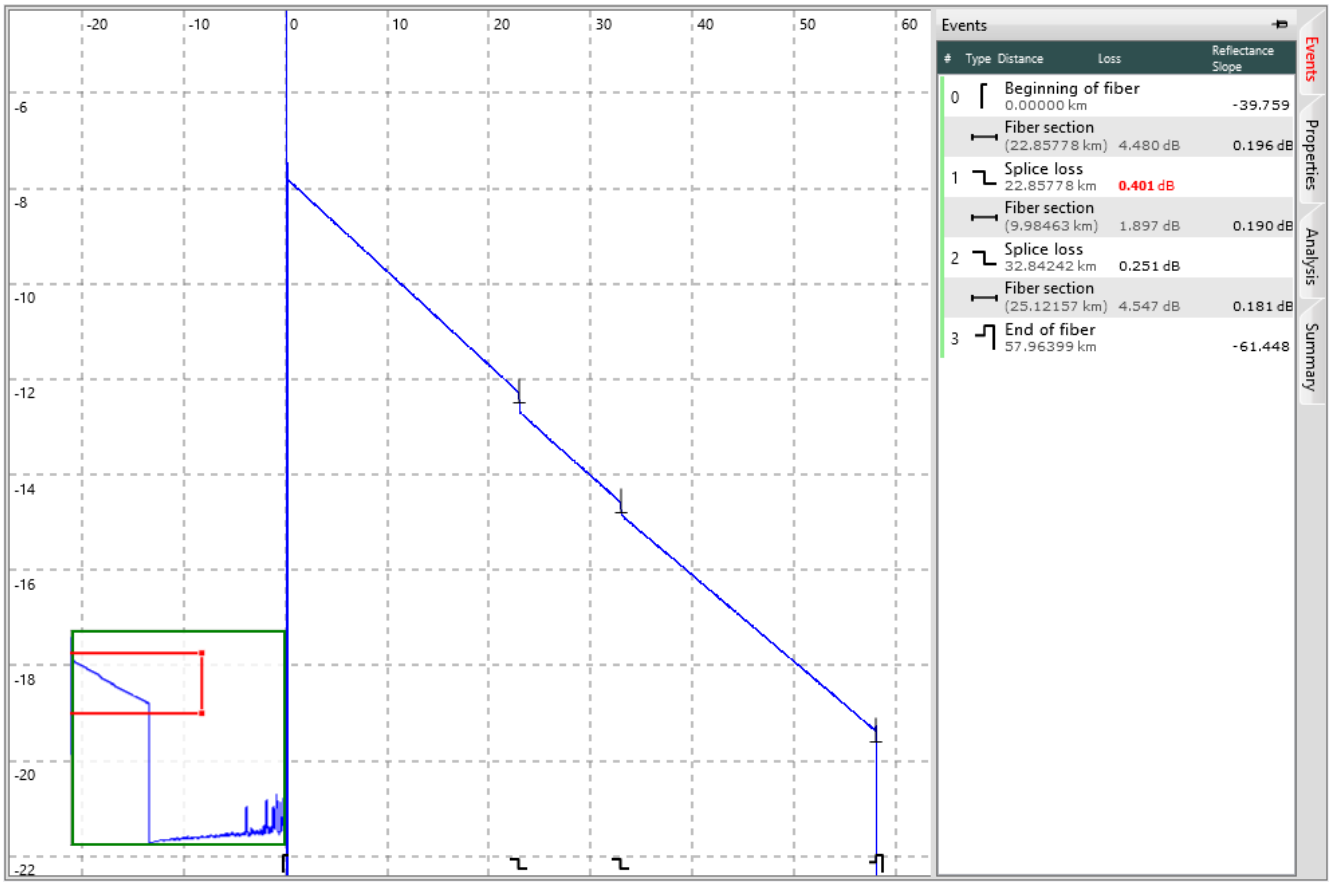


Figure 29. The result of automatic analysis with the detailed event table on the right

To exit the editing mode, click **[Close Edit Mode]** or press `Ctrl`+`Shift`+`e`.

While automatic analysis is advanced functionality with good results in most cases, sometimes it needs to be supplemented with manual review and editing. Manual editing, however, requires relevant experience and training in fiber optics metrology.

6.3. Trace structure visualization (V-Scout graph)

Any trace from the application database can be presented as a simplified one-dimension flowchart (see an example below). Such graphs are usually used for business presentations and educational purposes.

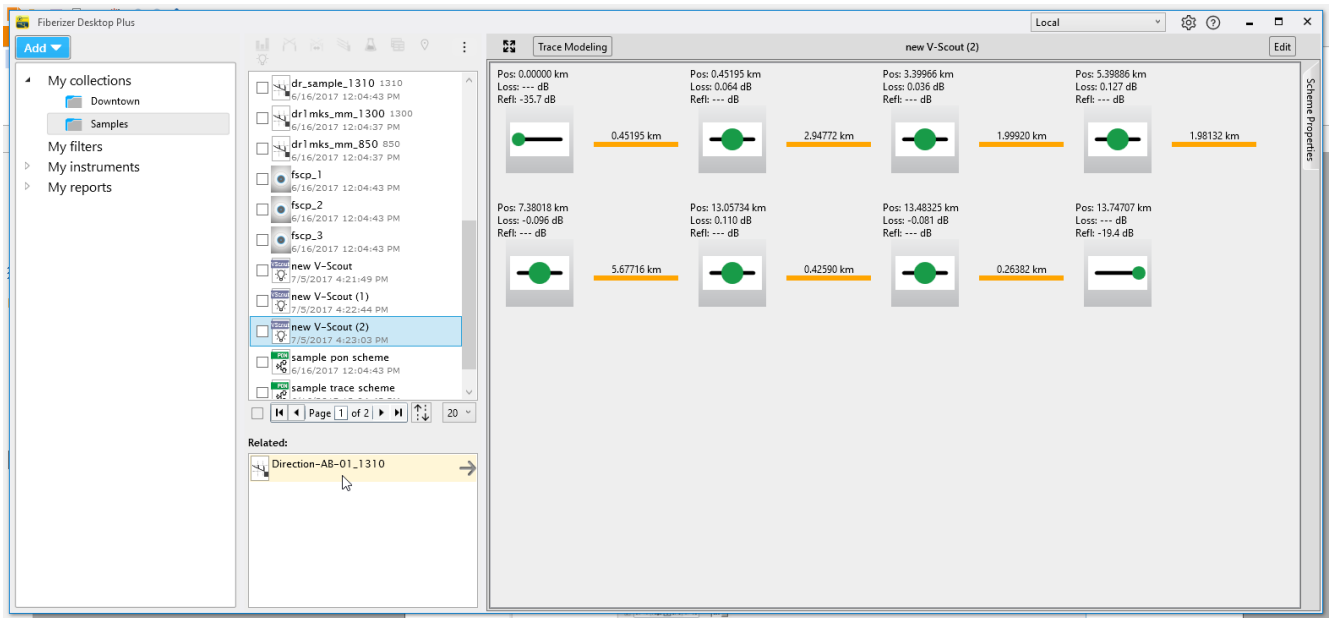


Figure 30. V-Scout graph for a trace

To get a V-Scout graph for a trace:

1. Select the trace in the **Files** section by selecting the box on the left.
2. Click the bulb icon ( ) above the **Files** section.
3. In the dialog window which appears as a result, click **[Preview]** to see the V-Scout graph without creating a separate file, or **[Create]** to create a V-Scout file linked to the original trace.

6.4. Manual trace editing

With manual editing you can:

1. Change an existing event location;
2. Add a new event;
3. Remove an existing event.

Besides, you can undo the changes you made.

Before you edit your trace manually, we recommend you get acquainted with Section Introduction to loss measurement technique theory.

6.4.1. Introduction to loss measurement technique theory

Two types of loss measurement technique can be applied for analysis: 2- marker ( ) and 5-marker ( ).

The 2-marker technique shows the loss between markers A and B divided by the distance between the markers as shown in the illustration below (the view is simplified).

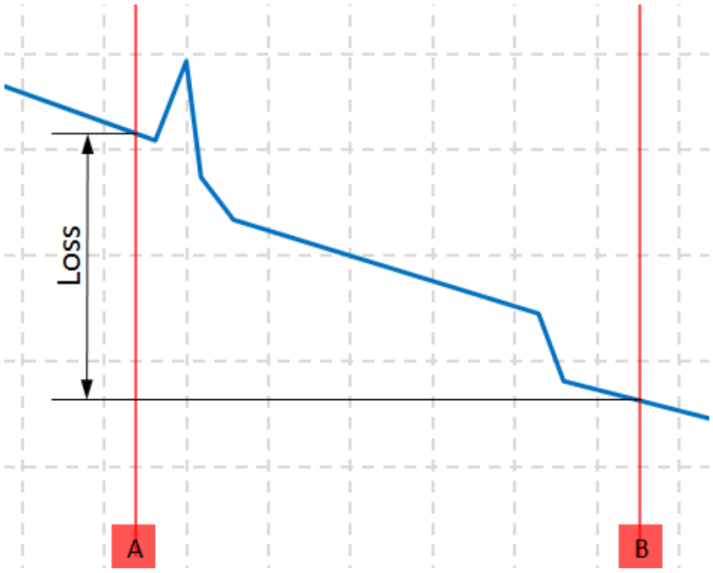


Figure 31. 2-marker technique (simplified view)

This technique always gives reasonable results, even if there are connectors or splices between the markers. To use this method, click the 2-marker icon above the trace view ( ). To move a marker in the 2-marker mode, just grab it with your mouse and place where you need.

If you need to measure the loss of a splice or a connector, the 5-marker technique ( ) is recommended. It uses the advanced Least Square Approximation (LSA). To make most of it, you must place the 5 markers correctly, like in the examples below (the view is simplified):

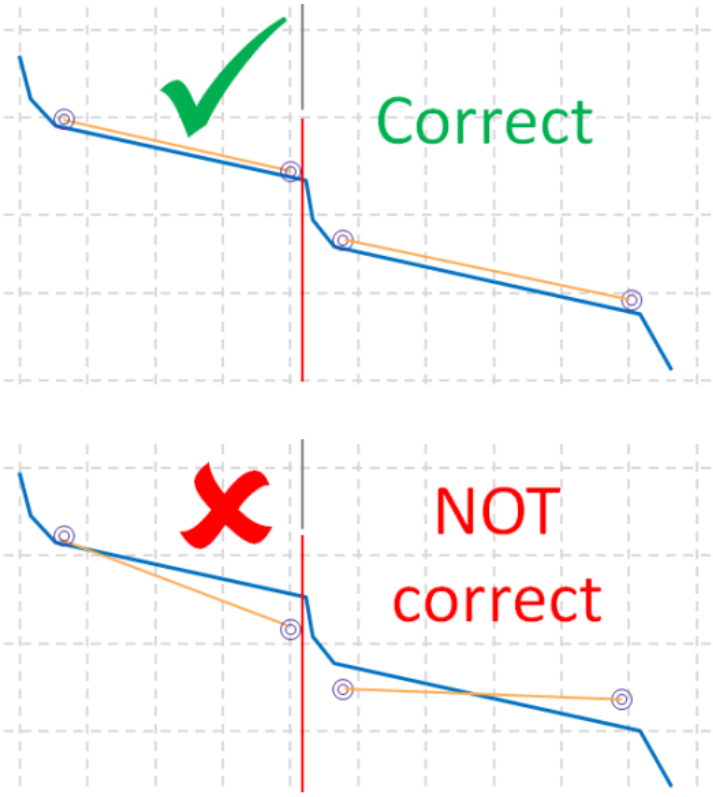


Figure 32. Marker placement for a splice (simplified view)

Select the longest straight sections and try your best to approximate the fiber under test as closely as possible, and avoid sections where the trace is rounded. Keep the lines strictly on the backscatter, even if it is noisy. The central marker must be placed at the very beginning of the event (see the example below).

