

OPWILL TECHNOLOGIES (BEIJING) CO., LTD

OTM2612 Gigabit Ethernet/PTN/SDH Test Module Operation Guide

Version: V1.03

OPWILL

Revision History

The following table shows the revision for this document.

Date	Version	Revision
28/JUN/2018	1.00	Initial release
17/JULY/2018	1.01	Add the description of Loopback and Through
06/AUG/2018	1.02	Add the SDH test
14/AUG/2018	1.03	Change Figure Title to two level

The document is based on the platform and module with following hardware and software version:

	Hardware	Software
OTP6200	OTP_MCU_VER_A4	V.2.0.1.3
OTM2612	A1	V1.0.0.7

The product and the operation guide could be upgraded or modified without notice. Please visit the website of OPWILL (www.opwillsolution.com) or contact us for the further information.

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Document Briefs

Initial speaking, OTM2612 is one of modular product of OPWILL, which means OTM2612 module needs to be worked with OTP6200 platform.

The purpose of this document is to help the engineers to use OTM2612 module with OTP6200 platform to test Ethernet network successfully, and also with high efficiency.

This manual is based on the assumption that the users who have basic computer experience and are familiar with basic telecommunication concepts, terminology, and safety.

This manual will introduce the task-based instructions of OTM2612 which describe how to configure, use, and troubleshoot the general functions of the instrument.

Safety information, detail physical or technical specification information, or other information could be helpful, please see our **OTM2612 Datasheet**, **OTM2612 User Guide**, and **OTP6200 User Guide**.

Finally, this manual is demonstrated complete **Standard** and **Optional** test functions of OTM2612.

1. OTP6200 Platform

1.1 OTP6200 Platform Introduction

Front Panel of OTP6200 Platform

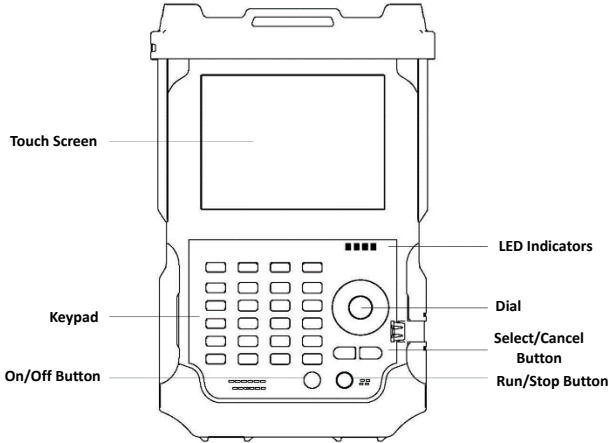






Figure 1.1.1 OTP6200 Network Test Platform Front Panel View

LED Indicators


Table 1.1 LED Indicator Definitions

LED	Status	Description
	Green	<ul style="list-style-type: none"> On Off, and the battery is under fully charged condition
	Green, <i>(Flashing Quickly)</i>	Off, and the battery is under abnormal condition
	Green, <i>(Flashing Slowly)</i>	Off, and the battery is on charge
	Off	Off, and unplugged in
	Green	Plugged in and battery is fully charged
	Green, <i>(Flashing)</i>	Battery is on charge
	Red, <i>(Flashing)</i>	Unplugged in, and battery is weak
	Red	Battery error
	Off	<ul style="list-style-type: none"> Off Unplugged in, and battery level is above the 'critical threshold'
	Green	Result status: success (<i>Current result of the application does not exceed the predefined threshold</i>)

LED	Status	Description
	Red	Result status: failure (<i>Current result of the application exceeds the predefined threshold</i>)
	Green (Flashing)	Laser status LED, at least one module is transmitting an optical signal
	Off	No module is transmitting signal

Buttons

Table 1.2 Buttons Description

Button	Description
F1 / MENU	Switch from the current application to main menu
F2 / SAVE	Save the current configuration of the device
F3 / PRINT SCREEN	Copy the screenshot
F4 / HELP	Display help information
F5~F8	Shortcut buttons (<i>Different definitions for different modules, detail information can be seen in the individual module user handbook</i>)
F9 / SYSTEM	System setting
CANCEL	Cancel/Exit
SELECT	Select/OK
	On/Off (<i>Specific operation information can be seen in Section 5.1</i>)
RUN / STOP	Run/Stop

Right Panel of OTP6200 Platform

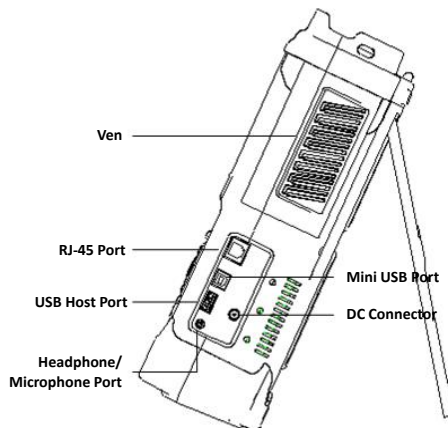




Figure 1.1.2 OTP6200 Network Test Platform Right Panel View

Interfaces

Table 1.3 Interfaces Description

Interfaces	Quantity	Description
RJ-45 Port	1	Connect to Ethernet network
USB Host Ports 	2	<ul style="list-style-type: none"> • Connect USB memory drive • Connect keyboard • And connect mouse device, etc.
Mini USB port 	1	Connect a USB cable for data transferring between the device and a computer
Audio Output Port	1	Connect headphone/microphone
DC Connector	1	Connect A/C adapter

Top Panel of OTP6200 Platform

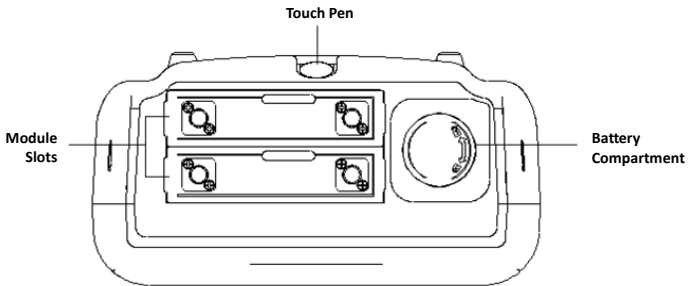


Figure 1.1.3 OTP6200 Network Test Platform Top Panel View

Bottom Panel of OTP6200 Platform

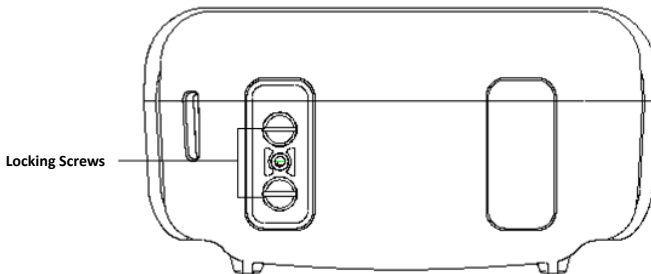


Figure 1.1.4 OTP6200 Network Test Platform Bottom Panel View

2. OTM2612 Module

2.1 OTM2612 Transmission Interface Information

Front Panel View

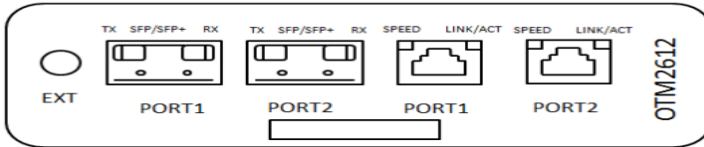


Figure 2.1.1 OTM2612 Module Front Panel View

Interfaces

Table 2.1 Interfaces Description

Interfaces	Quantity	Description
100/1000M BASE-X Optical port	2	<ul style="list-style-type: none"> Signal: 100/1000Mb/s optical signal Type: SFP optical port
10G BASE-X Optical port	2	<ul style="list-style-type: none"> Signal: 10Gb/s optical signal Type: SFP+ optical port
10/100/1000M BASE-TX Electrical port	2	<ul style="list-style-type: none"> Signal: 10/100/1000Mb/s electrical signal Type: RJ-45
EXT External clock port	1	<ul style="list-style-type: none"> Signal: DS1/E1/2MHz electrical signal Type: SMA

LED Indicators

Table 2.2 LED Indicator Definitions

Interface	LED	Status	Description
100M/1000M/10G BASE-X	LINK	Green	Link has been established successfully
		Off	Link has not been established
	ACT	Red	Data is transmitting
		Off	No data transmission
10/100 /1000M BASE-TX	SPEED	Orange	1000Mb/s
		Green	100Mb/s
		Off	10Mb/s
	LINK/ACT	Green	Link has been established successfully, but no data frame transmission
		Green (Flashing)	Link has been established successfully, data is transmitting
		Off	Link has not been established

3. Ethernet Testing

3.1 Basic Steps of Ethernet Testing

Step 1: Start Ethernet/PTN Application

Start the Ethernet/PTN application needs to follow the following steps:

- After the module has been installed into the platform properly, start OTP6200 platform;
- OTM2612 module will be displayed on the platform's main window, then select the module;
- Click right side 'Run' button, or double-click the module to run OTM2612 Module.

For details about OTP6200 Platform Set Up, please refer to OTP6200 User Guide.



Figure 3.1.1 OTP6200 Start the 10G Ethernet/PTN Application-1

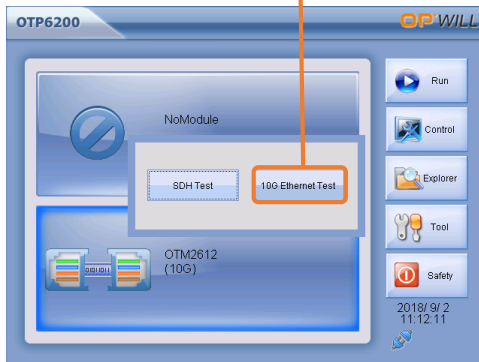


Figure 3.1.2 Start 10G Ethernet/PTN Application-2

Step 2: Select a Test Application

After OTM2612 Ethernet/PTN Module has been started, the main interface of OTM2612 will be displayed on the screen. Select a test application needs to follow the following steps:

- Select one test application from ‘Function’;
- Then test application will appear, select one test application.

Note: Test application list could be shown different with Figure 3.3, because some test functions are optional, please check these functions have been purchased or not.

For details about OTM2612 Interface Description, please refer to OTM2612 User Guide.

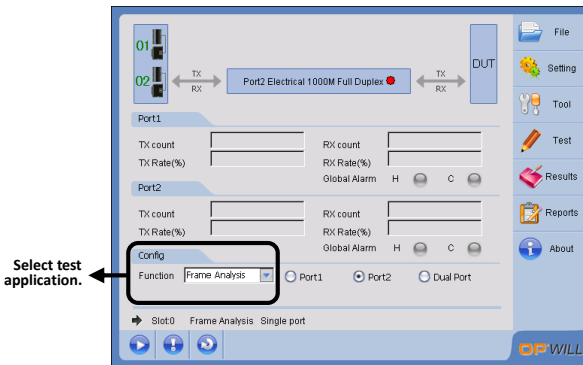


Figure 3.1.3 Main Interface of 10GE Ethernet/PTN Application

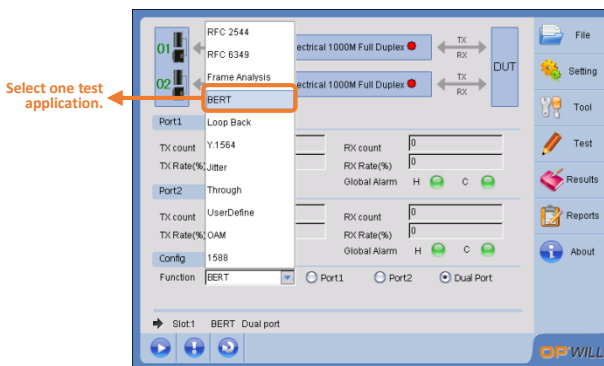


Figure 3.1.4 Test Application List

Step 3: Configure a Test

After one test application has been selected, please follow the following steps to configure the test:

- Click 'Setting', then select 'Port Setup' for setting parameters of test ports;
- Or, click 'Link Box' to enter port setup, see Figure 3.1.5;
- Then, after all parameters of ports have been set completely, click 'Setting', then select 'Stream Generation' for setting test data stream.

Note: Some test application will not require to set data stream.

Following sections will demonstrate the configuration steps case by case:

- For RFC2544, please see details in [Section RFC2544](#);
- For RFC6349, please see detail in [Section RFC6349](#);
- For Frame Analysis, please see details in [Section Frame Analysis](#);
- For Bit Error, please see details in [Section Bit Error](#);
- For Loopback and Through, please see details in [Section Loopback and Through](#);
- For Y.1564, please see details in [Section Y.1564](#);
- For Jitter, please see details in [Section Jitter](#);
- For User Defined Frame, please see details in [Section User Defined Frame](#);

For details about OTM2612 Configuration Description, please refer to OTM2612 User Guide.

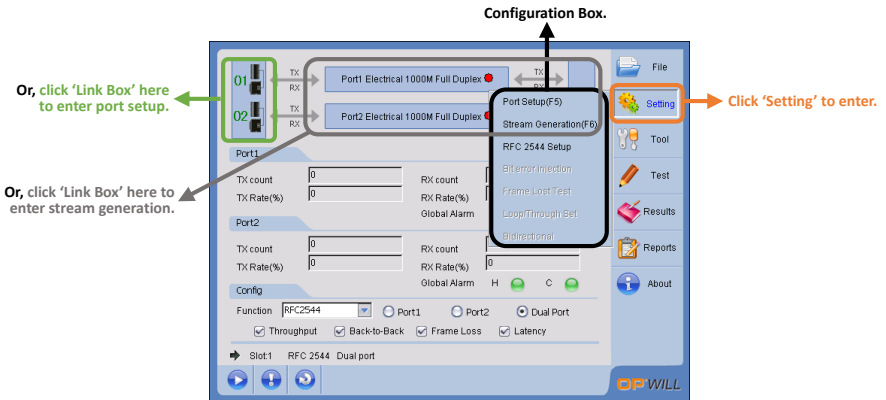


Figure 3.1.5 Configuration Box

Step 4: Connect with the Circuit

After configuration of one test has been done completely, connect the instrument with circuit. Please note:

- Test ports type and speed;

Note: for OTM2612 ports description, please see [Section OTM2612 Module](#);

- When test with optical circuit, please check the instrument has equipped optical transmission module or not, and its transmission wavelength (*850nm, 1310nm, 1550nm*) and power (*transmission distance*) is appropriate or not;
- Data needs to be looped back to the instrument.

How to loopback data:

- If remote switch supports layer 1 to layer 4 data loopback, use switch to loopback;

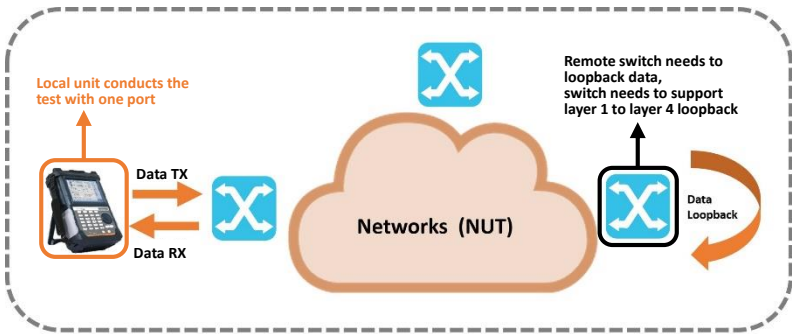


Figure 3.1.6 Data Loopback by Remote Switch

- If remote switch does not support data loopback, use OTM2612 dual ports to complete test.

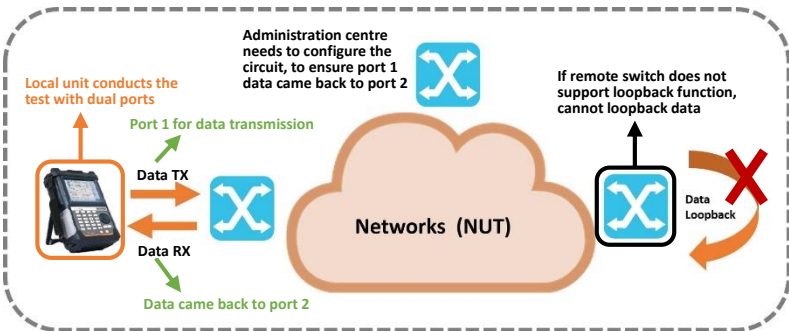


Figure 3.1.7 Data Loopback by Dual Ports

- If test environment cannot support OTM2612 to perform the test with dual ports, please use other OTM2612 or other instrument which has loopback function in the remote side to do data loopback. For details, please refer to Section: Loopback and Through.

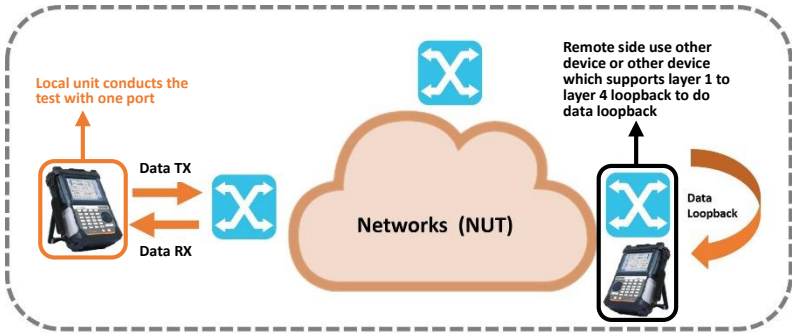


Figure 3.1.8 Data Loopback by Remote Device

Step 5: Start and End Test

After the instrument has been connected with the circuit successfully, please follow the following steps to start or end the test:

- Click 'Test', then select 'Start' or 'Stop' to start or end the test;
- Or, click 'Start and Stop' button to start or end the test, see Figure 3.1.9;
- Or, push 'Run/Stop' on OTP6200 Platform to start or end the test, see [Section OTP6200 Platform: Figure 1.1](#).

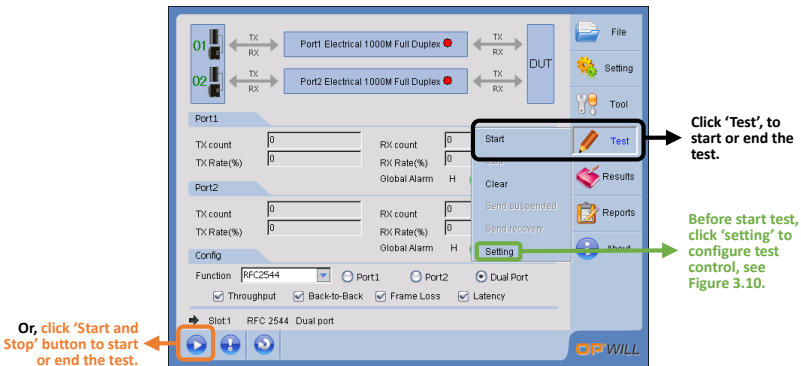


Figure 3.1.9 Start of End Test

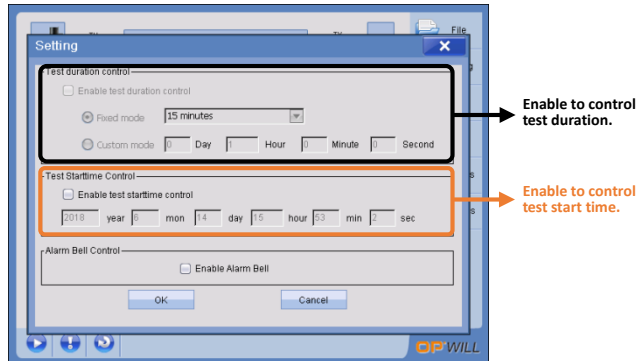


Figure 3.1.10 Test Control

Step 6: View Result

After the test has been done completely, please follow the following steps to view the results:

- To see the result, click 'Results';

Following sections will demonstrate the results case by case:

- For RFC2544, please see details in [Section RFC2544](#);
- For RFC6349, please see details in [Section RFC6349](#);
- For Frame Analysis, please see details in [Section Frame Analysis](#);
- For Bit Error, please see details in [Section Bit Error](#);
- For Loopback and Through, please see details in [Section Loopback and Through](#);
- For Y.1564, please see details in [Section Y.1564](#);
- For Jitter, please see details in [Section Jitter](#);
- For User Defined Frame, please see details in [Section User Defined Frame](#);

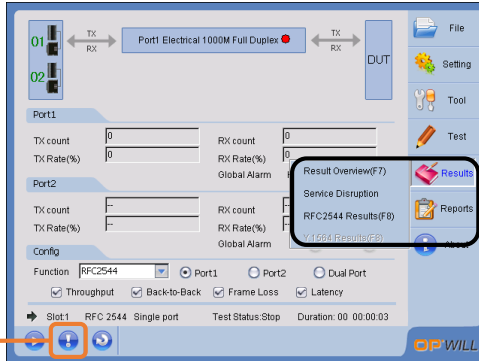


Figure 3.1.11 View Test Results -1

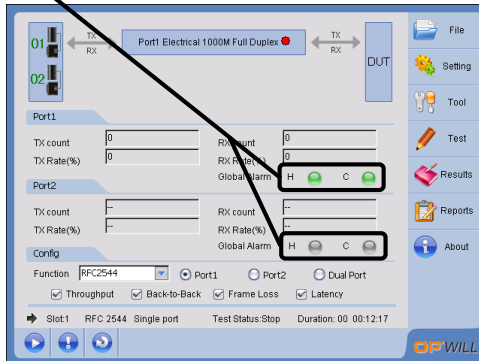


Figure 3.1.12 View Test Results -2

Step 7: Generate and Save Test Report

To generate and save test report, please follow the following the steps:

- Click 'Reports', then select 'Report Generation' to generate report;
- Click 'Preview' to preview the report which has been generated;
- Click 'Print' to print the report which has been generated.

