Observer

Admin Guide 7.2

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Contents

1 Introduction 1
1.0 Purpose and scope 1
1.1 About the Observer 1
1.2 Conventions used in the manual 3
2 Observer Servers 4
2.0 Dimensions and Power Requirements 4
2.1 Mounting, Power, Basic Connections 5
2.1.1 Power Distribution 5
2.1.2 Total Power 5
2.1.3 HVAC 5
2.1.4 STB Shelves 5
2.1.5 Typical Rack Layout with Set Top Boxes 6
2.2 Server Front Panel Indicators and Controls 7
2.2.1 Power ON, Shutdown 7
2.2.2 Observer Front Panel Indicators 8
2.2.3 Drive Carrier Indicators 10
2.3 Observer Enterprise Chassis Video Connections 10
3 Network Configuration 12
3.0 Security Considerations 12
3.0.1 Firewall Configuration for Observer Encoder Servers 12
4 Initial Setup 13
4.0 Supported Operating Systems 13
4.0.1 Central Server Installations 13
4.0.2 Probe Installations 13
4.0.3 PC Client Installations 13
4.1 Browser Support 13
4.1.1 Chrome, Firefox, and Safari Support 14

4.1.2 Internet Explorer Support 16

5 Exploring the Maintenance Tree 17

5.0 Settings 17

5.0.1 Observer Versions 17

5.0.2 Session Timeout 19

5.0.3 System Date Format 19

5.0.4 Global Keyword Alert Limits 19

5.0.5 Default Login Settings 20

5.0.6 Miscellaneous Settings 20

5.0.7 Server Host and Web Server IP 21

5.0.8 Content Export Module Settings 22

5.0.9 Content Matching Module (CMM) Settings 23

5.0.10 Expired Data Cleanup 23

5.0.11 Login Page Control 24

5.0.12 Expired License Information 25

5.0.13 Password Policy 25

5.0.14 Dashboard Channels Order 26

5.0.15 Favorites 26

5.0.16 SNMP Receivers 27

5.0.17 Fault Email Alerts 28

5.0.18 Secure Login 28

5.0.19 Audio Black List 28

5.1 User Account Management 29

5.1.1 Create a New Group 30

5.1.2 Edit Group 32

5.1.3 Display Users 33

5.1.4 Add a New User 33

5.1.5 Edit User Account 34

5.1.6 Forgotten Passphrase 34

5.2 Event Viewer 35

5.2.1 Accessing the Event Viewer 35

5.2.2 Active Users 35
5.2.3 Import Data 36
5.2.4 Import Profiles 38
5.3 Alerts 38
5.3.1 Setting Up the Fault Email Server 38
5.3.2 Setting Up Alert Notifications 39
5.3.3 Adding and Editing Alerts 40
5.4 Alert Template 42
6 Central Configuration 43
6.0 Encoders 43
6.0.1 Encoder Page Fields 44
6.0.2 Groups 45
6.0.3 Probes 46
6.0.4 Managing Probe Server 47
6.0.5 Delete Probe 51
6.0.6 Encoder Details 52
6.0.7 Sub-Encoders 55
6.0.8 Loudness Monitoring 55
6.1 Software Updates 58
6.1.1 Uploading New Software 58
6.1.2 Probe Software Update 59
6.2 Task Manager 60
7 Programs 61
7.0 Manual Program Input Process 62
7.1 As-Run Files Program Input Process 62
7.2 Exporting Program Clips 63
8 Ratings 64
9 Observer/RPM Alerting 67
9.0 Definition of Key Terms 67
9.1 Color Coded Frame 68

9.1.1 Red: Video Alert ... 69
9.1.2 Yellow: Audio Alert ... 69
9.1.3 Blue: Other Alerts ... 70
9.2 Encoder Stream Alerting ... 70
9.2.1 Media Faults ... 70
9.2.2 Alert and Trap Generation ... 70
9.3 Equipment and Link Alerts ... 70
9.3.1 Equipment and Link Alerts Table ... 70
9.4 System alerts ... 71
9.4.1 System alerts table ... 71
9.4.2 Media Faults with Examples table ... 72
10 Nielsen Audio Video Encoding (NAVE) feature description ... 78
10.1.1 NAVE Configuration ... 79
11 SNMP Notification ... 81
11.1 MIB variables ... 81
11.1.1 MIB variables table ... 81
11.1.2 MIB variables alert example table ... 83
11.1.3 SNMP notification signaling table ... 84
11.1.4 System alerts ... 85
11.1.5 Configure Notification ... 86
12 Capture Cards and Breakout Cables ... 89
12.0 Compatible Capture cards ... 89
12.1 BLACKMAGIC INTENSITY PRO ... 90
12.2 Osprey460e card ... 91
12.2.1 Audio breakout 9 pin Mini-Din Pin-out ... 92
12.2.2 Composite Video Interconnect diagram ... 92
13 SDI-SD/HD System Interconnect ... 93
13.0 SDI-SD/HD Interface diagram ... 93
13.0.1 Observer Enterprise Chassis SDI Connections ... 94
13.1 Blackmagic Decklink SDI ... 95

13.1.1 Decklink SDI Coax Connector Diagram 95
13.1.2 Dolby Digital 5.1 Support 96
13.1.3 Decklink SDI Channel features 96
13.2 Blackmagic Decklink Quad SDI–SD/HD 96
13.2.1 Decklink Quad SDI–SD/HD Connector Diagram 97
13.2.2 Breakout Cable BNC to Mini BNC Adapter 97
13.3 Decklink Duo SDI/HD adapter interface 98
13.4 Transport stream DeckTec interface 99
13.4.1 Dektec DTA-2160 99
14 General Interconnect Description 100
14.1.1 Media SD Video/ Audio and HDMI Interconnections 100
14.1.2 IR Transmitter Interconnections 101
15 NTP Time Server Configuration 102
15.1.1 Selecting a Time Server 102
15.1.2 Setting Poll Interval 103
16 What NOT to do on the server side 104
17 RAID Alert Notification 105
17.0 RAID Variants 105
17.0.1 RAID 1 105
17.0.2 RAID 5 105
17.0.3 RAID 6 105
17.1 RAID Controllers 106
17.2 3Ware Configuration on Observer Servers 106
17.3 RAID Maintenance 108
17.4 Hard Disk Drive (HDD) Replacement 109
17.5 Hard Drive Outage 109
18 Antivirus Excluded Storage Areas 110
19 Active Directory (AD) Integration 111
19.0 Prerequisites 111

19.1 AD Operation 111
19.2 Troubleshooting 112
20 Troubleshooting and Maintenance 113
20.0 No Video Playing 113
20.1 Internet Explorer Issues Due to Skype Add-ons 113
20.2 Exporting Video Clips 113
20.2.1 Client Machine Not Working 113
20.3 Install Player CAB File 114
20.4 How to Remove Volicon Media Player from a Client PC 114
20.5 License Problem Sources 114
20.6 Support Portal 115
21 System Monitoring Procedure 116
21.0 Checking the Encoder Status 116
21.0.1 Probe Fault 117
21.0.2 Monitor Media Streams 117
21.0.3 Encoder Fault 117
21.0.4 Encoder fault corrective actions 118
21.0.5 Checking Memory and CPU Utilization 118
21.0.6 Windows Task Manager 118
21.1 Checking Video Storage Utilization 119
22 Appendix A Using Osprey to Examine A/V Streams 121
22.0 Adjusting Audio with Osprey Config 123
23 Appendix B Revision History 125
23.0 Observer releases 125
23.1 Revision change history 126

1 INTRODUCTION

1.0 Purpose and scope

Welcome to the Volicon Observer Admin Guide. This document will provide the details and instructions necessary to guide you through the configuration and operation of the Volicon Observer platform. It addresses specific system and network administrator functions in the Volicon environment, including setting up:

- Inputs from video networks
- Encoders
- IP networks
- Alerting thresholds
- User and user accounts
- Other system related parameters in the Observer.

It is also useful for advanced users to gain further understanding of the system.

1.1 About the Observer

The Observer™ is a powerful tool for automated media monitoring, logging, and quality assurance with applications for broadcast and related networks:

- Automated monitoring and diagnosis of multichannel broadcasts
- Standards-based loudness monitoring
- Media logging and related features

The Observer environment is typically composed of a Central Server (CS) and a group of probe servers often spread out between your network management location, your operations centers and unmanned remote distribution points. This composition gives you complete visibility into the content deployed on your network.

Observer has the ability to log content from multiple video sources in the post production, transmission, delivery, and reception video distribution chain. You can log content at any stage of the video production or delivery process: The amount of content you can log is limited only by your storage space.

It is the only product on the market that logs video content down to the individual frame level, at the same standard frame rate as the source. In

addition, Observer allows you to log content from many different input types such as HD/SD-SDI, ASI, IP, DVB-(S, S2, T, T2), 8VSB, Clear QAM, Component, Composite, S-Video, and HDMI. .

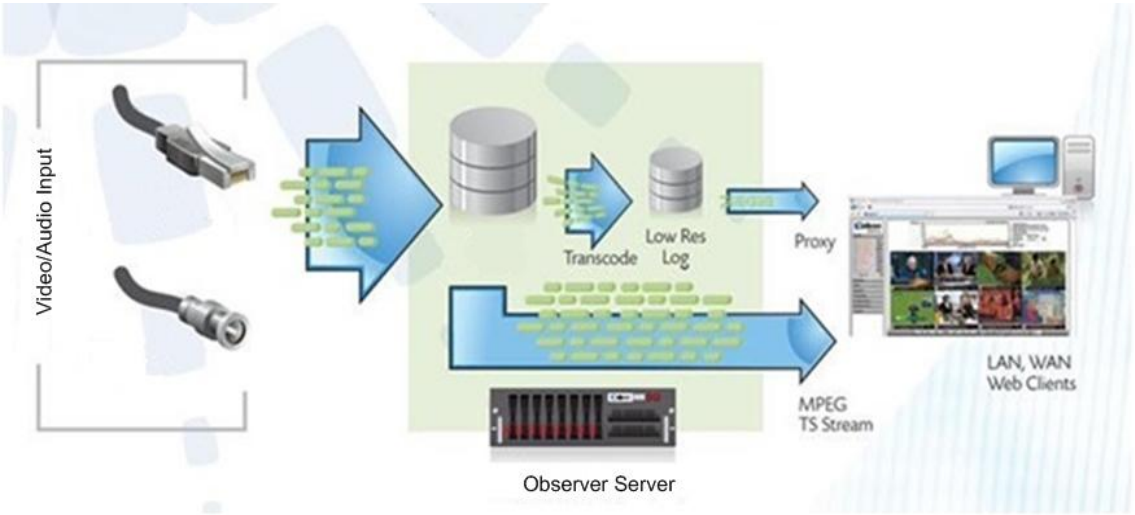


Figure: Observer Functional Diagram

The Observer ingests the video and audio. Next it takes the original stream content and transcodes it to a lower resolution and bit rate for storage on the Observer Server, essentially making a copy of the original source also known as a Low Bit Rate Proxy (LBRP). The LBRP is stored locally on the server and then streamed to each end user as an individual stream, which allows multiple users to access the same content without adversely affecting other users on the Volicon solution. There are several reasons for creating a low bit rate proxy of all incoming video content:

- It allows multiple users to access the Volicon solution simultaneously
- It minimizes impact on network resources
- It allows the Observer to store content on each server for much longer periods of time

Observer works with networks of all sizes. The system is preconfigured with default settings so that small installations can work right out of the box. For larger installations, you can define as many probe servers and their streams in the Central Server as you need to completely monitor your network.

1.2 Conventions used in the manual

Type	Classification
Boldface	Denote names and labels in the Graphical User Interface (GUI)
Capitalization	Denotes key words module names, components and signal labels
<Boldface>	Denotes push buttons and other similar user input devices
@Hyperlink	Automatic links to other sections in the document, denoted by boldface and the "**@**" prefix

2 OBSERVER SERVERS

Volicon offers a number of different servers to meet customer requirements. Servers are rack mounted and come in 1U – 4U heights. Most servers have dual redundant 50/60Hz power supplies. Server includes chassis slides and power cords.

Figure: Typical Observer Server (SC835TQ-R800BK)

2.0 Dimensions and Power Requirements

Server	Storage Capacity	Power Requirements All supplies 50/60Hz	Height is multiple of 1U, (1.74 inch, 44.45 mm)	Weight
SC512C 200B	1 bay	Single 200W 100-240V 4-2A	1U x 14.0” (346mm) deep	12.8lbs (6.8kg)
SC815TQ 563UBK	4 RAID bays 1 aux bay	Redundant Supplies 700W 100-140V 8.5-6A 750W 180-240V 5-3.8A per supply	1U x 25.6” (650mm) deep	36 lbs (16.3kg
SC825TQ 563UBK	8 RAID bays 1 aux bay	Single 560W supply 100-240V 7.7A max	2U x 25.5” (648mm)	50lbs
SC825TQ R700BK	8 RAID bays 1 aux bay	Redundant 700W Supplies 100-240V 10-4A per supply	2U x 25.5” (648mm) deep	52lbs (23.6kb)
SC835TQ R800BK	8 RAID bays 4 aux bays	Redundant 800W Supplies 100-240V 10-4A per supply	3U x 25.5” (648mm) deep	72lbs (32.7kb)
SC836A R1200BK	16 RAID bays 2 aux bays	Redundant 800W Supplies 100-240V 10-4A per supply	3U x 25.5” (648mm) deep	72 lbs (32.7kb)
SC846A R1200BK	24 RAID bays 2 aux bays	Redundant 900W Supplies 100-240V 4.5-11A per supply	4U x 26.0” (660mm) deep	75lbs (34.0kg)

Table: Observer Server Space and Power requirements

2.1 Mounting, Power, Basic Connections

Servers mount in standard 19-inch racks. Follow your rack manufacturer's mounting instructions for safe and stable mounting. If the server power supply has a 110/240 switch, make sure to set it to the proper voltage 120/240VAC, 50/60 Hz.

Plan for your rack space and cooling requirements by creating a table similar to the one shown above. List your servers, set top boxes and related equipment. If possible include a PC or laptop dedicated for use with the Observer servers.

Attach a dedicated display, keyboard and mouse so that during urgent service there is no delay in logging into the server. See the Observer Site Prep Guide for more details.

Attach LAN and video cables as needed.

2.1.1 Power Distribution

Servers should preferably be on dedicated circuits so that if one trips, it will not affect more than one power supply module per server.

We recommend connecting the Observer system to a UPS or a similar high availability power supply.

2.1.2 Total Power

Add the power requirements of all other onsite equipment to obtain total system power consumption.

2.1.3 HVAC

Ensure your HVAC has sufficient cooling capacity to handle the total power (Watts) of heat dissipated by the servers and your other onsite equipment.

2.1.4 STB Shelves

If you use Set Top Boxes (STBs), we recommend mounting these in 19 inch racks (482.6 mm) for solid installation and good IR shielding. Locate the shelves close to the Observer server to reduce cable lengths. As an example see the STB shelf shown below. It fits in a 19 inch rack 2U high.

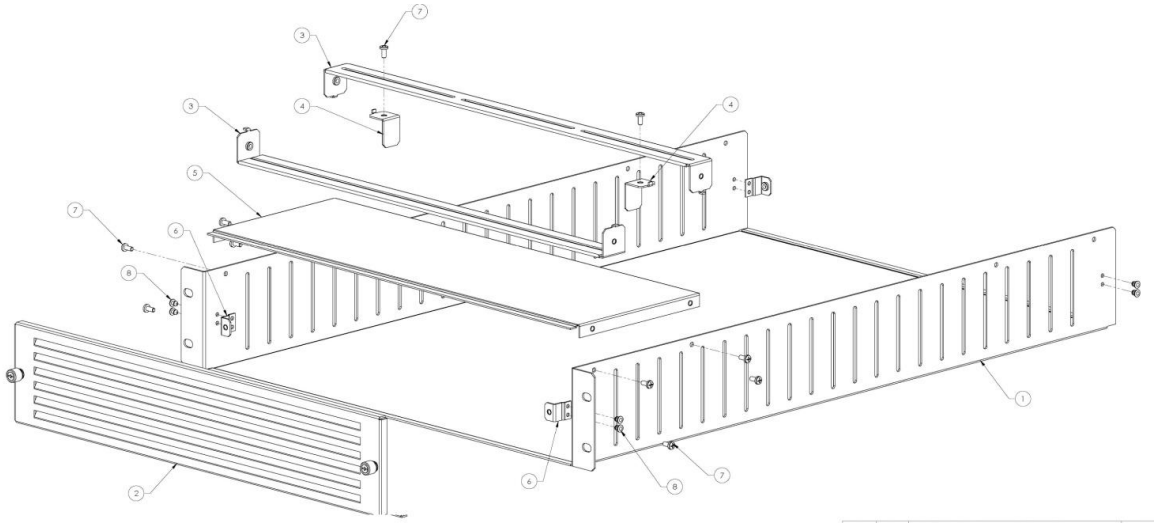


Figure: Set Top Box Mounting Shelf

2.1.5 Typical Rack Layout with Set Top Boxes

This section describes rack layout and interconnections in scenarios when Set Top Boxes (STBs) are used.

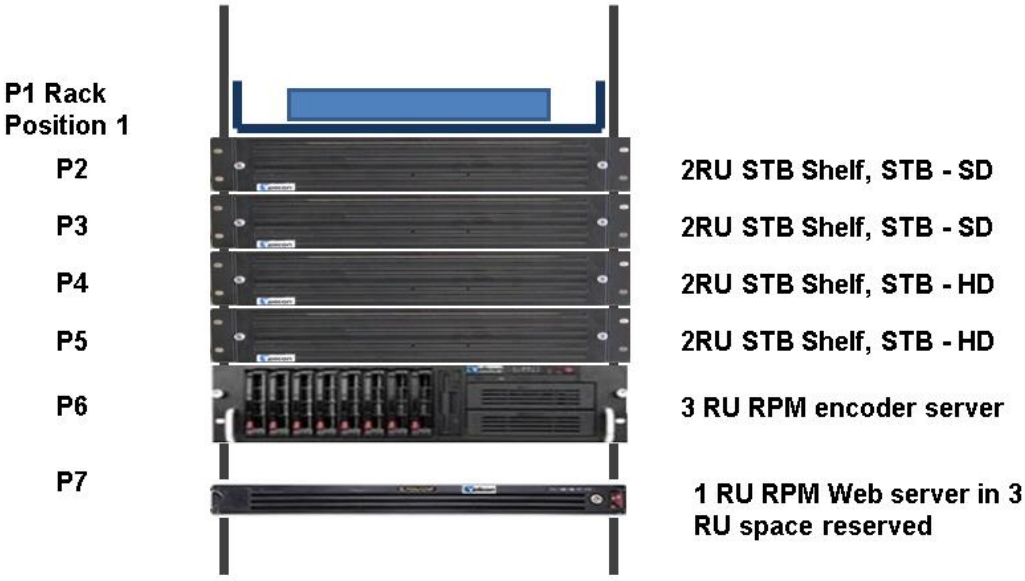


Figure: Typical STB Rack

- *Note: a maximum of two HD streams should be used per Observer Encoder server chassis as shown above*

2.2 Server Front Panel Indicators and Controls

For security purposes a locking front cover prevents access to drive bays, auxiliary drives and the power and reset buttons. With the security panel installed only the system level status LEDs are visible.

Note: there may be minor differences in Panel Indicators depending on the specific server and configuration.

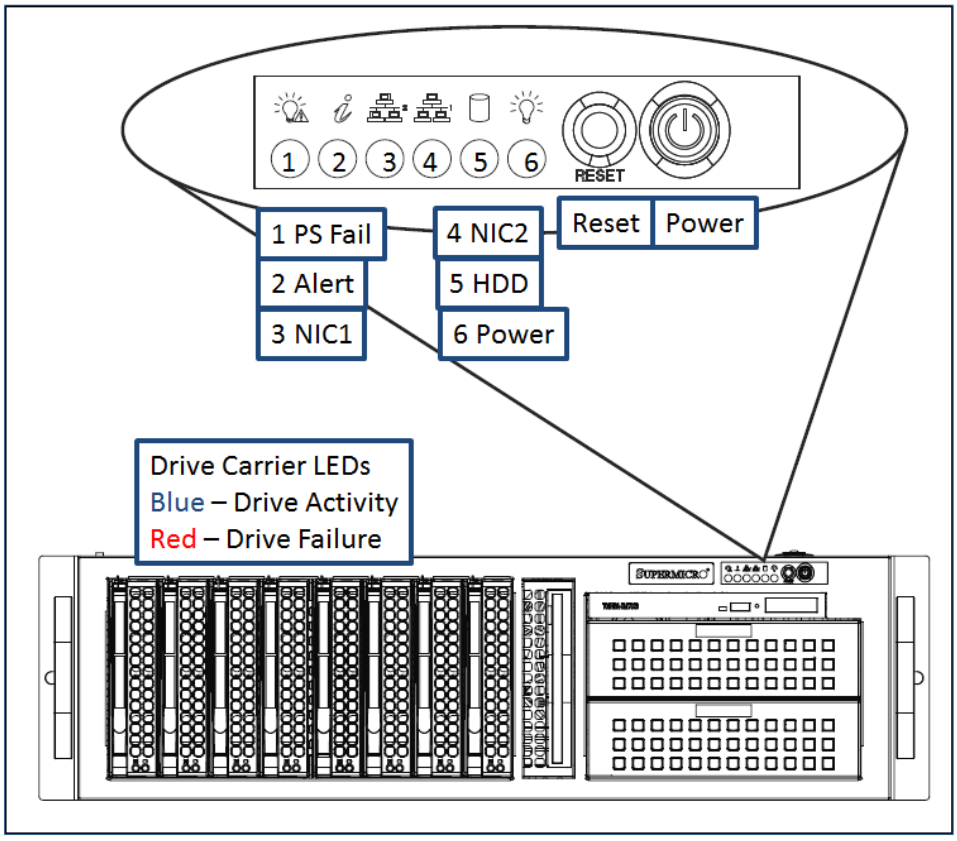


Figure: Typical Server Indicators and Controls (Security Panel Removed)

2.2.1 Power ON, Shutdown

To power up the server remove the locking front panel security cover and press the Power switch.

After powering up the Observer server, wait for the login screen to appear. If you are logging into the system for the first time, consult the "Read Me First" guide or contact the Volicon support team. Observer runs as a service (configured by default) and does not require a user/admin log in to operate.

To shut down Observer, from the console use the **<Start>→<Shutdown>** sequence. To restart the server, use the **<Start>→<Restart>** menu. **Do not unplug the power cord or press the Reset button** so as not to impact the database. (Its re-indexing might require help from the Volicon support group). If for some reason the main Windows server console screen is not accessible, use the front panel **<Power>** button to do an orderly Windows shutdown of the server.

Pressing the **<Reset>** button forces the CPU to reset, the same as if power had been cycled.

2.2.2 Observer Front Panel Indicators

There are several LED indicators on the control panel and others on the drive carriers to keep you informed of overall system status and the activity and health of specific components. This section explains the meanings of the LED indicators and the appropriate responses.

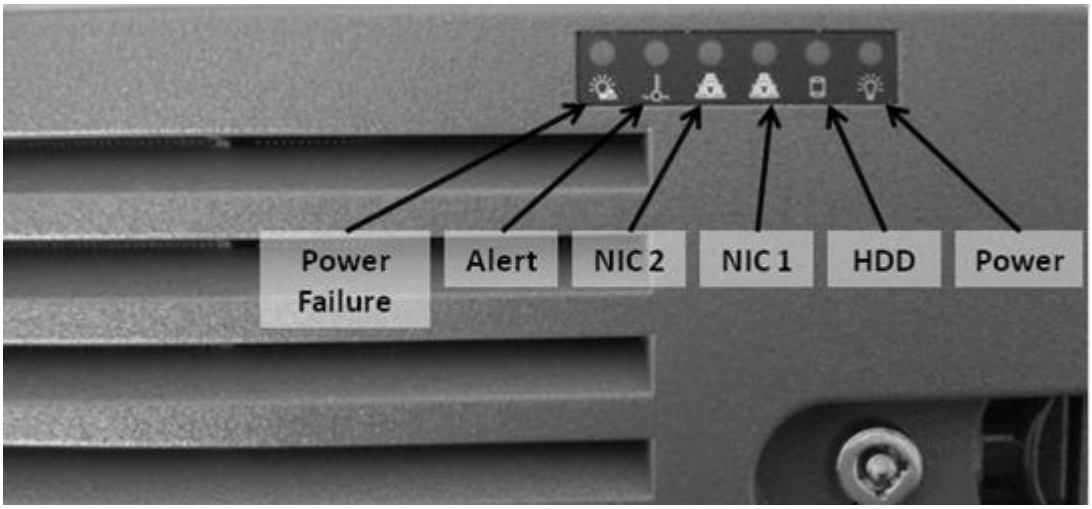


Figure: Observer Front Panel Indicators (Security Panel in Place)

Indicators:

- **Power Failure:** When this LED flashes, it indicates one of the power supplies has failed.

- **Alert:** This LED is illuminated when an alert condition occurs. See the table below for details.

Alert Status	Description
Constant red	An overheat condition has occurred. (This may be caused by cable congestion)
Blinking red (1Hz)	Fan failure, check for an inoperative fan.
Blinking red (0.25Hz)	Power failure, check for a non-operational power supply
Constant blue	Local UID has been activated. Use this function to locate the server in a rack mount environment.
Blinking blue	Remote UID is on. Use this function to identify the server from a remote location.

- **NIC2:** Indicates network activity on LAN2 when flashing
- **NIC1:** Indicates network activity on LAN1 when flashing

- **HDD:** Indicates IDE channel activity. SAS/SATA drive and/or DVD-ROM drive activity when flashing.

- **Power:** Indicates power is being supplied to the system's power supply units. This LED should normally be illuminated when the system is operating.

2.2.3 Drive Carrier Indicators

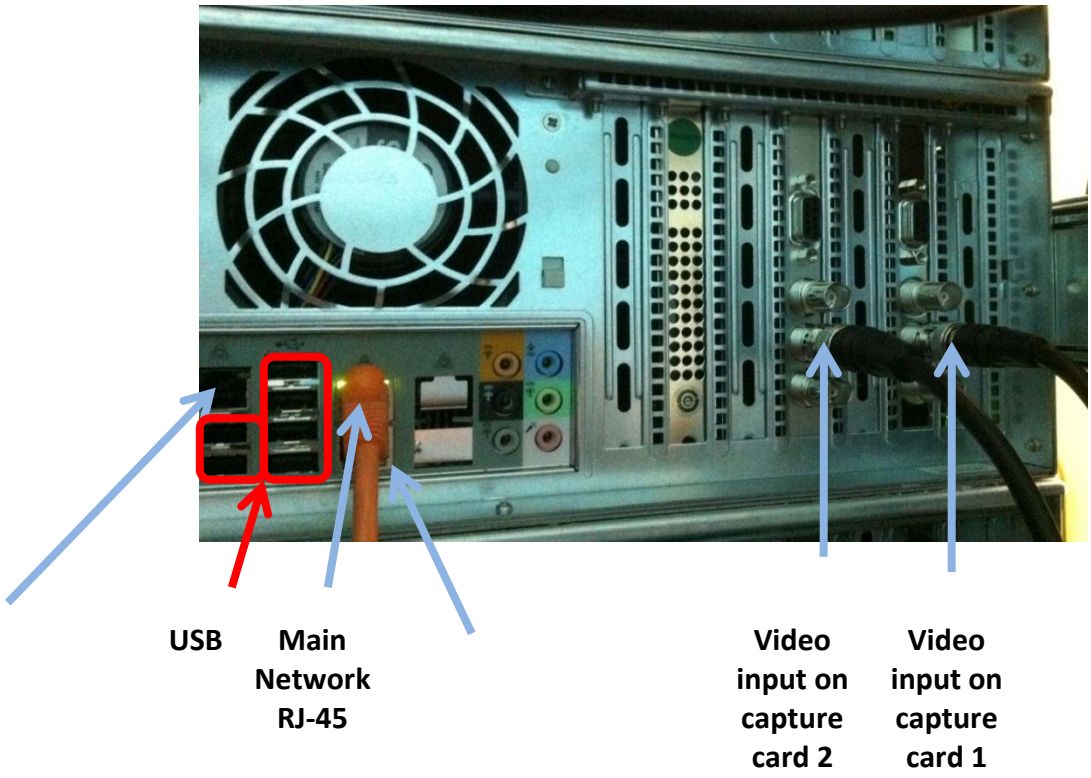
Each drive carrier has two status LEDs. They are normally hidden behind the security panel. Remove the panel to access the drive bays.

Blue: Drive activity. Flashes when drive is accessed

Red: Drive Failure

2.3 Observer Enterprise Chassis Video Connections

All video input connections on the Observer Enterprise Chassis are located on the back panel.


IPMI
RJ-45
USB
Main
Network
RJ-45
Video
input on
capture
card 2
Video
input on
capture
card 1

3 NETWORK CONFIGURATION

Volicon recommends that you assign a static IP address to each Observer server. If you are relying on a public network (such as the Internet) for connecting your various server deployments, additional considerations apply.

3.0 Security Considerations

If you are using the Internet for your connections, place firewalls both between your Observer Encoder servers and their Internet connection, and between your Central/Web server and its Internet connection.

3.0.1 Firewall Configuration for Observer Encoder Servers

On the firewall protecting your Observer Encoder servers, you must open:

- TCP Ports 4504/5502 for content streaming (to client PCs). Port 4504 allows A/V streaming.
- TCP Port 3306 for database updates. Open Database Connectivity (ODBC), a standard programming language middleware API for accessing Database Management Systems, uses TCP port 3306.
- Port 8080 for Mobile device streaming
- Port TCP 3389 or a VPN connection for support

Central/Web server:

- Ports TCP 80 for the HTTP (Web frontend and client PCs)
- Port TCP 25 SMTP for Hmailserver outgoing email alerts
- Port 943 and 4504 for Silverlight

Be sure to provide sufficient bandwidth between server and the monitoring facility. Size the bandwidth to provide 1.2-1.5 times the sum of the viewed stream's bandwidth, with a minimum connection speed of 10 Mbps

See the Observer Site Prep Guide for details.

