



Transport Stream Compliance Monitor

Product Manual



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Dolby[®] is a registered trademark of Dolby Laboratories, Inc. Other product names or trademarks appearing in this manual are the property of their respective owners.

Congratulations on choosing the Cobalt[®] SpotCheck[®] Transport Stream Compliance Monitor. SpotCheck[®] is part of a full line of modular processing and conversion gear for broadcast TV environments. The Cobalt Digital Inc. line includes video decoders and encoders, audio embedders and de-embedders, distribution amplifiers, format converters, remote control systems and much more. Should you have questions pertaining to the installation or operation this product, please contact us at the contact information on the front cover.

Manual No.:	SPOTCHECK-OM
Document Version:	V1.9
Release Date:	December 21, 2016
Applicable for firmware version: (or greater)	2.1.38
Description of product/manual changes:	<ul style="list-style-type: none">- Update manual to introduce Cobalt Support Level Agreement (SLA) licensing.- Provide coverage of new database backup and restore utilities.- Provide coverage of minor functional changes.- Corrections to minor errata.

Important Safety Instructions

Read these instructions.

Keep these instructions.

Heed all warnings.

Follow all instructions.



Warning

Do not use this apparatus near water.

Clean only with a dry cloth.



Warning

Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

Do not defeat the safety purpose of polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.



Warning

Only use attachments/accessories specified by the manufacturer and in this manual.

Unplug this apparatus during lightning storms or when unused for long periods of time.



Warning

Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



Warning

This apparatus shall not be exposed to dripping or splashing. Do not place objects such as water containers on the apparatus.



Warning

The AC mains power receptacle on the rear of the apparatus shall only be connected by means of the power cord supplied with this apparatus. No other devices or cables shall be connected to this connector. If the supplied AC power cord is damaged or lost, it shall only be replaced using the AC power cord specified in this manual or by the manufacturer.

To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.



Warning

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.

To reduce the risk of fire, replacement fuses shall be the same type and rating as installed and as specified on the rear label adjacent to the power receptacle fuse holder.

EMC Notices

US FCC Part 15

This equipment has been tested and found to comply with the limits for a class A Digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case users will be required to correct the interference at their own expense.



Changes or modifications to this equipment not expressly approved by Cobalt Digital Inc. could void the user's authority to operate this equipment.

CANADA

This Class "A" digital apparatus complies with Canadian ICES-003.

EUROPE

This equipment is in compliance with the essential requirements and other relevant provisions of CE Directive 93/68/EEC.

INTERNATIONAL

This equipment has been tested to CISPR 22:1997 along with amendments A1:2000 and A2:2002 and found to comply with the limits for a Class A Digital device.

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Introduction

Overview

This manual provides installation and operating instructions for SpotCheck[®] Transport Stream Compliance Monitor models (also referred to herein as “SpotCheck” unless otherwise stated).

This manual consists of the following chapters:

- **Chapter 1, “Introduction”** – Provides information about this manual and what is covered. Also provides general information regarding SpotCheck[®].
- **Chapter 2, “Installation”** – Provides instructions for installing SpotCheck[®].
- **Chapter 3, “Setup/Operating Instructions”** – Provides instructions for configuring and using SpotCheck[®].

This chapter contains the following information:

- **Manual Conventions (p. 1-3)**
- **Safety Summary (p. 1-3)**
- **SpotCheck[®] Functional Description (p. 1-4)**
- **SpotCheck[®] Licensing and Configurations (p. 1-10)**
- **Loudness Records Pursuant to the CALM Act (p. 1-12)**
- **Technical Specifications (p. 1-13)**
- **Warranty and Service Information (p. 1-14)**
- **Contact Cobalt Digital Inc. (p. 1-15)**

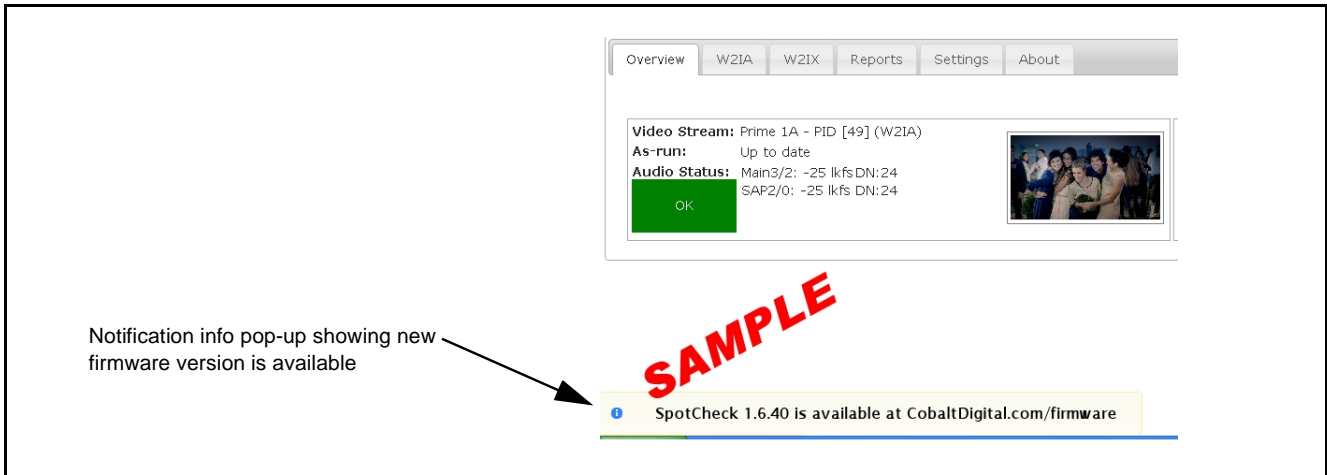
SpotCheck® Firmware Versions and this Manual

When applicable, Cobalt Digital Inc. provides for continual product enhancements through firmware updates. **Full functionality/features, correction of any known issues, and latest support for as-run file types require the latest firmware version be present on your SpotCheck unit.**

The Firmware Version of SpotCheck® can be checked by clicking the SpotCheck **About** tab. See Checking and Updating SpotCheck® Firmware (p. 3-48) in Chapter 3, “Operating Instructions” for more information. You can then check our website for the latest SpotCheck firmware version as described below. Check our website and proceed as follows if your SpotCheck does not match the latest version:

<p>Firmware version earlier than latest version</p>	<p>SpotCheck is not loaded with the latest firmware. Not all functions and/or specified performance described in this manual may be available.</p> <p>You can update SpotCheck with the new Update firmware by going to the Support>Firmware Downloads link at www.cobaltdigital.com.</p> <p>Firmware updates are field-installed without any need to physically disconnect or disrupt the SpotCheck unit. Disruption during firmware upload is typically less than a few seconds.</p>
<p>Firmware version newer than version in manual</p>	<p>A new manual is expediently released whenever firmware is updated and specifications and/or functionality have changed as compared to an earlier version (a new manual is not necessarily released if specifications and/or functionality have not changed). A manual earlier than the latest firmware version may not completely or accurately describe all functions available when using the latest firmware. If your manual is out of date, contact Cobalt Support to receive a new manual download via e-mail.</p>

Starting with SpotCheck firmware version 1.6.39, SpotCheck provides an automatic notification (updated weekly) that is displayed on the Overview tab page when a release is available (as shown in the example below).



Manual Conventions

In this manual, connectors and controls are shown using the exact name shown on SpotCheck itself. In this manual, the terms below are applicable as follows:

- **SpotCheck** refers to the physical SpotCheck® Transport Stream Compliance Monitor or its function. (See Technical Specifications (p. 1-13) for SpotCheck configuration descriptions.)
- **System** and/or **Video System** refers to the mix of interconnected production and terminal equipment served by the equipment.
- Functions and/or features that are available only as an option are denoted in this manual like this:

Option ➔

Warnings, Cautions, and Notes

Certain items in this manual are highlighted by special messages. The definitions are provided below.

Warnings

Warning messages indicate a possible hazard which, if not avoided, could result in personal injury or death.




Cautions

Caution messages indicate a problem or incorrect practice which, if not avoided, could result in improper operation or damage to the product.

Notes

Notes provide supplemental information to the accompanying text. Notes typically precede the text to which they apply.

Labeling Symbol Definitions

	Important note regarding product usage. Failure to observe may result in unexpected or incorrect operation.
	Electronic device or assembly is susceptible to damage from an ESD event. Handle only using appropriate ESD prevention practices.
	Symbol (WEEE 2002/96/EC) For product disposal, ensure the following: <ul style="list-style-type: none"> • Do not dispose of this product as unsorted municipal waste. • Collect this product separately. • Use collection and return systems available to you.

Safety Summary

Warnings and Cautions

! WARNING !

NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

CAUTION

This device is intended for environmentally controlled use only in appropriate video terminal equipment operating environments.

SpotCheck® Functional Description

Note: Descriptions below apply equally for SpotCheck IP, ASI, or OTA versions unless otherwise noted.

(See Figure 1-1) SpotCheck® is a transport stream monitor that operates at the MPEG transport layer to perform loudness measurement on audio programs within the transport stream (with corresponding options, SpotCheck® can also provide transport quality assessments/alerts and compressed transport stream downloads; see SpotCheck® Options, p.1-8). This measurement function is performed without the need or complexity of external codecs transferring between baseband and MPEG interfaces. Because SpotCheck monitors an IP, ASI, or a transmitted over-the-air MPEG stream at the transmit (emission) encode point, SpotCheck measures and logs loudness for all programming emanating from the facility. SpotCheck extracts and decodes audio codec packets from the program stream and performs loudness measurement in conformance with ATSC A/85. SpotCheck is compatible with MPTS and SPTS streams. SpotCheck can provide records for any programming segment sent as emission. Any effect on loudness by dialnorm within the program stream is accounted for in all loudness measurements and system display of compliance or non-compliance.

A web interface using an internal web server provides the system GUI, in which a live loudness plot is displayed, as well as allowing easy data search by date/time range (and as-run data where provisioned). (Initial connection to SpotCheck is via a connection dialog to a static IP address. After this connection is established, all control/setup functions are via the SpotCheck web connection.) An e-mail system also provides for the sending of loudness reports to multiple personnel with selectable severity levels. As-Run Database incorporation allows the logged and displayed segment data to be directly correlated to as-run identification of the segment, greatly simplifying identifying a segment to its source. As-run list can be directly queried using on-air date/time, ID code, or other simple data typically contained in as-run list databases.

SpotCheck can be set to draw a loudness graph (plot) and develop records for ATSC -24 LKFS (CALM) monitoring. The graphing can be set to show the loudness plot as well as additionally loudness envelope, true peak indication, and dialnorm. Gated measurement is used in accordance with ITU BS.1770-3.

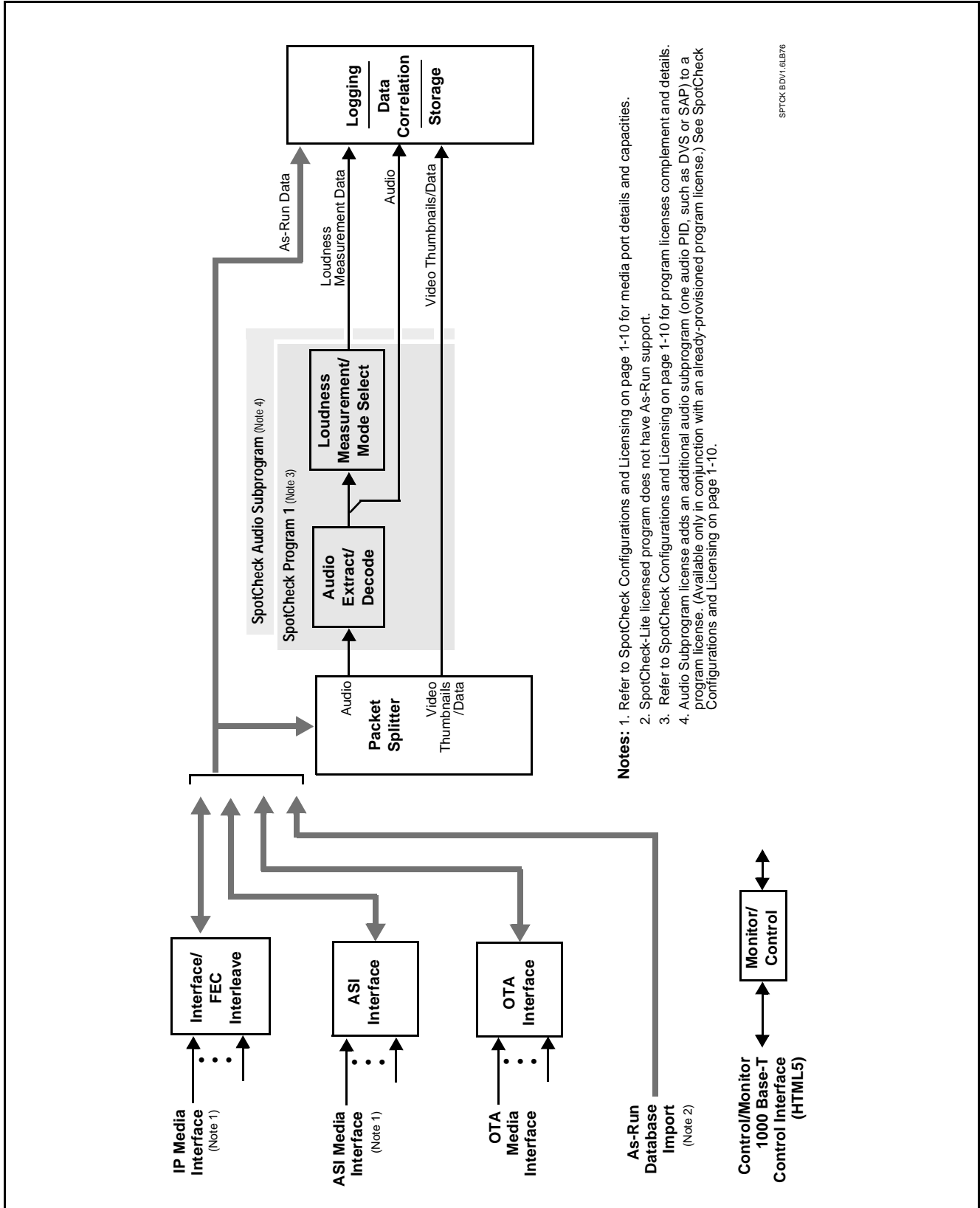


Figure 1-1 SpotCheck Functional Block Diagram


SpotCheck® Loudness Plot Overview

Figure 1-2 shows an overview of an example SpotCheck loudness plot. The plot shows average LKFS and directly identifies non-compliant spots/segments. Dialnorm, true peak, and other aspects related to loudness can be simultaneously displayed. Where as-run data is used, spots are directly correlated to their as-run ID. (Loudness under/over threshold is ± 2 LU relative to dialnorm.)



Figure 1-2 SpotCheck Loudness Plot Overview

(See Figure 1-3.) SpotCheck offers several visual theme settings providing optimized viewing conditions for various users and environments. Detailed usage and manipulation of loudness plots is described in Chapter 3. Setup/Operating Instructions.

Clicking the  (theme) button toggles SpotCheck through the display schemes described below. The currently invoked theme is displayed in the URL window.

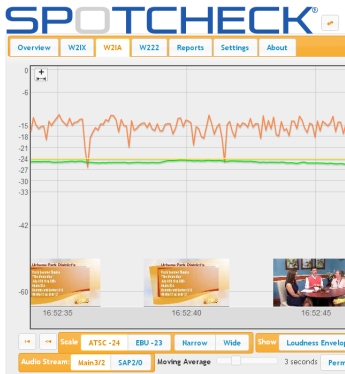
Default – the default theme is suited for most uses. This is the theme shown in this manual and for any references for plotting color descriptions.



Dark – the dark theme is suited for low-light environments.



Light – the light theme may be preferred in some environments and/or users.



Protanopia – this mode optimizes viewing to compensate for Protanopia ("red-green color blindness").



Tritanopia – this mode optimizes viewing to compensate for Tritanopia ("blue-yellow color blindness").



Figure 1-3 SpotCheck Display Themes

SpotCheck® Options

In addition to the base loudness measurement and records functions, SpotCheck® can be licensed with options to provide the added functions described below.

Quality Check **Option**

License option **+QUALITYCHECK** adds an on-screen display of presence of CEA708/608 closed-captioning, as well as the string content text. The search tool can be set to search for string text to take the user to the segment where this text appears.

The cursor-defined tool can place closed-captioning text in a display pane where it can be analyzed and copied to a text editor if desired.

+QUALITYCHECK also adds an Alert page which shows a real-time log of transport and program errors, such as frozen video, sync byte, RTP sequence errors, and several other transport errors. From this page, any of the error types logged can be forwarded to personnel via email.

In addition to functional transport stream errors, a Detector Settings dialog allows programming alerts to be issued for black/frozen frame errors and audio silence errors. Thresholds for error detection are user configurable. This option is available on a unit basis (one license (max.) adds **+QUALITYCHECK** to entire unit, with all transport streams accommodated).

Proxy Recorder/Download **Option**

License option **+AIRCHECK** adds a tool that can provide lo-res, small-size files of programming segments stored in SpotCheck®. Unlike uncompressed media files, these small files can typically be e-mailed or transferred via common e-mail platforms or across networks. This option is available on a program-by-program basis.

Note: To play lo-res files, the media player must be H264 compatible. Windows® XP and earlier versions have standard media players that typically do not have this capability. An alternate player app (such as VLC Media Player) can instead be downloaded and used for playing the compressed files.

Transport Options **Option**

Option **+OPT-ASI** adds an ASI transport interface to any SpotCheck model. Option **+OPT-OTA** adds an 8VSB/QAM tuner transport to any SpotCheck model.

Structure Overview of Media, Transport Streams and Programs

MPEG-encoded DTV programming is supported by SpotCheck which decodes and analyzes audio by extracting audio packets from the program stream. Figure 1-4 shows a basic overview of the DTV MPEG structure that carries the audio data analyzed by SpotCheck.

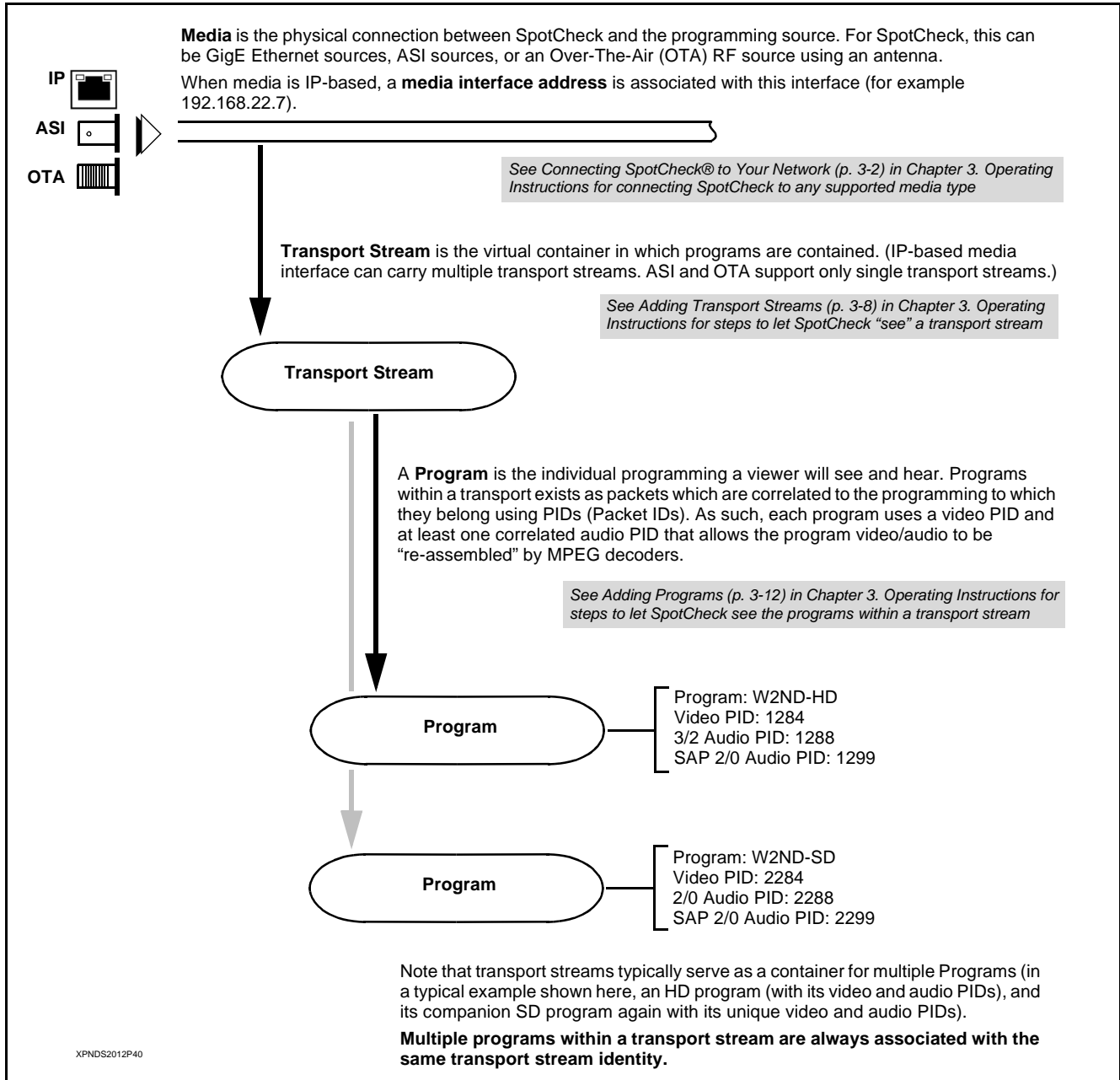


Figure 1-4 Overview of MPEG-Encoded Programming

Database Backup and Restore Functions

As an admin function, manual database backup and restore functions allow users to perform a backup and, if needed, a restore of the database. This allows the loudness data to be backed up or restored to an attached USB hard driver or to a windows share.

Two destination/source categories are available that the backup or restore can access. The first is a local drive to the Spotcheck server connected through the USB. This is called media. The second is access through the network using SMB (Windows Share) protocol.

SpotCheck® Licensing and Configurations

Table 1-1 lists the standard support offered by each base SpotCheck version.

Table 1-1 SpotCheck Model/Configuration Matrix

Model	Control/Media Interface	Program Licensing (standard)	Maximum Programs Supported	Analysis Storage Duration	Rack Size	Additional Features
SPOTCHECK-1000-IP	<ul style="list-style-type: none"> • 1 Control IP Port • 1 Media IP Port 	(1) license of SPOTCHECK-LICENSE-AUDIO-FULL	4 programs	12 months	1RU	
SPOTCHECK-1000-ASI	<ul style="list-style-type: none"> • 1 Control IP Port • 1 ASI Input Port 	(1) license of SPOTCHECK-LICENSE-AUDIO-FULL	4 programs	12 months	1RU	
SPOTCHECK-1000-OTA	<ul style="list-style-type: none"> • 1 Control IP Port • 1 RF Input for OTA reception 	(1) license of SPOTCHECK-LICENSE-AUDIO-FULL	4 programs	12 months	1RU	
SPOTCHECK-2000	<ul style="list-style-type: none"> • 1 Control IP Port • 5 Media IP Ports (ASI support available using option OPT-ASI; 1 ASI port max) 	(4) licenses of SPOTCHECK-LICENSE-AUDIO-FULL	16 programs	12 months	1RU	PSU redundancy. Dual power RAID hard drive configuration.
• LICENSE-QUALITYCHECK	Adds Compliance Monitor transport error detection and logging/alert option.					
• LICENSE-AIRCHECK	Adds a tool that can provide lo-res, small-size files of programming segments stored in SpotCheck® as an alternate to uncompressed transport stream capture/downloads.					
• OPT-ASI	Adds a 75Ω BNC ASI input and setup interface to any SpotCheck model					
<p>Note: Current and subsequent future firmware releases require a Cobalt Support Level Agreement (SLA) license to be uploaded to SpotCheck prior to uploading this firmware version (upload will be rejected if SLA license is not installed). SpotCheck® with version 1.x.x firmware cannot be directly upgraded using the normal field upgrade procedure. In order to upgrade to versions 2.0 and greater, a Service Level Agreement (SLA) is necessary. Contact sales@cobaltdigital.com for more information on securing an SLA. If you already have an SLA and would like to upgrade, contact support@cobaltdigital.com for details.</p>						

To allow flexibility in provisioning only the amount of programs that need to be monitored, all versions of SpotCheck use licensing to provision program capacity above the basic amount offered in the standard configuration. Figure 1-5 describes the standard and optional licensing available for all SpotCheck versions.

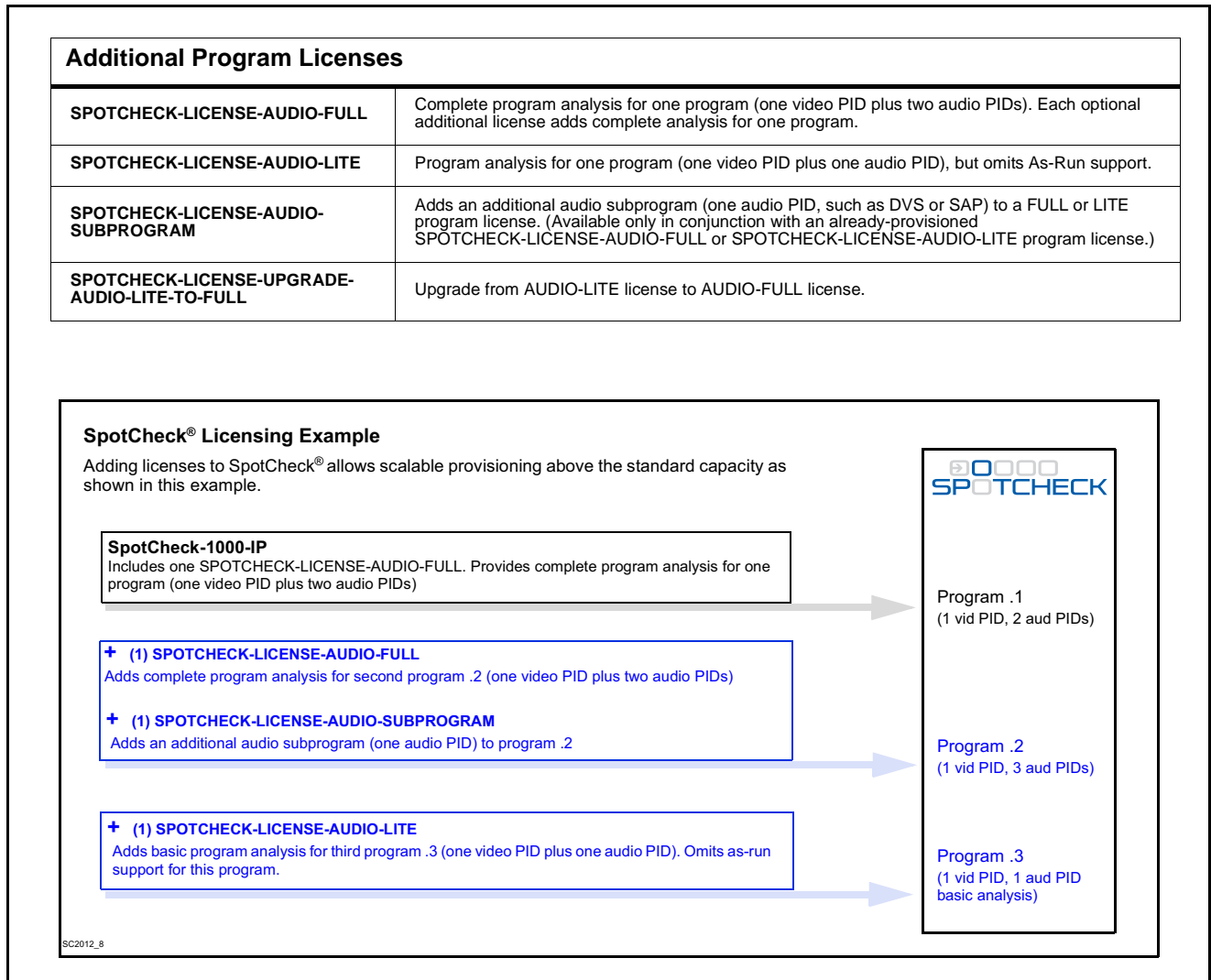


Figure 1-5 SpotCheck Standard Configurations, Additional Licenses, and Example

Loudness Records Pursuant to the CALM Act

Recently, the US Congress passed the CALM Act (47 USC; H.R. 1084/ §2847) to mandate loudness processing in accordance with ATSC A/85 as its Recommended Practice (RP), and additionally establishes practices for certifying compliance by the use of Spot Checking records to measure and record loudness in a consistent, scientifically objective method described in ATSC A/85 and ITU BS.1770.

Note that most of the technical basis cited in CALM specifically references ATSC A/85 for guidance and measurement standardization. **All digital TV broadcasters, digital cable operators, and MVPDs are required to be in compliance with CALM effective December 13, 2012.**

A television broadcast station that installs, utilizes, and maintains in a commercially reasonable manner the equipment and associated software to comply with ATSC A/85...a television broadcast station must...

- (i) **install, maintain and utilize equipment to properly measure the loudness of the content** and to ensure that the dialnorm metadata value correctly matches the loudness of the content when encoding the audio into AC-3 for transmitting the content to the consumer;
 - (ii) **provide records** showing the consistent and ongoing use of this equipment in the regular course of business and demonstrating that the equipment has undergone commercially reasonable periodic maintenance and testing to ensure its continued proper operation..."
- FCC 11-182, §73.682, "TV Transmission Standards"

A condition prescribes cases where records **may** not need to be maintained as specified in the "Safe Harbor" clause below.

Safe Harbor

"For the embedded commercials that stations and MVPDs pass through from programmers, we also establish a "safe harbor" to demonstrate compliance through certifications and periodic testing...we will establish a safe harbor for stations and MVPDs with respect to embedded commercials that does not require real-time processing.

MVPDs will be considered compliant with this requirement so long as the processes used for transmitting to subscribers the information contained in the transmissions of digital program networks correctly maintains the relative loudness of network commercials and long-form content consistent with the RP.

...a station or MVPD should be deemed in compliance for these inserted commercials when it uses the equipment in the ordinary course of business to properly measure the loudness of the content and to ensure that the dialnorm metadata value correctly matches the loudness of the content when encoding the audio into AC-3 for transmitting the content to the consumer."

FCC 11-182 "MB Docket No. 11-93 Report & Order"

Note: Disclaimer – All descriptions and statements herein are for informational purposes only. The CALM Act mandates, as it applies to a television media operation, various operational requirements that are a function of the type and size of the operation. The descriptions herein comprise basic explanations of terminology and methodology cited in the Act. The descriptions herein do not constitute, nor are implied to represent, a legal definition.

Technical Specifications

Table 1-2 lists the technical specifications for all SpotCheck models.

Table 1-2 Technical Specifications

Item	Description
Part number, nomenclature	Refer to Figure 1-5, SpotCheck® Configurations and Licensing for descriptions of SpotCheck models and additional program licenses
AC Line Input	120/240 VAC, 50/60 Hz SpotCheck-1000: 200 Watts (maximum) SpotCheck-2000: 350 Watts (maximum)
Environmental	Specified only for use in temperature and humidity controlled IT equipment rooms.
Physical	SpotCheck-1000: 1 RU; depth required: 24 in (61 cm) minimum SpotCheck-2000: 1 RU; depth required: 24 in (61 cm) minimum
Transport Interface SpotCheck-IP: SpotCheck-ASI: SpotCheck-OTA:	<ul style="list-style-type: none"> • GigE (1000 Base-T) via RJ-45 • ASI, 75Ω BNC input • RF female F-connector 75Ω input suitable for direct sourcing from antenna. Selectable modulation type and channel frequency. Refer to SpotCheck® Licensing and Configurations (p. 1-10) for port complement for various models.
Control/Monitor:	HTML5 web browser via dedicated 10/100/1000 Ethernet port
Loudness Measurement	ATSC A/85 using gated measurement in accordance with ITU BS.1770-3.)
Storage Capacity (per SpotCheck Unit)	Thumbnails, audio graph, as-run data. Refer to SpotCheck® Licensing and Configurations (p. 1-10) for storage capacity for various models.
Formats Supported Transport: Multicast: Audio Codecs: Video Codecs: As-run import:	MPEG over IP or ASI, UDP, RTP, SMPTE 2022, FEC wrappers Supports IPV4 multicast and IGMP multicast management Dolby® Digital (AC-3), Dolby® Digital Plus (E-AC-3), MP1L2 MPEG2 Imports as-run data from common automation systems
Data Plotting	Selectable plotting of moving-average LKFS, true peak, dialnorm. Loudness plot uses ATSC A/85 absolute LKFS.
Loudness Error Triggering Threshold	±2 LU relative to dialnorm in calibrated ATSC A/85 mode. Custom preset allows configurable error flagging thresholds.
Programming Quality Checking (Option +QUALITYCHECK)	<ul style="list-style-type: none"> • Transport error alert/logging • Frozen/black frame alert configurable for trigger at duration exceeding and percentage of difference/intensity • Audio silence alert configurable for trigger at duration exceeding and low-loudness trigger threshold (dBFS)

Warranty and Service Information

Cobalt Digital Inc. Limited Warranty

This product is warranted to be free from defects in material and workmanship for a period of three (3) years from the date of shipment to the original purchaser. This warranty coverage (extending to seven (7) years) can be purchased separately (see Optional Extended Limited Warranty below).

Cobalt Digital Inc.'s ("Cobalt") sole obligation under this warranty shall be limited to, at its option, (i) the repair or (ii) replacement of the product, and the determination of whether a defect is covered under this limited warranty shall be made at the sole discretion of Cobalt.

This limited warranty applies only to the original end-purchaser of the product, and is not assignable or transferrable therefrom. This warranty is limited to defects in material and workmanship, and shall not apply to acts of God, accidents, or negligence on behalf of the purchaser, and shall be voided upon the misuse, abuse, alteration, or modification of the product. Only Cobalt authorized factory representatives are authorized to make repairs to the product, and any unauthorized attempt to repair this product shall immediately void the warranty. Please contact Cobalt Technical Support for more information.

To facilitate the resolution of warranty related issues, Cobalt recommends registering the product by completing and returning a product registration form. In the event of a warrantable defect, the purchaser shall notify Cobalt with a description of the problem, and Cobalt shall provide the purchaser with a Return Material Authorization ("RMA"). For return, defective products should be double boxed, and sufficiently protected, in the original packaging, or equivalent, and shipped to the Cobalt Factory Service Center, postage prepaid and insured for the purchase price. The purchaser should include the RMA number, description of the problem encountered, date purchased, name of dealer purchased from, and serial number with the shipment.

Cobalt Digital Inc. Factory Service Center

2506 Galen Drive

Champaign, IL 61821 USA

www.cobaltdigital.com

Office: (217) 344-1243

Fax: (217) 344-1245

Email: info@cobaltdigital.com

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COBALT'S LIABILITY, WHETHER IN CONTRACT, TORT, WARRANTY, OR OTHERWISE, IS LIMITED TO THE REPAIR OR REPLACEMENT, AT ITS OPTION, OF ANY DEFECTIVE PRODUCT, AND SHALL IN NO EVENT INCLUDE SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES (INCLUDING LOST PROFITS), EVEN IF IT HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Optional Extended Limited Warranty

Extended warranty coverage with same terms as above, and in yearly increments up to four (4) additional years is available as a purchased option (i.e., maximum is seven (7) years with three (3) years standard warranty as above, plus up to four (4) additional years). Please note that this is a warranty extension and not a Service Level Agreement (SLA) / service contract. On-site service/ field service is **not** included nor specified in the extended warranty.

Terms and Conditions

1. An Extended Warranty may be purchased at any time within the initial three (3) years of ownership in increments of twelve (12) months. (If purchased at the time of initial equipment purchase, a discount is available.)
2. A currently active Extended Limited Warranty may be extended assuming no lapse of coverage has occurred.
3. An Extended Limited Warranty may be purchased in cases where (a) the standard 3-Year Limited Warranty has expired without existing extended warranty coverage or (b) an extended warranty has lapsed, in conformance with the following conditions:
 - a. A Cobalt support engineer or designee has performed an on-site visit and certified the equipment and installation as satisfactory for Extended Limited Warranty coverage.
 - b. The above visit shall be billed to the end user at current field support rate including customary expenses. This fee is non-refundable and shall be applied regardless of whether or not the equipment is deemed satisfactory for an Extended Limited Warranty.

Please discuss Extended Limited Warranty with your Cobalt sales professional for fee schedule, options, and other details.

Contact Cobalt Digital Inc.

