



Media Intelligence Service

MIS 9.1 User Guide

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1 INTRODUCTION

1.1 Purpose

Welcome to the Volicon Media Intelligence Service (MIS) 9.1 User Guide. This document will provide the details and instructions necessary to guide you through MIS operation. It addresses specific MIS functions, including the use of bookmark media clips, proving FCC compliance, advertisement verification and general media management.

1.2 Definitions and acronyms

8VSB	8-level vestigial sideband modulation: used for ATSC over the air broadcast
ABR	Adaptive bitrate video coding
AC-3	Dolby Digital Audio Codec 3: compression used by ATSC
ACE	Automated Content Export
AFD	Active Format Description: metadata describing format i.e. 4:3 or 16:9
ARL	As run logs: used to extract program schedule
ASI	Asynchronous Serial Interface: used to carry MPEG-TS
ATSC	Advanced Television System Committee: a set of standards for US digital television
Bookmark	Short program segments marked on the MIS server to facilitate auditing and sharing
Bouquet	A logical grouping of channels
CALM Act	Commercial Advertisement Loudness Mitigation: FCC requirement for audio loudness
CC/TT	Closed captioning/ SMPTE timed text: protocols used to add text description of the audio
CDN	Content Deliver Network: distributed network of servers to host content as geographically near to the user as possible
CEM	Content Export Module: optional software package to export program clips to social media sites
Clear QAM	Clear Quadrature Amplitude Modulation: non-encrypted cable TV video distribution
Component video	Analog video with separate red, green, blue channels using three RCA connections
Composite video	Analog video over a single RCA connection
Dialnorm	AC-3 metadata used to control playback gain
DPI	Digital Program Insertion: metadata that allows downstream insertion of commercial or short programs
DPI – in point	Entry point to switch to a different stream
DPI – out point	Return to normal stream
DvB	Digital video Broadcasting: international suite of digital television standards
ETSI	European Telecommunications Standards Institute

Encoder	MIS function that receives and processes media signals
Fault clips	Portions of audio or video stream that fails to meet MIS quality thresholds
GPI	General Purpose Interface: metadata used for broadcast automation
HDMI	High Definition Multimedia Interface: a digital interface used to transport audio and video short distances
IP	Internet Protocol: used to send digital data from one computer to another
Metadata	Data-about-the-data: additional information carried by the program used to describe program details
MH	Media Hub: an internal MIS component
MPEG	Motion Picture Expert Group: an international organization that sets audio and video compression and transmission standards
MPEG-TS	MPEG Transport Stream: a standard container for audio, video, Program and System Information Protocol (PSIP)
Multiview	MIS feature that allows you to configure multiple channels and monitoring widgets into a single display screen
NAVE	Nielsen audio video encoder: psychoacoustic symbols inserted in programs to facilitate automatic viewer tracking
NTP	Network Time Protocol: an internet standard used to synchronize computer real time clocks
NTSC	National Television System Committee: developed analog US television standard
OTT	Over the top program delivery using internet protocols
PID	Packet identifier: a unique 13-bit value used to identify elementary streams of a program in a single or multi-program Transport Stream
Probe	MIS ingest server housing one or more encoders
PSIP	Program and System Information Protocol: a method used to transport program metadata (e.g. sub channels, program guide, and content ratings)
RPM	Remote program monitor – Volicon video analysis and monitoring suite
S-video	Separate video: a variation of composite video that separates luminance (black and white) from chrominance (color) to enhance video quality
SD/HD-SDI	Uncompressed standard or high definition video serial data interface

Services	A/V program content with the associated metadata
SMLP	Short main long proxy
SMPTE	Society of Motion Picture and Television Engineers: a standards group that creates numerous technical standards
STB	Set top box: a device used to make programming available to customers
Storyboard	Sequence of video frames to assist visualization
TS	Transport stream
TSA	Transport stream analysis
VANC	Vertical Ancillary data space in digital streams
W3C	World Wide Web Consortium: sets standards to advance use of the World Wide Web
XDS	Extended Data Services: analog NTSC metadata

2 VOLICON MIS OVERVIEW

The Media Intelligence Service™ suite of applications transforms content creation, sharing and monitoring of broadcast products. It allows you to create and distribute high-quality content faster while immediately enabling response to the competition, advertisers and regulatory entities.

MIS features:

- **Record and store:** broadcast content (multiple interface/qualities). Support for a variety of input broadcast signals, with storage built to scale, different encoding qualities and proxies
- **Collaborative platform:** to exchange content between colleagues
- **Professional multi player:** gives easy access to channels and groups of channels, with dynamic searches, PIP, full screen and split screen features
- **Enhanced player:** provides professional frame by frame (even with live content) and fast forward and rewind speeds to allow for maximal efficiency
- **On screen metadata:** display with multi language, various metadata and visuals alerts
- **Content sharing:** with social media sites
- **Export content** to your computer or other servers
- **Error alarms:** MIS constantly monitors each stream and generates an alarm if it does not meet programmed quality metrics
- **Web-based:** user access via multiple browsers and OS
- **Enterprise scale:** Easy to configure and maintain system with access control and auditing, design for high availability, tools to ease administration and built to scale

MIS 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 available storage space.

MIS logs video content down to the individual frame level, at the same standard frame rate as the source. MIS 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.

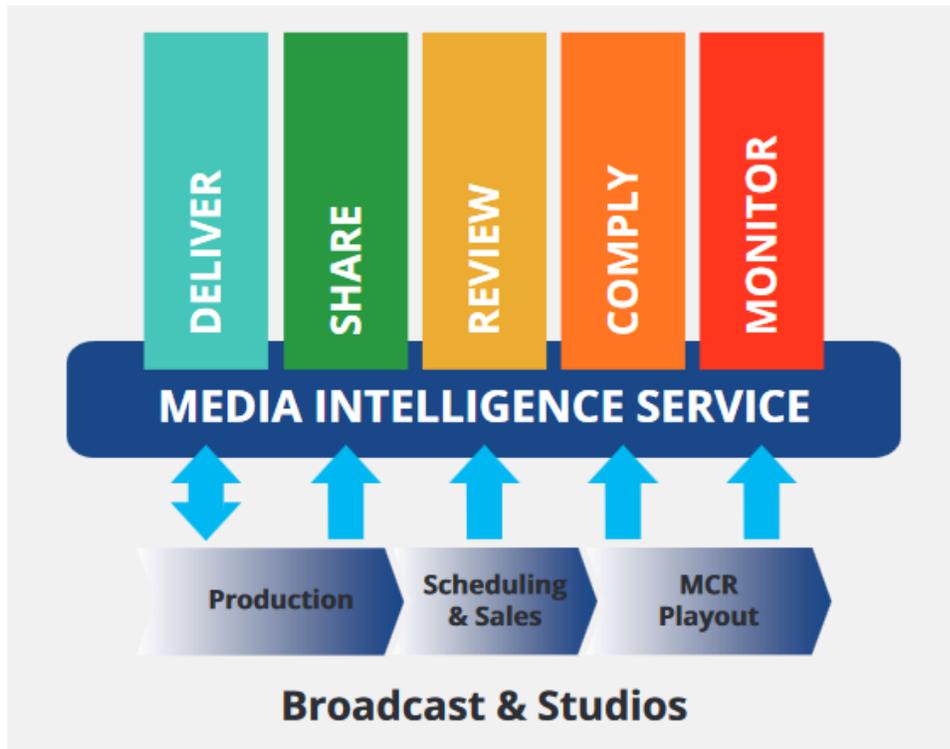


Figure: MIS functional diagram

MIS constantly ingests and stores each video and audio stream in native resolution and bit rate. The Low Bit Rate Proxy (LBRP) is used to create lower resolution copies of the original stream. There are several reasons for creating a low bit rate proxy of incoming video content:

- It allows multiple users to access the Volicon solution simultaneously without interfering with one another
- It minimizes impact on network resources
- It allows the MIS to store content on each server for much longer periods of time

2.1 Using your stored content

Your stored content serves multiple purposes.

Share: Easy to use mechanism to share your stored content with social media sites and other delivery methods.

Compliance: In the event of FCC inquiries about noncompliance about any video segment you aired, you can use your stored content to investigate the charge and to either a) prove compliance with FCC regulations; or b) establish precisely which frames of the video were out of compliance.

Customer Complaint Resolution: You can use your stored content for business purposes, especially as a historical record to support resolving customer complaints about whether or not a commercial played during the contractual time frame. MIS's frame-by-frame record allows you to investigate not merely whether or not the commercial played, but whether or not the commercial played in its entirety, and at what specific time it played.

Playing back broadcast clips on your website. MIS allows you to bookmark the start and end of each clip you want to display and export the content. You then can post that content to your website. You can use this feature not only for current clips, but for older clips as well – as far back as you have stored content.

Monitoring what you and your competitors are doing. MIS can access and record public programs, not merely the ones you generate.

Assessing Nielsen Ratings on a particular program or set of programs. MIS can import the Nielsen Ratings and tie them to the video with which they are associated.

2.2 Stored content

By default MIS stores every frame of captured content:

- From every active input
- Locally on each MIS server
- In the High Definition/Standard Definition format native to that input

The number of days each video stream is stored on the MIS system is customized based on preconfigured parameters requested by each customer. Please inquire with your local MIS administrator about the storage days configured for your specific system.

3 INITIAL CONNECTION

MIS is a web based system accessible from a wide variety of computers using a multitude of different browsers. This section discusses MIS client requirements and how to access the system.

3.1 PC client minimum requirements checklist

Before using MIS, check that your computer meets or exceeds the PC Client Minimum Requirements listed below:

- Windows 10, Mac - 64 bit
- 3.5 GB of RAM or greater
- Browser
 - Microsoft Internet Explorer 11 (ActiveX)
 - Chrome, Edge, Firefox, Safari (HTML5)
- Minimum network bandwidth
 - You will need bandwidth greater than or equal to 1.2-1.5x the sum of the bandwidth of the streams you are viewing. For example, to view two 512 Kbps streams smoothly, you need between 1.2 Mbps and 1.5 Mbps of available bandwidth.

In addition to the physical requirements listed above, you must also:

- Place the URL or IP address of the Web server in your browser's "**Trusted sites**" zone
- Have administrative privileges on your machine, to install the signed ActiveX control used by Internet Explorer

3.2 Log in

1. At the top of your Browser search bar, enter the IP address or URL provided by your MIS System Administrator.
2. You will then be prompted for the log in credentials (username/password) provided to you by your MIS system administrator.

3.2.1 Your initial log in screen

MIS greets you with a log in screen. Enter your user name and password then Press **<Sign in>**.

The browser may ask if you want it to remember your password. If this is the computer you always use and trust, allowing the browser to remember your password is convenient. If you are not sure what to do, click on the **X** and the browser will ask again the next time you log in.



Figure: Browser password storage

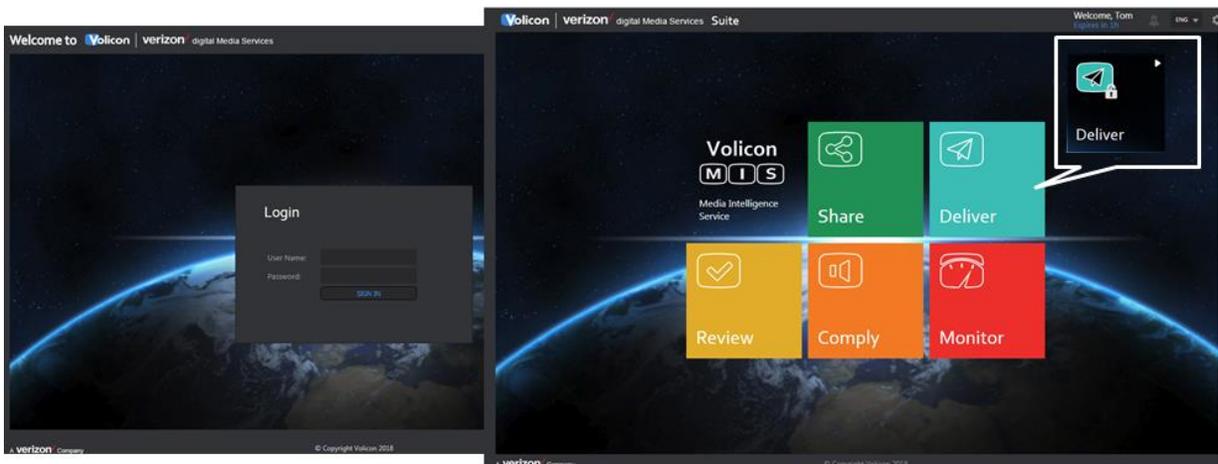


Figure: MIS home page

Assuming you entered your account credentials correctly you will be greeted with the MIS home page. The specific icons displayed depend on your account settings and the installed MIS options. If you do not have access to a specific suite the icon will be displayed with a lock.

3.2.2 High level page controls

At the upper right hand side of each MIS page are a number of high level controls. Your account name is displayed and below it is the automatic log out timer. MIS monitors your account activity. If your account has been idle for a period of time the system automatically logs you out.

To the right is a <System Warning> icon. If this feature is enabled for your account and there are active alerts, the number of alerts is displayed in a red circle. Left click on the icon to display warning details.

MIS can be configured to use different languages. Use the dropdown to select the desired language.

At the extreme upper right is the tool icon. This will be discussed in detail later.



Figure: Home page controls

3.2.3 Logout

To log out, click the <Gear> icon at the upper right corner of any MIS page. The <Gear> icon appears on all MIS pages so you don't have to go back to the home page to log out. This opens another menu; click on <Logout> at the bottom of the list. MIS asks you to confirm that you really want to log out.

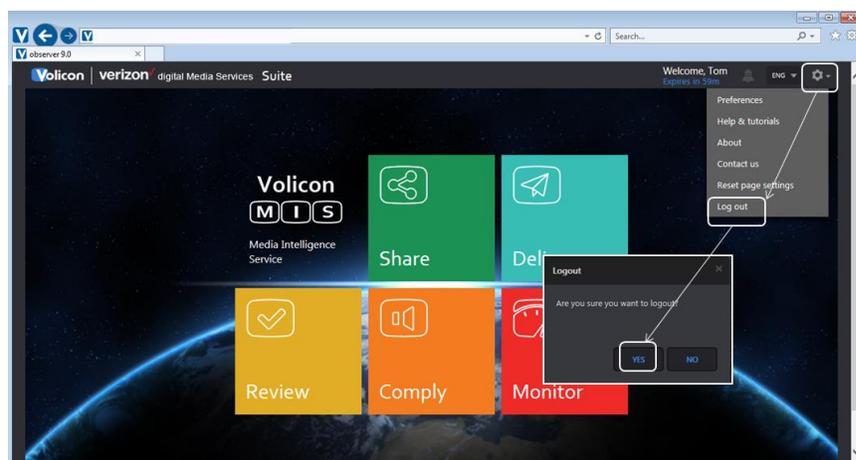
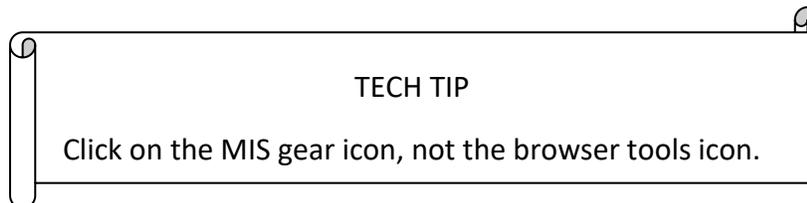


Figure: MIS logout

3.2.4 MIS Internet Explorer settings

When using Internet Explorer for the first time you must set "Compatibility mode".

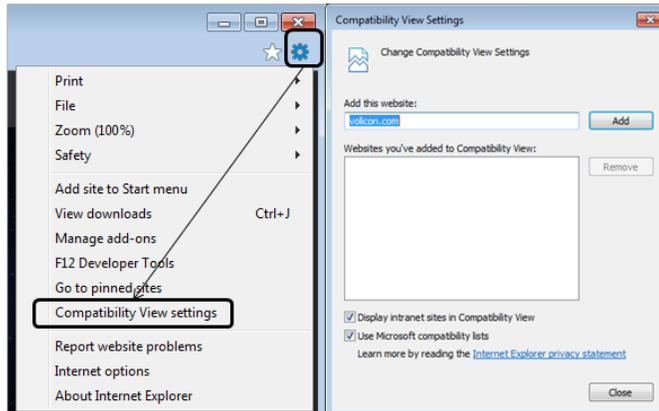


Figure: Setting IE compatibility view

1. After you log into MIS left click the **<Gear>** symbol at the upper right of IE and then choose **<Compatibility View settings>**. Note: this is the IE tools icon, not the lower tool icon for MIS.
2. The URL or IP address of the MIS server should automatically populate under **"Add this website:"** Click on **<Add>** to set IE to access the MIS web site in compatibility mode. Next, set the location of the MIS server as a trusted site. This allows you to restrict ActiveX (used by the Volicon player) when browsing the Internet while still allowing its use when logged into MIS.
3. From the same **<Tool>** icon used to set compatibility mode select **<Internet options>**. Select the **<Security>** tab and click on **<Trusted sites>**. Then click the **<Sites>** button. The MIS web site URL should be showing under "Add this website to the zone." The IE default policy to allow placing a server in a trusted zone is that it must use SSL/TLS security (HTTPS). If the MIS server does not use SSL/TLS, you need to uncheck the "Require server verification" check box. Press **<Add>** to update the trusted site list then **<Close>**.
4. To verify you successfully added MIS click **<Trusted sites>** again then **<Sites>**. The MIS server URL should show in the **"Websites"** box.

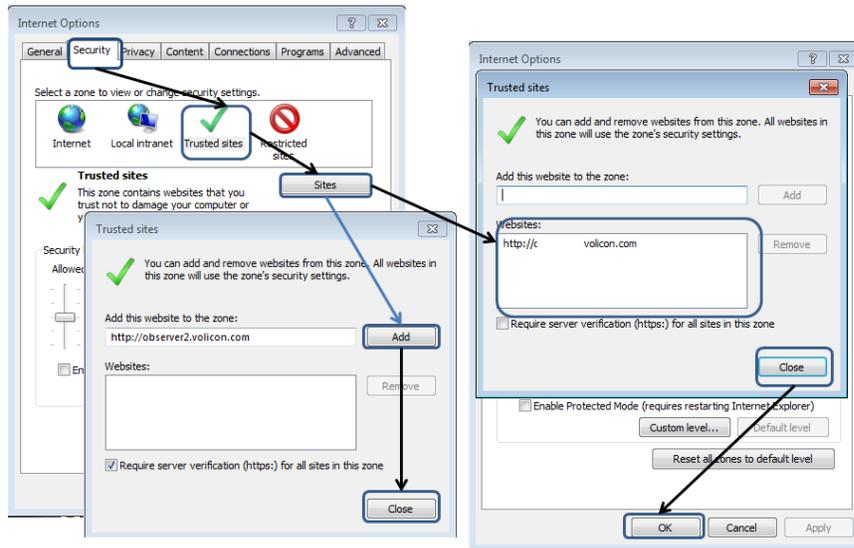


Figure: Add MIS to trusted sites

3.3 MIS home page



Figure: Main menu

The main suite buttons are in the center of the screen. Your account name is displayed in the upper right corner along with the session expiration time. If MIS detects an idle session it will eventually time out and close the session. Click on the gear icon in the upper right to log out or access MIS tools.

The Main menu gives you access to the various MIS suites. Depending on installed options and account permissions your view may be slightly different.

3.4 Installing the Volicon media player

When you log into MIS for the first time using Internet Explorer, you are prompted to install the Volicon media player.

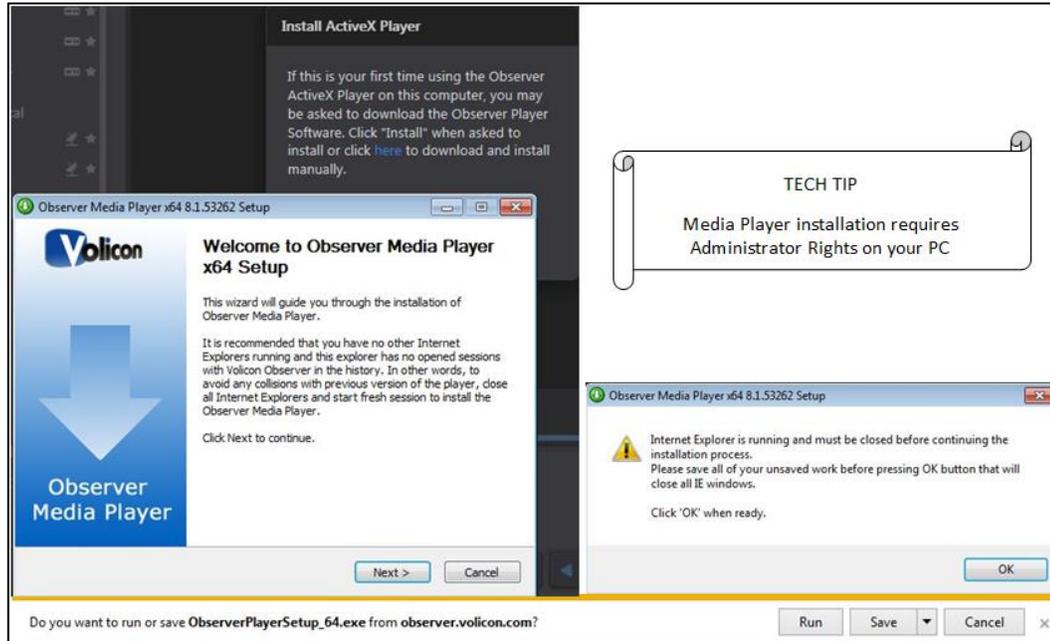


Figure: Initial Connection

If your MIS administrator has not previously installed the Volicon media player on your PC/laptop, you must have administrative rights (the ability to install software on your PC) for the initial install of the player software. Any subsequent logins will require only the permissions you currently have on your PC/laptop. The first time you connect to MIS IE will take approximately 30 seconds to load the Media Intelligence Player install software.

Follow the on screen instructions: shutdown IE, accept the browser warning by clicking **<Run>** then press **<Next>**. MIS will to launch the media player setup wizard.



Figure: Media player setup wizard

If an older version of the Volicon media player has been installed it will be removed automatically. Click **<Next>** to continue. Accept the terms of the License Agreement and click **<Next>** to continue.

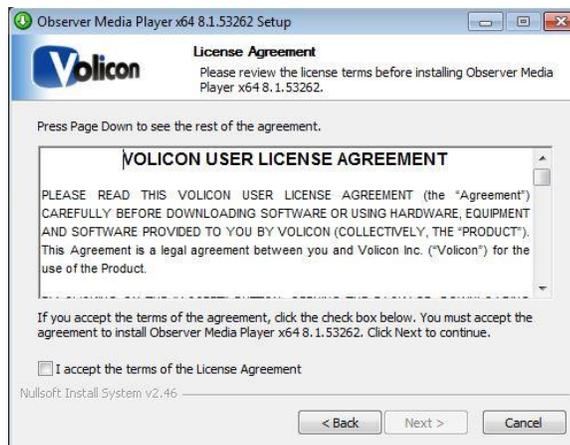


Figure: License agreement

You have the option of choosing which folder MIS will install the media player into. Unless Volicon support has instructed you otherwise, accept the default folder and click **<Install>**.

3.4.1 Optional settings

MIS will present you with the Optional settings window.



Figure: Optional settings window

Selection: Internet Explorer shortcut

If you want to add a quick connect button to your Internet Explorer tool bar, enter the URL or the IP address for your Volicon MIS in the field provided. Leave the field empty if you do not want MIS on your tool bar.

Selection: Intel video adapter workaround

Volicon recommends that if your computer has an older Intel video card, or a video card with an Intel chipset, you enable the Intel “flickering video” workaround checkbox as a precaution. Enabling the checkbox will not affect the performance of the Intel chip sets that do not have issues with multiple video streams, but it will protect you in the event that your chipset is one of those with known issues.

Selection: Favor quantity over quality

Volicon recommends that you check the **“Enable favor quantity over quality”** checkbox for the best experience using Internet Explorer to run multiple players.

Make your choices, and click **<Next>**.

You will be presented with: “Completing media player setup wizard” status message.



Figure: Completing the media setup wizard window

Click **<Finish>** to exit setup.

3.4.2 Updating the Volicon player

From time to time you may receive notification that there is a new version of the player available. Follow the prompts and install the upgrade. You will be prompted to shutdown IE to perform the install.

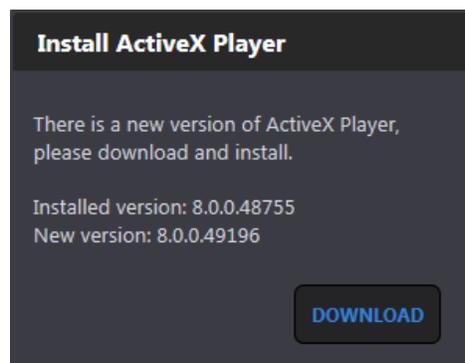


Figure: Update Volicon media player



4 COMMON FUNCTIONS

Each home page icon takes you to a task specific MIS suite. At the left side of each page is a ribbon with multiple icons optimized for each suite. Several tasks are common to multiple suites. Depending on permissions and optional installed components not all icons may be visible.

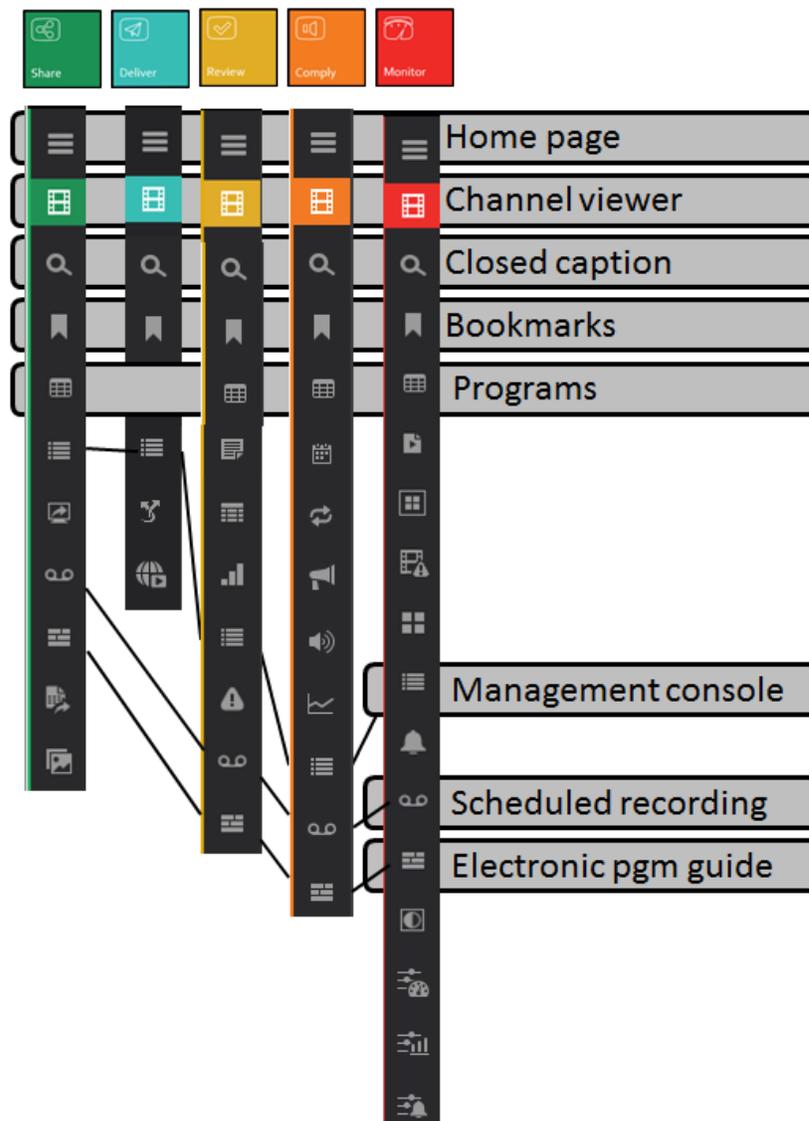


Figure: Common suite functions

We will use the **Share** suite to illustrate how to use the common MIS functions and then delve into the specific details of each suite.

Home Page	Takes you back to the MIS home page
Channel viewer	Opens media viewer to watch one or more programs
Closed caption	Displays program clips that include CC text
Bookmarks	Bookmarks are short sections of video
Programs	Typically a one track clip normally used to save broadcast assets, such as commercials
Management console	This tab only appears if the optional Content Export Module (CEM) server is installed: it displays jobs that were exported using CEM
Schedule recording	Schedule automatic recording of channels equipped with STB remote control feature
Electronic program guide (EPG)	EPG when channel is equipped with STB remote control feature

Table: Common suite functions

4.1 Home tab

Pressing <Home> takes you back to the main MIS menu.

4.2 Viewer tab

Pressing the <Share> icon on the home page opens the **Share** suite in Viewer mode. The **Viewer** initially shows up as a large gray space to the right of the **channel dashboard**. Multiple programs may be viewed simultaneously; you may view multiple channels or different views of a single program.

