

# How to Configure the RTU

Remote Connection, Software Upgrade & Port Configuration

RTU-300/320/600/600x

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# How to Configure the RTU-300/320/600/600x

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## *Testing with the RTU (Remote Test Unit)*

### Introduction

The RTU-300/320/600/600x is a rack mounted 1G-100G Ethernet test head for performance testing and monitoring Carrier Ethernet and broadband networks. The main application of the RTU-300/320/600/600x is to be used under the VeSion® performance testing and monitoring platform, where several RTU-300/320/600/600x can be added and operated for service provisioning, service activation testing, and service assurance applications.

Optionally the RTU-300/320/600/600x can be operated as a stand alone test device through VNC/web remote access. In this standalone mode, users have access to other interfaces and features that are available such as OTN, SONET/SDH, and Fibre Channel.

64K-100GE test rates are supported on the same module. These factory-installed hardware options allow flexibility to fit any additional application at a later time. For example, the addition of a second RTU-320 or RTU-600/RTU-600x module can be installed concurrently on the same test platform.

#### **RTU-320 Test Ports:**

- 2 x SFP+ for Ethernet, OTN & SONET/SDH
- 2 x RJ45 for Ethernet
- 2 x BNC for E1/DS3
- 1 x RJ45 for E1/DS1
- 1 x SMA for Clock Source

#### **RTU-600 Test Ports:**

- 1 x QSFP28 for 100GE and OTU4
- 1 x QSFP+ for 40GE, OTU3
- 1 x External Clock Interface

#### **RTU-600x Test Ports:**

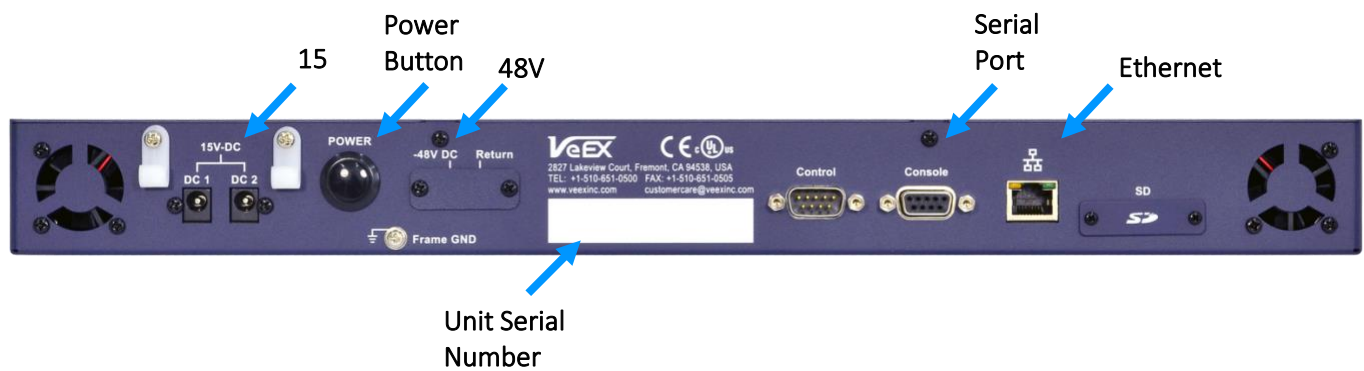
- 1 x QSFP28/QSFP+ for 100GE, 40GE and OTU4
- 1 x SFP28/SFP+ for 25GE
- 1 x RJ45<sup>1</sup>

Space efficient 1U rackmount with built-in, dual power switching matrix ensures continuous operation if the main power supply fails.

*1. Reference the RTU-600x module spec sheet for details*



Dual power options with back up DC (15V or 48V):



## Connecting to the Unit

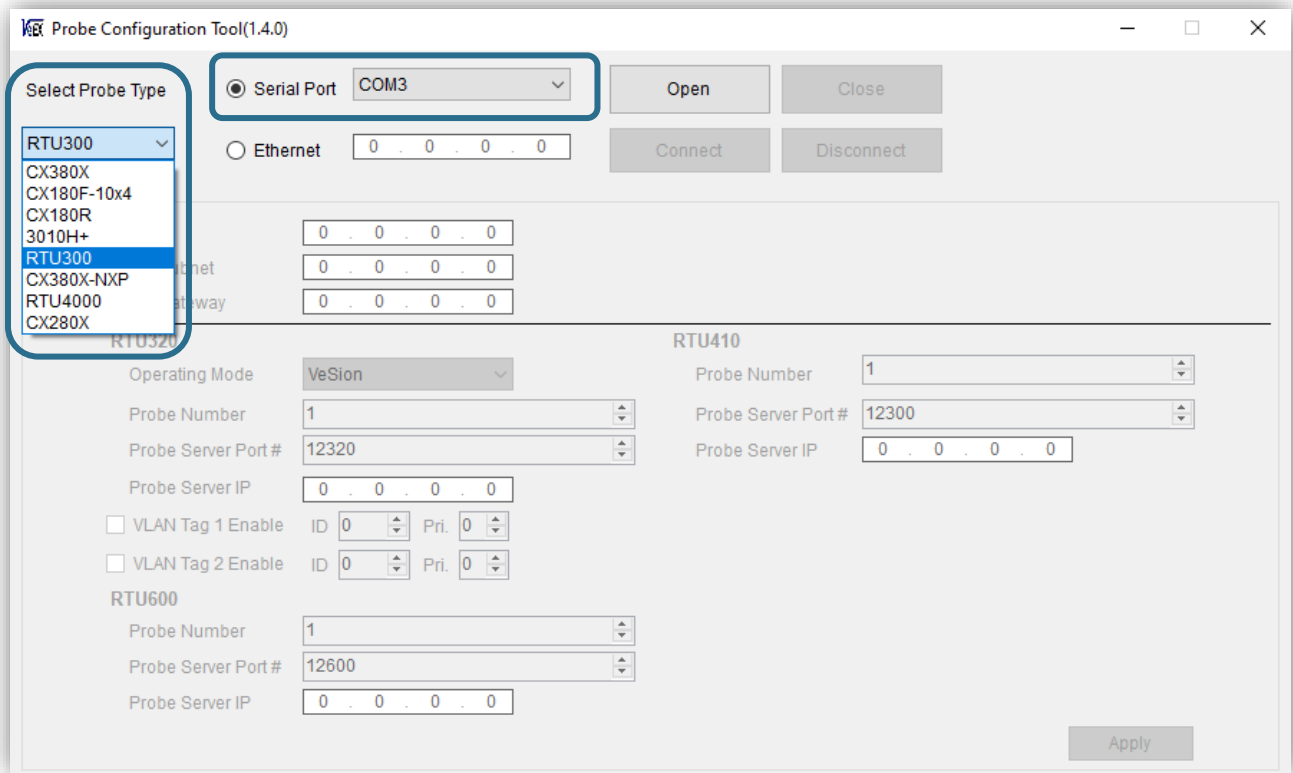
There are two ways to connect to the unit: via the serial port or via the Ethernet port using the ReVeal Probe Configurator Tool (with the factory default IP address 192.168.1.1 or when it is a known IP address to the user). If the IP address is unknown, the serial port must be used to assign/verify an IP address. Connect via VNC or VeSion to configure the unit and run tests.

1. Download the required software package from the VeEX Software Download Page:

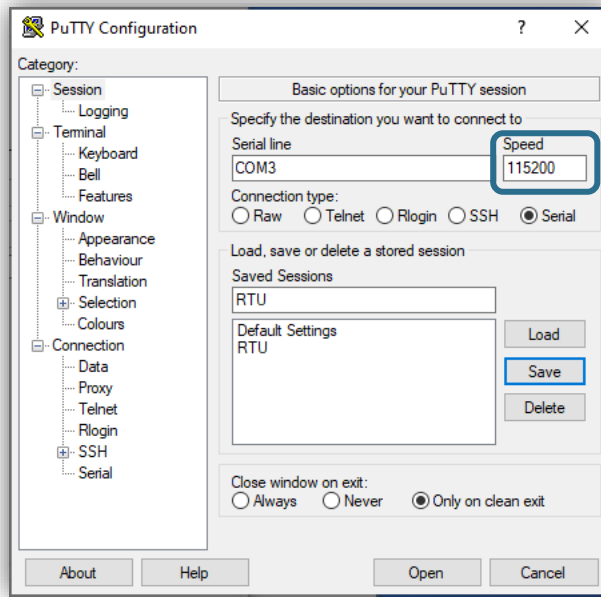
<https://www.veexinc.com/en-us/Support/Software>.

