

NetClock Version 4.8.9 Release Notes

Release Notes for NetClock 9400 Series system software updates up to and including Version 4.8.9

Spectracom releases software updates for **NetClock 9400 Series** on a regular basis, in order to improve features, enhance existing functionality, apply security updates and software fixes.

This document captures legacy release notes for all 4.x NetClock software updates. Newer updates are captured in a separate document, please refer to: [Links to download NetClock software and user manual updates](#).

Table of Contents

New features:	2
Software enhancements:	7
Determining the version of software currently installed.....	16
Links to download NetClock software and user manual updates	17
Spectracom Tech Support	18

New features:

(Version 4.8.9)

System features

- **Extended the SNMPv3 “EngineID” field to support more than 32 characters.**
 - “EngineID” field now supports up to 50 characters.
- **The *servget* and *servset* CLI interface commands now include SNMP and NTP in the list of Services that can be stopped/started (or the current running status viewed) using these two CLI commands.**

(Version 4.8.8)

Option features

(Option 12: PTP Input/Output Option, if installed):

- Added PTP Unicast mode.
- Added PTP Multicast mode (Combination of both Unicast and Multicast modes).

(Option 13: T1/E1 Output Option, if installed):

- Added SSM (Sync Status Messaging) functionality.

System features

- **Added New CLI (Command Line Interface) commands:**
 - Added two new CLI commands to support the ability to perform remote/scripted configuration file backups (includes the ‘**saveconf**’ command to save configs to a tar file inside NetClock and the ‘**loadconf**’ command to load configs from a tar file inside NetClock).
 - Added the ‘**sysupgrade**’ CLI command to support the ability to perform remote/scripted software updates, if desired.
- **Added three new graphs to the Status -> Disciplining page of the web browser:**
 - Frequency Error, Phase Error and DAC values graphs were added to display the monitoring of the internal 10 MHz oscillator operation.

(Version 4.8.7)

System features

- **Added alarm masking capability in the Tools -> Notifications page of the web browser to allow users to be able to disable unwanted alarm indications.**

Note: The Log files will still indicate the alarm condition has been asserted but the corresponding Alarm/Fault lamp indications won't be asserted.

- Examples of alarm indications that can now be masked include:
 - Antenna Problems Alarms (if the GPS antenna is not connected, for example).

- Frequency Alarms (if the NTP server is synced only to other NTP servers, user hand-set time, etc and therefore the oscillator is not being disciplined. This operation results in the Frequency alarm being asserted).
- **Increased the number of ssh, ftp, scp/sftp, logins and http/https connections from 5 to 15.**
 - This change allows 15 logins per minute for each Ethernet connection type.
- **Added capability to enable rotation of the LCD content display through all available content screens.**
 - Rotation duration is configurable from 1 - 30 seconds.
- **Added new “ppsctrl” CLI interface command.**
 - This new command provides the ability to enable/disable the 1PPS outputs in the system using a telnet/ssh connection, in lieu of using the web browser.
- **Added a report of the selected PPS reference to the CLI ‘status’ command message, when the NetClock is synced to another NTP server on the network.**
- **Added commented set options to email configuration file to show how to send the username in a notification email as something other than "root@", followed by domain name.**
 - Capability to edit this email alert value previously existed in all earlier versions of software. But, the example email config file did not provide information on changing this value.
- **Added ability to restore the factory default configuration during a software update.**

(Version 4.8.6)

- **Added a feature to allow the system PPS to restart tracking of the 1PPS input reference.**
 - (Setup -> Disciplining page of the web browser) This new feature can be used to allow rapid alignment of the system 1PPS with an input 1PPS reference, which is useful in cases where either the system 1PPS has drifted far from the reference (because the reference has been lost for an extended period of time and is then restored) or if the reference 1PPS has changed by a large offset. Otherwise, the System PPS is very slowly slewed into alignment with the 1PPS reference.
- **Added a feature to allow the user to set an offset of +0 seconds when configuring a leap second.**
 - Selecting “+0” will clear the previously configured leap second.
- **Added a new CLI command called ‘syncstate’ which will return the synchronization status of the system.**
 - Returns the value of “Sync”, “Holdover” or “Free Run”.
- **Added NetClock Model 9400 series products to the Spectracom Global MIB file.**
- **Added a feature to allow the user to disable the NetClock’s position information from being displayed on the front panel LCD (Setup -> Front panel page).**
- **Updated the Spectracom organization and address information in the Global MIB file.**
- **Added a feature to display the system hostname and Spectracom logo icon on the web browser window tabs.**
- **Re-ordered the log tabs on the Tools -> Logs page of the web browser.**