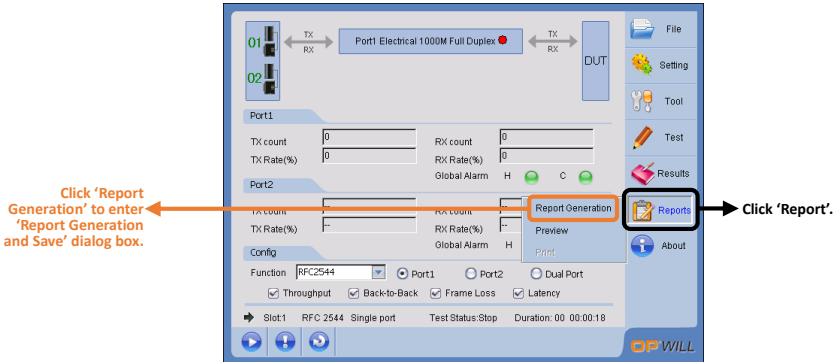


Figure 3.1.13 Report Generation

How to generate the test report:

- After click 'Report Generation', the dialog box of report generation will appear, see Figure 3.1.14;

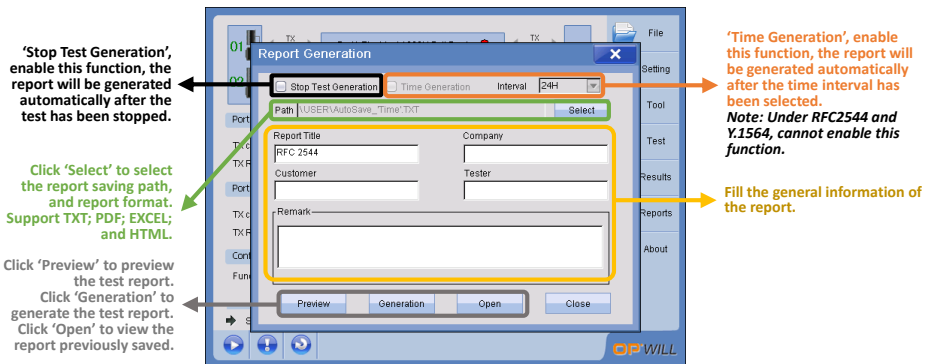


Figure 3.1.14 Report Generation Dialog Box

3.2 RFC2544

Preparation before the test

- Click 'File', and select 'New' to start a new test;
- Also, it can select 'Open' to open the previous saved test configuration;
- Also, it can select 'Save' to save this test configuration.

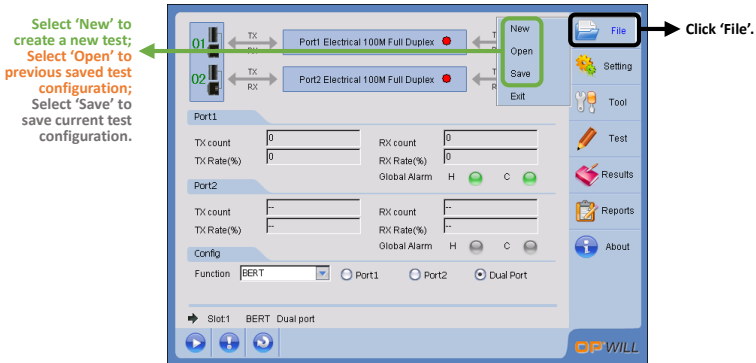


Figure 3.2.1 Preparation before the Test

Steps for RFC2544 test

- Step 1: Select 'RFC2544' from configuration box, select test ports, and select sub test functions:

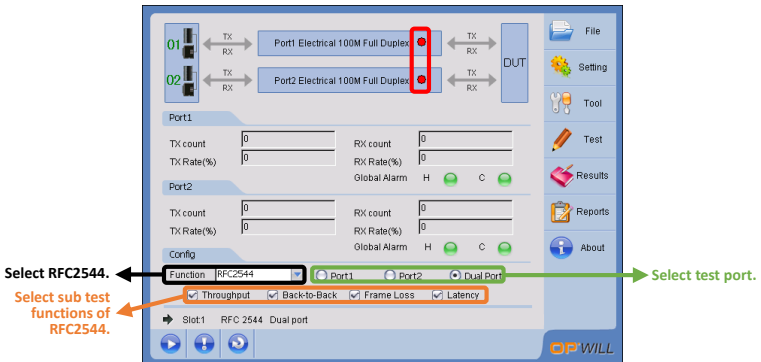


Figure 3.2.2 Select RFC2544 and Sub Test Functions

- Step 2: Select 'Port Setup' from 'Setting' sub menu to configure port parameters, or click 'Link Box' to configure port parameters:

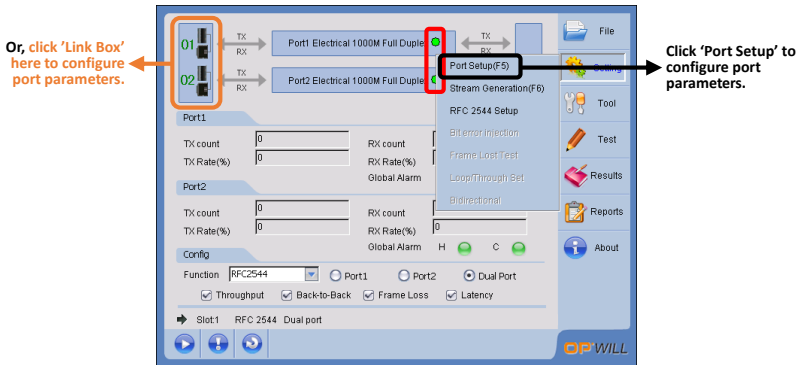


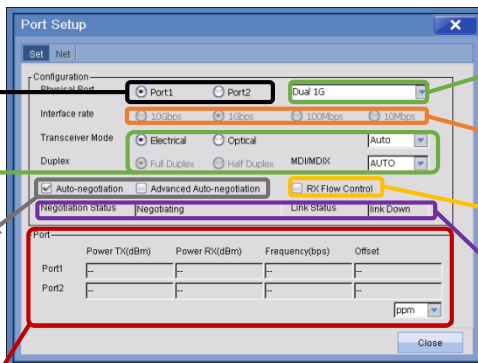
Figure 3.2.3 Enter Port Setting

Select test port, then configure the parameters of this port. If test with dual ports, port1 and port2's parameters need to be configured respectively.

Select electrical port type, duplex mode, and MDI/MDIX type. Must be in accordance with the circuit.

If auto negotiation function has been enabled, port's rate will be adapted to the maximum speed. If advanced auto negotiation function is enabled, it allows port to negotiate with other speed.

Show optical ports status.



Select optical port type, including 'Dual 10G Lan', 'Dual 1G', 'Dual 10G WAN', 'Port1-1G, Port2-10G Lan'. Only when Transceiver Mode has selected 'Optical', this function can be used.

Select interface transmission rate. If auto negotiation function is enabled, interface rate will be adapted automatically. Enable RX flow control, which is only available under Frame Analysis; BERT; and User Define.

If negotiation has been done successfully, status box will display the message 'Negotiation Completed'. Also the link status box will show message 'Link Up' to indicate the link has been established successfully. Additionally, please see Figure 4.2 and Figure 4.3 Red Box, if the link is up, the indicator of the link box will be turned to green. If the link is down, the indicator will be turned to red.

Figure 3.2.4 Port Setup -1

After link has been established successfully, move to network page to set port network's parameters, see Figure 3.2.5:

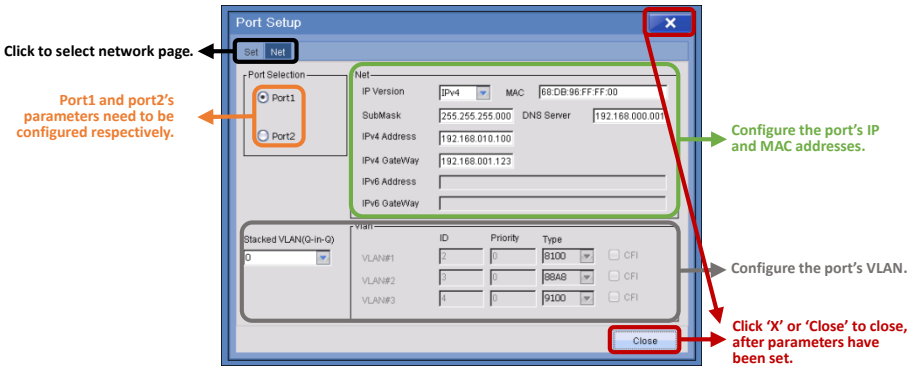


Figure 3.2.5 Port Setup -2

Step 3: After all parameters of port have been set completely, select 'Stream Generation' from 'Setting' sub menu: See detail in [Section Frame Analysis](#), about 'Stream Generation'. This part in RFC2455 is the same as Frame Analysis.

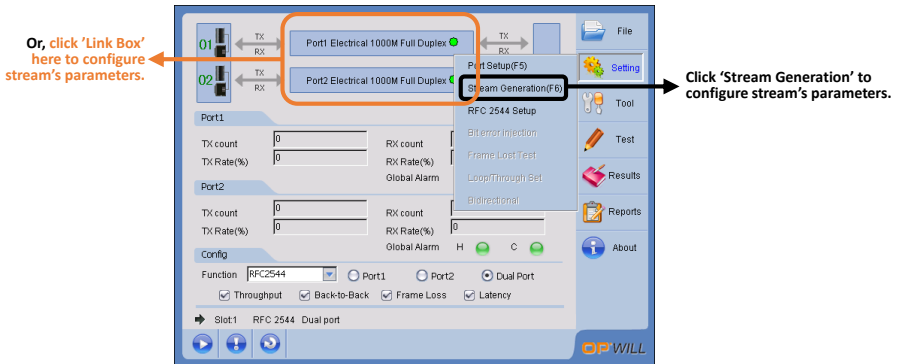


Figure 3.2.6 Enter Stream Generation

Step 4: After all parameters of data stream have been set completely, select 'RFC2544 Setup' from 'Setting' sub menu to configure RFC2544 parameters:

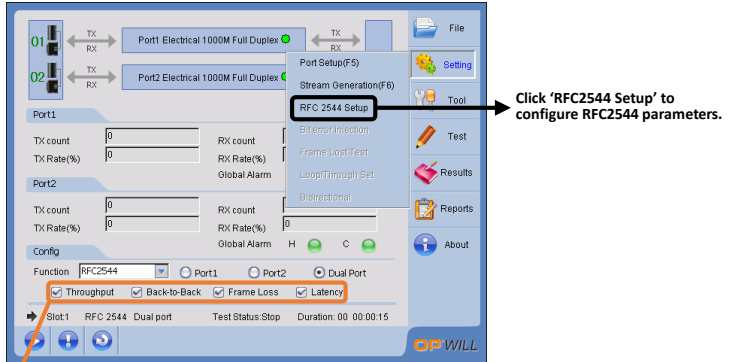


Figure 3.2.7 Enter RFC2544

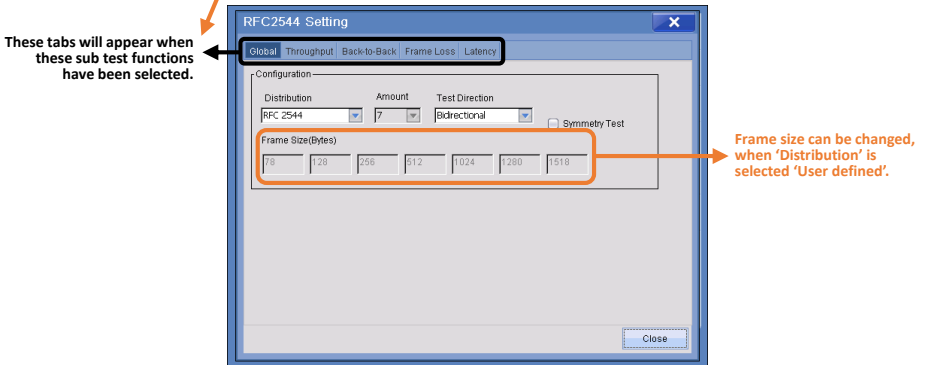
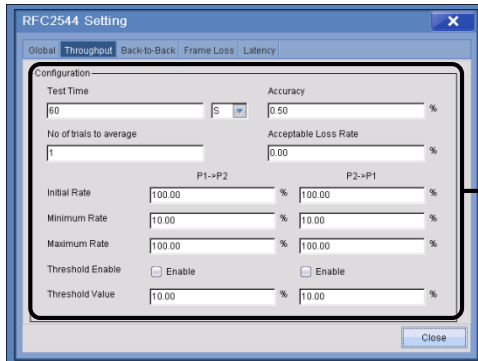
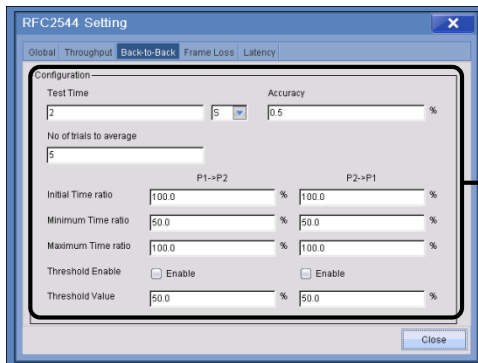


Figure 3.2.8 RFC2544 -1



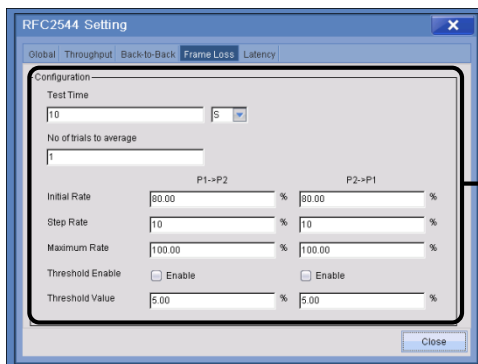
Configure 'Throughput' parameters.

Figure 3.2.9 RFC2544 -2



Configure 'Back-to-Back' parameters.

Figure 3.2.10 RFC2544 -3



Configure 'Frame Loss' parameters.

Figure 3.2.11 RFC2544 -4

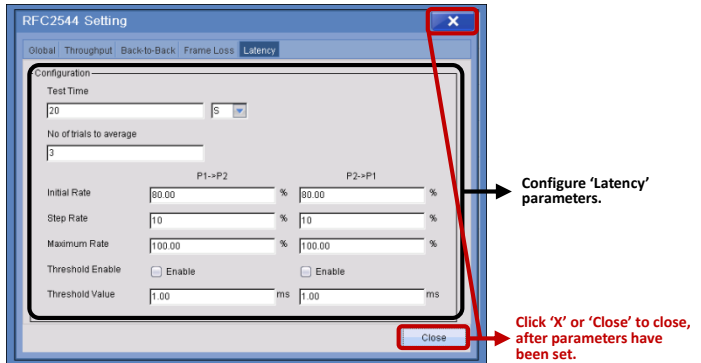


Figure 3.2.12 RFC2544 -5

Step 5: Click 'Start' button to start test. RFC2544 test will be stopped automatically.

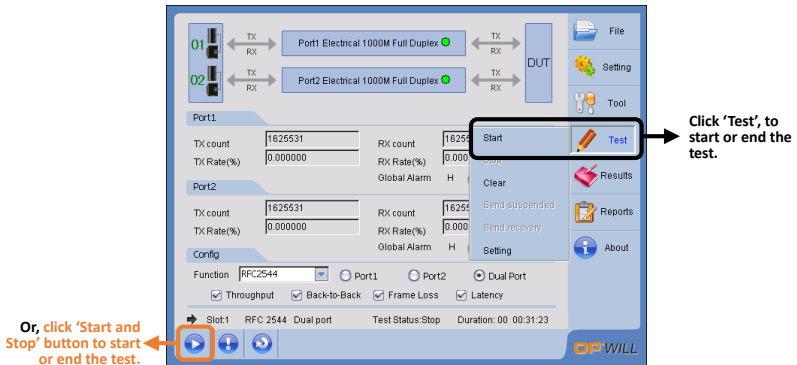


Figure 3.2.13 Start Test

View test results

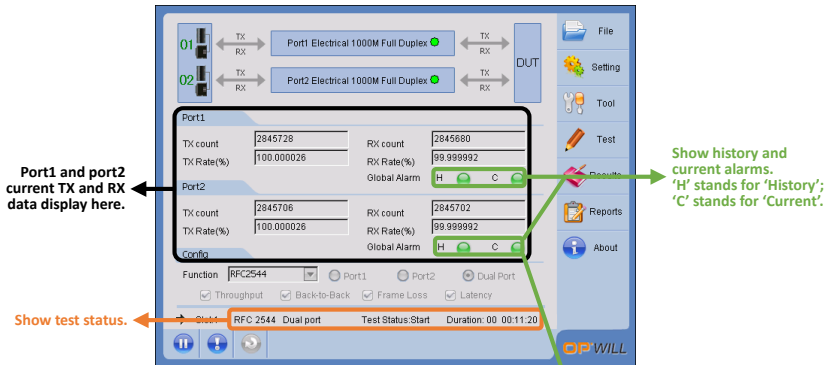


Figure 3.2.14 View Results

View overall results:

