JDSU SmartOTU

Optical Test Unit
Back-Based optical test unit for RFT (Remote Fiber Test System)

User Manual

Manual Reference : SmartOTU_MO2rev00
Edition : June 2014

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JDSU

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Optical Test Unit
Rack-based optical test unit for RFTS (Remote Fiber Test System)

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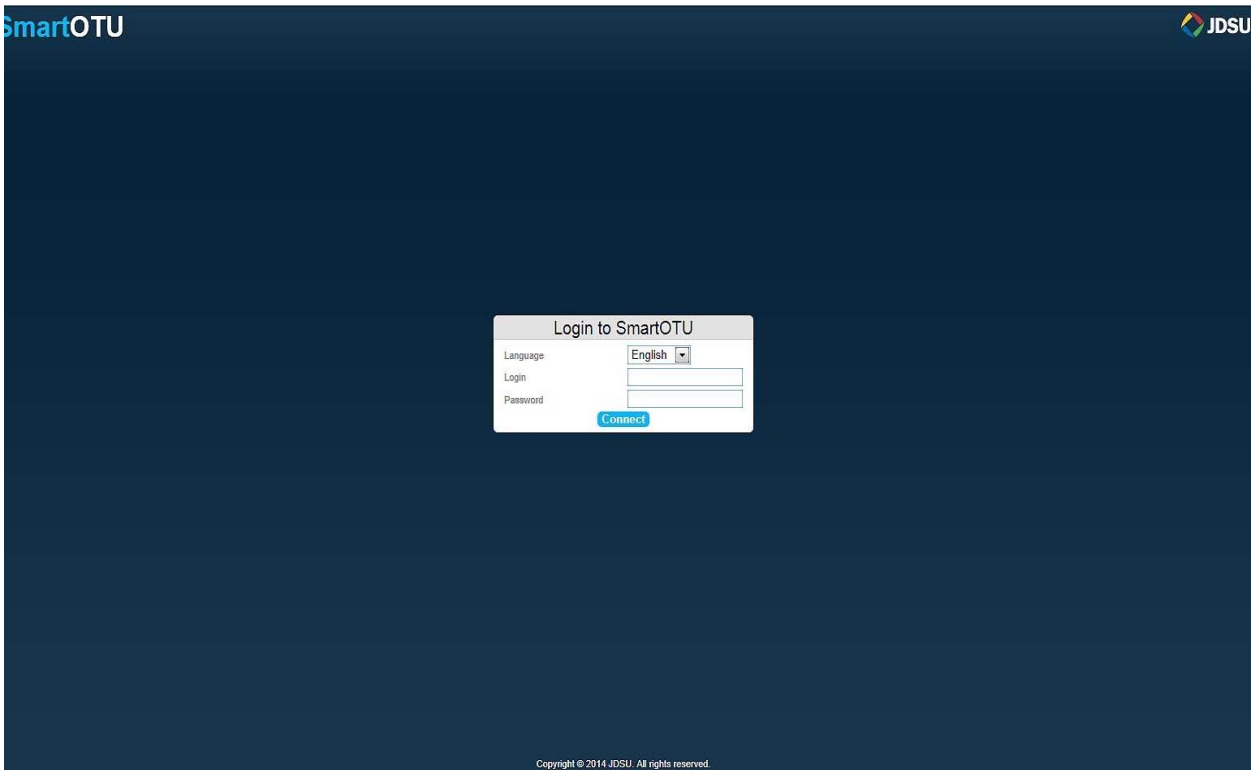
Table of Contents

1 DESCRIPTION

1.1 Introduction

Before using the SmartOTU web application, make sure your SmartOTU is correctly installed (see the“Quick guide”).

Connect to the SmartOTU via your web browser (IE9 and higher, Chrome, Firefox) from your PC.
Open your web browser: fill your URL: ***http://otu-8000e-xxxx*** where xxxx is the serial number of your OTU (your OTU is in DHCP mode by default) or ***http://xxx.xxx.xxx.xxx*** where *xxx.xxx.xxx.xxx* is the SmartOTU IP address.



On the SmartOTU login page:

1 Select the language you wish to use, in the list.
2 Enter your Login: **admin**
3 Enter your Password: **password**.
4 Click on **Connect.**

The monitoring view page is displayed by default.

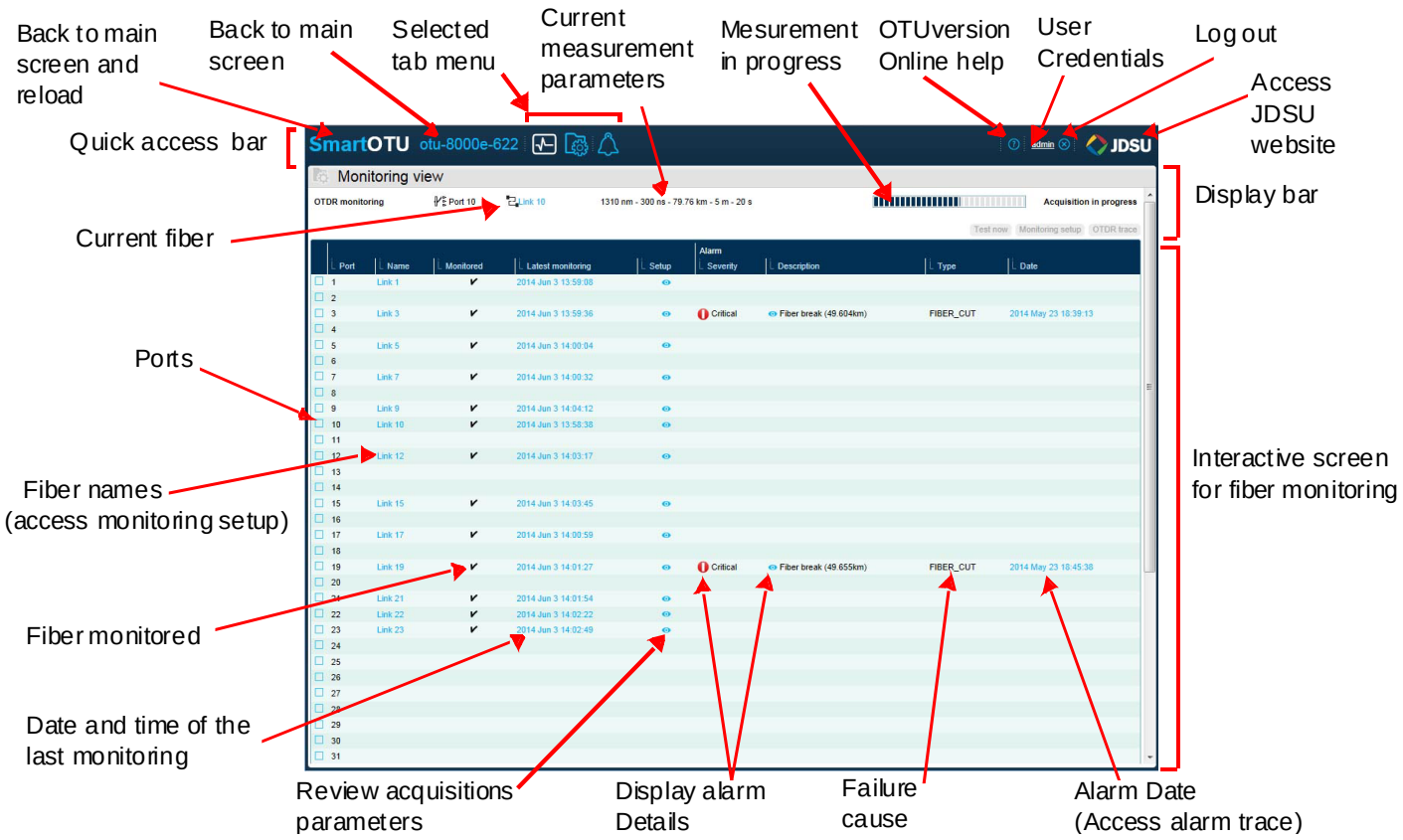
1.2 Monitoring view

The SmartOTU monitoring view is divided into 3 parts:

– The Quick access bar provides shortcuts to the main screens: monitoring view , OTU Setup , OTU system alarms , user credentials

– The display bar shows the current measure in progress with its parameter.

– The table lists all OTU ports with their OTDR monitoring and optical alarms.



Quick access bar details

It offers a menu with the following actions:

SmartOTU Reload the page and display the main screen.

Display the main screen.


Selected tab menu: **Monitoring view** or **Main Screen**, **OTU Setup** and **OTU System alarm**: click on the icon, you should see a Pop up box with all OTU system alarms

(Icon colour change from blue (unselected) to blue/light blue (hover) and white (current selected).


Help Icon: A menu pop-ups with **Online help** and **About SmartOTU** choice menu. The first gives access to SmartOTU Online Documentation and the second notifies the SmartOTU version.

Click on 

to return to the main Screen (Monitoring view).

Edit user preference.

Click on 

for modifying login and password. Click on **Save** to confirm your selection.

Quick Access for JDSU website

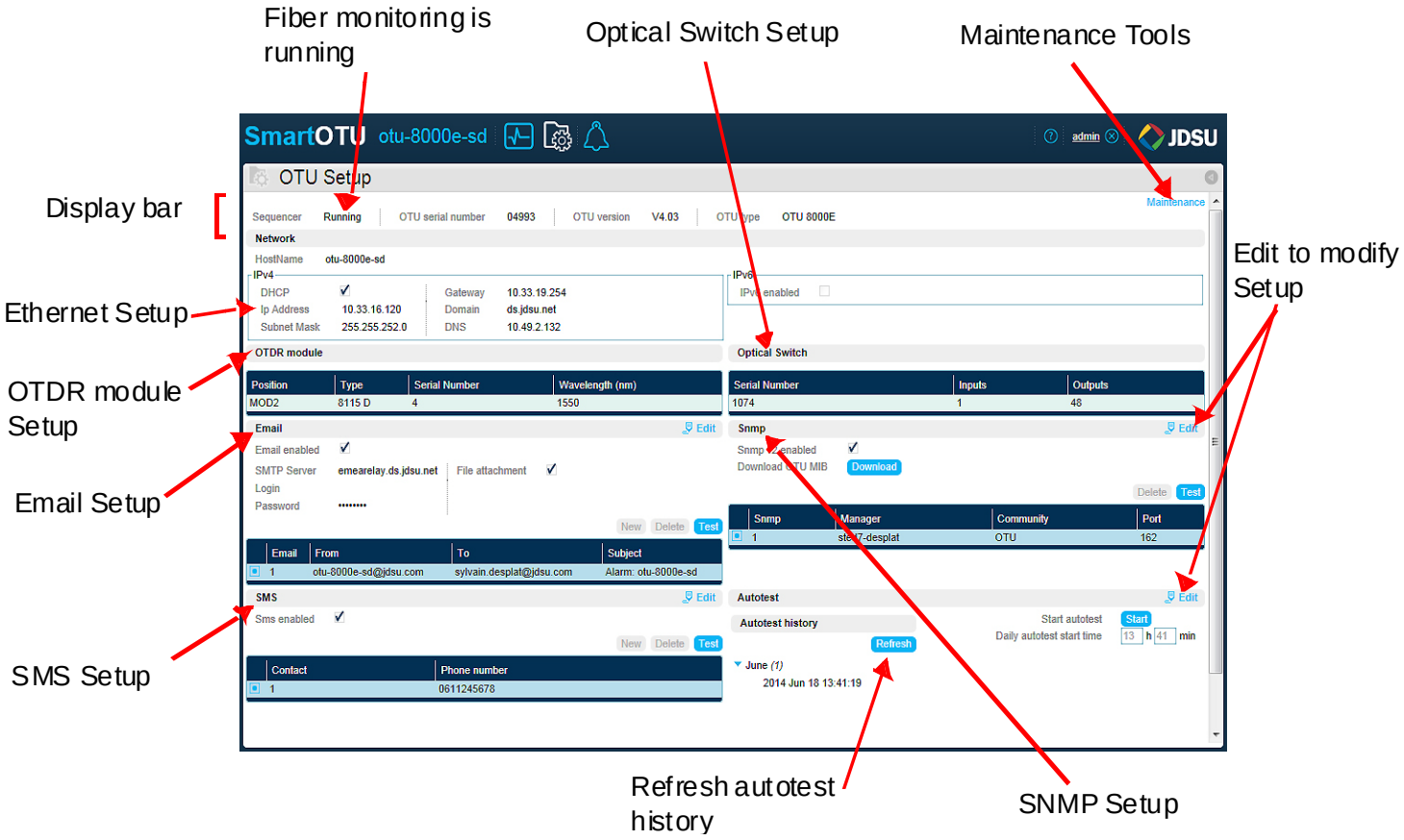
Display bar

It shows the ODTR Monitoring in progress with possibility of modifying and adjusting the current acquisition parameters.

– Direct access to the Monitoring setup tools of the current selected port.

NOTE: To activate the three right buttons **Test now**, **Monitoring setup** and **OTDR trace**, it's necessary to select one port in the interactive screen (*grey buttons turn to blue)*.

