USER MANUAL

RTU-4000/RTU-4100 Optical Test Probe

Installation and Configuration

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

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1.0 About This User Manual

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

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

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

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

Customer Care:

Phone: + 1 510 651 0500
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Website: www.veexinc.com

2.0 Product Introduction

The VeEX RTU-4000 is a rack mountable test chassis. The RTU-4100 is a test module designed to provide OTDR functionality. The RTU-4000 with installed RTU-4100 (RTU) is a rackmount test solution that can be used for:

- On-Demand testing
- Continuous monitoring when paired with the OX4000 series optical switch; installed on the same rack as the RTU.

The RTU can be used in stand-alone mode or as a test probe configured as part of the VeSion centralized server system (***15.0 VeSion Overview***). The RTU can be remotely accessed using the Ethernet port or optional LTE model via the embedded web-based software, Fiberizer Desktop, or VeSion software application. The RTU can be used to test/monitor Point-to-Point, PON and/or DWDM networks.

The RTU test capability can be increased by integrating the external OXA-4000 Optical Switch. The OXA-4000 is connected to the RTU-4000 via DB25 cable which is used to power the switch and support communication between the RTU and switch.

2.1 Key Features

2.1.1 RTU Fiber Probes (RTU-4100)

- Dark and Active Fiber Monitoring
- Catastrophic Fiber Cable failure
- Preventative/Proactive Fiber Monitoring

2.1.2 Optical Switches (OX4000)

- Single mode fiber support
- Wideband wavelength operation range
- Low reflectance and ORL
- 1625 nm and 1650 nm wavelength support for in-service monitoring applications

2.2 RTU-4000/4100 System Package Contents

The following items are included in the box:

- RTU-4000 modular Probe chassis with RTU-4100 OTDR Test module installed
- (2) Rack mounting brackets (if ordered)
- AC/DC 15V 5.33A (3-prong) adapter
- Power cord (2m/6ft)
- CD-ROM containing:
  - RTU-4000/RTU-4100 Optical Test Probe Installation and Configuration Manual (pdf)
  - RTU HTTP API Reference Guide (pdf)
  - VeSion RFTS Operations Guide (pdf)
  - Probe Configuration Tool software
  - USB-to-Serial adapter cable driver

RTU-4000 unit with RTU-4100 Optical Fiber Test Modules shipped items

3.0 Safety Information

Safety precautions should be observed during all phases of operation of this instrument. The instrument has been designed to ensure safe operation however please observe all safety markings and instructions. Do not operate the instrument in the presence of flammable gases or fumes or any other combustible environment. VeEX Inc. assumes no liability for the customer's failure to comply with safety precautions and requirements.

Electrical Connectors

Telephone lines may carry dangerous voltages. Always connect the electrical test ports to known test interfaces, which carry low-level signals.

ESD: Electrostatic Discharge Sensitive Equipment

The chassis could be affected by electrostatic discharge. To minimize the risk of damage when handling the unit, make sure to follow proper ESD procedures and dissipate any electrostatic charge from your body and tools and the use proper grounding gear.

- Perform all work at a workplace that is protected against electrostatic build-up and discharging.
- Never touch any exposed contacts, printed circuit boards, or electronic components.
- Always store chassis in ESD protected packaging.
- Wear ESD protection and grounding gear when:
  - Installing, Uninstalling, or handling chassis.
  - Connecting or disconnecting cables from chassis.

4.0 Getting Started

The RTU-4000 modular test system installed with the RTU-4100 OTDR module, supports local on-demand testing, as well as remote fiber monitoring using OTDR-based technology.

4.1 System Requirements

The RTU-4000 modular test system with embedded RTU-4100 OTDR Module is designed to work with one of the browsers listed below:

- Chrome version 71 or higher
- Edge version 42 or higher
- Firefox 60 or higher
- Safari 12 or higher

4.2 RTU-4000/RTU-4100 Basic Operation

Users should be familiar not only with the RTU-4000 hardware and cabling, but also with electronic circuitry, wiring practices, and safety precautions.

Test port(s) are accessed via the front of the RTU-4000/RTU-4100 unit.

Example One:

An RTU-4100 that is configured with 3 lasers could be assigned as follows:

- 1310/1550 on OTDR1 and 1625-Filtered on Aux port for in-service testing.

Example Two:

An RTU-4100 that is configured with (1) 1625-Filtered laser on OTDR port.

4.2.1 Front Panel

Front Panel: RTU-4000 Chassis with RTU-4100 Optical Modules

4.2.2 Back Panel

RTU-4000 Back Panel

- Chassis GND - Ground point for the RTU unit
- Alarm Contacts – Local alarm contacts
- Control interface – DB25 female port: Power and Communication
- -48V-DC/Return terminals – available when ordered with DC power option
- 15V-DC terminals - DC1 and DC2 available when ordered with AC power option
- Console interface – RS-232 male port used by the ORTU to communicate with the OX4100 series Optical Switch.

4.3 OXA4000 Optical Switch (Optional)

The RTU Network monitoring can be optionally expanded via the OXA4000 series Optical Switch, allowing the RTU-4100 to access multiple fibers for testing. For more information on possible configurations, see the *OXA4000 Specification Sheet* at www.veexinc.com.

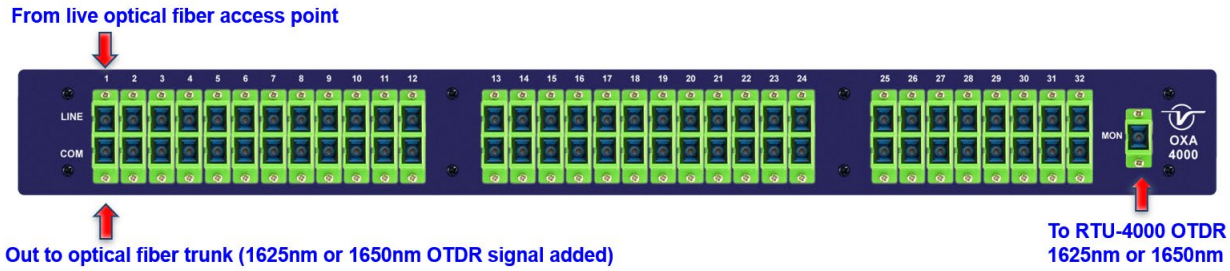
Switch Installation

Optical Switches are rack mounted at the same location as the RTU-4000/RTU-4100, regardless if the installation is at the CO or the CO-LO.

The OXA4000 series Optical Switch is available in various configurations. The OXA4000 can be configured as an optical switch or as an FWDM optical switch. Below is an example of the 1U 32 port options:

OXA4000 Optical Switch: 1U 32 Port Option

OXA4000 FWDM/Optical Switch



The OXA4000 series Optical Switch consists of:

- DB25 – Power and Communication Interface
- All Optical ports configured with standard SC/APC type connectors (LC/APC optional)

No additional software needs to be installed on switch before installation.

4.4 Electrical Equipment Safety Guidelines

When working with electrical equipment, follow these guidelines.

- Always unplug the power cable before installing or removing a chassis.
- Locate the emergency power-off switch for the room in which you are working. If an electrical accident occurs, turn off the power immediately.
- Do not work alone if potentially hazardous conditions exist.
- Never assume that power is disconnected from a circuit. Always check.
- If an electrical accident occurs, proceed as follows:
    - Use caution. Do not become a victim yourself.
    - Turn off power to the system.
    - If possible, send another person to get medical aid. Otherwise, assess the condition of the victim and then call for help.
    - Determine whether the person needs rescue breathing or external cardiac compressions, and then take appropriate action.

5.0 RTU-4000/RTU-4100 Hardware Installation

The RTU-4000 accommodates a standard 19-inch mounting rack.

Important!

Only trained and qualified personnel should be allowed to install, replace, or service this equipment. Improper or unsafe use can cause physical harm and damage your equipment. Read the ***Safety Information*** and ***Electrical Equipment Safety Guidelines*** sections before beginning installation.

5.1 Hardware Specifications

Size (H x W x D)	1.75in x 19in x 11.75in 1 RU (Rack Units) high
Weight	8 lbs (3.628 kg)
Operating Temperature	5°C to +40°C
Storage Temperature	-40°C to +70°C
Power	100-240 VAC, 50-60 Hz / 15V-DC, 4.6A (48V chassis available upon request)

5.2 Tools/Items Required

- Phillips Screwdriver
- Grounding Connector

5.3 Chassis Lifting Guidelines

A fully configured RTU-4000 chassis, with RTU-4100 OTDR Module installed, is not intended to be moved frequently. Before installing, plan chassis placement and ensure that your site is properly prepared so you can avoid having to move the chassis later to accommodate power sources and network connections.

When lifting the chassis, follow these guidelines:

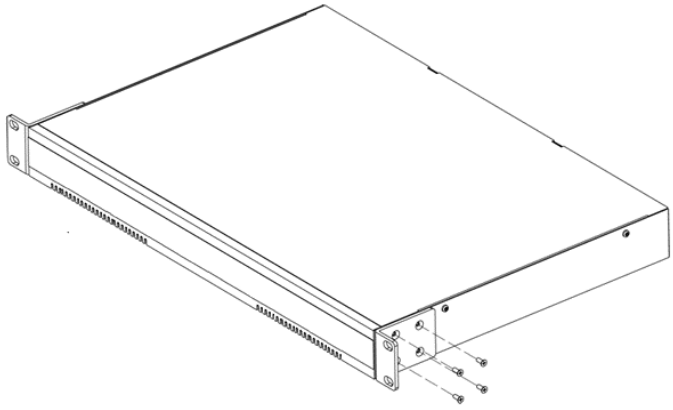
- Always disconnect ALL external cables before lifting or moving the chassis.
- Ensure that your footing is solid and balance the weight of the object between your feet.
- Lift the chassis slowly; never move suddenly or twist your body as you lift.
- Keep your back straight and lift with your legs, not your back. If you must bend down to lift the chassis, bend at the knees, not at the waist. This reduces the strain on your lower back muscles.
- Lift the chassis from the bottom by grasping the underside of the chassis exterior with both hands.

5.4 Rack Mounting the Chassis

Exercise caution when rack mounting this or any other type of equipment. Ensure that all equipment is properly secured along the specified hardware. Equipment must be installed in a safe manner to prevent overloading, tipping over, or other unsafe conditions.

