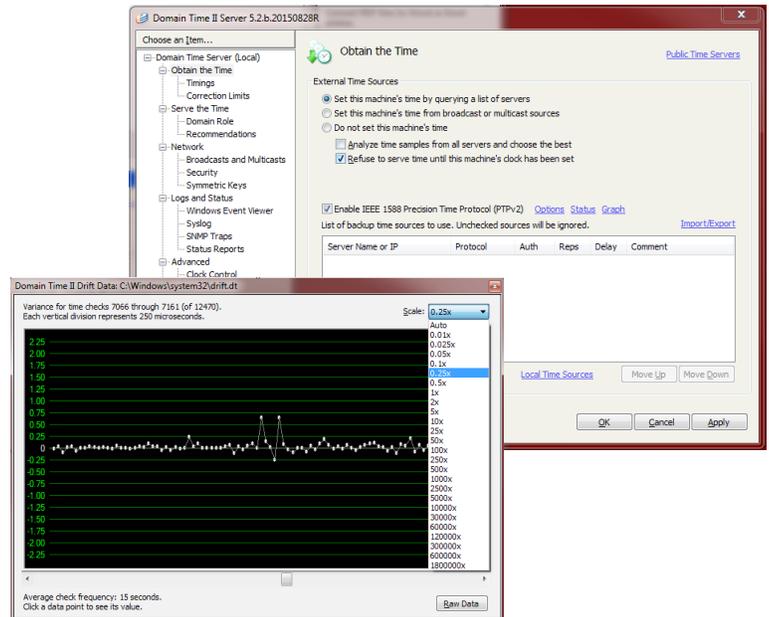


Domain Time II

Time Synchronization Software Suite

Precise Time Synchronization for the Entire Enterprise



Key Features

- Comprehensive time client, server and management software for precise time synchronization across the network
- Install, update, configure, monitor, and troubleshoot all time clients from a single workstation
- Adaptable time hierarchy automatically adjusts to changes in the network assuring clients access to the correct time
- Detailed event logging for time auditing purposes
- Broad Windows OS support
- NTP and IEEE 1588/PTP support

Key Benefits

- Precisely time synchronize mission critical network operations and applications
- Monitor network synchronization and be alerted when synchronization is outside your specifications
- Hold network time accuracy within specified limits
- Ensure accurate time on all network clients
- Reduce or eliminate costs involved in installing and managing time synchronization across a network
- Manage time synchronization on both large and small networks just as easily
- Improve network log file accuracy to speed network diagnosis and forensics

Overview

Accurate network time synchronization is critical for network log file accuracy, billing systems, electronic transactions, database integrity, software development, and many more essential applications in today's corporate enterprise. The Microsemi® Domain Time™ II software in combination with a GPS referenced network time server delivers the only comprehensive network time synchronization solution available today.

Domain Time II is a comprehensive software solution that simplifies time synchronization across the network. Versatile time clients keep the network hierarchy synchronized to a GPS referenced network time server. Easy to use management tools simplify and automate many tasks related to keeping these clients up-to-date. Monitoring functions track time client sync across the network and notify you of any problems. The result is a reliable time sync system that requires little management overhead and offers tremendous value to the integrity of network operations and applications.

Domain Time II's management tools enable complete control of your entire network time hierarchy from a single workstation. You can install, update, configure, monitor time synchronization and troubleshoot, and track Domain Time II components enterprise-wide. This eliminates the time involved in manually installing and maintaining time software on large numbers of machines distributed across the network.

Precise delivery of time is made possible through high-precision time protocols, time source averaging, clock training, slewing, target seeking, and an efficient time cascade update hierarchy. NTP, IEEE 1588/PTP and the Domain Time II protocols are all supported to meet your time synchronization objectives. On large Windows domain networks the software servers automatically take over for each other when one becomes unavailable, and clients automatically find alternate servers if there's a failure. Time components can also be set manually for multiple levels of fallback time sources.