1.3 OTU Setup

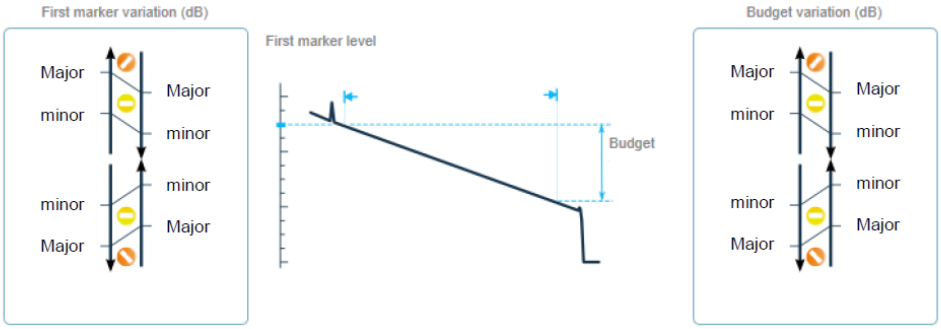

Fiber monitoring is running
Optical Switch Setup
Maintenance Tools
Display bar
Ethernet Setup
OTDR module Setup
Email Setup
SMS Setup
Edit to modify Setup
Refresh autotest history
SNMP Setup
SmartOTU otu-8000e-sd
admin
JDSU
OTU Setup
Maintenance
Sequencer Running
OTU serial number 04993
OTU version V4.03
OTU type OTU 8000E
Network
HostName otu-8000e-sd
IPv4
DHCP
Ip Address 10.33.16.120
Subnet Mask 255.255.252.0
Gateway 10.33.19.254
Domain ds.jdsu.net
DNS 10.49.2.132
IPv6
IPv6 enabled
OTDR module
Position Type Serial Number Wavelength (nm)
MOD2 8115 D 4 1550
Optical Switch
Serial Number Inputs Outputs
1074 1 48
Email
Edit
Email enabled
SMTP Server emearelay.ds.jdsu.net
Login
Password
File attachment
New Delete Test
Email From To Subject
1 otu-8000e-sd@jdsu.com sylvain.desplat@jdsu.com Alarm: otu-8000e-sd
Snmp
Edit
Snmp enabled
Download OTU MIB
Download
Delete Test
Snmp Manager Community Port
1 OTU 162
SMS
Edit
Sms enabled
New Delete Test
Contact Phone number
1 0611245678
Autotest
Edit
Autotest history
Refresh
June (1)
2014 Jun 18 13:41:19
Start autotest
Start
Daily autotest start time
13 h 41 min

2 FIBER MONITORING

2.1 Principle

These measurements are based on two markers: A first marker placed when the trace starts to be linear and a last marker placed at the end of the trace. The level of the 1st marker gives the level at the network input. The difference between the levels of the two markers gives the optical budget of the fiber.

The measurement deviation between the reference and the actual trace is compared against threshold. If a threshold is crossed, an alarm is generated with a severity according to the type of level (minor, major, critical) which is crossed.

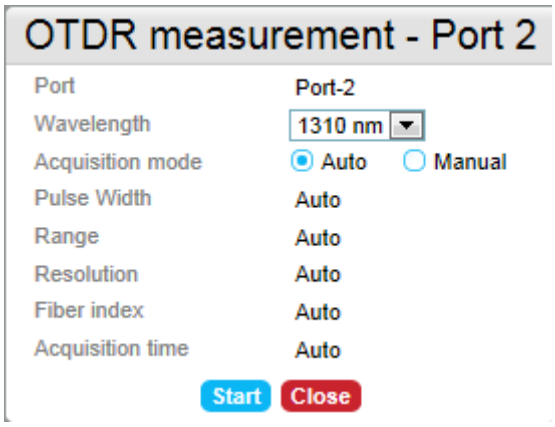


Conditions			Result	
First Marker level variation from reference	Last Marker level	Budget variation from reference	Severity	Additional text
Between minor and major threshold	above the noise floor	< Minor Threshold	minor	Injection
> Major Threshold	above the noise floor	< Major threshold	Major	Injection
below the noise floor	below the noise floor	Not measured	Major	Injection
< Minor Threshold	above the noise floor	Between minor and major threshold	minor	Attenuation
< Major Threshold	above the noise floor	> Major Threshold	Major	Attenuation
above the noise floor	below the noise floor	Not measured	Critical	Fiber Cut
above the noise floor	above the noise floor	> 6dB	Critical	Fiber Cut

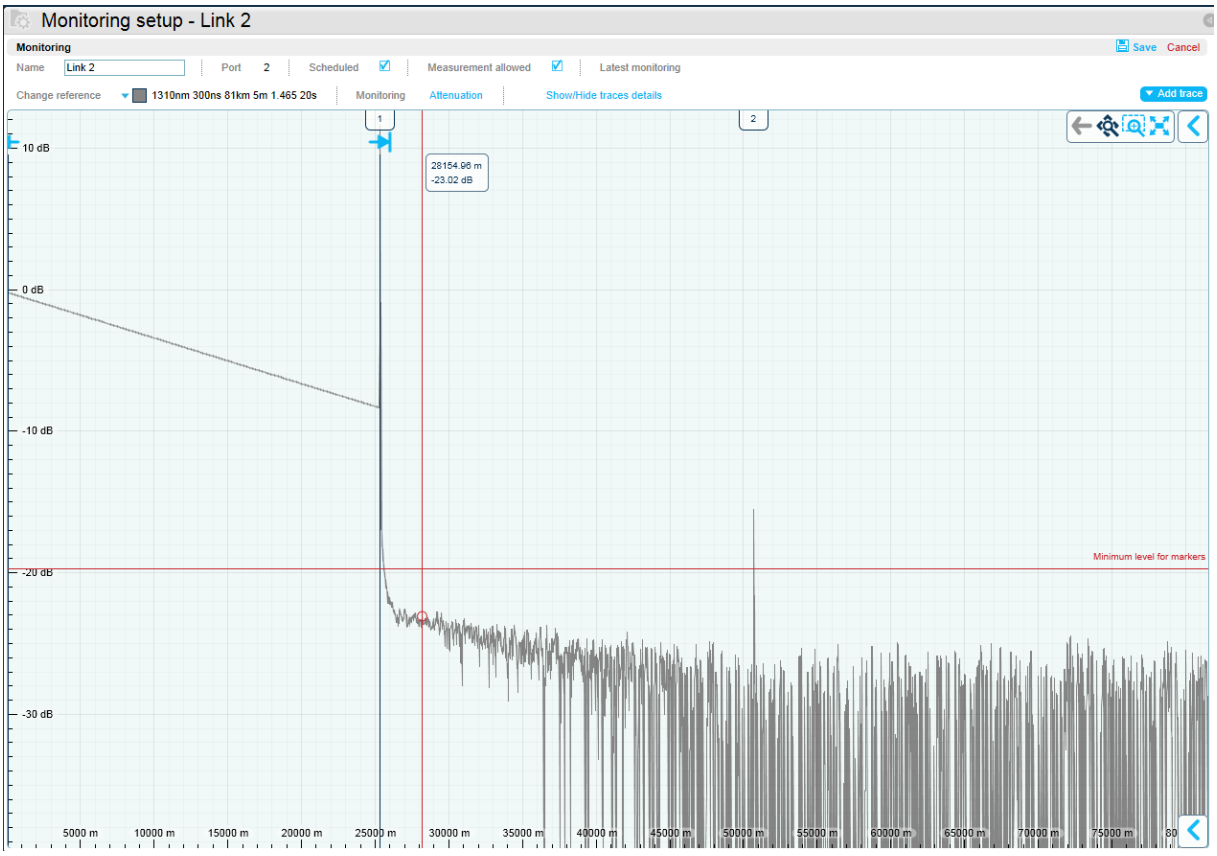
2.2 Initial setting of the reference trace

To set up the reference trace, from the **monitoring view** window, select the switch port and click on **monitoring setup.**

A pop up window is displayed that proposes to setup the OTDR parameters automatically (Click on **manual** to change it). Click on **start** to start the OTDR acquisition.



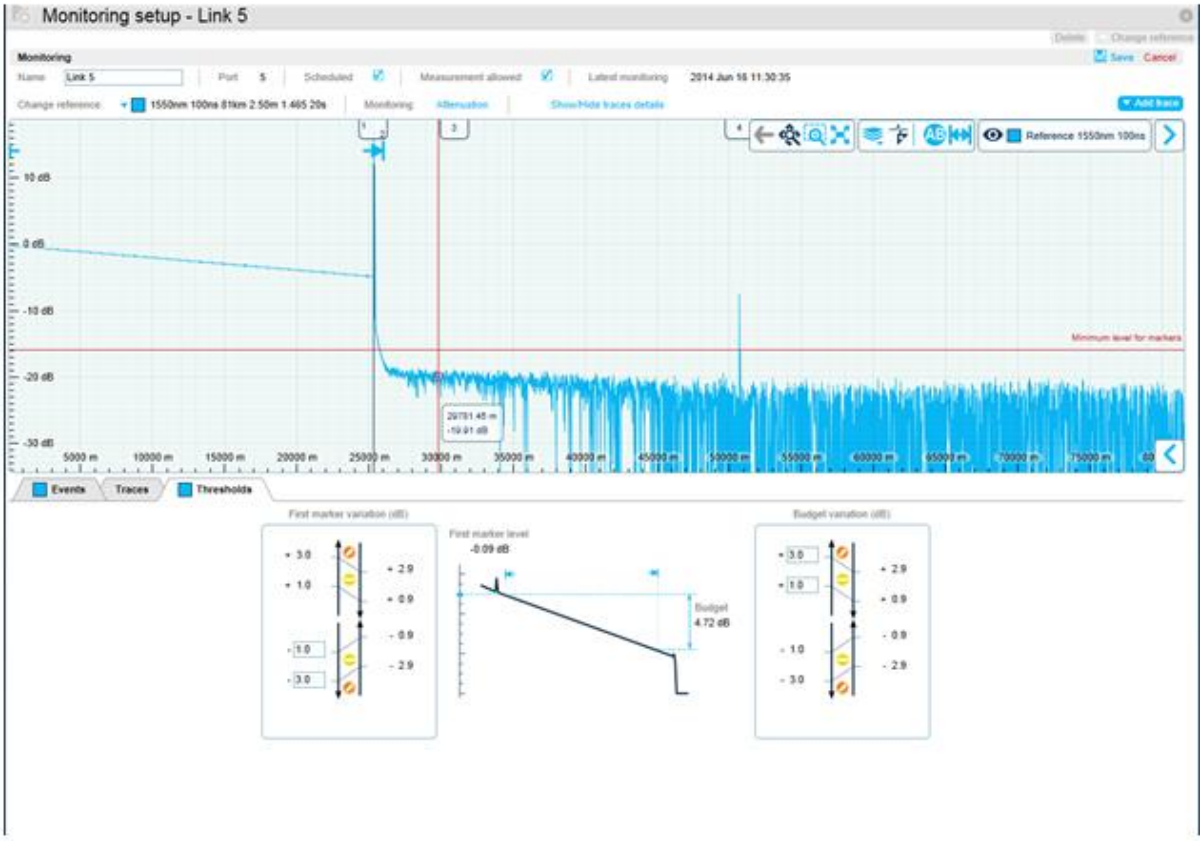
After the OTDR acquisition is completed, it is displayed with the 2 markers automatically positioned (see principle).



If desired the markers can be moved. Click on open menu  button at the right top corner of the trace then click on 

The name given to the monitored fiber can be changed. By default it is set to **Link** followed by the switch port number *(Ex: Link 2 for Port 2)*

The thresholds can be changed by clicking on **Attenuation.**

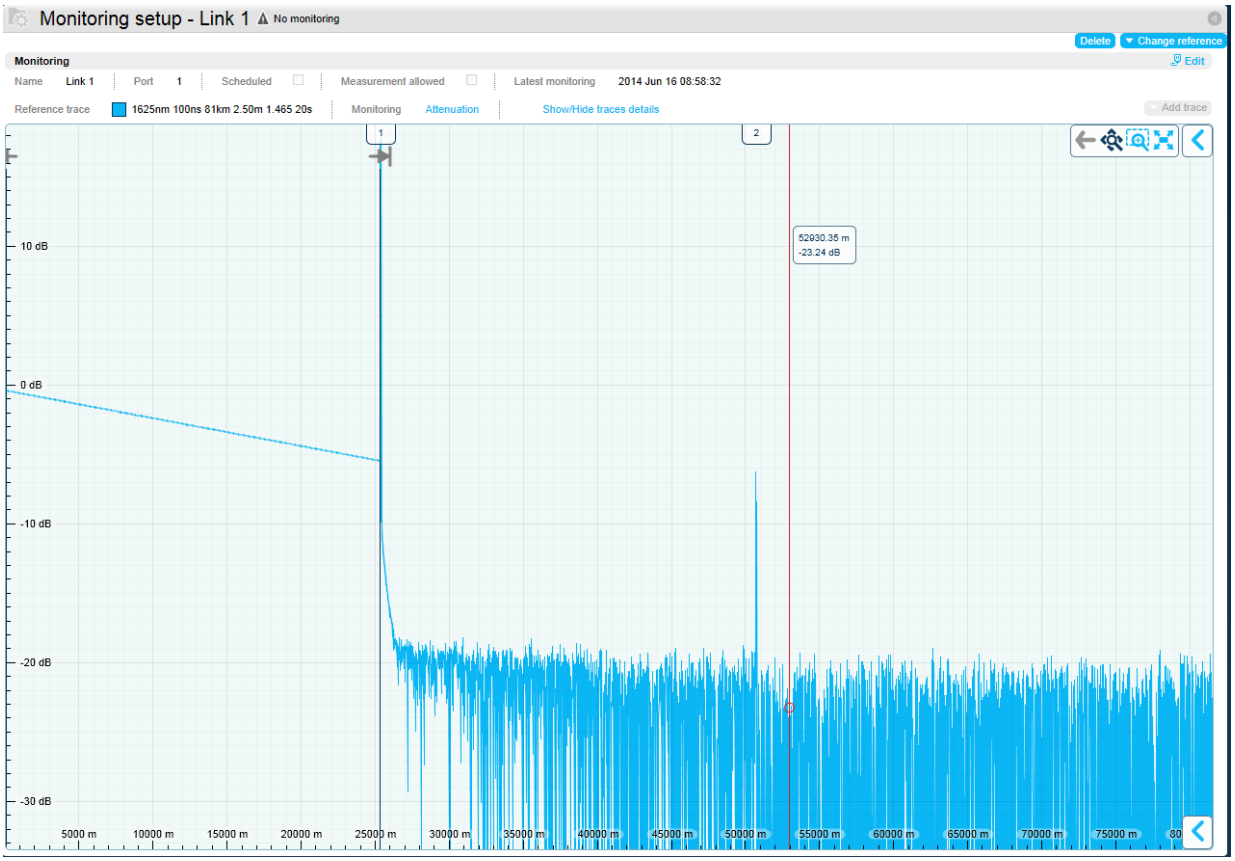


Once the change is made click on **Save** on the top right of the window.

