User Guide

EXpert IP Test Tools

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Telecom Test and Measurement

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EXPERTISE REACHING OUT

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Contents

1 Introducing the EXpert IP Test Tools

The EXpert IP Test Tools integrates six commonly used datacom test tools into one platform based application to ensure field technicians are prepared for a wide-range of testing needs. It runs as a separate software application on the platform and operates independently of the modules installed on the platform. The EXpert IP Test Tools provide a comprehensive offering of test features such as Ping, FTP Performance, Traceroute, HTTP Availability, VLAN Scan, and LAN Discovery.

The EXpert IP Test Tools application runs on the following EXFO's platforms: FTB-200v2, FTB-1, FTB-1v2, FTB-1v2 Pro, FTB-2, FTB-2 Pro, and FTB-4 Pro.

Conventions

Before using the product described in this guide, you should understand the following conventions:

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in *death or serious injury*. Do not proceed unless you understand and meet the required conditions.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in *minor or moderate injury*. Do not proceed unless you understand and meet the required conditions.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in *component damage*. Do not proceed unless you understand and meet the required conditions.

IMPORTANT

Refers to information about this product you should not overlook.

2 Getting Started

Signal Connection

The EXpert IP Test Tools uses the 10/100/1000 Mbit/s Ethernet RJ45 port of the EXFO's platform.

Connect the 10/100/1000 Mbit/s electrical signal to be tested to the RJ45 port of the EXFO's platform.

Note: *Refer to the EXFO's platform User Guide for more information.*

Laser Safety Information

The EXpert IP Test Tools software is not provided with any hardware components. However, it may be used with your platform or modules which may contain laser components. Refer to the user guides of your platform or modules for further laser safety details and instructions.

Starting the EXpert IP Test Tools Application

The EXpert IP Test Tools application is pre-installed on the EXFO's platform. If the EXpert IP Test Tools is not already installed, refer to the EXFO's platform User Guide for more information on how to install the application.

Note: *The application can be used in trial mode if you do not have a valid license. You can follow the on-screen instructions to activate the trial. If you wish to renew the trial period or purchase a valid license, then refer to EXFO website. For information on how to install and activate software options, refer to the EXFO's platform User Guide.*

To start the EXpert IP Test Tools application:

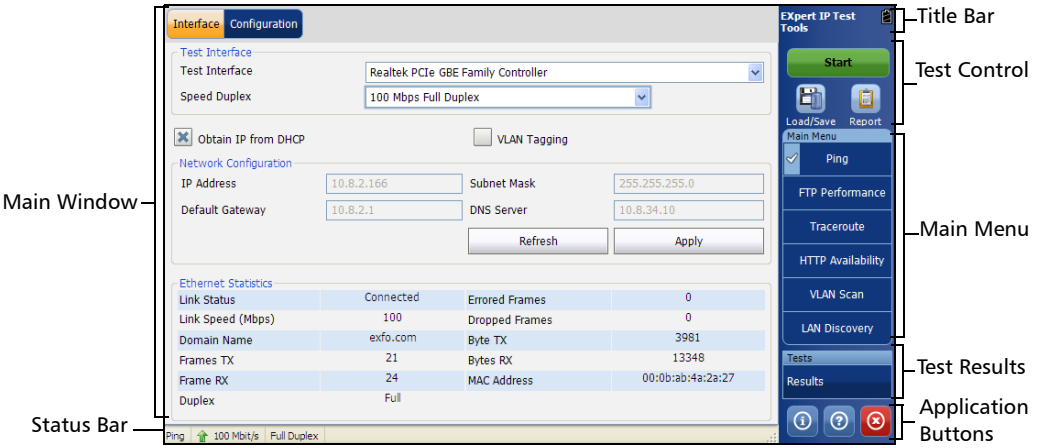
1. **FTB-1**: From **Mini ToolBox**, tap on the **Test Tools** tab.
   FTB-1v2 and **FTB-1v2 Pro**: From **Mini ToolBox X**, tap on the **Test Tools** button.
   FTB-2, **FTB-2 Pro**, and **FTB-4 Pro**: From **ToolBox X**, tap the **Test Tools** button.
   FTB-200v2: From **Compact ToolBox**, tap on the **Test Tools** tab.
2. Select the **EXpert IP Test Tools** then tap on **Start**.

3 Using the Graphical User Interface

This chapter describes the graphical user interface of the EXpert IP Test Tools application.

Main Application Window

The following main application window is displayed when the EXpert IP Test Tools application is started.



Main Window

The main window allows to setup a test and to view the test status and results.

Status Bar

The status bar displays the following information.

Icon and/or text	Description
Test name	Test name of the selected test.
Link arrow	Green arrow: Ethernet Link up Red arrow: Ethernet Link down.
Interface speed	10 Mbit/s, 100 Mbit/s, or 1000 Mbit/s.
Test status	Current test status.

