

PROFISHARK 10G+

INSTALLATION AND CONFIGURATION MANUAL



PROFITAP

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For the latest documentation and software, visit our Resource Center:

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INSTALLATION

1. UNPACKING

Carefully unpack all the items supplied with the [ProfiShark 10G+](#) and retain the packaging for later use:

- ◉ 1 x ProfiShark 10G+ main unit
- ◉ 1 x GPS/GLONASS Antenna
- ◉ 1 x USB 3.0 cable (1,8 m)
- ◉ 1 x 1,5 m USB A male to DC 5V adapter
- ◉ 1 x USB key (Software, Drivers, Documentation)
- ◉ Quick Start Guide

► **NOTE:** Please contact the supplier if any part is missing or damaged.

2. HARDWARE OVERVIEW

[ProfiShark 10G+](#) is a portable TAP and troubleshooter, providing visibility into 1G and 10G connections, both copper and fiber. It is a non-intrusive monitoring device, undetectable to the network, leaving the original data traffic unaltered, with no extra packets being inserted.

[ProfiShark 10G+](#) features 2 SFP cages for the connection to the network, accepting SFP+ modules (SR, LR, ER) of either fiber optic or copper type. Captured traffic is sent to the USB 3.0 output.

[ProfiShark 10G+](#) can be set to either SPAN or In-Line mode. SPAN mode receives traffic from any connected SFP+ modules, while In-Line mode receives and transmits traffic between both ports.

ProfiShark 10G+ captures packets of all sizes and types, and provides real time traffic statistics, SFP+ module information, and various traffic capture settings and options. It also incorporates advanced hardware filters, deep packet inspection, and packet slicing, to optimize traffic throughput.

ProfiShark 10G+ provides various timestamping features, such as GPS-linked nanosecond resolution UTC timestamps, SNTP, PPS input/output, and latency compensation options for increased accuracy.

The unit can be managed by the ProfiShark Manager application, available on the supplied USB key and on the Profitap Resource Center.

FEATURES:

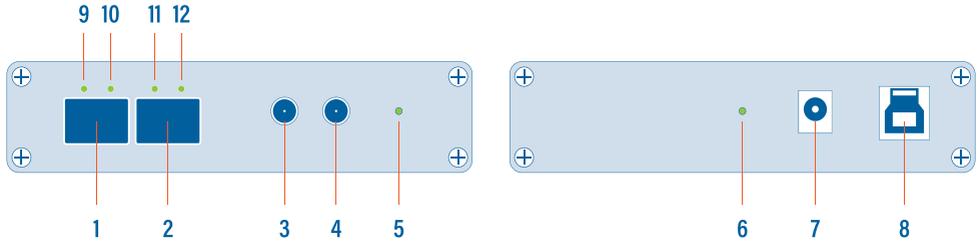
- ◉ 1G/10G monitoring on USB 3.0
- ◉ USB 3.0 powered for fiber SFP modules
- ◉ USB 3.0 + DC powered (adapter included) for copper SFP modules
- ◉ Hardware aggregation
- ◉ 5 ns hardware timestamping for accurate latency testing
- ◉ GNSS (GPS/GLONASS) UTC timestamping
- ◉ PPS synchronization (input/output)
- ◉ Customizable real time statistics
- ◉ Capture any type of frames
- ◉ Low level error and bandwidth monitoring
- ◉ Direct capture to disk
- ◉ In-Line and SPAN (Dual NIC) capture modes
- ◉ Advanced hardware filtering, deep packet inspection
- ◉ Packet slicing (adjustable packet size)
- ◉ In-depth network port diagnostic
- ◉ Invisible to the network
- ◉ Lightweight and portable
- ◉ Quick setup and easy to use

2.1 Technical and Electrical Specifications

- PPS-in characteristics: Rising edge active, TTL, 50Ω internally terminated, Vth: ~1.2V, ESD protection: ±15kV

SYSTEM REQUIREMENTS		LEDS	
Dual Core Processor 4 GB memory USB 3.0 port		4 x Link Activity 1 x Sync 1 x Power	
MAXIMUM NETWORK LATENCY			
10 Gbps: 328 ns			
CONNECTORS		ACCESSORIES	
2 x SFP+ 1 x USB 3.0 1 x 5V/1.5A DC input (center positive) 2 x SMA female (PPS, GPS)		GPS/GLONASS Antenna 1.8 m USB 3.0 cable 1.5 m USB A male to DC 5V adapter USB key	
DIMENSIONS (WxDxH)		SUPPORTED OS	
105 x 124 x 26 mm 4.13 x 4.88 x 1.02 in		Windows 7 / 8 / 10 (32/64-bit) / 11 Linux, macOS High Sierra	
CAPTURE PERFORMANCE			
3.2 Gbps			
WEIGHT		STORAGE TEMPERATURE	
280g — 0.62 lb		-40 to +80 °C — -40 to 176 °F	
RELATIVE HUMIDITY		OPERATING TEMPERATURE	
10 to 95%, non-condensing		0 to +50 °C — 32 to 122 °F	
COMPLIANCE		ORDER REFERENCE	
RoHS — CE		C1AP-10G2	
SFP STANDARD		POWER REQUIREMENTS	
Fiber 1GBASE-SX/LX Fiber 10GBASE-SR/LR/ER/ZR		No additional power required	
Copper 1GBASE-T Copper 10GBASE-T		Additional power required (supplied USB to DC power cable or 5V/1.5A DC power adapter)	

