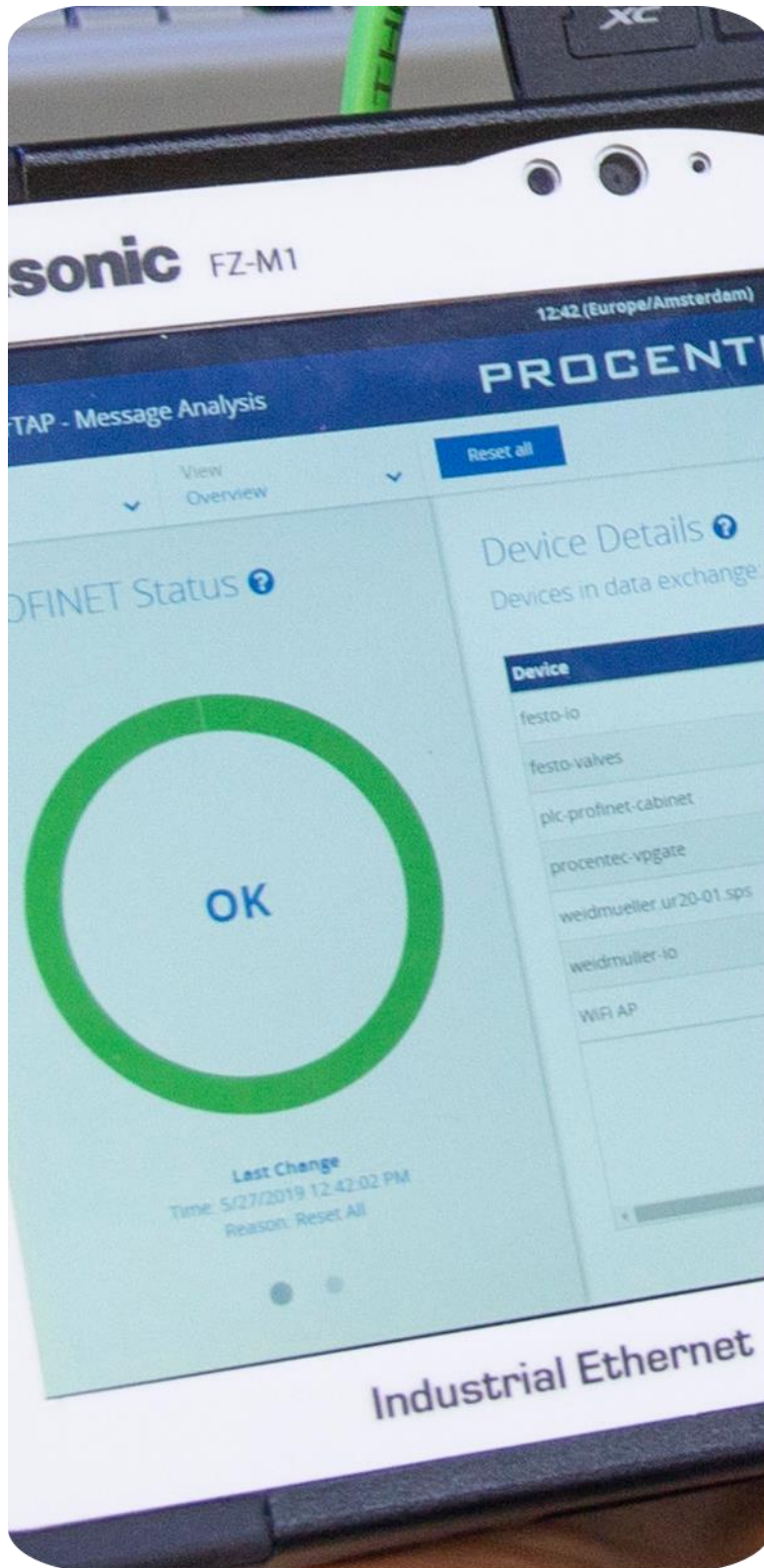# PROCENTEC

EtherTAP 100 and 1G

User Manual V1.0.2

Important information

Purpose of the Manual
This user manual provides information how to work with EtherTAP 100 and 1G.