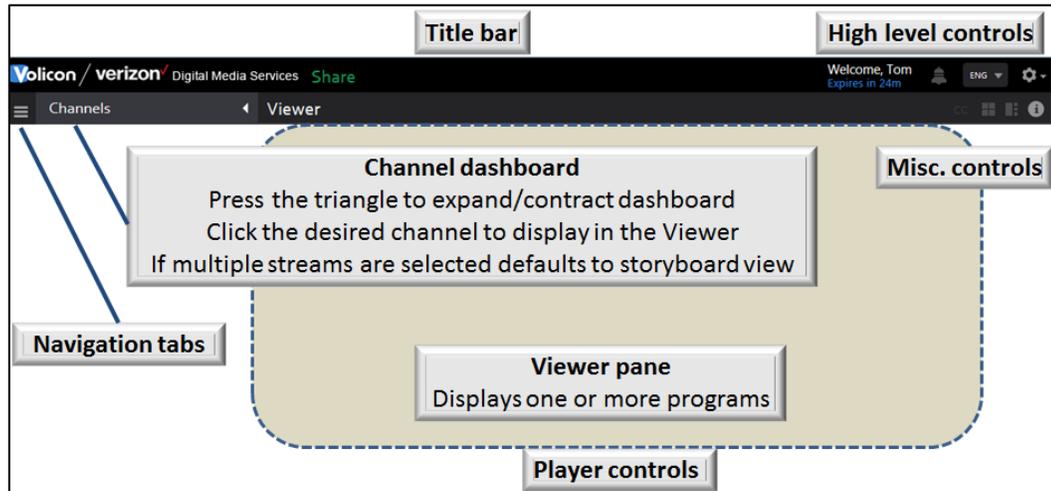


Figure: Viewer page layout

As channels are selected they appear in the viewer. If more than one channel is selected the audio of subsequent channels is inhibited. To activate audio of another channel hover over that program and left click. The channel name turns blue indicating it is the active audio channel.

At the bottom of each channel player are various controls. If the channel is available in more than one bit rate or resolution the options are displayed in a dropdown to the left of the **Live** icon.

If MIS does not have enough space to display all the controls they are collapsed; hovering over the control ribbon expands to display any hidden icons. If multiple channels are selected the channel viewers are shrunk to fit the available space while maintaining the correct aspect ratio.

The number of video streams you can watch simultaneously depends on the Volicon software license, your computer's performance and the speed of your network connection. Assuming sufficient network bandwidth the player should be able to display up to 24 SD or 12 HD programs.

4.2.1 Channel dashboard

The viewer tab gives you access to the **Channel dashboard**, which lists all the video channel(s) to which you have been allowed access. Clicking the triangle at the upper right of the Channels heading expands/contracts the channel pane. For quick access to a particular video channel, click the checkbox beside the desired channel. MIS will open that stream in the Player Window.

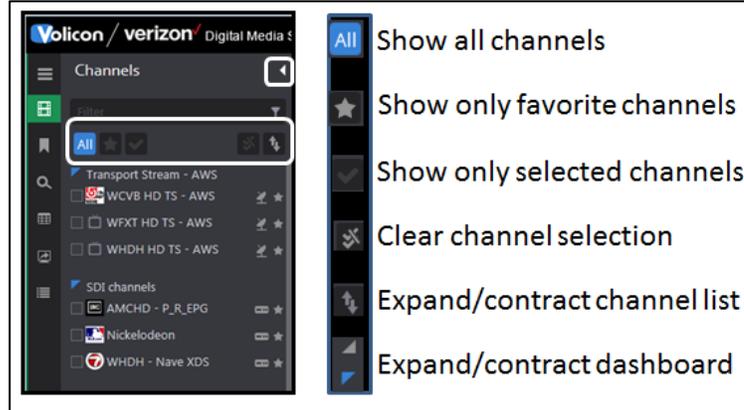


Figure: Channel dashboard filter options

The filter feature at the top of the dashboard provides a quick way to restrict the channel display by typing in the desired channel name into the **Filter** text box. MIS then displays only channels that match the string. You do not have to enter the entire channel name.

To set a channel favorite hover over the favorite icon to the right of the desired channel and left click to turn it gold . Left click again toggles it back to grey. To restrict the dashboard to your favorites click the **<Show Favorites>**.

The **<Show only selected channels>** feature works in a similar manner, restricting dashboard to only selected channels. To select a channel check the box to the left of the channel name.

The **Channel dashboard** displays all the video streams available to you. To display a video stream in the player window click the check box for the channel or channels you wish to display. The icon to the right of the channel name displays the input type and if the channel is selected as a favorite.

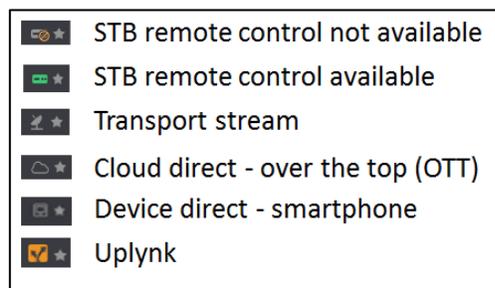


Figure: Channel types

MIS automatically adjusts for different aspect ratios and resizes player windows if multiple streams are selected. Audio is enabled on the first stream selected and disabled on subsequent streams. To enable audio on a different video stream, click on the desired player window. The stream with active audio is indicated with a blue background in the channel dashboard and the channel name changes from white to blue in the player.

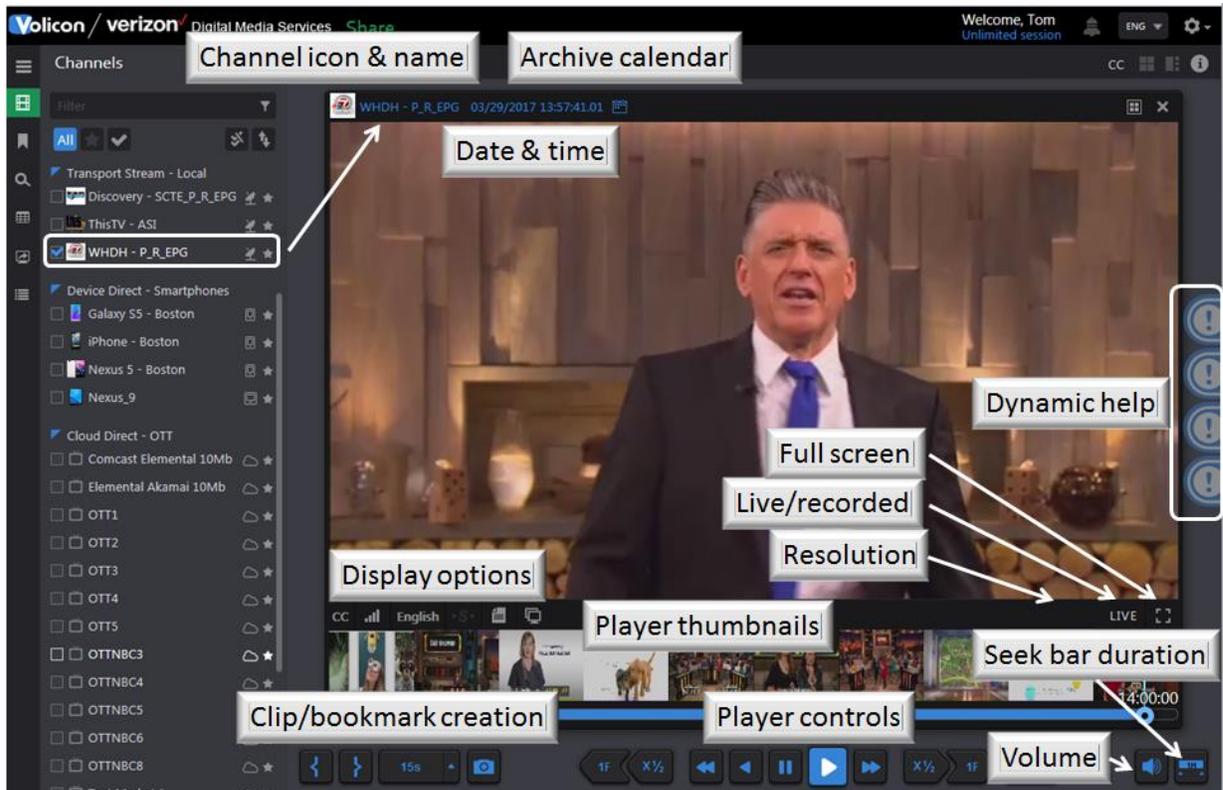


Figure: Player controls

4.2.2 Miscellaneous viewer controls

At the upper right of the viewer are controls to select split screen or picture in picture view when multiple players are active. At the extreme right is an info  button that displays MIS hot keys. Lastly, if only a single player is active the  icon is displayed; this enables you to view time stamped closed caption text to the right of the player.

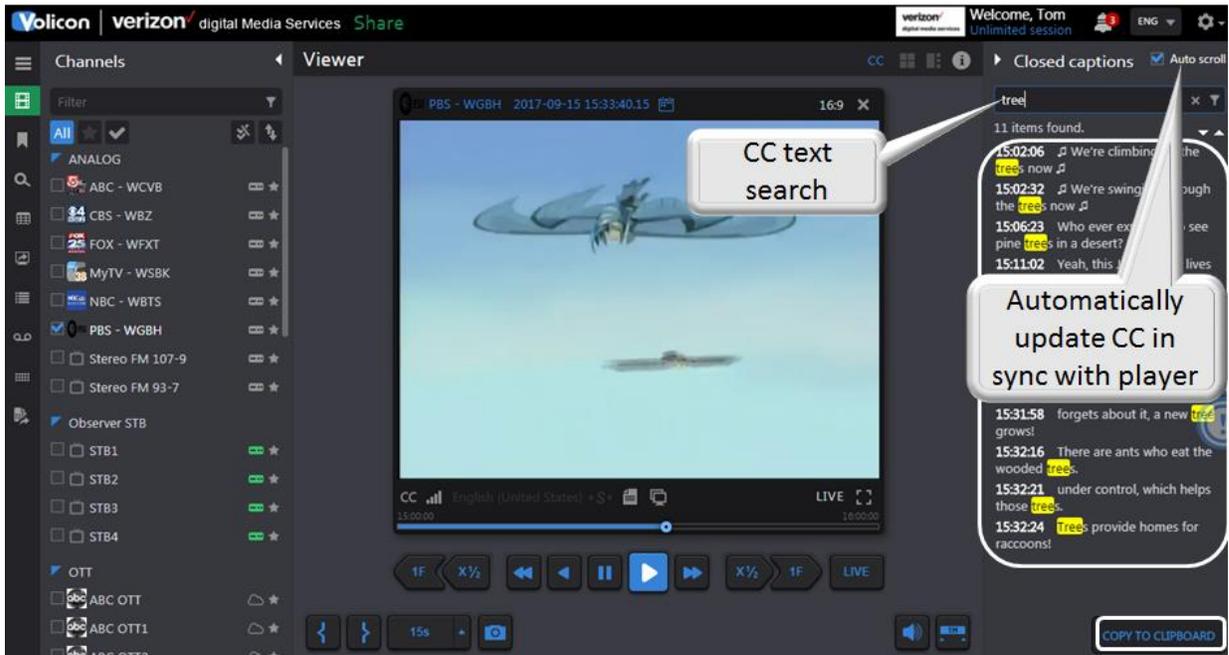


Figure: Timestamped closed captions

Click on the **<Copy to clipboard>** icon to paste the CC text into your computer’s clipboard. Depending on which browser you are using this may require installation of Adobe Flash. MIS displays an alert at the top of the page once the text has been successfully copied.



Figure: Copy CC to clipboard

Once copied to the clipboard you can paste the text into another document.

4.2.2.1 Player views

Use the two icons at the upper right corner of the viewer page to switch between **<Split-screen>** and **<Picture-in-picture>** view. To return to channel view press **<ESC>**.

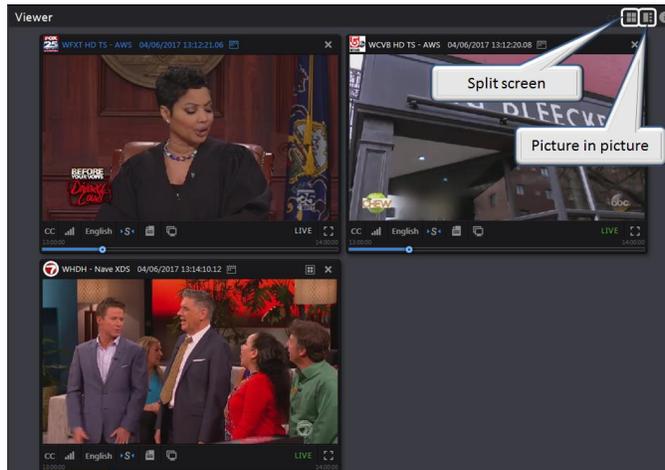


Figure: Channel view



Figure: Split screen view



Figure: Picture in picture view

4.2.2.2 Keyboard hotkeys

In addition to the on screen icons, many viewer functions can be controlled via keyboard hotkeys. This is often more convenient than using the mouse for common operations. Pressing the  information button at the top right of the player window opens the hotkey info page.



Figure: Keyboard hotkeys

4.2.2.3 Online help

Depending on your browser and system configuration you may see a series of icons at the extreme right of your screen. Click on these for quick access to help topics about specific features. There are more help topics available from the **<Tool>** bar under the **<Help & tutorials>** section. They will be discussed in detail in the tools section. If desired click on the **<X>** to delete them from the screen, they are still available in the Tutorials section.

4.2.3 Using the player window

To close a stream click the **<X>** in the upper right hand side of the stream or click the **<channel name>** in the Channel dashboard. The player displays the program date and time at the top of the player window. The **LIVE** symbol at the lower right of the player is green **LIVE** when the program is being displayed in real time. When a recorded program is playing the icon is white **LIVE**.

4.2.4 Seeking back in time

MIS lets you switch between watching the channel live or a recorded version up to the limit set by your MIS administrator.

To select a different date and time click on the **<calendar icon>** to the right of the date/time display.

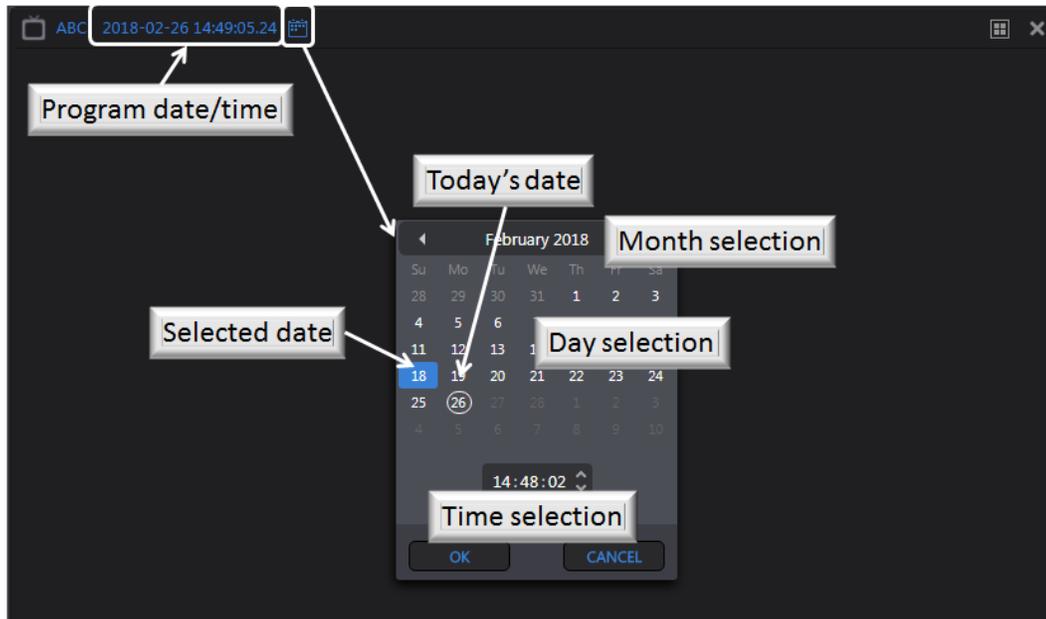


Figure: Recorded program time & date

The calendar function allows you to access your historical feeds by date and time. The calendar function is sticky, if you close the stream and reopen it the player resumes from where it left off. Pressing the **<LIVE>** button on the right of the media player bar switches to live stream and resets the calendar to the current time.

INFO TIP

You can only view historic video back to the date either when the system was initially installed or back to the time configured for video storage duration, whichever time is most recent.

If you select a video that is not available an error message is displayed at the top of the viewer frame. The player will continue with the previous time. The alert indicates the oldest date that is available.

WHDH - Nave XDS -- No video found. Nearest available time is: 03/02/2017 01:30:35

Figure: Video not found error message

In some cases the desired program is archived off line. In that case you are presented with a dialog box asking if you want to retrieve the archived program.

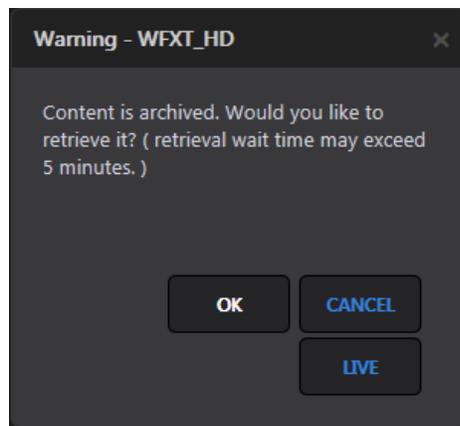


Figure: Offline program retrieval

An alert message at the top of the screen indicates the program is being retrieved.

WFXT HD TS - AWS: Retrieving archived content from remote storage. Player will resume when content becomes available. Press LIVE to abort. X

Figure: Offline retrieval status

4.2.5 Controlling your video streams

After you select a video stream(s) for display, a media player bar opens along the bottom of the display frame. The media player bar controls all the video stream(s) simultaneously.



Figure: Media player bar

The player buttons allow you to rapidly scan through historical programs. From left to right, the buttons perform the following functions:

- **1Frame rewind:** rewinds one frame each time the button is pressed
- **X1/2 half speed rewind:** rewinds at half the normal frame rate
- **Fast rewind:** rewinds at twice the normal frame rate, or click again for 8x
- **Rewind:** rewinds at the normal frame rate
- **Pause:** stops playback
- **Play:** moves forward at the normal frame rate
- **Fast forward:** moves forward at 2x the normal frame rate, click again for 8x
- **X1/2:** half speed forward playback
- **1Frame forward:** advances one frame each time button is pressed
- **LIVE:** synchs up all the Video Streams in the Player Window with the most recent content
 - 1) The **LIVE** player indicator is green when playing a live feed and is white when playing a historical program.
 - 2) Date/Time are displayed at the top of the player

The power of MIS is in its ability to support many sessions or users simultaneously without affecting other users. For example: what you do in the player window only affects your player, it has no effect on other users.

In the example below, both video streams were paused. Clicking on the **LIVE** button caused the MIS to simultaneously retrieve the current live content for both streams.

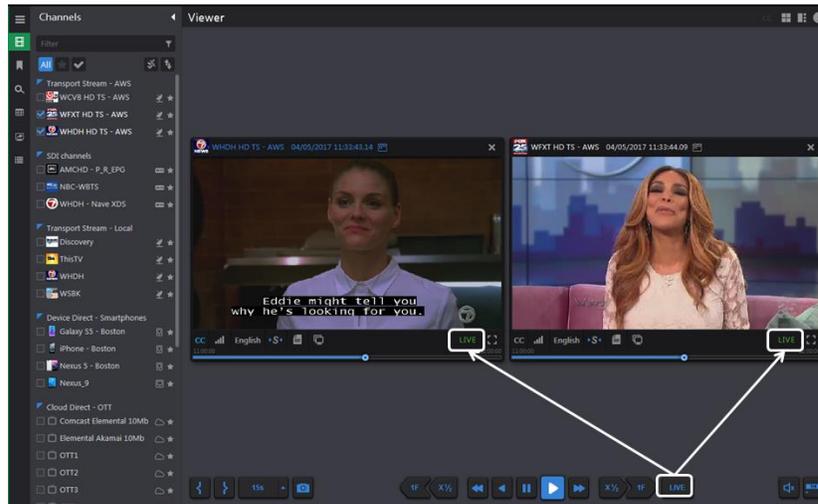


Figure: Simultaneous control

4.2.5.1 Volume control

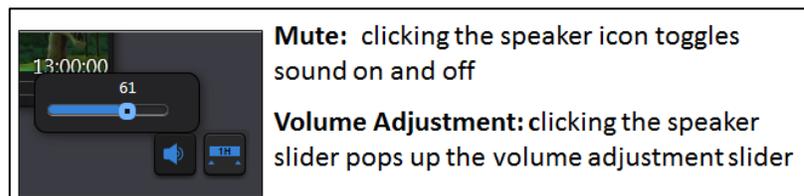


Figure: Volume control

Use the volume control, located in the lower right hand corner of the page, to set or mute audio. If you have multiple video streams open, you only hear audio from a single stream. Left clicking inside any open video stream enables audio for that stream and mutes the others. The channel name turns blue to indicate the active audio channel.

4.2.5.2 Seeking within a program

The MIS media player video feeds do not have a finite end to the video stream like other internet based video streams. Therefore, we cannot count down to the end of currently playing video. Instead the seek bar is used to select a time duration. Once selected the value is displayed in the Seek bar as a reminder.

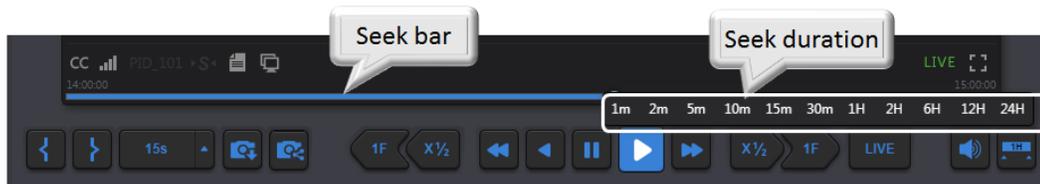


Figure: Seek control

Clicking anywhere on the **<Seek>** bar resets the program to a new time relative to the duration of the **<Seek>** bar. If the program has been recorded you can easily seek forward or backward in time. When the program reaches the end of the **<Seek>** bar duration the bar is automatically reset to the next interval, either forward or backward in time.

Click on the  **<Seek Time>** button at the lower right hand corner to change the duration of the seek bar.

Time info is displayed at the top of the player. To return to the most recent content, click the **<Live>** button and all video streams will begin playing live content again. Each open window may be individually controlled in the same manner by clicking on the **<Live>** icon within the individual video player.

4.2.5.3 Live program time accuracy

In this context “live” means “real time to MIS.” MIS ingests live video, transcodes it, stores it, and streams it out to you as an end user. This process takes a few seconds. Thus, the “live” feed may be several seconds behind computer time.

Due to the time it takes MIS to ingest the video stream and the accuracy (or lack thereof) of your PC real time clock, the time displayed on the live video stream may lead or lag the time on your computer by several seconds. The size of the difference is a combination of the time it takes MIS to ingest the video stream and how accurately and often your PC is synchronized to an NTP server.



Figure: Time accuracy

4.2.6 Player thumbnails

A few moments after the video begins playing you may see it resize and thumbnails populate below the video. Thumbnails are only displayed when viewing a single channel and if the service has been enabled by your MIS administrator. With a recorded program you can use the thumbnail storyboard to quickly move forward and backward in time. With a live program, obviously, you are only able to move backward.

At the end of the seek interval the thumbnail is automatically updated to the next time increment.



Figure: Recorded and live thumbnails

4.2.7 Stream advanced actions bar

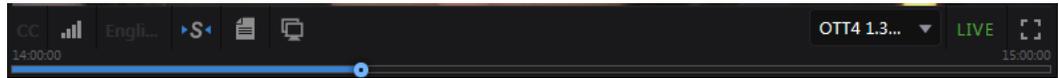


Figure: Advanced actions bar

MIS provides you with several tools for managing individual Video Streams within the Video Stream window itself. Located below each player window is the advanced actions bar. From left to right these actions are:

- **Closed captions:** displays closed caption text
- **Audio loudness meter:** displays audio level bar chart
- **Language:** selects audio track: greyed out if there is only a single audio track
- **Synch to me:** forces other players to the same time as this one: only visible when watching more than one program
- **Metadata:** displays various metadata about the program
- **Clone:** open another viewer with the same program
- **Resolution:** if program is available in more than one resolution or bitrate this icon is active
- **LIVE:** green when live, white for recorded program: clicking this icon will change the specific player to Live, it does not affect other players
- **Full Screen:** changes program in full screen, press <ESC> to return

4.2.7.1 Closed captioning

You can turn closed captioning on or off for individual Video Streams by using the <CC> button in the lower left portion of the viewer window. If the stream is not configured for closed captioning the CC button is greyed out.

The default closed captioning setting (on or off) can be set from the Preferences section of the MIS tool bar. This is explained in the Tools chapter of this manual.

MIS always captures CC data if the admin has configured it to do so, which allows you to go to any point in time and view it. When MIS displays the closed caption text, it conforms to the SMPTE profile of W3C Time Text Markup Language which preserves: position, transparency, font, color, and timing.

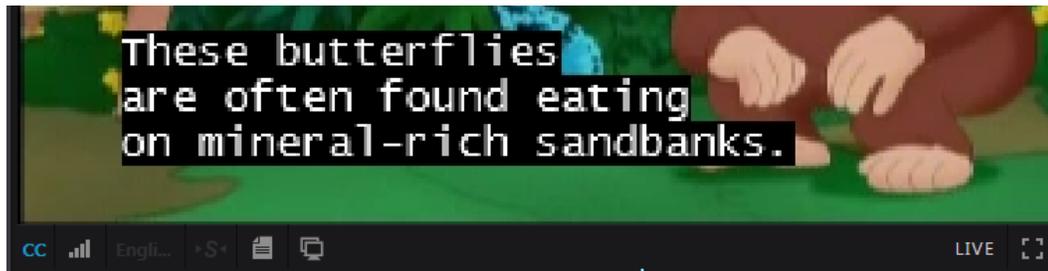


Figure: Closed captioning

4.2.7.2 Loudness meter

The loudness meter displays real time audio loudness in bar graph format.



Figure: Loudness meter

4.2.7.3 Audio language

If the program supports multiple languages or audio channels, use this button to select the desired type. The loudness meter automatically reflects how this option is set.



Figure: Language selection

4.2.7.4 Sync to me

If you have several video streams open and need to know what each video stream was displaying at a specific date and time, you can move a single video stream to a specific date and time and then click the **<Sync to me>** button. MIS will set all open video streams to match the date and time of your selected program.



Figure: Sync to me

4.2.7.5 Metadata

The data stream contains additional information about the program; this is called metadata: data about the data. Clicking the **<Metadata information>** icon allows you to select metadata sets associated with the video stream. Available metadata will vary depending on the specific channel.



Figure: Different channel metadata menus

Video and audio metadata displays the video codec, resolution, bits per second, frames per second and audio sampling frequency of each video stream. The audio status displays the metadata for selected active audio if the program includes multiple audio tracks such as English and Spanish.

If the closed caption display is turned on the CC: field lists details about CC; otherwise it is listed as: None.



Figure: Video and audio metadata

XDS if present in the video stream: displays the source, title and program rating.

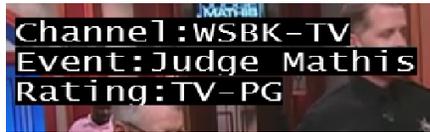


Figure: XDS metadata

NAVE (Nielsen audio video encoder) watermark if the video stream carries a NAVE watermark, this option will display that metadata.



Figure: NAVE watermark

Audio loudness displays the audio regulatory environment from which the video stream originated. If the channel includes multiple audio versions the active one is displayed.



Figure: Audio loudness metadata

AC-3 is the technical name for Dolby digital audio compression. It has been standardized by the Advanced Television Systems Committee (ATSC), and is used

for the efficient encoding of surround sound. If your video stream is carrying AC-3 information to create surround sound, choosing AC-3 will display that metadata.

```

AC3 Properties
SampleRate=48000
CodingMode=7
BitRate=384000
ChannelCount=5
LFEChannel=ON, Atmos: false
DialNorm=27
CenterMixLevel=0
SurroundMixLevel=0
    
```

Figure: AC3 metadata

AFD (active format description) is a standard set of codes for television or set-top-box decoders. AFD displays that metadata on your Video Stream. The AFD information instructs the MIS as to what specific format is being sent, either 4:3 or 16:9. Since programs can vary in format in a given stream, the MIS will use the AFD to adjust the format dynamically for display.

```

29/09 11:22:11:10
Shahar_BMSDI@192.168.10.127

ScanSystem: 625/50/16x9
AFD: Full

LE Antilles N
    
```

Figure: AFD metadata

DPI (digital program insertion) allows cable headends and broadcast affiliates to insert locally-generated commercials and short programs into remotely distributed regional programs before they are delivered to home users. If your video stream is displaying locally generated programming, you can see its parameters by observing the DPI metadata.