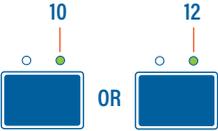
2.2 Visual Description



- 1, 2** SFP+ ports A and B, accepting both fiber optic and copper SFP/SFP+
- 3** PPS input/output (SMA female)
- 4** GPS/GLONASS antenna input (SMA female)
- 5** Sync LED
- 6** Power indicator LED
- 7** Power indicator LED
- 8** DC power input (5V, 1.5A, center positive)
- 9, 10, 11, 12** USB 3.0 port type B SFP+ status and network status LEDs

2.3 LED Functionality

LED NUMBER	LED COLOR	STATE / MEANING
	ORANGE	No SFP+ present or detected
	SLOW BLINKING GREEN	No link
	SLOW BLINKING RED	Additional power required
	ORANGE	No SFP+ present or detected
	STEADY GREEN	In-Line mode, link up
	SLOW BLINKING GREEN	No Link
	FAST BLINKING GREEN	In-Line mode, traffic activity
	SLOW BLINKING RED	Additional power required

	STEADY GREEN	SPAN mode, link up
	FAST BLINKING GREEN	SPAN mode, traffic activity
	STEADY GREEN	Internal timestamp synchronized with the configured time system (GPS, NTP, etc.) with an accuracy of ± 16 ns
	BLINKING	Constant synchronization between system time and hardware timestamp (blink ON every even second, blink OFF every odd second)

3. CONNECTING POWER AND START-UP

To install the ProfiShark Manager on Windows, launch the setup utility located in the “\Windows\Installer\” folder of the USB flash drive. Uninstall any previous version of the ProfiShark Manager before starting the setup utility.

1. Allow the installation to proceed when prompted by Windows User Account Control, and follow the on-screen instructions.
2. When prompted, disconnect and reconnect the ProfiShark 10G+.
3. Wait for the installation to complete.
4. Launch the ProfiShark Manager via the shortcut created in the start menu.

To install the ProfiShark Manager on Linux or macOS, follow the instructions in the Installation.txt file located on the USB key or in the latest “ProfiShark USB key” release located in the Resource Center at www.profitap.com/resource-center/

For the ProfiShark 10G+ to be ready to analyze traffic, take the following steps (any order):

- Launch the ProfiShark Manager.
- Launch the software network analyzer.
- Connect the network to be monitored to the ProfiShark 10G+ using copper or fiber optic SFP/SFP+ and cables.
- Connect the ProfiShark 10G+ to the computer, using the supplied USB 3.0 cable.
- **If copper SFP/SFP+ modules are being used**, connect either the supplied USB to DC power cable or a compatible 5V/1.5A power supply to the ProfiShark 10G+, to ensure the required amperage is being supplied to the unit. In the absence of an additional power connection, the ProfiShark 10G+ is powered through the USB 3.0 port alone and can only sustain fiber optic SFP/SFP+ modules.

- ▶ **Note:** Connecting to a USB port of lower specification than USB 3.0 may result in insufficient powering, as well as data drops due to bandwidth limitations.
- ▶ **Note:** Connecting the ProfiShark 10G+ to a different USB port than the one used during the installation requires a reboot of the computer (with the ProfiShark connected) for automatic driver installation for this USB port, and proper handling of the interface by Windows.

4. ANALYZER INSTALLATION

All industry standard analyzers are supported and can be used to perform the analysis. A comprehensive list of compatible analyzers are listed on the ProfiShark 10G+ product page at: www.profitap.com

Wireshark is recommended, and can be downloaded at: www.wireshark.org

To start capturing network data, launch the preferred network analyzer and select the new network interface named "ProfiShark 10G+ Device".

MONITORING GUIDE

1. PROFISHARK MANAGER

ProfiShark Manager is a standalone application designed and developed by Profitap. It provides means for statistical analysis of a network prior to a deeper investigation using an analyzer. It also provides options for port diagnostic, port control, timestamping, and traffic capture.