4 INITIAL SETUP

4.0 Supported Operating Systems

4.0.1 Central Server Installations

The Observer Central Server can be installed on a computer running any of the following operating systems:

- Windows 2003
- Windows 2008 x64 and x32
- Windows 7 x64
- Windows 2012

4.0.2 Probe Installations

Probes can be installed on computers running any of the following operating systems:

- Windows 2003
- Windows 2008 x64
- Windows 7 x64

4.0.3 PC Client Installations

You can install the PC client on computers running the following operating systems:

- Windows 7
- Windows XP (for basic monitoring)

4.1 Browser Support

The Observer supports four interface browsers:

- Internet Explorer
- Chrome
- Firefox
- Safari

Internet Explorer uses the PC client; Chrome, Firefox, and Safari provide you a clientless user interface.

To enable clientless mode, please contact Volicon support

Please read the Clientless configuration documentation for complete details.

4.1.1 Chrome, Firefox, and Safari Support

The Observer supports Chrome, Firefox, and Safari through a clientless user interface. Note that the Observer only supports Safari on the MAC OS; Safari on Windows is not supported.

The clientless user interface provides you with a simplified control bar, which is compensated for by a set of keyboard shortcuts.

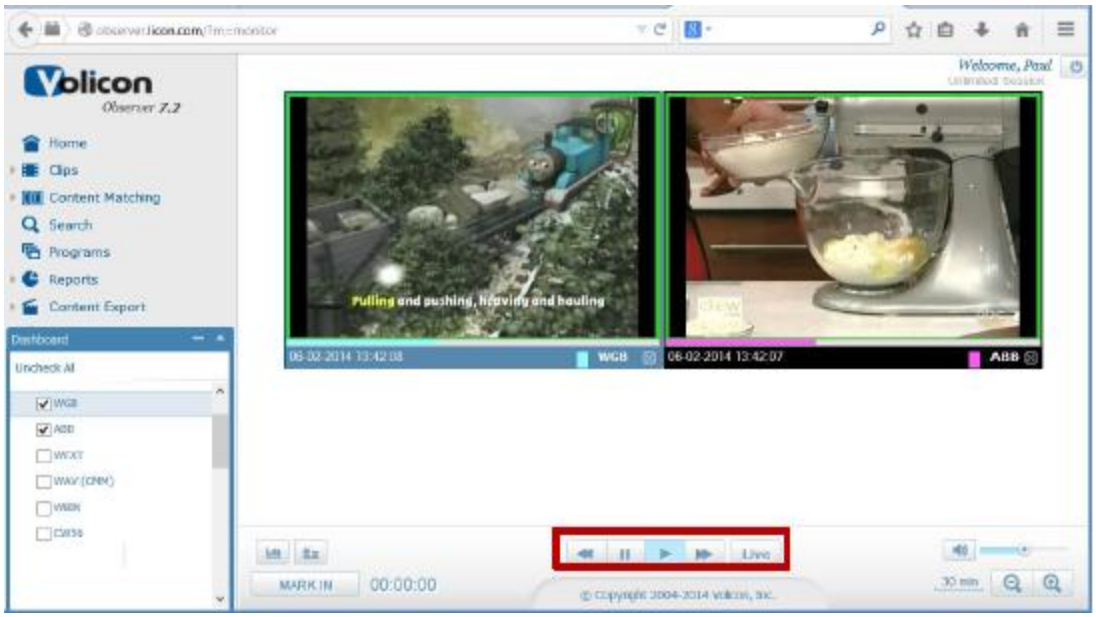


Figure: Clientless User Interface

Prior to using the clientless interface, the stored video and audio content must be converted to H264 video and AAC audio formats. Please contact Volicon support to enable the clientless feature. The Silverlight plugin used with this interface is usually installed automatically on the client PC. If not, install it manually.

The keyboard shortcuts for the clientless user interface are given in the table below. You can also use these shortcuts to complement Multi-view monitoring, and to enhance your player control in general.

Key	Function
L	Live
P	Picture in Picture
S	Split Screen
F	Full Screen
M	Mute/unmutes
D	Switch between main and expanded display
Z	Fast reverse
X	Normal reverse
C	Slow reverse
<Spacebar>	Pause/play
V	Slow forward
B	Normal forward
N	Fast forward
I	Image snapshot
<Cursor up/down>	Volume up/down
Mouse scroll <up/down>	Single frame forward/backward
<'>	Cut clip <Mark in/Markout>

4.1.2 Internet Explorer Support

The Observer supports the following versions of Internet Explorer in both 32 and 64 bits:

- IE9
- IE10
- IE11 (in Compatibility mode)

The IE player has the following advantages over the clientless interface:

- Media export
- Frame by frame display
- Clips preview (Bookmarks and Fault clip thumbnails)
- Split screen and Picture-In-Picture display modes
- Display of all metadata

5 EXPLORING THE MAINTENANCE TREE

The Maintenance Tab has several sub categories which generally apply to the entire ecosystem of the Observer solution. Sub Categories include:

1.Settings

2.User Management

3.Event Viewer

4.Import Data

5.Event Viewer

6.Alerts

7.Alert Template

5.0 Settings

Expand **<Maintenance>→<Settings>** to display Settings. Settings are global in nature, and apply to all end users and the modules configured on the system.

5.0.1 Observer Versions

When you access the Volicon Observer, you can see your software versions at the upper left:

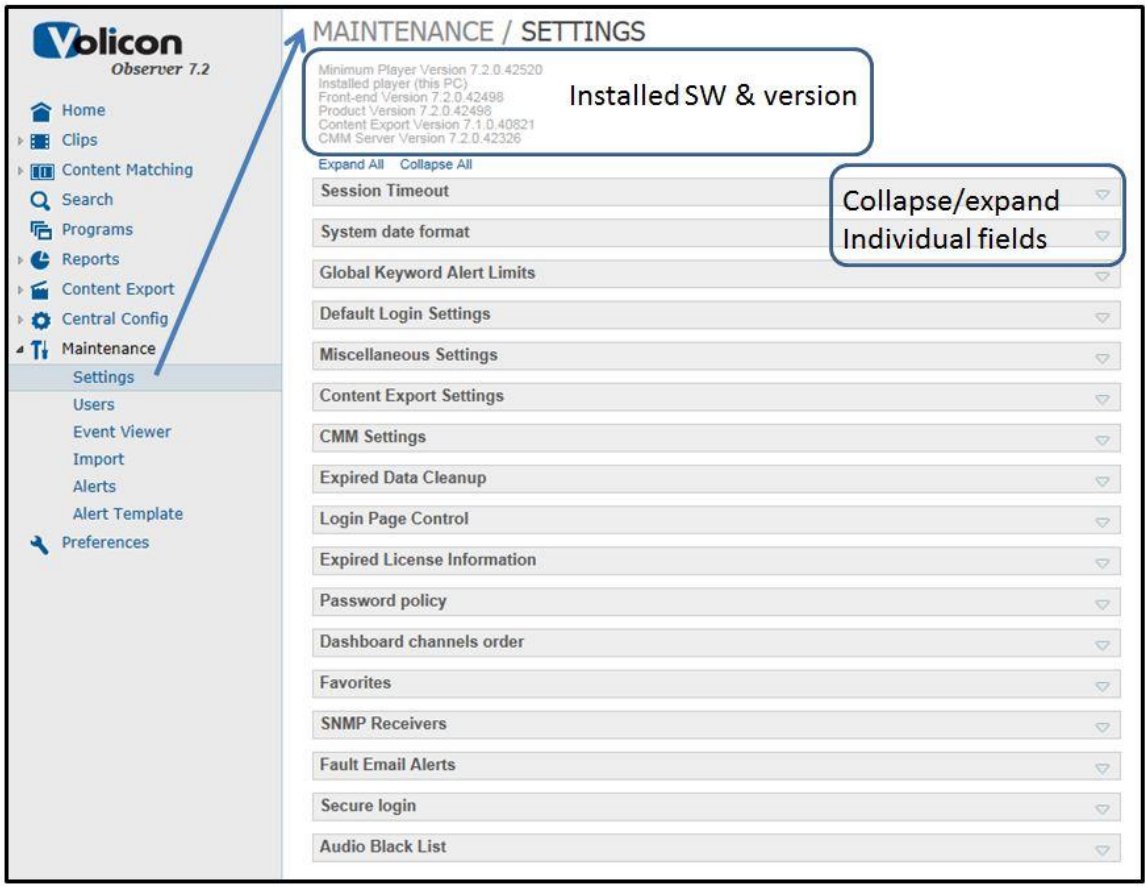


Figure: Observer Maintenance

- Minimum Player Version
- Installed Player
- Frontend Version
- Product Version

Depending on the installed options, the following module versions may also be listed:

- Producer Version
- CMM
- CMM Client

"Minimum Player Version" – The minimum client version required for the frontend, web client PCs to work with this release of Observer.

"Product Version" - the backend portion of the Observer software.

5.0.1.1 Version Interoperability

Due to a new protocol in 7.2 QB1, the central server, probes, and player software need to have the same release version and build numbers.

5.0.1.2 Upgrade Considerations

A system running Observer version 6.2 or higher can be upgraded to version 7.2. However, for earlier versions (such as 6.1, 6.0, or 5.6), please consult our Support department.

5.0.2 Session Timeout

The Session Timeout defines how long an inactive web client can be connected to the Observer. The Observer will log the user off when this timer expires. To disable the timeout, set it to zero.

Figure: Session Timeout

5.0.3 System Date Format

The date format which is displayed throughout the Observer media player can be configured to display the appropriate regional format. Observer provides a drop-down list from which you can select the correct system date format.

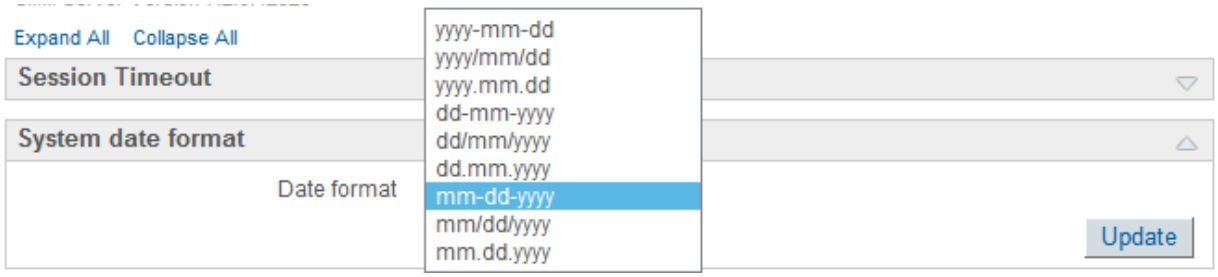


Figure: System Date Format

5.0.4 Global Keyword Alert Limits

The Global Keyword Alert Limits option allows you to:

- **Force use of rate limiting** – enabling (checkbox) to limit the frequency of alerts
- **Minimum time between alerts** – limits alert frequency to selected period (minutes/hours/days)

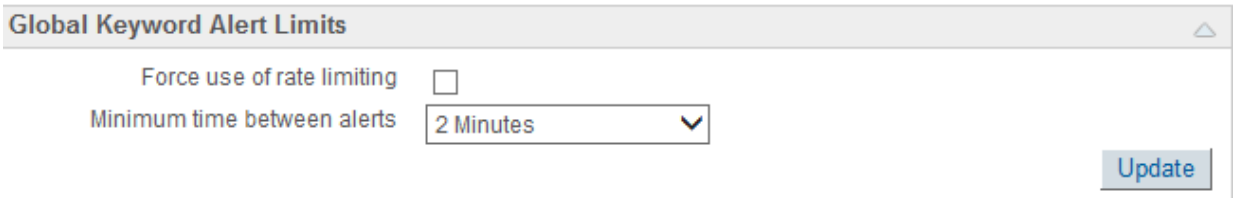


Figure: Global Keyword Alert Limits

5.0.5 Default Login Settings

This setting allows the administrator to prepopulate the username and password. This allows all end users the ability to login into the Observer without entering a username / password combination.

- *Volicon recommends that you do not enable this feature.*

5.0.6 Miscellaneous Settings

In your role as administrator, you may import program information for the Observer in the form of “as-run files” or ratings files. The Observer system can automatically ingest and process these files by implementing a "Hot Folder". The Hot Folder resides on the Central server and any files imported or copied into the Hot Folder directory will be automatically processed and incorporated into program or ratings data displayed in the Observer Media Player.

5.0.6.1 Hot Folders

The Hot Folders Location sets the directory location of the hot folder located in the Central Server. This setting should not be changed from the default of C:/Hotfolder.

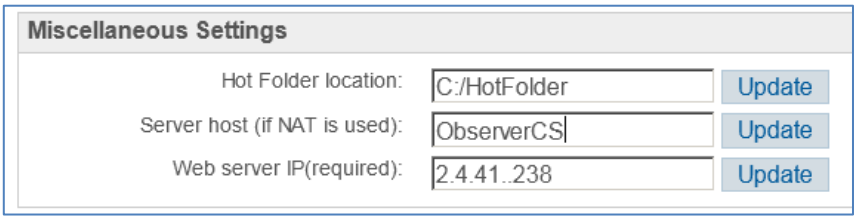


Figure: Miscellaneous Settings Hot Folder

Clicking the **<Update>** button next to the Hot Folder location creates a C:\HotFolder directory on the server with subfolders using the names of each channels displayed on the Home tab of the Observer Media Player. The software automatically imports the As-run logs from these folders. See **@Hot Folders** in the "As-Run files" section later in this document.

5.0.7 Server Host and Web Server IP

Observer can display clips referred to by embedded links (such as those located in email messages) if those clips are reachable from the Internet/LAN. To do so, the Observer system needs to know the (Central) "Server hostname" (if NAT is used) and the "Web server IP" address (of the central server) to render the clips on the client PCs. The "Server Hostname" must be valid and reachable from the outside world.

You can specify both the Server host and the Web server IP either with explicit IP Addresses or with valid DNS names.

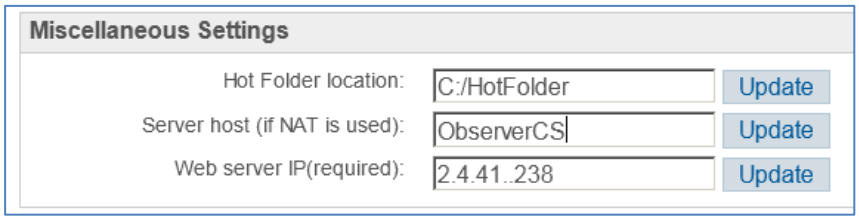


Figure: Miscellaneous Settings Server IP

Click the **<Update>** button to save your changes.

5.0.8 Content Export Module Settings

The Content Export Module is an integrated application which runs on a separate server than the Observer. It is used for automating the export of recorded content on a scheduled or recurring basis. It is also used to export content for non-Internet Explorer based media players such as a MAC environment. Typical scenario includes broadcast station XXXX wants to archive or export the three daily local news broadcasts every day. Simply create a job in the Content Export Application which will automatically export three time slots to network attached drive every day. Another function allows end users to repurpose media content. It lets you leverage broadcast assets in the new media world where one program can be delivered to multiple portals: broadcast, web clips, over-the-top TV and mobile video. The Content Export/CMM modules can be configured under **Maintenance> Settings.**

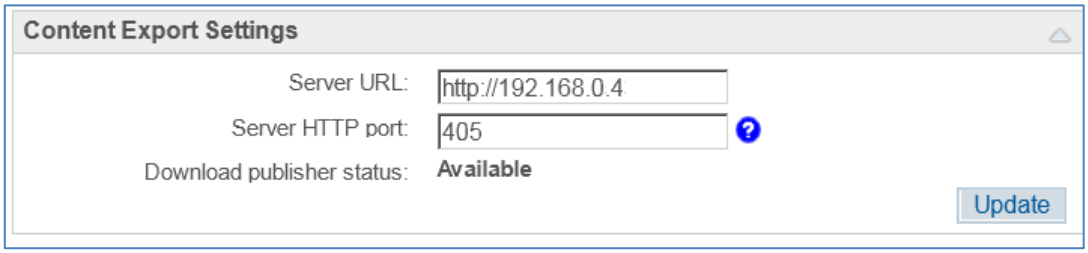


Figure: Export Settings

Hovering over the "?" icons provides tool tips to help you configure the various fields/text boxes. Set your CEM parameters according to the table below:

Server URL	Content export server host name/IP address
Server HTTP port	Default HTTP port of content export services
Download publisher status	Availability of the download publisher module

Table: CEM Settings

Click the **<Update>** button to save your changes. See the Content Export manual for more details. The default server HTTP port is 405.

5.0.9 Content Matching Module (CMM) Settings

CMM, an optional module, is for organizations that need to be notified when certain audio/visual assets are broadcast. Similar to the Content Export Module, CMM runs on a separate server than the Observer. Fully integrated with the Observer, the CMM is easy to set up and can either operate in stand-alone mode, or in integration with other systems. To open the CMM window, go to **<Maintenance>→<Settings>→** click on **<CMM Settings>** to expand.

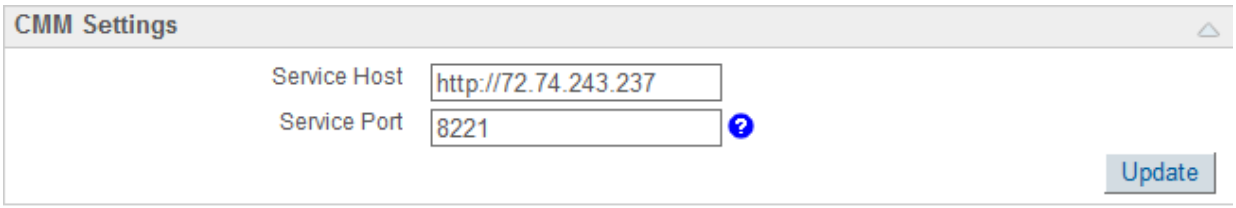


Figure: CMM Settings Window

Set your CMM parameters according to the table below:

Server Host	CMM server host name/IP address
Server HTTP port	Default port of Content matching services

Table: CMM Settings

Click the **<Update>** button to save your changes. See the Content Matching manual for more details.

5.0.10 Expired Data Cleanup

The Observer ecosystem has daily processes in place to clean up expired data without any user intervention. In the event any expired clips, closed captions, or other data is missed during these the processes, you can manually remove expired data in the Expired Data Cleanup panel, located at **Maintenance> Settings >Expired Data Cleanup.**

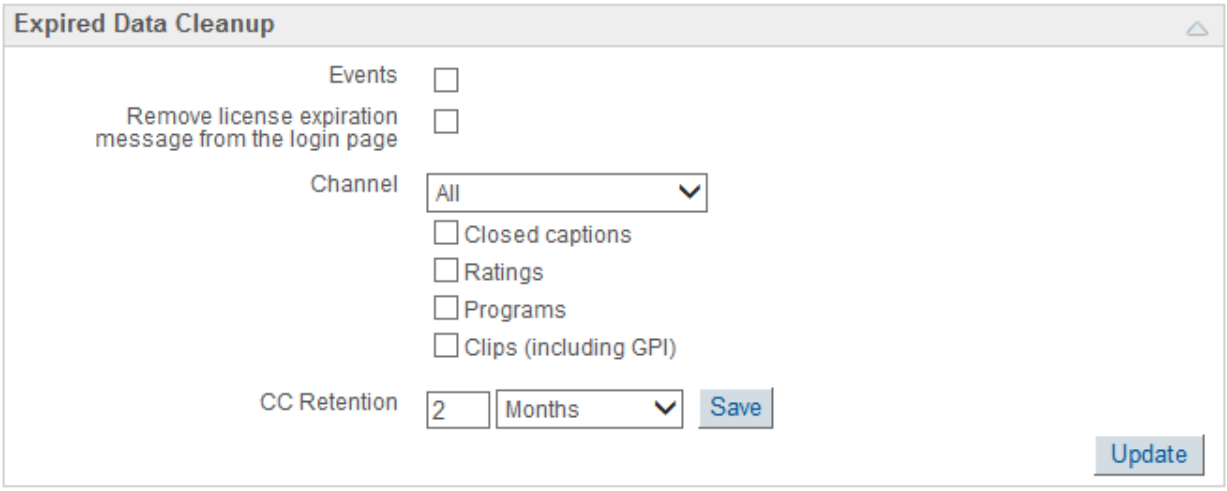


Figure: Expired Data Cleanup

You can remove the following kinds of data:

- Events
- Remove license expiration message
- Channels
  - Closed Captions
  - Ratings
  - Programs
  - Clips (Including GPI)

Select the items you wish to remove and click <**Cleanup>**. This clears the expired data immediately. From this window you can also set your **CC Retention period. This field determines how long Observer stores** the Closed Captions and Teletext on the system.

5.0.11 Login Page Control

This page allows administrators to disable user access during maintenance or upgrade periods. You can also display a message to end users describing the type and duration of the maintenance. Clicking the **<OFF>** radio button will disable the ability for any user to login to the Observer Media Player. It does not kick currently logged in users off the system.

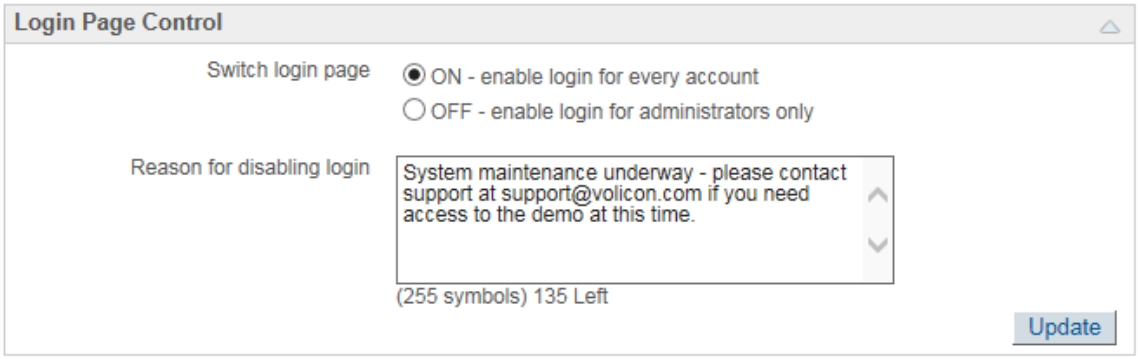


Figure: User Login Control

5.0.12 Expired License Information

This page provides a quick way to verify expired software licenses.

- *Note: This page only refers to Volicon licensed software, not Microsoft or other third parties.*

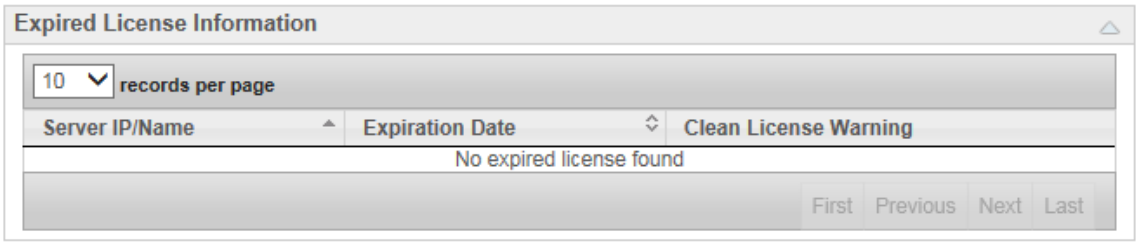


Figure: Expired License Warning

5.0.13 Password Policy

Enabling this option requires uses to periodically reset passphrase and use a combination characters to create strong passwords. The system will refuse to accept a passphrase change if it does not meet the requirements and will prompt you with those requirements. The criterion for password acceptance is:

1. Minimum of eight characters
2. One Upper case letter
3. One lower case letter
4. One number
5. One symbol character
6. NO REPEATING characters

Simply click the check box and click on <Update>

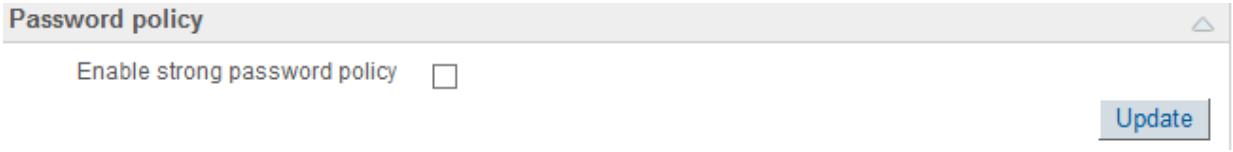


Figure: User Password Policy

5.0.14 Dashboard Channels Order

You can determine whether all end users see your programs/channels displayed in the dashboard on the Home page in order by **"Channel name"** or by **"Channel order index"** under **Maintenance>Settings> Dashboard channels order.** Sorting by Channel Name will sort the channel listing alphabetically from A-Z. Sorting by Channel Order Index will sort the channel listing based on the time each channel was originally configured into the Volicon Observer.

Figure: Dashboard Channels Order

5.0.15 Favorites

When the "Favorites" feature is **disabled** (the default), the channels shown in the Dashboard will be based on the permissions for each end user set by the admin Dashboard. Enabling Favorites allows the end user to pick and choose which channels are visible in the dashboard. If a new channel(s) is added to the system, end users must go into the favorites section to add it their view.

Figure: Favorites

5.0.16 SNMP Receivers

The Observer system sends SNMP traps to customer servers, usually to "Network Management Systems" (NMS). Complete information on the Observer's use of SNMP is available **@10.**

To define and edit the SNMP trap destination:

- Click the **<SNMP Receivers**> line to expand it.
- Click the **<Add>** label (top left of the **SNMP Receivers** location) to define a new SNMP trap - a popup window will appear:

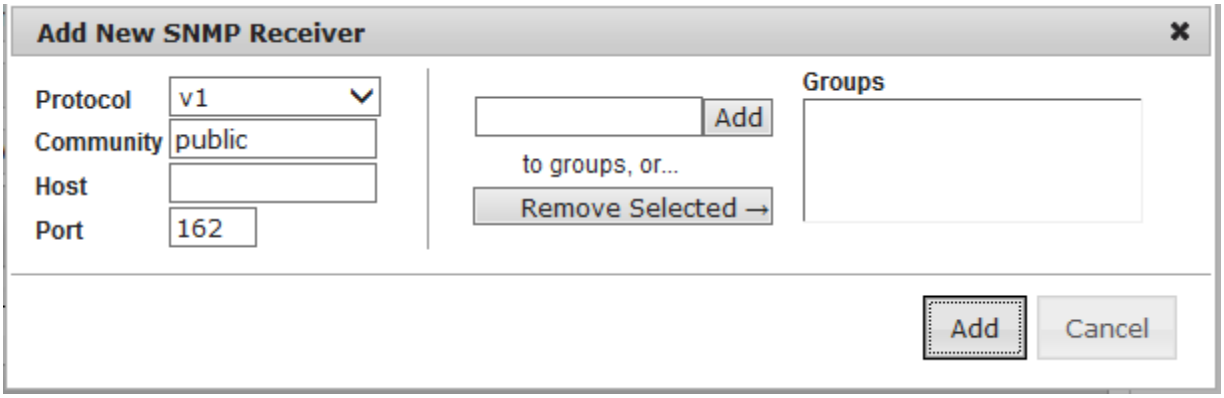


Figure: Add New SNMP Receiver Window

Populate the window using the information in the table below.

Protocol	Enter the version your receiver is using. The RPM system supports SNMP v1 and SNMP v2
Community	Password to establish connectivity with the SNMP receiver. This is public by default (unrestricted access).
Host	Name or IP of destination where the trap is to be sent.
Port	Enter the port used for SNMP traffic with the host. By default, this is port 162.
Add	Add groups that appear in the Active directory.

Groups	Lists the groups.

Table: SNMP Receiver Settings

Click **<OK>** to save the newly-created SNMP trap destination and return to the **Settings** menu. You should see your new SNMP receiver in the list. To edit a SNMP destination in the list, click the **"Edit"** (pencil) icon; to delete it click the red **"X"** icon.

5.0.17 Fault Email Alerts

Specify the email account name Observer uses as the from email address when sending alerts under **Maintenance>Settings>Fault Email Alerts**.

Figure: Alert Email from Address

5.0.18 Secure Login

This setting along with several other internal configurations enables the Observer Media player to use HTTPS, a secure encrypted connection, instead of HTTP. This is not to be changed by any admin, please contact Volicon support to enable this feature.

Figure: Secure Login

5.0.19 Audio Black List

This setting allows admins to block specific audio tracks from being selected by end users. If a channel has three audio tracks but the end users can only have access to #1 & #2, the admin can add the 3rd audio track here and it will not be displayed in the "audio tracks" section of the advanced menu on the Home Page of the Observer Media Player.