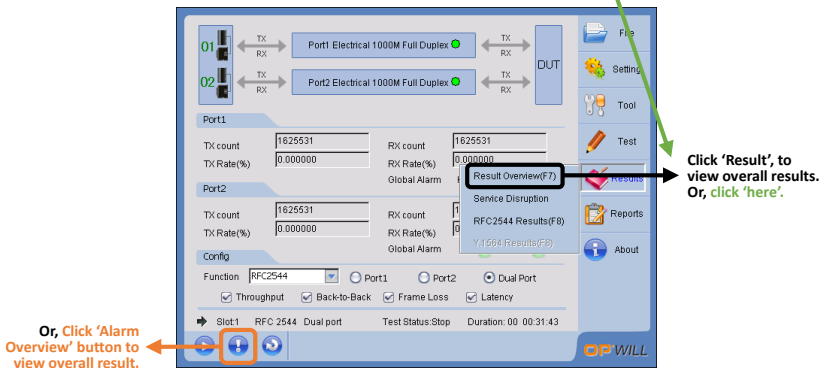


Figure 3.2.15 Enter Overall Results

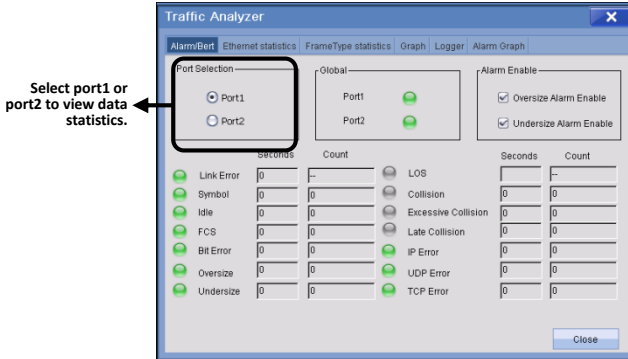


Figure 3.2.16 Overall Results -1

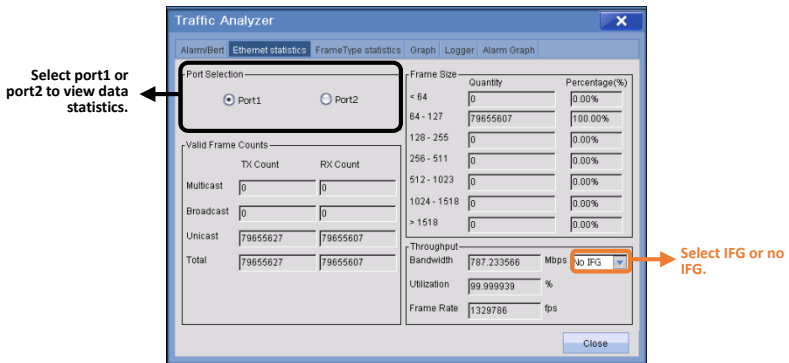


Figure 3.2.17 Overall Results -2

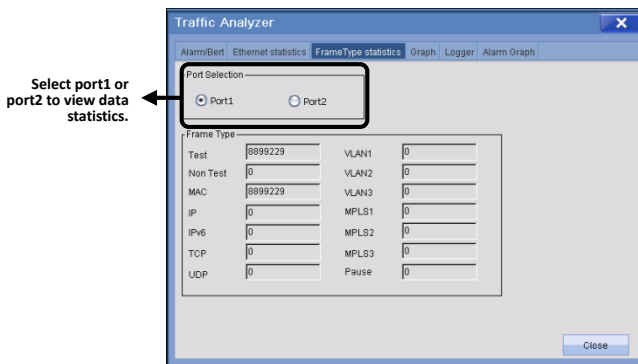


Figure 3.2.18 Overall Results -3

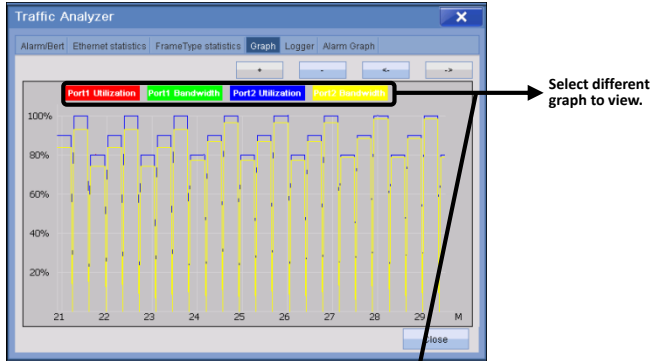


Figure 3.2.19 Overall Results -4



Figure 3.2.20 Overall Results -5

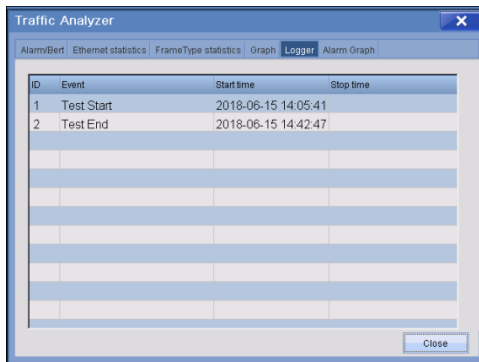


Figure 3.2.21 Overall Results -6

View RFC2544 result:

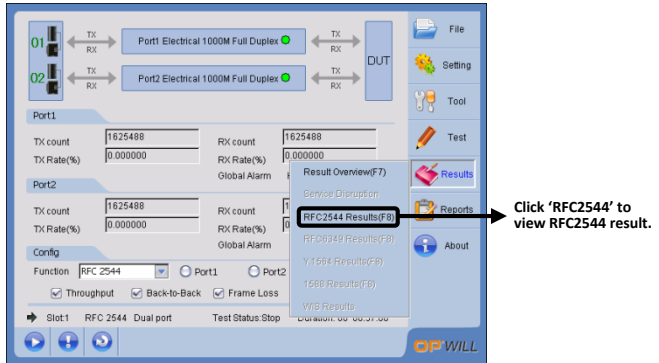


Figure 3.2.22 Enter RFC2544 Results

These tabs will appear, after these sub tests have been selected.

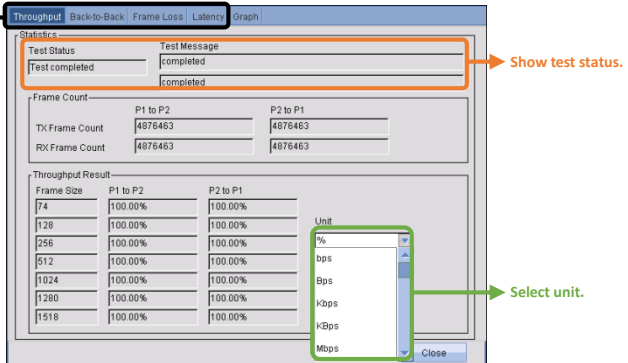


Figure 3.2.23 RFC2544 Result -1

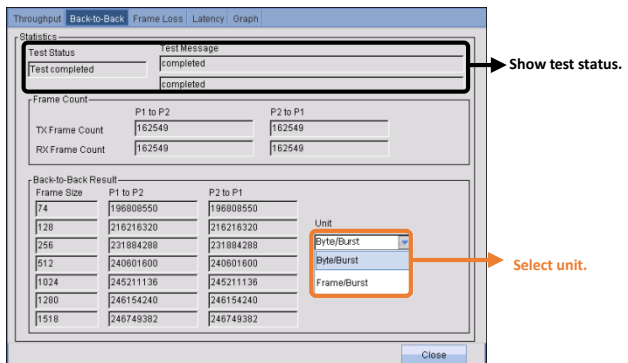


Figure 3.2.24 RFC2544 Result -2

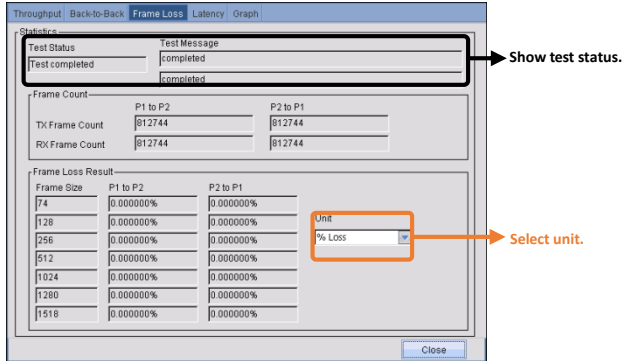


Figure 3.2.25 RFC2544 Result -3

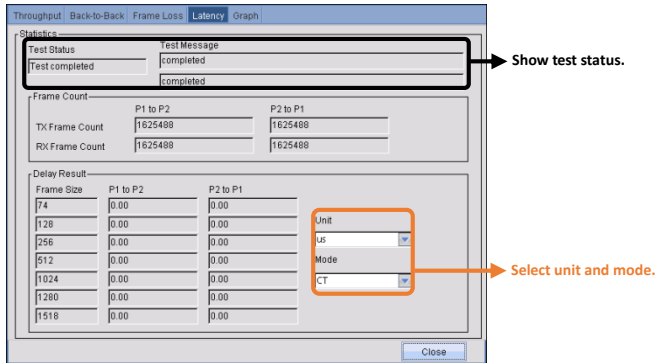


Figure 3.2.26 RFC2544 Result -4

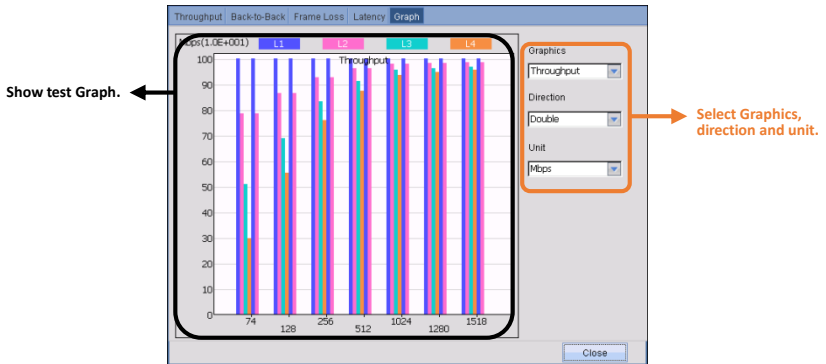


Figure 3.2.27 RFC2544 Result -5

3.3 RFC6349

Preparation before the test

See [Section RFC2544: preparation before the test.](#)

Steps for RFC6349

- Step 1: Select 'RFC6349' from configuration box, select test ports:

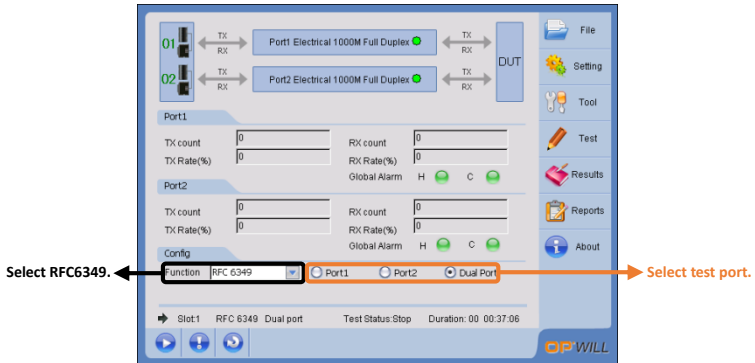


Figure 3.3.1 Select RFC6349

- Step 2: Select 'Port Setup' from 'Setting' sub menu to configure port parameters, or click 'Link Box' to configure port parameters: see details in [Section RFC2544: test steps;](#)

- Step 3: After all parameters of port have been set completely, select 'RFC6349 Setup' to configure RFC6349 parameters. Select server port to be the server equipment and then set server port number.

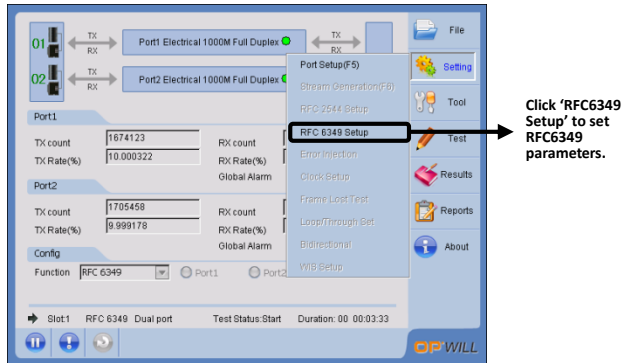


Figure 3.3.2 Enter RFC6349 Server

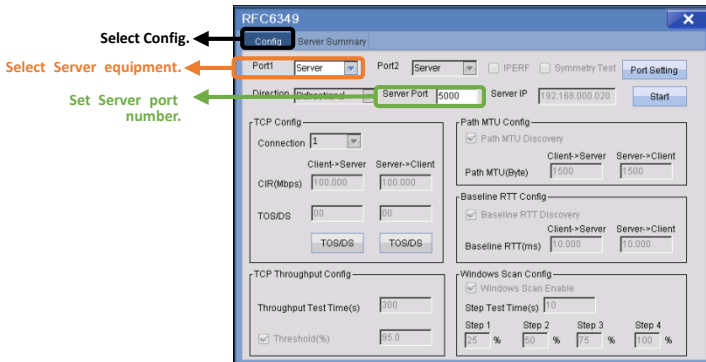


Figure 3.3.3 Configure Server equipment parameters

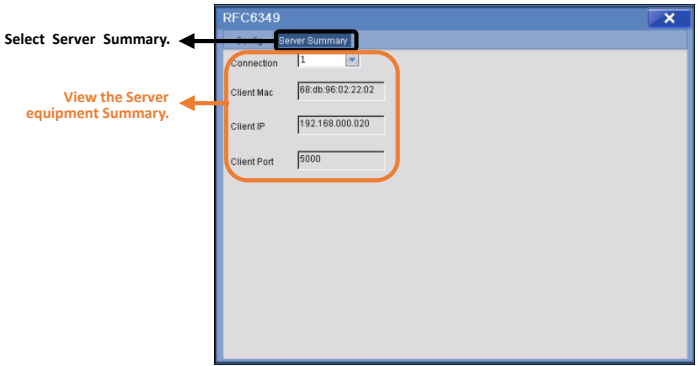


Figure 3.3.4 View the Server equipment Summary

- Step 4: After the configuration of Server equipment, need to configure Client equipment parameters.

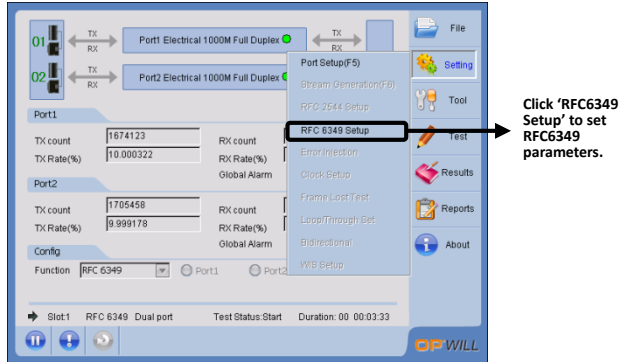


Figure 3.3.5 Enter RFC6349 Client

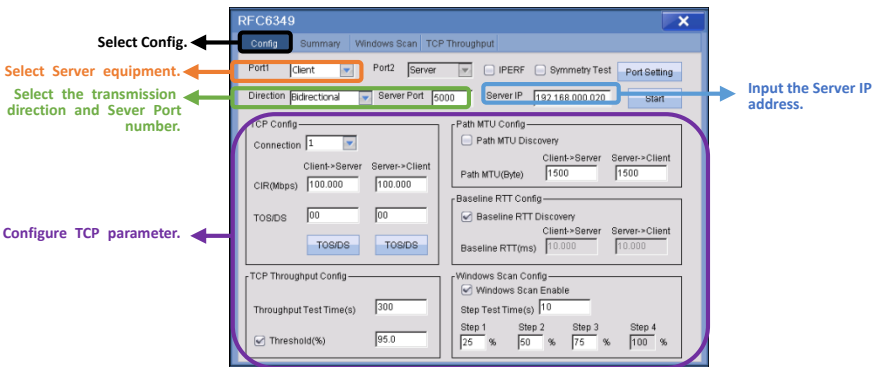


Figure 3.3.6 Configure Client equipment parameters

- Step 5: After the configurations of Server equipment and Client equipment have been set completely, Press 'start' in the 'Config' interface meanwhile or Press the start icon in the main interface to start RFC6349 test.

View test results

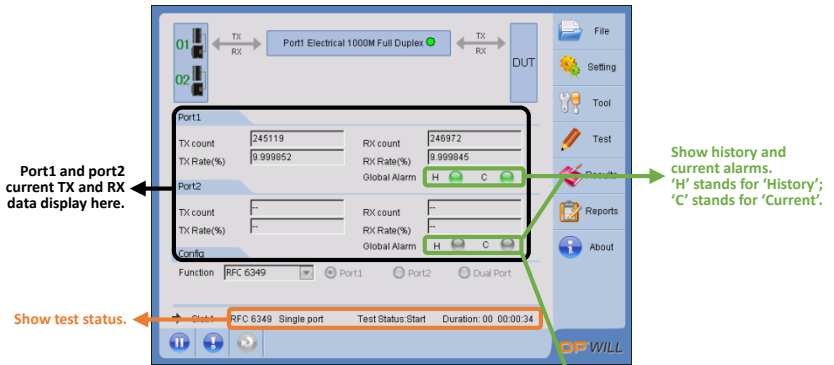


Figure 3.3.7 View Results

View overall results:

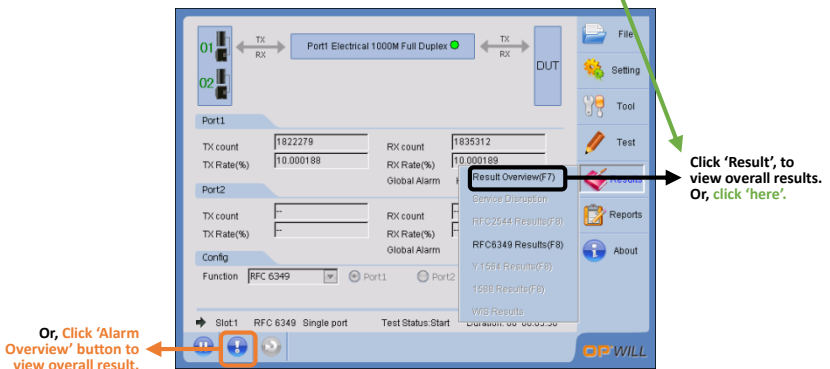


Figure 3.3.8 Enter Overall Results

Supplements: the RFC6349 Overall results, see detail in [Section RFC2544 View test results.](#)

View RFC6349 Results:

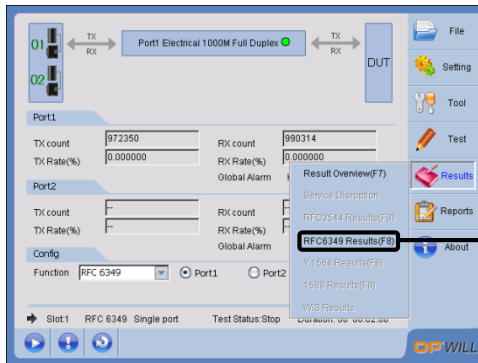


Figure 3.3.9 Enter RFC6349 Results

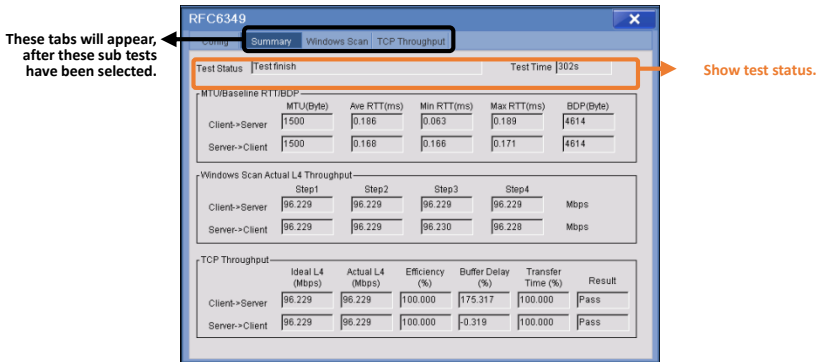


Figure 3.3.10 View overall Results -1

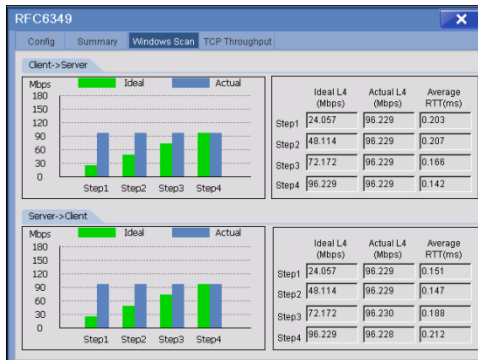


Figure 3.3.11 View Results -2

Select the test direction from Client to Sever or from Sever to Client.

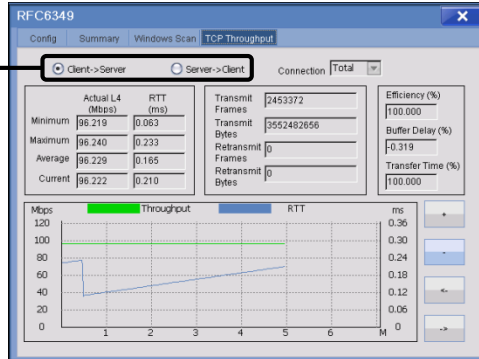


Figure 3.3.12 View Results -3

3.4 Frame Analysis

Preparation before the test

See [Section RFC2544: preparation before the test](#).