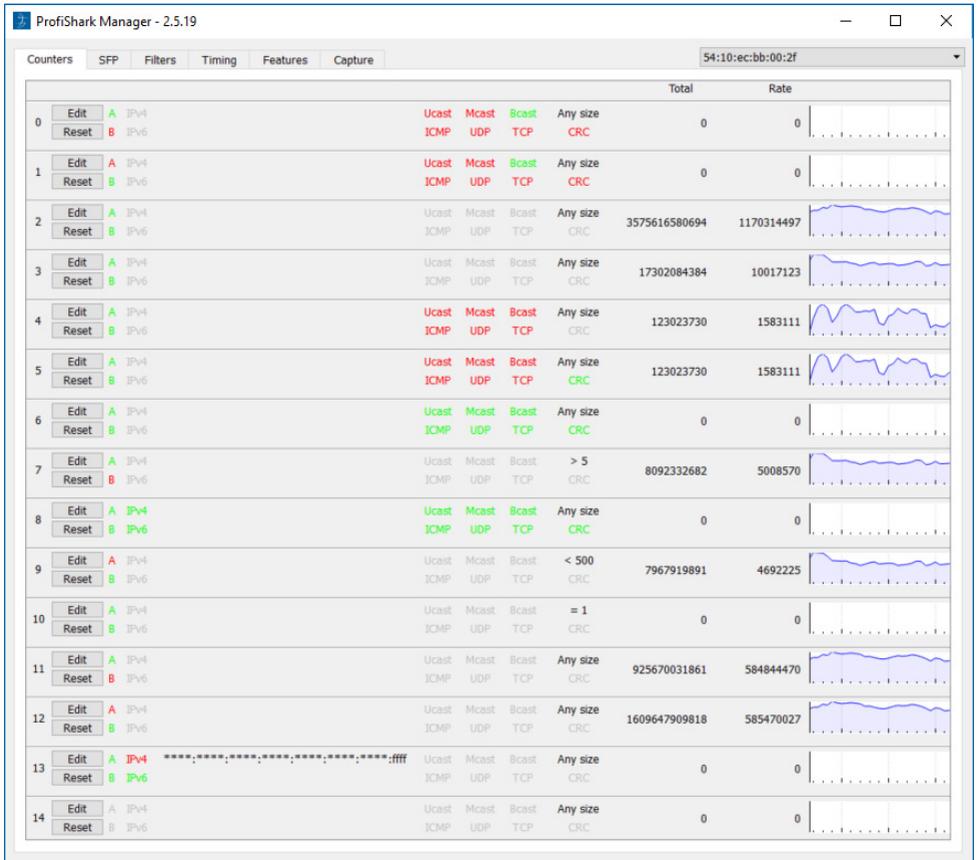
A built-in utility allows flashing the firmware and updating the device online or using a locally stored file. ProfiShark Manager can be used simultaneously with a software network analyzer, without the need to interrupt data capture.

ProfiShark Manager functionalities are grouped in the following tabs:

- Counter Tab
- SFP Tab
- Filters Tab
- Timing Tab
- Features Tab
- Capture Tab

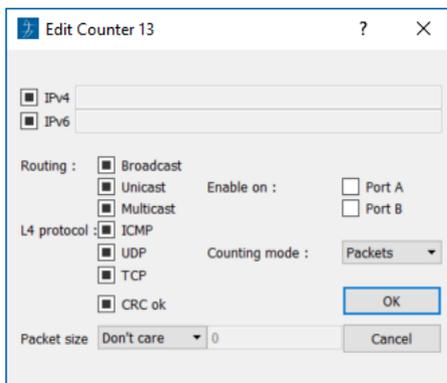
1.1 Counters Tab

The Counters tab displays 15 customizable ProfiShark 10G+ counters for both SFP+ ports. Each counter can be configured to register packets matching a specific filter when passing through either SFP+ module.



EDIT

Opens the configuration window for this counter.



- The counter ignores that frame characteristic. These frames will show in the counter.
- The counter filters out the matching frames. These frames will not show in the counter.
- The counter only counts the frames matching this specific filter.

IPv4 / IPv6: If checked, only packets originating from or destined to the specified IPv4 / IPv6 address will be taken into account.

Packet size: If different than *Don't care*, only packets with a size matching the configured filter will be taken into account.

Enable On: Depending on the selection made here, only packets passing through either Port A, Port B, or both ports, will be taken into account.

Counting mode: The *Total* and *Rate* figures can be displayed in either bytes or number of frames.

EDIT	<div style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; margin: 10px;"> <p>► Note: If multiple filter fields are configured, only packets matching all filters will be counted.</p> </div>														
RESET	Resets the <i>Total</i> figure for this counter. Does not reset the configured filters for this counter.														
MATCHING FILTER	<div data-bbox="300 531 997 582" style="background-color: #f0f0f0; padding: 5px; margin-bottom: 10px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20px;">A</td> <td style="width: 60px;">IPv4</td> <td style="width: 20px;"></td> <td style="width: 20px; color: red;">Ucast</td> <td style="width: 20px; color: red;">Mcast</td> <td style="width: 20px; color: green;">Bcast</td> <td style="width: 20px; color: black;">Any size</td> </tr> <tr> <td>B</td> <td>IPv6</td> <td></td> <td style="color: red;">ICMP</td> <td style="color: red;">UDP</td> <td style="color: red;">TCP</td> <td style="color: red;">CRC</td> </tr> </table> </div> <p>This area displays the matching filters for each counter, displaying in red (<input type="checkbox"/>) for ignoring, green (<input checked="" type="checkbox"/>) for taking into account, and grayed out (<input type="checkbox"/>) for filtered out frames. The frame size is always displayed in black.</p>	A	IPv4		Ucast	Mcast	Bcast	Any size	B	IPv6		ICMP	UDP	TCP	CRC
A	IPv4		Ucast	Mcast	Bcast	Any size									
B	IPv6		ICMP	UDP	TCP	CRC									
TOTAL	Displays the total amount of packets or bytes matching the configured filter.														
RATE	Displays the current rate of packets or bytes per second matching the configured filter.														
CHART DISPLAY	Displays traffic statistics in a graphical representation of the frames matching the configured filter.														