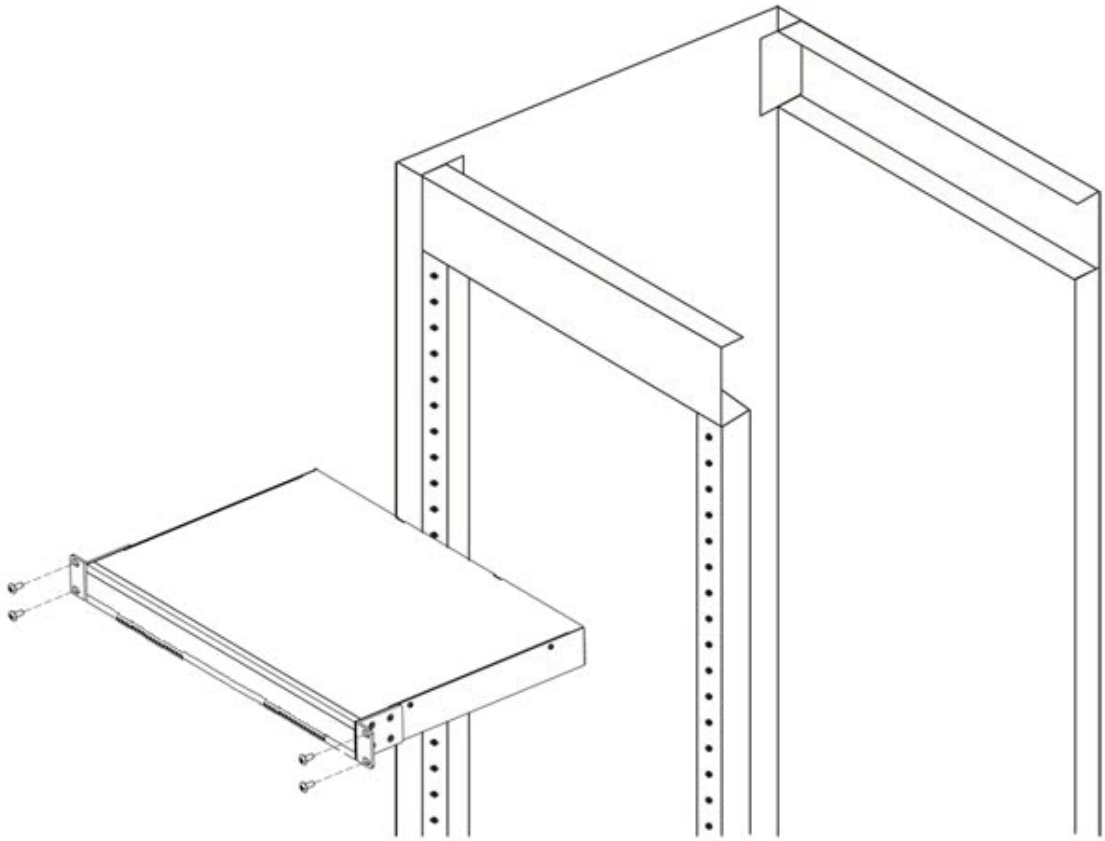
To rack mount the chassis:

1. Remove the mounting screws on the left and right front sides of the chassis. If you want to do a reverse installation, remove the mounting screws from the back sides of the chassis.
2. Install rack mounting brackets to the left and right sides of the chassis using the eight mounting screws you removed. If a reverse installation is needed, install the rack mounting brackets so that the back panel is facing front.



3. Connect a grounding wire to the **Frame GND** ground terminal on the back panel of the chassis.

4. Install chassis to rack with the appropriate rack mount screws for the rack system.



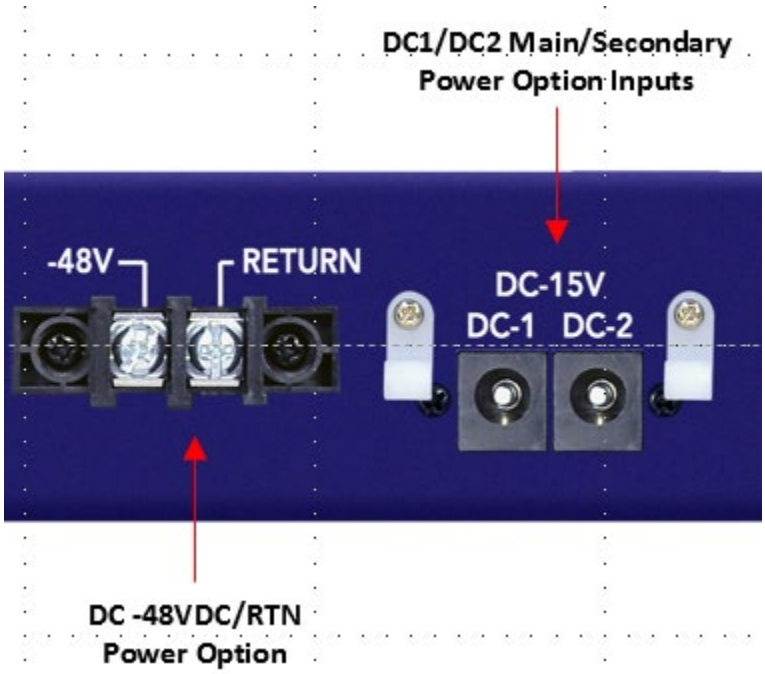
When installing your equipment, make sure that adequate ventilation is available. Inadequate ventilation will result in higher than normal operating temperatures and may result in degraded operation. Additional care must be used when installing enclosed racks or when racks are located near other equipment that may increase ambient temperatures.

Always ensure the system receives sufficient airflow such that it will operate within the specified operating temperature range.

5.5 Connecting Power

For the AC power option, use only the AC power adapters and cables provided by VeEX. Take care when connecting units to the power supply so that wiring is not overloaded.

RXT-4000/RXT-4100 Connecting Power



5.5.1 Powering on/off the unit

To power on the unit:

- On the front of the device, press the ON/OFF button so it is in the ON position. The green power LED turns on to indicate the device is powered on.

The unit begins to boot up as soon as the power switch is turned on.

To safely power off the unit:

1. Stop monitoring.
2. Press the ON/OFF button so it is in the OFF position. The green power LED turns off to indicate the device is powered off.

When using an Optical Switch, do not apply power to the RTU until the RTU is already connected to the OXA4000 Optical switch via the DB25 cable.

5.6 Connecting to RTU Probe

The RTU probe is pre-configured with a default IP address 192.168.100.250. To change the IP address, the Probe Configuration Tool must be used. See the ***Assigning static IP address to probe*** section of this user manual.

Assign Unique IP address

The factory default IP address 192.168.100.250 must be changed for each probe to uniquely identify it.

6.0 Probe Configuration Tool

After rack mounting the chassis, connecting the required cables, and powering on the probe, use the configuration tool to complete the installation process.

6.1 Opening Configuration Tool

To set the IP of the RTU-4100 use the latest version of the VeEX Probe Configuration Tool (Ver. 1.3.3) or higher software application and an Ethernet cable.

To launch the Probe Configuration Tool via Ethernet configuration:

1. Connect a LAN cable from the PC to the RTU-4100 RJ-45 interface.
2. Install the **Probe Configuration Tool** software from the CD provided with the chassis.
3. Navigate to the folder where you installed the Probe Configuration tool.
4. Double-click **ProbeConfigurationTool.exe**. The **Probe Configuration Tool** appears.

To launch the Probe Configuration Tool via Serial configuration: (*not supported at this time*)

1. Connect a RS232-to-USB cable from the PC to the RTU-4100 device.
2. If needed, install the RS232 driver from the CD provided with the probe.

   Note: *The appropriate RS232 driver must be installed on the PC or the COM port connected to the probe will not appear.*
3. Install the **Probe Configuration Tool** software from the CD provided with the chassis.
4. Navigate to the folder where you installed the Probe Configuration tool.
5. Double-click **ProbeConfigurationTool.exe**. The **Probe Configuration Tool** appears.

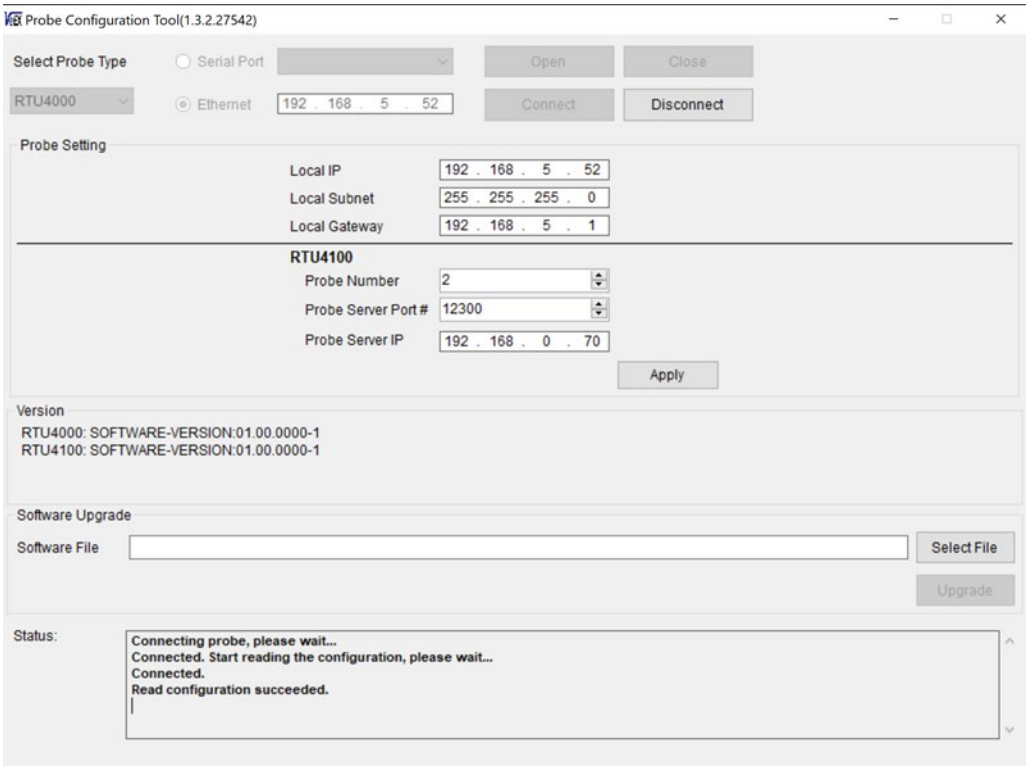
6.2 Connecting Configuration Tool to probe

To connect the Probe Configuration Tool via Ethernet:

1. Click the **Select Probe Type** drop-down list box arrow, and then select **RTU-4000**.
2. Select the **Ethernet Port** option button and enter the RTU IP address.