Use the unit's serial number to find the correct file.

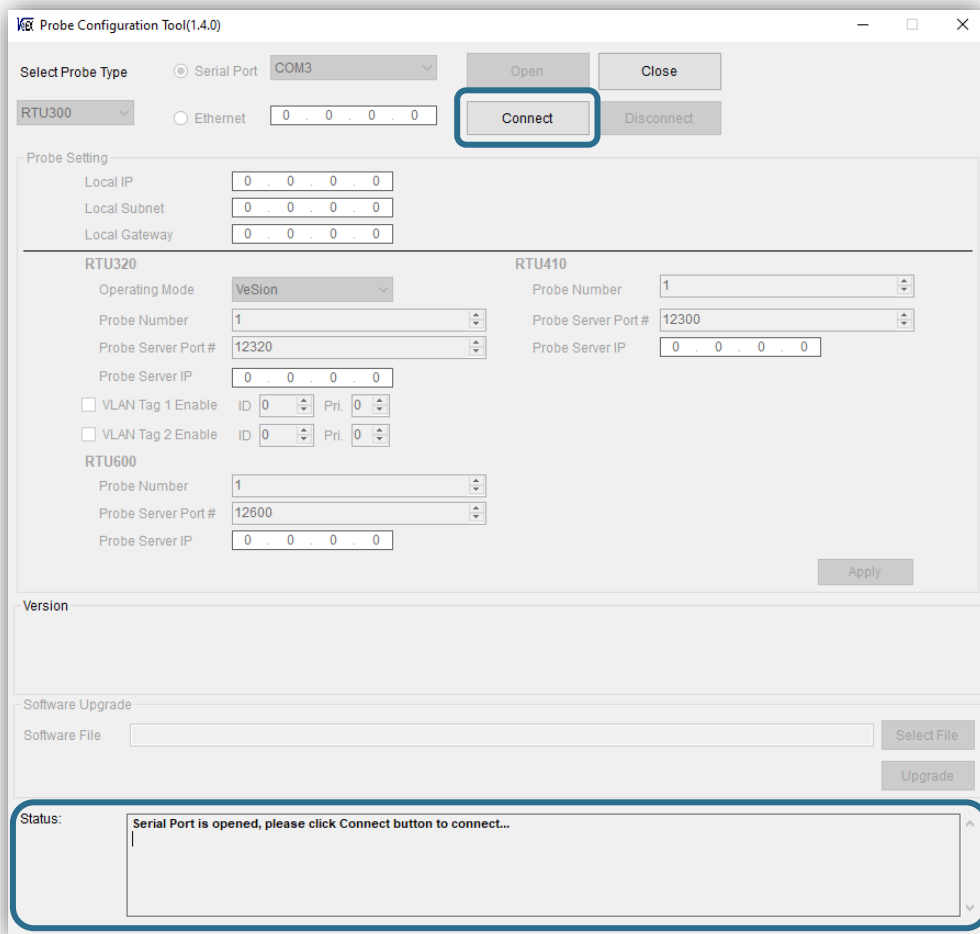
2. Launch the [ReVeal Probe Configurator Tool](#). Select the correct port to connect via serial connection on your PC. In this case, we are using [COM3](#). Select the [Probe Type](#) as [RTU-300](#). Click [Open](#).

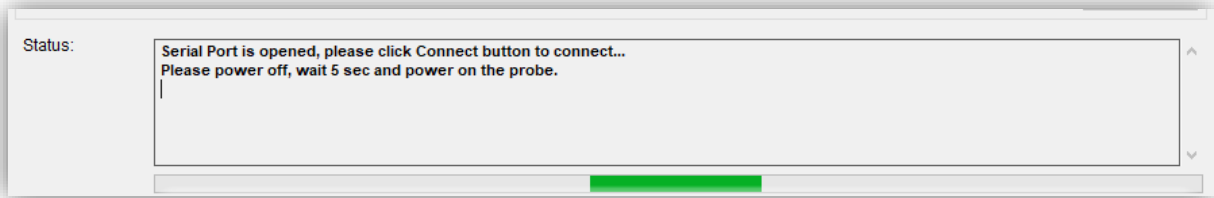


**Note:** If you are using Putty for example, use the following settings to connect to the RTU (115200 baud rate).

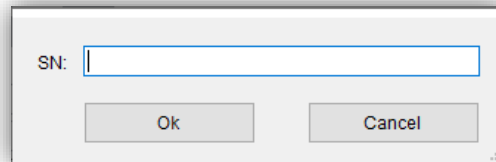


3. The Status window will indicate that the serial port is opened. Once the port is open, click [Connect](#).

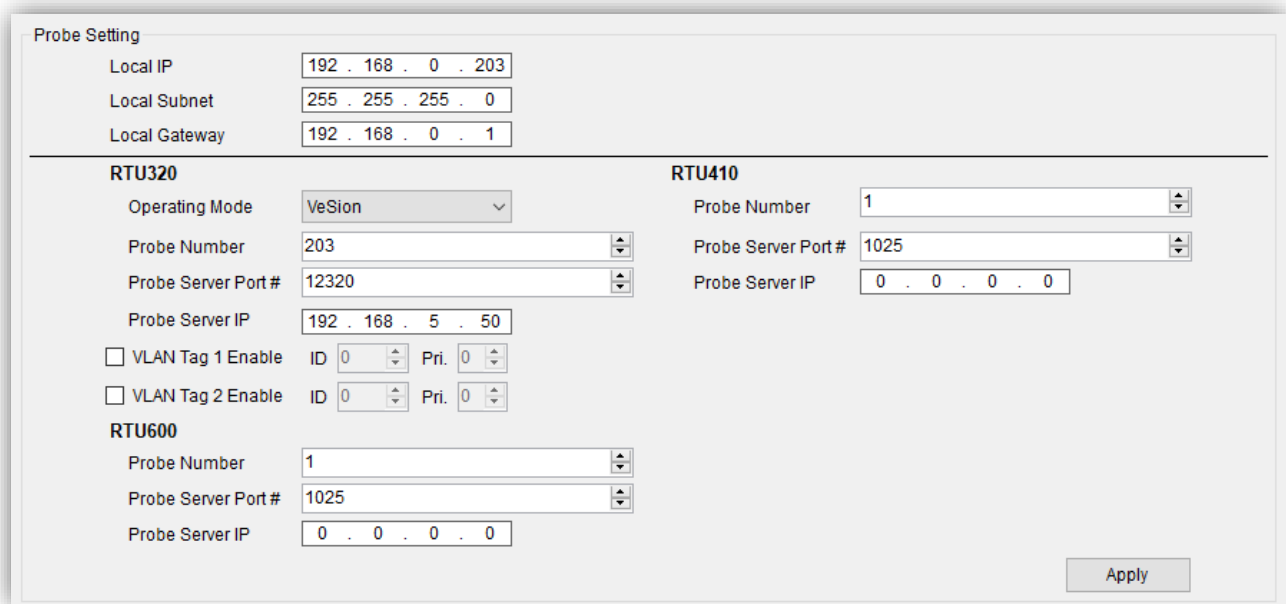




Before getting prompted to enter the S/N, the RTU must be powered off, then on again as stated in the [Status](#) window. Enter the unit's serial number when the dialog box appears and click [Ok](#).



4. The probe's default IP address settings will be populated after the serial number is entered. The VeSion server IP address ([Probe Server IP](#)) must be assigned in order to use VeSion to log in to the unit and launch tests. The [Local IP](#) address should be modified according to your network IP settings – VNC will use this IP address to log in to the unit.
5. Make sure that [Probe Server Port](#) is [12320](#).



**Note:** The [VeSion server IP address](#), the [RTU-320 Probe Number](#), and [VeSion TCP Port number](#) need to be configured in order for the VeSion system to talk to the RTU.