Feel free to contact our thorough and professional support representatives for any of the following:

- Name and address of your local dealer
- Product information and pricing
- Technical support
- Upcoming trade show information

Phone:	(217) 344-1243
Fax:	(217) 344-1245
Web:	www.cobaltdigital.com
General Information:	info@cobaltdigital.com
Technical Support:	support@cobaltdigital.com

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Installation

Overview

This chapter contains the following information:

- Installing SpotCheck® In Equipment Rack (p. 2-1)
- SpotCheck® Connections and Indicators (p. 2-5)

Installing SpotCheck® In Equipment Rack

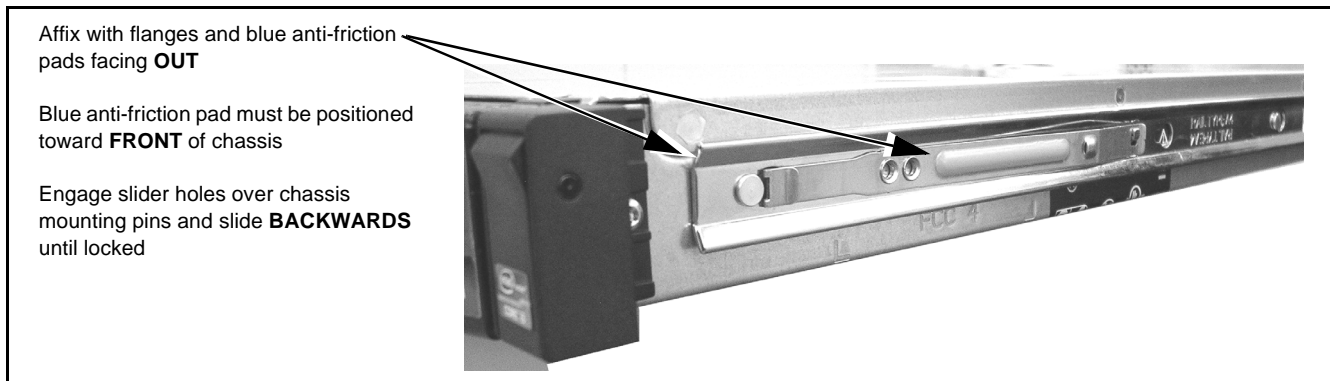
Physical Considerations

- The SpotCheck chassis uses only front-to-rear ventilation, and does not use top or bottom ventilation openings. As such, SpotCheck can be rack-mounted with other front-to-rear ventilated equipment with no vertical free-air space required.
- SpotCheck chassis **must** be supported using the provided frame rails kit as described in Installing SpotCheck® in Rack below.

Installing SpotCheck® in Rack

- Note:**
- SpotCheck-1000 and -2000 chassis is installed in a 19-in. equipment rack using the mounting kit supplied with SpotCheck.
Basically, the kit consists of two **rail assemblies** that are mounted to the rack, and two **slider assemblies** that are attached to the SpotCheck chassis. Follow steps 1 thru 5 below for attaching these assemblies.
 - The standard rail assembly setup is for the recommended rack depth of 24 in. (61 cm). For racks having less depth, an alternate setup allows for depths as small as 12 in. (30 cm).

1. (see below) On each side of the SpotCheck chassis, attach slider assembly.

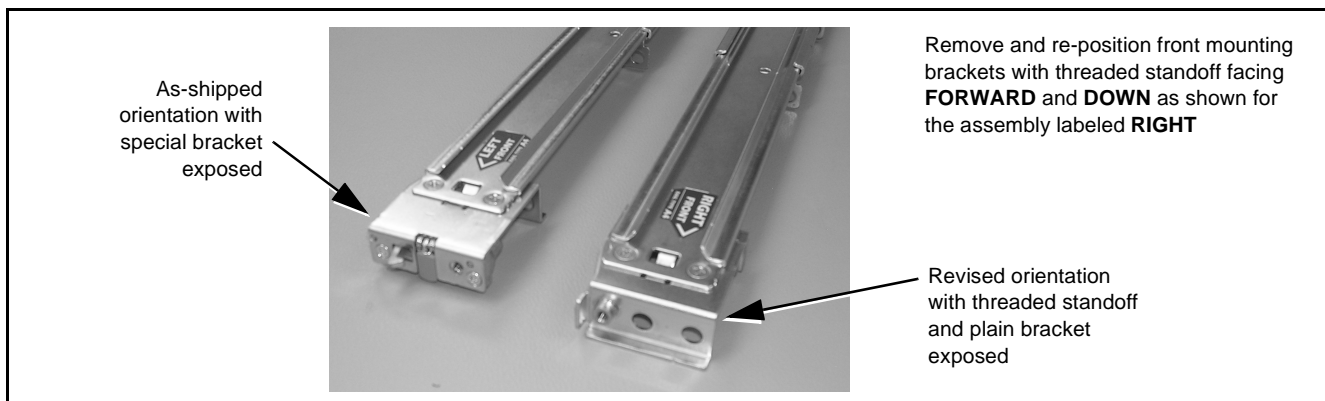


Note: Steps 2 thru 4 below are applicable **only** when installing frame rails in a rack using **threaded mounting holes**. For racks using square mounting holes, install the frame rails as is into the rack.

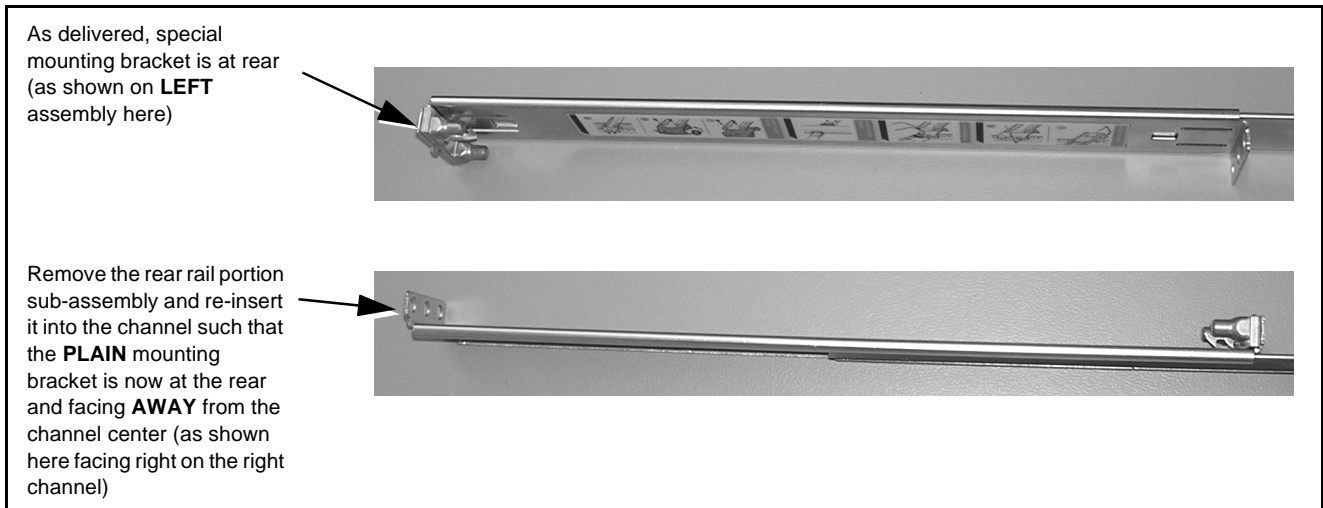
2. As shipped, the frame rail **front mounting brackets** require re-positioning. The frame rails (as shipped) are as shown for the **LEFT** assembly in illustration below.

Remove the two Phillips head screws and re-position/re-install the front mounting bracket as shown for the **RIGHT** assembly in illustration below. Make certain the standoff with the machined threads is positioned **down** as shown.

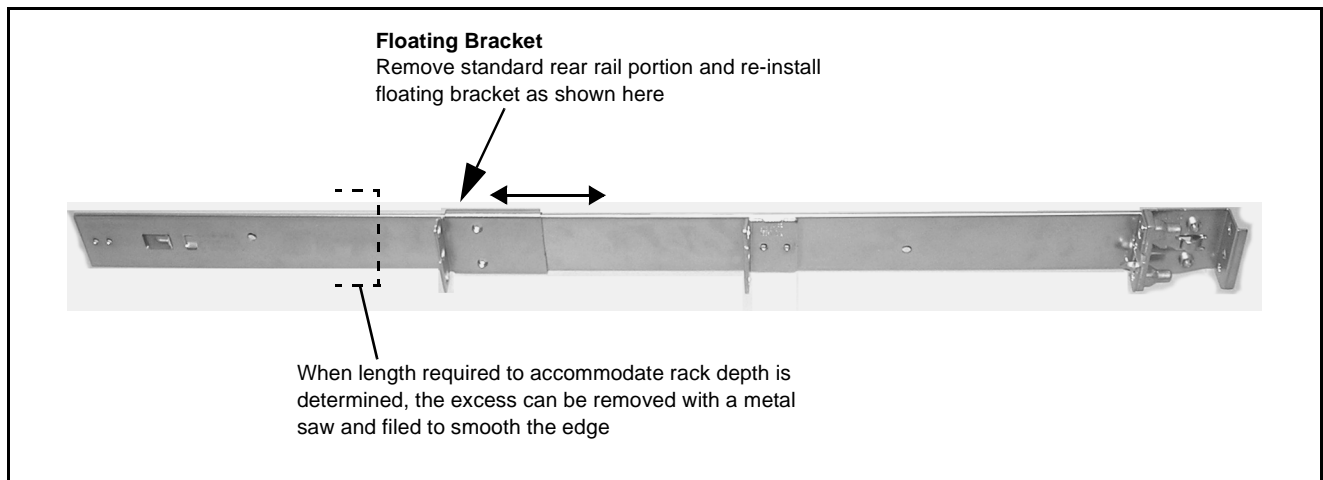
Repeat for **LEFT** frame rack rail.



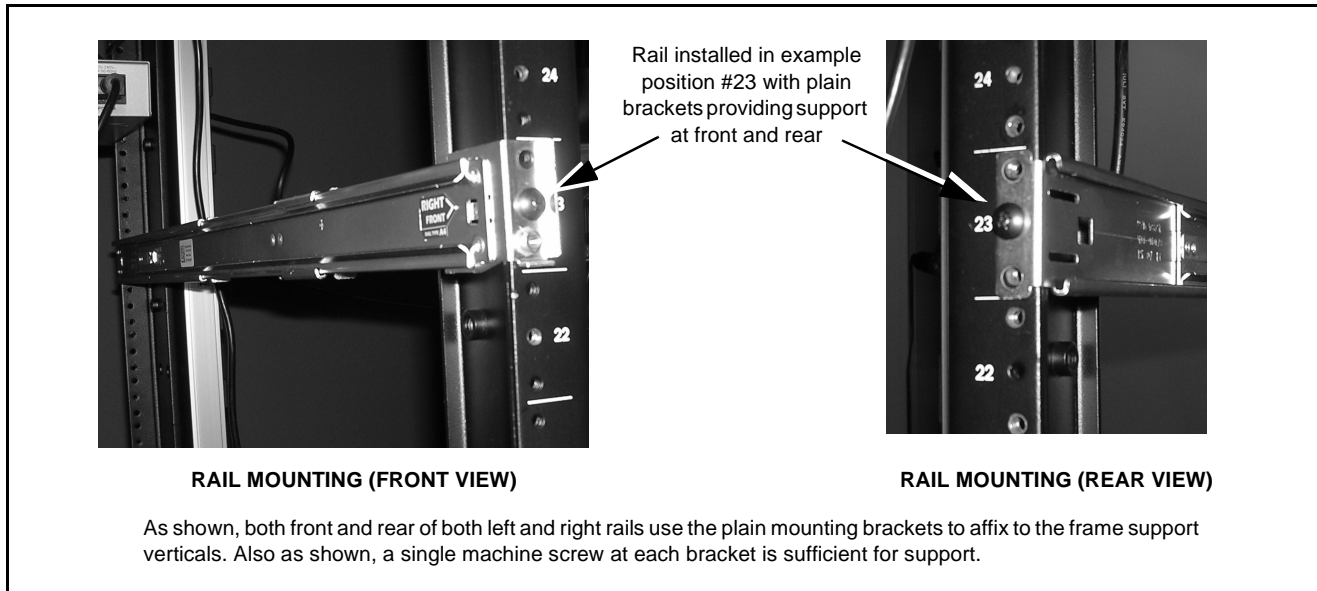
3. As shipped, the frame rail rear tracks require re-positioning as described below.
 - **For typical racks which accommodate the typical 24 in. (61 cm) rack rail depth**, press the release tab and remove the rear portion of the assembly. Re-install the rear portion by rotating it such that the plain mounting bracket is at rear and facing **away** from the center of the sliding channel.Repeat for **LEFT** frame rack rail rear track, then go to step 4.



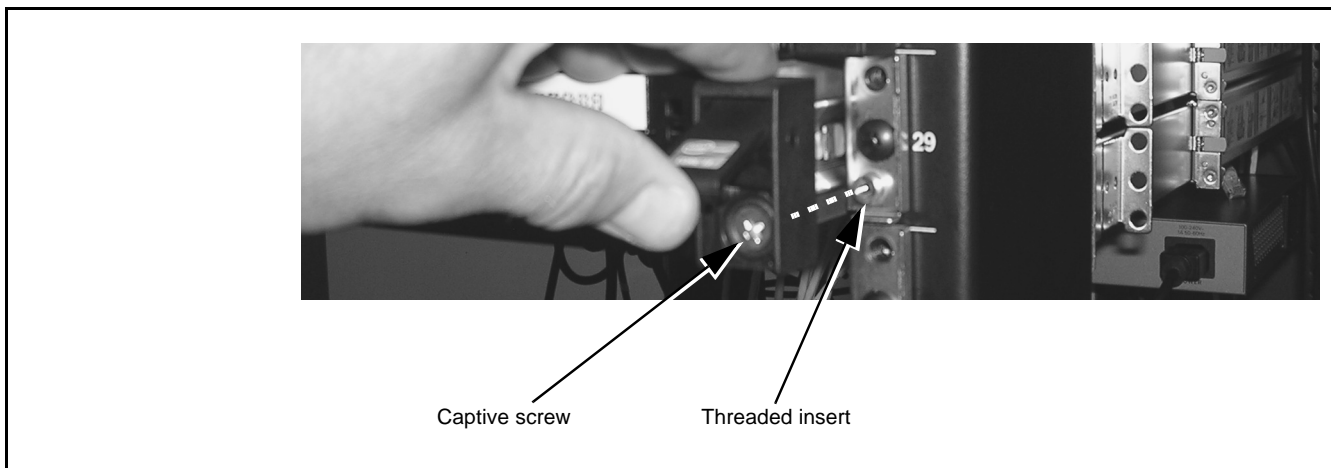
- **For racks with less than 24 in. (61 cm) rack rail depth**, remove the rear rack rail portion entirely. As shown below, remove and re-install the floating bracket to serve as the rear bracket. This allows the rail to mounted in depths of as little as 12 in. (30 cm).
- Repeat for both rails, then go to step 4.



4. Select a mounting location in the rack for the SpotCheck chassis. When properly configured as described above, the rails are as shown in the example below when in mounting position.



5. From the front of the equipment rack, carefully slide the SpotCheck chassis sliders into the frame rails.
The chassis can be secured to the equipment rack using the two captive screws inside of the chassis handles as shown below.



SpotCheck® Connections and Indicators

Figures 2-1 thru 2-3 show and describe the SpotCheck rear panel connections and indicators for SpotCheck-IP, SpotCheck-ASI, and SpotCheck-OTA, respectively.

Note: The front panel is also equipped with mirrored **ERROR** and **OK** indicators described below. Also, a pull-out permanently attached placard indicates the unit serial number and build date.

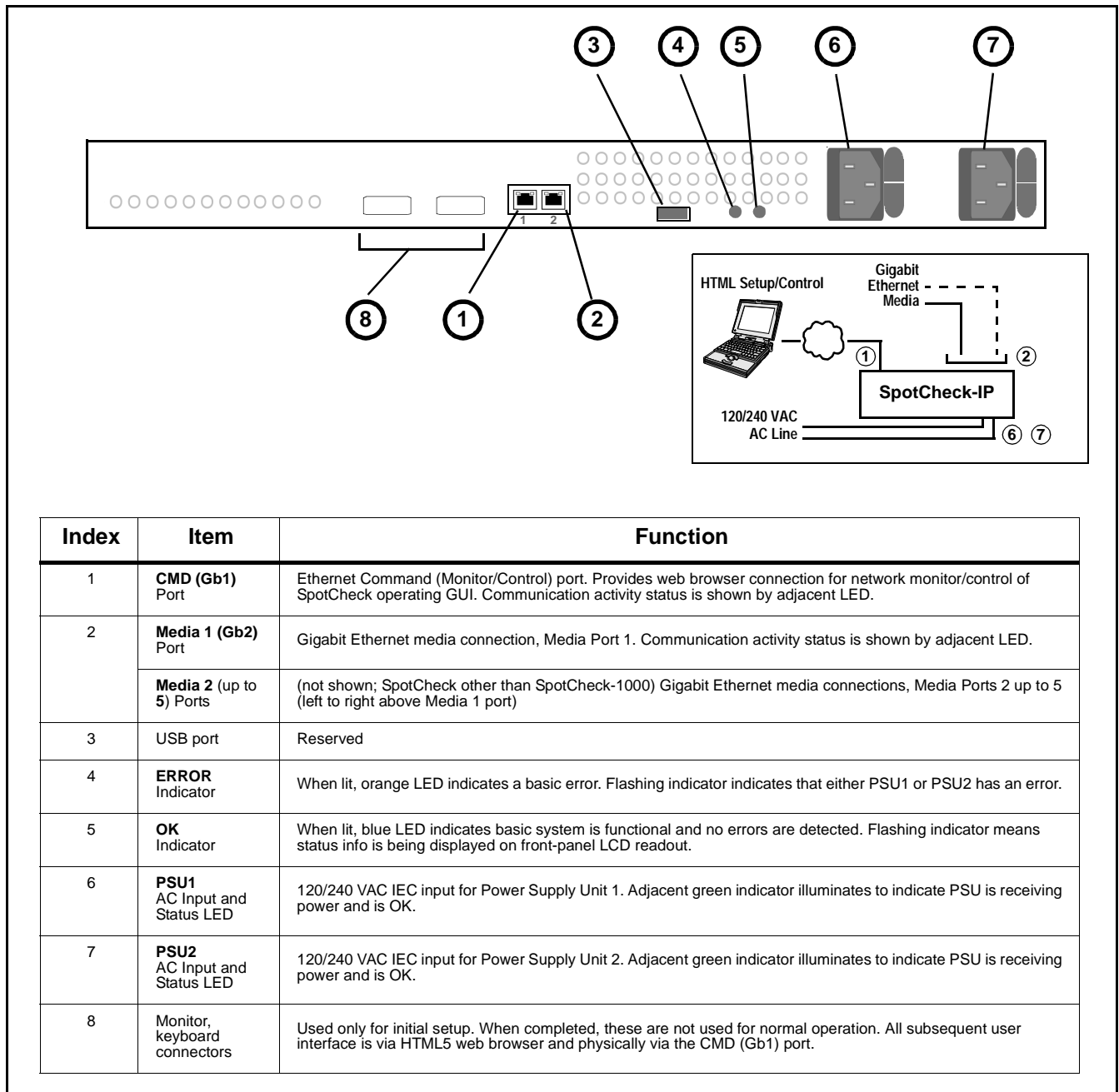


Figure 2-1 SpotCheck-IP Rear Panel Connectors and Indicators

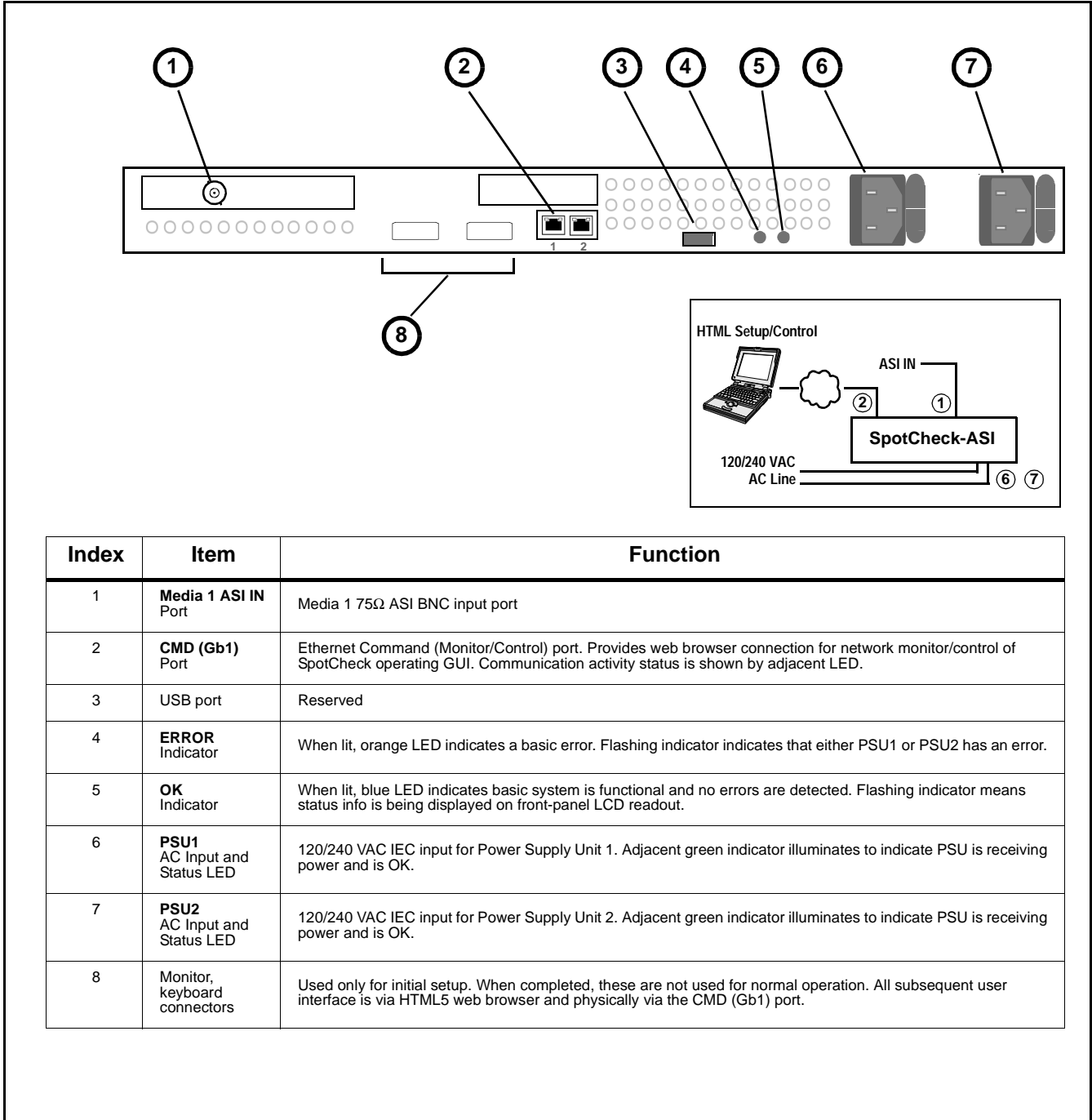


Figure 2-2 SpotCheck-ASI Rear Panel Connectors and Indicators

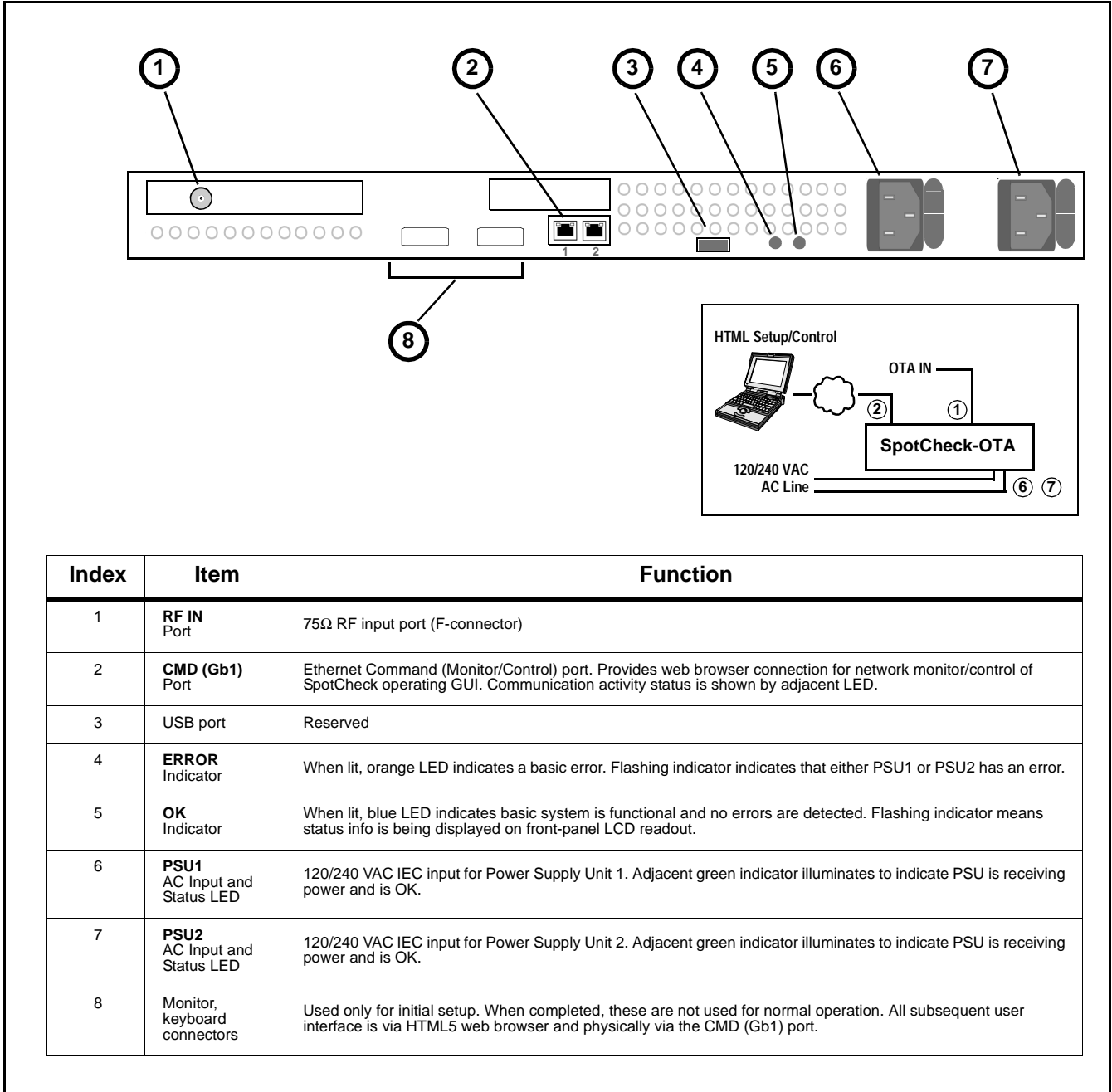


Figure 2-3 SpotCheck-OTA Rear Panel Connectors and Indicators

Cable Connections

Refer to Figure 2-1, or 2-2, or 2-3 for SpotCheck-IP, SpotCheck-ASI, or SpotCheck-OTA (respectively) rear panel connections referenced here.

Power Connections

Note: It is recommended to use facility AC receptacles that are on separate circuits for the two SpotCheck power supplies. This can help ensure power source redundancy.

Each power supply is equipped with its own status indicator. When receiving power, status indicators should show OK (illuminated blue).

Control/Monitor Network Connection

Connect RJ-45 Ethernet network cable to rear panel Ethernet connector. When SpotCheck is powered, connectivity is shown by illuminated indicator on Ethernet receptacle.

Media Connections (SpotCheck-IP)

Connect media RJ-45 Ethernet network cable to rear panel **Media** port(s). When SpotCheck is powered, connectivity is shown by illuminated indicator on Ethernet receptacle.

Media Connections (SpotCheck-ASI)

Connect BNC ASI IN connection to rear panel **ASI IN** connector(s).

Note: If the ASI signal is received from an upstream DA, make certain selected output is non-inverting. Inverting outputs are not compatible with ASI video.

Media Connections (SpotCheck-OTA)

Connect RF F-connector to rear panel **OTA IN** connector. SpotCheck GUI controls (described in Chapter 3, Setup/Operating Instructions) provide for RF channel and modulation scheme selection.

Setup/Operating Instructions

Overview

This chapter contains the following information:

- Connecting SpotCheck® to Your Network (p. 3-2)
- Setting up User Administration (p. 3-4)
- Setting up Transport Streams and Programs (p. 3-7)
- Setting up Segmenting/As-Run Integration for Program Plotting (p. 3-18)
- Setting Up E-Mail Notification and SpotCheck® Forwarding (p. 3-28)
- Using Audio Program Loudness Graphs and Search/Report Tools (p.3-31)
- Using Software Upgrade, Licensing and Log Tools (p. 3-48))
- Quick-Access to Status Overview (p. 3-52)
- Example Setup of Multi-Program Monitoring (p. 3-55)
- Troubleshooting (p. 3-74)

Perform the setup procedures here in the sequence specified. All procedures equally apply to SpotCheck-IP, SpotCheck-ASI, or SpotCheck-OTA unless otherwise noted.

- Note:**
- All instructions here assume SpotCheck® is physically connected to Command (monitor/control) and Media physical networks as described in Chapter 2. Installation.
 - For reference, an example showing complete end-to-end setup of multi-program monitoring is provided at the end of this chapter. However, it is **strongly** recommended that the setup be performed by using the detailed instructions in each section of this chapter.
 - In SpotCheck web GUI, if a field requiring data entry is not filled-in (or filled-in with a incompatible value), the field highlights in red to indicate that an expected entry must be entered before proceeding from the page.
 - When SpotCheck is connected to transport stream(s) and programs, web log-in is not required for any data capture within SpotCheck®. Web log-in is only related to user access and has no effect on underlying data acquisition or processing.
 - Various SpotCheck loudness display fields show as LUFS units. When set to A/85 mode, these units are LKFS.

Connecting SpotCheck® to Your Network

SpotCheck® ships with the following default IP addresses which can be changed to conform with your network as described below.

- **Command** port – this port supports the connection between SpotCheck and your network hosting the SpotCheck HTML5 control browser. Default address (which can be edited as described below) is:
 - IP address: 192.168.22.2
 - Netmask: 255.255.255.0
- **Media** port – (SpotCheck-IP only) this port supports the connection between SpotCheck and your IP transport network. Default address (which can be edited as described later) is:
 - IP address: 192.168.22.3
 - Netmask: 255.255.255.0

Setting up Command (Control) Port Address

To change the default **Command** addresses to conform to your network, a VGA monitor and USB keyboard must temporarily be connected to SpotCheck. Access the address dialog as follows:

Setting Up Command (Control) Port Address

1. Connect VGA monitor to SpotCheck rear panel monitor connector.
2. Connect USB keyboard to SpotCheck rear or front panel USB connector.
3. Power-up SpotCheck. The default Command port address is displayed.

```

Waiting for User Input
Press Enter to edit IP Settings.
Command Port Address is: 192.168.22.2
  
```

<Ready>

4. Cursor to <Ready> and press [enter]. The screen shown below appears.

```

Port Gbl IP Settings
Enter IP settings for port Gbl. Enter auto in
IP Address field for DHCP.
  
```

IP Address:	192.168.11.118
IP Netmask:	255.255.255.0
Gateway:	192.168.11.1
DNS Server:	192.168.11.3

<Submit>

<Cancel>

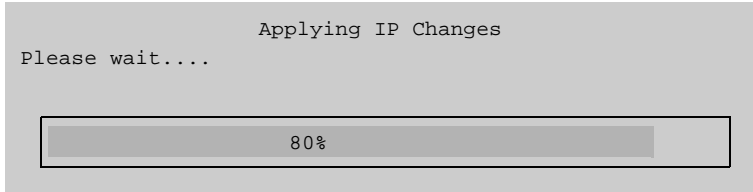
- Enter the desired new IP address, gateway, and (where used) DNS server for the network to serve as Command (control) interface. If DHCP is desired, enter **auto** in the IP Address field.
- Cursor to <submit> and press [enter] to proceed.



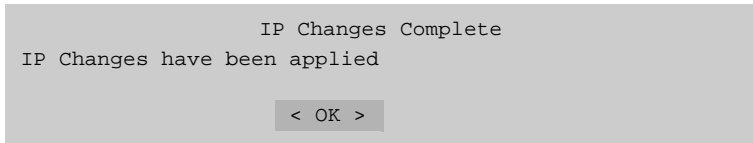
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Setting Up Command (Control) Port Address – continued

5. Wait while the progress bar (shown below) shows changes being applied.

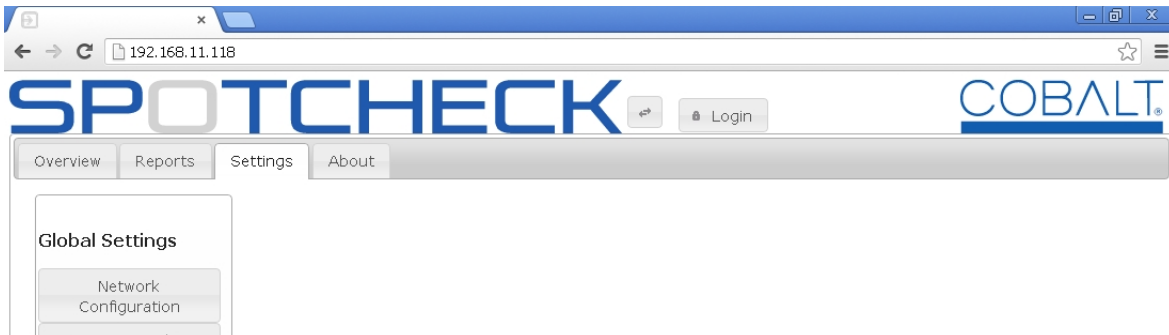


6. When changes have been applied, the screen shown below appears. Cursor to **<OK>** and press [enter] to apply and commit the changes.



7. SpotCheck is now ready to be accessed by its HTML5 web browser on the network configured in the previous steps here. The keyboard and monitor can now be disconnected.

8. Enter the IP address assigned in step 4 on your desired network computer to access SpotCheck via its web browser. The basic SpotCheck browser opens.



Note: • All further setup and control access is now via the SpotCheck html5 web browser using the address set up here.

- SpotCheck control/monitor web HTML5 GUI is usable only with the following web browsers:
 - Internet Explorer 9+
 - Google Chrome 17+
 - Mozilla Firefox 10+
 - Apple® Safari 5.1.3+

9. Proceed to Setting up User Administration (p. 3-4).

Setting up User Administration

Note: If the web-based GUI controls seem unresponsive, it may be that the SpotCheck web GUI has timed out. If this occurs, simply refresh the page using your browser.

Note: To access the dialogs described here and other SpotCheck configuration dialog, you must be logged in as Admin, or as a user with admin user level assigned. **Any users authorized to perform SpotCheck configurations changes should now be set up with admin user level as described below.**

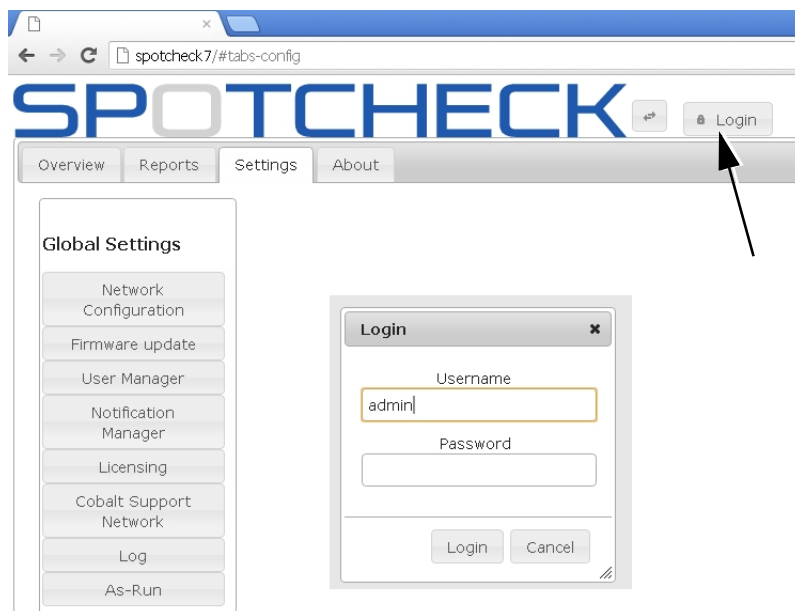
When the SpotCheck web browser is up and running, all SpotCheck configuration changes will require a username/password login. The default username/password is as follows:

- **Username:** admin
- **Password:** [blank]

At this point, an admin login should be determined and entered as admin, and then users can be assigned as described below.

Setting Up User Administration

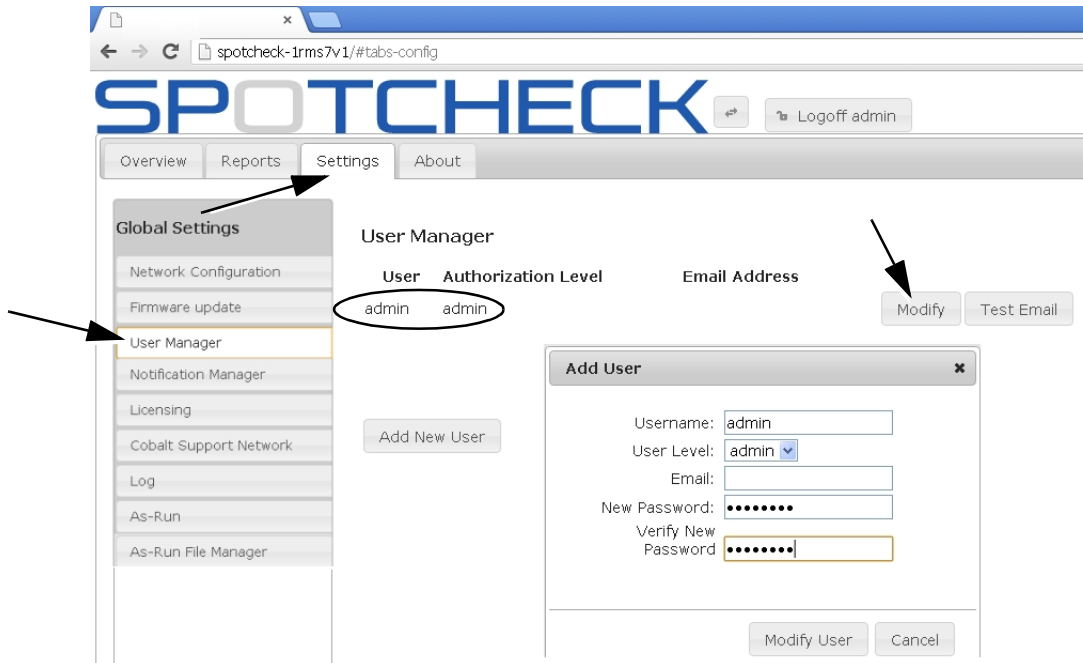
1. Click the **Login** button. In the dialog box that appears, enter the default username **admin** and leave password blank, then click **Login**. At this point, this is the initial admin login.