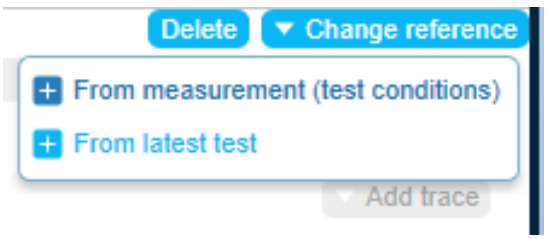
2.3 Change the reference trace

After the fiber is modified (repair, connection change) the reference trace must be modified to match the latest fiber change.

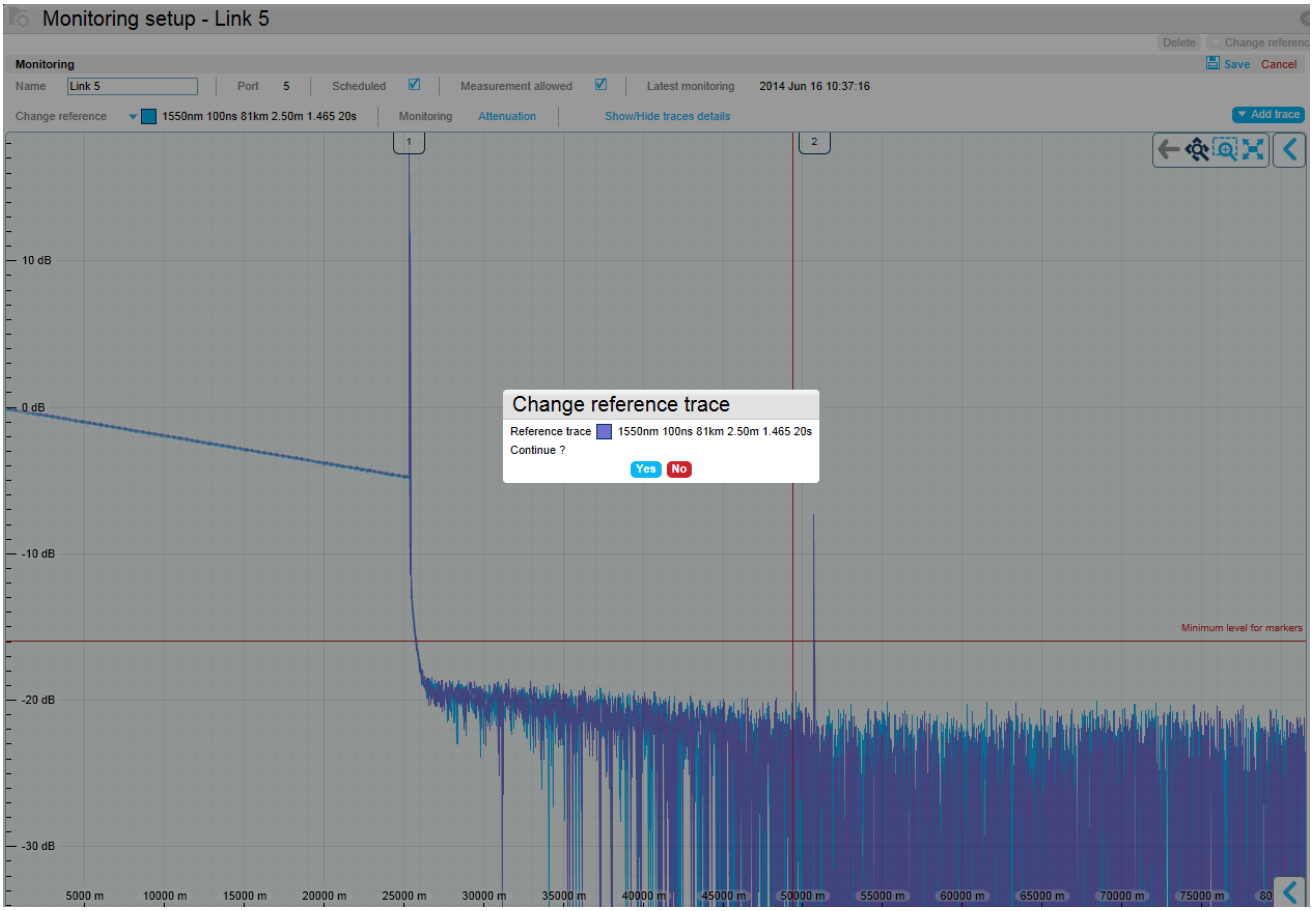
From the monitoring view window, click on the fiber name to display the current reference trace.



On the right top of the window click on **Change reference**. The current reference trace can be replaced either by a new measurement or by the latest trace obtained from the monitoring scheduled.

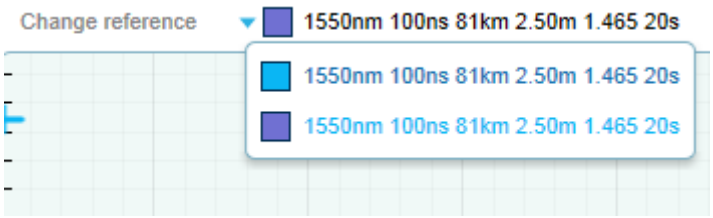


After the new trace is displayed in dark blue, the change needs to be confirmed.



After it is confirmed, click on **Save** to finish the reference trace change.

If the change is not confirmed, additional OTDR traces can be displayed from the button **Add traces**. Among the displayed trace, the reference trace is selected with the button **Change reference** trace**.**



2.4 Momentarily stop the monitoring

To stop the monitoring, from the monitoring view window, click on the fiber name to display the current reference trace, then click on **Edit** and unmark **Scheduled**. Click on **Save** to register the modifications.

In the monitoring view the column *Monitored* is unmarked when the scheduling is stopped.

2.5 Prohibit ODTR measurements

When technicians work on the fiber, it may be safer to prohibit all the measurement on the fiber to prevent eye damage with the OTDR laser.

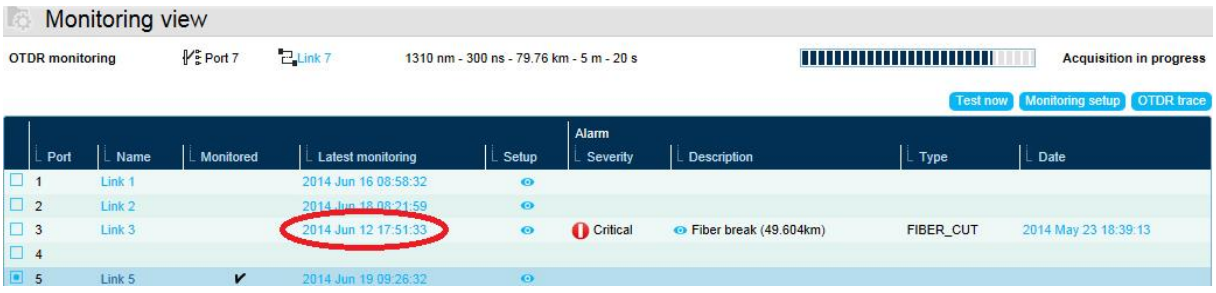
To prevent the measurements (monitoring or manual) on a fiber, from the Monitoring view window, click on the fiber *Name* to display the current reference trace, then click on **Edit** and unmark **Measurement allow**. Click on **Save** to register the modifications.

In consequence:

- In the monitoring view the column *Monitored* is unmarked when the measurement is blocked.
- The button OTDR trace measurement is not displayed from OTDR trace window
- The button **Test now** is not available from the monitoring view

2.6 View of the latest monitoring cycle trace

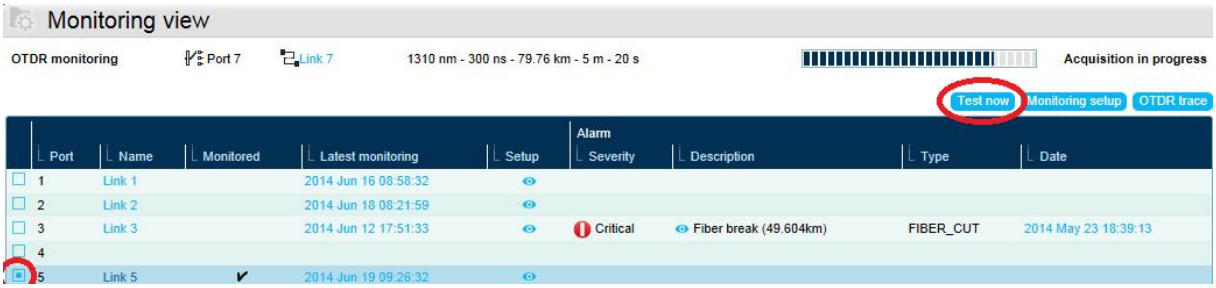
The OTDR trace obtained from the latest monitoring test is kept. It can be displayed by clicking on the *Latest monitoring* timestamp from the Monitoring view window.



It is useful to check the current trace after a repair or to understand why an alarm is not cleared.

2.7 Test a fiber immediately

To short cut the monitoring cycle, select the switch *Port* to be tested and click on **Test now** button.

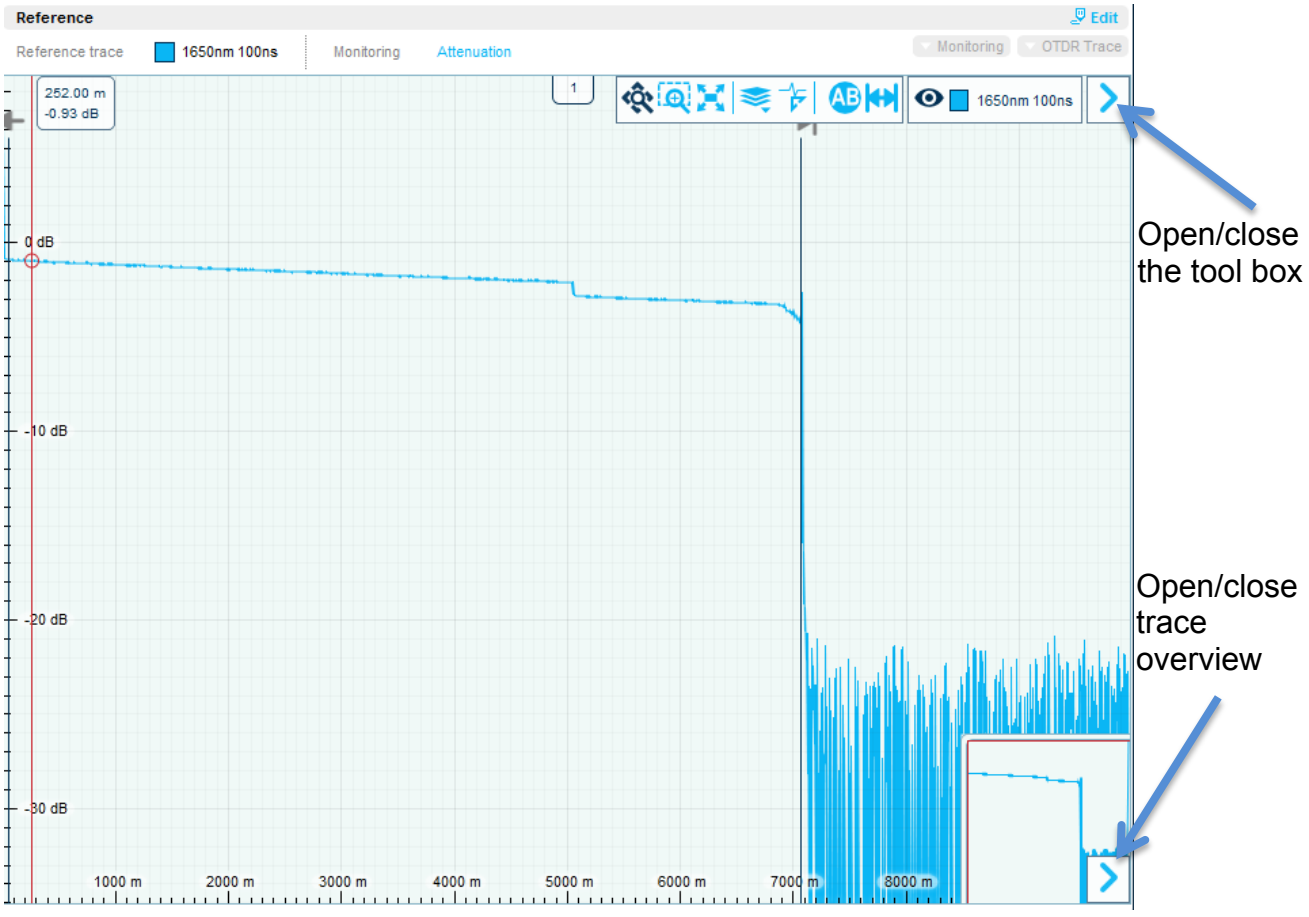


3 TRACE VIEWER

3.1 OTDR trace color codes

- **Light Blue** : reference trace
- **Dark blue**: latest test
- **Red**: Alarm trace
- **Grey**: Measurement on demand