Recycling and Disposal
The parts of the EtherTAP can be recycled. For further information about environment-friendly recycling and the procedure for disposing of your old equipment, please contact:

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Document Updates
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Content

1.   The EtherTAP

1.1   Introduction

The EtherTAP is an interface to utilize monitoring of an Ethernet network. It is an essential tool for Industrial Ethernet engineering and commissioning activities, especially to verify the connections and performance of RT, IRT and other real-time applications. There are two types; a 10 / -100 Mbit type and a 1000 Mbit (or 1Gbit) type.

The monitor port of switches is unreliable for monitoring; it can be occupied, not forwarding all the traffic or drop messages due to overload of the switch. Also, the load on the Ethernet port of the laptop can also be too high with real-time applications because 2 channels are merged in one. The EtherTAP has a USB link with the laptop that streams the captured messages to the accompanying driver which emulates an additional Ethernet port on the laptop and hands the messages over to any application.

The EtherTAP also prevents the laptop to send out messages on its own initiative, which could jeopardize the real-time behavior and security of the network.

EtherTAP cuts down the equipment needed for Network Analysis, even reducing the points of failure during analysis. Only an Atlas, Mercury or a PC and one EtherTAP are needed. The power is supplied by the USB3.0 connection. No extra adaptor is required, but can be connected optionally to provide extra power if the USB power is insufficient, or if higher availability is required.

In this manual you will find everything you need about how to install and use the product and the provided software.

EtherTAP 10 / 100 visual description

1   Port A (RJ45) connected to the network, up to 100 Mbit

2   Port B (RJ45) connected to the network, up to 100 Mbit

3   Two green LEDs to indicate a 10 Mbit or 100 Mbit connection

4   LED to indicate a connection and/or activity on the cable

5   Green LED to give information about connection status

6   USB3.0 connector linked to your monitoring device
     (a Mercury or Atlas, a laptop or desktop computer)

7   An optional power input for 5 V/1A. This can be useful for uninterrupted power supply.

Figure 1: Identification of connections and LEDs for the 100 Mbit version

EtherTAP 1G visual description

1. Port A (RJ45) connected to the network, up to 1 Gbit

2. Port B (RJ45) connected to the network, up to 1 Gbit

3. Two green LEDs to indicate a 10 Mbit, 100 Mbit or 1 Gbit connection

4. Green LED to indicate a connection and/or activity on the cable

5. Green LED to give information about connection status

6. USB3.0 connector linked to your monitoring device (a Mercury or Atlas, a laptop or desktop computer)

7. An optional power input for 5 V/1A. This can be useful for uninterrupted power supply.

Figure 2: Identification of connections and LEDs for the 1Gbit version

2. Installation instructions

2.1 Hardware & driver installation

The Atlas and Mercury come pre-installed with drivers for the EtherTAP. No further installation is required. Just connect your tap to the USB 2.0 of your Atlas or the USB 3.0 of your Mercury, and start monitoring your network with Osiris.
If you wish to use the EtherTAP on a laptop or PC, you can follow the driver installation instructions below.

2.1.1 Insert the USB drive or download the driver package

Insert the supplied USB drive for accessing/copying the contents to an installation folder. It is recommended to copy the contents to your hard disk first, if there is no empty USB2.0 port available. After copying you may disconnect the USB key and proceed. Otherwise use the USB key for installation procedure and decide to connect the EtherTAP to a USB3.0 port and remove USB key when finished.

If you do not have the USB drive, download the driver package from our website:
https://procentec.com/service-support/software-firmware.
Register your personal data to access the download area. Registering is free and keeps you informed of product updates.

2.1.2 Connect EtherTAP to the network

Connect the EtherTAP to the network using Category 5e FTP or STP (Foiled or Shielded Twisted Pair) cables, as shown in Figure 2. UTP (Unshielded Twisted Pair) cable is not recommended in industrial environments.