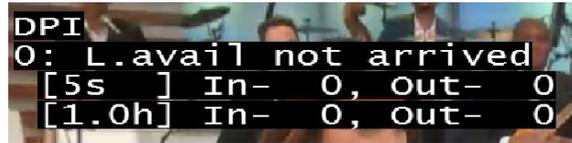


Figure: DPI metadata

Input name displays the name of the MIS input used to ingest the stream.

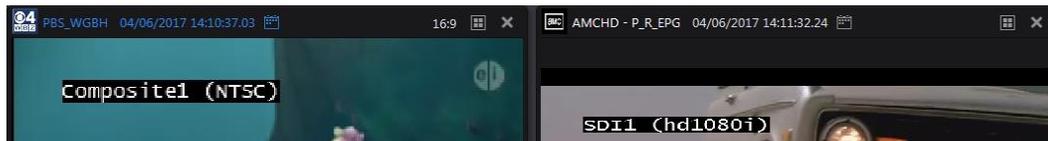


Figure: Input name metadata

4.2.7.6 Clone

The clone function  allows you to open multiple viewers displaying the same video stream. Once opened each stream may be set to a different date and time and display different metadata. In the example below a live stream is displaying both English and Spanish audio loudness.

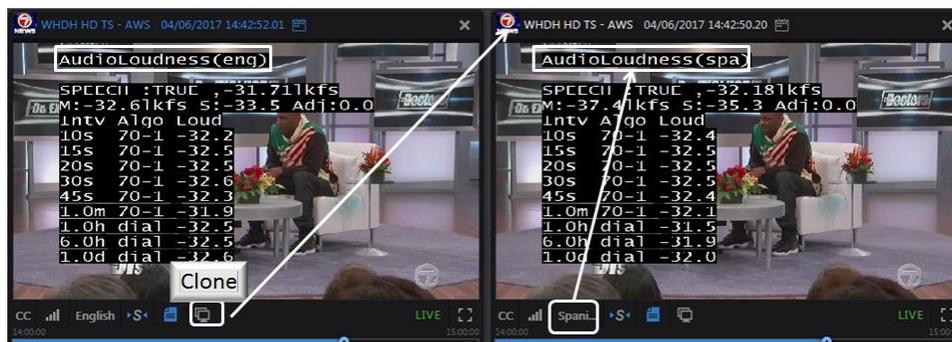


Figure: player cloning

4.2.7.7 Resolution

If the program is available in more than one bit rate or resolution use the dropdown to select the desired version.

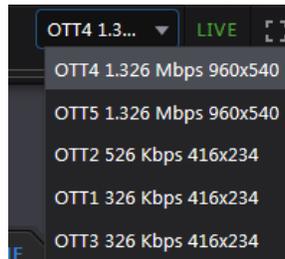


Figure: Program resolution & bit rate

4.2.7.8 LIVE vs recorded

The **LIVE** icon at the bottom right of each player is green if a program is live and turns **LIVE** white when playing recorded material. Use the calendar feature at the top of the screen to select a recorded program. Clicking the **LIVE** icon on each player toggles that player between live and recorded. Pressing the **<Live>** button at the bottom of the page switches all players to real time view.

4.2.7.9 Full screen

The full Screen icon  expands the viewer to full screen. If multiple viewers are active only the viewer selected for full screen is expanded: the others are unaffected. Pressing the **<ESC>** key reverts back to normal view.

4.2.7.10 Manual tuning mode

Normally MIS permanently assigns a probe ingress port, called an encoder to each channel. This enables MIS to archive the channel constantly. Optionally one or more ingress ports may be configured for manual control using a virtual set-top-box (STB). This allows the viewer to be switched between multiple programs. Channels thus configured will have a  set-top-box icon left of the **<Favorites>** star.

When using this feature the player connects in **Live** mode and most player controls are locked out except for volume and hour span.

Manual mode control options

An ingress port configured for manual mode may be in one of several states. In addition to direct user control MIS allows the capture of specific channels and programs be performed automatically under scheduler control. To take control of an idle channel hover over a green idle STB icon and click.

	Remote control feature not available
	Remote control feature is available and not in use Click on the icon to take control
	Remote control by me
	Another user has control of STB Hover over the icon to display user name
	Scheduler is in control recording a channel Users are not able to control manually

Figure: Manual STB operational modes



Figure: Manual tuning controls

When this feature is activated a remote control tuning bar is displayed above the normal player controls. From Left to right controls are as follows:

Dial by service	Opens list of preprogramed STB channels - Bouquet
Dial by command	Toggle between service and command
Command	Send direct text commands to STB
Send command	Sends command to STB
Info	STB displays info about current program
Previous channel	Switches to previous channel
Next channel	Switched to next channel
Last channel	Switches STB to last view channel
Open remote	Displays image of remote control (optional)
Power	Switches STB between normal and standby

Table: STB manual tuning controls

Bouquets

In manual tuning mode the **Channel list** displays station names, eliminating the need to remember specific channel dial numbers. This association is called a **Bouquet**, a high level grouping of channels accessible from the specific STB.

Virtual remote control

You can configure the system with a virtual remote control. In that case an image of the STB hand held remote control appears to the right of the player. Hover over a function and click just as if you were using a physical remote.



Figure: Virtual remote control

4.2.8 Storyboard view

The Storyboard feature works when you are viewing a single channel. Open the player and click on the **<Storyboard>**  icon at the upper right corner of the player. The player will reduce in size and move to the left. The right hand side of the screen is populated with storyboard thumbnails. Use the icons at the top of the storyboard to select the storyboard duration and to move forward or backward in time.

Click on a thumbnail to have the player move to that frame. To exit click on the  in the upper right corner of the screen.

You can create bookmarks in Storyboard view. Click on a thumbnail to mark in the beginning of the bookmark and a later thumbnail to mark the end. Once created processing is the same as other bookmarks.

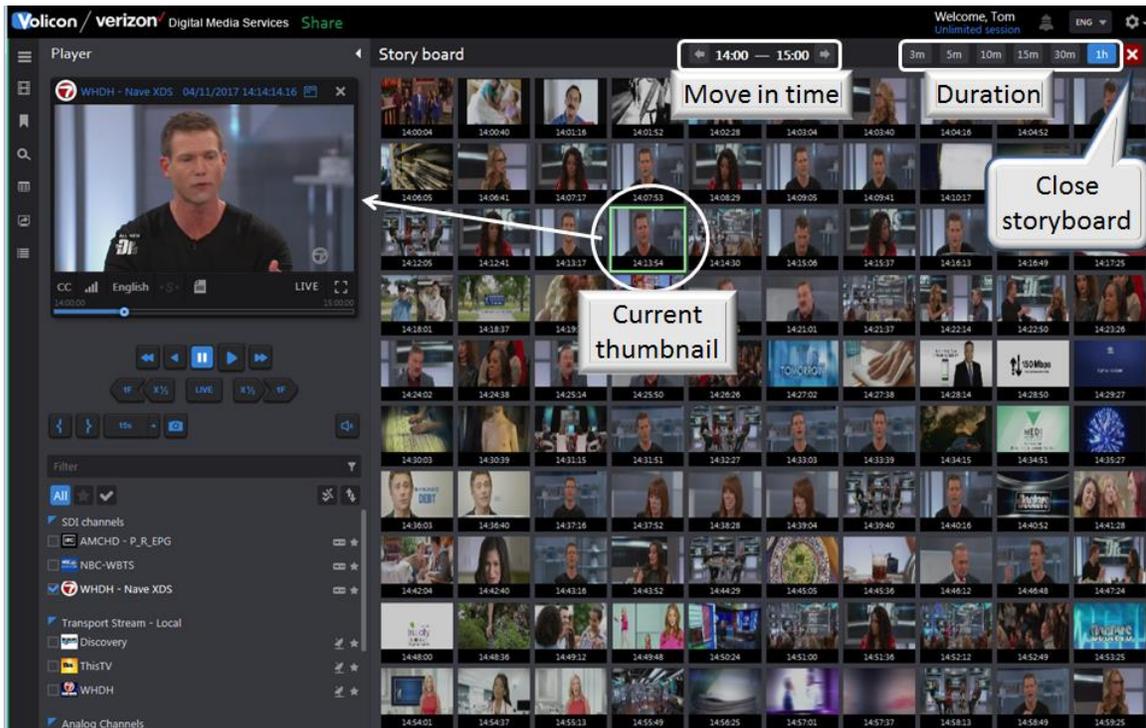


Figure: Storyboard view

4.2.9 Snapshot

Clicking the camera icon  (located lower left side of the screen) creates a JPG of the active player. The storage location defaults to the browser download setting. MIS automatically creates an alphanumeric file name consisting of the channel name and sequence number. The exact status message depends on which browser you are using. The figure below is IE.

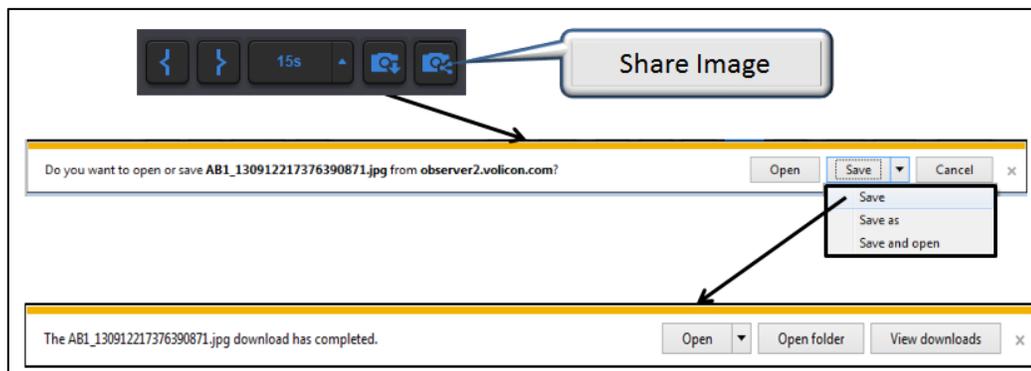


Figure: Program snapshot IE

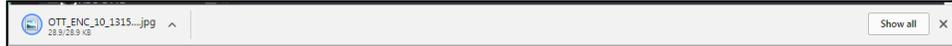


Figure: Program snapshot: Chrome

Once saved the image may be manipulated and shared as any other picture.

4.2.10 Share Image

The share image icon opens the publish page to quickly publish a static thumbnail image to social media sites. The publish feature works much like publishing a bookmark.



Press the **<Share image>** icon at the bottom left of the viewer to open the thumbnail publish page. Use the **<Crop>** icon if you want to delete a portion of the image. The crop feature maintains image aspect ratio.

MIS populates the **<Title>** box with program channel name and timestamp; this can be overwritten if desired. Below that is a **<Description>** box to enter additional information. Select one or more destinations and then press the **<Publish>** icon. Normally MIS publishes immediately but if desired you can specify a time delay.

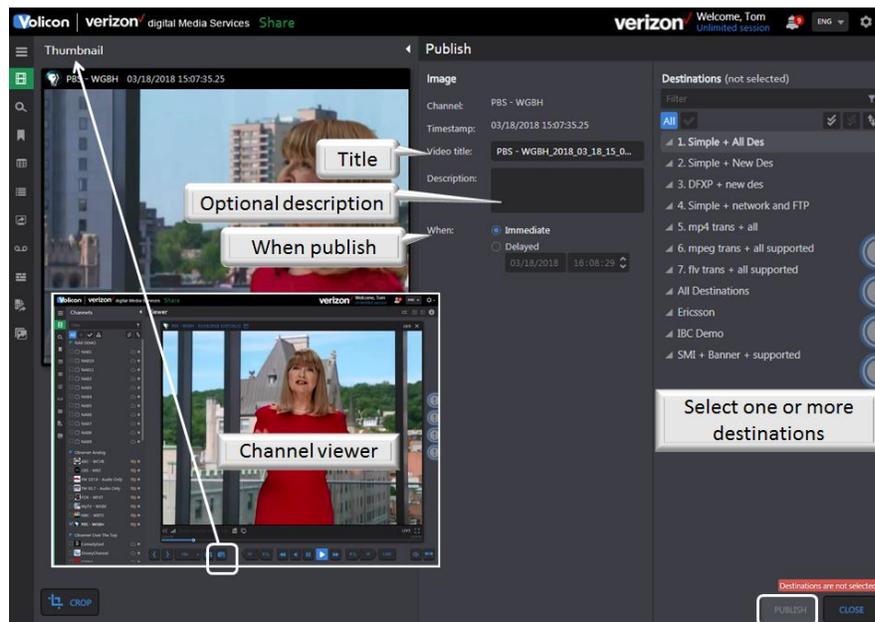


Figure: Share image thumbnail

4.2.11 Bookmarks

MIS allows you to identify portions of your video streams, called bookmarks, and stores those identifications for future use. Creating a bookmark does not create a unique copy of the video; it simply marks a portion of a video stream and is available for as long as that particular channel stream is archived within MIS.

The term “clip” can be misleading, as it implies that when you create a clip you are choosing content, cutting it out of the stream (or perhaps making a copy of it), and storing it somewhere else. MIS does **not** use this process for clip generation. Instead, MIS creates a “clip” by inserting bookmarks at the start and at the end of your chosen content. It stores those bookmarks along with the streams themselves in your main storage folder. When you call up a clip, MIS uses those bookmarks to rapidly search your stored content to play the stream you are looking for.

This process provides many benefits.

- Rapid retrieval of content you have identified and clipped.
- Because the clips are actually bookmarks inserted in the main stream, you can create as many clips as you like without consuming any of your storage space. This allows you to save metadata along with segments of video.
- Allows you to export a permanent copy of content from MIS to your PC/laptop.

MIS stores clips for the same amount of time as the video is stored. After that time, the clip and any associated video will be deleted.

For example: you create a clip from live content. If content is retained on MIS for 90 days, clips will be stored for 90 days. If you created the clip from 60 day old historic content, the clip will be stored for the next 30 days. The clip will be saved on the system based on the origination of when the video was logged, not from when the clip was created.

MIS allows you to search manually for the content you wish to bookmark. You can create individual clips by marking the video stream. You can also create multiple clips at once by opening multiple streams. For example, if you **<Mark in>** and **<Mark out>** with four streams open, MIS will create four clips.

4.2.11.1 Setting bookmark length

Using the **<Mark out>** button lets you manually set bookmark length. Clip length may also be preset. Clip length is relative to the start time. That way you can easily create bookmarks that even begin before you click **<Mark In>**. To define

clip length press the **<up>** triangle located to the right of the **<Quick clip>** button. Select the desired clip length. Once you select a length it is displayed on the face of the **<Quick clip>** button.

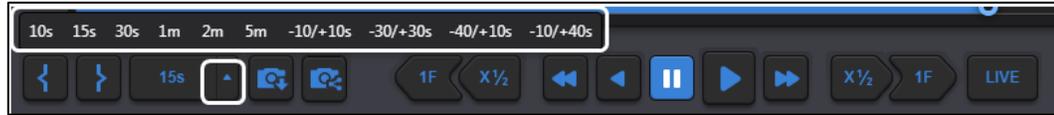


Figure: Setting bookmark length

4.2.11.2 Creating a bookmark

Consider a circumstance in which a customer wishes assurance that their commercial did, in fact, play at 4:13 PM on WFXT. Start by calling up the WFXT stream. Use the **<calendar>** function to select to desired date and time.

Press the **<Mark in>** button to initiate the clip creation process. To mark the end of the clip you have two options. Pressing the **<Mark out>** button manually terminates the clip. The other option uses the **<Quick clip>** button to the right of the **<Mark out>** button. As a reminder it displays the preset clip length.

The player control buttons allow stepping forward and backward on a frame by frame basis enabling you to precisely mark the section of interest.

If you have multiple players open MIS creates a bookmark of each one. The bookmark is relative to the current seek time so individual players do not need to be set to the same time or date.

4.2.11.3 Bookmark clip management pane

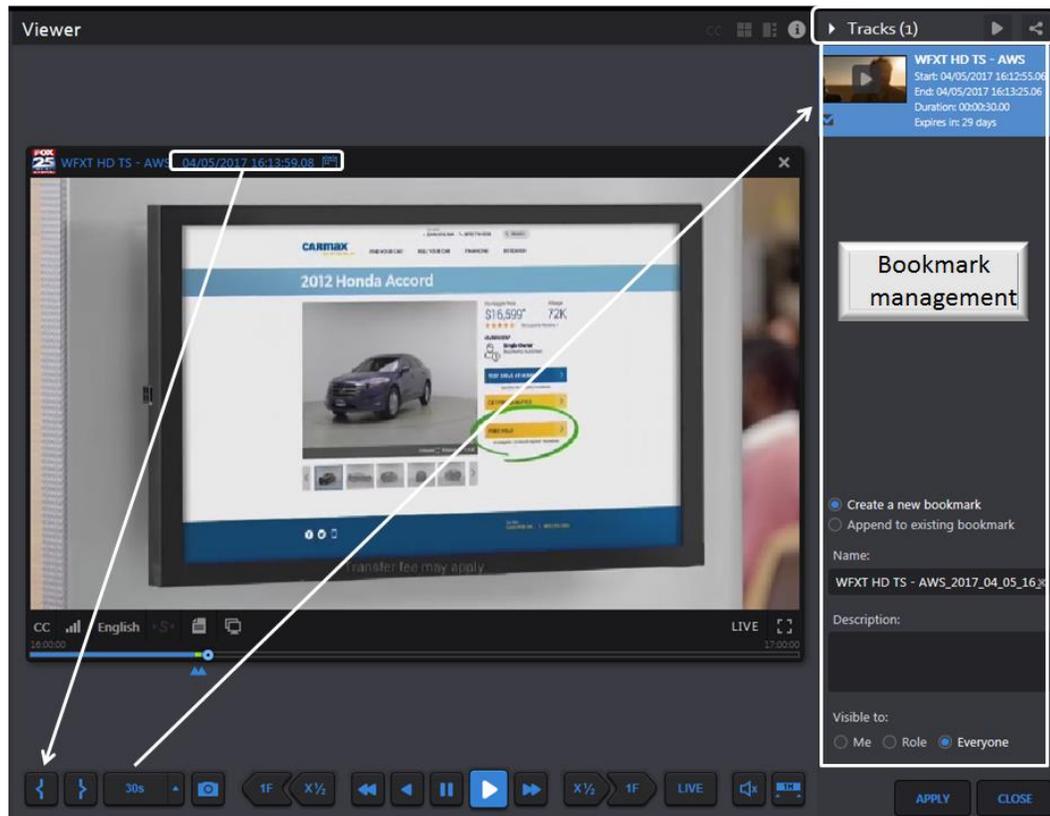


Figure: Bookmark creation

When the **<Mark in>** button is pressed the Viewer automatically opens the Clip management pane on the right hand side of the screen.



Figure: Bookmark control pane

From left to right the controls are as follows.

Triangle: collapses and expands the management pane

Tracks (x): denotes number of bookmarked tracks in the pane

Play: plays the track if there is only one or plays the next track if there is more than one; when the last track is played goes back to the first; each time the button is pressed the next clip is played

Share all tracks as one: If there are multiple clips, combines them into a single group; except for grouping the **Sharing** feature is the same as under the individual clip.

4.2.11.4 Individual bookmark clip controls

There are several controls that apply to individual clips. Position the mouse cursor over the clip preview frame to activate the additional controls.

From left to right the controls are as follows:

Play: plays the individual clip

Archive mark: archive clip outside normal MIS storage (requires CEM)

Share track: publish clip to external sites. The sharing options are set via the **Tools→ Settings** option

Export track: this feature allows you to copy the clip to your PC

Delete track: delete the bookmark

Edit track: allows you to make changes to the bookmark

Start: jump to beginning of the bookmark

End: jump to end of the bookmark

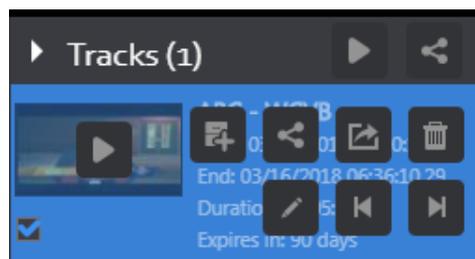


Figure: Bookmark controls

4.2.11.5 Saving and naming bookmark clips

The lower portion of the Tracks Pane lets you name the clip and determine who has access to it.

Immediately below the thumbnail(s) are two radio buttons, **<Create a new bookmark>** and **<Append to existing bookmark>**. Create is the default. When you save the clip(s) a new bookmark will be created; if the **Append** option is selected the new clip(s) will be appended to an existing bookmark. Begin typing the name of an existing clip in the **<Name>** field. As you type MIS will displays a list of matching clip names. Keep typing until the desired clip is displayed or use the mouse to highlight the one you want.

Name: defaults to the channel name with date and time appended. If multiple clips are created **Name:** is that of the first clip. To change the name hover the mouse over the text string and left click. An **X** will appear to the right of the name. Click on the **X** to delete the text and type the new name. To edit the name position the mouse over the location you want to change and insert the new text.

Description: enter text to further identify the purpose of the clips

Visible to: defaults to **Everyone**. Select **Me** or **Role** to change who has access to the Bookmark.

Apply: saves the clip(s). To view the clip(s) press the **Bookmark** button at the left of the screen.

Close: closes the clip Bookmark management pane, any unsaved bookmarks will be lost.

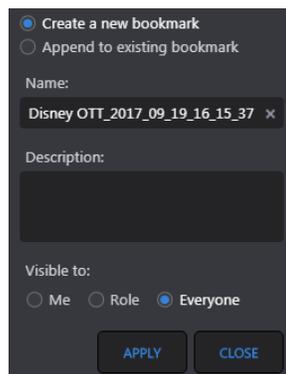


Figure: Create bookmark

When you click **<Apply>** the bookmark is added to the Bookmark list. This will be discussed in detail later. A confirmation bar appears at the top of the page.

Bookmark 'WFXT_HD_2017_06_15_11_54_13' was created successfully

Figure: Bookmark confirmation message

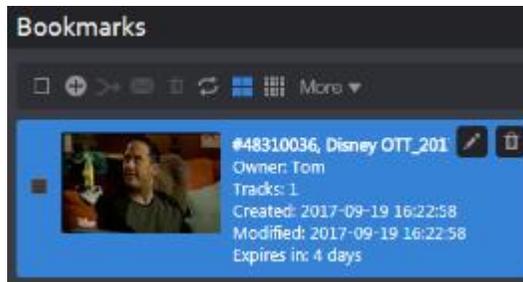


Figure: Saved bookmark

4.2.11.6 Archiving, publishing and exporting clips

The Share and Export options are used to publish clips to a third party or save them on your PC. There are two slightly different versions of the buttons. At the top of the clip management pane the Share All and Export All buttons combine multiple tracks and publish them as a single entity. This feature requires that the combined clips are all derived from the same channel.

Archiving clips

Press the  **<Achieve mark>** icon to save a clip outside normal system storage. A download link will appear the clip may also be downloaded from the management console page.

Sharing Clips

Pressing the  **<Share track>** icon opens another window allowing you to select how the clip is shared and to select and modify the thumbnail. This feature requires the Volicon CEM export module.

Clip Title and Description

If desired the title and description may be changed at any time.

Selecting and Cropping the Thumbnail.

By default the thumbnail is the first frame of the clip. If you want to use a different frame press the **<Select thumbnail>** button below the player. This expands the player and allows you to move the frame cursor. When you have selected the desired frame press the **<Capture>** button to replace the default thumbnail. MIS allows you to crop the thumbnail. Press the **<Crop>** button and adjust the borders of the crop outline. At the bottom of the crop box press the



checkmark to save the thumbnail or the



X to exit without saving.

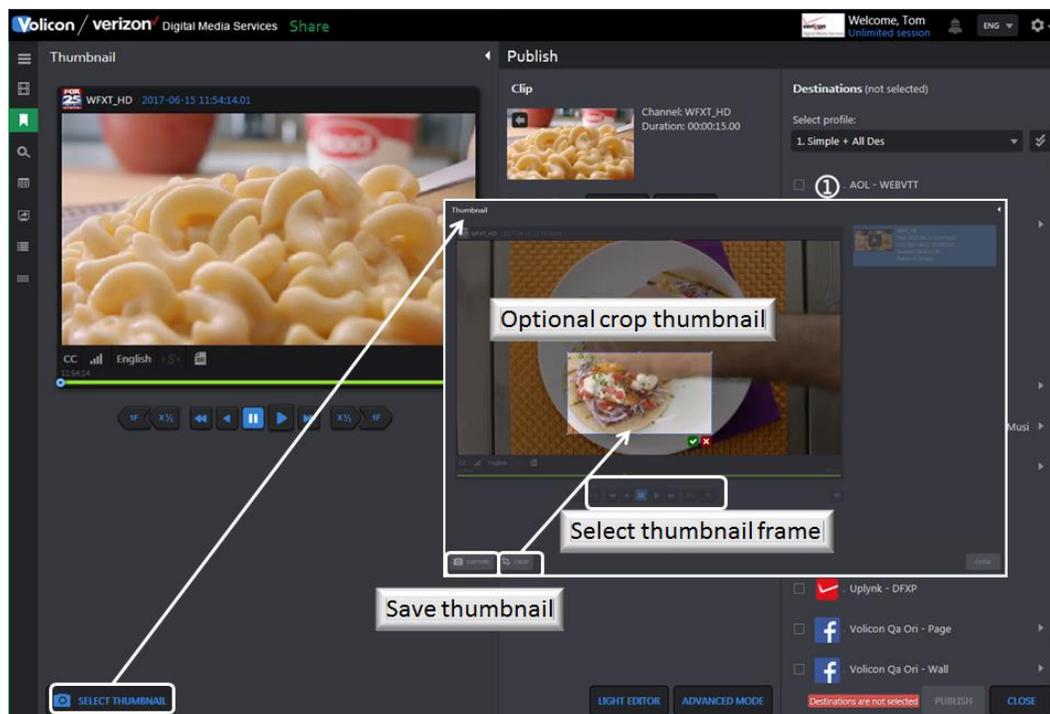


Figure: Changing and cropping thumbnail

Saving a thumbnail to your PC

The **<Download>** and **<Upload>** buttons allow you to download the thumbnail image to your workstation, modify it, and then upload it back to MIS. This enables you to do things like incorporate a corporate logo or add annotation as shown in the example above.

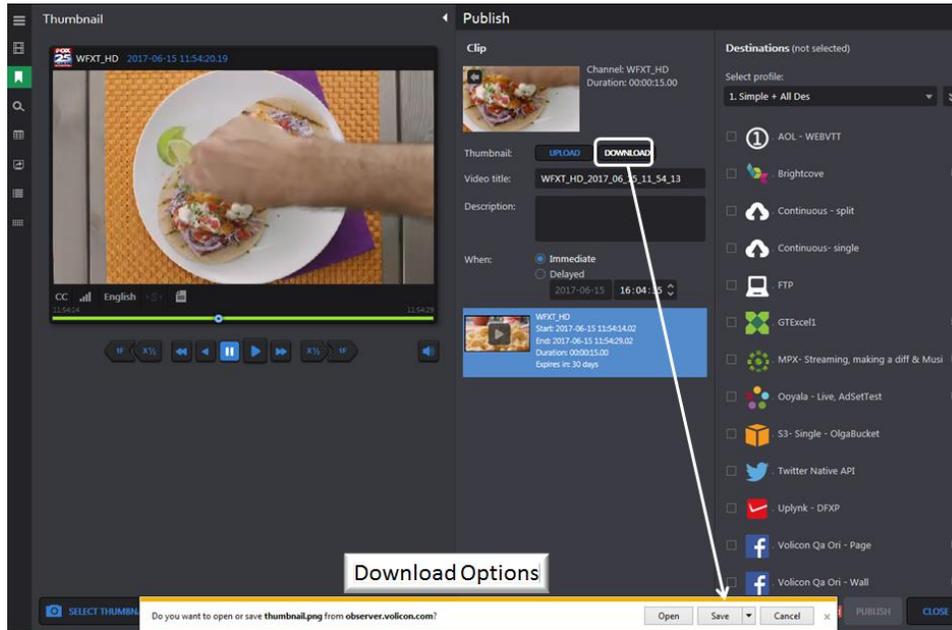


Figure: Download & upload thumbnail

Share Light Editor

The share light editor enables you to add: intro, outro, slate, fade in, fade out, and splice tracks. It is discussed in detail in the asset management section.