1.2 SFP Tab

The SFP Tab provides real time information about the connected SFP+ modules, offering an overview of their general capabilities and real time sensors.

The Ports Control section allows the switching between SPAN mode and In-Line mode. In SPAN mode, traffic is only received, on either or both ports. In In-Line mode, traffic is transmitted between both ports. A loopback option is also available.

The screenshot shows the ProfiShark Manager - 2.5.19 interface. The SFP tab is active, displaying information for two SFP modules connected to Port A and Port B. The interface is divided into several sections:

- Status:** A table showing general SFP information for both ports, including vendor details, transceiver type, wavelength, and compliance.
- Ports Control:** A section at the bottom with checkboxes for Span Mode and Loopback, and a Save button.

Port A		Port B		Port A		Port B		
Status	Present	Present	Present	Present	Present	Present	Present	
Vendor name	X	X	X	X	X	X	X	
Vendor OUI	X	X	X	X	X	X	X	
Model	X	X	X	X	X	X	X	
Revision	A	A	A	A	A	A	A	
Date code	04-21-2015	04-21-2015	04-21-2015	04-21-2015	04-21-2015	04-21-2015	04-21-2015	
Serial number	X	X	X	X	X	X	X	
Identifier	SFP or SFP+		SFP or SFP+		SFP or SFP+		SFP or SFP+	
Ext. Identifier	0x04		0x04		0x04		0x04	
Connector	LC		LC		LC		LC	
Transceiver	...		...		...		...
Wavelength	850 nm		850 nm		850 nm		850 nm	
Options	...		...		...		...
Diagnostic monitoring type	Int. calibrated/Av. power		Int. calibrated/Av. power		Int. calibrated/Av. power		Int. calibrated/Av. power	
Enhanced options	...		...		...		...
SFF-8472 compliance	Rev 10.2 SFF-8472		Rev 10.2 SFF-8472		Rev 10.2 SFF-8472		Rev 10.2 SFF-8472	
Bitrate, nominal	10300 Mbps		10300 Mbps		10300 Mbps		10300 Mbps	
Upper bitrate margin	Unspecified		Unspecified		Unspecified		Unspecified	
Lower bitrate margin	Unspecified		Unspecified		Unspecified		Unspecified	
Encoding	64B/66B		64B/66B		64B/66B		64B/66B	
Rate ID	Unspecified		Unspecified		Unspecified		Unspecified	
Length 9/125µm fiber	Unspecified		Unspecified		Unspecified		Unspecified	
Length 50/125µm OM2 fiber	80m		80m		80m		80m	
Length 62.5/125µm OM1 fiber	30m		30m		30m		30m	
Length copper and active cable	Unspecified		Unspecified		Unspecified		Unspecified	
Length 50/125µm fiber	300m		300m		300m		300m	

Port A	Low Alarm	Low Warning	High Warning	High Alarm	Value	Port B	Low Alarm	Low Warning	High Warning	High Alarm	Value
Temperature	-13.0°C	-8.0°C	73.0°C	78.0°C	40.3°C	Temperature	-13.0°C	-8.0°C	73.0°C	78.0°C	39.0°C
Vcc	2.90V	3.00V	3.60V	3.70V	3.32V	Vcc	2.90V	3.00V	3.60V	3.70V	3.29V
TX Bias	4.000mA	5.000mA	12.600mA	13.200mA	8.002mA	TX Bias	4.000mA	5.000mA	12.600mA	13.200mA	7.972mA
TX Power	0.2512mW	0.3162mW	0.7943mW	1.0000mW	0.5645mW	TX Power	0.2512mW	0.3162mW	0.7943mW	1.0000mW	0.5437mW
RX Power	0.0100mW	0.0158mW	0.7943mW	1.0000mW	0.0006mW	RX Power	0.0100mW	0.0158mW	0.7943mW	1.0000mW	0.0006mW
Warnings	RX Power					Warnings	RX Power				
Alarms	RX Power					Alarms	RX Power				
Status Bits	RX LOS					Status Bits	RX LOS				

