AFL

Test and Inspection

TRM™
Test Results Management PC Software
User's Guide

www.AFLglobal.com (800) 321-5298 or (603) 528-7780

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Section 1: General Information

Introduction

TRM is a Windows®-based application designed to view, analyze, edit, and print test results saved with NOYES test equipment.

Note: TRM is not licensed software; you are free to copy it as needed. Please check our web site at www.AFLglobal.com > Resources > Software for software updates and additional application information.

This User's guide contains detailed information about TRM tools and commands and assumes you have a working knowledge of your computer and standard Windows menus and commands. For help with any of these techniques, please see your Microsoft Windows documentation.

If you have any questions about your test equipment from NOYES and TRM software, or if you need technical or sales support, please contact NOYES Customer Service.

Contacting NOYES Customer Service

You may contact NOYES Customer Service between 8 a.m. and 5 p.m., United States Eastern Time, as follows:

Phone: 800-321-5298 (North America) • 603-528-7780

Fax: 603-528-2025

Web: www.AFLglobal.com

E-mail: NOYTechSupport@AFLglobal.com

System Requirements

To use TRM application, you need the following hardware and software:

- A PC with a 1GHz (or faster) processor and an 800 x 600 (or larger) display
- A CD or DVD drive if installing from CD
- At least 1 GB of RAM
- A Windows compatible pointing device (mouse, trackball, etc.)
- MS Windows XP, SP3, Vista (32-bit and 64-bit), Windows 7 (32-bit and 64-bit)

Installing TRM

You can install TRM from the supplied CD-ROM, or you can download it from our web site at www.AFLglobal.com > Resources > Software

Follow the steps below to install the TRM software.

To install from the application CD-ROM:

1. Start Windows. If Windows is running, quit all applications.
2. Insert the TRM CD into the CD-ROM drive. (Note: normally the D: drive.)
3. The Installer will display the [Welcome] screen.

If the Installer does not start automatically, from Windows do one of the following:

- Click on the [Start] button and select the [Run] command from the pop-up menu.
- The [Run] dialog box appears. On the [Open] command line, type [D:\setup.exe].
- Click on the [OK] button to start.

OR

- Double-click the My Computer icon on the desktop to open the My computer folder.
- Double-click the CD-ROM icon.
- Double-click [Setup] or [Setup.exe]

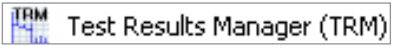
4. When the Installer [Welcome] screen is displayed, click on the [Next] button to continue.
5. Follow the on-screen instructions.
6. When the Installer displays the [Complete] screen, click on the [Finish] button.

To download from the web:

1. From the www.AFLglobal.com web site, select the following:
   www.AFLglobal.com > Resources > Software > TRM Software > click on the download link.
2. Follow the on-screen instructions. The software will download to your computer's hard drive.
3. Once downloaded, double-click on the [TRM] or [TRM.exe] file.
4. When the Installer [Welcome] screen is displayed, click on the [Next] button to continue.
5. Follow the on-screen instructions.
6. When the Installer displays the [Complete] screen, click on the [Finish] button.

Starting TRM

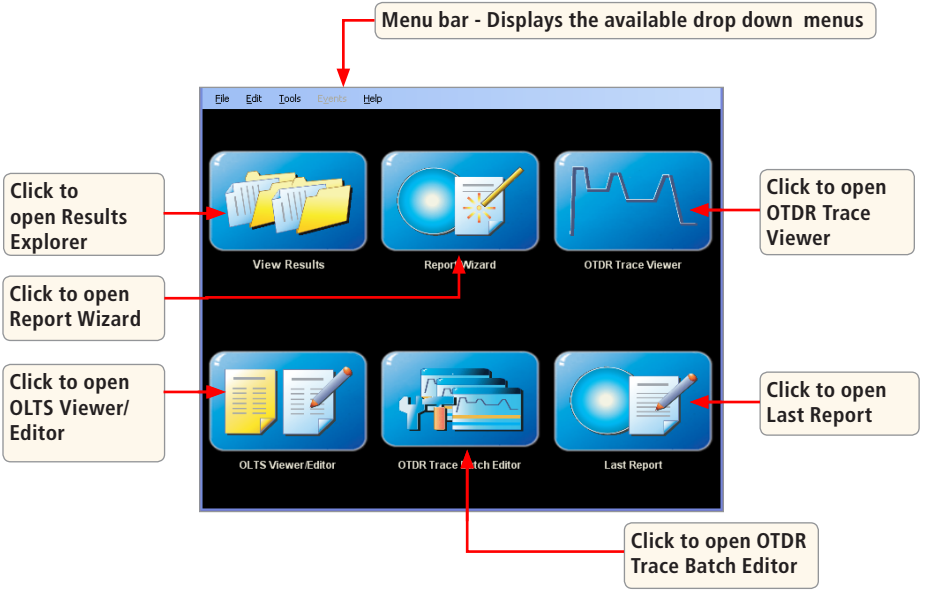
Follow the steps below to start the TRM application:

1. In Windows, click on the [Start] button.
2. From the [Start] pop-up menu, select the [All Programs] menu.
3. Locate the NOYES Test and Inspection folder.
4. Click on the TRM shortcut 

   If you have installed the TRM application in a folder other than NOYES Test and Inspection, choose that folder from the Start > Programs menu.

Section 2: TRM Applications

Home Screen Features



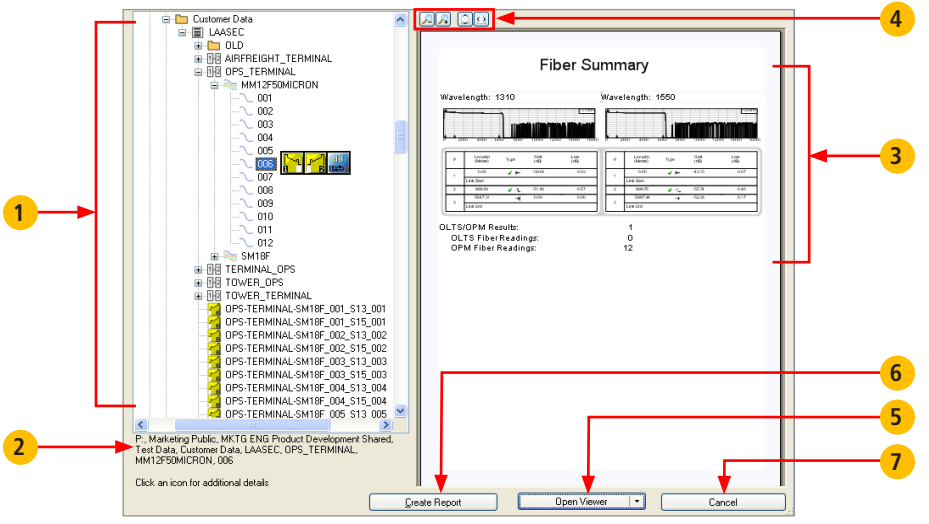
TRM Applications Summary

Application	Function
View Results (Results Explorer)	This application provides a brief preview of selected results within the Results Explorer screen. Use this application to navigate test results.
OTDR Trace Viewer	Use the OTDR Trace Viewer to analyze OTDR traces and edit single fiber single direction traces.
OTDR Trace Batch Editor	This application allows multiple trace files to be edited simultaneously.
OLTS Viewer/Editor	Use this application to view loss/power measurements. View certification results and select cabling standards, user rules and applications to be applied to certification results.
Report Wizard	Use this application to generate test reports for the selected data. Select from pre-defined report templates and cover sheets. Print generated test reports or store them as PDF files.
Last Report	This application will open the most recent report created by Report Wizard in the Report Preview Page, which allows the user to print the latest report, store it as PDF file, or return to the Report Wizard and modify the report.

Section 3: Results Explorer

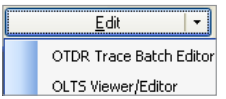
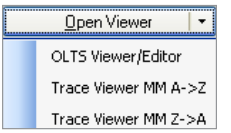
Results Explorer Screen Features

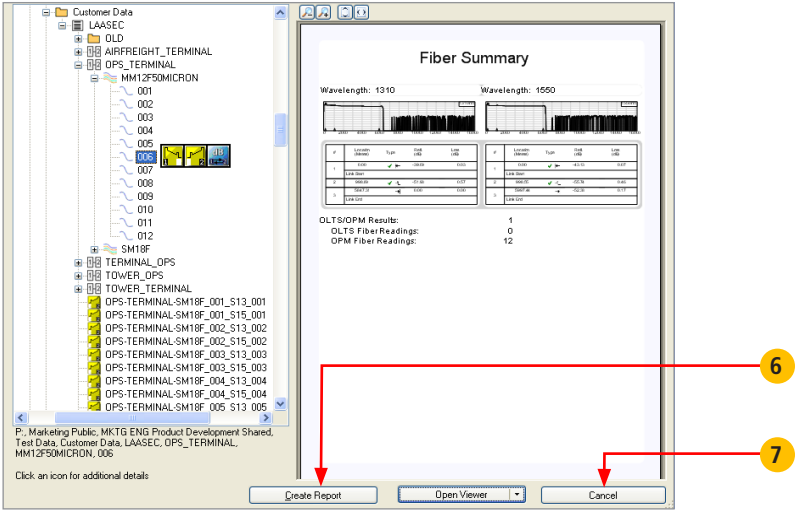
The Results Explorer is accessed from the Home screen by clicking the View Results icon -



The Results Explorer application provides a brief preview of results within Results Explorer screen. Use this application to navigate test results, switch between OTDR and OLTS test viewers (when applicable), and access the Report Wizard as needed.

The table below gives a summary of the results Explorer features.

#	Feature	Description
1	File navigator	Displays folders and files hierarchy. Use to navigate saved test results.
2	Selected file info	Displays the path of the selected folder/file/test result.
3	Results window	Depending on the selected data on the "File Tree", the Results window will display various information as follows: • Path of the currently selected folder • Summary of the selected Job/Route/Cable/Fiber • Test result preview: OTDR thumbnail, OPM result, Certification result
4	Zoom buttons	Click to zoom in, zoom out, and reset pages back to their default value.
5	Soft key button: [Edit] or [Open Viewer]	The current function of this key depends on the selection in the file tree and the type of results in the cable (indicated by a label on the button as follows): **Selection: Job/Route/Cable file**  **Selection: Test Result file** 



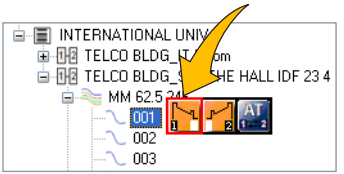
#	Feature	Description
6	[Create Report] button	Click on this button to access the Report Wizard, which enables generation of test reports and selection of pre-defined report templates and cover sheets.
7	[Cancel] button	Click on this button to return to the Home screen.

Section 4: OTDR Trace Viewer Application

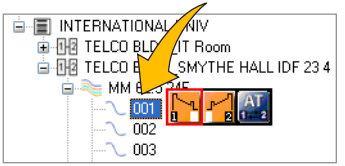
Opening Test Results with OTDR Trace Viewer

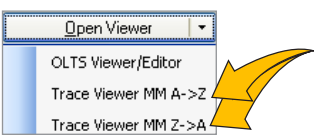
This application may be accessed in several ways:

- from the Home screen by clicking on the OTDR Trace Viewer icon - 
- from the Results Explorer by selecting a fiber and with a fiber selected double-clicking on a trace icon



- from the Results Explorer by selecting a fiber and with a fiber selected, displaying the Open Viewer submenu and selecting a Trace Viewer for the desired test direction available

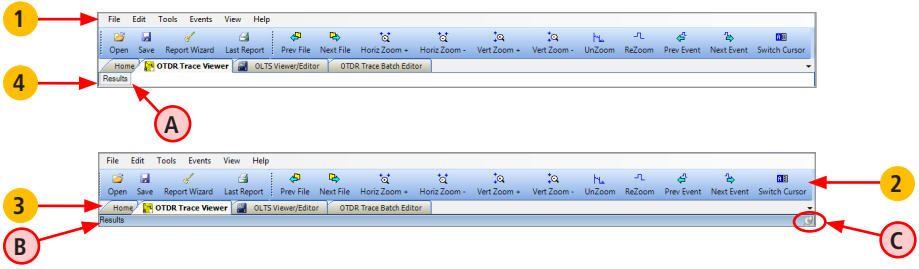




Use the OTDR Trace Viewer to analyze OTDR traces and edit single fiber single direction results.

Overview of Trace Viewer Interface

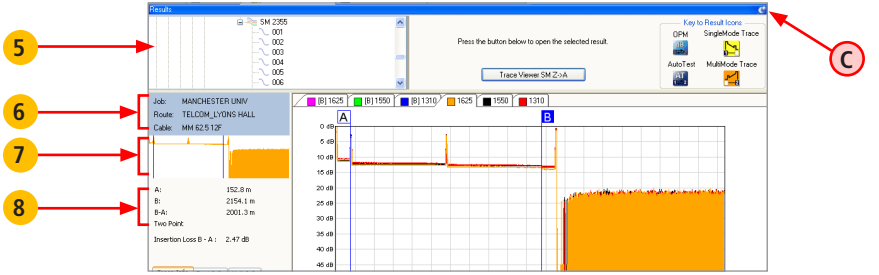
Partial views



Ref	Feature	Description
1	Menu bar	Displays the available drop down menus.
2	Toolbar	Contains several icons for quick access to menu commands. Click on an icon to execute the associated command.
3	Applications tabs	Click on a tab to display the corresponding application window.
4	Results button	"On mouse over" the [Results] button (A), the Results window is displayed and "on mouse out" the Results window is auto hidden. Note: the [Results] button (A) looks like a heading (B) and the Auto Hide icon (C) looks like  unless "auto hide" function is enabled by clicking the Auto Hide icon (C)

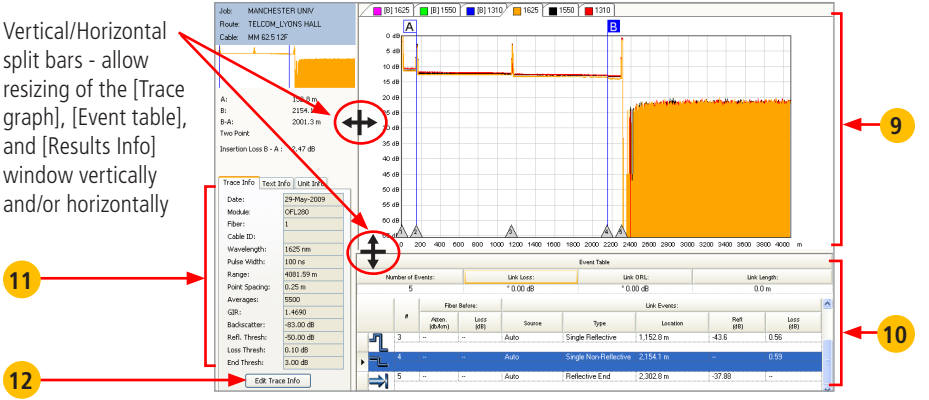
Trace Viewer Screen Features (continued)

Partial views



Ref	Feature	Description
5	Results window	The Results window displays folders and files hierarchy and is used to navigate saved test results. To disable/enable the "auto hide" function, click the Auto Hide icon / located in the right top corner of the Results window (C).
6	Cables Info window	Contains informative fields: Job/Route/Cable name.
7	Zoom window	Shows the current trace view relative to the entire trace.
8	Cursors data	This field displays the following information: A and B cursor locations, distance from A to B, selected loss method, and (depending on the selected loss method) insertion loss, reflectance, or fiber attenuation.

Vertical/Horizontal split bars - allow resizing of the [Trace graph], [Event table], and [Results Info] window vertically and/or horizontally



Ref	Feature	Description
9	Trace graph window	Shows a graph of the currently selected trace. Up to six traces can be displayed in the Trace graph window.
10	Event Table window	Displays saved events in a table format.
11	Trace Info/Text Info/Unit Info field	This field displays OTDR setup parameters or Text data or Test equipment data when the associated tab [Trace Info]/[Text Info]/[Unit Info] is selected.
12	[Edit Trace Info] button	Click on this button to display the Edit Trace Information window, which allows editing of the Trace and Text info for the selected trace file.

Menu Bar

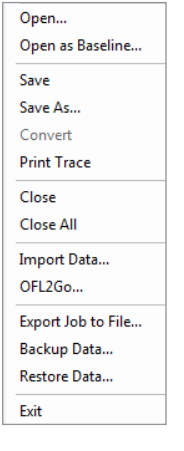
The Menu Bar contains several drop down menus as follows:

Each menu contains various commands. When a menu is selected, it displays a list of commands indicating functions that can be performed on selected files.

File Menu

Table below gives a summary of the available File Menu commands and their associated functions.

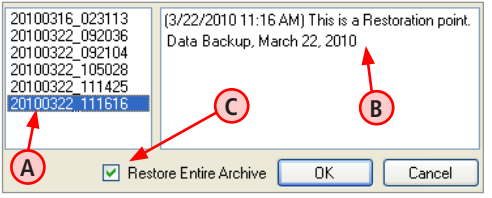
Command	Use to perform the following Function
Open...	Access the Results Explorer. Depending on the user preference setting (Edit >Preferences > Single-Wavelength or Multi-Wavelength), open a single trace file or a multiple trace file.
Open as Baseline...	Access the Results Explorer. Depending on the on the user preference setting (Single-Wavelength or Multi-Wavelength), open a single trace/multiple trace file as a baseline. Note: a baseline trace is a trace graph that is used as a point of reference for comparison.
Save	Save a trace file that already exists with its original name.
Save As...	Save an existing trace file under a new name and preserve the original file.



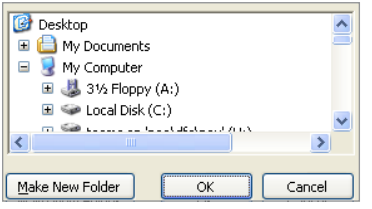
Command	Use to perform the following Function
Convert	Convert M200 v1.0.x files into v2.0.x file format
Print Trace	Access the TRM Report Wizard. Preview an OTDR Trace before printing. Print the currently displayed trace in one of three layouts: With Overlay, Single, Side by Side.
Close	Depending on the selected option for closing files, close selected files after automatically saving changes, or prompt the user to confirm saving.
Close All	Close all open trace & baseline files.
Import Data...	Download test data from an instrument.
OFL2Go...	Open a utility program that copies data from an OFL250 or OFL280 (non-FlexTester) to a destination chosen by the user.
Export Job to File...	Export the selected Job to a zip file.
Backup Data...	To have a restoration point, create a non-visible backup copy of your data before editing: - navigate the desired Job /Route/Cable - click OK to display the [Backup Description] window - add a clear comment on backed up data to be able to identify it during restoration
Restore Data...	Restore previously backed up data to a visible folder. Use comments to identify data for restoration.
Exit	Close opened trace files and exit TRM.

To Restore Data

1. Click on individual Backups (A) to review comments (B) saved during the {Backup Data] process.
2. Using comments, identify and select data for restoration (A).
3. Or select the "Restore Entire Archive" option (C).

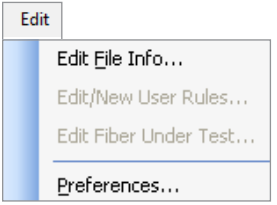


4. Click OK.
5. In the displayed File Navigator window, select the desired location.
6. Click OK to save the restored data.



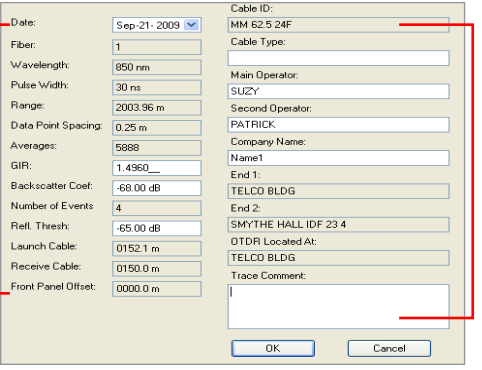
Edit Menu

The Edit menu allows the user to edit File information and set up Preferences.



Edit File Info Dialog Box

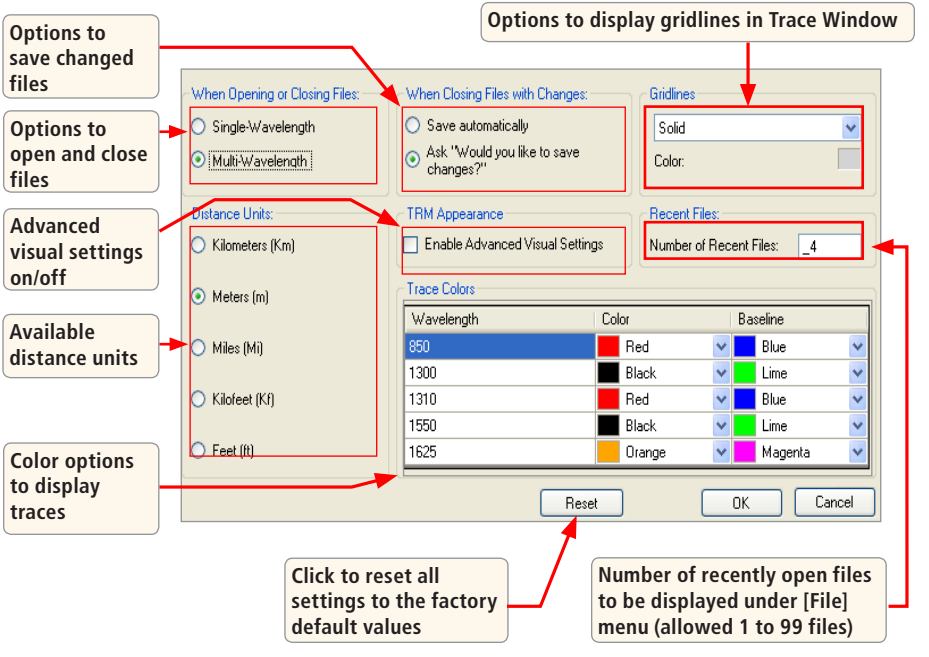
These text fields allow the user to view test settings and edit some test parameters (Date, GIR, Backscatter Coefficient, and Reflectance Threshold). Changing GIR or Backscatter Coefficient will cause recalculation of the Event Table and fiber length.