Network Port A: to DCE by straight Cable / to DTE by cross-over cable.
Network Port B: to DTE by straight Cable / to DCE by cross-over cable.
The maximum distance between any of the connected devices is 90 meters.

2.1.3 Connect the USB port

Connect the USB port to a PC/MAC USB3.0 port and the green Power LED will illuminate. The cable length should not exceed 5 meters. The EtherTAP 100 type can be connected to a USB2.0 or USB3.0 port.

When you plug in the USB cable, but both RJ45 ports are not connected yet, then both network speed LEDs should blink every second.

When both RJ45 ports are connected to a link, you will see both 'Link/Activity' LEDs illuminate. When any data is received, these LEDs will blink on the respective port.

IMPORTANT NOTE:
Due to the Gigabit Ethernet design, The 1G version of EtherTAP requires the USB power for correct connection between the two RJ45 connections. This means that if the USB connector is removed, or the computer goes to sleep mode for example, the connection on the Ethernet link will be lost for 1 to 2 seconds! The EtherTAP 100 does not require USB maintain Ethernet connection, in case of disconnection of the USB link the Ethernet communication will continue without interruptions.
You can request the optional power supply to always maintain the EtherTAP powered.

2.1.4 Install the driver

Install the driver according to your Operating System. The current available drivers are located on the USB key at the driver section or within your installation directory on your hard disk.

Supported O.S. are:
Windows 7 / 8 / 10 (32 bit & 64 bit)
MAC OS
Linux

Please check the latest driver released for your Operating System in the User Section at https://procentec.com/service-support/software-firmware. Register your personal data to access the download area. Registering is free and keeps you informed of product updates.

After choosing the driver installer for your Operating system, simply run the installer and follow the installation instructions.

After installation, a restart may be required for Windows machines.

2.1.5 Install Npcap

To transfer the packets to the higher level operating system, you must install Npcap 0.995 or higher on your computer. Download it on www.nmap.org/download.

2.1.6 Setup the EtherTAP Network Adapter

After the installation the EtherTap presents itself as a virtual Network Adapter to your Operating System and to any Analyzer.
The below settings are for internal communication only - there is no external effect nor are these settings presented or exposed to the monitored link.
In any case we recommend setting an IP address. The installed TAP driver (as under paragraph 2.1.4) is represented as a Network Adapter to your Operating System.

Notes:

Configure the IP Protocol Stack:

IP address: **192.168.0.1**
Subnet mask: **255.0.0.0**

Note: Gateway or DNS settings must be undefined.

The EtherTAP is now ready to use as source for your installed Analyzer.

2.2   Analyzer Setup

To perform analysis you can use either the powerful Osiris platform or any of the supported analyzers such as Wireshark.

2.2.1   Selecting EtherTAP as source for your Analyzer

Start your preferred Analyzer and select the new virtual device showing up at the "select NIC" window. Refer to your Analyzer's manual or the User Help about how to select a Network Interface Card.

2.2.2   Using alternative Wireshark

As an option you may install an alternate Analyzer.

Notes:

- Always follow the specific instructions as indicated by the installation manual/wizard of the chosen Analyzer.

- In addition, perform step 2.2.1 to enable EtherTAP to be the selected resource for Analysis.

- Make sure to use the latest available version if any problem occurs with EtherTAP. For the latest version, refer to https://procentec.com/service-support/software-firmware/