Steps for Frame Analysis

- Step 1: Select 'Frame Analysis' from configuration box, select test ports:

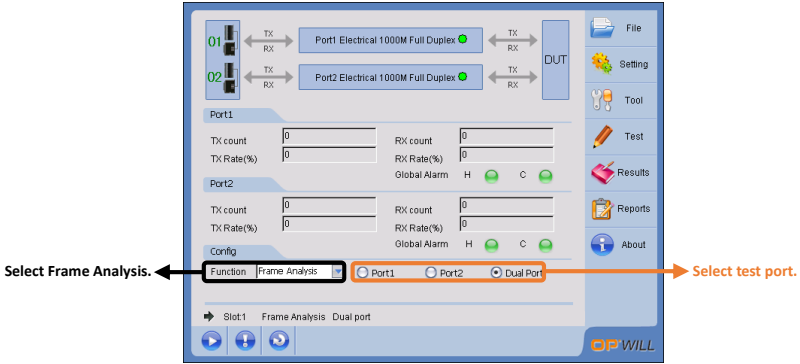
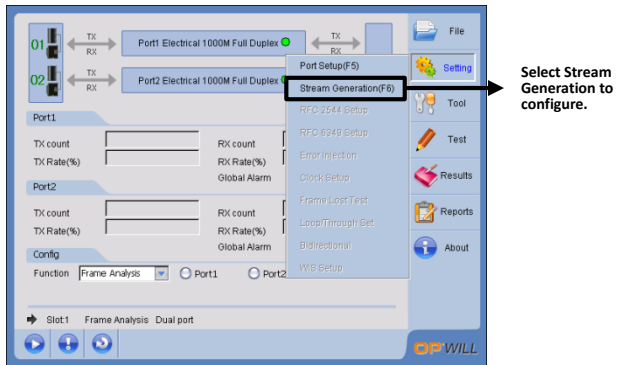


Figure 3.4.1 Select Frame Analysis

- Step 2: Select 'Port Setup' from 'Setting' sub menu to configure port parameters, or click 'Link Box' to configure port parameters: see details in [Section RFC2544: test steps](#);

- Step 3: After all parameters of port have been set completely, select 'Stream Generation'.



Select Stream Generation to configure.

Figure 3.4.2 Enter Stream Generation (Frame Analysis)

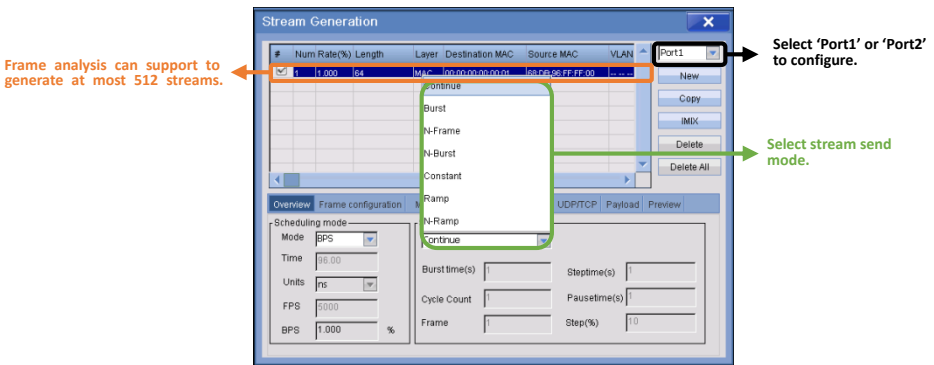


Figure 3.4.3 Stream Generation -1 (Frame Analysis)

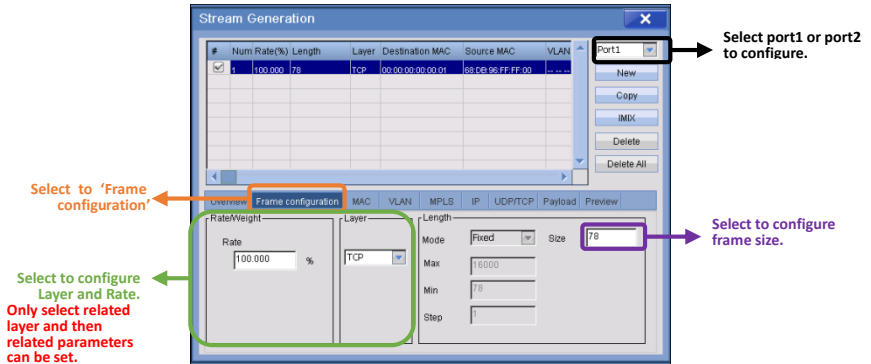


Figure 3.4.4 Stream Generation -2 (Frame Analysis)

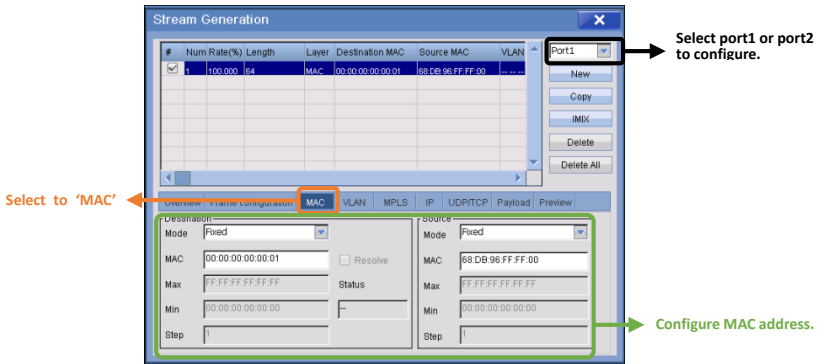


Figure 3.4.5 Stream Generation -3 (Frame Analysis)

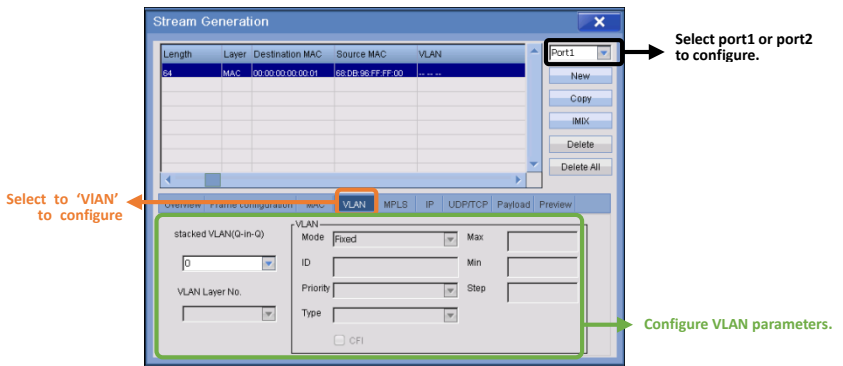


Figure 3.4.6 Stream Generation -4 (Frame Analysis)

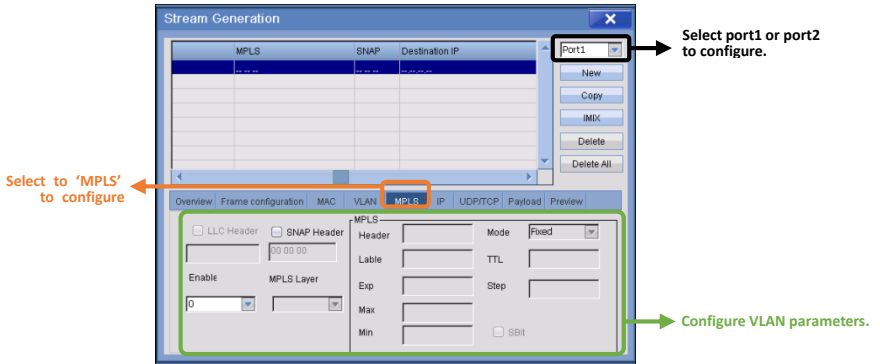


Figure 3.4.7 Stream Generation -5 (Frame Analysis)

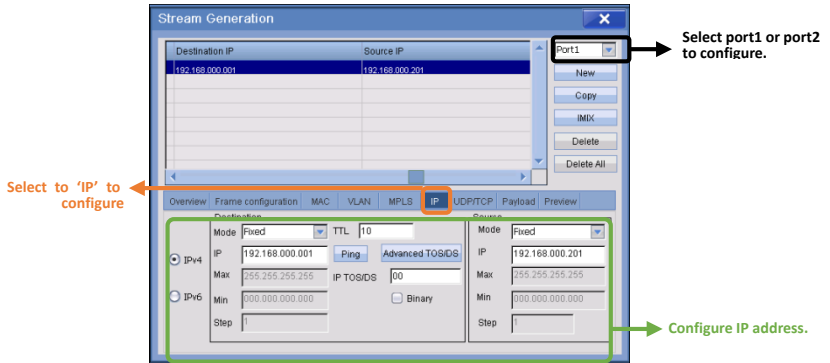


Figure 3.4.8 Stream Generation -6 (Frame Analysis)

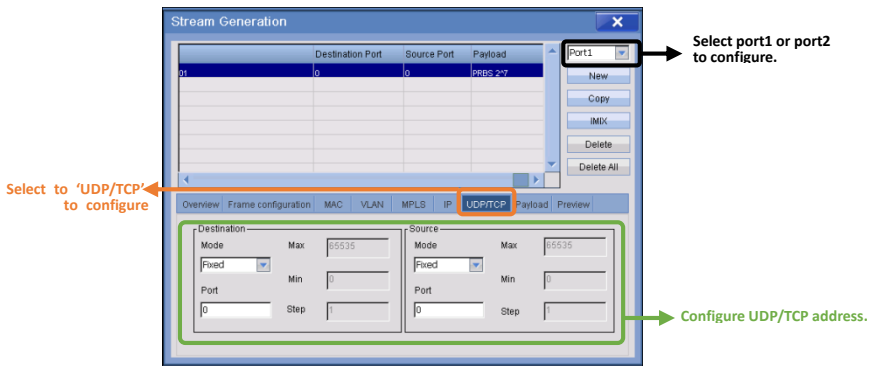


Figure 3.4.9 Stream Generation -7 (Frame Analysis)

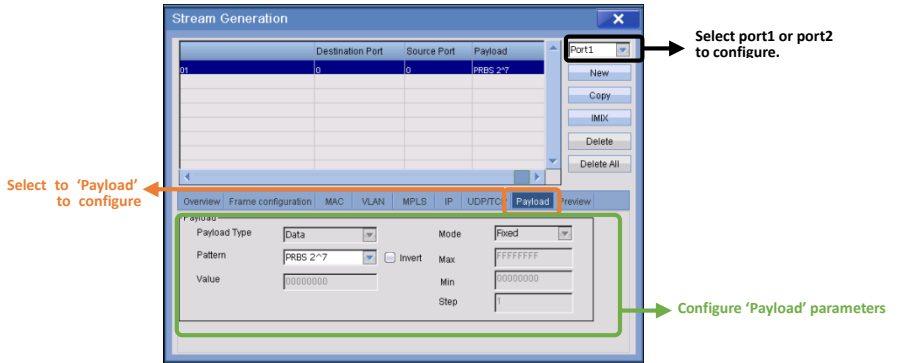


Figure 3.4.10 Stream Generation - 8 (Frame Generation)

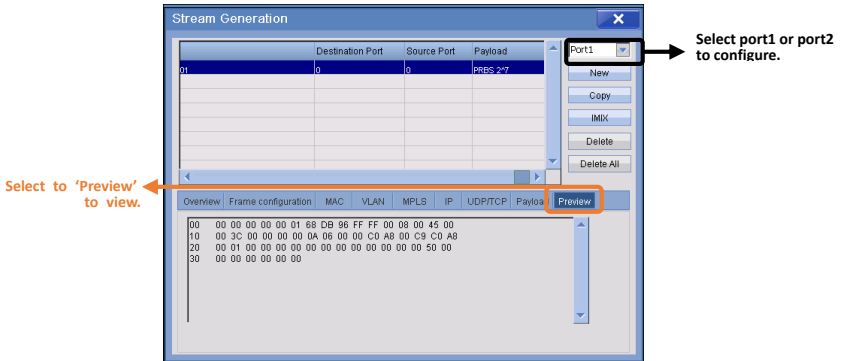


Figure 3.4.11 Stream Generation - 9 (Frame Generation)

- Step 4: Click 'Start' button to start test, then click 'End' button to end test.

View test results

Frame analysis only has overall result to view. View overall result, please see details in [Section RFC2544: view test results](#), and Figure 6.12:

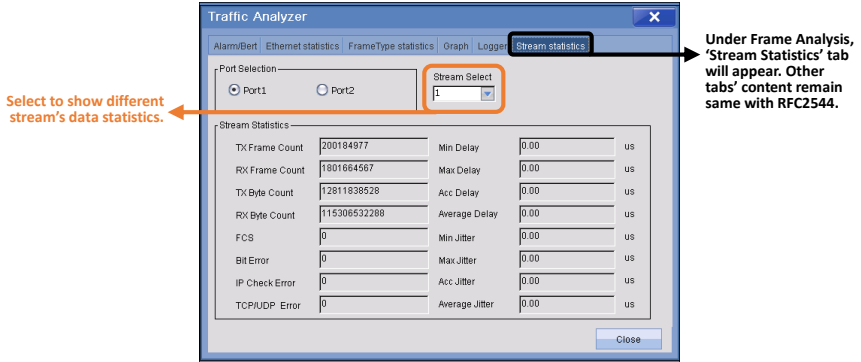


Figure 3.4.12 Overall Results (Frame Analysis)

3.5 Bit Error

Preparation before the test

See [Section RFC2544: preparation before the test.](#)

Steps for Bit Error

- Step 1: Select 'BERT' from configuration box, select test ports:

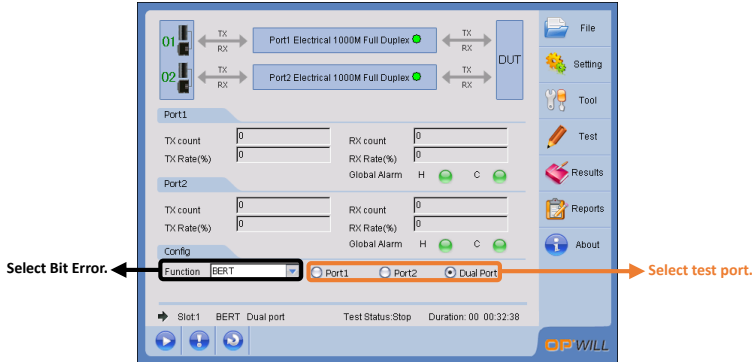


Figure 3.5.1 Select BERT

- Step 2: Select 'Port Setup' from 'Setting' sub menu to configure port parameters, or click 'Link Box' to configure port parameters: see details in [Section RFC2544: test steps](#);
- Step 3: After all parameters of port have been set completely, select 'Stream Generation' from 'Setting' sub menu, or click 'Link Box' to configure data stream parameters: see details in [Section RFC2544: test steps](#), and [Section Frame Analysis: test steps](#);

- Step 4: Click 'Start' button to start test, then select 'Bit Error Injection' from 'Setting' sub menu to insert bit error, then the test has been started:

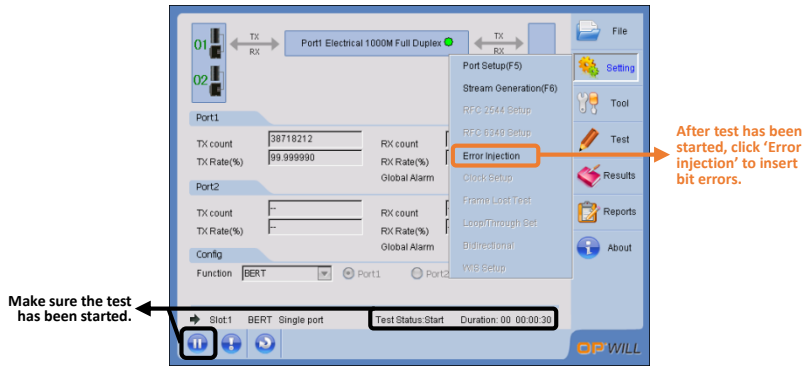


Figure 3.5.2 Enter Bit Error Injection

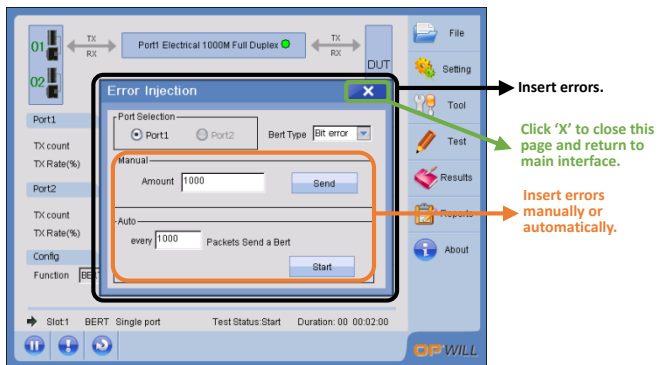
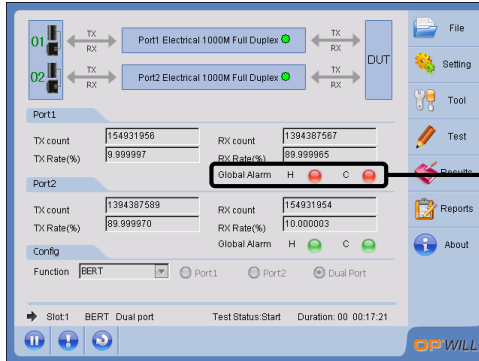


Figure 3.5.3 Bit Error Injection

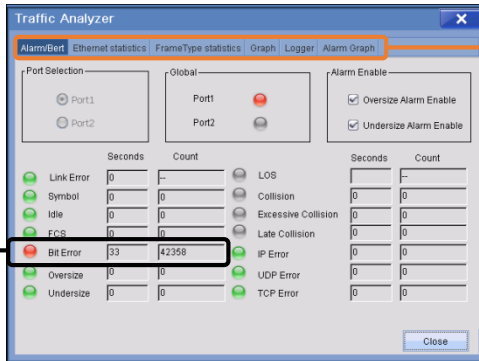
View test results

Bit error only has overall result to view. View overall result, please see details in [Section RFC2544: view test results](#), Figure 3.5.4, and Figure 3.5.5:



Alarms turn red, when errors occurred.

Figure 3.5.4 Bit Error Result



All tabs' content remain same with RFC544.

Insert errors will be counted.

Figure 3.5.5 Overall Results (Bit Error)

3.6 Loopback and Through

Description of Loopback and Through

For Example, Prepare two sets of OTM2612. And then suppose the two ports on the left side of the device are Port1A and Port2A respectively; Suppose the two ports on the right side of the device are Port1B and Port2B respectively. Under Loopback and Through function, the transmission direction of data streams displayed in figure 3.6.1.