These are the text editable fields, which allow the user to edit Cable Type, Operators ID, or Company name and add Trace Comments

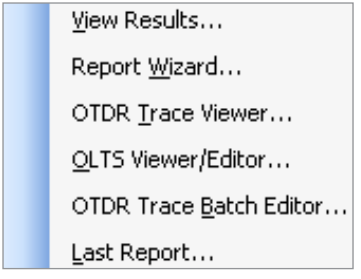
Preferences Dialog Box

Use the Preferences menu to select the appearance of traces and how they are opened/closed/saved.



Tools Menu

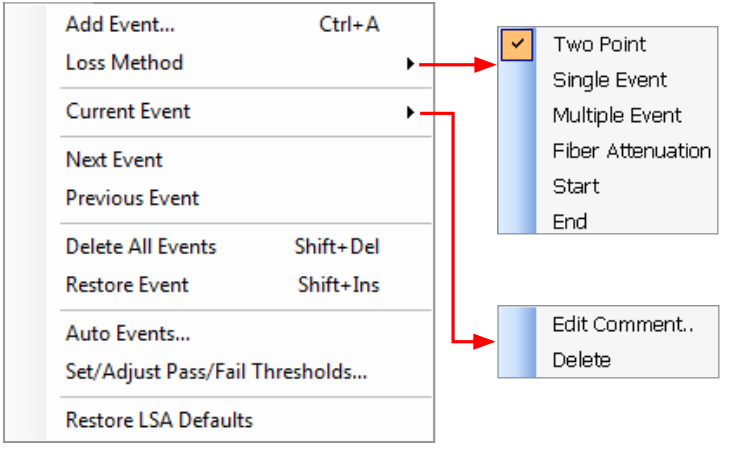
This menu provides access to the Home screen menus.



Command	Function
View Results	Opens the Results Explorer screen
Report Wizard	Opens the Report Wizard screen
OTDR Trace Viewer	Opens the OTDR Trace Viewer screen
OLTS Viewer/Editor	Opens the OLTS Viewer/Editor screen
OTDR Trace Batch Editor	Opens the OTDR Trace Batch Editor screen
Last Report	Open the most recent report created by Report Wizard in the Report Preview Page.

OTDR Trace Viewer: Events Menu

The Events drop down menu contains all the commands you will need to select loss methods, add new events, and review or delete saved events.

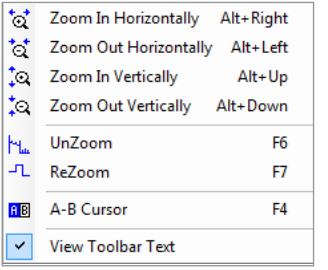


The table below gives a summary of the available Events menu commands and associated functions.

Command	Use to perform the following Function
Add Event...	Add an event using the selected Loss Method at the active cursor location (not available for the Two Point or Fiber Attenuation methods).
Loss Method	Select the desired Loss Measurement Method.
Current Event: • Edit Comment • Delete	 Open a dialog box for adding and/or editing comments for the current event. Delete the current event.
Next Event	Display the next event: moves the active cursor to the next event and highlight this event in the event table.
Previous Event	Display the previous event: moves the active cursor to the previous event and highlight this event in the event table.
Delete All Events	Delete all saved events in the selected trace, event table.
Restore Event	Restore the last event that was deleted.
Auto Events...	Generate an event table.
Set/Adjust Pass/Fail Thresholds...	Edit Pass/Fail event and link Thresholds and recalculate events data.
Restore LSA Defaults	Restore LSA line lengths to the default values.

View Menu

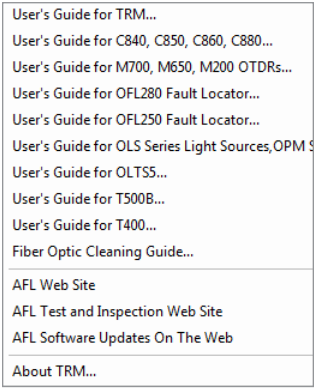
The View drop down menu allows the user to see selections that affect the view of the OTDR trace. Also, the View menu displays the available keyboard shortcuts.



Help Menu

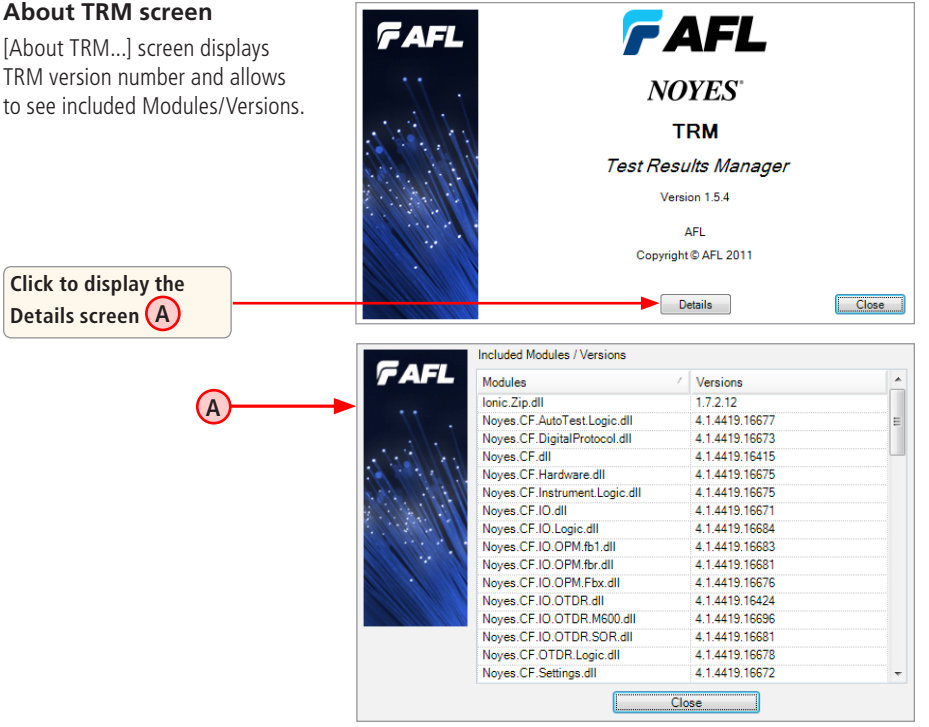
This menu provides access to:

- TRM software user's guide
- Various test equipment user's guides
- AFL web site
- NOYES Test and Inspection web site
- Software updates section on the AFL web
- [About TRM...] screen.



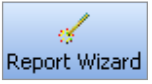
About TRM screen

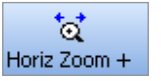
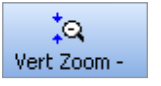
[About TRM...] screen displays TRM version number and allows to see included Modules/Versions.

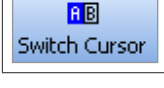


Toolbar

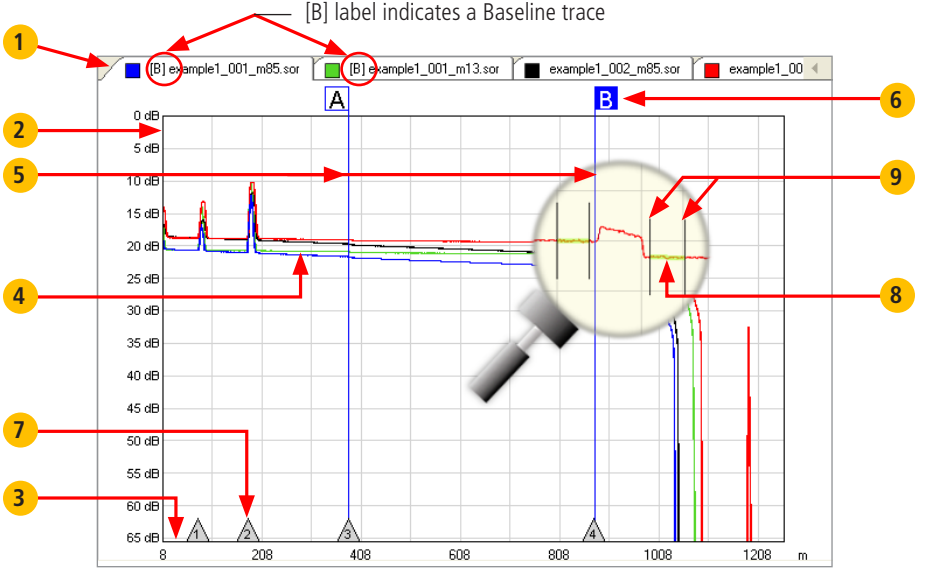
Several of the most commonly used commands can be accessed from the Toolbar. Click on a toolbar icon to execute the associated command.

	Access the Results Explorer and navigate the desired test results
	Save a trace file that already exists with its original name
	Open the Report Wizard
	Open the most recent report created by Report Wizard with options to save it as PDF, enlarge, or print
	Open the previous file in the current folder

	Open the next file in the current folder
	Zoom in horizontally around the active cursor
	Zoom out horizontally around the active cursor
	Zoom in vertically from the trace level at the active cursor
	Zoom out vertically from the trace level at the active cursor

	Display the trace view at 100%
	Zoom to the previous zoom level around the active cursor
	Select the previous event
	Select the next event
	Switch the active cursor

Trace Graph Window

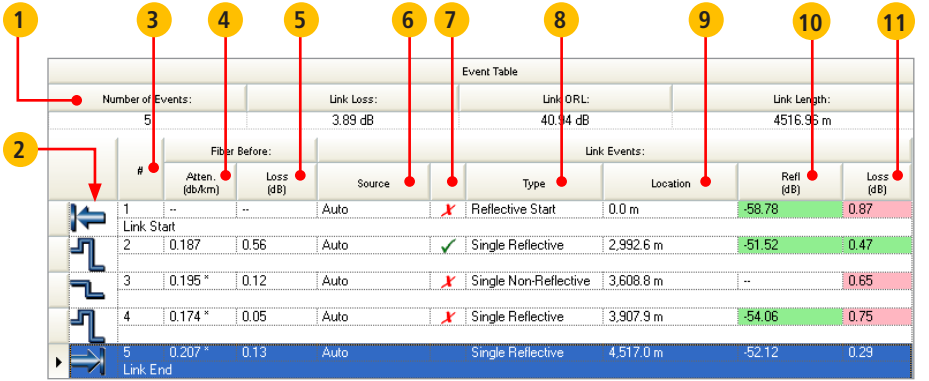


The Trace graph window displays OTDR test results in a graph format. Up to six traces can be displayed. The major features of the Trace graph window are explained below.

Ref	Feature	Description
1	Trace tab	Displays the name and color of the open trace. If several traces are open, click on a trace tab to display the associated trace graph.
2	Vertical axis	Shows insertion loss in dB.
3	Horizontal axis	Shows distance in user-selected units (km, m, mi, kf, ft).
4	Trace	This is a graph of insertion loss vs. distance.
5	Cursors A and B	Used to measure insertion loss, power level, reflectance, attenuation, and distance. To make a cursor active, click on the cursor line or label, or click on the Toolbar Cursor icon to toggle between A and B cursors. To move the active cursor, position the mouse pointer on a cursor, then click-and-drag along the trace graph. Also, you may use the Left and Right keyboard arrow keys.
6	Cursor label	To move the active cursor, position the mouse pointer on a cursor or a cursor label, then click-and-drag along the trace graph.
7	Event mark	Indicates the location and the number of a saved event. Events are listed in numerical order.
8	LSA lines	Available for certain loss measurement methods. Used for calculating insertion loss, trace level, and attenuation.
9	LSA line boundaries	Near and Far LSA line boundaries for each LSA line segment. Used to control length and position (relative to trace segment) of LSA line.

Event Table Window

The [Event table] window allows the user to view test data associated with the trace displayed in the [Trace graph] window. If several traces are open, click the desired trace [Tab] located on top of the [Trace graph] window to display the [Event table] of the desired trace. Using the [Events] menu, the user may add or delete trace events and edit comments.



Features of the [Event table] window are explained below.

Ref	Feature	Description
1	Summary data row	This row contains the summary data of the displayed trace: number of saved events, link loss, link ORL, and link length.

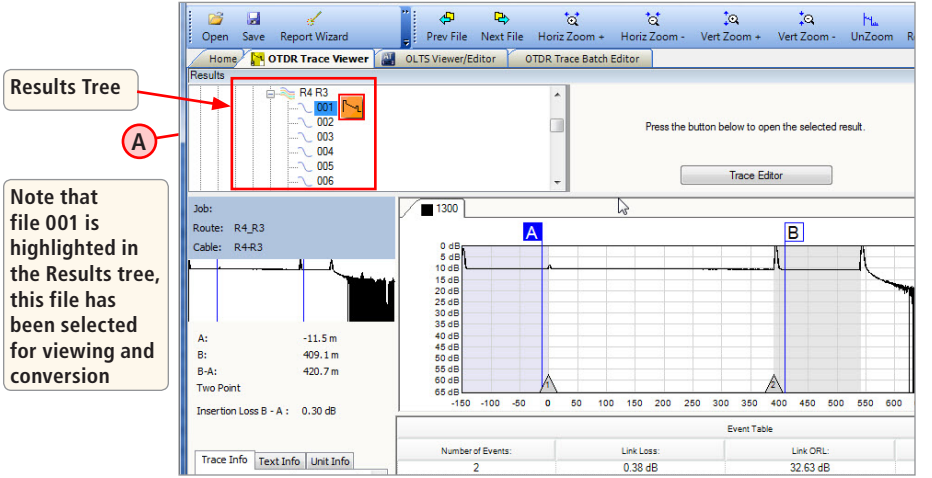
Ref	Feature	Description
2	Event type icon	Indicates the event type graphically.
3	Event number	Displays the number of the saved event in numerical/position order.
4	Atten. (dB/km)	The dB/km measurement is a slope of the fiber leading to the event **Note:** When the length of the fiber being measured is insufficient, the dB/km measurement is displayed followed by an asterisk [*] symbol. An asterisk [*] symbol indicates, "Section is too short to ensure an accurate fiber attenuation (dB/ km) measurement." The required minimum distance is wavelength dependent on wavelength: 1625 nm = 3 km, 1550 nm = 5 km, 1310 nm = 3 km, 1300 nm = 2 km, and 850 nm = 0.3 km.
5	Loss (dB)	Shows Insertion loss in (dB) of the fiber segment before the event.
6	Source	This column indicates how the event is added: • manual - added by operator • auto - event table is generated by OTDR software
7	Pass/Fail	Indicates Pass - ✓ or Fail - X result for event (Reflectance or Loss)
8	Type	This column indicates the event type.
9	Location	Indicates Distance from the OTDR (or end of launch cable) to the event.
10	Refl. (dB)	Displays Reflectance in (dB) for each reflective event. Green highlight indicates Passing, Pink highlight indicates Failing.
11	Loss (dB)	Displays Insertion loss in (dB) for each event. Green highlight indicates Passing, Pink highlight indicates Failing.

Section 5: Working with OTDR Trace Files

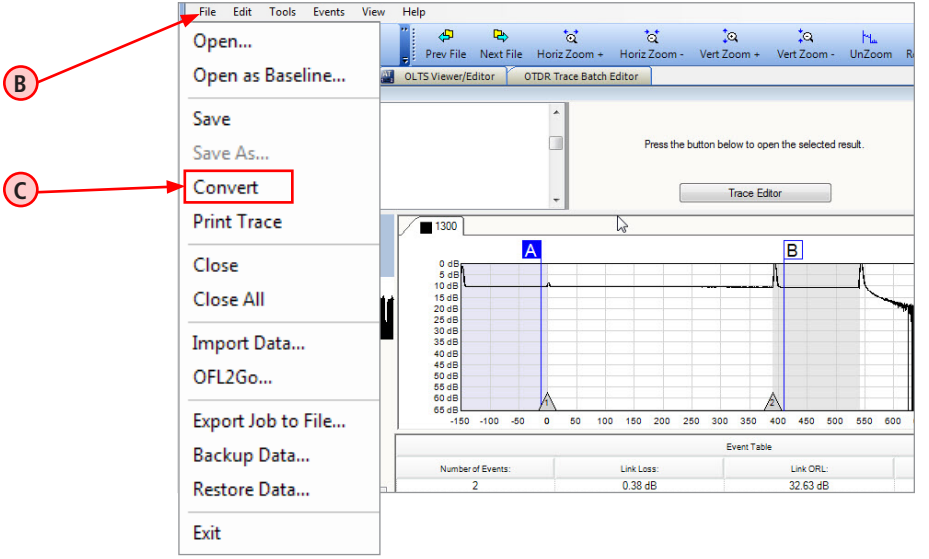
Converting Test Data to the preferred Job/Route/Cable structure

The TRM Convert function can be used for M200 test data (User Interface v1.x.x), OFL250 and OFL280 (non-FlexTester) test data to convert from a simple folder to the preferred Job/Route/Cable structure. To convert files, perform the following:

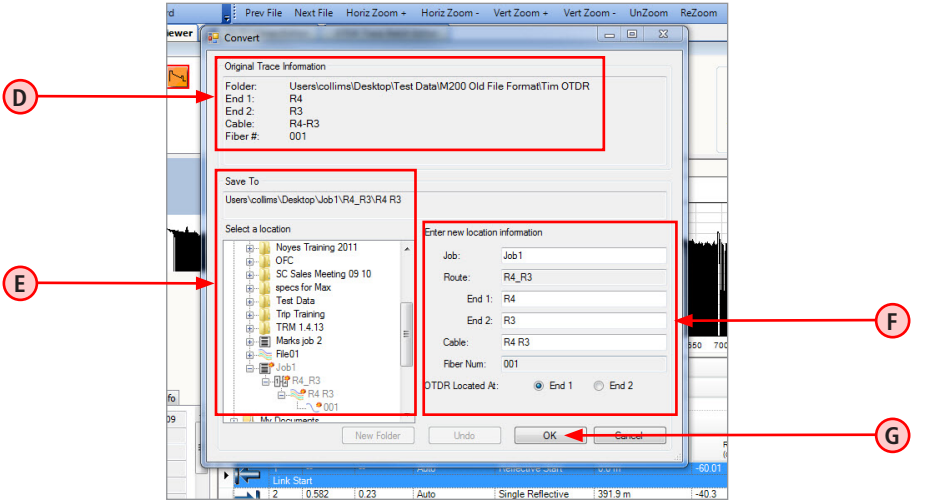
1. Make a backup copy of the files to be worked on.
2. Use the copy and save the original data in a safe place.



3. In the Results tree select (highlight) the desired M200 v1.0.x file (A) for viewing and conversion.
4. From the [File] pull down menu (B) select [Convert] (C).

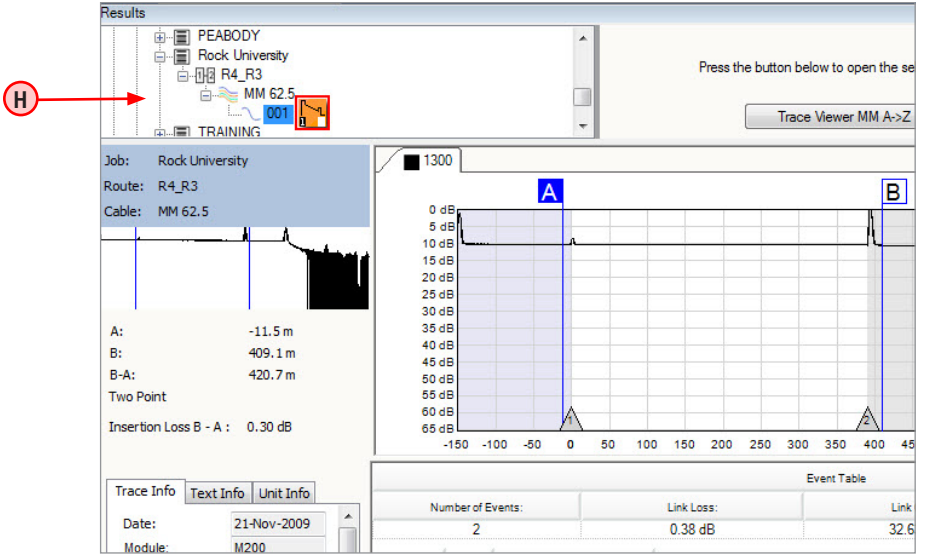


5. In the [Convert] window, the user may perform the following:
   - Observe the Original Trace information (D)
   - Select the location where to save the converted file (E)
   - Define Job, Route, and Cable name to more accurately name the fiber (F)
   - When complete, click 'OK' twice (G)



Note: Conversion will convert wavelength pairs of fibers
MM 850/1300 nm
SM 1310/1550 nm

6. The saved trace will appear in the new User Interface file format (H).



Opening Trace Files

Single-Wavelength or Multi-Wavelength

TRM offers two options for opening and closing trace files. Depending on the user preference setting (Edit >Preferences > Single-Wavelength or Multi-Wavelength), a single-wavelength trace or multi-wavelength trace (dual-wavelength/tri-wavelength trace) may be opened and closed within the current folder. For details, see section titled Edit Menu > Preferences Dialog Box.

