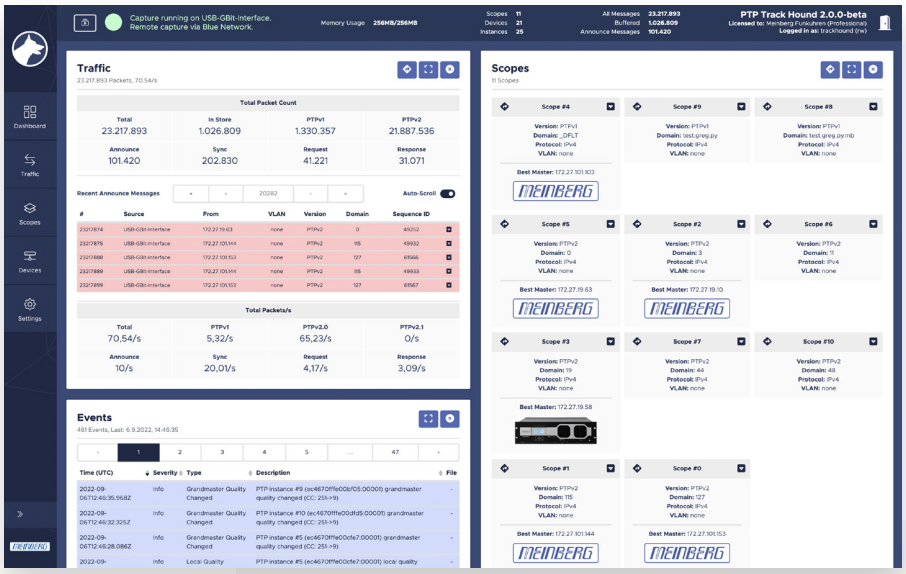
MEINBERG

The Synchronization Experts.

# PTP Track Hound v2

## IEEE 1588 / PTP Debugging & Monitoring




**The new Leader of the Pack steps forth. PTP Track Hound v2 is the industry-leading solution for the monitoring, diagnosis, and optimization of PTP clock networks, with groundbreaking new features for remote monitoring and management.**

PTP clocks are smartly grouped into scopes to help easily understand clock relationships, while byte-by-byte analysis, remote notifications, and a comprehensive REST API for management and queries over HTTP and HTTPS provides power users with the power tools they need to maintain absolute control over their PTP infrastructure.

# Capture & Analysis of PTP Network Traffic

PTP Track Hound captures PTPv1, PTPv2 and PTPv2.1 network traffic on the configured adapters, using the main memory (RAM) for temporary storage.

A limit can be set on the maximum amount of memory used as temporary storage to ensure that the oldest packets are automatically deleted just before the limit is exceeded. It is also possible to dump all captured packets to a persistent capture file, which can then be downloaded via the Web Interface.

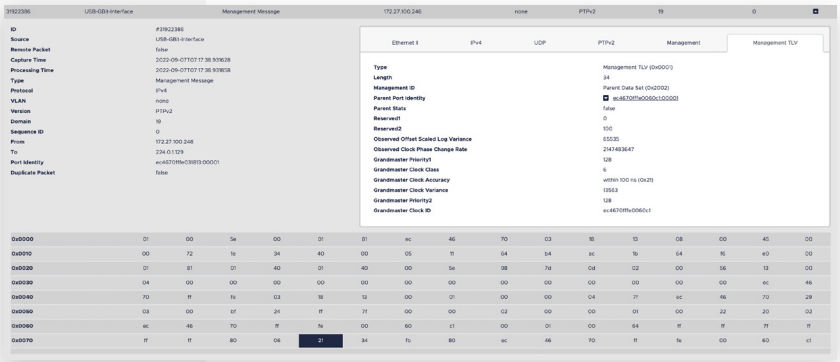
The Web Interface provides an overview of all captured packets at a glance, and these can be filtered based on the PTP scope (a group of PTP instances sharing a common domain, PTP version, network protocol, and VLAN tag) and packet type (e.g., Announce messages). Packet types are color-coded in the message list to enable them to be easily recognized.