- **Added a feature to allow enable/disable and prefer of the Local reference clock driver for NTP from the Web UI (Network → NTP Setup page, “NTP Servers” tab).**
 - When disabled, this can help prevent NTP from switching back and forth from Stratum 16 to a higher Stratum (such as Stratum 1 or 2), when NTP is syncing to a marginal input reference (such as one with high jitter, for instance).
- **Combined the “Time Scale” and “Local Clock” selection fields on the web browser configuration page for the front panel display (Setup → Front panel page).**
- **Added a new Oscillator Disciplining Status page to the web browser (Status → Disciplining page).**
 - Reports phase errors, TFOM and MaxTFOM values, etc.
 - Adds new indications for when the following conditions last occurred, since power-up:
 - The TFOM value last changed (Defaults to “1 JAN 2000 00:00:01” if the NetClock hasn’t synced yet)

Note: The following default to “None” if the NetClock hasn’t synced yet)

 - Input References last changed
 - NetClock declared either Sync or loss of Sync status
 - NetClock went into or out of Holdover mode

(Version 4.8.5)

- **Network/ General Setup page of the browser, “General” tab, now displays the hostname assigned to the NetClock.**
- **Increased the maximum number of remote Syslog servers from 5 to 8.**

(Version 4.8.4)

- **Users can now save and re-save (overwrite existing) the configuration archive file via the web browser.**
 - Performing a “Restore configuration” will delete the configuration archive file.
- **Added fields in the Status / NTP page of the browser to display the NTP Leap Indicator (LI) Bits for each configured NTP server, NTP peer, and reference clock drivers.**
 - The NTP LI bits indicate the sync state of the NTP reference and if a leap second is scheduled to occur.
- **Added a mechanism to automatically restart NTP when it has only one available reference and if that reference changes its time by more than 10 minutes.**
 - **Example:** User/User is the only valid input reference and if a user manually changes the time by more than 10 minutes, NTP will be restarted. Otherwise, NTP would stop using the reference.

(Version 4.8.2)

- Added software support for four new Option Cards (Models 1204-21, 1204-26, 1204-28 and 1204-29).
- Added feature to support separate on-time point pulse widths from standard pulse widths for generated square wave outputs.
- Oscillator disciplining enhancement that provides a growing time constant to provide better phase noise. This results in fewer adjustments to the oscillator control DAC.
- MAC address is now only displayed on the Web UI for users with admin rights.
- Implemented new front panel “Power” LED indications:
 - GREEN w/ ORANGE BLINKING: Power fault; Power inputs don’t match configuration
 - ORANGE SOLID – DC ONLY – DC only power detected; AC & DC supported
 - ORANGE SOLID – AC ONLY – AC only power detected; AC & DC supported
 - GREEN SOLID: All configured power is present
- Added additional password security options, configurable from the Web UI.
 - Added configurable password complexity requirements.
- Added a feature which allows arp/ping to be used to set a temporary IP address (for cases where the IP address of the unit is unknown).
- Added a new read-only object to the SNMP MIB to allow getting the system time and date.
 - New versions of the SNMP MIB files are available to support this new capability.

(Version 4.8.0)

- Added “out-bound” network tools to the command line interface for troubleshooting network issues associated with the NetClock’s network.
 - Added the following network troubleshooting tool commands: ifconfig, arp, rarp, route, netstat, domainname, dig, host, nslookup and traceroute
- Added SNMP trap and/or Email alerts upon each NetClock reboot (when enabled).
 - The new reboot trap/email alert requires new MIB files to be compiled in the SNMP Manager (the new MIB files can either FTP/SCP transferred out of the NetClock’s home/spectracom/mibs directory or emailed from Spectracom Tech Support.