Ports Control

Span Mode

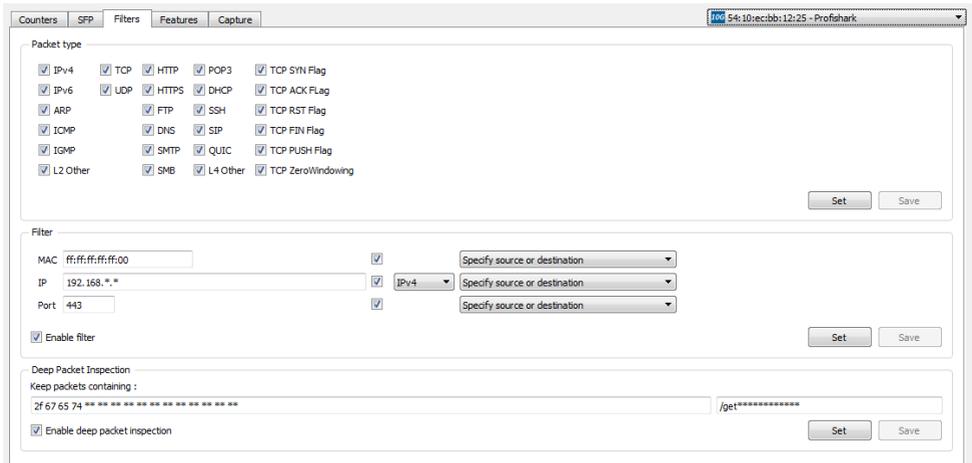
Loopback

Save

1.3 Filters Tab

The Filters Tab gives access to the ProfiShark 10G's hardware filters and deep packet inspection (DPI) feature. When enabled, only the packets matching the criteria configured in these filters and DPI will be captured in Live Capture and Direct Capture.

These filters only affect the captured traffic; they do not interfere with the counters displayed in the [Counters Tab](#).



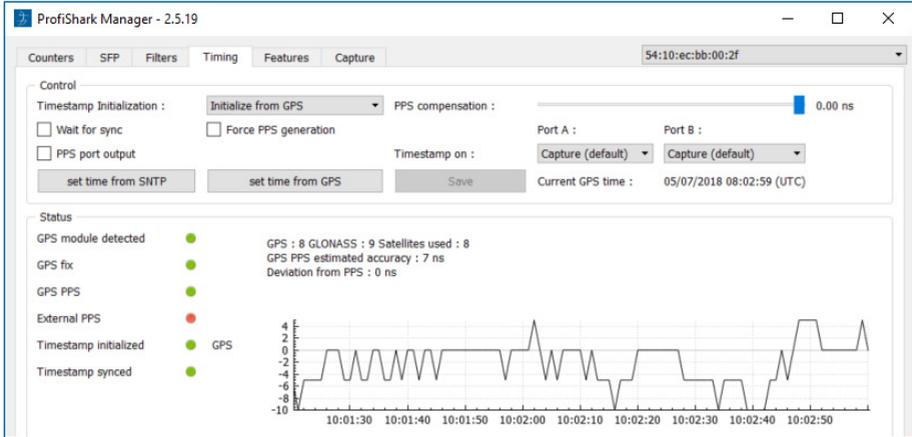
In the example above, the ProfiShark 10G has been set to capture only packets originating from or destined to any MAC address ending with 00, originating from or destined to any IPv4 address starting with 192.168, using port 443 for either incoming or outgoing traffic, and carrying matching DPI strings in their payload. The Packet type filter tells the ProfiShark which types of packets should be included in or excluded from the capture.

The DPI field allows users to search for a particular string (up to 16 characters in length) in the packets. This procedure is performed in real time, even at 20 Gbps. The left field accepts hexadecimal characters, while the right field accepts ASCII characters.

► **Note:** Not all hexadecimal characters can be displayed in the ASCII field.

1.4 Timing Tab

The Timing tab displays the settings and information related to the advanced timestamping features.



CONTROL

TIMESTAMP INITIALIZATION	Sets the source for timestamping at startup: GPS / RTC / System time. The timestamp process can also be turned off.
WAIT FOR SYNC	If checked, the traffic capture is allowed only after timestamp synchronization has been completed.
PPS PORT OUTPUT	If checked, the PPS port will be set to output mode, sending out a PPS signal if the GPS is synchronized.
FORCE PPS GENERATION	Forces the generation of a PPS signal from the internal RTC (real-time clock). <ul style="list-style-type: none"> ► Note: Only active if "PPS port output" is also checked.
SET TIME FROM SNTP / GPS	Sets the source for timestamping to either GPS or an online time service (SNTP).

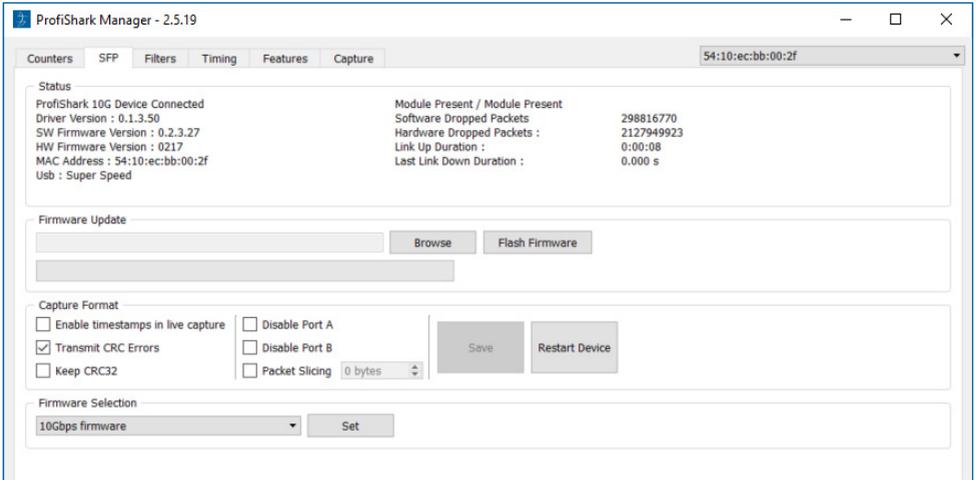
<p>PPS COMPENSATION</p>	<p>The PPS compensation slider tells the PPS to compensate for latency. For instance, 1 meter of cable adds 3 ns of latency, in which case the slider should be set to -3 ns (-15 ns for 5 meters, -30 ns for 10 meters, etc.).</p>
<p>TIMESTAMP ON PORT A / PORT B</p>	<ul style="list-style-type: none"> • Capture: timestamps are set to the packets at the moment they are captured within the device. • Ingress: timestamps are adjusted to account for latency to simulate timestamping at port ingress. • Egress: timestamps are adjusted to account for latency to simulate timestamping at port egress. <p>Example: Set one port to egress on a first ProfiShark and one to ingress on a second ProfiShark to measure the latency between both ports.</p>