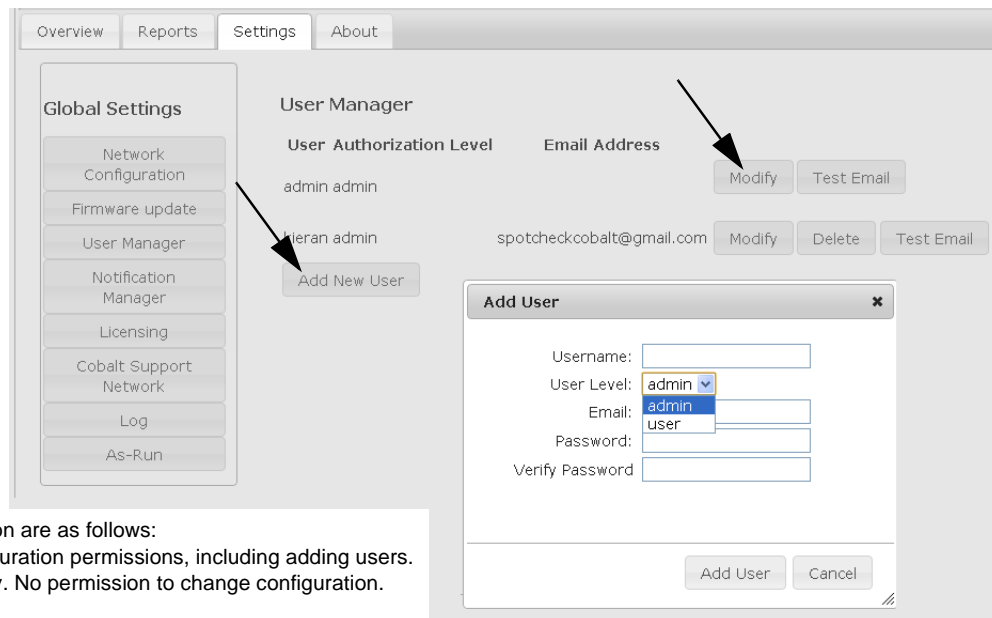
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Setting Up User Administration – continued

2. Go to **Settings > User Manager**. At this point, the admin login can be changed to a custom login by clicking **Modify** to provide a secure login.



3. To add additional users, while logged in as admin click **Add New User**. In the Add User dialog, include Username, Password, E-mail, and User Level for the added user. Close the dialog by clicking **Add User**.



Password permission are as follows:
Admin – Full configuration permissions, including adding users.
User – Viewing only. No permission to change configuration.

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Setting Up User Administration – continued

4. In the **SMTP Mail Settings** dialog, set as required for your mail server. Click **Update Email Configuration** when done.

SMTP Mail Settings

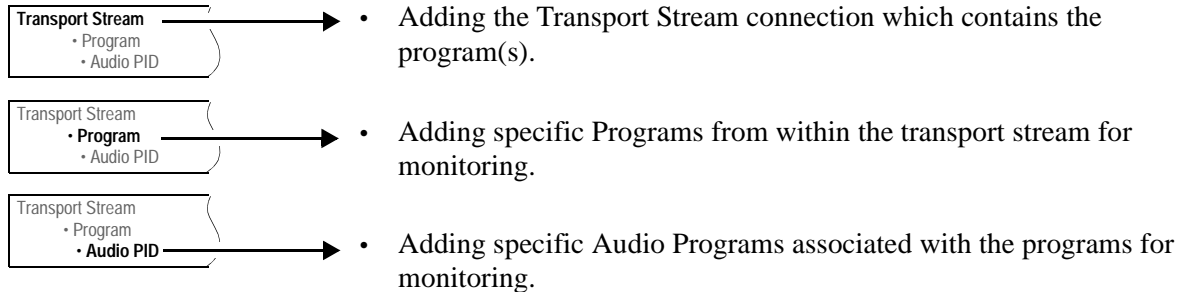
From Address:	<input type="text" value="spotcheckcobalt@gr"/>
Mailserv:	<input type="text" value="smtp.gmail.com"/>
Port:	<input type="text" value="465"/>
Username:	<input type="text" value="spotcheckcobalt"/>
Password:	<input type="text" value="1554dsm55"/>

5. Proceed to Setting up Transport Streams and Programs (p. 3-7).

Setting up Transport Streams and Programs

- Note:**
- If you are not familiar with the structure of transport streams and programs within transport streams, refer to Structure Overview of Media, Transport Streams and Programs (p. 1-9) in Chapter 1, Introduction.
 - Multiple related programs (for example, companion HD and SD programming) are almost always contained within the same transport stream. Therefore, **do not** add multiple transport streams to support multiple programs that are part of the same transport stream.

Overall, setting up a transport stream and its programs consists of:



Setting Media Address (SpotCheck-IP Only)

The steps below map SpotCheck physical media ports to an IP address.

Setting Media Address (SpotCheck-IP Only)

1. Click **Settings > Network Configuration**.
2. In the **Media Interface 1** field, enter the IP address conforming with your transport media address.

On SpotCheck with multiple physical media interface ports, repeat for other **Media Interface n** fields as required.
3. When done, click **Save Changes**.

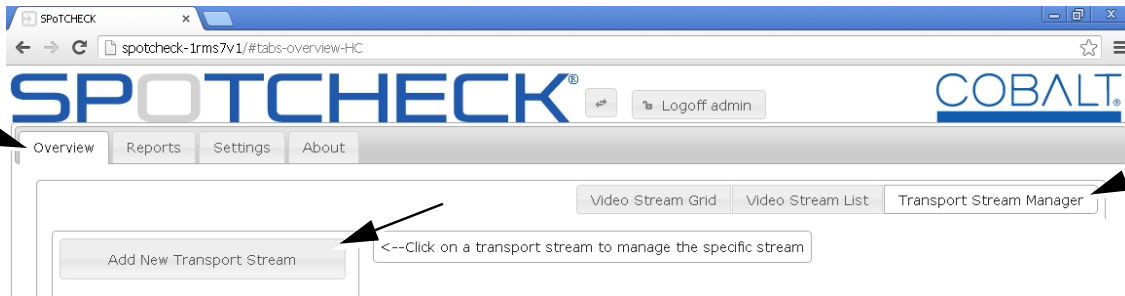
Note: For SpotCheck-IP using IP Multicast, set the media IP address as described here. The Multicast Group addresses will be entered later in the procedure (in Adding Transport Streams).

4. Proceed to Adding Transport Streams (p. 3-8).

Adding Transport Streams

Adding Transport Streams

1. Click the **Overview** tab. Click **Transport Stream Manager**, then click **Add New Transport Stream**.



2. As described below, select the stream type (**Proto/Media**) and enter information as shown. Depending on the media type, the dialog queries for information required for the media type selected.

When done, click **Add Transport Stream**.

Note: All Add Transport Stream dialogs have a **Save to Disk** utility (shown below) that allows cursor-defined graphing captures to be saved and exported from SpotCheck for later analysis if desired. It is recommended to use the default settings to allow this useful feature in the course of using SpotCheck graphing analysis.

Move slider to set the allocated buffer size for Save to disk function



As streams are added, the maximum available storage (right-most setting value) is reduced. This helps ensure that memory allocation cannot exceed available system memory.



Save to disk allows cursor-defined graphing segments (time spans) of the actual underlying transport stream to be saved to disk when desired. (Outputted files use a .ts extension.) Using the segment tool is described in Using Audio Program Loudness Graphs and Search/Report Tools (p. 3-31).

Storage Size slider control allows setting the buffer size allocated for stream segment storage. (When the buffer is exceeded, it is overwritten with new content.)

Add Transport Stream

Proto/Media: IP Unicast

Stream Name: Prime 1A

Port: 68000

Physical Adapter: Media 1 (192.168.0.132)

Save to disk:

Storage Size GB: 500

Add Transport Stream Cancel

IP Unicast

Stream Name: Enter desired screen display user name for the transport stream being added (in this example, "prime1A").

Port: Enter the logical port associated with the desired transport stream.

Physical Adapter: The IP media address for this transport has already been set up as part of Setting Media Address (SpotCheck-IP Only) (p. 3-7); no other information is needed here. (Where multiple media ports are populated, the other physical adapter address are accessible using the drop-down.)

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Adding Transport Streams – continued

The dialog box 'Add Transport Stream' is shown with the following fields:

- Proto/Media: IP Multicast (dropdown)
- Stream Name: Prime 1A (text input)
- Multicast Group: 224.0.1.1 (text input)
- Multicast Source Address: (empty text input)
- Port: 55000 (text input)
- Physical Adapter: Media 1 (192.168.0.132) (dropdown)
- Save to disk:
- Storage Size GB: 500 (slider)

 Buttons at the bottom: Add Transport Stream, Cancel.

IP Multicast

Stream Name: Enter desired screen display user name for the transport stream being added (in this example, “prime1A”).

Multicast Group: Because Multicast supports multiple transport streams within a single IP media connection, enter the Group address associated with the desired transport stream. The IP media address for this transport has already been set up as part of Setting Media Address (SpotCheck-IP Only) (p. 3-7)).

Multicast addresses must fall within the range of 224.0.0.0 through 239.255.255.255. Refer to

<http://www.iana.org/assignments/multicast-addresses/multicast-addresses.xml> for more information.

Note: The Multicast Source Address field is an IGMPv3 source-specific filter. This field can be left blank if source filtering is not desired (i.e., IGMPv2).

Port: Enter the logical port associated with the desired transport stream.

Physical Adapter: The IP media address for this transport has already been set up as part of Setting Media Address (SpotCheck-IP Only) (p. 3-7)); no other information is needed here. (Where multiple media ports are populated, the other physical adapter address are accessible using the drop-down.)

been set up as part of Setting Media Address (SpotCheck-IP Only) (p. 3-7)); no other information is needed here. (Where multiple media ports are populated, the other physical adapter address are accessible using the drop-down.)

The dialog box 'Add Transport Stream' is shown with the following fields:

- Proto/Media: ASI Input (dropdown)
- Stream Name: Prime 1A (text input)
- Save to disk:
- Storage Size GB: 500 (slider)

 Buttons at the bottom: Add Transport Stream, Cancel.

ASI Input

Stream Name: Enter desired screen display user name for the transport stream being added (in this example, “prime1A”).

Because ASI is a serial signal over a dedicated, “non-muxable” physical media and therefore supports only a single transport stream, no other information is needed here.

The dialog box 'Add Transport Stream' is shown with the following fields:

- Proto/Media: RF-1 Input (dropdown)
- Stream Name: prime1A (text input)
- Frequency (Hz): 189.028615MHz (text input)
- Standard: ATSC (dropdown)
- Find Channels: Scan (button)
- Found Channels:
 - 189.028615MHz - W2LL-TV
 - 189.028615MHz - WORLD
 - 189.028615MHz - CREATE
 - 491.028615MHz - W2ND High Definition
 - 491.028615MHz - STORMCENTER 17
 - 521.028615MHz - W2UI
 - 521.028615MHz - THIS TV
 - 635.028615MHz - WI2D-DT
 - 677.028615MHz - W2IA-DT
 - 677.028615MHz - WC2X-DT

 Buttons at the bottom: Add Transport Stream, Cancel.

RF (OTA) Input

Proto/Media: Selects the desired RF OTA adapter input (for example, if equipped with two RF input ports, “RF-1 Input” and “RF-2 Input” are included as drop-down choices).

Stream Name: Enter desired screen display user name for the transport stream being added (“prime1A” in this example).

Standard: Selects the modulation scheme of the transport being added.

Find Channels/Found Channels: When the Standard is set, SpotCheck finds received channels conforming to the selected standard. Where available, the channel call letters are also displayed. When all channels are found, click on the desired channel to select it as the OTA transport stream (in this example, “W2LL - 189.028615 MHz”).

Because OTA supports only a single transport stream, no other information is needed here.

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Adding Transport Streams – continued

After a stream is added, its settings can be changed as desired by going to **Settings > Stream Settings** as shown here. After entering changes, click **Update Stream**. Refreshing the browser will show the changes.

The screenshot displays the SpotCheck web interface. At the top, there are navigation tabs: Overview, Reports, Settings (selected), and About. On the left side, there is a sidebar menu with categories: Global Settings (containing Network Configuration, Firmware update, User Manager, Notification Manager, Licensing, Cobalt Support Network, Log, As-Run, and As-Run File Manager), Stream Settings (containing Prime 1A), and Program Settings. The main content area is titled 'Prime 1A Stream Settings' and contains the following fields: Name (Prime 1A), Proto/Media (IP Multicast), Multicast Group (224.0.1.1), Multicast Source Address (empty), Port (55000), Physical Adapter (Media 1 (192.168.0.132)), Save to disk (checked), and Data Storage Size (a slider set to 500GB). An 'Update Stream' button is located at the bottom of the form.

3. Repeat steps 1 and 2 if another transport stream is being added.
4. Read and understand Overview of SpotCheck® Standard and Optional Program Provisioning Using Licensing (p. 3-11) and then proceed to Adding Programs (p. 3-12).

Overview of SpotCheck® Standard and Optional Program Provisioning Using Licensing

To allow scalability to suit various capacity requirements, SpotCheck is supplied standard with at least one full license that provides full support for one program stream; added program support above the standard amount requires additional licenses. This convention allows SpotCheck to be provisioned only as needed, without uneconomical unused capacity. It also provides scalability to add program licenses to the same hardware platform (and without disruption) should more capacity be needed in the future.

SPOTCHECK-LICENSE-AUDIO-FULL	Complete program analysis for one program (one video PID plus two audio PIDs). Each optional additional license adds complete analysis for one program. Note: See SpotCheck® Configurations and Licensing on page 1-10 in Chapter 1. Introduction for quantity of standard full licenses based on SpotCheck model.
SPOTCHECK-LICENSE-AUDIO-LITE	Program analysis for one program (one video PID plus one audio PID), but omits As-Run support. Available for all SpotCheck models. Note: Search tool is not usable for programming using LITE license. (See Using Audio Program Loudness Graphs and Search/Report Tools (p. 3-31) for descriptions of the Search and Reports tools.)
SPOTCHECK-LICENSE-AUDIO-SUBPROGRAM	Adds an additional audio subprogram (one audio PID, such as DVS or SAP) to a FULL or LITE program license. (Available only in conjunction with an already-provisioned SPOTCHECK-LICENSE-AUDIO-FULL or SPOTCHECK-LICENSE-AUDIO-LITE program license.)
SPOTCHECK-LICENSE-UPGRADE-AUDIO-LITE-TO-FULL	Upgrade from AUDIO-LITE license to AUDIO-FULL license.
Note: Any of the above licenses are available as added licenses for SpotCheck regardless of existing provisioning up to device maximum capacity. See Technical Specifications in Chapter 1. Introduction for device capacity limits.	

Example

Here, a SpotCheck-1000-IP system is licensed to support three programs (one full-support program standard, an added full-support program with a total of three audio PIDs, and a basic "lite"-support program with one audio PID).

SpotCheck® Licensing

Adding licenses to SpotCheck® allows scalable provisioning above the standard capacity as shown in this example.

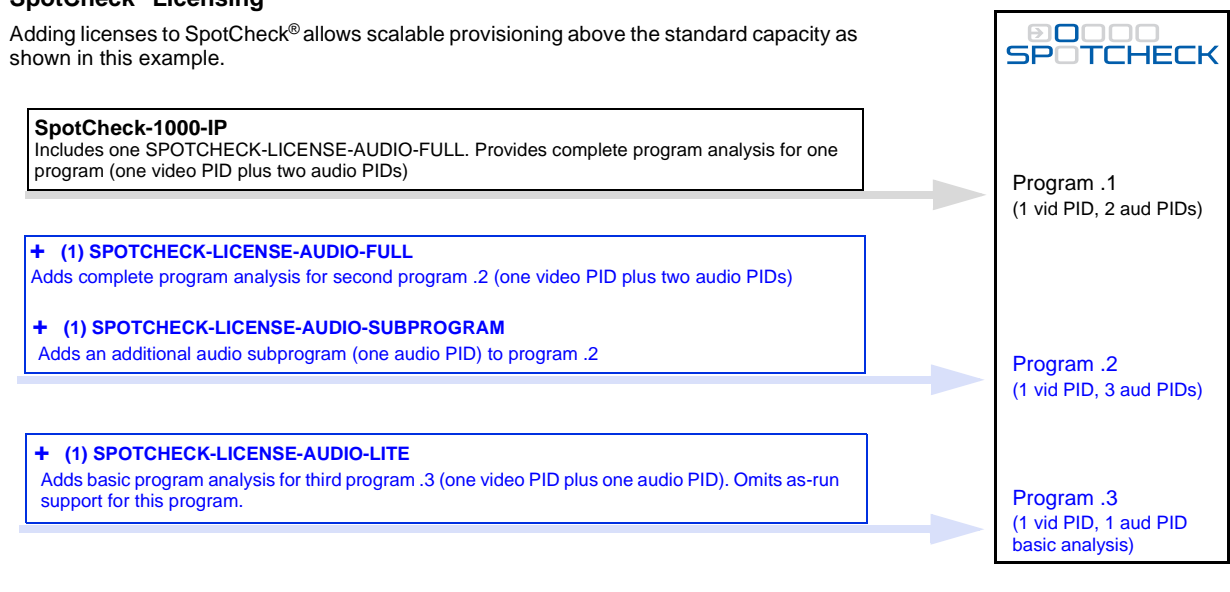


Figure 3-1 SpotCheck® Provisioning/Licensing Overview

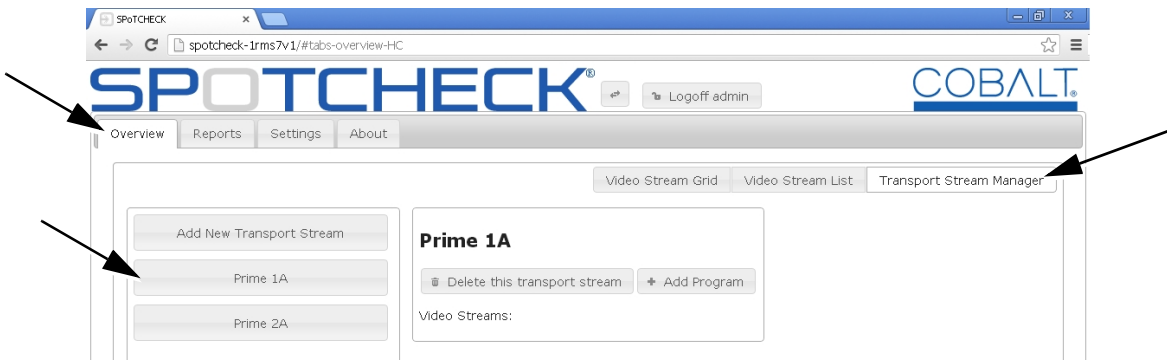
Adding Programs

When the transport stream is set up and added as described in the previous section, a list of Programs within the transport stream can be displayed. The steps here allow you to add the programs you want SpotCheck to monitor.

Note: SpotCheck licensing must be accordingly provisioned to provide support for multiple programs. It is likely your SpotCheck has already been provisioned for the support required by your facility, but this may need to be considered if SpotCheck does not display program choices showing your full desired complement of programs. (You can check licensing provisioning by going to Checking and Updating SpotCheck Firmware (p. 3-48).)

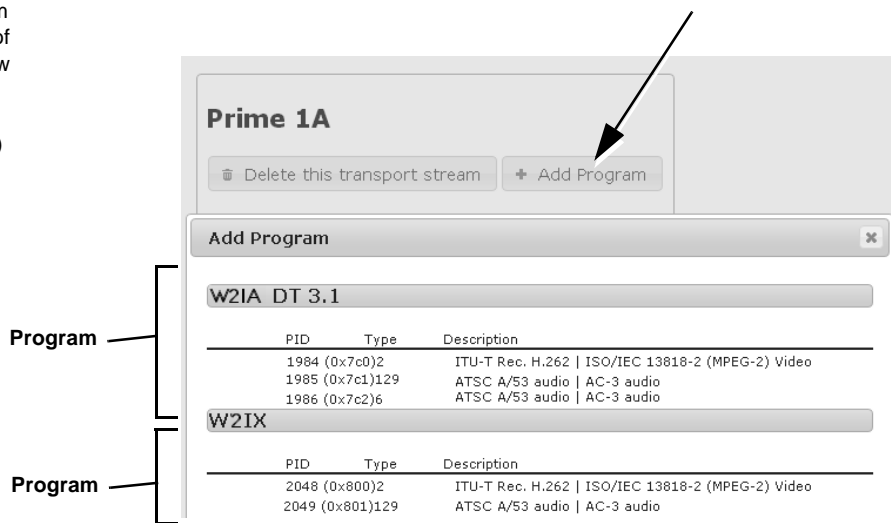
Adding Programs

1. Click **Overview** and then click **Transport Stream Manager**. Click on the transport stream from which program are to be added on SpotCheck (transport stream "Prime 1A" in this example).



2. Within the desired transport stream palette, click **Add Program**. A list of all programs for the transport is now displayed. (In the example here, program **W2IA DT 3.1** within transport prime1A is being added.)

In streams where CVCT/TVCT data is available, the actual program names will appear similar as shown in the example here.



– continued on next page –

Adding Programs – continued

3. To add a program from the list, click on the header for the desired program (in this example, “W2IA DT 3.1”).

When the program is clicked, the video and audio PID fields automatically fill in. (This fill-in is derived from a PMT table. For programs lacking a PMT, or to manually enter a program, manually enter the video PID and the associated audio PID(s) in the **Video PID** and **Audio PIDs** fields.)

4. Next, enter a user name that you want displayed on SpotCheck GUI tabs for the program (in this example, W2IA DT 3.1 will be shortened to display as simply “W2IA”).

5. Select the desired **License Type** to be used for the program (see Overview of SpotCheck® Standard and Optional Program Provisioning Using Licensing (p. 3-11) for detailed information).

6. Select the desired **Audio Measurement** mode to be used for the program (ATSC A/85 for USA usage).

Add Program
✕

W2IA DT 3.1

PID	Type	Description
1984 (0x7c0)2		ITU-T Rec. H.262 ISO/IEC 13818-2 (MPEG-2) Video or ISO/IEC 11172-2 (MPEG-1) video stream
1985 (0x7c1)12		ATSC A/53 audio AC-3 audio
1986 (0x7c2)6		ATSC A/53 audio AC-3 audio
1987 (0x7c3)5		ITU-T Rec. H.222.0 ISO/IEC 13818-1 private_sections

W2IX 49.1

PID	Type	Description
2048 (0x800)2		ITU-T Rec. H.262 ISO/IEC 13818-2 (MPEG-2) Video or ISO/IEC 11172-2 (MPEG-1) video stream
2049 (0x801)129		ATSC A/53 audio AC-3 audio

Program Name:

License Type:

PID values are in decimal or Hex using 0x

Video PID:

Audio Measurement:

Audio PIDs:	PID	Name
	1985	<input style="width: 80%;" type="text" value="Name"/>
	1986	<input style="width: 80%;" type="text" value="Name"/>
	0x	<input style="width: 80%;" type="text" value="Name"/>
	0x	<input style="width: 80%;" type="text" value="Name"/>
	0x	<input style="width: 80%;" type="text" value="Name"/>
	0x	<input style="width: 80%;" type="text" value="Name"/>

Local Timezone:

Note: A “Custom” drop-down choice allows customized thresholds to be set for measurement thresholds (and in turn pass/fail criteria), and is to be used only as a special analytical tool. Refer to Measurement Threshold Custom Settings/Presets (User Optional) (p. 3-17) for using this feature.



Customized settings may not be compliant with ATSC A/85 standards. Because custom settings are intended for analytical use only as an adjunct to some measurement modes, it is strongly recommended to use the default factory-calibrated A/85 choice for normal compliance monitoring/records.

7. The audio PID(s) associated with the program now should be given identifying user names (“Main 3/2” and “SAP 2/0” as shown in the example here). These names will be displayed as sub-tabs on program loudness graphs. The sub-tab is then used to access the loudness details for the audio program.

Video PID:

Audio PIDs:

8. Set the **Local Timezone** field to conform with the time zone at the **emission** (audience viewing) local area. (If an automation system is being used to generate the program, the automation system’s timezone setting should be used here.)

Local Timezone:

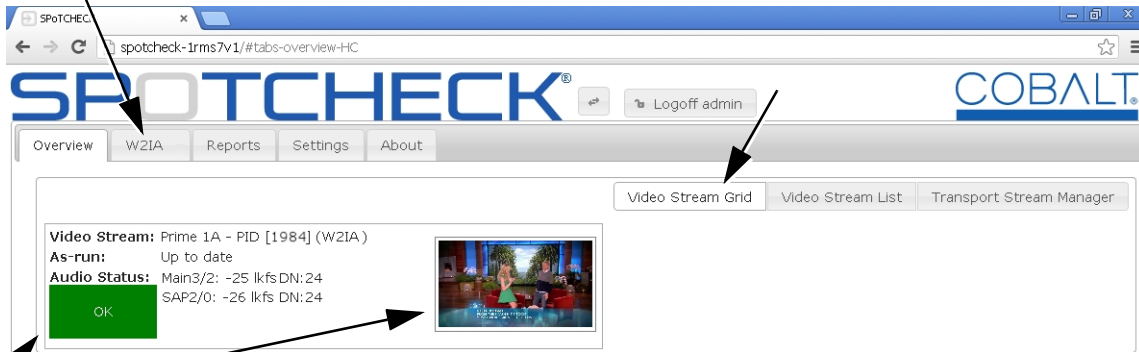
9. Click **Add Program** when done.

◀ – continued on next page – ▶

Adding Programs – continued

10. The program is now added into SpotCheck with its user name identification. Clicking **Overview > Video Stream Grid** shows the added program details, status and a streaming thumbnail of the programming.

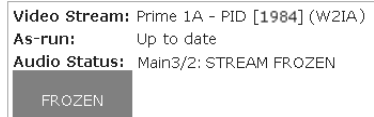
Added Program (in this example “W2IA”) now has a major tab for access



Transport stream, along with added audio PID(s), audio/stream status, audio parameters, and streaming thumbnail are displayed

Status of stream and associated audio program(s) are shown by the status indicator (which indicates LKFS Hi/Lo, null (missing) audio content, and frozen/missing stream).

Clicking anywhere within a program on Video Streams Grid or Video Streams List (shown in Quick-Access to Status Overview (p. 3-52)) shows a detailed status overview and real-time per-channel audio levels, as well as session tools that can provide an instant evaluation of program loudness.



By clicking on the tab for the added Program, all available analysis offered by the program's selected license type is now accessible.



Sub-tabs allow graph setup and other access to multiple audio sub-programs (“Main 3/2” and “SAP 2/0” in this example)

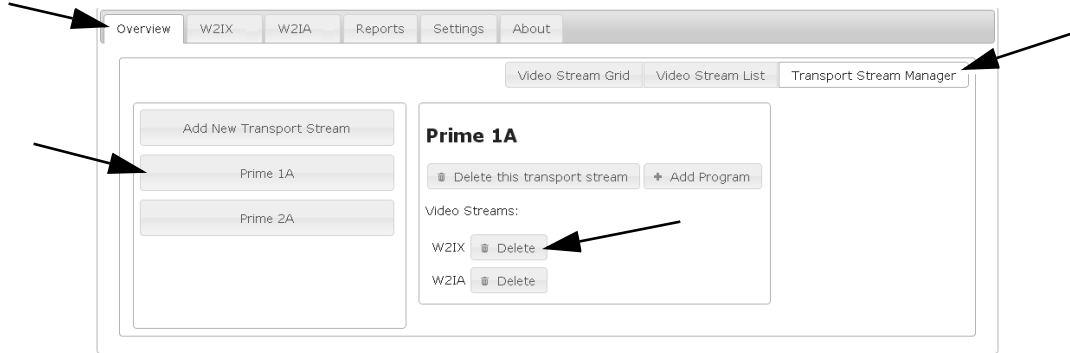
Note: Audio plot and thumbnails may not immediately appear until SpotCheck takes in sufficient data to draw a plot. Click browser refresh to update the display.

– continued on next page –

Adding Programs – continued

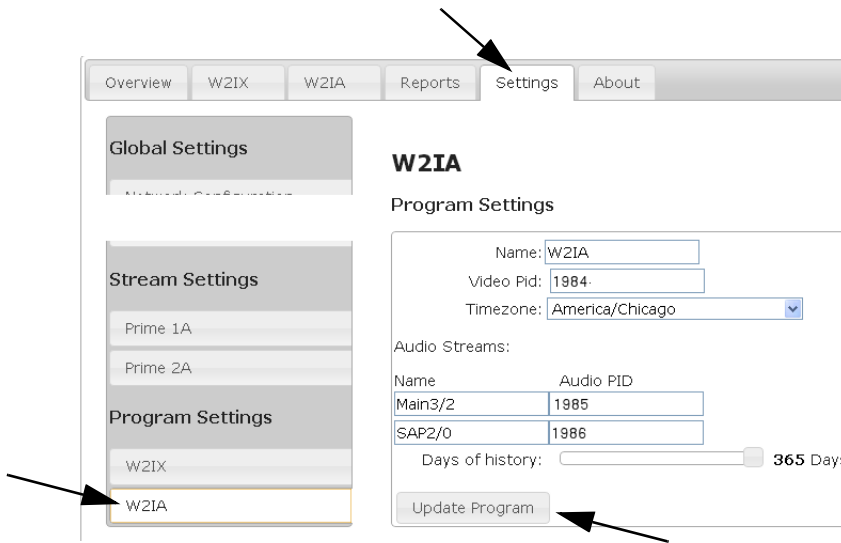
11. Repeat the steps above to add other Programs within this transport stream.

12. To remove (delete) a Program from SpotCheck monitoring, click **Overview > Transport Stream Manager**. Select the program's transport stream. Then click **Delete Program** for the desired program.



13. To update any Program setting, click **Settings**, and then click the corresponding program button in **Program Settings** ("W2IA" in this example). Enter any desired changes, and then click **Update Program**.

This dialog also allows changing the history period allocated for storing the program and its graphing/details using the **Days of history** slider (default is one year (365 days)).



Adding Programs – continued**Option**  **Setting Up Lo-Res Proxy Transport Stream Downloading (Option +AIRCHECK)**

Proxy settings allow transcoding of transport stream segments outputted as much smaller files as compared to uncompressed transport stream downloads. Set up proxy recording as follows. **If program is not licensed for this option, skip this item.**

1. In **Settings > Program Settings** for the added program, check the **Enable proxy** checkbox.
2. Using the drop-downs, set the target resolution characteristics for the files to be downloaded.
3. Click **Update proxy** when done.

Proxy Recording

Enable proxy:

Video Size: 240p


Video Bitrate: 128Kbps

Audio Bitrate: 64Kbps

Data Storage Size:

Approx Storage Time: 63 Days

Update Proxy

4. In the Cursor-Defined Measurement and Stream Capture tool and the Search and Reports tools, lo-res downloads are available by clicking the  icon.

Option  **Setting Up Program Freeze/Black/Silence Detection (Option +QUALITYCHECK)**

Detector Settings allows programming alerts to be issued for black/frozen frame errors and audio silence errors using configurable thresholds.

1. In **Settings > Program Settings** in **Detector Settings** dialog, set **Time Frozen:** and **Time Black:** for the maximum frozen/black event duration to be allowed before flagging as an alert.
2. Configure detection thresholds using the **Frame Change as Frozen:** and **Intensity as Black:** fields (default values are recommended for normal usage).
3. In Silence Detection Settings, the audio PIDs associated with the program are displayed. Configure **Seconds** field for the maximum silence event duration to be allowed before flagging as an alert. (The **Max Energy as Silence** value is not configured here; it is the default value set for the audio measurement used for the program. This default value is recommended for normal DTV use.)
4. Click Update Settings when done.

Detector Settings

Frozen/Black Frame Detection Settings:

Maximum Time Thresholds		Maximum Value Thresholds	
Time Frozen:	<input type="text" value="35"/> Seconds	Frame Change as Frozen:	<input type="text" value="0.03"/> % difference (0.0 to 100.0)
Time Black:	<input type="text" value="30"/> Seconds	Intensity as Black:	<input type="text" value="3.5"/> % intensity (0.0 to 100.0)

Silence Detection Settings:

Name	Audio PID	Max Time Silent	Max Energy as Silence
AC3	52	<input type="text" value="15"/> Seconds	-70dBFS

Update Settings

Adding Programs – continued

Measurement Threshold Custom Settings/Presets (User Optional)

Non ATSC A/85 measurement modes specify an adjunct analytical tool be also provided that allows the application of custom measurement and loudness hi/lo thresholds to loudness measurement. These settings are accessed by going to **Global Settings > Audio Measurement** as shown below. When a custom preset is created, it can be saved to a preset name and applied to measurements using Add Program dialog or Program Settings dialog as described below. If custom settings are not desired, skip this



Customized settings may not be compliant with ATSC A/85 standards. Because custom settings are intended for analytical use only, it is strongly recommended to use the default factory-calibrated A/85 for normal compliance monitoring and records.

1. Clicking **Settings > Audio Measurement** opens the template in which ITU BS.1770-3 threshold and loudness measurement parameter settings can be modified from default standard settings. A graphic also appears that shows an overview of the custom parameters as they apply to an example audio plot. (However, refer to BS.1770-3 for detailed information regarding these parameters.)

Note: This tab also allows setting the integration time for audio measurements displayed on the SpotCheck Overview tab.

Overview Average Time

Overview Loudness Averaging Time: Seconds

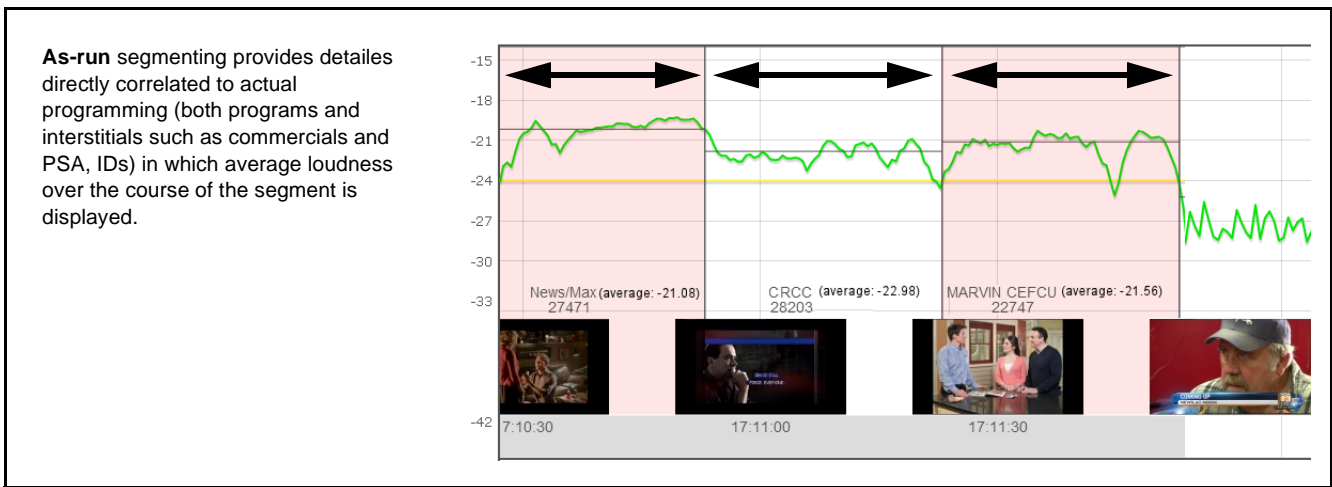
2. Enter a name for the custom preset (in this example, "Preset 1") and click **Update Audio Measurement Presets**. The custom preset can now be applied to specific audio subprograms as desired.

3. Apply the saved preset to an audio program by:
 - Selecting the custom preset in the **Audio Measurement** drop-down in the initial **Add Program** dialog. This applies the custom preset to all audio subprograms under the added Program.
 - After a program is already set up, selecting the custom preset in the **Measurement Standard** drop-down in the **Program Settings** dialog. This allows applying the custom preset to selected audio subprograms.