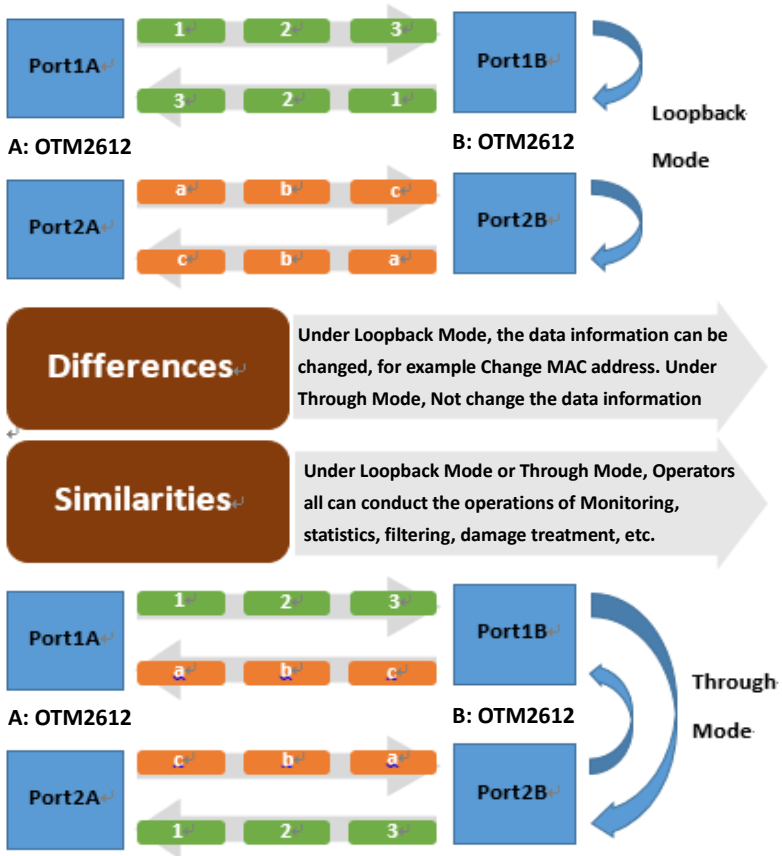


Figure 3.6.1 Description of Loopback and Through

Preparation before the test

See [Section RFC2544: preparation before the test.](#)

Steps for Loopback or Through

- Step 1: Select 'Loopback' or 'Through' from configuration box, select test ports, loopback test needs to select loopback layers:

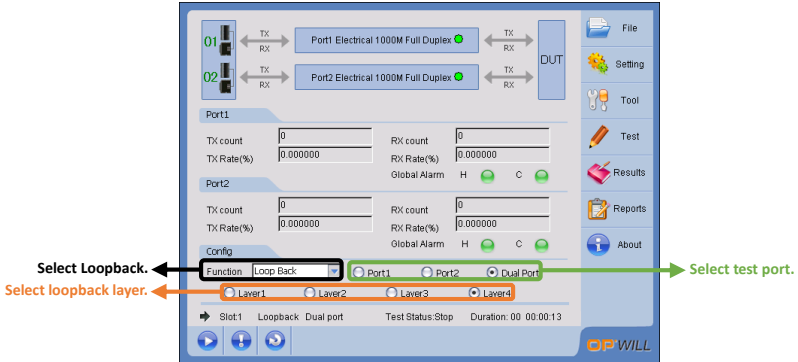


Figure 3.6.2 Select Loopback

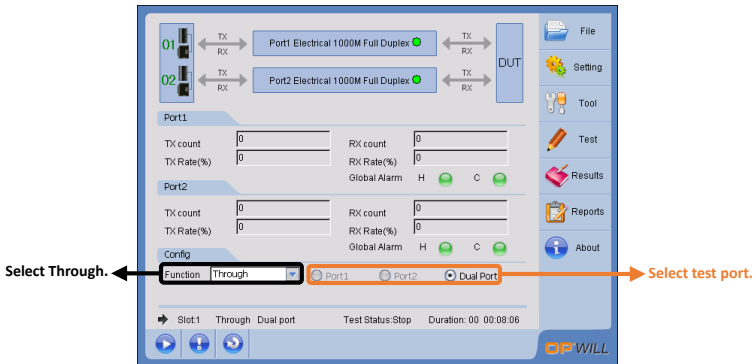


Figure 3.6.3 Select Through

- Step 2: Select 'Port Setup' from 'Setting' sub menu to configure port parameters, or click 'Link Box' to configure port parameters: see details in [Section RFC2544: test steps;](#)

- Step 3: After all parameters of port have been set completely, select 'Loop/Through Set' from 'Setting' sub menu to configure loopback parameters:

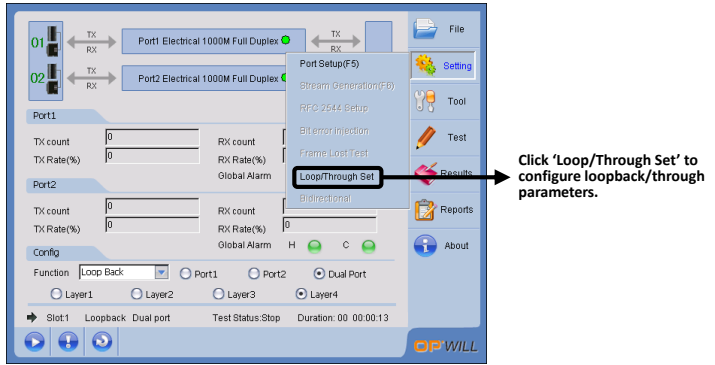


Figure 3.6.4 Enter Loopback/Through Setting

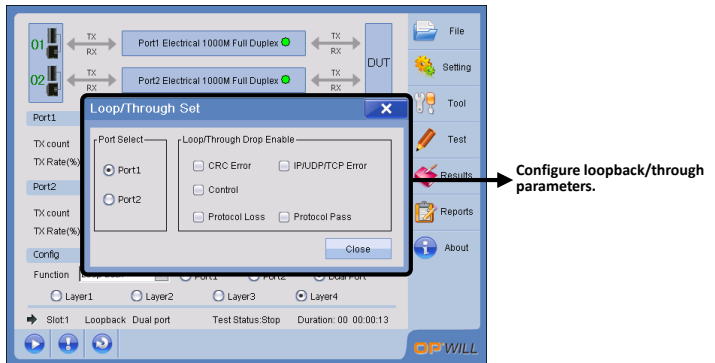


Figure 3.6.5 Loopback/Through Set

- Step 4: Click 'Start' button to start test. Additionally, 'Frame Lost Test' can be enabled under loopback/through:

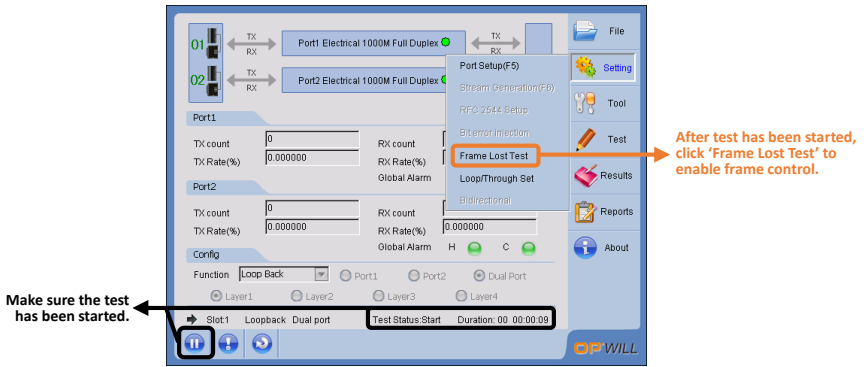


Figure 3.6.6 Enter Frame Lost Control

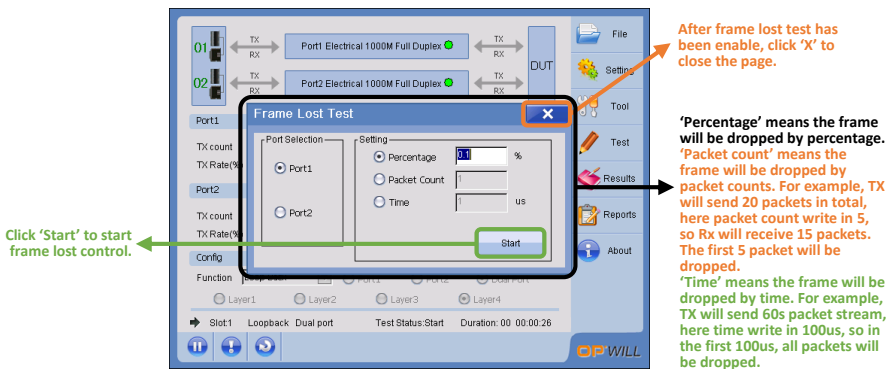


Figure 3.6.7 Frame Lost Control

View test results

Loopback and Through only has overall result to view. View overall result, please see details in [Section RFC2544: view test results.](#)

3.7 Y.1564

Preparation before the test

See [Section RFC2544: preparation before the test.](#)

Steps for Y.1564

- Step 1: Select 'Y.1564' from configuration box, select test ports:

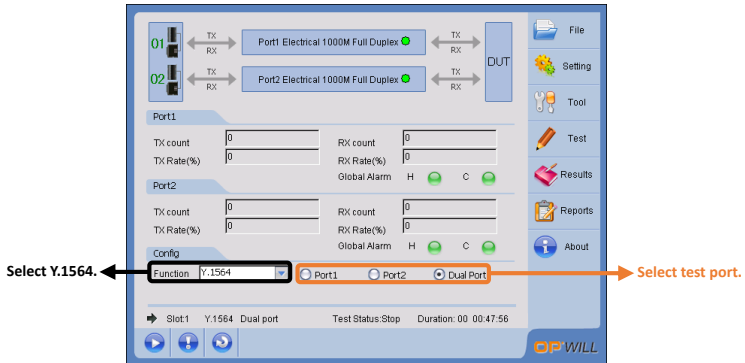


Figure 3.7.1 Select Y.1564

- Step 2: Select 'Port Setup' from 'Setting' sub menu to configure port parameters, or click 'Link Box' to configure port parameters: see details in [Section RFC2544: test steps](#);

- Step 3: After all parameters of port have been set completely, select 'Service Setup' from 'Setting' sub menu, or click 'Link Box' to configure data stream parameters: Figure 3.7.2, and Figure 3.7.3:

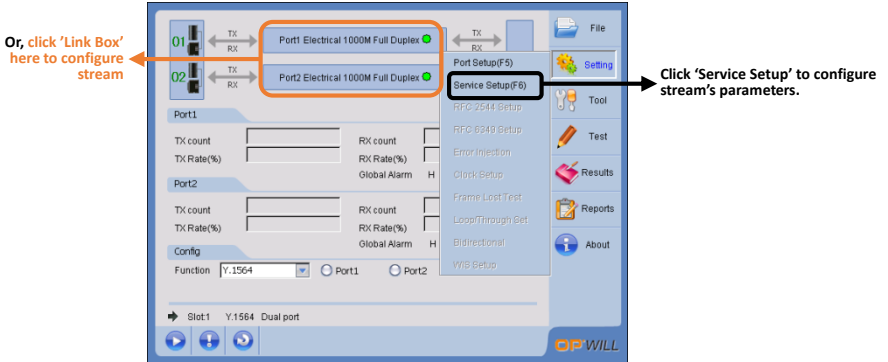


Figure 3.7.2 Enter Y.1564

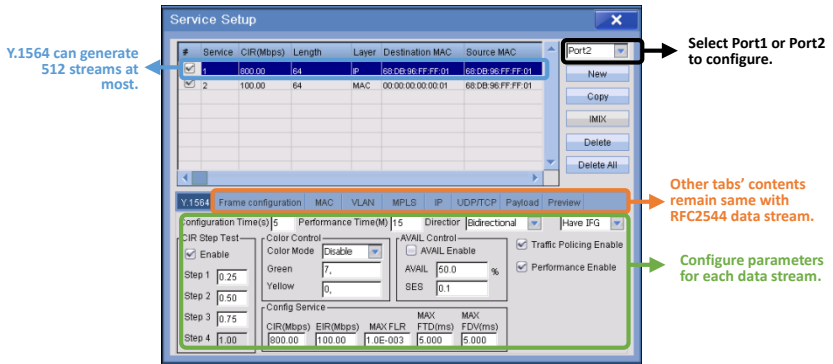


Figure 3.7.3 Data Stream (Y.1564)

- Step 4: Click 'Start' button to start test. Y.1564 test will be stopped automatically.

View test results

View overall result, please see details in [Section RFC2544: view test results.](#)

View Y.1564 results:

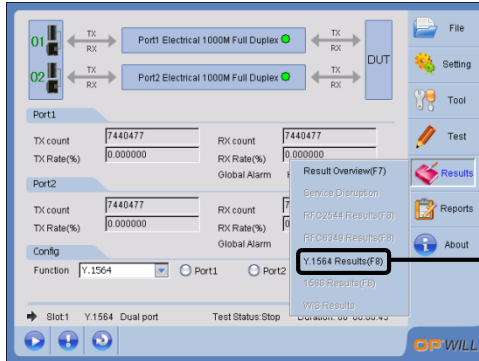


Figure 3.7.4 Enter Y.1564 Results

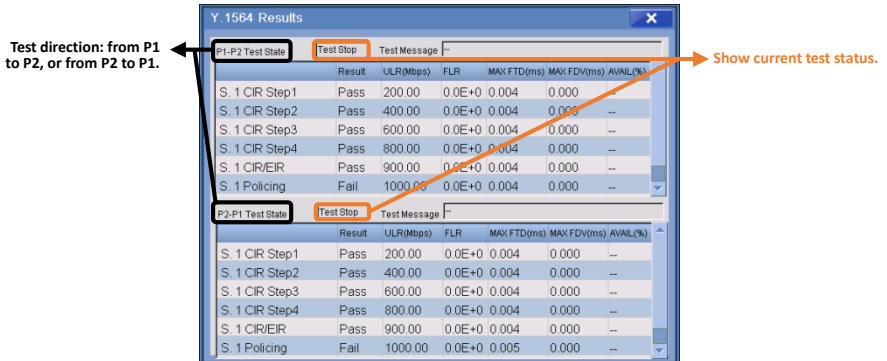


Figure 3.7.5 Y.1564 Result

3.8 Jitter

Preparation before the test

See [Section RFC2544: preparation before the test.](#)

Steps for Jitter

- Step 1: Select 'Jitter' from configuration box, select test ports, and jitter packets:

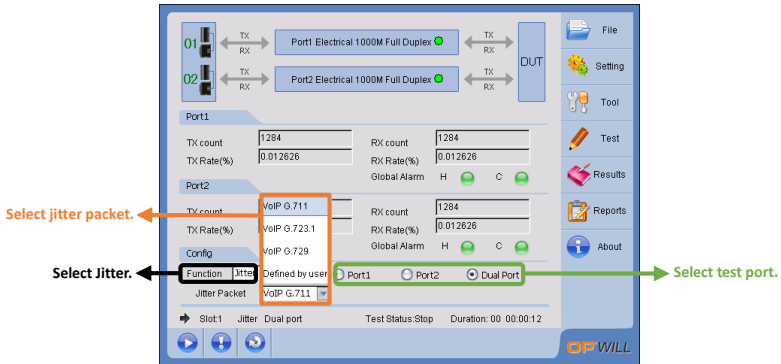


Figure 3.8.1 Select Jitter and Jitter Packet

- Step 2: Select 'Port Setup' from 'Setting' sub menu to configure port parameters, or click 'Link Box' to configure port parameters: see details in [Section RFC2544: test steps](#);
- Step 3: After all parameters of port have been set completely,
 - If selected pre-defined jitter packets, such VoIP G.711, please go to step 4 start the test directly;
 - If selected user defined, please select 'stream generation' to configure data stream parameters: see details in [Section RFC2544: test steps](#);
- Step 4: Click 'Start' button to start test, then click 'End' button to end test.

View test results

Jitter only has overall result to view. View overall result, please see details in [Section RFC2544: view test results](#), and Figure 3.8.2:

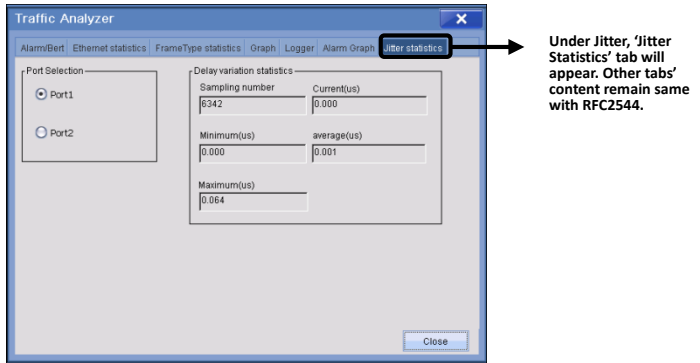


Figure 3.8.2 Overall Results (Jitter)

3.9 User-defined Frame Test

Preparation before the test

See [Section RFC2544: preparation before the test.](#)

Steps for User Define Frame

- Step 1: Select 'User Define' from configuration box, select test ports:

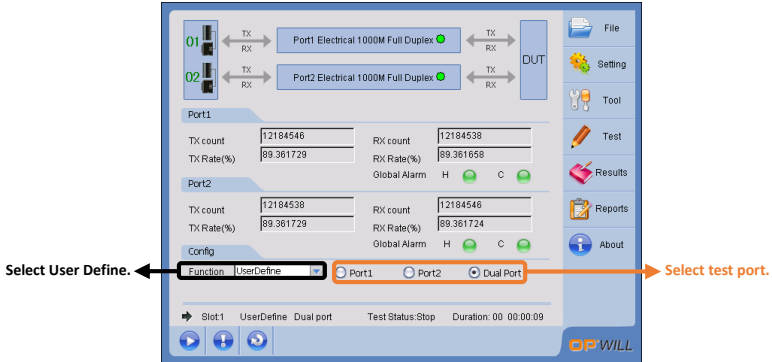


Figure 3.9.1 Select User Define

- Step 2: Select 'Port Setup' from 'Setting' sub menu to configure port parameters, or click 'Link Box' to configure port parameters: see details in [Section RFC2544: test steps;](#)

- Step 3: After all parameters of port have been set completely, select 'User Define Set' from 'Setting' sub menu, or click 'Link Box' to configure user define packet parameters:

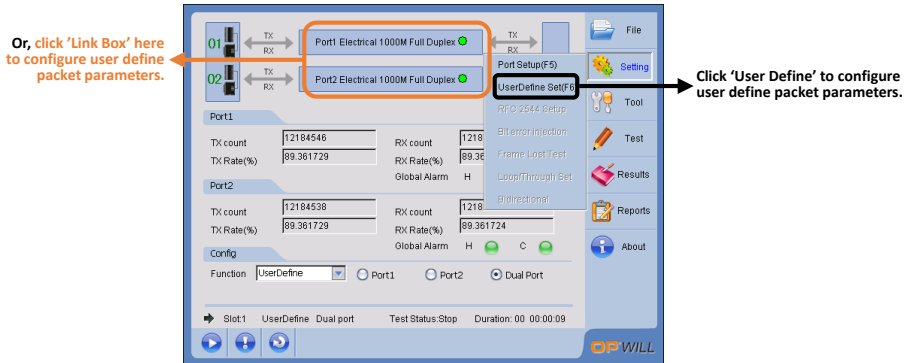


Figure 3.9.2 Enter User Define Packet

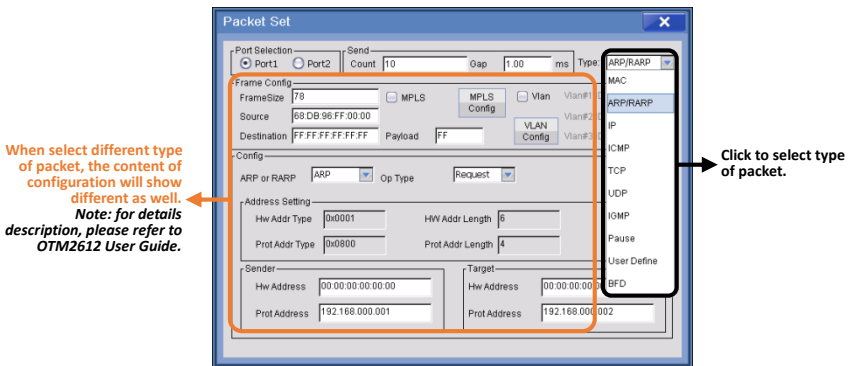


Figure 3.9.3 User Define Packet

- Step 4: Click 'Start' button to start test, then click 'End' button to end test.

View test results

User Define Frame Test only has overall result to view. View overall result, please see details in [Section RFC2544: view test results.](#)

3.10Tool - Ethernet

Preparation before the test

Before the test, please make sure the link has been established successfully. Then click 'Tool', and select one function to do test.

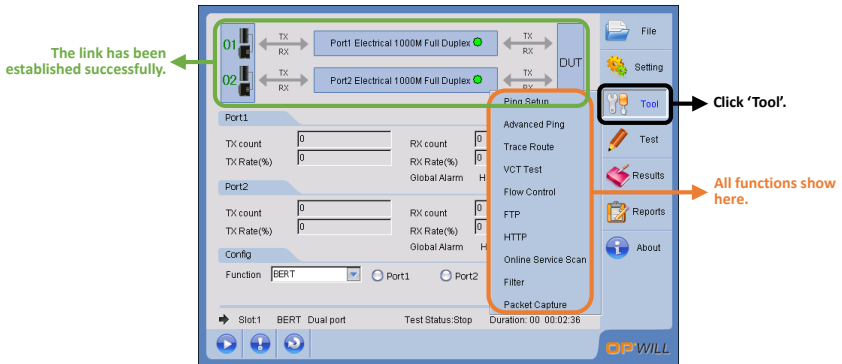


Figure 3.10.1 Enter Tool Box

Ping

Ping needs to follow the following step:

- Step 1: Select 'Ping Setup' from 'Tool' sub menu to set ping;
- Step 2: Select test port and set IP address or URL for destination;
- Step 3: Click the 'Ping' button to start.

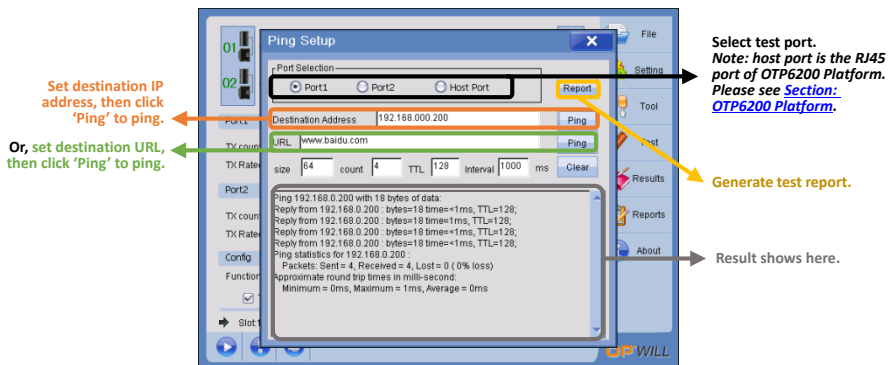


Figure 3.10.2 Ping -1

Ping port1 or port2:

Before ping port1 or port2, please enable parameters of port1 or port2, otherwise, ping test will be failed.

