FSMTime
SECURE ENTERPRISE CLOCK SYNC™
by FSMLabs

# TIMEKEEPER® SERVER

Secure Sub-Microsecond Server Grandmaster/Boundary Clock Sync for Critical Enterprise Applications


TK-Server Resilient UTC-Traceable NTP/PTP Time Quality Monitoring, Alerting & Management

## 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 and VMs
- Scalable in the cloud, on servers, and on VMs, without affecting clock sync

## FEATURES

- Uses patented ML technology to transform any server machine into a high-precision time server appliance
- Provides *TimeMonitor*™ tool to monitor the performance of the entire enterprise clock sync
- Displays *Global TimeMap*™ of the enterprise clock sync chain topology as a planning and management tool
- Provides clock sync performance analytics and archives audit records
- Comes with an intuitive web management dashboard for configuration, monitoring, performance analytics, UTC traceability, alerts, audit logs, admin, and more

## TIMEKEEPER SERVER CLOCK SYNC SOFTWARE

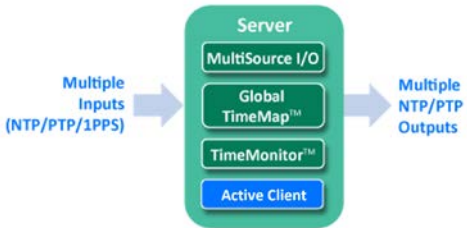
TimeKeeper Server (TK-Server) is a software grandmaster that can act as a boundary clock or stratum server while providing real-time monitoring and alerting, fault-tolerance, and clock distribution analysis. TK-Server receives any time source (GNSS, IRIG, CDMA, NTP, PTP, and others) and serves multiple NTP/PTP feeds over the network. TK-Server monitors the entire network time sync, visualizes the global network time sync topology, analyzes performance, and archives auditable records. TK-Server runs on Linux, Windows, and Solaris application servers and virtual machines, seamlessly upgrades legacy NTP infrastructure with leading-edge NTP/PTP precision at the lowest TCO, and automatically exploits available hardware-assisted timestamping for enhanced time precision. TK-Server performance exceeds many regulatory requirements, such as MiFID II, RTS-25, FINRA, CAT, PSD2, and UTC traceability.

## HOW TK-SERVER WORKS

TK-Server integrates the machine learning (ML)-based TimeKeeper Client (TK-Client) product and these innovative, scalable features for resilient, reliable, and UTC-traceable enterprise clock sync:

### MultiSource I/O

This feature receives multiple NTP/PTP feeds over the network, accepts a 1PPS signal or uses a bus-level GNSS device, and serves multiple NTP/PTP feeds with a near infinite mix of NTP/PTP profiles. TK-Server can be configured as a boundary clock as well, receiving and serving multiple NTP/PTP feeds.



# TIMEKEEPER SERVER

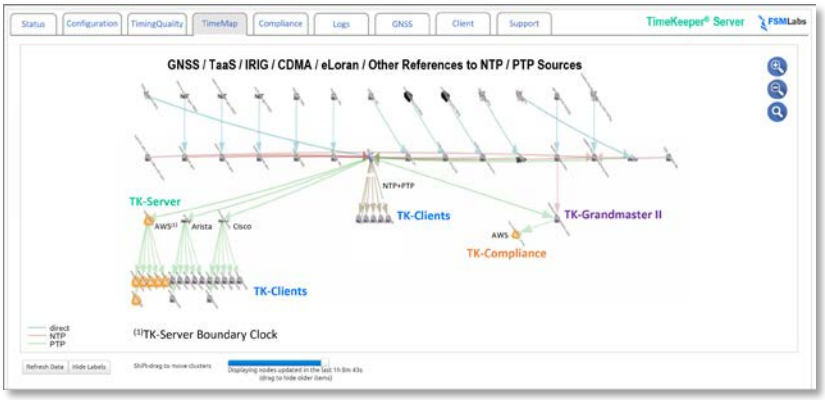
## SPECIFICATIONS

| | |
|---|---|
| Time sources | • NTP, PTP, GNSS, CDMA, RS232, IRIG, 1PPS |
| Time protocols | • PTP, NTP<br>• PTP profiles: Default, Telecom, Hybrid, Enterprise, and others |
| Networking | • Ethernet (100M & 25/10/1G)<br>• RS232<br>• InfiniBand |
| Time sensing* | • NTP, PTP, PPS, TIME (RFC868) |
| Fault tolerance | • Multi-time sources over NTP/PTP<br>• Failover design<br>• Fault alerting<br>• Network *TimeMonitor*<br>• *Global TimeMap* topology |
| Monitoring | • Timing quality graphs<br>• Time & frequency accuracy |
| Web management dashboard | • Text CLI<br>• Performance monitoring<br>• Visual network clock sync topology<br>• Clock sync chain traceability to UTC<br>• Multi-time source settings<br>• NTP/PTP settings<br>• Alert settings<br>• Configuration settings |
| Multi-OS servers/VMs supported | |
| Linux | • All major distributions (e.g. RHEL5 and newer)<br>• Most in-house custom distribution |
| Windows | • Windows 8.1/10, Windows Server 2012/2016/2019-ready |
| Solaris | • Solaris 10/11, 64-bit x86, SPARC |

