TimeKeeper ® Compliance by FSMLabs

Clock Sync Management for Real-Time MiFID/FINRA/CAT NMS/UTC Traceable Complaince Reporting

Challenge: Reducing regulatory risk due to poor timekeeping of trading systems

Financial regulators around the world specify that trading systems must synchronize and trace their clocks to known national and international standards. These requirements are codified by formal regulations such as MIFID II in Europe and CAT in the USA. Failure to meet these requirements can lead to large unlimited fines and reputational damage.
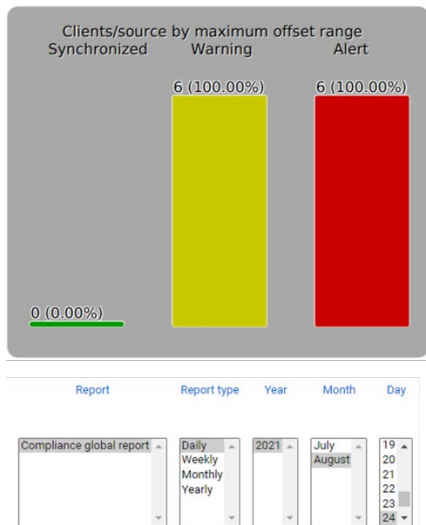
Solution: TimeKeeper Compliance

TimeKeeper Compliance is a smart clock synchronization software tool for compliance auditors and engineers. Designed to reduce regulatory risk for capital markets participants, users can undertake real-time performance monitoring, troubleshooting, reporting, regulatory compliance, and management of their timing infrastructure with a single software tool. A consolidated audit trail provides full traceability for technical and compliance staff. TimeKeeper Compliance visualizes and monitors the global network timing chain topology and aggregates data from all clients. Users can analyze and graphs all client KPIs and report and alert on diverging compliance. The data on network clock sync records can be stored for five years or more. TimeKeeper Compliance is easy to use and runs on Linux. TimeKeeper Compliance is a member of a larger range of test and measurement timing solutions from Keysight Technologies. TimeKeeper is the world's leading time synchronization solution developed by FSMLabs, the experts in timing technology.

BENEFITS

- Real-time enterprise clock sync reporting compliance made easy for compliance officers and auditors

- TimeAssurance technology for maximining user productivity

- All time clients monitored with their KPIs easily available, with peace-of-mind alerts

- Powerful reporting capability, with custom user-defined reports for regulatory and business requirements

- Secure archiving of all enterprise clock sync data for on-demand proof of compliance

KEYSIGHT TECHNOLOGIES

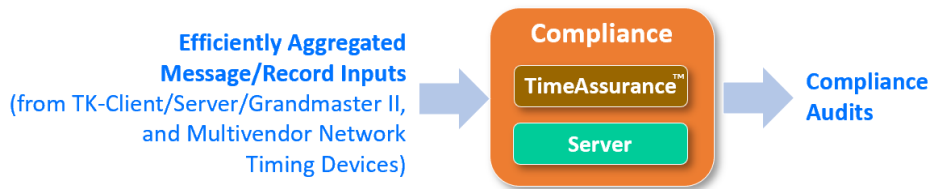## TimeKeeper Compliance Monitoring and Reporting

TimeKeeper Compliance is a clock sync compliance software tool for compliance auditors and auditors, enabling real-time performance monitoring, troubleshooting, analytics, reporting, regulatory compliance, and management, all in a consolidated audit trail. TimeKeeper-Compliance visualizes and monitors the global network timing chain topology, aggregates data from all TimeKeeper Clients and other vendor clients, analyzes and graphs all client KPIs, reports compliance performance divergence, and securely stores all network clock sync records for over 5 years or more.