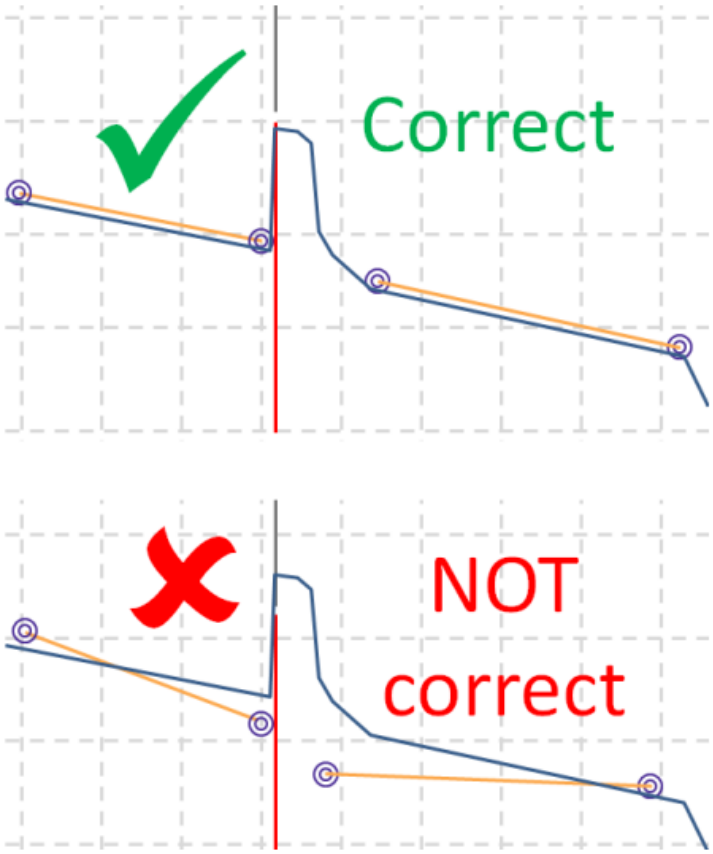


Figure 33. Marker placement for a connector (simplified view)

To use this method, click the 5-marker icon ( ). To move the central marker together with the other markers, grab its lower (red) part with your mouse and place it where you need. To move the central marker alone (independent of the other markers), grab its upper (gray) part with your mouse and move. To move any of the side markers independently, grab it with your mouse and move.

The event type is determined automatically depending on the markers' positions.

6.4.2. Changing event location

To change an existing event location:

1. Enter the editing mode by hovering your mouse over the trace file, and then clicking the pencil icon which appears on the right ( ). Alternatively, you can press `Ctrl`+`Shift`+`e` to enter the editing mode.
2. Select the event by clicking its record in the event table, or its ⊥ symbol on the trace graph, or the event projection at the graph area bottom.
3. Move the central marker to the new location.

4. Adjust the side markers as recommended in Section Introduction to loss measurement technique theory.
5. Confirm your changes by clicking the green **[Change event]** icon (✔) above the event table.

As a result, the event changes its location and parameters in the event table on the right, on the trace graph, and changes its projection location at the graph area bottom.

To undo the change, click the blue **[Undo changes…]** icon (↻). To save the changes, click **[Save]** or press `Ctrl`+`Shift`+`s`.

6.4.3. Adding a new event

To add a new event:

1. Enter the editing mode by hovering your mouse over the trace file, and then clicking the pencil icon which appears on the right.
2. Select the 5-marker mode by clicking the icon ().
3. Move the central marker to the new location.
4. Adjust the side markers as recommended in Section Introduction to loss measurement technique theory.
5. Click the green **[Add new event]** icon (+) above the event table.

As a result, the new event is added into the event table on the right, to the trace graph, and its projection appears at the graph area bottom.

> *The event type is determined automatically depending on the markers' positions.*

To undo the change, click the blue **[Undo changes…]** icon (↻). To save the changes, click **[Save]** or press `Ctrl`+`Shift`+`s`.

6.4.4. Removing an existing event

To remove an existing event:

1. Enter the editing mode by hovering your mouse over the trace file, and then clicking the pencil icon which appears on the right.
2. Select the event by clicking its record in the event table, or its symbol on the trace graph (⊥), or the event projection at the graph area bottom.
3. Click the red **[Remove event]** icon (—) above the event table.

As a result, the new event is removed from the event table on the right, from the trace graph, and its projection is removed from the graph area bottom.

To undo the change, click the blue **[Undo changes…]** icon ( ). To save the changes, click **[Save]** or press Ctrl+Shift+s.

6.4.5. Editing fiber optic parameters and trace information

Fiber optic parameters (**Refractive Index** and **Backscattering coefficient**) are used for calculating the fiber distances and event reflectance respectively. Copy them from the fiber documentation into the **Properties** tab, Section **4. Fiber optic parameters** (see the Figure below). If the documentation is not available, keep the default values.

Changes in **Refractive Index** take effect immediately. Changes in **Backscattering coefficient** take effect after you move any of the event markers on the trace.

General parameters for the trace are usually used for information and reference. Edit them in the **Properties** tab, Section **5. General parameters** (see the Figure below).

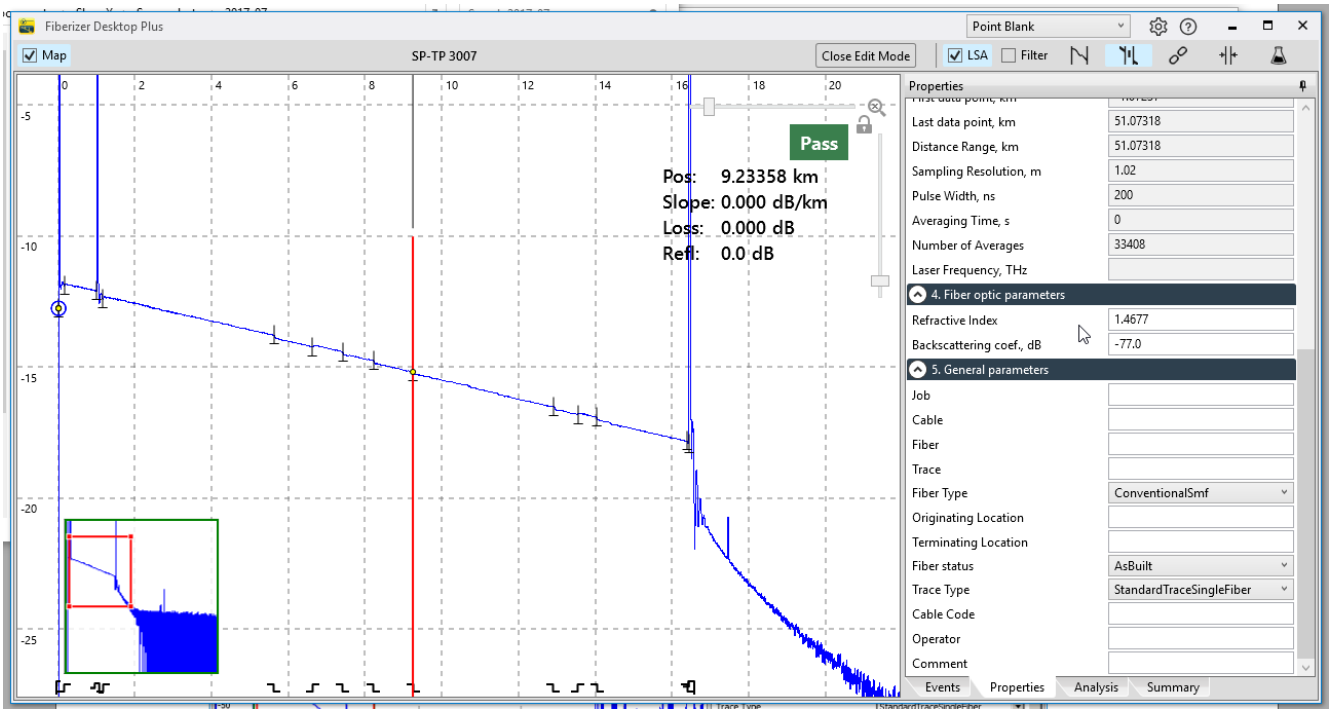


Figure 34. Fiber optic parameters and General parameters editing

6.5. Bi-directional trace analysis

Bi-directional method analyzes traces taken from both ends of the fiber under test, and produces more accurate results.

To upload results of bi-directional measurements, you must use the OTDR Bidirectional traces upload wizard (see Section Adding (uploading) bi-directional measurement results). If for some reason you have uploaded two bidirectional files separately, you can manually link as bi-directional measurement results (see Section Linking bi-directional measurement results manually for details).

To perform bi-directional trace analysis:

1. Select the first trace in the **Files** section by clicking the checkbox next to it. If the two bi-directional files are properly uploaded, the opposite direction trace is shown in the **Related** section.
2. Select the opposite direction trace. For that click the arrow to the right of the trace in the **Related** section, which brings the opposite direction trace to the **Files** section, then click the checkbox next to it. The number of selected files becomes 2 (see the highlighted field in the Figure below).

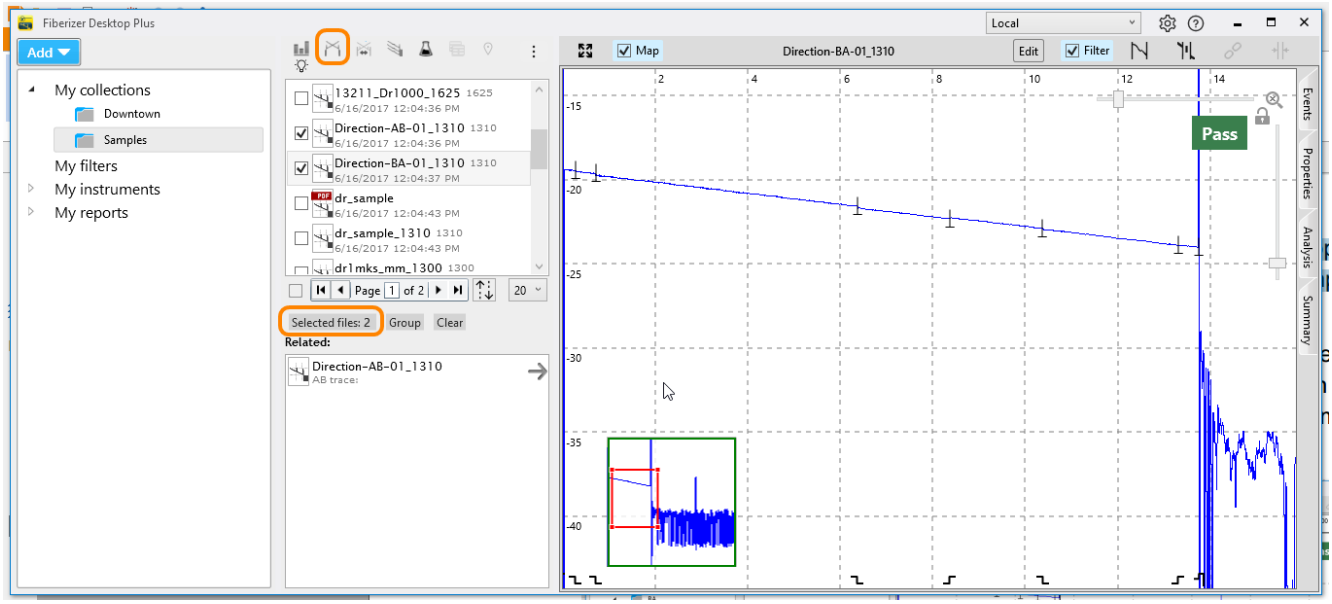


Figure 35. Selecting traces for bi-directional analysis

3. Click the **[Perform bi-directional analysis]** icon highlighted in the Figure above. In the form which appears (see below) enter the name for the bi-directional analysis file, then click **[Perform]**.

