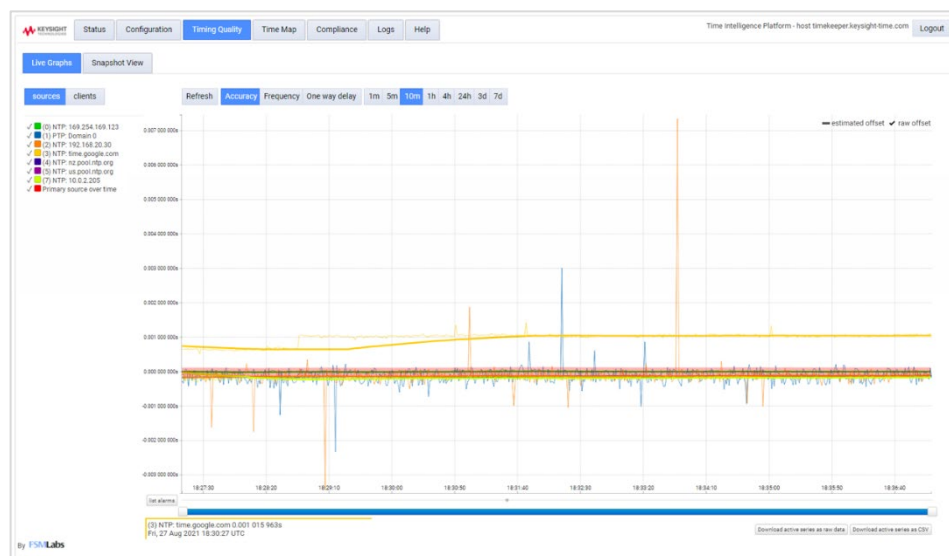


TimeKeeper® Client by FSM Labs

Secure Sub-Microsecond Client Clock Sync of Critical Enterprise Applications

TimeKeeper Client Clock Sync Software

TimeKeeper Client is a fault-tolerant network clock sync software system for enterprise or other “must work” applications. TimeKeeper Client synchronizes clocks on Linux, Windows, and Solaris application servers and virtual machines to multiple NTP/PTP feeds over the network at up to sub-microsecond precision. TimeKeeper Client seamlessly upgrades legacy NTP infrastructure with leading-edge NTP/PTP precision at the lowest TCO, while automatically exploiting available hardware-assisted timestamping for enhanced time precision. TimeKeeper performance exceeds many regulatory requirements, including MiFID II, RTS-25, FINRA, CAT, PSD2, and UTC traceability.



BENEFITS

- Lowest cost to upgrade legacy NTP infrastructure with high-precision NTP/PTP clock sync solution
- Secure, trusted, UTC-traceable enterprise clock sync
- Smart monitoring with automatic failover and alerting for high-reliability clock sync
- Lowest TCO across multiple Linux, Windows, and Solaris servers
- Scalable in the cloud, on servers, and on VMs, without affecting clock sync

How The Patented Multisource TimeKeeper Works

The TimeIQ™ technology is a patented, machine learning based clock modeling system, achieving unprecedented NTP/PTP accuracy, rejecting bad time, and assuring security.

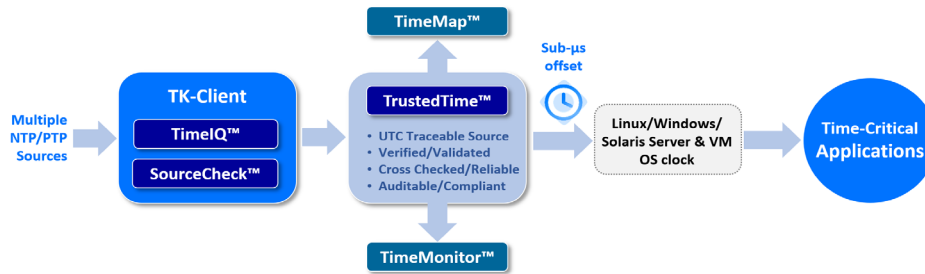


Figure 1. TrustedTime framework

TrustedTime multisource failover

TimeKeeper Client can receive time from any number of sources over any mix of NTP and PTP protocols, and TrustedTime automatically initiates failover when a clock source becomes unreliable, disabled, or broken in the clock sync chain.

SourceCheck

This smart feature monitors time performance to discover and reject compromised time sources, such as errors, attacks, and faults, and to verify and validate reliable time.

Time quality graphs

This analytic tool graphs the UTC-traceable time and frequency accuracy of multiple sources in real-time to provide IT staff with actionable data about clock source reliability and performance, including one-way delay and round-trip time.