(Version 4.7.0)

- Faster GPS synchronization after reboots/power cycles.
 - When using GPS as a NetClock input reference, the time it takes for GPS to re-synchronize after any subsequent reboots or power cycles that may occur is now significantly reduced. In previous versions of software NetClock could take anywhere up to about 13 minutes to resynchronize with GPS. This delay was needed in order to read the UT1 time correction provided in the GPS ephemeris data message (which is broadcasted by the GPS satellites every 12.5 minutes), prior to being able to achieve GPS sync.

Starting with version 4.7.0 software, after the GPS receiver has initially obtained the UT1 correction value from the GPS satellites and upon each power-up thereafter, NetClock will now assume this correction value is unchanged since it was last powered down. So GPS sync will now occur shortly after the GPS receiver is tracking at least four satellites, instead of having to wait for the GPS receiver to read this specific data from GPS.

This change results in GPS sync typically occurring within about 2 to 3 minutes after each boot-up. In the highly unlikely chance that a UTC leap second has been asserted since NetClock was last shut-down, a one second time correction will occur after initial time sync to GPS has been achieved. (This new UT1 correction value would then be used for all subsequent reboots).

- **Released new “Event Capture with Broadcast” Option Card (Model 1204-23)**
- **Added new “Save Log Files” field to the “Tools”/ “Upgrade/Backup” page of the web browser and a “savelog” command to the list of available commands for the front panel SERIAL port.**
 - The “Save Log Files” field or the “savelog” command issued via the front panel can create a bundled file of all of the NetClock’s log entries. Once this bundled file (named “netclock.log”) has been created and placed in the “home/spectracom/xfer/log/” directory, this file can then be manually transferred out of NetClock using FTP or SCP, in order to extract all log files with a single file for archiving purposes, or if is necessary to send the logs to Spectracom Tech Support for review.
- **Added “stateset” to the list of available commands for the front panel SERIAL port.**
 - The “stateset” command can be used to perform either of the following from the front panel:
 - 1) Read the configured entries in the Input Reference Priority table.
 - 2) Enable/disable (or change the priority of) each of the individual entries in the Input Reference Priority table.
- **Added “clean” to the list of available commands for the front panel SERIAL port.**
 - The “clean” command resets the NetClock back to factory default configurations and deletes log files (“Clean” does not reset the GPS receiver or the stored GPS position information).

Software enhancements:

(Version 4.8.9)

Option enhancements

(Option 16: Multi-port Ethernet module, if installed):

- Upgraded the network processor driver to a newer version to help prevent potential of network packets being dropped. Also disabled network flow control.

(Option 04: Rubidium Oscillator, if installed)

- Fixed an issue that could cause a TFOM value of “1” to be reported at system boot-up.
- Option 04: Rubidium Oscillator, when installed: Shortened Rubidium oscillator sync time after each subsequent boot-up.
 - After a sync threshold of 3.5 hours, the currently calculated frequency error correction is saved when entering holdover, in addition to the 24 hour save.

System enhancements

- Network Access table is now properly backed-up and restored when using either the Save Configuration” or “Restore Configuration” processes (Tools -> Upgrade/Backup page of the browser, “Configuration” tab).
- IPv6 main default gateway can now be configured.
- SSH Rate limiting fix
 - Resolved an issue of login counts not being cleared.
- Resolved an issue with the User Defined Minor and Major GPS Threshold alarms counters.
 - The elapsed count-down timers weren’t resetting if the GPS receiver started tracking greater than the number of specified satellites again, before the counter expired.
- Text of “ss.tar” was erroneously being displayed while performing a software upgrade using the web browser.
- The Services controller daemon is now restarted whenever a network service is enabled or disabled.
- Resolved an issue with the “Version” field in the Network -> SNMP Setup page of the web browser (“Notifications” tab) displaying a “null” when “V3” is selected.
- Fixed an issue when using ASCII input and external 1PPS input as the selected Input References.
 - Resolved an issue where external 1PPS input validity could be affected if a user was to detach the 1PPS input cable or switches the Data Format in the ASCII time code generator.
- Fixed minor issues with 5040 and 5101 ASCII Output messages
 - Fixed a defect in which TFOM would display incorrect values, 5101 messages would be output when TFOM > 7 and NavConv was NEVER being cleared. Now if NetClock exits sync, NavConv is 1 and if not in Sync or Holdover, NavConv is 0. 5101 messages are now only outputted when TFOM <=7 and message is enabled or connected. Also, TFOM is set to 9 if NetClock is not in sync and is the actual value when the NetClock is in sync.