STATUS

GPS MODULE DETECTED	If green, the GPS antenna has been detected by the ProfiShark 10G+.
GPS FIX	If green, the GPS connection is stable. If yellow, the GPS connection is close to being stable.
GPS PPS	If green, the GPS link is stable enough for the PPS chip to start the synchronization.
EXTERNAL PPS	If green, an external PPS is detected, bypassing the internal PPS. If red, no external PPS has been detected.
TIMESTAMP INITIALIZED	Indicates the method by which the time data has been obtained: GPS, SNTP, System clock, or RTC.
TIMESTAMP SYNCED	Indicates that the internal timestamping is synchronized with the UTC time.
SATELLITES STATUS	Indicates the number of GPS and GLONASS satellites found in range, and the number of satellites used for timestamping.
DEVIATION FROM PPS	Indicates the instant deviation of the GPS synchronization from the internal PPS.
GRAPH	The graph section displays the GPS synchronization status and its deviation from the internal PPS over time.

1.5 Features Tab

The *Features* Tab contains information about driver and firmware versions, port status, the firmware update utility, and options to enable or disable certain ProfiShark 10G+ features.



The *Feature* Tab is divided into 4 sections:

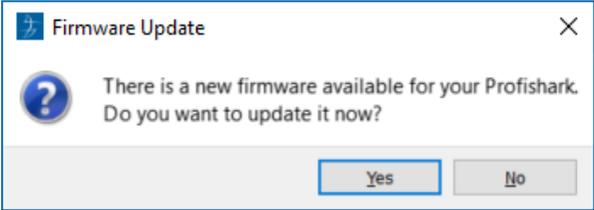
1. The *Status* section, displaying firmware, hardware, and network status for the connected ProfiShark 10G+.

STATUS	
PROFISHARK 10G+ DEVICE CONNECTED	Lists the model of ProfiShark and its state: Connected, Disconnected, or Upgrading Firmware.
DRIVER VERSION	The version of the driver software currently communicating with the ProfiShark.
SW FIRMWARE VERSION	The version of the ProfiShark firmware currently loaded into the ProfiShark device.

HW FIRMWARE VERSION	The version of the logic board inside the ProfiShark device.
MAC ADDRESS	A unique identifier encoded into the ProfiShark device.
MODULE	The status of both SFP+ modules: Present, Not Present.
SOFTWARE DROPPED PACKETS	Represents the amount of packets dropped by the driver in Live Capture mode.
HARDWARE DROPPED PACKETS	Represents the number of packets dropped due to low USB Bandwidth, or when attempting a 10 Gbps capture without any configured filter.

2. The *Firmware Update* section, allowing users to flash the firmware of the connected ProfiShark 10G+ with a locally stored version. The ProfiShark 10G+ is unavailable during the firmware update process, which can take up to several minutes to complete. Once finished, the ProfiShark 10G+ may need to be replugged for the new firmware to take effect. Do not disconnect the USB port or shut the computer down during the update process. The latest firmware can be downloaded from the Resource Center at: www.profitap.com/resource-center/

► **Note:** The ProfiShark Manager will search for a new firmware release online every time it starts, allowing a new revision to be downloaded and installed, without the need of a locally stored update.



- The *Capture Format* section, allowing users to enable or disable capture-related features. Additional customization of the capturing process is available in the *Capture* tab.

<i>CAPTURE FORMAT</i>	
ENABLE TIMESTAMPS IN LIVE CAPTURE	If checked, a Unix formatted timestamp is appended in the header of the packet data. This timestamp can be interpreted by the Profitap Wireshark dissector in Live Capture mode. For more information, see page 18.
TRANSMIT CRC ERRORS	If checked, the ProfiShark 10G+ will include packets with CRC errors in the capture. These packets are usually filtered out by network interfaces.
KEEP CRC32	If checked, the CRC32 information (32-bit Frame Check Sequence) located at the end of the packets will be kept in the capture. FCS can be interpreted in Wireshark (Edit \ Preferences \ Protocols \ Ethernet \ Assume packets have FCS).
DISABLE PORT A	If checked, frames from port A will not be captured.
DISABLE PORT B	If checked, frames from port B will not be captured.
PACKET SLICING	Enabling this feature will result in dropping the payload of every frame captured, keeping only the header information (the first 128 bytes) up to the application layer.