6. Modify the IP address as required under [Local IP/Local Subnet/Local Gateway](#). Click [Apply](#).

## RTU-300/320/600/600x System Settings and Operating Mode Configuration via ReVeal Probe Configuration Tool

Probe Setting

Local IP: 192 . 168 . 0 . 234  
 Local Subnet: 255 . 255 . 255 . 0  
 Local Gateway: 192 . 168 . 0 . 1

---

**RTU320**

Operating Mode: **SCPI** (dropdown menu showing VeSion, SCPI, 12320)  
 Probe Number: 1  
 Probe Server Port #: 12320  
 Probe Server IP: 192 . 168 . 5 . 50

VLAN Tag 1 Enable ID 0 Pri. 0  
 VLAN Tag 2 Enable ID 0 Pri. 0

**RTU410**

Probe Number: 1  
 Probe Server Port #: 1025  
 Probe Server IP: 0 . 0 . 0 . 0

**RTU600**

Probe Number: 1  
 Probe Server Port #: 1025  
 Probe Server IP: 0 . 0 . 0 . 0

Apply

To configure RTU operating mode follow these steps:

1. Use the **RTU-320** section to select RTU-300/320 Operation Mode:
  - **VeSion** – Operate via VeSion management tool
  - **SCPI** – Operate via web browser or VNC

**Note:** RTU-600x module supports only operation via web browser or VNC.

2. When the desired Operating Mode has been selected click **Apply**. The status window will indicate that the configuration has changed and the probe will be rebooted.

Status:

```

SN:TR2B04SA110256
Reading configuration...
Read configuration succeeded.
Updating the configuration, please wait...
Configuration is changed, will reboot the probe, please wait...
  
```

Progress bar: [Green bar]



## Web Remote Access Menu/VNC (Standalone Mode)

In order to operate the RTU-300/320/600/600x, launch a new web browser window and type the RTU-300/320/600/600x management IP address. Login using appropriate credentials (Default User ID – *admin* and password - *veexinc*).

The login form consists of the following elements:

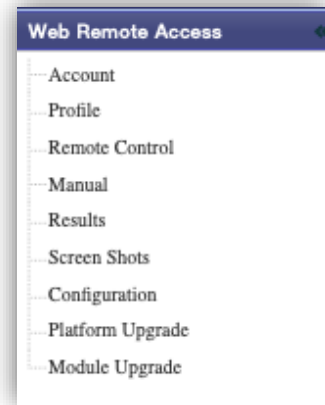
- Logo:** VeEX The Verification Experts
- User ID:** A text input field.
- Password:** A text input field.
- Log In:** A blue button with white text.

The screenshot shows the following interface details:

- Header:** VeEX logo on the left; 'You are connected to RTU300' on the right, with IP: 192.168.0.234 and S/N: TR2B04SA110256 Rev B04.
- Left Sidebar:** 'Web Remote Access' menu with options: Account, Profile, Manual, Results, Screen Shots, Configuration, Platform Upgrade, Module Upgrade.
- Main Content Area:**
  - WebSite Support: [www.veexinc.com](http://www.veexinc.com)
  - Customer Service Number: TEL: +1 (510) 650-0599
  - RTU300 Software Version: 3.3.10
  - 320SM Software Version: 3.3.8
  - Management MAC: 00:18:63:02:74:6B
  - Serial Number: TR2B04SA110256 Rev B04
  - TX300S Carrier Module: VVRXB02SO410295B03
  - CPU Module: VVE8D04SA110265D04
  - 320SM Module #1: VVTVC07SA013361C07
  - 320SM Module #2: VVTVC07SA013354C07

When operating the RTU via web browser, multiple options are available under the Web Remote Access menu:

- **Account** – Manage user accounts. Add, Edit or Delete accounts.
- **Profile** – Manage test profiles.
- **Remote Control** – Load test applications.
- **Manual** – Open the RTU-300 user manual.
- **Results** – Manage test results.
- **Screen Shots** - Manage screen shots taken from the RTU-300.
- **Configuration** – Configure system settings such as Local IP, Subnet, etc. and RTU300 settings such as Operating Mode to be operated via VeSion or web browser.
- **Platform Upgrade** – Perform a platform upgrade.
- **Module Upgrade** – Perform a module upgrade.



## RTU-300/320/600/600x System Settings and Operating Mode Configuration via Web Remote Access/VNC (Standalone Mode)

To configure RTU operating mode and other system and module parameters click **Configuration** under the Web Remote Access options and follow the next steps:

3. Use the **System Setting** section to configure Local IP Address, Subnet, Gateway.
4. Use the **RTU-320 Settings** section to select RTU-300/320 Operation Mode:
  - **VeSion** – Operation via VeSion management tool.
  - **SCPI** – Operation via web browser or VNC.

**Note:** RTU-600x module supports only operation via web browser or VNC.

5. When the desired Operating Mode has been selected click **Apply** and then **Reboot**. The new configuration will take effect after the unit reboots.

# RTU Software Upgrade

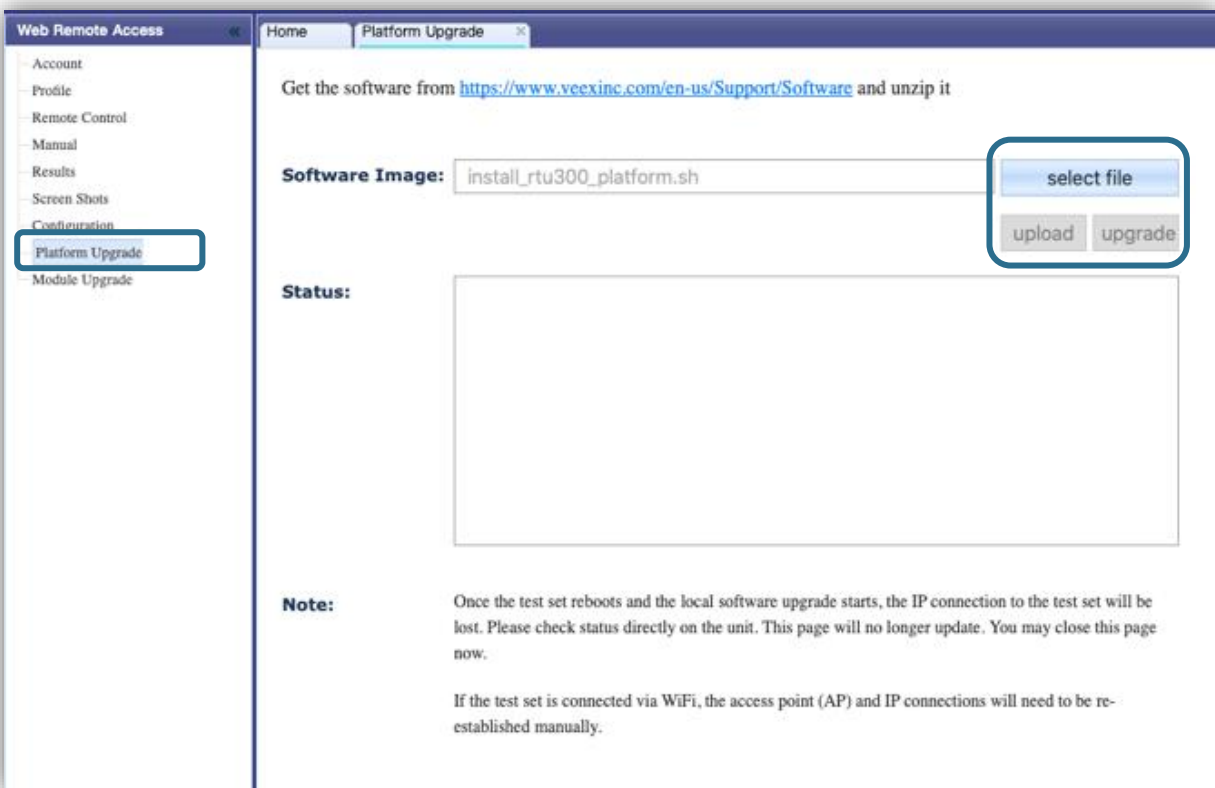
## Upgrading the RTU via Web Remote Access Menu/VNC (Standalone Mode)

### Platform Upgrade

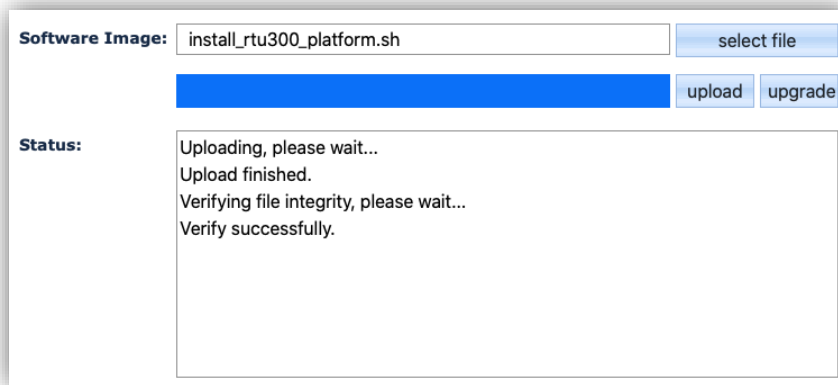
**Note:** The Platform software upgrade process is intrusive and any test will be interrupted; make sure to save any configuration or test results before proceeding.