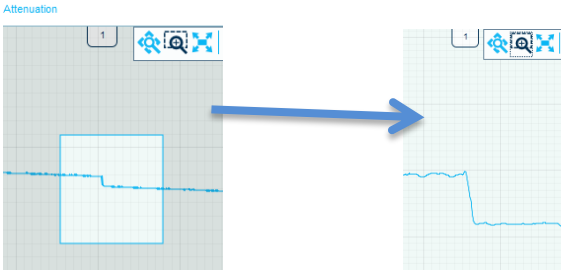
3.2 Overview



3.3 Trace Viewer Zoom

Fit to content (zoom release)

Zoom to selected zone



Pan and zoom in /out with mouse wheel

- With any zoom tool, zoom in or out around the mouse location

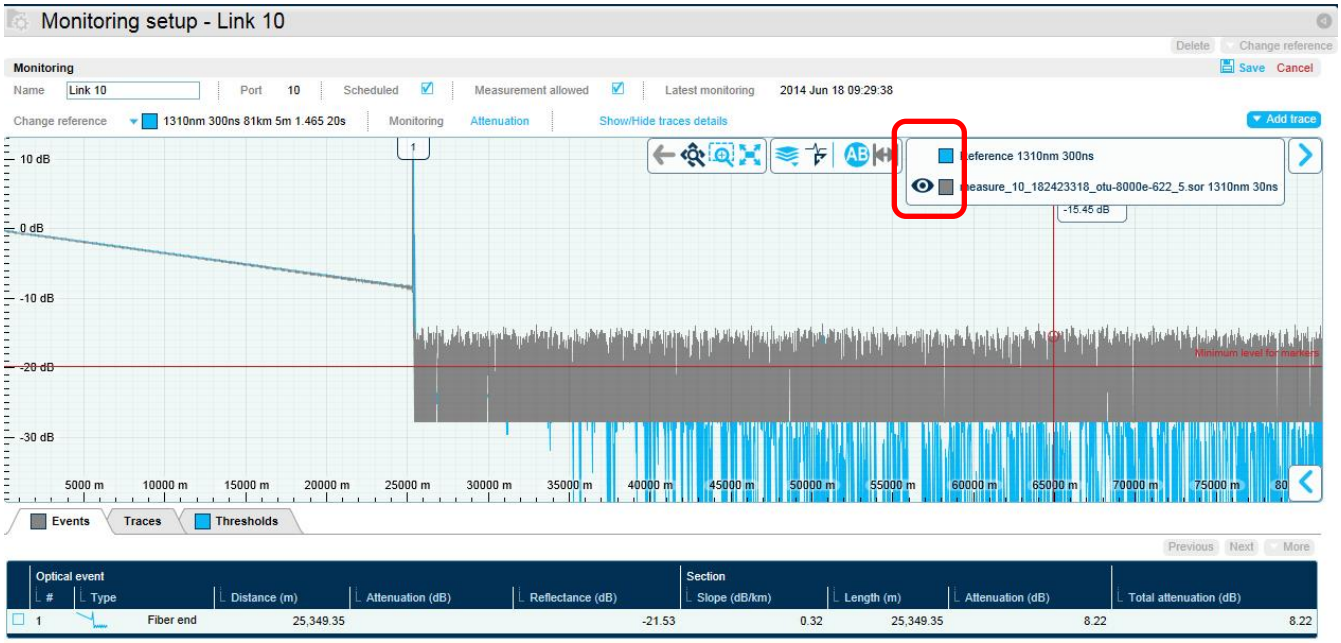
3.4 Trace Viewer A & B markers

A marker detail with distance from origin and level
Can select this tool to place **A** marker to a new position then drag and drop

B marker detail with distance from origin and level
Can select this tool to place **B** marker to a new position then drag and drop

Distance, attenuation and slope between **A** and **B** markers

3.5 Multi trace

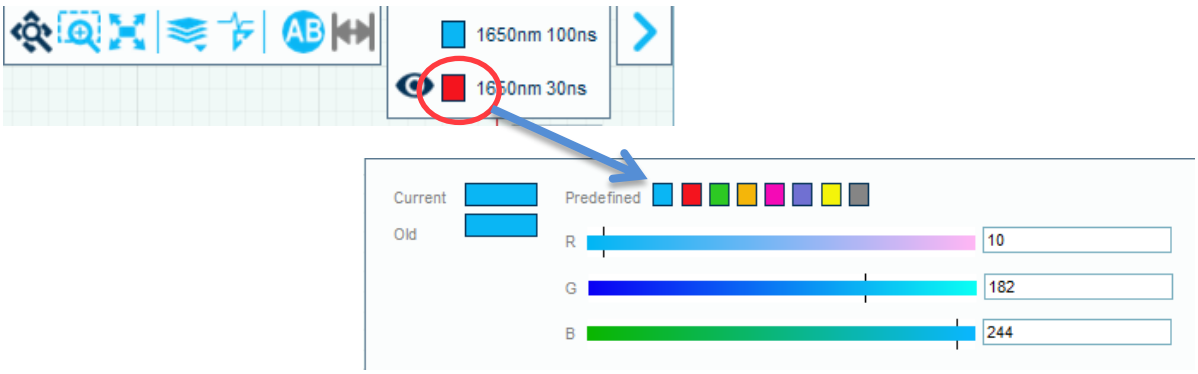


Events, results, acquisition details related to the selected trace

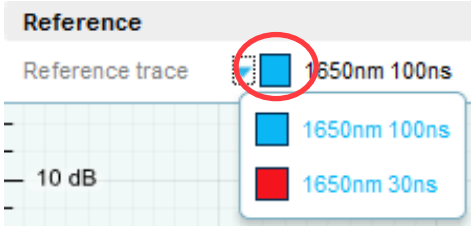
click in front of the to activate the blue trace

Can change selected trace by clicking in front of the colored square

3.6 Multi trace detail

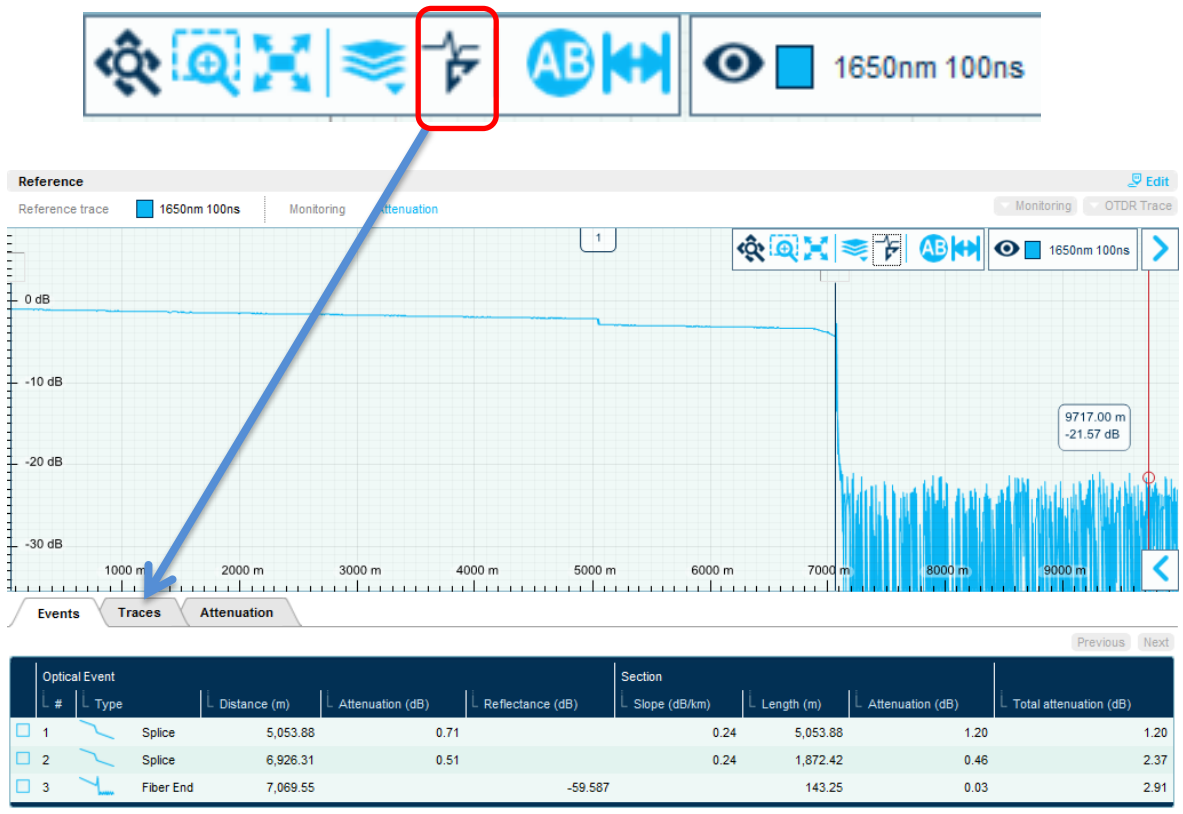


- Click on the color square to change the color of the trace

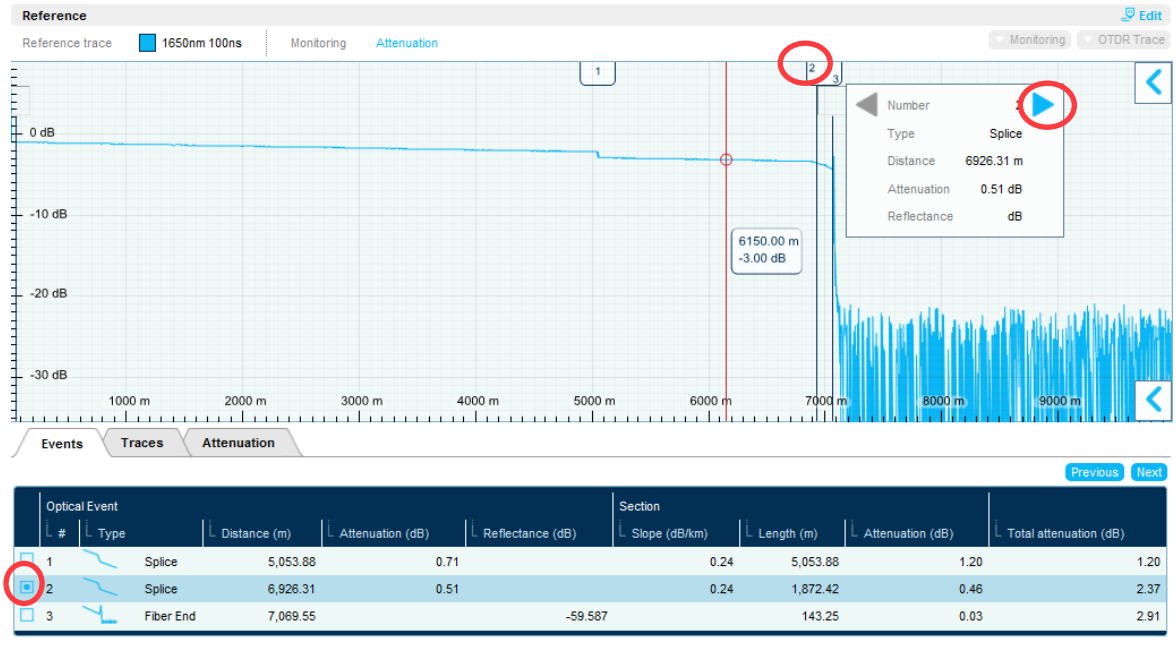


- Click on the arrow to change the Reference trace
- This will be modify the running test configuration