The PC subnet address must match that of the RTU.

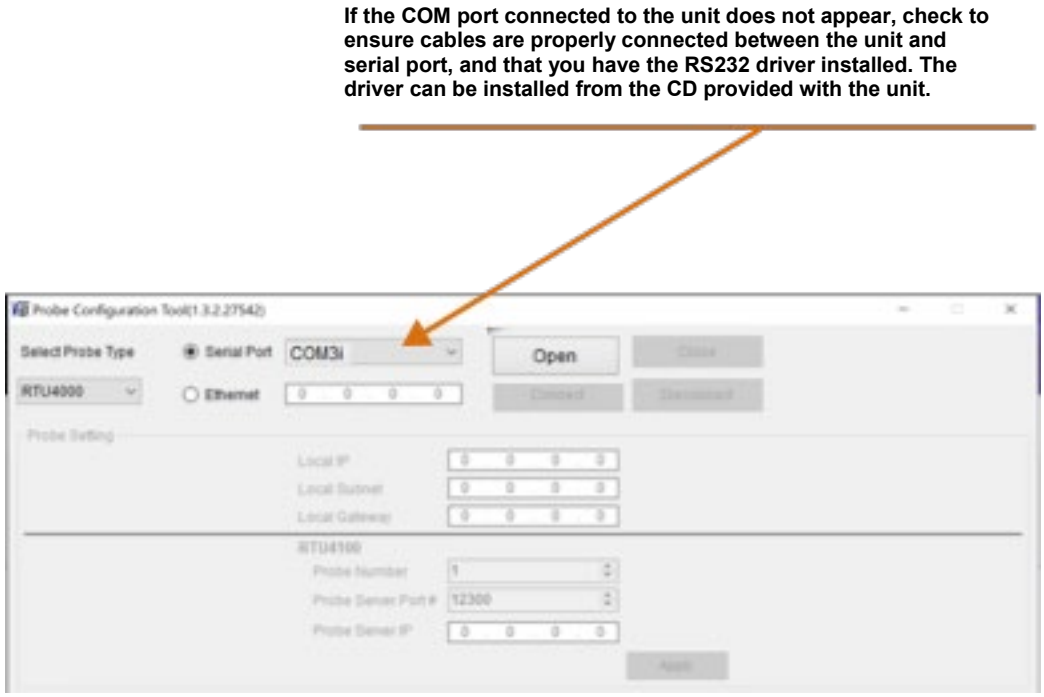
Probe Configuration Tool: Connecting via Ethernet to Probe



To connect the Probe Configuration Tool via Serial: (*not supported at this time*)

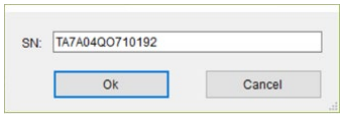
1. Click the **Select Probe Type** drop-down list box arrow, and then select **RTU-4000**.
2. Select the **Serial Port** option button and enter the RTU IP address.
3. Select the COM port on the PC that is assigned to the RS232-to-USB cable connecting the probe to the PC.

Probe Configuration Tool: Connecting Serial to Probe



4. Click **Open** to open the COM port, and then click **Connect**.
5. In the **Status** box, follow the instructions to correctly power down the probe and power it up again.
6. The connection process continues automatically until the **Serial number** box appears. The serial number for the probe should appear automatically. You can verify this number by locating the serial number on the back panel of the probe.

Probe Configuration Tool: Serial number



7. In the **Status** box, **Connection succeeded** appears to indicate the Probe Configuration Tool is connected.

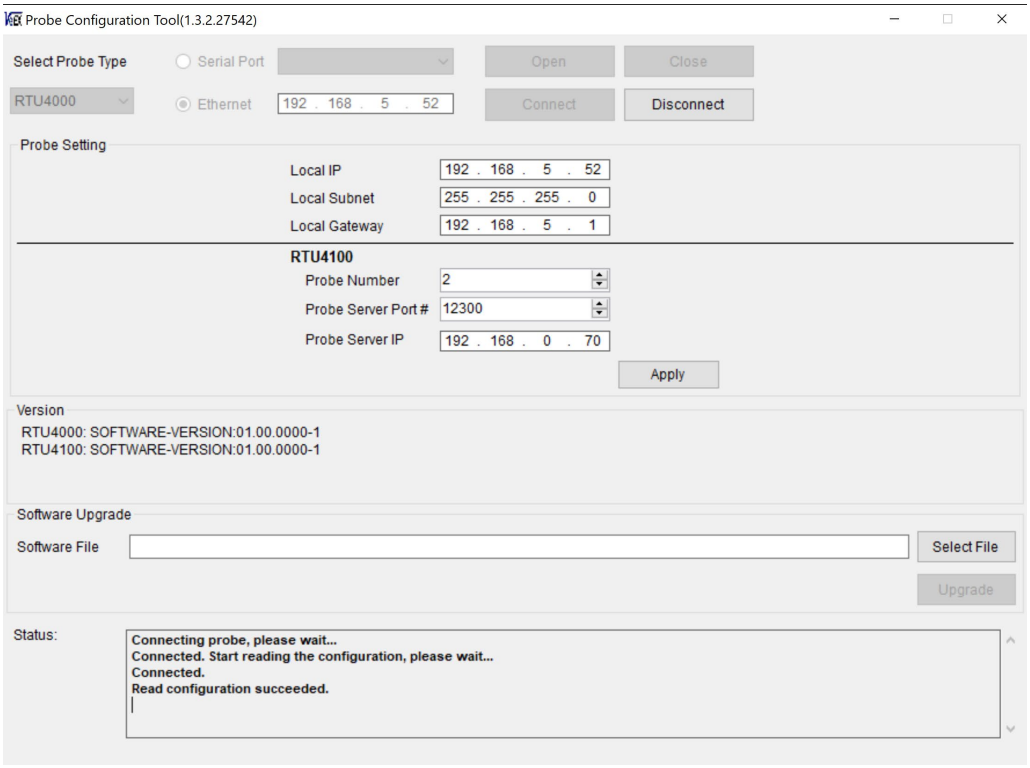
After opening the serial port and connecting the probe to the Probe Configuration Tool, follow the instructions below to assign a static IP address so that you can connect to the probe via a web browser or with VeSion, as well as perform software updates, as needed.

6.3 Assigning static IP address to probe

To assign a static IP address to the probe:

1. In the **Probe Setting** group box, use the field definitions listed below to enter the information requested.
2. Click **Apply**. The IP address is now assigned to the probe.

Probe Configuration Tool: Assigning static IP to probe



- **Probe Number**: Number that uniquely identifies the probe. This number will correspond to the probe number in VeSion.
- **Probe Server Port #**: Port number for the probe.
- **Probe Server IP**: VeSion server IP address.
- **Local IP**: IP address you want to assign to the probe.
- **Local Subnet**: Subnet mask number for probe.
- **Local Gateway**: Gateway IP for the probe.

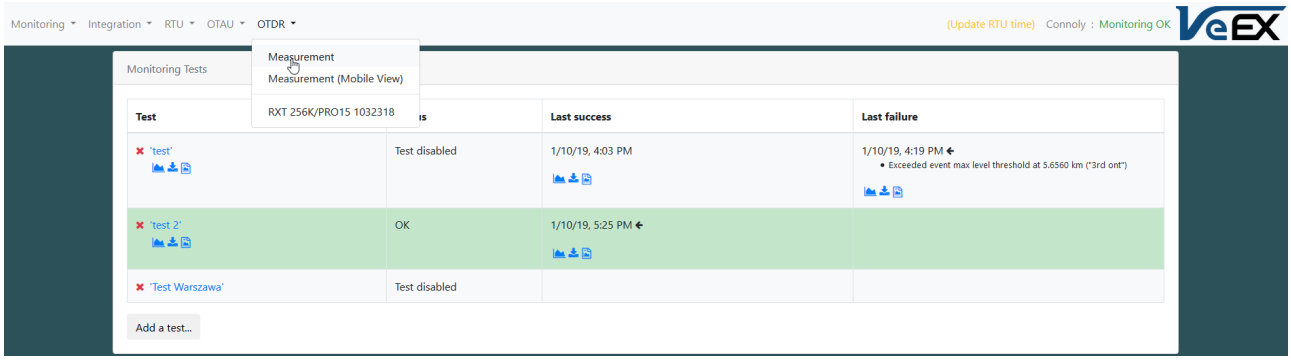
6.4 Connecting the Unit to Ethernet

After assigning a new static IP address to the probe, connect the unit to your network via the Ethernet port with the Ethernet cable.

7.0 Using RTU4000/RTU4100 in Standalone mode

The RTU web interface is arranged into five operating menus: Monitoring, Integration, RTU, OTAU, and OTDR. Access each menu by clicking one of the five labels located at the top of the page:

RTU Standalone Web Interface OTDR submenu



Their menus are:

- **Monitoring**: enable/disable monitoring and manage tests.
- **Integration**: setup RTU integration with the VeEX VeSion server and/or a third-party external server.
- **RTU**: view the RTU test set information, set the local date/time, and enter a unique RTU ID.
- **OTAU**: when available, view information about the OTAU (Optical Test Access Unit) Optical Switch and select the desired test access port.
- **OTDR**:
  - View basic OTDR information
  - Define the TCP port for Remote Control software, such as the VeEX Fiberizer Desktop or other third-party external software used to communicate with the RTU when making measurements
  - Configure OTDR measurement parameters, network, fiber properties, and span parameters
  - Start a measurement, download test result/trace, view test reports, and use trace as a reference.