Click **Platform Upgrade** under the **Web Remote Access** option and perform the following steps from the Platform Upgrade tab:

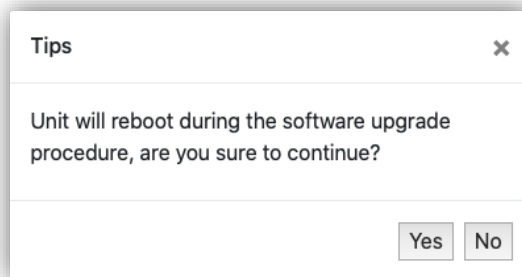
1. Download and unzip the required software from <https://www.veexinc.com/en-us/Support/Software>. Make sure to enter the RTU-300/320/600/600x serial number to find the correct file.
2. The Platform SW (install\_rtu300\_platform.sh) has to be upgraded first followed by the module software upgrade (install\_rtu300\_rtu320.sh/install\_rtu300\_100g.sh). However, if only the module SW has to be upgraded, there is no need to upgrade the platform.
3. Browse the software image file by clicking the **select file** button.
4. When the file is selected, click **Upload** to send the file to the RTU-300/320/600/600x.



- Once the upload process is completed and file verification is successful, click [Upgrade](#).



- Users will be asked to confirm if the upgrade procedure should continue, as a reboot will be performed at the end of the process.



- When the reboot process has been completed, log back in to the RTU-300/320/600/600x and verify that the platform software version was updated on the home page.

## Module Upgrade

**Note:** The module software upgrade process is intrusive, and any test will be interrupted; make sure to save any configuration or test results before proceeding.

Click **Module Upgrade** under the **Web Remote Access** options and perform the following steps from the **Module Upgrade** tab:

1. Download and unzip the required software from <https://www.veexinc.com/en-us/Support/Software>. Make sure to enter the RTU-300/320/600/600x serial number to find the correct file.

The screenshot shows the VeEX Web Remote Access interface for an RTU300 device. The top navigation bar includes the VeEX logo and the text 'You are connected to RTU300' with IP address 192.168.0.203 and serial number TR2B04SO210220 Rev B04. The left sidebar contains a 'Web Remote Access' menu with options like Account, Profile, Remote Control, Manual, Results, Screen Shots, Configuration, Platform Upgrade, and Module Upgrade (which is highlighted). The main content area has a breadcrumb trail: Home > Remote Control > Module Upgrade. Below the breadcrumb, there is a text instruction: 'Get the software from <https://www.veexinc.com/en-us/Support/Software> and unzip it'. A 'Software Image:' label is followed by a text input field and a 'select file' button. Below this are 'upload' and 'upgrade' buttons. A 'Status:' label is followed by a large empty text area. At the bottom, a 'Note:' section contains two paragraphs of text explaining that the IP connection will be lost during the upgrade process and that manual re-establishment is needed if connected via WiFi.

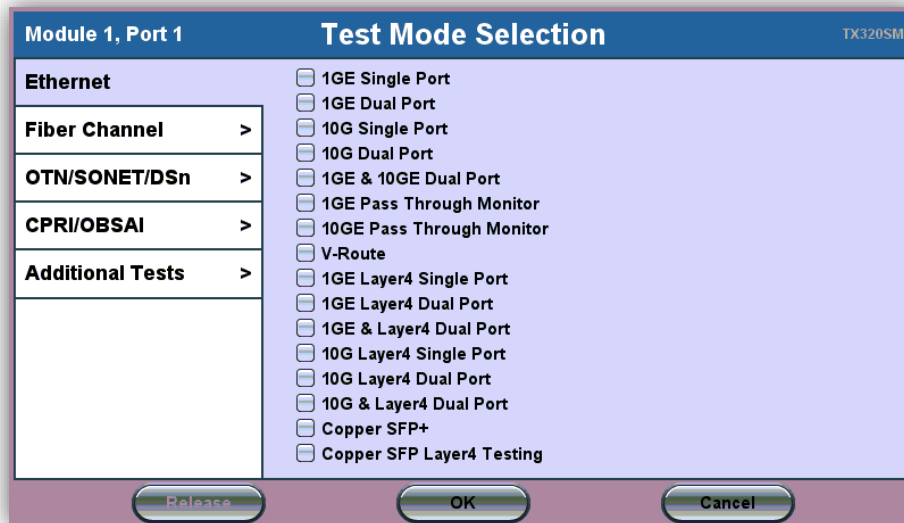
2. Browse the software Image file by clicking **select file**.
3. When the file is selected, click the **Upload** button to send the file to the RTU-300/320/600/600x.
4. Once the upload process is completed and file verification is successful, click **Upgrade**.
5. When the reboot process has been completed, log back in to the RTU-300/320/600/600x and verify that the module software version was updated on the home page.

## Loading a Test Application via Web Remote Access/VNC (Standalone Mode)

- Log in to the RTU using VNC. Type the IP address configured previously after launching the VNC app. The default password is **pass1**. To start testing, load the required test application using the **New** button in Port Group 1 or Port Group 2.



- Select the desired test application and press **OK** to launch it.



Follow the TX320s and TX300-100G User Manual instructions to set up a Loopback, Throughput, RFC-2544 or V-SAM Test. You can find them in the downloads section of the product page at <https://www.veexinc.com>.

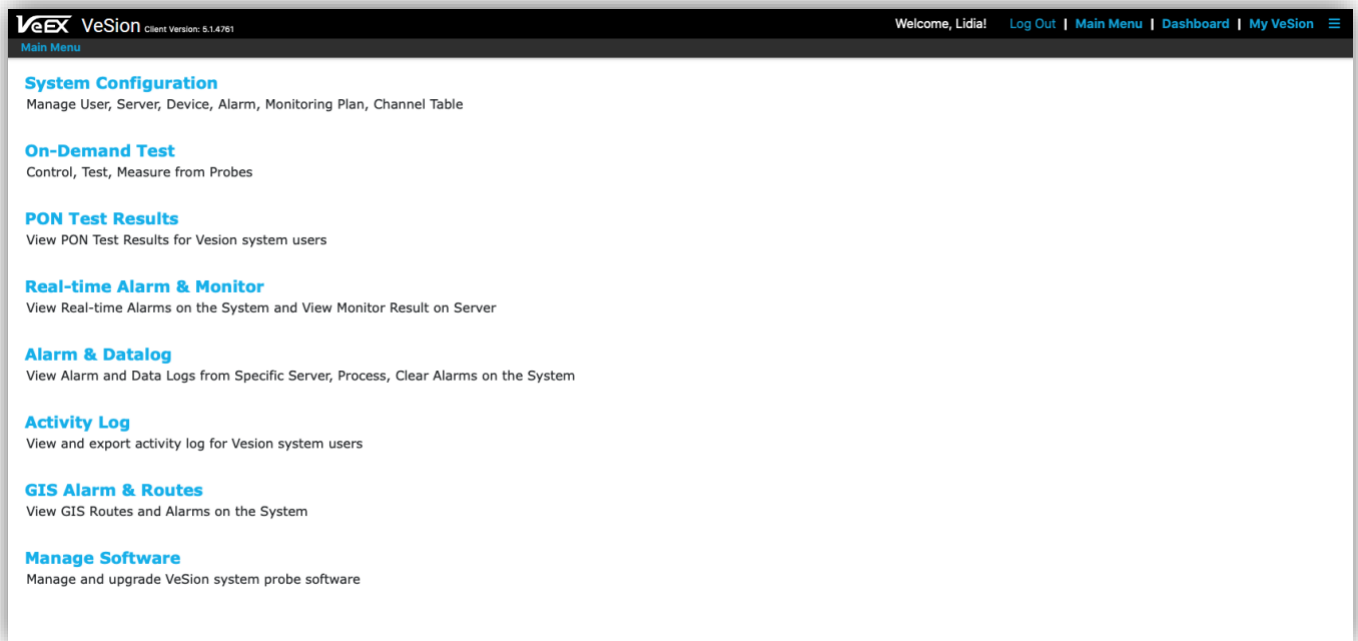
## Using VeSion to Configure the RTU User Access

This section will focus on creating new users and assigning credentials to tester types in VeSion, a web-based management tool.

1. Launch your web browser and type the [VeSion server IP address](#). Type your [User ID](#) and [password](#) to login.