3.7 Detail on selected Trace

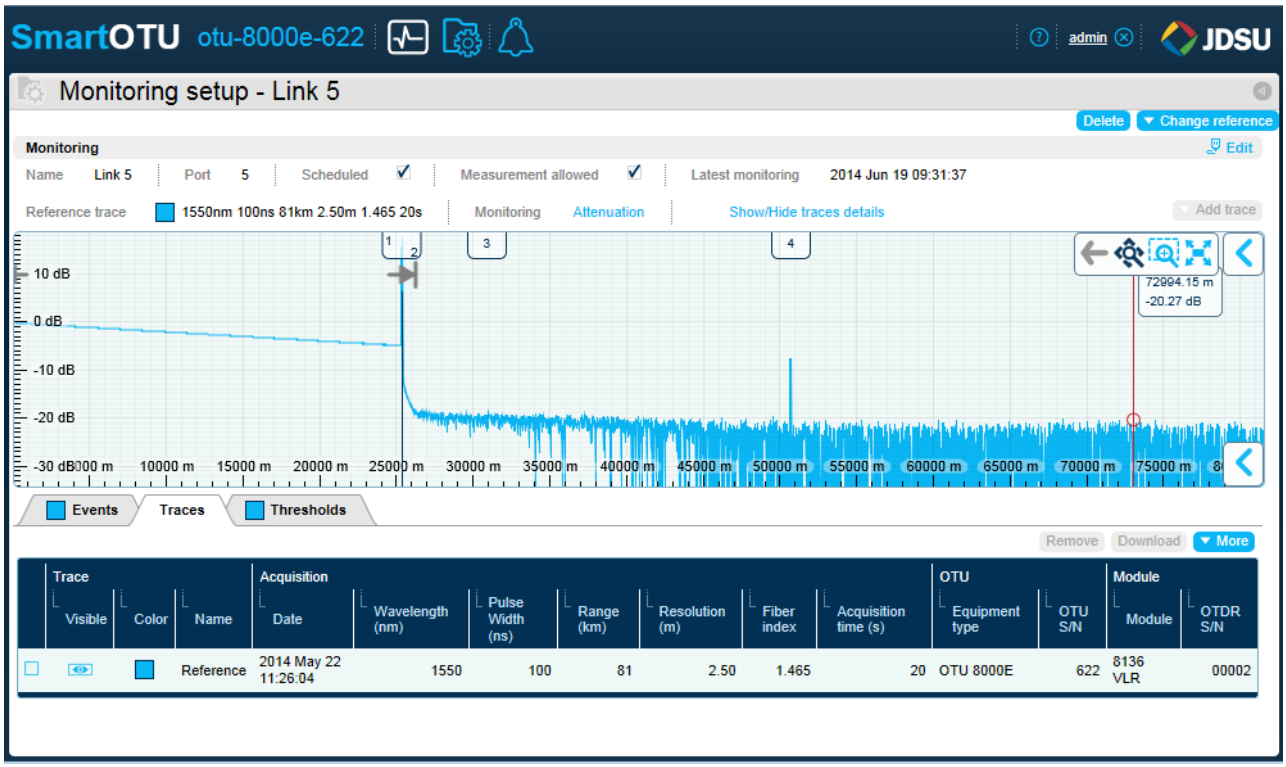


3.8 Event detail on selected trace



- Can get optical events detail from list, from box on the top
- When multiple events close, can move to the next event from the top box

3.9 Setup detail on selected trace



- All acquisition parameters

3.10 Trace Viewer First and last Markers - Only for the reference trace selection

First marker detail with distance from origin and level

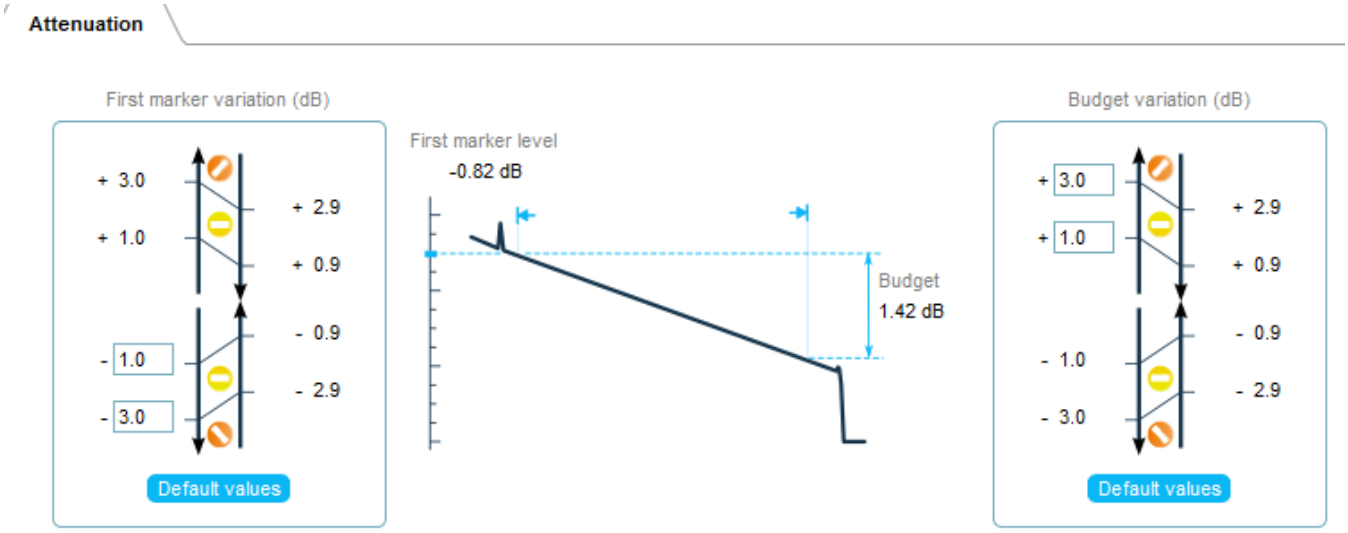
Can select this tool to place first marker to a new position then drag and drop it

Last marker detail with distance from origin and level

Can select this tool to place last marker to a new position then drag and drop it

Distance, attenuation and slope between first and last markers

3.11 Threshold adjustment only for reference trace



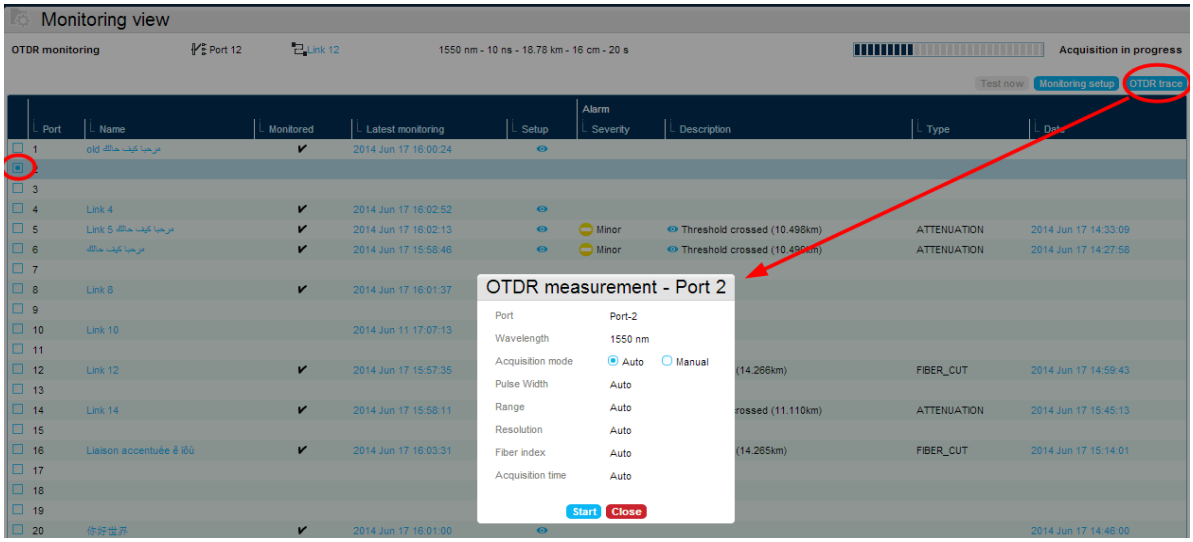
- Default values are 1 dB for minor, 3 dB for major
- Positive and negative variation detected
- First and last markers can be different setup

4 MEASUREMENT ON DEMAND

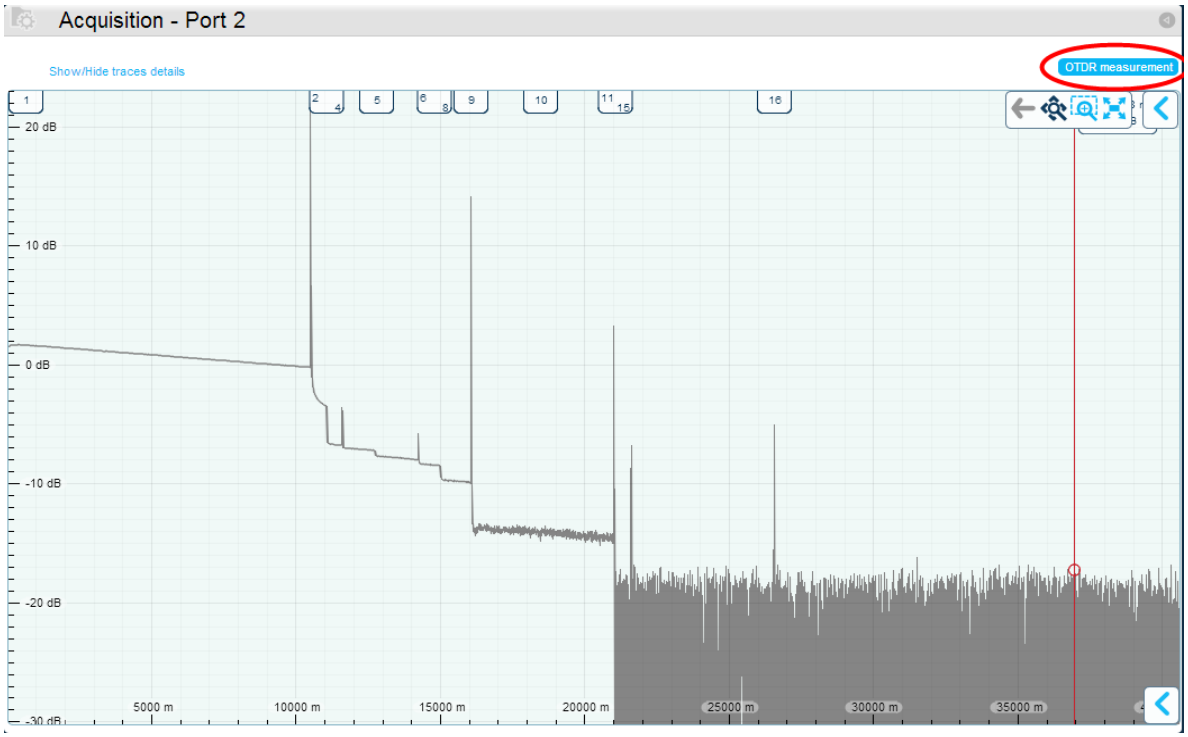
4.1 Measurement on a port without monitoring

OTDR measurement can be used prior the addition of monitoring tests to check that fibers are correctly connected and spliced.

From the Monitoring view main screen, select a monitored *Port*  , without monitoring test, and click the button **OTDR Trace**.

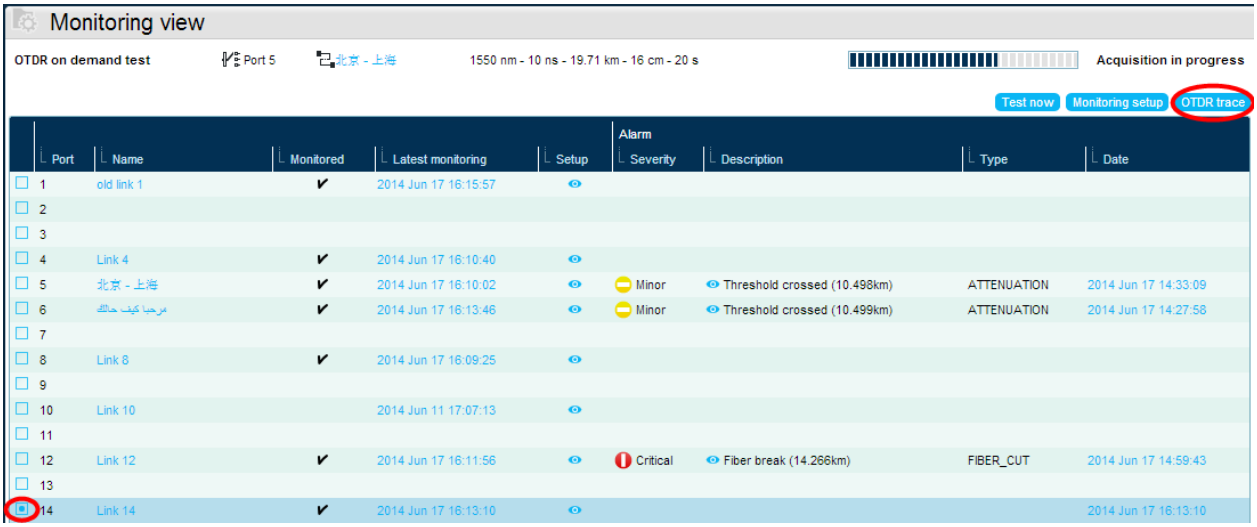


When the measurement is completed, the OTDR trace is displayed and a new measurement can be launched by clicking on **OTDR measurement** button.