Detailed statistics on the counted PTP packets captured per second and in total, both for all PTP packets and for individual packet types, provide a general idea at a glance of the load structure of PTP traffic in your network.


# Decoding of PTP-Specific Message Data

PTP Track Hound automatically decodes PTP-specific message data and the most commonly used TLVs. It uses this data for internal analysis and evaluation and displays it in human-readable format, providing a detailed insight via the Web Interface into the data in the packets.

When viewing a PTP message in detail, mousing over any parameter in the message will highlight the location at which the raw data is located to enable easy analysis of packet content.

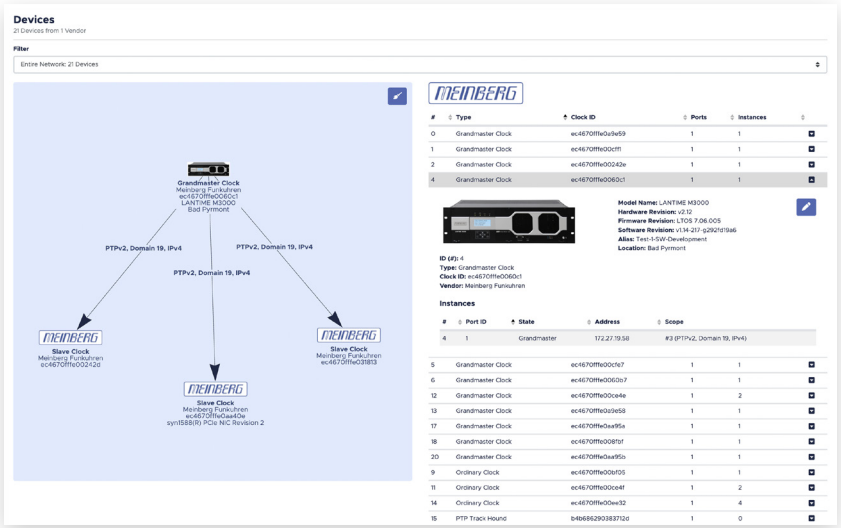


# Detection of PTP-Capable Devices

**PTP Devices in the network are automatically detected and grouped into scopes for easy identification of clock relationships.**

## Device

PTP Track Hound detects and identifies each device by its PTP Clock ID. Depending on which PTP instance types are running on the device, PTP Track Hound will form founded assumptions on the type of clock that the device is intended to be - whether that's a Grandmaster, Boundary, or Slave Clock. Each device can have an individual set of metadata defined for it, including a vendor and model name, a hardware, software, and firmware revision, a custom alias, and a location. It is even possible to upload a custom image to represent it.




## Instance

An instance is defined as a singular PTP "session" running on any given device. One device can run multiple instances concurrently, even on a single network port, such that you could run both a PTPv2 instance in Follower state and a PTPv1 instance in Leader state - a constellation not uncommon in applications such as Ravenna-Dante gateways for bridging systems using two incompatible timing standards. Each instance will have its own unique, specific scope that dictates which other clocks in the network can reach it.

## Scope

PTP Track Hound defines the concept of scopes as a unique combination of network segment (an optional index value, see below for more information), PTP version, subdomain (PTPv1) or domain number (PTPv2), networking protocol (IEEE 802.3/IPv4/IPv6) and VLAN ID tag (optional).

## Segment

Each network interface and each remote capture instance can be manually assigned to a custom network segment. This is useful when you have multiple PTP instances with the same combination of PTP version, (sub)domain, networking protocol, and VLAN ID in separate network segments that are accessible to the PTP Track Hound instance. Segment IDs essentially allow scopes to be “broken down” into network segment groups, allowing you to keep captured PTP traffic in one subnet separate from the identically scoped PTP traffic of another. Without defined network segments, all detected devices, instances, and scopes are assumed to be running within the same, singular network.