Mobile Devices

*When accessing the RTU-4100 Standalone Web Interface from a mobile device, change the view by selecting **OTDR → Measurement → Measurement (Mobile View)**.*

8.0 Setting Monitoring Parameters

Before the RTU can be used to monitor fibers, the monitoring parameters must be set. Although the test parameters do not need to be setup in any particular order, we do recommend the following sequence:

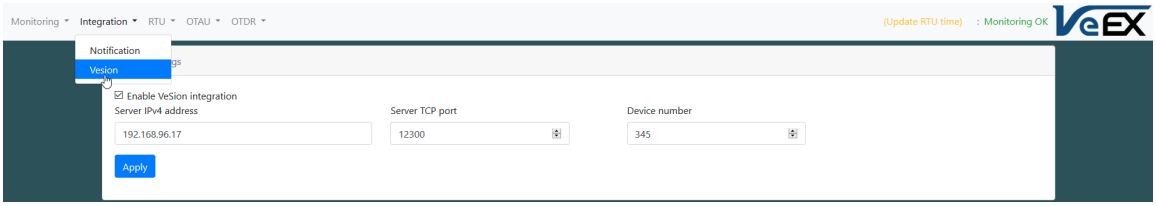
1. Set RTU name and time (if needed). For more details, see **10.0 RTU Menu (About, Name and Date/Time)**.
2. Define the OTAU port to be used (if needed). For more details, see **11.0 OTAU Menu**.
3. Select the RTU-4100 hardware for measurement. For remote control, use VeSion Monitoring System to connect to the RTU (usually RealTime or Manual mode). Use this menu to connect to other external third-party software, also. For more details, see **12.0 OTDR Menu**.
4. If the RTU will be accessed also from Fiberizer Desktop, set the integration with Fiberizer Desktop. For more details, see **14.0 Remote Control RTU Using Fiberizer Desktop**.

9.0 Integration Menu
(not required for standalone operation)

Integration with VeSion and/or an external server allows you to receive event notifications on the fibers being monitored. For more information on VeSion, see ***15.0 VeSion Overview.***

To complete integration with the VeEX VeSion server, click **Integration** → **VeSion**, enter information in the corresponding fields, and then click **Apply**.

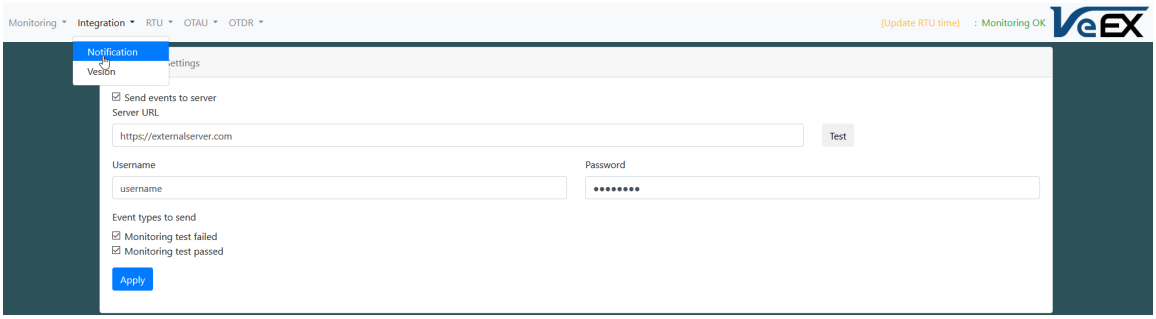
Settings for VeSion integration



*The parameters (**Server IPv4 address**, **Server TCP port**, **Device number**) can be obtained from your system administrator. For further details, please contact VeEX technical support at www.veexinc.com.*

To integrate with any other external server, click **Integration** → **Notification**, enter information in the corresponding fields, and then click **Apply**.

Settings for integration with external server



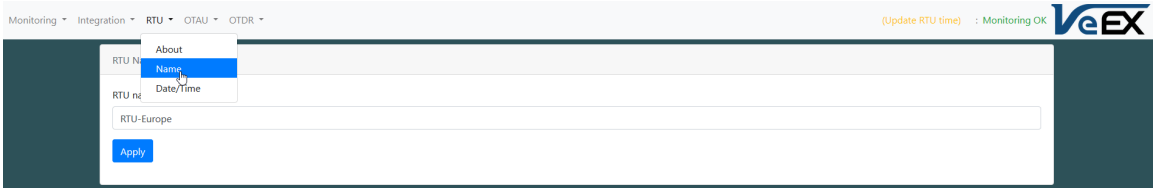
*Before clicking **Apply**, test the connection to the server by clicking the **Test** button on the right.*

10.0 RTU Menu (About, Name and Date/Time)

Creating a unique RTU name for each test probe makes it easier to associate test results and alarm notifications when several RTUs are being used on the same network. These settings will also be used if the RTU is integrated with the VeSion central server or an external third-party server.

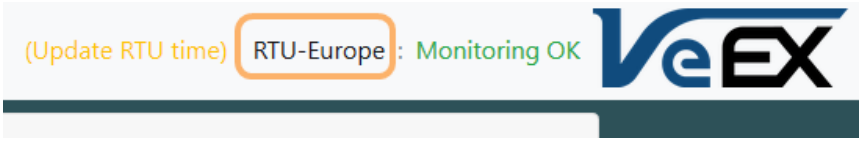
Use the **RTU** menu to set the probe name and the date/time.

Naming your RTU



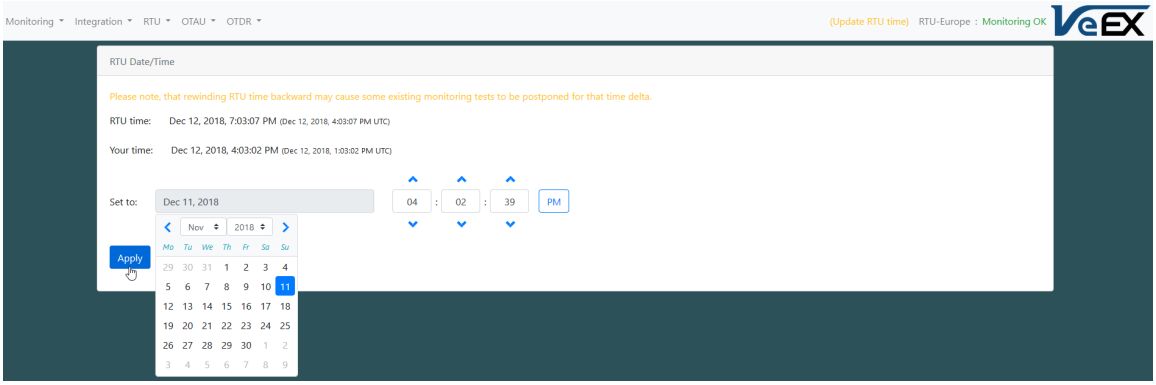
After assigning the RTU a unique name, it will be displayed at the top right corner.

RTU name is shown



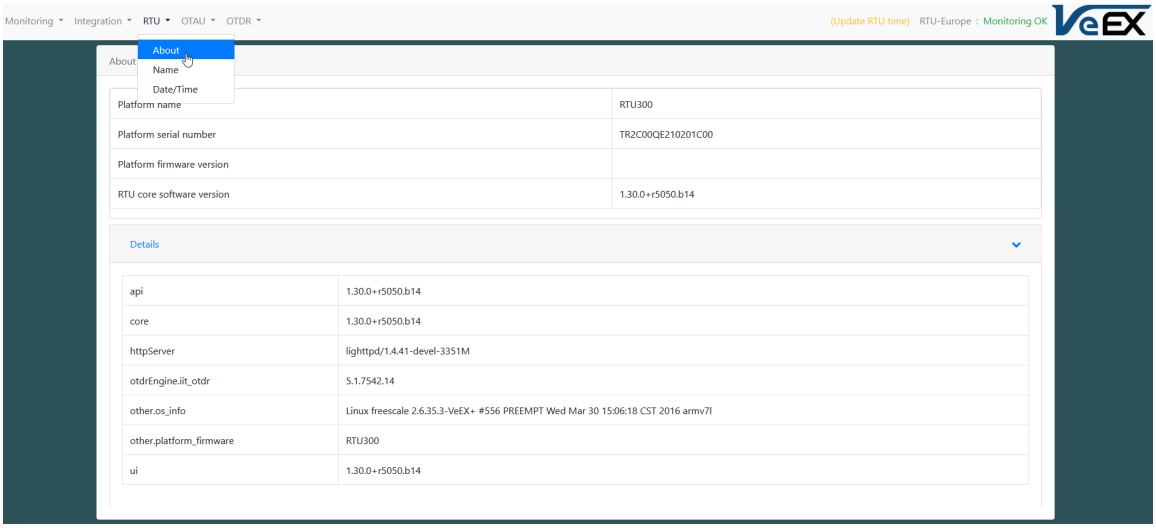
To change the Date/Time on the RTU to match your local time zone, select **RTU → Date/Time**, set the date and time, and then click **Apply**.

Setting Date/Time for RTU



In the **About** section, you can check details about your RTU. To do that, select **RTU → About**.

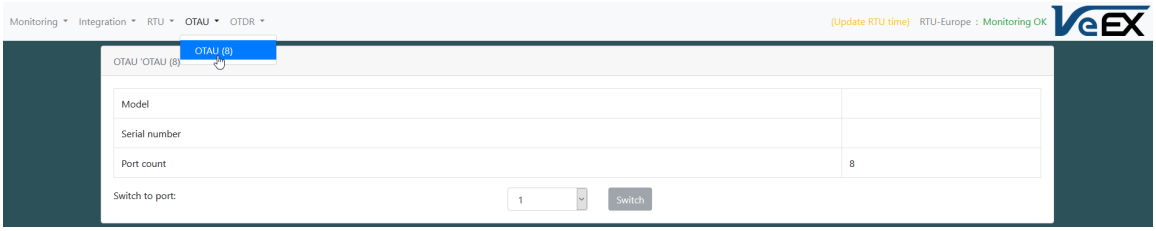
RTU About screen



11.0 OTAU Menu

If you are using an Optical Switch, also referred to as an OTAU (Optical Test Access Unit), for your test application, you will need to access the OTAU menu to select the test port. To do this, click **OTAU** to view the device model, serial number, and available ports. Set the desired port number in the **Switch to port** drop-down list box, and then click **Switch** to move the switch to the desired test port.