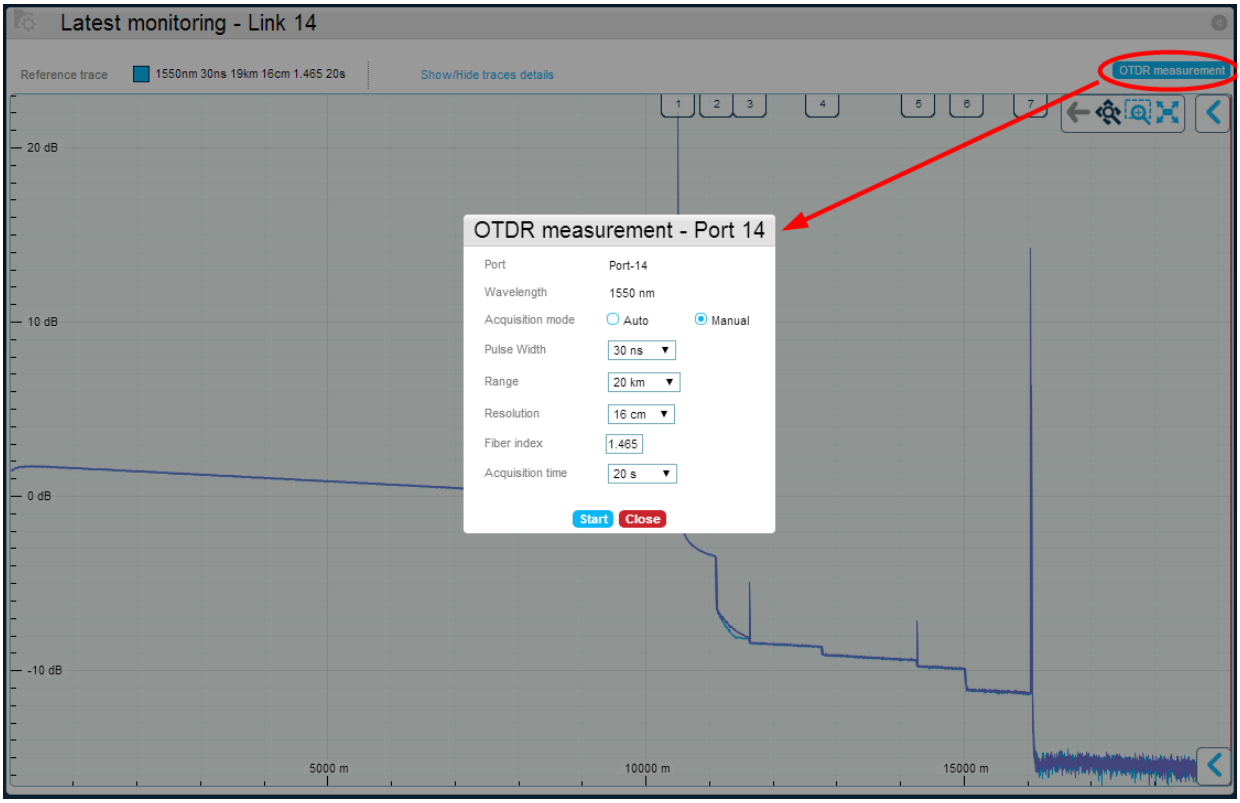


4.2 Measurement on a port with monitoring tests

From the monitoring view main screen, select a monitored *Port*  , and click the button **OTDR Trace**.



The last acquisition performed by the monitoring on that port is displayed and you can start a new measurement by clicking on **OTDR measurement** button. By default monitoring parameters are selected for the new measurement and can be modified.



5 ALARM

Optical alarms are detected by the OTDR monitoring of the fibers and System alarms by checking OTU unit configuration and operations.

Alarms are displayed in SmartOTU monitoring view and notified through Email, SMS and SNMP.

5.1 Optical alarms (alarms triggered by OTDR monitoring)

@see FIBER MONITORING Principle

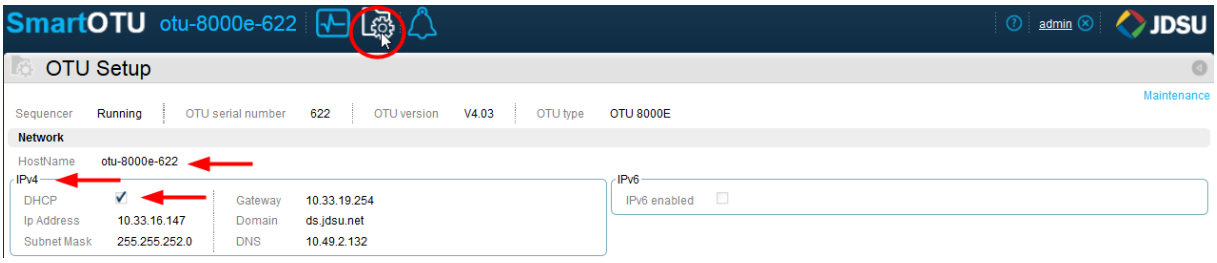
5.2 System alarms

Description	Severity
System file	MAJOR
Local mode (Connection on OTU local port)	WARNING
OTU inner application communication issue	MAJOR
Not enough hard disk space	MAJOR/CRITICAL
Module temperature	MAJOR/CRITICAL
Optical Switch internal error	MAJOR
OTDR Module internal error	MAJOR
OTDR Module auto configuration	MAJOR
Switch auto configuration	MAJOR
Missing reference file	MAJOR
Monitoring test drift	MAJOR
Initialization failure due to hardware	MAJOR
Initialization failure due to software	MAJOR
Sequencer stopped	CRITICAL
Alarm overflow	MAJOR

6 CONFIGURATION

6.1 **LAN** (IP address, etc…)

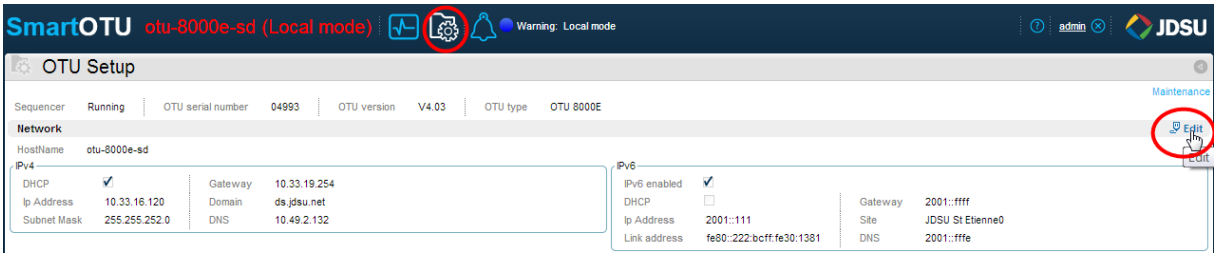
LAN settings are displayed in the Network Panel of the OTU Setup:
- hostname (used if DHCP enabled)
- DHCP enabled
- IP settings



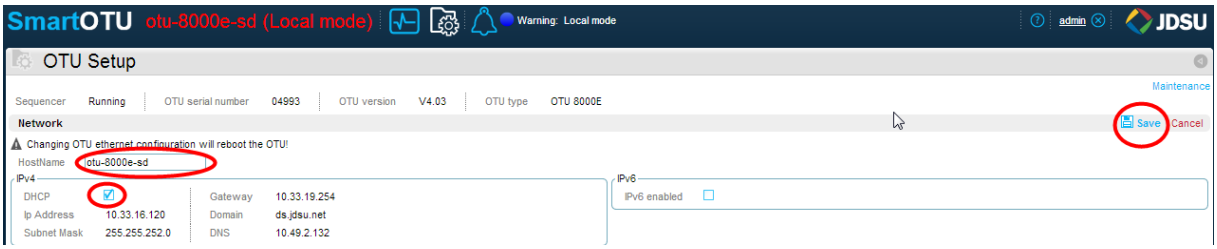
<u>Lan settings edition:</u>

To change LAN settings, OTU must be in local mode: your PC with the web browser must be connected on OTU local Ethernet interface (RJ45 “BCK/LOC”) and you must push the **Local** button on OTU.

Connect to SmartOTU application on your web browser with the url: http://192.168.1.1.

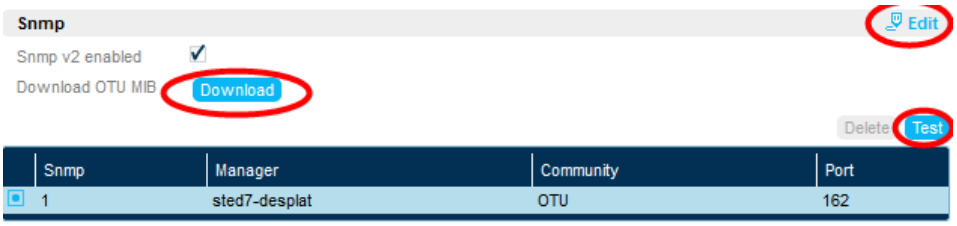


Edit the Network settings:
- the OTU hostname (used when DHCP is enabled)
- DHCP can be enabled/disabled
- If DHCP is disabled, IP settings can be modified



6.2 SNMP

SmartOTU sends traps according to SNMP V2c



In OTU setup screen, setup your SNMP manager:

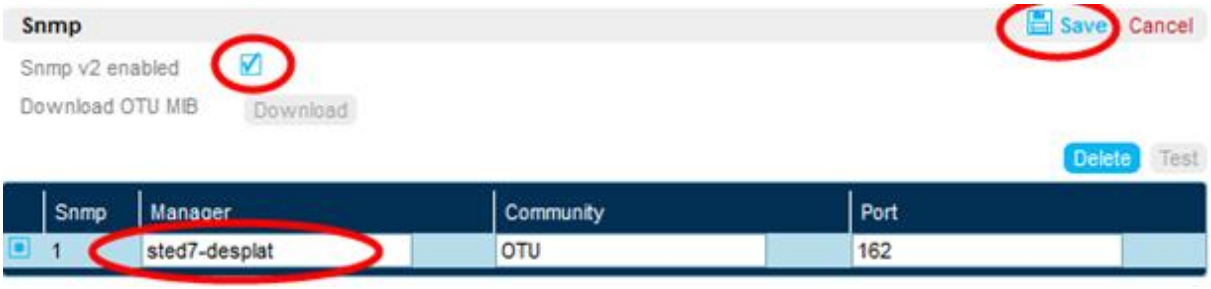
- download an archive with the OTU SNMP V2 MIBs to add to your SNMP manager

Note: Each snmp trap sent by SmartOTU has a sequence number and the serial number of the OTU to be able to check that no trap has been lost. The third field contains the alarm detail. It's a binary field with a string encoded in UTF-8.

To setup SmartOTU SNMP trap, in OTU setup screen:

- select the Snmp **Edit** menu
- activate Snvp (Snmp v2) enabled
- fill your snmp v2 manager hostname or IP
- you can choose the community to use
- save the configuration and send a test trap with the **Test** button.

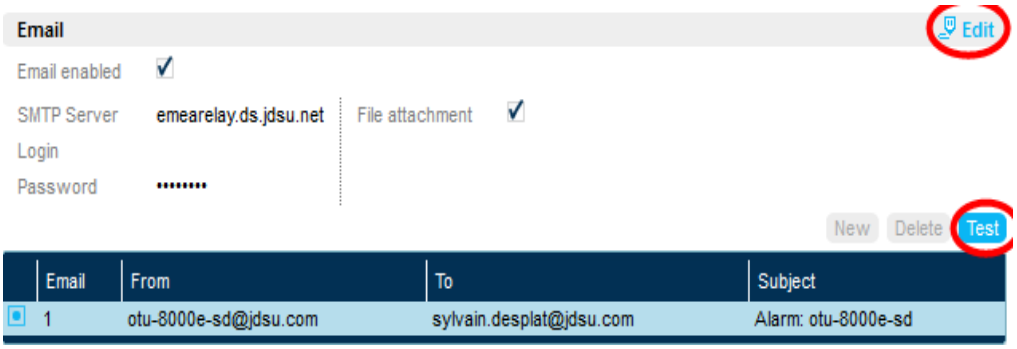
@see Alarm Synchronization



Snmp trap example:

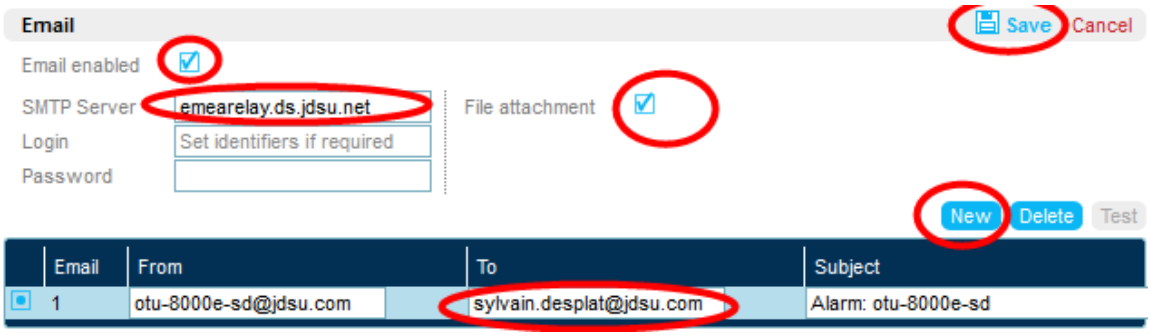
#0 jdsuOtuAlarmEventEntrySequence: 341
#1 jdsuOtuAlarmEventEntryOtuSerialNumber: 04993
#2 jdsuOtuAlarmEventEntryTrapData: RTU : otu-8000e-sd (10.33.16.120)
Alarm type: OPTICAL
Timestamp: Jun 16 2014 - 11:18
Severity: CRITICAL
Link name: Link 25 - Port 25
Probable cause: Fiber Cut
Optical distance: 10.498KM

6.3 Email



Email in OTU setup screen, setup the Email:

- Select the **Edit** menu
- Enable Email
- Fill your SMTP server hostname or its IP address (ask your IT)
- Select whether you want to attach OTDR traces to alarm sent by Email
- Add a new Email receiver by clicking on **New** button
- Fill his email address
- **Save** the configuration and send a test Email by clicking on **Test** button.