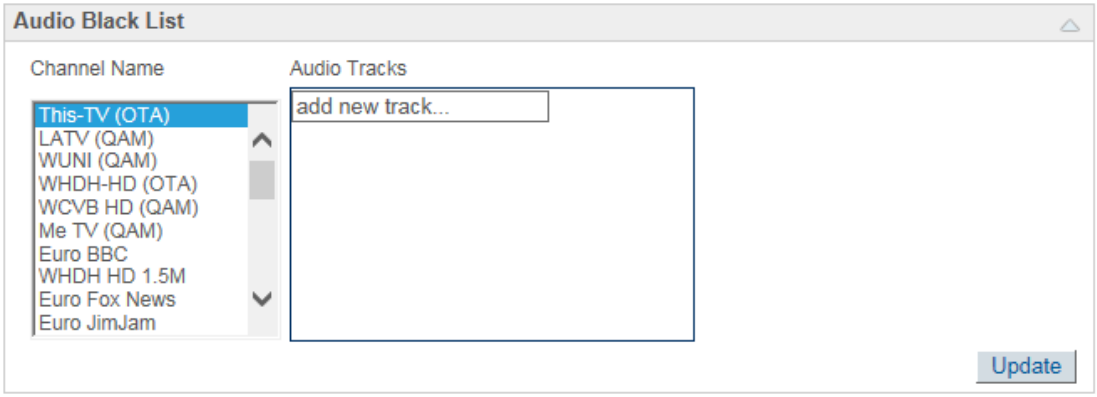


Figure: Audio Black List

5.1 User Account Management

If more than one person will be using the Observer, you may wish to set up varying access levels for those individuals. The User Management Interface is a flexible tool for controlling user and group access to the Observer system. It allows the Volicon Administrator to create permission based "Groups" then create/add end users to each group based on the tasks allowed for each individual. Every action on the Volicon system is tied to a permission. As an admin you can create as many groups and end users as you wish, but any individual can associated with only one permission group

Access User Management through the Web client interface (see Observer User Manual for the login).

Select **<Maintenance>→<Users>** from the left menu.

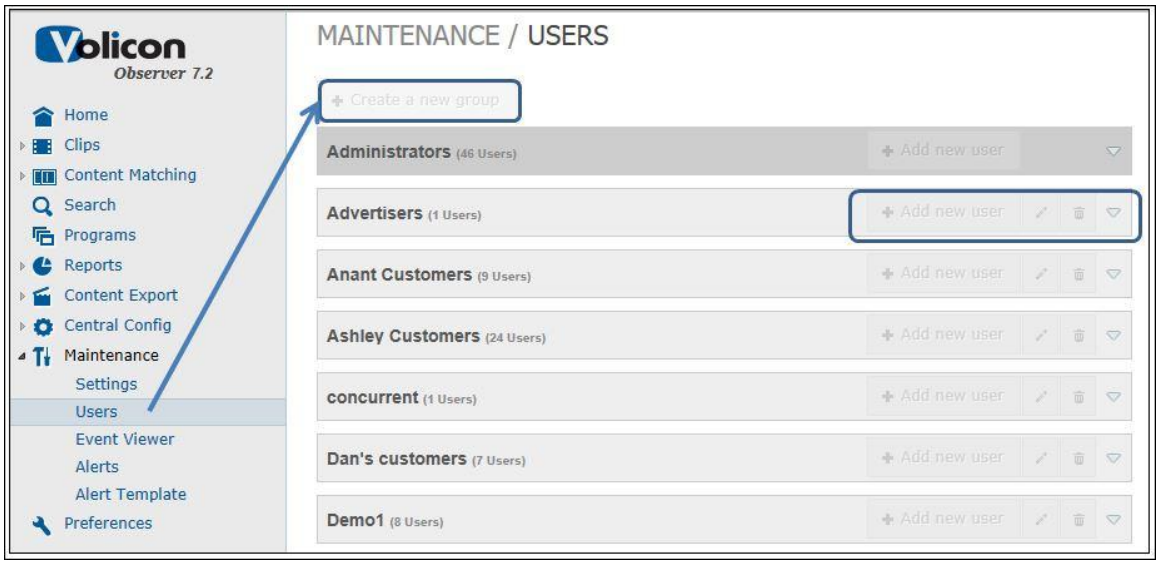


Figure: User Management

A user added to the **<Administrators>** group will have full privileges and full access to all video content. Volicon recommends that you create additional groups with selected privileges for regular users. The **<Create a new group>** button is located above the group list, The **<Edit group>, <Delete group>** and **<Add new user>** icons are located next to group names as shown in the figure above.

- *Administrator group access privileges are preconfigured and cannot be changed or deleted.*

5.1.1 Create a New Group

To add a new group, click the **<Create a new group>** button at the top of the page. The **Add Group** window will open.

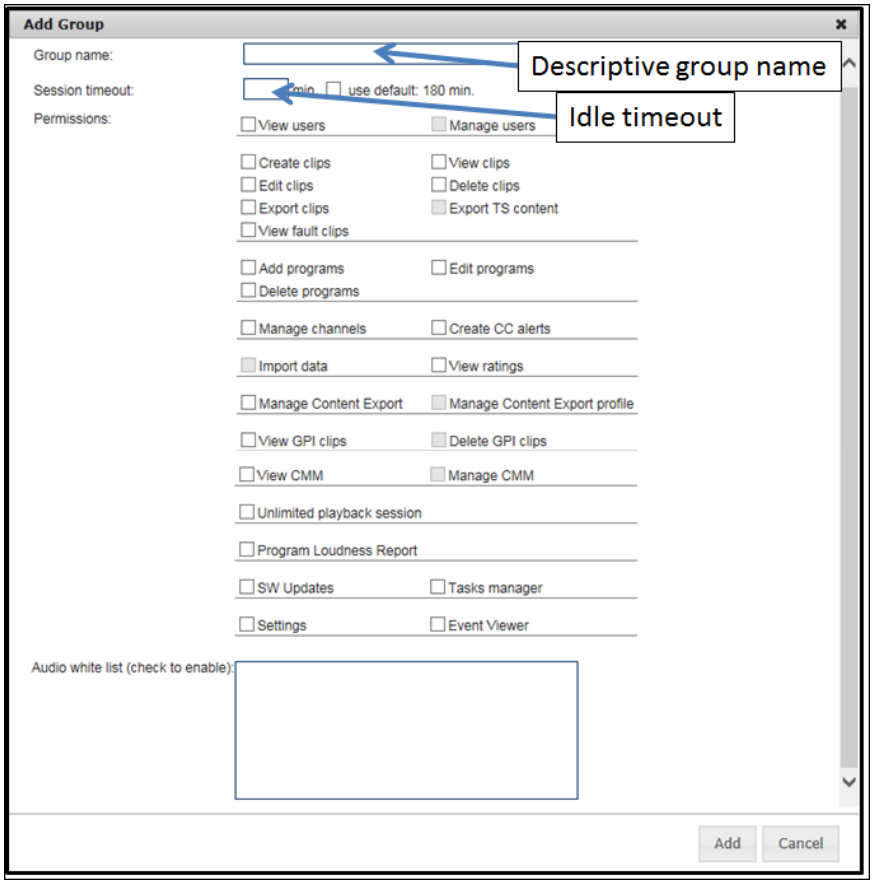


Figure: Create New Group Screen

Group Permissions	
View users	View users but not modify their configuration
Manage users	Add / edit user/ group names and their access. Require View users to be selected
Create/View/Edit/Delete clips	Manipulate clips
Export clips/Export TS content	From Observer to a Client PC. TS content exports full bandwidth data content
View Fault Clips	Ability to View Fault Clips
Add/Delete/Edit programs	Ability to Add/Delete/Edit programs based on the import of As Run log data in the Programs Tab
Manage channels	Configure encoder-channels
Create CC Alerts	Ability to create Closed Caption alert
Import data	Ability to Import data such as stamps
View ratings	Ability to View ratings (assuming the feature/option is available on the system)
Manage Content Export	
Manage Content Export Profile	Manage Content Export Profile
View/Delete GPI clips	Access Clips GPI Clips
View CMM	Ability to view CMM (assuming the option is available)
Manage CMM	Ability to manage CMM (assuming the option is available)
Unlimited play session	Playback without timing out
Program Loudness Report	Access Reports Program Loudness
SW Updates	Update Observer Central Config SW Update
Task Manager	Access Central Config Task Manager
Settings	Access Maintenance Settings
Event Viewer	Access Maintenance Event Viewer
Audio Whitelist	

Table: Group Permission Settings

5.1.2 Edit Group

To Edit a group move the cursor to the desired group, hover over the **<Edit Group icon>** to the right of the **<Add new User>** button and left click. This will open the **edit group** window. This is the same window as the **new group** with relevant group options selected. Press **<Update>** at the bottom to save changes.

See the table in **@**Error! Reference source not found. for the definitions of each option.

5.1.3 Display Users

Clicking the down/up arrow to the right of the group name reveals the users associated with that group. Clicking the arrow again returns you to the previous screen. Here new users can be added or the existing users edited or deleted. See **<Add new user>, <Edit User>, <Delete User>** buttons in figure below. The **<Delete user>** button permanently deletes a user. Checking the **<Disable box>** temporarily prevents that user from logging in without the need to delete the account.

5.1.4 Add a New User

Any user added to any group will inherit the permissions of that group. To add a new user to a group, click the **<Add New User>** button.

Add the **User name, Password** and select the streams of interest in the "**Access to video"** section.

The **Concurrent Video** field sets how many video players can be open at a time. The default is unlimited; use to pulldown to constrain the number of players the user is able to run simultaneously.

Press the **<Add>** button to save the modifications.

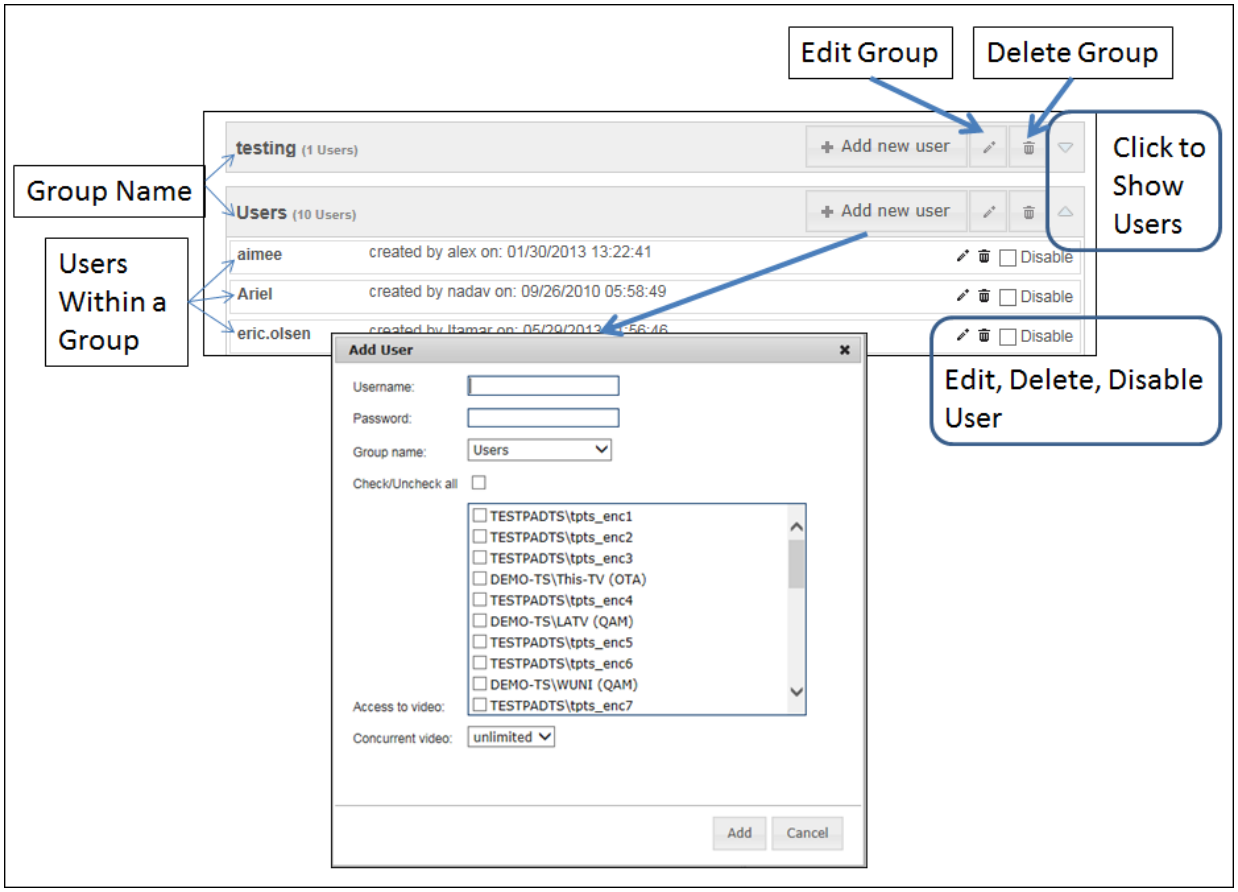


Figure: User Management

5.1.5 Edit User Account

To edit an existing user, expand the group to show users associated with that group. Click the <**Edit User icon>**. The **Edit User** window will open, and will provide you with the same options as the **Add User** window. The edit user feature allows you can change access to video channels and recover from forgotten passwords.

5.1.6 Forgotten Passphrase

A common administrator tasks will be assisting users who have forgotten their passphrase. Once created, the plaintext passphrase is no longer visible. If a user indicates they have forgotten their passphrase access their account and use the **<Edit>** feature to create a new one for them.

If strong password policy **<Maintenance>→<Setting>→<Password policy>** is enabled be sure the new passphrase meets the requirements or the system will refuse to accept the new passphrase.

5.2 Event Viewer

5.2.1 Accessing the Event Viewer

The Event Viewer, available at <**Maintenance>→<Event Viewer>** from the Left menu, allows you to view a running log of events and the currently-logged-in users on the Observer system.

Click the **<Event Viewer>** tab to display the event log. The **Event Viewer** logs nearly every event any end user does on the system. It is an audit tool for admins to make sure no one is misusing the Observer system.

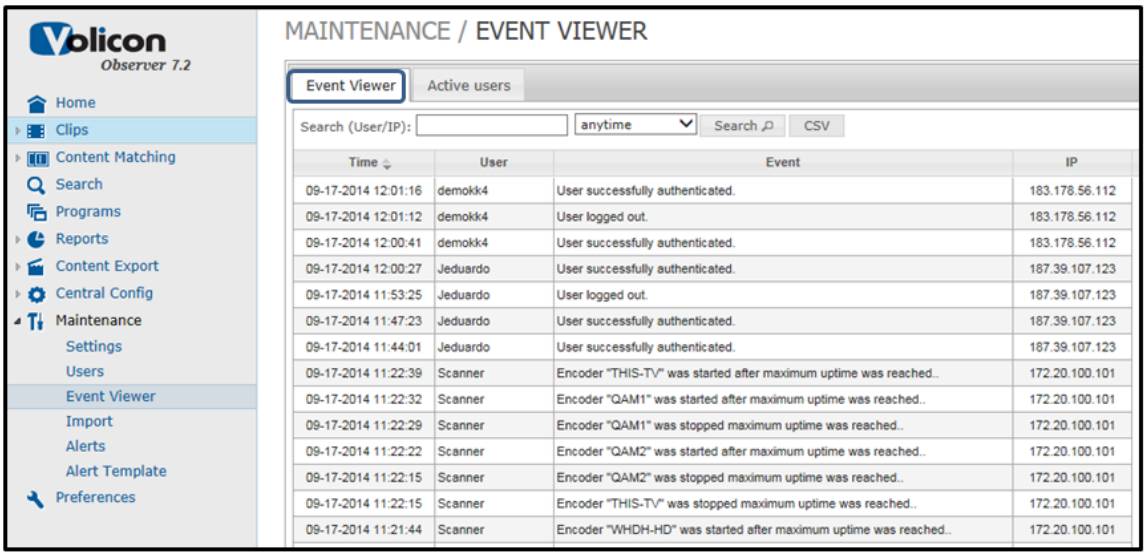


Figure: Maintenance/Event Viewer

5.2.2 Active Users

Click the **<Active users>** tab to display a list of the currently-logged-in users and their session expiration times. The trashcan icon in the **Force Quit** column is used to forcefully terminate a session, although this could cause loss of unsaved items.

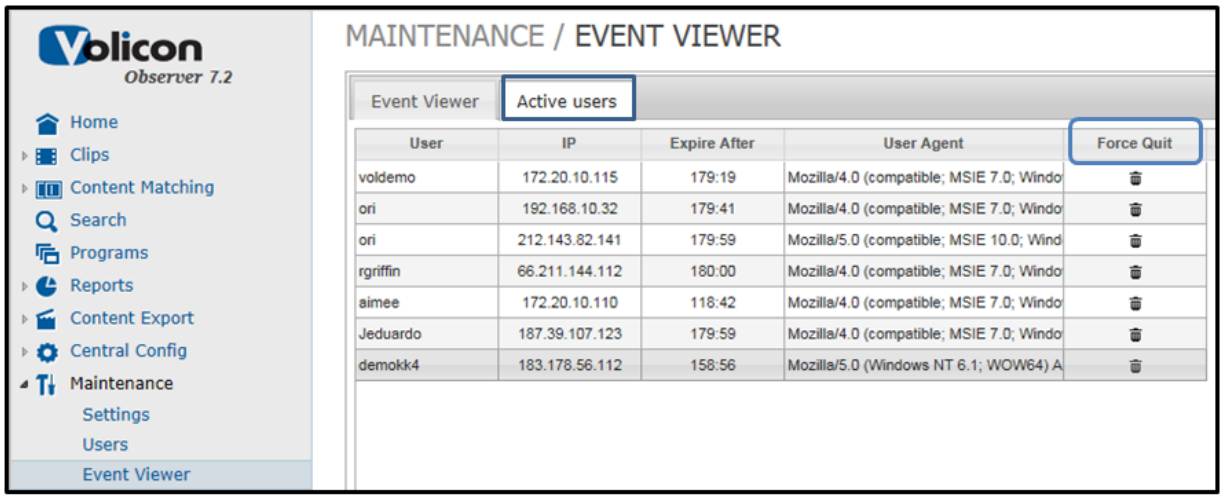


Figure: Active Users

5.2.3 Import Data

5.2.3.1 As-Run Files Input Process

Searchable program guides allow you to organize and find video based on program name, channel and time. In your role as administrator, you typically set up the program information for the Observer in the form of "as-run files". As-run files contain the program scheduling information, which is converted to video clips stored in the Observer system.

- ***Note:*** *this is an optional application and requires the customer to purchase the appropriate license.*

5.2.3.2 Manually Import Data

Note: Observer supports the Daily-Ratings report. Prior to importing this data into Observer you need to convert it to a Text (Tab-delimited) format.

Note: Your import ability may be restricted by your administrator and thus may not be available.

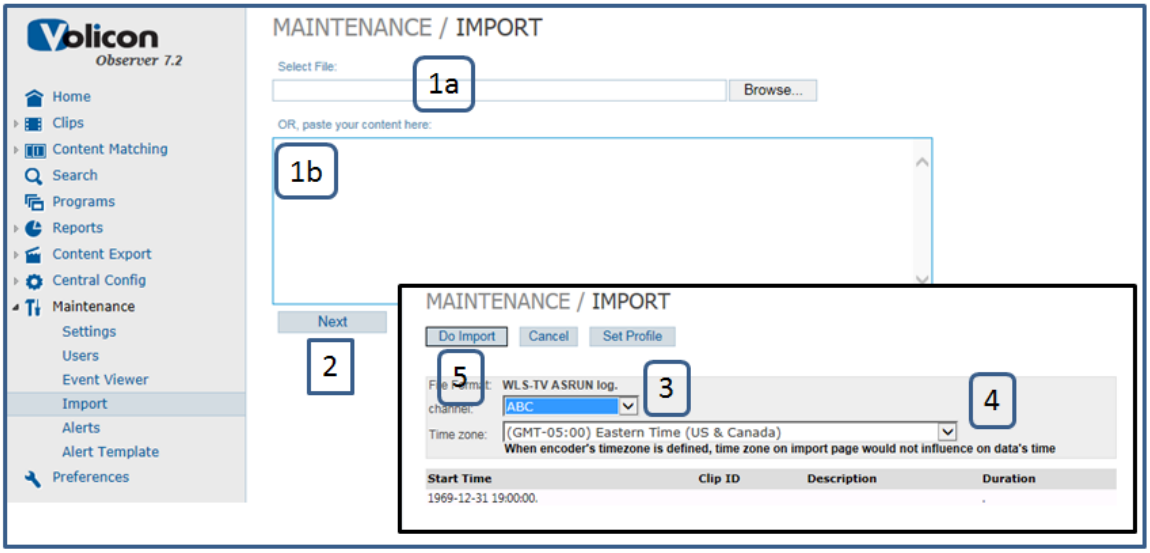


Figure: Maintenance/Import Data

To import data:

1. After file conversion to a supported format, click **Maintenance → Import Data.** Use the **<Browse>** button to locate the saved file. As an alternative you can type the information directly it the text box below.
2. Press the **<Next>** button to open the Channel and time zone dialog box.
3. Select the desired Channel and Time Zone
4. Press the <Do Import> button to save changes.

Once the import succeeds, you can start importing another file with the **<Next Import>** button. You can also go to the Programs page to view the video.

To generate the Rating graph, in Ratings choose the same Date and Time range as the imported file. Click the **<Ratings>** button to display the graph; see the Ratings section **@8** below.

5.2.3.3 Hot Folders

Observer automatically imports the as-run files periodically from a **Hot Folder** location located on the Central Server. It is configured in **Maintenance → Settings → Hot Folder.**

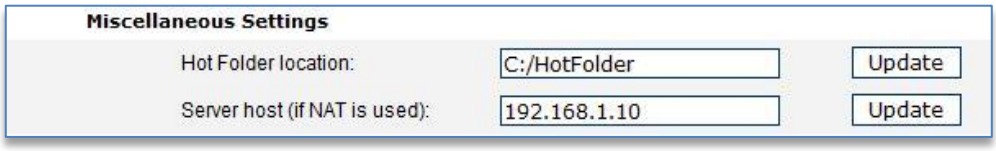


Figure: Maintenance/Miscellaneous Settings

Clicking the **<Update>** button next to the Hot Folder location creates a C:\HotFolder directory on the server with subfolders using the display names of each encoder channel. It is the responsibility of the customer administrator to deliver updated as-run and rating files to these directories.

There is an automated Windows Task which runs periodically to automatically import specific file types for Ratings or As Run Log. The software automatically looks for the appropriate As-run log and/or Ratings data file types within these folders

5.2.4 Import Profiles

You can create an Import Profile to compensate for the video delay when you import. Open **Maintenance → Import Profiles** in the Web client and set the time zone and Delay Offset for the encoder channels to compensate for video delay between the desired time and when the actual Observer video was loaded to storage. This compensation results in accurate timing of Programs related to the As-Run files.

5.3 Alerts

5.3.1 Setting Up the Fault Email Server

In order for your users to receive fault alerts, you must specify the email address you have assigned the Observer. To do so, under **Maintenance>Settings>Fault Email Alerts** enter the Observer's e-mail address.

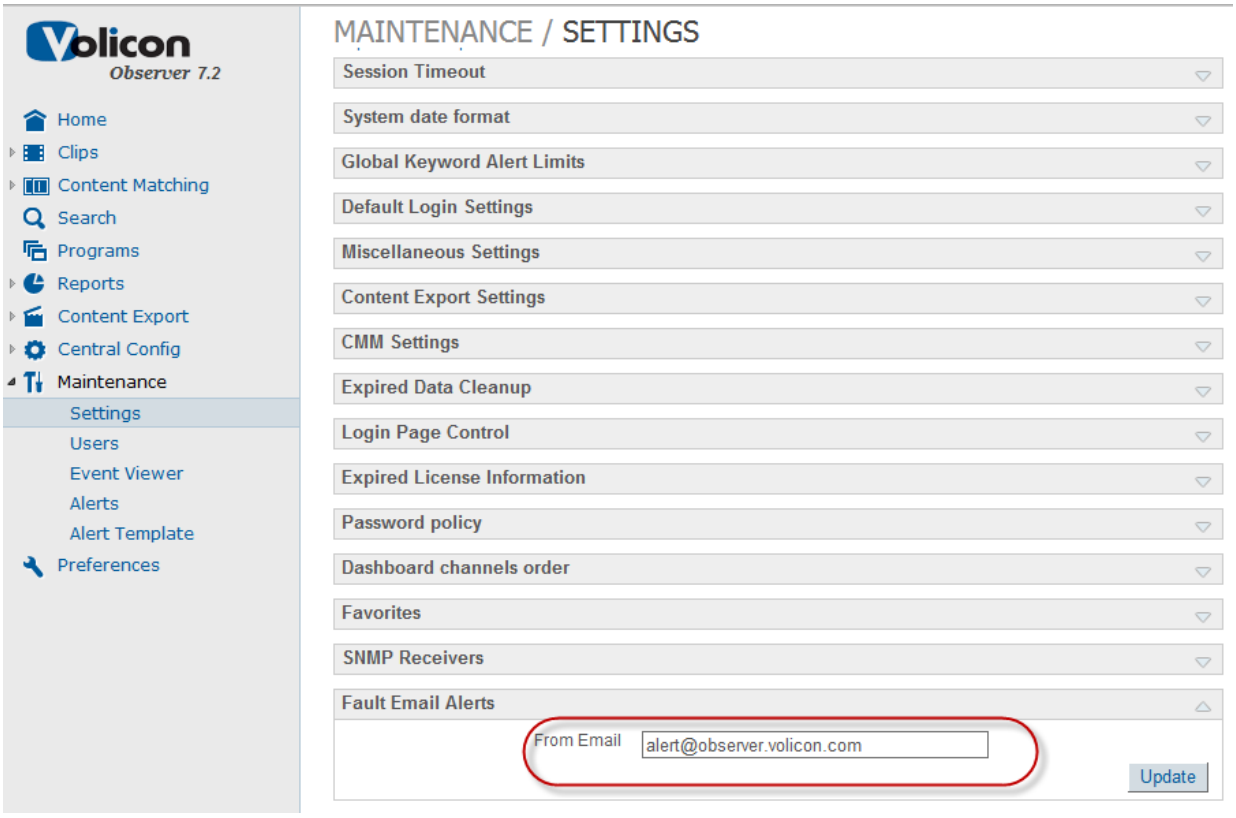


Figure: Fault Email Alerts Email Address

5.3.2 Setting Up Alert Notifications

Observer enables you to specify email address to receive alert notification and which alerts to send each respondent. Alerts can be tailored by alert type and channel for each respondent so they only receive alerts of interest. Users can receive the following types of alerts:

- Video
- Audio
- CC/TT
- Media Hub

Select **Maintenance>Alerts to** view summary page. This displays a list of email recipients and which event classes they are subscribed.

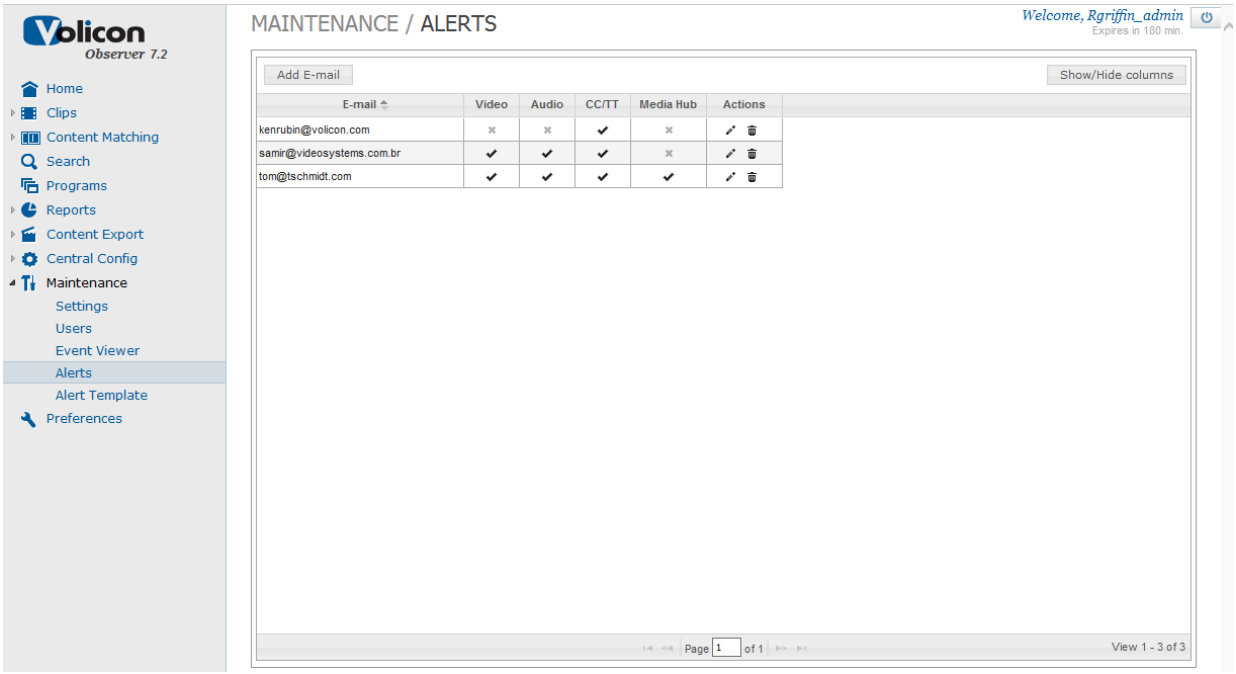


Figure: Maintenance>Alerts

5.3.3 Adding and Editing Alerts

To add a new user click the **<Add E-mail>** box or to edit an existing subscriber click the **<pencil>** icon to the right of their e-mail address.