Title Bar

The title bar displays the software application name and the battery level indicator.

Test Control

Note: *Refer to* Test Control *on page 43 for more information.*

Main Menu

The EXpert IP Test Tools main menu allows the selection of a test tool. The selected test tool is the one with a check mark to its left. Refer to *Selecting and Starting a Test* on page 11.

Test Results

Note: *Refer to* Test Results *on page 29 for more information.*

Application Buttons

➤ **About** (i) mainly displays the product version details and technical support information.

Software Options button displays the list of software options enabled. For information on how to install and activate software options, refer to the EXFO's platform User Guide.

Option Name	Description
EXPERTIP	Enable "IP/Ethernet test tool suite" application.

Licence Agreement button displays the details of the product licence agreement.

➤ **Help** (?) displays the help information related to the content of the active main window. It is also possible to navigate through the remainder of the help information.

➤ **Exit** (x) closes the application.

Arrow Buttons

Moves to the top of the list.

Moves one page up.

Moves one line up.

Moves one line down.

Moves one page down.

Moves to the end of the list.

Keyboard Usage

The GUI pops up different keyboards to modify data. Following are the usual keyboard keys:

- Left arrow moves the cursor one position to the left.
- Right arrow moves the cursor one position to the right.
- Up arrow increases the byte value by one.
- Down arrow decreases the byte value by one.
- **Del** deletes the value at the cursor position.
- **Back** deletes the value preceding the cursor position.
- **OK** completes data entry.
- **Cancel** closes the keyboard and discards the keyboard entry.
- **Previous...** or **Presets** allows the selection of previously configured values. This button is only available for certain fields like IP Address, MAC Address, etc.

Note: *For certain text fields, the GUI pops up or uses the platform's on-screen keyboard. Refer to the platform user guide for more information on how to used it.*

For full keyboard, the **Back**, **Del**, **Shift**, and **Space** bar keys have the same functionality as a regular PC keyboard.

4 Selecting and Starting a Test

A test can be created either by selecting the test from the **Test Menu** or by loading a previously saved configuration (refer to *Load/Save* on page 44 for more information).

The EXpert IP Test Tools main menu offers the following test tools:

Test Tools
Ping on page 12
FTP Performance on page 13
Traceroute on page 14
HTTP Availability on page 15
VLAN Scan on page 16
LAN Discovery on page 17

Ping

The Ping test is used to determine whether a particular host is reachable across an IP network. The ping test uses ICMP echo messages to monitor the availability of a given host and measure the round-trip latency, jitter and packet loss between the source and the specified endpoint.

To select, configure, and start a Ping test:

1. From the **Main Menu**, tap **Ping**.
2. From the **Interface** tab, configure the test interface parameters. Refer to *Interface* on page 20. Ensure that the link is up in the status bar before proceeding to the next step.
3. From the **Configuration** tab, configure the Ping test. Refer to *Configuration (Ping)* on page 23.
4. Press **Start** to start the test.
5. For results, refer to *Result Summary (Ping)* on page 30.
6. If required, tap the **Report** button to generate the report file of the results and statistics. Refer to *Report* on page 45 for more information.

FTP Performance

The FTP Performance test measures the availability and response time of an FTP server. You can configure FTP Performance test to either upload a file to the server, download a file from the server, or perform both tasks. The file is generated by the test and transferred to location specified. File transfer involves two types of connections, a control connection and a data connection.

To select, configure, and start a FTP Performance test:

1. From the **Main Menu**, tap **FTP Performance**.
2. From the **Interface** tab, configure the test interface parameters. Refer to *Interface* on page 20. Ensure that the link is up in the status bar before proceeding to the next step.
3. From the **Configuration** tab, configure the FTP Performance test. Refer to *Configuration (FTP Performance)* on page 24.
4. Press **Start** to start the test.
5. For results, refer to *Result Summary (FTP Performance)* on page 32.
6. If required, tap the **Report** button to generate the report file of the results and statistics. Refer to *Report* on page 45 for more information.

Traceroute

Traceroute is a utility that reports the path that IP packets follow through the network from a local host to a specified host destination. The Traceroute test identifies the path a packet travels between a source and a specified host. This test uses the maximum hop count (TTL) field in the IP packet header, incrementing its value in sequence for each packet sent.

To select, configure, and start a Traceroute test:

1. From the **Main Menu**, tap **Traceroute**.
2. From the **Interface** tab, configure the test interface parameters. Refer to *Interface* on page 20. Ensure that the link is up in the status bar before proceeding to the next step.
3. From the **Configuration** tab, configure the Traceroute test. Refer to *Configuration (Traceroute)* on page 25.
4. Press **Start** to start the test.
5. For results, refer to *Result Summary (Traceroute)* on page 34.
6. If required, tap the **Report** button to generate the report file of the results and statistics. Refer to *Report* on page 45 for more information.