4. The *Firmware Selection* section, allowing users to switch between 10 Gbps and 1 Gbps firmware for the ProfiShark 10G+, effectively altering the operating speed of the connected SFP+ modules.

► **Note:** Switching between firmware versions takes between 4 and 8 seconds to complete, during which the network connection will be severed.

1.6 Capture Tab

1.6.1 Direct Capture Mode

ProfiShark 10G+ can capture traffic without the need for third-party capture software. This Direct Capture is performed at the driver level, prior to all network stacks and frame processing. Direct Capture provides the best performance, enabling small packet capture at wire speed.

The Capture tab contains the controls for the Direct Capture feature. The captured data is saved to a PCAP Next Generation file (.pcapng) with hardware-generated packet timestamps. ProfiShark Manager also provides an option for uploading capture files to Cloudshark.

Counters Charts Log Network Ports Features Capture

Direct Capture to File

Output Capture File : PCAP-NG

Capture full frames :

Maximum Capture File Size (MB) :

Number of files to use : Loop

Maximum file duration :

Buffer size : 2.17 GBytes

Written to File : 0 Bytes
Dropped : 0 Bytes
Current buffer usage : 0 Bytes

Stream to Cloudshark

Upload pcap-ng files to Cloudshark

 Appliance URL

API Token

Display filter

<p>OUTPUT CAPTURE FILE</p>	<p>Specify the name and location of the capture file. Name extension will be added to the specified name: (_#####_YYYYMMDDHHMMSS).</p>
<p>CAPTURE FULL FRAMES</p>	<p>Enable this option to capture the entire L1 Ethernet frames, which include the preamble (0x55), the SMD, and the CRC. This can be useful for TSN (Time-Sensitive Networking) capture.</p>
<p>MAXIMUM CAPTURE FILE SIZE</p>	<p>Sets the maximum file size allowed for storing the captured data. When the file size reaches this value, the capture either continues in a new file, or stops, depending on the other options.</p>
<p>NUMBER OF FILES TO USE</p>	<p>After reaching the configured maximum duration or file size, the captured traffic will be saved to a new file, until the number of files set here is reached.</p>
<p>MAXIMUM FILE DURATION</p>	<p>Sets the maximum duration for storing the captured data. When this value is reached, the capture either continues in a new file, or stops, depending on the other options.</p>

LOOP	Enabling this option makes the capture overwrite the same file (or files, depending on the "Number of Files to Use" option) after reaching the configured maximum duration or file size.
BUFFER SIZE	In high bandwidth utilization scenarios, a bigger buffer size accommodates more data to be temporarily stored into the computer's memory before being saved to the file, helping to avoid captured data being dropped.
STATISTICS	<ul style="list-style-type: none"> • Written to File - Performance statistics. Displays the amount of data currently written in the output file, helping users determine the best buffer size. • Dropped - Dropped bytes. Indicates the amount of data dropped during the capture, due to performance issues or buffer overflow. • Current buffer usage - If dropped packets start to appear ("Dropped" statistic), increase the Buffer Size value.
UPLOAD PCAP-NG FILES TO CLOUDSHARK	Enable this option to upload capture files to Cloudshark automatically.
APPLIANCE URL	Set the appropriate URL of the Cloudshark server on which to upload the capture files.
API TOKEN	Set the appropriate token for the Cloudshark server set above.
DISPLAY FILTER	Optional display filter for the capture files uploaded to Cloudshark. Regular Cloudshark/Wireshark display filters can be set here. See: https://wiki.wireshark.org/DisplayFilters

- **Note:** The amount of dropped data depends on the data storage throughput and the amount of allocated memory buffer. Disk arrays or SSDs can drastically improve capture performance.

1.6.2 Live Capture Mode

ProfiShark 10G+ can also be used to capture network traffic and send it unaltered to a dedicated capture software. The process is transparent for packet size, packet type, and protocol. All tags and encapsulation are preserved (e.g. VLAN, MPLS, GRE).

- ▶ **Note:** Capturing traffic at high speeds is extremely CPU intensive and can cause software packet drops. For better performance, Direct Capture mode is recommended.

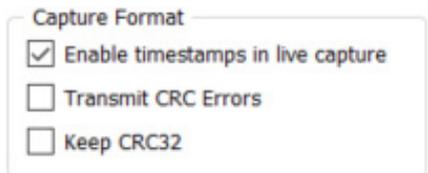
1.6.3 Live Capture Mode with Hardware Timestamping

The hardware timestamping feature can be used in both Live Capture and Direct Capture modes. It enables timestamp accuracy to the nanosecond, as opposed to the microsecond accuracy of software timestamping.

When using this feature in Live Capture mode, the ProfiShark Dissector for Wireshark must be installed for the hardware timestamping information to be properly interpreted by Wireshark.

The dissector files can be found on the provided USB key, or in the Resource Center at www.profitap.com/resource-center/

Hardware timestamping can be enabled from the [Features Tab](#), by selecting “Enable timestamps in live capture”.