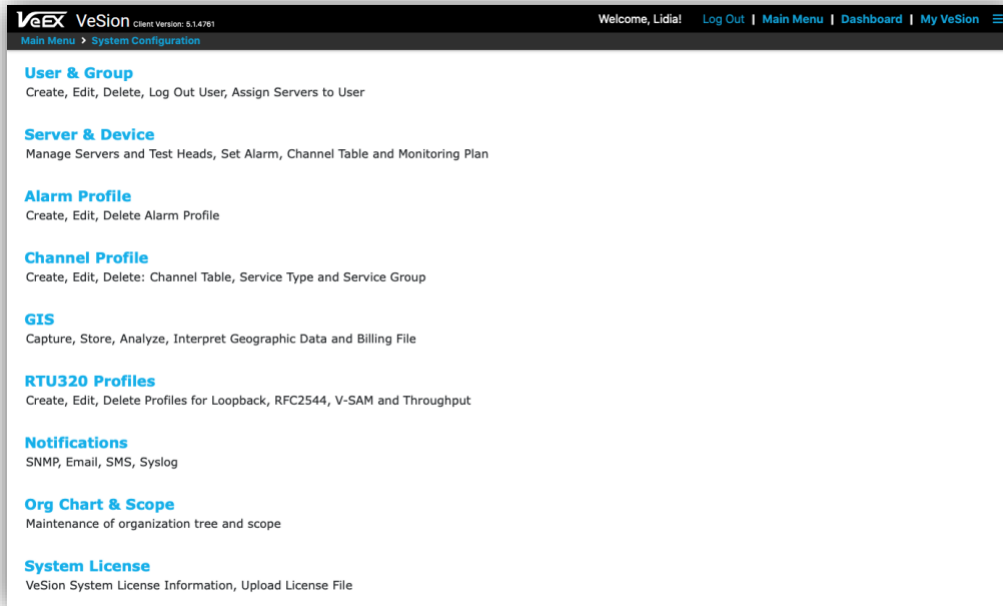
The image shows a login form for VeSion. At the top center is the VeEX logo with the tagline "The Verification Experts". Below the logo are two input fields: "User ID" and "Password". At the bottom of the form is a large blue button labeled "Log In".

2. Manager level credentials display [System Configuration](#) settings as shown below.

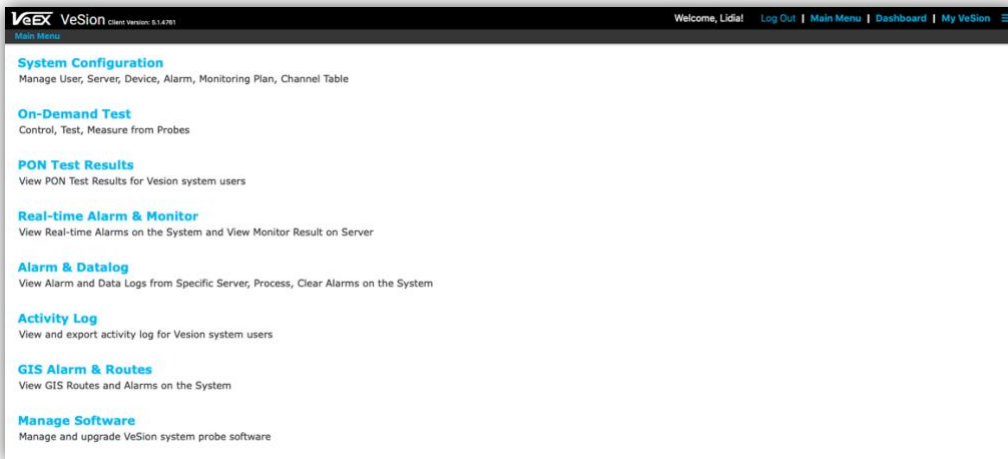
The image shows a screenshot of the VeSion web application interface. The top navigation bar includes the VeEX logo, "VeSion client Version: 5.1.4.751", and user information "Welcome, Lidia!" with links for "Log Out", "Main Menu", "Dashboard", and "My VeSion". The main content area is titled "Main Menu" and lists several menu items with descriptions:

- System Configuration**: Manage User, Server, Device, Alarm, Monitoring Plan, Channel Table
- On-Demand Test**: Control, Test, Measure from Probes
- PON Test Results**: View PON Test Results for Vesion system users
- Real-time Alarm & Monitor**: View Real-time Alarms on the System and View Monitor Result on Server
- Alarm & Datalog**: View Alarm and Data Logs from Specific Server, Process, Clear Alarms on the System
- Activity Log**: View and export activity log for Vesion system users
- GIS Alarm & Routes**: View GIS Routes and Alarms on the System
- Manage Software**: Manage and upgrade VeSion system probe software

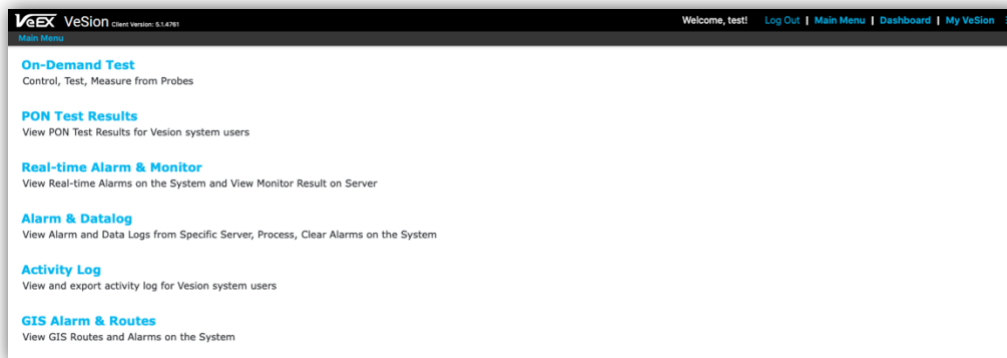
3. Under the [System Configuration](#) menu, the user can configure the RTU test ports and IP settings.



4. **Tester level credentials** enable users to run tests. Privileges are limited to running tests and viewing configurations only.
5. Notice the difference between User access privileges and Manager level privileges as shown below.



*Manager level privileges*

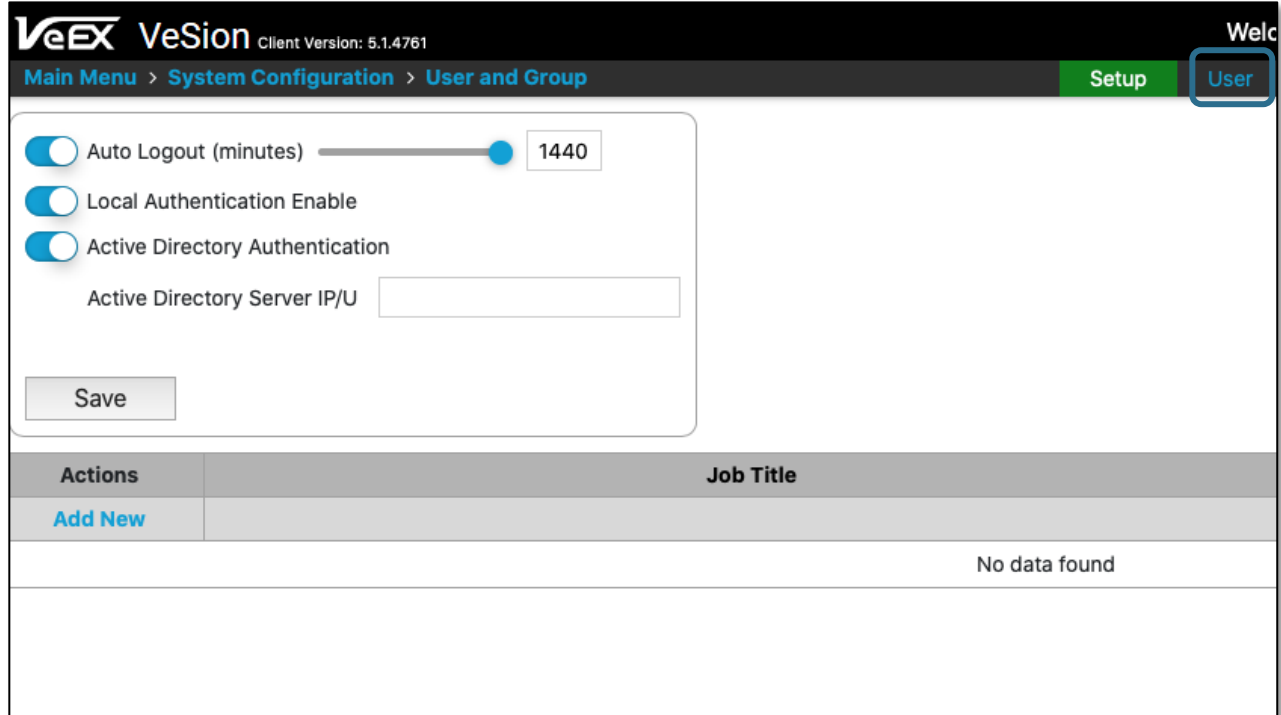


*User level privileges*



## Adding/Removing Users

1. Click on [System Configuration > User & Group > User](#)



A list of current users and their group will be displayed.