Setting OTAU port



12.0 OTDR Menu

12.1 On-Demand Tests

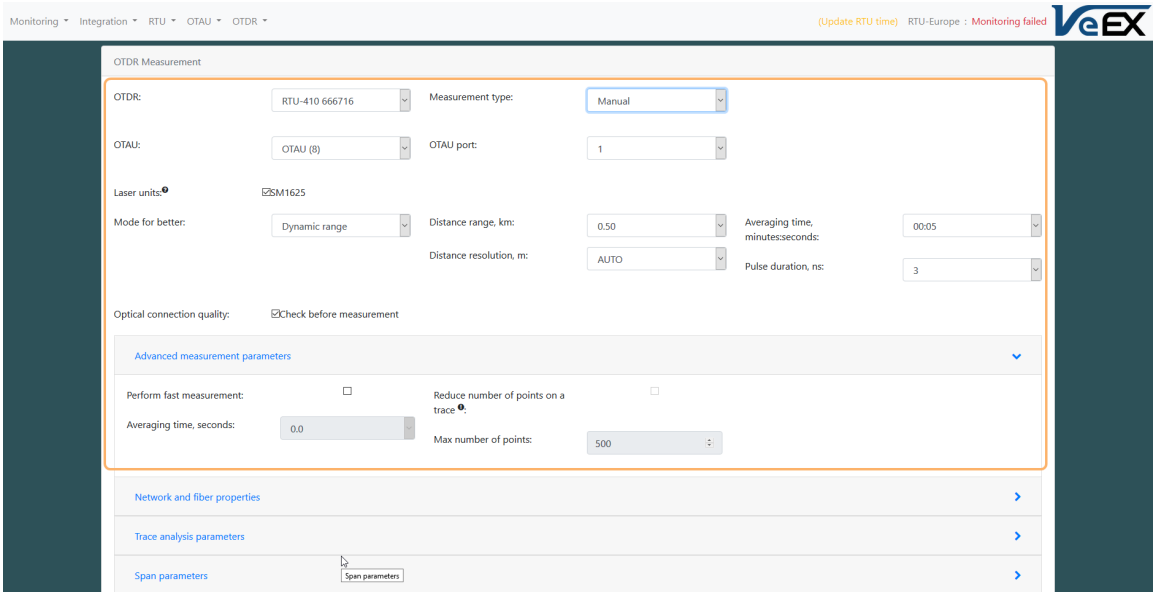
You can select test parameters and result thresholds to be used in on-demand OTDR measurements. Measurement results can be used for monitoring (see **13.3.2 Monitoring results)**.

To perform an on-demand test with the RTU-4100, you must first disable the TCP Proxy function if it has been previously enabled. To do this, click **OTDR → RTU #####**, and then click the **Disable** button located at the bottom.

12.1.1 Measurement parameters

To set parameters for an OTDR measurement, click **OTDR → Measurement** and fill in the corresponding fields (example below).

General parameters for OTDR measurement



The above form is interactive, and the available setup fields will vary with the type of **Measurement Mode**. For example, if the desired **Measurement mode** is **Manual**, more test parameters will be available to configure.

The **Advanced measurement parameters** section allows the timing and number of points of measurements to be set. Other parameters available when using **Manual** mode are:

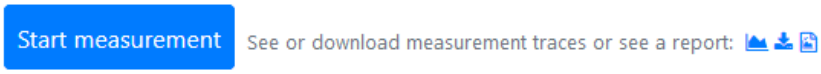
- **Network and fiber properties**
- **Trace analysis parameters (thresholds)**
- **Span parameters**

Important note about Manual mode

*Improper setting of the above parameters can result in erroneous test results. It is recommended that you receive adequate training in making OTDR measurements before using the **Manual** mode.*

Click **Start measurement**, after setting the test parameters. The measuring process can take up to 3 minutes, depending on the settings. After the test is complete, an OTDR trace will appear. Use the blue icons next to the **Start measurement** button to view the traces as a graph or a report. The results can be downloaded for future use also.

Resulting trace can be viewed as a graph or as a report, or downloaded

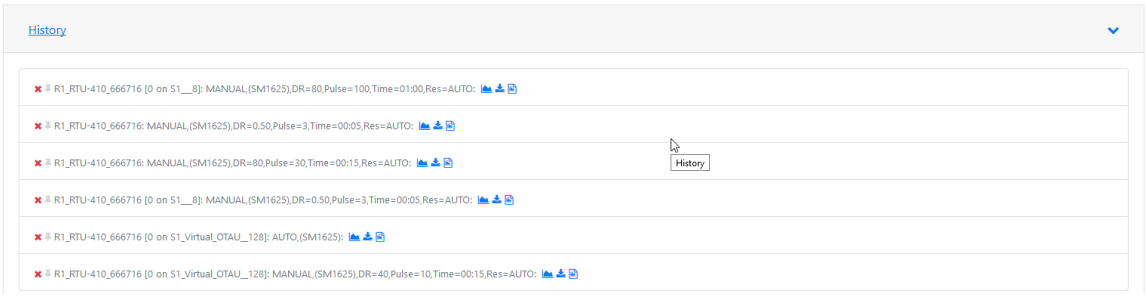


While viewing a trace you can also edit and/or add events, which is sometimes necessary for monitoring. For more information, see Section ***13.2 Editing a Reference Trace***.

12.1.2 Measurement history

Measurement results are saved and can be accessed at a later time to view results as graphs, reports, or to download.

Measurement history



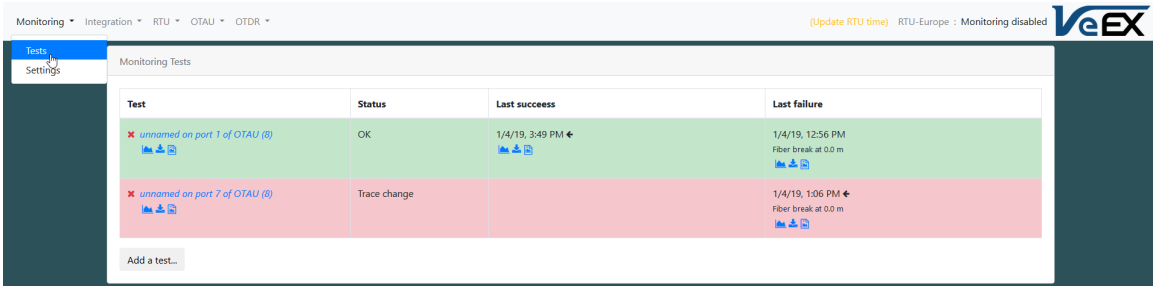
13.0 Monitoring

13.1 Creating a test

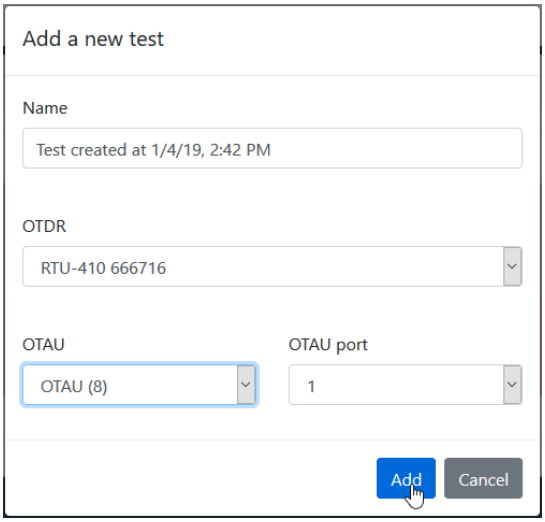
To create a test:

1. Click **Monitoring** → **Tests**, and then click the **Add a test…** button. The **Add a new test** box appears.

Creating a test

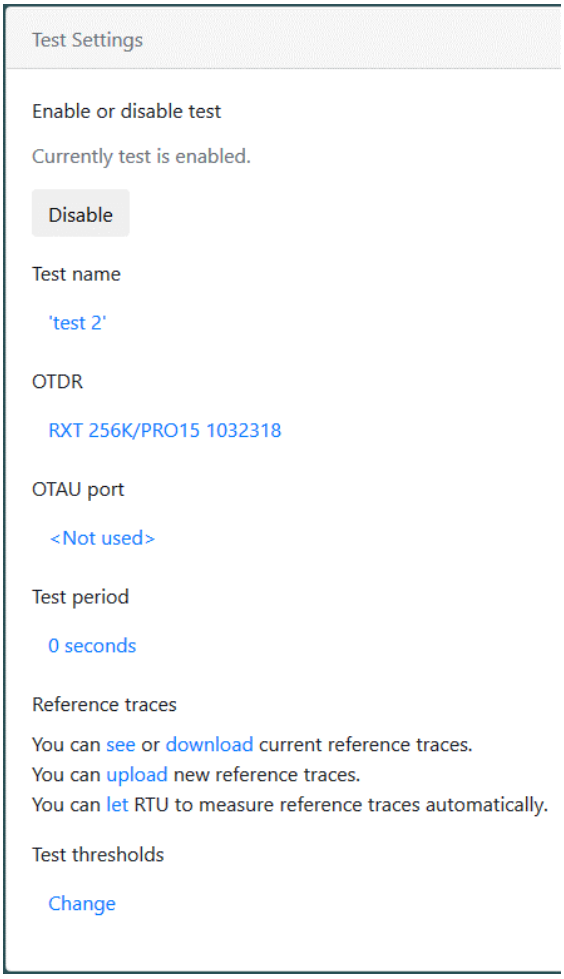


Add a new test box



2. Enter information in the corresponding fields and click **Add**. By default, the **Name** field is populated automatically with the date and time it was created.
3. Click **Monitoring** → **Tests**, and then click the test name on the list. The **Test Settings** page appears.