If the Single-Wavelength option is enabled, then trace files will be opened and closed one at a time. If the Multi-Wavelength option is enabled, then trace files will be opened and closed in wavelength sets (files with the same name, fiber number, and fiber type but different wavelengths).

In addition to the open single trace or multi-trace file, the user may open a baseline trace for comparison with the current trace/multi-trace. If a tri-wavelength trace and a tri-wavelength baseline trace file are opened, a total of six traces will be displayed at one time.

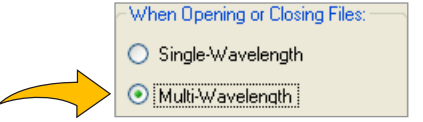
To Select a Single-Wavelength Trace Option

1. From the [Edit] drop down menu, select [Preferences...] to display trace settings dialog box.
2. Select the [Single-Wavelength] option, and then click OK.

To Select a Multi-Wavelength Trace Option

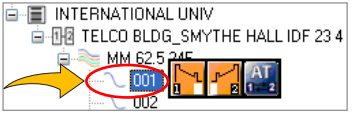
1. From the [View] drop down menu, select the [Options] command to display the [Preferences...] dialog box.
2. Select the [Multi-Wavelength] option, and then click OK.

Select to open trace files in wavelength sets.



To Open a Trace

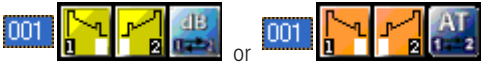
1. From the [File] drop down menu, select the [Open...] command or click the [Open] icon on the Toolbar to display the [Results Explorer] window.
2. From the displayed list, navigate to the desired fiber.



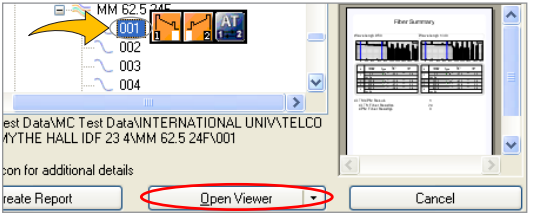
3. To display test results, perform one of the following

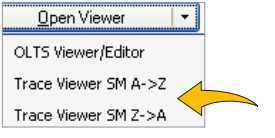
Case I

The selected fiber contains two-direction test results and dB or AT results.



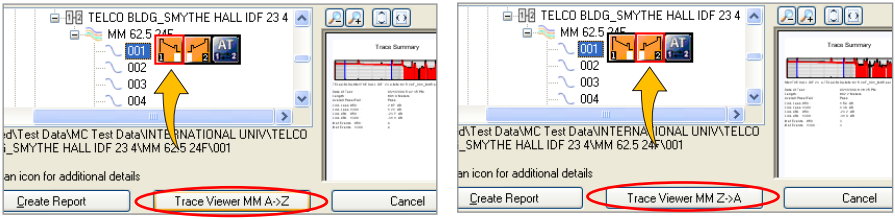
If you select on a fiber number, you will see the button labeled [Open Viewer] with three options.





Click on the [Trace Viewer A–>Z] or [Trace Viewer Z–>A] button to open the selected test result.

If you select on a trace icon,

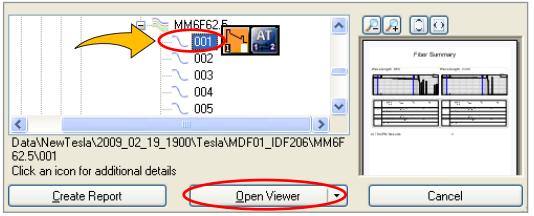


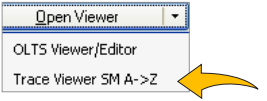
you will see the button labeled [Trace Viewer A–>Z] or [Trace Viewer Z–>A]. Click on this button to open the selected test result.

Case II

The selected fiber contains test results in only one direction and dB or AT results.

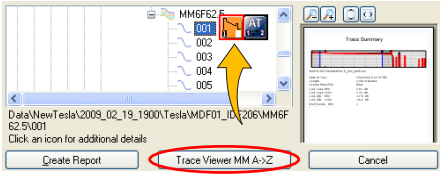
If you select on a fiber number, you will see the button labeled [Open Viewer] with two options.





Click on the [Trace Viewer] button to open the selected test result.

If you select on a trace icon,



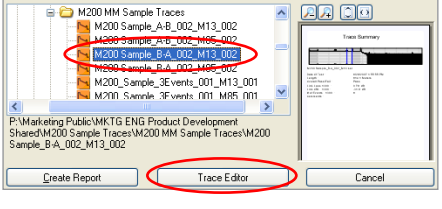
you will see the button labeled [Trace Viewer A–>Z]. Click on this button to open the selected test result.

Case III

The selected fiber contains test results in only one direction.

If you select the desired trace, you will see the button labeled [Trace Editor] or [Open Trace].

Click on this button to open the selected trace.



Opening Previous or Next Traces

After you open a single trace file or multiple trace file, you may use the [Prev File] and [Next File] commands to display the previous or next trace file or multiple trace file of the same fiber type (MM or SM) in the current folder:

- Click the [Next File] or [Prev File] icon on the Toolbar.

Comparing Traces with a Baseline Trace

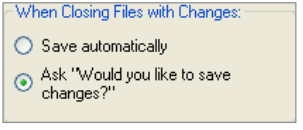
TRM allows you to open a baseline trace or trace set for comparison to another trace or trace set. If a tri-wavelength trace and a tri-wavelength baseline trace file are opened, a total of six traces will be displayed at one time.

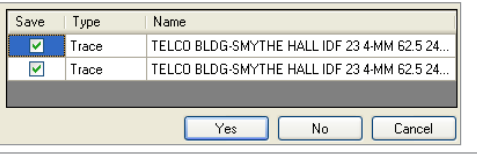
1. From the [File] drop down menu, select the [Open as Baseline...] command to display the [Results Explorer] window.
2. From the displayed list, navigate and open the desired trace (see Section "Opening Trace Files" for details).
3. From the [File] drop down menu, select the [Open...] command or click the [Open] icon on the Toolbar to display the [Results Explorer] window.
4. From the displayed list, navigate and open the desired trace (see Section "Opening Trace Files" for details).

Closing Files with Changes

Edit > References menu offers two options for closing trace files with changes:

[Save Automatically] or [Ask "Would you like to save changes?"]



[Save Automatically] option	[Ask "Would you like to save changes?"] option
If a trace file has been edited and not saved, it will be saved automatically before closing. **Note:** [Save Automatically] will overwrite an existing file.	If a trace file has been edited and not saved, a dialog box will appear prompting you to save changes before closing. 

To specify how trace files will be closed:

1. From the [Edit] drop down menu, select the [Preferences...] command to display the [Preferences] dialog box.
2. Select the desired option, then click OK.

Moving Cursors and Zooming

The [A] and [B] cursors may be positioned to measure the insertion loss, power level (if applicable), reflectance (if applicable), attenuation (if applicable), and distance between any two points on a trace.

To make cursor positioning easier, TRM provides tools and commands for viewing different parts of a trace graph at various magnifications. [Zoom +] and [Zoom -] commands let you magnify or reduce the display of any area in the [Trace graph] window.

TRM zooms horizontally around the active cursor and vertically from the trace level at the active cursor.

Selecting the Active Cursor

To make a cursor active, do one of the following:

- In the [Trace graph] window, click on the desired cursor line or label.
- From the Toolbar, click on the [Switch Cursor] button to toggle between cursors.

Once the active cursor is selected, it can be moved along the trace graph.

Moving the Active Cursor

To move the active cursor, do one of the following:

- Position the mouse pointer on a cursor line or cursor label, then click-and-drag along the trace graph.
- Use the [Left] and [Right] keyboard arrow keys

Note: The A cursor cannot be moved beyond the B cursor location, and vice versa.

- Click on an event in the event table, the active cursor will jump to that event on the trace graph.

Zoom In and Out of a Trace

To magnify or reduce the trace display, use the Toolbar Zoom Buttons as follows:

or


Zoom In or Zoom Out horizontally around the active cursor.

or


Zoom In or Zoom Out vertically from the trace level at the active cursor.

Note: Each click magnifies the view to the next preset percentage until the limit of magnification is reached.

UnZoom and ReZoom the Trace Display

In the zoomed view, TRM always displays the active cursor area. The [UnZoom] and [ReZoom] commands allow you to display different areas of a trace graph at the same level of magnification. If you need to view a different point of the trace, move the active cursor, UnZoom and then ReZoom. TRM will display the new position of the active cursor at the previous zoom level.

Perform the following steps:

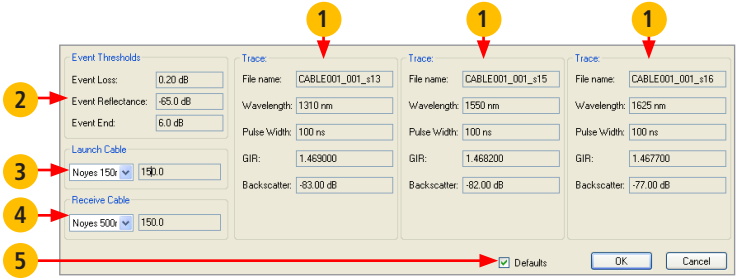
1. In the [Trace graph] window, use the [Zoom +] and [Zoom -] commands to set the desired level of magnification.
2. Click on the [UnZoom] button to display the trace view at 100%.
3. Relocate the active cursor as needed.
4. Click on the [ReZoom] button to display the new cursor location at the previous zoom level.

Note: When you toggle between [A] and [B] cursors in the magnified view, the view changes to display area around the selected cursor at the same magnification level.

OTDR Trace Events

Adding Auto Events

Use the [Auto Events...] command to generate an event table.



- Review informative fields
- Edit Launch or Receive Cables as needed
- Click OK

Ref	Feature	Description
1	Trace Properties window	Contains informative fields. File name, Wavelength, Pulse Width, GIR - Group Index of Refraction and Backscatter Coefficient
2	Event Thresholds	Contains informative fields: Event Loss, Event Reflectance, Event End
3	Launch Cable drop down menu	Displays the available Launch Cable options as follows: None, NOYES 150m, NOYES 500m, NOYES 1km, User
4	Receive Cable drop down menu	Displays the available Receive Cable options as follows: None, NOYES 150m, NOYES 500m, NOYES 1km, User
5	Defaults check box	Select this box to restore default settings for the Trace Editable Properties and Event Thresholds

Manual Events

Selecting Loss Method

For analyzing traces and adding events, TRM offers various Loss methods. The following table gives a summary of the available methods.

Loss Method	Applications	Measured parameters	# of cursors	# of LSA lines*
Two Point	General purpose	Insertion loss between any 2 points of a trace	2	0
Single Event	Used to analyze connections, splices, faults, etc.	Location, Reflectance, Insertion loss of any Reflective or Non-Reflective event	1	2
Multiple Event	Used if two or more events are too close to use other methods	Location and combined Insertion loss of multiple events	2	2
Fiber Attenuation	Used to measure dB/km of fiber between events	Attenuation per km ratio of any segment of a trace with no events	1	0
Start	Used to set start of fiber level	Starting location and level of a trace	1	1
End	Used to set end of fiber level.	Location, Reflectance, and Trace level of the fiber end	1	1

* LSA Line - least squared approximation segment line. Used to reduce the effects of noise and dead zone while calculating insertion loss, trace level, and attenuation.

To select the desired Loss method perform the following:

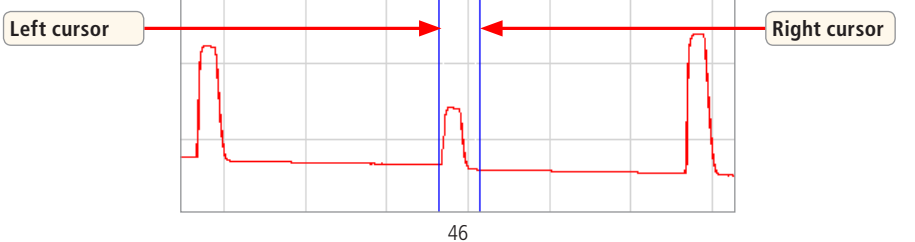
1. From the Menu bar, choose the [Events] drop down menu.
2. Choose the [Loss Method] command to display a list of the available options.
3. Select the desired Loss method.

Positioning Cursors Correctly

Depending on the selected Loss Method, you will need to position cursors and adjust LSA lines (if applicable) properly. The following graphs illustrate position of cursors and LSA lines for the available Loss methods.

Two Point Loss Method

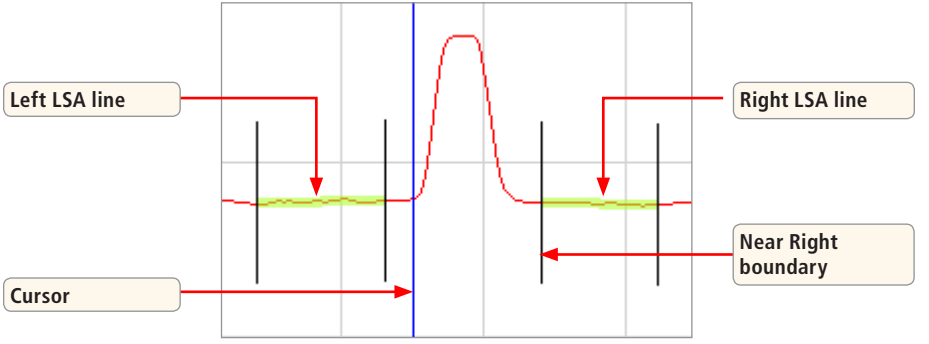
1. Position the left cursor at the start of the event.
2. Position the right cursor beyond the event where the trace returns to a constant slope.
3. Read the insertion loss measurement displayed in the [Cursor data] window.



Single Event Loss Method

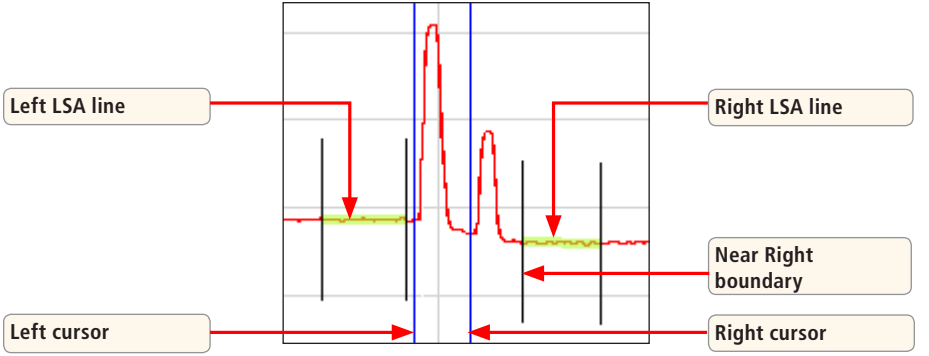
Position a cursor at the start of the event.

1. If required, adjust the right LSA line so the Near Right boundary is located beyond the event where the trace returns to a constant slope.
2. Read the insertion loss measurement displayed in the [Cursor data] window.
   or
3. From the [Events] drop down menu, choose the [Add Event...] command to add event manually.



Multiple Event Loss Method

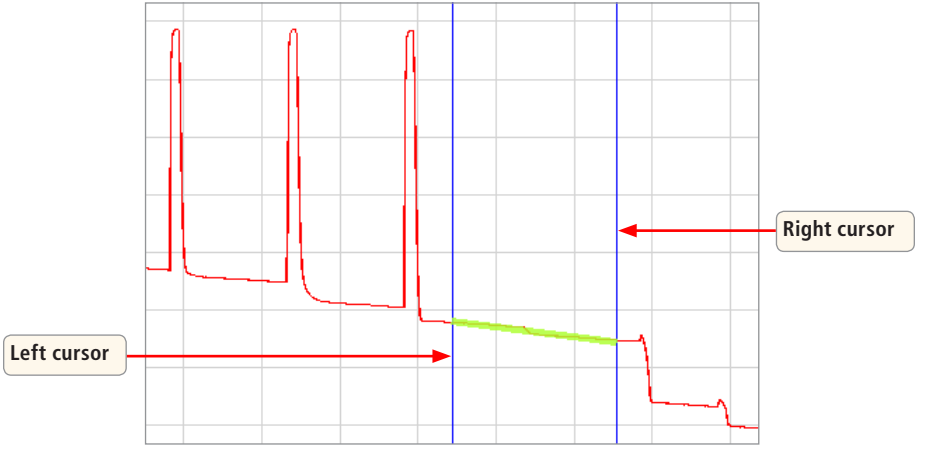
1. Position the left cursor at the start of the first event.
2. Position the right cursor at the start of the last event.
3. If required, adjust the right LSA line so the Near Right boundary is located beyond the event where the trace returns to a constant slope.
4. Read the insertion loss measurement displayed in the [Cursor data] window.
   or
5. From the [Events] drop down menu, choose the [Add Event] command to add event manually.



Fiber Attenuation Loss Method

This method is used just for analyzing a trace.

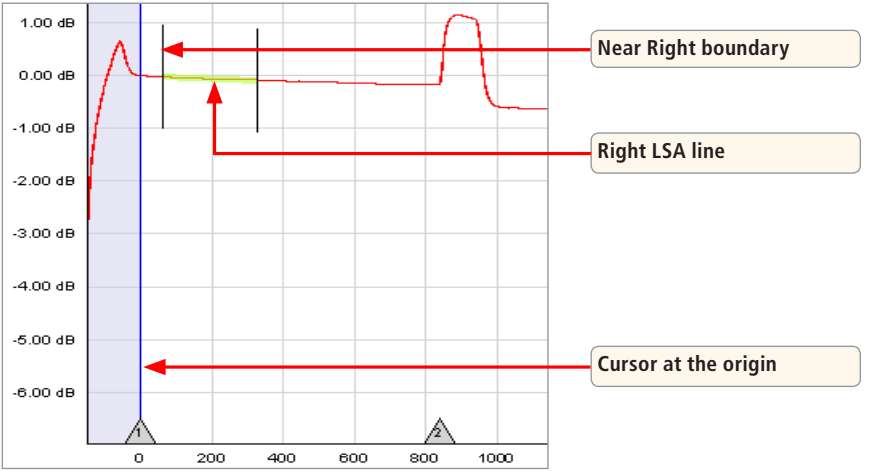
1. Position left and right cursors on the trace as needed.
2. Read the insertion loss (dB/km) measurement displayed in the [Cursor data] window.



Start Loss Method (No Launch Cable)

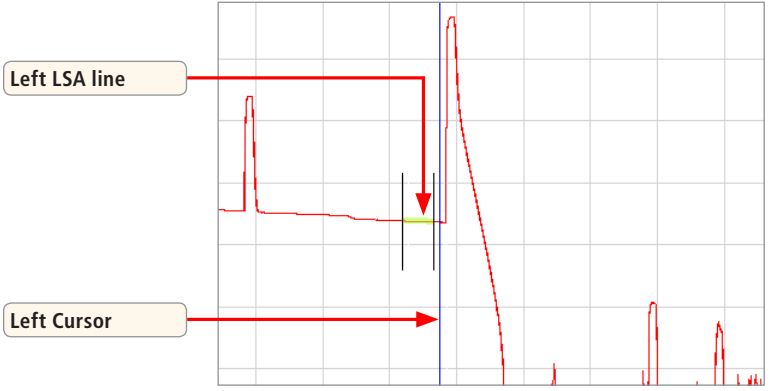
Position the left cursor at the beginning of the trace (0 meters).

1. If required, adjust the right LSA line so the Near Right boundary is located beyond the reflection where the trace returns to a constant slope.
2. Read the trace level measurement displayed in the [Cursor data] window.
   or
3. From the [Events] drop down menu, choose the [Add Event] command to add event manually.



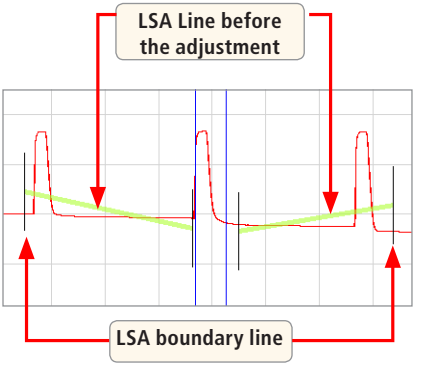
End Loss Method (No Receive Cable)

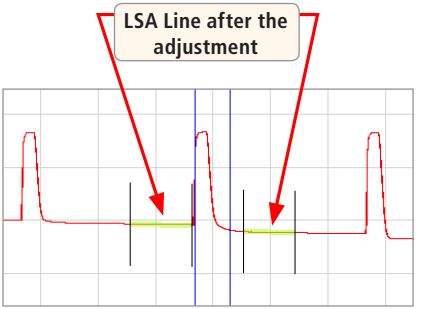
1. Position the Left cursor at the start of the Far-end reflection.
2. If required, adjust the left LSA line.
3. Read the trace level measurement displayed in the [Cursor data] window.
   or
4. From the [Events] drop down menu, choose the [Add Event] command to save.