3.   EtherTAP Manager

The installer that comes with the drivers also installs a tool called ProfiShark Manager. This tool allows you to change behavior of the EtherTAP. The most important settings are the 'Capture settings' in the Features tab:
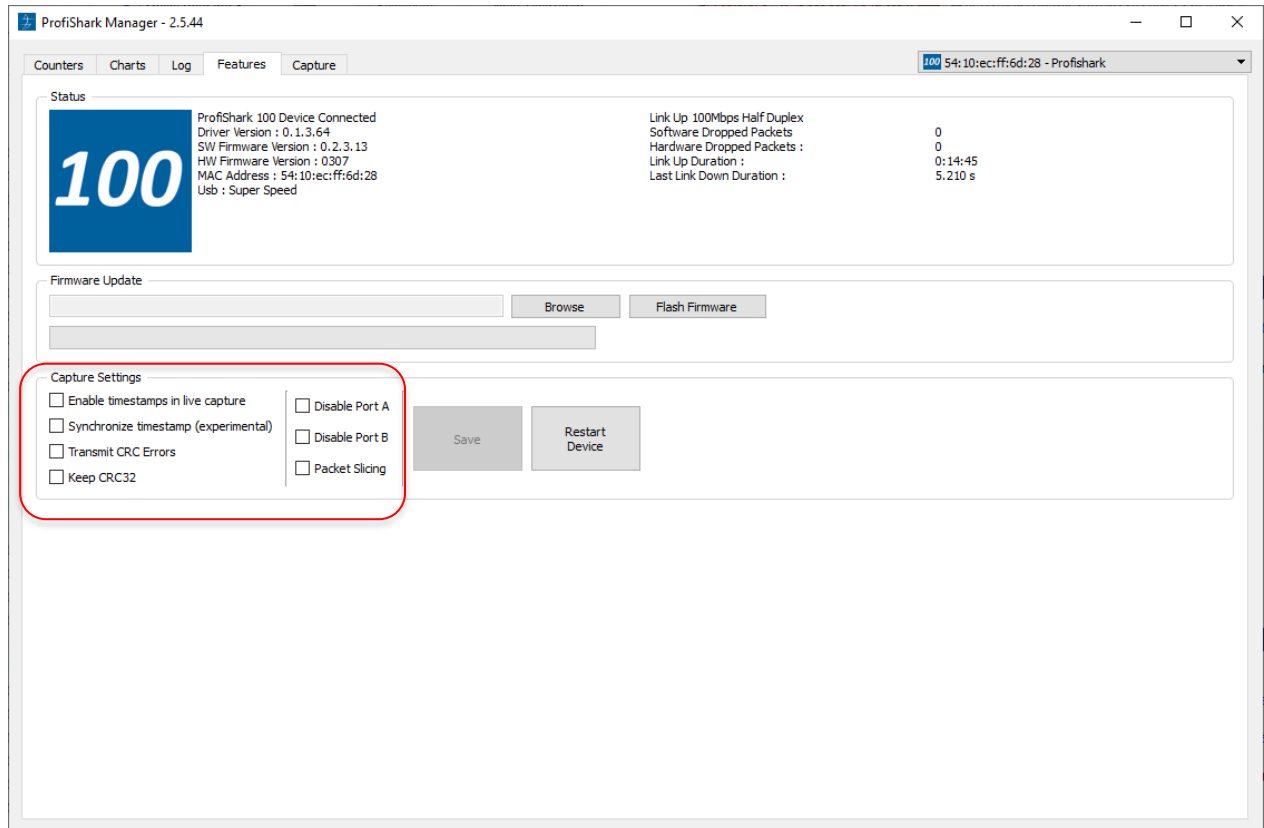

Figure 3 – Settings for Wireshark analysis.

3.1   Features tab

The following configurable options/settings are available:

- Timestamp enable/disable
- Transmit CRC errors
- Keep CRC32
- Disable port A and/or port B
- Packet slicing

Timestamp enable/disable (unchecked and disabled by default)
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.

Transmit CRC errors (unchecked and disabled by default)
You may decide to keep packets corrupted by a CRC error. Deselect the checkbox 'Transmit CRC errors' to include those packets upstream to the Analyzer during your analysis.

Keep CRC32 (unchecked and disabled by default)
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 and/or port B (unchecked and disabled by default)
If checked, frames from port A or B will not be captured.

Packet slicing (unchecked and disabled by default)
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.