Test Settings page



13.1.1 New Reference Traces and Thresholds

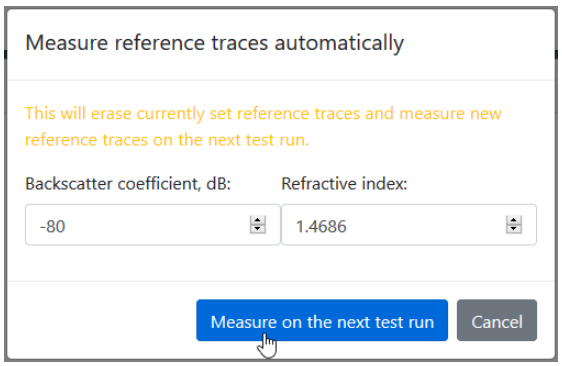
Use the **Test Settings** page to edit the test details and set the reference traces, and new test thresholds.

New Reference Trace

To upload the reference traces, click the **upload** link, then follow the instructions on the screen. You can upload several reference traces.

To let the RTU set reference traces automatically, click the **let** link, then set the analysis values in the **Measure reference traces automatically** box.

Setting the renew analysis values



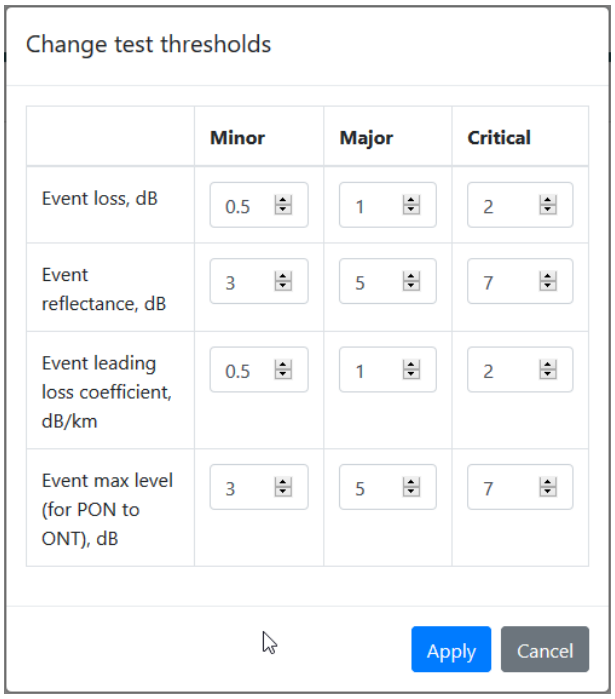
To begin using the new values, click **Measure on the next test run**.

Because the tests are performed in succession, the reference trace is not refreshed immediately, but when the next test run is performed.

New Thresholds

To set new thresholds, click the **Change** link from the **Test Settings** box. The **Change test thresholds box** appears. Enter new threshold values in the corresponding fields and click **Apply**.

Setting new thresholds

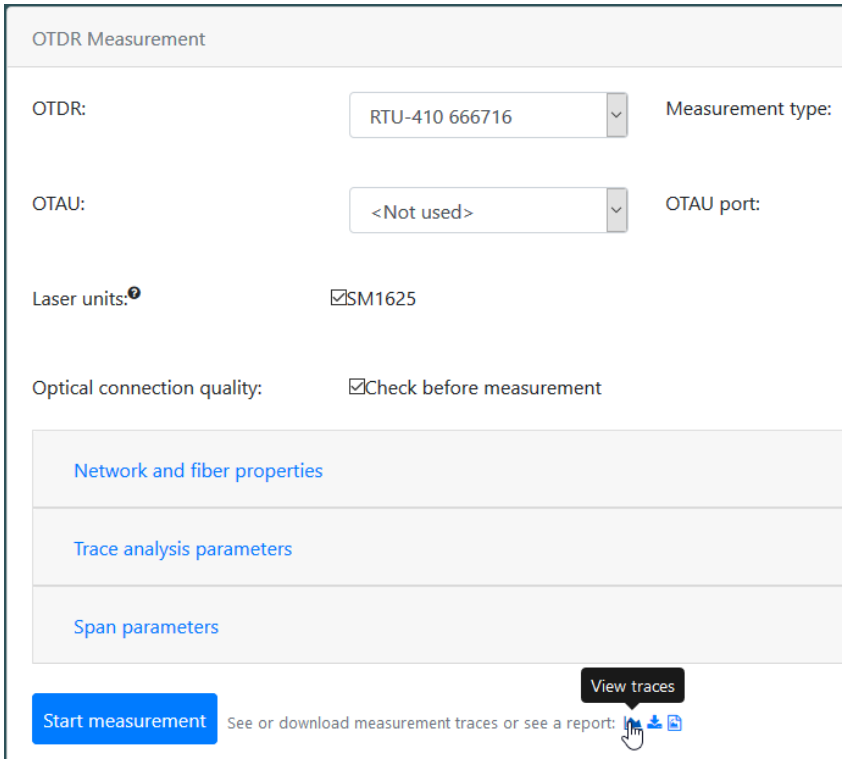


13.2 Editing a Reference Trace

After completing a measurement (see ***Section 12.1 On-Demand Tests***), the reference trace can be edited by clicking the **View traces** blue icon next to the **Start measurement** button.

You can also upload a reference trace that was measured using an external software program, such as Fiberizer Desktop. If uploading a reference trace, edit the event table to add missing events. For more details, see the *Fiberizer Desktop User Manual* at www.veexinc.com.

Viewing the measurement result and editing it



Clicking the **View traces** blue icon opens the **RTU File Viewer** as a new tab in your browser. After editing the trace and event table, click the **Set as a reference** link in the top left corner, select a test to which to apply the reference, and then click **Apply**.

Editing a new trace

Important note about manually editing a Reference Trace

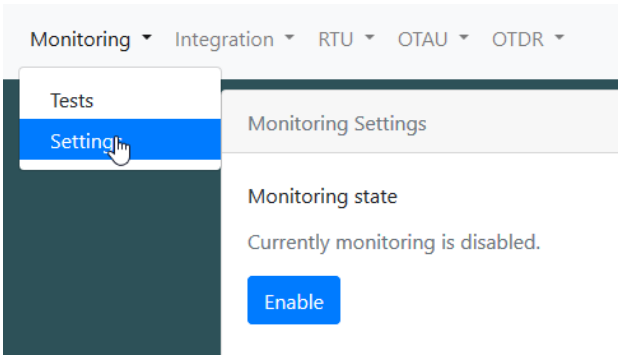
While an incorrect reference trace will not damage your equipment or optical fiber, it will produce incorrect monitoring results. *It is recommended that you receive adequate training in making OTDR measurements and editing event tables before manually editing a Reference Trace.*

13.3 Enable monitoring

13.3.1 Enabling monitoring mode

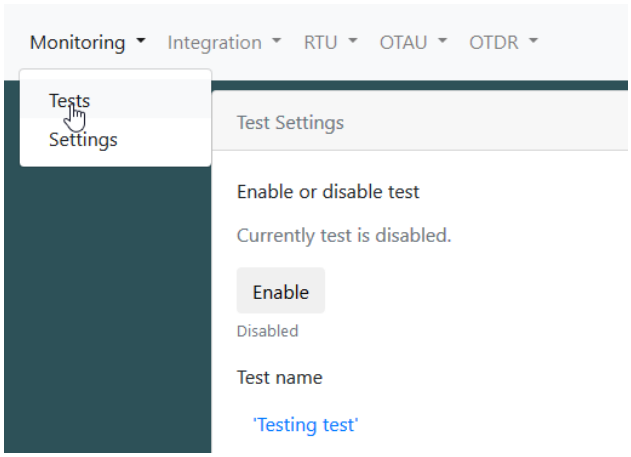
To enable RTU monitoring, click **Monitoring** → **Settings**, then click the **Enable** button.

Enabling general monitoring



To enable monitoring for the test, click **Monitoring → Tests**, then click the name of the test. Then, click the **Enable** button.

Enabling a test

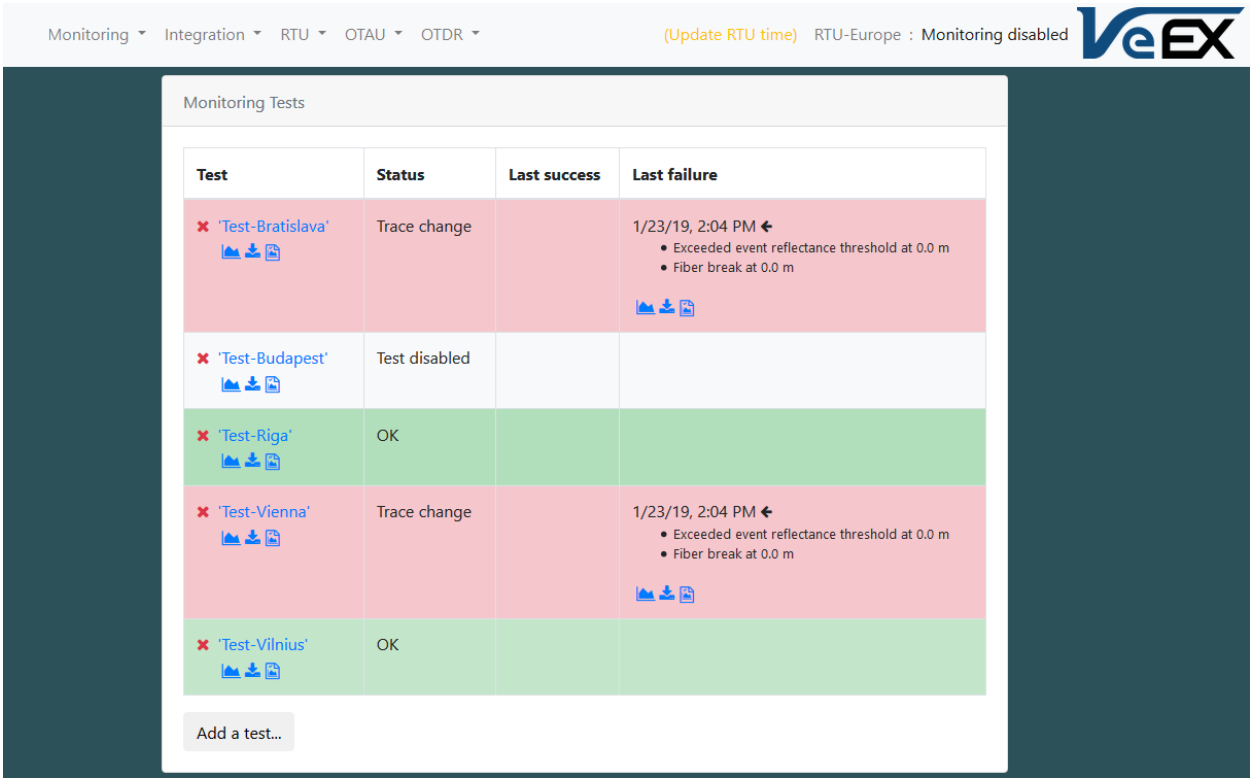


13.3.2 Monitoring results

After monitoring is enabled, the test measurement uses the designated reference trace and any change notifications about trace events will be sent automatically.