Adjusting LSA Lines

If events of a trace are located very close to each other, you may have to adjust the LSA Lines. The graphs below illustrate an example of the LSA lines before and after the adjustment.





To adjust LSA lines, position the mouse pointer over an LSA line boundary, then click and drag to the desired location.

Note: if you need to restore the original lengths of the LSA lines, choose the [Restore LSA Defaults] command from the [Events] drop down menu.

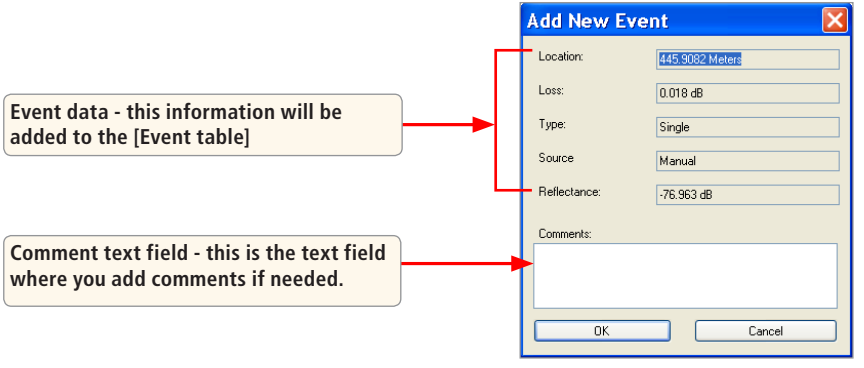
Adding Manual Events

To manually add events, perform the following steps:

1. Select the desired Loss method.

Note: Event type displayed in the Event Table will match the currently selected loss method.

2. Move the active cursor to the event to be added.
3. From the [Events] drop down menu, select the [Add Event...] command.
4. The [Add New Event] dialog box opens displaying the event data that will be added to the [Event table] and allowing you to add a comment.



5. Type a comment in the Comment text field (maximum 94 characters) if needed.
6. Choose OK to save. TRM automatically adds an event data in the [Event table] window and places an event mark in the [Trace graph] window to indicate the added event.

Editing Event Comments

To edit a comment, do one of the following:

1. In the [Event Table], select the desired event by clicking on it.
    - From the [Events] drop down menu, select the [Current Event] > [Edit Comment...] command to display the [Edit Event] dialog box.
    - Edit comments as needed.
    - Click on the [OK] button to save changes.

or

1. In the [Event Table], select the desired event by clicking on it.
2. Right-click the selected event, to display a submenu.
    - From the displayed submenu, select the [Edit Comment...] command to display the [Edit Event] dialog box.
    - Edit comments as needed.
    - Click on the [OK] button to save changes.

Deleting Events

To delete an event, do one of the following:

1. In the [Event table], select the desired event by clicking on it.
    - From the [Events] drop down menu, select the [Current Event] > [Delete] or [Delete All Events] command
      or
2. In the [Event table], select the desired event by clicking on it.
    - Right-click the selected event, to display a submenu.
    - From the displayed submenu, select the [Delete Event...] command.

Restoring a Deleted Event

From the [Events] drop down menu, select the [Restore Event] command to recover an event that was deleted last.

Note: TRM will only restore the last event deleted. All previously deleted events will not be restored.

Set/Adjust Pass/Fail Thresholds

TRM allows the user to edit Pass/Fail event and link Thresholds and recalculate the events data displayed in the event table.

1. From the [Events] drop down menu, select the [Set/Adjust Pass/Fail Thresholds...] command to open the [Re-calculate Pass/Fail Thresholds] dialog box
2. Edit Event and Link Thresholds to the allowed limits as needed. Click OK.

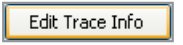
3. TRM will recalculate test results based on the new Thresholds data and display the updated results in the Event table window.

Thresholds Allowed Limits

Threshold	Min Value (dB)	Default Value (dB)	Max Value (dB)
Event Pass Thresholds			
Loss, Reflective Event	0.05	0.75	3.00
Loss, Non-reflective Event	0.05	0.30	3.00
Reflectance: 1310, 1550 nm	-65.0	-35.0	-20.0
Reflectance: 850, 1300 nm	-45.0	-22.0	-15.0
Event Marginal Thresholds			
Loss, Reflective Event	0.00	0.00	1.00
Reflectance	0.00	-5.00	-10.0
Link Pass Thresholds			
Loss: 850, 1300, 1310, 1550 nm	0.00	0.00	35.0
ORL: 850, 1300, 1310, 1550 nm	20.0	25.0	65.0
Link Marginal Thresholds			
Loss: 850, 1300, 1310, 1550 nm	0.00	0.00	5.00
ORL: 850, 1300, 1310, 1550 nm	0.00	0.00	10.0

Editing Information of a Single Trace

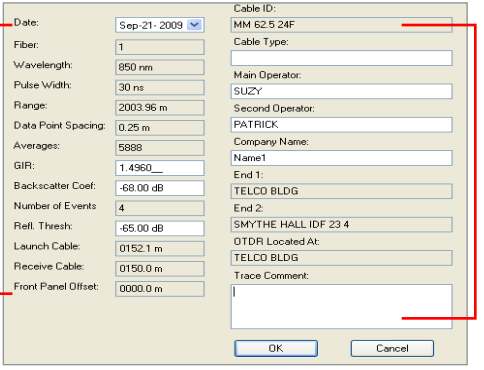
TRM allows you to edit trace information and certain setup parameters. This is done in the [Edit Trace Information] dialog box.

1. To display the [Edit Trace Information] dialog box, do one of the following:
   - From the [Edit] drop down menu, select the [Edit File Info...] command.
   - Select the [Trace Info] tab, and then click on the 

button.
2. In the [Edit Trace Information] dialog box, edit the desired trace parameters as needed.
3. Choose [OK] to save changes.

Note: Changes are wavelength dependent and apply to the trace indicated by the top tab in the graph window.

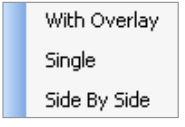
These text fields allow the user to view test settings and edit some test parameters (Date, GIR, Backscatter Coefficient, and Reflectance Threshold). Changing GIR or Backscatter Coefficient will cause recalculation of the Event Table and fiber length.



These are the text editable fields, which allow the user to edit Cable Type, Operators ID, or Company name and add Trace Comments

Printing a Single Report

1. From the [File] menu, select the [Print Trace...] > [With Overlay] or [Single] or [Side by Side] command to access the Report Preview page.



   Depending on the selected printing style, TRM allows single or multiple trace view reports as follows:

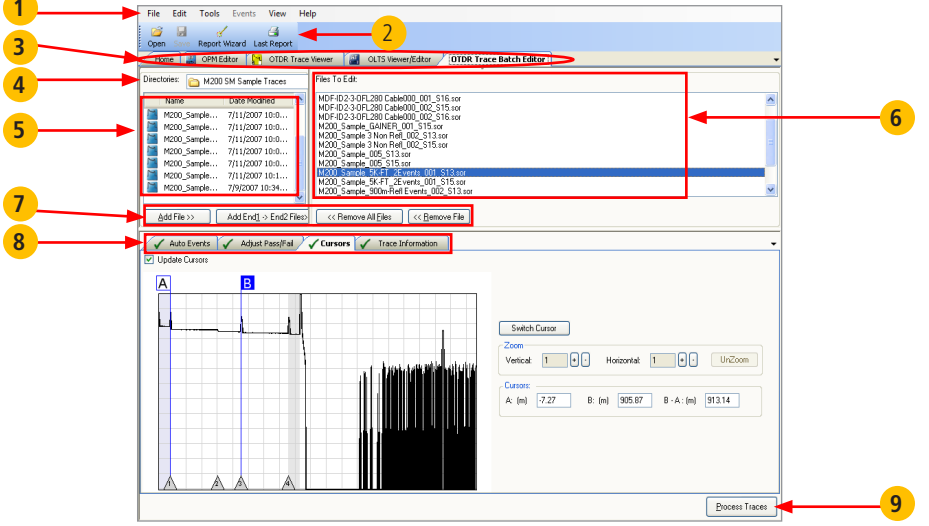
   - [With Overlay] style - prints all traces as a single view with overlay wavelength graph and event table for each wavelength if available.
   - [Single] style - prints single trace and event table for each wavelength if available. If a trace file contains multi-wavelength test results, a report for each wavelength will be printed on individual pages.
   - [Side by Side] - prints multi-view traces side by side and event tables if available.

2. From the Report Preview page, click on the [Print] button
3. Select the desired printer.
4. Click Print to print a single trace report.

Section 6: OTDR Trace Batch Editor Application

From the Home screen, click on the OTDR Trace Batch Editor icon -  to access the OTDR Trace Batch Editor application. This application allows editing all or selected test properties in multiple trace files in the open folder.

Trace Batch Editor Screen Features



Features of the OTDR Trace Batch Editor screen are explained below:

Ref	Feature	Description
1	Menu bar	Displays the available drop down menus
2	Toolbar	Contains several icons for quick access to menu commands Click on an icon to execute the associated command
3	Applications tabs	Click on a tab to switch to the corresponding application
4	Directories menu	Allows navigation to the desired folder
5	Traces Selector window	Displays a list of saved traces in the selected folder
6	Files to Edit window	Displays all trace files added to the batch edit list
7	[Add File] button	Adds the selected trace or multiple traces to the batch edit list
	[Add End1-End2 Files] button	Adds to the batch edit list all the traces in the selection showing End1 to End2 results
	[Add End2-End1 Files] button	Adds to the batch edit list all the traces in the selection showing End2 to End1 results
	[Remove File] button	Removes a single trace or multiple traces from the batch edit list
	[Remove All Files] button	Removes all traces from the batch edit list
8	Trace property editors tabs	Click on a tab to activate the corresponding property editor
9	[Process Traces] button	Click on this button to complete and finalize edits

Menu Bar

The Menu Bar contains several drop down menus as follows: 

Each menu contains various commands. When a menu is selected, it displays a list of commands indicating functions that can be performed on selected files.

File Menu

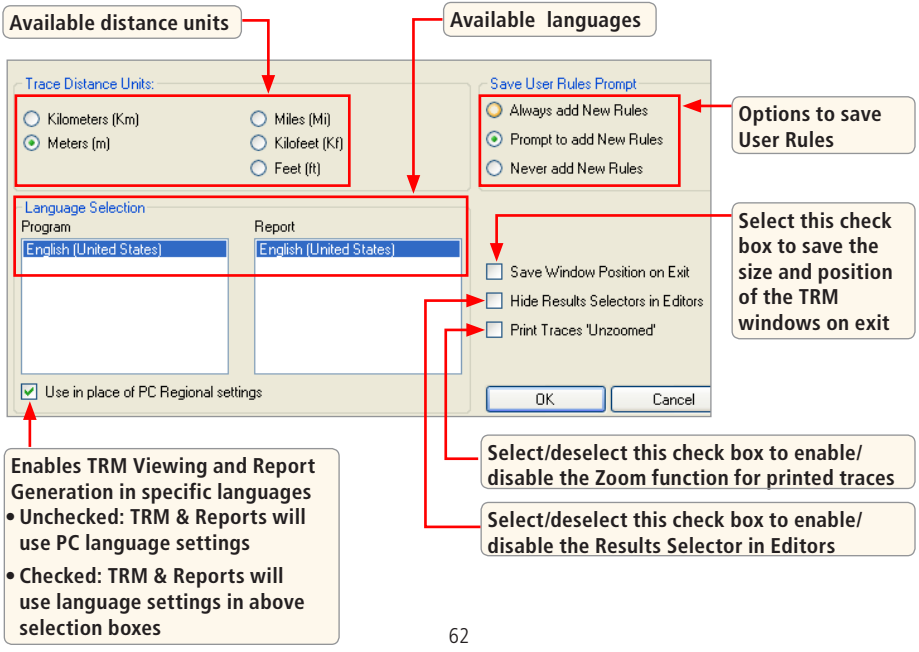
The File drop down menu contains commands for opening and closing traces, and exporting the selected Job to a zip file. The table below gives a summary of the available File Menu commands and their associated functions.

Command	Function
Open...	Access the Results Explorer and navigate the desired test results
Import Data...	Download test data from an instrument.
OFL2Go...	Open a utility program that copies data from an OFL250 or OFL280 (non-FlexTester) to a destination chosen by the user.
Export Job to File...	Export the selected Job to a zip file.
Backup Data...	To have a restoration point, create a non-visible backup copy of your data before editing: - navigate the desired Job /Route/Cable - click OK to display the [Backup Description] window - add a comment on backed up data to be able to identify it during restoration
Restore Data...	Restore previously backed up data to a visible folder. Use comments to identify data for restoration (see page 17 for details).
Exit	Close all open files and exit TRM

Edit Menu

The Edit menu allows the user to set up Preferences.

Preferences Dialog Box



Tools Menu

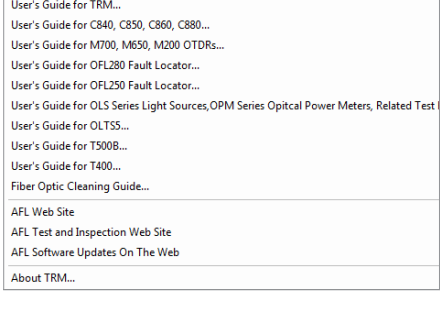
This menu provides access to the Home screen menus.

Command	Use to perform the following Function
View Results	Open the Results Explorer screen
Report Wizard	Open the Report Wizard screen
OTDR Trace Viewer	Open the OTDR Trace Viewer screen
OLTS Viewer/Editor	Open the OLTS Viewer/Editor screen
OTDR Trace Batch Editor	Open the OTDR Trace Batch Editor screen
Last Report	Open the most recent report created by Report Wizard in the Report Preview Page

Help Menu

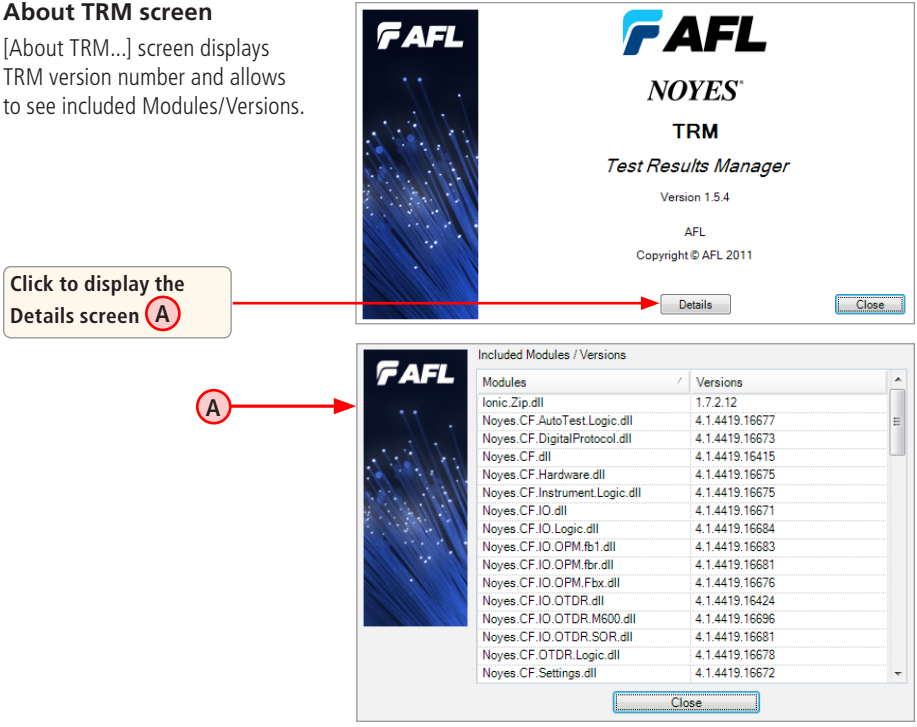
This menu provides access to:

- TRM software user's guide
- Various test equipment user's guides
- AFL web site
- NOYES test and Inspection web site
- Software updates section on the AFL web
- [About TRM...] screen.



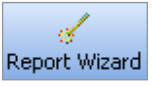
About TRM screen

[About TRM...] screen displays TRM version number and allows to see included Modules/Versions.

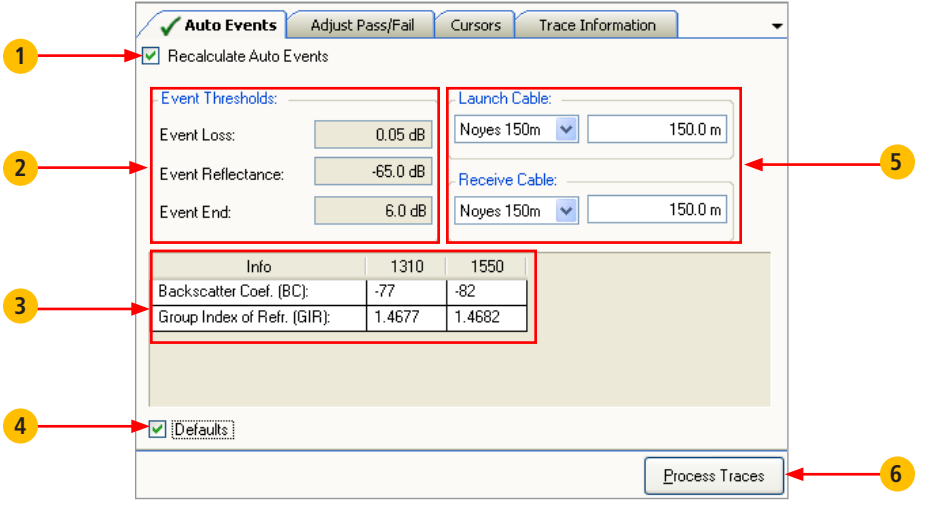


Toolbar

Several of the most commonly used commands can be accessed from the Toolbar. Click on a toolbar icon to execute the corresponding command as follows

	Locate and open the desired trace file
	Save a trace file that already exists with its original name
	Open the Report Wizard
	Print the most recent report created by Report Wizard

Auto Events Editor

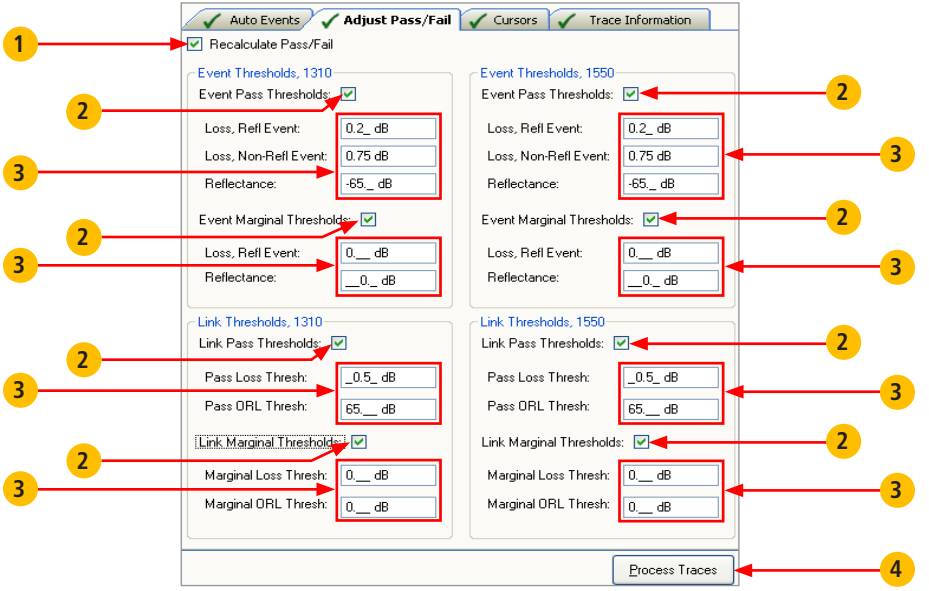


Features of the Auto Events Editor are summarized in the table below.

Ref	Feature	Description
1	Recalculate Auto Events check box	Select/deselect this check box to enable/disable the recalculation process.
2	Event Thresholds properties editable fields	The Event Thresholds default values may be edited when the [Defaults] check box is deselected.
3	Informative fields	These fields display Backscatter Coefficient [BC] and Group Index of Refraction [GIR].
4	Default Thresholds properties check box	Select/deselect this check box to enable/disable the default values for Event Thresholds.
5	Launch/Receive Cable user-defined fields	This section contains fields where the user may either select one of the predefined launch/receive cable option (None, NOYES 150m/500m/1km) or enter the preferred length (User option).
6	[Process Traces] button	Click on this button to start the batch editing process.

Adjust Pass/Fail Editor

This editor allows the user to edit Pass/Fail event and link Thresholds to the allowed limits as needed.



Features of the Pass/Fail Editor screen are summarized in the table below.