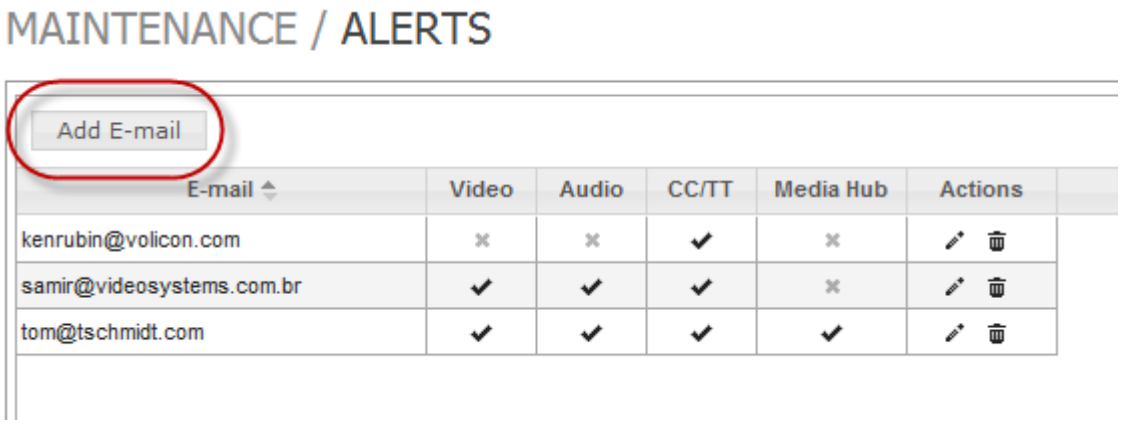


Figure: Adding a New User

The top of the alert box allows you to select which classes of alert get sent to the recipient. The Channels section below that specify channels the user will receive alerts so they are not inundated with unwanted email.

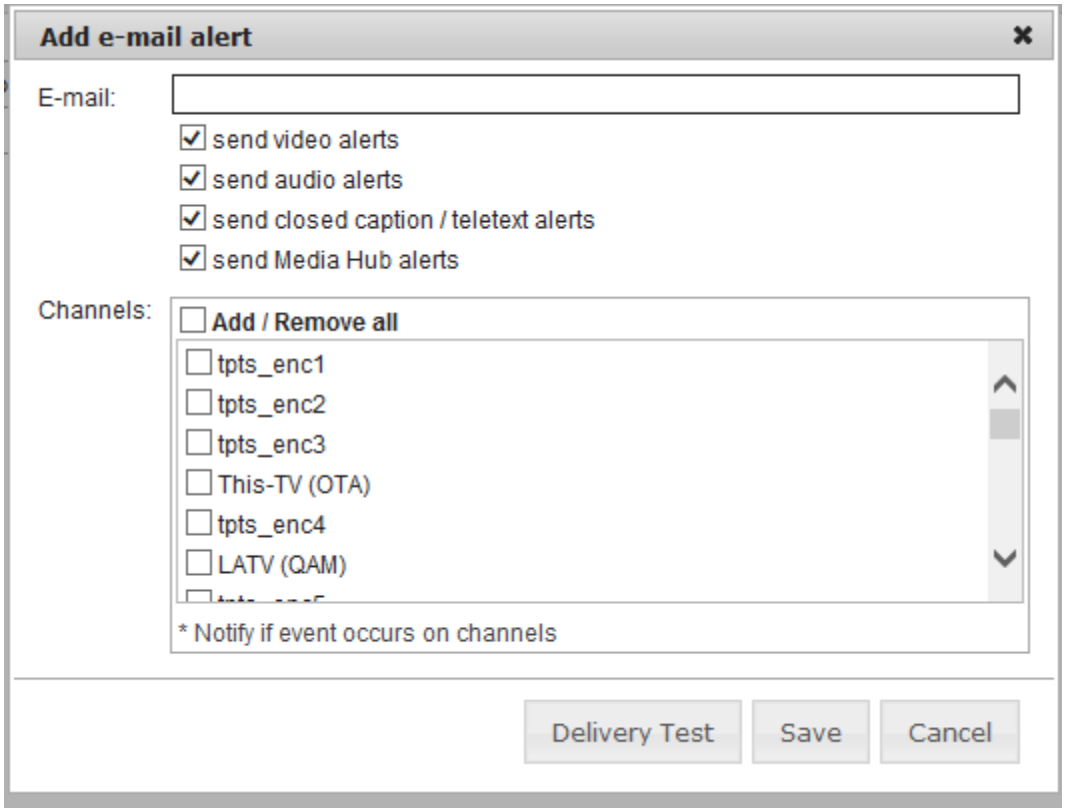


Figure: Add e-mail alert Window

Click **<Save>** to update changes.

The **<Delivery Test>** button allows you to test the recipient was configured correctly.

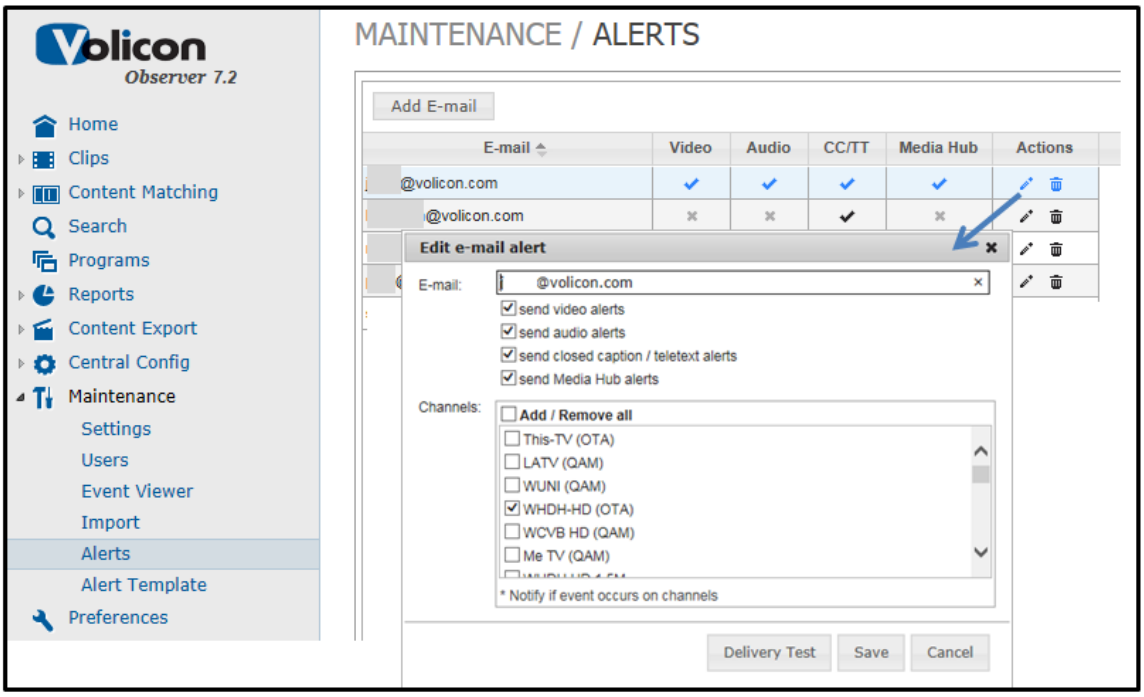


Figure: Alert Email Configuration

5.4 Alert Template

This page allows the admin to customize the format of the alert emails which, if configured, are sent to all configured recipients. Admins can customize the header and body of the email.

Figure: Alert Template

6 CENTRAL CONFIGURATION

6.0 Encoders

The Observer ecosystem is organized in a hierarchal manner. There are several different layers which make up the entire system: Groups, Probes, and encoders. Access probe groups, probes and encoders at **Central Config> Encoders.**

- Group(s) - created by your Volicon administrator; it is a means to associate multiple Observer probes under one unified heading. Groups can be created by input source, geography, network capture location, etc...
- Probe(s) - each server, as a whole unit, contains anywhere from one to 16 video, audio, and metadata capturing inputs. It stores all the recorded content locally and streams out the recorded content to end users.
- Encoder(s) - is the High or Low bit rate proxy copy created for each item of video content recorded on the system. In the case of the Observer, it is a direct one-to-one relationship of each physical video input on the probe to the proxy stored on the Probe. In the case of the Observer TS, it is the individual channels logged inside each MPTS or SPTS.
- A probe server contains one or more encoder-streams or channels.

You must assign each probe server in the system to a probe group. Use groups to help you organize your streams and manage alerts, since a probe group often shares a geographical territory or a specific service area.

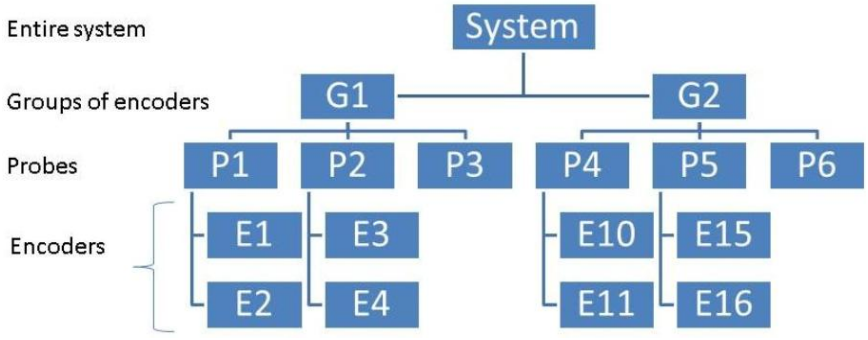


Figure: Probe Architecture

6.0.1 Encoder Page Fields

Access your probe groups, probes and encoders-streams at **Central Config → Encoders.**

From this page you can configure groups (e.g., US-COLO HD) probes (e.g., Demo-3HD), and encoders (e.g., DEMOHD1, DEMOHD2, DEMOHD3).

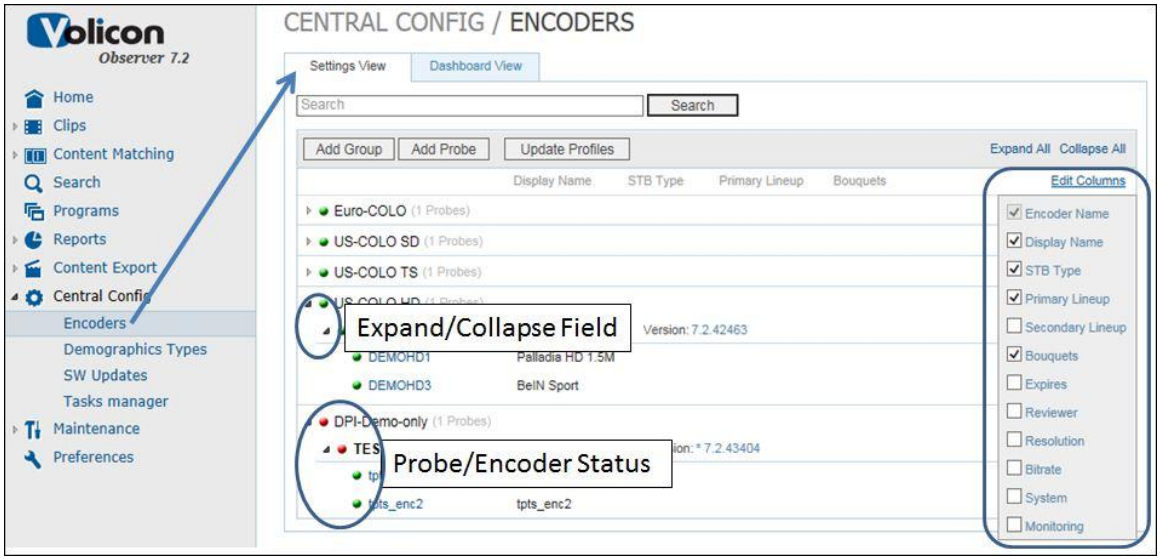


Figure: Probe groups, probes and encoders

Settings View	The **<Settings View>** tab displays full information about Groups, Probes and Encoders. In order to edit any of the selections you must be **in <Settings View>**.
Dashboard View	**<Dashboard View>** is a simplified display of only **Group** and **Encoder** name.
Search	For large installations using the search feature speeds up access to desired probe or encoder and suppresses non matching fields.
Add Group	Used to add a new Group. A group is a collection of associated Probes.
Add Probe	Physical server with 1-16 capture channels.

Update Profile	Pushes changes out to Probes
Expand All	In expanded view encoders are shown in relationship to their associated Probe.
Collapse All	In collapsed view Probes are displayed and encoders suppressed.
Edit Columns	The Encoder page displays various encoder settings. Use the check box to select which fields to display.
Expand/collapse field	Click the arrow to the left of each Group and Encoder to expand the field click again to collapse.
Probe/Encoder Status Indicator	To the left of each is a status indicator, red is down green indicates operational.

Table: Encoder Page Fields

6.0.2 Groups

6.0.2.1 Creating Groups

A Group is simply a label use to associate multiple Probes. The first step is to create the Group name.

In either **<Settings View>** or **<Dashboard View>** click the **<Add Group>** button. Enter the name of the Group you wish to create then press **<Add>.** The new group will be populated on the encoder page. The new group is flagged in red since there are no associated Probes.

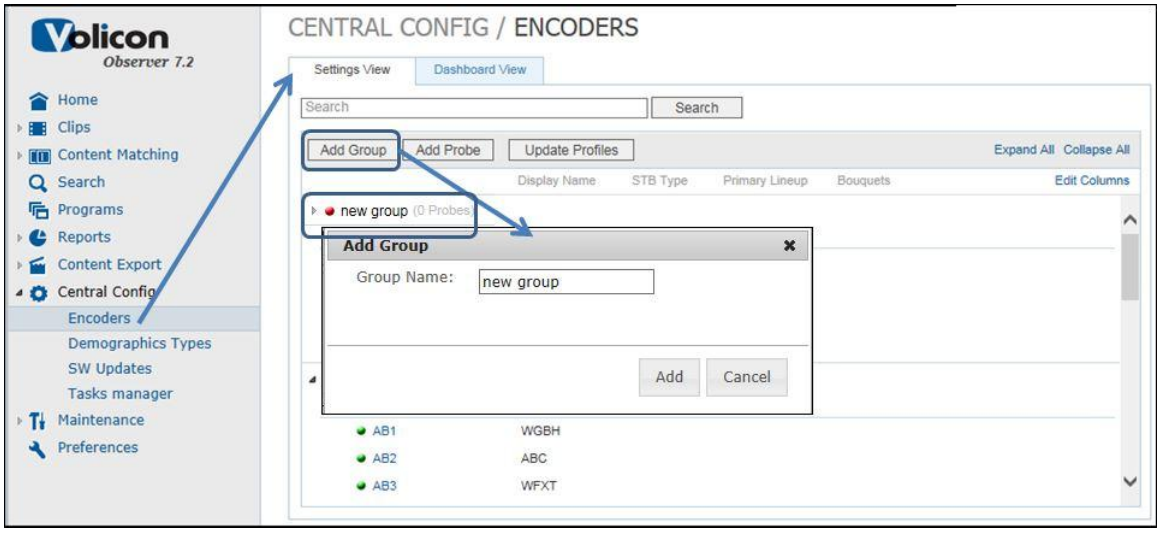


Figure: Add Group

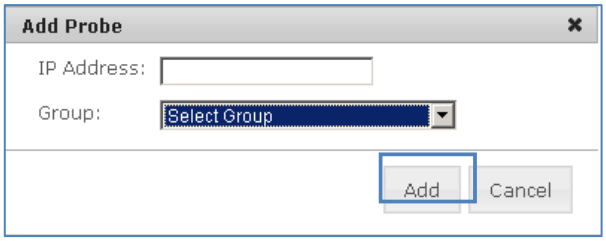
6.0.2.2 Deleting a Group

If a Group is no longer needed hover over the Group name and press the **<Delete>** button. A warning message will pop up asking if you are sure. Deleting a Group has no effect on the underlying Probes it simply removes the named association.

6.0.3 Probes

6.0.3.1 Add Probe

To add a probe to the system, click the **<Add Probe>** button. The Add Probe Window will open.



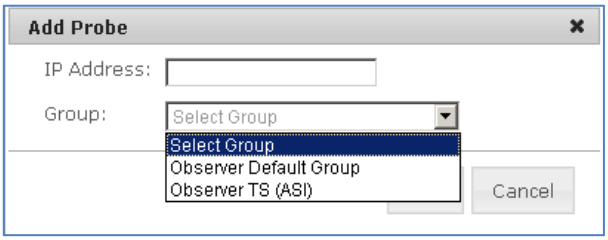


Figure: Add Probe

Type in the **"IP Address"** of a probe of interest and select a "**Group"** from its dropdown box to associate these together. Observer automatically extracts the probe's name and encoder information from the probe server.

6.0.4 Managing Probe Server

Hovering over the desired Probe displays three buttons: **<License> <Edit Probe>** and **<Delete>** to the right of the name. Make your changes and click the **<Update Profiles>** button to save your work.

Figure: Probe Information

6.0.4.1 Probe Licenses

Press **<License>** to display information about installed software components.

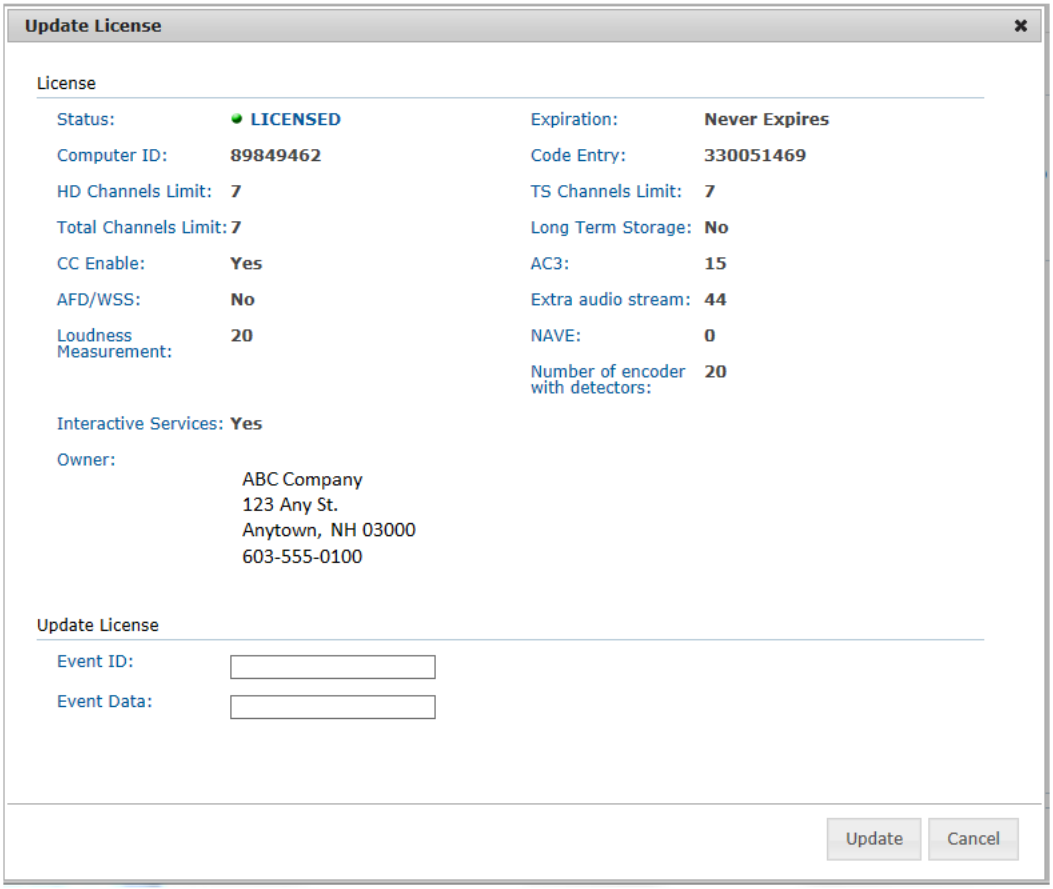


Figure: Update License Window

The Update License window provides you with the information listed in the table below.

To update your license, enter the Event ID and the Event Data you received from Volicon, and click **<Update>.**

Probe License	
License	
Status	Green if valid license; Red if unlicensed
Expiration	Demo licenses expire, other licenses are permanent
Computer ID	Reflects License Event ID from most recent software update
Code Entry	Reflects License Event Data from most recent software update
HD channel limit	Maximum # of monitoring channels – counts toward Total Channel Limit
TS Channel Limit	Maximum # of transport streams – counts toward Total Channel Limit
Total Channel Limit	Absolute # of monitoring channels
Long Term Storage	Storage option not subject to automatic purge
CC Enable	Closed Caption monitoring
AC3	Maximum # of AC3 audio channels
AFD/WSS	Active Format Description (AFD) and Widescreen Signaling (WSS).
Extra Audio Stream	
Loudness Measurement	Maximum # of loudness measurements
NAVE:	Nielsen Audio Video Encoder logging option
Number of encoder with detectors:	
Interactive Services	Scripting module for Interactive Services
Owner	Licensee contact info
Update License	
• Event ID • Event Data	The Update License entries at the bottom of the page are used to add optional software components. This information is provided when Probe is licensed or optional modules are added

6.0.4.2 Probe Details

To see details on a specific **Probe**, hover over the Probe name and press the **<Edit>** button to open and display probe details as shown below.

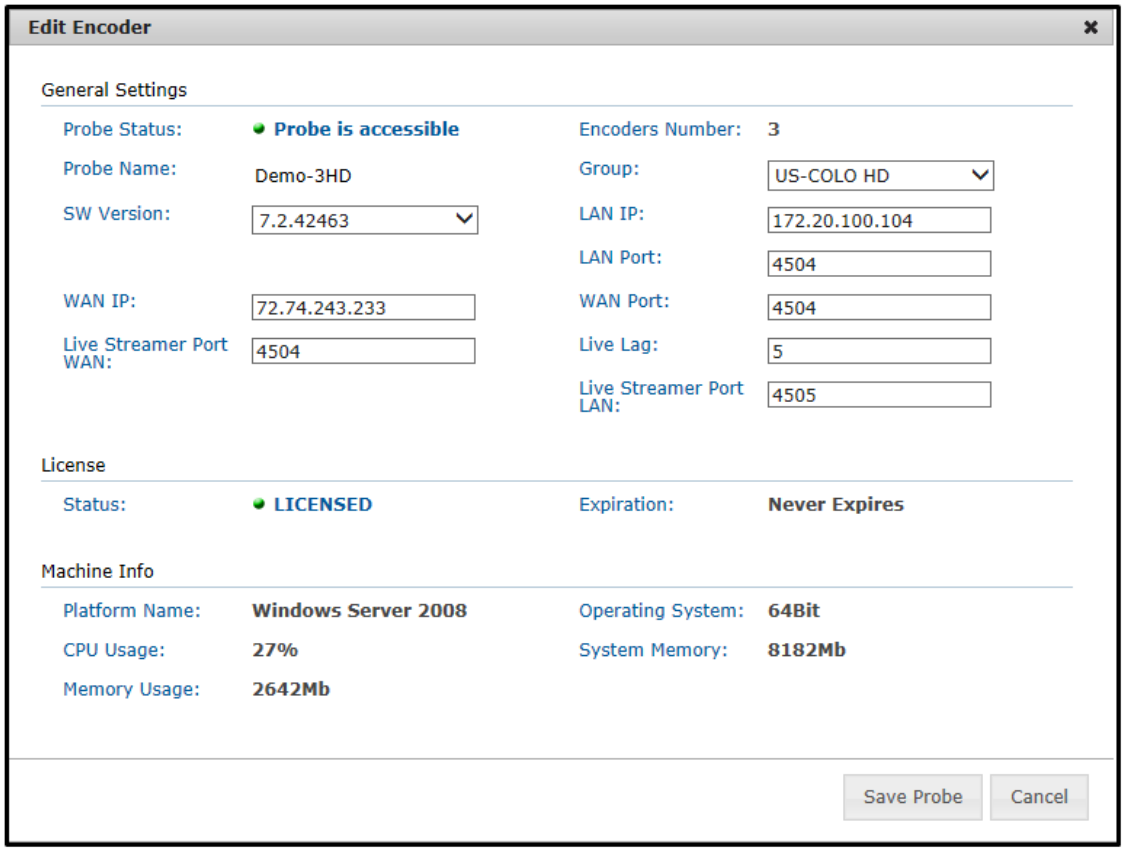


Figure: Edit Probe Details

Details on each field are provided in the table below.

Probe Status	Green, Probe us accessible, Red Probe is not responding
Encoder Number	Number of Encoder channels installed on Probe
Probe Name	This name is extracted from the probe server during probe creation (see section "Add Probe" @ **6.0.3.1**)
Group	Group name is selected from the preconfigured groups using a dropdown box
SW Version (Probe SW Upgrade)	Displays probe's current software version. In addition, it is used to upgrade the probe by selecting a higher probe version from its dropdown list.
LAN IP	Address within the LAN to reach the probe
LAN Port	LAN TCP port of the streaming server (default is 4504) - insure it is open on route from probe to the client PC, i.e., routers; firewalls are set to permit traffic on that port.
WAN IP	WAN address of the Central/web server when a NAT is used. The address is used to facilitate Observer playback through the WAN.
WAN Port	TCP port of the streaming server (default is 4504) for the WAN connection- ensure it is open on route from probe to the client PC, i.e., routers and firewalls
Live Streamer Port: WAN	Low latency streaming port (input)
Live Lag	
Live Streamer Port: LAN	
License	"**License type**" (i.e. Demo) and "**Expiration date**"
Machine Info	Probe additional information: "**Memory Usage**" – RAM usage "**Platform Name**" - OS (Windows 7) "**Operating System**" – 32/64Bit "**CPU Usage**" – i.e. 11 "**System Memory**" - RAM size

Table: Probe Settings

To complete the operation, press the <**Save Probe>** button.

6.0.5 Delete Probe

When you delete a probe, an **"Alert"** popup screen will appear - press **<Yes>** to confirm the deletion of the probe. Deleting a probe deletes it from the Observer Media Player. It does not stop the probe from continuing to capture content or stop any service running on that probe.

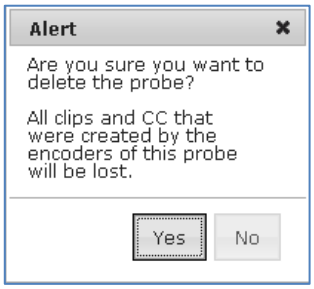


Figure: Alert Window

6.0.6 Encoder Details

To edit an individual encoder within a specific Probe, hover over the encoder name. An **<edit>** button will appear to the right. Click on the button or left click on the encoder name itself.

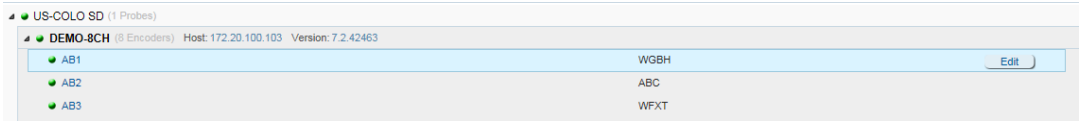


Figure: Edit Encoder

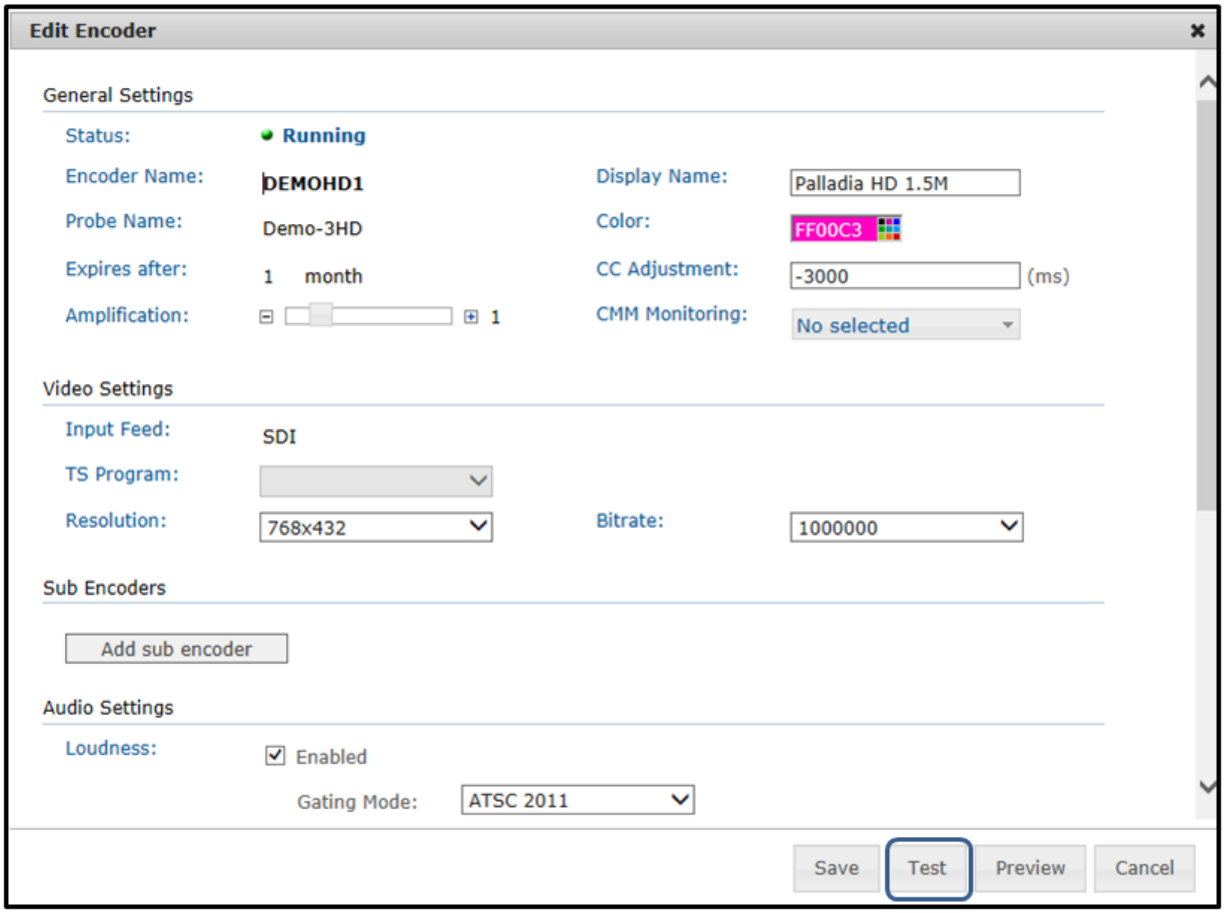


Figure: Encoder details Page

Test the connectivity of the new encoder-stream by pressing the **<Test>** button.