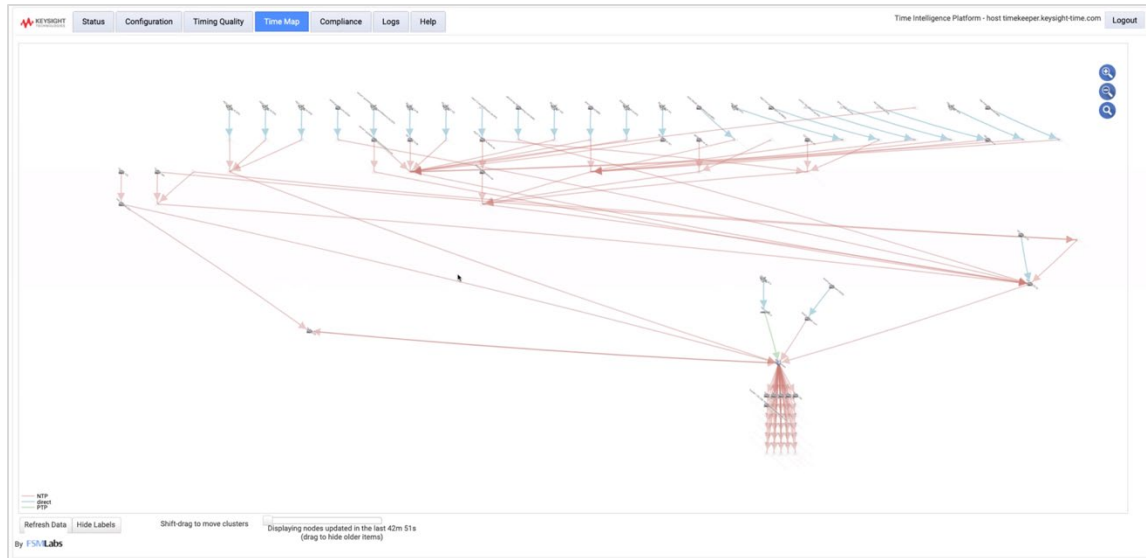
TimeMap

This powerful tool visually displays the topology of the enterprise network clock sync of time feeds from multi-vendor time servers, including the TimeKeeper Server, either as time server or boundary clock software. Users can view or diagnose the time source profile of each TimeMap node (IP, hostname, MAC, accuracy, and more).



FEATURES

- Uses patented TimeIQ, with SourceCheck that verifies, validates, and cross-checks time sources
- Provides TimeMap tool to display the enterprise clock sync chain topology
- TrustedTime detects complex clock sync deficiencies such as asymmetry, delay, and broken link and self-heals the enterprise clock sync chain
- Comes with a web management dashboard for performance graphs, configuration, monitoring, alerts, UTC traceability, audit logs, admin, and more
- Exploits hardware-assisted timestamping devices, such as Mellanox, Solarflare, Intel, and Broadcom, for enhanced NTP/PTP precision



Web Management Dashboard

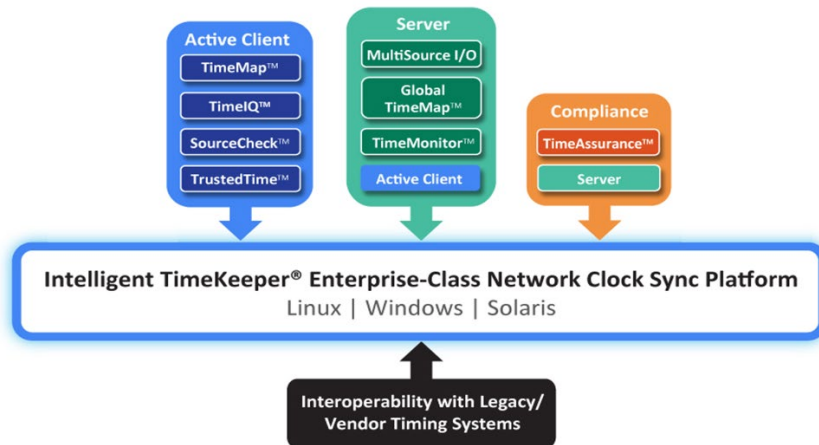
TimeKeeper Client is designed with an intuitive web management dashboard, providing comprehensive user control features such as installation, configuration, performance monitoring/analytics, alert notification, fault logs, support, administration, and more. TimeKeeper Client settings can be changed without affecting the clock sync operation.

The screenshot displays the 'PTP Servers' configuration page in the web management dashboard. The page title is 'Timing Sources - Click and drag to change priority'. It shows a list of timing sources with their priorities and configurations. The primary source is 'NTP: ntp01.frontier.com'. The selected source is '(1) NTP: utcnist.colorado.edu', which is expanded to show its configuration details.