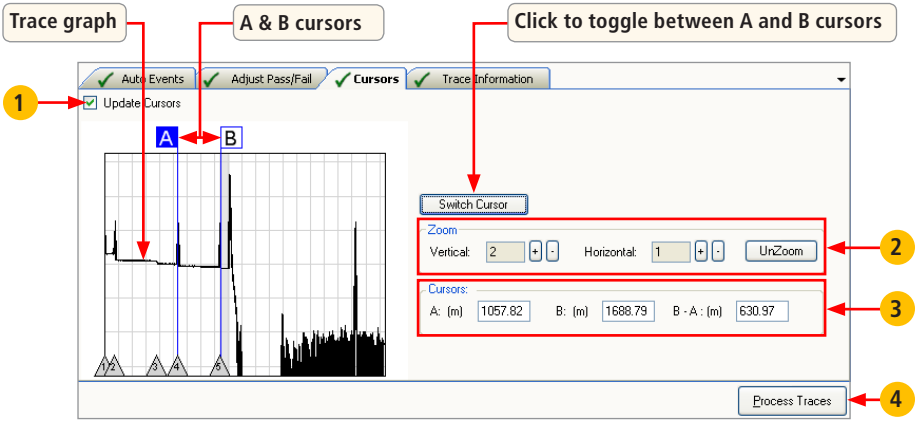
Ref	Feature	Description
1	Recalculate Pass/Fail check box	Select/deselect this check box to enable/disable the recalculation process.
2	Thresholds check box	Select a check box to enable the corresponding Thresholds editable field.
3	Thresholds editable fields	These fields allow editing Thresholds parameters to the allowed limits as needed.
4	[Process Traces] button	Click on this button to start the batch editing process.

continued on the next page

Thresholds Allowed Limits

Event Threshold	Min Value (dB)	Default Value (dB)	Max Value (dB)
Event Pass Thresholds			
Loss, Reflective Event	0.05	0.75	3.00
Loss, Non-reflective Event	0.05	0.30	3.00
Reflectance: 1310, 1550 nm	-65.0	-35.0	-20.0
Reflectance: 850, 1300 nm	-45.0	-22.0	-15.0
Event Marginal Thresholds			
Loss, Reflective Event	0.00	0.00	1.00
Reflectance	0.00	-5.00	-10.0
Link Threshold	**Min Value (dB)**	**Default Value (dB)**	**Max Value (dB)**
Link Pass Thresholds			
Loss: 850, 1300, 1310, 1550 nm	0.00	0.00	35.0
ORL: 850, 1300, 1310, 1550 nm	20.0	25.0	65.0
Link Marginal Thresholds			
Loss: 850, 1300, 1310, 1550 nm	0.00	0.00	5.00
ORL: 850, 1300, 1310, 1550 nm	0.00	0.00	10.0

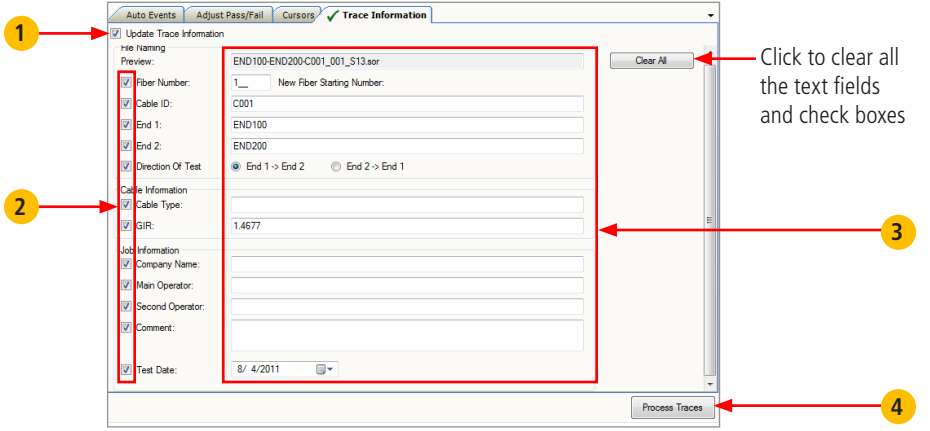
Cursor Editor



Features of the Cursor Editor are summarized in the table below.

Ref	Feature	Description
1	Update Cursors check box	Select/deselect this check box to enable/disable updates.
2	Zoom adjuster	Allows changing horizontal/vertical magnification around the active cursor.
3	Cursors data	This field displays A and B cursor locations and distance from A to B.
4	[Process Traces] button	Click on this button to start the batch editing process.

Trace Information Editor



Features of the Trace Information Editor are summarized in the table below.

Ref	Feature	Description
1	Update Trace Information check box	Select/deselect this check box to enable/disable updates.
2	Trace properties check boxes	Select a check box to activate the corresponding editable text field.
3	Properties editable fields	This section contains text fields where the user may enter all information needed to identify traces
4	[Process Traces] button	Click on this button to start the batch editing process.

Batch Editing OTDR Traces

1. Access the OTDR Trace Batch Editor application.
2. Navigate to the desired Job.
3. All trace files in the open folder will be displayed in the [Trace Selector] window.
4. From the displayed list, add the desired traces to the 'Files to Edit' list, which will be displayed in the [Files to Edit] window.
   Use the [Add File], [Add End1 –>End2 Files>>], or [Add End2 –>End1 Files>>] buttons for adding trace files.

   To add trace files in the current folder to the batch edit list individually:

   - Double-click the desired trace name listed in the [Folders/Files] window. The trace name added to the batch edit list will appear in the [Files to Edit] window.
   - Or, click on the desired trace name listed in the [Folders/Files] window, then click on the [Add File] button. The trace name added to the batch edit list will appear in the [Files to Edit] window.

   To add a group of traces in the current folder to the batch edit list:

   - Click on the first trace to be added to highlight it.
   - Hold the Shift key to scroll down to the last trace you wish to add to the batch edit list.
   - Click on the [Add File] button. The trace names of the selected files will appear in the [Files to Edit] window.
5. If you need to remove trace files from the batch edit list displayed in the [Files to Edit] window, use the [Remove File] or [Remove All Files] buttons.

To remove trace files from the batch edit list individually:

- Double-click the desired trace name displayed in the [Files to Edit] window. The trace name listed in the [Files to Edit] window will be removed.
- Or, click on the desired trace name displayed in the [Files to Edit] window, then click on the [Remove File] button. The trace name listed in the [Files to Edit] window will be removed.

To remove a group of traces from the batch edit list:

- Click on the desired traces to be removed to highlight.
- Click on the [Remove File] button. The trace names listed in the [Files to Edit] window will be removed.

To remove all trace files from the batch list:

- Click on the [Remove All Files] button. All trace names listed in the [Files to Edit] window will be removed.

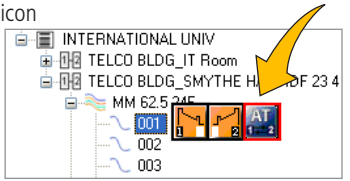
6. Use Auto Events, Adjust Pass/Fail, Cursors, and Trace Information Editors as needed.
7. Click on the [Process Traces] button to complete updates/changes.

Section 7: OLTS Viewer/Editor Application

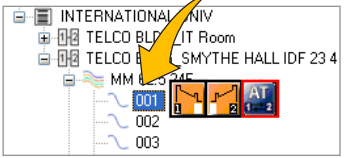
Opening Test Results with OLTS Viewer/Editor

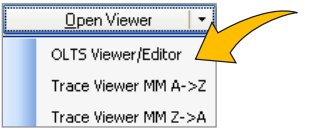
The OLTS Viewer/Editor application may be accessed in several ways:

- from the Home screen by clicking on the OLTS Viewer/Editor icon - 
- from the Results Explorer by selecting a fiber and with a fiber selected double-clicking on the AT icon



- from the Results Explorer by selecting a fiber and with a fiber selected, displaying the Open Viewer submenu and selecting the OLTS Viewer/Editor

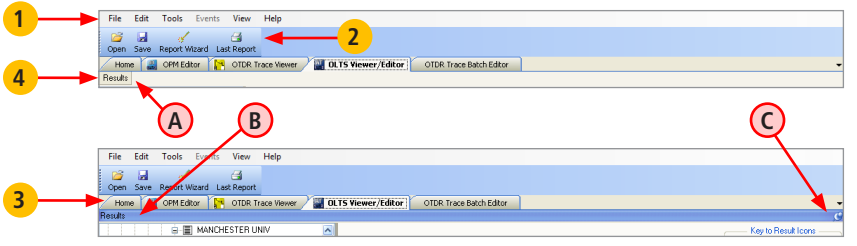




This application allows reviewing loss measurements and certification test results and selecting standards and applications to apply to certification test results.

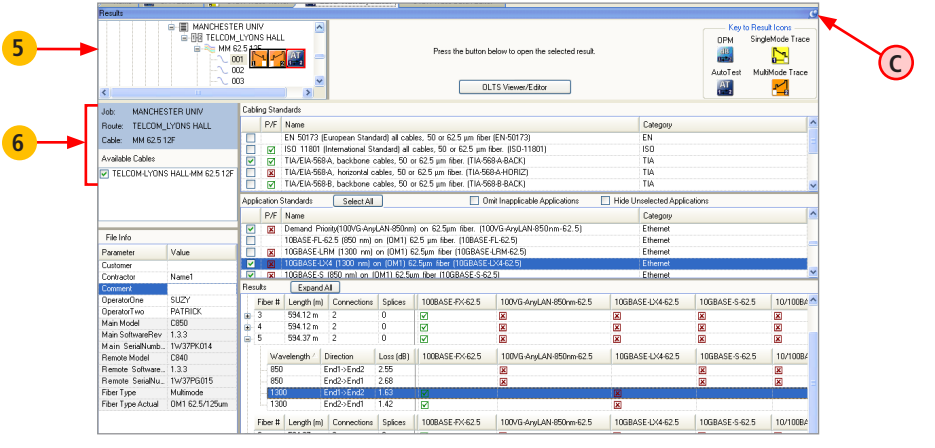
OLTS Viewer/Editor Screen Features

Partial views



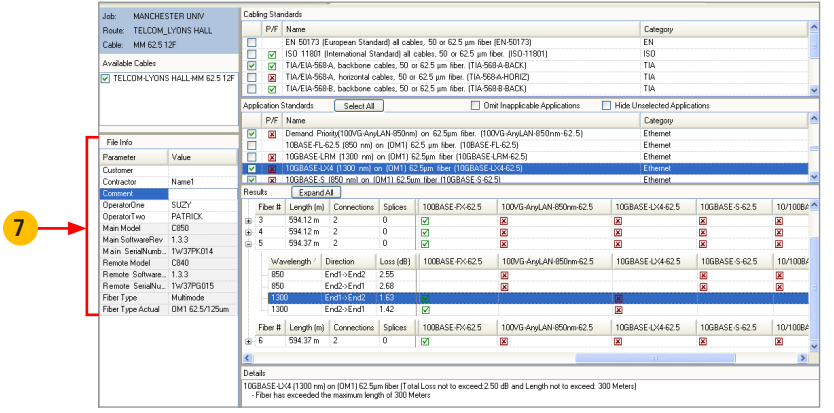
Ref	Feature	Description
1	Menu bar	Displays the available drop down menus.
2	Toolbar	Contains several icons for quick access to menu commands. Click on an icon to execute the associated command.
3	Applications tabs	Click on a tab to switch to the corresponding application.
4	Results button	"On mouse over" the [Results] button (A), the Results window is displayed and "on mouse out" the Results window is auto hidden. Note: the [Results] button (A) looks like a heading (B) and the Auto Hide icon (C) looks like  unless "auto hide" function is enabled by clicking the Auto Hide icon (C)

OLTS Viewer/Editor Screen Features (continued)



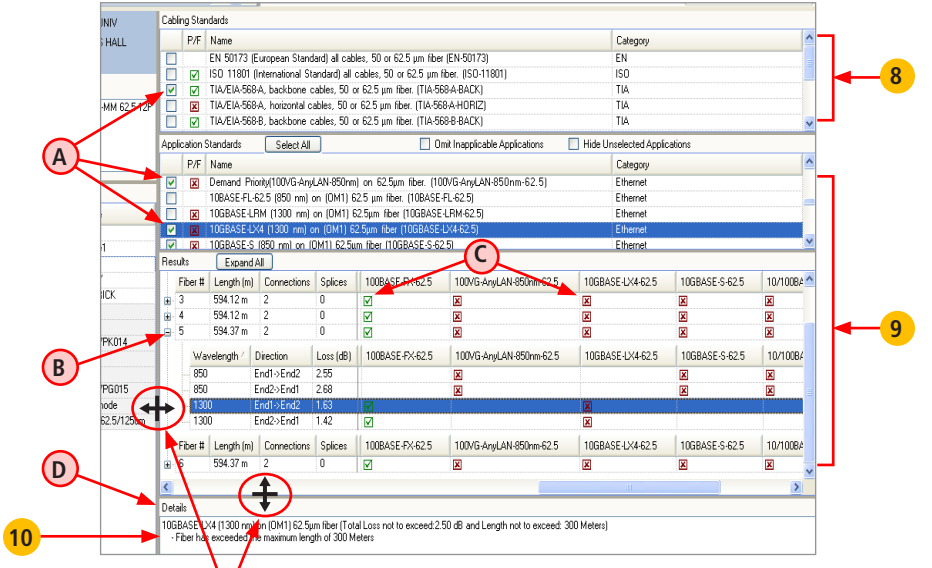
Ref	Feature	Description
5	Results window	The Results window displays folders and files hierarchy and is used to navigate saved test results. To disable/enable the "auto hide" function, click the Auto Hide icon / located in the right top corner of the Results window (C).
6	Cables Info window	Contains informative fields: Job/Route/Cable name and Available Cables check box.

OLTS Viewer/Editor Screen Features (continued)



Ref	Feature	Description
7	File Info window	Contains both the editable and informative fields. Editable fields allow editing/adding Customer, Contractor, and Operators' ID and add comments. Informative fields display test equipment Model numbers, Software version, and tested fiber info.

OLTS Viewer/Editor Screen Features (continued)

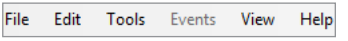


Vertical/Horizontal split bars - allow resizing of the OLTS Viewer/Editor windows vertically and/or horizontally

OLTS Viewer/Editor Screen Features (continued)

Ref	Feature	Description
8	Cabling and Application Standards windows	Contains user-selectable fields: Cabling Standards and Application Standards.
9	Auto Tests Results window	Depending on the selected Cabling Standards, User Rule, and Application Standards, this area displays certification test results with Pass/Fail by fiber number, wavelength and direction, measured Loss and Length.
10	Details window	Displays the details of the selected standard, maximum loss, and maximum length. To display details of the desired standard: • Select check box of Cabling and/or Application standard - (A) • Click on ⊞ button to expand Results of the desired Fiber - loss values, direction of test, and Pass/Fail by wavelength - (B) • Click on the desired check box ☒/☑ - (C) to display Details of the selected Standard (max loss and length) - (D)

Menu Bar

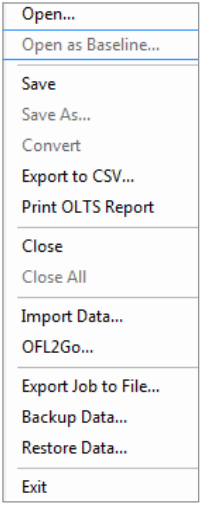
The Menu Bar contains the available drop down menus as follows: 

Each menu contains various commands. When a menu is selected, it displays a list of commands indicating functions that can be performed on selected files.

File Menu

The File drop down menu contains several commands as follows.

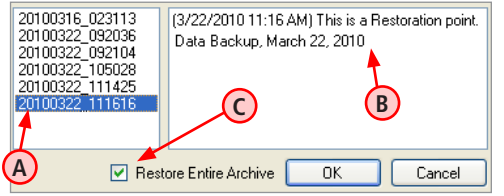
Command	Function
Open	Access the Results Explorer and navigate the desired test results file.
Save	Save a file that already exists with its original name.
Save As...	Save an existing file under a new name and preserve the original file.
Print OLTS Report	Access the TRM Report Wizard. Preview an OLTS report before printing. Print the currently displayed OLTS report.
Close	Close the open cable results and clear the OLTS Viewer.
Import Data...	Download test data from an instrument.
OFL2Go...	Open a utility program that copies data from an OFL250 or OFL280 (non-FlexTester) to a destination chosen by the user.

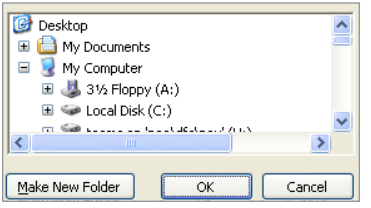


Command	Function
Export Job to File...	Export the selected Job to a zip file.
Backup Data...	To have a restoration point, create a non-visible backup copy of a test data: - navigate the desired Job /Route/Cable - click OK to display the [Backup Description] window - add a comment on backed up data to be able to identify it during restoration
Restore Data...	Restore previously backed up data to a visible folder.
Exit	Close opened files and exit TRM.

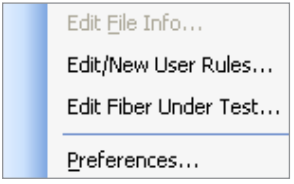
To Restore Data

1. Click on individual Backups (A) to review comments (B) saved during the {Backup Data] process.
2. Using comments, identify and select data for restoration (A).
3. Or select the "Restore Entire Archive" option (C).
4. Click OK.
5. In the displayed File Navigator window, select the desired location.
6. Click OK to save the restored data.



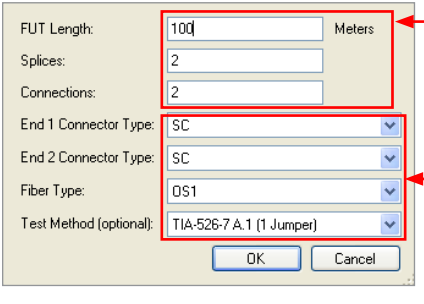


Edit Menu



The Edit menu allows the user to edit existing or create new User Rules, edit Fiber Under Test data and set up Preferences.

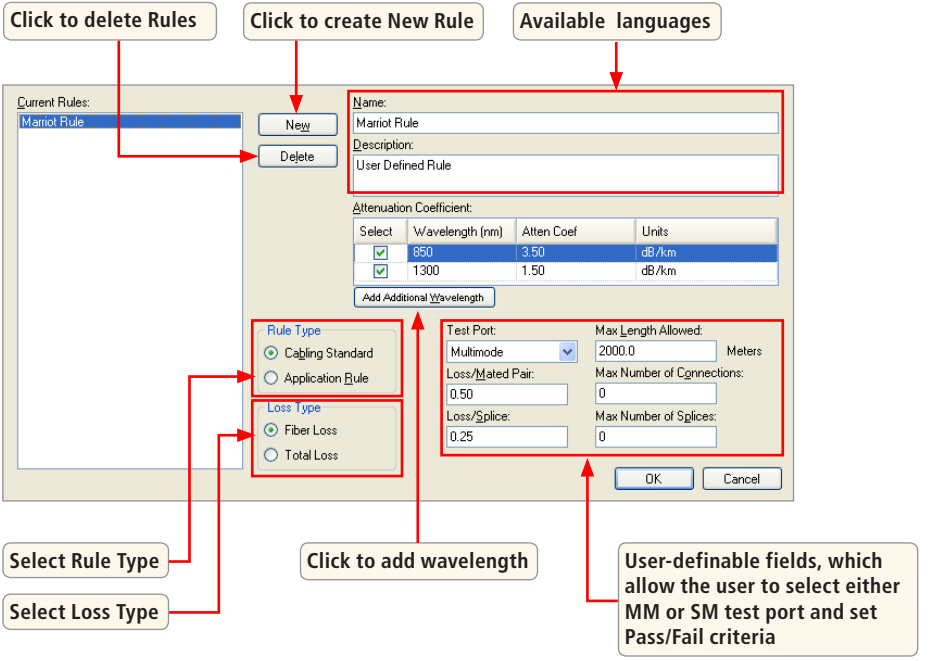
Edit Fiber Under Test



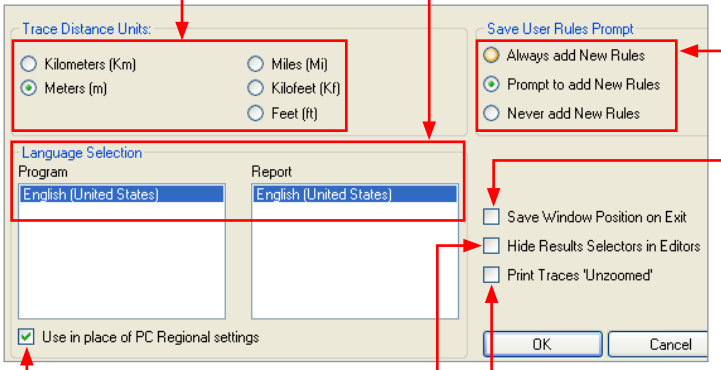
These fields allow the user to define fiber under test (FUT) parameters: length, number of splices, and number of connections

These fields allow the user to define connectors type, fiber type, and test method

Edit or Create New User Rules



Edit Preferences



Available distance units

Available languages

Options to save User Rules

Select this check box to save the size and position of the TRM windows on exit

Enables TRM Viewing and Report Generation in specific languages

- **Unchecked: TRM & Reports will use PC language settings**
- **Checked: TRM & Reports will use language settings in above selection boxes**

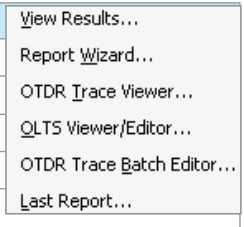
Select/deselect this check box to enable/ disable the Results Selector in Editors

Select/deselect this check box to enable/disable the Zoom function for printed traces

Tools Menu

This menu provides access to the Home screen menus.