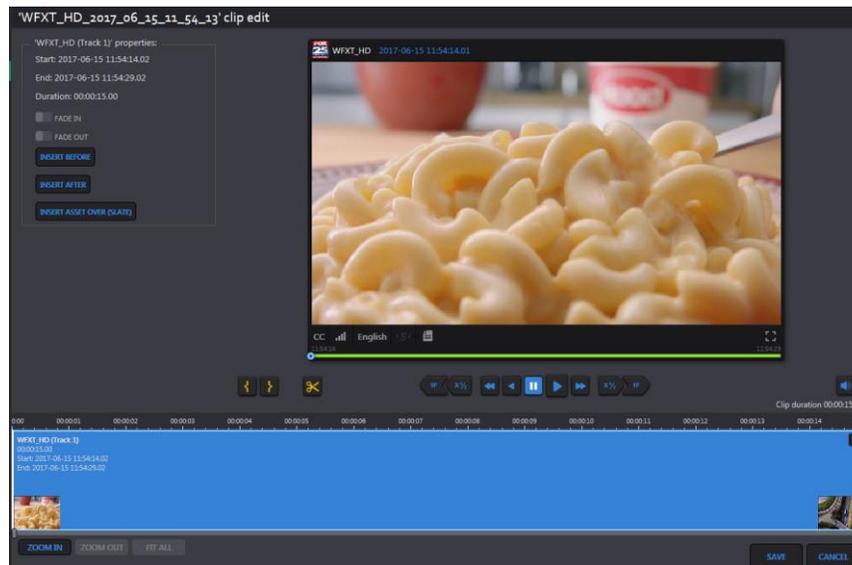


Figure: Light editor

Advanced Mode/Simple Mode

Clicking the **<Advanced mode/Simple mode>** button at the bottom of the center panel toggles between the two modes. **<Simple mode>** is the default. **<Advanced mode>** opens another panel to give you greater control over the clip. Clicking **<Simple mode>** resets the center pane.

Transcoding: use the dropdown to save the clip in a different video format

Streams: defaults to both audio and video, unchecking audio or video deletes that from the clip

Default video: if there are sub encoders configured for this channel use this option to select a different resolution/bandwidth

Closed captions: include closed captions with the clip, if the stream is not captioned an error message appears if this option is selected

Metadata: selects metadata to include with the clip

Resolution: dropdown to select the desired resolution

Target bitrate: dropdown to select the desired bitrate

Timestamp: allows you to burn a timestamp to the video and select a different time zone

Banner: uploads a file; use the alignment arrows to position the banner and the transparency option to select transparency; the width and height options let you control how much of the screen is occupied by the banner

Maximum time accuracy: gives accurate frame by frame time in the export file

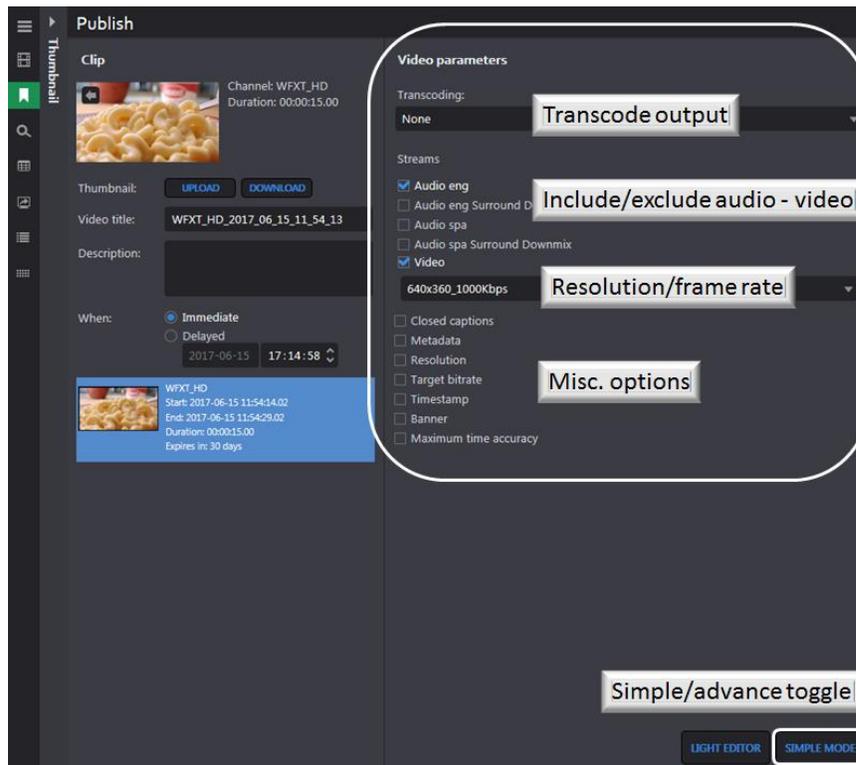


Figure: Advanced mode

Publish Clip

The default publishing setting is Immediate, if desired you can specify a delay. MIS defaults to saving the clip to bookmarks; alternatively you may select archiving the clip.

Destinations are grouped by **<Profile>**. Select the profile and one or more destinations. A single clip may be sent to multiple destinations simultaneously. Some destinations allow the entry of additional information, denoted by a triangle to the right of the name. Click the triangle to open the dialog box. Enter the relevant information and click **<OK>** or **<Cancel>**. Then press the **<Publish>** button at the bottom of the page.

Status messages appear at the top of the screen announcing **Publish** has started and whether it not it was successful. These announcements will close after a short period. Publish destinations are typically configured by your MIS administrator rather than individual users.

At the top of the left hand pane are the **Export duration** and **File name** tags. Duration information is read only. The bookmark name defaults to channel name and time stamp. If desired you can change it to something more descriptive.

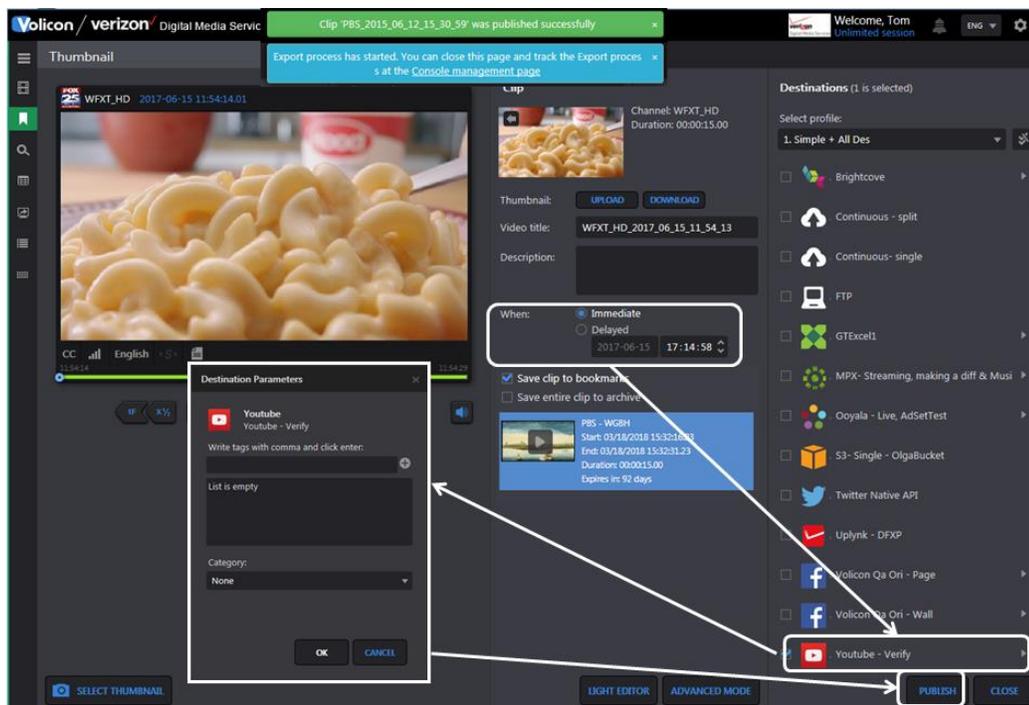


Figure: Publish clip

Export Clip – using Internet Explorer

This feature works much the same way as publishing but allows you to save the clip to your PC. When using IE pressing Export opens a dialog box allowing you to select the location and specify how the clip is encoded. A completion message is displayed once the clip has been saved.

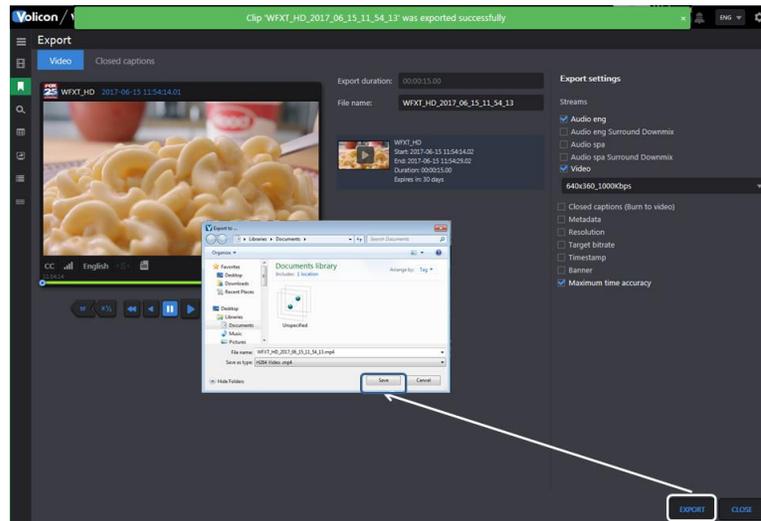


Figure: IE clip export

Export Clip – using Volicon CEM

When using other browsers the process is slightly different; the clip is saved on the CEM server. The server generates a link allowing the user to access the clip.

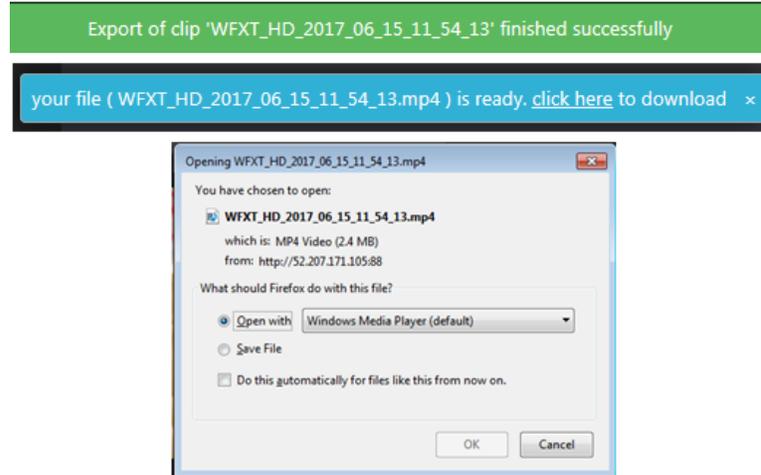


Figure: CEM link to saved clip

4.3 Closed captions tab

This page displays clips of programs that include Closed Caption text. When this tab is first clicked the page displays all Closed Captioned programs. The clips can be displayed in either **Grid view**  or **List view**  by pressing the appropriate icons at the top of the program list. **Grid view** displays a thumbnail of each clip, Closed Captioned text and the time and channel. In **<List view>** the icon is smaller and information about the clip is displayed in columnar format. The **<Customize columns>** icon only appears in **<List view>**; use it to specify which columns to display.

In a typical system there will be a large number of closed captioned clips; MIS lists the page numbers at the upper right of the screen. Use this feature to move through multiple pages.

Use the search feature at the left of the page to reduce the number of clips displayed.

In the example below we searched the ABC-WCRB channel for 20 second clips.

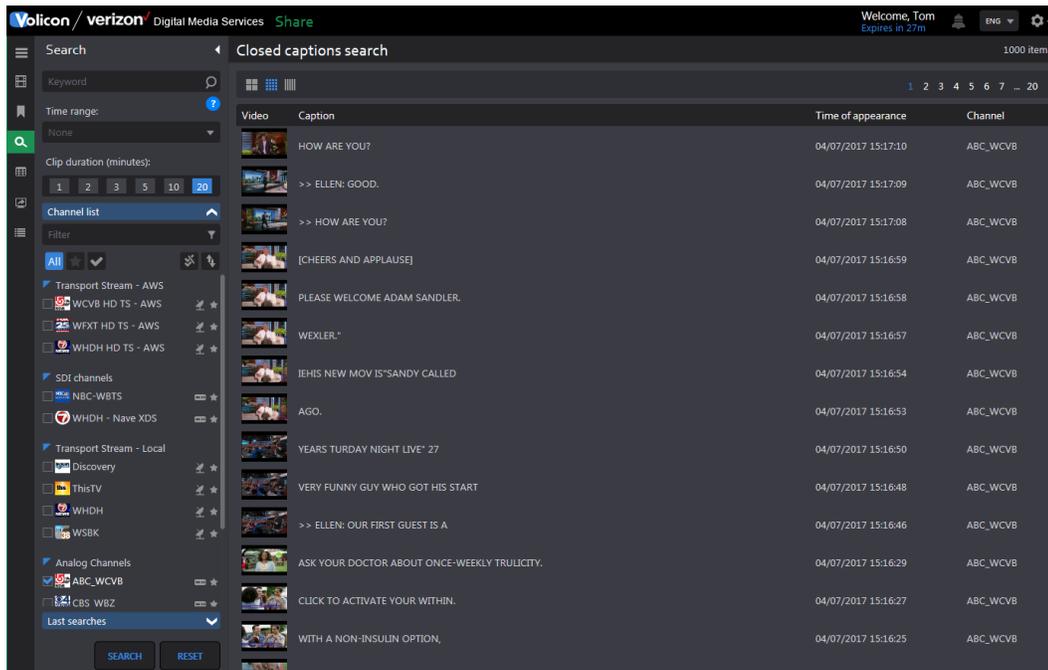


Figure: CC search result

Left clicking the desired clip opens up the player and displays the Closed Captioning text to the left with a movable highlight bar synchronized to the video. The clip name is displayed above the player.

While viewing the clip you are able to edit and share it with others.

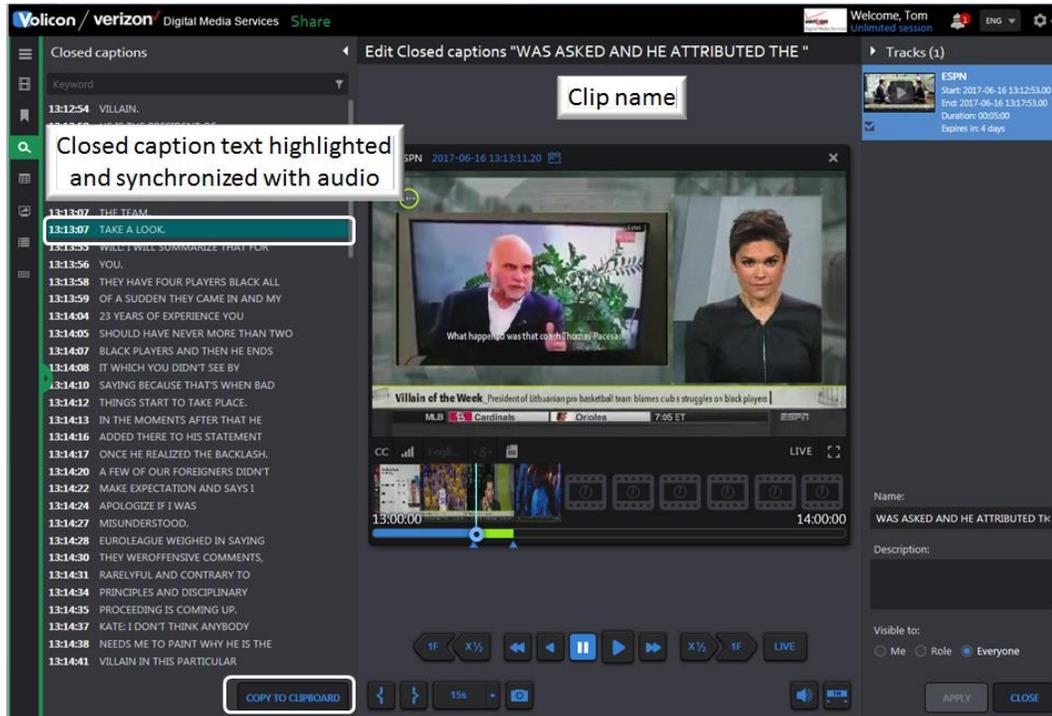


Figure: Playing closed captioned clip

4.3.1 Copying closed caption text

At the bottom of the closed captioned text is a **<Copy to clipboard>** button. Pressing the button copies the closed captioned text from the clip into the clipboard on your computer. From there you can paste it in a document. A status bar appears once the text has been copied to the clipboard.



Figure: Copy CC text to clipboard

If this feature has not been enabled you will receive the following error message.

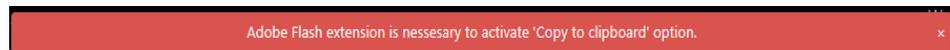


Figure: Closed caption paste error

4.4 Bookmarks tab

Bookmarks are short sections of video. MIS allows bookmarks to be private accessible to just you, accessible to everyone or limited to particular roles.

4.4.1 Managing bookmarks

To access your bookmarks click on the **<Bookmarks>** icon in the left hand pane.

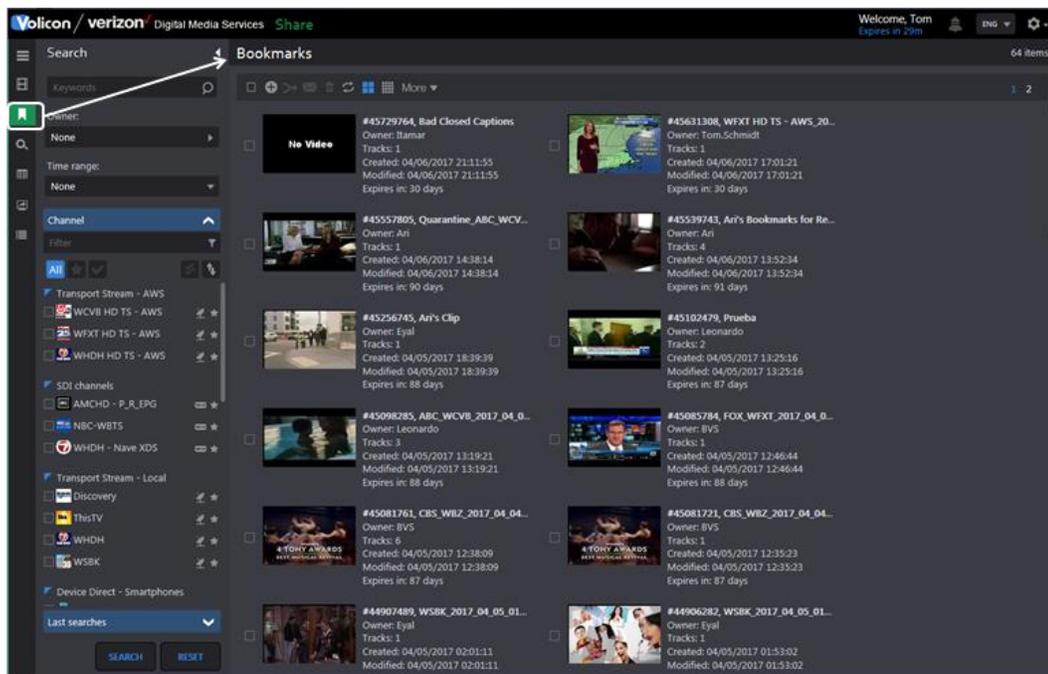


Figure: Bookmarks page

This will display not only your bookmarks but any bookmarks that others have chosen to share with you.

4.4.1.1 Searching bookmarks

The left hand search pane allows you to select only those bookmarks of interest. Search criteria include:

Keyword: searches words in the bookmark description.

Owner: account name of the person who created the bookmark. MIS does smart matching as you type the account name so you don't have to type the entire name.

Time range: limit search to date bookmark was created or modified or to a video time range.

Channel list: restricts search to specific channels. The feature may be expanded or collapsed by pressing the chevron on the right. Typing all or part of a channel name into the **Filter** text box limits the display to matching channels.

Last searches: remembers the last 5 searches; this feature may also be expanded or collapsed by pressing the chevron on the right.

Once you have entered your search criteria press **<Search>** at the bottom of the pane. The page will be refreshed with only bookmarks that match the search criteria. To clear search parameters press **<Reset>**.

Let's say you want to review all the Bookmarks for CBS and PBS. Expand the channel list if not already expanded and select CBS and PBS. Press **<Search>**. The page will refresh, but now it only shows bookmarks that match your search criteria. The number of matches is displayed in the upper right. In this case there are more bookmarks than can be displayed at one time so you need to use the **<Scroll>** bar at the extreme right.

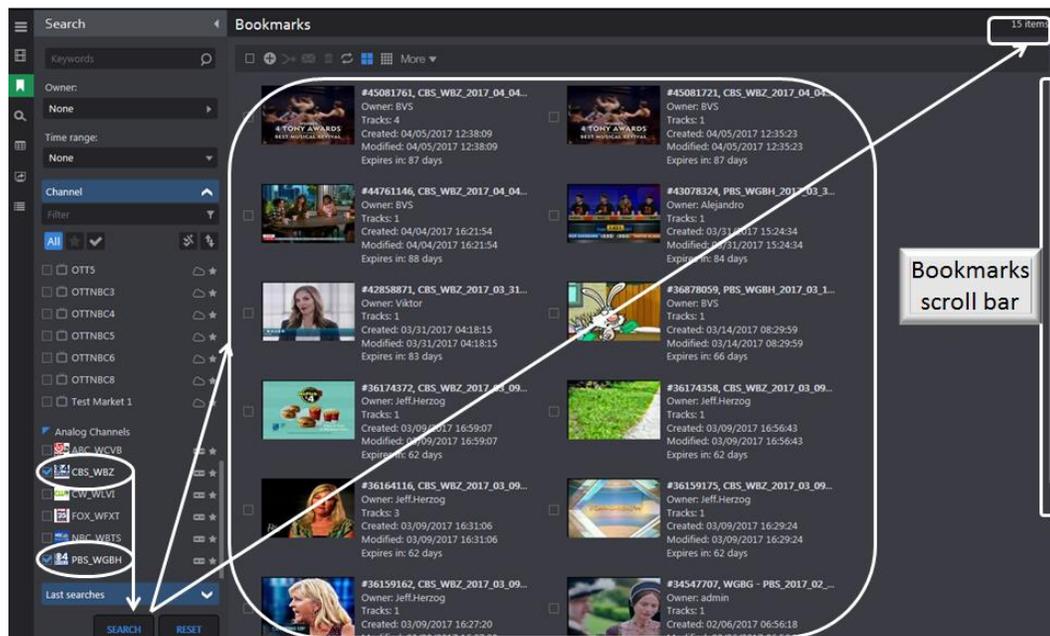


Figure: Bookmark search result

Note: since we searched by channel the displayed clips have multiple owners. Whether or not a particular Bookmark is visible depends on how the Bookmark owner set sharing policy.

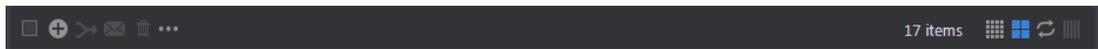


Figure: Bookmark ribbon

The ribbon above the bookmark list provides tools to manage and combine bookmarks. The Icon descriptions from left to right are:



Select/deselect all: this is useful if you need to merge bookmarks, rather than individually selecting each one



Create new bookmark: displays channel list allowing you to select a channel, time, date to create a new bookmark



Combine selected bookmarks: combines multiple clips into one, this edit feature operates the same as when the clip was first created



Email selected bookmarks: email bookmarks to specific entities



Remove selected bookmarks: deletes all selected bookmarks



Three additional functions: Export list, Purge all bookmarks and Deselect all
<Export list> saves bookmark list to a spreadsheet



Figure: Bookmark list spreadsheet

<Purge all bookmarks> deletes all bookmarks

<Deselect all> deselects (unchecks) any selected bookmarks



List view: shrinks the thumbnail and display more information about the bookmark



Grid view: displays thumbnail and description of the bookmark



Auto refresh: automatically updates the page every 30 seconds



Customize columns: only displayed in List view, check or uncheck desired columns.

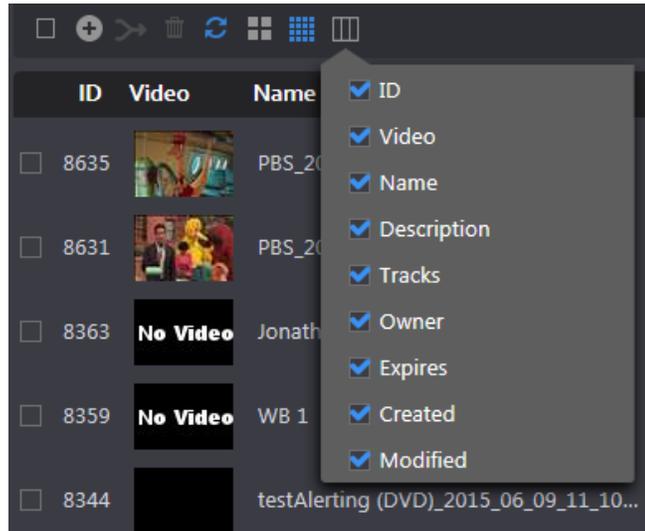


Figure: Customize bookmark columns

Page #: If there is a lengthy bookmark list that straddles multiple pages you can use these icons to go to a specific page.

4.4.1.2 Editing and playing bookmarks

Hover over the desired bookmark; the area surrounding the bookmark turns blue. Click the Thumbnail to play the clip. Clicking the **<Pencil>** allows you to edit the bookmark. Clicking on the **<trashcan>** deletes it.



Figure: Play/edit bookmark

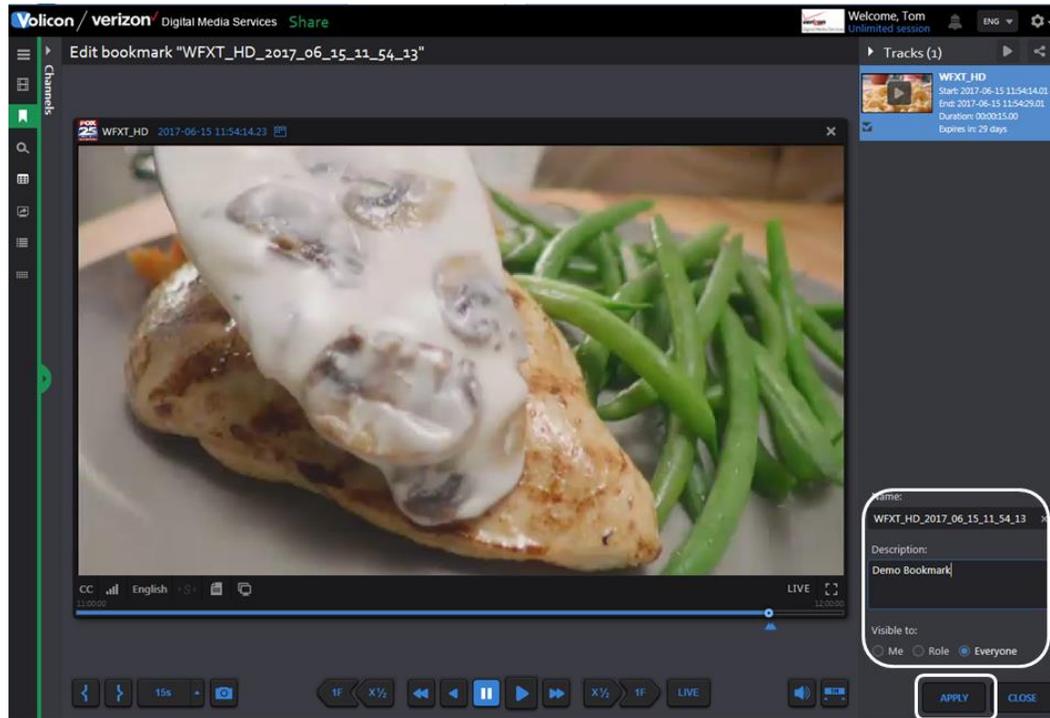


Figure: Bookmark edit window

Edit window functionality is identical to what you are able to do when initially creating a Bookmark: sharing, naming, visibility, etc. Press **<Apply>** to update your changes.

4.4.1.3 Sharing and exporting your bookmarks

Sharing and Export works the same way in the edit window as it does when first creating the bookmark.

4.5 Programs tab

Program is typically a one track clip normally used to save broadcast assets, such as commercials.

Program is usually set up by the MIS administrator in the form of as-run files. This will automatically insert programs into the system using the hot folder.

This feature works much the same as Bookmarks. You can search for a particular program. Hovering over the program opens the player and allows you to view and share it.



Figure: Program viewer

To manually add a program use the  add program icon at the top of the page. This opens the New Program page. Select a channel and use the **<Mark in>** and **<Mark out>** icons to create a new program much like any other clip.

4.6 Management console tab

This tab only appears if the Content Export Module (CEM) server is installed. It displays jobs that were exported using the optional CEM server.

The **Column Selector** (extreme right) specifies what information is displayed.

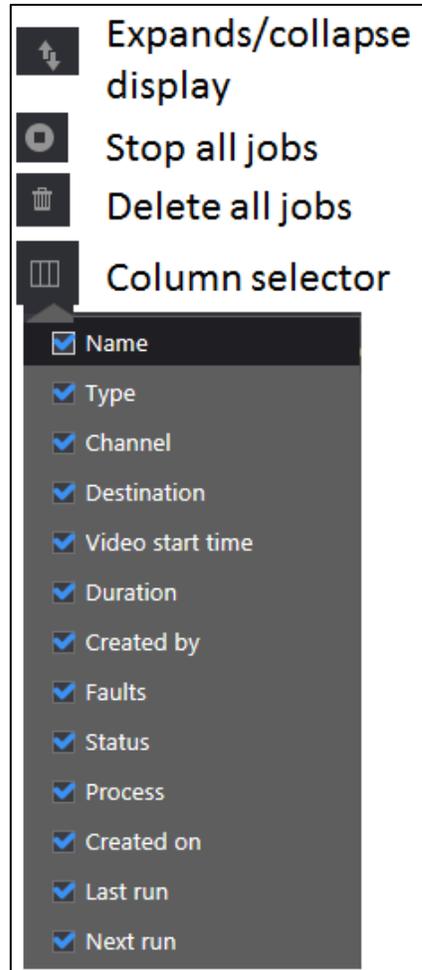


Figure: Management console display ribbon

If the list is long, page numbers appear in the upper right, allowing you to quickly move to different pages. To reduce the amount of displayed information use the search function.