Press the **<Save>** button to complete the encoder edits.

Details on each field are described in the table below.

Status Indicator	Media stream status such as running. It is also stopped, also reflected by color. The color of Encoder-stream status such as RED - Running, Stopped, is also reflected by the status icon color.
Encoder Name	Name of an encoder (usually four on a probe); set up with a Probe Manager
Display Name	Frontend, friendly name for the encoder/channel
Probe Name	Inherited from the Probe server Encoder is attached
Color	Helps users to distinguish between the encoder-channels; user configurable property, also used in graphing colors
Expires After	Define period for keeping video and CC data
CC adjustment	Time adjustment for CC, usually left at the default value
Amplification	Adjustment of audio level within the Observer system. It's better to adjust the signal outside the probe before it gets to the probe server.
CMM Monitoring	Enable optional content matching for this encoder
Video Settings	"**Input Feed**" - i.e., TS, SD (read only, not configurable from GUI) "**TS Program**" – Transport Stream selected channel (read only, not configurable from GUI) "**Resolution**" – capture and streaming output resolution, i.e., 640x360 "**Bitrate**" - – capture and streaming output bit rate In bits per second, i.e., 1000000 bps
Sub Encoder	Create additional video encoder, typically configured for lower bit rate
Audio Settings	"**Loudness Meter**" (Enable checkbox), - See "Loudness Monitoring", an optional module
As-Run Log Settings	Time Zone offset, sets local time zone offset from UTC for time stamping
Test Button	Runs test to Insure the frontend connects to the encoder and the new configuration is working properly
Preview Button	Press to display and preview the input video

Table: Encoder Stream Configuration

6.0.7 Sub-Encoders

Each encoder has a primary video codex that creates the channel stream digital multimedia archive. If desired, additional encoders may be configure. Sub-encoders are typically set for lower resolution and bit rate then the primary codex to serve specific monitoring or file exchange requirements.

Adding sub-encoders have the same server requirements as the identical setting for the primary codex. CPU cycles are needed for the compression engine an disk storage for the resulting file.

6.0.8 Loudness Monitoring

With the optional loudness module enabled, the Observer and Observer TS systems perform loudness meter measurements to meet the following standards: EBU R 128, BS-1770-1, BS-1770-3, ATSC A/85 and EBU Tech 3341/2/3.

Volicon's loudness module is accurate per each frame of video and takes a measurement every 100 milliseconds. Measurements can be done with or without gating windows (-10 dB but adjustable) over:

- Momentary(M) - is an average over 400ms
- Short term (S) - is an average over 3s
- Short Form integrated are measurements which are two minutes or shorter. There are a total 7 user defined, configurable measurements - e.g. 10s, 30s, 60s…). By default Volicon sets the short term values as follows: 10, 15, 20, 30, 60, 120, 0.
- Long Form Integrated measurements greater than two minutes. There are a total of 7 user defined, configurable measurements - e.g. 1 hour, 6 hour, 1 day, 5 day) intervals. By default Volicon sets the long term values as follows: 60, 360, 1440, 0 , 0 , 0, 0.
- Loudness Range Measurement (LRA) quantifies the variation in a time-varying loudness measurement. *L*oudness Range is supplementary to the main audio measure, Program Loudness, of EBU R 128. Loudness Range measures the variation of loudness on a macroscopic time-scale, in units of LU (Loudness Units). The computation of Loudness Range is based on a measurement of loudness level as specified in ITU-R BS.1770, albeit with a different gating threshold. Loudness Range should not be confused with other measures of dynamic range..

For Audio Loudness standards, graphing, data export and Program Loudness Reporting (PLR) details see the Observer User Manual, “Loudness Monitoring” section.

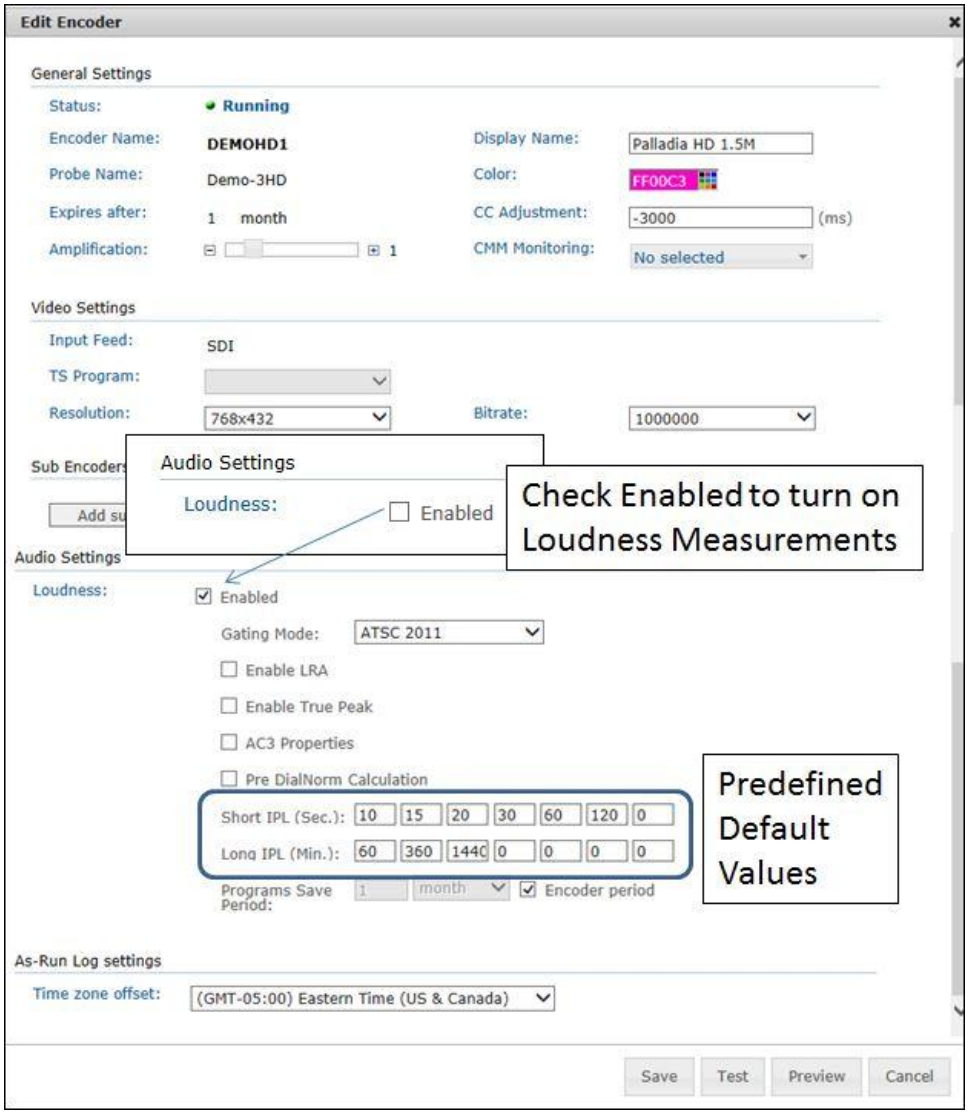


Figure: Loudness Configuration

6.0.8.1 Loudness Configuration

To configure the basic loudness parameters, go to <**Central Config**> → <**Encoders**>. Click on an encoder to edit its loudness parameters. Click the <**Loudness Enabled**> checkbox. This expands the Loudness section.

- ***Very important**: the loudness license must be enabled on the probe. Activating Loudness without the proper license for all configured audios per channel could result in disabling the capturing and encoding process.*

For **Loudness configuration** parameter details see the table below. Complete your choices, and click <**Save**> to push your configuration to the encoder.

Loudness measurement enable	Enables loudness metering for all configured audios on this specific channel
Gating Mode (pulldown)	Complies with the ATSC 2011, ATSC 2013 and EBU standard for gating loudness measurements; enabled either in frontend and backend, see figures above
Enable LRA	Loudness Range Average quantifies the time-varying loudness measurements. LRA is the lowest peak to highest peak change over each configured time interval. For more details on LRA see the “Observer User Manual” section “Programme Loudness Range LRA”.
Enable True Peak	Enables monitoring the value of the audio signal waveform of a program in the continuous time domain; detects peak loudnesses that otherwise would escape the sampling process.
AC-3 properties	Processed with loudness range algorithm
Pre DialNorm Calculation	DialNorm indicates the level of average spoken dialogue within the encoded audio program. Typical values for short and long term are factory preset. DialNorm should be enabled whenever an encoder is ingesting a digital audio stream such as optical, s/pdif, or Dolby AC-3
Short IPL (Sec) **Short Integrated Results**	7 defined sampling durations (usually left at the default values). The durations can be graphed - see Observer User Manual 6.2 section “Audio loudness graphing parameters”.
Long IPL (Min) **Long Integrated Results**	7 defined sampling durations (usually left at the default values). The durations can be graphed - see Observer User Manual 6.2 section “Audio loudness graphing parameters.
Input Adjustment	If measurements are being made without dial norm and not using the EBU standard, this value can compensate for the difference in measurements from dial norm value. This setting is usually enabled when making measurements from a Set Top Box which does not pass dial norm data.

Program Save Period:	These measurements may be saved for the same time set of other Encoder setting or explicitly set to a different amount of time.

Table: Loudness configuration

6.1 Software Updates

Periodically, Volicon releases new software for the Observer. The upgrade process is managed in conjunction with Volicon support.

Volicon Support will email you the Software Release Installer(s), with a file name of ProbeSetup ####.msi. Download the software and save it to a directory on your local or available network storage.

6.1.1 Uploading New Software

Once you receive the latest software, an authorized Admin can upload the installer(s) on the Central server. To do so:

- Go to <**Central Config> → <SW Updates>.**
- **Browse** to the new installer. The Observer will verify the installer you choose.
- Once the installer is verified, the <**Upload Installer>** button activates.
- Click **<Upload Installer>**. The Central server will make the release available for all probes.

▪ *Note: This action makes the new software available, but does not automatically update any probes at this point.*

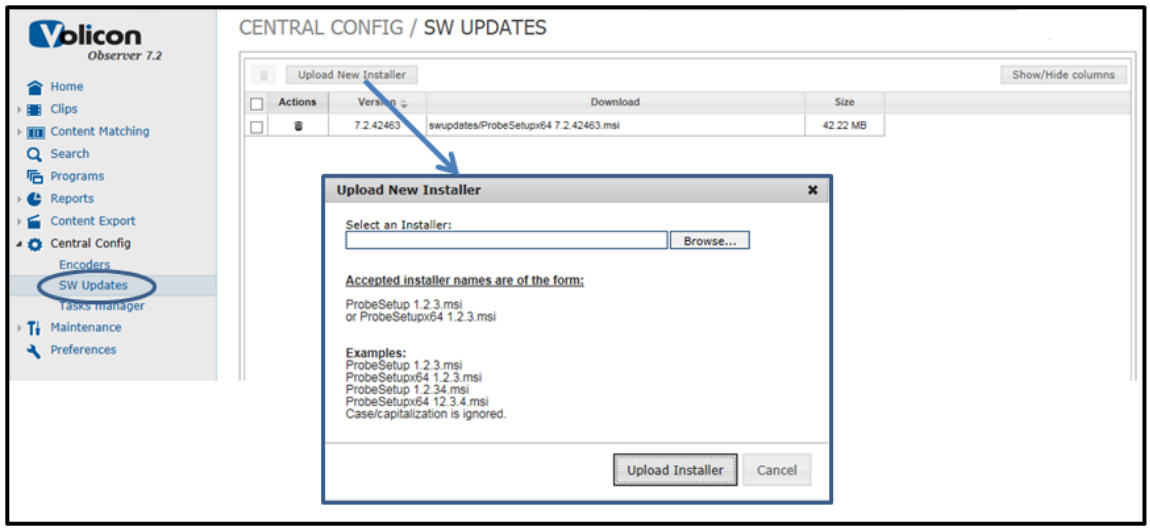


Figure: Software Update

If multiple software releases have been saved Central Config displays them in an ordered list with the most current revision at the top.

Press the **<Trash Can>** icon to delete unneeded old revisions.

6.1.2 Probe Software Update

When you are ready to upgrade a probe, go to **<Central Config> → <Encoders>** and hover over the desired probe. Access the pulldown labeled **SW Version** to select a higher software version. Press the **<Save Probe>** button at the bottom of the page to commence the update process. When the update finishes a status message is displayed at the top of the page.

- *During the update process the Probe service is stopped and then automatically comes back on line when the update completes. This will result in a short loss of captured content for up to two minutes.*

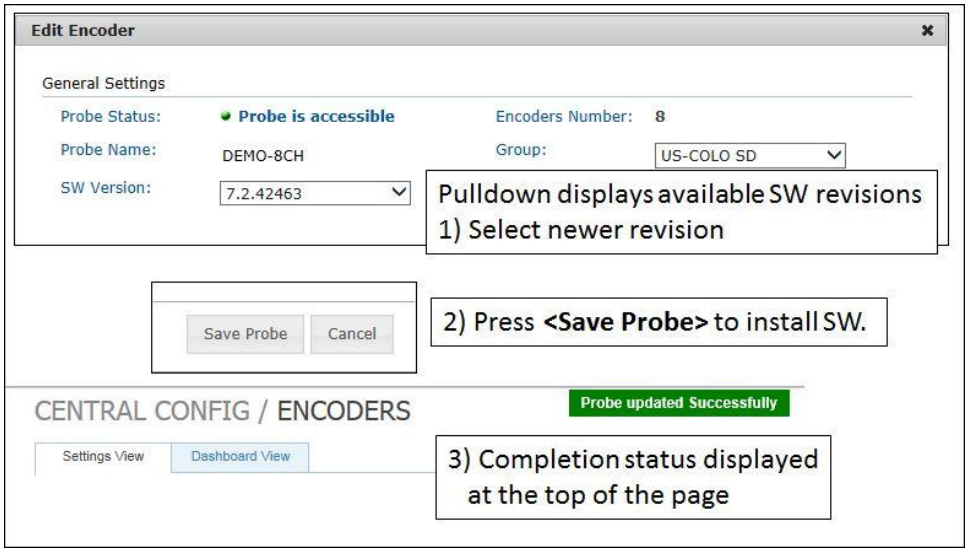


Figure: Probe Software Update Procedure

6.2 Task Manager

This page displays the status of scheduled tasks. In the **<Actions>** column at the extreme right of the page are icons that let you manually select the task to run and enable/disable automatic dispatch.

- ***Note**: stopping **ANY** process could have a negative impact on the Observer System. Do **NOT** stop or start any Tasks without previously conferring with a Volicon Support team member.*

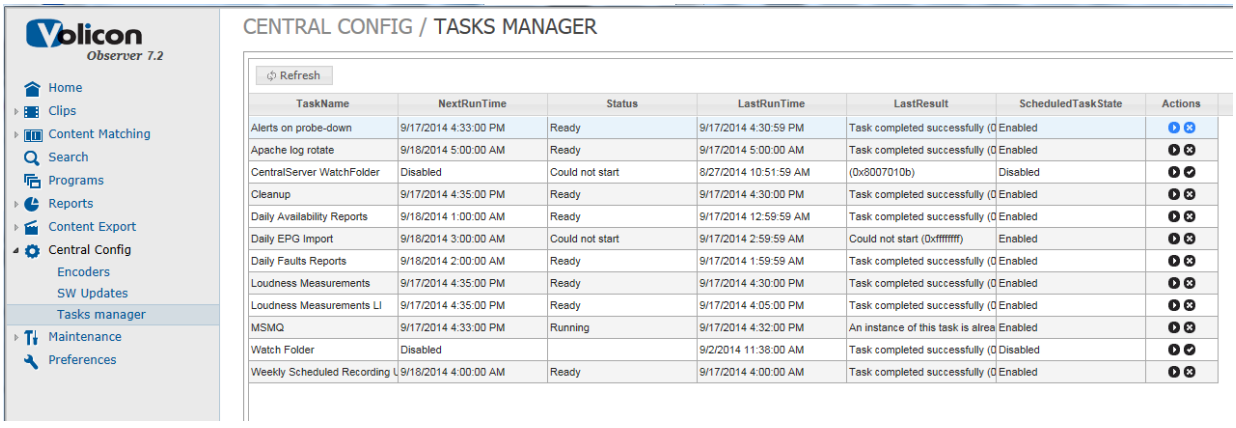


Figure: Task Manager

7 PROGRAMS

The Programs screen allows you to organize video recordings based on program name, channel name and time. There are two methods to create program based content:

- Manually set up Observer programs
- Use “As-run files” integration to skip manual data entry and integrate with an existing automation system. Users can look up logged content according to program name, media ID, or other data from the as-run log. Automatic importation of common as-run logs simplifies finding content for ad verification and compliance purposes.

You can also search for video footage of interest based on program search parameters.

Select **<Programs>** from the left menu to reach the Programs screen.

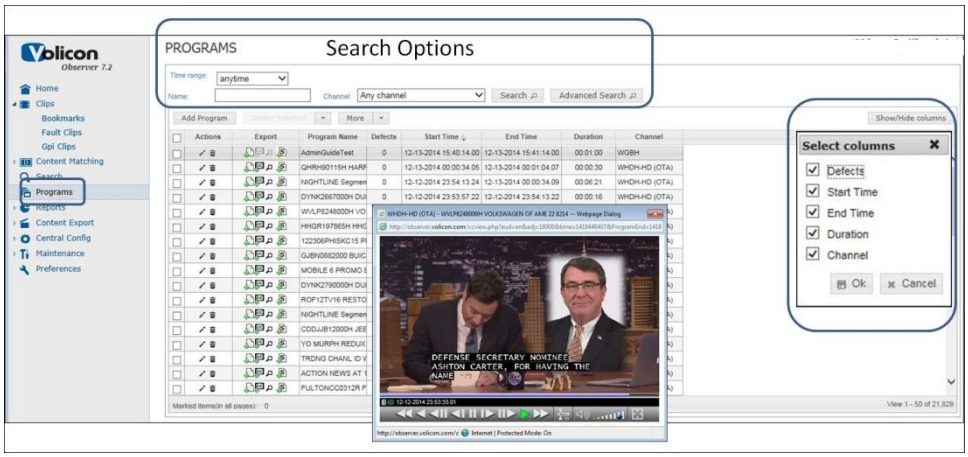


Figure: Programs with loudness measurements

At the top of the page are search options to speed up locating the desired program. Use the **Time Range** “**Defined period**” instead of “**anytime**” to search between the “**From**” and “**To**” times. In addition to the “**Program Name**”, you can filter for an A/V stream with the “**Channel**” drop down box option, or leave it open with the “**Any Channel**” option, see above.

At the bottom of the page is a page count and **<Forward>** and **<Back>** buttons.

To watch a program clip hover over the desired program name and left click to open the program viewer.

At the far left of each program are **<Edit>** and **<Delete>** icons. The **<edit>** icon allows you to rename the clip and change its associated date and time.

To delete a program clip use the **<trashcan>** icon; a warning message asks you to confirm the operation.

As with other Observer pages The **<Show/Hide column>** menu allows you to customize the display.

7.0 Manual Program Input Process

To manually add a program press the **<Add Program>** button. This opens a small dialog box.

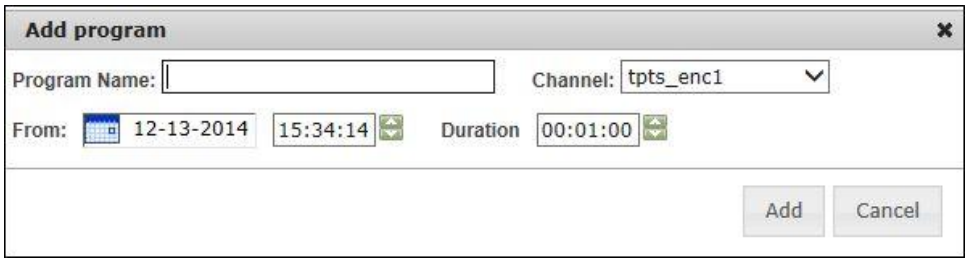


Figure: Manual Add Program

Enter a descriptive name for the clip in the **<Program Name>** field and select the program channel from pulldown. Use the calendar function to specify the date and time of the clip. Default clip length is one minute, increase or decrease length as desired. If you intend to use the captured program as a CMM Stamp be sure it is at least 5 seconds long.

Click the **<add>** button, the program clip be automatically be added to the program list.

7.1 As-Run Files Program Input Process

Searchable program guides allow you to organize and find video based on program name, channel and time. In your role as administrator, you typically set up the program information for the Observer in the form of “as-run files”. As-run files contain the program scheduling information, which is converted to video clips stored in the Observer system.

- *Note: this is an optional application and requires the customer to purchase the appropriate license.*

7.2 Exporting Program Clips

Once a program clip has been created use one of the export functions to export the clip. If the particular Export function is “greyed out” it indicates the optional software needed to perform the function has not been installed.

8 RATINGS

Note: Ratings is an optional module which may not be available to all users. Your access may be limited by your administrator. Volicon does not supply your ratings data. The customer must provide the ratings data; the Observer supports multiple rating sources.

While viewing video programs, the ratings module facilitates efficient comparison of broadcasts at specific times and for selected channels. This feature does not work in real time. Most data imported into the system is at least 24 hours old. We support different time spans of data including minute-by-minute. To see ratings, click the **"Ratings"** icon on the player control-bar. (See the Observer User Manual for more details.)

Figure: Ratings Example

The "**Demographic Type**" for ratings can be selected from a corresponding drop down window. These profile the human population characteristics for the selected geographical areas where the ratings are sampled:

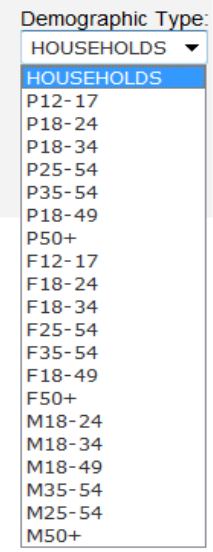


Figure: Maintenance/Import Data

Some example demographic groups include:

- HOUSEHOLDS Profile the average Households
- P12-17, P18-24 Populations between ages of 12 and 17 and 18 and 24
- F18-24 Female population between ages of 18 and 24
- M50+ Male population over the age of 50

The following "**Chart Types**" can be selected:

- Rating: provides the raw rating data, describing what percentage of households watched the feed
- Gain Loss: provides the change in ratings over the given time period
- Cumulative: provides the cumulative ratings data

For instruction on how to import Daily Ratings data, see the "Import Data" section above. Matching color markings are used to link rating graphs to the corresponding video displays. The graph color to channel key is located to the right of the graph as shown below.

You can select your timescale granularity on the top right of the graph.

Figure: Timescale Granularity

Use the vertical line to select a specific time on the ratings curves that corresponds to programs shown on the displays. Moving the line will display the correct video for the times traversed.

9 OBSERVER/RPM ALERTING

Since the Observer RPM system is based on the Observer system, alerting for both products is covered here. The features below that are related to channel or service scanning and apply to the RPM product only.

9.0 Definition of Key Terms

Term	Definition
Encoder/stream	Observer hardware module that receives and processes Media signals from one to four set-top boxes. Depending on the context, the encoder is sometimes referred to as an **Encoder-stream**
Media Fault	When the incoming media: video, audio and metadata crosses defined level and duration threshold limits for normal operating conditions
Channel/Service	Network's media service content as perceived by the end user. Typically a cable or broadcast channel or a specialty service.
Alert	A notification of a media fault generated when an encoder detects a fault. In addition to storing a video clip, if enabled the system issues email notification and a SNMP trap of the event
Trap	A message sent to an external system after detecting an alert and enabled with the channel notification control, usually referring to a SNMP alert

Table: Observer/RPM Alerting Key Terms

9.1 Color Coded Frame

The Observer conveys encoder and stream faults to users by color coding the player frame surrounding player displays. This coding reflects the live, real-time alert status of the encoders even during playback of stored media.

Color coded frame for encoders is enabled in the Preferences (Web) page.

The green (OK), red (video) yellow (audio) blue (other) alert is a colored box superimposed over the outer margin of the video image. Note the image below contains a video alert in the lower right, and an Other alert in the upper right.

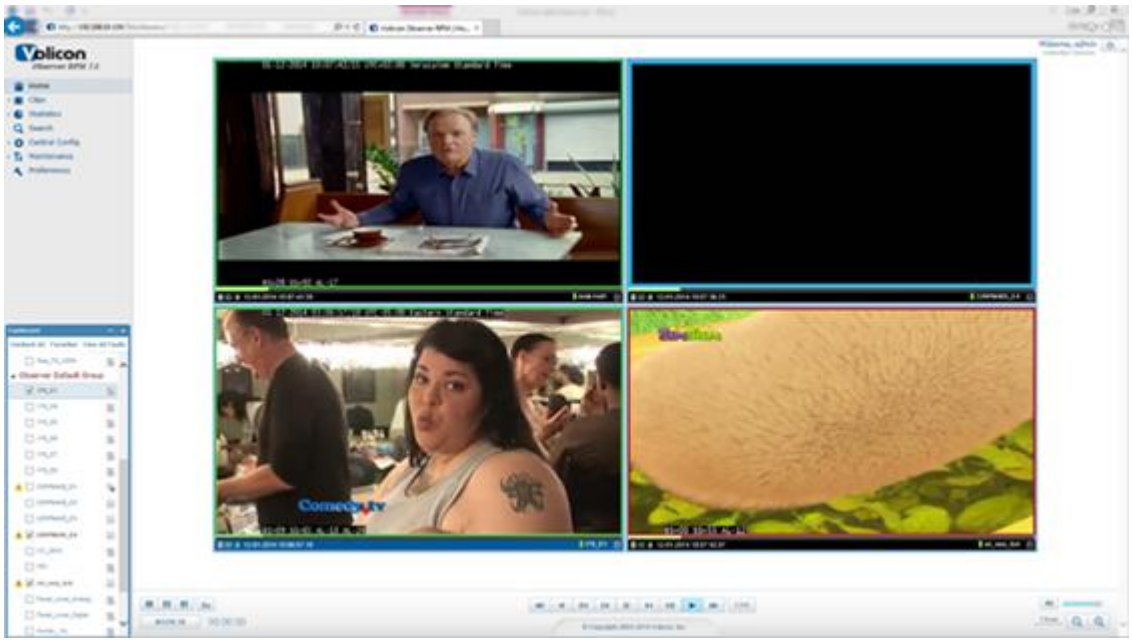


Figure: Video and Other Alerts

Turn on alerts in the Preferences menu.

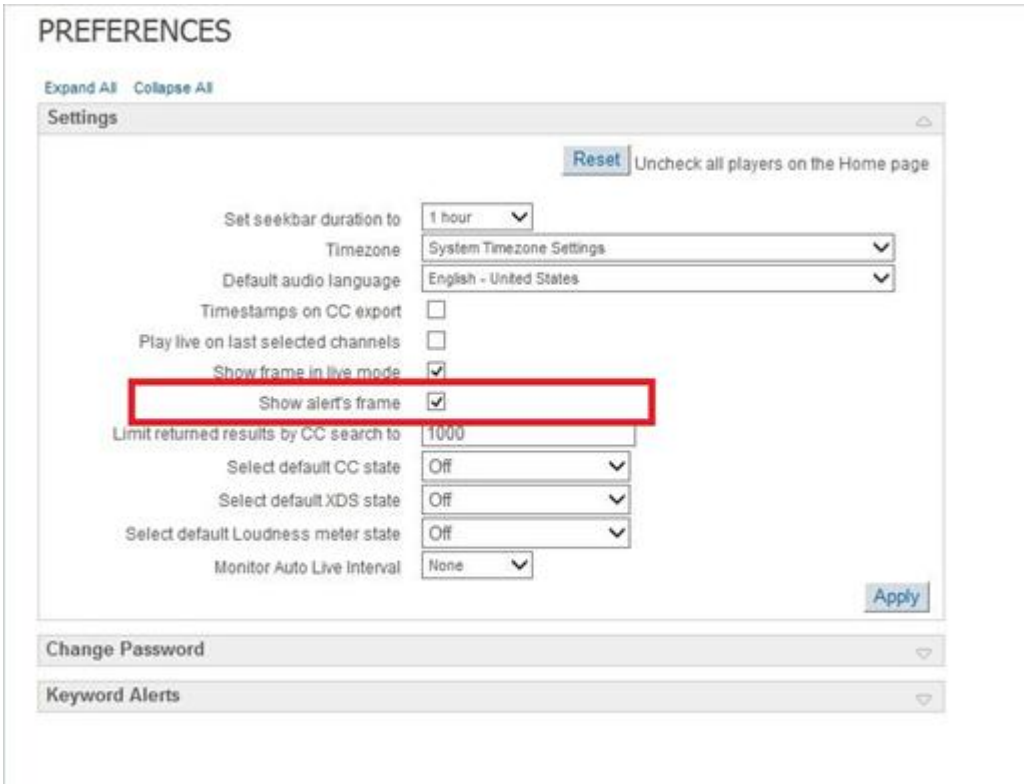


Figure: Show Alerts Frame Checkbox

9.1.1 Red: Video Alert

The Observer identifies a video alert with a red frame around its channel display. Red alert is the highest priority; it takes precedence over other lower priority alerts when detected simultaneously.

- Static video (no movement)
- Black video (solid black screen)
- Lost video (i.e. disconnected feed)

9.1.2 Yellow: Audio Alert

The Observer identifies an audio alert with a yellow frame around its channel display. The audio alert display takes precedence over lower priority alerts (Blue) when detected simultaneously.

- Low audio level
- High audio level

9.1.3 Blue: Other Alerts

The Observer identifies lowest priority alert level with a blue frame around its channel display.

- Dial error
- Script error
- Other

9.2 Encoder Stream Alerting

9.2.1 Media Faults

Media faults such as “Black Screen” or “Low Audio” are detected in the probe encoder-stream, usually exceed certain characteristic media parameters such as level and duration threshold. See the “Media” section **@Error! Reference source not found.** for more details. These faults are detected at the probes and forwarded to the CS. The CS captures the corresponding fault clips and also records the related events in the “Event log”.