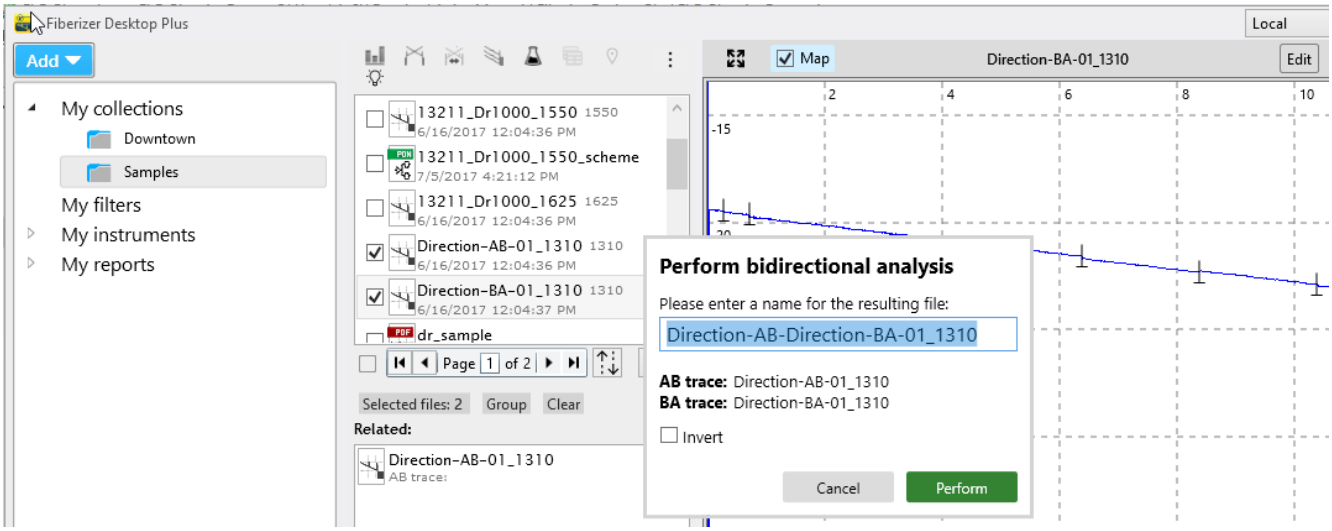


Figure 36. Naming the bi-directional analysis file

As a result, the application generates a bi-directional analysis file and shows it onscreen (see an example below). This file is related to the two original traces.

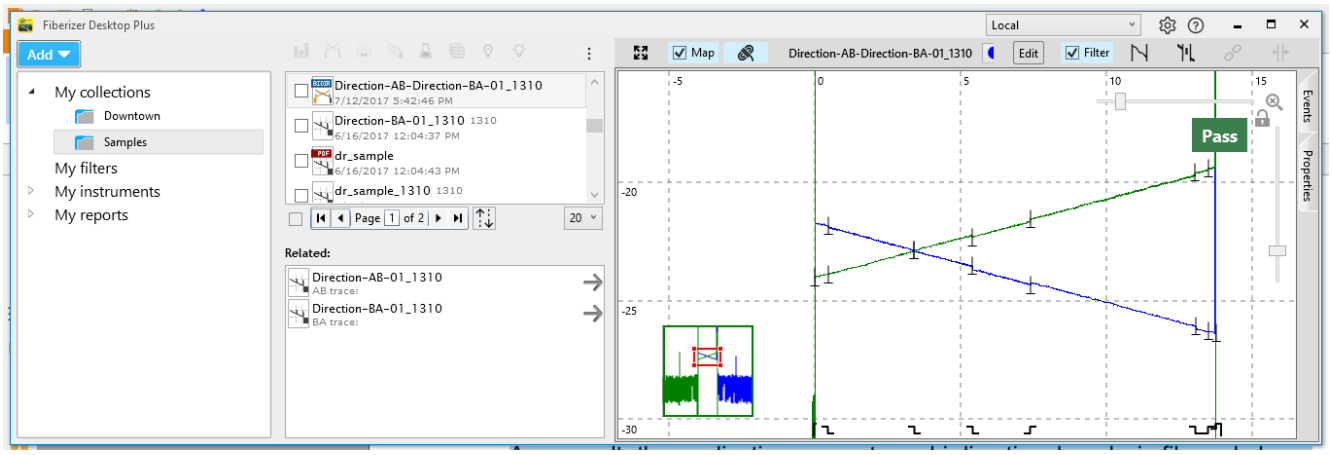


Figure 37. The resulting bi-directional analysis file

To view bi-directional traces, you can use the scaling tools described in Section Measurement Results Preview… Section menus and control elements. Besides, you can select the active direction in the drop-down menu at the top, and move the traces up and down with your mouse.

6.5.1. Editing bi-directional analysis file

To start editing a bi-directional analysis file, click the **[Edit]** button at the top (see, for example, the Figure above). To edit the traces, use the editing procedures described in Section Manual trace editing.

6.6. Batch analysis

With batch analysis you apply the analysis results from one reference trace to other traces. This is often useful when you analyze fibers from one cable, where trace events are the same for every fiber. Usually the analysis results are applied to the other traces after the reference trace is thoroughly analyzed.

6.6.1. Comparing traces from batch

While selecting the reference trace, you may need to compare the events from each trace of the batch. To do that:

1. Select the necessary traces by checking the checkboxes next to them in the **Files** section.
2. Click the **[Compare batch of traces]** icon at the top (highlighted in the Figure below).

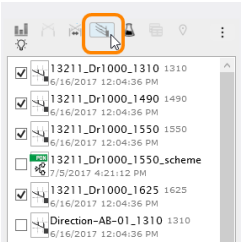


Figure 38. Selecting traces from the batch to be compared

In the form which appears, name the resulting comparison file, then click **[Create]**. As a result, the application generates a comparison file (see an example below). Just like for bi-directional traces, here you can select an active trace in the drop-down menu at the top, and move the traces with your mouse.

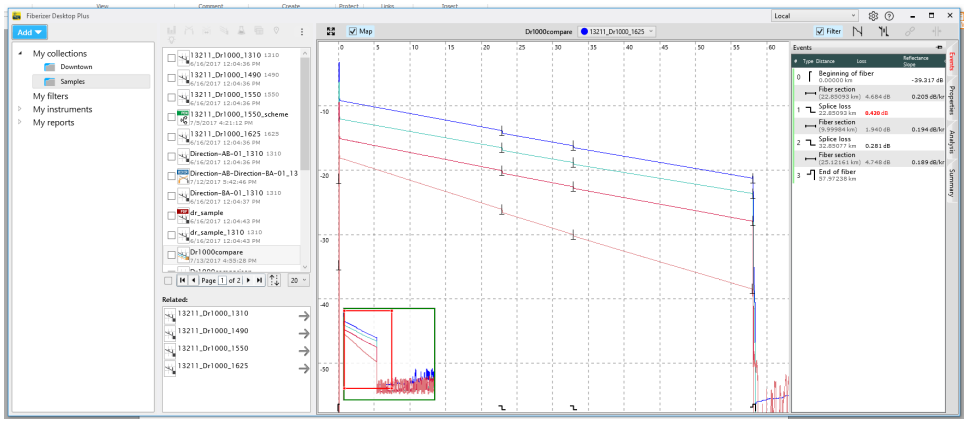


Figure 39. The resulting comparison file for a batch

The resulting comparison trace is related to every trace from the batch. If you click any of the traces, it is shown in the **Related files** section.

6.6.2. Applying analysis results from reference trace

To apply the analysis results from one reference trace to the other traces from one cable:

1. Locate the trace you designate as reference and right-click it. Then in the context menu select **[Set reference trace]** (see the Figure below).

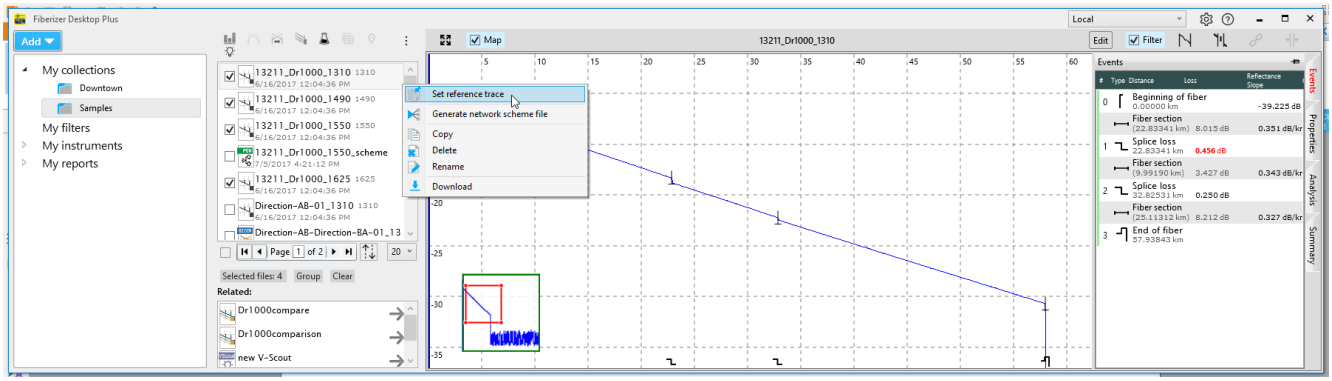


Figure 40. Setting the reference trace

As a result, the trace icon gets a blue pin. To unset the reference trace, right-click the same file and click Unset reference trace.

2. Select the traces you need to apply the reference one as a template.
3. Click the **[Apply template]** icon at the top of the **Files** section (highlighted in the Figure below). Confirm the action by clicking **[Apply template]** in the form which appears as a result.

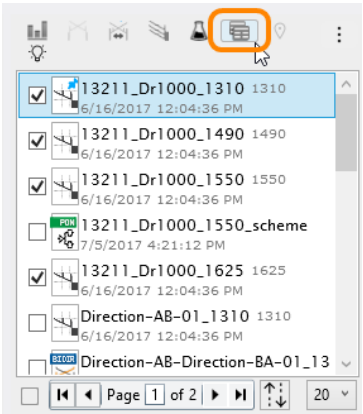


Figure 41. Applying the reference trace as the template

Subsequent changed in the reference trace are NOT automatically applied to the other traces. If you edit the reference trace after applying it to the other traces, you have to re-apply it as the template.