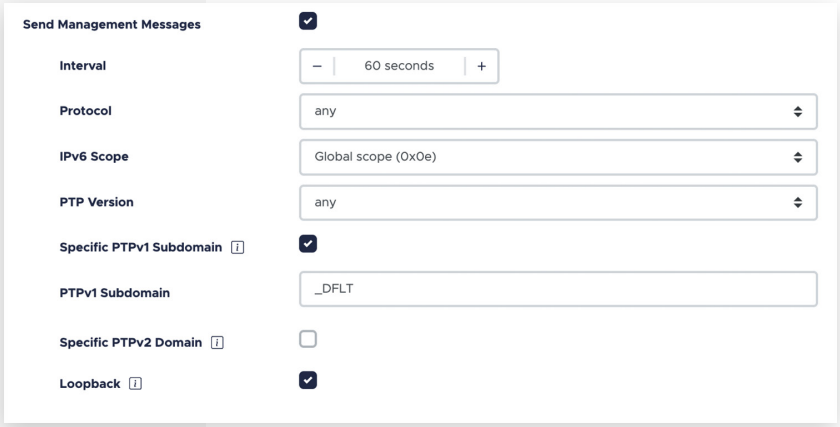
Detected Slave Clocks, Ordinary Clocks and Boundary Clocks are automatically matched to their Grandmaster Clock to provide an immediate, at-a-glance perspective of the synchronization hierarchy.

# Generation of PTP Management Messages

PTP Track Hound can be configured to periodically send out PTP Management Messages to request common PTP datasets from instances within the monitored network(s). This allows the software to draw reliable conclusions about the synchronization status of the network, devices, and instances in a way that would not be possible by passively capturing passing traffic.

Management messages can be sent globally over all networking protocols, PTP versions, and (sub)domains, or you can limit them to a specific networking protocol, a specific PTP version, and/or a specific (sub)domain.

**This feature requires a Professional license.**



# Modern Web Interface

While PTP Track Hound v1 was a monolithic application that was unable to capture PTP traffic without the graphical user interface running, PTP Track Hound v2 comes with an integrated web server and a modern, feature-rich Web Interface accessible via HTTP or HTTPS that can run independently of the capture service running in the background.

Both HTTP and HTTPS access can be individually configured or completely disabled.

**With a Free license, the web server can only be accessed from the local device.**
**Network access requires a Basic or Professional license.**

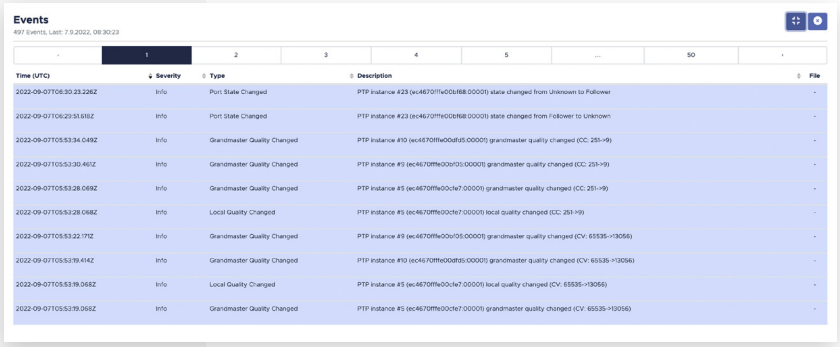

# Event Notifications via SNMP, e-mail or Syslog

PTP Track Hound v2 can send out event notifications as SNMP traps, e-mails (sent via SMTP), or syslog messages when predefined or highly customizable event conditions are triggered. This allows the software to be used as the central monitoring hub for timing-critical infrastructure.

Predefined alarm triggers: Capture Started, Capture Stopped, Scope Detected, Device Detected, Port Detected, Instance Detected, Port State Changed, Local Quality Changed, Grandmaster Quality Changed, Custom Alarm Triggered, Custom Alarm Cleared.

Custom alarms allow you to have PTP Track Hound monitor any parameter that is available via the REST API and generate an alarm as soon as the value of the parameter meets a specific condition, i.e., if the parameter equals/does not equal or is greater than/less than a specific value.

