

Sentinel

surround sound audio monitor

Release Notes

Version 1.34a
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Lake Oswego, Oregon



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1 Compatibility Requirements

Browser version requirements

The web user interface has been tested with current versions of Chrome, Firefox, Internet Explorer, and Safari. Browser performance is improving rapidly, and the responsiveness of the user interface benefits greatly. We strongly recommend using a current browser for the best experience in using the Sentinel.

Javascript, cookies, and Java must be enabled in the browser for the user interface to function correctly.

The Sentinel web user interface is not compatible with Internet Explorer 7 or 6, or with Safari on the iPad or iPhone. It will not work correctly with Internet Explorer 8 in compatibility mode (which effectively makes IE8 behave like IE7).

Java version requirements

The Sentinel uses a Java applet to save and view log data. The applet is used both within the web user interface and for scheduled downloading of log data, which operates independently of the user interface.

The applet requires Java SE Runtime Environment 6 or later to be installed and enabled in your web browser settings. JRE 7 is supplied only as a 64-bit runtime, and is not compatible with 32-bit browsers, such as Chrome.

Processor requirements

The Sentinel web user interface requires considerable processor resources for rendering the real-time display and for the JavaScript code that controls its behavior. Typical current-generation processors (at least dual core, 2 GHz clock rate, 2 Gb memory) comfortably meet these requirements. However, performance on slower earlier-generation processors lacks responsiveness.

Input module compatibility

Revision 2 SDI and AES digital input modules provide controls for selecting combinations of SDI, AES and Dolby audio sources that are

not supported by the revision 1 modules. Attempts to select these combinations on a revision 1 module will have no effect.

You can view the input module configuration of your Sentinel on the Configuration panel, located on the settings page of the web user interface.

2 Changes in This Release

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New Features

The 1.34a release of the Sentinel firmware is a maintenance revision to the 1.34 firmware. It corrects several problems but does not introduce new functionality. The new features listed below were introduced with the 1.34 firmware release.

VisiLog as-run report generation

VisiLog reports combine Sentinel measurement data with as-run schedule information. It provides a basic set of reports, and both content and format are highly configurable, allowing reports to be created for specific needs. VisiLog includes a flexible graphing capability for timeline displays of measurement data. It supports PDF, Excel, XML output formats.

As-run schedules incorporated into log repository

The Sentinel log repository can now keep a record of as-run schedule information along with measurement data. This schedule information is used by the new VisiLog reporting capability.

Measurement capture synchronized to real-time clock

Timing of measurements is now accurately aligned with the Sentinel's real-time clock, which in turn can be synchronized to UTC using the Network Time Protocol (NTP). This allows more accurate measurements where timing is important, as is required for integrated loudness measurements of a broadcast audio stream.

NTP synchronization now detects and adjusts for leap seconds as needed.

To help ensure accurate timing, the Sentinel now detects and reports errors in NTP synchronization, which can be used to trigger alarms.

When the Sentinel detects a synchronization error that indicates the NTP server is potentially providing an incorrect time value, it disables NTP synchronization to avoid corrupting logged measurement data with invalid times. If this occurs, you must reboot the Sentinel to clear the

error and re-establish NTP synchronization. To avoid losing log data, synchronize your log repository before rebooting.

New log data transfer protocol

The protocol used to transfer measurement data from the Sentinel to the log repository has been modified to allow the repository to be updated in near real time (1.4 second delay; previous delays were 1-2 minutes). This allows more accurate and reliable display of logged measurement data through the Sentinel UI, on the timeline and other displays.

Updated loudness standards

Added support EBU R128 loudness standards. The loudness measurements of EBU R128 are based on ITU BS.1770, but display labels use the EBU conventions in place of ITU conventions (LUFS in place of LKFS). Changed labelling of BS.1770-2 to BS.1772-2/3 to reflect compatibility for both versions of standard.

Revised SNMP MIB

Added new definitions to the Sentinel SNMP MIB for new error conditions: surround program downmix loudness differential, real-time clock synch with NTP server.

Corrections

Except where indicated as 1.34a, the corrections listed below were introduced in the 1.34 firmware release.

Changes to accomodate Java 7 Update 25 security requirements (1.34a)

Security changes introduced in Java Runtime Environment 7 Update 25 caused the Java log repository applet to fail to load correctly. The applet was reorganized and its parameter settings updated for compatibility with Update 25. Also, new naming conventions were adopted for the applet files to ensure use of the correct applet version.

Corrected source channel configuration for 8-Channel AES/SDI input module (1.34a)

When Dolby sources were assigned to surround program channels, SDI sources for ancillary program channels were disallowed. This combination is now processed correctly.

Improvements to as-run data loader plug-ins (1.34a)

The Sentinel uses customizable plug-ins for loading as-run data for use by VisiLog reports. Changes provide better handling of invalid data by the loaders, and more detailed reporting of results.

Corrections to CSV export

Corrected filename generated for CSV output. Corrected handling of time limits specified for CSV output when begin and end times were on different days.

Corrections to timeline and segment table display

Corrected several errors in the code that identifies the limits of real-time loudness measurement intervals. This affects the display of entries in the segment table on the Sentinel UI readings timeline panel.

Reworked the calculation of momentary, short-time and integrated loudness metrics for greater efficiency and reliability.

Corrected input module configuration

The Input Format & Source settings panel sometimes reported spurious input source configuration errors when the surround format was set to 2.0 or 6.1 format and input sources were changed. Settings from the previous configuration were not being cleared, causing errors in the configuration calculations.