6.7. Fiberscope measurement view

In Fiberizer Desktop Plus you can view your Fiberscope images and see inclusions as previously analyzed by the Fiberscope device. To upload such images to the application database, follow the procedure described in Sections Adding (uploading) files.

To view a Fiberscope image:

1. Select the necessary Fiberscope image file in the **Files** section by clicking it. As a result, a raw image of the fiber end is shown onscreen in the **Preview** section (see the Figure below). The analysis results are shown in the table below the image.

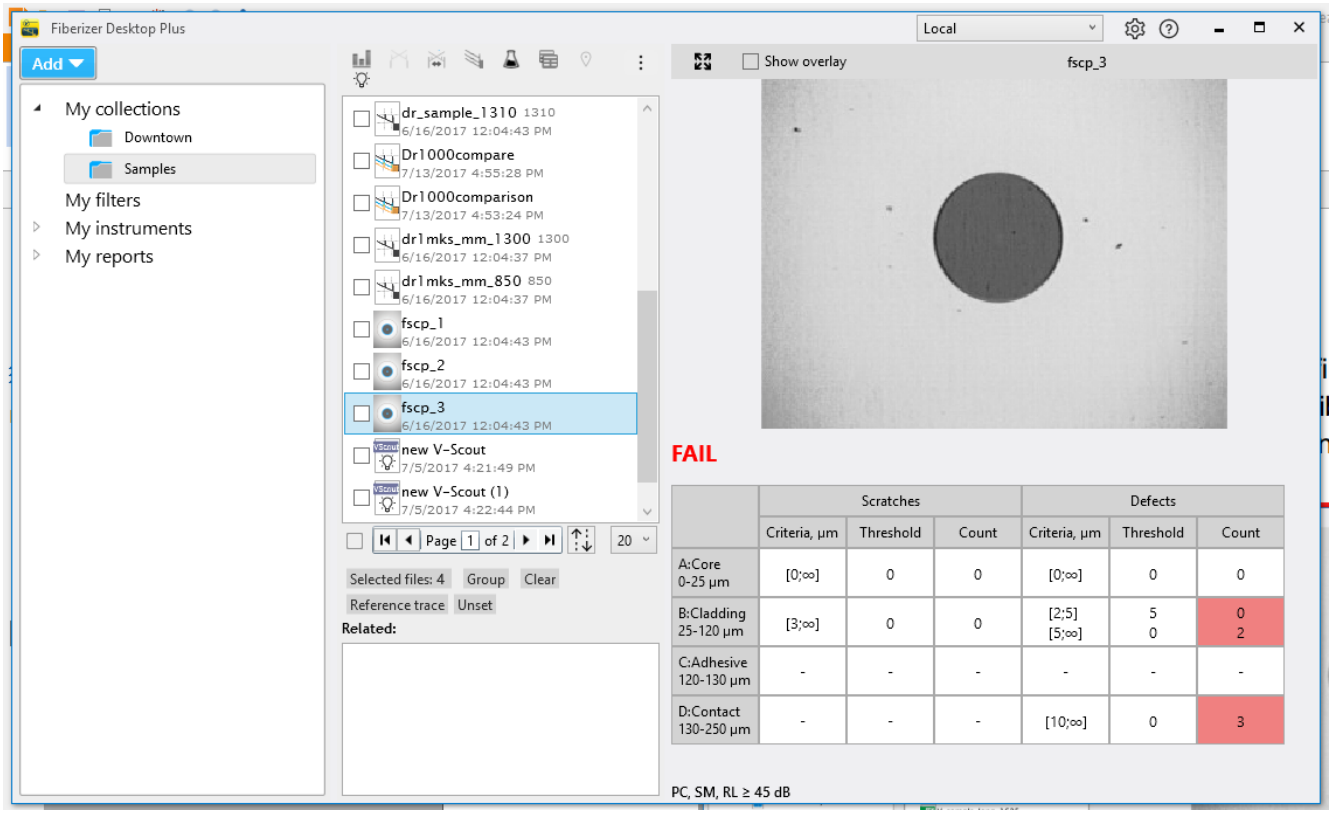


Figure 42. Fiberscope image preview: analysis results not highlighted

To highlight the analysis results and the zone borders, select the **[Show overlay]** checkbox above the image (see an example below).

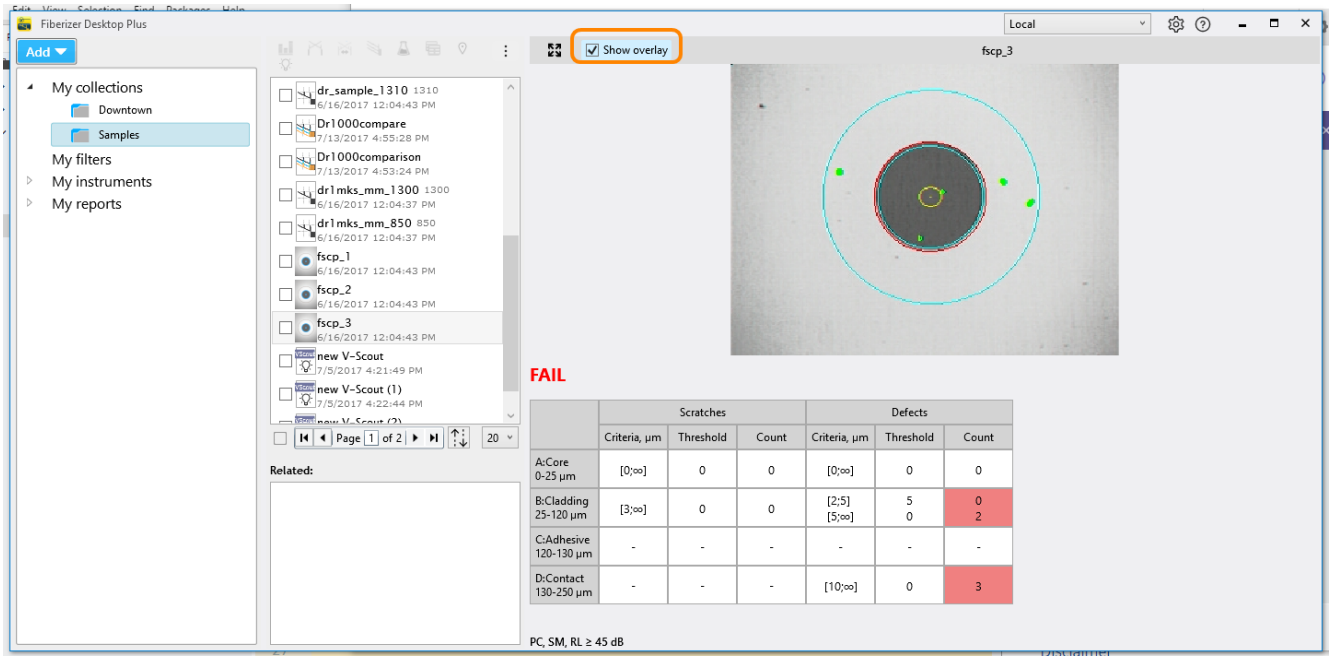


Figure 43. Fiberscope image preview: analysis results highlighted

6.8. OLTS measurement view

In Fiberizer Desktop Plus you can view results of OLTS measurements. To upload such images to the application database, follow the procedure described in Sections Adding (uploading) files.

To view an OLTS measurement file:

1. Select the necessary OLTS measurement file in the **Files** section by clicking it. As a result, the analysis results are shown in two tables, with meta-information and the analysis results proper (see below).

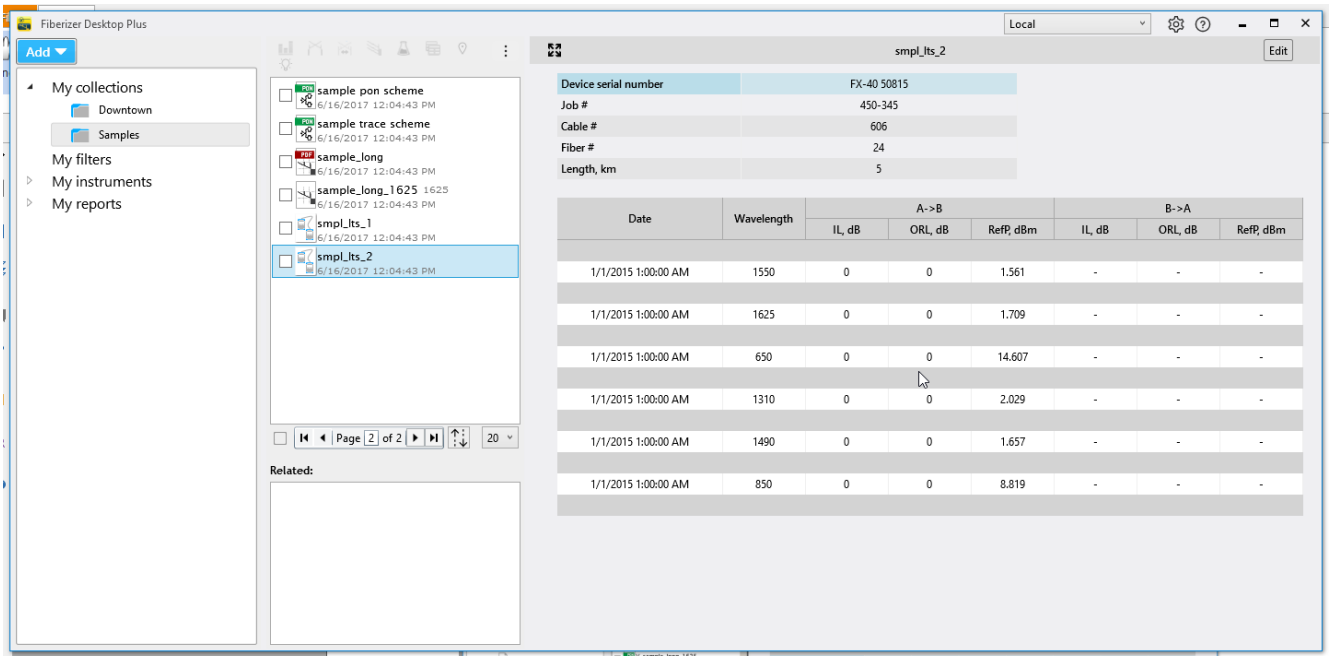


Figure 44. OLTS measurement view

2. To edit meta-information, click the **[Edit]** button at the top right corner. Then double-click the necessary field and edit it. After you finish editing, click **[Close Edit Mode]** and follow the onscreen instructions (see below).