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DOMAIN TIME II SOFTWARE COMPONENTS

Domain Time II is a comprehensive time synchronization system, consisting of completely-integrated components. Together, they ensure that the time for your entire enterprise is always correct, that you always know how your clocks are performing, and that you can prove the sync status of any machine at any time.

Domain Time II Client

High-accuracy time client for Windows: fully configurable, fully automatic, or entirely manual. Can completely replace the less accurate Windows Time Service. Can use NTP, IEEE 1588/PTP (Default Profile, v2) and/or Domain Time II protocols to meet your synchronization objectives.

Domain Time II Server

Acts as part of the Domain Time distribution hierarchy or independently. Can completely replace the Windows Time Service.

Domain Time II Management Tools

Install, configure, analyze, test, and monitor your entire Domain Time synchronization system from your desktop.

Manager is the master control center for your Domain Time system. You can remotely install, upgrade, monitor, and track licenses of Domain Time on any machine across your network.

Monitor Service automatically monitors the synchronization of critical systems and provides real-time alerting of errors, also provides advanced variance reporting and historical records.

Update Server automatically watches the network to keep your machines updated with current versions of the time software. It can automatically install time software on new machines as they come online without administrator intervention.

Other Tools include a full suite of testing, diagnostic, and utility programs to augment the simple, trouble-free use of Domain Time II on your network.

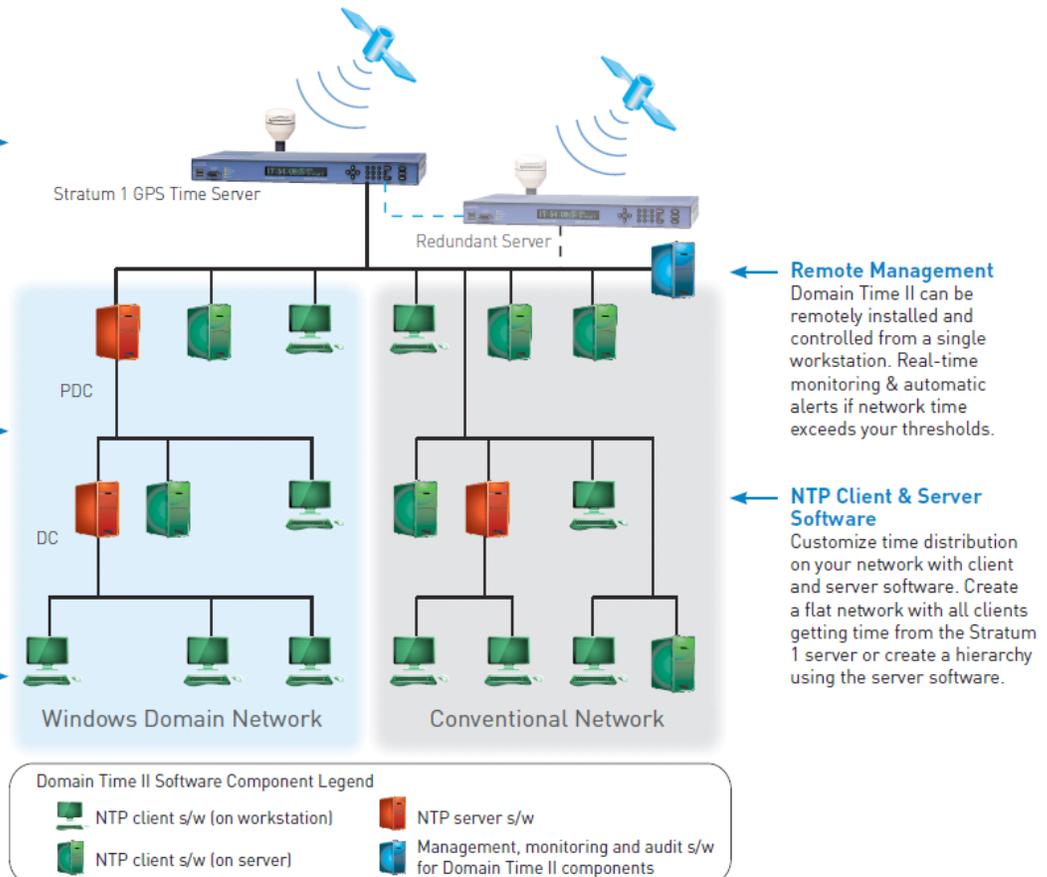
Domain Time II Audit Server (Optional)