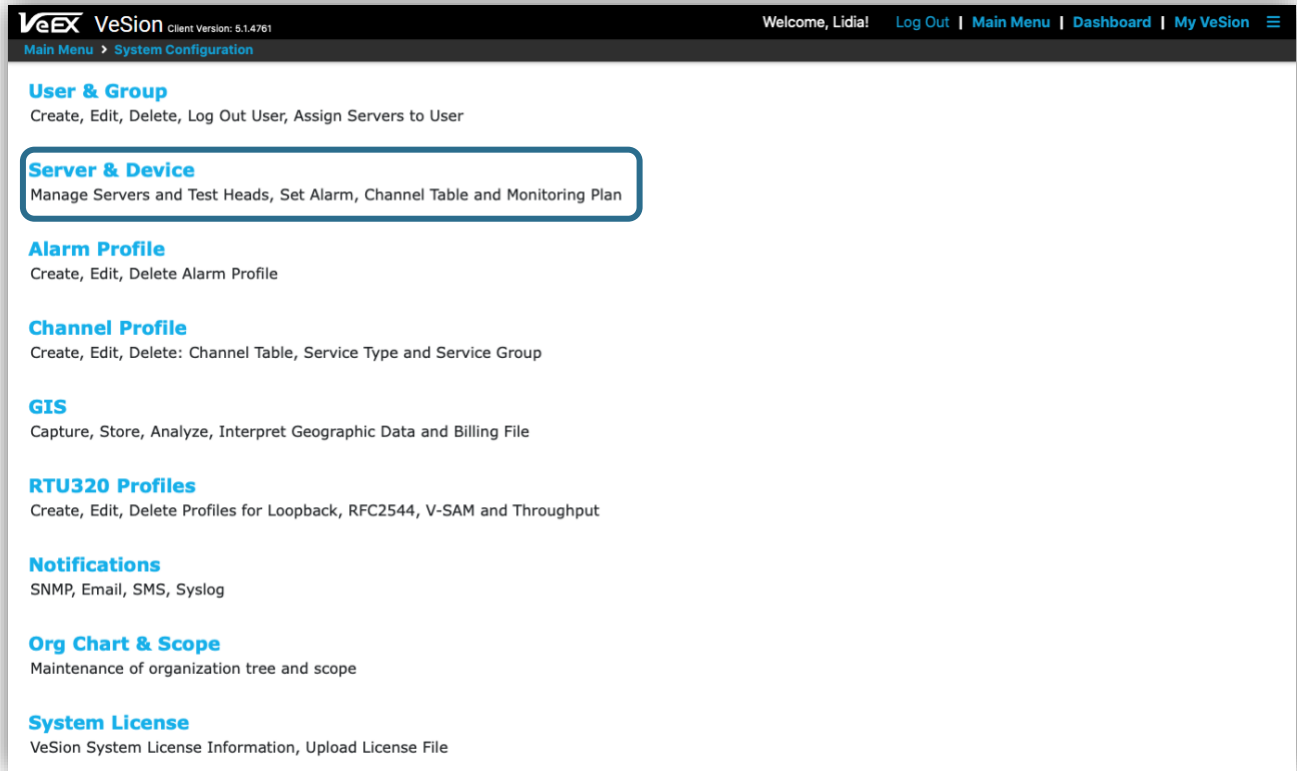
2. To create a user with Tester privileges, testing and viewing results only:
  - Click on [Add New](#). Select [Tester](#) from the [Group](#) drop-down menu.
  - Input the [Name](#), [User ID](#), and [Password](#), and click [Save](#).
  - To test the newly created user, log out and log back in using these new credentials to make sure only Tester privileges are available.

Actions	Name	User ID	Group and Org Chart	Status	Password	Email	Employee ID	Phone Numbers	SMS Provider
<a href="#">Add New</a>	<input type="text" value="Find Name"/>	<input type="text" value="Find User ID"/>				<input type="text" value="Find Email"/>	<input type="text" value="Find Employee ID"/>	<input type="text" value="Find Phone Numbers"/>	
<a href="#">Edit</a> <a href="#">Delete</a>	Alex Brown	abrown	Manager	✓	*****	abrown@veexinc.com			T-Mobile
<a href="#">Edit</a> <a href="#">Delete</a>	Jennifer Johnson	jjohnson	NOC Operator	✓	*****	jjohnson@veexinc.com			Verizon
<a href="#">Edit</a> <a href="#">Delete</a>	David Thompson	dthompson	Supervisor	✓	*****	dthompson@veexinc.com			Verizon
<a href="#">Edit</a> <a href="#">Delete</a>	Kate Willson	kwillson	Tester	✓	*****	kwillson@veexinc.com			T-Mobile
<a href="#">Edit</a> <a href="#">Delete</a>	John Smith	jsmith	Manager	✓	*****	jsmith@veexinc.com			Sprint

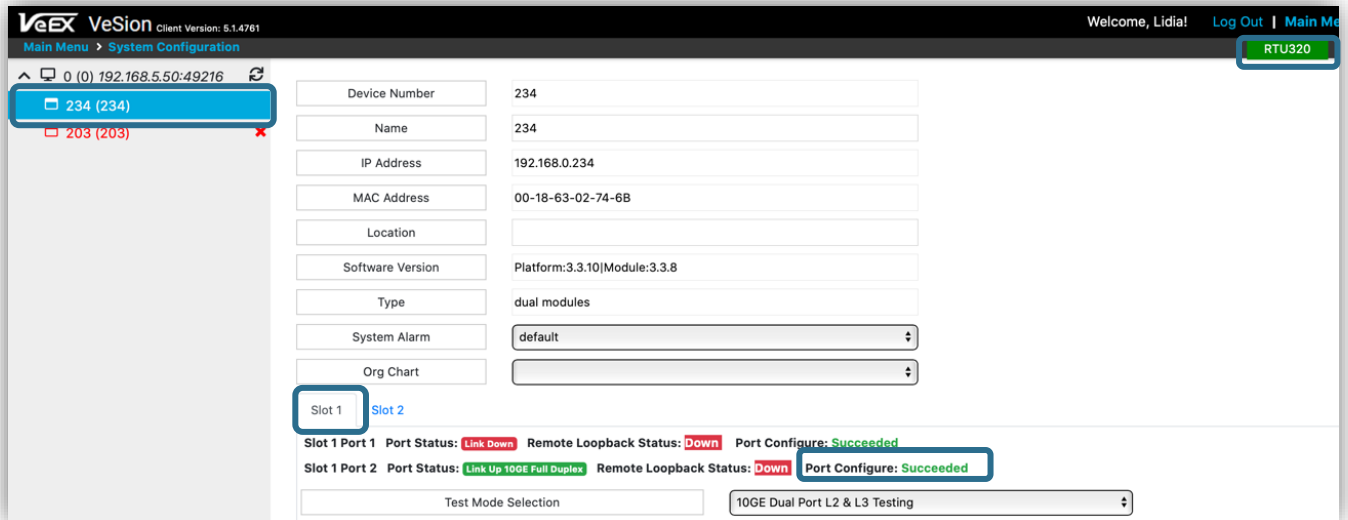
## Configuring the Test Ports

This section will focus on configuring the physical test ports. In the [System Configuration](#) menu, the user can configure the RTU test port and IP settings.

1. Log in with a user that has Manager privileges. Click [System Configuration > Server & Device](#). All available sub-menus are shown below.



- Make sure the RTU-300 is selected if other devices are also being used by this VeSion server. Select a module (Slot) as shown below and a Test Mode.