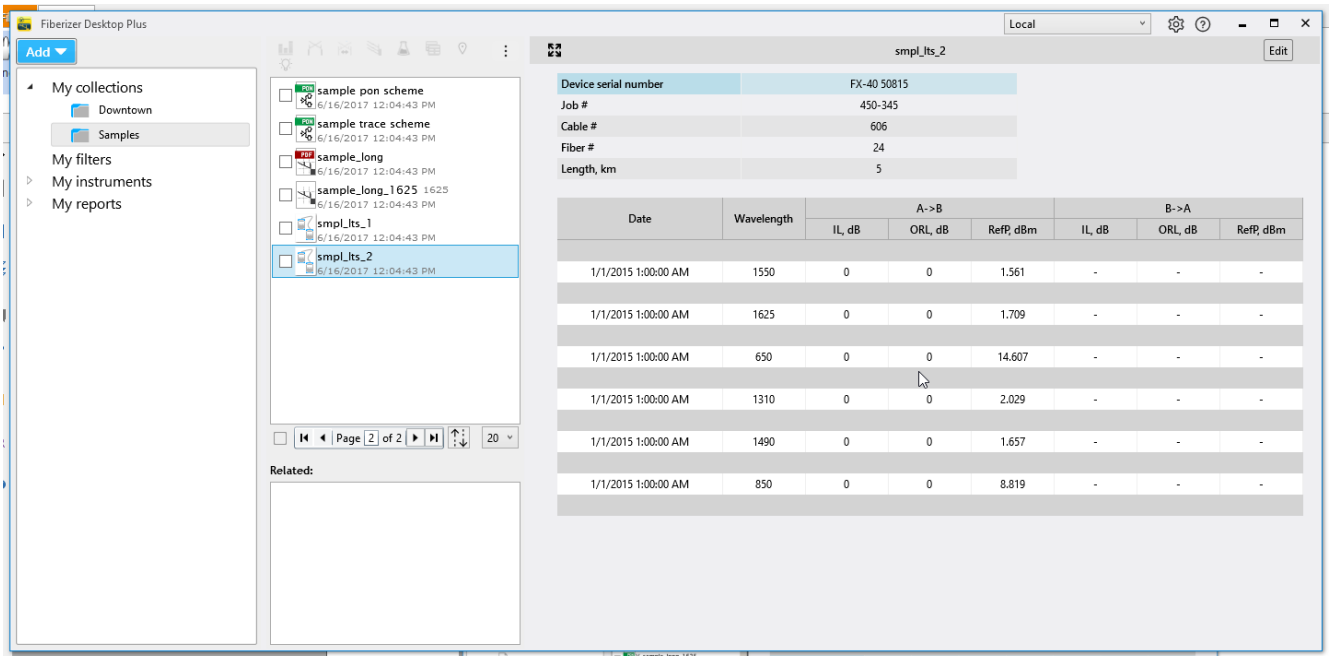


Figure 45. Editing OLTS measurement meta-information

6.9. Creating virtual network schemes

To give an effective business presentations or to organize your personnel instruction, you can use virtual passive optical network (PON) scheming, a unique Fiberizer Desktop Plus feature.

It lets you create a virtual PON scheme and generate the trace for this scheme.

To create a virtual PON scheme, click **Add › Network scheme file** (see below), then in the form which appears enter the file name and click **[Create]**.

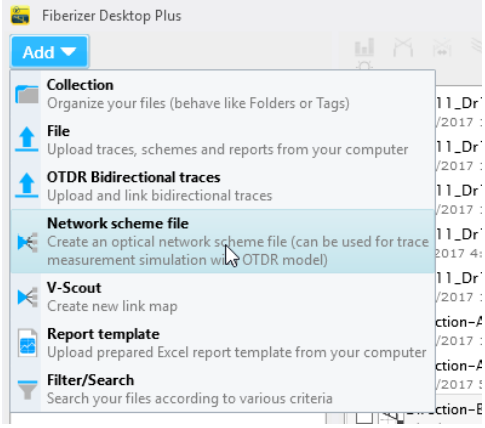


Figure 46. Starting virtual PON scheme creation

As a result, the application generates a simple default network (see an example below).

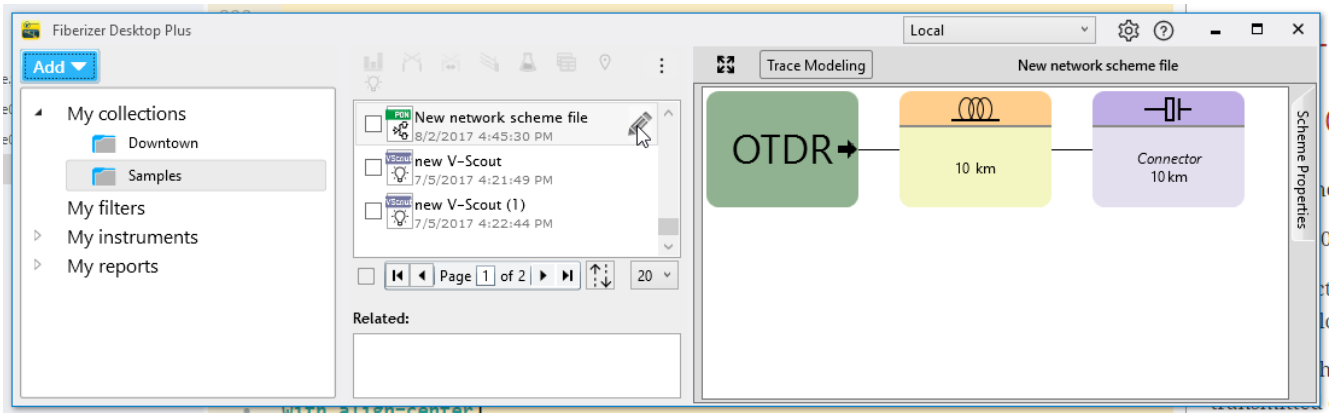


Figure 47. Default PON scheme to start with

To edit the default scheme, hover your mouse over the file name and click the Edit pencil icon (shown in the example above). This bring the editing mode onscreen, with network elements on the left and the scheme properties on the right (see below).

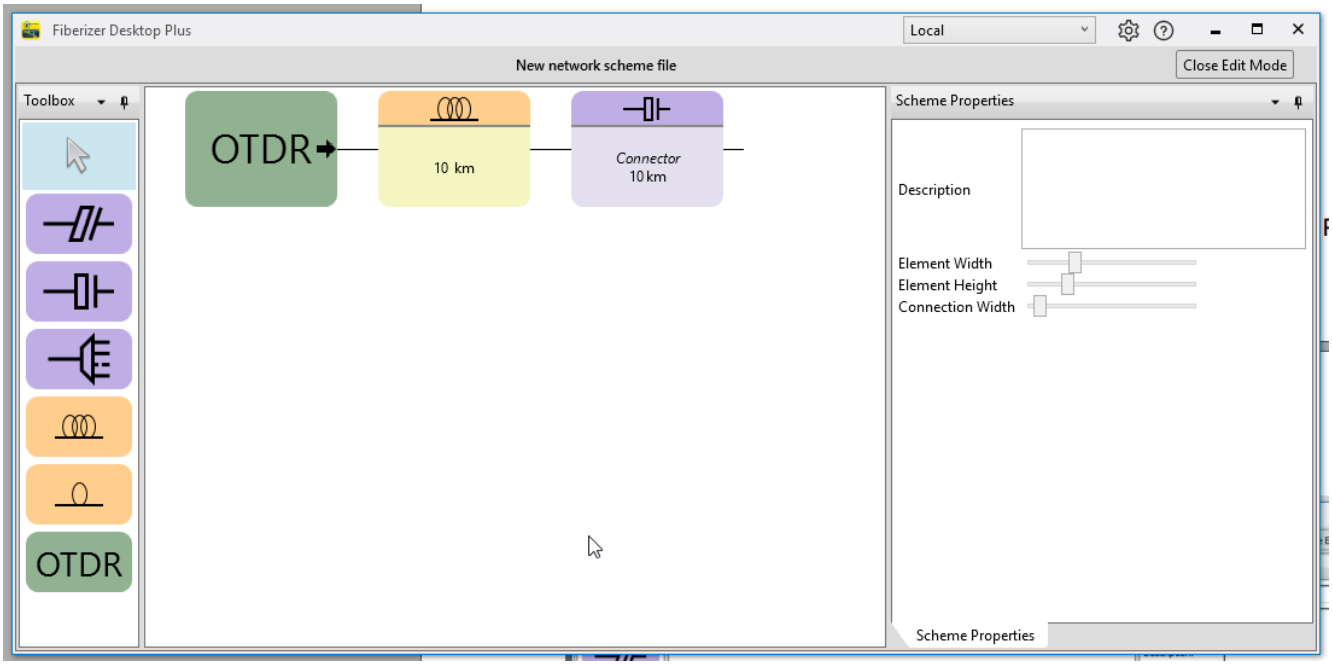


Figure 48. Editing tools on the left and scheme properties on the right

To change how the scheme is shown onscreen and to add a description, click the **[Scheme Properties]** tab on the right.

To add an element to your network, click a network element on the left, then move your mouse to the necessary place in the scheme until you see the green plus (see below), then click the mouse again.

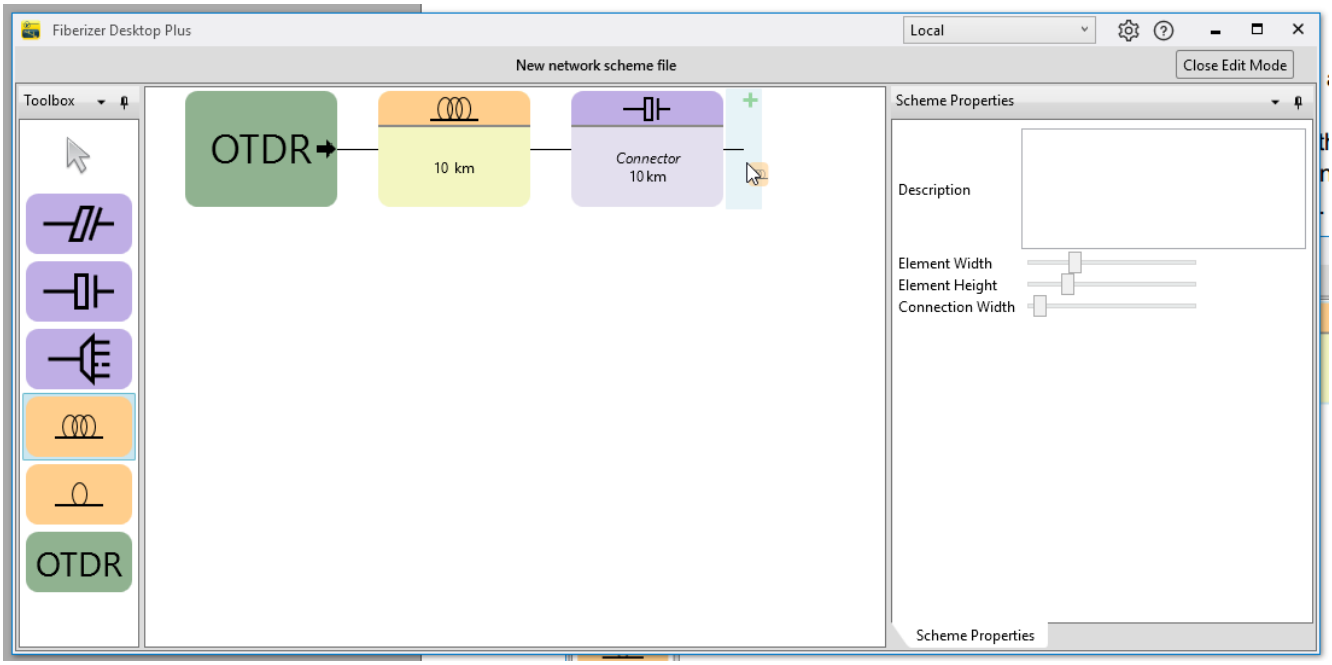


Figure 49. Adding an element to the network scheme

If your addition is illogical, the red box appears prompting you where to add an element (most

likely a fiber section).