Routinely collects time sync data from Domain Time components and stores them to create a secure audit trail. Also audits external time sources for further verification of correct time for audit trails.

Reliable Time →
 Dedicated GPS network time servers to provide accurate, reliable, and secure time to your network.

Automatic Failover →
 These servers are slaves of the Master (PDC). If a DC (Slave) is promoted to Primary, Domain Time II automatically reconfigures itself. No manual reconfiguration or downtime!

Automatic Reconfiguration →
 Domain Time II clients can obtain their time settings automatically from any DHCP server. No manual configuration!



Domain Time II

Network Wide Sync Advantages

Accuracy

Accurate time helps your IT investment pay off since your systems always have the correct time, keeping all of your time-dependent systems accurately synchronized. Users can always log in, your expensive clustering servers and storage systems logs are synced, and your email and accounting systems always have the correct date and time.

- Clients run as system services, machines sync automatically whether or not someone is logged in.
- Clients accessing via VPN sync automatically when a connection to the network is activated.
- Sophisticated network latency and clock drift data algorithms provide millisecond accuracies.
- Time source averaging among multiple sources to determine the likely best "true time".
- Configurable clock slewing to synchronize time without time jumps or setting the clock backwards.
- Clock training to adjust local clock rate to be more accurate.

Manageability

Installation and ongoing maintenance and troubleshooting of time synchronization is reduced or even eliminated.

- Components can be installed, upgraded, and configured network-wide from a single workstation using the Management Tools.
- Clients automatically discover the correct time servers and protocols.
- Monitor time status network-wide and raise out-of-sync alarms using Monitor Service or optionally Audit Server.
- Complete compatibility with Windows Active Directory, including graphical utility to monitor and configure the Windows Time service.
- Advanced time analysis tools, including real-time graphical displays of accuracy and latency.

- Windows time zone settings can be set remotely using the Management Tools.
- Comprehensive documentation and excellent technical support.

Redundancy

- Components compare time among various sources and automatically choose the most reliable source.
- Multiple levels of fallback in case of network error or time server unavailability.
- Time hierarchy adapts gracefully to compensate for failed/unreachable components.

Security

Domain Time II helps ensure the time portion of your infrastructure is hardened against intruders and blunderers.

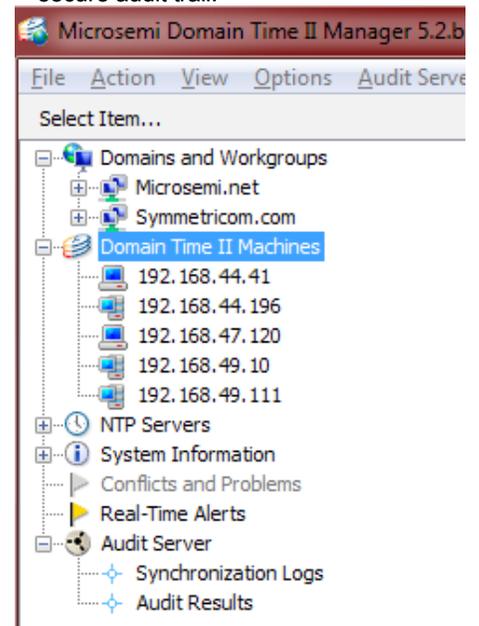
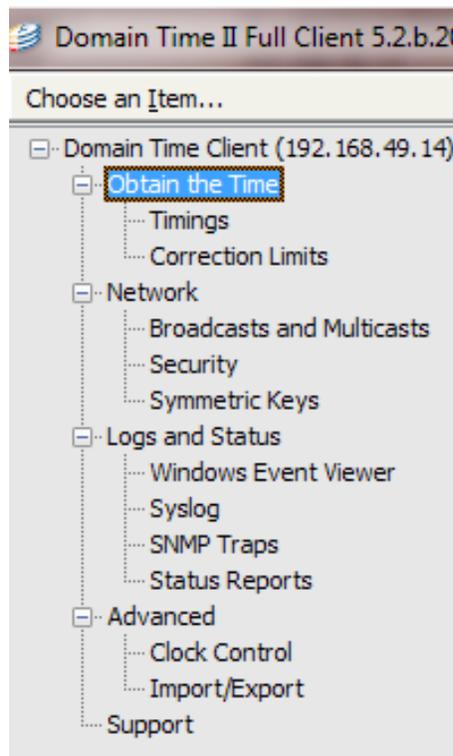
- Domain Time II uses your existing domain (Active Directory tree/forest) structure and access permissions.
- Works with or without Active Directory enabled.