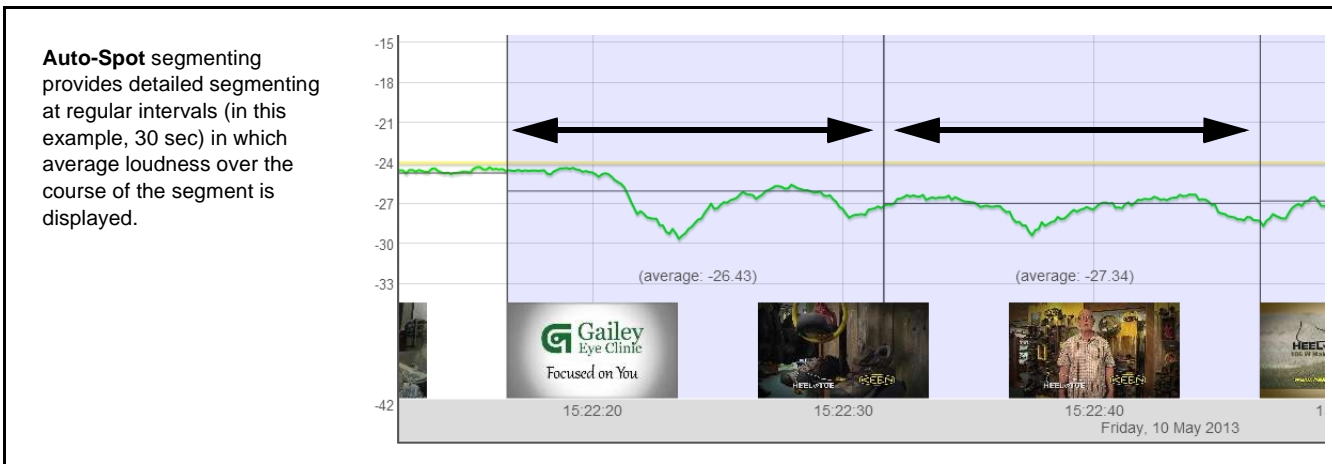
Setting up Segmenting/As-Run Integration for Program Plotting

SpotCheck[®] allows **segmenting** in which loudness details are shown and delineated at regular intervals within the overall running loudness plot for a program. This organizes running material into segments correlating to individual as-run spots or repeating time intervals, allowing loudness trends to be more readily assessed and correlated to specific programming.

- **As-Run segmenting** is available where as-run data is integrated with the programming (and where supported with appropriate SpotCheck program licensing). This segmenting provides segments delineated by, and directly correlated to, the spots themselves. **Direct correlation to spots and their loudness in historical reports can only be assured using as-run segmenting.**



- **Auto-Spot segmenting** provides segmenting at regular repeating intervals as shown below. This can be used in lieu of as-run support, and is useful where as-run correlation is not available (such as for programming without as-run support).



Setting Up Report Regions of Interest Filtering

The Regions of Interest filter allows reports to be limited to only selected repeating day/time intervals as described below.

Setting Up Report Regions of Interest Filtering

1. Click the **Settings** tab, then click the **Program Settings** program tab for the program in which Regions of Interest is to be enabled ("W2IA" in the example here).
2. In the **Regions of Interest** section, use the **From:** and **To:** drop-downs and the day check boxes to set days/time range for intervals to be reported, then check the **Enabled** box for the row. When enabled, all other intervals will be excluded from reports.
3. Click **Update Inclusion** when done.

In this example, reports are limited to only Monday, 4:00 PM thru 9:00 PM. To define other inclusion conditions, use the other rows as desired.

Enabled	Sun	Mon	Tues	Wed	Thurs	Fri	Sat	From	To
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4:00 PM	9:00 PM
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4:00 PM	9:00 PM
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4:00 PM	9:00 PM
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4:00 PM	9:00 PM

Update Inclusion

Setting Proxy (Lo-Res) Transport Stream Download Recording **Option**

Proxy settings allow transcoding of transport stream segments outputted as much smaller files as compared to uncompressed transport stream downloads.

Setting Proxy Download Recording

1. Click the **Settings** tab, then click the **Program Settings** program tab for the program in which Regions of Interest is to be enabled ("W2IA" in the example here).
2. In the **Proxy Recording** section, use the **Video Size**, **Video Bitrate**, and **Audio Bitrate** drop-downs to set the compression for the output files.
3. Set the **Data Storage Size** slider to the desired memory space allotted for lo-res stream recording (default is recommended).
4. Check the **Enable proxy** box to enable proxy recording for the audio program and its video. Set the **Data Storage Size** slider to the desired memory space allotted for lo-res stream recording (default is recommended).
5. Click **Update Proxy** when done.
To apply any changes after a proxy is set up, simply change the settings as desired and again click Update Proxy.

Proxy Recording

Enable proxy:

Video Size: 240p

Video Bitrate: 128Kbps

Audio Bitrate: 64Kbps

Data Storage Size: 100GB

Approx Storage Time: 63 Days

Update Proxy

Setting up As-Run Data to Segment Program Plotting

- Note:**
- If the added program(s) are not to be correlated to As-Run automation, omit this procedure.
 - Search function requires the program be correlated to as-run data as described here. Note that only the SPOTCHECK-LICENSE-AUDIO-FULL program license supports as-run (and in turn the Search function).
 - Each program uses its own unique as-run data. For each program, repeat the procedure below as required.
 - Current SpotCheck versions support BXF (Broadcast Exchange Format) as-run data.

As-run query by SpotCheck[®] provides a powerful tool in readily correlating offending segments to their sources. The steps below describe how to set up SpotCheck[®] to import your plant's as-run data in either of two methods:

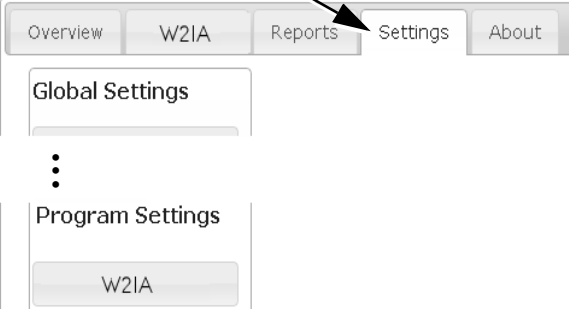
- **Windows Share** – Files are automatically imported from a specified location on you network. If the files are updated on the specified directory, the updated file replaces the previously imported data.
- **Manual Upload** – A file can be manually dragged and dropped using a browser tool. In this manner, an operator can drag and drop a base or superseding file as needed to keep the as-run correlation fresh.


As-Run File Import Via Windows Share

To integrate As-Run files from your automation server into the program display and management tools, you need to show SpotCheck[®] where to look on your network to find the As-Run files as described below. As-Run integration is performed on a program-by-program basis.

As-Run File Import Via Windows Share

1. Click the **Settings** tab, then click the **Program Settings** program tab for the program in which As-Run is to be integrated (“W2IA” in the example here).



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As-Run File Import Via Windows Share – continued

2. In the **As-Run Settings** section, set the fields as described below.

Note: Hovering over a field provides information about filling in the field.

Selection/Field	Description
Auto Spots	Short and Long Auto Spots allow segmented display (of intervals set using sliders) which can be enabled here and then selected on program plot to show average LKFS over the segment duration. This can be used in lieu of as-run support, and is useful where as-run correlation is not available (such as for programming without as-run support).
Timezone:	Set this field to conform with timezone used by the automation system
Millisecond Offset:	Provides compensation of delay common between the actual plant automation run by the as-run list, and the as-run directed content seen in the transport stream. Offset can be iteratively set by observing and correcting synchronization between the as-run data time stamp displayed on SpotCheck and the roll-out of the corresponding program material. It is recommended to start with using the default 1000-msec offset.
Asrun Source:	Set to windows share
Server IP:	Set to server IP address where as-run is to be imported from
User Name/Password:	username/password pair associated with access to this directory (as set on specified server/directory)
Directory:	Directory on server specified above where as-run file is stored
Device Filter:	Where required, specifies the filter to enable access for this channel (only required for as-run files that support multiple devices/channels)
Exclude Code:	Sets as-run correlation to exclude logging of specified as-run codes (for example, "safe harbor" certified network programming requiring no local loudness logging)
Exclude spots less than (ms):	Sets as-run correlation to exclude any segment from logging that is shorter in duration than the threshold specified here. Set Exclude spots less than (ms): to an integer value of 3 or greater.
Filter AsRun Regex:	Allows filtering using regular expressions (for example, entering ".*W2IA.*" will filter to only files containing W2IA as a part of the file name)

3. Apply the entries performed above using the **Update Settings** or **Reload Data** buttons as follows:

- **Update Settings** – Use this button when entering settings from scratch, or doing incremental changes to settings.
- **Reload Data** – This button clears any as-run data stored in SpotCheck and refreshes the data with that from the specified address when the button is pressed.

4. Repeat the above steps for **each** program where as-run data is to be used to segment the program measurement.

5. Proceed to Setting Up E-Mail Notification and SpotCheck® Forwarding (p. 3-28).

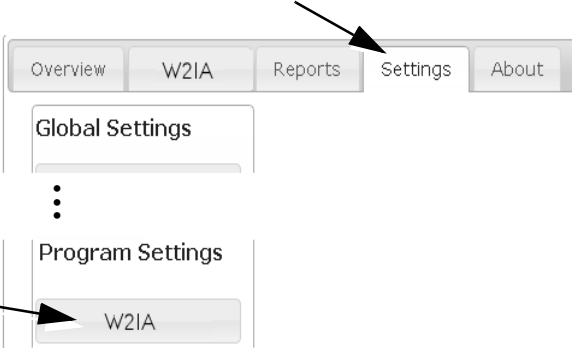
As-Run File Import Via Manual Upload

Note: Manual as-run file uploads will not work in Internet Explorer; instead Firefox or Google Chrome must be used.

SpotCheck® can alternately be set to use a manually imported file as its as-run source. Note that when manually importing a file, a superseding file will need to be re-imported when the previous file becomes “stale”.

As-Run File Import Via Manual Upload

1. Click the **Settings** tab, then click the **Program Settings** program tab for the program for which As-Run is to be integrated (“W2IA” in the example here).



◀ – continued on next page –

As-Run File Import Via Manual Upload – continued

2. In the **As-Run Settings** section, set the fields as described below.

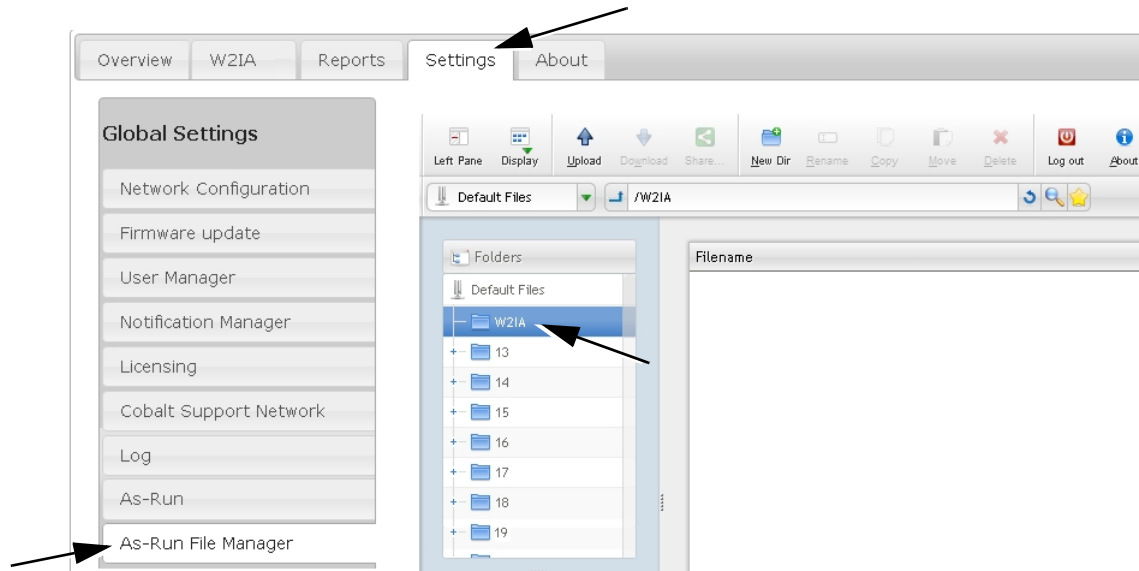
Note: Hovering over a field provides information about filling in the field.

Selection/Field	Description
Timezone:	Set to conform with timezone used by the automation system
Millisecond Offset:	Provides compensation of delay common between the actual plant automation run by the as-run list, and the as-run directed content seen in the transport stream. Offset can be iteratively set by observing and correcting synchronization between the as-run data time stamp displayed on SpotCheck and the roll-out of the corresponding program material. It is recommended to start with using the default 1000-msec offset.
Asrun Source:	Set to manual upload
Exclude Code:	Sets as-run correlation to exclude logging of specified as-run codes (for example, "safe harbor" certified network programming requiring no local loudness logging)
Exclude spots less than (ms):	Sets as-run correlation to exclude any segment from logging that is shorter in duration than the threshold specified here. Set Exclude spots less than (ms): to an integer value of 3 or greater.
Filter AsRun Regex:	Allows filtering using regular expressions (for example, entering ".*W21A.*" will filter directory to display files only containing W21A as a part of the file name)
Note: Settings not described can be left blank for this mode.	

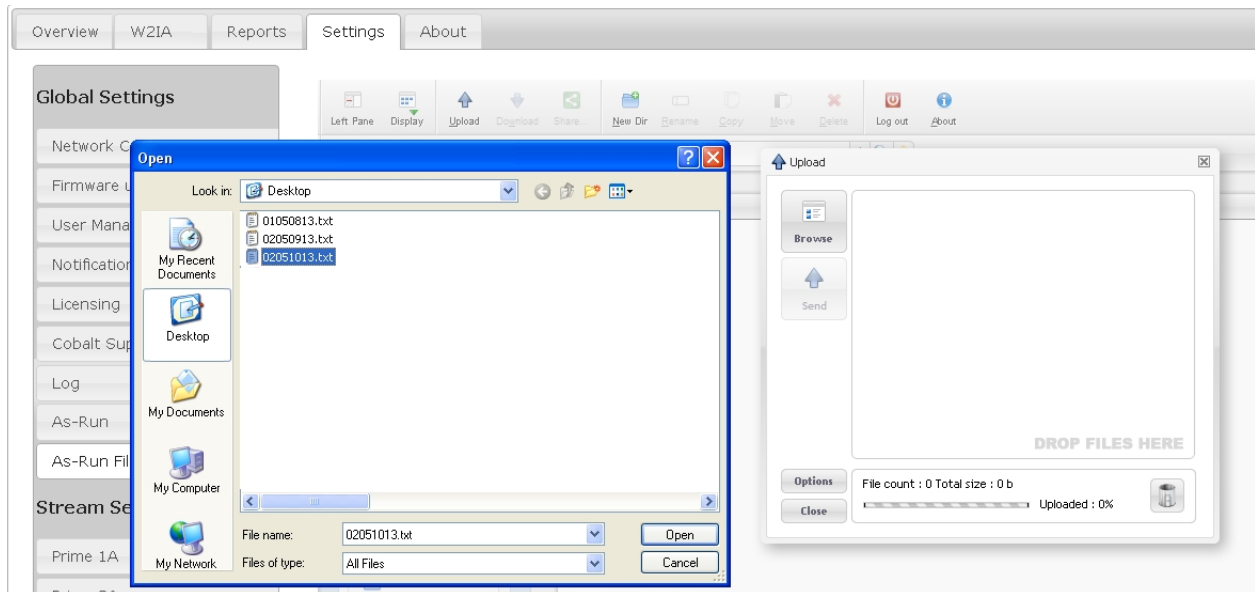
– continued on next page –

As-Run File Import Via Manual Upload – continued

3. Click **Settings > As-Run File Manager**, then click the folder for the program in which an as-run file is to be integrated (in this example, "W21A").



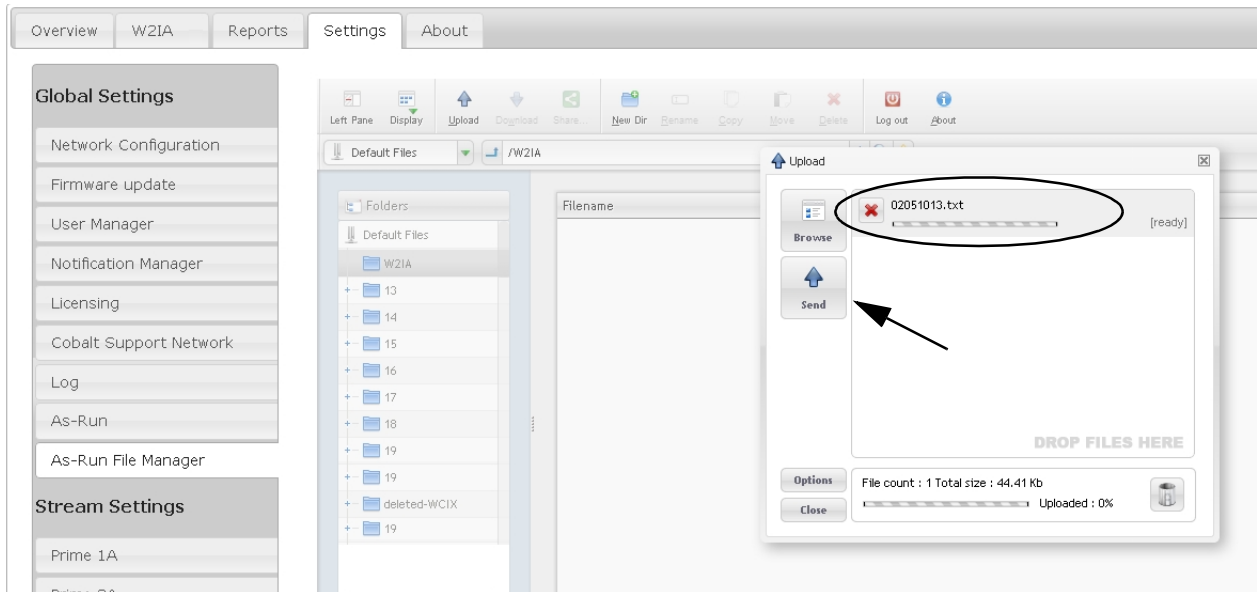
4. In the browser area shown above, click **Upload** and then click **Browse**. Browse to and select the as-run file on your computer to be added for the program (in this example Desktop > 02051013.txt), then click **Open**.



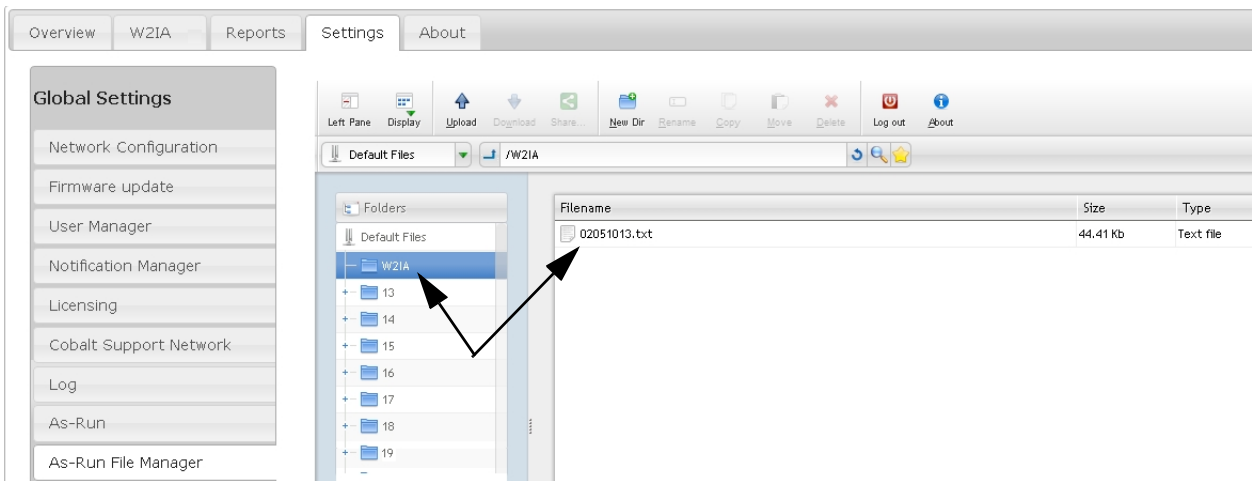
– continued on next page –

As-Run File Import Via Manual Upload – continued

5. The added file now appears in the Upload window. Click **Send**.



When the file finishes send, it is now placed in the program's as-run file folder on SpotCheck.



Note: • Each Program has its own as-run file folder. Files in any given program as-run folder are associated **only** with the corresponding program.

- As-run integration looks at the contents of any given file for formatted time stamps within the file, indicating the file's validity for a given time frame. The presence of multiple files within a folder does not affect proper as-run integration; only the file bearing a corresponding time stamp is used for a particular day.

6. Repeat the above steps for **each** program where as-run data is to be used to segment the program measurement.

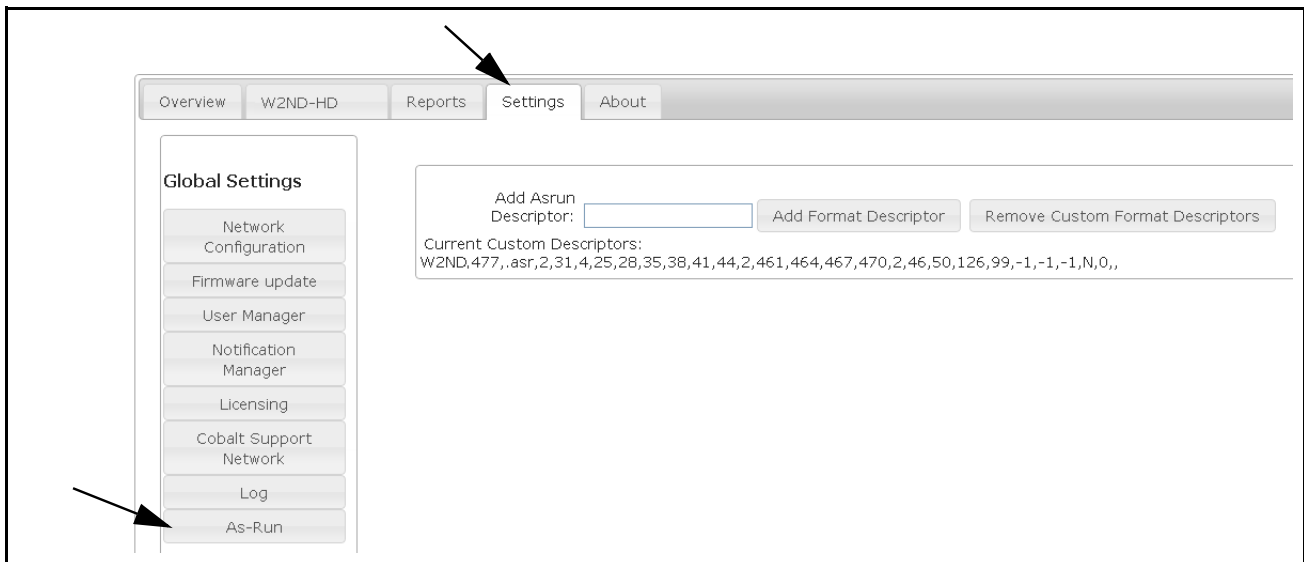
7. Proceed to Setting Up E-Mail Notification and SpotCheck® Forwarding (p. 3-28).

As-Run Support For Unrecognized Formats

Because as-run files do not necessarily conform to a generic structure, Cobalt Support can help in making non-compliant as-run files conform with the column parsing expected by SpotCheck®.

By clicking **Settings > As-Run**, an **As-Run Descriptor** dialog allows a descriptor string to be pasted in a request field to resolve as-run structure problems (Cobalt Support will provide the descriptor string based on your inputs, which you can then paste into the descriptor field). If you are having problems with integrating as-run files with SpotCheck®, contact Cobalt Support.

Note: Currently, it is recommended to only use the As-Run Descriptor dialog under direction of Cobalt Support.



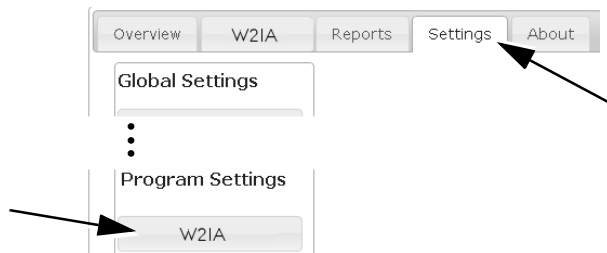
Using Auto-Spot to Segment Program Plotting

- Note:**
- Auto-Spot can be set up for programs where as-run is also set up. In these cases, auto-spot and as-run segmenting can only be used separately.
 - Search function is usable only with programming using as-run support. Meaningful correlation of loudness intervals to the actual programming in historical reports is available only where intervals can be correlated to intervals and sources delineated with underlying as-run data.

Enable auto-spot for a program as described below.

Setting up Auto-Spot Segmenting

1. Click the **Settings** tab, then click the **Program Settings** program tab for the program in which Auto-Spot is to be enabled ("W2IA" in the example here).



2. In **As-Run Settings**, click the boxes to enable **Short Auto Spots** and/or **Long Auto Spots** and select the repeating segment interval using the corresponding slider.

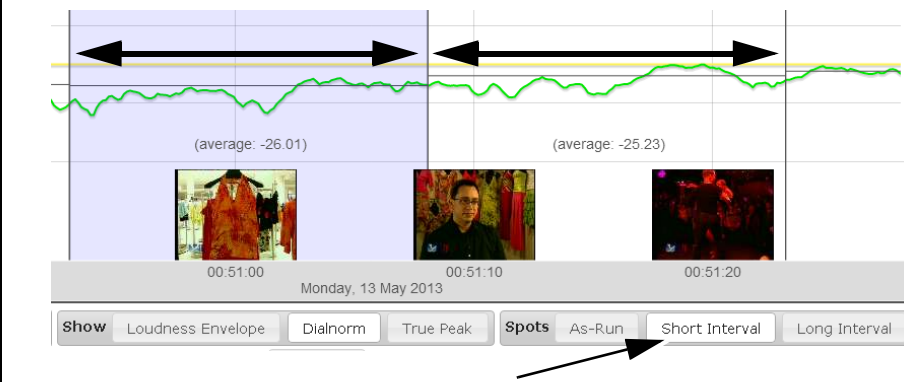
As-Run Settings

Short Auto Spots: 30 Seconds
 Long Auto Spots: 15 Minutes

Short Auto Spots allow repeated segmenting at 15-second to 60-second intervals (best suited for commercial spots)

Long Auto Spots allow repeated segmenting at 15-minute to 60-minute intervals (best suited for long-form material)

In the example here with Short Auto Spots enabled and set for 30 seconds, when a program stream plot is displayed and **Short Interval** is selected, 30-second segmented measurements are provided, each with an average LKFS measurement and LKFS Lo / OK / Hi assessment.



3. Set **Exclude spots less than (ms):** to an integer value of 3 or greater.
4. Click **Update Settings** when done.
5. Repeat the above steps for **each** program where Auto-Spot is to be used to segment the program measurement.
6. Proceed to Setting up E-Mail Notification and SpotCheck[®] Forwarding (p. 3-28).

Setting up E-Mail Notification and SpotCheck® Forwarding

- Note:**
- Any user that is to receive SpotCheck automatic e-mail notification must have their e-mail address included as part of user setup. Refer to Setting up User Administration (p. 3-4) for more information.
 - Graphs in e-mail reports using SpotCheck version earlier than 1.6.91 may not render properly if using Microsoft® Outlook (however, underlying text data will be displayed). It is recommended to upgrade to the latest firmware if Outlook is to be used. (See Using Software Upgrade, Licensing and Log Tools (p. 3-48) for firmware upgrade instructions.)
 - E-mail reports are intended to be used with programming supported with as-run data. Meaningful correlation of loudness intervals to the actual programming is available only where intervals can be correlated to intervals and sources delineated with underlying as-run data.

SpotCheck® provides automatic e-mail notification with multi-level escalation. An example report is shown and described below.

Daily Summary
provides raw spot count and distribution percentage of Loud, OK, and Quiet spots.

SpotCheck Report for: 2012-10-30

Program: W2ND-HD
 Audio: W2ND-HD
 Total Spots: 600
 Loud: 58, 9% OK: 523, 87% Quiet: 19, 3%

Loudness Histogram:

Deviation from dialnorm (dB)

Detailed report

Average Loudness Too High

Airtime	Duration	Description	Code	Dialnorm	LKFS	Error	Main LU
14:26:13	00:00:15.00	EL TOD 10/29	62293	-23.00	-19.75	3.25	
12:58:43	00:00:15.00	EL TOD 10/29	62293	-23.00	-19.75	3.25	
14:59:58	00:00:03.00	ID/WCIR GEN HD	62752	-23.00	-20.08	2.92	
21:37:53	00:00:30.00	Nord Dealers	34922	-23.00	-20.17	2.83	
06:55:06	00:00:30.00	MACKS TWIN CITY REV	35155	-23.00	-20.22	2.78	

Average Loudness Too Low

Airtime	Duration	Description	Code	Dialnorm	LKFS	Error	Main LU
01:30:18	00:00:59.00	PSA/HMELND SECURITY	70966	-23.00	-25.01	2.01	
05:40:31	00:00:30.00	John's Learning Center	35254	-23.00	-25.03	2.03	
17:14:49	00:02:52.00	3 News at 5p N/R	PROD	-23.00	-25.14	2.14	

Daily Detail, in addition to the summary above, provides full details of each spot including (where available/applicable) as-run code, dialnorm, LKFS, and deviation error

Setting up E-mail Notification

Click **Settings**, then click **Notification Manager**. Perform settings as shown in the example below.

Setting up E-mail Notification

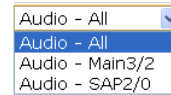
In this example, three users (admin, corey, and kieran) have been configured to receive e-mail notification (as set in Settings > User Manager in Setting up User Administration, pg. 3-4).

The user notification escalation levels/types are:

- **Instant** – Sends e-mail whenever a loudness threshold is exceeded (high or low LKFS/LUFS).
- **Daily Summary** – Sends daily summary graph.
- **Daily Detail** – Sends daily full details.
- **Daily All** – Sends a list (sorted by time) of **all** spots that ran on the previous day. (This feature works only for programs using as-run data.)

For any user, these notifications can be enabled or disabled by toggling the corresponding level button **On** (white background) or **Off** (gray background). Also note that level escalation for any user can be individually set for each program. (Default setting is for all notification disabled for all users.)

The **Audio** drop-down allows e-mail notification to be sent for all programming, or restricted to only selected audio programs.



	Users		
	admin	corey	kieran
W2IA	Instant	Instant	Instant
	Daily Summary	Daily Summary	Daily Summary
	Daily Detail	Daily Detail	Daily Detail
	Daily All	Daily All	Daily All
W2IX	Instant	Instant	Instant
	Daily Summary	Daily Summary	Daily Summary
	Daily Detail	Daily Detail	Daily Detail
	Daily All	Daily All	Daily All

In this example, user “corey” has notification set for the two programs here as follows:

- W2IX**
 - **Instant** notification
 - **Daily Detail** notification
- W2IA**
 - **Daily Summary** notification
 - **Daily All** notification

In this example, user “kieran” has notification set for the two programs here as follows:

- W2IX**
 - **Daily Summary** notification only
- W2IA**
 - **Daily Summary** notification only

Forwarding a SpotCheck® GUI Hyperlink

Any portion of a displayed plot can be forwarded by copying the address displayed in your browser's URL bar. As different areas of the plot are accessed, the address in the URL updates to forward the recipient to the same originating portion.

Forwarding a SpotCheck® GUI Hyperlink

1. Navigate to the desired span of the plot.
2. With the desired span displayed, right-click on the addressed currently displayed in the browser URL bar.
3. Select Copy. The URL can now be pasted into an email message or other communication. The URL that appears in the bar is dynamically updated as the screen plot view is navigated or other attributes are changed.

The screenshot shows the SpotCheck web interface. The browser's address bar contains a long URL: `spotcheck5/?alerts-filterby=&maintabs=1&settingstab=3&video_id=0&audio_id=0&avg...?#start_position=1386877804057421&end_lasrun=false&btn_dialnor`. An arrow points from the text "Right-click and copy URL" to the address bar. The main plot area shows a green waveform on a grid with a yellow horizontal line at approximately -24. Below the plot are video thumbnails for "PAYS OFF", "04:43", "total gym", "04:45", and "04:46". The interface includes a "Zoom:" menu on the right with options from 10S to Max, and a control bar at the bottom with settings for Scale, Show, Loudness Envelope, Dialnorm, True Peak, Spots, As-Run, Short Interval, Long Interval, and Moving Average.

Using Audio Program Loudness Graphs and Search/Report Tools

Using Audio Program Loudness Graphs

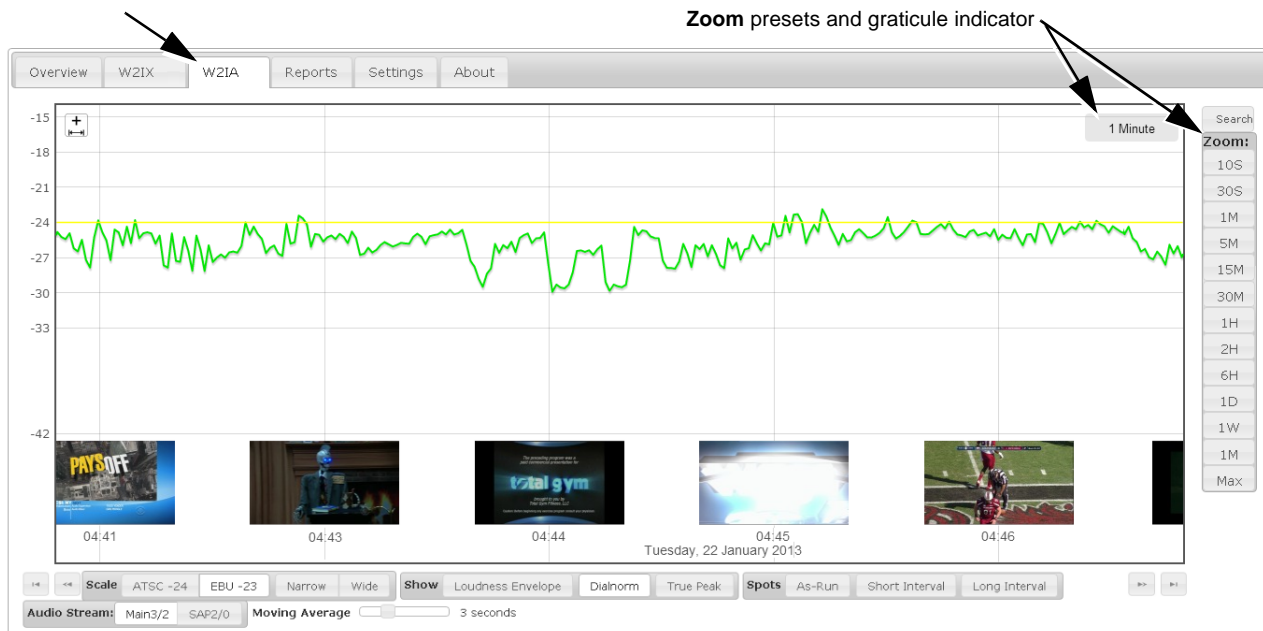
Using Audio Program Loudness Graphs

When an audio program is added, a tab with its name is added to the basic display. Click the tab to open the loudness graph and access other tools for the program ("W2IA" and its audio streams "Main3/2" and "SAP2/0" in this example).

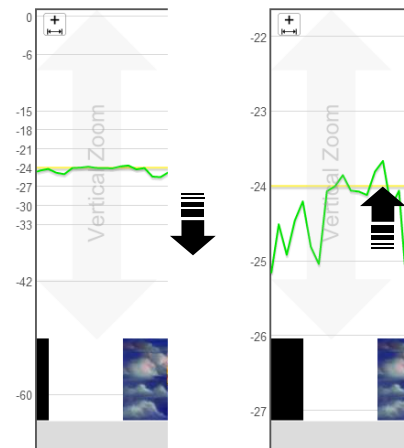
— Basic Navigation —

- **Zoom** presets set the span or range of zoom showed (relative to the time shown in the center of the graph (for example, here an approximate five-minute range (centered about center-point 04:44) is displayed by clicking **5M**). Unit abbreviations in ascending order are seconds (S), minutes (M), hours (H), day (D), week (W), and month (M). **Max** zooms out to the maximum stored capture of programming.

The **◀** and **▶** buttons jump to the earliest or latest captured logging stored in SpotCheck. The **◀◀** and **▶▶** buttons take the view to the start or end of the currently displayed span. The graticule interval indicator ("1 Minute" in the example below) indicates the zoom level currently displayed by showing the interval of each time-axis graticule (e.g., 1 minute between each vertical graticule).



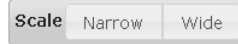
- **Vertical Zoom** allows the vertical (loudness measurement units) axis to be magnified or compressed as desired. Hover the mouse over the left portion of the plot. When "Vertical Zoom" appears, use the mouse wheel to magnify or compress the scale as desired.



— continued on next page —

Using Audio Program Loudness Graphs – continued

• **Scale** provides pushbutton **Wide** and **Narrow** vertical axis display modes.