(Version 4.8.8)

Option enhancements

(Option 12: PTP Input/Output Option, if installed):

- PTP configuration changes are now being recorded in the Journal log.
- “Sync-E” was removed from the web browser.

Security related software changes incorporated

- **Updated Apache web server to version 2.2.23 to mitigate potential vulnerabilities:**
 - (CVE-2012-0053) “Apache httpOnly Cookie Disclosure”
 - (CVE-2012-0031) “Apache denial of service”
 - (CVE-2011-3607) “Apache Integer overflow in the ap_pregsub function in server/util.c”
 - (CVE-2011-3192) “httpd Range header remote DoS”
 - (CVE-2000-0868) “Apache CGI Source Code Viewing Vulnerability”
- **Changed factory default RSA Private key Bit length to 2048 and added support for SSH Elliptic Curve DSA (ECDSA) keys of 512, 384, 521 bits.**
- **Added ‘autocomplete=off’ to password input line on login page to mitigate potential security vulnerability “Web Server Allows Password Auto-Completion (PCI-DSS variant)”**

System enhancements

- **Syslog log messages now report the current hostname, rather than a hard-coded hostname of “Spectracom”.**

(Version 4.8.7)

Option enhancements

(Option 04: Rubidium Oscillator, if installed)

- **Corrected display of “DAC Get Errors” being exhibited in the Status -> Disciplining page of the web browser.**

System enhancements

- **Resolved an issue with the GPS receiver restarting its GPS survey after each power-up, if the GPS Mode configuration has been repeatedly toggled between available modes (From Standard mode to Continuous/Mobile mode, and then back to Standard mode again, for instance).**
 - Normally, the 34 minute GPS Survey is only performed once, after the first power-up at a new location.
 - The GPS receiver restarting its GPS survey after each power-up was delaying the time required to attain initial time synchronization to GPS after each power-up.

- **When creating a new Local Clock (Setup -> Local Clock page of the web browser), corrected a defect forbidding the use of Local Clock names which are super-sets of other local clock names that already exist.**
 - An example of this includes not being able to create a new Local Clock with the name of “UTC-5”, because a factory default system Local Clock name of “UTC” already exists.
- **The Software Update process was made to be more robust and continues, even if individually installed Option updates happen to fail.**
 - Update process logging is improved to include recording when the software update process begins.
 - Adds more details concerning any update problems which may have occurred during the update process.
- **New Log entries can now be written after log files have been cleared.**
 - A System Reboot is no longer required to be performed after deleting log files.
- **RS-232 Serial and RS-485 Remote outputs:**
 - **Removed support for Spectracom Format 4 as an input reference selection for synchronization.**
 - **Fixed a case where the Timing System would lock up, requiring a reboot, if switching from a selected format to the “NONE” drop-down, when using the ASCII output.**
 - **ASCII RS-232 Option Card now aligns the PPS input signal to the rising edge, rather than the falling edge.**
- **IRIG output: The IEEE 1344 Extensions, when configured to be included in the IRIG output data stream’s “Control Functions” (CF) fields, now only provide Local time (DST and Time Zone Offset) information if a Local Clock name has been selected as the output timescale.**
- **Fixed a very minor reporting issue when performing a ‘status’ CLI command with NTP disabled, which caused the top of the response to indicate "error: heading".**

(Version 4.8.6)

Option enhancements

(Option 16: Multi-port Ethernet, if installed)

- **Fixed a defect that can cause dropped network packets.**
 - Could result in loss of ping, HTTP/HTTPS, NTP, SNMP, etc.
 - Applies only to the three network ports on this Option module (Does not apply to the base Ethernet port “Eth0” installed on all NetClocks).