Changes to accomodate Java 7 security requirements

Java Runtime Environment 7 introduced new security requirements for signed code. Parameter settings in the log repository applet were updated for compatibility with Java 7.

Corrections to SNMP alarm delivery

SNMP notifications for Sentinel alarms 2, 3 and 4 were not functional unless notifications for alarm 1 was enabled.

Known Issues

Log repository file format

Enhancements to the measurement capabilities of the Sentinel result in changes to the data reported by the Sentinel and recorded in the log repository. For some changes, new and old formats are incompatible – the newer user interface can no longer interpret the older log repository data correctly.

Such changes are indicated by a change to the file type (file name extension) of the daily log files in the repository. The current file type is *.qa4*. The user interface will not display earlier log files.

Incomplete help pages

The Sentinel help pages have not been fully updated to include new functionality. The Sentinel User Manual is the most current and complete source of information. A PDF version is available from the downloads page of the Qualis Audio web site (www.qualisaudio.com); contact us for printed copies.

Browser caching of readings packets

In certain cases where communications between the Sentinel and browser interface are lost, the browser supplies stale cached readings in response to readings requests. The effect is that the displays appear to be showing live data, even though no data is being received from

the Sentinel. (This is not a problem as long as communications are live.)
This will be corrected in a future release.

3 Installing the Firmware

The Sentinel is designed to allow firmware updates over the network from a web browser. The process is as follows.

Unzip the archive, verify its contents

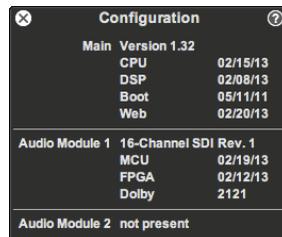
Updates are packaged as zip archives, containing documentation and the firmware images required to update the Sentinel. Use the unzip command or whatever command you normally use for unpacking zip archives.

There are seven separate field-upgradeable ROMs in the Sentinel 1.34a firmware update:

SentinelCPU_20130711.bin base
SentinelDSP_20130604.bin base
SentinelWeb_20130722.bin base
SentinelDINMCU_20130221.bin digital input module (8-channel AES or AES/SDI only)
SentinelFPGA_20130208.bin digital input module (8-channel AES or AES/SDI only)
SentinelSDI2MCU_20130219.bin digital input module (16-channel SDI only)
SentinelSDI2FPGA_20130212.bin digital input module (16-channel SDI only)

Images are identified by date. Make sure you have firmware images for all the ROMs you're planning to update.

You can check your Sentinel's installed firmware versions on the Configuration settings panel. This panel also flags firmware images with a different version than what is expected for the current firmware.



You can also check the version from your Sentinel's front panel. Dates in the firmware image filenames are in `yyyymmdd` format (year, month, day); this differs from the front panel firmware display, which is `mm/dd/yy` format (month, day, year).

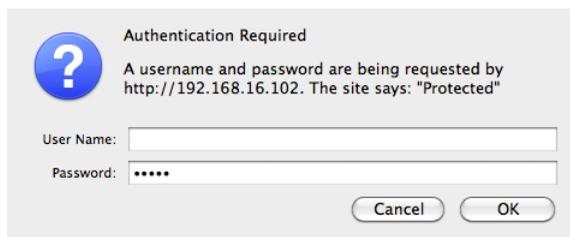
Load the Firmware Update page in your browser

Navigate to the Firmware Update page:

`http://address/fwupdate`

Replace the *address* with actual address of the Sentinel you're updating.

The Sentinel will display a pop-up menu that prompts you for a User Name and Password:



Leave the User Name blank; the default password is *audio*.

Once you are authenticated, the Sentinel will display the Firmware Update page.

Select the firmware image to update

Sentinel Firmware Update



Use the Browse... button to select the firmware image file, then press the Update button to upload the file to the Sentinel.

If you are updating the CPU firmware, update it first, before any other images.

The Sentinel will display a message indicating the Firmware Update is in progress. Wait for the Sentinel to update the ROM and restart.

When the update completes, the Sentinel will restart and the Sentinel Firmware Update page will again appear.

If you are updating digital input module firmware (DINMCU or FPGA) and your Sentinel contains two digital input modules, the update will be applied to the first module, the Sentinel will restart, and the update will automatically be applied to the second module.

If you are updating multiple firmware images, select and update the next image. Normally, you will repeat the update process for each image file provided in the zip archive.

If the update fails due to a corrupted firmware image, the Sentinel will display a Firmware Update File Invalid message. If you see this message, you'll need to get a new copy of the image file.

Restart your browser and clear its cache

If you've updated the SentinelWeb firmware, you'll need to quit and restart your browser, and clear the browser's cache when you restart it. Otherwise, the browser will use stale copies of the Sentinel web pages from its cache – the resulting errors can be quite confusing.

For Firefox, go to the Tools menu, select Clear Recent History, and make sure the Time range to clear is set to Everything and Cache is checked.

Other browsers have similar options. For Chrome, use the Clear Browsing Data... in the Tools menu. For Internet Explorer, use the Delete Browsing History... in the Tools menu. For older versions of Safari, use Empty Cache... in the Safari menu; for newer versions, you must first enable the Develop menu from the Safari > Preferences advanced tab, then select Empty Caches in the Develop menu.

Check your firmware versions

Once you've updated all the firmware images on your Sentinel, you can check your work using the Configuration settings panel. It should

display version numbers corresponding to the updated firmware, and there should be no warning flags indicating incorrect firmware versions.