To remove an element from your network, hover the mouse over the element and click the **[Close]** icon in the element's top right corner.

To change element properties, click it in the scheme. The context-sensitive tab appears on the right, where you can edit the element's properties (see an example below).

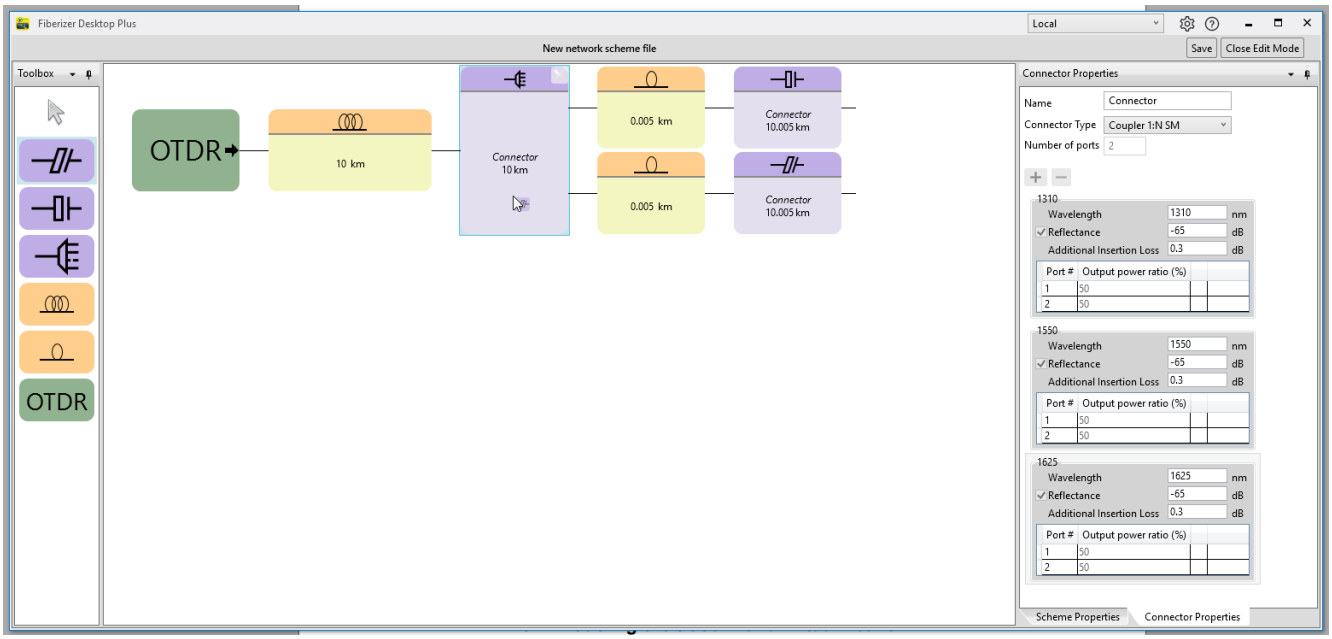


Figure 50. Changing element properties in the network scheme

OTDR properties are set in the Trace Modeling mode (see Section Modeling the trace with a virtual network). Besides, you have to have at least one OTDR in **My Instruments** *in the* **Managing measurement results, instruments … interface** *section.*

6.9.1. Modeling the trace with a virtual network

To generate the trace for your virtual network:

1. Click the **[Trace Modeling]** button above the network scheme. As a result, the form for virtual network trace settings appears (see below).

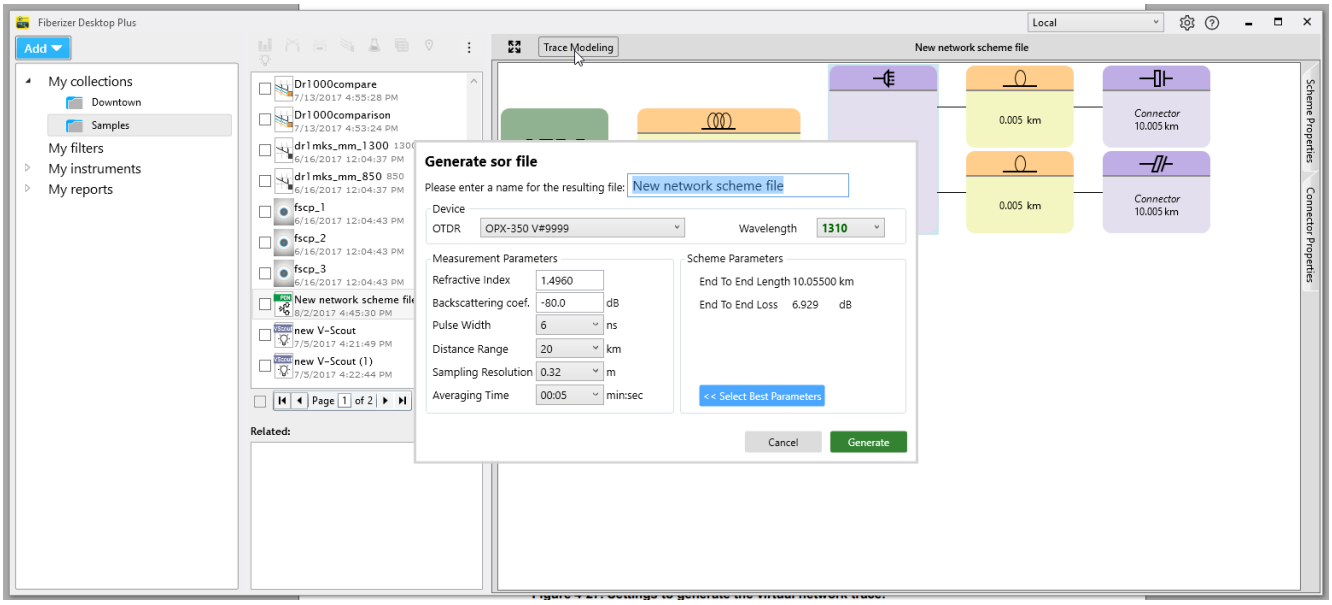


Figure 51. Settings to generate the virtual network trace

2. Fill in the above form and click **[Generate]**. Please note that you have to have at least one OTDR in **My Instruments** in the **Managing measurement results, instruments … interface** section.
3. If you want the application to define the measurement parameters for you, click **[Select Best Parameters]**.
4. Click **[Generate]** to get the trace.

7. GENERATING REPORTS

Reports are arguably the main functionality of Fiberizer Desktop Plus. The application can automate a considerable part of the reporting process, thus saving you a lot of time.

Currently the report types available are:

- Basic;
- Event Summary for bi-directional measurement results;
- Loss Summary for bi-directional measurement results;
- Fiberscope
- Optical Loss measurement results (OLTS).

The report template set provided with the application follows those types. Besides, your reports can come in `.pdf` or `.xls` formats.

At your request we can customize those report types or create new ones. For further information about it contact your local VeEX representative.

7.1. Report template management

Uploading a template is very similar to adding any other file or instrument to your Fiberizer Desktop Plus database. Click **[Add]** at the top left corner, then select **[Report template]** as shown in the Figure below, then follow the onscreen instructions:

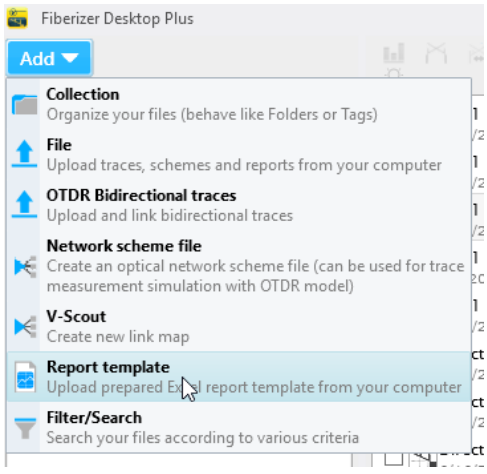


Figure 52. Adding a report template

To perform an operation with a template, right-click it in the **Managing … reports…** section, or hover your mouse over the template name and click the small triangle which appears. This

results in the menu shown in the Figure below, with the options available.

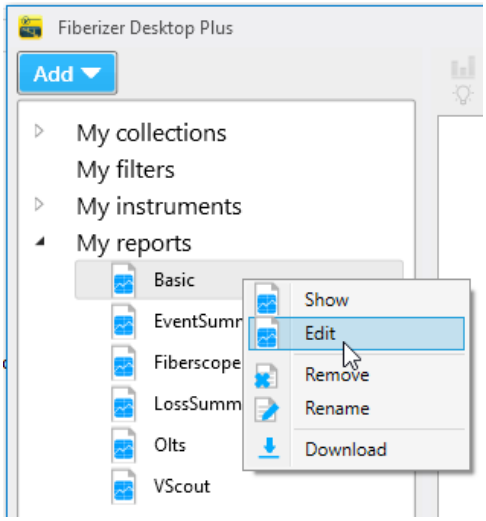


Figure 53. Operations for report templates

While technically a report template is an `.xls` file and there is the BTN:[Edit] option in the menu, you should edit it ONLY if you understand how templates work and how template variables are used. For example, if you want to change the logo picture in the template, we strongly recommend that the new logo has the same size and place it as in the original. If your template is made incorrectly, you can have an error while generating a report, or have your data presented incorrectly in the report.

7.2. Trace reporting

7.2.1. Reports for unidirectional traces

To generate a report for a single unidirectional trace:

1. Select the trace by clicking the checkbox next to the trace name, then click the **[Generate report]** icon (see the Figure below).

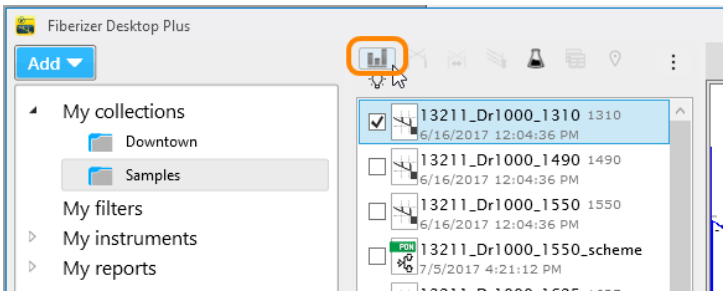


Figure 54. Selecting a single trace for report

2. Fill in the form which appears as a result (see the Figure below), then click **[Create report]**.

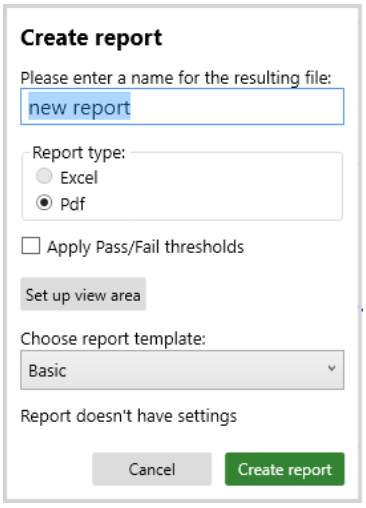


Figure 55. Setting parameters for a single trace report

A more common case is creating a report for a batch of traces. Usually before generating a report for a batch of unidirectional traces you have to do the following:

1. Upload the trace files (see Section Adding (uploading) files).
2. Set the reference trace and apply it as a template to the other traces (see Section Batch analysis).