9.2.2 Alert and Trap Generation

Configure your thresholds for alerts and traps in the Probe Manager or the Probe Manager. See the “**Error! Reference source not found.**” section **@Error! Reference source not found.**.

After a media fault is detected, Observer well cut a fault clip. If you have also enabled notification, Observer will send an SNMP trap and alerting email

9.3 Equipment and Link Alerts

The alerts below generate SNMP traps in addition to fault clips and email alerts. Other alerts related to scanning or STB control apply only to the RPM system.

9.3.1 Equipment and Link Alerts Table

EQUIPMENT ERROR	Caused by an internal connection problem within the probe between the Listener and the Probe encoder services. This occurs when the encoder

	service is in the middle of terminating its operation but not yet completely stopped, while the listener is trying to access the encoder during this time.
NAVE-TS-FAULT	A watermark with an older Timestamp was received than the Timestamp in the defined reference.
NAVE-PERC-FAULT	The percentage of good watermarks against foreign watermarks Source ID (SIDs) is smaller than defined in Error percentage variable.
NAVE-PERC-WARN	The percentage of good watermarks against foreign watermarks is between *Error percentage* and *Warning Percentage.*
NAVE-WM-FAULT	The amount of good received watermarks is smaller than defined in the Minimum *Good watermarks* variable.
NAVE-TS-RECOVERY	A watermark that satisfies the time limitations has just arrived regardless of its SID.
NAVE-WM-RECOVERY	The total amount of good watermarks in a certain sliding window satisfies the *Minimum good watermarks* variable.
NAVE-PERC-RECOVERY	The ratio between good watermarks against foreign watermarks is higher than the *Warning Percentage.*

Table: Equipment and Links Alerts

9.4 System alerts

Most of the system related alerts are detected at the Probes and forwarded to the CS. The CS generates Event log and Event viewer entries.

9.4.1 System alerts table

Alert	Description
ENCODER STOPPED	The Encoder module processing a media stream has stopped.

SERVICE STOPPED	The Encoder service (operating system routine) has stopped.
Dial error	Digit dialing errors have been detected with a custom script written using the Interactive Services (optional) module.
Script error	One of two faults has occurred: 1. The system detected a syntax error in the script 2. A script has failed due to an IR problem
STORAGE ERROR	A hard disk file error event.
GPI fault	This fault can be triggered by any media fault to provide electrical alert to external hardware. This option is usually not used in the RPM.
POWER	A toggle "STB Power" event.
Probe Down Alert	The Probe is not working.
LICENSE	A License expiration event.

Table: System Alerts

9.4.2 Media Faults with Examples table

The Observer uses three specific terms to establish the parameters of its media fault alerts:

- **Certainty**: the level threshold default..
- **Duration**: the duration threshold for a fault. .
- **Recovery**: the period of time that must pass after a fault ceases before the system is considered to no longer be in a fault.

Alert Types	Description of Operation and Examples	Level, Detection Ranges and Defaults
AUDIOLOW (Low audio)	Low audio fault is detected when the incoming audio stays below the low level threshold and the duration of the fault exceeds the duration threshold. Disable audio alert detection on channels with frequent silence. All these values are defined in the Probe Manager on the Probe. If you wish to change any Certainty, Duration, or Recovery levels, please contact Volicon Support. (RPM only) AUDIOLOW Alert Example: Audio alert is configured on a channel. Certainty threshold = -40 dB; Duration set to default of 30 sec. Audio input signal detected = -69 dB (below Certainty) for 41 sec; thus exceeding the Duration threshold. A media fault therefore is detected, generating an audio alert and automatically creating a fault clip, which is stored under the Clips --- Fault Clips section on the Observer Media Player. When notification is enabled, SNMP trap and email messages are sent if configured by the admin.	Certainty: -40 dB Level threshold - increase for noisy lines, e.g., -35 dB Duration: 30 sec Recovery duration default: 10 sec

AUDIOHIGH (High audio)	Audio high fault is detected when the incoming audio stays above the high level threshold for sufficient duration to exceed the audio duration threshold. **AUDIOHIGH Alert Example:** Audio alert is configured on a channel. Certainty threshold = -1 dB; Duration set to default of 30 sec. Audio input signal detected = 2 dB (above Certainty) for 6 minutes (exceeding the cycle time for the lineup plus the Duration threshold). A media fault therefore is detected, generating an audio alert and automatically creating a fault clip, which is stored under the Clips --- Fault Clips section on the Observer Media Player. When notification is enabled, SNMP trap and email messages are sent if configured by the admin.	Certainty: -1 dB Duration: 30 sec Recovery duration default: 10 sec
AUDIO-OK	Audio level returns to normal when the incoming signal returns between the audio Low level and High level thresholds. The recovery needs to exceed the recovery duration of the particular service, i.e., duration configured for the Audio Low or Audio High. On the faulting channel**:** Level persisting between at around -20 dB for more than 10 sec (exceeding the cycle time for the lineup plus duration threshold). An AUDIOHIGH alarm is cleared, AUDIO-OK fault clip track is added to the AUDIOHIGH Fault clip which is stored under the Clips --- Fault Clips section on the Observer Media Player. When notification is enabled, SNMP trap and email messages are sent if configured by the admin.	Certainty: above low level Certainty (-40dB) but below high level Certainty(-1dB) Duration: 30 sec Recovery: 10 sec

VIDEOLOST	When video framing loss, commonly known as “sync”, is detected by the hardware and persists over the Video Duration threshold, then a VIDEOLOST Alert is generated. Only the Duration threshold is configurable; the level threshold is not configurable. Example: Video lost signal = TRUE over duration of 31 sec exceeding cycle time and duration threshold. When notification is enabled, SNMP trap and email messages are sent if configured by the admin.	Certainty: detected and not detected (value is 0). Duration threshold default: 30 sec Recovery duration default: 10 sec
VIDEOBLACK (Black screen)	When the percentage of black pixels (BS) in video frames of incoming video signal exceeds the certainty threshold and persists over the duration threshold. Alert example: Stream A1 variables are set to the default values: Stream A1 video containing video frames with black pixel percentage to exceed the certainty threshold and persist for 31 seconds. A Videoblack alert is declared and a fault clip is cut. When notification is enabled, SNMP trap and email messages are sent if configured by the admin.	Black screen (BS) certainty threshold default: 95%. Volicon has learned over the years to never change this value. 95% is the optimal value to reduce false positives. BS detection range: When BS exceed the certainty threshold, up to 100% (e.g. 96% to 100%) Duration threshold default: 30 sec Recovery duration default: 10 sec

VIDEOSTATIC (Static screen)	Detected when video frame pixels at the same frame location are compared for color and luminosity between pairs of consecutive video frames and the percentage of pixels that match exceeds the static screen (SS) certainty threshold while also exceeding the duration threshold. Alert example: Stream A1 variables are set to the default values. When the pixel color, luminance and locations matching between pairs of consecutive video frames exceed 95% of all video frame pixels for longer than 3 minutes where the cycle time is 2 minutes, a Videostatic alert is declared and a fault clip is cut. When notification is enabled, SNMP trap and email messages are sent if configured by the admin.	SS certainty threshold default: 95% Duration threshold default: 30 sec Recovery duration default: 10 sec SS detection range: When SS exceed the certainty threshold, up to 100% (e.g. 96% to 100%)
VIDEO-OK	When video returns to normal framing and pixel characteristics: Recovery for video alerts: Video Loss returns to False, Black Screen, Static Screen and Video motion return below their certainty thresholds When notification is enabled, SNMP trap and email messages are sent if configured by the admin.	Video OK detection range: Video Loss returns to False, Black Screen, Static Screen and Video motion return below their thresholds
CCLOST	Closed Captions or teletext data is absent for some period of time. When notification is enabled, SNMP trap and email messages are sent if configured by the admin.	Range state: Not detected Duration threshold default: 600 sec Recovery duration default: 10 sec

CC-OK	"Teletext" or "Closed captions" are OK When notification is enabled, SNMP trap and email messages are sent if configured by the admin.	Equation: CC loss signal is False

Table: Video Faults with Examples

See also the **SNMP Notification** section, **@11.**

10 NIELSEN AUDIO VIDEO ENCODING (NAVE) FEATURE DESCRIPTION

The Nielsen Audio Video Encoder (NAVE) is a system capable of inserting Nielsen Media Research proprietary NAVE source identification watermarking directly into the audio portion of compressed digital ATSC transport streams prior to broadcast. NAVE devices can simultaneously insert watermarking data on multiple independent digital television programs being broadcast whether they are standard definition (SDTV) or high definition (HDTV).

Encoding of television signals such as in the Nielsen system is used for audience measurement; e.g., to accurately identify television distributors (including broadcast stations or cable networks). The Nielsen Media approach installs meter devices at user premises being monitored to identify stations and networks by reading the aforementioned watermarks or other codes inserted into the television signal at the distribution source through the NAVE unit. By encoding content with a NAVE unit, ratings data for programming can be provided, whether it is received in a digital, analog, or combined viewing environment.

In one implementation, the installed meter device detects and extracts the codes (watermarks) contained in content signals that are delivered to the premises. These watermarks can be matched to a “library” to identify the content.

If any station's NAVE encoder is interrupted, the meter device installed in Nielsen sample premises collects and store passive signatures for all non-encoded programming viewed. These signatures are downloaded each night to Nielsen's operations center. To identify viewing, the passive signatures collected from the meter device in the premises are matched against the signatures in the library.

The feature allows you to define the watermarks to be accepted and the faults/recoveries to occur by configuring the watermark's creation time and the number of good watermarks that should be received per period.

Enable NAVE monitoring	Enable or disable NAVE feature
Windows interval (sec)	Faults are detected and recoveries enabled during the sliding window interval. For example, if you define a 30 second window, for each second the 30 second window will be checked (0-30, 1-31, 2-32…) against the various parameters used.
Minimum Good watermarks	If the number of good watermarks counted during the sliding window is lower than the minimum value, a fault is detected.
Station ID array	A list of good watermarks you intend to accept. If the field is left empty, all watermarks will be detected. Some channels support more than one Station ID (SID). In this case, insert into the SID array all the IDs you intend to accept. A single SID` is sufficient to satisfy the *Minimum Good Watermarks* and *Watermark Percentage recovery* variables to avoid faults and stay recovered.
Watermark age (minute)	Stands for the watermark's time from its creation
Oldest Watermark to report (minutes)	Filters out watermarks older than this threshold and reports no faults on these. If left as 0, variable watermark age is taken. For example, if this watermark is 10 days old, any older watermarks will be ignored. If the watermark's edge is less than this threshold; it will be processed as a regular watermark.
Watermark expiration (seconds)	Cleans a player's screen from old watermarks when no new watermarks have arrived within the specified time.
Error percentage	Represents the upper limit percentage below which fault messages will be generated.
Warning percentage	If the percentage value is between *Error Percentage* and *Warning Percentage*, a warning message will be sent. Any other case results in recovery.

Table: Nave Feature Description

10.1.1 NAVE Configuration

Selected the desired **Encoder→<Encoder Settings>** →expand **<Devices>** →expand **<NAVE settings>.**

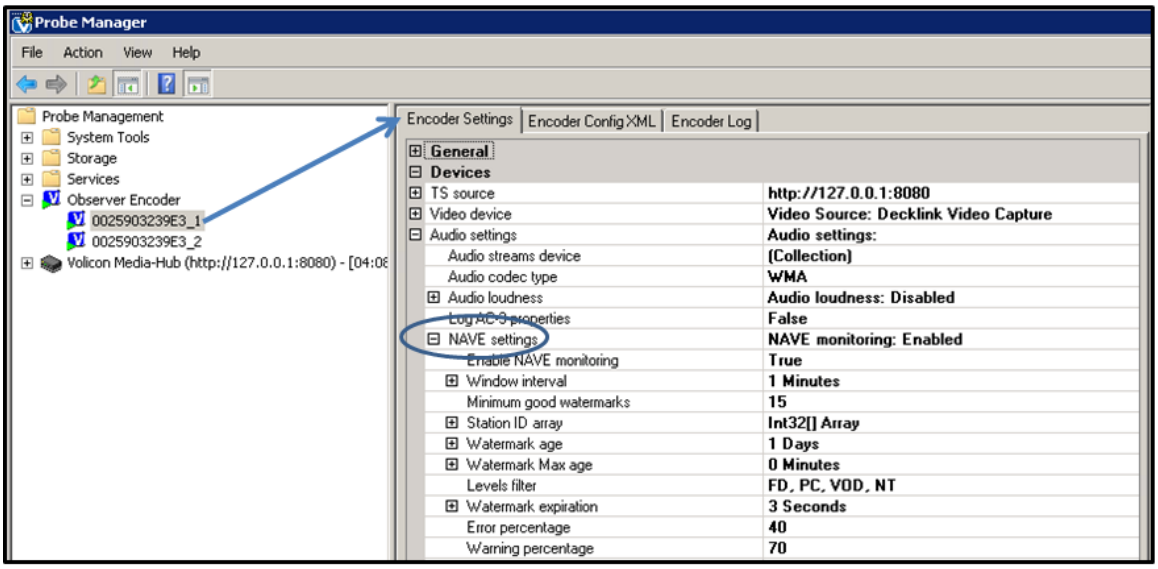


Figure: NAVE Monitoring

11 SNMP NOTIFICATION

Observer sends SNMP notifications to external systems (e.g., your Network Management System (NMS)) using the Alert Notification variables shown in the "SNMP Notification Settings" Table, section **@11.1.3.** You must configure the IP addresses of your NMS stations in Observer to enable this capability.

11.1 MIB variables

SNMP V2 MIB variables with definitions are listed in the "EncoderTraps_v2.mib" file or a similar *.mib file located on the Observer server in the "Program Files\Volicon\docs" directory. The MIB file should be used in addition to the "MIB Variables table" below.

The Observer RPM can send SNMP V2 trap messages both for media related alerts that create fault clips and for system critical events that do not generate clips.

11.1.1 MIB variables table

Alert Variable Names (in MIB)	OID Strings	Description
volEncoder	PREFIX = 1.3.6.1.4.1.23522.1	Probe Server Name OID type and prefix for OIDs below
volEncoderName Octet String	PREFIX**.2**	Name of encoder which detected the alert. (Names) configured during installation and usually not changed by the user
volEncoderHostname Octet String	PREFIX**.3**	Probe server Hostname, IP or DNS name. The Hostnames should be unique within servers on the NMS monitored network
volAlertClipID Integer	PREFIX**.11.1**	Generated with each new event (e.g., media defect) to identify it
volAlertDescription Octet String	PREFIX**.11.2**	Textual description of the alert
volAlertClipRef Octet String	PREFIX**.11.3**	Alert clip ID and URL for its location on the web server e.g., http://rpm.cableTv.com/clip_view.php?id=158079

volStreamName Octet String	PREFIX.**11.4**	Stream/scanner name to help identifying the link/STB location
volAlertEnum Integer	PREFIX.**11.5**	Grouping: event(0), test(10), service(20), encoder(30), storage(40), license(50), AFD fault(100), video(200), metadata(300), power(400), Video Lost(500)
volAlertName Octet String	PREFIX.**11.6**	E.g., AUDIOLOW, ENCODER STOPPED
volAlertType Integer	PREFIX.**11.7**	Signals the NMS SET(1) or CLEAR(0) alert states, e.g. alert is SET
volCertainty Integer	PREFIX.**11.8**	Degree of alert type percentage, e.g., 96 percent of Black Screen
volAudioLevel Integer	PREFIX.**11.9**	Integer value of audio Level in dB
volAudioPin Integer32	PREFIX.**11.10**	Audio Pin number, it is audio language pin. For now single language is used, the Pin is always 0
volEventTime Octet String	PREFIX.**11.11**	Time when the alert has occurred, e.g. 2010-10-31 20:57:21
rpmChannelID Octet String	PREFIX.**11.12**	Channel Number in the Lineup. It is stored in a string, such as "124"
rpmChannelName Octet String	PREFIX.**11.13**	Lineup Channel/Service name such as Fox…
rpmChannelQAM Octet String	PREFIX.**11.14**	Channel group name for any group of channels logically related
volAlertSeverity Integer32	PREFIX.**11.15**	Designates priority for a corresponding problem to get resolved: info(1), warning(2), minor(3), major(4), critical(5)
oidAlertLevel Octet String	PREFIX.**11.16**	Alert level (category) with one of the following possible values: probe (1), group (2), system (3)
oidGroup Octet String	PREFIX.**11.17**	Name of the affected probes' group
oidProbe Octet String	PREFIX.**11.18**	Name of affected probe machine

Table: MIB Variables

VolAlertName, VolAlertEnum, and VolAlertType variables indicate when to set or clear NMS internal alarms. System related traps (other than for media), though not used to set or clear alarms, provide important information about the defect source such as **volAudioLevel** and **volAlertSeverity.**

11.1.2 MIB variables alert example table

A real-time trap from an audio alert was traced to build this table, specifically, the **Notification Variables** in the leftmost column. The last column illustrates examples to **Set** and **Clear** an SNMP alert:

Notification Variables Name	OID Strings	Description	Alert SET / CLEAR
volEncoder	**PREFIX = 1.3.6.1.4.1.23522.1**	Probe Server Name OID prefix for OIDs below	
trapEncAlerts	**PREFIX.12 = 1.3.6.1.4.1.23522.1.12**	ID identifying an Observer trap. This variable binds all other variables in it	
volEncoderName	PREFIX**.2 = 1.3.6.1.4.1.23522.1.2** Octet String (Size 0...32)	Encoder Stream name	***Value: ENC1***
volEncoderHostname	PREFIX.**3** Octet String (Size 0...32)	Encoder hostname or IP address	***Value: ObsRpmVa***
volEncAlerts	PREFIX.11	Object identifier	
volAlertClipID	PREFIX.11.1 Integer32	Clip ID created on this alert	***Value: 6 (Value: 9)***
volAlertDescription	PREFIX.11.2 Octet String	Textual description of the alert	Value: LOW AUDIO LEVEL /(AUDIO-OK): History Channel 66; Encoder: ENC1 **Audio level: -69**. (**-34**) Server time: 2010-09-29 18:52:41
volAlertClipRef	PREFIX.11.3 Octet String	URL to the clip created for this alert	Value: IP Address
volStreamName	PREFIX.11.4 Octet String (Size 0...32)	Stream (scanner in RPM) name	Value: P1
volAlertEnum	PREFIX.11.5 Integer [enumerate]	Alerts enumeration	See the following table for “volAlertEnum”
volAlertName	PREFIX.11.6 Octet String (Size(32))	Alert nickname	**Value: AUDIOLOW**
volAlertType	PREFIX.11.7 Integer32 (0/1/2)	Type of alert: set (1), clear(0), or warning (2)	**Value: 1**
volCertainty	PREFIX.11.8 Integer32	Certainty in percentage	Value: 0
volAudioLevel	PREFIX.11.9 Integer32	Audio level in dB units	**Value: -69 (*-34*)**
volAudioPin	PREFIX.11.10 Integer32	Audio Pin	Value: 0

volEventTime	PREFIX.11.11 Octet String (Size(32))	Event time in format 2011/02/09 18:21:33	***Value: 2010-09-29 18:52:41***
rpmChannelID	PREFIX.11.12 Octet String (Size(32))	Lineup channel ID (usually a channel number)	Value: 66
rpmChannelName	PREFIX.11.13 Octet String	Lineup Service name	Value: History Channel
rpmChannelQAM	PREFIX.11.14 Octet String (Size(32))	Lineup channel group	Value: Westside
volAlertSeverity	PREFIX.11.15 Integer{ info (1), warning (2), minor (3), major (4), critical (5)}	The degree of priority to correct the problem	Value: 4
oidAlertLevel	PREFIX.11.16 Integer{ probe (1), group (2), system (3)}	Alert level	
oidGroup	PREFIX.11.17 Octet String (32)	Name of affected probe group	Value: Burlington News
oidProbe	PREFIX.11.18 Octet String (32)	Name of affected Probe server	Value: Probe66

Table: MIB Variables Alert Example

The trap variables are described in the "MIB Variables table" section **@11.1.1.**

11.1.3 SNMP notification signaling table

Various alert related SNMP traps are listed below:

VolAlertName	**Observer RPM Alerts (Fault Clips)** Set /Clear and Notify (w/o clear) alerts	**VolAlertEnum**
VIDEO-OK, AUDIOLOW	Set AUDIOLOW alert	200 (VIDEO)
VIDEO-OK, AUDIOLOW	Clear AUDIOLOW event	200
VIDEO-OK, AUDIOHIGH	Set AUDIOHIGH alert	200
VIDEO-OK, AUDIOHIGH	Clear AUDIOHIGH alert	200

VIDEOLOST, AUDIOLOW	Set "Video Lost" alert	500 (VIDEOLOIST)
VIDEOLOST, AUDIOLOW	Clear "Video Lost" alert	500
VIDEOBLACK, AUDIOLOW	Set "Video Black" alert	200 (VIDEO)
VIDEOBLACK, AUDIOLOW	Clear "Video Black" alert	200
VIDEOSTATIC, AUDIOLOW	Set "Video Static" alert	200
VIDEOSTATIC, AUDIOLOW	Clear "Video Static" alert	200
VIDEOMOTION	Set "Video Motion" alert	200
VIDEOMOTION	Clear "Video Motion" alert	200
SCRIPTERROR	System detected syntax error in the script	200
CCLOST	Set "closed captions Lost" alert	300 (METADATA)
CCLOST	Clear "closed captions Lost" alert	300
Equipment Error	"Equipment Error" event	
STB Faulted	"STB Faulted" alert	
NAVE-WM-FAULT	Set "NAVE WM fault" alert, see "Equipment and Link Alerts **@9.3**	50
NAVE-WM-RECOVERY	Clear "Nave Low Watermark" alarm	50
NAVPERC-FAULT	Set "NAVE percentage fault" alert	60
NAVE-PERC-WARN	Set " NAVE percentage warning" alarm	60
NAVE-TS-FAULT	Set "NAVE TS Fault"	70
NAVE-TS-RECOVERY	Clear "NAVE TS Fault"	70
GPI FAULTS	Set "GP Faults" alert	0
GPI FAULTS CLEAR	Clear "GP Faults" alert	0

Table: SNMP Notification Signaling Table

11.1.4 System alerts

Most of the equipment and link related alerts are detected at the Probes and forwarded to the CS. The CS generates Event log and Event viewer entries. Since these alerts do not generate SNMP traps, the parameters such as "**AlertEnum**" are not critical.

ALERT NAME	Description of Observer Events (No SNMP only Event log)
POWER	Toggle "STB Power" event
TEST	"Test" Event
SERVICE STOPPED	"Service Stopped" event
SERVICE STARTED	"Service Started" alert
Probe Down Alert	"Probe Down Alert"
Probe Recovered Alert	"Probe Recovered Alert"
ENCODER STOPPED	"Encoder Stopped" alarm
ENCODER STARTED	"Encoder Started " alert
AFD FAULT	“AFD Fault” alert
STORAGE ERROR	"Hard disk file Error" event
LICENSE	"License expiration" event

Table: System Alerts

11.1.5 Configure Notification

From the Listener tab you can configure enabling or disabling of notifications - sending SNMP traps and emails.

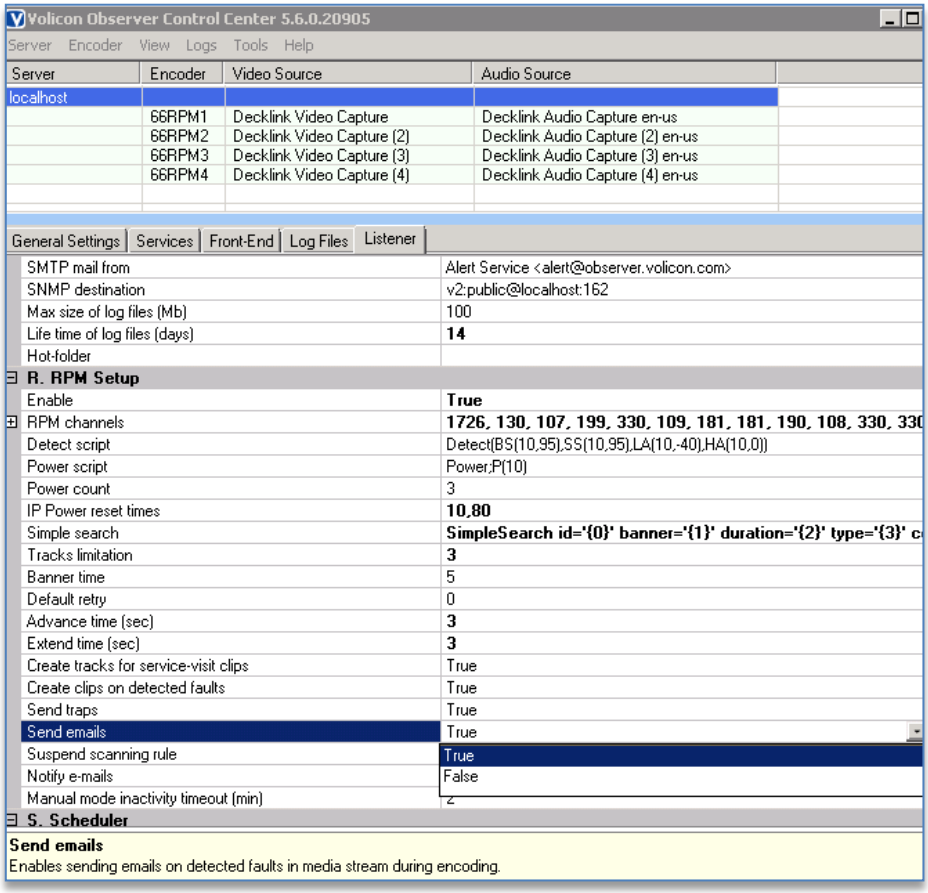


Figure: Listener Tab

You can set your parameters according to the table below:

Send traps parameter	True/False
Send emails parameter	True/False

Table: Notification Parameters

When both “Send traps” and “Send emails” parameters are enabled, upon detecting a fault the system will respond as per the table below.

Observer Detects	Observer Action
A: Fault detected	SET Alarm (SNMP trap and email) are sent
B: Fault persist	Quiet
C: Fault persist	Quiet
D: Fault is cleared	Clear Alarm (SNMP trap and email) are sent

Table: Observer Actions

12 CAPTURE CARDS AND BREAKOUT CABLES

Observer supports multi analog and digital A/V input formats and associated capture cards. The capture card converts the stream for Observer evaluation and storage.

Optionally, an input matrix switch allows multiple streams to be accessible by a single capture card. Refer to the Optional Interface section for detailed configuration.

12.0 Compatible Capture cards

Observer Enterprise Adapter Card Types			
Card Type, Number of Channels	**Card Name**	**Card Quantity**	**Chassis size**
Analog, 1	BlackMagic Intensity Pro	1	1RU
Analog, 2	Osprey 460e	1	1RU
Analog, 4	Osprey 460e	1	1RU
Analog, 8	Osprey 460e	2	3RU
SDI-SD, 1	BlackMagic Decklink SDI	1	1RU
SDI-SD, 2	BlackMagic Decklink SDI	2	3RU
SDI-SD, 4	BlackMagic Decklink Quad	1	3RU
SDI-SD, 8	BlackMagic Decklink Quad	2	3RU
SDI-HD, 1	BlackMagic Decklink SDI	1	1RU
SDI-HD, 2	BlackMagic Decklink SDI	2	3RU
SDI-HD, 4	BlackMagic Decklink Quad	1	3RU

Table: Capture Cards

12.1 BLACKMAGIC INTENSITY PRO

The Intensity Pro is a high definition capture card. The card and the breakout cable are shown below.

Figure: Breakout Cable Component, Composite and S-Video (Volicon)

Figure: Intensity Pro video adapter card

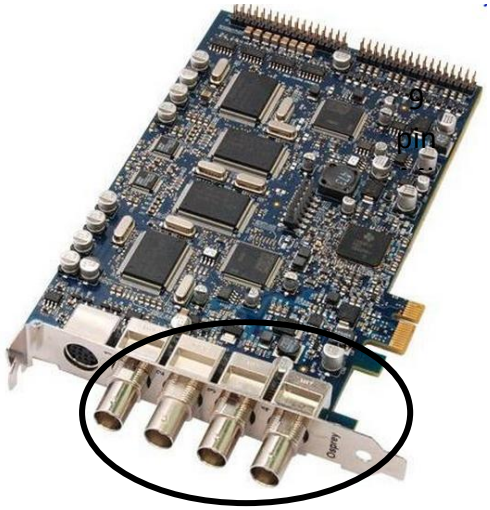
The breakout cable includes Component video leads (R, G, B connectors), Composite leads (G, B connectors), audio (R, W) and the S-Video cable. ***For Composite video the blue and green leads are shared with the Component video, since the card is configured only for one of the two video modes at a time. See details in the table below:***

Source Type (Common color)	Intensity Pro (Connector color)	Label
S-Video	(Black)	S-Video
Audio (White)	(White)	14 AUDIO IN LEFT
Audio (Red)	(Red)	15 AUDIO IN RIGHT
Component RGB. (Blue)	(Blue)	9 B-YIN
Component RGB, (Green)	(Green)	8 YIN
Component RGB, (Red)	(Red)	7 R-YIN
Composite video signal, (Yellow)	(Green) same connector as above	8 YIN

Table: Intensity Pro Connector Values

12.2 Osprey460e card

The Osprey-460e supports 4 external video inputs; all can be configured as analog composite. Attach up to four BNC composite video cables to the input video connectors.



Input Video Connectors

The breakout connector provided with the Osprey card has 4 left/right, unbalanced audio inputs.