HTTP Availability

The HTTP Availability test measures the availability and response time of a Hypertext Transfer Protocol (HTTP) server by downloading a web page. This test supports and conforms to HTTP versions 1.0 and 1.1.

To select, configure, and start a HTTP Availability test:

1. From the **Main Menu**, press **HTTP Availability**.
2. From the **Interface** tab, configure the test interface parameters. Refer to *Interface* on page 20. Ensure that the link is up in the status bar before proceeding to the next step.
3. From the **Configuration** tab, configure the HTTP Availability test. Refer to *Configuration (HTTP Availability)* on page 26.
4. Press **Start** to start the test.
5. For results, refer to *Result Summary (HTTP Availability)* on page 36.
6. If required, tap the **Report** button to generate the report file of the results and statistics. Refer to *Report* on page 45 for more information.

VLAN Scan

The VLAN Scan test is used to detect and list all the VLANs present in the connected IP network. It supports detection of nested VLANs up to three layers. The results include the VLAN ID, priority, and frame count.

Note: *For FTB-200v2 and FTB-1 platforms, the **VLAN Tagging** check box must be cleared to perform VLAN scan (see* VLAN Tagging *on page 20).*

Note: *The VLAN Scan test uses only the Interface parameters to run the test.*

IMPORTANT

To run the VLAN Scan test, the platform's Intel Ethernet adapter has to be configured to allow VLAN. This configuration is only required on FTB-1v2, FTB-1v2 Pro, FTB-2, FTB-2 Pro, and FTB-4 Pro platforms.

Under **ToolBox** > **System Settings**, tap **Advanced Ethernet Configuration**, select the **Allow VLAN or QoS tagged frames** check box, and tap **OK**.

To select, configure, and start a VLAN Scan test:

1. From the **Main Menu**, press **VLAN Scan**.
2. From the **Interface** tab, configure the test interface parameters. Refer to *Interface* on page 20. Ensure that the link is up in the status bar before proceeding to the next step.

Note: To run the VLAN Scan test, the **VLAN Tagging** check box must be cleared.

3. Press **Start** to start the test.
4. For results, refer to *Result Summary (VLAN Scan)* on page 38.
5. If required, tap the **Report** button to generate the report file of the results and statistics. Refer to *Report* on page 45 for more information.

LAN Discovery

The LAN Discovery tool listens to the network traffic and actively interrogates network devices to learn about attached hosts, servers, switches, and routers. The LAN discovery test consists of two modes: Active mode and Passive mode. The Passive mode discovers the IP address and MAC address of the devices on the network. The Active mode discovers all the devices on the network for the specified IP address range with the analysis of the activated services (such as FTP, SIP, Telnet, and so on) on each system. The information for the device based on the selected service is displayed on the Results Summary page.

To select, configure, and start a LAN Discovery test:

1. From the **Main Menu**, tap **LAN Discovery**.
2. From the **Interface** tab, configure the test interface parameters. Refer to *Interface* on page 20. Ensure that the link is up in the status bar before proceeding to the next step.
3. From the **Configuration** tab, configure the LAN Discovery test. Refer to *Configuration (LAN Discovery)* on page 27.
4. Press **Start** to start the test.
5. For results, refer to *Result Summary (LAN Discovery)* on page 40.
6. If required, tap the **Report** button to generate the report file of the results and statistics. Refer to *Report* on page 45 for more information.

5 Test Setup

The test setup offers the following tabs depending on the test:

Tabs
Interface on page 20
Configuration (Ping) on page 23
Configuration (FTP Performance) on page 24
Configuration (Traceroute) on page 25
Configuration (HTTP Availability) on page 26
Configuration (LAN Discovery) on page 27

Interface

Note: *The interface configuration parameters apply globally to all tests.*

From the **Main Menu**, tap on a test and the **Interface** tab.

Test Interface

- **Test Interface** displays the network adapter(s) found on the EXFO's platform. The first network adapter is selected by default.
- **Speed/Duplex** selects the network adapter speed and duplex mode: **Auto Negotiation** (default), **10 Mbit/s Half Duplex**, **10 Mbit/s Full Duplex**, **100 Mbit/s Half Duplex**, **100 Mbit/s Full Duplex**, **1000 Mbit/s Full Duplex**. Changing this setting restarts the network adapter, a user confirmation is required.

Obtain IP from DHCP

Obtain IP from DHCP check box when selected (default) allows to dynamically obtain an IP address from a DHCP (Dynamic Host Configuration Protocol) server for the Ethernet port.