**This feature requires a Professional license.**



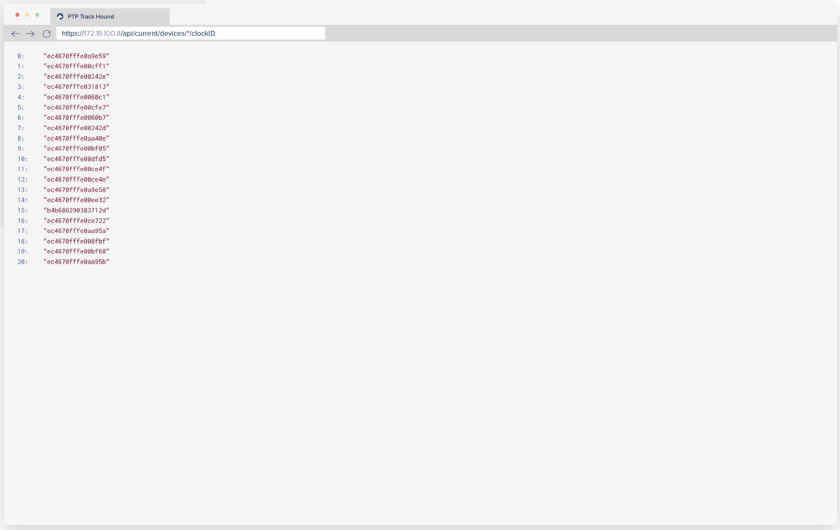
# Comprehensive REST API

For advanced infrastructure monitoring, PTP Track Hound v2 offers a comprehensive REST API that allows practically every parameter shown in the Web Interface - and even some not available via the WebUI - to be returned in JSON format by means of HTTP or HTTPS calls.

Sending a request to a wildcard path such as “/api/current/devices/*/clockID” or “/api/current/instances/*/address” will provide a response containing an array of results, such that a single request is often sufficient to obtain all the data of interest.

The REST API can be used not only to fetch data, but also modify the configuration and control the capture service.

**This feature requires a Professional license.**



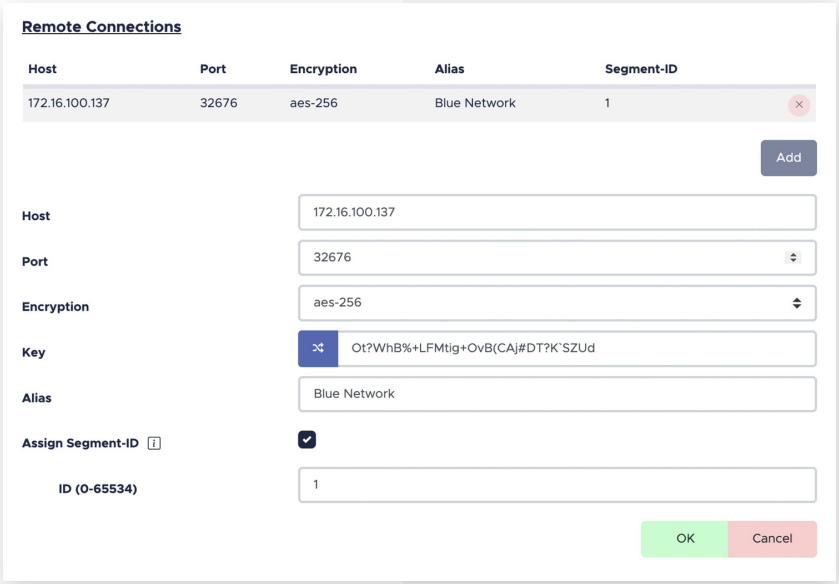

# Continuous Multi-Site Monitoring

PTP Track Hound v2 enables multiple independent capture services to be run concurrently in different networks or different segments of a network, and to forward captured sync traffic to one or more data collection instances. Such data collection instances will then capture and analyze the forwarded traffic as if it had been captured on one of its own network interfaces. Communication between the remote capture service and the data collection instance can be encrypted using pre-shared keys. It is also possible to limit access to a list of allowed IP addresses (from the perspective of the PTP Track Hound instance).