4 outputs for unbalanced audio, each consisting of left and a right connector labeled

Left 1/Right 1

Left 2/Right 2

Left 3/Right 3

Left 4/Right 4

Figure: Osprey Breakout cable

Observer encoder channels are configured as follows:

- Video Input A and Audio Left 1 / Right 1
- Video Input B and Audio Left 2 / Right 2
- Video Input C and Audio Left 3 / Right 3
- Video Input D and Audio Left 4 / Right 4

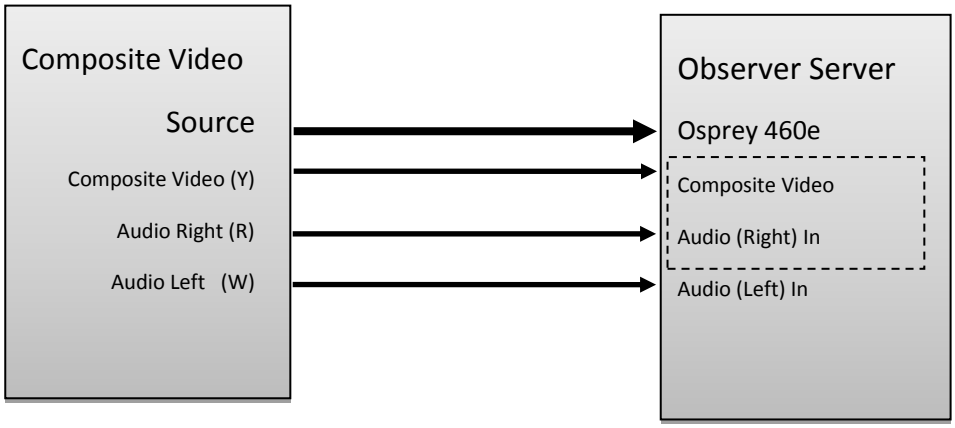
12.2.1 Audio breakout 9 pin Mini-Din Pin-out

The pin assignment for the Osprey 460e audio break out card is as follows:

1. Audio input	Left 1
2. Audio input	Right 1
3. Audio input	Left 2
4. Audio input	Right 2
5. Audio input	Left 3
6. Audio input	Right 3
7. Audio input	Left 4
8. Audio input	Right 4
9. Ground	Ground

Table: Osprey Audio breakout

12.2.2 Composite Video Interconnect diagram



13 SDI-SD/HD SYSTEM INTERCONNECT

13.0 SDI-SD/HD Interface diagram

SDI-SD/HD interfaces use the following BNC cable interconnections

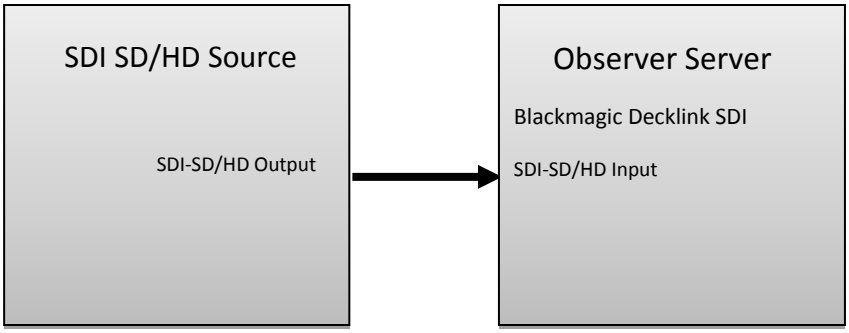


Figure: SDI-SD and SDI-HD Interconnect Diagram

13.0.1 Observer Enterprise Chassis SDI Connections

The SDI-SD/HD connections on the Observer Enterprise Chassis are located on the back panel.

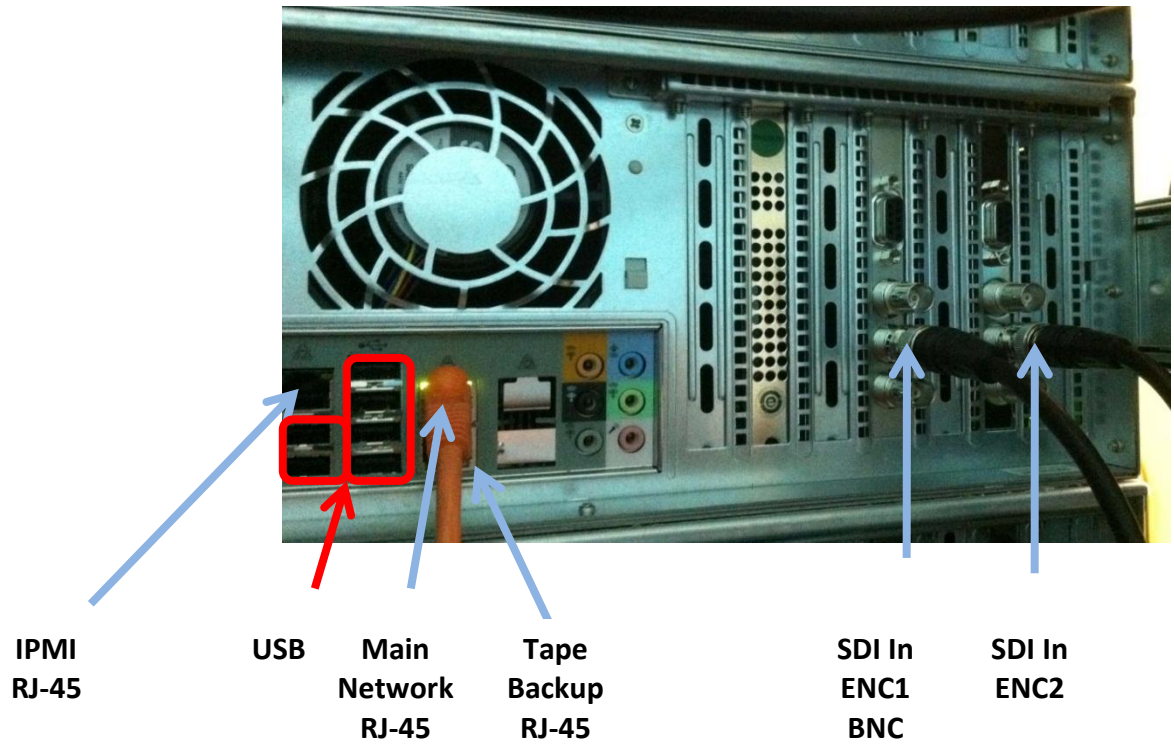


Figure: Observer Enterprise Chassis Back Panel

13.1 Blackmagic Decklink SDI

Observer supports the Blackmagic Decklink SDI.

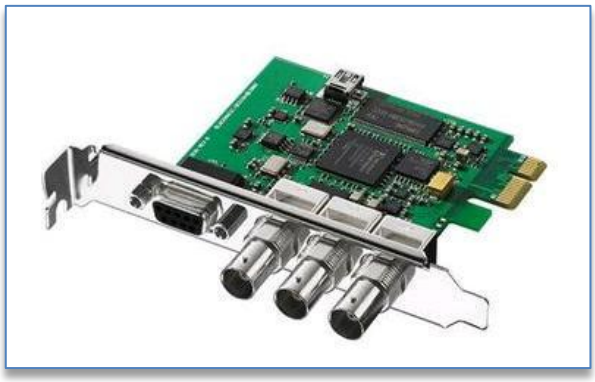


Figure: Blackmagic Decklink SDI Card

13.1.1 Decklink SDI Coax Connector Diagram

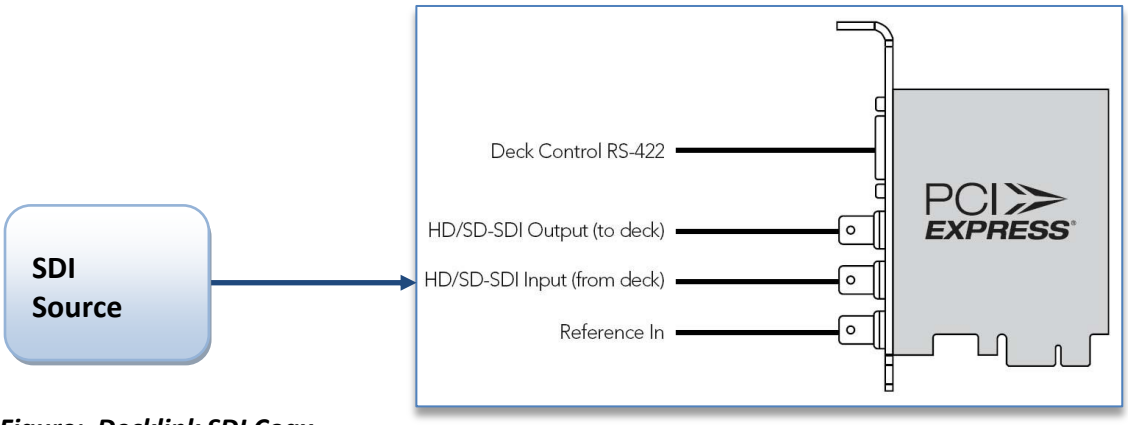


Figure: Decklink SDI Coax Connector Diagram

Connect the SDI Source (from deck) with coax M to the Blackmagic Decklink SDI card's BNC connector Input.

13.1.2 Dolby Digital 5.1 Support

Dolby digital is supported in release 5.5 and above. Select the AC3 audio profile to setup Dolby digital on the Blackmagic SD encoder card.

13.1.3 Decklink SDI Channel features

For SDI-SD and SDI-HD applications with compatibility to NTSC and PAL, this card can be used either as a standalone or in large facilities with SDI routers. The A10 bit SDI video card features a tri-sync reference input, 8 channels of SDI embedded audio, 2 channels AES/EBU digital output with sample rate converters and RS-422 deck control. For the generic shelf interconnect see "Typical Rack Layout and Interconnect with STBs" at section **@2.1.5.**

13.2 Blackmagic Decklink Quad SDI–SD/HD

The Observer also supports the Blackmagic Decklink Quad SDI-SD/HD card. The card has Mini BNC SDI connectors, see the diagram below for connection details.

Figure: Blackmagic Decklink Quad SDI-SD/HD

13.2.1 Decklink Quad SDI–SD/HD Connector Diagram

Connections are made to the SDI inputs as shown.

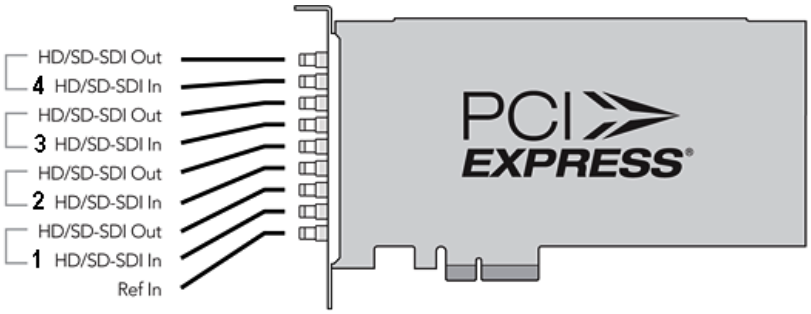


Figure: Decklink Quad SDI-SD/HD Connector Diagram

13.2.2 Breakout Cable BNC to Mini BNC Adapter

You will need a British Naval Connector (BNC) to Mini BNC Connector breakout cable to use the Decklink Quad SDI-SD/HD card. The cable is pictured below.

Figure: BNC to Mini BNC Adapter Cable

13.3 Decklink Duo SDI/HD adapter interface

The DeckLink Duo Blackmagic adapter card supports dual HD/SD capability with two SDI interface connections to the adapter card through BNC connectors as shown below:

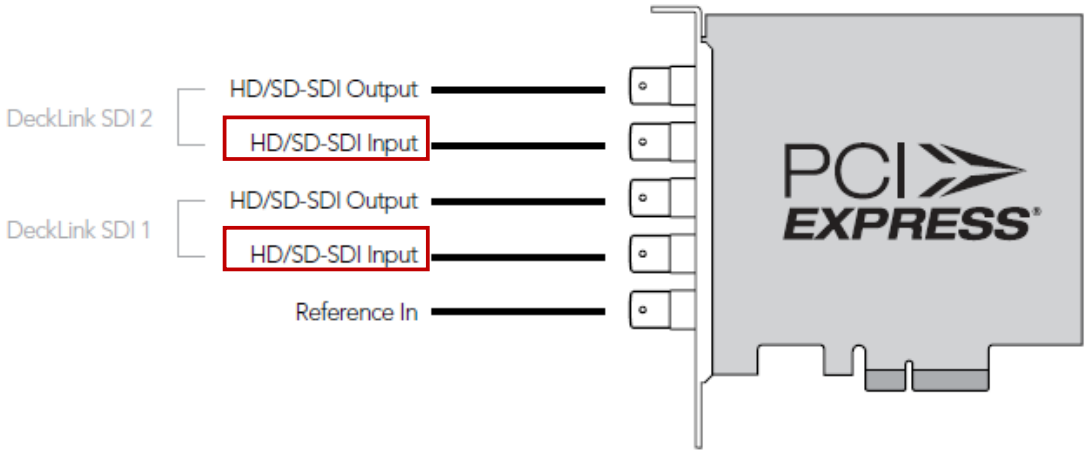


Figure: Decklink Duo SDI/HD adapter

13.4 Transport stream DeckTec interface

This card is configured and monitored by the Media Hubsnap in on the server desktop. See the TS Admin guide for more details about the configuration and monitoring of TS streams.

13.4.1 Dektec DTA-2160

The Dektec DTA-2160 has following connector ports for Gig E and ASI interfaces:

Physical location from top	Port type	Logical port number
1	Gig E	Port 4
2	ASI 1	Port 1
3	ASI 2	Port 2
4	ASI 3	Port 3

Table: Dektec TDA-2160 Connector Ports

Note the location of the connectors for the interface links. The top connector is the Gig E connector, called port 4, followed by the ASI port 1; ASI port 2 and ASI port 3 interfaces.

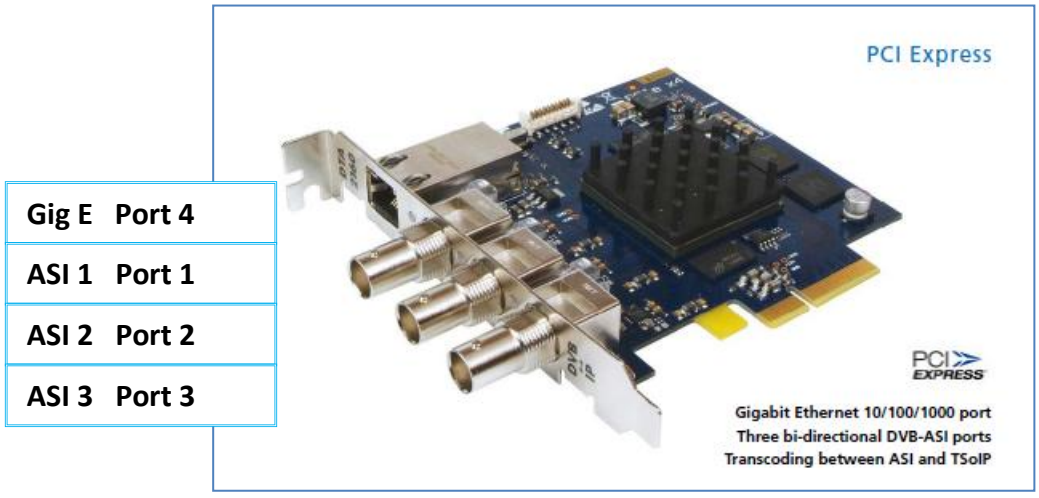


Figure: DeckTec Card

14 GENERAL INTERCONNECT DESCRIPTION

14.1.1 Media SD Video/ Audio and HDMI Interconnections

The Set Top Boxes (STBs) for Audio/video outputs at positions P2, P3, P4 and P5 interconnect with the 3 RU RPM Encoder Server in position P6. See **"Figure: STB Rear Panel"** shown below:

Figure: STB Rear Panel

The STBs at P2 P3 P4 and P5 interconnect with The Observer Encoder Server Blackmagic Intensity Pro Video cards at positions C1 C2 C3 and C4, see **"Figure: Chassis Rear Panel"** shown below:

Figure: Chassis Rear Panel

The STB interconnections with the media capture cards are as follows:

STB Location	Card position	Type of Connection	Type of Cable
P2	C1	Composite video S-Video	Use Intensity Pro breakout cable
P3	C2	Composite video S-Video	Use Intensity Pro breakout cable
P4	C3	HDMI and Component Video	HDMI and Intensity Pro breakout cable
P5	C4	HDMI and Component Video	HDMI cable for HDMI and Intensity Pro

Table: STB Interconnect

14.1.2 IR Transmitter Interconnections

When an Observer is used to change STB channels, it uses IR transmitters for it. Each IR transmitter connects to a four port USB hub which is connected to the RPM Encoder server. The following IR transmitters should be mounted at the following shelf positions:

IR Transmitter USB-UIRT device	From	To STB Shelf position
USB-UIRT	USB hub	P2
USB-UIRT2	USB hub	P3
USB-UIRT3	USB hub	P4
USB-UIRT4	USB hub	P5

Table: STB IR Blaster

15 NTP TIME SERVER CONFIGURATION

All recorded video and other Observer applications are very dependent on time. Ensuring all Volicon Observer servers continue to maintain frame accuracy, it is vital that every server is regularly synced with a highly reliable time source. Using an external time server insures the Observer's real time clock is accurate to a few tens of milliseconds.

Volicon recommends a synchronization tool called “NetTime” for your NTP management.

NetTime is available at: http://www.timesynctool.com

Some systems will have NetTime already installed; others will use the default Microsoft NTP client.

15.1.1 Selecting a Time Server

Select **<Observer Encoder>→<Service Configuration>**Expand **<Probe Properties** and expand **<NTP Properties>** expand the **<NTP servers>** collection to configure one or more time servers. If the Observer Probe or Central Server are added to internal domains then the time source will be the domain server.

1. If you run an internal corporate time server change the configuration to point to it.
2. Another option is to use a NTP server pool. This has the advantage of redundancy and you can select geographically nearby servers to minimize transit time latency. The NTP Pool Project is popular and can be found at http://www.pool.ntp.org/en/.
3. A third option is to use the Windows operating system as preconfigured, pointing to a public Microsoft NTP server.

If you change your NTP configuration, you must restart the Encoder service. Select **<Observer Encoder>** in the right hand **Actions** pane and use the **<Stop Service>** and **<Restart Service**> buttons.

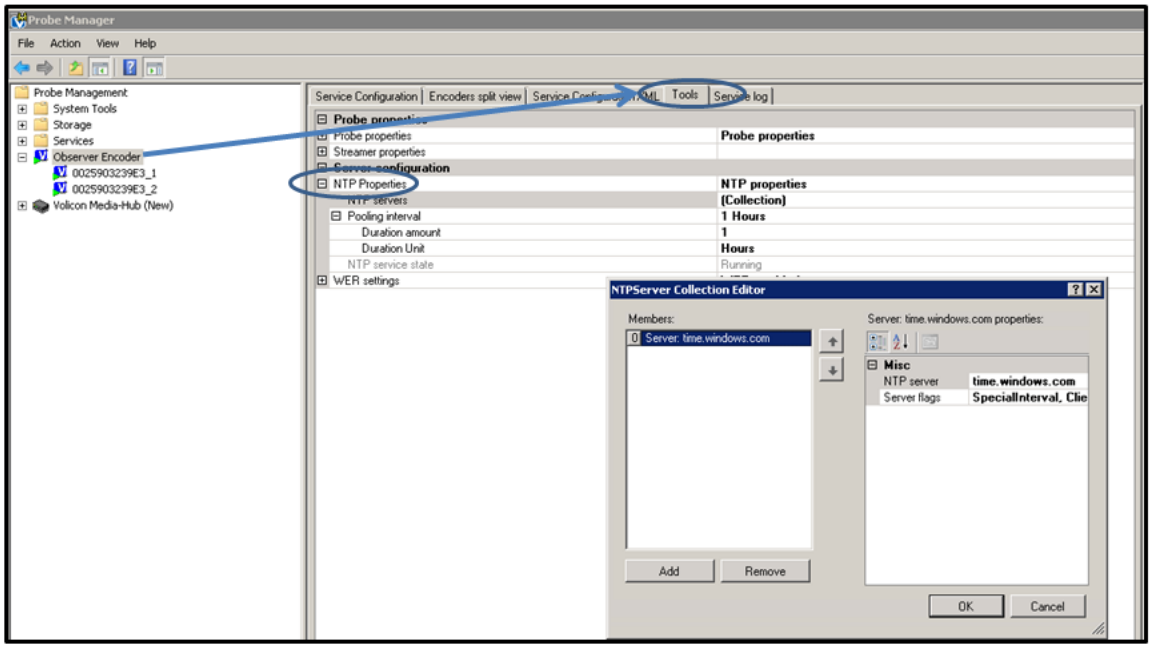


Figure: NTP configuration

Alternatively, if the clock is displayed on the toolbar you may configure your NTP server by double clicking the clock. You can also access it through the **"Control panel" → "Date and Time Properties"**.

15.1.2 Setting Poll Interval

Poll interval: Specifies interval of synchronization with the Time Server (default is 24 hours).

Expand **Polling Interval**, Set the Polling interval to an integer and specify units from the **<Duration Unit>** Collections. Volicon recommends setting the Poll Interval between 300 and 3600 seconds if using an internal time source

16 WHAT NOT TO DO ON THE SERVER SIDE

This section lists events and configurations that should not be applied to any of the Observer / RPM servers.

- *Do not run a Web client application on the Observer Encoder or Web server*
- *Install Antivirus software with caution see section "**Antivirus Excluded Storage Areas**"*
- *Do not load/execute any additional applications on the server*

17 RAID ALERT NOTIFICATION

RAID, an acronym for "Redundant Array of Independent Disks," is a storage technology that links or combines multiple hard drives so that data can be stored on them as if they were one logical unit. RAID takes multiple physical disks and makes them appear and function as one single drive.

The Observer uses three different RAID variants: 1, 5, and 6.

17.0 RAID Variants

17.0.1 RAID 1

RAID 1, or disk mirroring, is the process of replicating the data to more than one disk. Both the disks are operational at the same time, so the system can read data from both simultaneously. This enhances the speed of read operations. However, the write operations are slower as the system executes each write operation twice, once on each disk.

17.0.2 RAID 5

A minimum of 3 disks are required for a RAID 5 array. RAID 5 can tolerate even total failure of *any* drive in the array without losing a single byte of stored data. RAID 5 is block-level striping with distributed parity. Striping and data are distributed by independent read and write operations. In a "write" operation, data to be recorded is striped across all array members interspersed with a parity block and distributed so as to place one segment containing the parity checksum on a different drive within each striping cycle. Sometimes defined as rotating parity, this scheme is the reason why it doesn't matter which drive in the array fails.

17.0.3 RAID 6

RAID-6 can tolerate the concurrent failure of no less than two hard drives while precluding data loss and system downtime. RAID 6 provides a second layer of redundancy by means of two separate, independent parity blocks within each stripe written to the data storage subsystem array, distributed among each of the active members in the array. Thus, another moniker for RAID-6 is "double-parity RAID".

This implementation requires a minimum of four individual drives to form an array, but will typically have a significantly larger number of members since performance, fault tolerance, and cost efficiency are all improved relatively with a larger population. RAID-6 requires a RAID 6 controller.

17.1 RAID Controllers

The Observer uses either the 4i or 8i version of the MegaRAID SAS controller from LSI.

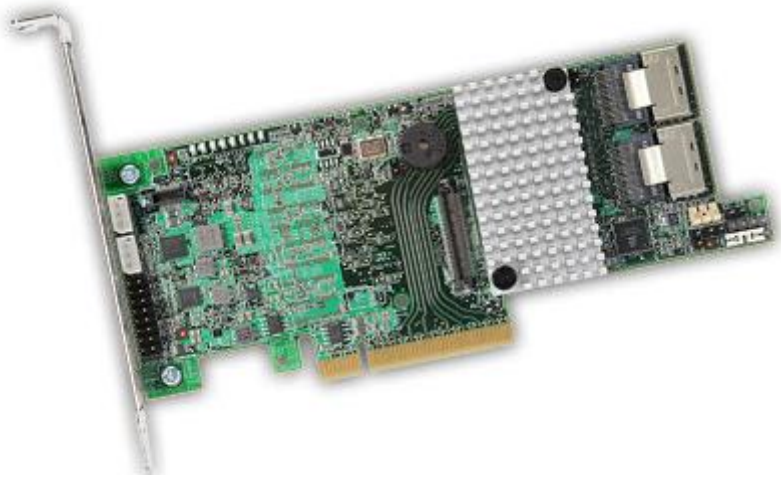


Figure: MegaRAID Controller

It allows you to connect up to 128 SATA or SAS drives with eight internal 6Gb/s SATA and SAS ports.

17.2 3Ware Configuration on Observer Servers

To ensure RAID array errors are attended to ASAP, configure the RAID alert notification as follows:

To configure 3Ware on the Observer:

1. Log on to the Webserver Backend
2. Click Start\All Programs\3ware\3DM2\3DM 2 Web Interface

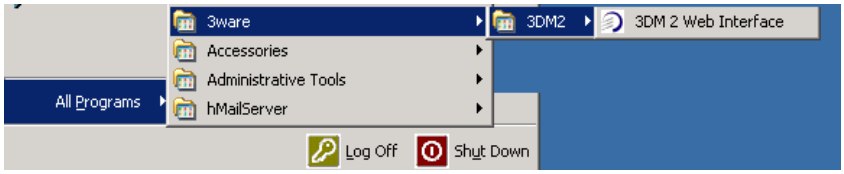


Figure: Windows Desktop 3wareicons

3. Log in as Administrator, default password: 3ware
4. Click on 3DM 2 Settings tab

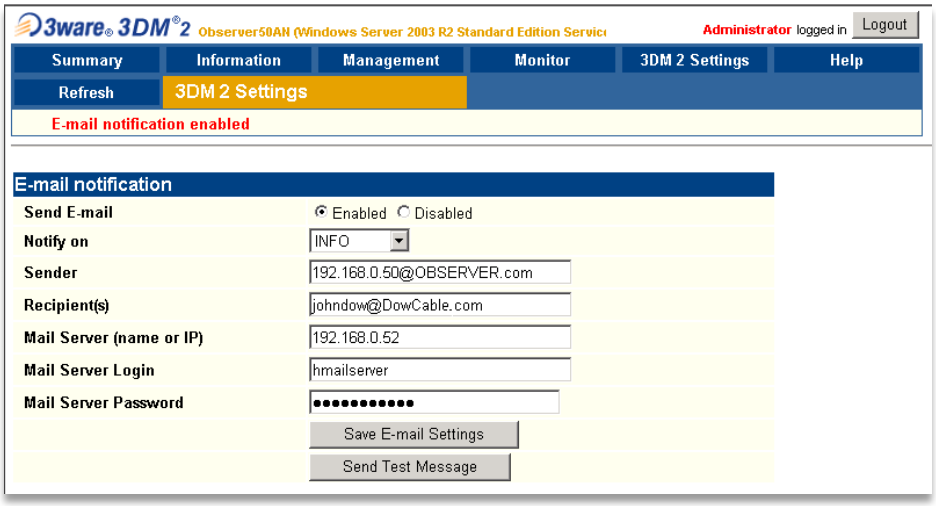


Figure: 3ware Notification Configuration

- **Send E-Mail:** Select "ENABLED"
- **Notify on:** Select level of notifications: Info (sends all info, warning and error email alerts); Warning (sends warning and error email alerts); Error (sends only error email alerts)
- **Sender:** Enter alerts@companyX.com in
- **Recipient(s):** Enter email address to receive these email alerts
  - Mail Server (name or IP): localhost
  - Mail Server Login: hMailServer
  - Mail Password: hMailServer

5. Select <Save E-mail Settings>
6. Select <Send Test Message>

7. Logout

Repeat this section for each additional “Encoder module,” if any.

17.3 RAID Maintenance

To perform RAID maintenance:

1. Log on to the Webserver Backend
2. Click Start\All Programs\3ware\3DM2\3DM 2 Web Interface (see section above)
3. Select the **Management → Maintenance** menu item to go to the main screen

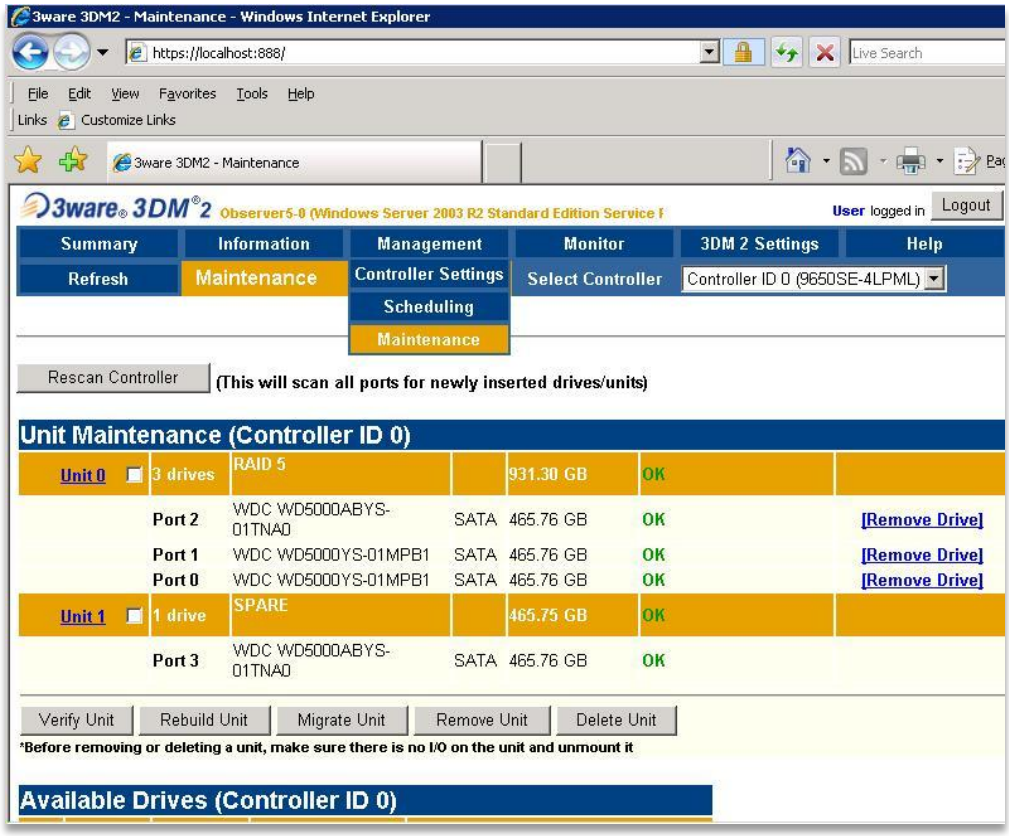


Figure: 3ware RAID Controller

Notice: In this example we have the minimum number of three active drives and one spare.