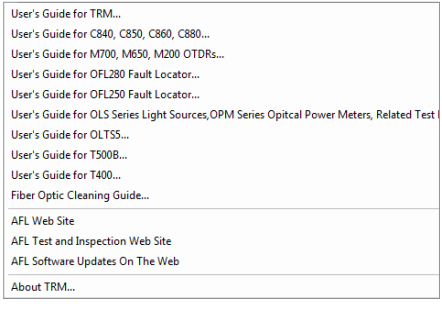
Command	Function
View Results...	Opens the Results Explorer screen
Report Wizard...	Opens the Report Wizard screen
OTDR Trace Viewer...	Opens the OTDR Trace Viewer screen
OLTS Viewer/Editor...	Opens the OLTS Viewer/Editor screen
OTDR Trace Batch Editor...	Opens the OTDR Trace Batch Editor screen
Last Report...	Open the most recent report created by Report Wizard.



Help Menu

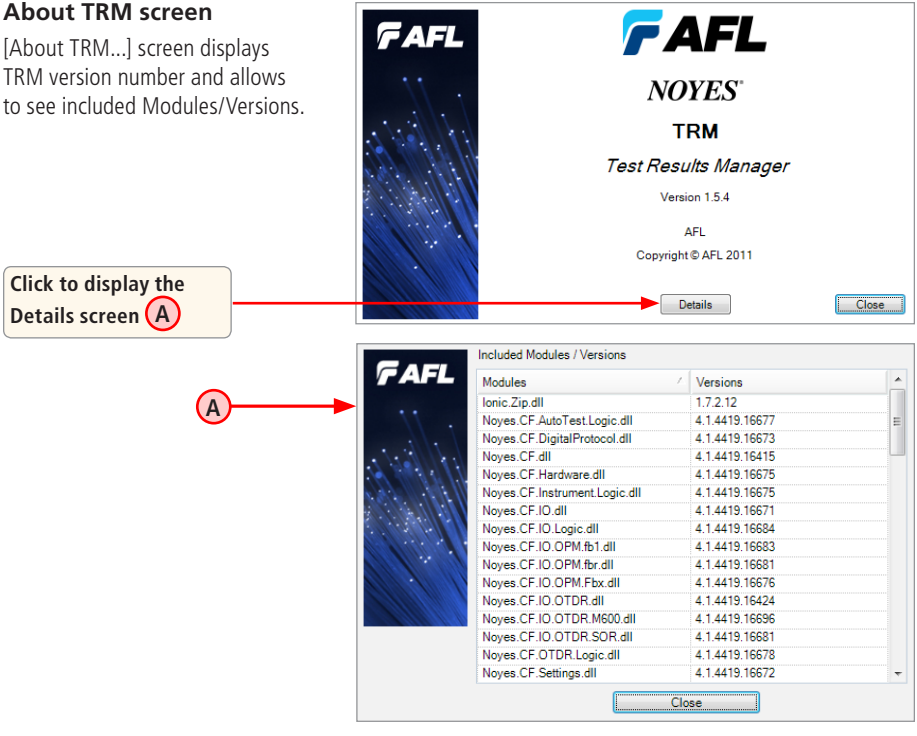
This menu provides access to:

- TRM software user's guide
- Various test equipment user's guides
- AFL web site
- NOYES test and Inspection web site
- Software updates section on the AFL web
- [About TRM...] screen.



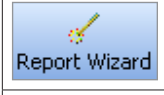
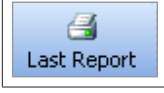
About TRM screen

[About TRM...] screen displays TRM version number and allows to see included Modules/Versions.



Toolbar

Several of the most commonly used commands can be accessed from the Toolbar. Click on a toolbar icon to execute the corresponding command as follows

	Locate and open the desired trace file
	Save a trace file that already exists with its original name
	Open the Report Wizard
	Print the most recent report created by Report Wizard

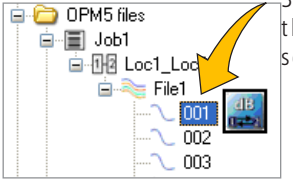
Section 8: Viewing OPM Results with OPM Viewer/ Editor

Opening Test Results with OPM Viewer/Editor

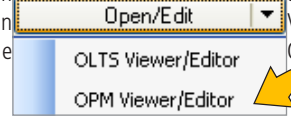
The OPM Viewer/Editor application may be accessed from the Results Explorer by selecting a fiber with OPM test data and with a fiber selected, displaying the Open Viewer submenu and selecting the OPM Viewer/Editor.

1. From the TRM Home screen, click the View Results icon -  to access the Results Explorer screen (see Section 3 for details).

2. In the [File Navigator] window, locate the desired fiber with OPM test data -  .



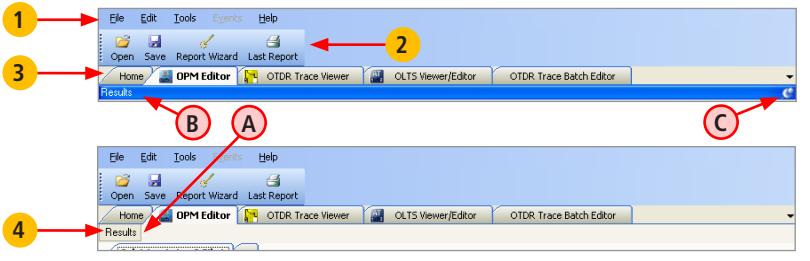
3. With a fiber selected, display the Open Viewer submenu and select the OPM Viewer/Editor.



This application allows users to review loss measurements and organize test data into cables by direction for accurate test reporting

OPM Editor Screen Features

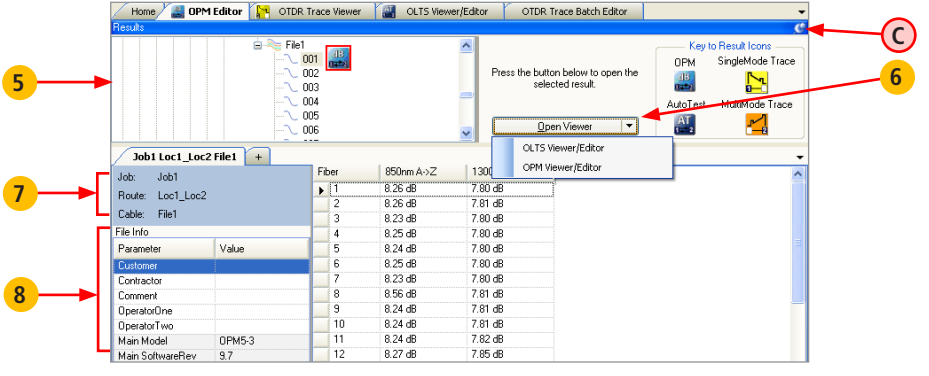
Partial views



Ref	Feature	Description
1	Menu bar	Displays the available drop down menus.
2	Toolbar	Contains several icons for quick access to menu commands. Click on an icon to execute the associated command.
3	Applications tabs	Click on a tab to switch to the corresponding application.
4	Results button	"On mouse over" the [Results] button (A), the Results window is displayed and "on mouse out" the Results window is auto hidden. Note: the [Results] button (A) looks like a heading (B) and the Auto Hide icon (C) looks like  unless "auto hide" function is enabled by clicking the Auto Hide icon (C)

Continued on next page

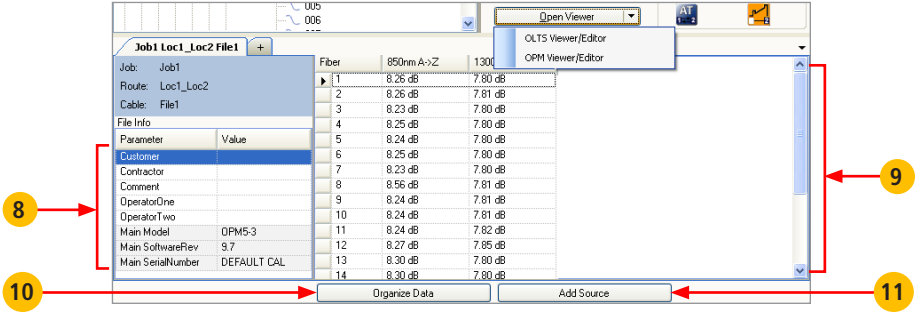
Partial views



Ref	Feature	Description
5	Results window	The Results window displays folders and files hierarchy and is used to navigate saved test results. To disable/enable the "auto hide" function, click the Auto Hide icon / located in the right top corner of the Results window (C).
6	Viewer selector	Click to toggle between the OLTS and OPM Viewer/Editor
7	Cables Info window	Contains informative fields: Job/Route/Cable name.

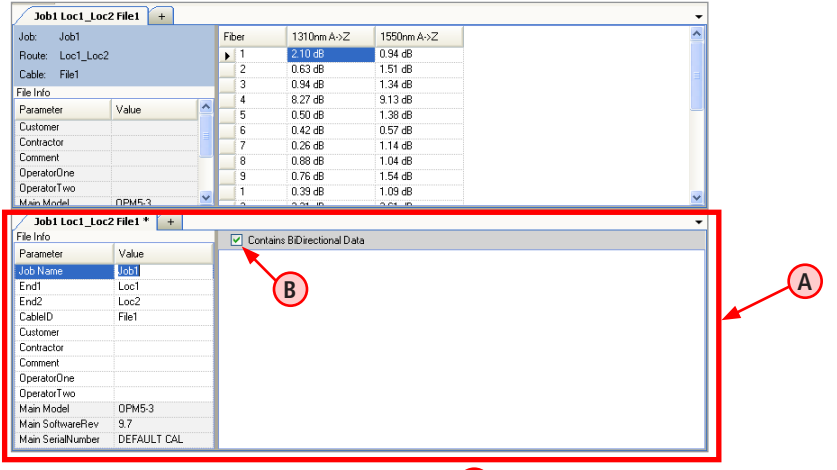
Continued on next page

Partial views



Ref	Feature	Description
8	File Info window	Contains editable and informative fields. Editable fields allow editing/ adding Customer, Contractor, and Operators' ID and add comments. Informative fields display test equipment Model numbers, Software version, and tested fiber info.
9	Test Results window	Displays fiber number, wavelength, direction of test, and measured loss.
10	Organize Data button	Clicking this button allows users to select data for organization into cables by direction for accurate reporting (see next page for details).
11	Add Source button	Allows users to combine data taken with more than one OPM. Data will be combined into cables by direction for more accurate reporting.

Partial views

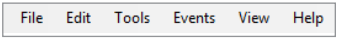


When the [Organize Data] button is pressed, additional block (A) appears at the bottom of the OPM Viewer/Editor window allowing users to perform the following:

- Edit File Info (Job Name, End 1/End 2, Cable ID, Customer, Contractor, Comments and Operators' ID)
- Break test results data into one or more cables with data in one direction or two directions. For creating bi-directional results, be sure to select the ☑ Contains BiDirectional Data option (B).
- Combine test results from different sources into one cable.

Menu Bar

The Menu Bar contains the available drop down menus as follows:

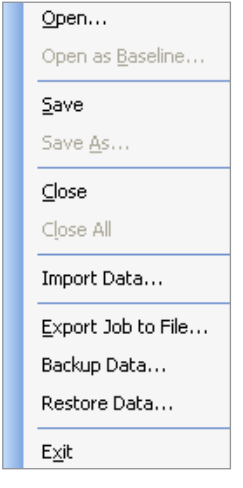


Each menu contains various commands. When a menu is selected, it displays a list of commands indicating functions that can be performed on selected files.

File Menu

The File drop down menu contains several commands as follows:

Command	Function
Open	Access the Results Explorer and navigate the desired test results file.
Save	Save a file that already exists with its original name.
Close	Close the open cable results and clear the OPM Viewer/Editor
Import Data...	Download test data from an instrument.
Export Job to File...	Export the selected Job to a zip file.
Backup Data...	To have a restoration point, create a non-visible backup copy of your data before editing: - navigate the desired Job /Route/Cable - click OK to display the [Backup Description] window - add a clear comment on backed up data to be able to identify it during restoration

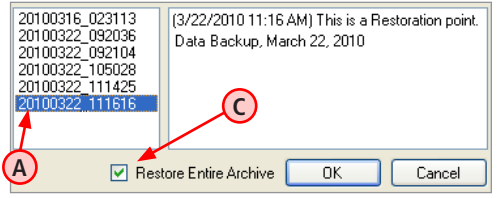


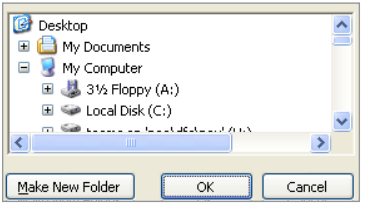
Continued on next page

Command	Function
Restore Data...	Restore previously backed up data to a visible folder.
Exit	Close opened files and exit TRM.

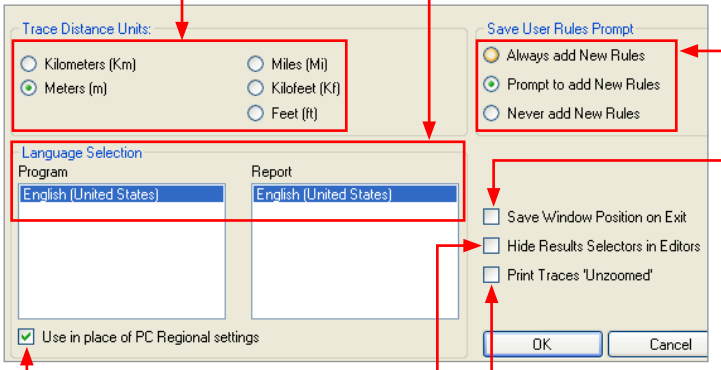
To Restore Data

1. Click on individual Backups (A) to review comments (B) saved during the {Backup Data] process.
2. Using comments, identify and select data for restoration (A).
3. Or select the "Restore Entire Archive" option (C).
4. Click OK.
5. In the displayed File Navigator window, select the desired location.
6. Click OK to save the restored data.





Edit Preferences



Available distance units

Available languages

Options to save User Rules

Select this check box to save the size and position of the TRM windows on exit

Enables TRM Viewing and Report Generation in specific languages

- **Unchecked: TRM & Reports will use PC language settings**
- **Checked: TRM & Reports will use language settings in above selection boxes**

Select/deselect this check box to enable/ disable the Results Selector in Editors

Select/deselect this check box to enable/disable the Zoom function for printed traces

Tools Menu

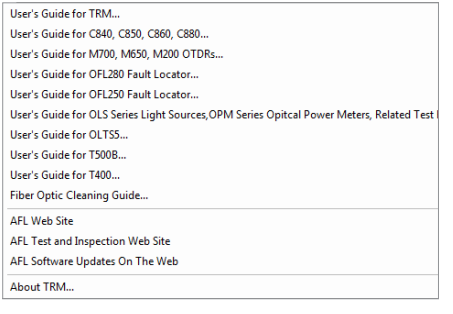
This menu provides access to the Home screen menus.

Command	Function
View Results...	Opens the Results Explorer screen
Report Wizard...	Opens the Report Wizard screen
OTDR Trace Viewer...	Opens the OTDR Trace Viewer screen
OLTS Viewer/Editor...	Opens the OLTS Viewer/Editor screen
OTDR Trace Batch Editor...	Opens the OTDR Trace Batch Editor screen
Last Report...	Open the most recent report created by Report Wizard.

Help Menu

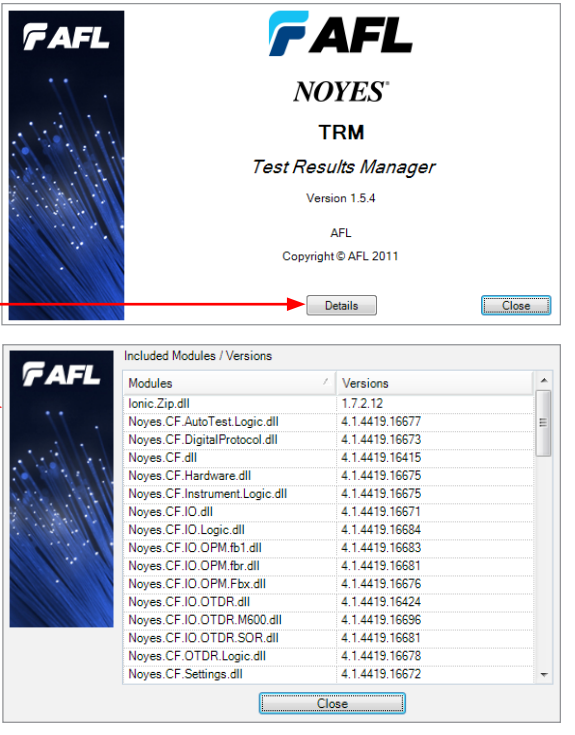
This menu provides access to:

- TRM software user's guide
- Various test equipment user's guides
- AFL web site
- NOYES test and Inspection web site
- Software updates section on the AFL web
- [About TRM...] screen.



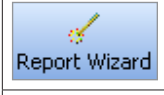
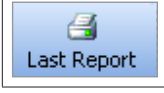
About TRM screen

[About TRM...] screen displays TRM version number and allows to see included Modules/Versions.



Toolbar

Several of the most commonly used commands can be accessed from the Toolbar. Click on a toolbar icon to execute the corresponding command as follows

	Locate and open the desired trace file
	Save a trace file that already exists with its original name
	Open the Report Wizard
	Print the most recent report created by Report Wizard

Working with OPM Results

Reorganizing OPM Results into Bi-directional Data

Figure A shows an example of OPM results displayed by the [OPM Viewer/Editor].

- 10 fibers are tested bi-directionally with NOYES OPM 5D power meter and OLS light source at 1310 nm and 1550 nm in direction A -> Z and Z -> A. Results are saved in OPM 5D as 20 fibers (results).
- When the saved results opened with TRM, they are displayed as 20 fibers tested in one direction A -> Z.

TRM allows reorganizing test results so they are displayed in A -> Z and Z -> A directions as tested.

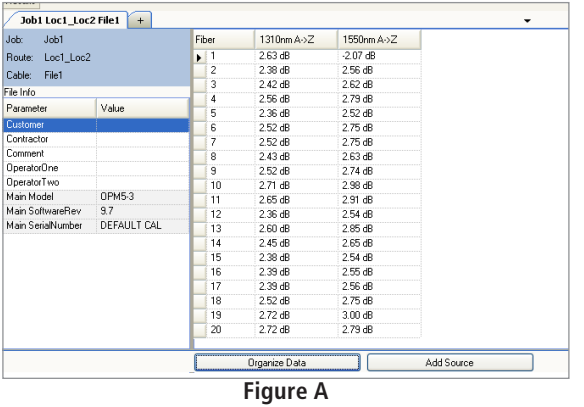
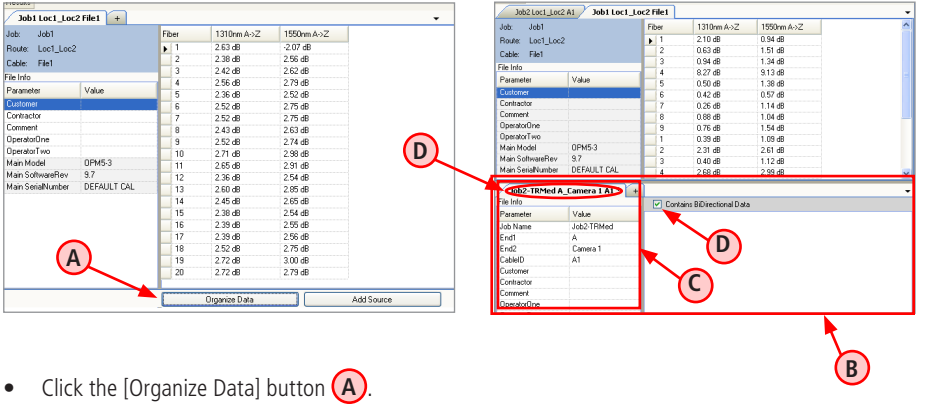


Figure A

To Reorganize OPM Test Results into Bi-directional Data



- Click the [Organize Data] button (A).
- Additional block appears at the bottom of the OPM Viewer/Editor window (B).
- Edit File Info editable fields (C) as needed (Job Name, End 1/End 2, Cable ID, Customer, Contractor, Comments and Operators' ID). Note that edited File Info appears on the job tab (D).
- For creating bi-directional data, be sure to select the ☑ Contains BiDirectional Data option (D).

- Highlight the 1 to 10 fiber results at 1310 nm - (1) and 1 to 10 fiber results at 1550 nm - (2) and then drag the highlighted results to the [Bi-Directional Data] window - (C) as shown in Figure B.
- Results appear in the [Bi-Directional Data] window as 1 to 10 fiber results (1a) and (2a) in A -> Z direction columns as shown in Figure C.