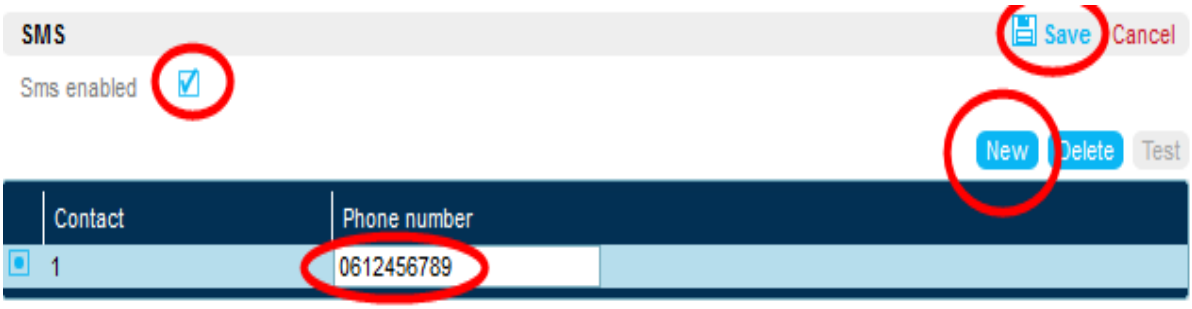
Email content example:

```
RTU : otu-8000e-sd (10.33.16.120)
Alarm type: OPTICAL
Timestamp: Jun 11 2014 - 11:18
Severity: CRITICAL
Link name: Link 16 - Port 16
Probable cause: Fiber Cut
Optical distance: 10.621KM
```

6.4 SMS

To setup the SMS, in OTU setup screen:

- Select the SMS **Edit** menu
- Enable Sms
- Add a new Sms receiver by clicking on **New** button
- Fill his phone number
- **Save** the configuration and send a test Sms by clicking on **Test** button.

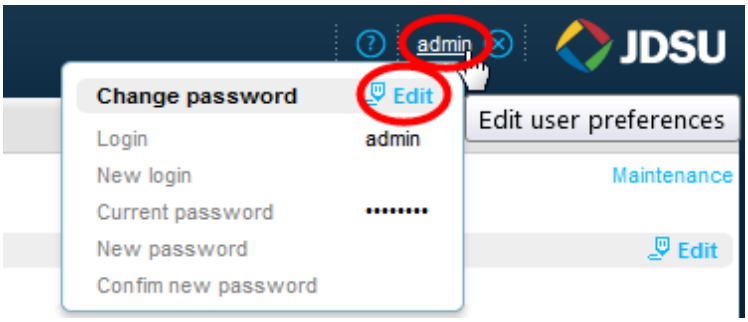


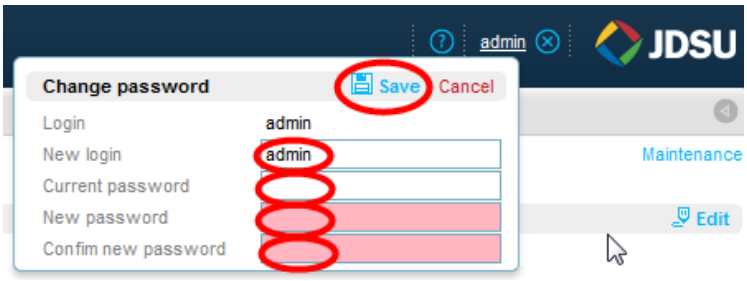
Sms content example:

otu-8000e-622–OPTICAL–19Jun2014 10:13-MINOR-Link 25–Port 25-10498m

6.5 Login/Password

From the top menu bar, click on user name and **Edit** your credentials:





Note: if user credentials are lost, in OTU Local Mode, user credentials can be changed without giving the old password and current user login is retrieved

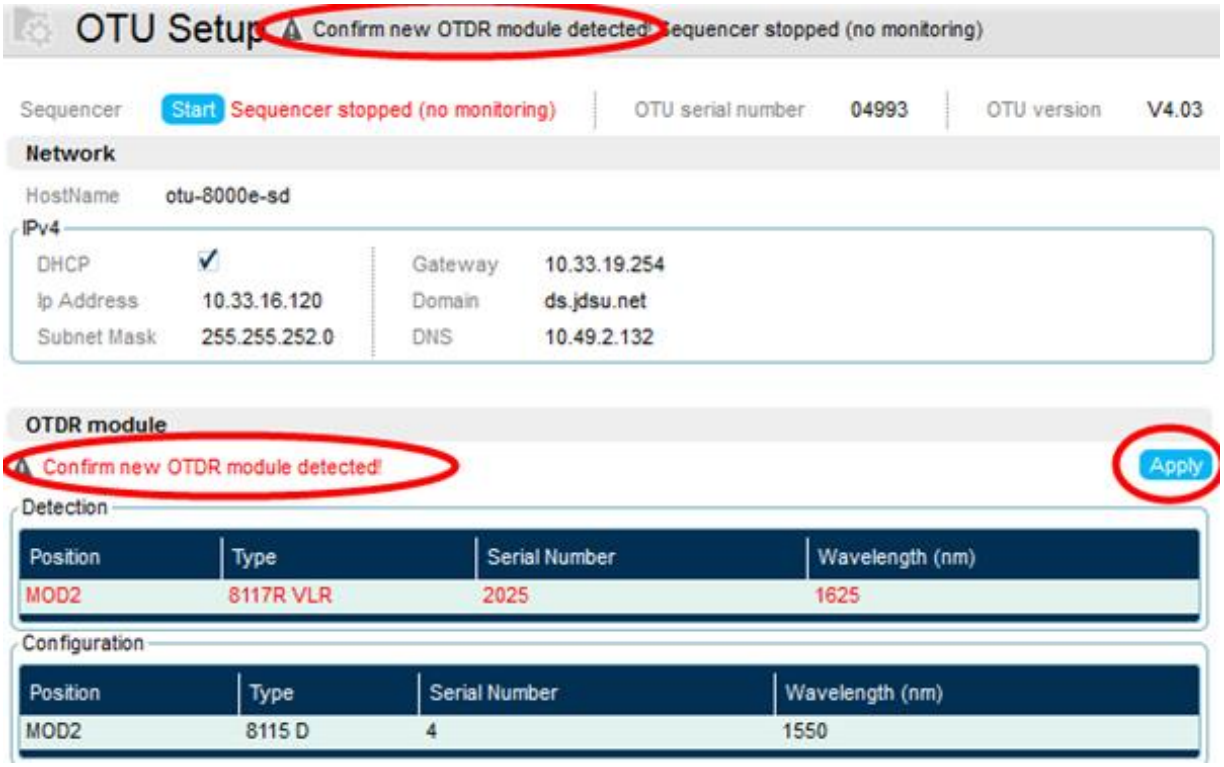
.

7 DEVICE CONFIGURATION

That section is useful if you have to replace your OTDR module or your optical switch

7.1 Apply a new OTDR module

If a new OTDR module is detected, an alarm “Module Autoconfig“ is sent and the web application automatically displays the OTU Setup screen with a warning:

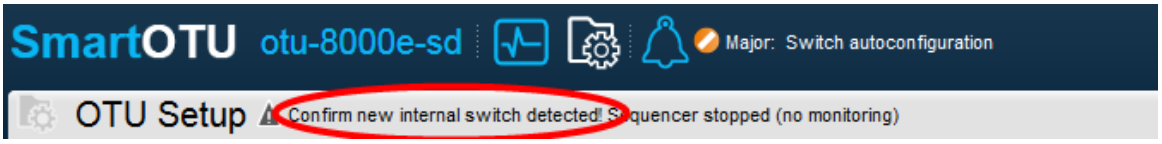


You must confirm the new OTDR module by clicking on **Apply** button.

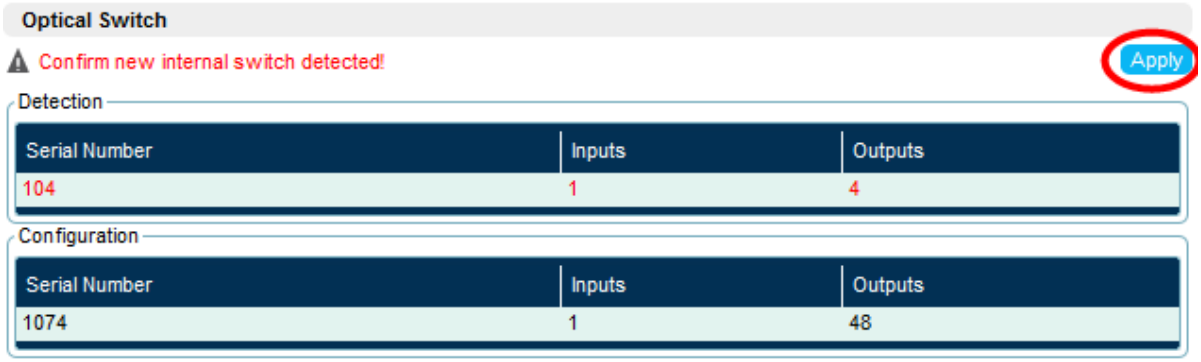
Note: If the OTDR type is changed, the reference trace has to be changed.
See monitoring setup.

7.2 Apply a new optical switch

If a new optical switch is detected, an alarm **“Switch Autoconfig“** is sent and the web application automatically displays the OTU Setup screen with a warning:



You must confirm the new optical switch by clicking on **Apply** button.

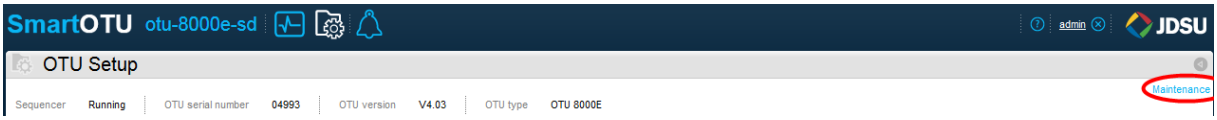


Note: If monitoring was already setup and you change the optical switch by a switch with fewer outputs, an **error message** will inform you that monitoring tests on ports no longer available must be removed.

8 MAINTENANCE

That window is for: OTU backup /restore of the configuration, upgrade, support…

To access the maintenance, select the **Maintenance** link from the OTU Setup screen.