If one of the drives gets degraded it will be moved automatically down to "degraded"; the system will still be able to run flawlessly on the two remaining drives.

The system will move the spare drive up automatically to join the Raid5 array drives, and will be "*Rebuilding*" it. You can also initiate the process with the **<Rebuilt Unit>** button.

Note: Always use the "*Remove Drive"* link to remove a drive before unplugging it physically.

The <**Rescan Controller>** button scans the ports on the controller. Rescanning updates the list of the available drives shown and updates the status of all the attached disks. If error conditions have been fixed, the status is updated to reflect that.

The Rescanning process is useful in a variety of maintenance tasks. For example, if you physically plug in a drive and want the controller to recognize it, the "Rescan" process will accomplish that.

17.4 Hard Disk Drive (HDD) Replacement

To replace a HDD on the hot swappable disk array, first remove the faulty bad drive and then insert a new replacement HDD. It should automatically start rebuilding.

17.5 Hard Drive Outage

After errors appear on a couple of the drives of the raid array, reseat the drives but do not shut down or reboot the server containing the drives.

18 ANTIVIRUS EXCLUDED STORAGE AREAS

Ensure that the antivirus program does not interfere with the Observer Programs/services. This can use system resources needed by the Observer services, causing these to hang or crash.

Certain directories need to be open and free for continuous system access. To do it - turn off the “on access” scanning and ensure that the following folders are removed from scans:

- Turn off all "on-access" scanning
- Exclude the following folders from scans according to the table below:

C:\video	Central and Probe servers
C:\program files (x86)\MySQL	Central Server
C:\ProgramData\MySQL\MySQL Server 5.1\data	Windows 7, Server2008 or newer releases
C:\program files\volicon	Central and Probe servers

Table: Antivirus Configuration

- Schedule virus definition updates and system scans to occur during low usage times and when technicians are available to verify that restarts (if any) have completed to run and have not hung up the system

19 ACTIVE DIRECTORY (AD) INTEGRATION

Active Directory integration is an optional module in the Volicon Observer solution.

19.0 Prerequisites

The following prerequisites need to be met for the AD integration to proceed:

- Volicon needs to know the IP address or the Fully Qualified Domain Name (FQDN) of the AD server. The FQDN is more flexible and is preferred.
- Add the Observer Web server to the AD domain.
- Create a simple domain user with a non-expiring password and notify Volicon.
- Provide Volicon with of your Organizational Units (OUs) and their basic structure.
- Upgrade all the Observer servers to the latest qualified build prior to integration.
- Configure all your client browsers to have the Web server address in their Intranet Zone or IE trusted zone

19.1 AD Operation

After all prerequisites are met, you must define several groups in the Observer. To do so you can access the system with a non-AD password through URL http://<server>/admin/.

When using AD integration, the user's set of permissions (including accessible channels and maximum number of concurrent channels played) is defined on the Observer groups (User Management section). You must also create identical group names as defined in Observer in the AD. Once completed, the administration of users' access to Observer and their privileges will only be administered through the AD by adding or removing users as members of the different groups. One exception is the number of concurrent channels: though by default there is no limit, if defined the Observer settings will be used. Furthermore, if multiple groups define the number of concurrent channels, the highest number will be used even if it is set to unlimited.

Initially the user accesses the Observer system through a browser with only an IP address or a Domain Name. Access to the Observer system is the provided

automatically according to the user's assigned group(s) in AD, matching the user by group name to the defined Observer groups. If the user is a member of several groups, their effective permissions will be the sum of all permissions of those groups. The user's name is automatically created internally within the Observer upon first logon; and is associated with the user generated content in the Observer - clips, programs etc.

19.2 Troubleshooting

One common issue in large organizations is that sometimes users cannot access the Observer system transparently and the username/password dialog pops up. This is caused when IE cannot determine correctly which webserver is in the Intranet security zone (i.e. accessed by IP). The solution is either to access the server by server name (FQDN) or to add the accessed Web server to the trusted security zone in IE.

20 TROUBLESHOOTING AND MAINTENANCE

Most of the troubleshooting and remedies below can only be performed by the system administrator.

20.0 No Video Playing

- Verify encoder's hostname/IP address for each stream/channel
- Verify accessibility to media streaming ports 5502 or 4504 and 8001
- Test and Preview Encoder in Encoder list (see Frontend Encoders 5.4) to verify the encoders are running and connectivity to them
- Verify if Observer Encoder and Observer Streamer services are running on Probe server

20.1 Internet Explorer Issues Due to Skype Add-ons

There have been browser issues related to Skype add-ons. To disable the add-on in Internet Explorer:

- Go to Tools; Manage Add-ons
- Insure "Toolbars and Extensions" are selected
- Scroll down to Skype add-ons to disable these

20.2 Exporting Video Clips

When there are problems exporting and downloading video clips:

- Reinstall player under Admin local account
- Clean IE temporary files
- Check the version of Windows Media Player installed; WMP 11 or later is recommended
- Insure Time, Time Zone and Time Server are set properly on this machine

20.2.1 Client Machine Not Working

After an Observer software upgrade or when you notice inconsistent Observer Client behavior, Volicon recommends deleting the Temporary Internet files in Internet Explorer to insure the latest player will get installed.

20.3 Install Player CAB File

When a systems administrator needs to install Volicon players on multiple machines or the firewall blocks player download from the web server, it's more convenient to work with installation cab file. You can download the cab file from the Observer Web server address: **https://observer-url-addresss/observer.cab**

When the download completes, double click on the cab file and accept the player prompts to install the Volicon media player.

20.4 How to Remove Volicon Media Player from a Client PC

To remove the Volicon media play from a client PC, go to Control panel → Programs and Features (Windows 7), then remove the "Observer Media Player".

20.5 License Problem Sources

To keep the Observer license valid, avoid the following changes to the Observer system:

- Enable/disable or change any onboard hardware devices since license was applied
- Install any additional hardware or software components

20.6 Support Portal

If you need support from Volicon, please fill out a request for service at our support web page http://www.volicon.com/index.php/support/. In response a case ticket number will be opened with a specific tech assigned to help with the issue. Then every time you email or call back please refer to this number until the case is closed.

21 SYSTEM MONITORING PROCEDURE

The following system procedures are intended for system administrators as a guide to monitor the Observer system health periodically. Network logging issues might be caused by a variety of causes such as missing media streams, configuration issues, environmental changes or unexpected scenarios encountered by the system.

21.0 Checking the Encoder Status

Access probe and encoder status by clicking **<Central Config>** → **<Encoders>** to open the top level Encoder page. Status is denoted by a Green or Red ball to the left of the item. If a lower level item (Probe or Encoder) fails the status is propagated toward the parent. If any item below the parent fails the parent icon will be red.

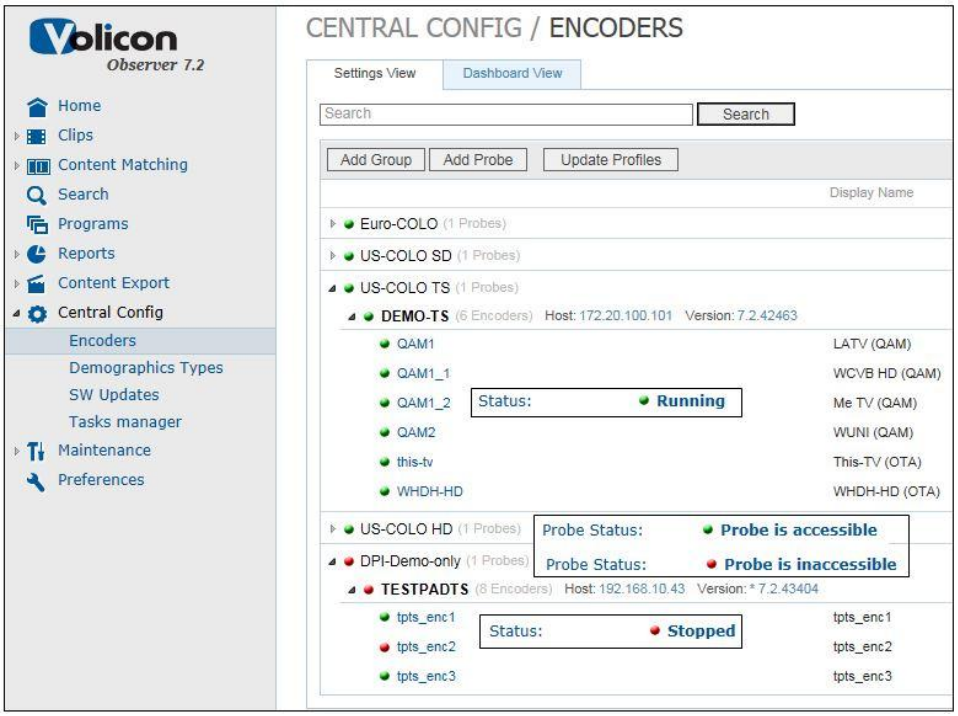


Figure: Group, Probe and Encoder Status

21.0.1 Probe Fault

Under normal conditions the Probe status icon is green, if one of the Encoders fails or the Probe is inaccessible Observer turns the icon rd.

21.0.2 Monitor Media Streams

To open several encoder/streams at a time in the "Home Page" see "Observer User Manual" (Figure: Home Page), select check boxes in the Dashboard in front of the corresponding players. Press the **<Live>** button. Check to see if all the players are streaming current video.

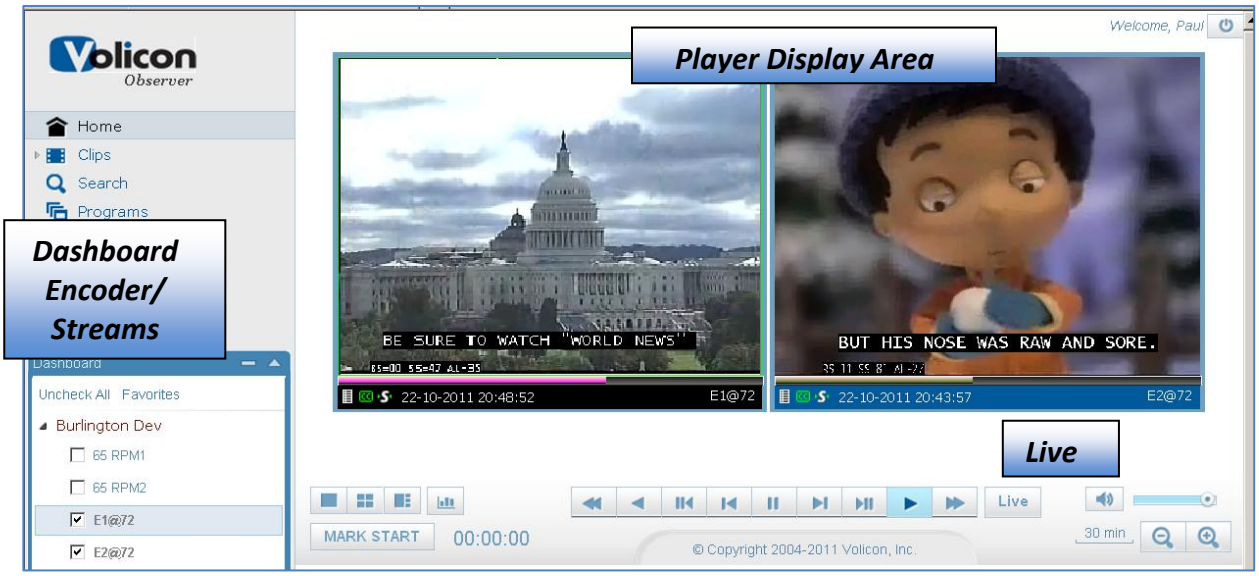


Figure: Home Page

If the players are not streaming live video, check the error type usually displayed above the "**Player Display Area"**. Then take corrective actions as in sections "Encoder fault" **@21.0.3** and "Encoder fault corrective actions" **@21.0.4** below.

21.0.3 Encoder Fault

In the event of an encoder fault, check the encoder indicators, the round icons in front of the probe server and the encoder names for status. If the indicators are green, the encoder is working. If they are red, the encoder is stopped or you have media stream issues. Check to see if all the indicators are green. If not, double-check your media streams; follow the procedures in the "Monitor media streams"**@21.0.2** section above.

21.0.4 Encoder fault corrective actions

If the issue is due to the source media not being present, try to resolve it with the responsible party. (Note the corresponding probe server name and address through Central Config → Encoders).

Otherwise, if the encoder still is in red status, it could be a stopped encoder. Restart it using Probe Manager.

21.0.5 Checking Memory and CPU Utilization

Observer provides a quick way to view system resource utilization without the need to log into Windows. Open the **<Encoders>** page and hover of the desired Probe server then click the **<Edit Probe>** icon. The **Machine Info** section at the bottom of the page lists Operating System resource utilization.

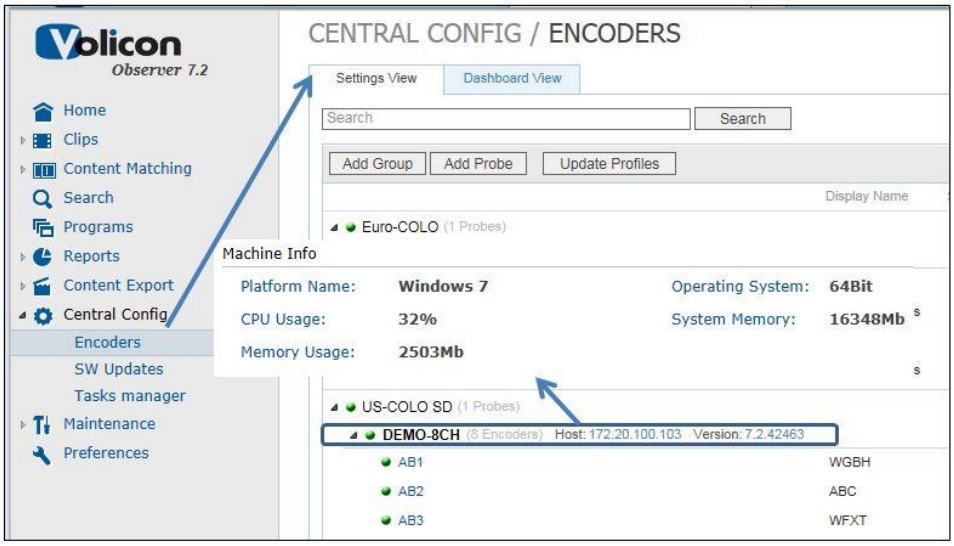


Figure: Operating Resource Utilization

21.0.6 Windows Task Manager

To check memory and CPU utilization, open the system "Task manager" by right clicking on the task bar of a server desktop. Select the "**Performance**" tab and examine the "**CPU Usage**" and the "**Physical Memory**" usage. These values should be under control but if for some rare reason the CPU usage or memory usage is too high, contact Volicon Customer Support to report it and for suggestions on how to proceed.

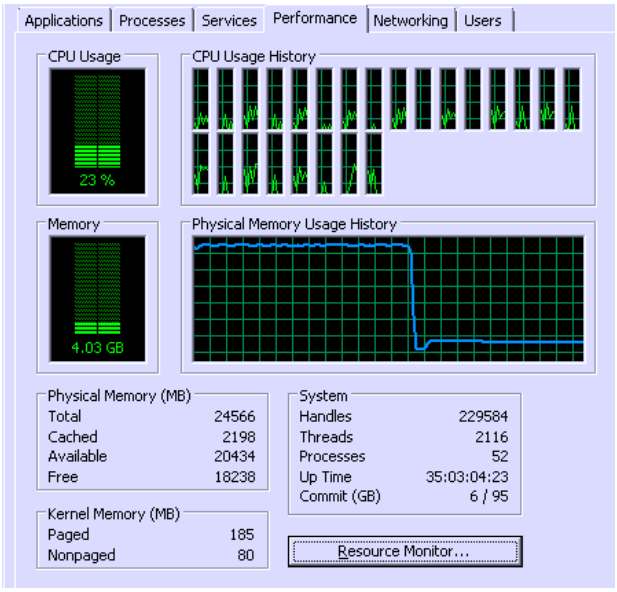


Figure: CPU and Memory Usage

21.1 Checking Video Storage Utilization

Check the Video storage utilization by right clicking on the mounted **Video** folder and selecting the "**Properties"** item from the popup menu. The "Video Properties" window will appear.

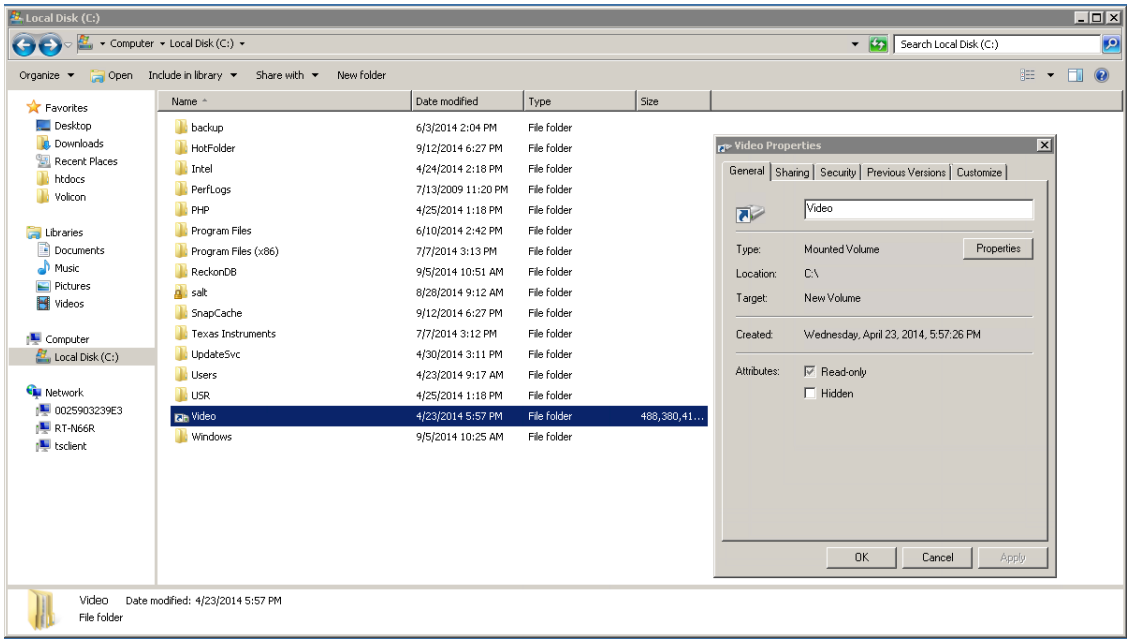


Figure: Select Video Properties

Click the <**Properties>** button) to open the (**C:\Video) Properties** window as shown below. The "General" tab contains the video storage utilization pie chart with **"Used Space**" and **Capacity** values. Their ratio: "Used Space"/"Capacity" yields the video storage utilization.

Insure this value levels off after reaching the specified Observer storage capacity, e. g., 6 months storage.

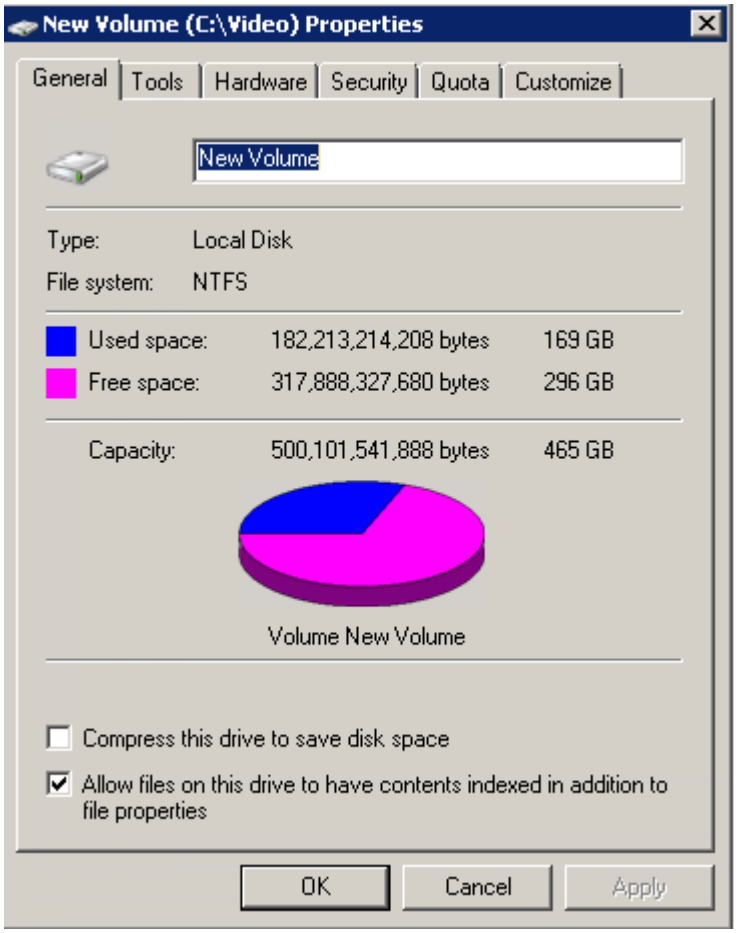


Figure: Video properties display

22 APPENDIX A USING OSPREY TO EXAMINE A/V STREAMS

On the Osprey 460e cards, Audio/Video can be examined at the input independently of the Observer software. This is useful for general A/V debugging and for Audio configuration.

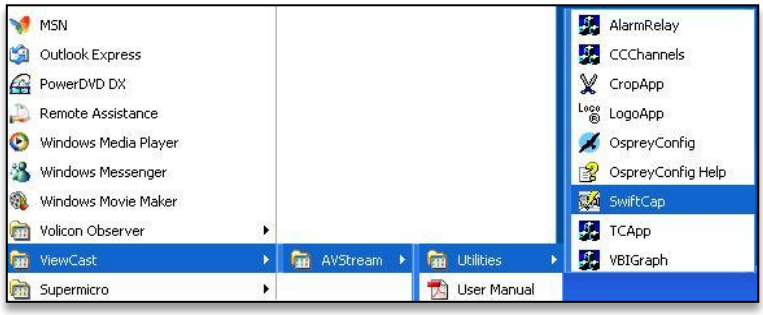


Figure: Accessing ViewCast

At the Backend - go to Programs and open the ViewCast SwiftCap program.

Figure: Viewcast SwifCap

Select the video channels in Capture Settings.

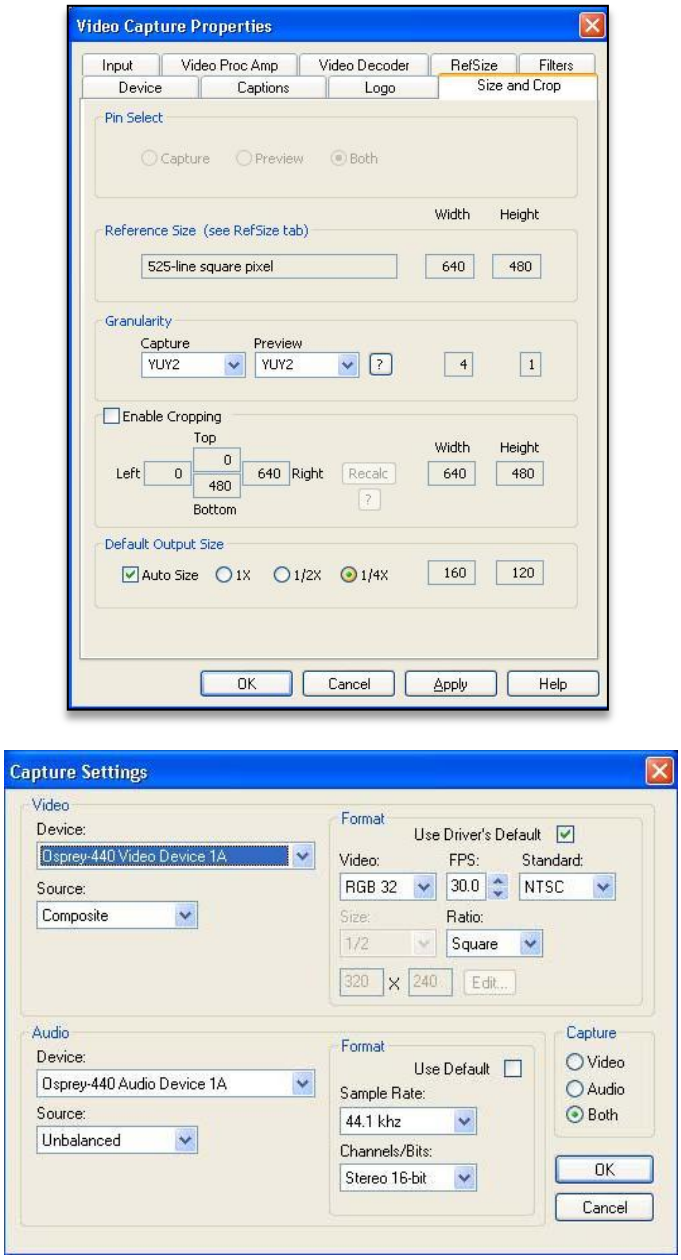


Figure: Select Video Channels

If you are working over Remote Desktop and network bandwidth is limited, decrease the size of the SwiftCap display in Video Capture Properties using Default Output Size selection.

Click the Start Preview icon in Osprey SwiftCap screen above to examine the video input you just configured.

22.0 Adjusting Audio with Osprey Config

In addition to the automatic audio adjustment, search for "Audio Adjust" section above, there is a manual procedure to adjust Osprey cards. From desktop select **Start → All Programs → ViewCast → AVStream → Utilities → Osprey Config.**

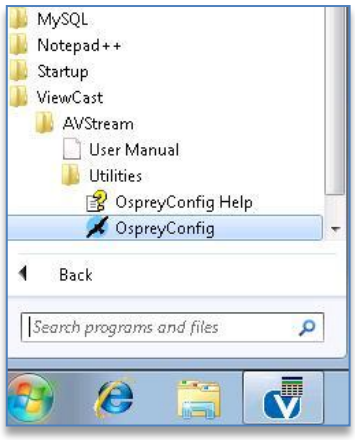


Figure: OspreyConfig

The Osprey Config Panel appears. Expand the **"Osprey 460e Device 1A**", and select "**Balanced** or **Unbalanced Audio filter".**

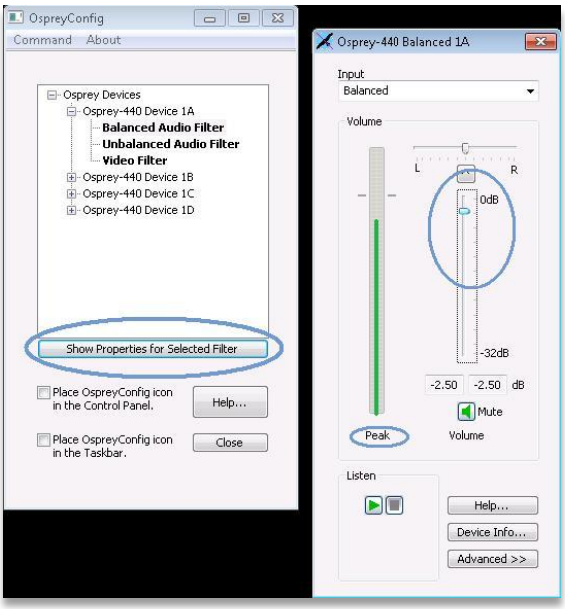


Figure: Osprey Filter

Press the <Show Properties for Selected Filter> button. The "**Osprey 460e Balanced 1A"** window appears.

Note the "Peak" **vertical** (green) **bar** which indicates the incoming signal level.

The **Volume** bar on the right has a dB grading scale to measure the incoming signal. Move the "Audio gain" **handle** circled by the **vertical ellipse** accordingly to adjust the incoming audio level.

23 APPENDIX B REVISION HISTORY

23.0 Observer releases

Version	Build number	Date	Description
7.2 QB1	7.2.42498	1/6/2015	
7.1 QB4	7.1.40657	12/17/2014	
7.1 QB3	7.1.39552	12/9/2013	
7.1 QB2	7.139058	8/12/2013	
7.1 QB1	7.1.38964	8/7/2013	
7.0 QB3	7.0.36068	5/22/2013	
7.0 QB2	7.0.36068	03/17/2013	City Time Zone
7.0 QB3	7.0.36871	05/02/13	FE Architecture, new PHP version, bug fixes, enhancements, IE10 in compatibility view (see these release notes for more details)

23.1 Revision change history

Date	Description
5/14/13	7.0 QB3 Initial release, revision history
6/5/13	Updated “System monitoring procedure” section
6/14/13	Updated enhancements
6/19/13	Updated Intensity pro breakout cable; Added Timestamp configuration
06/25/13	Remove internal references… related section; add lineup display sync issues
8/11/13	Update admin guide to 7.1; Revised document into new document template
9/20/14	Update admin guide to 7.2.