Priority	Source	Configuration
0 - PRIMARY	NTP: ntp01.frontier.com	
1	NTP: utcnist.colorado.edu	<ul style="list-style-type: none"> NTP server: utcnist.colorado.edu NTP sync rate: .1 NTP MDS Key ID: * Periodically re-resolve DNS name: <input type="checkbox"/> Detect asymmetry - only enable if properly configured: <input type="checkbox"/> Designate a low quality source: <input checked="" type="checkbox"/> Major time source: Choose one * Sync error threshold: * Cable delay: * Enable HW timestamps for this source: <input checked="" type="checkbox"/> Monitor Only: <input type="checkbox"/> Use IPv6: <input type="checkbox"/> Reduce CPU use for this source: <input type="checkbox"/>
2	NTP: time-a-g.nist.gov	
3	NTP: gnomon.cc.columbia.edu	
4	NTP: time-a.nist.gov	
5	NTP: time-a-b.nist.gov	
6	NTP: www.nist.gov	
7	NTP: time-a-www.nist.gov	

TimeKeeper Platform

TimeKeeper Client is a component of the patented TimeKeeper enterprise-class network clock sync platform. TimeKeeper has the flexibility to operate with any legacy NTP/PTP infrastructure and to be configured with failover capability. TimeKeeper Client is vendor-agnostic, connects to multisource NTP/PTP feeds over the network, is compatible with a mix of timing vendors, and is fault-tolerant by design.



Why use TimeKeeper to time-sync your critical enterprise applications?

The TimeKeeper Platform provides secure, resilient, state-of-the-art enterprise clock sync at higher accuracy than competing products, while providing the lowest TCO. Get a TimeAudit and see the difference.

TimeKeeper is the gold standard in secure enterprise clock sync, used by hundreds of large organizations including banks, financial institutions, government agencies, and more.

TimeKeeper consists of integrated products for secure clock sourcing, distribution, synchronization, monitoring, management, and administration. Products include:

- TimeKeeper Client
- TimeKeeper Server
- TimeKeeper

TimeKeeper Enterprise-class applications

- | | |
|--|--|
| <ul style="list-style-type: none">• Financial• Data center• 5G• IoT• Cybersecurity | <ul style="list-style-type: none">• Automation• Cloud• Gaming• Broadcast |
|--|--|

Key specifications	Options
Time sources	<ul style="list-style-type: none"> • NTP, PTP, GNSS, CDMA, RS232, IRIG
Time protocols	<ul style="list-style-type: none"> • PTP, NTP • PTP profiles: Default, Telecom, Hybrid, Enterprise and Others
Fault tolerance	<ul style="list-style-type: none"> • Multi-time sources over NTP/PTP • Failover design • TimeIQ clock modeling • TrustedTime multisource failover • SourceCheck monitoring • TimeMap topology
Monitoring	<ul style="list-style-type: none"> • Timing quality graphs • Time & frequency accuracy
Web management dashboard	<ul style="list-style-type: none"> • Performance monitoring • Visual network clock sync topology • Clock sync chain traceability to UTC • Multi-time source settings • NTP/PTP settings • Alert settings • Configuration settings
Multi-OS Servers/VMs supported	
Linux	<ul style="list-style-type: none"> • All major distributions (RHEL6 and newer) • Most in-house custom distributions
Windows	<ul style="list-style-type: none"> • Windows 8.1/10, Windows Server 2012/2016/2019
Solaris	<ul style="list-style-type: none"> • Solaris 10/11, 64-bit x86, SPARC

Schedule a Demo

Contact us at timekeeper@keysight.com to get a live demo today.

Ordering Information

Contact us at timekeeper@keysight.com to order these product part numbers directly from us or through our global value-added resellers.

Part number	Description
SUB-TK-1-1Y	TimeKeeper – One year subscription for 1 multi-time source client (937-3000)
SUB-TK-1-3Y	TimeKeeper – Three year subscription for 1 multi-time source client (937-3008)
SUB-TK-100-1Y	TimeKeeper – One year subscription for 100 multi-time source clients (937-3002)
SUB-TK-100-3Y	TimeKeeper – Three year subscription for 100 multi-time source clients (937-3010)
SUB-TK-1000-1Y	TimeKeeper – One year subscription for 1000 multi-time source clients (937-3004)
SUB-TK-1000-3Y	TimeKeeper – Three year subscription for 1000 multi-time source clients (937-3012)
SUB-TK-20-1Y	TimeKeeper – One year subscription for 20 multi-time source clients (937-3001)
SUB-TK-20-3Y	TimeKeeper – Three year subscription for 20 multi-time source clients (937-3009)
SUB-TK-500-1Y	TimeKeeper – One year subscription for 500 multi-time source clients (937-3003)
SUB-TK-500-3Y	TimeKeeper – Three year subscription for 500 multi-time source clients (937-3011)
SUB-TK-COM-ENT-1Y	TimeKeeper – Compliance (Enterprise), One year subscription, unlimited clients (937-3005)
SUB-TK-COM-ENT-3Y	TimeKeeper – Compliance (Enterprise), Three year subscription, unlimited clients (937-3013)
SUB-TK-COM-LITE-1Y	TimeKeeper – Compliance (Lite), One year subscription, unlimited clients (937-3006)
SUB-TK-COM-LITE-3Y	TimeKeeper – Compliance (Lite), Three year subscription, unlimited clients (937-3014)

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