If a PTP Track Hound instance is only to be used for traffic forwarding, it is possible to completely disable the evaluation of incoming traffic.

**Traffic forwarding requires a Basic license.**

**Central data collection instances require a Professional license.**



# License Comparison

PTP Track Hound v2 will be available with three different single-user license levels: **Free**, **Basic** and **Professional**.

Check the table below to find out which features are available in PTP Track Hound v1 and which extra features PTP Track Hound v2 provides at each license level.

| | v1 | Free | Basic | Professional |
|---|---|---|---|---|
| **Available for Windows, Linux and macOS**<br>PTP Track Hound is available for the three most commonly used operating systems | ✓ | ✓ | ✓ | ✓ |
| **Dedicated Capture Service**<br>Continuous sync packet capture which can be set up to run automatically in the background on system startup | ✗ | ✓ | ✓ | ✓ |
| **Integration into Native Service Management of OS**<br>Can be installed to and managed by the service manager of the operating system | ✗ | ✓ | ✓ | ✓ |
| **Modern Web Interface**<br>Configuration and operation via modern Web Interface (HTTP/HTTPS) | ✗ | ✓ (access from local device only) | ✓ | ✓ |
| **Network Segmentation Support**<br>Each network interface and each remote capture instance can be assigned to separate segments, allowing for per-segment capture analysis | ✗ | ✓ | ✓ | ✓ |
| **User-defined Terminology**<br>Use terms like Leader and Follower, or any other terms you prefer, instead of the default PTP port state notations | ✗ | ✓ | ✓ | ✓ |
| **Dashcam Mode**<br>Automated event-driven recording of PTP traffic allowing analysis of problems at any given moment in time | ✗ | ✓ | ✓ | ✓ |
| **Multi-site Monitoring**<br>Run PTP Track Hound at multiple locations and forward captured sync traffic to one or more central PTP Track Hound Professional instance(s) | ✗ | ✗ | ✓ (traffic forwarding only) | ✓ |
| **PTP Management Messages**<br>Periodically send out PTP management messages to request common PTP datasets from PTP capable devices within the monitored network(s) | ✗ | ✗ | ✗ | ✓ |
| **Extensive Event Notifications**<br>Send out notifications via SNMP traps, e-mail (SMTP) or syslog messages when predefined or highly customizable event conditions are triggered | ✗ | ✗ | ✗ | ✓ |
| **REST API**<br>Acquire all of the data provided in the Web Interface via REST API (HTTP/HTTPS) | ✗ | ✗ | ✗ | ✓ |

# Get in Touch

Our Sales Team will be glad to assist you.


## International

sales@meinberg.de

+49 5281 9309-0

Meinberg Funkuhren GmbH & Co. KG
Lange Wand 9
31812 Bad Pyrmont, Germany

## United States of America

sales@meinberg-usa.com

+1-877-PTP-1588

Meinberg USA Inc.
100 Stony Point Road Suite 110
Santa Rosa, CA 95401, USA


# The Synchronization Experts.

A foremost innovator of the synchronization industry with longstanding roots in Bad Pyrmont, Germany, Meinberg is a family-owned company with over four decades of world-leading expertise in developing and manufacturing a range of high-end synchronization technology, including high-end PTP & NTP servers, receiver technology for satellite & radio synchronization signals, time code generators & readers, and an array of related accessories such as antennas, converters, and signal distribution systems.

With the Meinberg family of companies also encompassing our subsidiary Meinberg USA Inc. in Santa Rosa, California and embedded systems specialist Oregano Systems in Vienna, Austria, as well as a robust network of distribution & service partners in over 40 countries around the world, Meinberg's quality and expertise is never far away.

### Web

**www.meinbergglobal.com**
**www.meinberg-usa.com**
**www.oreganosystems.at**

REV001 – JAN.2023