VLAN Tagging

Only available on FTB-200v2 and FTB-1 platforms, allows to enable or disable VLAN Tagging. VLAN Tagging check box must be cleared (default) for the VLAN Scan test tool.

Note: ***VLAN Tagging*** *enable/disable will reboot the device. A warning pop-up message is displayed. Press Yes to reboot the platform. The EXpert IP Test Tools application has to be manually restarted after the platform's reboot.*

Network Configuration

Note: *Network configuration is only possible when the **Obtain IP from DHCP** check box is cleared. Otherwise, when the **Obtain IP from DHCP** check box is selected, all parameters are not configurable and set to the values obtained through DHCP process.*

- **IP Address** allows to enter the IP address for the Ethernet port: **0.0.0.1** to **223.255.255.255**.
- **Subnet Mask** allows to enter the Subnet Mask for the Ethernet port: **0.0.0.1** to **255.255.255.255**.
- **Default Gateway a**llows to enter a default Gateway address: **0.0.0.01** to **255.255.255.255**.
- **DNS Server** allows to enter the DNS Server address: **0.0.0.0** to **223.255.255.255**.
- **Refresh**, available when the **Obtain IP from DHCP** check box is selected, refreshes the network configuration parameters.
- **Apply** allows to apply the network configuration settings.

Ethernet Statistics

The following Ethernet Statistics are displayed.

- **Link Status** displays the status of the link: **Connected** or **Disconnected**.
- **Link Speed (Mbps)** displays the speed of the Ethernet connection.
- **Domain Name** displays the name of the connected domain.
- **Frame TX** displays the total Ethernet frames transmitted.
- **Frame RX** displays the total Ethernet frames received.
- **Duplex** displays the Duplex mode of the link: **half duplex**, **full duplex**, or **auto**.
- **Errored Frames** displays the number of Ethernet frames received with error.
- **Dropped Frames** displays the number of Ethernet frames dropped.
- **Bytes TX** displays the total data bytes transmitted.
- **Bytes RX** displays the total data bytes received.
- **MAC Address** displays the MAC Address of the EXFO's platform.

Note: *__Bytes TX__ and __Bytes RX__ indicate the total amount of data that has passed through the Ethernet interface either way. EXpert IP Test Tools update the Ethernet statistics every second.*

Configuration (Ping)

From the **Main Menu**, tap **Ping**, and the **Configuration** tab.

Configuration

- **IP Address/DNS** allows to enter the destination IP Address or DNS. A maximum of 63 characters are allowed. The default setting is **127.0.0.1**.
- **Timeout** (ms) allows to enter the time to wait for a response in milliseconds for the last ICMP echo message: **1** to **60000** milliseconds (default is **1000** milliseconds).
- **Delay** (ms) specifies the time to wait between sending ICMP echo packets in milliseconds: **1** to **60000** milliseconds (default is is 1000 milliseconds).
- **Data Size** (bytes) specifies the size of the packets to be transmitted in bytes: **0** to **1450** bytes (default is **32** bytes).
- **TTL** specifies the Time To Live field in the IP header of the ICMP echo packets: **1** to **225** (default is **64**).
- **DiffServ Code Point** specifies the Type of Service field according to diffserv's DS codepoint in the IP header of the ICMP echo packets: **0** to **63** (default is **3**).
- **Number of Ping Requests** specifies the number of ICMP echo packets to be transmitted: **1** to **255** (default is 5).

Configuration (FTP Performance)

From the **Main Menu**, tap **FTP Performance**, and the **Configuration** tab.

Configuration

- **Server Name** specifies the name or IP address of the FTP server for which you want to measure the performance. A maximum of 63 characters are allowed.
- **Transfer Type** specifies the type of the file to be transferred: **ASCII** (default), or **Binary**.
- **User Name** specifies the name of the account to be used for the file transfer. A maximum of 64 characters are allowed.
- **Password** specifies the user account Password to be used for the file transfer. A maximum of 64 characters are allowed.
- **Operation Mode** specifies the mode in which the test operates: **Upload** (default), **Download**, or **Bi-Directional** (upload and donsload).
- **File Size** (bytes) specifies the size of the file to be transmitted: **0** to **5000000** bytes (default is **4096** bytes). The **File Size** is not available if **Download** is selected as the **Operation Mode**.
- **Directory Name** specifies the name of the directory where the file should be transferred. A maximum of 128 characters are allowed.
- **File Name** specifies the name of the file. A maximum of 128 characters are allowed.

Note: *The **File Name** is optional with **Upload** or **Bidirectional** operation mode. If the file name is not provided, the system will create a file with a default name. If the file name is provided, the system will create a file with the provided name. If **Download** operation mode is selected, the exact file name of the file to be downloaded from the server must be provided.*

Configuration (Traceroute)

From the **Main Menu**, tap **Traceroute**, and the **Configuration** tab.