Wide maximizes the vertical axis, allowing the measurement units axis to also display true peak plots (see next page for details about multiple units display)

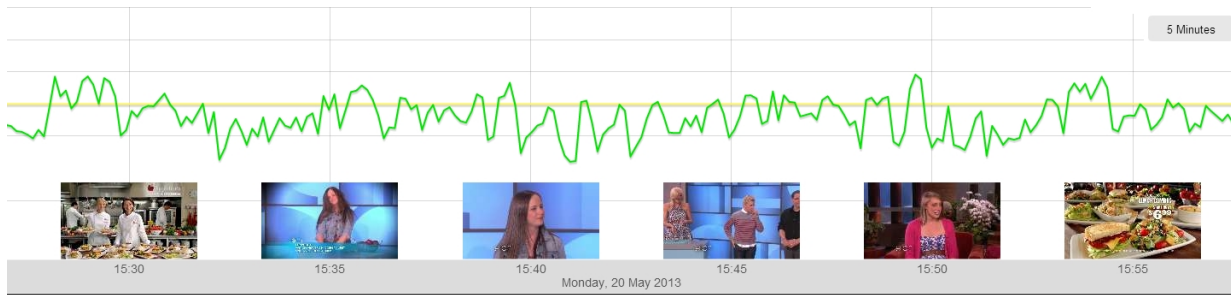


Narrow magnifies the vertical axis

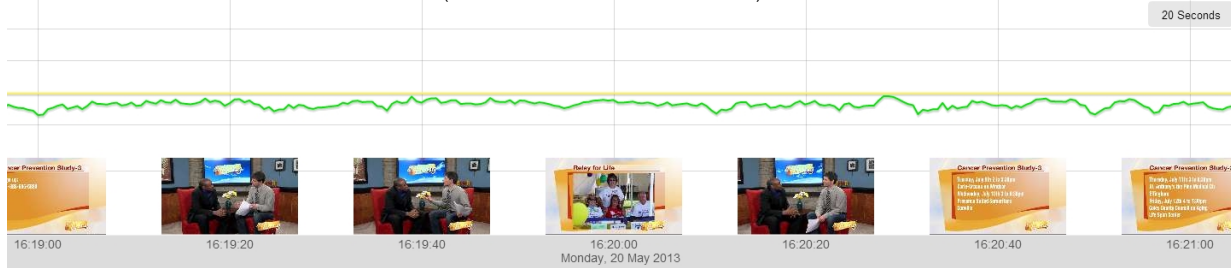


• **Zooming Using Mouse Wheel**

The time span displayed can be zoomed out or in by using the mouse wheel with the cursor placed on the display. Defined spans can be displayed anytime by clicking the desired **Zoom** button. The resulting zoomed-in portion will be centered at the area of the cursor position.



View showing span of 5 minutes per graticule (rotate wheel down to zoom out wider)



Magnified span now showing 20 seconds per graticule (rotate wheel up to zoom in)

– continued on next page –

Using Audio Program Loudness Graphs – continued

• Panning By Dragging Mouse

Earlier segments within a stream of program thumbnails (with near real-time origin at 15:00 in this example) are accessed by placing the mouse over the thumbnail area and then dragging the mouse to pull desired portions into view. Panning also works in the vertical direction.

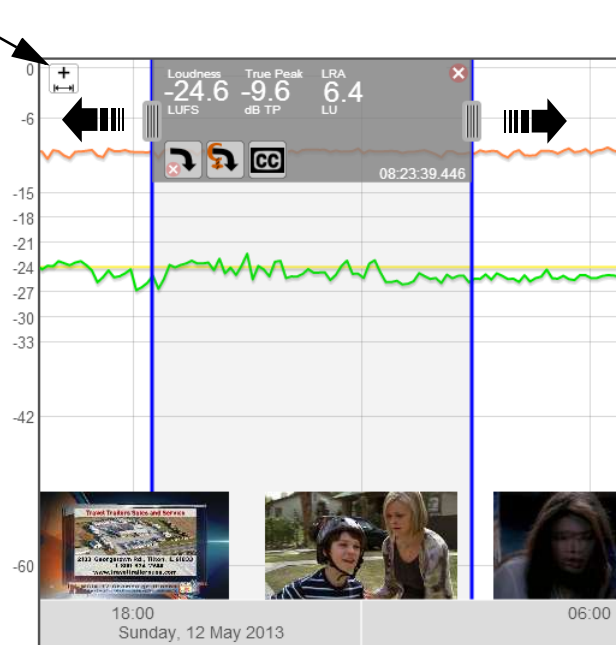


• Cursor-Defined Measurement and Stream Capture

Clicking the in the upper-left corner of the plot opens a cursor-defined region in which average LKFS, true peak, and loudness range (LRA) over the selected span is displayed. This tool also allows download of a transport stream interval set by the cursor boundaries. This tool allows spans up to 24 hours to be captured and analyzed.

Dragging the left and right handles sets the cursor-defined span. Average LKFS, true peak, and LRA for defined span is displayed, as well as the interval length selected.

- Clicking the icon downloads the selected transport stream interval (as a .ts file) which can be viewed on a media player for analysis.
Note: Uncompressed .ts files can be very large (about 1 GB per 7-minute interval).
- **Option** Clicking the icon downloads the selected transport stream interval (as a compressed proxy .ts file) which can be viewed on a media player for analysis.
- **Option** Clicking the icon opens a window where the closed-captioning text for the cursor-defined interval can be viewed and copied/pasted to a text editor.
- Click (close) to close the cursor tool.



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Using Audio Program Loudness Graphs – continued

— Measurement & Parameters Controls —

• Audio Program Select

For a video program where multiple audio programs have been added (as described in Adding Programs (p. 3-12), the **Audio Stream** sub-tab appears at the bottom of the graph area that allows selection of the audio program to be plotted on the graph (in this example, choices “Main3/2” being the main 3/2 surround program and “SAP2/0” being a secondary stereo audio program).



• Moving Average Select

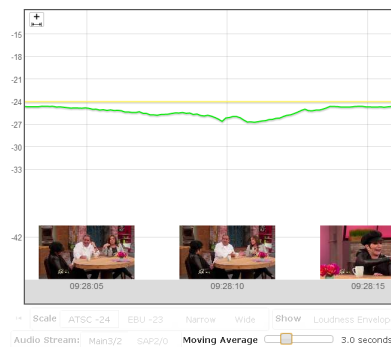
Allows selection of ITU 1770 moving average. Sets the duration (in seconds) that sampling time accumulates before each averaging recalculation of measured LKFS. (Range is 0 to 10 seconds; 3-sec default. Minimum sampling interval (instantaneous) is 100 msec sampling.)

Note: • ATSC A/85 considers a 3-second moving average as the basis for short-term loudness assessment. Settings other than 3-second default, while useful for detailed spot loudness analysis, should not be used as a basis in legislatively-prescribed loudness measurement or assessments. (Value selected using this control has no effect on logged loudness measurement or records; the Moving Average Select control only affects on-screen plotting.)

- Zoom may need to be set tight enough to see an appreciable difference between moving average selections.



Zero-second moving average shows instantaneous LKFS excursions



3-second moving average shows normal 3-sec smoothing/average



10-second moving average shows a long-form average

— continued on next page —

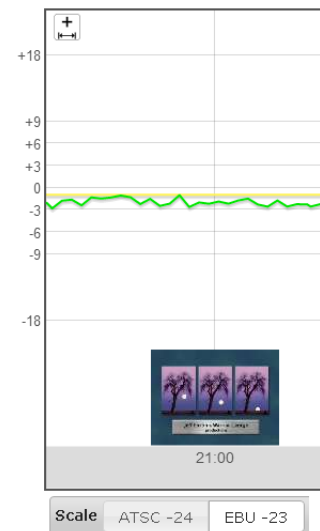
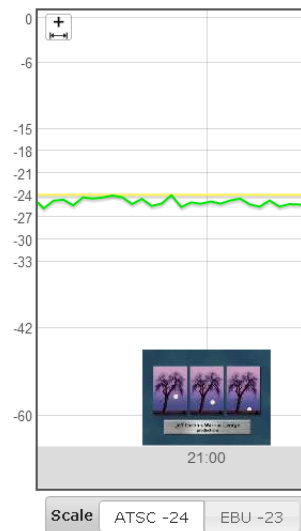
Using Audio Program Loudness Graphs – continued

• ATSC -24 Scale Select

Allows selection of absolute ATSC scale loudness scale.

Measurement mode uses ITU BS.1770-3 gating in which levels below the gating threshold (typically -8 LU below the target level) are rejected from the spot measurement. As such, there is not a loudness “budget” where unusually low levels can artificially influence the overall assessment in the measurement.

Note: The Scale selector only selects vertical axis units display and does not invoke either measurement mode. Measurement mode is set up as part of program setup in Adding Programs (p. 3-12).



• Cursor-Positioning Measurement provides a numerical reading of true peak, dialnorm, or loudness average by placing the cursor anywhere along a plot.

Note: Loudness value displayed using cursor corresponds to plotted value at all times (with value displayed a function of moving average Moving Average Select setting described on previous page).



• Show (show parametric aspects) allows simultaneously display of any aspect related to spot loudness:

- **True Peak** shows instantaneous true peak plot.
- **Dialnorm** shows the associated dialnorm.
- **Loudness Envelope** shows range of highest/lowest instantaneous LKFS readings sampled at 100-msec intervals.

Note: Typically, the **Wide** scale view is needed to simultaneously view these multiple parameters. When in the Wide view, measurement axis is shared with units as follows:

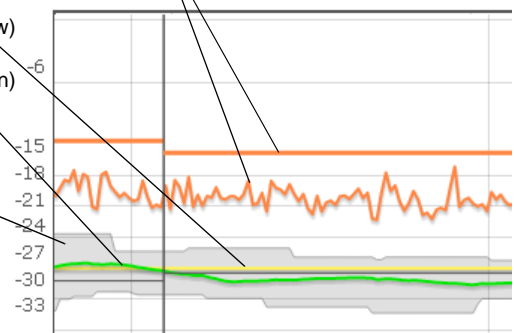
- LKFS or LUFS for loudness plots (depending on mode).
- dBFS for true peak plot.
- Dialnorm value for dialnorm plot (where present in audio).

True Peak plot (orange)
(Straight line is max true peak over duration of spot)

Dialnorm plot (yellow)

Loudness plot (green)

Loudness Envelope (gray fill)



◀ – continued on next page – ▶

Using Audio Program Loudness Graphs – continued

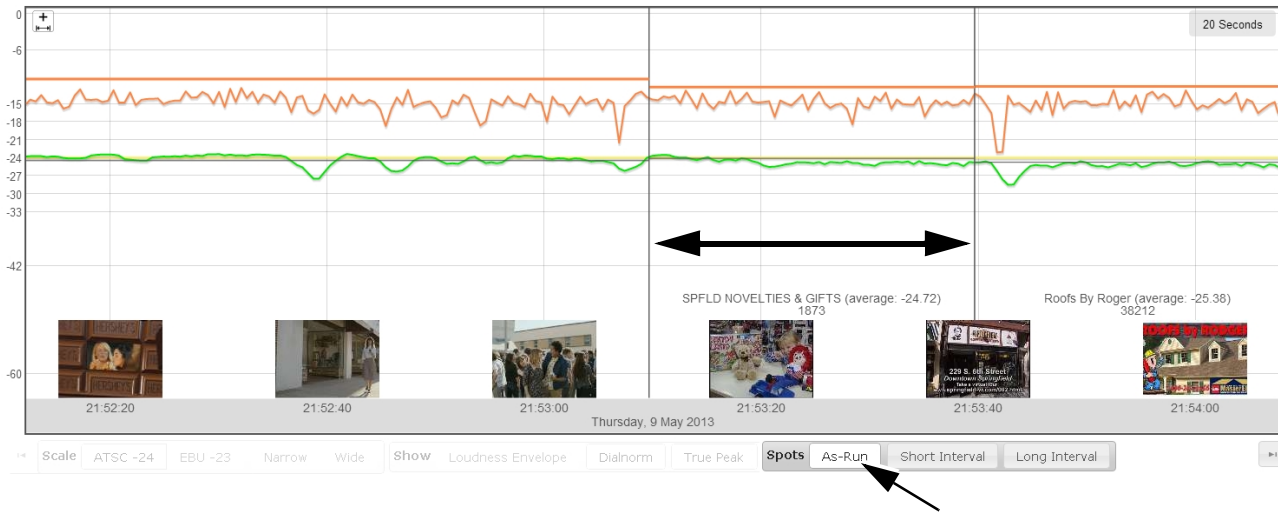
— Spot Segmenting/Correlation Controls —

Segmenting using the **Spots** selector organizes running material into segments correlating to individual spots or intervals, allowing loudness trends to be more readily assessed and correlated to programming. Refer to Setting up Segmenting/As-Run Integration for Program Plotting (p. 3-18) for more information and for setting up programming plots to use these tools.



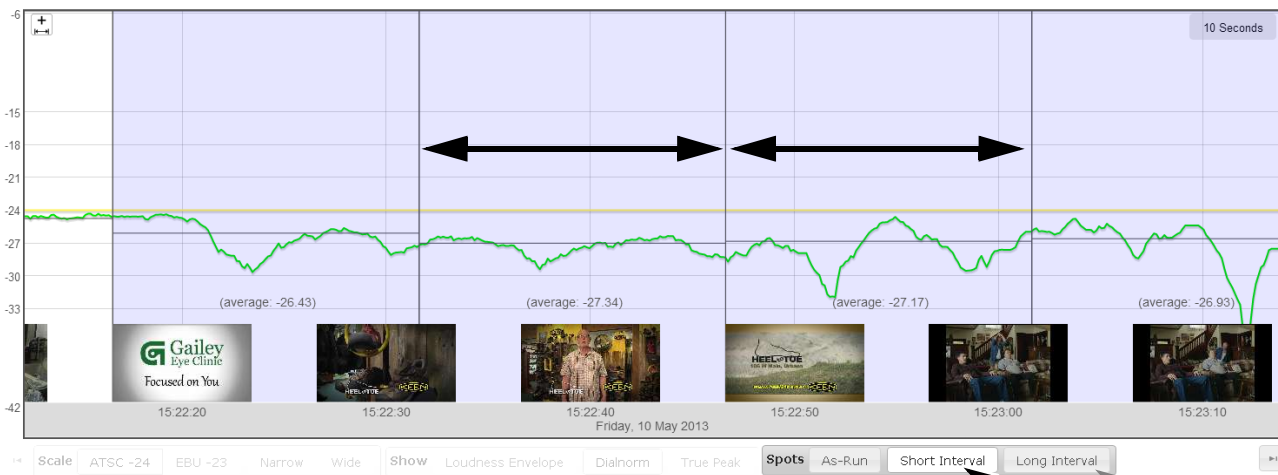
- **As-Run** selection (by clicking **As-Run**) provides detailed segmenting directly correlating to as-run integrated spots (in this example, “SPFLD NOVELTIES; 1872”) in which average loudness over the course of the segment is displayed.

Note: As-run segmenting is available only for programming segments where an as-run file has been integrated for the displayed interval.



- **Short Interval** or **Long Interval Auto-Spot** selection (by clicking **Short Interval** or **Long Interval**) provides detailed segmenting at regular intervals (in this example, 30 sec) in which average loudness over the course of the segment is displayed.

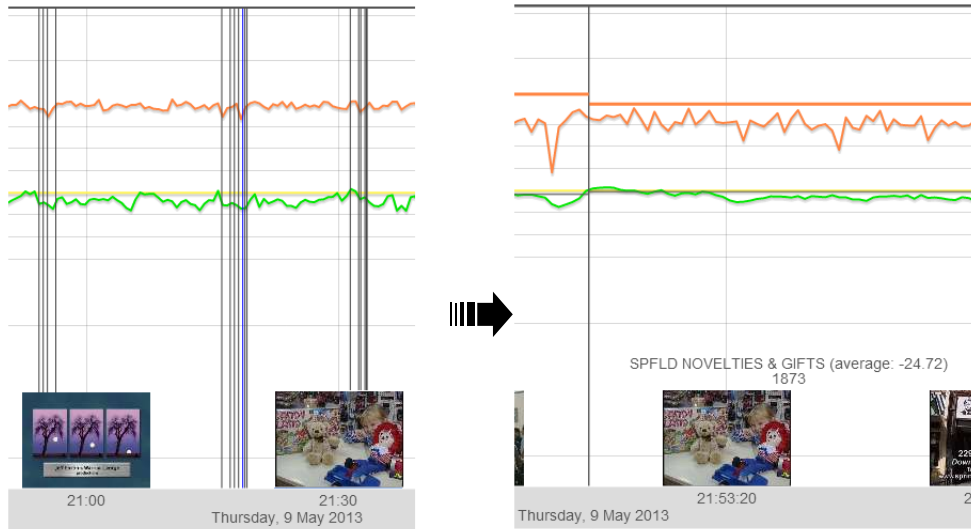
Note: Auto Spot intervals cannot be used in conjunction with Search function. Search can only use as-run correlated streams.



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Using Audio Program Loudness Graphs – continued

For all segmented display modes, if plot is too “zoomed out” (trying to display too wide of a time span), the segmenting will appear as a series of vertical lines. (If spot quantity is dense enough, the segment dividers may be suppressed entirely). When zoomed-in sufficiently, the individual spot and its underlying data can be observed.



Note: Average loudness units displayed for spots correlate with **Scale > ATSC** selection (e.g., when in ATSC mode, units are absolute LKFS).

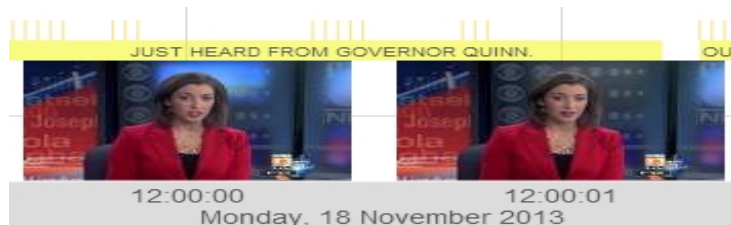
Option

Option **+QUALITYCHECK** allows presence of CEA708 and/or CEA608 packets to be shown on the programming plot, as well as the user text strings encoded into the CEA708 or 608 packets as shown below.

By zooming to about a 1 hour or less level, presence of CEA708 and/or CEA608 packets is indicated by the yellow **(CC) 708** or **(CC) 608** bands just above the thumbnail images.



Zooming tighter allows the string content to appear as it correlates to each thumbnail frame.



Using the Search Tool

Using the Search Tool

Search allows stored segments to be readily found and displayed using any of several search criteria.

Note: Search can only be used with programs supported with as-run data.

1. With the program to be queried displayed, click the **Search** button. (To collapse the search function, click the **Search** button again.)



2. The **Search** dialog now appears. Select date range by individually clicking on the **Begin date:** and **End date:** fields. When either field is clicked, a calendar opens up, with shaded days showing the range in which SpotCheck data is available (with yellow denoting the partial real-time latest day).
3. For the **Begin date:** and **End date:** fields, select begin and end dates using the calendar tool.
4. To restrict the search to only specific segments, enter text in the **Search:** field. This can include any as-run text or closed caption string text (where licensed with **+QUALITYCHECK**) as selected using the **Search Dataset** drop-down. Leave the field blank to serve as a wildcard and omit filtered search.
5. Use the **Exclude Code:** field to mask searching to exclude any data related to the entered as-run code. This is useful for intentionally omitting returned results which are not needed in a query (for example, network programming that is certified as "safe harbor" loudness compliant and requires no further analysis, reporting, or records). (See Loudness Records Pursuant to the CALM Act (p. 1-12) in Chapter 1, Introduction for more information about "safe harbor".)
6. Select from choices in the **Sort By:** drop-down to organize the search results as desired in descending order or order of selected criteria.
7. Click **Go**. The search results are now displayed (see next page).

Search Dataset: AsRun AsRun Caption Go

Search:

Begin date:

End date:

Exclude Code:

Sort By: LUFS

Begin date: 11/07/2012

Nov		2012				
Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

Sort By: LKFS

- LKFS
- Time
- True Peak
- Duration
- Name
- Code

– continued on next page –

Using the Search Tool – continued

Search allows segments correlating to as-run data to be readily found. Any data within the as-run list (codes, noun names, etc.) can be used for a search. A search using simply a date range and sorted by specific criteria using the **Sort By:** drop-down provides a list sorted on the selected criteria in descending order.

In the example here for program “W21A”, a general date range search from January 24, 2012 back to January 22, 2013 returns a list of all as-run correlated segments and spots for this program.

In this example, LKFS was used as the **Sort By:** criteria, with the list consisting of worst to least offending LU deviation in descending order.

Segments exceeding LKFS threshold are highlighted red; segments below LKFS threshold are highlighted blue. Excluded spots (as set using **Exclude** filters in Setting up Segmenting/As-Run Integration for Program Plotting (p. 3-18)) are shown at the end of the list.

Note: For programs with multiple audio programs, displayed list correlates to the currently selected audio program (in this example, “Main 3/2”).

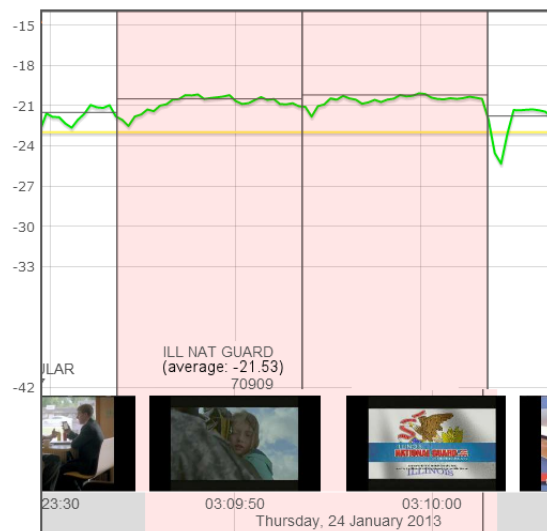
Airtime	Duration	Description	Code	Main 3/2		
				Target	LUFS	Error LU
2013 Jan 24 00:34:57	00:01:33.00	MERCEDESSON (CC) N/R	MBS	-24.00	-20.83	3.17
2013 Jan 23 22:16:19	00:00:30.00	HUSTEDT JEWELERS	36775	-24.00	-21.18	2.82
2013 Jan 23 05:59:01	00:00:30.00	FRUG FRI GENERIC	36698	-24.00	-21.74	2.26
2013 Jan 23 20:36:13	00:00:30.00	FRUG FRI GENERIC	36698	-24.00	-21.75	2.25
2013 Jan 24 06:36:15	00:00:30.00	FRUG FRI GENERIC	36698	-24.00	-21.77	2.23
2013 Jan 23 06:21:12	00:00:30.00	FRUG FRI GENERIC	36698	-24.00	-21.82	2.18
2013 Jan 23 22:13:07	00:00:30.00	FRUG FRI GENERIC	36698	-24.00	-21.84	2.16
2013 Jan 24 02:26:32	00:00:30.00	ILL NAT GUARD "FIRE"	70908	-24.00	-21.88	2.12
2013 Jan 24 03:09:32	00:00:30.00	ILL NAT GUARD "FLOOD"	70909	-24.00	-21.90	2.10
2013 Jan 24 06:16:42	00:00:30.00	CON Newsource Operations	36293	-24.00	-22.01	1.99
2013 Jan 23 13:27:36	00:00:59.00	RT&T Wired	36252	-24.00	-22.16	1.84
2013 Jan 23 09:58:23	00:00:59.00	RT&T Wired	36252	-24.00	-22.16	1.84
2013 Jan 23 12:09:29	00:00:30.00	Rainstorm Express Car Wash	36730	-24.00	-22.20	1.80
2013 Jan 23 12:01:42	00:07:12.00	3 News at Noon N/R	PROD	-24.00	-26.01	-2.01
2013 Jan 23 22:13:47	00:01:57.00	3 News at 10p (CC) N/R	PROD	-24.00	-26.01	-2.01
2013 Jan 24 12:22:36	00:00:30.00	Rudibel Digital Hearing	36588	-24.00	-26.02	-2.02
2013 Jan 23 04:09:02	00:00:30.00	Rudibel Digital Hearing	36588	-24.00	-26.02	-2.02
2013 Jan 24 04:27:03	00:22:40.00	RBS News N/R	CBS	-24.00	-26.03	-2.03
2013 Jan 23 00:00:30.00	00:00:30.00	CBS News Central News	36210	-24.00	-26.04	-2.04

Excluded Spots

Airtime	Duration	Description	Code	Main 3/2		
				Target	LUFS	Error LU
2013 Jan 19 00:19:16	00:00:01.00	-----	BLACK	-24.00	-20.14	3.86
2013 Jan 17 08:30:00	00:00:01.00	-----	BLACK	-24.00	-20.28	3.72

Clicking on a particular segment row in the list (in this example, “ILL NAT GUARD” at 2013 Jan 24 02:09:32) goes directly to the specified segment plot to show loudness plot and other criteria for this spot.



8. Click **Search** again to collapse and exit the search screen.




Using the Search Tool – continued

Option 

Where Option **+QUALITYCHECK** and/or **+AIRCHECK** are included, the returned search results have respective columns to use these functions as described below.

Airtime	Duration	Description	Code	AC3			Captions	
				Target	LUFS	Error LU		
2013 Nov 21 06:08:59	00:00:15.00	RANGER OUTLET	42098	-24.00	-20.96	3.04	608708	
2013 Nov 21 06:35:22	00:00:15.00	RLUMBERLAND	42141	-24.00	-20.98	3.02	None	

Where CEA708 and/or CEA608 is present, the **Captions** column shows **608, 708, or 608708** (as applicable) for the spot

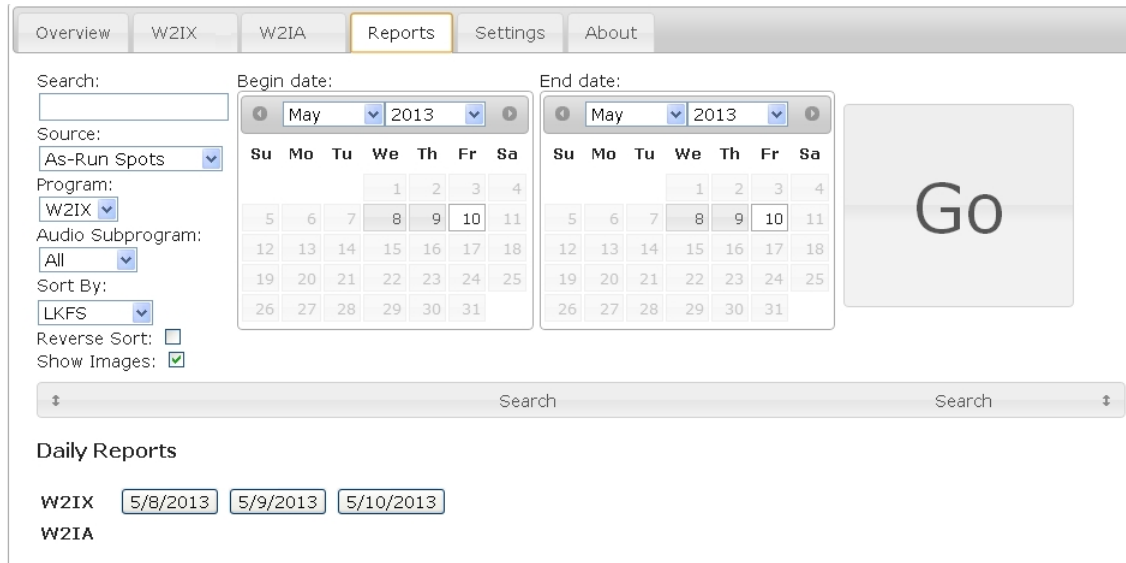
Clicking  allows a lo-res file of the stream corresponding to the spot to be downloaded

Using the Reports Tool

Reports allows a complete report for all segments on a given day, with segments organized into Average Loudness Too High, Average Loudness Too Low, and Average Loudness Nominal lists.

Using the Reports Tool

1. Click the **Reports** tab. The Reports palette opens (as shown below).



The screenshot shows the 'Reports' tab selected in a software interface. It includes search filters for 'Source' (As-Run Spots), 'Program' (W2IX), and 'Audio Subprogram' (All). There are date pickers for 'Begin date' and 'End date' both set to May 2013. A calendar grid shows the dates from May 5th to 31st. A large 'Go' button is visible on the right. Below the search area, there are 'Daily Reports' for W2IX on 5/8/2013, 5/9/2013, and 5/10/2013.

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Using the Reports Tool – continued

2. First, set up the report for the program and the criteria you want to sort by as described below.

2.1. Set up the segmenting source to be used to divide the overall program stream into sortable spot segments. Reports generated using As-Run will list spot segments by the as-run identifier; reports generated using short or long Auto Spots will list spot segments by the intervals provided by short or long intervals selected (as set up in Using Auto-Spot to Segment Program Plotting (p. 3-27).

Note: Where as-run data is available for a program, it is recommended to only select As-Run Spots here. As-run correlation provides the most representative and concise correlation to programming.

2.2. Set up the report for the desired program and its audio program(s).

2.3. Set up the report for the desired sort criteria. (Typically, for compliance reports sort by **Grouped LKFS** is most useful. Grouped LKFS selection organizes report into Too Loud - Too Quiet - Nominal; LKFS organizes report into simple descending list of highest to lowest).

2.4. Select check boxes as desired to show a thumbnail image correlating to each spot segment. Reverse Sort produces a report with reversed order of sort (for example, Reverse Sort applied to an LKFS report will list lowest LKFS first, and end with highest LKFS last).

3. At this point SpotCheck has enough report criteria entered such that Daily Reports are ready to be viewed. Click the desired button for a Daily Report for the desired program.

Source:
As-Run Spots

⋮

Daily Reports

W2IX [5/8/2013] [5/9/2013] [5/10/2013]

W2IA

In this example, because As-Run Spots was selected as the segmenting source, Daily Reports are returned only for programs that have associated as-run data (in this example, “W2IX” having as-run data, and “W2IA” not having as-run data).

Source:
Short Auto Spots

⋮

Daily Reports

W2IX [5/10/2013] [5/11/2013] [5/12/2013] [5/13/2013] [5/14/2013] [5/15/2013]

W2IA [5/10/2013] [5/11/2013] [5/12/2013] [5/13/2013] [5/14/2013] [5/15/2013]

In this example, because Short Auto Spots was selected as the segmenting source, Daily Reports are returned for any programs set to use Short Duration auto spots (in this example, both “W2IX” and “W2IA”).

Note: Because auto spots are simple repeated intervals, daily reports using auto spots can be very lengthy.

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Using the Reports Tool – continued

4. To generate reports for a specific time interval/date range, use the calendar tool to set a user-specified report interval, and/or use the **Search:** entry field to restrict a report as described below. Click **Go** to generate the report.

- In the calendar for the desired program, set the drop-downs in Begin Date: and End Date: as desired, and the click the begin and end days for the desired report (May 2013, 8th thru 11th in this example).

Search:

Begin date: May 2013

End date: May 2013

The gray-shaded days indicate days for which SpotCheck has stored data.

The and buttons in the calendar header allow earlier or later date ranges to be accessed where available.

- A user-defined report confined to specific search items is generated by entering specific data in the Search: field, and then clicking **Go**. In this example, “GENNESLER” ad name in **Search:** returns a report consisting only of spots correlated to “GENNESLER”. All other settings (such as sort, audio programs, etc.) remain in effect and are reflected in the report. (Search can use any string that appears in as-run data, such as spot name or code.)

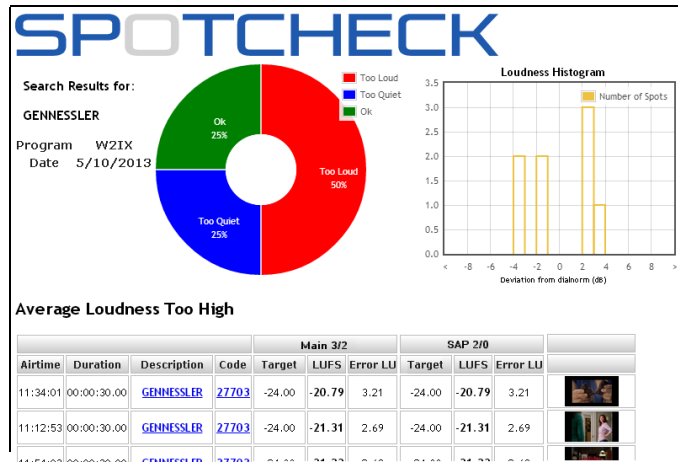
Search:

Source:

Program:

Audio Subprogram:

Sort By:



– continued on next page –

Using the Reports Tool – continued

5. A detailed report for the selected day and program is now displayed. Further analysis is available as described below.

A pie chart and histogram show the loudness compliance/deviation from dialnorm distribution of segments for the selected day/program

With **Sort by:** set to **Grouped LKFS**, a detailed listing of all segments is displayed and organized into Too Loud, Too Low, and Nominal (complying) categories (with the Too Loud and Too Low entries arranged from worst to least offense compliance, and Nominal arranged in chronological order).

Hovering over a thumbnail provides an enlarged view of the program thumbnail.

Clicking on a segment **Description** or as-run **Code** hyperlink opens another new tab now showing segment insertions filtered to only the selected as-run code (in this example, “Gennessler”; code 27703).

Note: Pie chart and histogram reflect data equally from all audio programs (where multi-PID audio is present for a given video program).

SPOTCHECK

A/85 Compliance Report
 Program W2IX
 Date 5/10/2013

Too Loud 41%
Too Quiet 57%
Ok 2%

Loudness Histogram
Number of Spots

				Main 3/2			SAP 2/0			
Airtime	Duration	Description	Code	Target	LUFs	Error LU	Target	LUFs	Error LU	
11:34:01	00:00:30.00	GENNESSLER	27703	-24.00	-20.79	3.21	-24.00	-20.79	3.21	
11:12:53	00:00:30.00	Late Night WithLLS	27781	-24.00	-21.31	2.69	-24.00	-21.31	2.69	
⋮										

Average Loudness Too High

				Main 3/2			SAP 2/0			
Airtime	Duration	Description	Code	Target	LUFs	Error LU	Target	LUFs	Error LU	
21:28:32	00:00:29.00	9/16 AT 10 TOPICAL	12000	-24.00	-26.01	2.01	-24.00	-26.01	2.01	
07:30:07	00:08:34.00	Today Show M-F	NETD	-24.00	-26.02	2.02	-24.00	-26.02	2.02	
⋮										

Average Loudness Too Low

				Main 3/2			SAP 2/0			
Airtime	Duration	Description	Code	Target	LUFs	Error LU	Target	LUFs	Error LU	
11:13:53	00:00:15.00	Bon Ton DeScherer	28193	-24.00	-22.16	1.84	-24.00	-22.16	1.84	
⋮										

Average Loudness Nominal

				Main 3/2			SAP 2/0			
Airtime	Duration	Description	Code	Target	LUFs	Error LU	Target	LUFs	Error LU	

SPOTCHECK

Search Results for:
GENNESSLER
 Program W2IX
 Date 5/10/2013

Too Loud 50%
Too Quiet 25%
Ok 25%

Loudness Histogram
Number of Spots

				Main 3/2			SAP 2/0			
Airtime	Duration	Description	Code	Target	LUFs	Error LU	Target	LUFs	Error LU	
11:34:01	00:00:30.00	GENNESSLER	27703	-24.00	-20.79	3.21	-24.00	-20.79	3.21	
11:12:53	00:00:30.00	GENNESSLER	27703	-24.00	-21.31	2.69	-24.00	-21.31	2.69	
⋮										

— continued on next page —

Using the Reports Tool – continued

Note in the example here for “Average Loudness Nominal” that even though two adjacent segments have widely differing loudness measurements, SpotCheck takes into account the dialnorm during each segment (where default settings to use dialnorm as the Target loudness is used). In this example, loudness variation in production was properly compensated for by tailoring the dialnorm in accordance with proper practice.

Average Loudness Nominal

Airtime	Duration	Description	Code	Target	LUFS	Error LU	Main
07:01:05	00:03:30.00	10/12 WX EARLY	12799	-24.00	-24.62	0.62	
04:08:05	00:01:30.00	10/10 LWS @ 10	12734	-27.00	-27.63	0.63	

If captured loudness data or as-run cannot be correlated for a spot in a report (such as when audio graphing or as-run integration wasn't present for a certain date range), **Inv** (invalid) is returned in the row for the spot(s).

Airtime	Duration	Description	Code	Dialnorm	LKFS	Error LU	Main
06:22:05	00:00:30.00	EVERY DAY FURNITURE	34671	Inv	Inv	Inv	

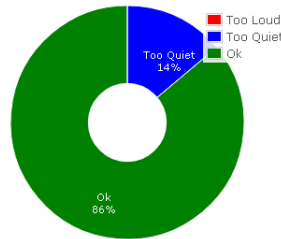
6. To save a report to your computer, right-click anywhere in the report body. When the save dialog opens, browse to a desired directory and save the report with a desired name (in this example, “W2IX_5-10-13” saved in Downloads).

Note: Unless the computer is running latest web browser with full Javascript enabled, it is recommended to use **Save as type: Webpage; Complete**.

If this is not done, the downloaded web page may not render correctly. As an alternate, the page can be saved as a screen capture graphic file (however, this flat file will not have the dynamic functionality of an actual web page download).

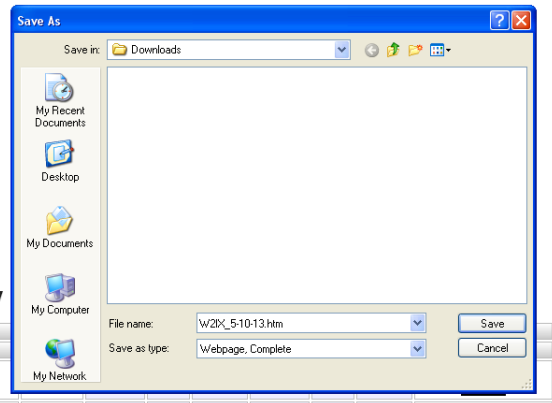
A/85 Compliance Report

Program W2IX
Date 5/10/2013



Average Loudness Too Low

Airtime	Duration	Description
01:28:25	00:00:30.00	MFlower Title Loans




Option

Where Option **+QUALITYCHECK** and/or **+AIRCHECK** are included, the returned report results have respective columns to use these functions as described below.

Airtime	Duration	Description	Code	Target	LUFS	Error LU	Captions
2013 Nov 21 06:08:59	00:00:15.00	RANGER OUTLET	42098	-24.00	-20.96	3.04	608708
2013 Nov 21 06:35:22	00:00:15.00	RUMBERLAND	42141	-24.00	-20.98	3.02	None

Where CEA708 and/or CEA608 is present, the **Captions** column shows **608**, **708**, or **608708** (as applicable) for the spot

Clicking  allows a lo-res file of the stream corresponding to the spot to be downloaded

7. To clear any generated reports from the SpotCheck Reports window, log out and log back on again.

Using Alerts Tools Option

(Option **+QUALITYCHECK** only) The **Alerts** tab shows a device-wide consolidated view of the occurrence of any issues affecting the integrity of the transport stream.