After that you can generate a report for a batch of unidirectional traces:

1. Select the traces by clicking the checkboxes next to the trace names, then click the Generate report icon (see the Figure below).

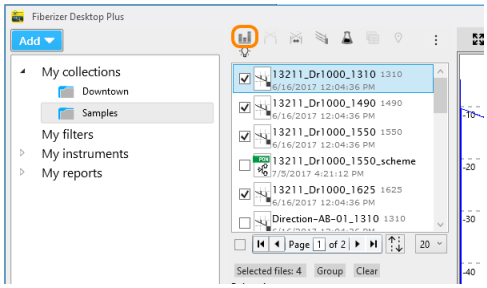


Figure 56. Selecting traces for batch report

2. Fill in the form which appears as a result, then click **[Create report]**.

Before proceeding, make sure you have selected only the files for the current report. Check the number of files selected and clear the selection if necessary.

7.2.2. Reports for bi-directional traces

Arguably the most popular case is making a report from a batch of OTDR traces taken from the opposite ends of a fiber optic line (bi-directional batch reports). Usually before generating

that kind of report you have to do the following:

1. Upload the bi-directional trace files (see Section Adding (uploading) bi-directional measurement results).
2. Set the reference trace and apply it as a template to the other traces (see Section Batch analysis).

After that you can generate a report for a batch of bi-directional traces:

1. Select the traces **of one direction** by clicking the checkboxes next to the trace names. Because the traces are identified as bi-directional, the other direction is engaged automatically.
2. Click the **[Generate report]** icon (see below), choose a report template **for bi-directional analysis**, and then fill in the resulting form.

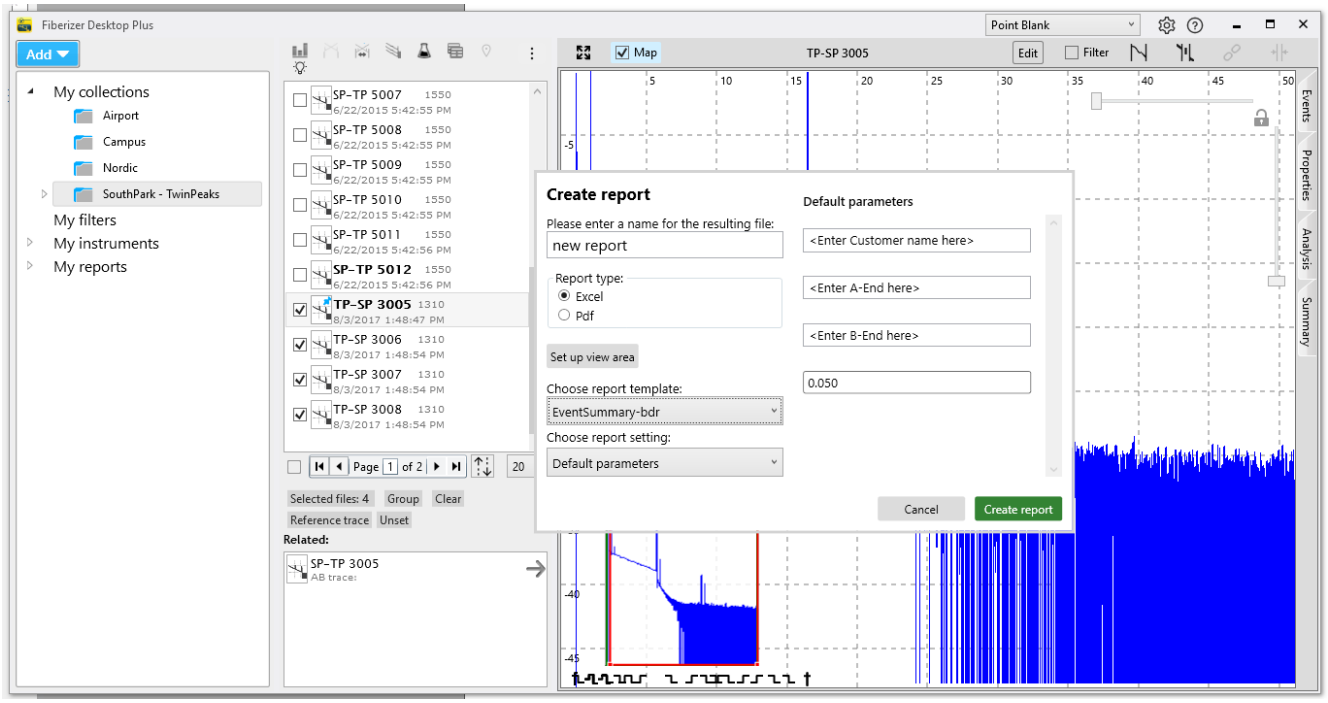


Figure 57. Setting parameters for bi-directional batch report

3. Click **[Create report]** to finish the operation.

Before proceeding, make sure you have selected only the files for the current report. Check the number of files selected and clear the selection if necessary.

7.3. Fiberscope reporting

You can also generate a report for Fiberscope measurements (Section Fiberscope measurement view). To do that, select the necessary `.jpg` file(s) by clicking the checkboxes

next to the trace names, fill in the form which appears, then click the **[Generate report]** icon (see the Figure below).

Before clicking the **[Generate report]** *icon, make sure you have selected only the files for the current report. Check the number of files selected and clear the selection if necessary.*

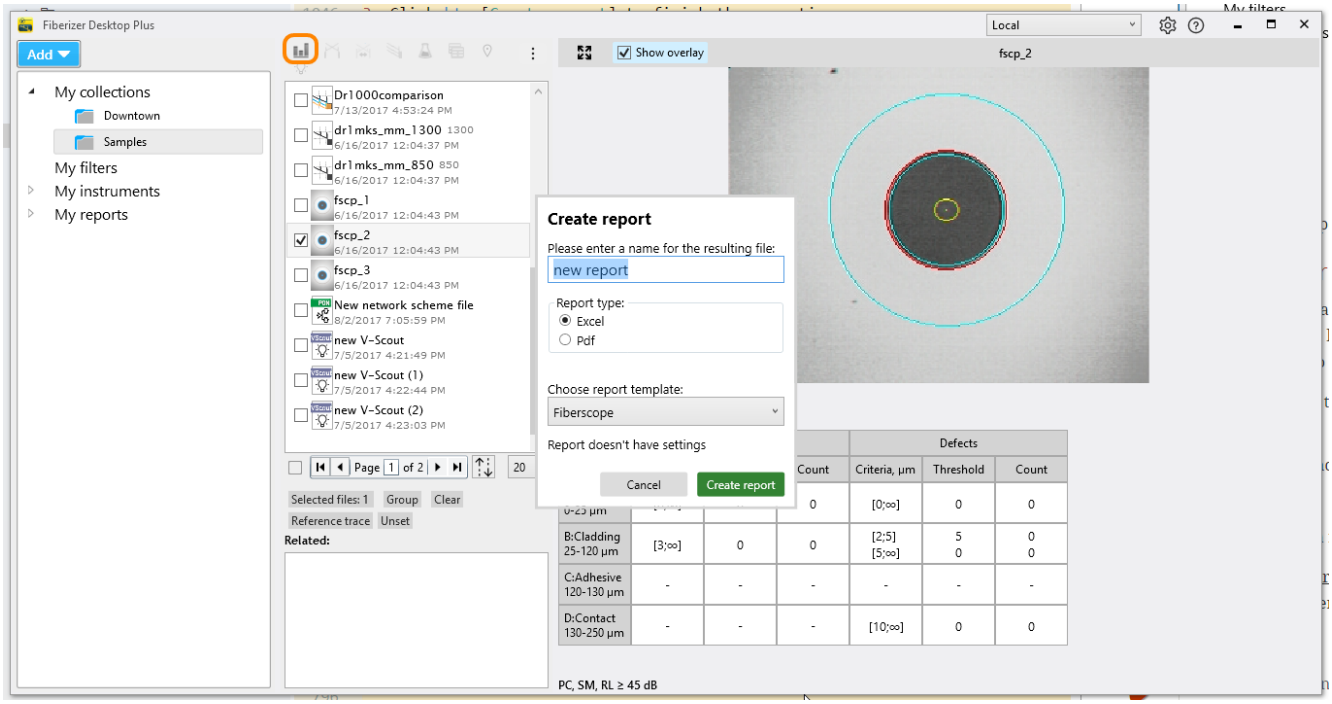


Figure 58. Setting parameters for Fiberscope report

7.4. OLTS reporting

You can also generate a report for OLTS measurements (Section OLTS measurement view). To do that:

1. Select the necessary OLTS measurement file(s) by clicking the checkboxes next to the trace names;
2. Fill in the form which appears;
3. Select the OLTS reporting template;
4. Click the **[Generate report]** icon to get the report.

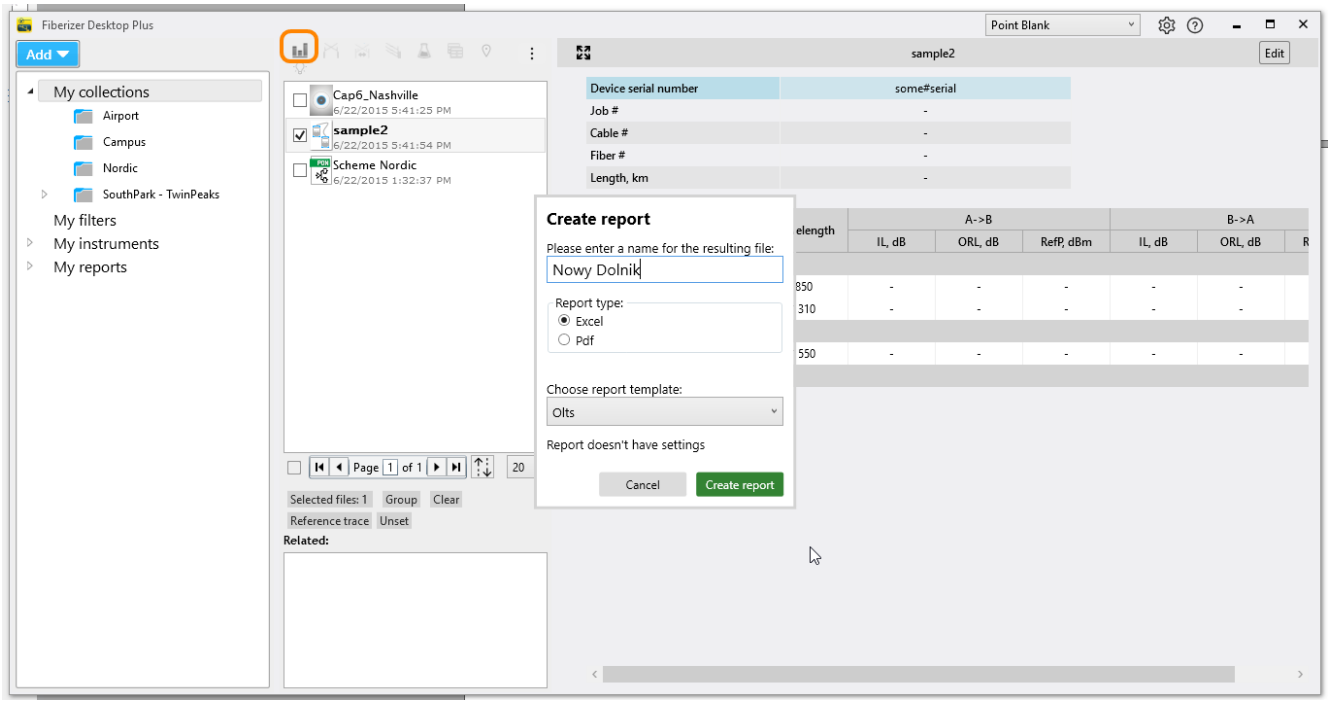


Figure 59. Setting parameters for OLTS report

Before clicking the **[Generate report]** *icon, make sure you have selected only the files for the current report. Check the number of files selected and clear the selection if necessary.*

7.5. Generating complex reports

Your reports can consist of several pieces of information of different types. For example, in one report there can be basic trace information, loss test set information, and Fiberscope image analysis.