Configuration

- **Source IP Address/DNS** displays the Source IP Address configured in the **Interface** tab (see *Network Configuration* on page 21).
- **Destination IP Address/DNS** specifies the Destination IP Address/DNS. A maximum of 63 characters are allowed.
- **UDP Port** specifies the UDP port number where the packets should be sent when UDP protocol is used: **10000** to **65535** (default is **33440**). UDP Port is not available when the **Probe Type** is **ICMP**.
- **Start Hop Count** allows to enter the Start Hop Count: **1** (default) to **255**.
- **Maximum Hop Count** specifies the upper limit of the Maximum Hop Count (TTL): **1** to **255** (default is **30**).
- **Reply Timeout** (ms) specifies the length of time to wait for each ICMP response: **0** to **10000** (default is **5000**).
- **DiffServ Code Point** specifies the type of Service field according to the diffserv code point (RFC 2474) in the IP header of the packets: **0** (default) to **63**.
- **Probe Type** choices are **ICMP** (default), and **UDP**.

Configuration (HTTP Availability)

From the **Main Menu**, tap **HTTP Availability**, and the **Configuration** tab.

Configuration

- **URL** specifies the URL of the page to retrieve. A maximum 800 characters are allowed.
- **Page Download Mode**
  - **HTML Text** (default) mode checks the availability and the initial response time of the HTML page. The test downloads the HTML text only.
  - **Header** mode checks the availability of the HTML page, avoiding the excess bandwidth.

Configuration (LAN Discovery)

From the **Main Menu**, tap **LAN Discovery**, and the **Configuration** tab.

Configuration

- **Start IP Address**: Enter the start range of the IP Address from where you want to start discovering the LAN in the network: **0.0.0.1** to **223.255.255.255**. The default value will be the first 2 bytes of the network in which the device is connected. For example, if the network address is 10.192.3.83, then the default value will be 10.192.0.0.
- **End IP Address**, when selected, allows to enter the end range of the IP Address up to where you want to discover the LAN in the network: **0.0.0.1** to **223.255.255.255**. The default value will be the IP address of the device. This will be same as the IP address in test interface page.

Note: *If you run the LAN Discovery test using the Start IP address and the Subnet Mask or Bit Mask, then the provided Start IP address parameter is used for masking the bits, it is not considered as the starting IP address for the LAN discovery.*

- **Mask** is a logically visible subdivision of an IP network. It allows to create a range of IP addresses that could be used to scan over the IP network during the LAN discovery: **255.255.240.0** to **255.255.255.255** (default is **255.255.240.0**).
- **Bit Mask**: Enter the binary network mask: **20** (default) to **32**.

Services to Search

Allows the selection of services for which the LAN Discovery test will interrogate network devices: DHCP, FTP, SNMP, DNS, HTTP, Telnet, HTTPS, SSH, and SIP.

Select All check box when selected selects all services.

6 Test Results

The rest **Results** menu offers the following Result Summary tabs depending on the test:

Tabs
Result Summary (Ping) on page 30
Result Summary (FTP Performance) on page 32
Result Summary (Traceroute) on page 34
Result Summary (HTTP Availability) on page 36
Result Summary (VLAN Scan) on page 38
Result Summary (LAN Discovery) on page 40

Result Summary (Ping)

From the **Main Menu**, tap **Results**.

Status

Indicates the test status.

- **Running**: test is running.
- **Stopped**: test is interrupted; test is stopped before the set time.
- **Completed**: test is completed successfully.

The Pass/Fail verdict is displayed next to the **Status** field once the test is completed.

Message

Displays one of the following error messages, when the test fails.

FDNS lookup failed.
Destination is unreachable.
Destination not responding.
Invalid source IP address.

Result Summary

- **Destination DNS Name**: The DNS name of the destination server.
- **Destination IP Address**: The IP Address of the destination server.
- **Packets Sent**: Number of packets sent to the destination address.
- **Packets Received**: Number of packets received from the destination address.
- **Packets Lost**: Number of packets lost.
- **Packet Loss** (%): Percentage of the packets that were either lost or late.

Round Trip Latency (ms)

- **Minimum**: Minimum round trip latency of packets in milliseconds.
- **Maximum**: Maximum round trip latency of packets in milliseconds.
- **Average**: Average round trip latency of packets in milliseconds.

Jitter Statistics (ms)

Average: The average of jitter of RTP packets received by the endpoint in milliseconds.

Result Summary (FTP Performance)

From the **Main Menu**, tap **Results**.

Status

Indicates the test status.

- **Running**: test is running.
- **Stopped**: test is interrupted; test is stopped before the set time.
- **Completed**: test is completed successfully.