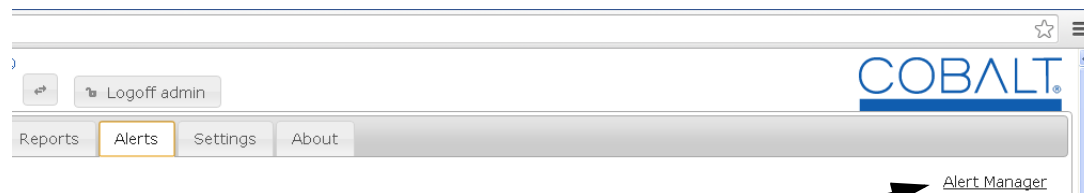
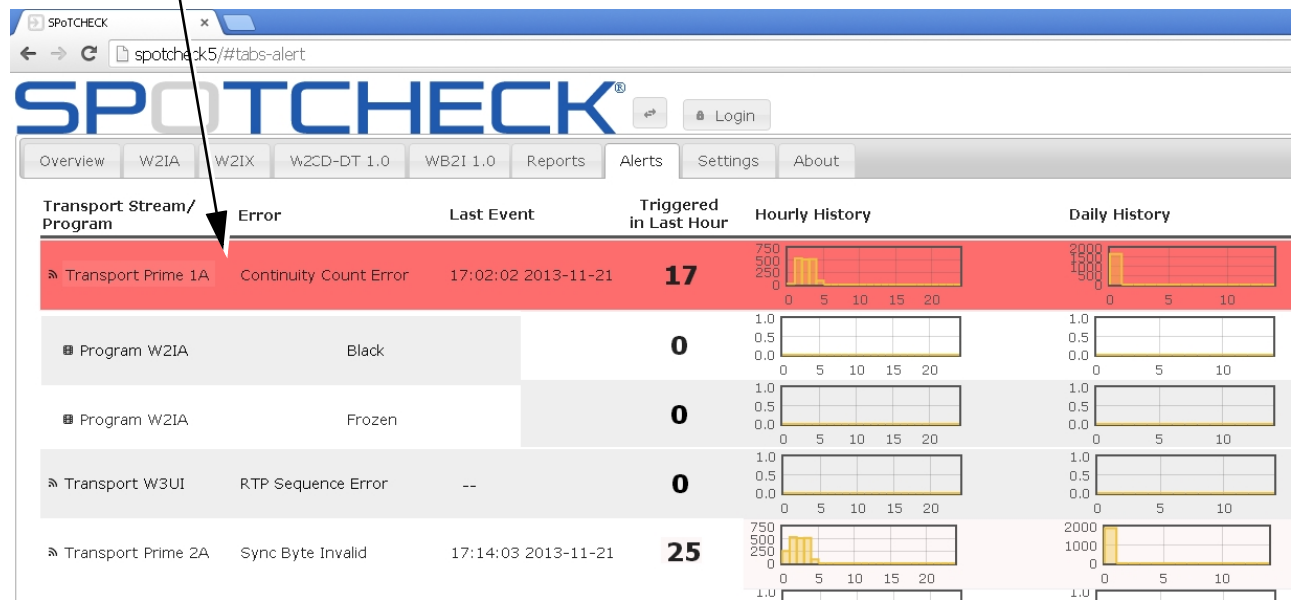
Using Alerts Tools

Name column shows no errors detected (“None”) or specific error detected for a transport stream or program. Detected errors include:

- Silence
- No Data Present
- Black
- Sequencing Errors
- Continuity Count Errors
- Sync Byte Errors
- Transport Error Indicators

Last Event and **Triggered in last hour** columns show occurrence of error events. When error events occur, an Hourly History and Daily History bar graph histograms are updated accordingly.

At the moment an error occurs, the error display row highlights in red (then fades to the normal background color after a few seconds). This is useful for real-time monitoring and pinpointing troubleshooting of transport streams or programs experiencing problems.



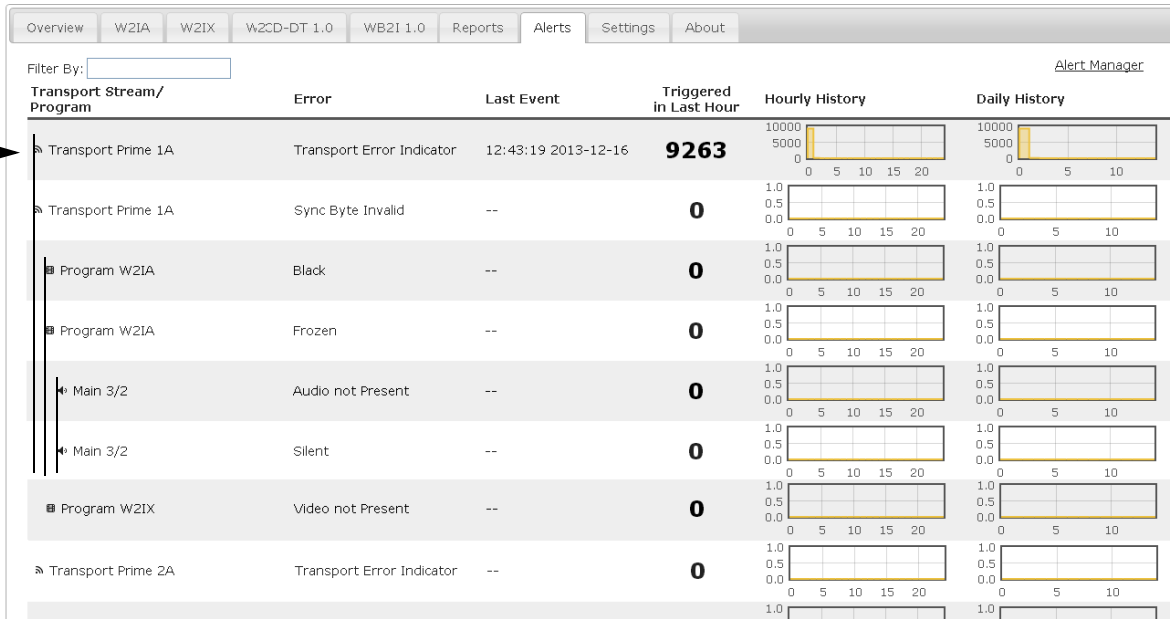
Clicking **Alert Manager** opens a page where detected alert events can be propagated to users via e-mail (shown on next page)

▼ – continued on next page –

Using Alerts Tools – continued

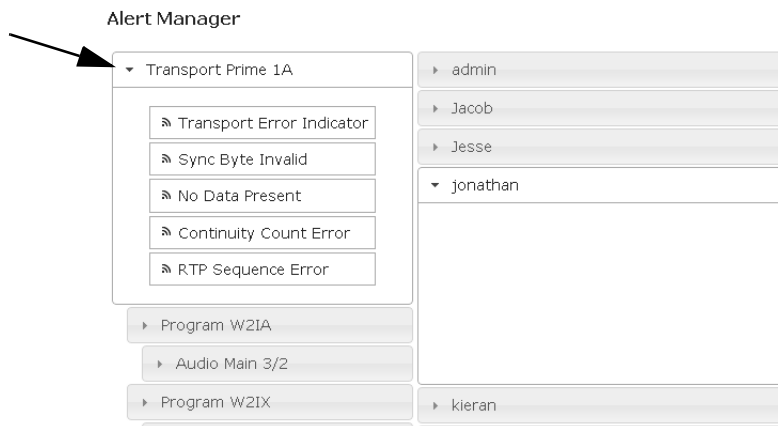
Alerts are organized and displayed in an indexed manner, with **Transport** as highest level, then the transport's subordinate programs and audio subprograms.

- Transport (e.g., "Prime 1A")
- Program (e.g., "W21A")
- Audio Subprogram (e.g., "Main 3/2")



The **Filter By:** box allows filtered displays confined only to the text entered. This can be used to confine results to only specific transports or errors. Press return to engage the filter. Revert to default unfiltered view by selecting another tab, and then again selecting the **Alerts** tab.

Clicking **Alert Manager** opens a dialog showing all specific alerts for transport streams, programs, and audio subprograms (again with the indexed organization described above). Clicking on any specific item shows alert details (in the example here, "Transport Prime 1A" alert items). Click another item to close the presently displayed item.



– continued on next page –

Using Alerts Tools – continued

Alert Manager

The screenshot shows the Alert Manager interface. On the left, there is a list of alerts for 'Transport Prime 1A'. The alerts are: Transport Error Indicator, Sync Byte Invalid, No Data Present, Continuity Count Error, and RTP Sequence Error. The 'Transport Error Indicator' alert is highlighted. A tooltip is visible over this alert, displaying the text: 'Packet was unable to be fully received and may be corrupt'. On the right, there is a list of users: admin, Jacob, Jesse, jonathan, kieran, and openaccess. The 'jonathan' user is expanded, showing a list of alerts for that user, including 'Transport Prime 1A: Transport Error Indicator'.

Hovering over any of the error indications displayed provides more information about the error (in this example, hovering over "Transport Error Indicator" displays more information).

Alert Manager

The screenshot shows the Alert Manager interface. On the left, there is a list of alerts for 'Transport Prime 1A'. The alerts are: Transport Error Indicator, Sync Byte Invalid, No Data Present, Continuity Count Error, and RTP Sequence Error. The 'Transport Error Indicator' alert is highlighted. On the right, there is a list of users: admin, Jacob, Jesse, jonathan, kieran, openaccess, and Transport Prime 2A. The 'jonathan' user is expanded, showing a list of alerts for that user, including 'Transport Prime 1A: Transport Error Indicator'. An arrow points from the 'Transport Error Indicator' alert in the left list to the 'Transport Prime 1A: Transport Error Indicator' alert in the 'jonathan' user's mailbox. Below the 'jonathan' user's mailbox, there is a 'Remove' button.

To forward the alert item to selected email clients (users), expand the user mailbox and drag the item into the user's box (in this example, "Transport Prime 1A Transport Error Indicator" being forwarded to user "jonathan").

To remove the message from a recipient's box, drag the item to **Remove**.

Using Software Upgrade, Licensing and Log Tools

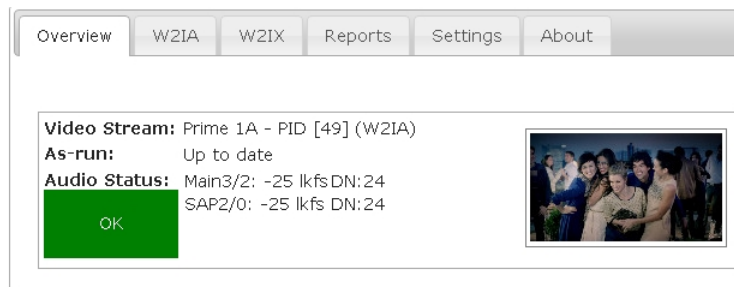
These tools allow uploading SpotCheck[®] upgrade software to the SpotCheck[®] unit from files received from Cobalt and stored on your computer. The Licensing tool shows a list of licensing consumed for current stream processing, and allows for additional licenses to be uploaded to the SpotCheck[®] unit. Log tools allow a troubleshooting log to be generated and forwarded to Cobalt Support to assist you if needed.

Checking and Updating SpotCheck[®] Firmware

An upgrade retains all prior licensing, settings, logins, and configurations, as well as access to historical data/logs. Disruption during firmware upload is typically less than a few seconds.

Checking and Updating SpotCheck[®] Firmware

1. (SpotCheck firmware version 1.6.39 and later.) SpotCheck provides an automatic notification (updated weekly) that is displayed on the **Overview** tab page when a release is available (as shown in the example below).



Notification info pop-up showing new firmware version is available

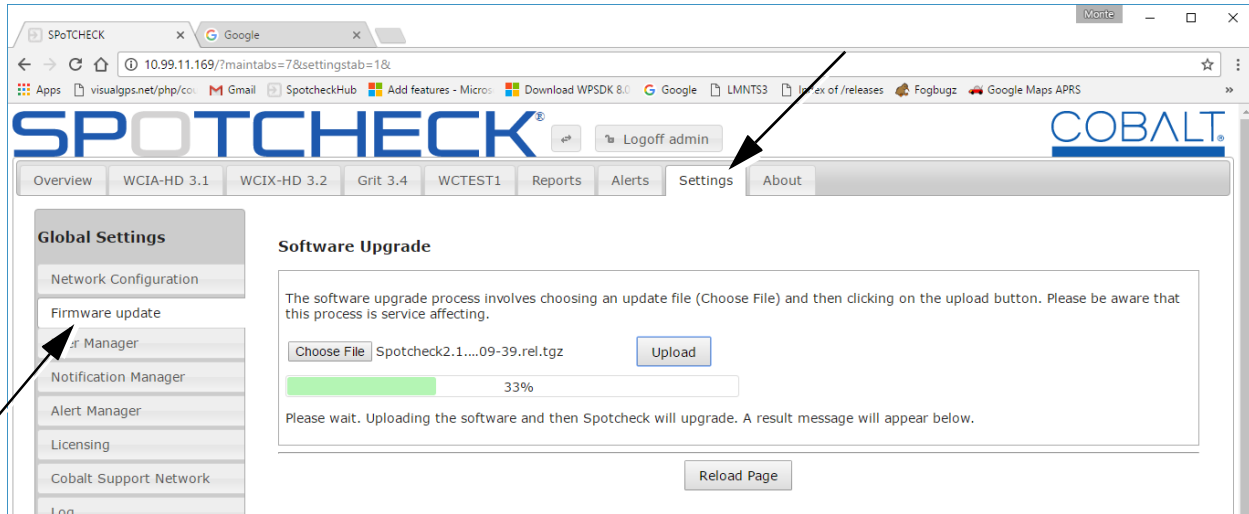
SpotCheck 1.6.40 is available at CobaltDigital.com/firmware

2. You can also click the SpotCheck About tab to see the current firmware version. You can then check the current version against the newest released version by going to the **Support>Firmware Downloads** link at www.cobaltdigital.com.
3. To upload update firmware, click on the firmware link and download the firmware to a computer accessible on your SpotCheck control (cmd) network.

Note: SpotCheck[®] with version 1.x.x firmware cannot be directly upgraded to version 2.x.x using the normal field upgrade procedure. In order to upgrade to versions 2.0 and greater, a Service Level Agreement (SLA) is necessary. Contact sales@cobaltdigital.com for more information on securing an SLA. If you already have an SLA and would like to upgrade, contact support@cobaltdigital.com for details.

Checking and Updating SpotCheck® Firmware – continued

4. On a SpotCheck control/monitor computer, browse to SpotCheck and go to **Settings > Firmware Update**. Upload an upgrade file to SpotCheck by clicking **Choose File**. In the file browser, browse to select the new file in the dialog that appears, then click **Upload**. The progress bar shows the upload completion status.



- Note:**
- The file downloaded may have an icon appearing as a .zip file. Do not expand the file; import it collapsed as-is to SpotCheck.
 - If Internet Explorer is used to download this firmware, after download rename the firmware extension from the ".gz" truncation done by IE to the proper .tgz extension. If this is not done, the firmware will cause an update failure and not be uploaded. (Renaming file extension to .tgz is not necessary when SpotCheck is using firmware version 1.6.91 or greater.)

5. After firmware is successfully loaded, click **Reload** to ensure new facets are properly displayed after the upgrade.

Licensing Management and Upgrades

The Licensing utility allows economically flexible SpotCheck® capacity to process only the amount of programs and sub-programs needed, while allowing for the addition of licenses only as needed and with minimum disruption.

Checking and Adding SpotCheck® Licenses

1. Access licensing by going to **Settings > Licensing**.
2. Assess licenses used by observing the Used Licenses and Available Licenses columns in the table (as shown in the example below).

Serial: 9VN9LS1

Name	Total Licenses	Used Licenses	Available Licenses
SPOTCHECK-LICENSE-AIRCHECK	10	1	9
SPOTCHECK-LICENSE-AUDIO-FULL	10	5	5
SPOTCHECK-LICENSE-AUDIO-LITE	10	0	10
SPOTCHECK-LICENSE-AUDIO-SUBPROGRAM	10	0	10
SPOTCHECK-LICENSE-QUALITYCHECK	1	0	1

Note: Licenses are allocated on the following basis:

- **AUDIO FULL** and **AUDIO LITE** licenses operate on a **program** basis.
- **AIRCHECK** licenses operate on a **program** basis.
- **QUALITYCHECK** license on a **unit** basis (one license per SpotCheck unit covers all transports/programs).

3. If an additional license is required, a license file will need to be obtained from Cobalt in advance of performing the upload steps here. Obtain license as follows:
 - 3.1. Click the SpotCheck **About** tab. On this page, copy the **Serial** string. The serial number string is required in any communication to Cobalt support in obtaining additional license(s).
 - 3.2. Contact Cobalt support at the e-mail address provided on the About page. Support personnel will be able to provide options regarding various purchasable licenses.
 - 3.3. The additional licensing will be provided in a file. Store the file in a known location to a computer accessible from the SpotCheck web browser GUI.

Note:

 - Each SpotCheck unit uses a serial number for licensing that is unique to a particular unit; licenses obtained using the string are valid only for the corresponding unit.
 - Refer to Overview of SpotCheck® Standard and Optional Program Provisioning Using Licensing (p. 3-11) for descriptions of the available licenses.
4. With received license file accessible, upload the additional licensing to SpotCheck as follows:
 - 4.1. Go to **Settings > Licensing**.
 - 4.2. Upload the license file to SpotCheck by clicking **Choose File**. Browse to and select the license file in the dialog that appears, then click **Upload New License**.
 - 4.3. Refresh the GUI display. The **Total** and **Available** columns of the Licensing page will now re-account for the added licensing.

Log Generator Tool

SpotCheck[®] automatically generates a log that can help in troubleshooting. The log can be accessed and then forwarded to Cobalt Support for analysis and resolution as described below.

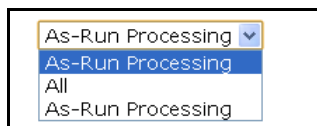
1. Access log generation by going to **Settings > Log**.
2. Click **Log**. Wait while the log generates. (An example log is shown below.)

The screenshot shows the Log Generator Tool interface. The navigation menu includes Overview, W2ND-HD, W2ND-SD, Reports, Settings, and About. The Settings tab is selected, and the Log option is highlighted in the Global Settings section. The main area displays a log table with columns for TIME, TYPE, and ERROR. The log entries show various events, including Demuxer TS TEI Present and As-Run processing events. A drop-down filter is set to 'All'.

TIME	TYPE	ERROR
2012 Nov 15 06:08:58	Demuxer TS	TEI Present
2012 Nov 15 06:08:58	Demuxer TS	TEI Present
2012 Nov 15 06:08:58	Demuxer TS	TEI Present
2012 Nov 15 06:08:58	Demuxer TS	TEI Present
2012 Nov 15 02:26:56	Demuxer TS	Continuity Error
2012 Nov 15 02:26:56	Demuxer TS	TEI Present
2012 Nov 15 02:26:56	Demuxer TS	TEI Present
2012 Nov 15 02:26:56	Demuxer TS	TEI Present
2012 Nov 15 02:26:56	Demuxer TS	TEI Present
2012 Nov 15 02:26:56	Demuxer TS	TEI Present
2012 Nov 14 22:14:37	Demuxer TS	TEI Present
2012 Nov 14 09:12:32	As-Run	Processed File: /data/asrun/0/WA121109.RAN
2012 Nov 14 09:12:31	As-Run	Processed File: /data/asrun/0/WA121102.RAN
2012 Nov 14 09:12:30	As-Run	Processed File: /data/asrun/0/WA121112.RAN
2012 Nov 14 09:12:30	As-Run	Processed File: /data/asrun/0/WA121107.RAN
2012 Nov 14 09:12:30	As-Run	Processed File: /data/asrun/0/WA121108.RAN
2012 Nov 14 09:12:29	As-Run	Processed File: /data/asrun/0/WA121030.RAN
2012 Nov 14 15:33:56	Demuxer TS	TEI Present
2012 Nov 14 14:05:00	Demuxer TS	Continuity Error
2012 Nov 14 13:23:09	Demuxer TS	Continuity Error

Note: Do not click the **Clear log** button unless directed by Cobalt support. Clicking this button will irretrievably clear the log contents. Instead, use the **Reload** button to refresh the log if required.

3. A drop-down filter (shown below) allows tailoring the log to all events, or restrict to only as-run processing. To filter to only as-run, select **As-Run Processing**. The log will regenerate and now show only as-run processing events.



4. If the log exceeds the display area, use the **Next** and **Prev** buttons to navigate to multiple pages.
5. Copy and paste the log contents into a text editor, and forward the .txt file to Cobalt support at the e-mail address shown on the **About** page. Be sure to include any details as well as the unit serial number by clicking the SpotCheck **About** tab to obtain the **Serial** string.

Quick-Access to Status Overview

When transport streams and programs have been set up, the SpotCheck Overview tab allows quick access to checking settings and status.

Status Overview Quick-Access

Overview > Video Streams Grid and Overview > Video Streams List show a consolidated status view of each transport stream and its programs.

Video Stream Grid | Video Stream List | Transport Stream Manager

Transport Name	Video Stream	Video PID	Audio Stream Status
Prime 1A (OK 38.8Mb/s)	W2IX	3606	Main3/2: -27LUFS<< DN: 24 SAP2/0: -27LUFS<< DN: 24
	W2IA	1984	Main3/2: -24LUFS DN: 24 SAP2/0: -24 LUFS DN: 24
	W2IP	3690	Main3/2: -24LUFS DN: 24 SAP2/0: -24LUFS DN: 24
	WPIA	3696	Main3/2: -28LUFS<< DN: 24 SAP2/0: -28LUFS<< DN: 24
Prime 2A (OK 38.81Mb/s)	W2UI	3697	Main3/2: -23LUFS<< DN: 27 SAP2/0: -23LUFS<< DN: 27
	W4IA	3698	Main3/2: -24LUFS<< DN: 27 SAP2/0: STREAM FROZEN

In both the Video Streams Grid and Video Streams List views, direct correlation of programs to transport streams are shown, as well as status thumbnails. In both views, color codes show program status as follows:

- **Green** – program status and loudness OK
- **Red** – program experiencing high (loud) LKFS/dialnorm imbalance, silence (displayed as “-99”), or null data in its audio program
- **Blue** – program experiencing low (too quiet) LKFS/dialnorm imbalance
- **Gray** – program and/or transport experiencing frozen stream

For programs with multiple audio PIDs, where one PID is offending, the offending PID is identified with arrows (<<) as shown in example here

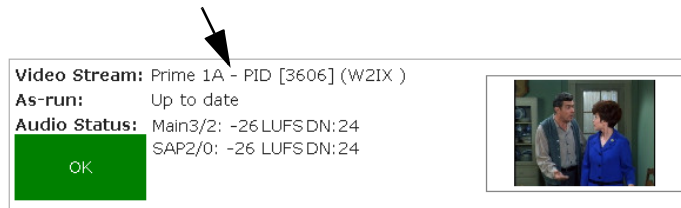
Audio Status: Main3/2: -27LUFS DN: 27
SAP2/0: -23LUFS<< DN: 27

LOUD

– continued on next page –

Status Overview Quick-Access – continued

Clicking on a status pane in either the Video Streams Grid or List view opens a detailed view of the program and its transport stream, showing per-channel real-time audio dBFS levels, codec info and bit rates, and correlation to the ordinate transport stream and IP address (where applicable). Click the close "x" to close the detailed view and return to the overall grid or list display.



Clicking anywhere in a program detail area of either the Video Stream Grid or the Video Stream List for a program opens the detailed pane shown here.

As shown, this detail pane shows:

- Streaming video content
- Video and audio PID info
- Audio codec info/bit rate
- Long-term averaged LUFS (also showing status color-coding as described on the previous page)
- Near real-time audio bar graphs showing instantaneous LUFS and true peak levels for individual channels comprising the overall audio package for each audio subprogram. The **M** bar graph shows the ITU 1770 weighted aggregate Momentary (400 msec) loudness for all channels, along with the maximum true peak for any of the included individual channels.

W2IX
x

Main3/2
-26
LUFS

SAP2/0
-26
LUFS

Video PID: 3606
Resolution: 1920x1080 1:1 29.97
Multicast IP: 224.0.1.1
Multicast Port: 55000

Audio Stream: Main3/2
PID: 3607
Codec: AC3 192Kbps 3/2L
Dialnorm: -24 LUFS

Session
 -25.2LUFS
 -10.1db TP
 5.5LRA
 0:02:50dur

Audio Stream: SAP2/0
PID: 3608
Codec: AC3 192Kbps 2/0
Dialnorm: -24 LUFS

Session
 -25.2LUFS
 -10.1db TP
 5.5LRA
 0:02:50dur

Each audio subprogram display has a Session tool in which a loudness session can be started and run for any interval to provide an instant evaluation of program loudness. Independent sessions can be run on any audio subprogram within a stream.

- Pressing **Reset** starts the session timer. At this point, session moving-average momentary LUFS, true peak, and LRA is displayed.
- Pressing **Reset** again clears the session data and starts a new session. A session can be run indefinitely, or as short as desired.

Session

-28.1LUFS
 -16.5db TP
 0.2LRA
 0:00:00dur

Session

-25.2LUFS
 -10.1db TP
 5.5LRA
 0:02:50dur

Status Overview Quick-Access – continued

With the **Video Stream List** displayed, clicking on a transport stream opens the **Data Statistics** pane, which identifies and provides processing statistics of each PID. Click **Close** to exit this pane.

Transport Name	Video Stream	Video PID
Prime 1A (OK 38.8Mb/s)	W21A	3544

Data Statistics				
PID	PID(HEX)	Mbit/sec	Packets/sec	Description
0	0x0	0.0119947	32	
1	0x1	0.00149933	4	
48	0x30	0.0119947	32	
49	0x31	0.0119947	32	
3544	0xdd8	14.3407	38259	ITU-T Rec. H.262 ISO/IEC 13818-2 (MPEG-2) Video or ISO/IEC 11172-2 (MPEG-1) video stream
3545	0xdd9	0.40482	1080	ATSC A/53 audio AC-3 audio
3546	0xdda	3.58603	9567	ITU-T Rec. H.262 ISO/IEC 13818-2 (MPEG-2) Video or ISO/IEC 11172-2 (MPEG-1) video stream
3547	0xddb	0.204284	545	ATSC A/53 audio AC-3 audio
7040	0x1b80	0.00899599	24	
7041	0x1b81	0.00299866	8	
7042	0x1b82	0	0	
7043	0x1b83	0	0	
8176	0x1ff0	0.0056225	15	
8187	0x1ffb	0.0149933	40	
8188	0x1ffc	0.002249	6	
8191	0x1fff	20.2271	53963	

Example Setup of Multi-Program Monitoring

Figure 3-2 shows an example of setting up SpotCheck-1000-IP to monitor a multi-program IP-based transport stream. In this example, SpotCheck® is provisioned with a **SPOTCHECK-LICENSE-AUDIO-FULL** license (one standard) to supports one program, each with two audio PIDs.

A thru **H** on sheets 1 through 5 show the interfaces required and SpotCheck® settings to perform this monitoring.

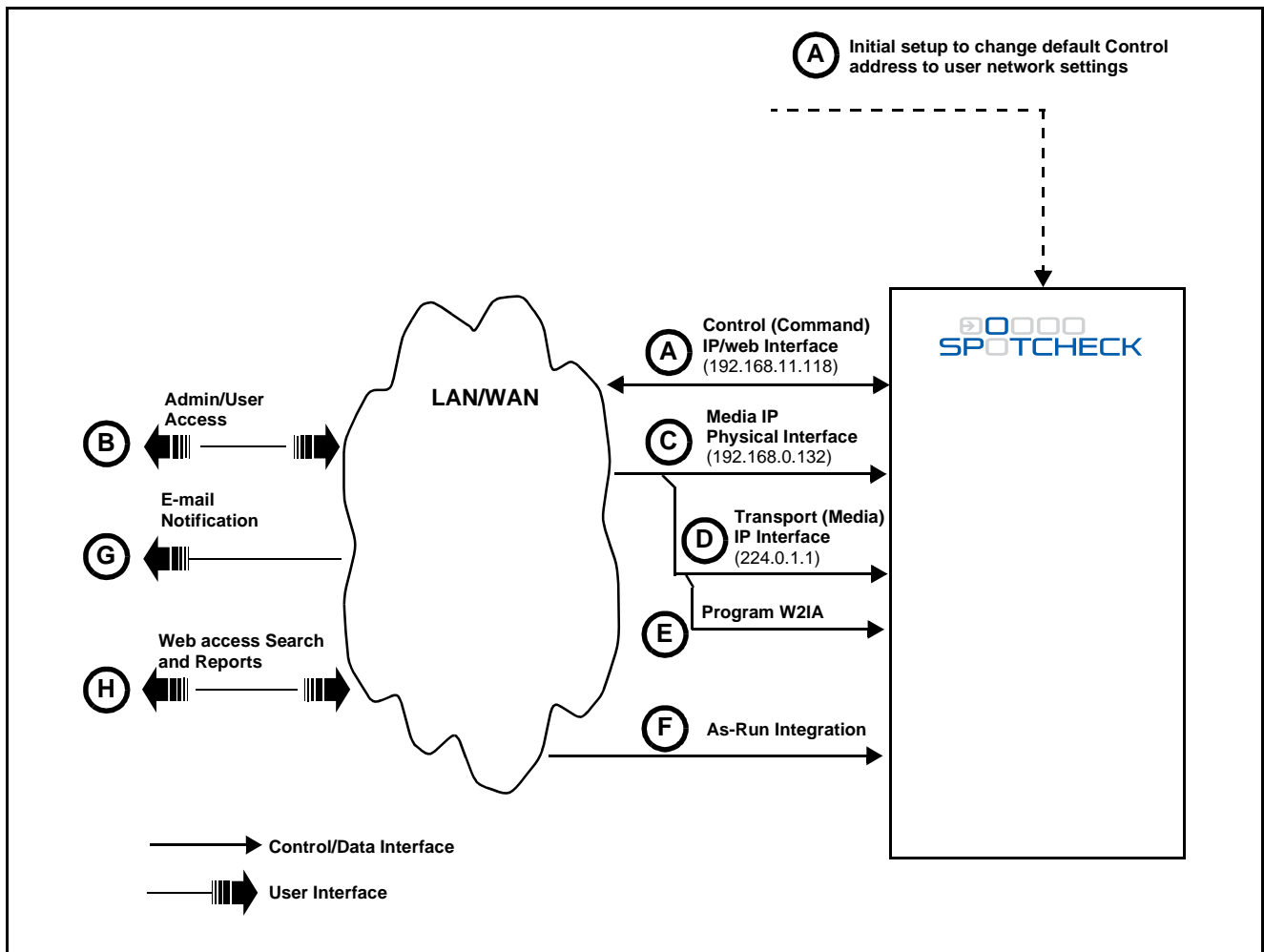


Figure 3-2 SpotCheck® Setup Example (Sheet 1 of 5)

A

Port Gb1 IP Settings

Enter IP settings for port Gb1. Enter auto in IP Address field for DHCP.

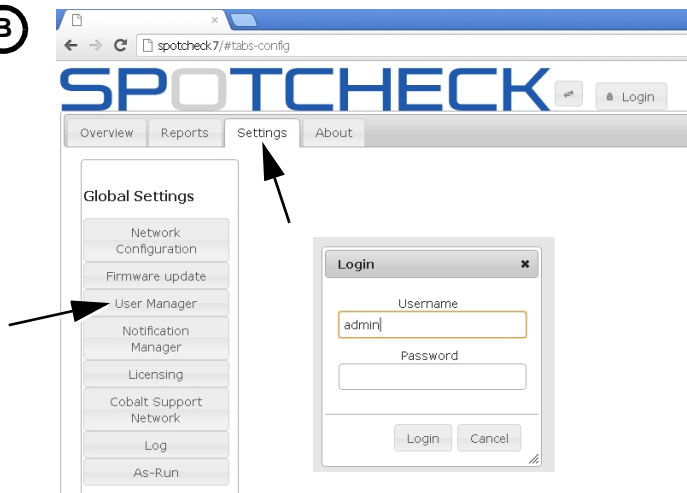
IP Address:	192.168.11.118
IP Netmask:	255.255.255.0
Gateway:	192.168.11.1
DNS Server:	192.168.11.3

With a monitor and keyboard connected to the SpotCheck unit, SpotCheck command address is changed from default address to new user address (192.168.11.118 in this example).

All further control interface will now be via an html5 browser at this address. The monitor and keyboard can now be disconnected.

See Connecting SpotCheck® to Your Network (p. 3-2) for detailed procedure.

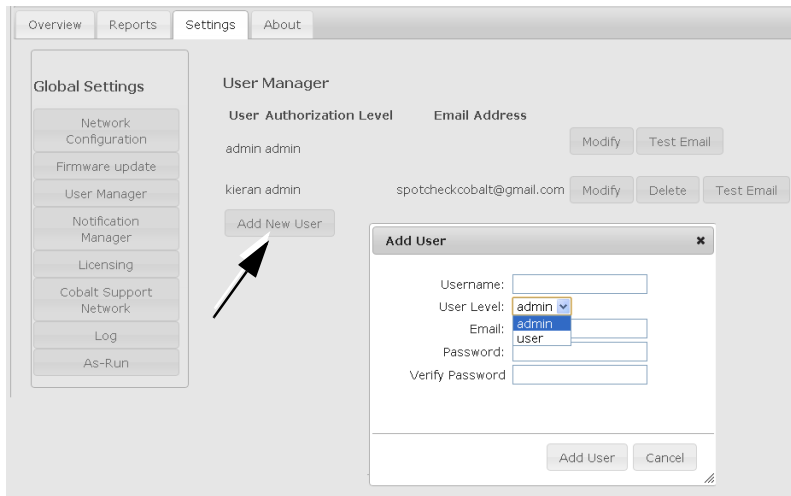
B



All further configuration is now done via the html5 web browser set up above. At this point, it is recommended that a custom, secure admin login be set up. It is also recommended to also configure access for other users now.

All following configuration steps require a user with admin rights be logged in to perform configuration setup.

See Setting up User Administration (p. 3-4) for detailed procedure.



▼ – continued on next page –

Figure 3-2 SpotCheck® Setup Example (Sheet 2 of 5)

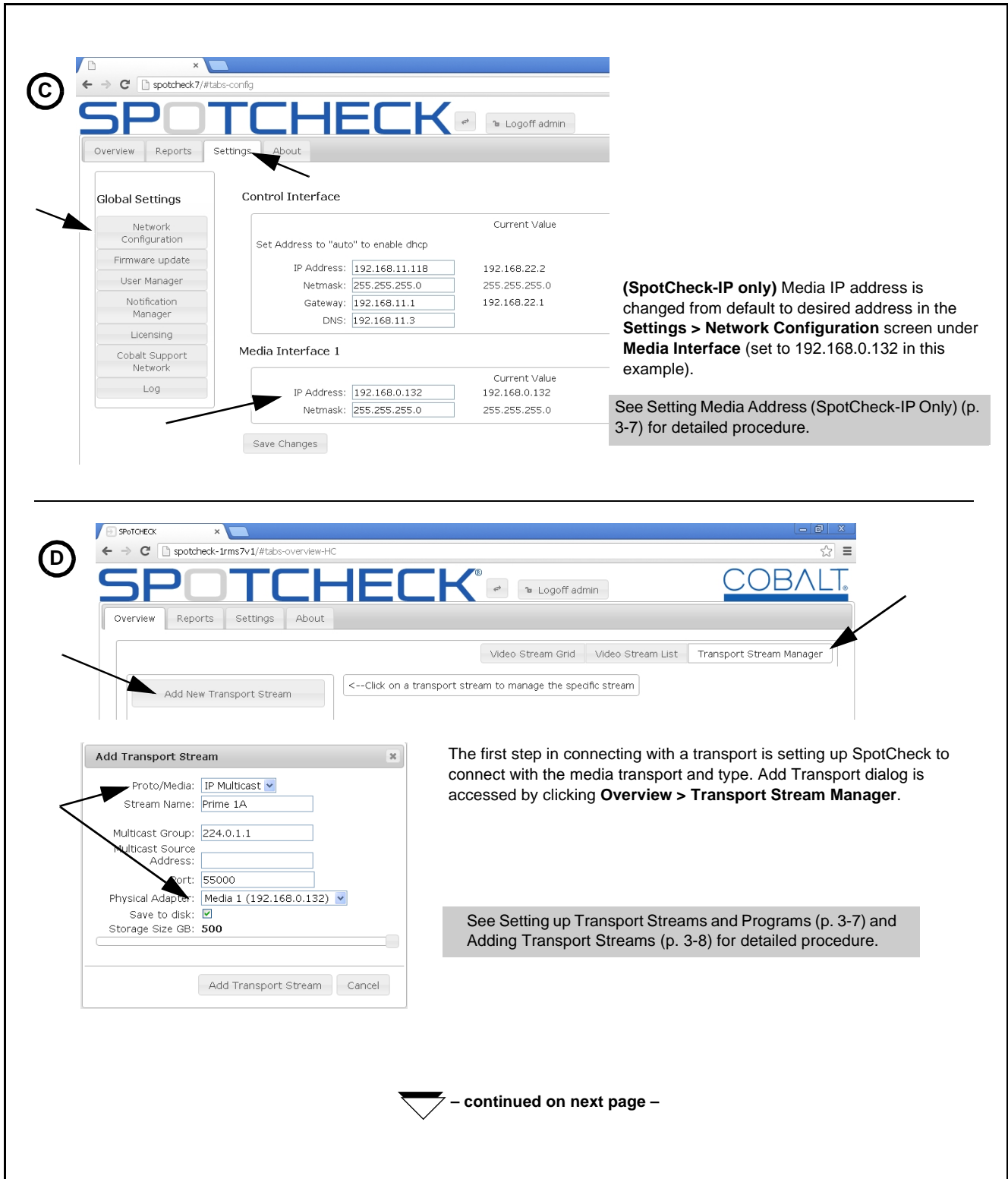


Figure 3-2 SpotCheck® Setup Example (Sheet 3 of 5)

E

Now that the transport stream is added, programs within the transport stream can now be added by clicking **Add Program** in the corresponding transport stream area. (In this example, W21A DT 3.1 from the automatically generated PMT table within transport

The screenshot shows the 'Add Program' dialog box for 'W21A DT 3.1'. It contains two tables of stream information:

PID	Type	Description
1984 (0x7c02)		
ITU-T Rec. H.262 ISO/IEC 13818-2 (MPEG-2) Video or ISO/IEC 11172-2 (MPEG-1) video stream		
1985 (0x7c1129)		ATSC A/53 audio AC-3 audio
1986 (0x7c26)		ATSC A/53 audio AC-3 audio

PID	Type	Description
2048 (0x8002)		
ITU-T Rec. H.262 ISO/IEC 13818-2 (MPEG-2) Video or ISO/IEC 11172-2 (MPEG-1) video stream		
2049 (0x801129)		ATSC A/53 audio AC-3 audio

Program Name:
 License Type:
 Video PID:
 Audio Measurement:
 Audio PIDs:
 Local Timezone:

“Prime 1A” is selected as a program to be monitored.)