System enhancements

- **Alarm output relays: Fixed a minor issue that caused relay configuration information to persist if the relay module had been removed.**
- **Fixed a defect that caused changes to the syslog configuration to not be recorded in the Journal log.**

- Improved the descriptive text of several of the Web browser pages.
- Fixed a defect that could cause the quick phase alignment of the system 1PPS to the reference to continue for an indefinite period of time (now limited to 60 seconds).
- Fixed a defect that caused the System Time to be offset by approximately 500ms after a power cycle.
- Fixed a defect that caused the domain name entry on the network interface configuration page to persist after being deleted.
- Fixed a defect that caused the configuration archive file to be deleted following a configuration restoration.
- Fixed a defect that prevented the names of Local Clocks from using non-alpha-numeric characters.
 - The local clock names must now consist of a single word made up of the following characters: A-Z, a-z, 0-9, +, -, and _. A space character will be replaced with an underscore.
- Fixed a defect that caused reload of Web UI pages to default to the first tab on the page instead of the previously selected tab on the page.
- Fixed a defect that caused the previous HTTPS certificate request to be displayed when creating a new HTTPS certificate request.

(Version 4.8.5)

No software enhancements were incorporated in this software version.

(Version 4.8.4)

Software changes incorporated for potential security vulnerabilities

- Fixed a defect that was preventing a fix added in version 4.8.2 software against a potential security vulnerability (“CVE-2011-3389 Protocol Weak CBC Mode”) from being applied during a software update.

Other software enhancements

- Users can now save and re-save (overwrite the existing) configuration archive file via the web browser.
 - Performing a “Restore configuration” will delete the configuration archive file.
- Fixed defects affecting the processing of leap second insertion when using a System “Time Scale” selection of either GPS or TAI time scale (as configured in the Setup/Time Management page of the browser).
- Moved the oscillator DAC messages from the “Timing” log to the “Oscillator” log. Also removed redundant frequency error log messages from the “Timing” log (which were also present in the “Oscillator” log, as well).

- **Added a display of the selected “Local Clock” name to the Status/Outputs/IRIG as well as the Status/ Inputs/IRIG web browser pages.**
 - If no local clock is selected for IRIG Input/Output, the “Local Clock” field will display “NONE”, instead.
- **Lengthened the “Time Scale” data fields in the ASCII (RS-232 and RS-485) and NENA Option Card’s Status/inputs configurations, in order to show the entire name of the selection.**
- **Fixed a typographical error on a note that is displayed in the “Security” tab of the Tools/Users page of the browser.**

(Version 4.8.2)

Software changes incorporated for potential security vulnerabilities

- **Applied changes to the ssl.conf configuration file to mitigate CVE-2011-3389 (SSLv3.0/TLSv1.0 Protocol Weak CBC Mode).**

Other software enhancements

- **Added protection against an NTP input reference from scheduling a Leap Second pending too early.**
 - A Leap second pending that is detected by NTP input earlier than one month before a leap second is to be asserted aren’t scheduled until no earlier than the first day of either the next June or the next December, to prevent System Time from asserting the Leap Second too early.
- **Fixed a minor defect causing “Not Supported” to be displayed when resetting the admin password from the front panel keypad.**
- **Fixed a defect causing the unit to add an entry to the Journal log that the battery-backed time sync is changed/enabled, every time the Setup / Time Management page of the browser is submitted by a user.**
- **Fixed a defect causing a DHCP lease to be used instead of a user-configured static IP address.**
- **Fixed a defect causing the DNS servers and host name values to not be retained after submitting a change to them from the web browser.**
- **Fixed a defect that was causing units with a commercial GPS receiver installed to potentially enter holdover for 130 seconds after a GPS Week rollover.**
- **Fixed an issue that prevented creation of a local system clock with a name that is a sub-string of another name for a local system clock.**
- **Fixed a defect that caused single-satellite mode to fail in some NetClocks with a commercial GPS receiver installed.**
- **Fixed a defect that was preventing the clearing of GPS settings, Reference Priority Table, and Local System Clocks back to the factory default state, after a clean operation was performed.**
- **Status/Power page of the browser now only displays the AC and/or DC input power configuration(s) which is actually installed.**
 - For example, if the NTP server is configured for AC input only, DC input power status is no longer displayed on this page of the browser.