You can view monitoring results and statuses by clicking **Monitoring → Tests**.

Test results table

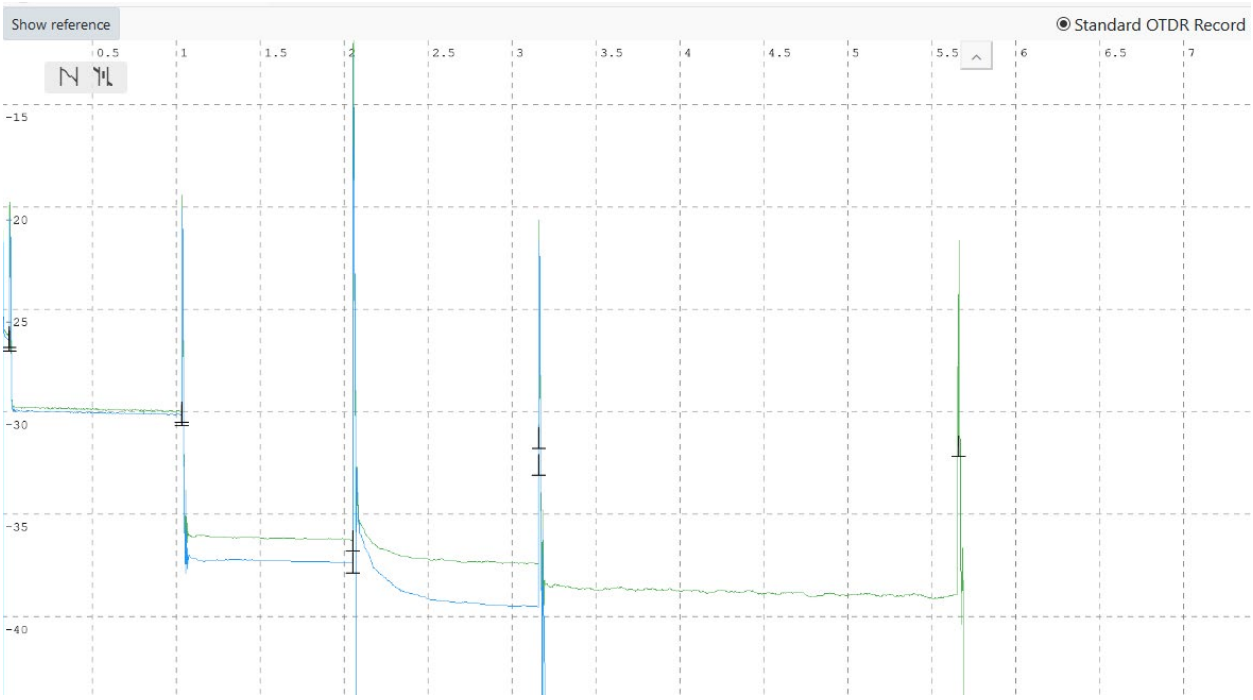


Monitoring results are displayed in a table format and show details for the test, status, last success, and last failure.

- **Test**: View the reference trace results as a graph, report or download it.
- **Status**: View the status of the test.
- **Last success**: View the trace for the last successful measurement as a graph or report, or download it.
- **Last failure**: View the trace for the last failed measurement as a graph or report, or download it. A list of recently failed events appears in this column.

When viewing a failed trace, you can compare it with the reference trace by clicking the **Show reference** button in the top left corner. An example of a last failed trace compared to the reference trace is shown below.

A failed trace compared against the reference trace.

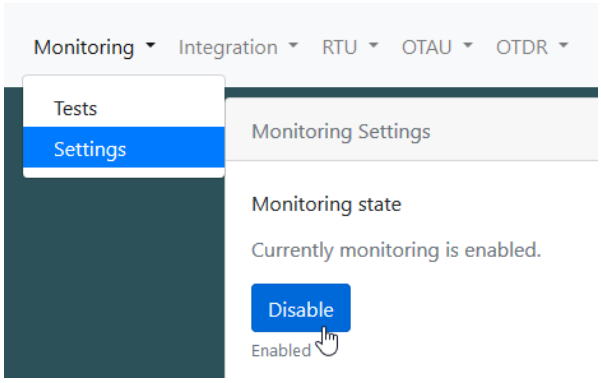


14.0 Remote Control RTU Using Fiberizer Desktop

Another way to remotely control the RTU and see Live or RealTime measurements is to use the Fiberizer Desktop software. Measurement results can be used for monitoring (see **13.3.2 Monitoring results**).

Before performing measurements with Fiberizer Desktop, disable monitoring on the probe by clicking **Monitoring → Settings**, and then clicking **Disable**.

Disable monitoring

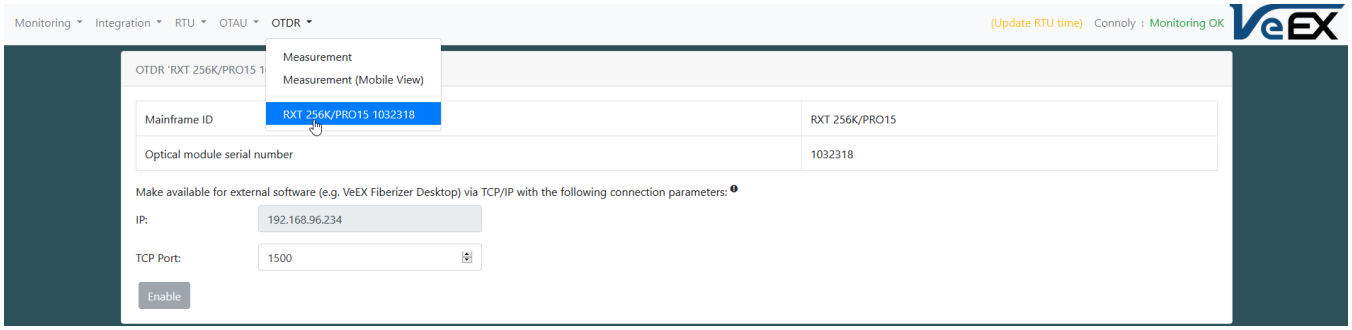


14.1 Connecting to Fiberizer Desktop

To perform a measurement using external software, such as Fiberizer Desktop, you must first open the OTDR for external connections via a chosen TCP port.

In the RTU-4100 Web Interface, click **OTDR → RTU #####**, set the TCP port, and then click the **Enable** button. The IP and TCP port settings must be the same as in the external software.

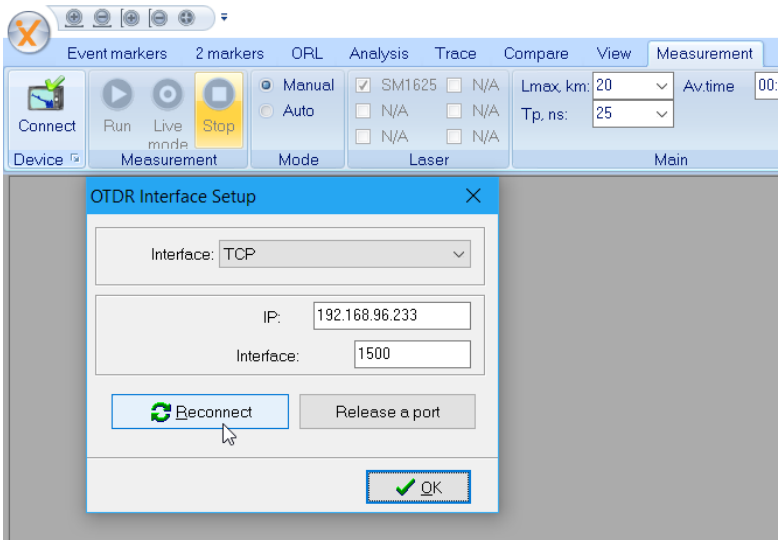
Setting the TCP port for RealTime measurement



*To perform a measurement directly from the RTU-4100 again (not the external software), disable the TCP Proxy function in the RTU-4100 Web Interface software by clicking **OTDR → RTU #####**, then clicking the **Disable** button.*

In the Fiberizer Desktop software, click the **Measurement** tab and then click the small arrow in the **Connect** section. The **OTDR Interface Setup** box appears.

OTDR Interface Setup



Select **TCP** from the **Interface** drop-down list box and enter the same IP address and TCP port that is on the RTU-4100 Web User Interface probe settings. Then, click **Reconnect** and allow several seconds for the external application to initialize. After Fiberizer Desktop is initialized, click **OK** and proceed with the measurement.

For more information on how to use Fiberizer Desktop, see the *Fiberizer Desktop User Manual* at www.veexinc.com.