The Pass/Fail verdict is displayed next to the **Status** field once the test is completed.

Message

Displays one of the following error messages, when the test fails.

Server name not resolved.
Bad response from Server.
Sending packet error on control channel.
Connection error on control channel.
Timeout while waiting for response.
Connection dropped on control channel.
Receiving packet error on control channel.
Service not available on the server.
Invalid user name.
Invalid username/password.
Error in initializing the data channel.
Connection error on data channel.
Connection dropped on data channel.
Sending packet error on data channel.
Receiving packet error on data channel.
Directory not found on the server.
Error while retrieving the file.
Error while storing the file.

Specified file not found on the server.
Error occurred while deleting the file.
Failed because of an internal error.

IP

- **Server IP Address**: The IP address of the FTP server.
- **Initial Greeting Time (ms)**: The amount of time taken to receive the initial acknowledgement from the server in milliseconds.

Login Time

- **User Response Time (ms)**: The amount of time taken to receive a response to the USER command.
- **Password Response Time (ms)**: The amount of time taken to receive a response to the PASS (password) command.

Upload

- **Upload Time (ms)**: The amount of time taken to upload the file to the server.
- **Upload Throughput (Mbps)**: It specifies the throughput in Mbps while uploading data.

Download

- **Download Time (ms)**: The amount of time taken to download the file from the server.
- **Download Size (bytes)**: It specifies the size of the downloaded file.
- **Download Throughput (Mbps)**: It specifies the throughput in Mbps while downloading the data.

Result Summary (Traceroute)

From the **Main Menu**, tap **Results**.

Status

Indicates the test status.

- **Running**: test is running.
- **Stopped**: test is interrupted; test is stopped before the set time.
- **Completed**: test is completed successfully.

The Pass/Fail verdict is displayed next to the **Status** field once the test is completed.

Message

Displays one of the following error messages, when the test fails.

No route to destination.
Maximum Hop count too low.
Last hop node did not respond.
DNS lookup Failed.
No response received from any node.
Invalid source address.
Parse error.
No resources.

Result Summary

- **IP Address**: IP address of the destination host or intermediate IP address (Hops) as specified in the Host input parameter. If the DNS name is specified, this result displays either the resolved IP address or the null value, if the address was not resolved successfully. IP address of the hops are sequentially displayed in the row from the source IP address to the destination IP address.
- **Hop Count**: Displays the Hop number on the way from source to destination.
- **ICMP Reply No.**: Number of ICMP reply received from the respective Hop.
- **EED Min (ms)**: Specifies the minimum round trip latency, in milliseconds. If host is not reached, 0 is displayed.
- **EED Max (ms)**: Specifies the maximum round trip latency, in milliseconds. If host is not reached, 0 is displayed.
- **EED Median (ms)**: Specifies the median round trip latency, in milliseconds. If host is not reached, 0 is displayed.

Result Summary (HTTP Availability)

From the **Main Menu**, tap **Results**.

Status

Indicates the test status.

- **Running**: test is running.
- **Stopped**: test is interrupted; test is stopped before the set time.
- **Completed**: test is completed successfully.

The Pass/Fail verdict is displayed next to the **Status** field once the test is completed.

Message

Displays one of the following error messages, when the test fails.

DNS lookup failed.
Connection to server failed.
Connection to server dropped.
Response timeout from the server.
HTTP Error.
Bad Response from Server.
Too many redirects.
Invalid protocol within the URL.
Authentication Params missing.
Source address is invalid.

Result Summary

- **Server IP Address**: IP address for the main page of the URL that was tested.
- **Connection Time (ms)**: Length of time in milliseconds to connect to the HTTP server. This value includes the connect time for redirects.
- **Number of Redirects**: Number of redirects performed on the test page.
- **Total Page Download Time (ms)**: Length of time in milliseconds for the entire page to download. This value includes the DNS time, TCP connection and disconnection times, and embedded objects.
- **HTTP Return Code**: It specifies the HTTP protocol status code information.
- **Redirect Time (ms)**: Length of time in milliseconds for redirects of the page.

Result Summary (VLAN Scan)

From the **Main Menu**, tap **Results**.

Status

Indicates the test status.

- **Running**: test is running.
- **Stopped**: test is interrupted; test is stopped before the set time.

Result Summary

- **E-VLAN ID**: The Ethernet-VLAN identifier.
- **E-VLAN Priority**: The Ethernet-VLAN user priority code point.
- **S-VLAN ID**: The Stacked-VLAN identifier.
- **S-VLAN Priority**: The Stacked-VLAN user priority code point.
- **C-VLAN ID**: The Customer-VLAN identifier.
- **C-VLAN Priority**: The Customer-VLAN user priority code point.
- **Frame Count**: Total number of Ethernet frames received from a VLAN.
- **Packet Size (KB)**: The size of the received packets from a VLAN.
- **Last Seen (ms)**: The time lapsed after the last network packet was detected.