(Version 4.8.2, continued)**Software changes incorporated for potential security vulnerabilities**

- Applied changes to the `ssl.conf` configuration file to mitigate CVE-2011-3389 (SSLv3.0/TLSv1.0 Protocol Weak CBC Mode).

Other software enhancements

- Added protection against an NTP input reference from scheduling a "Leap Second pending" too early.
 - A Leap second pending that is detected by NTP input earlier than one month before a leap second is to be asserted aren't scheduled until no earlier than the first day of either the following June or following December, to prevent System Time from asserting the Leap Second too early.
- Fixed a minor defect causing "Not Supported" to be displayed when resetting the admin password from the front panel keypad.
- Fixed a defect causing the unit to add an entry to the Journal log that the battery-backed time sync is changed/enabled, every time the Setup / Time Management page of the browser is submitted by a user.
- Fixed a defect causing a DHCP lease to be used instead of a user-configured static IP address.
- Fixed a defect causing the DNS servers and host name values to not be retained after submitting a change to them from the web browser.
- Fixed a defect that was causing units with a commercial GPS receiver installed to potentially enter holdover for 130 seconds after a GPS Week rollover.
- Fixed an issue that prevented creation of a local system clock with a name that is a sub-string of another name for a local system clock.
- Fixed a defect that caused single-satellite mode to fail.
- Fixed a defect that was preventing the clearing of GPS settings, Reference Priority Table, and Local System Clocks back to the factory default state, after a clean operation was performed.
- Status/Power page of the browser now only displays the AC and/or DC input power configuration(s) which is actually installed.
 - For example, if the NTP server is configured for AC input only, DC input power status is no longer displayed on this page of the browser.

(Version 4.8.0)**Software package version updates for potential vulnerabilities**

- Apache web server software updated to version 2.2.21 to address potential security vulnerabilities in earlier versions.
- OpenSSL software updated to version 1.0.0e to address potential security vulnerabilities in earlier versions.
- OpenSSH software updated to version 5.9p1 to address potential security vulnerabilities in earlier versions.

(Version 4.8.0, continued)**Other software enhancements**

- **Fixed a defect in setting local clocks in ASCII, EBU, IRIG, Display, and HaveQuick components which resulted in a local clock being set on a different instance than the one selected.**
- **Fixed a minor issue that caused the Web browser to stop responding after configuring SNMP.**
 - If the “User/Community” field in the “Notifications” tab was left blank when the Submit button was pressed, the web browser was no longer accessible, until a “clean” command was performed).
- **Fixed a limitation that wouldn’t allow creation of new usernames that were a sub-string of another username that already existed.**
 - Examples include “admin” (a sub-string of the “spadmin” account) and “user” (a sub-string of “spuser” account).
- **Fixed a defect that didn’t allow the setting of IPv6 addresses in the web browser.**
- **Fixed a defect that caused the HTTPS certificate request to contain truncated fields (Network / HTTPS/SSH Setup page of the web browser, HTTPS tab).**
- **The “Clean” command now restores the GPS receiver to factory default mode.**
 - Mobile or Single Satellite modes are now returned to factory default Stationary mode upon a “clean” command being issued).
- **Fixed an issue where NTP wasn’t reporting stratum 16, while NTP was out of sync.**
- **Fixed an issue that caused the reported phase error to not degrade when all input references were removed on NetClocks that are equipped with Rubidium oscillators (Status / Time and Frequency page of the browser).**
- **A User is now logged out automatically, after clearing the unit’s configurations (as performed in the Tools / Upgrade /Backup page of the browser, Configuration tab).**
- **LDAP certificates are now preserved across software updates and also deleted when clearing the unit’s configuration (as performed in the Tools / Upgrade /Backup page of the browser, Configuration tab).**
- **Fixed a defect that didn’t allow leap second information from the timing system to be propagated by NTP.**
- **Removed Web browser configuration for notifications (SNMP traps and email alerts) that are not currently supported (Tools / Notifications page of the browser).**
- **Fixed a defect that did not allow backup/restore of the input reference priority table.**
- **Fixed a defect in the Web UI that caused the IRIG instance numbers in reference priority table to not be displayed.**
- **Fixed a defect that caused IRIG configuration setting to revert to other values after reboot.**
- **Fixed a defect that caused some Option Card update FPGA images to be written incompletely to the serial flash, resulting in an FPGA that would not program properly.**