In **Collapsed** view only the jobs are shown. Click **Expanded** view to display job tasks and parts of each task.

Management console 37 items

Name	Type	Channel	Destination	Video start time	Duration	Created by	Faults	Status	Process	Created on	Last run
+ Local Export_Quarantine_ABC_WCVB_2017_04_06_14_38_41	ABC_WCVB			04/06/2017 14:38:41	00:00:15	BVS	0/1	Completed		04/07/2017 14:33:37	04/07/2017 14:33:41
+ An's Bookmarks for Review_1 Simple + All Des	WHDH		Multi	04/06/2017 11:04:44	00:03:15	Ani	1/1	Completed with errors		04/06/2017 13:52:34	04/06/2017 13:52:37
+ Local Export_FOX_WFXT_2017_04_05_11_41_55	FOX_WFXT			04/05/2017 09:39:49	00:00:30	BVS	0/1	Completed		04/05/2017 12:46:44	04/05/2017 12:46:45
+ WSBK_2017_04_05_01_42_08_1 Simple + All Des	WSBK		MPX- Streaming, making a diff & Mus...	04/05/2017 01:42:08	00:00:15	Eyal	0/1	Completed		04/05/2017 02:01:11	04/05/2017 02:01:14
+ WSBK_2017_04_05_01_49_34_1 Simple + All Des	WSBK		Volicon Qa Ori - Page	04/05/2017 01:49:34	00:00:15	Eyal	0/1	Completed		04/05/2017 01:53:02	04/05/2017 01:53:05
+ WSBK_2017_04_05_01_49_34_1 Simple + All Des	WSBK		Multi	04/05/2017 01:49:34	00:00:30	Eyal	1/1	Failed		04/05/2017 01:52:10	04/05/2017 01:52:12
+ Local Export_CW_WLVI_2017_04_03_11_15_07	CW_WLVI			04/03/2017 11:15:07	31:37:29	Eyal	1/1	Failed		04/04/2017 18:52:30	04/04/2017 18:52:47
+ CW_WLVI_2017_04_03_11_14_47_1 Simple + All Des	CW_WLVI		Volicon Qa Ori - Page	04/03/2017 11:14:47	00:00:20	Eyal	0/1	Completed		04/04/2017 18:51:40	04/04/2017 18:51:41
+ ABC_WCVB_2017_04_04_14_14_01_1 Simple + All Des	ABC_WCVB		Volicon Qa Ori - Page	04/04/2017 17:14:01	00:00:05	Mark	0/1	Completed		04/04/2017 17:13:56	04/04/2017 17:14:19
+ Local Export_CBS_WBZ_2017_04_04_16_05_21	CBS_WBZ			04/04/2017 14:18:12	00:02:30	BVS	0/1	Completed		04/04/2017 16:21:54	04/04/2017 16:21:56
+ Local Export_ThisTV_2017_04_04_19_23_04	ThisTV			04/04/2017 14:23:04	00:04:03	bsari	0/1	Completed		04/04/2017 14:40:35	04/04/2017 14:40:36
+ Local Export_ABC_WCVB_2017_04_04_08_01_34	ABC_WCVB			04/04/2017 07:01:34	00:00:04	Leonardo	0/1	Completed		04/04/2017 10:50:03	04/04/2017 10:50:04

Figure: Collapsed view

Management console 37 items

Name	Type	Channel	Destination	Video start time	Duration	Created by	Faults	Status	Process	Created on	Last run
- Local Export_Quarantine_ABC_WCVB_2017_04_06_14_38_41	ABC_WCVB			04/06/2017 14:38:41	00:00:15	BVS	0/1	Completed		04/07/2017 14:33:37	04/07/2017 14:33:41
- Local Export_Quarantine_ABC_WCVB_2017_04_06_14_38_41	ABC_WCVB			04/06/2017 14:38:41	00:00:15		0/0	Completed			04/07/2017 14:33:41
- An's Bookmarks for Review_1 Simple + All Des	WHDH		Multi	04/06/2017 11:04:44	00:03:15	Ani	1/1	Completed with errors		04/06/2017 13:52:34	04/06/2017 13:52:37
- An's Bookmarks for Review_1 Simple + All Des	WHDH		Multi	04/06/2017 11:04:44	00:03:15		1/3	Completed with errors			04/06/2017 13:52:37
- An's Bookmarks for Review_1 Simple + All Des_FTP	WHDH		FTP					Publishing failed			04/06/2017 13:54:26
- An's Bookmarks for Review_1 Simple + All Des_MPX- Stre...	WHDH		MPX- Streaming, making a diff & Mus...					Completed			04/06/2017 13:54:26
- An's Bookmarks for Review_1 Simple + All Des_Volicon Q...	WHDH		Volicon Qa Ori - Page					Completed			04/06/2017 13:54:26
- Local Export_FOX_WFXT_2017_04_05_11_41_55	FOX_WFXT			04/05/2017 09:39:49	00:00:30	BVS	0/1	Completed		04/05/2017 12:46:44	04/05/2017 12:46:45
- Local Export_FOX_WFXT_2017_04_05_11_41_55	FOX_WFXT			04/05/2017 09:39:49	00:00:30		0/0	Completed			04/05/2017 12:46:45
- WSBK_2017_04_05_01_42_08_1 Simple + All Des	WSBK		MPX- Streaming, making a diff & Mus...	04/05/2017 01:42:08	00:00:15	Eyal	0/1	Completed		04/05/2017 02:01:11	04/05/2017 02:01:14
- WSBK_2017_04_05_01_42_08_1 Simple + All Des	WSBK		MPX- Streaming, making a diff & Mus...	04/05/2017 01:42:08	00:00:15		0/1	Completed			04/05/2017 02:01:14
- WSBK_2017_04_05_01_42_08_1 Simple + All Des_MPX- Str...	WSBK		MPX- Streaming, making a diff & Mus...					Completed			04/05/2017 02:01:32

Figure: Expanded view – jobs and parts

Depending on the specific status, hovering over an item highlights it in blue and may bring up additional icons at the far right. These icons let you view detailed information, rerun the event or delete it.

09/28/2017 09:38:24	00:00:15	dev	0/1	Completed	09/29/2017 14:49:21	09/29/2017 14:51:08	
09/28/2017 09:38:20	00:02:02	dev	1/1	Failed	09/29/2017 14:48:32	09/29/2017 14:51:08	

Figure: Failed task info

4.6.1 Management console search

The search feature enables you to home in on a specific event rather than scrolling through the entire list. At the bottom of the search pane are two buttons: **<Search>** and **<Reset>**. Search refreshes the page with new search results; **<Reset>** clears search parameters back to defaults for next search.

Keyword: accept matching text string. The search is not case sensitive.

Status: dropdown to Limit search to the selected Status type.

Destination: limits search to selected export destinations.

Time range: limits search to specific beginning and end times.

Created by: limits search to specific user account.

Channel list: this search feature may be expanded or collapsed it allows you to limit search to a specific channel; entering text into **Filter** restricts channels to those that match.

Last Search: displays recent search criteria; clicking on the search refreshes the view with that search result.

4.7 Scheduled recording tab

The scheduled recording features enabled you to capture a program using the set-top-box remote control feature. The Channel dashboard works much the same as with other tabs. Use the search feature to limit the display to specific encoders.

Pending and completed jobs are displayed to the right. Hovering over a job highlights it in blue. Clicking the **<Play>** icon plays the program once it has been recorded and enables you to create a **bookmarked** clip. The **<Delete>** icon removes the recording. If the program has not yet been recorded use the **<Edit>** icon to modify the event.



Figure: Schedule recording display

4.7.1 Create a scheduled recording

To create a new scheduled recording click the **<New>**  icon at the top of the page. This opens the **Add** schedule recording pane.

Event name: enter a descriptive name for the recording.

Bouquet: use this dropdown to select a Bouquet. Bouquets are logical grouping of channels associated with a STB.

Service: select the specific channel you are interested in recording.

From/to: enter Start and end times.

Encoder: refers to the STB used to capture the program. At any given time only a single program can be recorded on a given STB. If there is a scheduling conflict that STB is greyed out. In the example shown STB1 is busy during the needed time period so you need to select one of the other STBs.

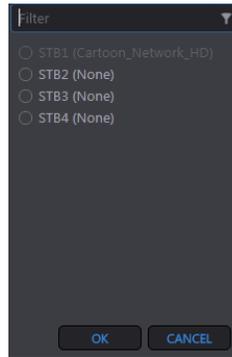


Figure: Schedule conflict STB1

Recurrence: the default occurrence is a single recording. The Recurrence option allows you to override this default and capture the program multiple times.

Notes: optional descriptive text about the event.

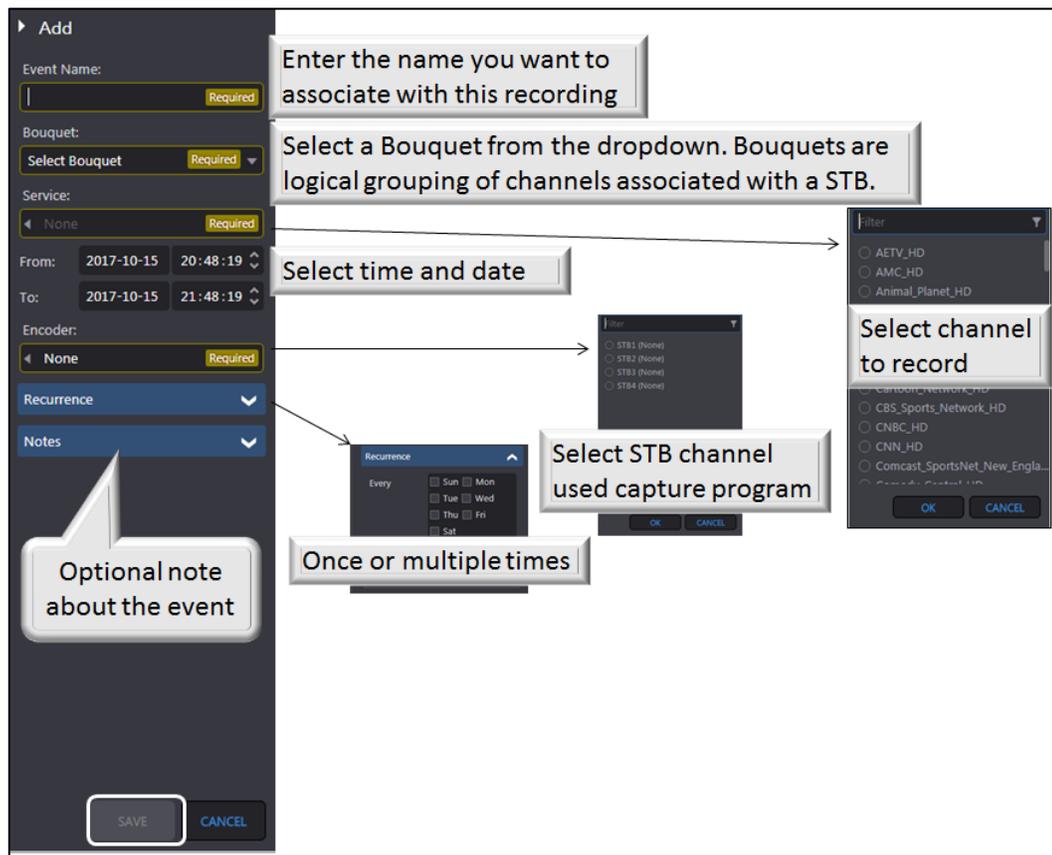


Figure: Create new scheduled recording

Press **<Save>** to create the event. A confirmation appears at the top of the screen indicating the event was created.

4.8 Electronic program guide tab

If the optional STB remote control feature is active the EPG facilitates scheduling of recording events. Use the dashboard to select the entire EPG or limit the EPG to particular channels or categories.

Select the appropriate Bouquet if more than one has been configured. Bouquets are a convenient way to group multiple channels. To select a subset of the entire EPG use: services, categories and time range. In addition you can enter free form text into the keyword entry. Press **<Search>** to display the EPG.

Use the  customize columns icon to display relevant information. The screen shot below is displaying all columns.

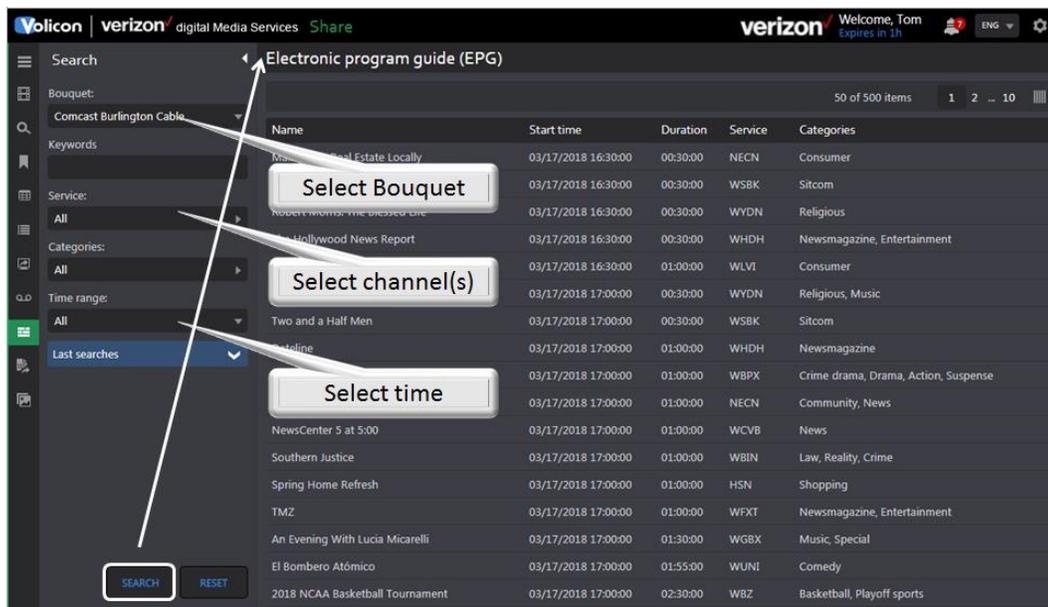


Figure: Electronic program guide

4.8.1 Using the EPG to schedule a recording task

To schedule a task from the EPG hover over the desired program. The program line is highlighted in blue. Click the **<Add to scheduled recording>** icon at the right of the page. Information about the program is displayed. Select an encoder and press **<Save>**. The job will be added to the Scheduled recording page. If it is currently being recorded Status is indicated as recording. If the event is in the future Status will display as scheduled. Once the program has been recorded,

status is updated with “recorded” if the program was captured successfully or “failed” if not.

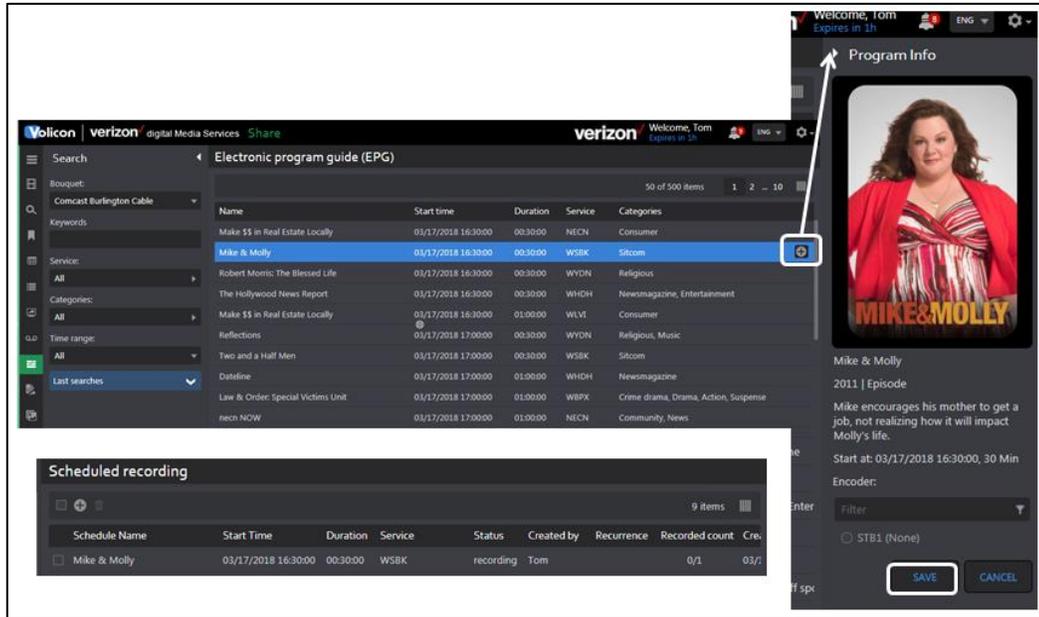


Figure: EPG schedule recording

5 USING SHARE

Share provides a convenient workflow for dissemination of captured assets to multiple distribution channels. The broadcaster can clip and export segments of existing content or repurposed content complete with accurate captions. One-button publishing profiles facilitate rapid processing of content to meet appropriate container and encoding requirements for an array of platforms, including target websites, YouTube, Twitter, and Facebook. **Share** also makes use of existing closed captioning text to publish content that is compliant with government regulations.

Most **Share** features are common to the other MIS sections and have been documented previously.

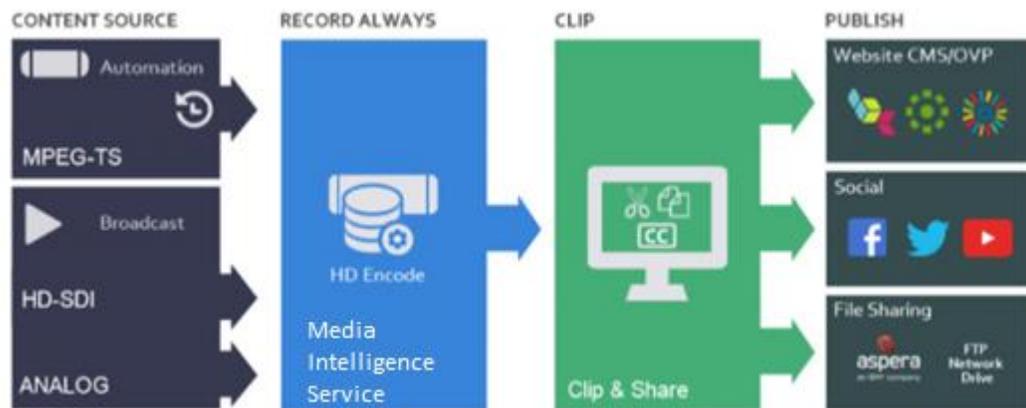


Fig: Share workflow

5.1 Advanced content export tab

ACE facilitates monitoring and ad verification use cases as well as content creation. ACE is integrated with the As Run Log (ARL). It provides the ability to automatically create assets and place them in predefined locations. For example, with ACE you can quickly choose an interval, such as from 5PM to 7PM, and the system will show the breakdown of individual assets with their names. From that you are able to filter by name or duration to quickly remove irrelevant ads and merge the remaining assets into a single video file and share it.

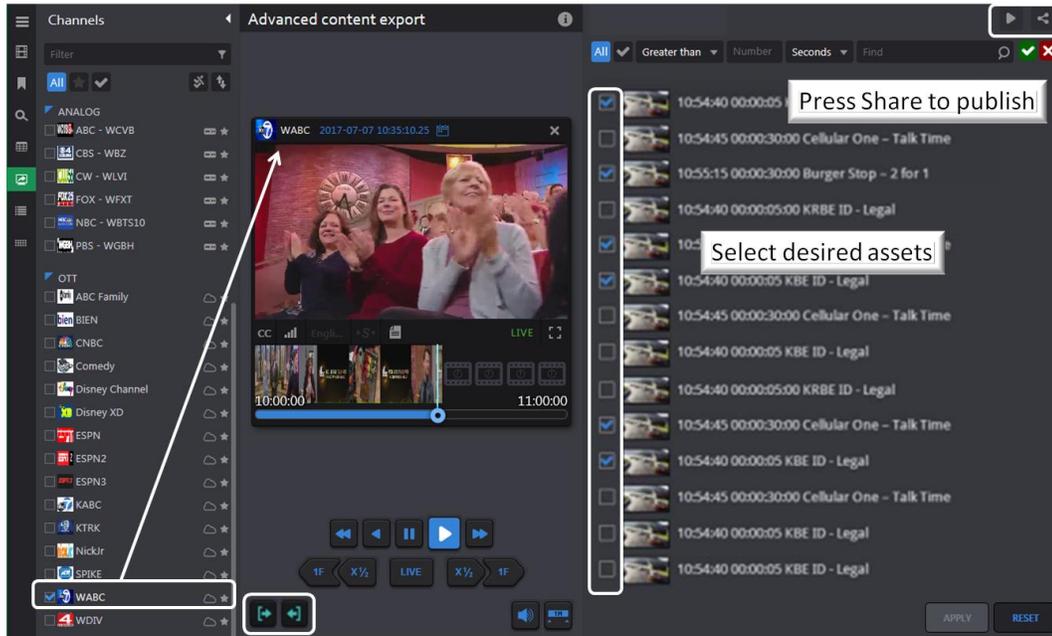


Figure: Advanced content export

Select the desired channel from the Channel Dashboard. The viewer is launched automatically. Press the <Mark in> button to begin the capture process. The right hand panel is populated with assets until the <Mark out> button is pressed.

Initially all assets are unchecked. Use the search bar to select the desired assets.

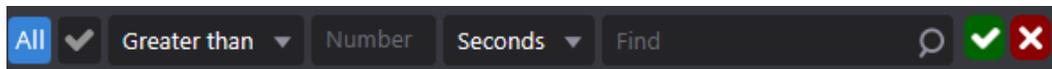


Figure: ACE asset search bar

All <input checked="" type="checkbox"/>	Toggle search between all assets or only those checked
Greater than	Selects assets longer than preset time
Less than	Selects assets shorter than preset time
Number	Select number of occurrences
Seconds/Minutes	Select time interval
Find	Text box to select matching assets
<input checked="" type="checkbox"/>	Search
<input checked="" type="checkbox"/>	Reset search criteria

Once the desired assets are selected press <Play all> to view and <Share tracks as one> to share/export the track much like other bookmarks.

5.2 As run log based export tab

This section enables you to schedule program export based on the ARL. The channel dashboard enables you to restrict the display to desired jobs.

The ribbon at the top of the list area allows you to manage jobs.



Select/deselect all: Toggle between select and deselect of all jobs



Create new job: Create new export job



Remove selected jobs: delete any selected jobs



Enable job: enable any selected jobs



Disable job: disable any selected jobs



Customize columns: use this feature to select which columns to display

5.2.1 Adding an ARL export job

Several fields are required and highlighted in gold. Press the  info icon for addition information about specific fields.

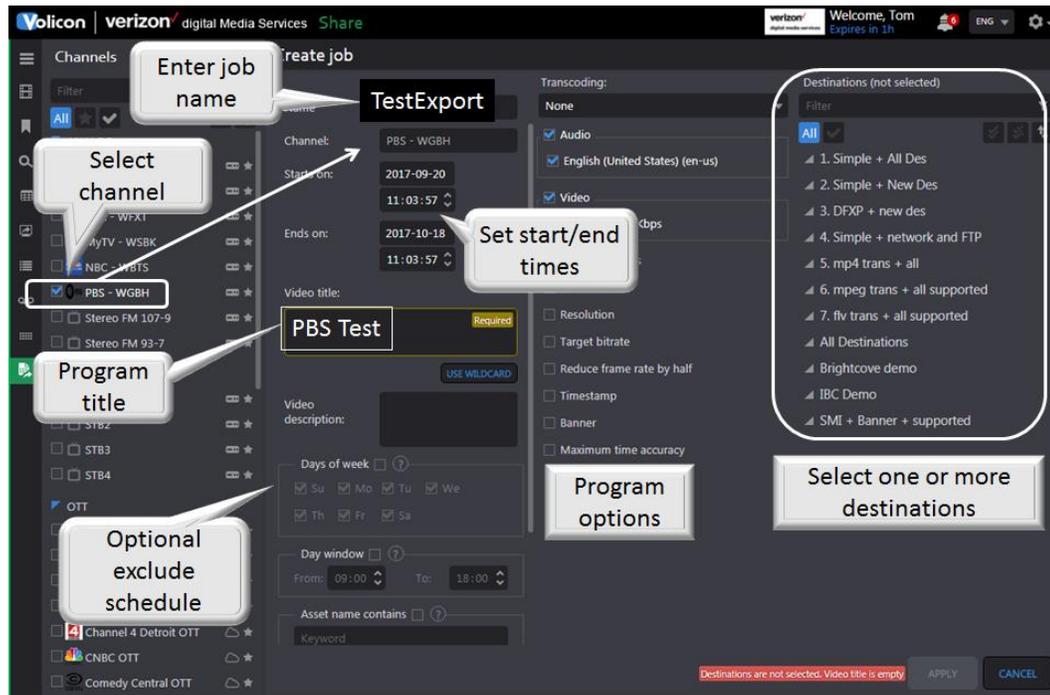


Figure: ARL scheduled export

5.3 Asset library tab

This page allows you to upload pre-defined assets (video or static image) in order to use them as input for the Share Light Editor (SLE).

5.3.1 Asset search

If there are a large number of assets, use the left hand Search pane to find the desired asset. Search criteria may be any combination of Keyword, Type, Owner and Time Range. The search function works much like Search elsewhere in server. Use the **<Search>** icon at the bottom to restrict the display to desired assets or the **<Reset>** icon to clear previous search criteria.

5.3.2 Adding an asset to the library

Click the **<Add>** icon to access the CEM Assets folder structure. By default the name of the asset is the same as the uploaded file name. Assets may be either images or video clips. Image assets have "Image" in the Duration column to differentiate them from video.

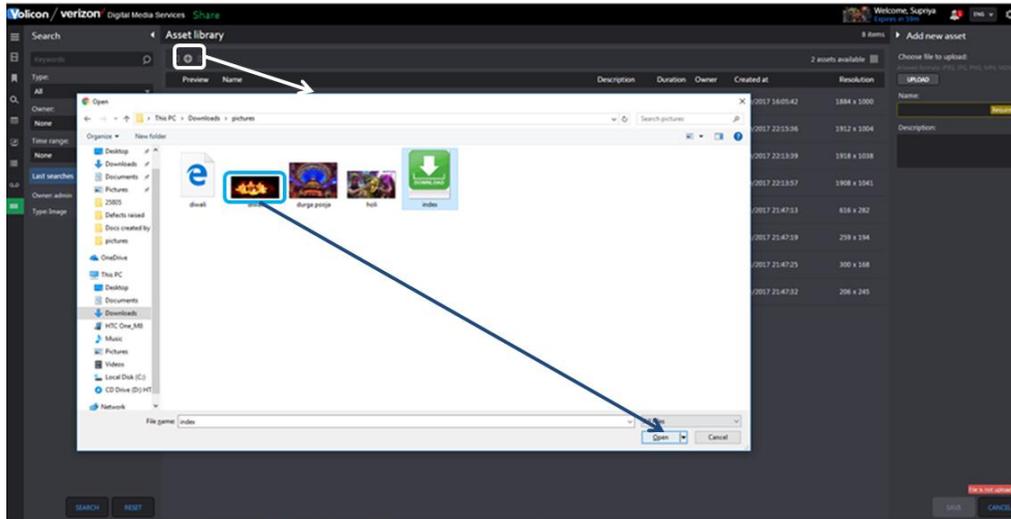


Figure: Adding file to asset library pt1

Click the **<Save>** button at the bottom of the page to upload the asset. An Asset uploaded successfully message will appear at the top of the page.

Each asset will have properties such as name–description–duration–owner–created and resolution.