How TimeKeeper Compliance Works

TimeKeeper Compliance integrates the intelligent TimeKeeper Server, which aggregates all time client data while monitoring clients' KPIs, and provides innovative, scalable features for easy compliance analytics and reporting. TimeKeeper Server's TimeMonitor™ capability allows users to configure an arbitrary, redundant network of TimeKeeper Compliance servers for fault tolerance, efficient workloads, and low-latency networks.

TimeAssurance Reporting

The TimeAssurance technology efficiently aggregates and analyzes all the clock sync data logs from TimeKeeper Client, TimeKeeper Server's TimeMonitor, and other vendor time clients according to their data aggregation and communication capabilities. TimeAssurance generates standard and custom compliance reports for regulatory and business audits, with an intuitive web dashboard.

FEATURES

- TimeAssurance analytics for UTC and NIST traceable compliance assurance
- TimeAssurance alerts on exceeded, user-defined time sync thresholds, including MiFID's 100µs and FINRA's 50ms accuracy requirements
- Redundant TimeKeeper Compliance servers' capability with TimeKeeper Server's TimeMonitor
- Multiformat reports including plain text, XLS, PDF, and SQL queries
- Displays Global TimeMap™ of the enterprise clock sync chain topology as an invaluable compliance tool

Efficiently Aggregated Message/Record Inputs (from TK-Client/Server/Grandmaster II, and Multivendor Network Timing Devices) → **Compliance** TimeAssurance™ Server → **Compliance Audits**

TimeAssurance Reporting

TimeAssurance generates standard and custom compliance reports for various regulatory and business audits, such as MiFID II, FINRA, CAT NMS, SEC 613, PSD2, and UTC/NIST traceability. The report configuration ability enables users to set these powerful features and retrieve data in real time:

- Time clients can be grouped into custom report domains, allowing reports for different business units or classes of devices that are subjected to differing regulatory requirements
- Timestamped events are user-defined by report domain
- Clients' performance thresholds are user-defined
- Alerts are configurable (i.e., if there is any gap in time client data, if any time client is manually tampered with, if any time client exceeds a set threshold or a set user warning value, and if any time client host [application server or VM] is added or removed during the reporting period) for compliance assurance that all hosts were monitored
- Report frequency is configurable by day, week, and month, in any combination

TimeAssurance also allows users to generate reports in multiple formats automatically, including txt, SQL, XLS, and PDF. Reports are instantly viewable via interactive web presentations, and on-demand custom reports can be generated using SQL queries.

Global TimeMap

Powered with TimeKeeper Server, TimeKeeper Compliance equips users with an effective planning tool to visually display the global enterprise-wide clock sync network topology of multivendor clients and time servers, as well as the TimeKeeper Client, and TimeKeeper Server as a boundary clock. Critical UTC traceable direct and indirect paths of primary reference time sources, such as GNSS, terrestrial TaaS (Time-as-a-Service) feeds, IRIG, CDMA, and any other source that serves time, are tracked and displayed in real-time. Users can view or diagnose the time source profile of each TimeMap node (IP hostname, MAC, accuracy, and more).
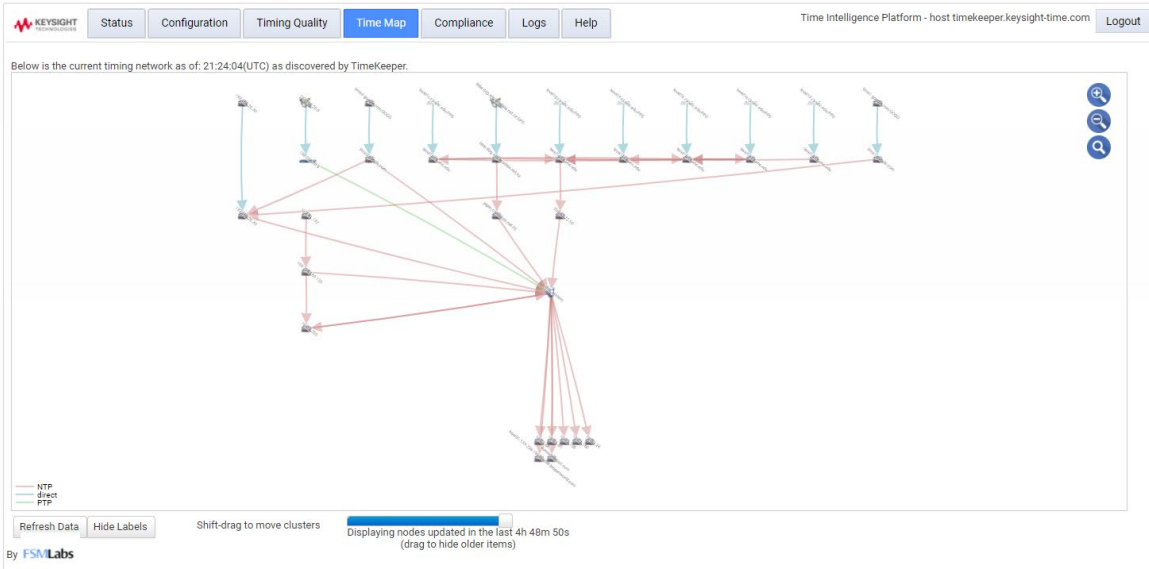
Disclaimer: We don't provide legal or regulatory compliance advice about any of our products or with respect to the use of our products. You should consult with your attorney and/or regulatory compliance officer for legal and regulatory advice, including regarding compliance with FINRA, MIFID II, CAT, and other regulations.