(Version 4.7.0)

- **Fixed two issues associated with NetClocks that have a Rubidium oscillator installed, when entering the Holdover mode (not applicable to NetClocks with either an OCXO or TCXO oscillator installed).**
 - While in the Holdover mode (no valid input references currently being available), two potential conditions can occur:
 - 1) The NetClock's 1PPS output can become erratic/unstable.
 - 2) The NetClock's System Time can significantly drift off from the correct time, causing significant time errors to occur.
- **Resolved an issue where only one user can be logged into the NetClock web browser without causing another user to be automatically exited out of the web browser.**
- **NTP will now automatically restart if a System Time change greater than 1000 seconds occurs**
 - If "System Time" (which is synced by the NetClock's input references and is also the time reference that NTP syncs with) happens to be significantly changed (which may occur when either manually setting the System Time, or if the system switches from one selected input reference to another reference that is not aligned with the same time as the previously selected reference) and this time change is greater than 1000 seconds while NTP is running, the NTP sanity check will fail. This will cause NTP to automatically stop/restart itself in order to compensate for the necessary, large time correction. Otherwise, if the System Time happens to change by less than 1000 seconds, NTP will slowly slew itself to the new time (instead of restarting itself).
- **Fixed a minor web browser display issue associated with the "Prefer Timing System Reference" and the "Enable Timing System 1PPS Reference" check-boxes ("Network" / "NTP Setup" page of the browser, "NTP servers" tab)**
 - Though both of these fields are enabled by default, the check-boxes for these two fields were indicating they weren't selected (in the background, these functionalities were being enabled, but the two checkboxes were just indicating otherwise). However, if the Submit button was pressed again while in this state, the functionalities would then become disabled.
- **Changed the default DNS server configuration to having no DNS servers specified.**
 - Having one or both DNS server configured in the NetClock (but no DNS server actually exists on the network with those addresses) can result in delays while trying to establish telnet, ssh, and other network-based connections with the NetClock.

These connections will attempt to communicate with the "configured" DNS servers, but if they don't actually exist, the attempted connections will eventually just time-out. However, if no DNS servers are incorrectly configured, no attempt to contact the DNS servers will occur, alleviating any unnecessary delays when establishing these connections.
- **Added necessary additional spaces to the EndRun "ER" and "ERX" ASCII output formats**
- **IP address/prefix fields are now grayed-out on the web browser when DHCP is enabled.**
 - Prevents the ability to manual change network settings that have been configured by a DHCP server.
- **Having a local clock selected for the front panel LCD display will no longer affect the UTC time in the system.**

- System Time can now be manually entered using the time scale that it is configured to display (if the LCD displays local time, the time can be manually entered as local time, instead of needing to first convert local time to UTC in order to enter the time as UTC time).
- **Corrected an issue with displaying/changing the SNMP notification “Port #” in the “Network”/“SNMP Setup” page of the web browser (“Notifications” tab).**
- **The web browser login banner (if one has been created) Security certificates and public/private HTTPS keys are now preserved through a “clean” command.**
- **Fixed an issue that could periodically prevent the NTP statistics graphs from being displayed in the web browser.**

Determining the version of software currently installed

To determine the current software version of your NetClock:

A) Using the newer web browser interface (Software versions 5.1.0 and above)

Log in to the unit’s web browser user interface. At the top of the page, click on “Tools”. In this drop-down, click on “Upgrade/Backup”. The “System Configuration” table on this page will contain a field stating “System”. The number next to this is the current Archive software version. Refer to Figure 1.