Capture Format	
<input checked="" type="checkbox"/>	Enable timestamps in live capture
<input type="checkbox"/>	Transmit CRC Errors
<input type="checkbox"/>	Keep CRC32

2. ADVANCED TIMESTAMPING

The ProfiShark 10G+ offers multiple advanced timestamping features. The GPS chip can retrieve the UTC time, and synchronize it with the internal PPS, with a typical* precision of ± 32 ns. The ProfiShark 10G+ can also retrieve the time via SNTP, or use the internal RTC (real-time clock), and synchronize it via an external PPS signal. A PPS output is possible, for synchronization with another ProfiShark device, or with any other device accepting a PPS input.

These features can be combined in different ways, providing multiple possible options for accurate and precise timestamping of packets.

The settings and information related to advanced timestamping are located in the [Timing Tab](#). This tab is only available when a ProfiShark 10G+ is connected.

***Note:** For the best results, the GPS antenna should be set up outside, or near a window. Other factors can affect results, such as weather, cloudiness, and geographical location in regards to satellite availability. The GPS can take a minute to synchronize the UTC time with the internal PPS. The stability of the synchronization increases over time and may take up to 15 minutes to reach its peak.

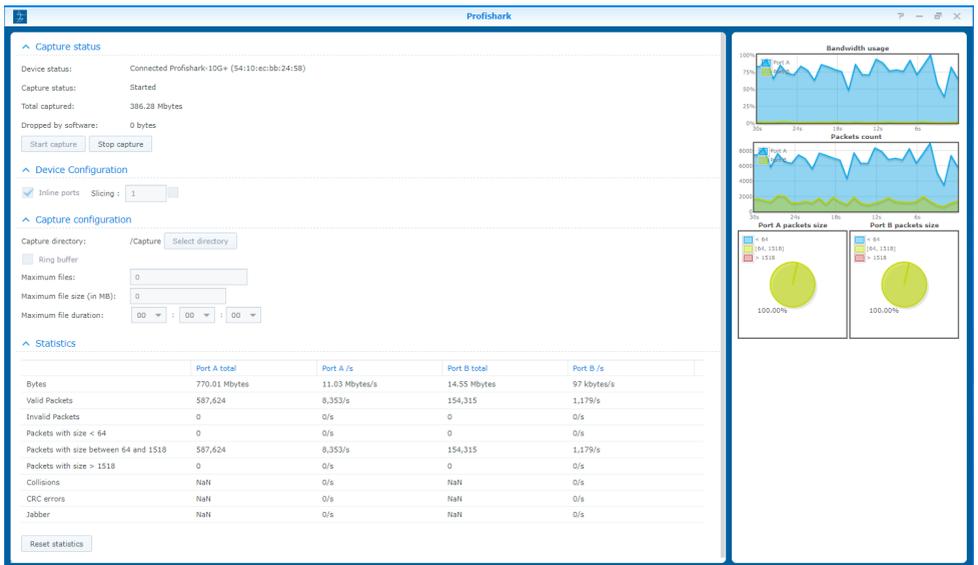
3. LONG TERM CAPTURE

The long-term capture feature expands the number of use cases for ProfiShark 10G+. By combining the capture capabilities of ProfiShark 10G+ with the storage capabilities of a NAS, it becomes possible to capture traffic for extended periods of time, making it easier to catch intermittent network problems in the act.

The ProfiShark USB key package (included with the product, and also available at profitap.com/resource-center/) provides packages for various Synology architectures.

Install the package corresponding to your Synology NAS. See the image file included in the packages folder for information on the type of CPU used in your Synology NAS.

For optimal capture results, an Intel-equipped Synology NAS is recommended.



DEVICE STATUS	Displays the connected TAP and its MAC address.
CAPTURE STATUS	Specifies whether the capture process is in progress.
TOTAL CAPTURED	Displays the total amount of data captured.
DROPPED BY SOFTWARE	Displays the amount of packets dropped due to performance issues or buffer overflow.
INLINE PORTS	By default, the ProfiShark 10G+ ports are set to In-Line Mode, meaning that devices connected through ports A and B can communicate. In this case, both ports are controlled at the same time. Unchecking "Inline ports" enables SPAN mode, setting the ProfiShark to intercept two separate data streams. In this case, communication between devices connected to ports A and B is severed, and ports A and B can be controlled independently in terms of speed, duplex mode, and autonegotiation.
CAPTURE DIRECTORY	Allows users to select the destination folder of the capture file.
RING BUFFER	If enabled, overwrites old data, using the circular buffer method of storing new data at the beginning of an existing data file.
MAXIMUM FILES	After reaching the configured maximum file duration or size, the captured traffic will be saved in a new file, until the number of files configured here is reached.
MAXIMUM FILE SIZE	This option sets the maximum file size allowed for storing the captured data. Exceeding this value will result in stopping the capture or storing the capture data in a new file.
MAXIMUM FILE DURATION	This option sets the maximum duration for storing the captured data. Exceeding this value will result in stopping the capture or storing the capture data in a new file.
STATISTICS	Displays ongoing and total traffic data for both port A and port B.

LEGAL

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