Example: ping to port2:

Note: OTM2612 cannot do the ping from port1 to port2.

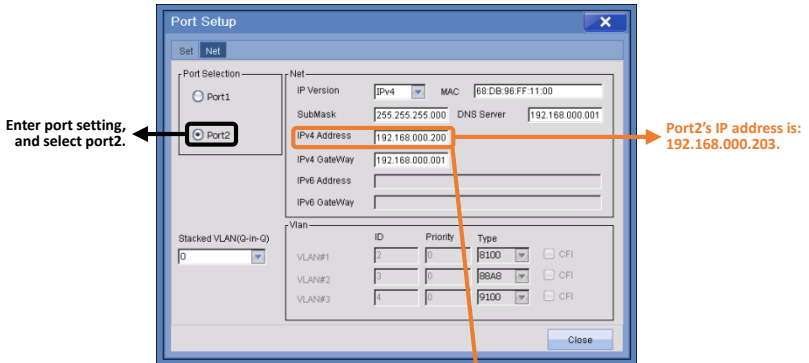


Figure 3.10.3 Ping -2

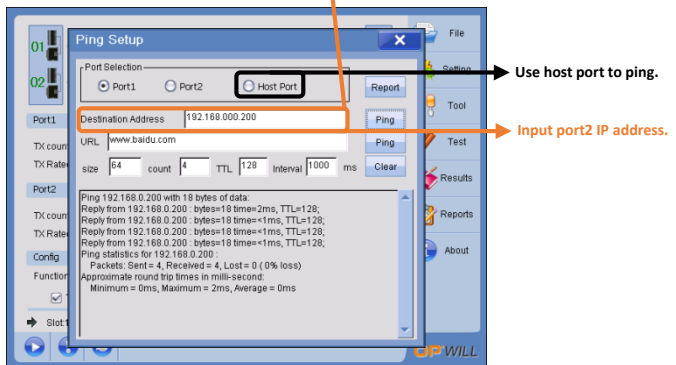


Figure 3.10.4 Ping -3

Advanced Ping

Advanced Ping needs to follow the following step:

- Step 1: Select 'Advance Ping' from 'Tool' sub menu to set ping;
- Step 2: Select the test port, and a group of IP addresses;
- Step 3: Click 'Start' button to start, then click 'Stop' to end, or wait the test stopped automatically.

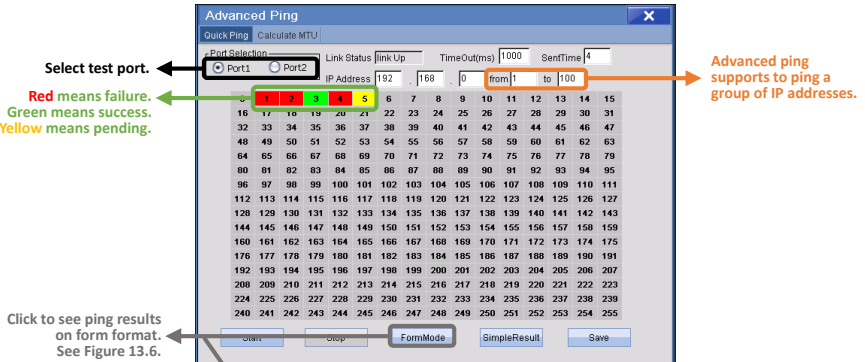


Figure 3.10.5 Advance Ping -1

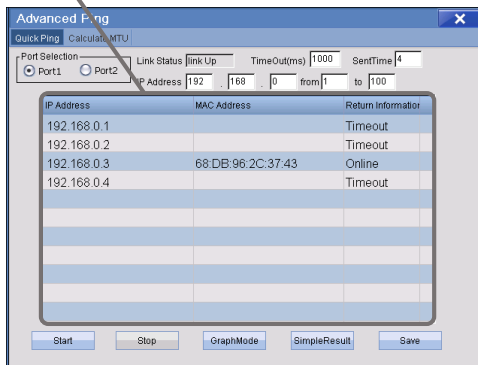


Figure 3.10.6 Advance Ping -2

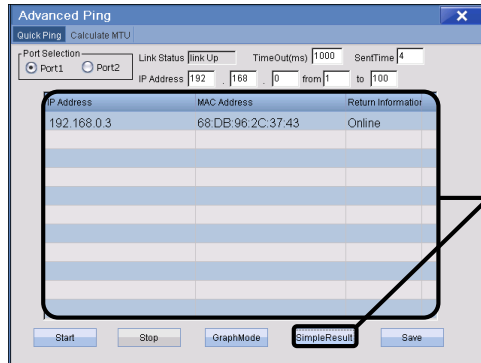


Figure 3.10.7 Advance Ping -3

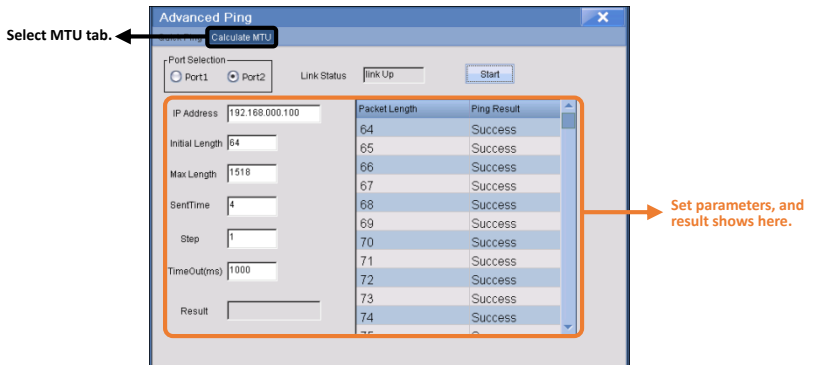


Figure 3.10.8 Advance Ping -4

Trace Route

Trace Route needs to follow the following step:

- Step 1: Select 'Trace Route' from 'Tool' sub menu to set trace route;
- Step 2: Select test port, then set IP Address or URL for destination;
- Step 3: Click 'Start' to start test.

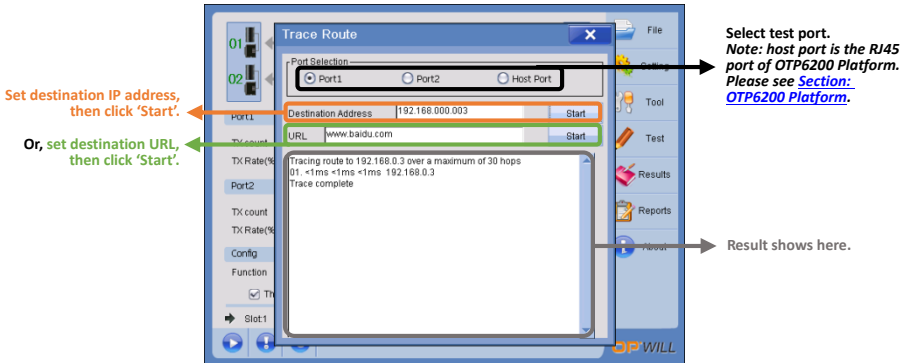


Figure 3.10.9 Trace Route

VCT

VCT needs to follow the following step:

- Step 1: Select 'VCT Test' from 'Tool' sub menu to set VCT test;
- Step 2: Select test port;
- Step 3: Click 'Start' button to start manual VCT test, then 'Exit' to end test.

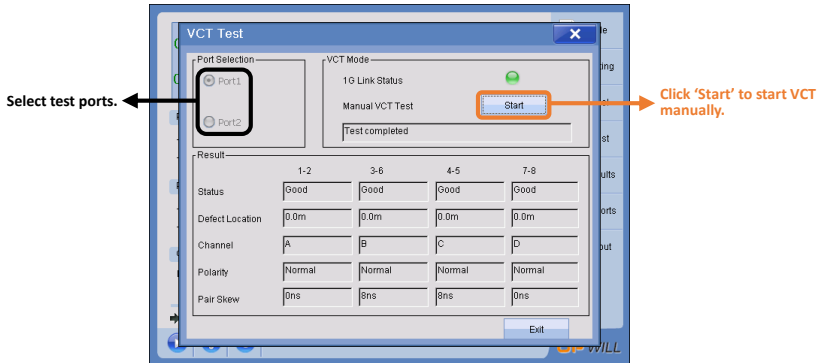


Figure 3.10.10 VCT

Flow Control

This is TX flow control. Flow Control needs to follow the following step:

- Step 1: Select 'Flow Control' from 'Tool' sub menu to set flow control.
- Step 2: Select test port, then set suspended time in 'us' Unit.
- Step 3: Click 'Send' button to insert the suspended time during package transmission.

Note: Flow control can be enabled when Frame Analysis, BERT, and User-defined these tests are running.

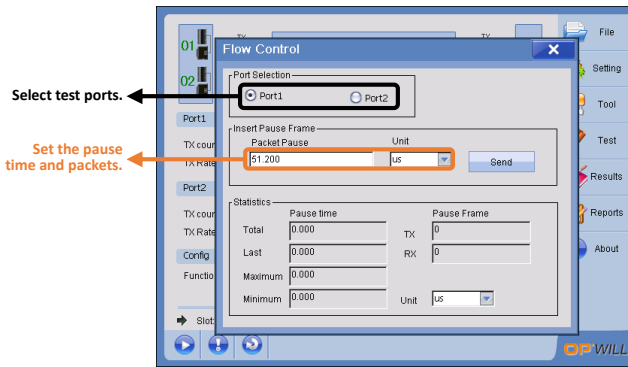


Figure 3.10.11 Flow Control

HTTP

HTTP needs to follow the following step:

- Step 1: Select 'HTTP' from 'Tool' sub menu to set HTTP;
- Step 2: Input HTTP address;
- Step 3: Click 'Start' button to start HTTP test, then click 'Start' button again to stop the test.

Note: HTTP can be enabled when all test applications are running.

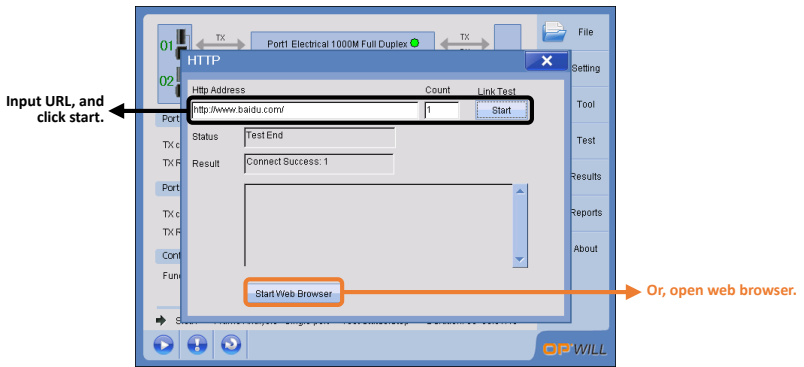


Figure 3.10.13 HTTP

Online Service Scan

Online Service Scan needs to follow the following step:

- Step 1: Select 'Online Service Scan' from 'Tool' sub menu to set online service scan;
- Step 2: Select test port and scan mode,
 - Auto mode: start to scan automatically;
 - Manual mode: need to input scan destination address;
- Step 3: Select 'Scan Type';
- Step 4: Click 'Start' to start.

Note: Online Service Scan can be enabled when all test applications are running.

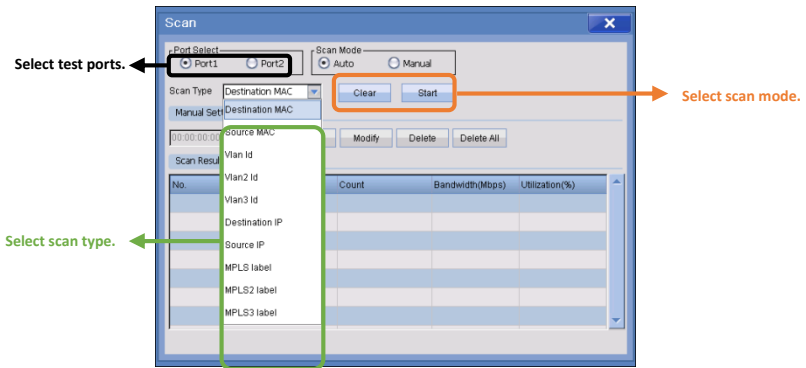


Figure 3.10.14 Online Service Scan

Capture

Capture needs to follow the following step:

- Step 1: Select 'Filter or Capture' from 'Tool' sub menu to set filter;
- Step 2: Select 'Capture', then select test port;
- Step 3: Click 'Start' to start capture packet.

Note: Filter can be enabled when all test applications are running.

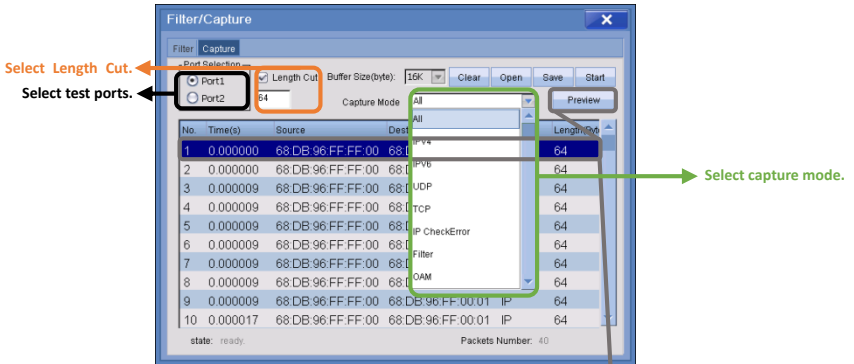


Figure 3.10.16 Capture -1

Select one packet, then click 'preview', or directly double click to view the detail information.

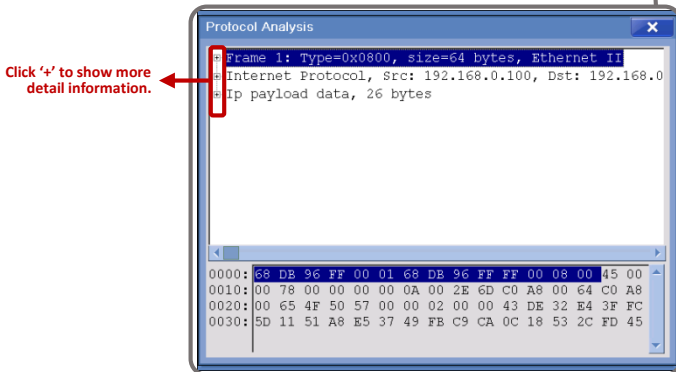


Figure 3.10.17 Capture -2

4. SDH Testing

4.1 Basic Steps of SDH Testing

Step 1: Start SDH analysis Application

Start the SDH analysis application needs to follow the following steps:

- After the module has been installed into the platform properly, start OTP6200 platform;
- OTM2612 module will be displayed on the platform's main window, then select the module;
- Click right side 'Run' button, or double-click the module to run OTM2612 Module.

For details about OTP6200 Platform Set Up, please refer to OTP6200 User Guide.



Figure 4.1.1 Start SDH Application-1



Figure 4.1.2 Start SDH Application-2

Step 2: Select the testing path

After OTM2612 SDH analysis Module has been started, the main interface of OTM2612 will be displayed on the screen. Select the test path needing to follow the following steps:

- Click the 'setting' icon to select the 'Mapping Setting' into the configuration page.
- Select the transmission type, before select, please ensure that the corresponding interfaces were connected to the network
- Select the testing path.

For details about OTM2612 Interface Description, please refer to OTM2612 User Guide.

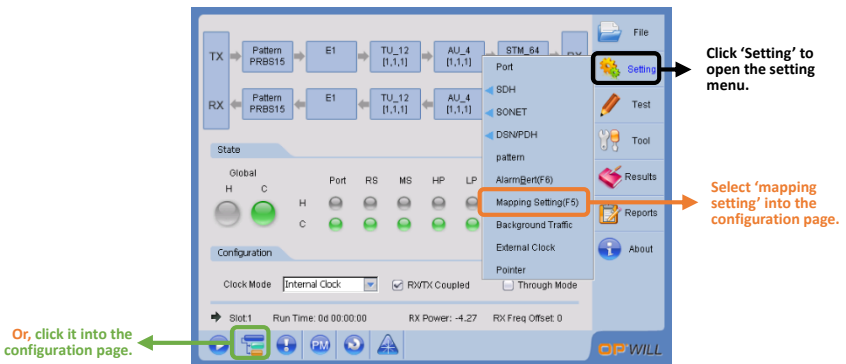


Figure 4.1.3 SDH main interface

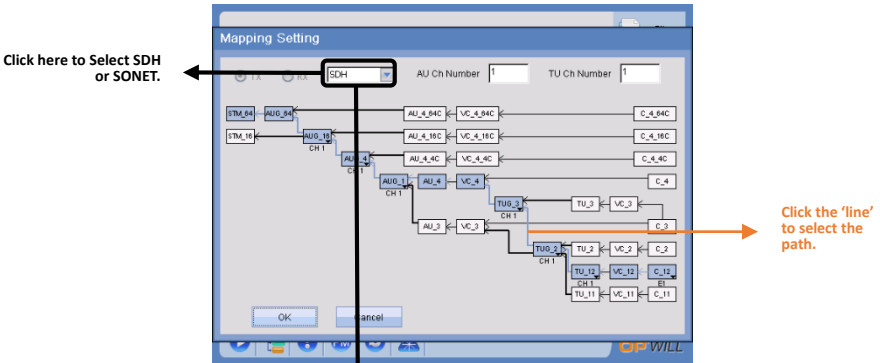


Figure 4.1.4 Mapping Setting -1

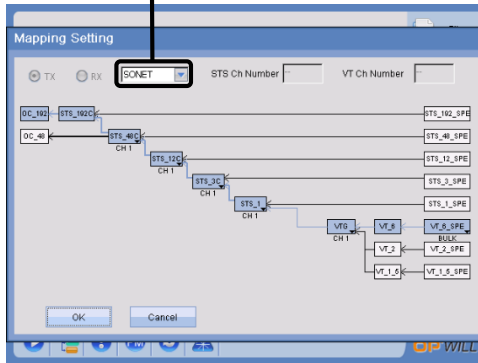


Figure 4.1.5 Mapping Setting -2

Step 3: Configure the port

After configuration of one test path has been done completely, please follow the following steps to configure the port.