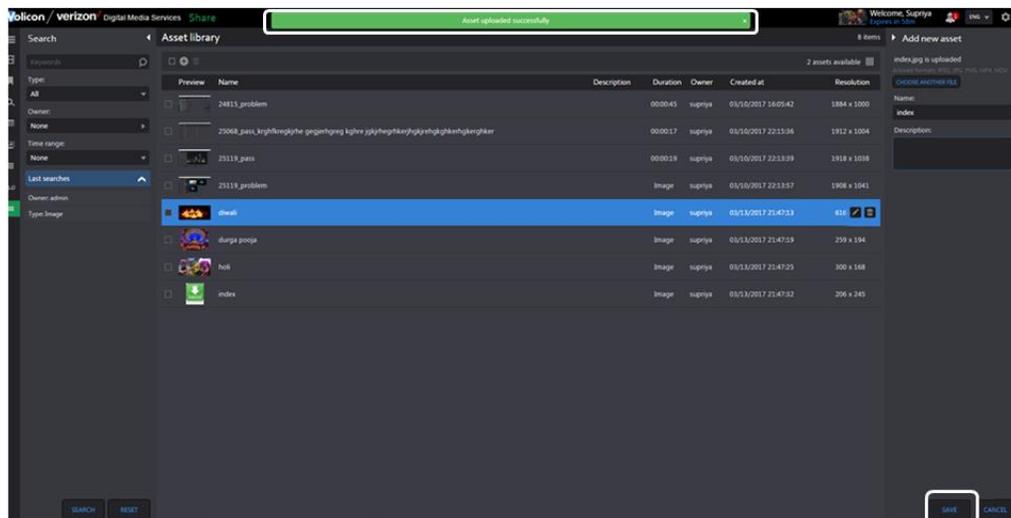


Figure: Adding file to asset library Pt2

5.3.3 Deleting library assets

To delete an asset hover over it and click the **<Trashcan>** icon to the right of the highlighted area. To delete multiple assets check the ones to delete and click the **<Delete All>** icon at the top of the page.

5.3.4 Editing asset metadata

Hover over the desired asset and click the **<Edit>** icon. The Edit asset pane on the right displays asset metadata. This allows you to change the asset **<Name>** and **<Description>** but not edit the asset itself.

5.3.5 Preview an asset

Hovering over the asset highlights the entry in blue indicating it is selected. Click the thumbnail to launch the Asset player. Click **<Play>** to view the asset if it does not autoplay. Off to the lower right are icons to adjust **<Volume>** and to play in **<Full screen mode>**. To close click the **<Close>** icon at the bottom of the player or the **<X>** on top.

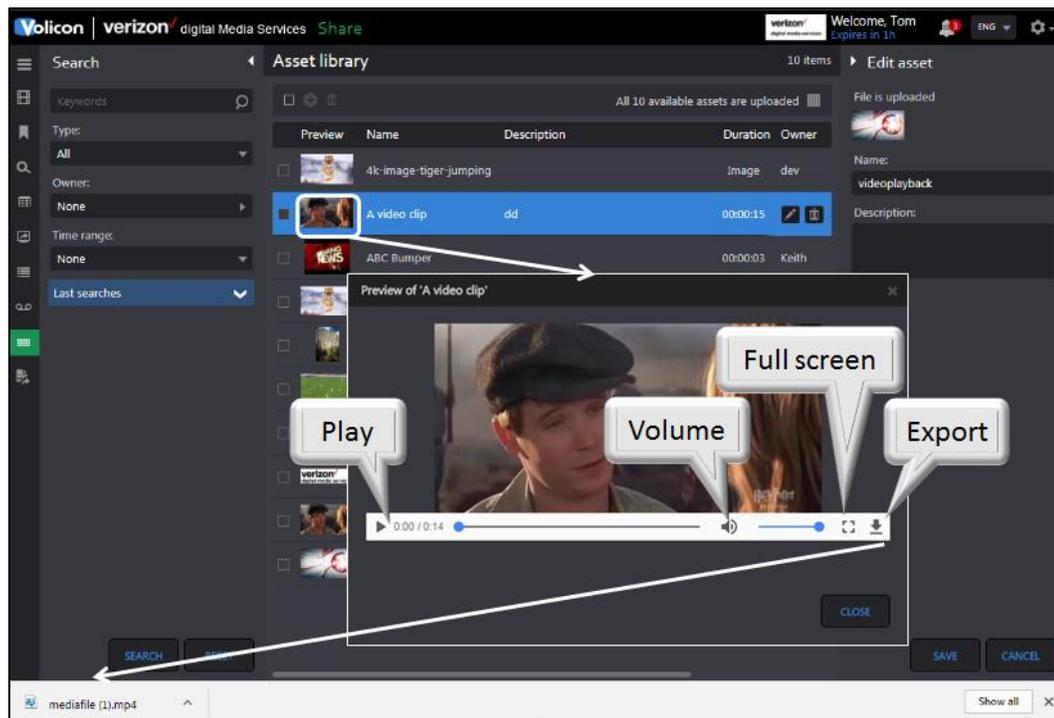
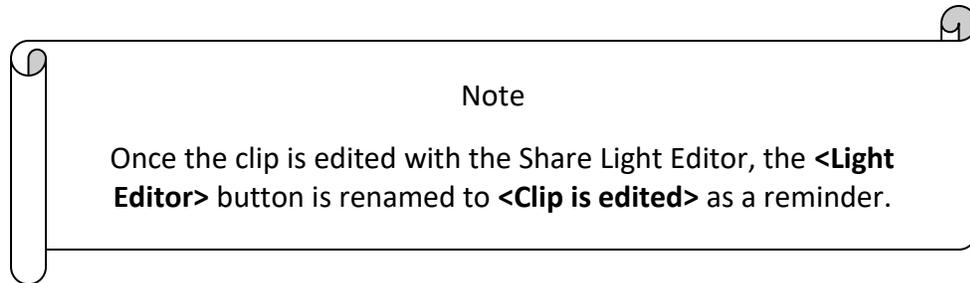


Figure: Asset preview

5.3.6 Editing video assets

The Share Light Editor enables you to add Intro, Outro, Slate, Fade in, Fade out, and splice tracks.

Any Asset or track can be deleted by clicking the **<Delete>** icon for the respective asset.



Select the clip you want to edit; this can be either an existing bookmark or newly created for the purpose. Click on **<Share track>** to access the clip.



Figure: Selecting bookmark clip to edit

Once you have the desired clip in sharing mode click the **<Light editor>** icon at the bottom of the page to open the Share Light Editor (SLE).



Figure: Invoking the Share light editor

5.3.6.1 Intro/Outro

To add an Intro/Outro the clip must be created and shared in the Asset Library. Click **<Insert before>** to insert an Intro and click **<Insert after>** to insert an Outro. Use the **<Zoom In>**, **<Zoom out>**, and **<Fit all>** to adjust the timeline display.



Figure: Intro and outro

A panel pops up on the left to select the asset to be inserted as Intro/Outro. Click on the asset to select it.

Note

Only assets of type Video as defined in the Asset library page are displayed.



Figure: Selecting intro or outro asset

After the asset is selected it is displayed in front and back of the clip in a different color to differentiate with the original track. Press the **<Save>** icon at the bottom of the page to update the clip.

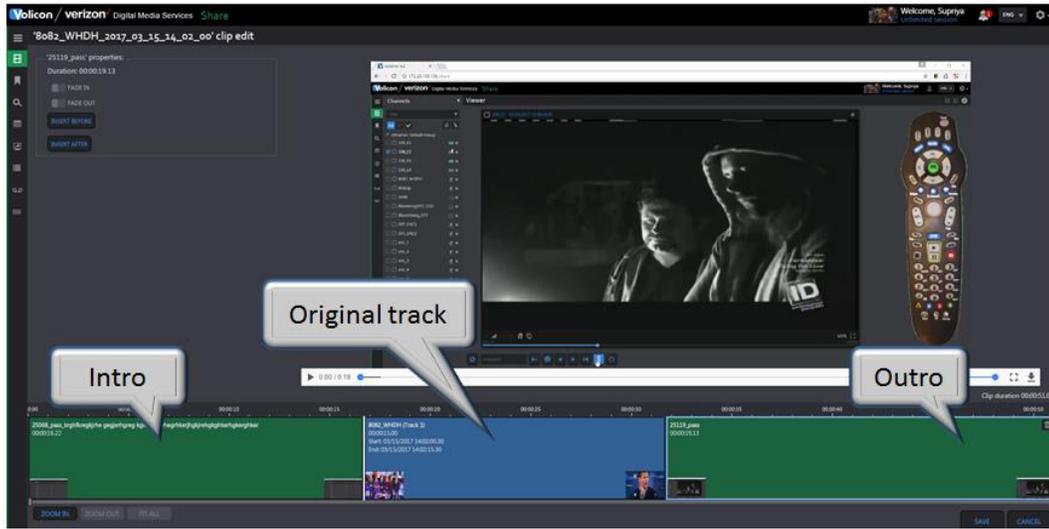


Figure: Inserting intro and outro

5.3.6.2 Fade in/fade out

Click **<Fade in>** to add black frames at the start of a track and **<Fade out>** to add black frames at the end. Press the **<Save>** icon at the bottom of the page to update the clip.

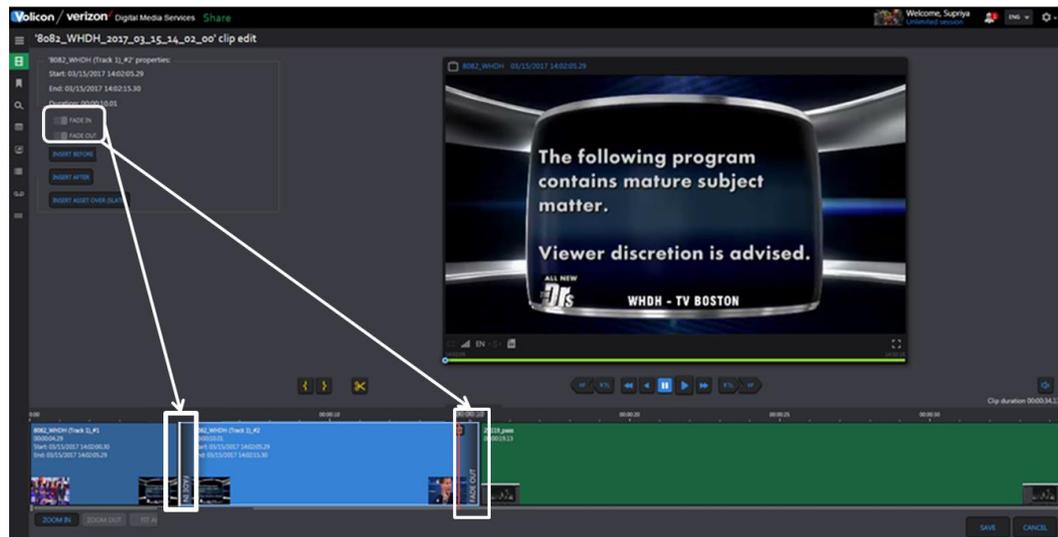


Figure: Inserting fade in and fade out

5.3.6.3 Slate

To insert a Slate click on **<Insert asset over (slate)>**. A Panel will appear with the list of Image assets as defined in the Asset Library.



Figure: Insert slate

Once Slate is selected you can change the start and end time and duration. Press the **<Save>** icon at the bottom of the page to update the clip.

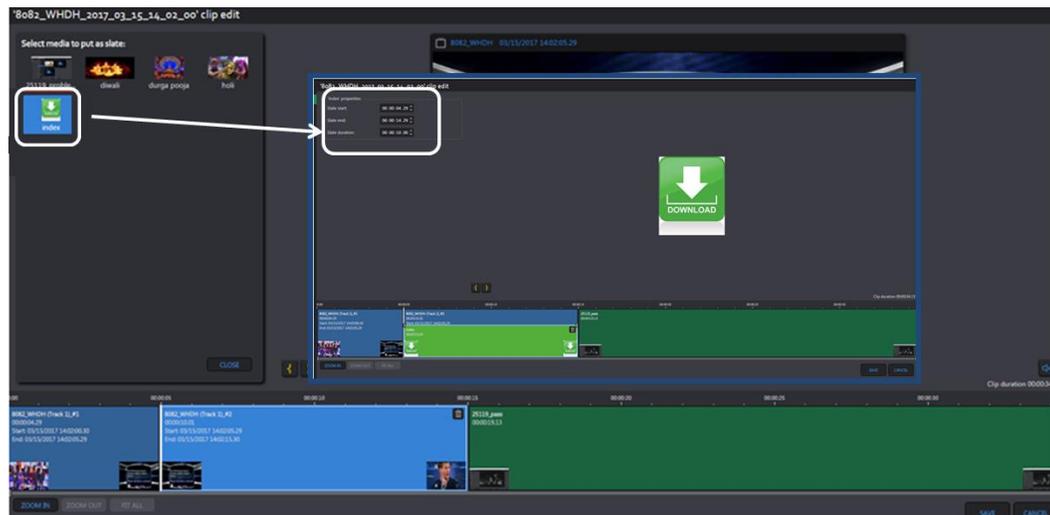


Figure: Adding slate

Slates cannot overlap Intro and Outro but they can overlap multiple tracks, spliced or otherwise.

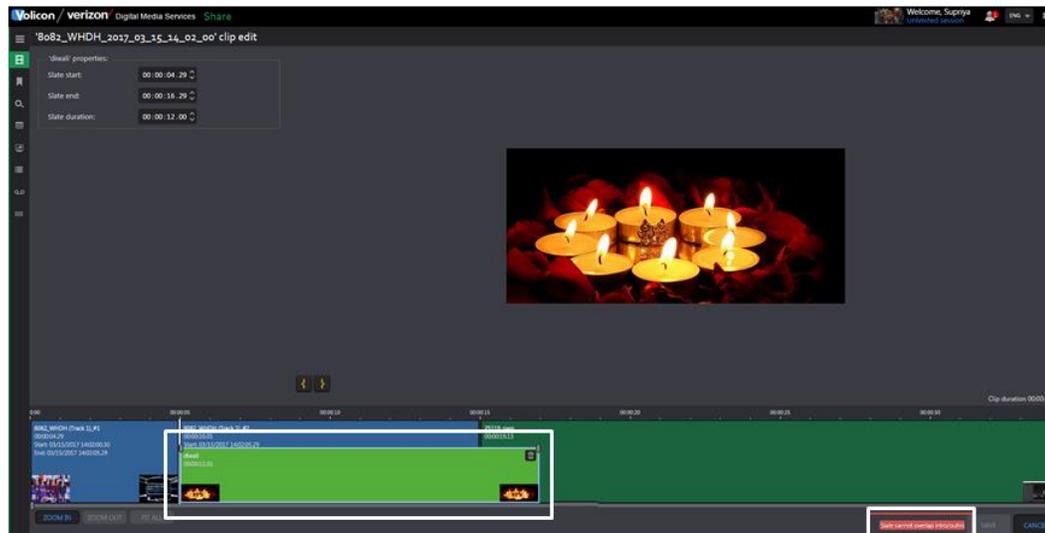


Figure: Slate overlap restriction

5.3.6.4 Splice tracks

A track can be divided into multiple tracks by using the splicer function located below the player. Click on the desired time in the track pane then click the **<Splice>** icon to divide the track. If the track is too short to split an error message appears at the top of the page.

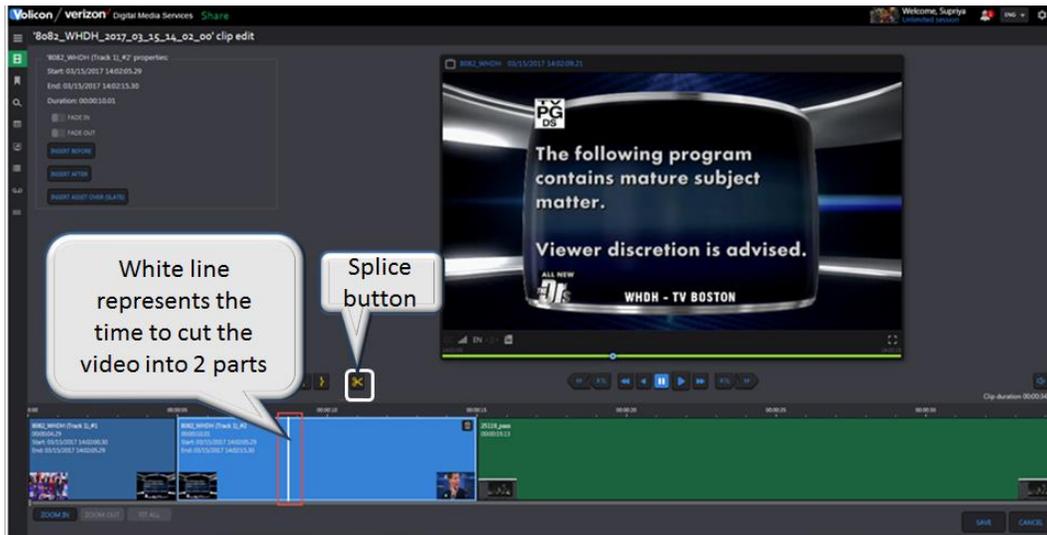


Figure: Splitting video into two parts

After splicing you will see multiple tracks on the Bookmark page, instead of just one.

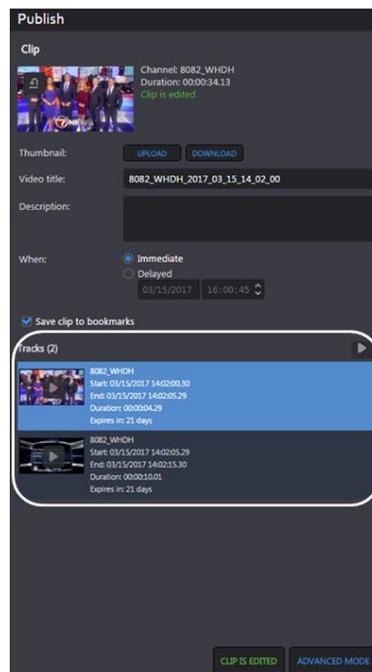


Figure: Splice result

6 USING DELIVER

The Deliver suite ingests video, transcodes it into multiple profiles, encrypts it and pushes it to Verizon's Edgecast CDN.

This section provides information about unique Deliver features. Functionality common to all MIS sections has been documented in the previous section.

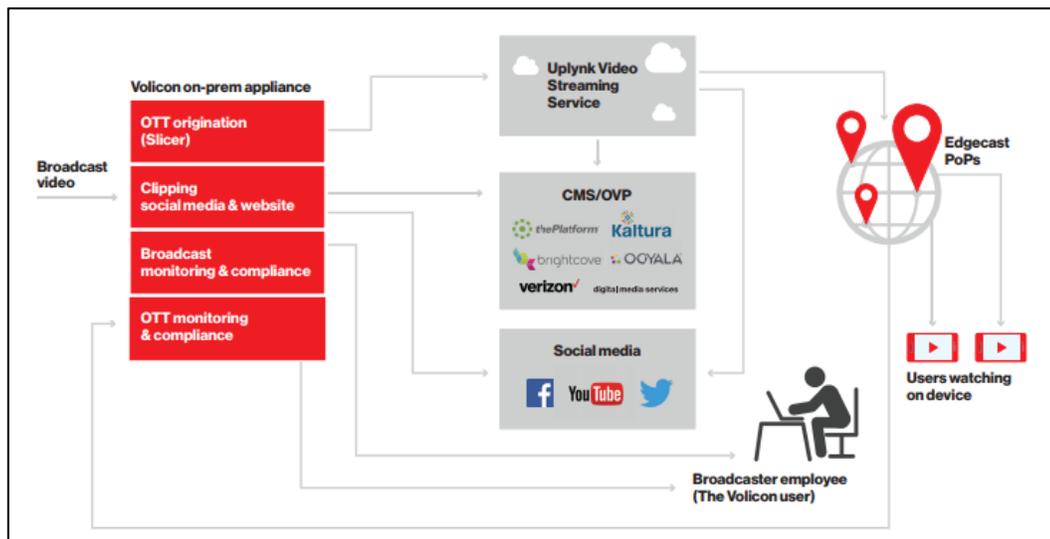


Figure: Deliver suite

6.1 Slicer monitor tab

The Slicer prepares content for encoding and uploads it to the UpLynk CMS system. The page displays all UpLynk accounts and channels. Use the slide switch at the top of the page to hide encoders that have not been configured to upload to UpLynk CMS.

The first step is to enter the UpLynk credentials to create a new account.

Figure: UpLynk credentials

Once the account has been configured, assign a Probe Encoder channel to UpLynk. This setting can only be changed when upload is disabled. Use the **<Enable UpLynk>** side switch icon to enable/disable program uplink.

Volicon Encoder Name	Uplynk Account	Uplynk Channels	Enable Uplynk	Uplynk status	Test Player
PBS - WGBH	conventions_live	pbs	OFF ON		
Record TV	conventions_live	RecordTV	OFF ON		
Discovery DPI	conventions_live	IBC Channel	OFF ON		
Verizon	conventions_live	IBC voldslicer 2	OFF ON		

Figure: UpLynk channels

Once set **<Enable>** UpLynk upload and click on the **<Test player>** icon. This opens a new browser tab and plays the video.

Note

The UpLynk test player requires Adobe Flash Player.



Figure: UpLynk test player

6.2 UpLynk CMS tab

This is the portal to the UpLynk video streaming CMS system.

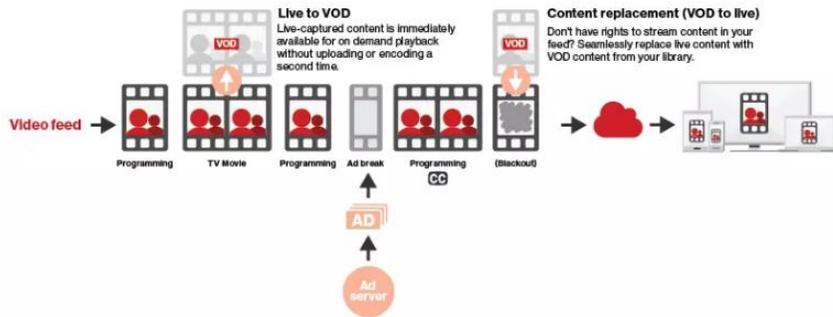


Figure: UpLynk program flow

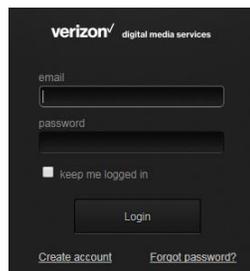


Figure: UpLynk portal login

7 USING REVIEW

Review gives you the power to monitor what competitors are doing, review ratings, and analyze content. This power is essential, especially in the world of competitive news and sports. In the newsroom, where time is always of the essence, broadcasters want the ability to compare, review, and analyze program content of other channels, or multiple channels, within a particular area or across networks.

This section provides information about unique **Review** features. Functionality common to all MIS sections has been documented in the previous section.



Fig: Review workflow

7.1 DPI monitoring tab

This feature allows you to view PIDs used to insert additional programs into the video stream. In the example we are monitoring the Discovery channel and DPI metadata is enabled in the viewer. The events scroll in synch with the viewer and current is highlighted.

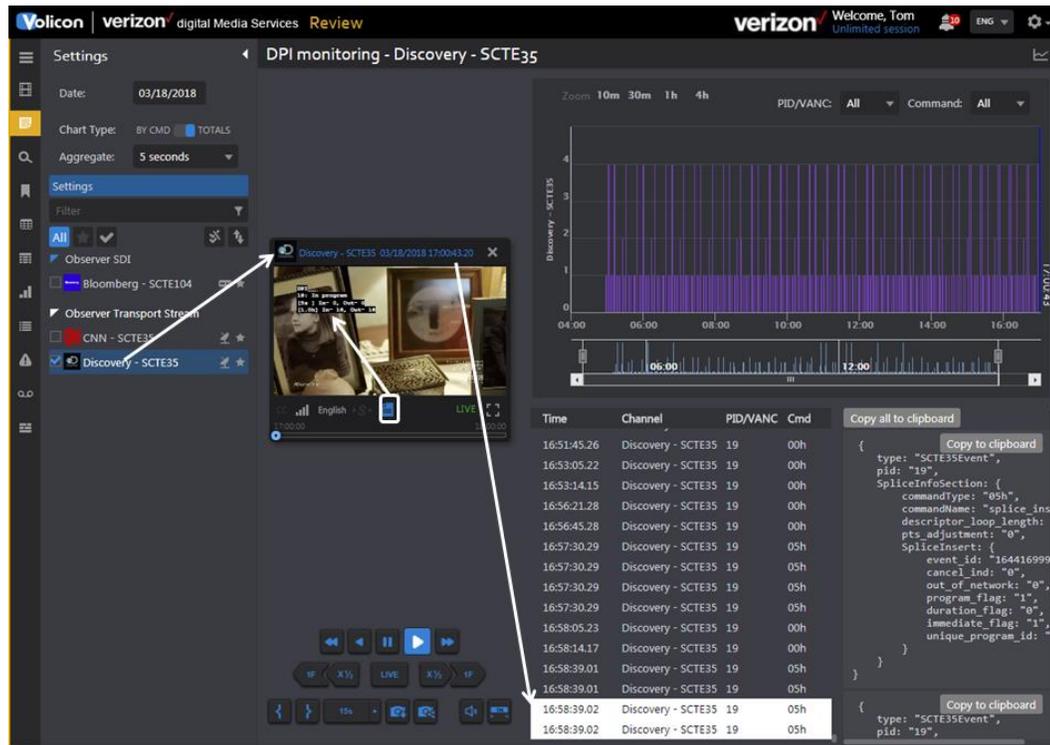


Figure: DPI channel monitoring

7.2 XDS clips tab

The section enables you to search for Extended Data Services metadata. Note XDS is limited to NTSC analog video streams.

If any of the video channels include XDS metadata you can use this feature to display relevant bookmarks. The search feature works like other MIS searches. When the page first opens all search constraints are wild carded so the page will show all bookmarks that include XDS metadata. If needed, use the search function to narrow down the list.



Figure: XDS clips ribbon

The ribbon above XDS clips provide tools to manage and combine bookmarks. The icon descriptions from left to right are:



Select/deselect this page: selects or deselects all the XDS clips on the current page



Combine selected XDS: combines multiple clips into one



Remove selected XDS: deletes all selected clips



Refresh list automatically: When icon is blue the page is automatically refreshed every few seconds; when white page is not updated once it is opened; clicking the **<Auto refresh>** icon toggles between the two modes



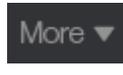
Grid view: displays thumbnail and description of the bookmark



List view: shrinks thumbnail and displays more information



Customize columns: only displayed in List view



Purge all and Export list

<Export list> saves XDS list to a spreadsheet



<Purge all> deletes all XDS clips

Page numbers: displayed if list exceeds a single page

In list and grid view hover over a clip to play, edit or delete

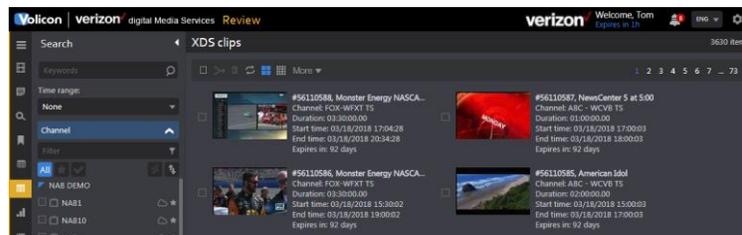


Figure: XDS grid view

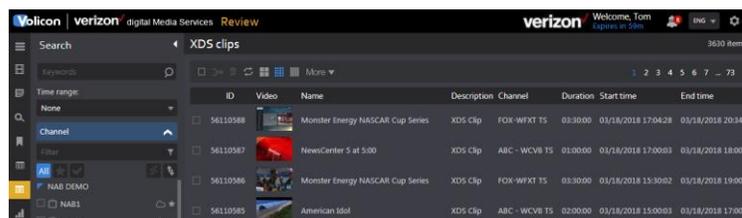


Figure: XDS list view



Figure: XDS clip

7.3 Ratings graph tab

The ratings graph tab allows you to display rating information for one or more channels. The feature extracts data from the customer's rating file.

In the example two channels were selected and the Sync-to-me feature was used so the ratings chart is synchronized for both channels.

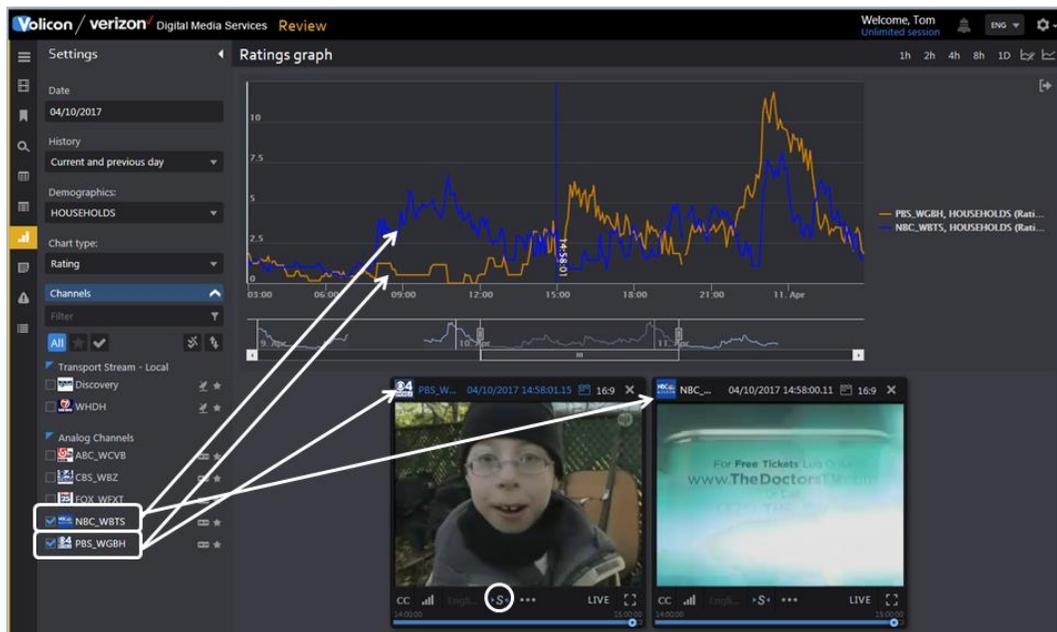


Figure: Two channel ratings graph

Hovering over the ratings graph displays the instantaneous value.