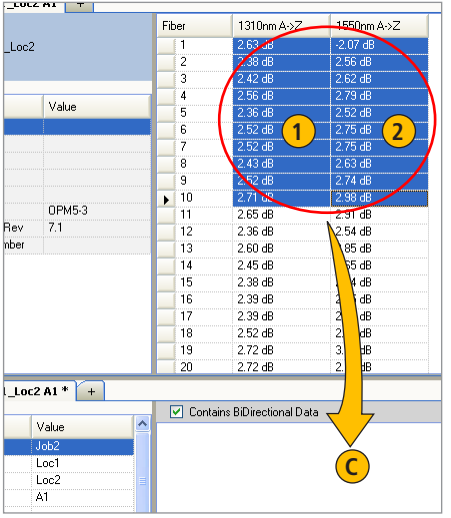


Figure B

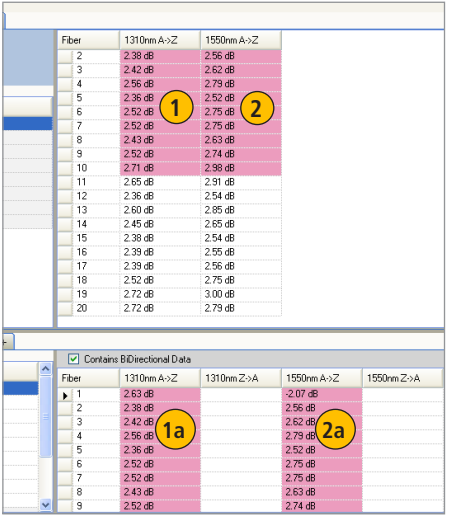


Figure C

- Highlight the 11 to 20 fiber results at 1310 nm (3) and drag them to the [Bi-Directional Data] window as shown in Figure D. Make sure the pointer is pointing to the starting fiber cell of the desired wavelength and direction in the data destination area.
- The 11 to 20 fiber results at 1310 nm appear in the [Bi-Directional Data] window. They are displayed as the 1 to 10 fiber results at 1310 nm (3a) in Z -> A direction as shown in Figure E.

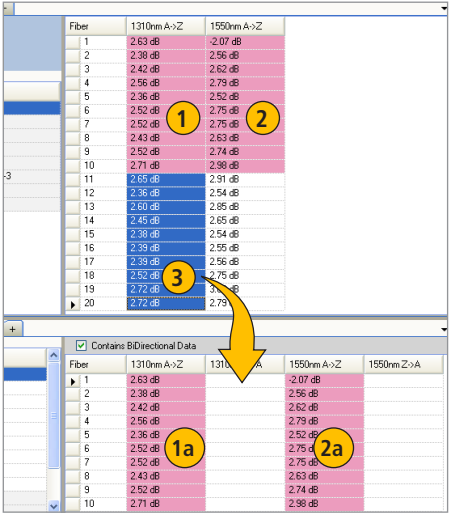


Figure D

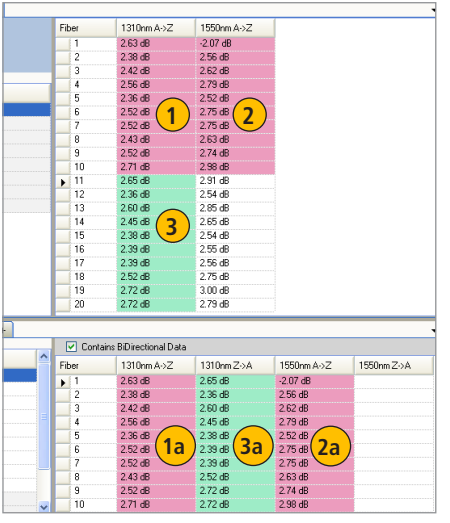


Figure E

- Highlight 11 to 20 fiber results at 1550 nm (4) and drag them to the [Bi-Directional Data] window as shown in Figure F. Make sure the pointer is pointing to the starting fiber cell of the desired wavelength and direction in the data destination area.
- The 11 to 20 fiber results at 1550 nm appear in the [Bi-Directional Data] window. They are displayed as the 1 to 10 fiber results at 1550 nm (4a) in Z -> A direction as shown in Figure G.

Reorganized OPM test results may be saved with the [Save] option and then opened in the OLTS Viewer/Editor application.

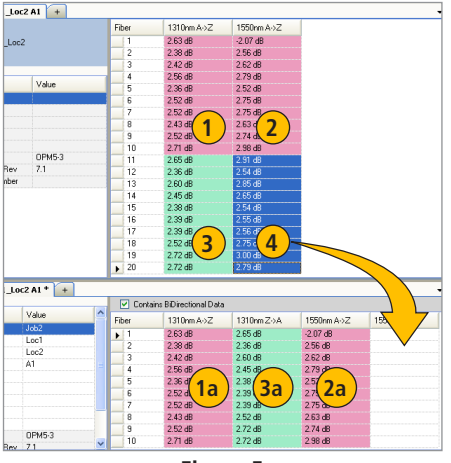


Figure F

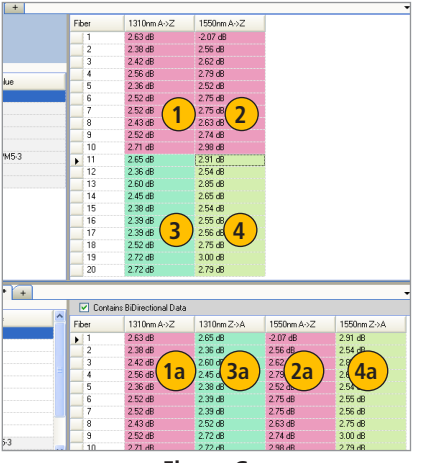


Figure G

Reorganizing Test Data into Multiple Cables

Figure A shows an example of OPM results displayed by the [OPM Viewer/Editor].

- 10 fibers are tested bidirectionally with NOYES OPM 5D power meter and OLS light source at 1310 nm and 1550 nm in direction
  A -> Z and Z -> A. Results are saved in OPM 5D as 20 fibers (results).
- When the saved results opened with TRM, they are displayed as 20 fibers tested in one direction A -> Z.

TRM allows reorganizing test results to break them into one or more cables with data in one direction or two directions.

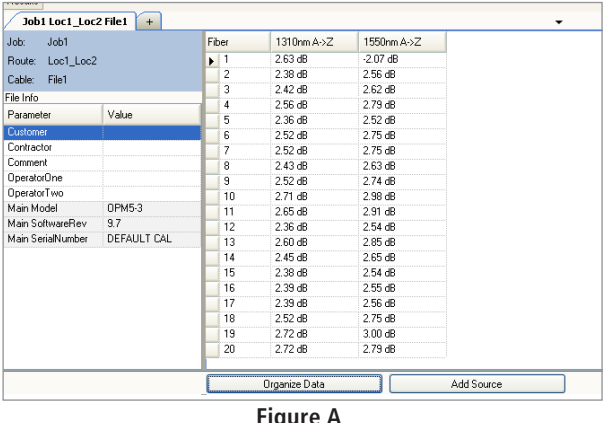
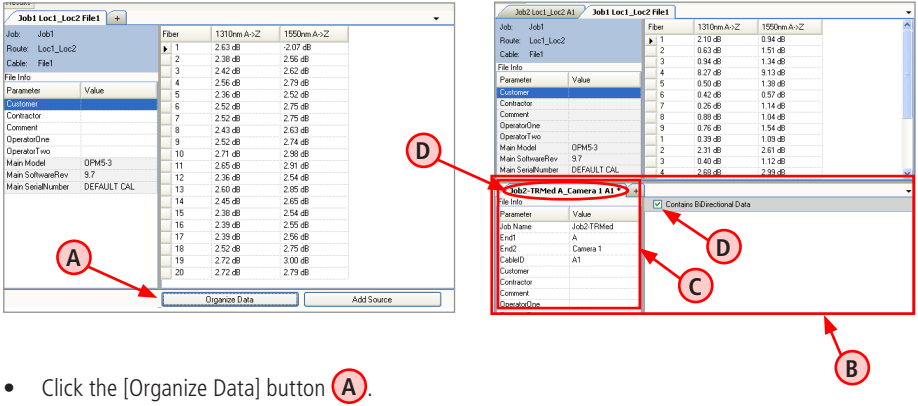


Figure A

To Reorganize Test Data into Multiple Cables



- Click the [Organize Data] button (A).
- Additional block appears at the bottom of the OPM Viewer/Editor window (B).
- Edit File Info editable fields as needed (Job Name, End 1/End 2, Cable ID, Customer, Contractor, Comments and Operators' ID) (C). Note that edited File Info appears on the job tab (D).
- For creating bi-directional data, be sure to select the ☑ Contains BiDirectional Data option (E).

Note: Fibers 1 to 2 are used in the example below. However, users may select as many fibers as needed.

1. Highlight the 1 to 2 fiber results at 1310 nm (1) and 1 to 2 fiber results at 1550 nm (2) and then drag the highlighted results to the [Bi-Directional Data] window - (C) as shown in Figure B.
2. Results appear in the [Bi-Directional Data] window as 1 to 2 fiber results (1a) and (2a) in A -> Z

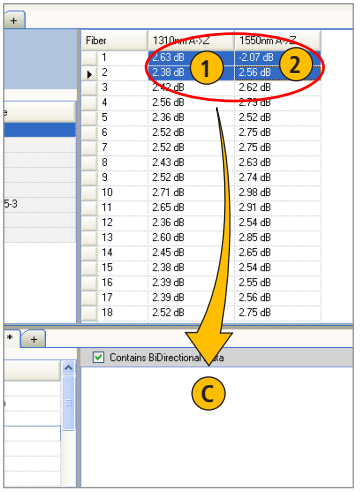


Figure B

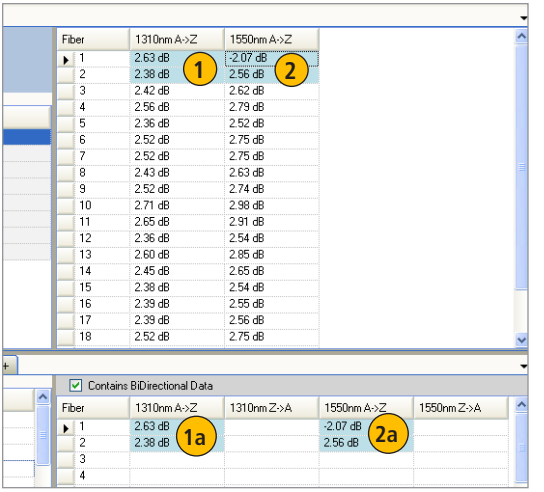


Figure C

direction columns as shown in Figure C.

3. Highlight the 3 to 4 fiber results at 1310 nm (3) and drag them to the [Bi-Directional Data] window as shown in Figure D. Make sure the pointer is pointing to the starting fiber cell of the desired wavelength and direction in the data destination area.
4. The 3 to 4 fiber results at 1310 nm appear in the [Bi-Directional Data] window. They are displayed

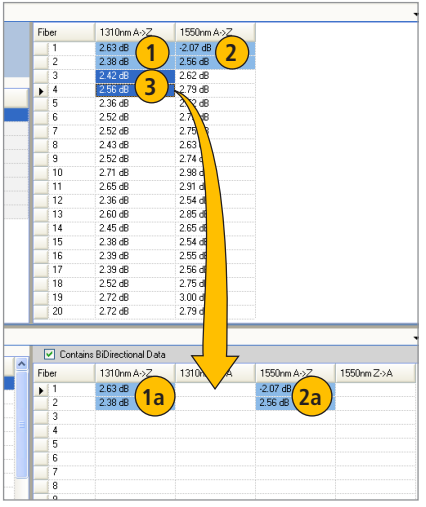


Figure D

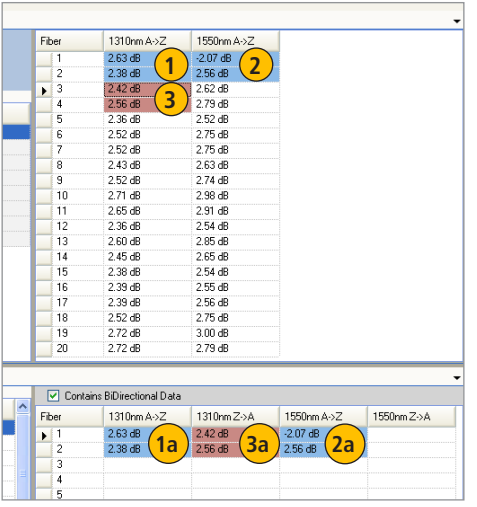


Figure E

as the 1 to 2 fiber results at 1310 nm (3a) in Z -> A direction as shown in Figure E.

5. Highlight 3 to 4 fiber results at 1550 nm (4) and drag them to the [Bi-Directional Data] window as shown in Figure F. Make sure the pointer is pointing to the starting fiber cell of the desired wavelength and direction in the data destination area.
6. The 3 to 4 fiber results at 1550 nm appear in the [Bi-Directional Data] window. They are displayed as the 1 to 2 fiber results at 1550 nm (4a) in Z -> A direction as shown in Figure G.

Figure G shows the OPM test results reorganized as new Job (A).

- Click on the [+] button (B) to create an additional Job/Cable.

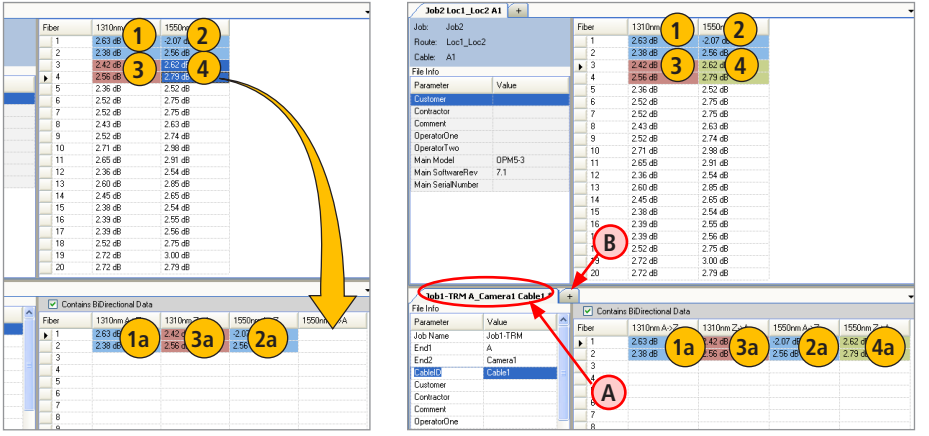
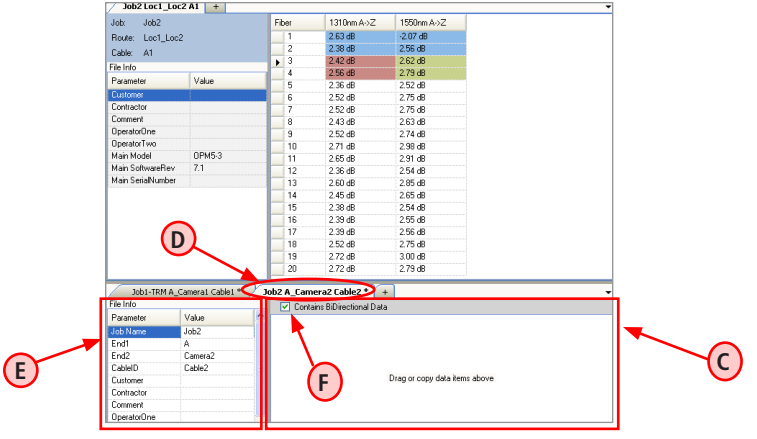


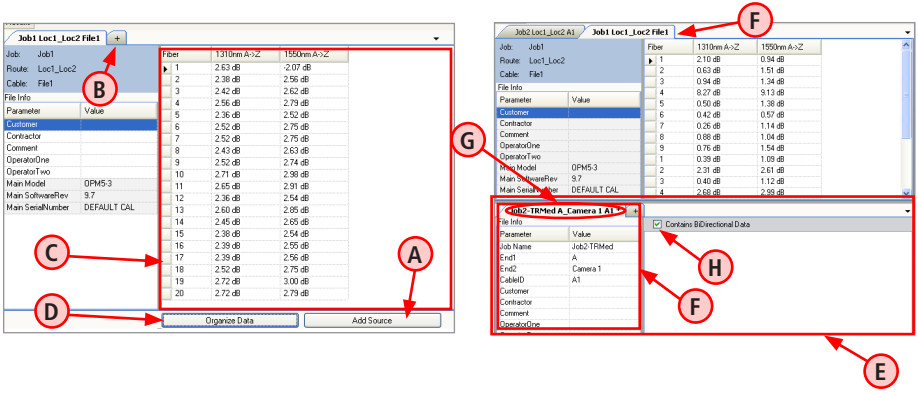
Figure G

- Additional [Bi-Directional Data] window (C) and tab (D) will appear indicating that an additional Job/Cable is added.
- Edit File Info editable fields (E) as needed (Job Name, End 1/End 2, Cable ID, Customer, Contractor, Comments and Operators' ID). Note that edited File Info appears on the job tab (D).
- For creating bi-directional data, be sure to select the ☑ Contains BiDirectional Data option (F).
- To add test data, copy fibers to the [Bi-Directional Data] window (C) as described in steps 1 to 6 selecting fiber numbers as needed.



Combining Test Data from Two Sources into one Cable

- Click on the [Add Source] button (A) or the [+] button (B) to add test data from the additional source to the [Test Results] window.
- Click the [Organize Data] button (D).
- Additional block appears at the bottom of the OPM Viewer/Editor window (E).
- Edit File Info editable fields (F) as needed (Job Name, End 1/End 2, Cable ID, Customer, Contractor, Comments and Operators' ID). Note that edited File Info appears on the job tab (G).
- For creating bi-directional data, be sure to select the [Contains BiDirectional Data] option (H).



To Combine Test Data from Two Sources into one Cable

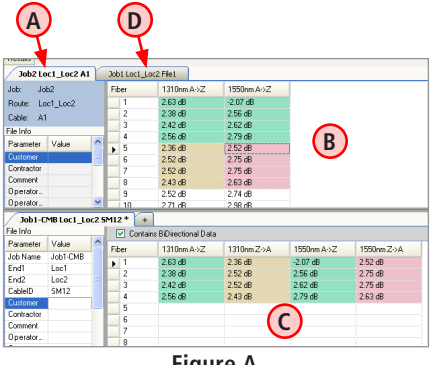


Figure A

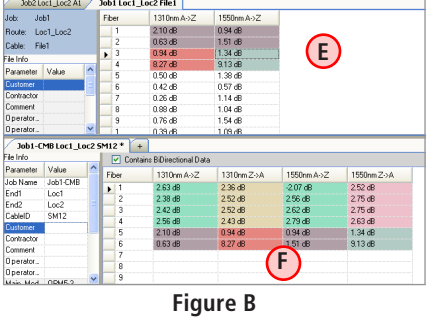
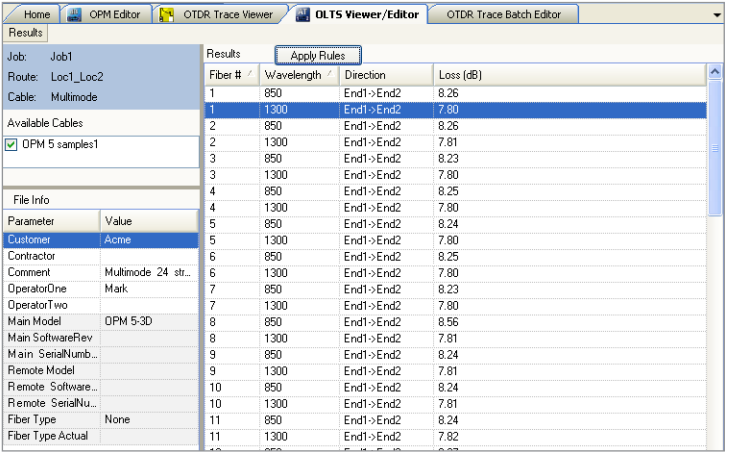


Figure B

- To add test data from the first source (A), copy fibers from the [Test Results] window (B) to the [Bi-Directional Data] window (C) as described in steps 1 to 6 selecting fiber numbers as needed
- Click on the second source tab (D) to display stored test data (E)
- To add test data from the second source (D), copy fibers from the [Test Results] window (E) to the [Bi-Directional Data] window (F) as described in steps 1 to 6 selecting fiber numbers as needed
- Test data from first source is combined with test data from the second source as shown in Figure B

Viewing OPM Results in the OLTS Viewer/Editor

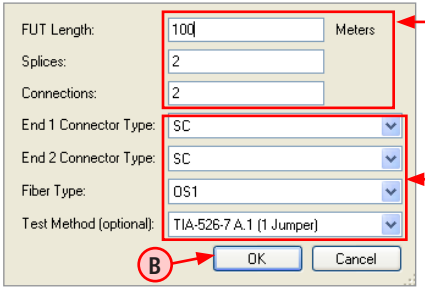
OPM test results may be opened in the OLTS Viewer/Editor application, which allows reviewing loss measurements by wavelength and direction and selecting standards and applications to apply to certification test results.



To Select Standards and Applications

1. Navigate the desired OPM test results and open them with OLTS Viewer/Editor application (see section titled "Opening Test Results with OLTS Viewer/Editor" for details).

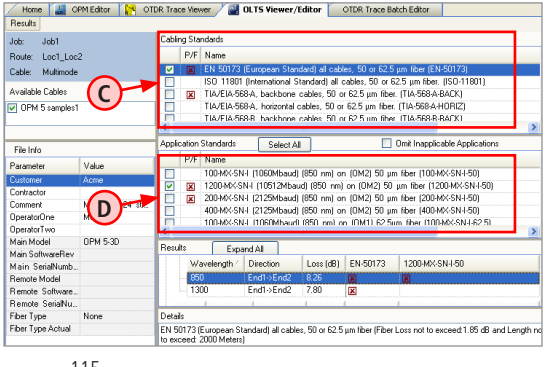
2. Click the [Apply Rules] button (A) to display the [Edit Fiber] menu.