- Click the 'Setting' and select 'Port' into the port setting page.
- Select the relevant parameters and click 'close' to confirm

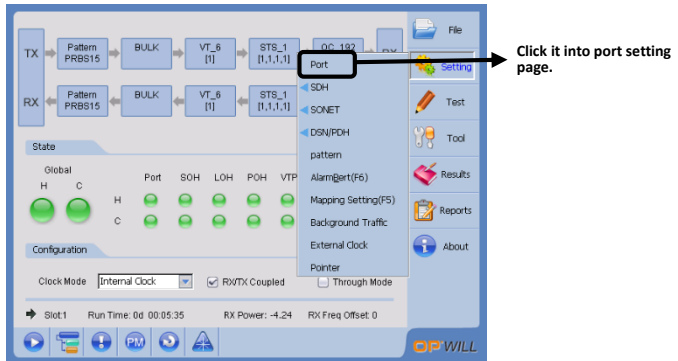


Figure 4.1.6 Enter port setting page

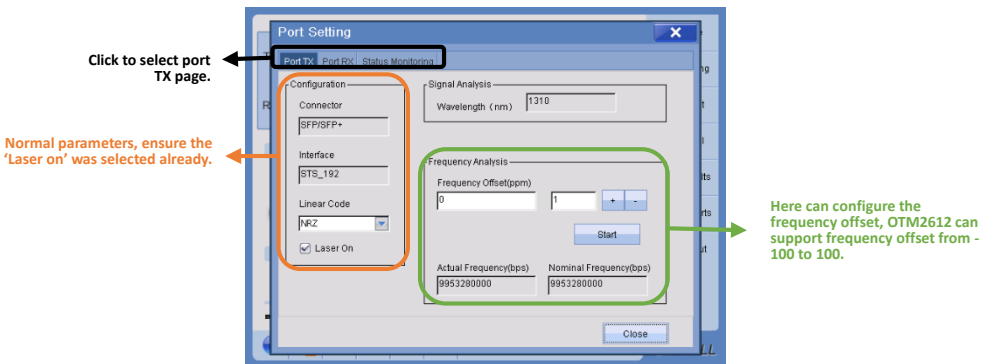


Figure 4.1.7 Port Setting -1

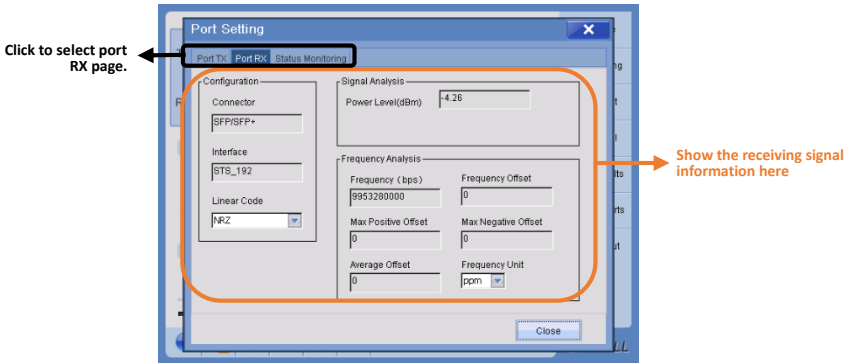


Figure 4.1.8 Port Setting -2

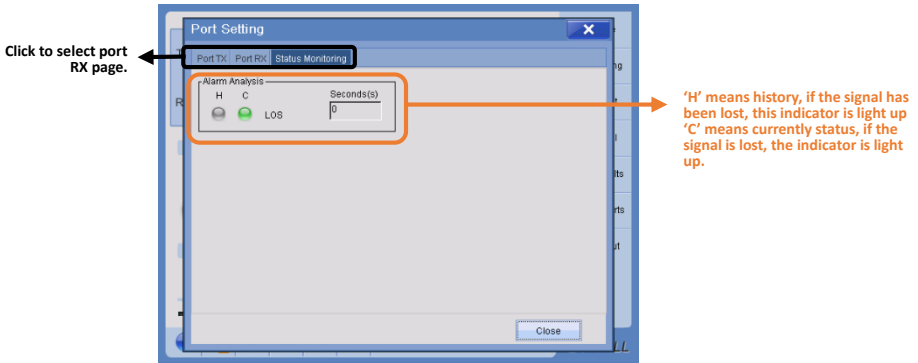


Figure 4.1.9 Port Setting -3

Step 4: Connect with the network

After configurations of one test has been done completely, connect the instrument with network. Please note:

- According to different interface type in the network ,please select the relevant port;

Note: for OTM2612 ports description, please see [Section OTM2612 Module](#);

- When connected, TX and RX need to correspond with the correct port of network.
- When test with optical circuit, please check the instrument has equipped optical transmission module or not, and its transmission wavelength (850nm, 1310nm, 1550nm) and power(*transmission distance*) is appropriate or not;

Step 5: Start and End Test

After the instrument has been connected with the network successfully, please follow the following steps to start or end the test:

- Click 'Test', then select 'Start' or 'Stop' to start or end the test;
 - Or, Click 'Start and Stop' button to start or end the test, see Figure 4.1.10;
- Or, push 'Run/Stop' on OTP6200 Platform to start or end the test, see [Section OTP6200 Platform: Figure 1.1.](#)

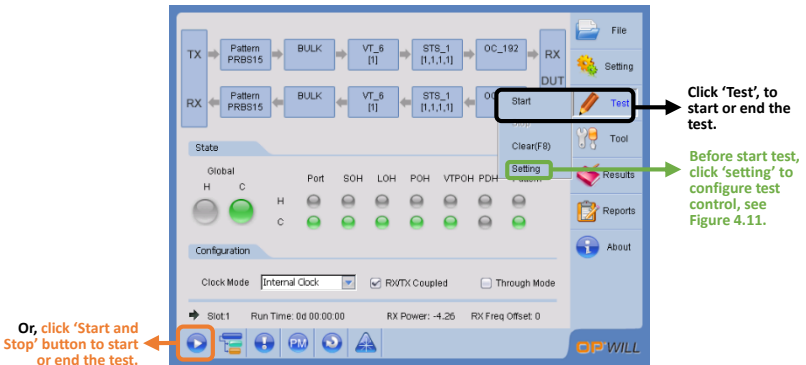


Figure 4.1.10 Start the test

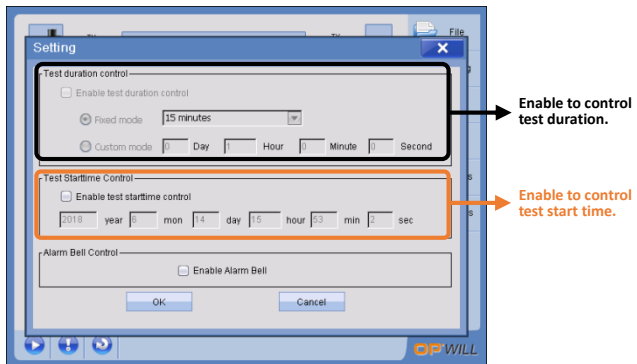


Figure 4.1.11 Test Control

Step 6: View Result

After the test has been done completely, please follow the following steps to view the results:

- To see the result, click the 'results' and select the 'Alarm overview' to view the alarm result, select the 'PM overview' to view the PM results
- Or click the shortcuts icon to view the related results.
- Or click the 'reports' and select the 'preview' to view the result

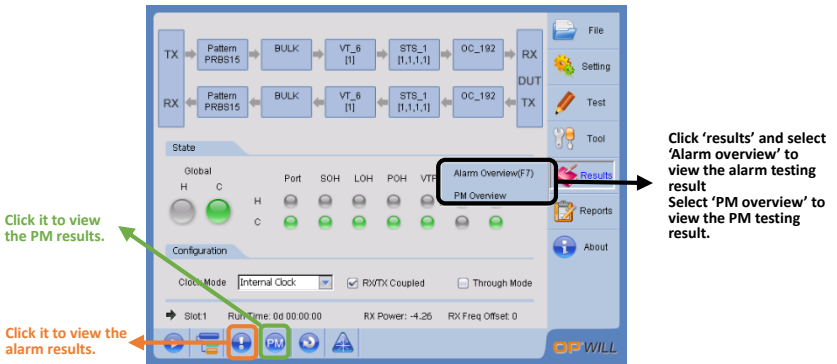


Figure 4.1.12 View test results

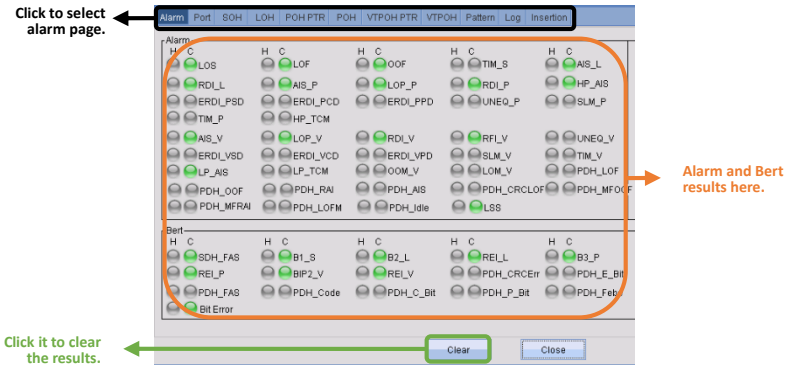


Figure 4.1.13 Alarm Overview

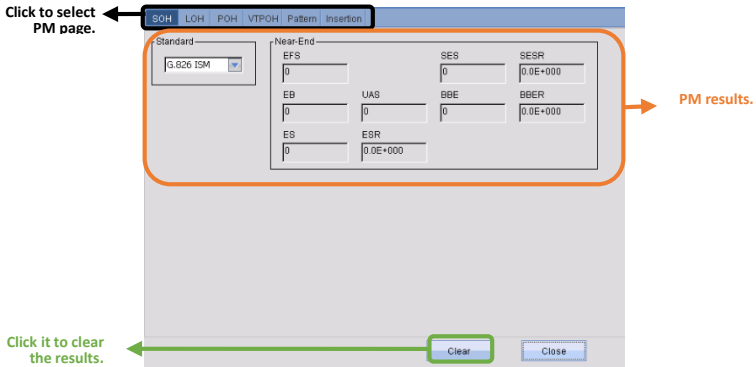


Figure 4.1.14 PM Overview

Step 7: Generate and Save Test Report

To generate and save test report, please follow the following the steps:

- Click 'Reports', then select 'Report Generation' to generate report;
- Click 'Preview' to preview the report which has been generated;
- Click 'Print' to print the report which has been generated.

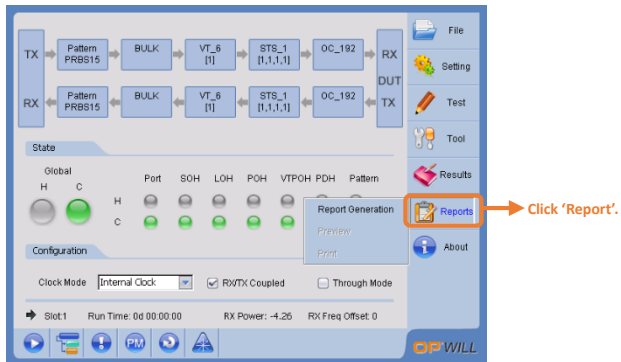


Figure 4.1.15 Report Generation

How to generate the test report:

- After click 'Report Generation', the dialog box of report generation will appear, see Figure 4.1.16;

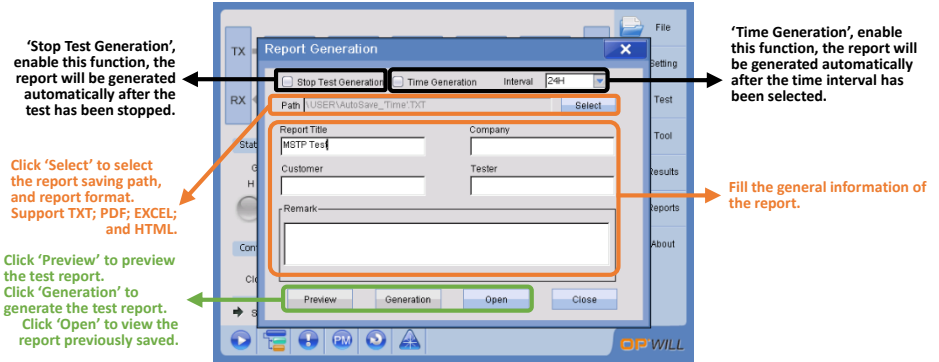


Figure 4.1.16 Report Generation Dialog Box

4.2 BERT for 10G or 2.5G

Preparation before the test

- Click 'File', and select 'New' to start a new test;
- Also, it can select 'Open' to open the previous saved test configuration;
- Also, it can select 'Save' to save this test configuration.



Click 'File', Select 'New' to create a new test;
Select 'Open' to previous saved test configuration;
Select 'Save' to save current test configuration.

Figure 4.2.1 Preparation before the Test

Steps for 10G or 2.5G BERT

- Step 1: Enter the 'Mapping Setting' page , please see details in step 2 of [section Basic steps of testing](#)
- Step 2: Select the SDH in the 'Mapping Setting' page, click the 10G or 2.5G path and click 'ok' to save the testing path

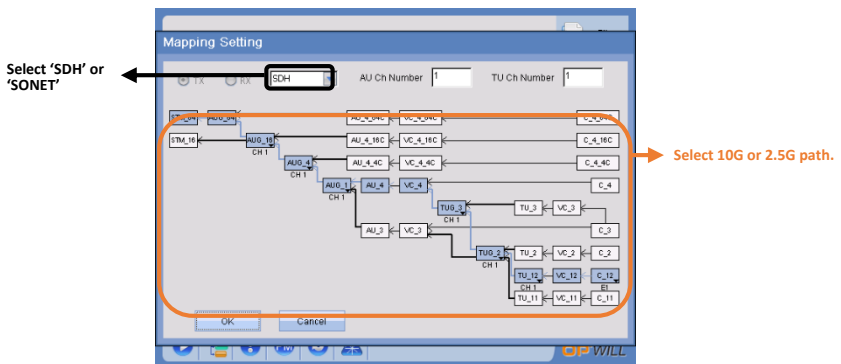


Figure 4.2.2 Select testing path

- Step 3: Click 'Start' button to start test, please see details in step 5 of [section Basic steps of Testing](#)

View the test results

Click the 'results' and select the 'Alarm overview' to view the alarm result, select the 'PM overview' to view the PM results

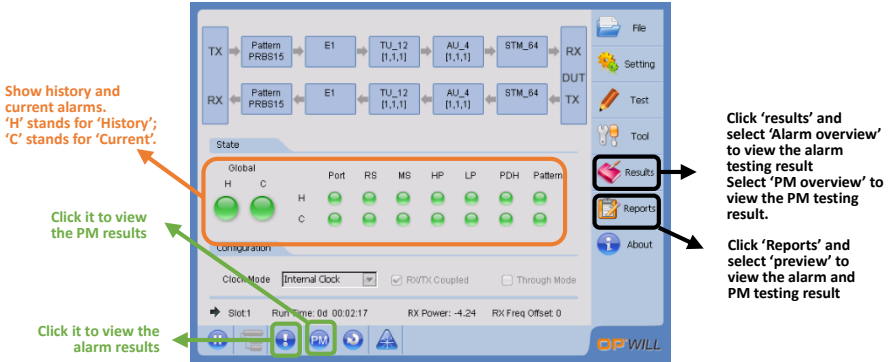


Figure 4.2.3 Result overview 10G or 2.5G BERT - 1

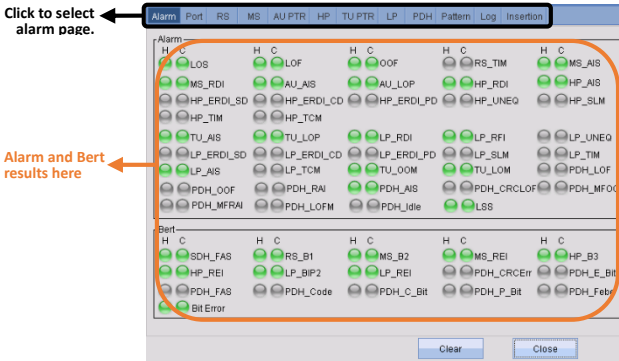


Figure 4.2.4 Result overview 10G or 2.5G BERT - 2

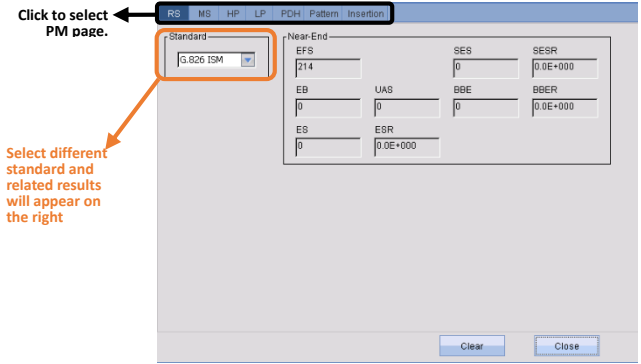


Figure 4.2.5 Result overview 10G or 2.5G BERT -3

4.3 Parameter Setting - SDH

Basic introduction

- Before the test, the Operators can insert some parameters into data flow in advance, such as error bit, alarm bit, overhead bytes, background traffic, pointer, and pattern.
- Make sure that testing path was already selected before set the related parameters.
- Also, the external clock setting is introduced in this section.

Set RS of SDH

- Step 1: Click the 'setting' and click 'SDH' - 'RS' to set RS parameters.

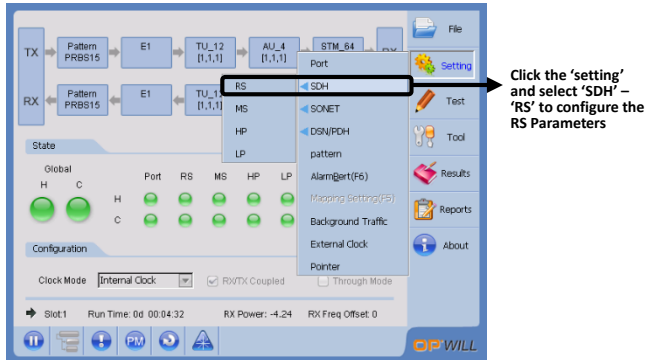


Figure 4.3.1 RS Setting

- Step 2: Input the overhead bytes in following page

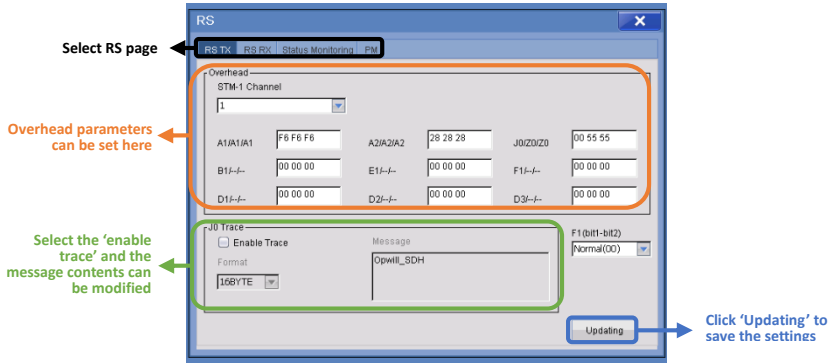


Figure 4.3.2 RS Setting -1

- Step 3: According to the above steps, the MS, PH, and LP can be set.

Set ROH of SONET

- Step 1: Click the 'setting' and click 'SONET' - 'ROH' to set ROH parameters.

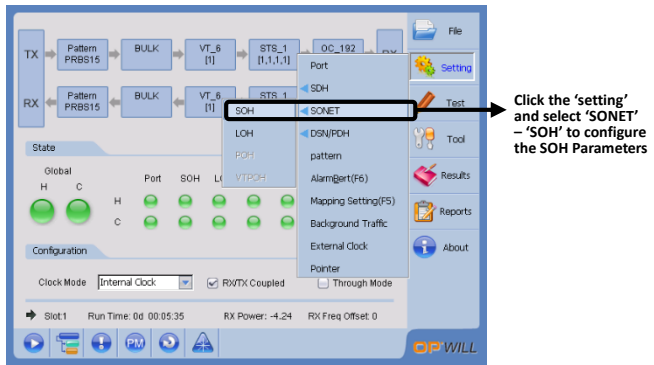


Figure 4.3.3 ROH Setting

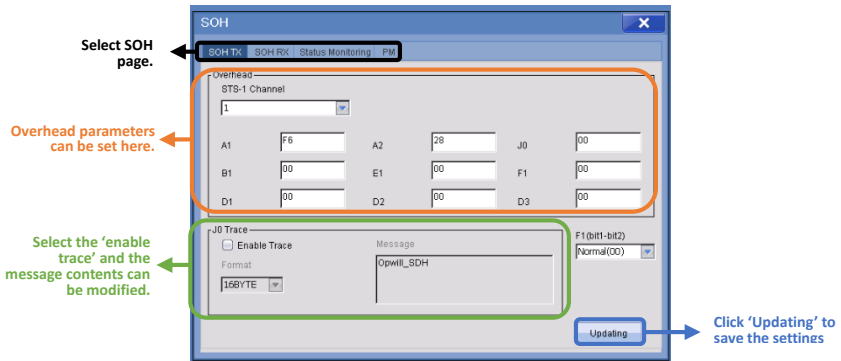


Figure 4.3.4 ROH Setting -1

- Step 3: According to the above steps, the LOH can be set.

Set Pattern

- Step 1: Click the 'setting' and click 'pattern' into the pattern setting page.

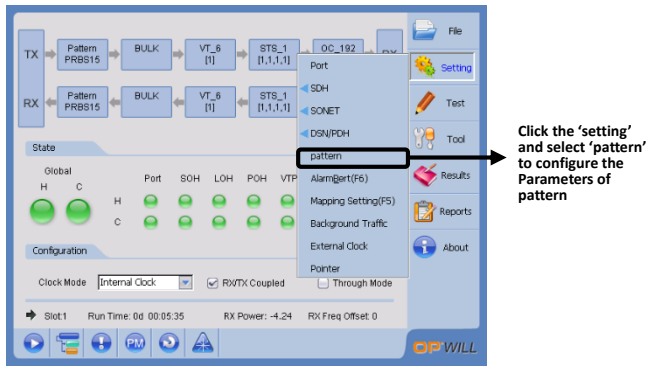


Figure 4.3.5 Pattern Setting-1

- Step 2: Input the parameters and click 'updating' to save the settings.