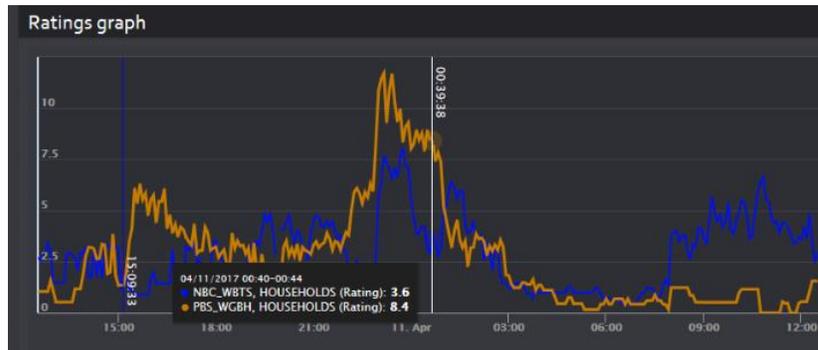


Figure: Instantaneous ratings

7.3.1 Selecting ratings

The **Settings Dashboard** on the left side of the screen is used to select:

Date: select the date; you can also set date using the viewer calendar function.

History: set the graph duration.

Demographics: select desired demographics.

Chart Type: toggle between Ratings and Share.

Channels: select one or more channels to display; this functions the same as other MIS features. If more than one channel is selected the graphs are color coded by channel.

The icons at the upper right of the page control the chart time frame and channel color. Clicking on the timeline advances or retards the playback. Clicking the **<Chart only>** icon hides the viewers.

7.4 Keyword alerts tab

Use this section to have MIS monitor Closed Captioning for specific words and generate a notification email. The channel dashboard works much like other MIS section to restrict the display to specific alerts.

7.4.1 Search

The search field works much the same as in other MIS applications. You are able to search by keyword, Alert type, time, email recipients and channel.

7.4.2 Alert controls

Icons at the top of the alerts page enable you to control alert notification and delete old alerts.



Check all: select all alerts



Create new alert: manually add an alert



Remove selected alert: delete any checked alerts



Enable alerts



Disable alerts



Customized column: check or uncheck desired columns

7.4.3 Create a keyword alert

Pressing the new alert icon  opens a new page composed of three sections.

The left hand pane allows you to set which email account(s) MIS sends the alert and define the alert name and subject line. By default the alert is sent to your email accounts. You can delete your address and add multiple other addresses. If there are multiple addresses the Email to field changes from the email name to **Multi(x)** indicating how many emails are selected. Opening the dropdown displays a list of email addresses.

Below that are **Advanced** options used to limit how often and when to send the alert.

The **Keywords** middle pane is used to specify keywords. Each time you enter a keyword the system automatically generates another text box to enter an additional keyword. If you enter multiple keywords MIS will generate an alert if any match the closed captioned text.

Lastly the right hand **Assign channels** pane allows you to select the channel or channels you want to monitor. Typing all or part of the channel name into the **Filter** text box at the top of the display list restricts the display to matching channels.

Press **<Save changes>** at the bottom of the page to add an alert. To test the alert press the **<Test Deliver>** icon in the left hand section.

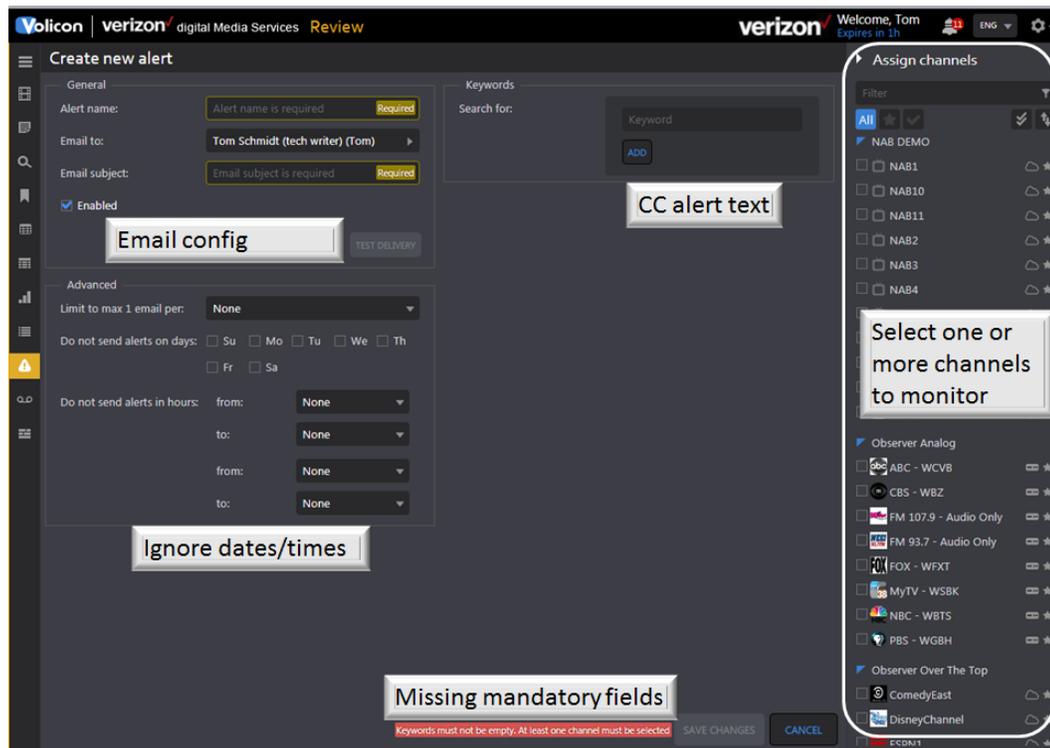


Figure: Closed captioning alert

7.4.4 Editing/deleting a keyword alert

To edit or delete an Alert, hover over the alert. MIS will display the edit  icon on the right hand side of the alert. Pressing the icon opens the same page you used to create the alert, except now it is filled in. Press **<Save changes>** when you are finished editing the alert. Use the **Trashcan** icon to delete the alert.

8 USING COMPLY

Comply continually and automatically captures, stores, and streams on-air feeds, offering simultaneous users 24/7 access to live and recorded broadcast content from desktop computers or smart devices. Producing compliance reports with extracted A/V affidavits simplifies the ability to respond to public or legal inquiries while providing complete and unambiguous proof of compliance.

Functionality common to all MIS sections has been documented in the previous section.

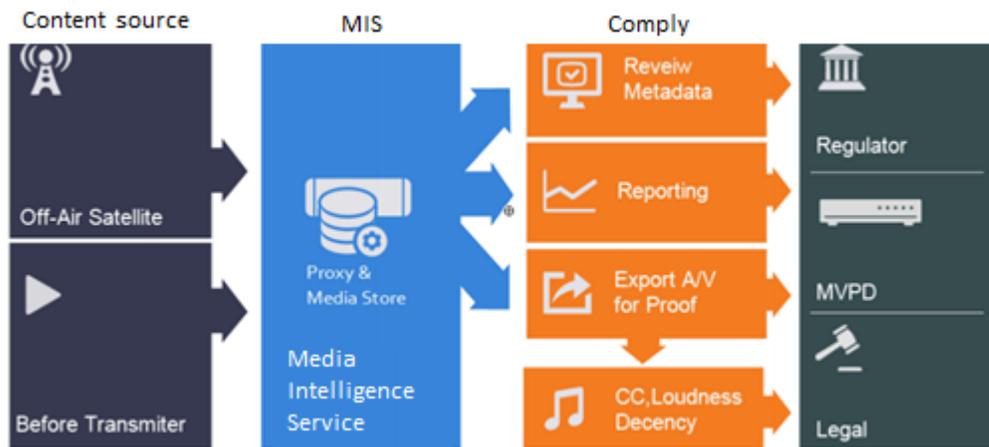


Fig: Comply work flow

8.1 Schedule export tab

This feature allows you to schedule grabbing video clips and publishing them to one or more social media sites.

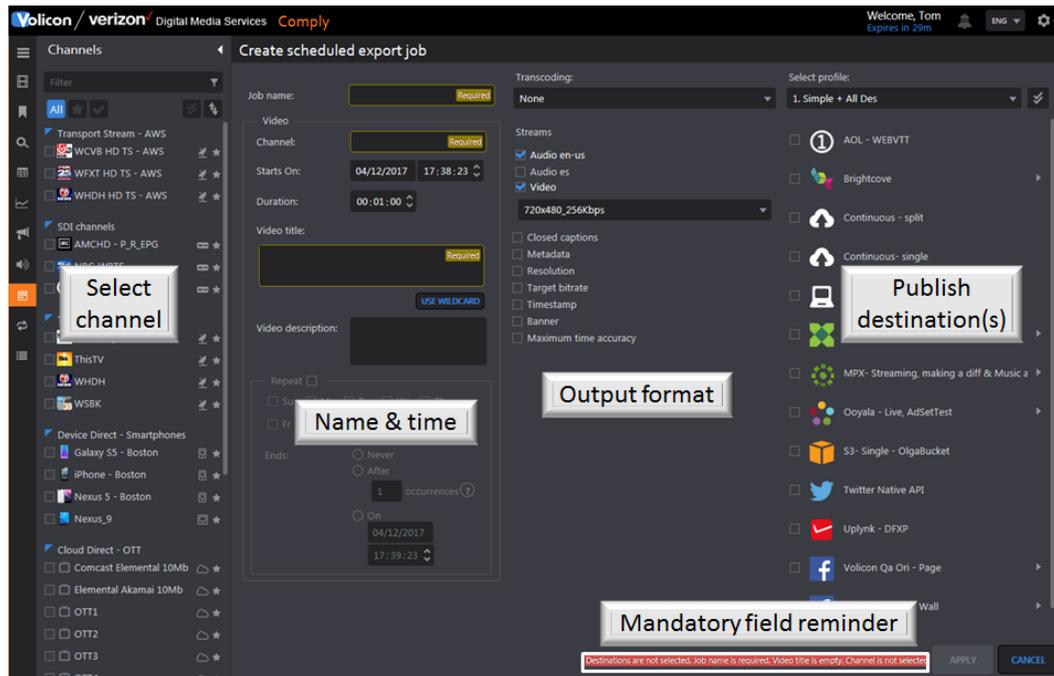


Figure: Schedule export

Job name	User friendly description of job
Channel	Channel to export – create separate jobs for each exported channel.
Starts on	When the job starts
Duration	Duration of program to be exported
File name	User defined file name
Wildcard	Predefined file names
Start overlap	Seconds added at the start of the clip to capture previous program
End overlap	Seconds added at the end of the clip to capture next program
Ends	Never: exports continuously After: number of times job will run; an occurrence is the duration previously specified: If duration set to 1-hour and occurrences set to 3, will export 3 hours of programming beginning at the start time On: date/time job will terminate

8.2 Continuous export tab

This feature works much the same as scheduled export except you are able to configure it so it never ends or ends automatically after it has exported a number of programs. Continuous export can be used to archive programs from within MIS to internal share or via FTP.

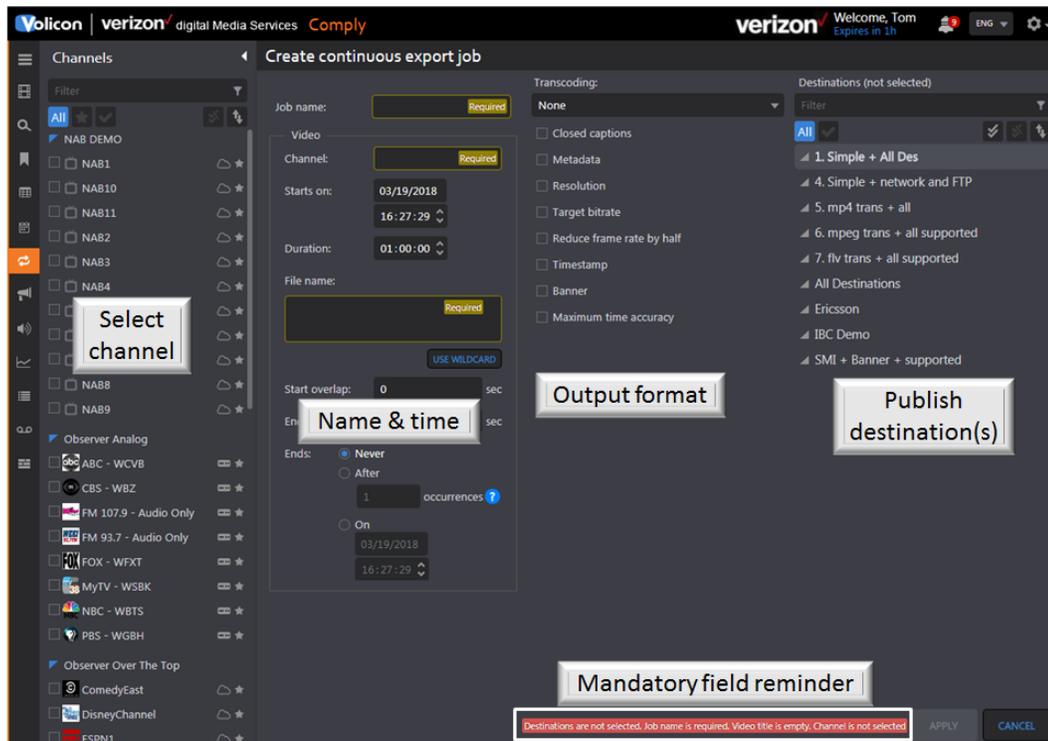


Figure: Continuous export

8.3 Program loudness report tab

The program loudness report tab is used to display digital audio levels. MIS compares the program to a user defined reference value. If a violation occurs MIS turns that portion of the graph red. The info icon provides more information about each of the reporting options.

Use the **Search** feature to select the channel/program of interest, loudness settings and report timeframe. MIS supports several loudness monitoring methods. Once the method is selected additional fields are displayed.

Use the Audio channels selector to set which channels are reported.

If desired you can play the clip by clicking on the video icon.

To hide programs that do not contain loudness data click the  **show/hide** icon at the top of the report page. Use the  **export list** option to save the report to a spreadsheet.

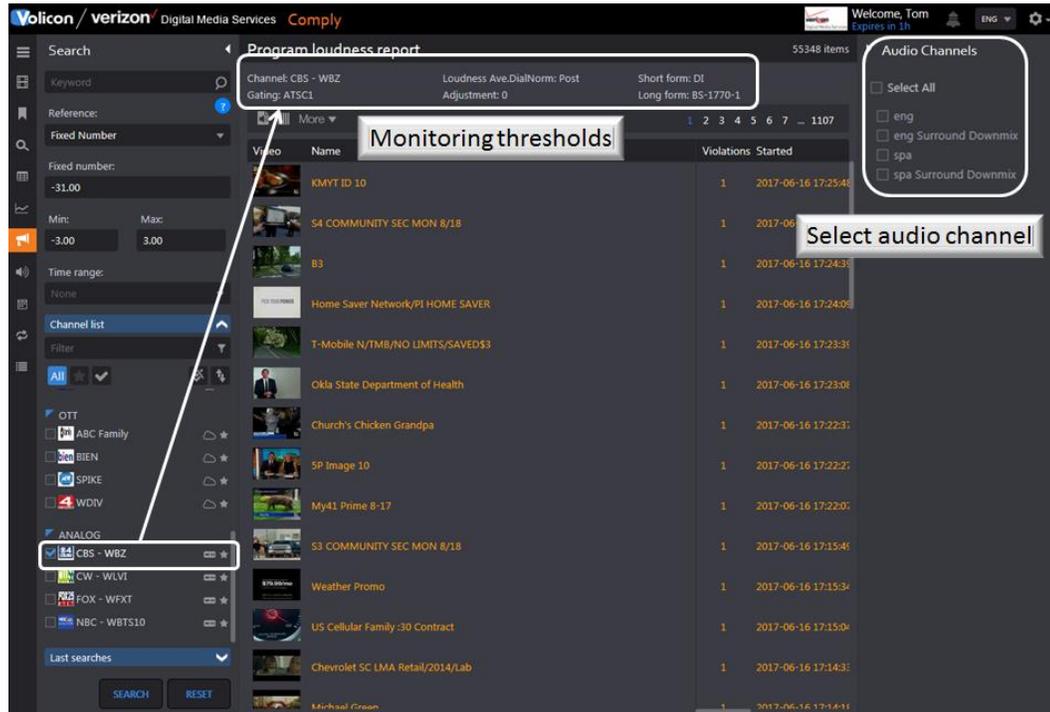


Figure: Channel loudness report

8.3.1 Report measurement fields

Gating	Pauses loudness measurement during soft passages for a more accurate report.
Dialnorm	Dialogue normalization level: metadata received from the digital AC3 stream used to control playback gain. Integer value with a range of 1 – 31 corresponding to a playback gain of 0 – -30dB (unity); the loudness graph is displayed as Loudness K-weighted relative to full scale (LKFS) to comply with FCC CALM requirements.
Long IPL	Weighted average selectable for the last hour or last 24 hours.
Fixed Number	Use this setting to override the default Dialnorm value of -31.
Min/Max	Use these values to set the loudness window; if loudness is lower or higher than set point MIS turns that section of the graph red indicating a loudness violation.

8.4 Loudness graph tab

The Loudness graph feature is used to display channel audio volume. Use the **<History>** dropdown to select graph time duration. The **<Channels>** setting expands/contracts the channel list, from there select a channel. This opens the media player and populates the bottom of the **Settings** pane with another icon titled **Metrics**. Clicking the **<Metrics Chevron>** displays all audio stream types. Hovering over the audio name displays a plus icon. Press it to display a list of available graphs. If there are multiple audio programs you are able to graph each one.



Figure: Loudness graph

In the **Setting** pane specify program **Date** and **time**. You can adjust the date/time by using the calendar feature of the player. If this option is left blank the player is opened in the mode specified in user preferences in the Tools menu. The example shown is live which is why the loudness graph does not extend all the way to the end. The **History** dropdown sets the maximum duration of the graph.

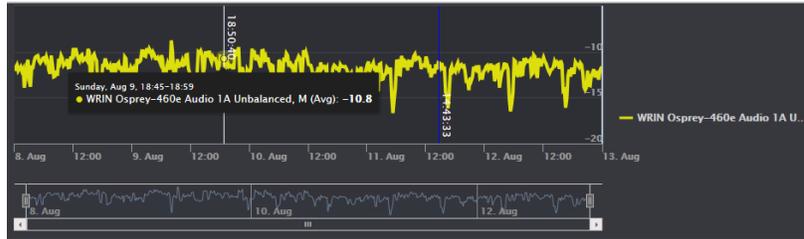


Figure: Loudness detail

Positioning the cursor in the graph lets you zoom in on an area of interest and display the instantaneous loudness level. To examine the graph in more detail slide the bars at either end of the lower graph image to expand the upper graph. Once the graph is expanded use the left and right arrow keys of the lower graph to step through the entire range.

The graphs are color coded. Hovering over the graph identifies each color and the instantaneous value at the cursor position.

8.4.1 Graphing options

M measurement	Momentary sliding rectangular (.4s) integrated window - sampling every 100 milliseconds, calculating its average every 400 msec. These values are not configurable
S measurement	Short term sliding rectangular (3s) integration window - sampling every 100 milliseconds, calculating the average every 3 seconds; these values are not configurable
SI measurement	Short Integrated sampling every 100 milliseconds - MIS calculates the average every X seconds within up to 6 defined durations (usually left at the default value 10 seconds)
Speech_Exists	Binary True/False indication of speech
Speech_Level	Speech audio level
Min	Graph Minimum loudness level
Avg	Graph Average loudness level
Max	Graph Maximum loudness level
Range	Shades the area between min and max graph

8.5 DPI graph tab

The DPI graph feature displays insertion and end points. Select the channel of interest from the channel dashboard then select the type of graph you want from the <Reference> dropdown.

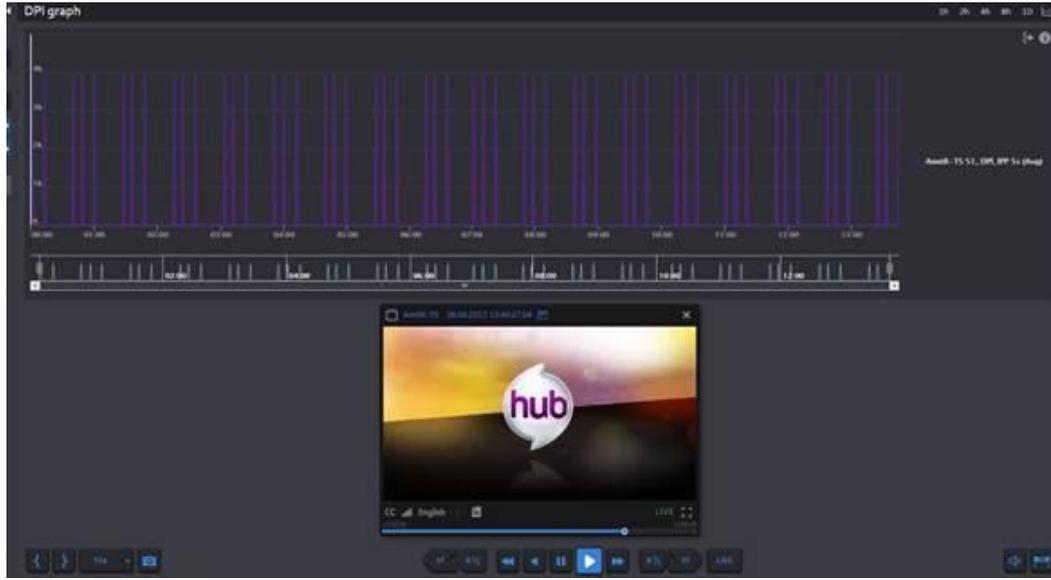


Figure: DPI graph

9 USING MONITOR

With 24/7 monitoring and notification capabilities, you are able to monitor broadcast quality, report faults, respond to and fix issues, and use full recording to instantly review the impact of detected errors. Monitor measures loudness and DPI, and alarm and record quality impairments such as black screen.

A unique MIS Monitor feature is “Multiview;” this allows you to configure a single screen to display the various tracked items.

Functionality common to all MIS sections has been documented in the previous section.

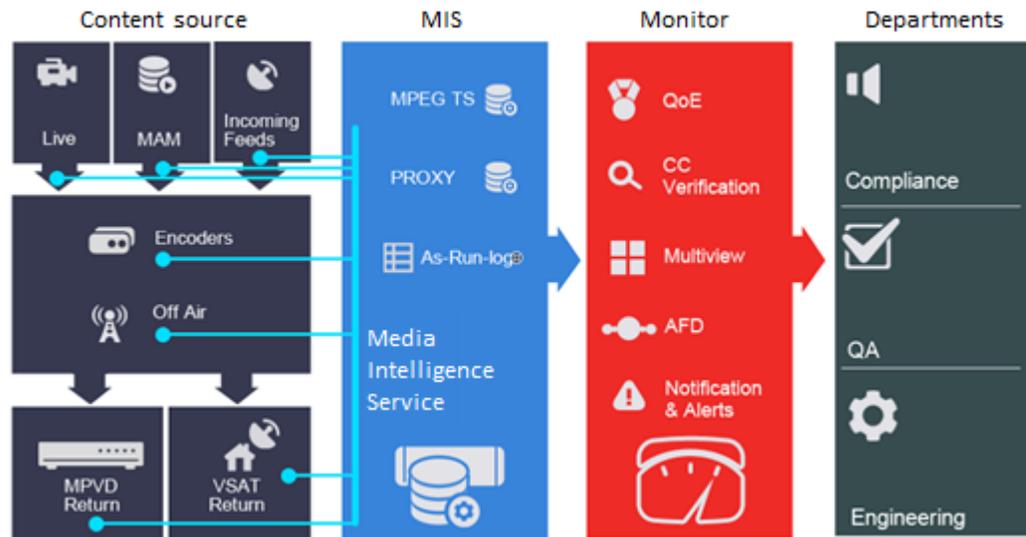


Fig: Monitor workflow

9.1 GPI clips tab

If any of the video channels include broadcast automation General Purpose Interface (GPI) metadata, you can use this feature to display relevant clips.

GPI search

The search feature works like other MIS searches. When the page first opens all search constraints are wild carded so the page will show all clips that include

some GPI metadata. If there are a lot of GPI clips, the search function allows you to narrow down the list.

9.1.1 GPI clip display options

The ribbon at the top of the GPI Clips pane allows you to manage and modify captured clips.



Select/deselect this page: Selects all GPI clips on page; if there are no clips option is greyed out



Combine selected GPI: combine multiple GPI clips; this option is greyed out if no clips are selected



Remove selected GPI: Delete selected GPI clips; this option is greyed out if no clips are selected



Refresh list automatically: When icon is blue the page is automatically refreshed every few seconds; when white, page is not refreshed once it is opened; clicking the **<Auto refresh>** icon toggles between the two modes



Grid and List view: similar to other MIS settings: grid displays a large thumbnail and limited descriptive clip detail; in List view the thumbnail is smaller and the amount of descriptive detail is much greater



Customize columns: In list view use this feature to select which columns to display



Purge all & Export list: **Purge all** deletes all GPI clips; Use **Export list** to save GPI clip list to an Excel spreadsheet

If there are more than a single page of fault clips, MIS displays multiple page numbers at the upper right hand corner of the screen.

9.2 DPI clips tab

Digital Program Insertion (DPI) metadata allows cable headends and broadcast affiliates to insert locally-generated commercials and short programs into remotely distributed regional programs before they are delivered to customers. If this feature is enabled MIS automatically creates a clip each time it detects DPI metadata.

9.2.1 DPI search

The search feature works like other MIS searches. When the page first opens all search constraints are wild carded so the page will show all clips that include some DPI metadata. If there are a lot of DPI clips the search function allows you to narrow down the list.

9.2.2 DPI clip display options

The ribbon at the top of the DPI Clips pane allows you to manage and modify captured clips.



Select/deselect this page: Selects all DPI clips on page; if there are no clips option is greyed out



Combine selected DPI: combine multiple DPI clips; this option is greyed out if no clips are selected



Remove selected DPI: Delete selected DPI clips; this option is greyed out if no clips are selected



Refresh list automatically: When icon is blue the page is automatically refreshed every few seconds; when white, page is not updated once it is opened; clicking the **<Auto refresh>** icon toggles between the two modes



Grid and List view: similar to other MIS settings: grid displays a large thumbnail and limited descriptive clip detail; in List view the thumbnail is smaller and the amount of descriptive detail is much greater



Customize columns: In list view, use this feature to select which columns to display

More **Purge all & Export list:** **Purge all** deletes all DPI clips; Use **Export list** to save DPI clip list to an Excel spreadsheet

If there are more than a single page of fault clips, MIS displays multiple page numbers at the upper right hand corner of the screen.

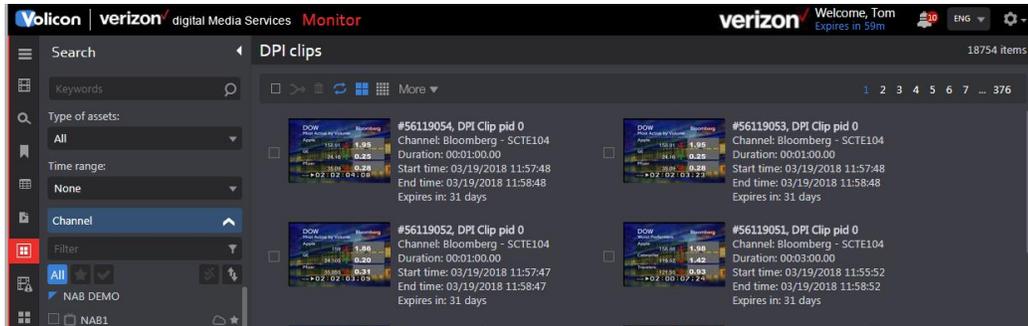


Figure: DPI grid view

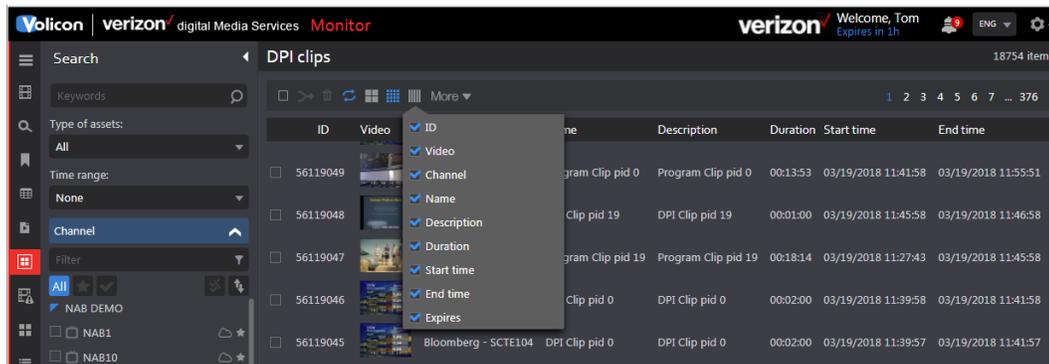


Figure: DPI list view w/column selector

9.3 Fault clips tab

This icon displays video clips flagged as meeting one or more MIS fault conditions. When the page first opens all search constraints are wild carded so the page displays all clips that include a MIS flagged fault. If there are a lot of faults, the search function allows you to narrow down the list.