These fields allow the user to define fiber under test (FUT) parameters: length, number of splices, and number of connections

These fields allow the user to define connectors type, fiber type, and test method

3. Edit fiber parameters as needed.
4. Click OK (B).
5. As needed, select standards (C) and applications (D) to apply to certification test results (see section titled "OLTS Viewer/ Editor Screen Features" for details).



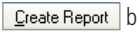
Section 9: Report Wizard and Last Report Applications

Report Wizard

The Report Wizard application provides the user with a variety of pre-defined report templates and cover sheets and allows generating professional test reports that may be printed or stored as PDF files.

The Report Wizard application may be accessed either from the Home screen or from any Test Viewer/ Editor screen as follows:

- From the Home screen, click on the Report Wizard icon - 
- From the OTDR Trace Viewer, OTDR Trace Batch Editor, or OLTS Viewer/Editor, click on the Report Wizard icon 

- From the View Results application, click on the 

button

Follow the on-screen instructions for generating, saving, and printing test reports.

Last Report Application

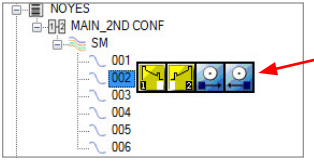
The Last Report application will open the most recent report created by Report Wizard in the Report Preview Page, which allows the user to print the latest report, store it as PDF file, or return to the Report Wizard and modify the created report.

The Last Report application may be accessed either from the Home screen or from any Test Viewer/ Editor screen as follows:

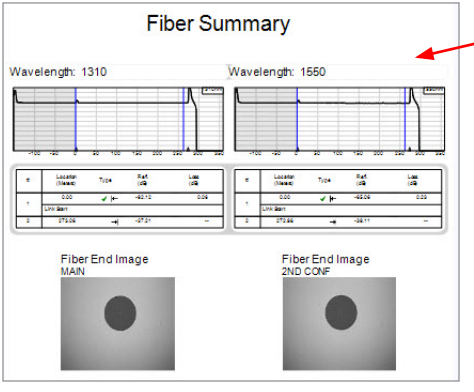
- From the Home screen, click on the Last Report icon - 
- From the OTDR Trace Viewer, OTDR Trace Batch Editor, or OLTS Viewer/Editor, click on the Last Report icon - 

Report Generation with DFS (fiber end-face) Images

Test results with DFS fiber end-faces images are saved in .JPG file format and displayed on the "file tree" as  icon.



Indicated fiber 002 contains DFS results

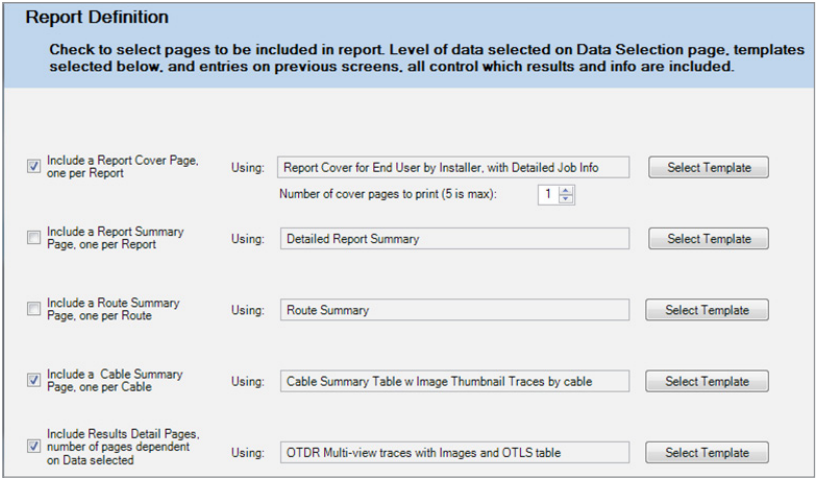


Fiber Summary of results for indicated fiber

To include images in TRM reports, select the appropriate Template to support end-face images saved in the Job. There are two options:

Cable Summary: Allows the user to include Thumbnail images of the captured end-faces.

Result Detail Pages: Allow users to include the corresponding end-face image with the OTDR trace. End-face image included with the trace is of the end where the OTDR is Located at.



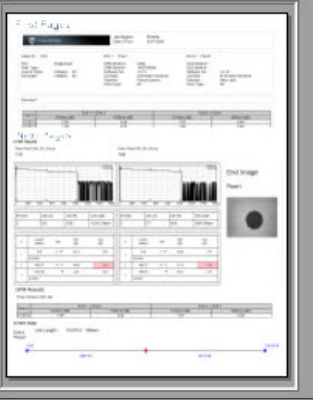
TRM Template Selection Page

The Cable Summary Template includes the OTDR summary information and End-face image thumbnails.

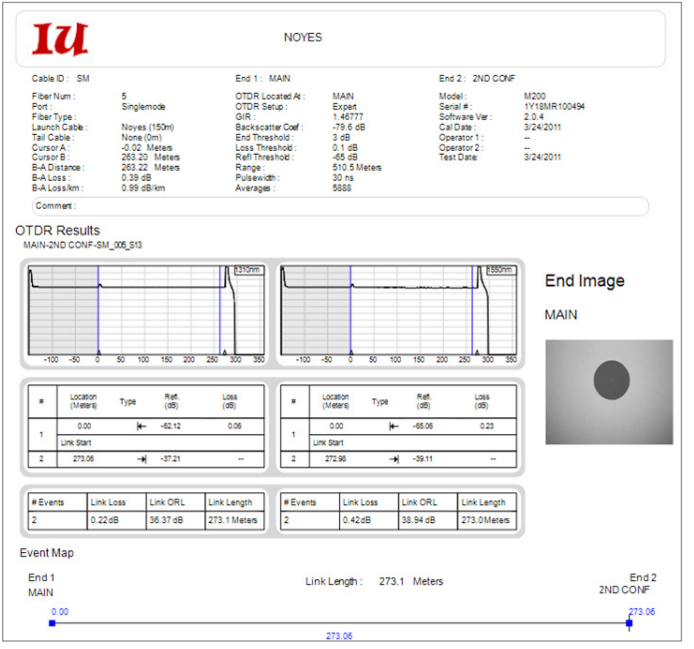
Cable Summary Table w Image Thumbnail Traces by cable

The OTDR Results Template shows OTDR traces, End-face image, Event Map, and Loss results if available.

OTDR Multi-view traces with Images and OTLS table



TRM report with OTDR traces and near end image of fiber under test



Section 10: Transferring Files to a PC

From USB Flash Drive to PC

1. To transfer files from your test equipment to a PC using the USB drive, perform the following:
2. Copy any files stored on your test equipment Internal Drive to the USB drive.
3. Remove the USB drive from your test equipment and plug it into the USB port on your PC.
4. Copy files from the USB Flash drive to your PC.

From Test Equipment via USB Function Port to PC

C-Series, M-Series, OPM-Series

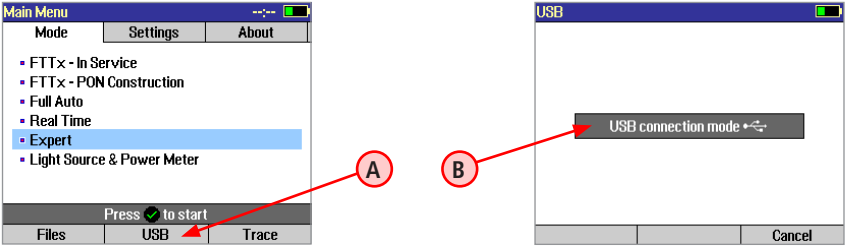
To transfer files from your test equipment to a PC using a USB cable, perform the following:

5. Connect your test equipment to a PC using the supplied mini-USB to USB cable.
   Note: If your PC requests new USB drivers, install the CD-ROM that comes with your test equipment, which contains the needed drivers (drivers may also be downloaded from our web at **www.AFLglobal.com** > Resources > Software). This step only needs to be performed the first time you connect your test equipment to your PC.
6. If your PC pops up a dialog box asking if you want to set up a new Partnership, select No (the test equipment should always be a 'guest').
   - Open My Computer >
     Mobile Device > File Storage > Internal folder.
     or
   - Open My Computer > Mobile Device > USB folder.

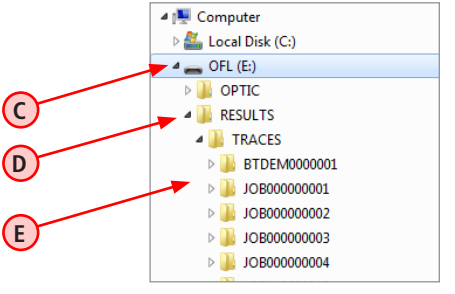
OFL280 FlexTester

To transfer files from the OFL280 FlexTester to a PC using a USB cable, perform the following:

1. Connect your OFL280 FlexTester to a PC using the supplied mini-USB to USB cable.
2. On the OFL280 FlexTester, press the [USB] key (A) to enable the 'USB connection' mode (B).



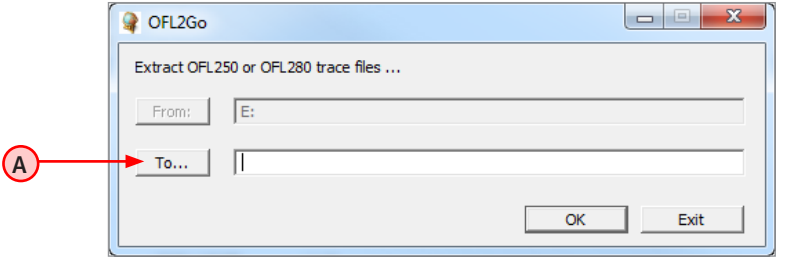
3. From the Windows Explorer, locate the OFL drive (C) and the [Results] folder (D).
4. Copy the desired traces (E) to your PC.



OFL2GO: Transferring OFL250 or OFL280 (non-FlexTester) test data

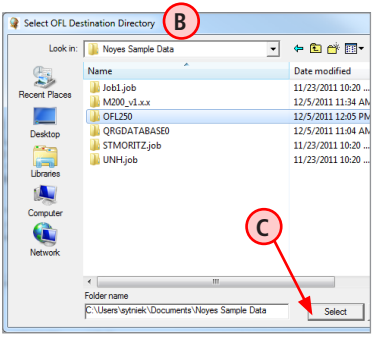
To transfer files from the OFl250 or OFL280 OTDR (non-FlexTester) to a PC using a USB cable, perform the following:

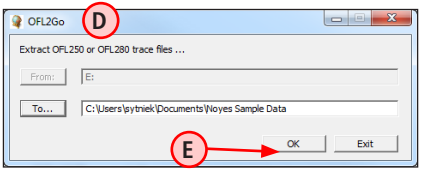
1. Connect your OFL250/OFL280 OTDR to a PC using the supplied mini-USB to USB cable.
2. On the OFL250/OFL280 OTDR, press the [USB] key to enable the 'USB connection' mode.
3. From the TRM File menu, choose the [OFL2Go...] command to display the OFL2Go screen as follows:



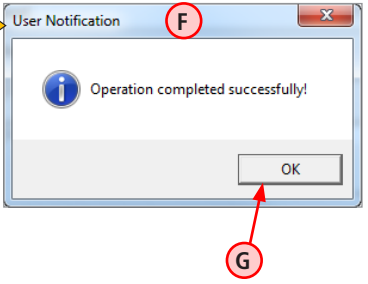
4. To select the desired destination on your PC, click [To] (A) to display the "Select OFL Destination Directory" screen (B) (see next page).

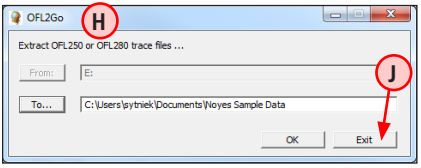
5. From the "Select OFL Destination Directory" screen (B) choose the desired destination folder.
6. Click [Select] (C).
7. When back in the OFL2Go screen (D), click [OK] (E) to start transferring.





8. TRM will display notification (F) when transfer is complete. Click [OK] (G).
9. When back in the OFL2Go screen (H), click [Exit] (J) to exit the OFL2Go utility.





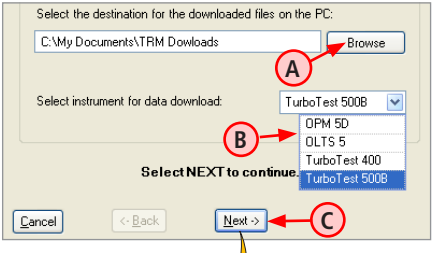
From Test Equipment via Serial Port to PC

OLTS5 Test Set

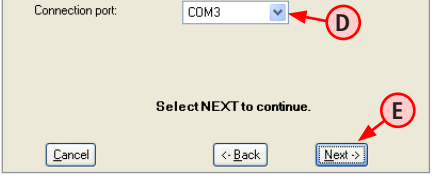
Using the supplied serial cable, connect your instrument to the available COM Port on your PC.

On Test Results Manager (TRM)

1. Select [File] > [Import Data...] to display the Import Data Wizard.
2. Select the destination for the downloaded files on your PC (A).
3. From the pull-down menu, select your instrument for data download (B).
4. Select [Next] to continue (C) and proceed to the next screen.



5. When the next screen is displayed, select the appropriate COM port (D).
6. Click [Next] to continue (E).



On OLTS5 Instrument

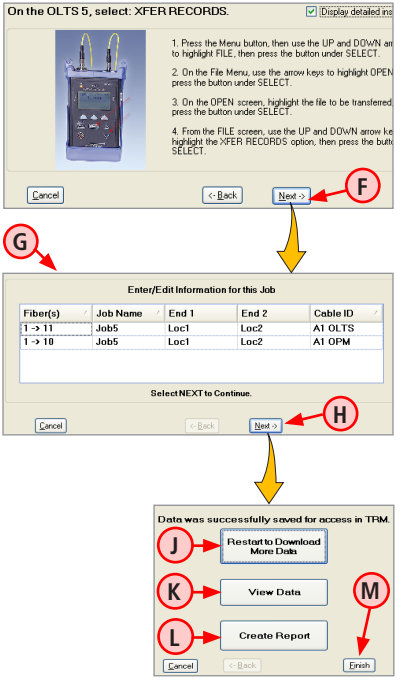
7. Click the Menu button to display the Main Menu.
8. Use the UP and DOWN arrow keys to highlight the [FILE] option, and then click the [SELECT] soft key to access the [FILE MENU] screen.
9. From the [FILE MENU] screen, use the Up and Down arrows to highlight the [XFER RECORDS]

option.

10. Press the [SELECT] soft key to transfer the currently open file.

Return to Test Results Manager (TRM)

11. Click [Next] (F) to continue and proceed to the next screen.
12. You will see the [Download Progress] screen followed by the [Job Information] screen (G).
13. The [Job Information] screen (G) allows users to enter and/or edit information (Name, Locations, Cable ID) for downloaded jobs.
14. Click [Next] (H) to continue and proceed to the next screen, which allows users to
    - restart to download more data (J)
    - view data (K)
    - create report (L)
15. When done, click [Finish] (M) to exit the Import Data Wizard.

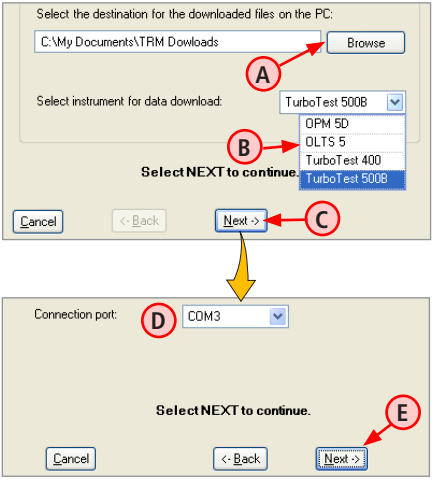


TurboTest 400 Test Set

Using the supplied serial cable, connect your instrument to the available COM Port on your PC.

On Test Results Manager (TRM)

1. Select [File] > [Import Data...] to display the Import Data Wizard.
2. Select the destination for the downloaded files on your PC (A).
3. From the pull-down menu, select your instrument for data download (B).
4. Select [Next] to continue (C) and proceed to the next screen.
5. When the next screen is displayed, select the appropriate COM port (D).
6. Click [Next] to continue (E).

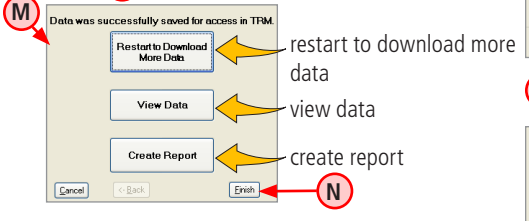


On TurboTest 400 Instrument

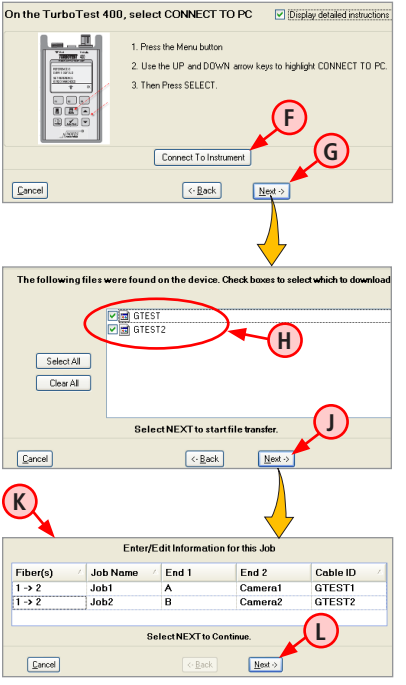
7. Press the Menu button to display the Main Menu.
8. Use the Up and Down arrow keys to highlight the [CONNECT TO PC] option.
9. Press the [SELECT] soft key to transfer the currently open file.

Return to Test Results Manager (TRM)

10. Click [Connect to Instrument] (F), then click [Next] (G) to continue and proceed to the next screen.
11. The next screen allows users to select files for transfer. Select the desired files (H).
12. Click [Next] (J) to continue.
13. You will see the [Download Progress] screen followed by the [Job Information] screen (K).
14. The [Job Information] screen allows users to enter and/or edit information (Name, Locations, Cable ID) for downloaded jobs.
15. Click [Next] (L) to continue and proceed to the next screen (M), which allows users to



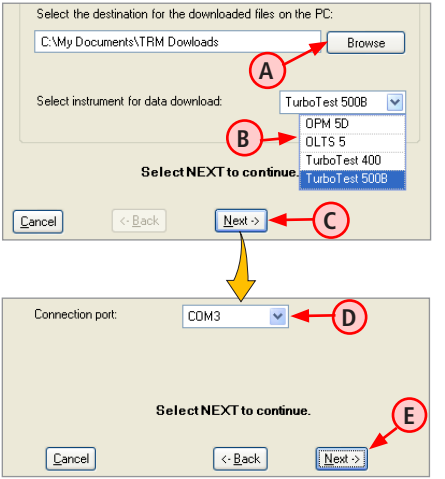
16. When done, click [Finish] (N) to exit the Import Data Wizard.



TurboTest T500B Test Set

Using the supplied serial cable, connect your instrument to the available COM Port on your PC.

On Test Results Manager (TRM)



1. Select [File] > [Import Data...] to display the Import Data Wizard.
2. Select the destination for the downloaded files on your PC (A).
3. From the pull-down menu, select your instrument for data download (B).
4. Select [Next] to continue (C) and proceed to the next screen.
5. When the next screen is displayed, select the appropriate COM port (D).
6. Click [Next] to continue (E).

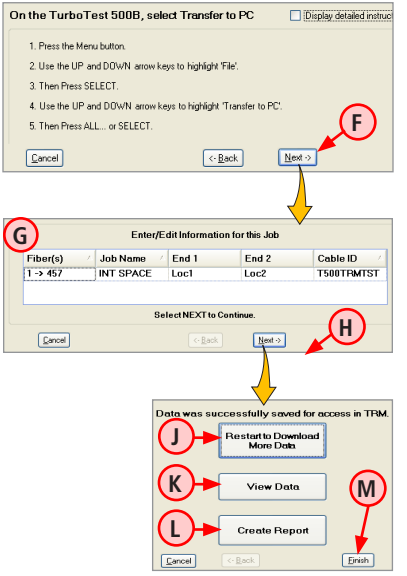
On TurboTest 500B Instrument

7. Press the Menu button to display the Main Menu.
8. Use the UP and DOWN arrow keys to highlight the [FILE] option, and then press the [SELECT] soft key to access the [FILE MENU] screen.
9. From the [FILE MENU] screen, use the UP and DOWN arrow keys to highlight the [TRANSFER TO PC] option.
10. Press the [SELECT] soft key to access the [REPORT] screen of the current test mode.

11. From the [REPORT] screen, choose one of the following:
    - You may press the [SELECT] soft key to transfer the current file.
    - You may press the [All] soft key to transfer all files of the current test mode.

Return to Test Results Manager (TRM)

12. Click [Next] (F) to continue and proceed to the next screen.
13. You will see the [Download Progress] screen followed by the [Job Information] screen (G).
14. The [Job Information] screen (G) allows users to enter and/or edit information (Name, Locations, Cable ID) for downloaded jobs.
15. Click [Next] (H) to continue and proceed to the next screen, which allows users to
    - restart to download more data (J)
    - view data (K)
    - create report (L)
16. When done, click [Finish] (M) to exit the Import Data Wizard.



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