When the program is selected, the video and audio PID(s) comprising the program are entered in the program setup dialog. Also, identifying **program user name** and **audio PID user names** need to be assigned to the program (“W21A” and audio programs “Main 3/2” and “SAP 2/0” in this example).

In this example, default ATSC A/85 loudness measurement by leaving the **Audio Measurement** drop-down set to A/85.

When is program is added, its user name appears as a major tab that can be clicked to access the program for monitoring and other functions.

See Adding Programs (p. 3-12) for detailed procedure.

F

The screenshot shows the 'As-Run Settings' dialog with the following values:

- Short Auto Spots: 15 Seconds
- Long Auto Spots: 15 Minutes
- Asrun Timezone: America/Chicago
- Millisecond Offset: 800
- Asrun Source: windows share
- Server IP: 10.99.11.133
- User Name: asrunprime1A
- User Password: HHG
- Directory: /rootdr/channel1
- Device Filter: (empty)
- Exclude Code: 28841
- Exclude spots less than (ms): 2000
- Filter AsRun Regex: (empty)

Typical setup of programs within SpotCheck includes As-Run file integration, which is required for the very useful SpotCheck Search function.

Now that a program has been added, the **Settings** tab and then the **Program Settings** tab can be clicked to open the **As-Run Settings** dialog. (All as-run settings are on a per-program basis because as-run files are unique to a particular program.)

The settings performed here will tell SpotCheck where to find the as-run files, and details about how SpotCheck will use the data within the file. This needs to be repeated for **each** program.

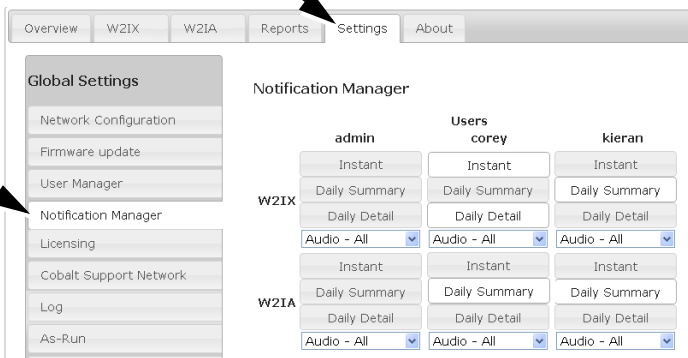
At this point, SpotCheck is now fully ready to monitor added programs and offer additional analysis as described later in this example.

See Setting up As-Run Data to Segment Program Plotting (p. 3-20) for detailed procedure.

– continued on next page –

Figure 3-2 SpotCheck® Setup Example (Sheet 4 of 5)

G



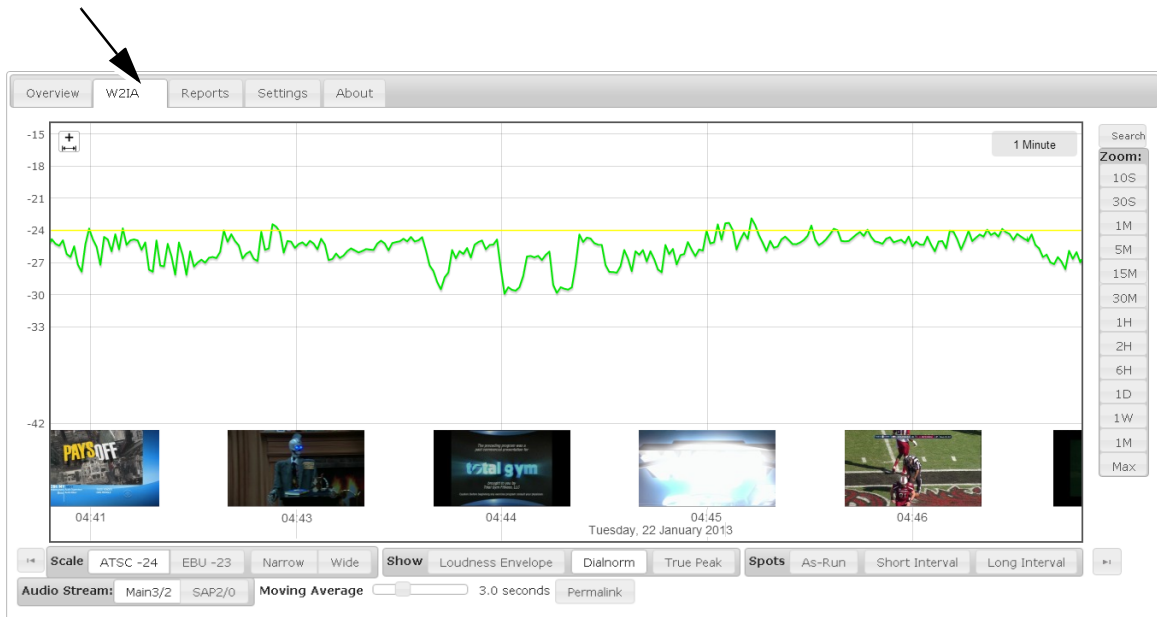
Now that users have been set up and programs added, SpotCheck can now send e-mail notifications to users.

Clicking on **Settings**, and then **Notification Manager** opens a dialog where each user has settings which allow several levels of notification.

See Setting up E-Mail Notification and SpotCheck® Forwarding (p. 3-28) for detailed procedure.

H

All added programs are now directly accessible by clicking a major tab ("W21A" in this example) for all monitoring as well as detailed searches and reports.



See Using Audio Program Loudness Graphs and Search/Report Tools (p. 3-31) for how to use the basic display setup and navigation features (such as panning and zooming, as well as measurement units setup and display).

See Setting up Segmenting/As-Run Integration for Program Plotting (p. 3-18) for how to search for specific segments correlating to date, as-run data, or loudness parameters.

See (p. 3-40) for how to generate daily reports or detailed reports correlating to specific as-run spots.

Figure 3-2 SpotCheck® Setup Example (Sheet 5 of 5)

Database Backup and Restore

Current versions of SpotCheck[®] include Database Backup and Restore functionality.

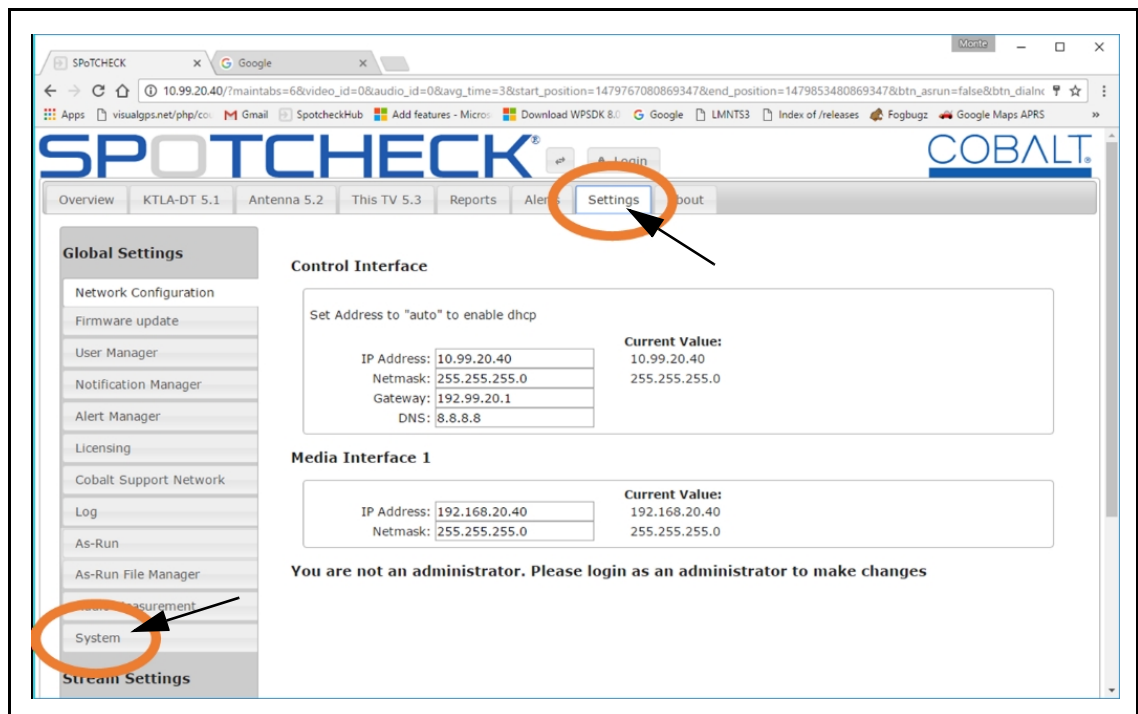
Currently there are two destination/source categories that the backup or restore can access:

- Local drive to the SpotCheck[®] server connected through the USB (called “media” here).
- Access through the network using SMB (Windows Share) protocol.

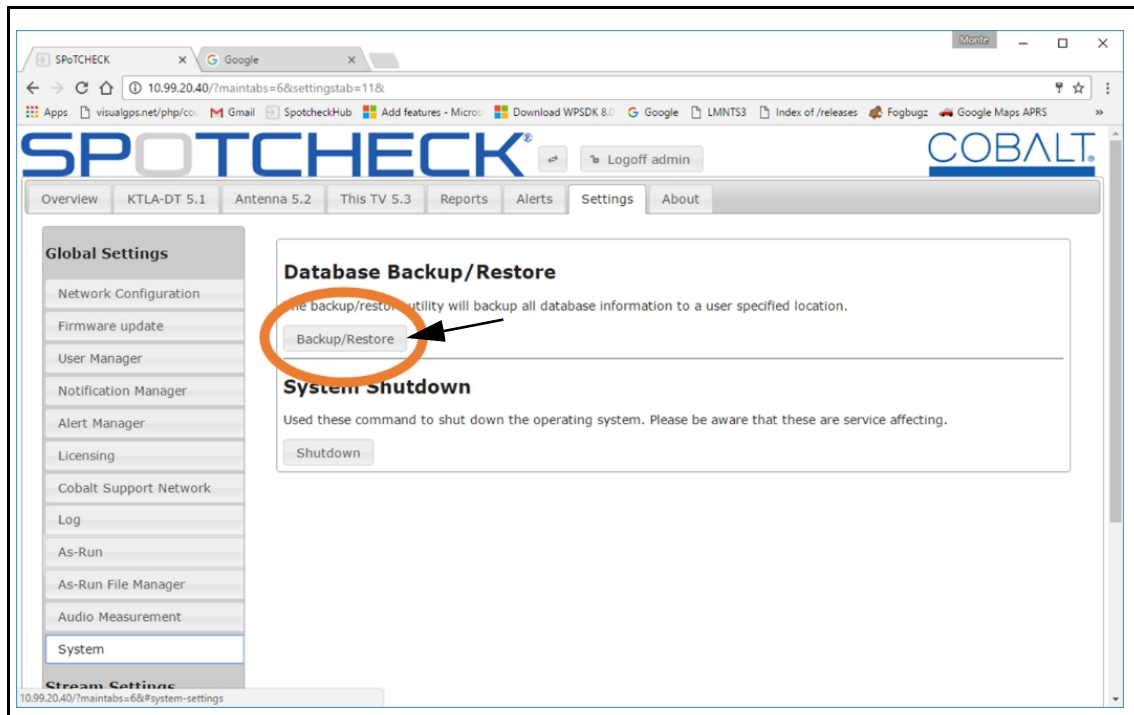
Note: Database backup or restore is performed on a **remote system** and not on the local machine from which you are viewing the web interface (i.e., the web interface is only a window into the SpotCheck[®] device which is remote somewhere. All operations will be local to the SpotCheck[®] or from the SpotCheck[®] to a shared resource).

Access the Database Backup and Restore Utility as follows:

1. Log onto SpotCheck[®] as an administrator.
2. (See below). Select the **Settings** tab and then **System**.

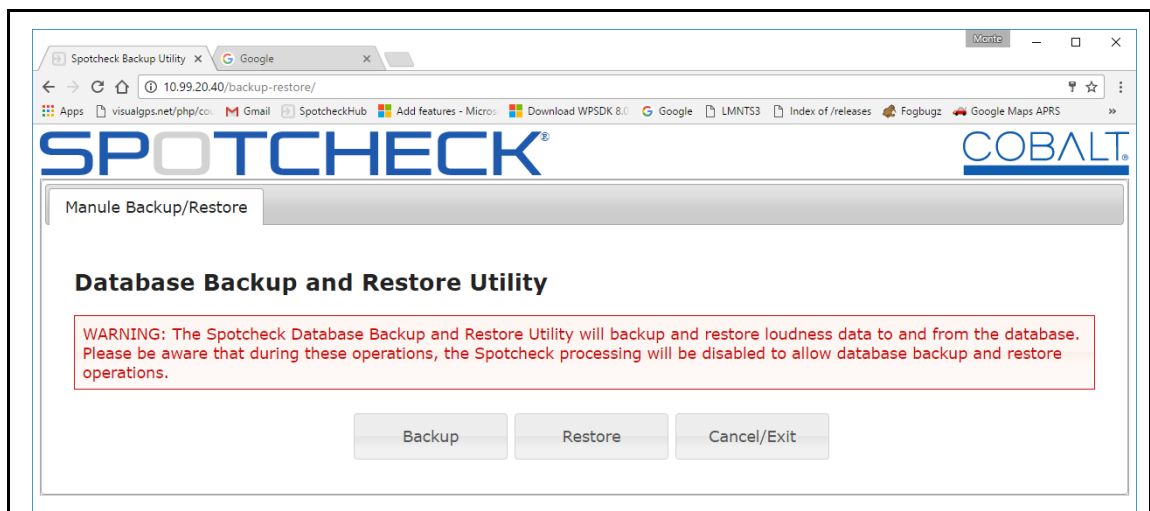


3. Click the **Backup/Restore** button.



4. The Database Backup and Restore Utility now appears (shown below). Depending on the selected operation, the utility guides you through the selected process.

- **Backup** – Backup the database to a destination.
- **Restore** – Restore the database from a destination.
- **Cancel/Exit** – Exits the Database Backup and Restore Utility and returns back to the main SpotCheck® web page.

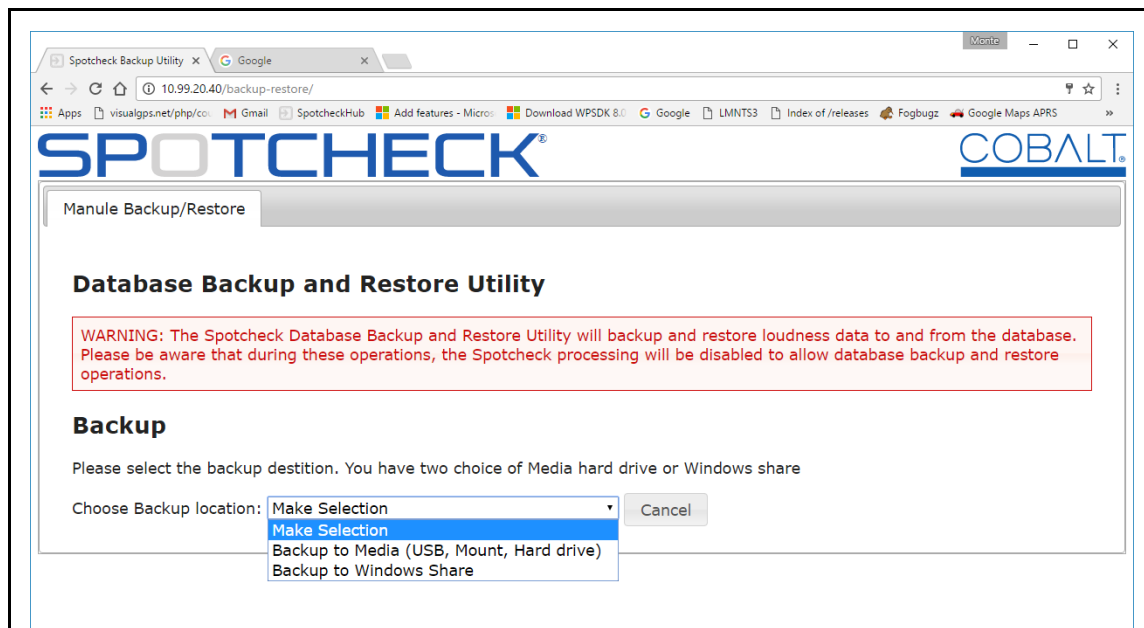


Backup Function



During the Backup process, the Spotcheck® processing engine will be deactivated and will not be storing loudness data, streams or events to the database.

1. Select **Backup** in the Database Backup and Restore Utility screen.
2. (See below) Select to where to make the backup. Currently the Database Backup and Restore Utility has two options, Backup to USB (media) or to a Windows Share.

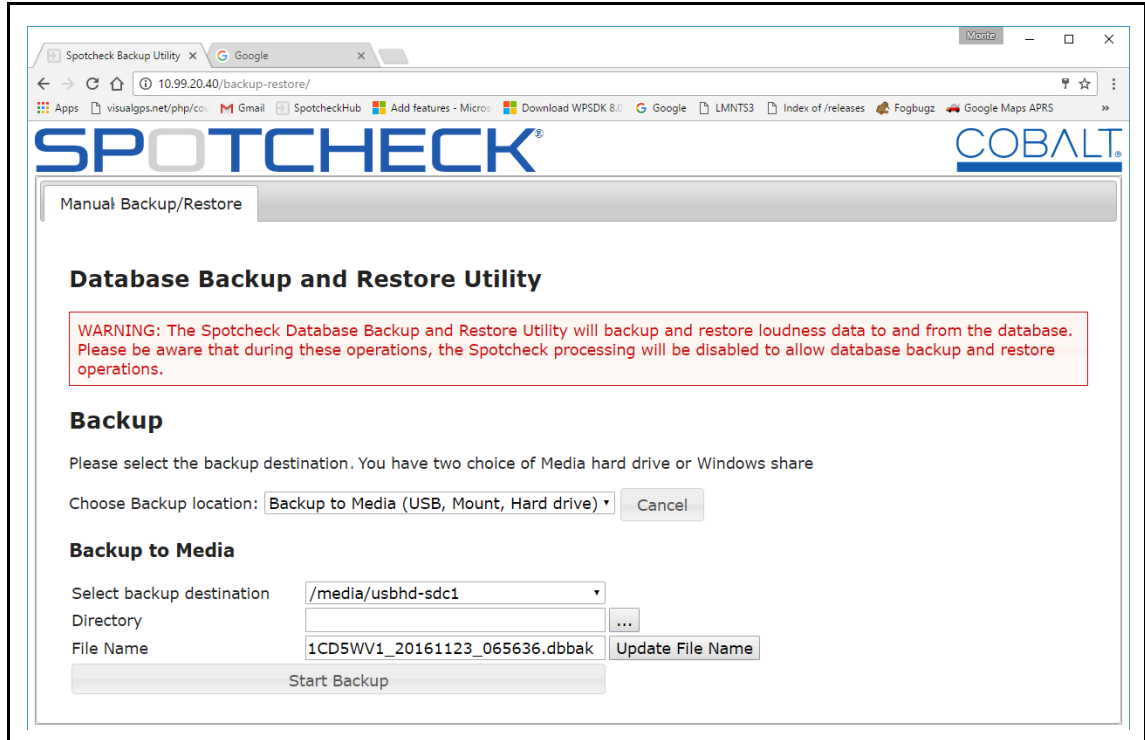


If Backup to Media is to be selected, make sure a USB hard disc is connected to one of available USB port at the front of the Spotcheck® unit.

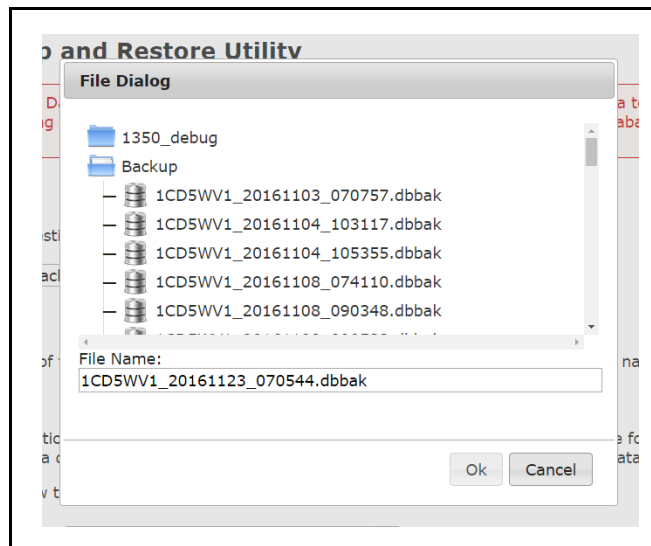
3. Depending on which type of backup was selected, proceed as described below.

Backup to Media

Shown below is an example dialog showing available devices. When selecting Backup to Media, SpotCheck® scans the available devices and builds a list to choose from. This list resides in the **Select backup destination** drop-down selection. If no devices are found, then this list shows “No Media Devices Found”.



The Directory ellipsis [...] allows selection of the destination folder (as shown below).



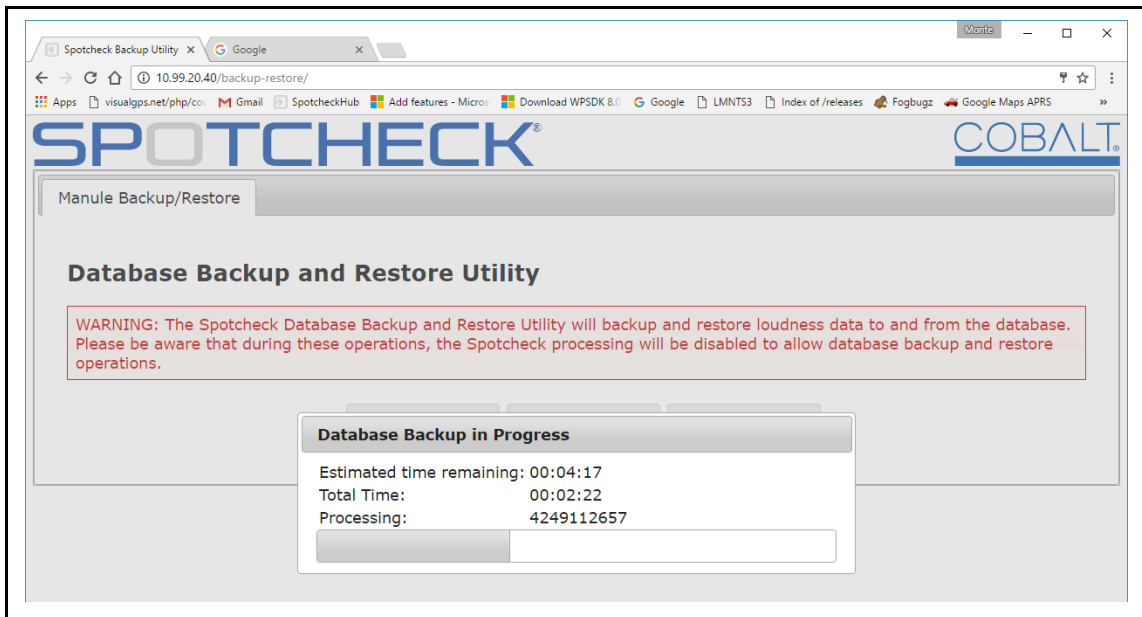
The File Name is auto-generated and can be changed. The format of the auto-generated files is as follows:

[Serial Number]_[Date (YYYYMMDD)]_[Local Time(HHMMSS)].dbbak

Example:

1CD5WV1_20161123_070544.dbbak

- The **Update File Name** button will update the file name with the auto generated format as described above.
- The **Start Backup Button** starts the backup process. When the backup is in progress, the following screen is displayed.

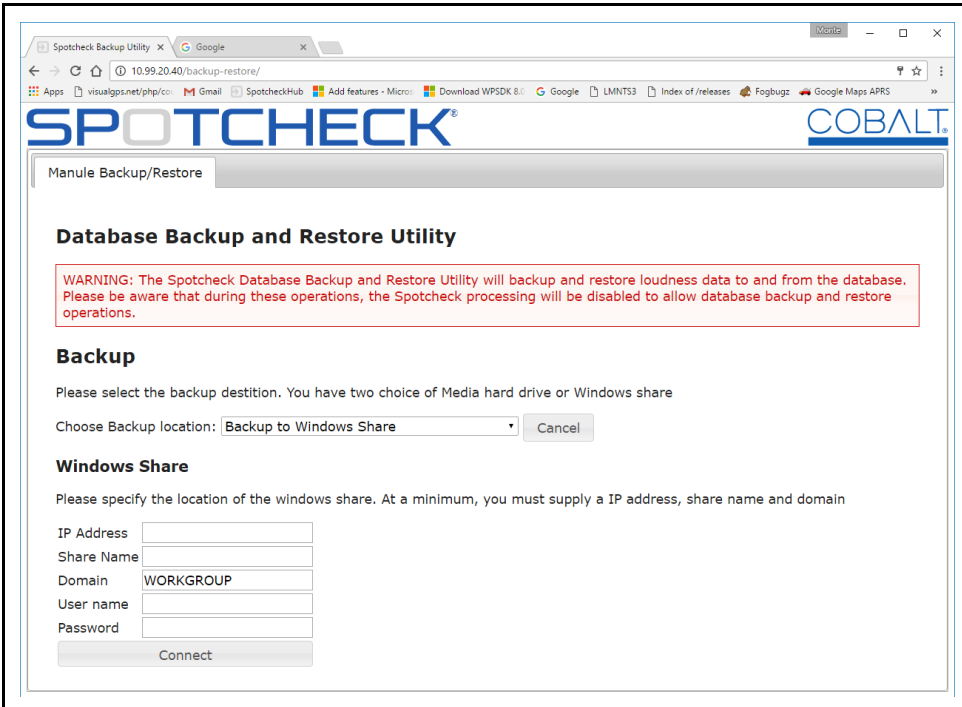


Backup to Windows Share

When **Backup to Windows Share** is selected, you will be presented with several input items which you will have to have some knowledge of your network infrastructure in order to perform the backup. Specifically:

- IP Address
- Share Name
- Domain
- User name
- Password

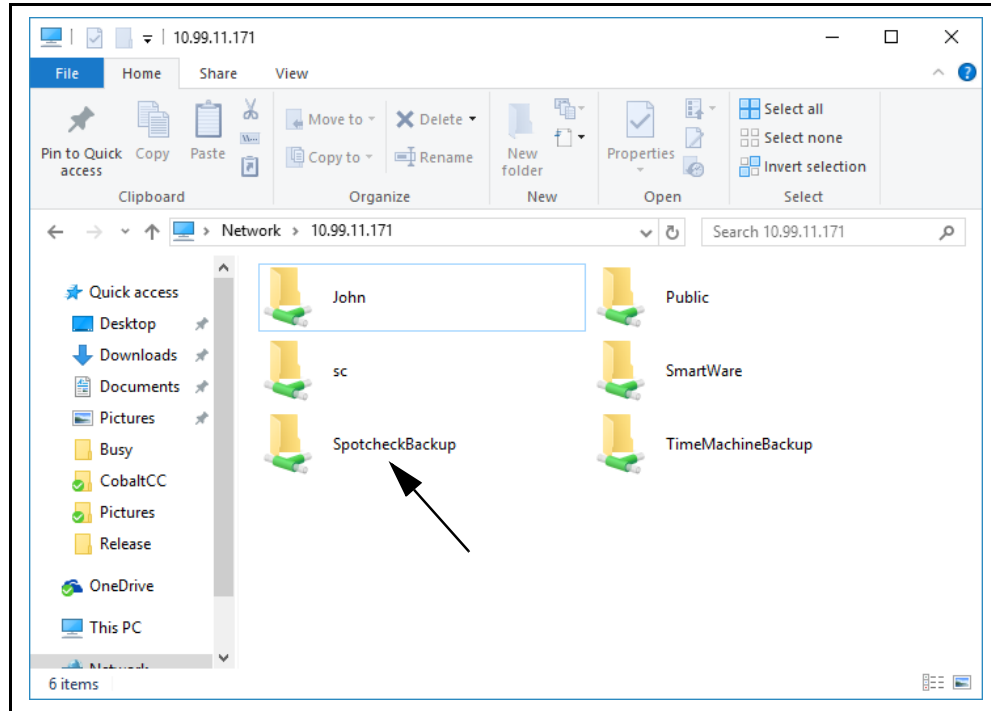
The entry dialog appears as shown below.



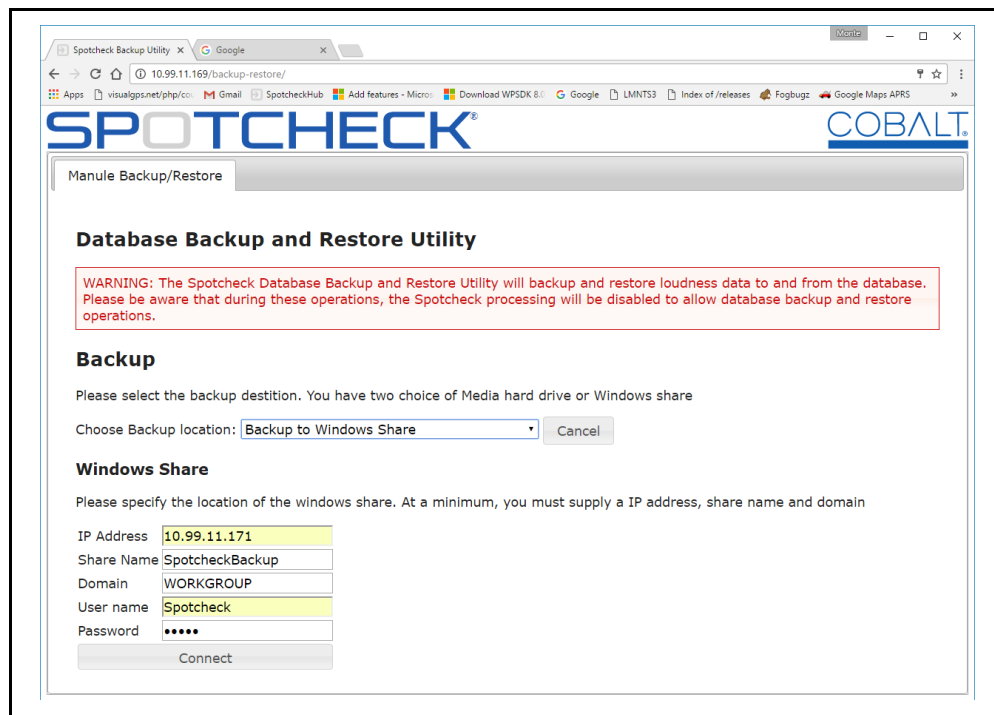
The screenshot shows a web browser window displaying the Spotcheck Backup Utility interface. The page title is "Manuale Backup/Restore". The main heading is "Database Backup and Restore Utility". A warning message is displayed in a red box: "WARNING: The Spotcheck Database Backup and Restore Utility will backup and restore loudness data to and from the database. Please be aware that during these operations, the Spotcheck processing will be disabled to allow database backup and restore operations." Below the warning, the "Backup" section prompts the user to select a backup destination. The "Choose Backup location:" dropdown menu is set to "Backup to Windows Share". The "Windows Share" section prompts the user to specify the location of the windows share, with a minimum requirement of an IP address, share name, and domain. The form includes input fields for "IP Address", "Share Name", "Domain" (pre-filled with "WORKGROUP"), "User name", and "Password". A "Connect" button is located at the bottom of the form.

In the example below, a version of SpotCheck® is installed on system 10-99.11.169. In this example, a mass Network Accessible Storage (NAS) device is also present and located at 10.99.11.171 (which is set up as a windows share). Using Windows, this device can be seen by entering into the file explorers address bar the following address as shown [\\10.99.11.171]

You may be prompted for a user name and password. In this example, the user is *Spotcheck* and the password is *stnml*. Below is an example of the NAS thought windows. The network share we are concerned with here is *SpotcheckBackup*.

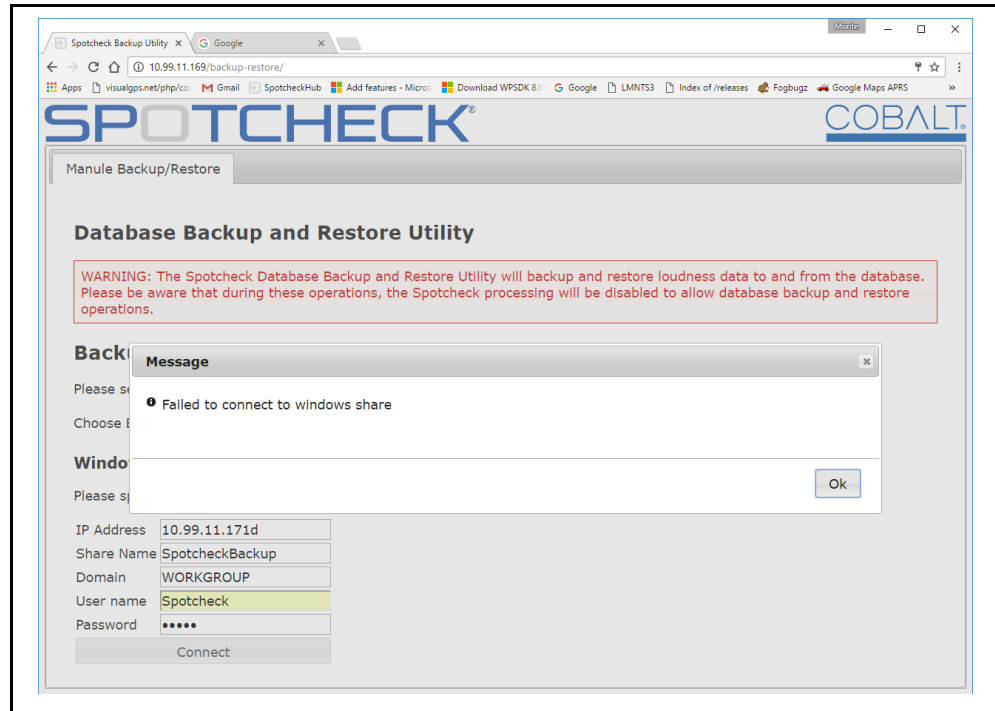


Knowing the base background knowledge described above, the following is an example on how to set up a backup to that share.

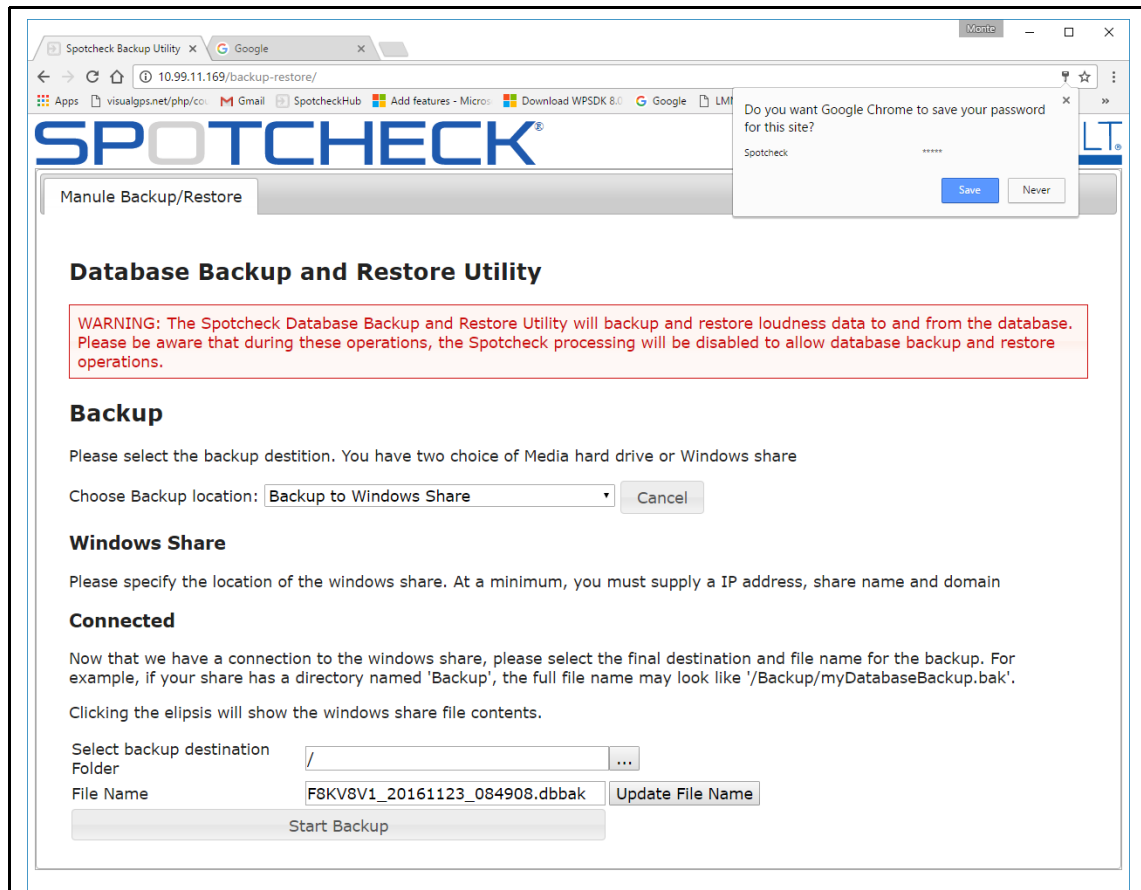


- The IP Address 10.99.11.171 is our NAS device, while *SpotcheckBackup* is the share name we are accessing from that device.