- **Total Packet Size (KB)**: The sum of the packet size from all the VLANs detected.
- **Total Frame Count**: The sum of frame counts from all VLANs detected.

Note: *The **Frame Count** and the **Packet Size** indicates the total amount of data that is sent and received from a VLAN. As long as there is some network traffic generated from/to a VLAN, **Frame Count** and **Packet Size** will go on increasing. EXpert IP Test Tools update the VLAN SCAN statistics every 500 millisecond.*

Result Summary (LAN Discovery)

From the **Main Menu**, tap **Results**.

The Result Summary page displays the following result.

Status

Indicates the test status.

- **Running**: test is running.
- **Stopped**: test is interrupted; test is stopped before the set time.
- **Completed**: test is completed successfully.

The Pass/Fail verdict is displayed next to the **Status** field once the test is completed.

Message

Displays one of the following error messages, when the test fails.

- No IP detected for specified range.
- No hosts found on specified range.
- Test Failed.

Result Summary

- **IP Address**: The IP Address of the device.
- **MAC Address**: The MAC Address or the physical address of the device.

Note: *The MAC Address of the local network devices are displayed.*

- **DNS Name**: The DNS name of the device. It also indicates, for enabled services, whether each particular service (DHCP, FTP, SNMP, DNS, HTTP, Telnet, HTTPS, SSH, and/or SIP) is enabled on the device.

  If the SNMP service is selected under **Service to Search** in the **Configuration** tab and the service status is Open or Filtered State, then it will give the following information of that device, which is configured/available.

  - **System Description**: Displays System Description of the device. For example: whether Windows/Linux/HP/sun system with details, if any.
  - **System Up Time**: Displays the time since the device is up.
  - **System Contact**: Displays the login name or the owner of the system or device, if any.
  - **System Name**: Displays the name of the system or device, as listed in the network. For Example, Computer Name.
  - **System Location**: Displays the physical location of the device, as listed in the network.
  - **Bridge**: Displays whether the device is a network Bridge (Yes/No).
  - **Router**: Displays whether the device is a router in the network (Yes/No).

7 Test Control

This chapter describes the test control buttons available on the top-right navigation bar of the application.

Start/Stop Button

The **Start**/**Stop** button allows to manually start or stop the test.

- **Start**: Tap the **Start** button to start the test. **Start** is available when the test is not running.
- **Stop**: Tap the **Stop** button to stop the test. **Stop** is available when the test is running.

Load/Save

Configurations Tab

The **Configuration** tab allows to save, load, and delete a test configuration

Tap the **Load/Save** button, and the **Configuration** tab.

Restore Factory Default restores the configuration parameters of all the tests to factory default setting.

To save a configuration:

1. Select the media where the file will be saved: **Internal Flash** (default) or a removable drive (USB media for example) if present.
2. Type the name of the file to be saved (**File Name**) if needed.
3. Tap on the **Save Config** button.
4. Tap **OK**.

To load a configuration:

1. Select the media from where the file will be loaded: **Internal Flash** (default) or a removable drive (USB media for example) if present.
2. Select the file from the list.
3. Tap the **Load Config** button.

Note: *Configuration file has a limited backward compatibility (Typically the backward compatibility period is one year or three software releases).*

To delete a configuration file:

1. Select the media where the file is located: **Internal Flash** (default) or a removable drive (USB media for example) if present.
2. Select the file from the list.
3. Tap the **Delete Config** button.
4. Tap **Yes** to confirm the deletion.

Report

Config/Save Tab

The **Config/Save** tab allows to configure the report parameters and generate/save the report.

Tap the **Report** button, and the **Config/Save** tab.

The report contains all information about the current test including its setup and results.

- **Report Content** parameters are used to identify the report and are not mandatory. Up to 50 characters are allowed for each parameter.
  - **Report Header** could be the company name.
  - **Report Title** could be the name of the product, name of test, test number, etc.

  Restore Default reverts all parameters back to the default values.
- **Save Report**
  - **File Name** is the name of the report to be generated. By default, the name of the report will contain the name of the test, the date (YY_MM_DD), and time (HH_MM_SS).
  - **Media Selector** is the media where the report file will be saved: **Internal Flash** (default), or **Removable Disk (USB)**. **Removable Disk (USB)** is available only when there is a removable disk/key connected to the EXFO's platform USB port.
  - **Display Report after Saving** check box when selected (default) automatically displays the report once it is generated.

Note: *Once generated, the report can be opened from the Open Tab* on page 46.