- Administrative permissions required to change configuration settings.
- Clock change monitor prevents manual tampering with the system time and date.
- Logged-in users do not need clock-changing permission.
- Built-in Denial of Service and IP access lists for unparalleled protection from malicious and inadvertent interference with network time.

Traceability

If you need to know and be able to demonstrate that your electronic records are correct, Domain Time II allows you to automatically provide compliance without requiring any additional work for employees, or having to implement expensive custom systems.

- Components keep detailed log files with selectable retention options and real-time log viewer.
- Graphical displays and raw time drift data is available on time sync components.
- System tray icon provides instant visual feedback of correct system sync.
- Alerts are generated and logged if time is not being synced correctly.
- Complete time sync data can be automatically collected centrally into a secure audit trail.



Domain Time II

Audit Server

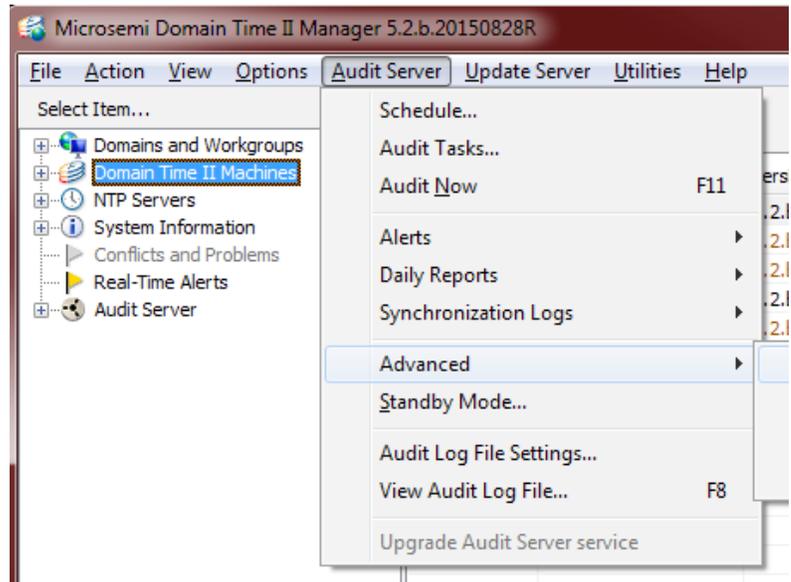
(Optional Domain Time II Add-In)

Key Features

- Automatically audit the time on your network
- Clear, indisputable records
- Generate alerts if time or audit period exceeds specified tolerances
- Integrates perfectly with Domain Time II time synchronization software suite
- Integrates with existing network Management programs

Key Benefits

- Complete records of time synchronization accuracy of the computers on your network
- Know when a machine was last synchronized, with what time source, as well as its variance from the reference time source
- Peace of mind from an automatic software system routinely auditing time on your network
- Know that you will be notified if time or audit period is out of tolerance
- Cross check network time with independent time sources for historical validation



Audit Server is a Domain Time II add-in designed to provide a secure, verifiable audit trail of the time synchronization of your network. It automatically provides the clear, indisputable records you need to easily resolve any contested timestamp or synchronization issue that may arise.