To generate this kind of complex report:

1. Select the necessary files as described above. In the example below the report is generated from 2 traces (`.sor` files) and 2 Fiberscope images (`.jpg` files).
2. Click **[Generate report]**. The **Create report** form appears, where the files are automatically grouped by their type (highlighted in FIGURE 5-9). The number on the corresponding group button shows how many files are there in that group.
3. Click each group to set separate parameters for each type.
4. Click **[Create report]**.

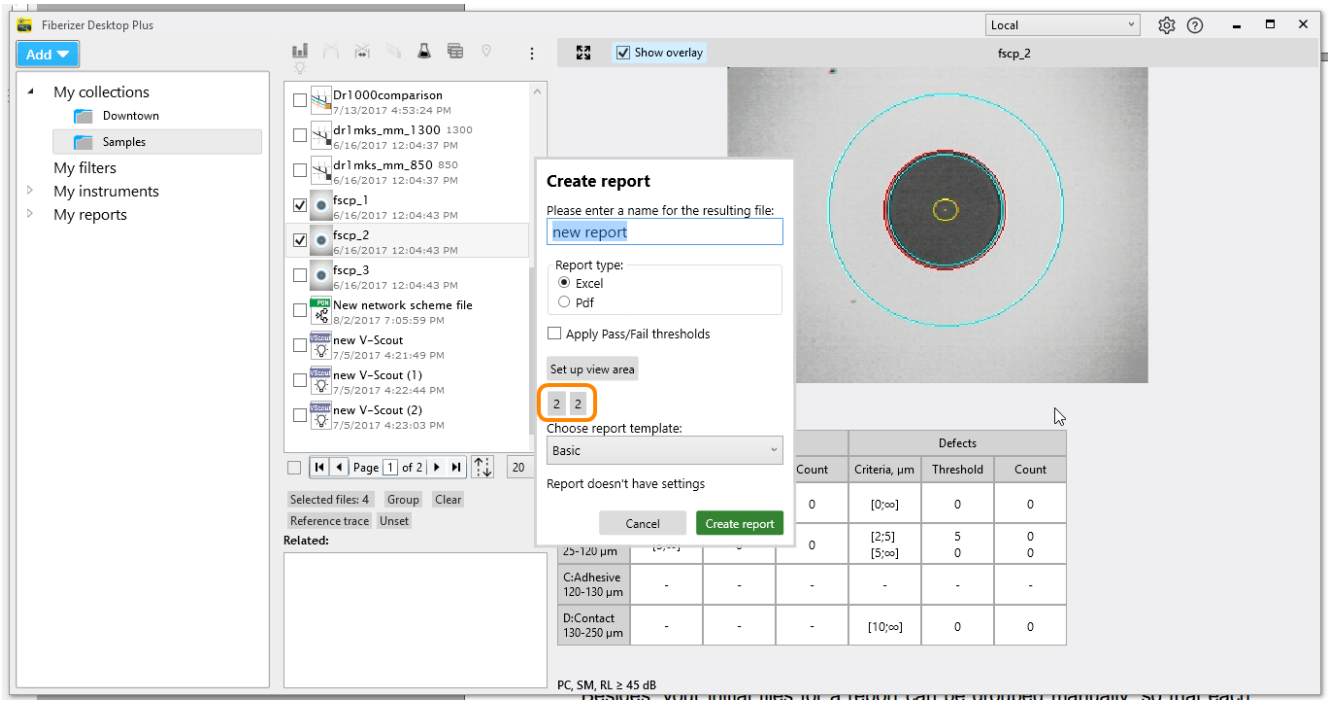


Figure 60. Files for reporting automatically grouped by their type

Besides, your initial files for a report can be grouped manually, so that each group gets its separate report settings even if the original files are of the same type. In the example below the report is generated from 2 groups of traces (`.sor` files), 3 and 2 traces respectively.

To generate a complex report with 2 manual groups:

1. Select the necessary files for the 1st group as described above, then click the **[Group]** button under the file list. The **Selected files** field then shows you the number of files in each group separated with slash.
2. Select the necessary files for the 2nd group as described above. The **Selected files** field then shows you the updated number of files in each group separated with slash.
3. Click the **[Group]** button under the file list again. The number on the corresponding group button in the shows how many files are there in that group.
4. Click **[Generate report]**. The **Create report** form appears, where the files are grouped as you have defined, and the number on the corresponding group button shows how many files are there in that group (highlighted in the Figure below).
5. Click each group to set separate parameters for each type.
6. Click **[Create report]** to finish the procedure.

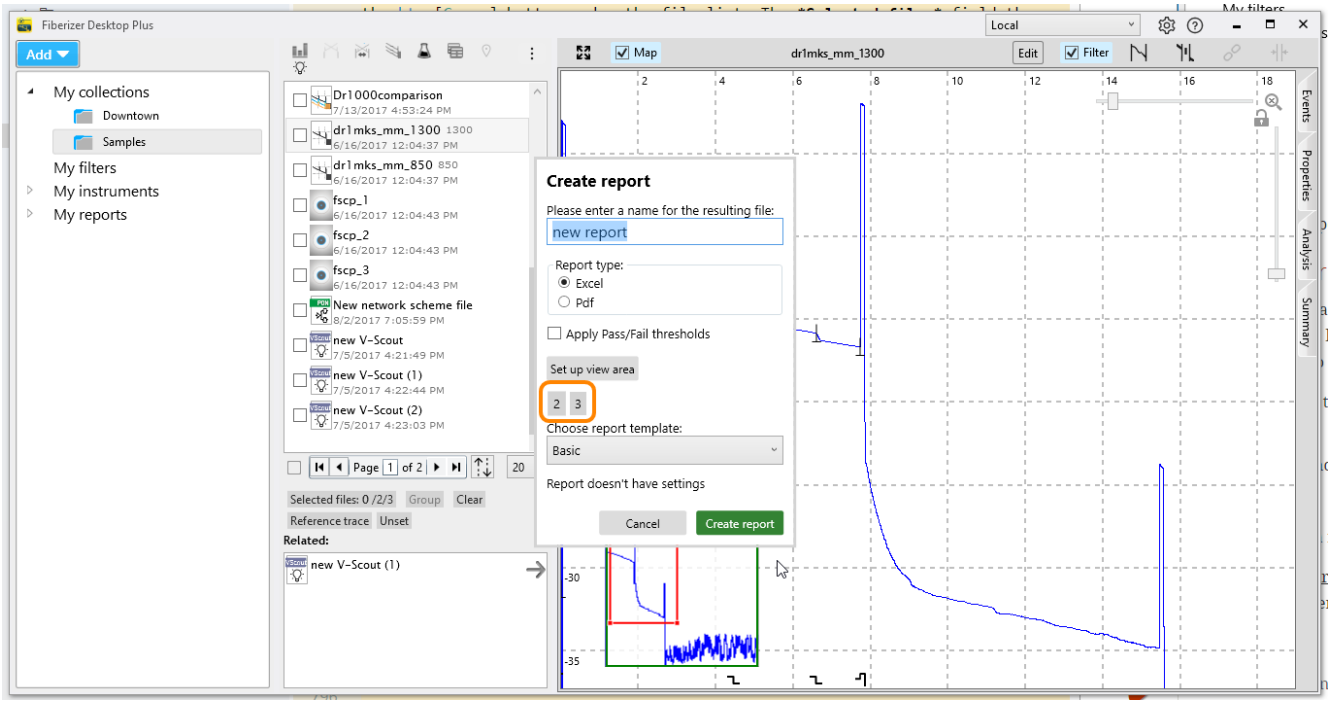


Figure 61. Files for reporting grouped manually

8. WARRANTY

Warranty Period: The warranty period for hardware, software and firmware is one (1) year from the date of shipment to the customer. The warranty period for battery pack, LCD, LCD touch panel, LCD protective cover, and accessories (including but not limited to patch cords, AC adaptor, SFP, USB adaptors, carrying case, carrying pouch) is limited to one (1) year.

Hardware Coverage: VeEX Inc. warrants hardware products against defects in materials and workmanship. During the warranty period, VeEX will, at its sole discretion, either

- Repair the products
- Replace hardware which proves to be detective

provided that the products that the customer elects to replace is returned to VeEX Inc. by the customer along with proof of purchase within thirty (30) days of the request by the customer, freight prepaid.

Software Coverage: VeEX Inc. warrants software and firmware materials against defects in materials and workmanship. During the warranty period, VeEX will, at its sole discretion, either

- Repair the products
- Replace the software and/or firmware which prove to be defective

provided that the products that the customer elects to replace is returned to VeEX Inc. by the customer along with proof of purchase within thirty (30) days of the request by the customer, freight prepaid.

Additionally, during the warranty period, VeEX Inc. will provide, without charge to the customer, all fixes, patches and upgrades to the purchased software, firmware and software options. VeEX Inc. does not warrant that all software or firmware defects will be corrected. New enhancements attached to a software option require the option to be purchased (at the time of order or the time of upgrade) in order to benefit from such enhancements.

Limitations: The warranty is only for the benefit of the customer and not for the benefit of any subsequent purchaser or licensee of any merchandise (hardware, software, firmware and/or accessories).

Revoking the warranty: VeEX Inc. does not guarantee or warrant that the operation of the hardware, software or firmware will be uninterrupted or error-free. The warranty will not apply in any of the following cases:

- Improper or inadequate maintenance by the customer
- Damage due to software installed by the customer on the unit without prior authorization (written) from VeEX Inc.
- Unauthorized alteration or misuse
- Damage occurred from operating the unit from outside of the environmental specifications for the product
- Improper installation by the customer

9. PRODUCT SPECIFICATIONS

The most recent product specifications can be downloaded from the VeEX website at www.veexinc.com.

10. ABOUT VeEX

VeEX Inc., the Verification EXperts, is an innovative designer and manufacturer of test and measurement solutions addressing numerous technologies. Global presence through a worldwide distribution channel provides uncompromised product support.

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