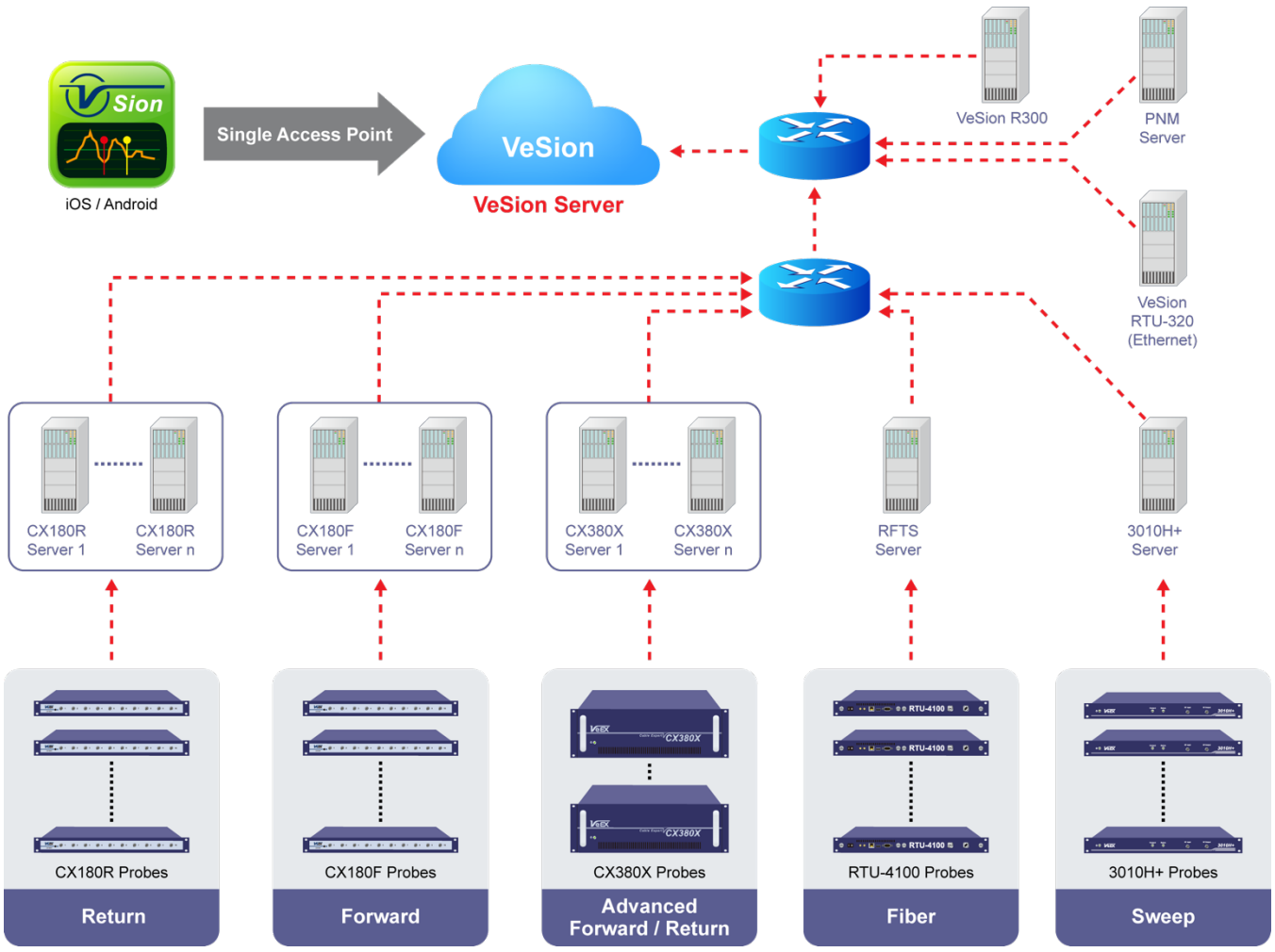
15.0 VeSion Overview

VeSion is VeEX's cloud-based, centralized system solution. It integrates advanced HFC network RF Monitoring (Forward and Return), MPEG, Burst Demodulation, PNM, and Sweep, Fiber monitoring (RFTS), and Ethernet tests in addition to being able to link with the VeEX R300 Server Billing and Work order management system. Results can be accessed anywhere, anytime, and at any location.

The RTU is typically installed at the Central Office, Headend or Sub-Hub, or Co-location sites to support centralized fiber monitoring and analysis, as well as data collection. Optical switches (OXA4000) can be used to expand the number of fibers that can be monitored by a single RTU probe.

For more information about the VeEX's VeSion Comprehensive Monitoring System, see the product brochure at www.veexinc.com.

VeSion Comprehensive Monitoring System

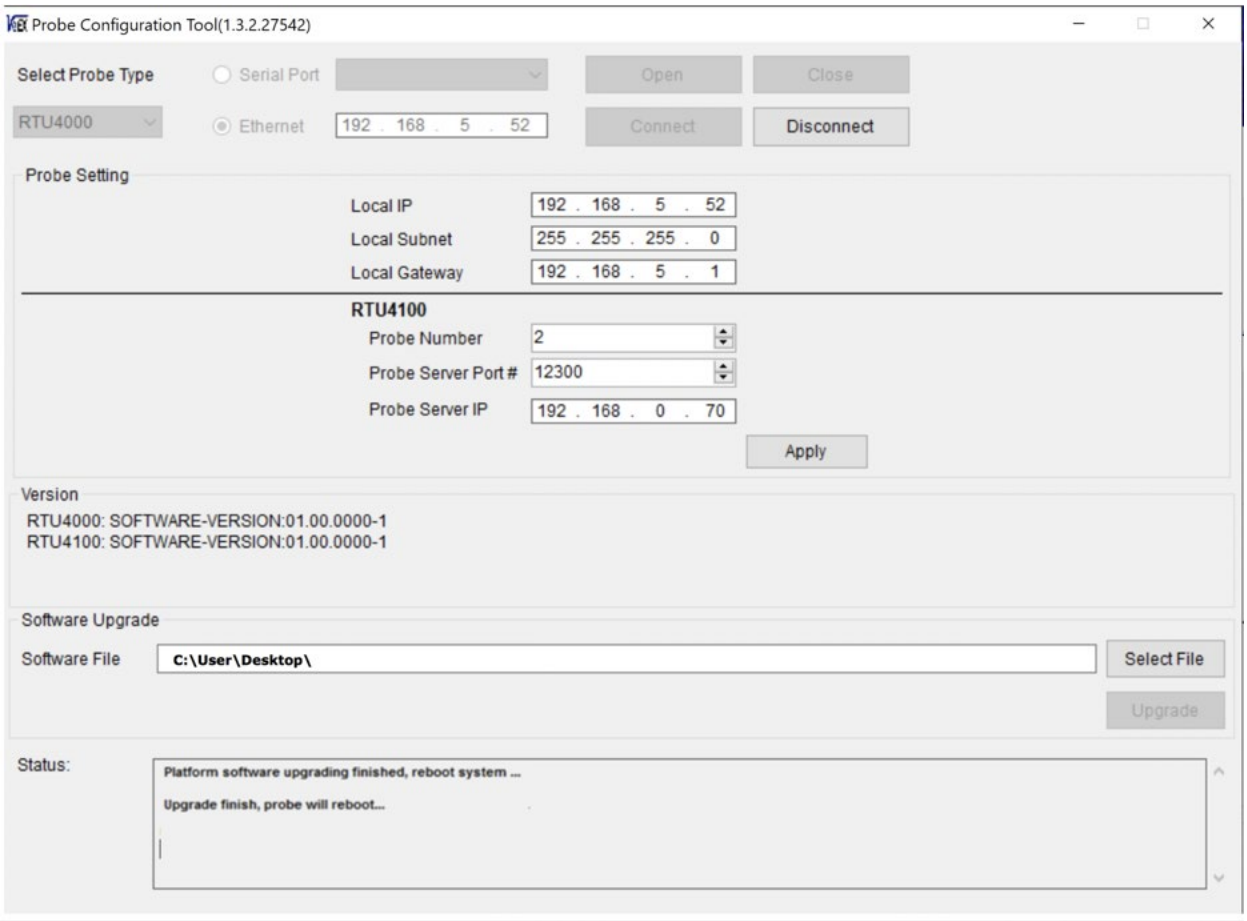


16.0 Upgrading RTU-4000/RTU-4100 Software

To upgrade the probe software to the most recent version:

1. Download the software upgrade zip file from the product page on the VeEX website, www.veexinc.com, and then extract the files to a location on your hard drive.
2. Launch the **Probe Configuration Tool**.
3. Click the **Select Probe Type** drop-down list box arrow, and then select **RTU-4000**.
4. Select the **Ethernet** option button and enter the static IP address you assigned to the probe at an earlier time (see the *Assign a static IP address to probe*), and then click **Connect**. In the **Status** box, a **Connection succeeded** message appears.
5. In the **Software Upgrade** group box, click **Select File**, navigate to the folder in which you extracted the upgrade files, and then click the ***install_RTU-4000.sh*** file.
6. Click **Upgrade**. In the **Status** box, a message appears that the upgrade is finished and the probe reboots automatically.

Probe Configuration Tool: Upgrade Software



17.0 Warranty and Software

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

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

- Repair the products
- Replace hardware which prove to be defective

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

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

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

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

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

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

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

- Improper or inadequate maintenance by the customer
- Damage due to software installed by the customer on the unit without prior authorization (written) from VeEX Inc.
- Unauthorized alteration or misuse

- Damage occurred from operating the unit outside of the environmental specifications for the product
- Improper installation by the customer

18.0 Product Specifications

The most recent product specifications can be found on the VeEX web site at www.veexinc.com.

19.0 Certifications and Declarations

Declaration of Conformity

What is CE?

The CE marking is a mandatory European marking for certain product groups to indicate conformity with the essential health and safety requirements set out in European Directives. To permit the use of a CE mark on a product, proof that the item meets the relevant requirements must be documented.

Use of this logo implies that the the unit conforms to requirements of European Union and European Free Trade Association (EFTA). EN61010-1

For a copy of the CE Declaration of Conformity relating to VeEX products, please contact VeEX customer service.

ROHS Statement

What is RoHS?

RoHS is the acronym for Restriction of Hazardous Substances. Also known as Directive 2002/95/EC, it originated in the European Union and restricts the use of specific hazardous materials found in electrical and electronic products. All applicable products imported into the EU market after July 1, 2006 must pass RoHS compliance.

For more information about RoHS as it relates to VeEX Inc, go to the VeEX web site at www.veexinc.com\ROHS.

20.0 About VeEX

VeEX Inc., an innovative, customer-focused communications test and measurement company, develops next generation test and monitoring solutions for telecommunication networks and services. With a blend of advanced technologies and vast technical expertise, VeEX's products diligently address all stages of network deployment, maintenance, field service turn-up, and integrate service verification features across DSL, Fiber Optics, CATV/DOCSIS, Mobile backhaul and fronthaul (CPRI/OBSAI), next generation Transport Network, Fibre Channel, Carrier & Metro Ethernet technologies, WLAN and Synchronization.

Visit us online at www.veexinc.com for the latest updates and additional documentation.

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