Federal regulatory agencies as well as major securities organizations already require this type of audit collection to prevent fraud and to establish the validity of transactions. Audit Server meets or exceeds such requirements and makes it painless to comply with the regulations.

The records collected by Audit Server include complete information to allow auditors to determine precisely when a machine was last synchronized, with what time source, as well as its variance from the reference time source. Audited Time is being able to prove conclusively (on demand) whether the time on any monitored system was correctly synchronized at a particular time and date with a specified time source.

Audit Server uses the built-in time synchronization and data collection capabilities of the Domain Time II time synchronization components (Domain Time II Server and Clients) to construct and maintain a verifiable and secure audit trail indicating when the clock on a machine was last synchronized. Domain Time II components all work together to easily and

automatically provide Audited Time on your network with minimal intervention on your part.

Auditing Best Practice #1 Identifying Monitored Machines

All Domain Time II Server and Client services are individually identified using a unique serial number that is assigned when the Domain Time software is installed. Even if the IP address or name of the machine changes, the audit records will clearly identify the machine running that particular instance of Domain Time II.

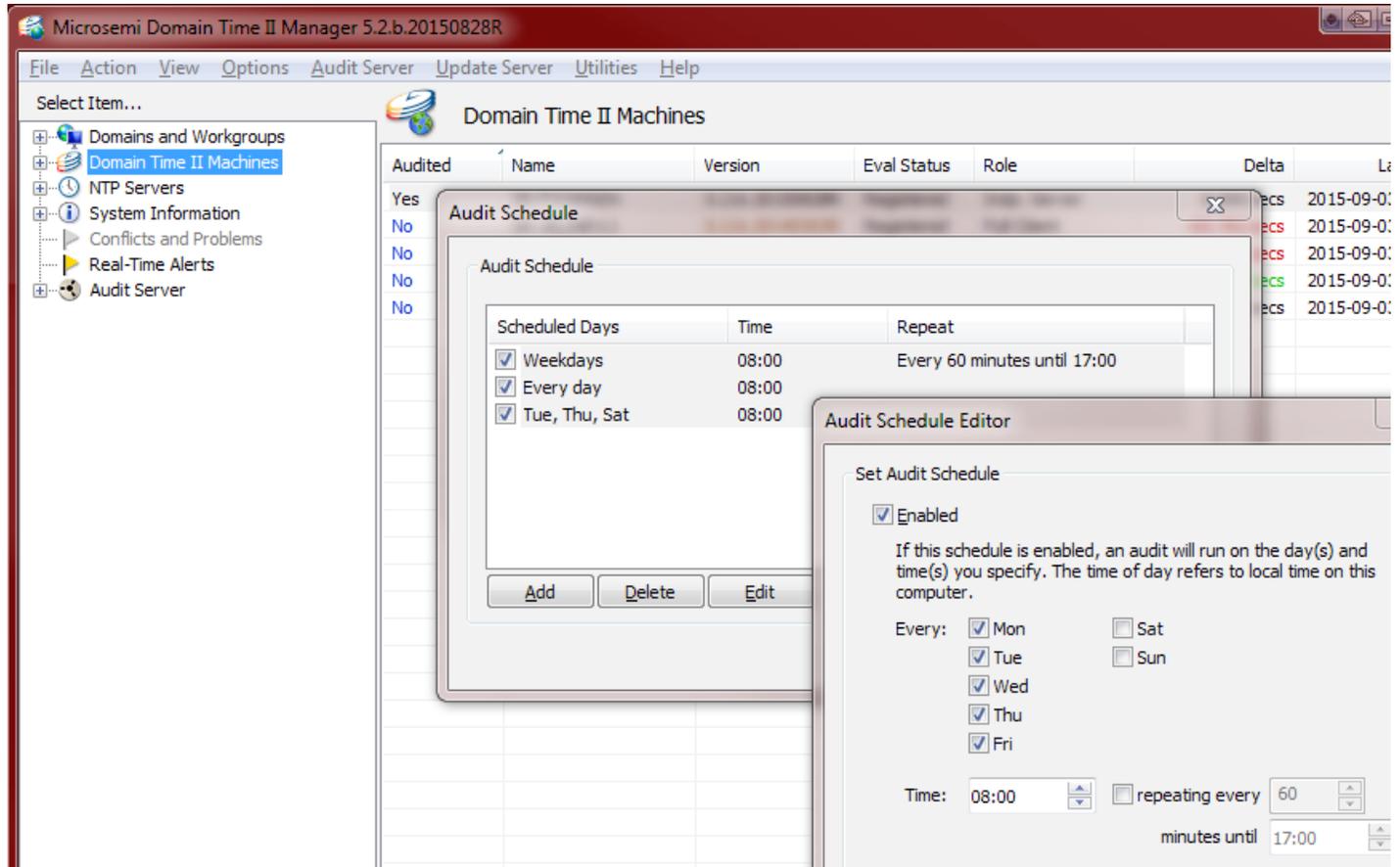
Auditing Best Practice #2 Accurate and Reliable Network Synchronization