3.1.1   Firmware update

The tool can automatically check and update the firmware of the EtherTAP for you. If the EtherTAP is connected to your computer, and if the computer has an Internet connection, it will perform an update automatically. Simply confirm the dialog box.

Manual checking of the firmware, and updating it, is also possible.

3.2   Capture tab

The EtherTAP 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 for traffic capture. If Live Capture performance proves to be insufficient (e.g. software packet drops when attempting to capture many small packets), using Direct Capture will solve the issue. 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.

4.   Technical Data

Technical Data	11/20
Dimensions, weight	
EtherTAP 100	55 x 102 x 24 cm 2.17 x 4.02 x 0.94 inch 145 grams
EtherTAP 1G	69 x 124 x 24 mm 2.72 x 4.88 x 0.94 inch 176 grams
System requirements	
Operating system	Windows 7 / 8 / 10 (both 32 bits & 64 bits supported) Linux MacOS
Processor	Dual Core
Memory	4GB
Connectivity	USB 3.0
Power	
EtherTAP 100	Powered by USB 2.0 or USB 3.0 Optional External 5V / 1A power input
EtherTAP 1G	Powered by USB 3.0 Optional External 5V / 1A power input Important: Disconnecting the USB 3.0 cable also interrupts the connected Ethernet cables for 1-2 seconds.
Max. network latency	
At 10 Mbit/s (only EtherTAP 1G)	6600 ns
At 100 Mbit/s (only EtherTAP 1G)	660 ns
At 1000 Mbit/s (only EtherTAP 1G)	370 ns
Other	
Compliance	RoHS, CE, FCC class A
Operating temperature range	0 to +50 °C — 32 to 122 °F
Storage temperature range	-40 to +80 °C — -40 to 176 °F
Relative humidity	10 to 95%, non-condensing

5. Products and spare parts

Component	Order code	Remarks
EtherTAP 100 (10 / 100 Mbit)	513-00011A	• EtherTAP 100 • USB 3.0 cable (1.8 meter) • Drivers on USB-stick • Protective pouch
EtherTAP 1G (10 / 100 / 1000 Mbit)	513-00021A	• EtherTAP 1G • USB 3.0 cable (1.8 meter) • Drivers on USB-stick • Protective pouch

6. Revision history

Version 1.0.0
• Initial version.

Version 1.0.2
• About PROCENTEC section updated
• Formatting
• Distributor List updated

7. Sales offices and distributors

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For the up to date list of the Sales Offices and Distributors see www.procentec.com/company/distributors/.
If your country or region is not listed, please contact us.

8. About PROCENTEC

Who are PROCENTEC?

PROCENTEC are an independent Dutch company that supply products, training and consultancy to the Industrial Automation Market. Of primary focus is the development and manufacturing of automation products for PROFIBUS, PROFINET and Industrial Ethernet.

Some of our products are the most recognized solutions on the Market today. **ProfiTrace**, our mobile troubleshooting and maintenance tool has established itself as one of the most pioneering, yet essential tools available to engineers. In contrast our robust **ProfiHub** has, over the last decade, established itself as the go-to solution for ensuring a reliable network infrastructure. The combination of these products within our **ComBricks** solution has seen PPROCENTEC become the primary manufacturer of network components with the integrated capability for remote monitoring and remote asset-management.

Our training facility, the **PROCENTEC Academy**, has certified over 4000 engineers to implement and maintain their PROFIBUS and PROFINET networks to the highest standards available.

The PROCENTEC **Competence Centre** has established itself as the leading consultancy on PROFIBUS and PROFINET projects worldwide, advising on architecture, engineering, training and commissioning. Once a network is commissioned, we have experts available 24/7, to answer questions with maintenance or help troubleshooting a problem.

Products
- Atlas
- Mercury
- EtherTAP
- ProfiTrace
- ComBricks
- ProfiHub
- PROFINET tools
- Cables & Connectors

Services
- On-site & Online Support
- Network Audit
- Network Certfication
- Consultancy
- Testlab & Democenter
- Competence Center

Training
- PROFIBUS training courses
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