- The *Domain* is for Windows Shares with a domain controller. You will have to set the domain name accordingly. If no domain controller is specified, the default value should be WORKGROUP.
- *User name* and *Password* is as described above in our login for the NAS.
- The **Connect** button will try to connect to the windows share. If it fails (as shown in the example below) it will show a message and you will have a chance to correct any errors.



When successful connecting, the screen shown below appears.



Again the ellipsis allows you to choose the destination folder and the file name is auto-generated.

Restore Function

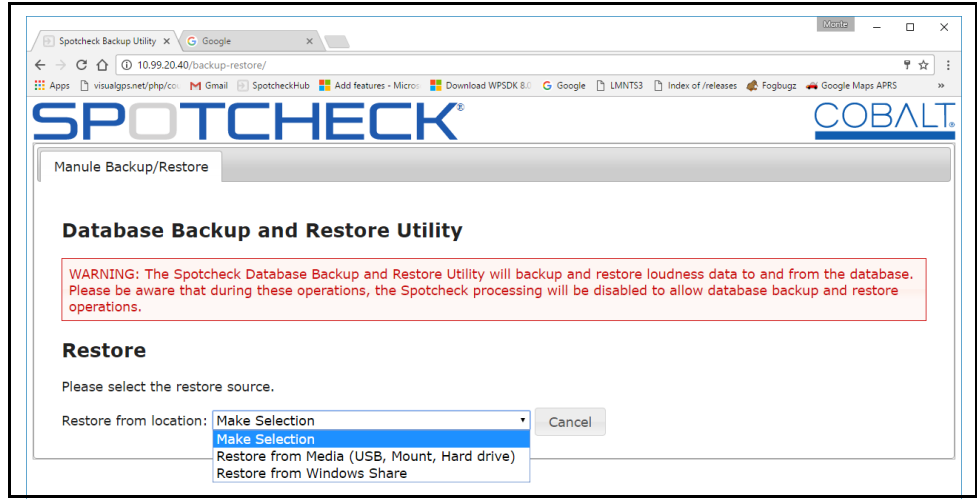



During the Restore process, the Spotcheck® processing engine will be deactivated and will not be storing loudness data, streams or events to the database.

In addition, Restore process sets the system to factory default, erasing the current database, streams and other settings. Please note, on a restore all streams are erased.

The **Restore** function is very similar to performing a backup, however some additional items need to be considered.

1. Select **Restore** in the Database Backup and Restore Utility screen.
2. (See below) Select from where to access the restore. Currently the Database Backup and Restore Utility has two options, Restore from USB (USB, Mount, Hard Drive) or from a Windows Share.

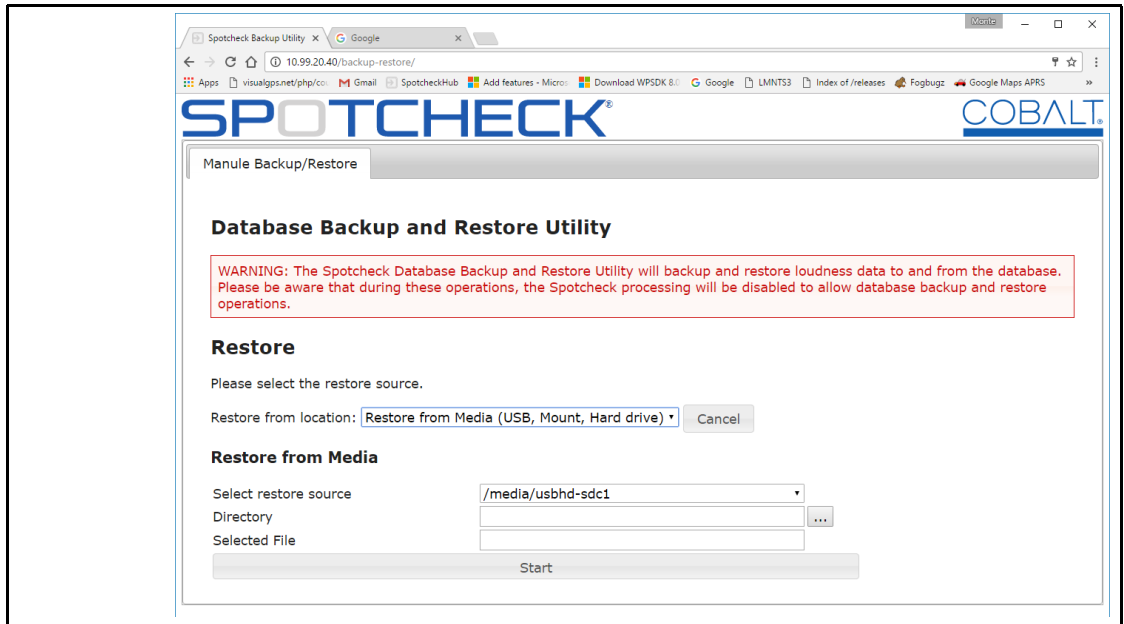


 **If Restore from Media is to be selected, make sure a USB hard disc is connected to one of available USB port at the front of the Spotcheck® unit. Restoring from media is localized to the Spotcheck®.**

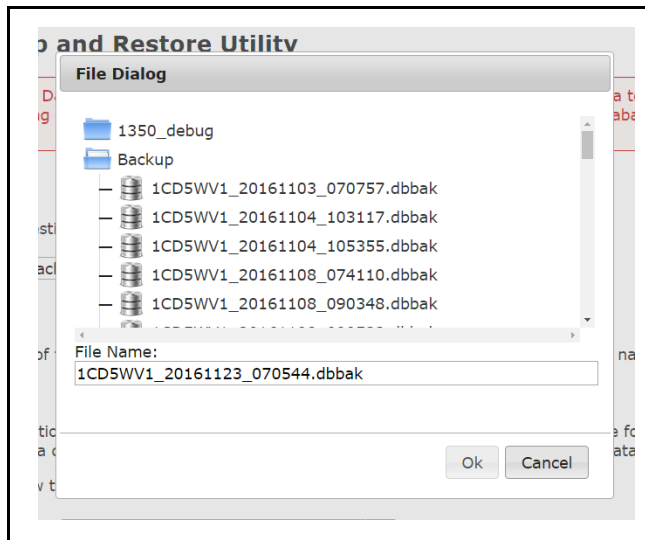
- Depending on which type of restore was selected, proceed as described below.

Restore from Media

Shown below is an example dialog showing available devices. When selecting **Restore from Media**, SpotCheck® will scan the available devices and build a list to choose from. This list resides in the **Select restore source** drop-down selection. If no devices are found, then this list shows “No Media Devices Found”.

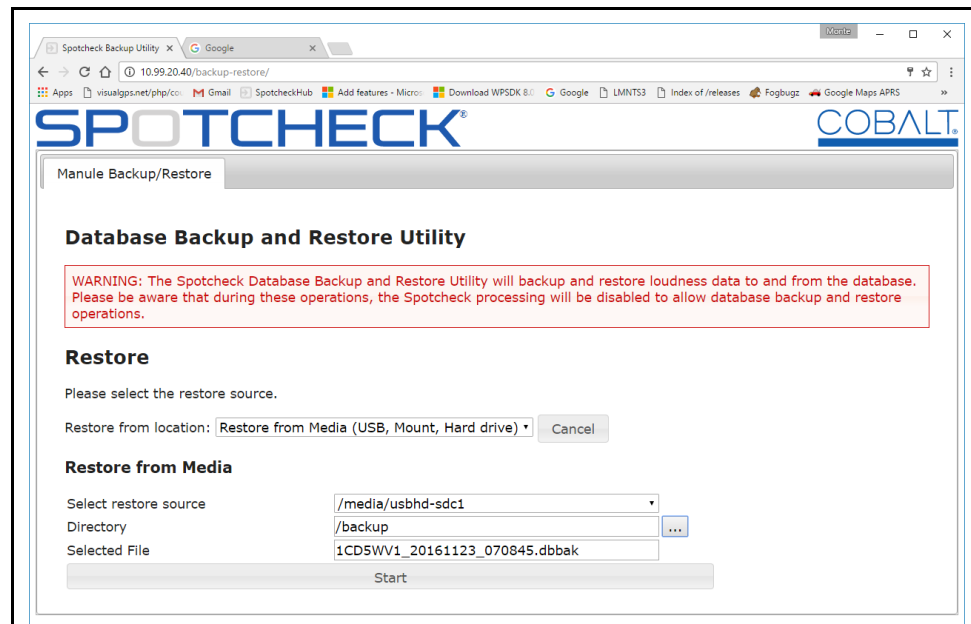


The Directory ellipsis [...] allows selection of the source folder (as shown below).

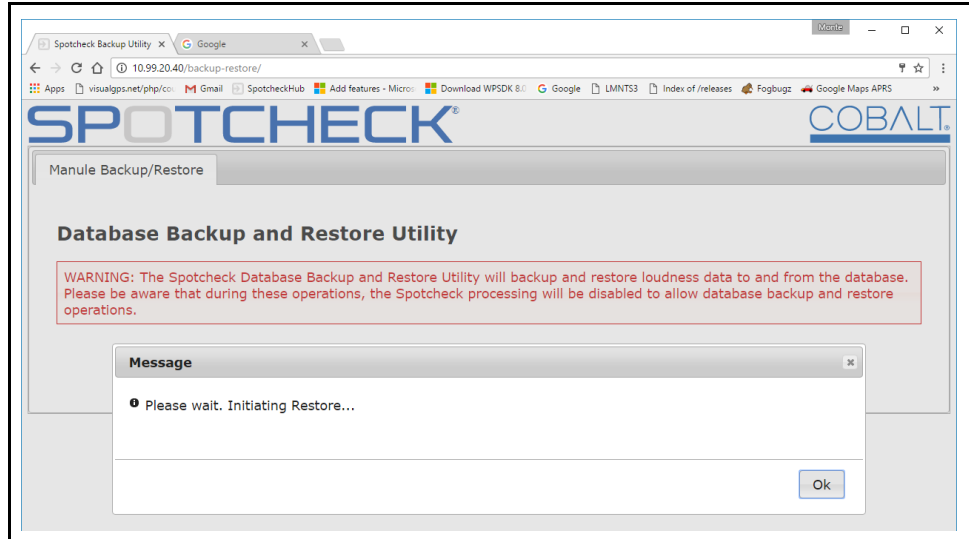


Select the file to restore from and click the **OK** button. The **Directory** and **Selected File** will fill in with the selection.

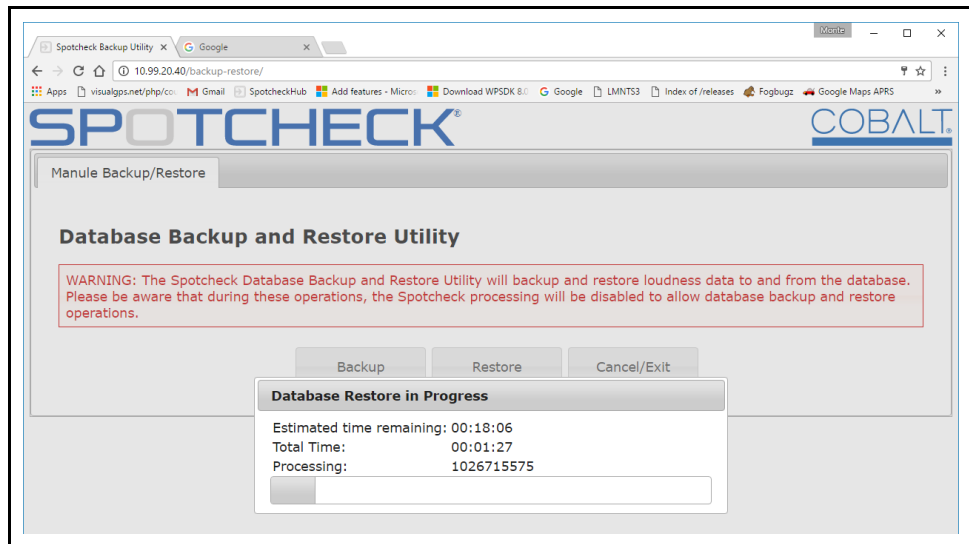
Click the **Start** button to initiate the restore (as shown in example below).



Next, a message appears describing the initiating process. (This message may loiter for a while, since during the initiation the system is performing a factory default reset prior to the restore.)



As shown below, **Database Restore in Progress** screen shows the completion status of the restore.



Note: The Spotcheck® restore function may take two to three times the length of backing up a system. This is due to writing to the database, with disk writes taking longer.

Restore from Windows Share

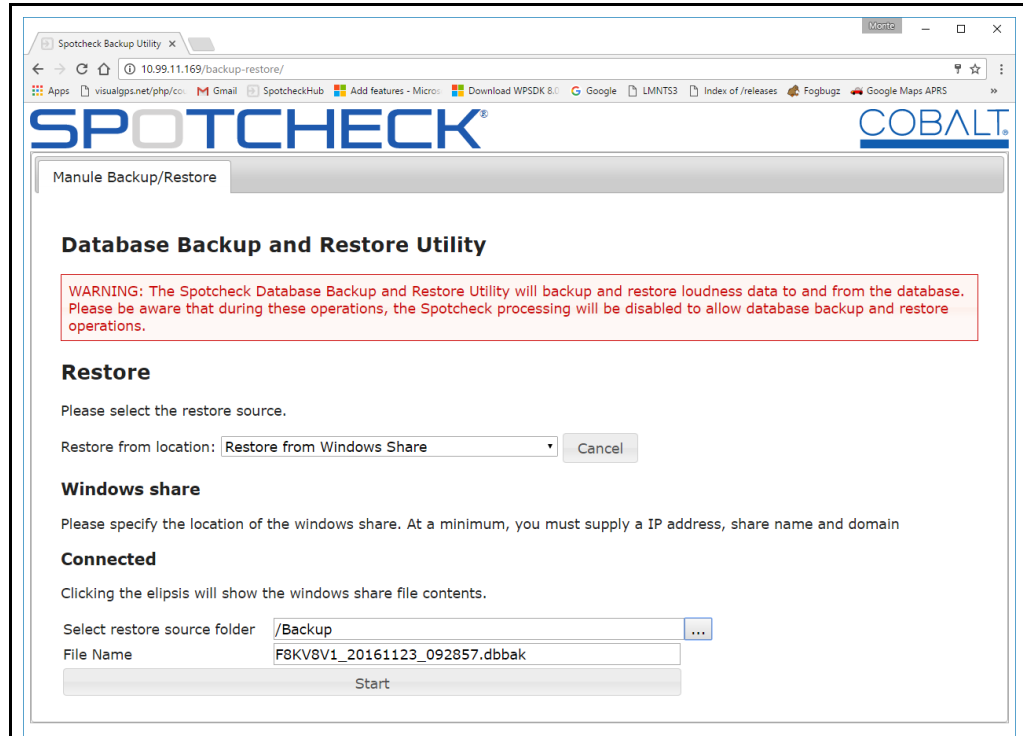
When **Backup to Windows Share** is selected, you will be presented with several input items which you will have to have some knowledge of your network infrastructure in order to perform the restore. Specifically:

- IP Address
- Share Name
- Domain
- User name
- Password

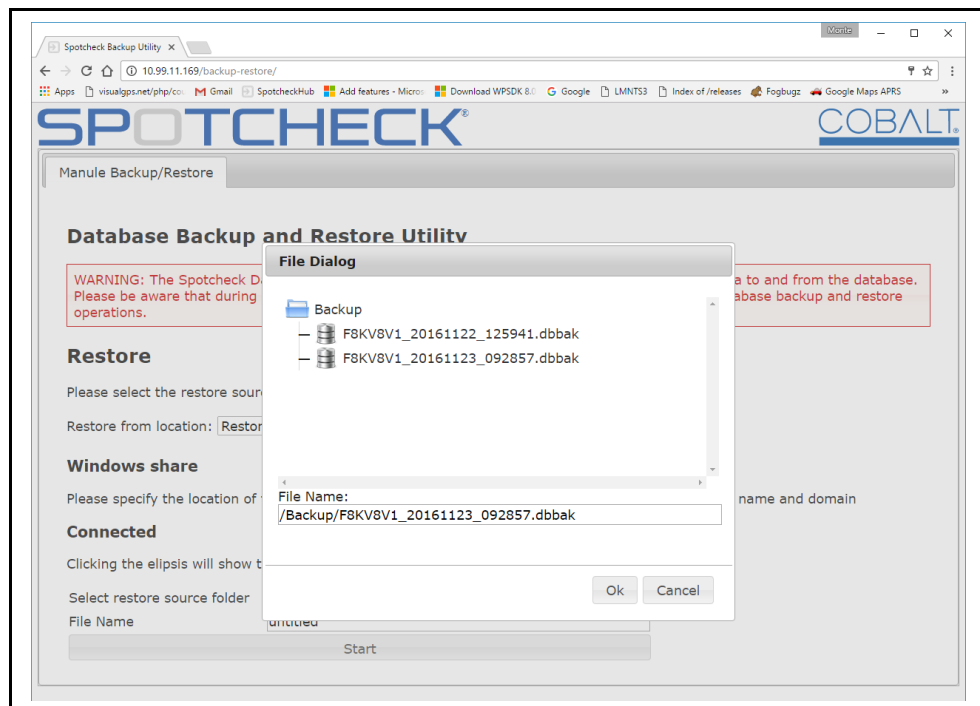
The entry dialog appears as shown below.

The screenshot shows a web browser window titled "Spotcheck Backup Utility" with the URL "10.99.11.169/backup-restore/". The page features the "SPOTCHECK" and "COBALT" logos. Below the logos is a navigation bar with "Manule Backup/Restore". The main content area is titled "Database Backup and Restore Utility" and contains a warning message: "WARNING: The Spotcheck Database Backup and Restore Utility will backup and restore loudness data to and from the database. Please be aware that during these operations, the Spotcheck processing will be disabled to allow database backup and restore operations." Below the warning is a "Restore" section with the instruction "Please select the restore source." and a dropdown menu set to "Restore from Windows Share" with a "Cancel" button. The "Windows share" section follows, with the instruction "Please specify the location of the windows share. At a minimum, you must supply a IP address, share name and domain". It contains input fields for "IP Address" (10.99.11.171), "Share Name" (SpotcheckBackup), "Domain" (WORKGROUP), "User name" (Spotcheck), and "Password" (masked with dots). A "Connect" button is at the bottom of this section.

When the connection is successful, you can now click on the ellipsis and select the file that is to be used for restoring the database (as shown in the example below).

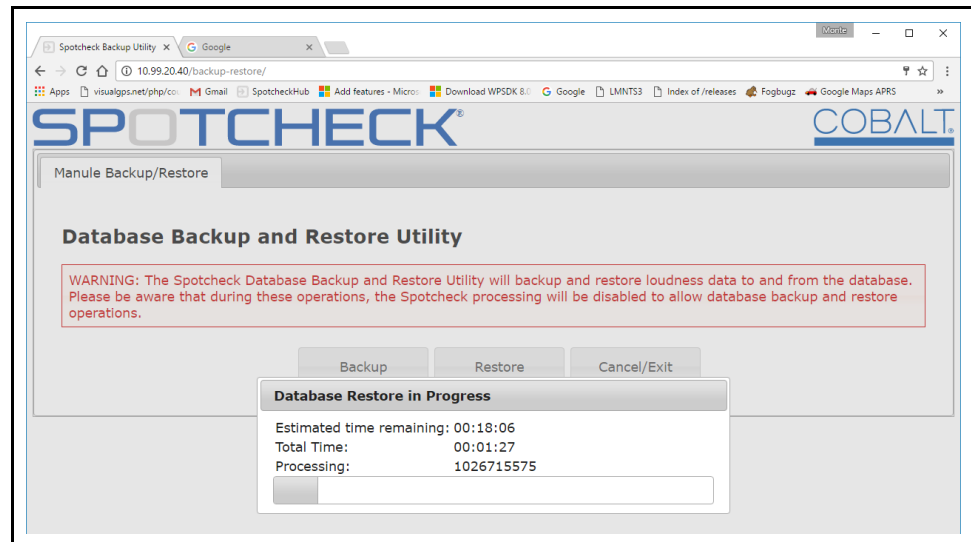


With the file selected (as shown in the example below), select the file and click **OK**.



With the file selected, restore the system by clicking on the **Start** button.

As shown below, **Database Restore in Progress** screen shows the completion status of the restore.



Note: The Spotcheck[®] restore function may take two to three times the length of backing up a system. This is due to writing to the database, with disk writes taking longer.

Troubleshooting

This section provides general troubleshooting information and specific symptom/corrective action for SpotCheck[®]. The SpotCheck[®] unit requires no periodic maintenance in its normal operation; if any error indication (as described in this section) occurs, use this section to correct the condition.

Remote Status Check via Cobalt SupportNet

SpotCheck[®] default settings provide a VPN connection from your installation back to Cobalt Support where your SpotCheck[®] unit(s) can be viewed, queried, and assessed by Cobalt Support. It is recommended to leave this default setting enabled so that your installation is visible should it need analysis by Cobalt Support. This VPN connection can be disabled or re-enabled by going to **Settings > Cobalt Support Network** on SpotCheck[®].

Troubleshooting by Symptom

(See Table 3-1.) In the majority of cases, most errors are caused by simple errors where SpotCheck[®] is not appropriately set for the type of media being processed, or a setup entry has not been fully entered as required.

Table 3-1 Troubleshooting Processing Errors by Symptom

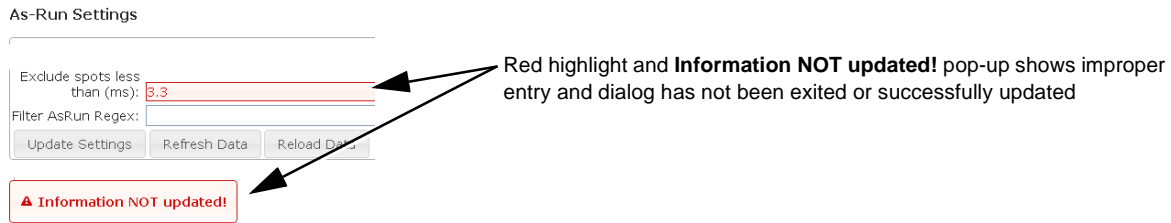
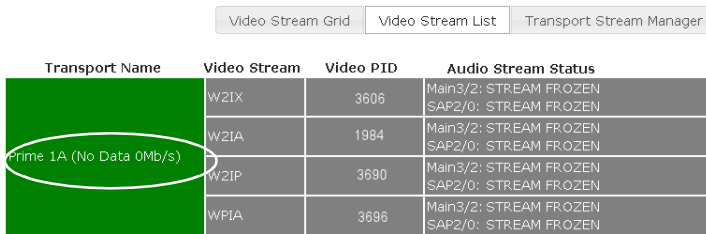

Symptom	Error/Condition	Corrective Action
SpotCheck® GUI controls seem unresponsive.	SpotCheck® web GUI has timed out.	Refresh the browser page. If necessary, log in again.
Controls or fields described here do not appear as expected.	Not logged on as admin, or logged on as user without admin rights.	All configuration screens require the user to have admin rights (this includes high-level adding or removing transports and programs, as well as lower-level dialog within program settings). Log in as admin, or while logged in as admin, set the user(s) experiencing access problems to have admin rights.
Cannot exit from Program Settings > As-Run Settings dialog/screen.	All required information not properly filled in.	Fields requiring information will display red if missing data, or erroneous data is present. The Set Exclude spots less than (ms): field must be set to an integer value of 3 or greater (the default value upon initial setup could be an invalid value).
		
Program graph or details for multiple programs under the Overview tab do not appear.	Transport stream failure or loss of connection.	Check transport stream/program status using Overview > Video Streams List . Check physical connections, port LEDs indicators, and upstream status/addresses if an OK indication is not present.
		
Gray band appears in running program plot.	Program experienced a temporary stream loss.	Possible upstream system loss of data or temporary data conflict.
		

Table 3-1 Troubleshooting Processing Errors by Symptom — continued

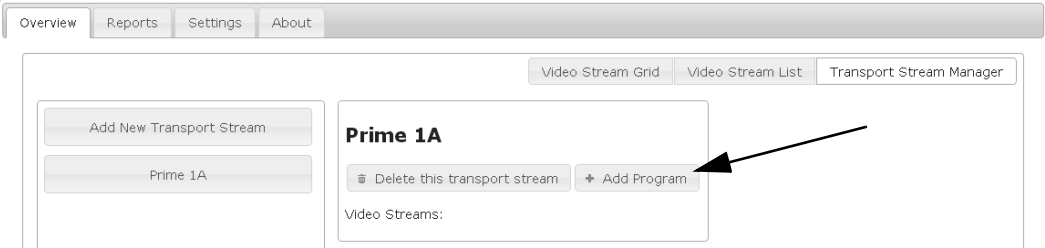
Symptom	Error/Condition	Corrective Action								
SpotCheck® will not accommodate intended number of added transports.	Transports have erroneously been added for each program added.	<p>For all media types, a transport stream accommodates multiple programs. When a program is added that is contained in an already set-up transport stream, it should be added while working within the particular transport stream. Do not add another transport stream to accommodate a program already contained within a transport stream that has already been set up.</p> <p>Refer to Structure Overview of Media, Transport Streams and Programs (p. 1-9) in Chapter 1, Introduction for more information.</p>								
<p>While within a transport setup (in this example, transport “prime1A”), add any programs within this transport using the dialog here. For programs belonging to a particular transport, add programs using the Add Program button while within the transport’s program display overview.</p>  <p>The screenshot shows a web interface with a navigation bar (Overview, Reports, Settings, About) and a sub-menu (Video Stream Grid, Video Stream List, Transport Stream Manager). On the left, there are buttons for 'Add New Transport Stream' and 'Prime 1A'. The main area displays 'Prime 1A' with buttons for 'Delete this transport stream' and 'Add Program'. A black arrow points to the 'Add Program' button.</p>										
SpotCheck® has web rendering bugs/defect after uploading new upgrade firmware to SpotCheck®.	Stale data retained by browser that no longer exists is attempted for access.	<p>Although typically not required for supported web browsers and platforms, it may be necessary to force a web page reload after a firmware upgrade.</p> <p>Depending on platform, perform a forced page reload as follows:</p> <table border="1" data-bbox="938 1304 1382 1419"> <thead> <tr> <th><u>OS</u></th> <th><u>Key Sequence</u></th> </tr> </thead> <tbody> <tr> <td>Windows</td> <td>ctrl+F5</td> </tr> <tr> <td>Mac/Apple</td> <td>Apple+R (or command+R)</td> </tr> <tr> <td>Linux</td> <td>F5</td> </tr> </tbody> </table>	<u>OS</u>	<u>Key Sequence</u>	Windows	ctrl+F5	Mac/Apple	Apple+R (or command+R)	Linux	F5
<u>OS</u>	<u>Key Sequence</u>									
Windows	ctrl+F5									
Mac/Apple	Apple+R (or command+R)									
Linux	F5									
SpotCheck® will not accommodate an added program.	Available licensing exhausted.	See SpotCheck® Licensing and Configurations (p. 1-10) and Licensing Management and Upgrades (p. 3-50) to see the amount and type of licenses currently available on your SpotCheck® unit. Additional licenses may be required if the current complement has been exhausted.								

Table 3-1 Troubleshooting Processing Errors by Symptom — continued

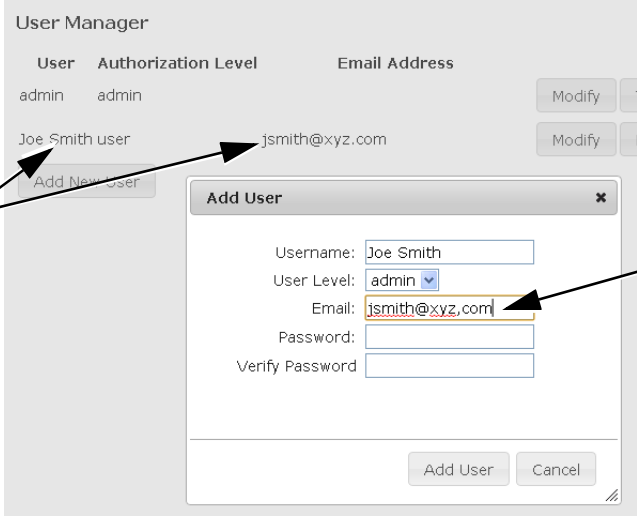
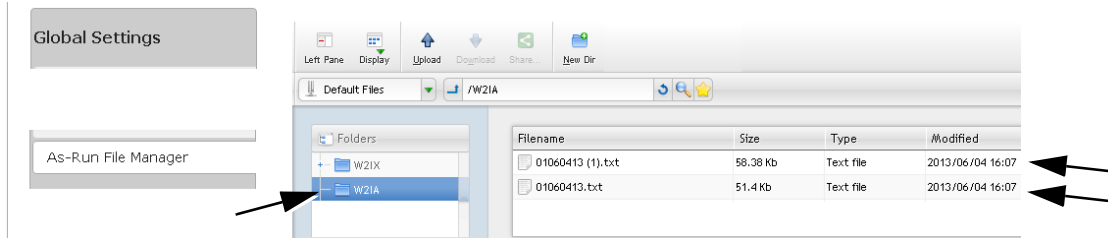
Symptom	Error/Condition	Corrective Action
<p>Intended e-mail notification recipients do not appear in e-mail Notification Manager page.</p> 	<p>Recipient not included as a user.</p>	<p>In order for a recipient to be included in the Notification Manager, the intended recipient must be added as a user, with the user also correspondingly set up to include e-mail.</p> <p>Refer to Setting up User Administration (p. 3-4) for more information.</p> <p>In User Manager page, when a user is added, make certain their e-mail address is included in the setup as shown in this example.</p> <p>When properly added, the user's e-mail address will be displayed in the User Manager overall user list (user "Joe Smith" along with corresponding e-mail address "jsmith@xyz.com" in this example).</p>
<p>Graphs in e-mail reports do not appear.</p>	<p>Incompatible e-mail application.</p>	<p>Graphs in e-mail reports using SpotCheck® version earlier than 1.6.91 may not render properly if using Microsoft® Outlook (however, underlying text data will be displayed).</p> <p>It is recommended to upgrade to the latest firmware if Outlook is to be used. (See Using Software Upgrade, Licensing and Log Tools (p. 3-48) for firmware upgrade instructions.)</p>

Table 3-1 Troubleshooting Processing Errors by Symptom — continued

Symptom	Error/Condition	Corrective Action
As-run data not appearing with corresponding program.	<ul style="list-style-type: none"> As-run file format not recognized or usable with SpotCheck®. 	<ul style="list-style-type: none"> Make certain SpotCheck® is loaded with the latest available firmware. Because as-run files do not necessarily conform to a generic standard, continuing enhanced as-run support is availed by uploading the latest SpotCheck® Firmware. See Checking and Updating SpotCheck® Firmware (p. 3-48) to make sure SpotCheck® is using the latest available firmware. Contact Cobalt Support and forward a sample as-run file for analysis. Although Cobalt Engineering has analyzed and dynamically verified and accommodated various common automation system as-run formats, not all files necessarily conform to a generic or known standard.
	<ul style="list-style-type: none"> As-run file/data not up to date. 	<ul style="list-style-type: none"> If as-run files are manually imported to SpotCheck® (as described in As-Run File Import Via Manual Upload (p. 3-22)), files corresponding to the displayed program interval must be up to date, and in the program's corresponding as-run folder.



As-Run File Manager folder for programs to use manually-imported as-run data must be populated with as-run file(s) for the day of interest (in this example, files "01060413.txt" and "01060413(1).txt" for "W2IA" for day of 6/14/2013).

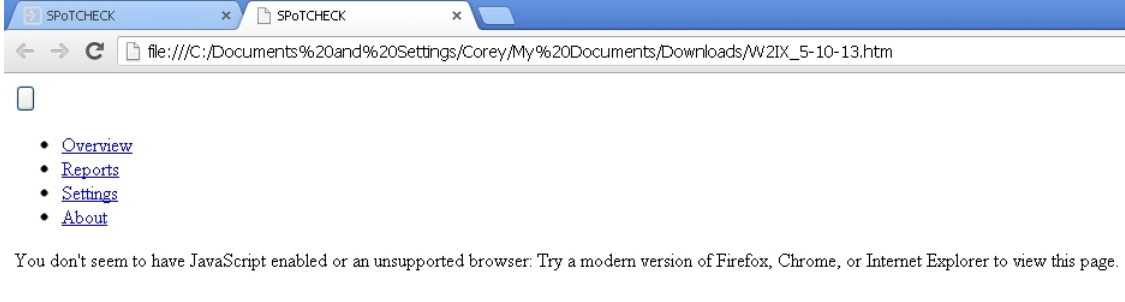
Program tab deleted or doesn't appear as expected. (version 1.5.2003 and earlier only; newer versions circumvent this user condition).	<p>Program tab suppressed by inadvertently clicking close "x" on program tab.</p> <p>The screenshot shows a single program tab in a window titled 'Overview'. The tab is labeled 'WA7D DT 17.1' and has a small 'x' icon in its top right corner. An arrow points to this 'x' icon.</p>	<p>Program tabs can be temporarily removed from the main tabs by clicking the "x" on the tab.</p> <p>To re-instate tab:</p> <ol style="list-style-type: none"> Go to Overview > Video Stream Grid or Video Stream List. Click anywhere on the desired program thumbnail to open program view. Click Show Plot. The program plot is shown and the program tab is now re-instated with the other main tabs.
Report doesn't show intended time span.	Program Settings set to limit reports only to Regions of Interest filter.	If date/time filtering not desired, make certain Regions of Interest filter is disabled (refer to Setting Up Report Regions of Interest Filtering (p. 3-19)).

Table 3-1 Troubleshooting Processing Errors by Symptom — continued

Symptom	Error/Condition	Corrective Action
Search function, when run, returns blank results.	<ul style="list-style-type: none"> No as-run integration with program. 	<ul style="list-style-type: none"> Programs using Search must have associated as-run data for a search to be returned. Refer to Setting up As-Run Data to Segment Program Plotting (p. 3-20)
	<ul style="list-style-type: none"> Program licensed using LITE license. 	<ul style="list-style-type: none"> Only the SPOTCHECK-LICENSE-AUDIO-FULL program license supports as-run integration. Because the SPOTCHECK-LICENSE-AUDIO-LITE license does not support as-run integration, the Search function is not available for program(s) using a LITE license.
Graph shows blue band, or is lacking dialnorm plot (if enabled), but video thumbnail are OK.	<ul style="list-style-type: none"> Audio PID not added in program setup. 	<ul style="list-style-type: none"> Make certain intended audio PID is selected in Add Program setup (refer to Adding Programs (p. 3-12).
	<ul style="list-style-type: none"> Selected audio PID is not supported. 	<ul style="list-style-type: none"> SpotCheck® currently supports AC-3, E-AC-3, and MP1L2 codec audio PIDs.
Spots in report show Inv (invalid)	Captured loudness data or as-run not correlated for a spot in a report.	Audio graphing or as-run integration wasn't present for a certain date range. Make certain as-run data is present for intended date/time range.

2013 May 08 12:23:02	00:04:54.00	<u>3 News at Noon N/R</u>	<u>PROD</u>	-24.00	-26.49	-2.49
2013 May 08 12:07:00	00:00:05.00	<u>BD OPTICAL/BB</u>	<u>33027</u>	-24.00	-26.60	-2.60
2013 May 08 06:10:36	00:00:30.00	<u>BlaFurniture & Fleet</u>	<u>38611</u>	Inv	Inv	Inv
2013 May 08 06:16:56	00:00:15.00	<u>First Illinois Restaurant</u>	<u>38020</u>	Inv	Inv	Inv

Table 3-1 Troubleshooting Processing Errors by Symptom — continued

Symptom	Error/Condition	Corrective Action
Saved report, when opened, does not display as expected (report shows as below).	Computer hosting SpotCheck® not running latest web browser with full Javascript enabled.	<p>It is recommended to use Save as type: Webpage; Complete when saving a report. This preserves all html files associated with the report.</p> <p>As an alternate, the page can be saved as a screen capture graphic file (however, this flat file will not have the dynamic functionality of an actual web page download).</p>
		
Video Stream Grid does not correctly render when using Android device for viewing.	—	Known issue. Use Video Stream List or go directly to Show Plot .



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