Figure 1: Software revision reported in the “Tools” -> “Upgrade/Backup” Page

B) Using the “Classic Interface” (Software versions 5.0.2 and below)

Log in to the unit’s web browser user interface. At the top of the page, click on “Tools”. In this drop-down, click on “Versions”. The “System Version” table on this page will contain a field stating “Archive version”. The number next to this is the current Archive software version. Refer to Figure 2.

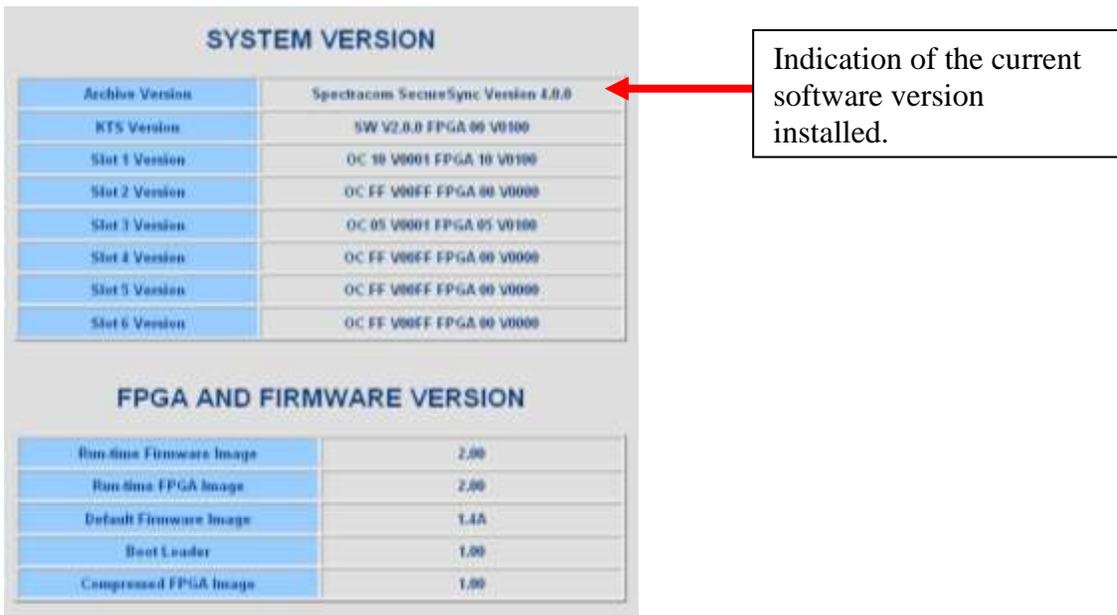


Figure 2: Archive software revision reported in the “Tools” -> “Versions” Page

Links to download NetClock software and user manual updates

Download NetClock software updates:

The NetClock software update can be downloaded from the Spectracom website. To obtain the NetClock software update file, please visit:

<http://www.spectracomcorp.com/Support/HowCanWeHelpYou/Software/tabid/61/Default.aspx#NetClock>.

Important Note: This software and equipment are governed by Unites States Export Control. In order to obtain the software upgrade, you must acknowledge that you understand this software cannot be exported to certain foreign nationals or countries. Please contact our Sales Administration Dept at US +1.585.321.5800 for any questions you may have regarding Export Control.

Note: The Model and Serial Number for the equipment are requested on the website form in order to obtain the NetClock upgrade file, but the file that is downloaded from this site is not specific to the entered Model and Serial Number (this data is for our records only). There is only one upgrade file available and this one file is applicable to all NetClock Model 9400 series. So, the download process only needs to be performed once in order to update all NetClocks that are desired to be updated.

NetClock user manual updates:

Manual updates reflecting the software changes have been uploaded to the Support page of Spectracom's website. Please refer to:

<http://www.spectracomcorp.com/Support/HowCanWeHelpYou/Library/tabid/59/Default.aspx?EntryId=869> to download the latest version of the NetClock Model 9400 series manual.

Hard copies of the new NetClock manual may also be purchased from the Spectracom Sales department at US +1.585.321.5800.

Spectracom Tech Support

Please contact one of the global Spectracom Technical Support centers for more information regarding any of these features or fixes:

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