Web Management Dashboard

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

Key specifications	Options
Time sources	• NTP, PTP, GNSS, CDMA, RS232, IRIG, 1PPS
Time protocols	• PTP, NTP • PTP profiles: Default, Telecom, Hybrid, Enterprise and Others
Fault tolerance	• Multi-time sources over NTP/PTP • Failover design • Fault alerting • Network TimeMonitor • Global TimeMap topology
Monitoring	• Timing quality graphs • Time & frequency accuracy
Web management dashboard	• Performance monitoring • Visual network clock sync topology • Clock sync chain traceability to UTC • Multi-time source settings • NTP/PTP settings • Alert settings • Configuration settings

*For optional features, or more information on Keysight Technologies' products, applications, or services, contact us at www.keysight.com/find/contactus

TimeKeeper Enterprise-Class Network Clock Sync Platform

TimeKeeper Compliance 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 Compliance 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.
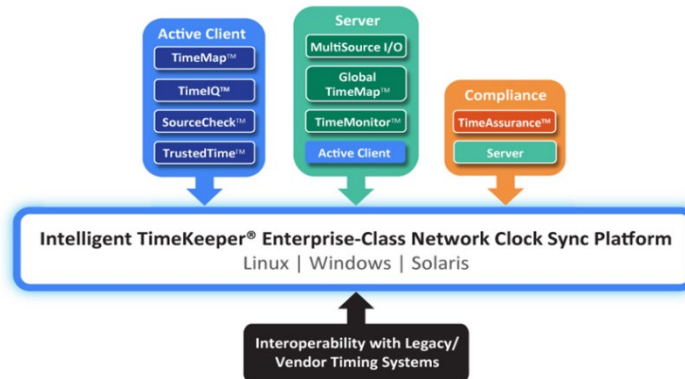
Enterprise-class TimeCare services

Our industry-leading TimeCare line of services helps our customers keep their network clocks time-synced 24/7 to run their server applications reliably and in compliance with regulatory requirements.

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

- Financial
- Data center
- 5G
- IoT
- Cybersecurity
- Automation
- Cloud
- Gaming
- Broadcast

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 for reporting on 100 clients (937-3006)
SUB-TK-COM-LITE-3Y	TimeKeeper – Compliance (Lite), Three year subscription for reporting on 100 clients (937-3014)

Learn more at: www.keysight.com

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

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