*For optional features, contact us at support@fsmtime.com

### Global TimeMap

This powerful planning tool visually displays the global enterprise-wide clock sync network topology of multivendor clients and time servers, as well as the intelligent TK Active Client, TK-Server, and the TimeKeeper Grandmaster II (TK-Grandmaster II) appliance. 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).




### TimeMonitor

This innovative monitoring technology self-discovers the network topology of the enterprise clock sync chain by using a variety of network time protocols and profiles (PTP, PTP hybrid, PTP unicast, NTP, and more). *TimeMonitor* also aggregates timing data on the network, including time sync performance, UTC-traceability and other time-affecting data, to provide these unique real-time features:

- Monitoring of network clock sync of clients and of time distribution
- Alerting on time source and client errors via SNMP, email, and syslog (also accessible through any text-based log management system)
- Sending and receiving time management messages to/from multivendor clients and time servers, including the intelligent TK Active Client and/or TK-Grandmaster II
- Compiling a master audit log of clock sources and clients for TimeKeeper Compliance (TK-Compliance) and other analytics tools
- Automating the discovery of clients and clock sources for monitoring, logging, and configuration

### Web Management Dashboard

TK-Server is designed with an 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. TK-Server settings can be changed without affecting the clock sync operation.

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# TIMEKEEPER SERVER

## WHY USE TIMEKEEPER TO TIME-SYNC YOUR CRITICAL ENTERPRISE APPLICATIONS?

TimeKeeper Platform (TK-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.

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

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

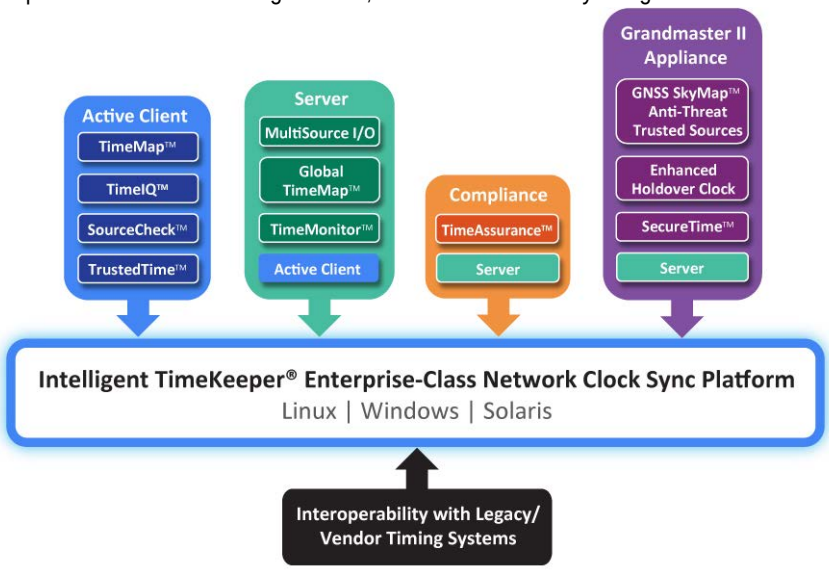
- TK-Platform (includes all products)
- TK Active Client
- TK-Server
- TK-Compliance
- TK-Grandmaster II

## TIMEKEEPER ENTERPRISE-CLASS APPLICATIONS

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

## TIMEKEEPER ENTERPRISE-CLASS NETWORK CLOCK SYNC PLATFORM

TK-Server is a component of the intelligent, 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. TK-Server 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.

### GET A TIMEAUDIT℠

Get a TimeAudit today to check your enterprise clock sync performance and compliance by contacting us at timeaudit@fsmtime.com.

### GET A DEMO

Contact us at sales@fsmtime.com for a live demo today.

### HOW TO ORDER

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

| | |
|---|---|
| TK-Server | TK-SV-PN |
| TK Active Client | TK-CL-S/M (Single or Multiple) |
| TK-Compliance | TK-CMPL |
| TK-Grandmaster | TK-GM/Rb (Grandmaster GPS/GNSS/XO or with Rb clock) |
| TK-Platform | TK-SV-PN, TK-CL-S/M, TK-CMPL, and TK-GM/Rb |

## Intelligent TimeKeeper Platform Products and Services

Secure Enterprise-Class Clock Synchronization for Time-Critical Operations and Business Applications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