  - **Turn on Report Generation Prompt** check box when selected (default) displays a pop-up every time a test case is stopped or completed to ask if a report generation is desired.

- **Format** is the file format for the report: **PDF** (default), **Text**, **HTML**, and **CSV**.
- **Logo** check box when selected (default) allows to include a logo to the report. Only available with the PDF, and HTML file format. Select the logo picture that will be displayed on the report.
- **Save** button generates and saves the report on the selected media.

Open Tab

Report files can be opened from this page.

Tap the **Report** button and the **Open** tab.

To open a saved report:

1. Select the media containing the file to open: **Internal Flash** (default), or **Removable Disk (USB)** if present.
2. Select the report file to open from the list.
3. Tap the **Open** button.

8 Troubleshooting

Solving Common Problems

Before calling EXFO's technical support, please read the following common problems that can occur and their respective solution.

Problem	Possible Cause	Solution
Call not working.	Server may not be available.	➤ Try Ping test, if you have IP application. ➤ If Ping does not work, check the network cable, network configuration.

Contacting the Technical Support Group

To obtain after-sales service or technical support for this product, contact EXFO at one of the following numbers. The Technical Support Group is available to take your calls from Monday to Friday, 8:00 a.m. to 7:00 p.m. (Eastern Time in North America).

Technical Support Group
400 Godin Avenue
Quebec (Quebec) G1M 2K2
CANADA

1 866 683-0155 (USA and Canada)
Tel.: 1 418 683-5498
Fax: 1 418 683-9224
support@exfo.com

For detailed information about technical support, and for a list of other worldwide locations, visit the EXFO Web site at www.exfo.com.

If you have comments or suggestions about this user documentation, you can send them to customer.feedback.manual@exfo.com.

To accelerate the process, please have information such as the name and the serial number (see the product identification label), as well as a description of your problem, close at hand.

A Glossary

Acronym List

?	Help

A

ASCII	American Standard Code for Information Interchange

C

CE	European Conformity

D

DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name Server
DSCP	Differentiated Services Code Point

E

ESD	Electrostatic Discharge

F

FCC	Federal Communications Commission
FTP	File Transfer Protocol

G

GUI	Graphical User Interface

H

HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure

I

IC	Industry Canada
ICMP	Internet Control Message Protocol
ID	Identification
IEEE	Institute of Electrical & Electronics Engineers
IP	Internet Protocol
ISO	International Organization for Standardization

L

LAN	Local Area Network
LED	Light-Emitting Diode

M

MAC	Media Access Control
Mbps	Megabit Per Second
MOS	Mean Opinion Score

R

RMA	Return Merchandise Authorization
RX	Receive

S

SFP	Small Form Factor Pluggable
SIP	Session Initiation Protocol
SNMP	Simple Network Management Protocol
SSH	Secure Shell
STQC	Standardization Testing and Quality Certification

T

TCP	Transport Control Protocol
TTL	Time To Live
TX	Transmit

U

UDP	User Data Protocol
URL	Uniform Resource Locator
USB	Universal Serial bus

V

VLAN	Virtual Local Area Network
VoIP	Voice over Internet Protocol

Index

I

J

K

L

M

N

O

P

R

S

T

U

V

W

P/N: 1071423

www.EXFO.com · info@exfo.com

CORPORATE HEADQUARTERS	400 Godin Avenue	Quebec (Quebec) G1M 2K2 CANADA Tel.: 1 418 683-0211 · Fax: 1 418 683-2170
EXFO AMERICA	3400 Waterview Parkway Suite 100	Richardson, TX 75080 USA Tel.: 1 972-761-9271 · Fax: 1 972-761-9067
EXFO EUROPE	Winchester House, School Lane	Chandlers Ford, Hampshire S053 4DG ENGLAND Tel.: +44 2380 246 800 · Fax: +44 2380 246 801
EXFO ASIA-PACIFIC	62 Ubi Road 1, #09-01/02 Oxley Bizhub 2	SINGAPORE 408734 Tel.: +65 6333 8241 · Fax: +65 6333 8242
EXFO CHINA	Beijing Global Trade Center, Tower C, Room 1207, 36 North Third Ring Road East, Dongcheng District	Beijing 100013 P. R. CHINA Tel.: +86 (10) 5825 7755 · Fax: +86 (10) 5825 7722
EXFO SERVICE ASSURANCE	270 Billerica Road	Chelmsford MA, 01824 USA Tel.: 1 978 367-5600 · Fax: 1 978 367-5700
EXFO FINLAND	Elektroniikkatie 2	FI-90590 Oulu, FINLAND Tel.: +358 (0) 403 010 300 · Fax: +358 (0) 8 564 5203
TOLL-FREE	(USA and Canada)	1 800 663-3936

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