A Domain Time II Server connects securely to a trusted network time source such as a Microsemi dedicated GPS referenced network time server, and then distributes that time accurately and verifiably to every time-aware machine on the network using the Domain Time II time distribution system.

In addition, Domain Time II components have a function called Clock Change Monitor that prevents users from manually changing the time on machines to falsify records. Domain Time II also has sophisticated security features to ensure that the entire system time is correct, including protection from rogue time servers, Denial-of-Service attacks, and more.

Domain Time II

Audit Server



Auditing Best Practice #3 Retrieval of Vital Time Sync Information

Domain Time Servers and Client services keep detailed internal statistics on their operation, which is regularly queried by Audit Server. The statistics include such information as the name/IP address and time of the last time source used for synchronization, the amount of correction to the local clock that was made, the protocol used to set the time, and so on. Statistics are regularly retrieved from clients and servers using the Domain Time II protocol, which allows for efficient transfer of the information to the Audit Server, with a very small amount of traffic. This means that the audit process is very low-overhead and has a minimal impact on the network.

Audit Server can also obtain the current time from an NTP time source at the time an audit occurs. This allows the audit

record to include at least basic information from any NTP machines (such as a GPS based network time server or router) that may also be involved in providing time to the network. This also can serve as a time cross check and historical validation if you also monitor an official public time source.

Auditing Best Practice #4 Regular Collection of Audit Records

The Audit Server automatically contacts Domain Time II Servers and Clients (and any specified NTP servers) to collect their audit data on a schedule you specify. This information is compiled into compact record files that include all relevant information about each monitored system. Each record is optimized to minimize the amount of disk space used to retain the records. The Audit Record Viewer allows to view the data in an easy-to-read format, and to extract the data to text files in a summary or full-detail form.

Auditing Best Practice #5 Automatic Error Notification

Audit Server verifies that machines selected to be audited are actually having their time set and that they are responding to the audits. If any machine fails to be synchronized within your desired tolerance, or if a machine misses more audits than your specified maximum error limit, an email alert is automatically generated so that the problem can be addressed immediately.

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Domain Time II Specifications

System Requirements						
Operating System	32-bit	64-bit	Client	Server	Manager	Audit Server
Windows XP, 2003 (and R2), Vista, 2008 (and R2), Win7, Win8.x, 2012 (&Rw), Win10.	√	√	√	√	√	√
Warranty						
One year of updates/downloads included in price.						
Documentation						
All documentation is online at http://dtdocs.ntp-systems.com/						

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