The following test modes are available:

- 1GE Dual Port L2 & L3 Testing** – Enables running the 1GE Loopback, Throughput, V-SAM, and RFC2544 tests on both ports
- 1GE Dual L4 Stateful TCP Testing** – Enables running the 1GE V-PERF test on both ports
- 1GE Dual L4 Stateful TCP Testing + L2 & L3 Testing** – Enables running 1GE Loopback, Throughput, V-SAM, and RFC2544 tests on one port and 1GE V-PERF test on another

- **10GE Dual Port L2 & L3 Testing** – Enables running 10GE Loopback, Throughput, V-SAM, and RFC2544 tests on both ports
- **10GE Dual L4 Stateful TCP Testing** – Enables running 10GE V-PERF test on both ports
- **10GE Dual L4 Stateful TCP Testing + L2 & L3 Testing** – Enables running 10GE Loopback, Throughput, V-SAM, and RFC2544 tests on one port and 1GE V-PERF test on another
- **1GE/10GE Dual Port L2 & L3 Testing** – Enables running 1GE Loopback, Throughput, V-SAM, and RFC2544 tests on one port and 10GE Loopback, Throughput, V-SAM, and RFC2544 tests on another

3. Scroll down the page to modify any Test Port IP settings. Change the [Port Settings](#), [IP address information](#), [VLAN ID](#), [Priority bit](#) as required. Click [Save](#).

While the changes are taking place, you will see [In Progress](#) status for [Port Configure](#). When the configuration is done, the [Succeeded](#) status should appear instead.

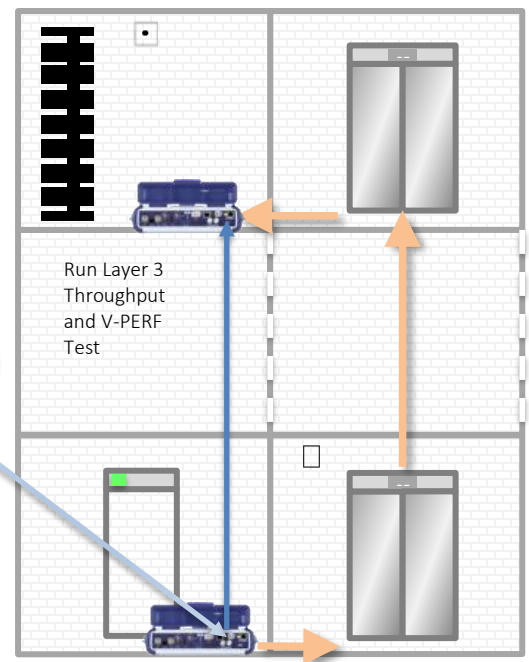
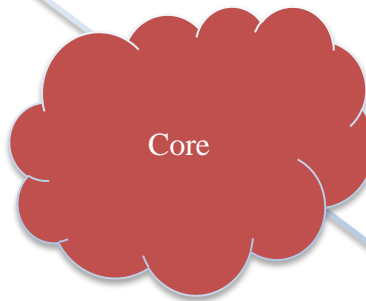
Click on the **Network Status** tab to verify that the IP Configuration status is OK. It should say *PASS* for **IP & Gateway**.

Network Setup	Network Status	Ping	Trace Route
Local IP	192.168.0.122		
Subnet Mask	255.255.255.0		
Gateway	192.168.0.191		
IP	Pass		
Gateway	Pass		

## Running a Throughput Test via VeSion

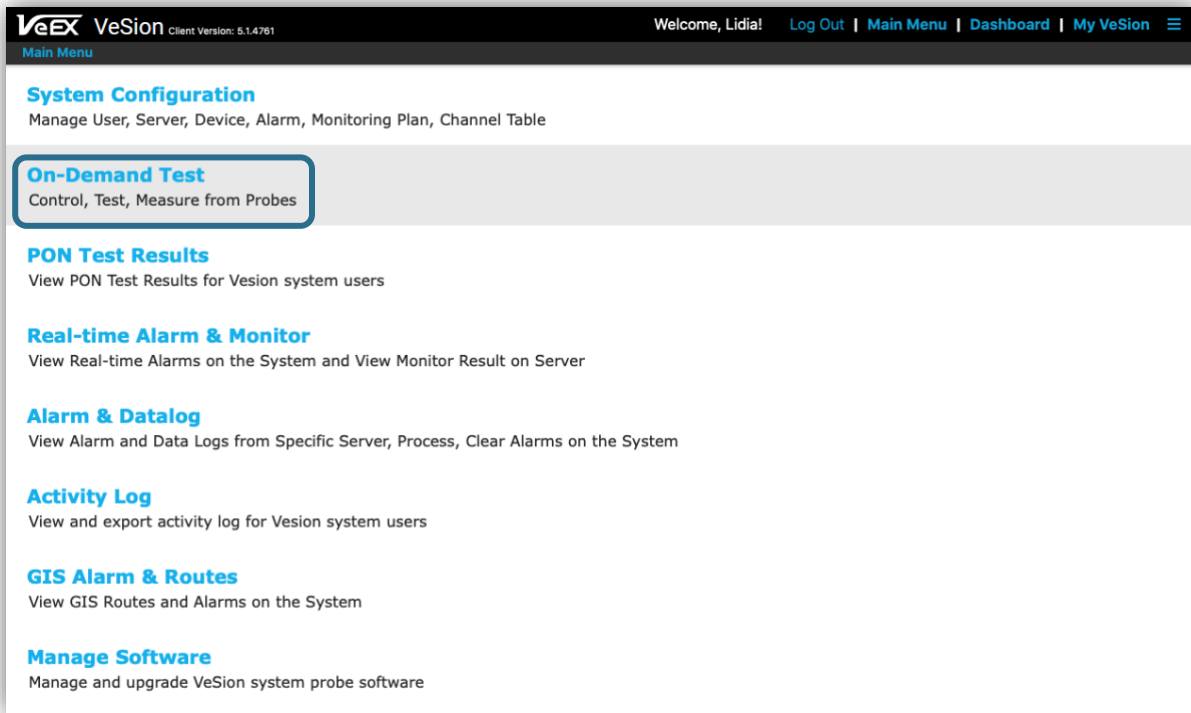


- Run RFC-2544 Throughput Test
- Run V-SAM Test

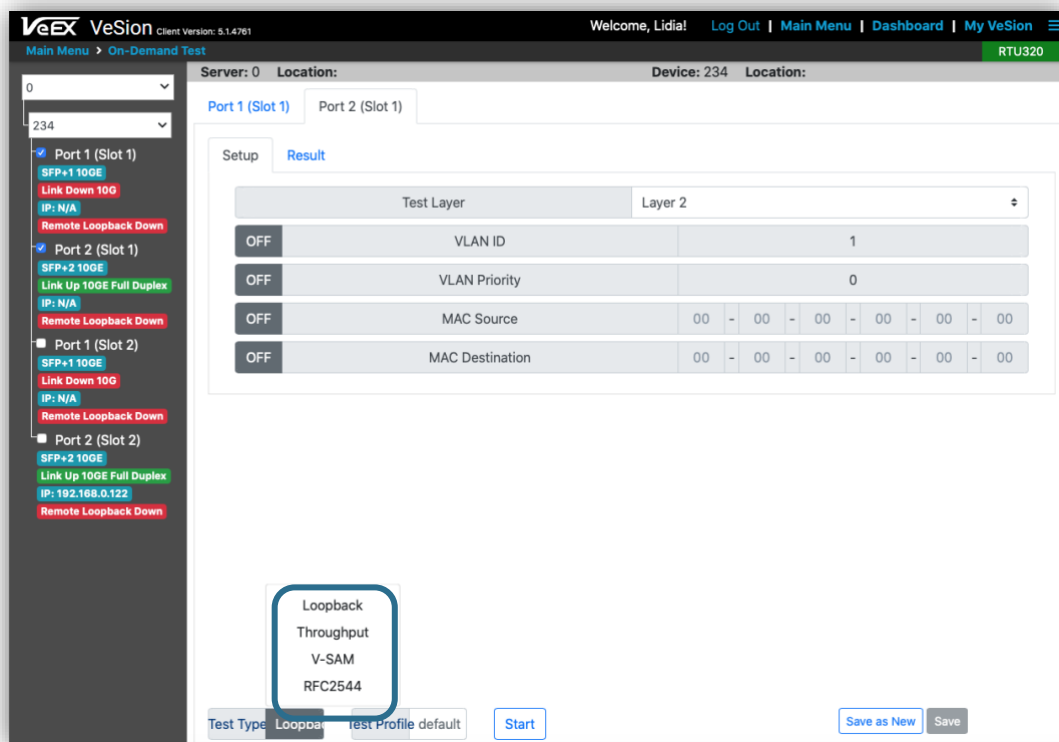


To start the Throughout Test via VeSion follow the next steps:

1. From the home page, click [On-Demand Test](#).



2. Make sure the right RTU-300 is selected if other devices are also being used by this VeSion server. Select the test ports to be used on the left-hand side. Toggle in between the Port 1 & Port 2 configuration using the tabs as shown below.
3. Select [Throughput](#) from the [Test Type](#) drop-down menu at the bottom.