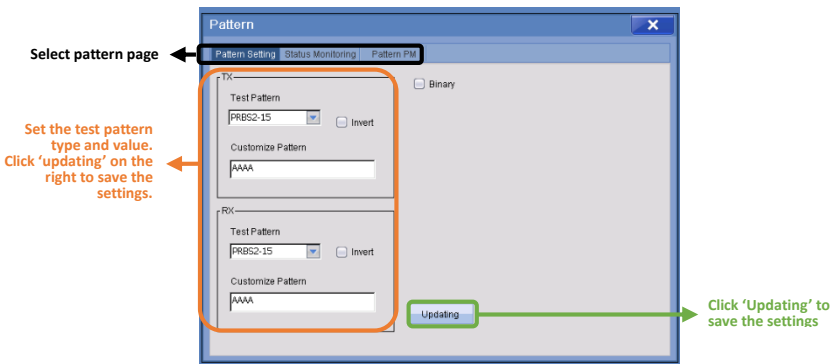


Figure 4.3.6 Pattern Setting -2

How to Insert BERT - SDH

This function is used for the scenario that SDH network has just been built without any traffic. Before begin the relevant path testing, the insertion should be completed, it can help operators to detect the performance of network as well as network element.

- Step 1: Click the 'setting' and click 'Alarm Bert' into alarm and BERT insertion page.

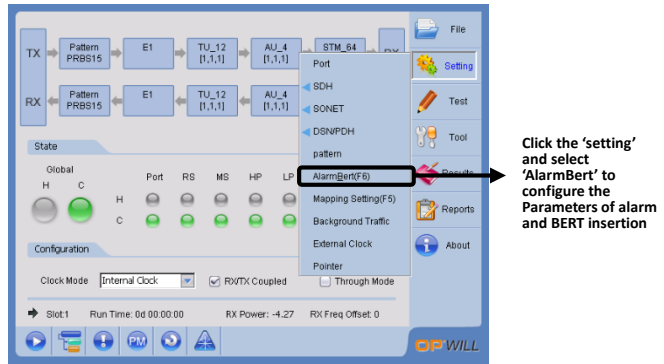


Figure 4.3.7 Select Alarm BERT

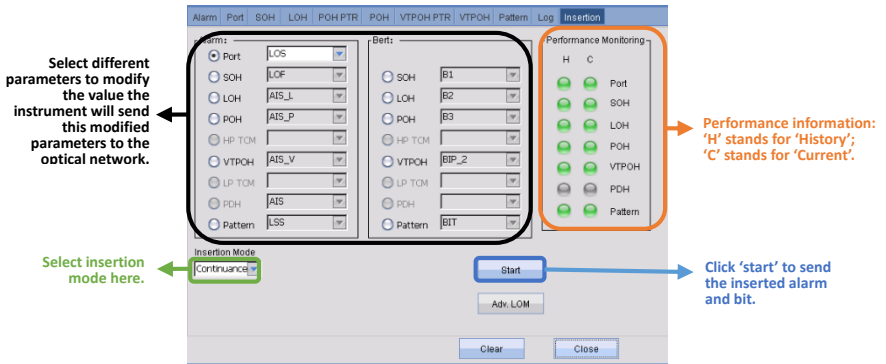
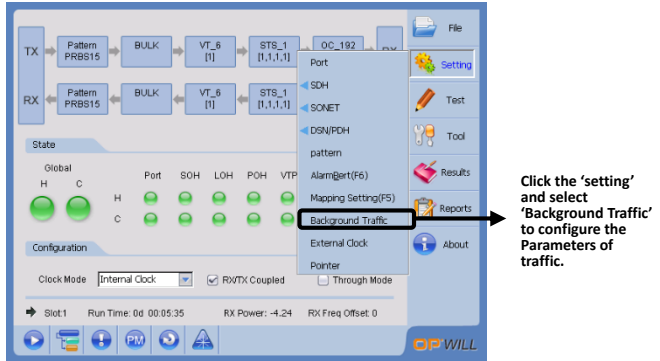


Figure 4.3.8 BERT insertion

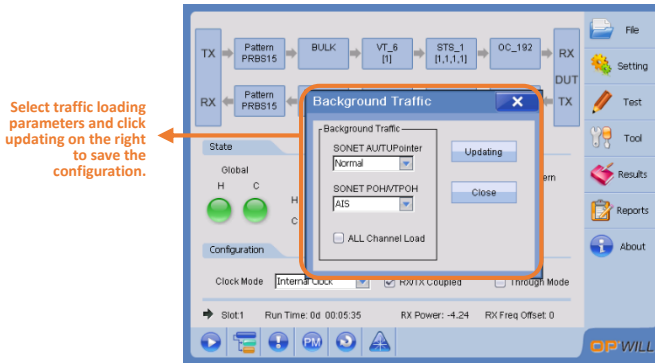
Set background traffic

- Step 1: Click the 'setting' and click 'Background Traffic' into background traffic setting page.



Click the 'setting' and select 'Background Traffic' to configure the Parameters of traffic.

Figure 4.3.9 background traffic setting -1



Select traffic loading parameters and click updating on the right to save the configuration.

Figure 4.3.10 background traffic setting -2

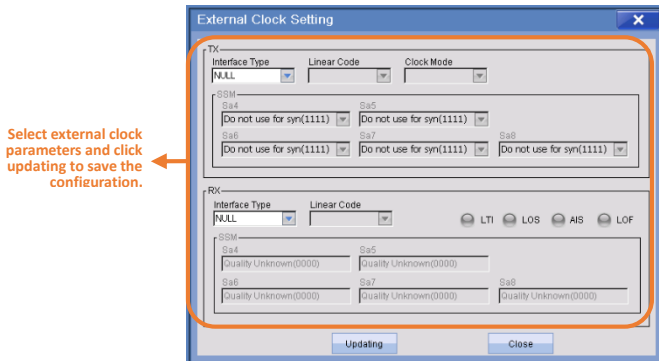
Set external clock

- Step 1: Click the 'setting' and click 'external clock' into clock setting page.



Click the 'setting' and select 'External Clock' to configure the Parameters of traffic.

Figure 4.3.11 Set External clock -1

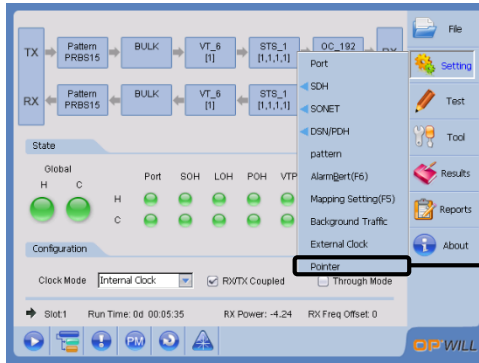


Select external clock parameters and click updating to save the configuration.

Figure 4.3.12 Set External clock -2

Set pointer

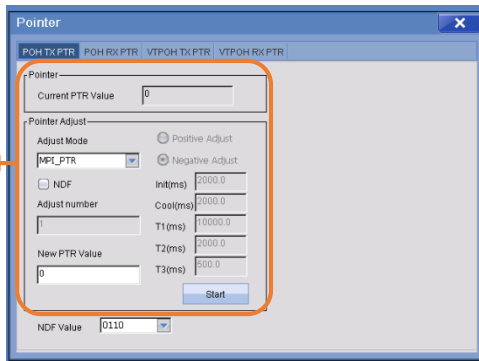
- Step 1: Click the 'setting' and click 'pointer' into pointer setting page.



Click the 'setting' and select 'pointer' to configure the Parameters of pointer.

Figure 4.3.13 Set pointer -1

- Step 2: Input the parameters and click 'start' to begin the testing.



According to the current PTR value to select pointer adjust mode and input the adjust number. Click the start to begin the testing.

Figure 4.3.14 Set pointer -2

4.4 Tool - SDH

Preparation before the test

Before the test, please make sure the link has been established successfully. Then click 'Tool', and select one function to do test.

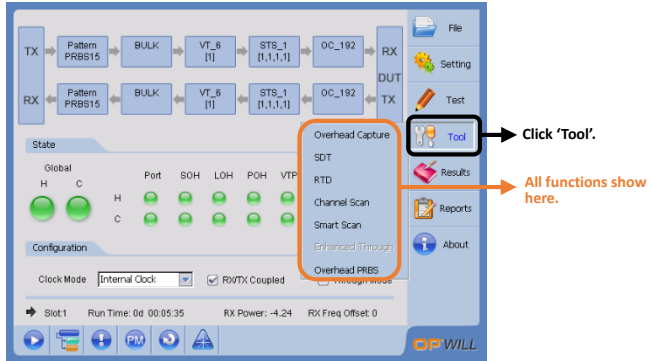


Figure 4.4.1 Enter Tool Box

Capture

Capture needs to follow the following step:

- Step 1: Select 'Overhead Capture' from 'Tool' sub menu to set parameters of capture;
- Step 2: Select 'SOH,LOH,CH No' and 'Capture mode';
- Step 3: Click 'Start' to start capture packet.

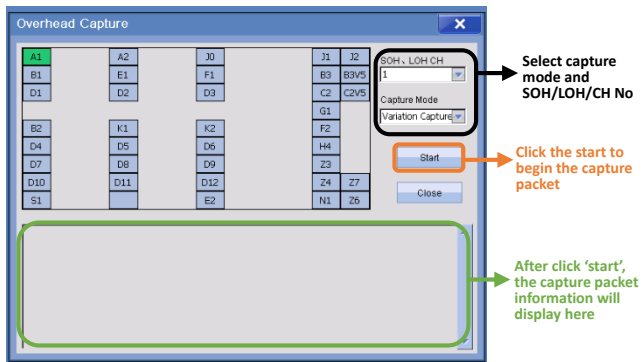


Figure 4.4.2 Capture configuration

SDT

SDT needs to follow the following step:

- Step 1: Select 'SDT' from 'Tool' sub menu to set parameters of SDT;
- Step 2: Select parameters of SDH;
- Step 3: Click 'Start' to start the testing.

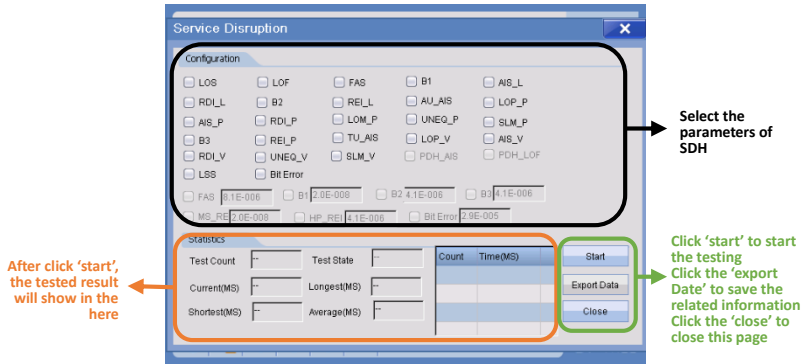


Figure 4.4.3 SDT Configuration

RTD

RTD needs to follow the following step:

- Step 1: Select 'RTD' from 'Tool' sub menu to set parameters of RTD ;
- Step 2: Select 'Unit';
- Step 3: Click 'Start' to start delay testing.

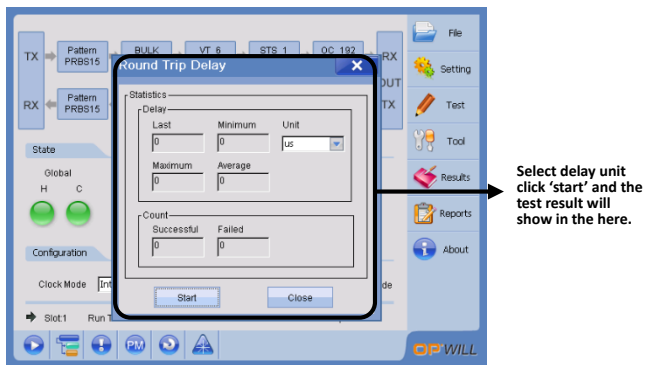


Figure 4.4.4 RTD Configuration

Channel Scan

Channel scan needs to follow the following step:

- Step 1: Select 'Channel scan' from 'Tool' sub menu to enter the page of channel scan;
- Step 2: Click 'Start' to start scan and waiting the result appearance.

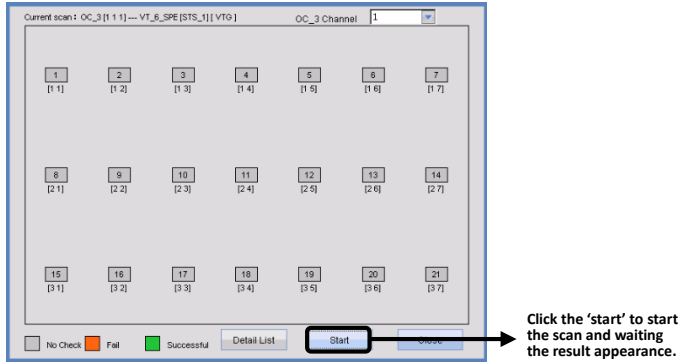


Figure 4.4.5 channel scan

Overhead PRBS

Overhead PRBS needs to follow the following step:

- Step 1: Select 'Overhead PRBS' from 'Tool' sub menu to set parameters of Overhead PRBS;
- Step 2: Select 'RS/MS CH NO', 'type select' and 'test pattern';
- Step 3: Click 'Start' to start PRBS testing base on overhead.

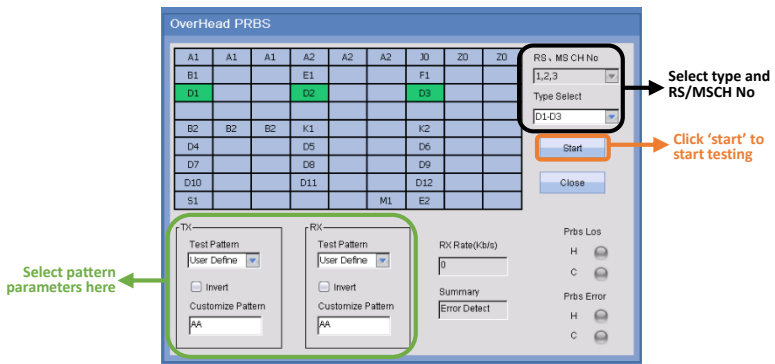


Figure 4.4.6 Overhead Setting

5. Remote Control

5.1 Remote Control Configuration

OTP6200 platform allows PC or laptop to do remote control. Enable remote control needs to follow the following steps:

- Step 1: Install OPWILL remote control software on PC or laptop, the software can be found in the disc or contact OPWILL support team;
- Step 2: Set OTP6200 platform IP address:

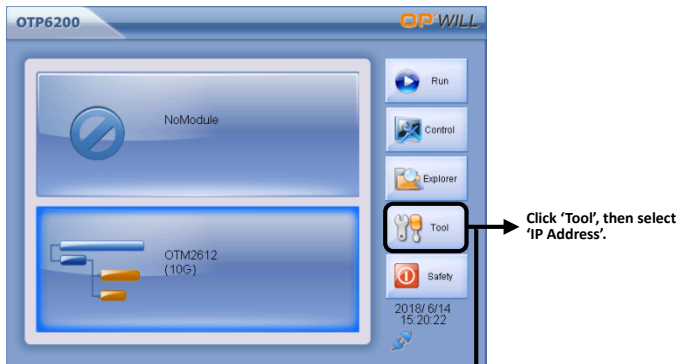


Figure 5.1.1 Setting OTP6200 IP Address -1

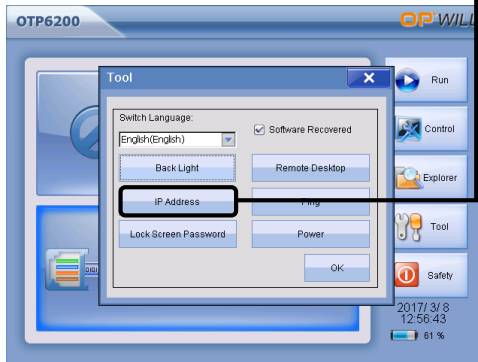


Figure 5.1.2 Setting OTP6200 IP Address -2

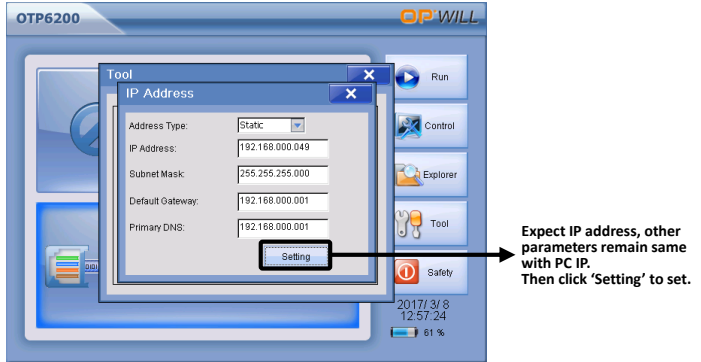


Figure 5.1.3 Setting OTP6200 IP Address -3

- Step 3: Enable remote control on OTP6200 platform:

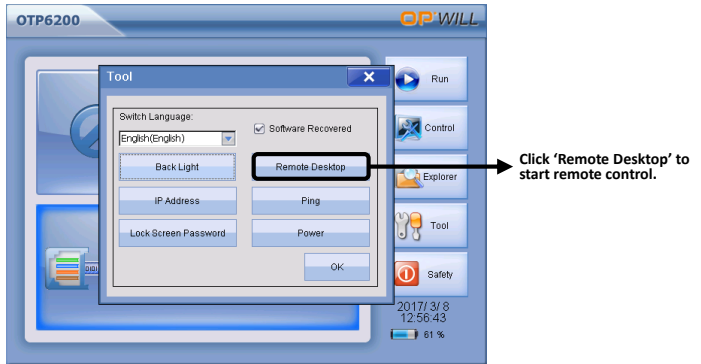


Figure 5.1.4 Enable Remote Control -1

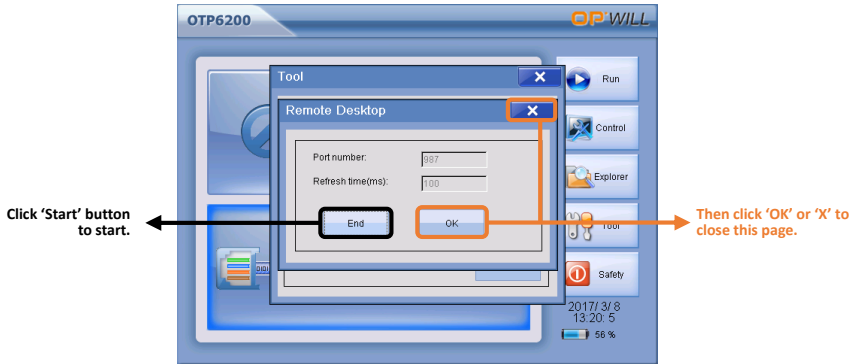


Figure 5.1.5 Enable Remote Control -2

- Step 4: Open remote desktop on PC, and connect with OTP6200 platform:

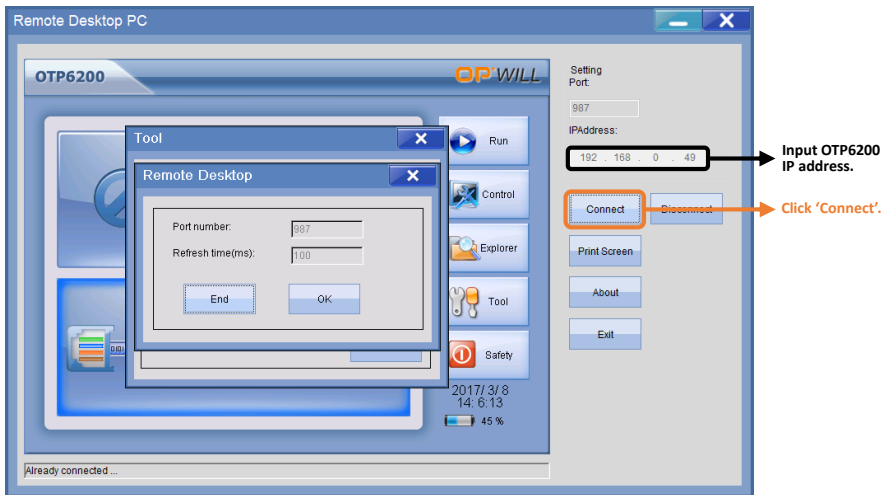


Figure 5.1.6 Remote Desktop on PC



Service and Support

Sales Contact

Tel: +86(10)82771386-888

Email: sales@opwill.com

Technical Support

Tel: +86(10)82771386-800

Email: support@opwill.com

Address: Room 415, Digital Media Building, No. 7 Shangdi Information Road, Haidian District, Beijing, PRC

Post Code: 100085

Tel: +86(10)82771386/2866/3382

Fax: +86(10)82771782

Web: www.opwillsolution.com