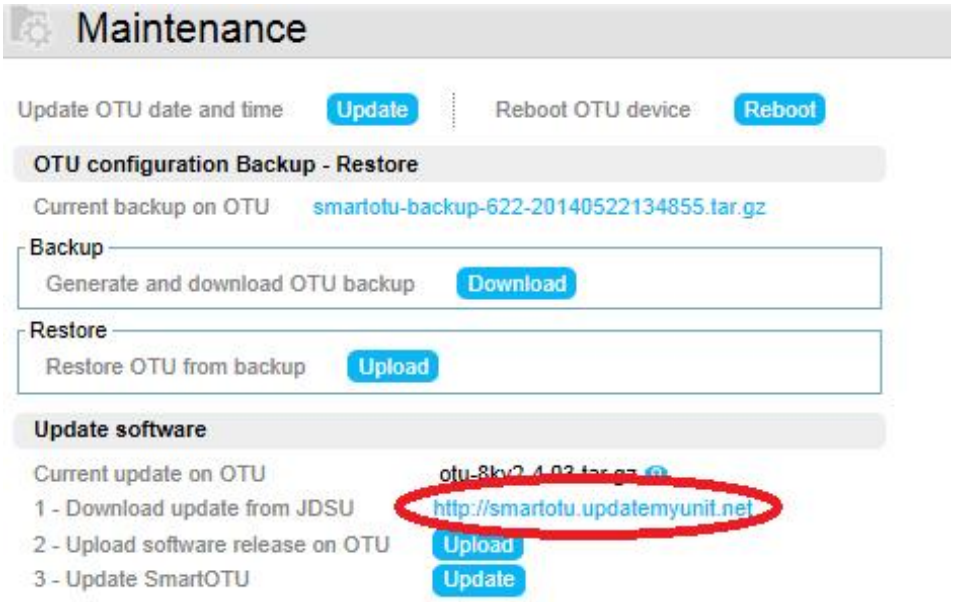


8.1 Update SmartOTU date–time

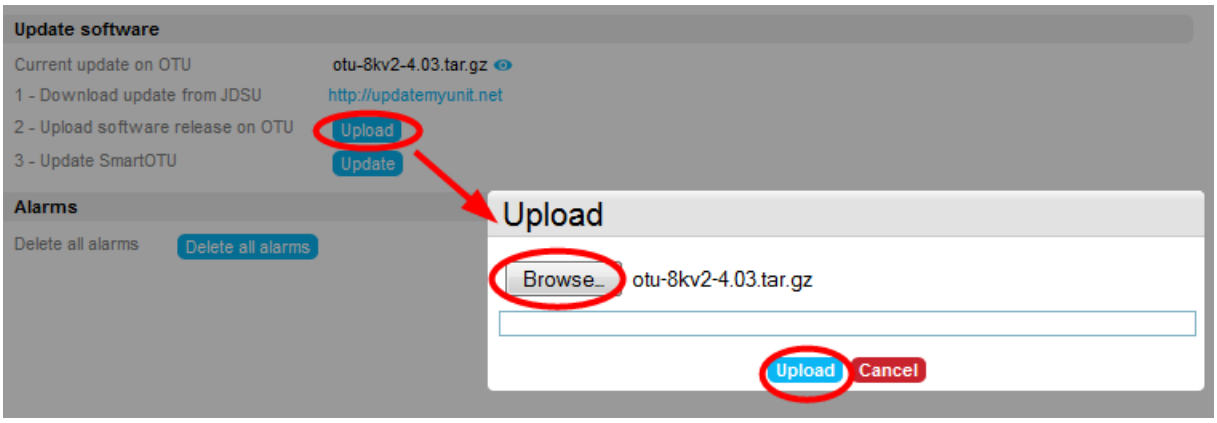
To update the OTU date-time, click the update button.

8.2 Software update

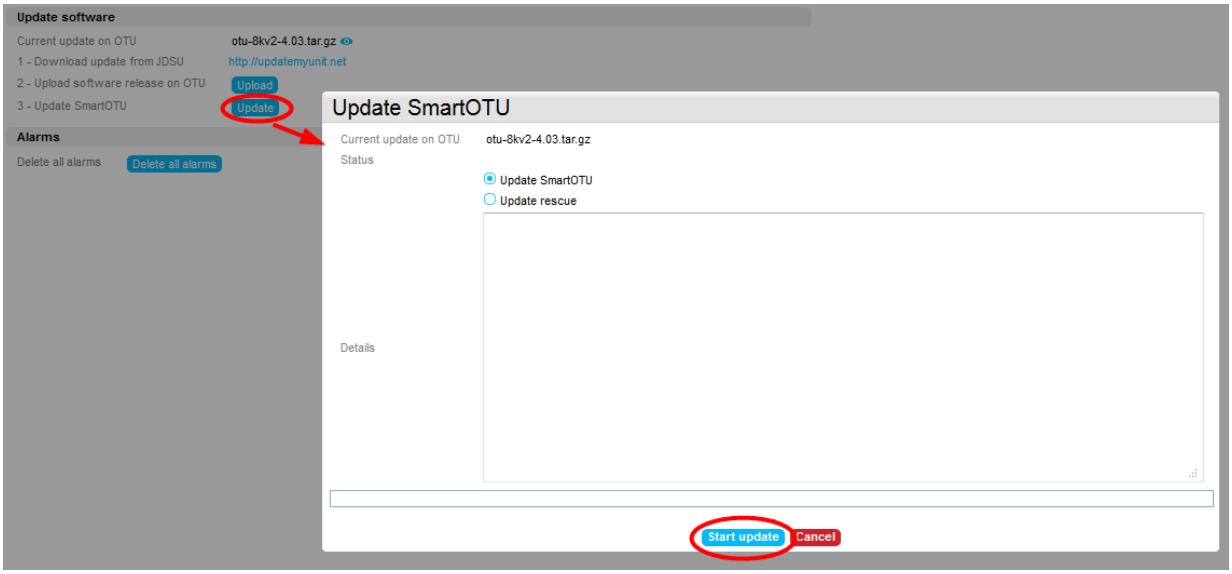
1 - From the Software update section of the Maintenance screen, download on your PC the new SmartOTU release from JDSU http://smartotu.updatemyunit.net site.



2 – Select the **Upload** button to upload the release from your PC to the OTU. You are asked to select the release to upload to the OTU with the **Browse** button. Select the release (of the form *.tar.gz) and upload it.



3 - When the upload is completed, close the upload dialog and select **Update** button. You are asked to start the update. Select the **Start update** button.



The OTU start the update and will reboot at the end of the update.

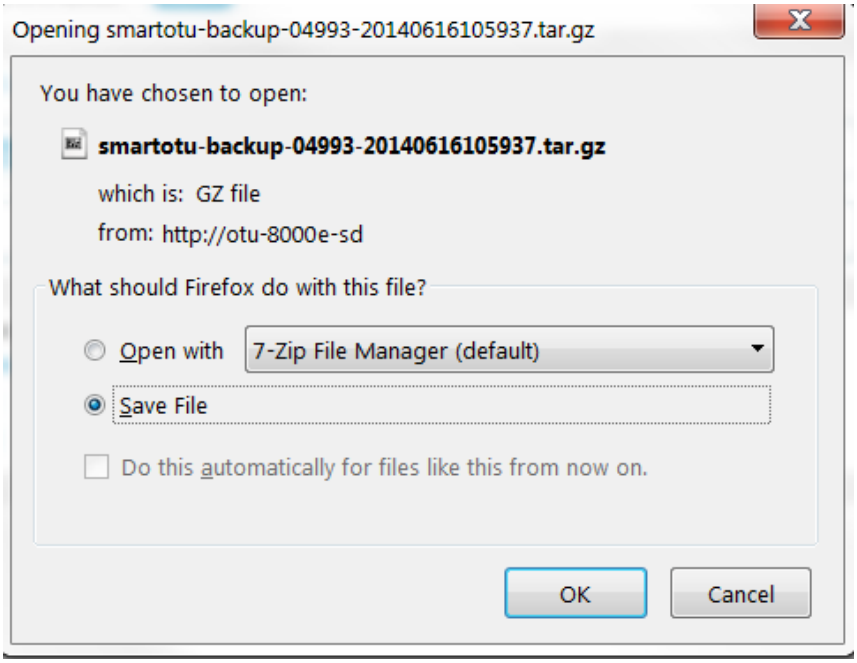
8.3 SmartOTU Configuration backup

The full configuration of SmartOTU is backed up: monitoring setup, Email ,SMS, SNMP, Setup, Passwords…

From the Backup/restore section of the Maintenance screen, select the **Download** button.

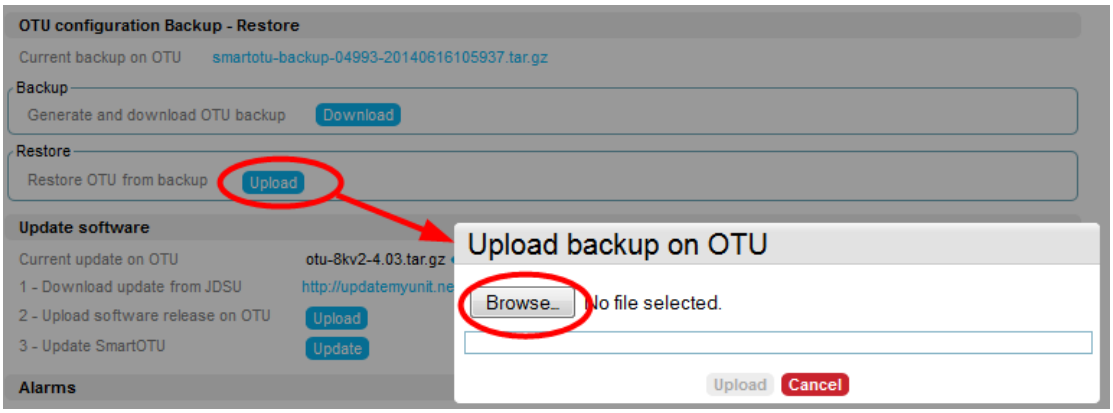
You are asked to confirm the generation of the backup of the SmartOTU configuration (monitoring tests, full SmartOTU setup).

When the download is finished, the browser proposes to save the file.

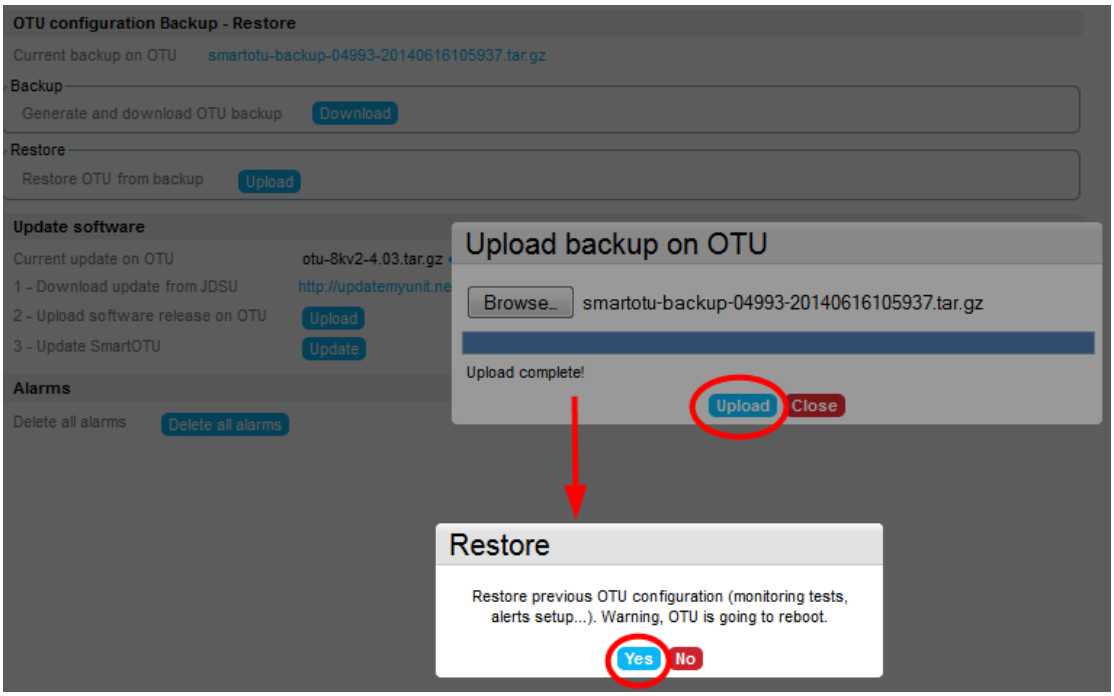


8.4 SmartOTU configuration restore

From the Backup/restore section of the Maintenance, select the **Upload** button.



Choose the backup file you want to restore on OTU (**Browse** button) and click the **Upload** button. When the upload is finished, you must confirm the start of the restoration of the SmartOTU and the reboot.

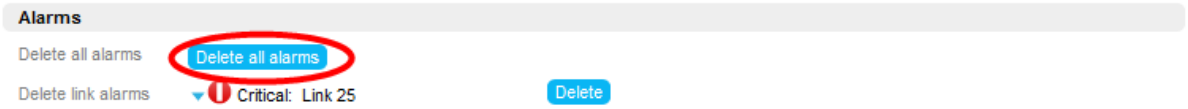


8.5 Alarms:

i. Clear all alarms to force a full resynchro

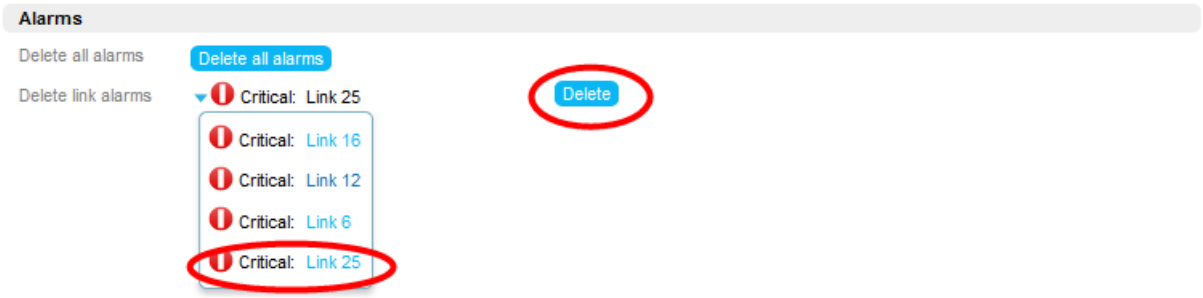
From the Alarms section of the Maintenance, select **Delete all alarms**. All OTU alarms will be removed. Optical alarms will be re-generated by monitoring.

Note: If you have a snmp manager you should also remove all alarms from your manager to be synchronized.



ii. Individually clear an alarm to force its detection

From the Alarms section of the Maintenance screen, you can individually delete an optical alarm.



Note: If you have a snmp manager you should also remove that alarm from your manager to be synchronized.

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