- Configure the **Header/Traffic/General** and other parameters and click **Save**. Use the **Save as New** to save this profile for future testing. Use a relevant name to easily select a test that has to be run. Click **Start** to start a test. Test results are displayed dynamically. Click **Stop** if you need to stop the test.

The screenshot displays the configuration interface for a test profile. At the top, there are tabs for 'Port 1 (Slot 1)' and 'Port 2 (Slot 1)'. Below these are 'Setup' and 'Result' tabs. A blue button 'Apply to All Stream' and a dropdown menu 'Stream # 1' are visible. The main configuration area has tabs for 'Header', 'Traffic', 'General', 'Error Inj.', and 'Alarm Inj.'. The 'General' tab is active and contains sub-tabs for 'General', 'MAC', 'Data', and 'RX Filter'. The 'General' sub-tab is selected and shows four rows of configuration options:

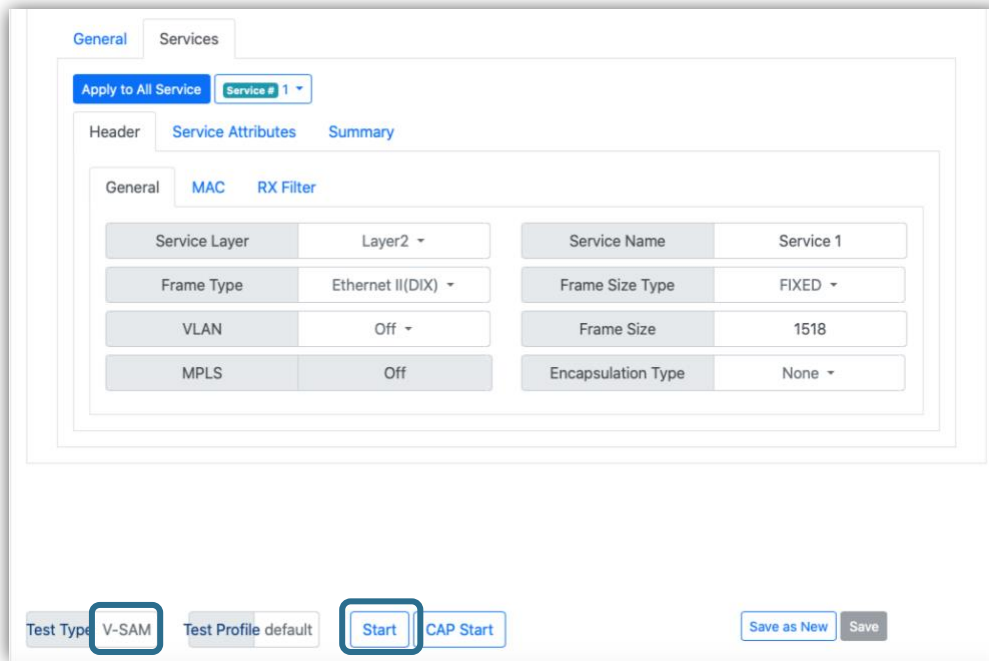
Encapsulation Type	None ▾
Test Layer	Layer 2 ▾
Frame Type	Ethernet II(DIX) ▾
VLAN	Off ▾

At the bottom of the interface, there are buttons for 'Test Type Through', 'Test Profile default', 'Start' (highlighted with a red box), 'CAP Start', 'Save as New', and 'Save'.

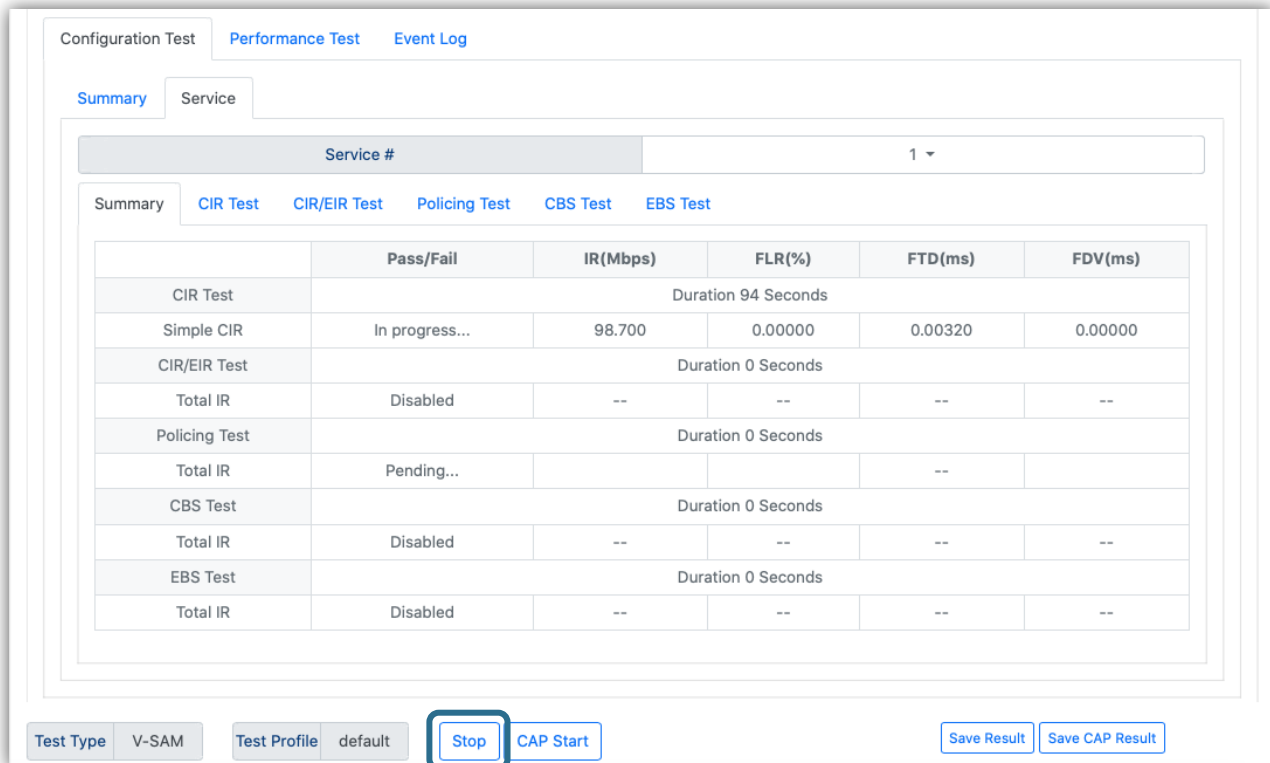
# Running a V-SAM Test via VeSion

To start the V-SAM Test via VeSion:

1. Select **V-SAM** from the **Test Type** drop-down menu.



2. Once all the General and Service parameters are set, save the profile for future use by clicking on **Save as New**. Use a relevant name to easily select a test to be run later on.
3. Click **Start** to start a test. Click **Stop** if you need to stop the test. Test results are displayed dynamically. To view the different KPIs click on the different test results tabs.



## Running a V-PERF Test via VeSion

To start the V-PERF Test via VeSion:

1. Make sure that the selected port is configured for L4 Testing and select **V-PERF** as a **Test Type** in the drop-down menu.
2. Set the mode to be Server, Client, Bidirectional Server, or Bidirectional Client.
3. Configure the **TCP Port** number and **Start** the test. Test Results are displayed dynamically. Click **Stop** if you need to stop the test.

The screenshot shows the VeSion interface for a V-PERF test. The 'Setup' tab is active, and the 'Server' sub-tab is selected. The 'Summary' sub-tab displays the following test results:

Header	Values
Session Index	2
Parallel Streams	1
Protocol	TCP
Transfer Direction	Client to Server
Client IP	192.168.0.102
Current	9896.442 Mbps
Max	9910.387 Mbps
Min	9704.654 Mbps
Average	9889.642 Mbps
Transfer size	11833.818 MBytes
Transfer Duration	10037 ms
TCP Efficiency	100.000%
Pause Frame	0

At the bottom of the interface, there are buttons for 'Test Type' (V-PERF), 'Test Profile' (Last Pro), 'Stop' (highlighted with a red box), and 'Save Result'.