9.3.1 Fault search

The Search dashboard lets you display only those faults of interest.

Keyword	Free form text search
Owner	Owner to whom the clip is assigned
Fault Type	Recoveries, video, audio, equipment and metadata
Time/Date	Restrict time and date range
Channel list	Click anywhere in the icon to expand or collapse the channel list
Filter	Enter a channel name to limit dashboard display size
Last Searches	MIS caches recent searches allow you to quickly redo an existing search

To reuse a previous search expand the **<Last Search>** icon at the bottom of the search pane by clicking the title. Highlight the desired search and press **<Search>**. To manage your search history you can delete unnecessary old searches by hovering over the search name and pressing the **<X>** to the right. Pressing **<Reset>** at the bottom of the dashboard clears all searches.

9.3.2 Fault clip display options

The ribbon at the top of the Fault Clips pane allows you to manage and modify captured faults.



Check all: Selects all fault clips; if there are no clips this option is greyed out



Create new Fault: manually create a fault clip



Combine selected Fault: enables you to combine multiple fault clips into a single combined clip; if there are no clips selected this option is greyed out



Email selected faults: opens a dialog box to email one or more clips to selected user(s) and optionally create an email subject title; this option is greyed out if there are no selected clips



Remove selected fault: delete all selected fault clips; this option is greyed out if there are no selected clips



Refresh list automatically: When icon is blue the page is automatically refreshed every few seconds; when white, the page is not updated once it is opened; clicking the icon toggles between the two modes



Grid and List view: similar to other MIS settings; grid displays a large thumbnail and limited descriptive clip detail; in List view the thumbnail is smaller and the amount of descriptive detail is much greater



Customize columns: In list view, use this feature to select which columns to display



Export list, Purge all fault clips & Deselect all fault clips: **Export list** opens an Excel spreadsheet showing details of each clip, the spreadsheet may be opened or saved to your desktop; **Purge all fault clips** option allows you to quickly remove all fault clips; **Deselect all** unchecks any selected fault clips

If there are more than a single page of fault clips, MIS displays multiple page numbers at the upper right hand corner of the screen.

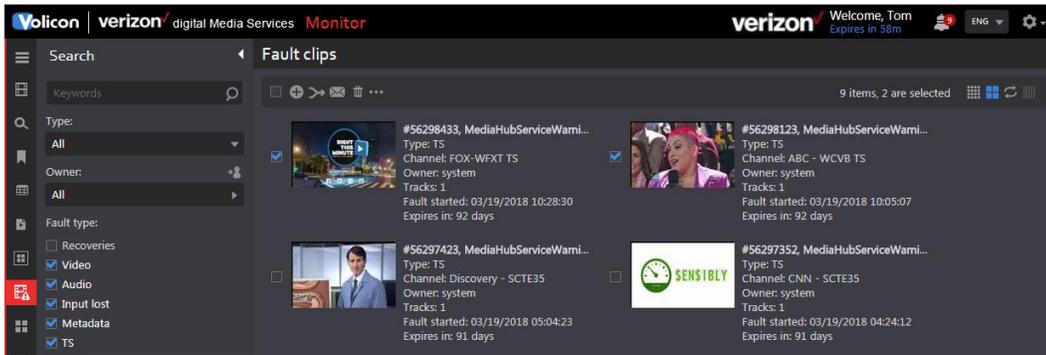


Figure: Fault clips grid view

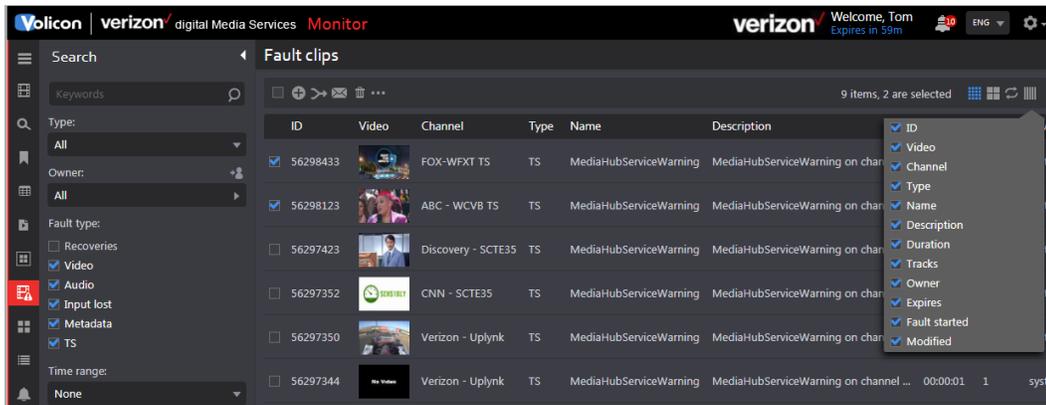


Figure: Fault clips list view w/column selector

9.3.3 Manual fault clip creation

MIS allows you to manually create a fault clip. This works much the same as creating a Bookmark. Press the Add Clip icon at the top of the page. This opens a new page with the channel list on the left. Select a channel, mark the clip, name the clip, optionally include descriptive text for more information and use the **Fault type** radio button to specify the type of fault. Press **<Apply>** at the bottom to create the clip.



Figure: Manual fault clip creation

9.4 Multiview tab

Multiview allows you to set up customized screens displaying multiple video channels along with other relevant information.

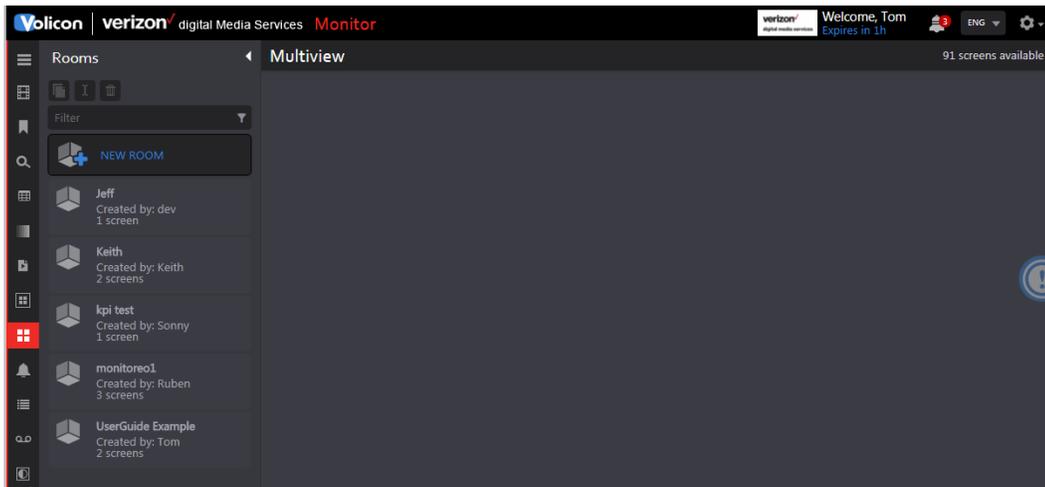


Figure: Multiview home

Once a room or screen has been configured, MIS allows you to create a duplicate copy. For example, let's say you need to monitor two channels. You could locate all the information in a single screen or, once you have set up a screen displaying the relevant information, use the duplicate command to clone the screen and change the relevant cells within the new screen.

9.4.1 Using Multiview

From the **Monitor** suite click on the **<Multiview>** icon on the left side of the screen. Scroll down to the desired room in the **Rooms** management pane. If there are a large number of rooms use the search feature to find the desired room.

Click the desired room to display all associated screens for that room. As an example in this manual we are going to click **UserGuide example**. Note the area around the word **UserGuide example** turns blue as a reminder that is the room being displayed. Under each room name the number of configured screens is displayed. **UserGuide example** has two screens: **UserGuide** and **Testscreen**. For the moment ignore **Add screen** that will be discussed later.

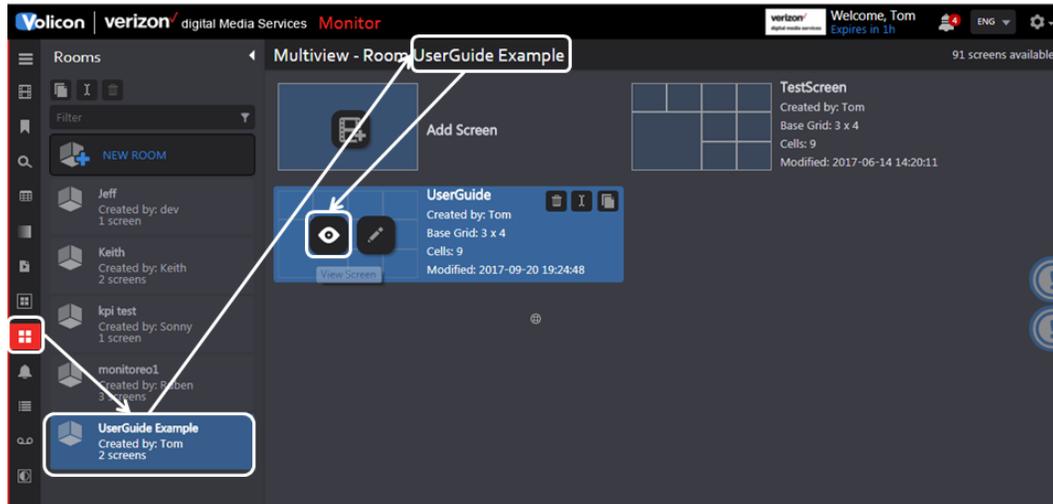


Figure: Select Multiview room

9.4.1.1 Displaying a screen

Hover over the desired screen - in this case we are selecting the one called **UserGuide** - and left click on the <eyeball> icon. This opens the screen in a new tab on your browser.

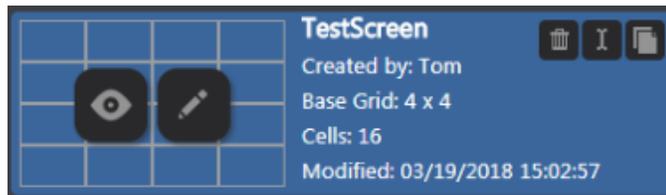


Figure: Activate Multiview screen

9.4.1.2 Multiview thumbnails

The room can be configured to display multiple channel thumbnails. This is a low resolution image along with any fault status.

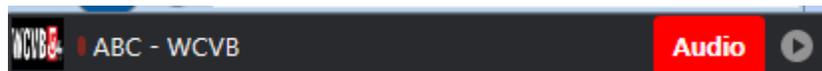


Figure: Thumbnail title bar

At the left is the channel logo (if configured) and channel name. If there are any faults they are identified in red.

Click  **<Inspect>** at the top of the video thumbnail to open the quarantine player. The quarantine player supports most of the same features as the regular viewer except the player is always in live mode.

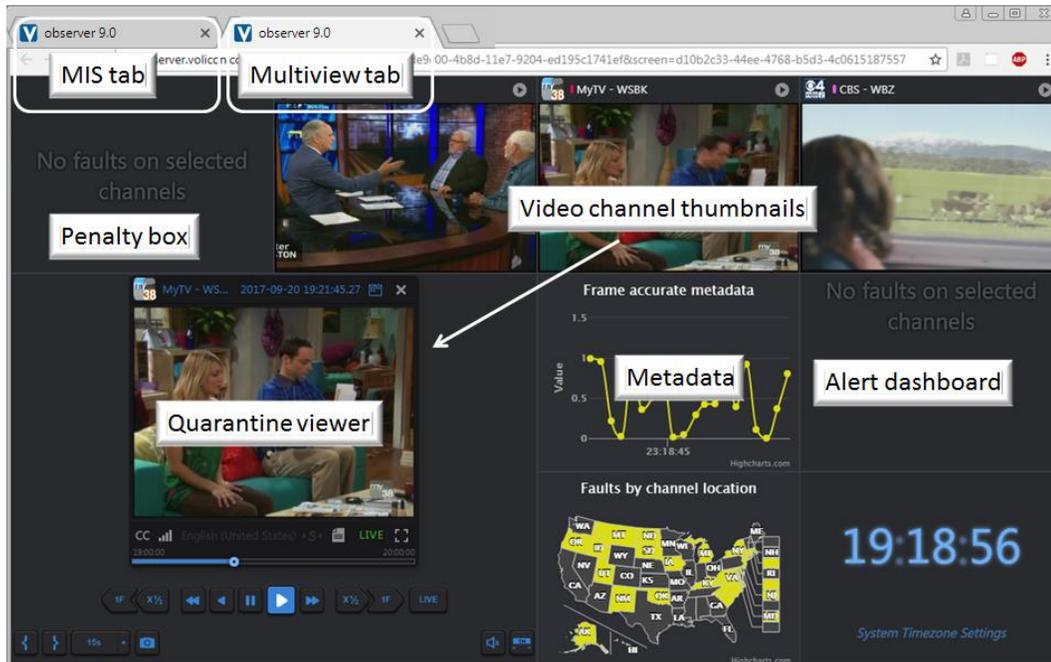


Figure: Multiview screen

9.4.1.3 Using the quarantine player to create a bookmark

To create a bookmark in one of the room screens the screen must be configured with the Quarantine Player.

Click **<Inspect>** on the desired video thumbnail to open the player. Creating bookmarks with the Quarantine Player is similar to using the player in other MIS sections. Mark the start and end time to create a new bookmark. This automatically creates a new bookmark in the bookmark section. The status bar at the top of the screen lets you know if the bookmark was created successfully. The bookmark is automatically titled: quarantine_ [Channel Name] [Date] [Time].

Once a bookmark is created you are able to view it under the **<Bookmark>** tab in any MIS screen. From there you can edit the bookmark and, if desired, change its name.

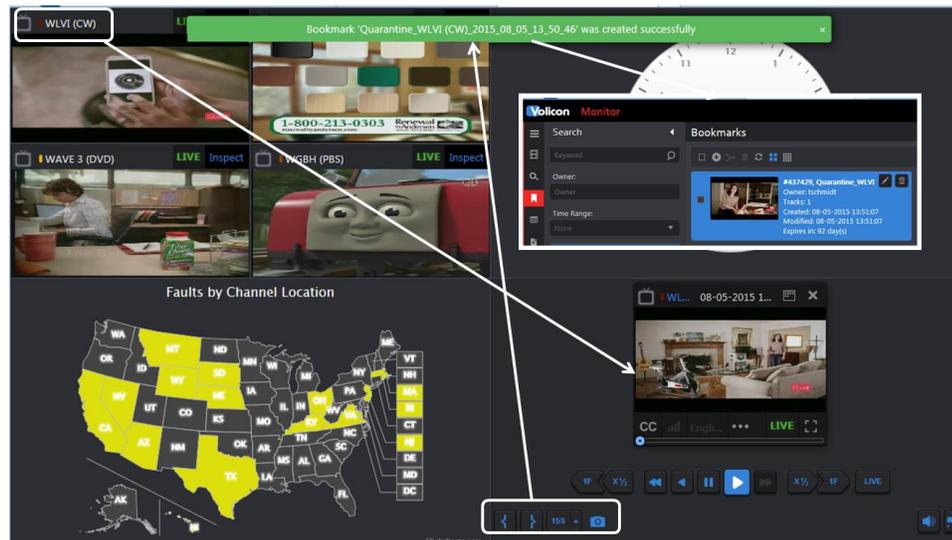


Figure: Quarantine player bookmark

To manage bookmarks created by the Quarantine Player use the bookmark tab.

9.4.2 Configure Multiview rooms

To create a new room you have two choices: create one from scratch or copy an existing room then rename and modify it.

9.4.2.1 Copy an existing room

Let's start by copying an existing room. In the room's pane above the search filter are three icons. From left to right they are: **Duplicate**, **Rename** and **Delete**. To duplicate a room, left-click the room to select it. The example below uses the **<UserGuide Example>** room. Then click the **<Duplicate>** icon. A dialog box opens with the name of the room prefixed by duplicate. If you click **<OK>**, that will be the name of the new room. At any time you can rename a room by selecting it and using the **<Rename>** icon. To create a new room with the desired name simply enter the name in the Duplicate text box and hit **<OK>**.

The new Room is automatically added to the Rooms list.

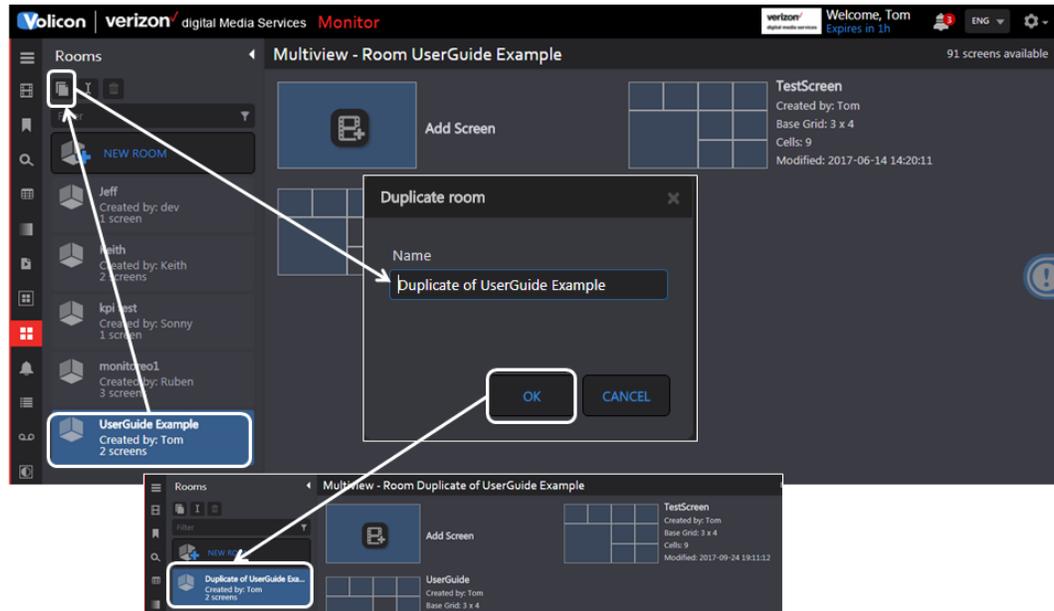


Figure: Duplicating a Multiview room

9.4.2.2 Creating a new room from scratch

To create a new room from scratch click the **<New Room>** button towards the top of the Rooms pane. This opens a dialog box; type in the desired name and press **<OK>**. The new room is automatically populated in the room's pane. Note the new room is flagged as empty.

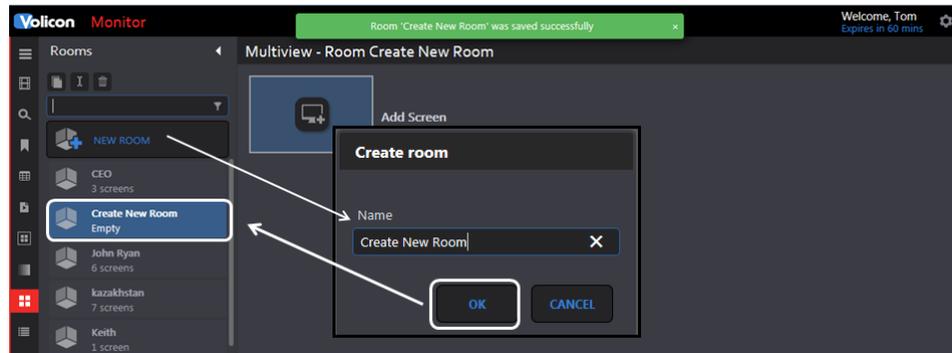


Figure: Create new Multiview room

9.4.3 Create Multiview screen

A room consists of one or more screens. Screens may be created from scratch or cloned and then edited to customize each one.

To create a new screen use the **<Add screen>** icon at the top of the page. This opens a dialog box; enter the name of the screen and press **<OK>**. At the top of the new page select the number of the cells you want. These may be either 4:3 or widescreen 16:9 with different cell matrix sizes. Select the matrix type and size and click **<Apply>**. The new screen will be added to the room.

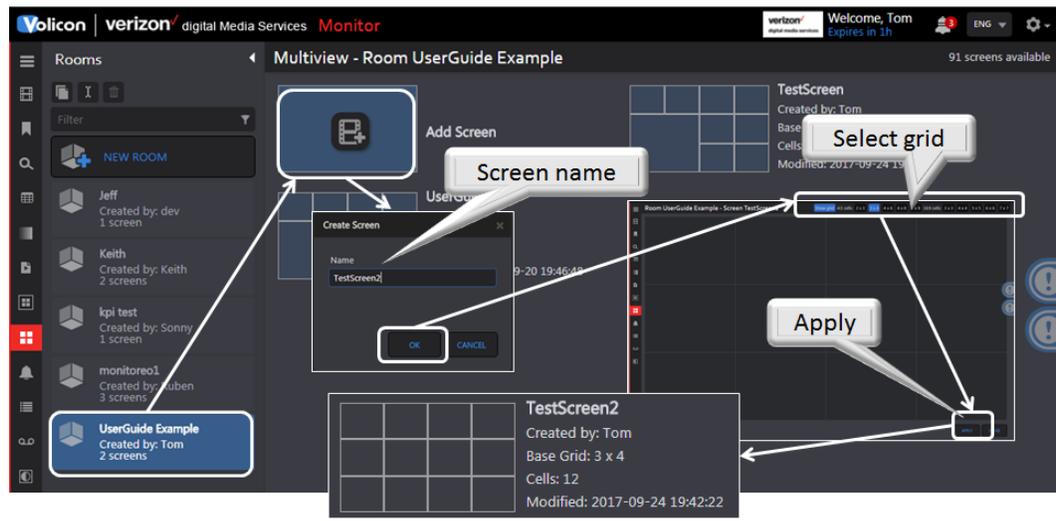


Figure: Create Multiview screen

9.4.4 Configure Multiview screen

Once the new screen matrix is created it needs to be configured. Hover over the desired screen and click the **<edit layout>** icon. Position the cursor over the desired cell and left click to open the **<widget list>**. Notice the cell turns blue. Depending on which cell you selected you may see some inward or outward facing arrows. Clicking an outward facing arrow expands the cell. Clicking an inward facing arrow reduces its size. The corner arrows expand or reduce the cell by factor of 4 maintaining the same aspect ratio. Arrows are only populated if the expand/reduce operation is permissible. For example, in the figure below there are no inward facing arrows showing in the smaller widget cell. That indicates the cell cannot be shrunk. Likewise the larger cell does not have any out facing arrows at the bottom, because it is at the bottom of the screen and cannot be expanded in that direction.

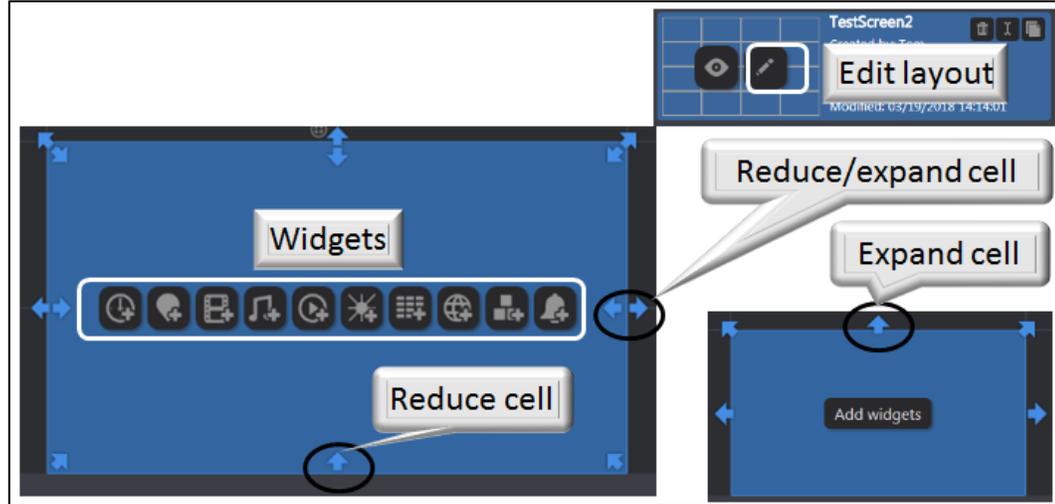


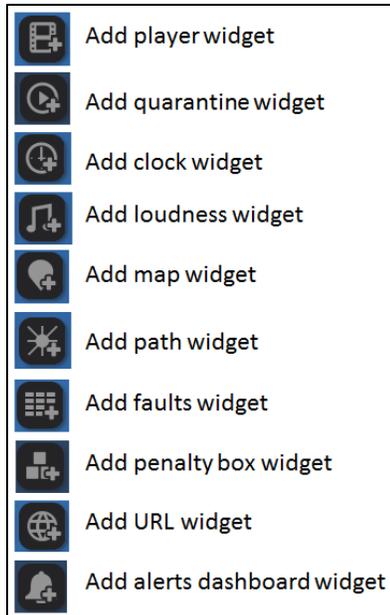
Figure: Multiview cell sizing

INFO TIP

Cells may be merged to create a larger cell but not subdivided to create a smaller cell. When creating a new Screen be sure to create one with enough cells.

Screen widgets

There are ten widget icons.



Player: displays low resolution thumbnail of the channel. Use the right hand pane to select the desired channel. At the bottom are **<Advanced>** options to display audio bar graph, faults and closed captioning. In Multiview the player is always live.

Quarantine: a modified streaming viewer similar to the viewer in other MIS suites. However, unlike other widgets only one instance is supported. Click the **<inspect>** icon on one of the **<Thumbnail>** Players to play in the **<Quarantine>** player.

Clock: defaults to your computer's system time but can be changed to use any time zone by using the right hand panel.

Loudness: displays the loudness graph.

Map: allows you to display faults by region. Select the region from the selection at the right side of the page.

Path: displays the channel name but not an active thumbnail. Click on the bullseye to open the quarantine player.

Faults: displays the fault status of one or more channels. Select the channels to monitor from the right hand panel. Icon is green and turns red under fault condition.

Penalty box: displays channels experiencing fault conditions.

URL: displays any desired web page or image from a web site. Enter the URL in the right hand panel. If desired can be set to automatically update content.

Alerts: displays alerts of selected channels.

9.4.5 Copy Multiview screen

Another way to create a new screen is by cloning an existing one. If you hover over a screen the **<Duplicate>** icon appears in the upper right corner. Use that to

create a copy of one of your screens. A dialog box opens allowing you to change the name. Once the new screen is created use the edit feature to modify the various cells.

9.4.6 Rename Multiview screen

To change the name of a particular screen hover over the screen and click the <Rename> icon.

9.4.7 Delete Multiview rooms or screens

To delete an entire room click on the room and press the <trashcan> icon at the top of the **Rooms** pane. To remove a single screen within a room hover over the desired screen and click on the <trashcan> icon at upper right.

9.5 QoE alerts tab

This section lists fault notifications and allows you to create notification lists for various faults. Alerts may be triggered on:

- video
- audio
- Metadata

9.5.1 Search

The search field works much the same as in other MIS applications. You are able to search by keyword, Alert type, time, email recipients and channel.

Name	Status	Notification to	Reports	Channels	User	Created	Updated
<input type="checkbox"/> Alert1	Active	Weerapong	Daily	2	Jeff	11/10/2017 07:54:06	11/10/2017 16:15:49
<input type="checkbox"/> QoE Alert All Faults	Active	Jeff	Daily	5	Jeff	11/09/2017 13:30:21	11/10/2017 16:15:27

Figure: QoE alert list

9.5.2 Alert controls

The ribbon at the top of the QoE alerts pane allows you to manage and modify captured faults.



Check all: Selects all alerts; if there are no alerts this option is greyed out



Create new alert: manually create an alert



Remove selected alert: delete all selected alerts; this option is greyed out if there are no selected alerts



Enable alert: enables selected alerts; this option is greyed out if there are no selected alerts



Disable alert: disables selected alerts; this option is greyed out if there are no selected alerts



Customize columns: In list view use this feature to select which columns to display

If there are more than a single page of fault clips, MIS displays multiple page numbers at the upper right hand corner of the screen.

9.5.2.1 Create a QoE alert

Pressing the **<Add>** button opens a new page composed of three sections.

The left hand pane allows you to set which email addresses MIS uses to send out the alert and to define the alert name and email subject line. The default email address is that of the user account creating the alert. Below that are options to limit how often and when to send the alert.

The middle pane consists of check boxes to select the fault conditions that generate the alert. The checkboxes are organized so you are able to select a generic fault, say **Video**, or a specific fault within video, say, **Black screen**.

Lastly the right hand pane allows you to select the channel or channels you want to monitor. Typing all or part of the channel name into the **Filter** text box at the top of the display list restricts the display to matching channels.

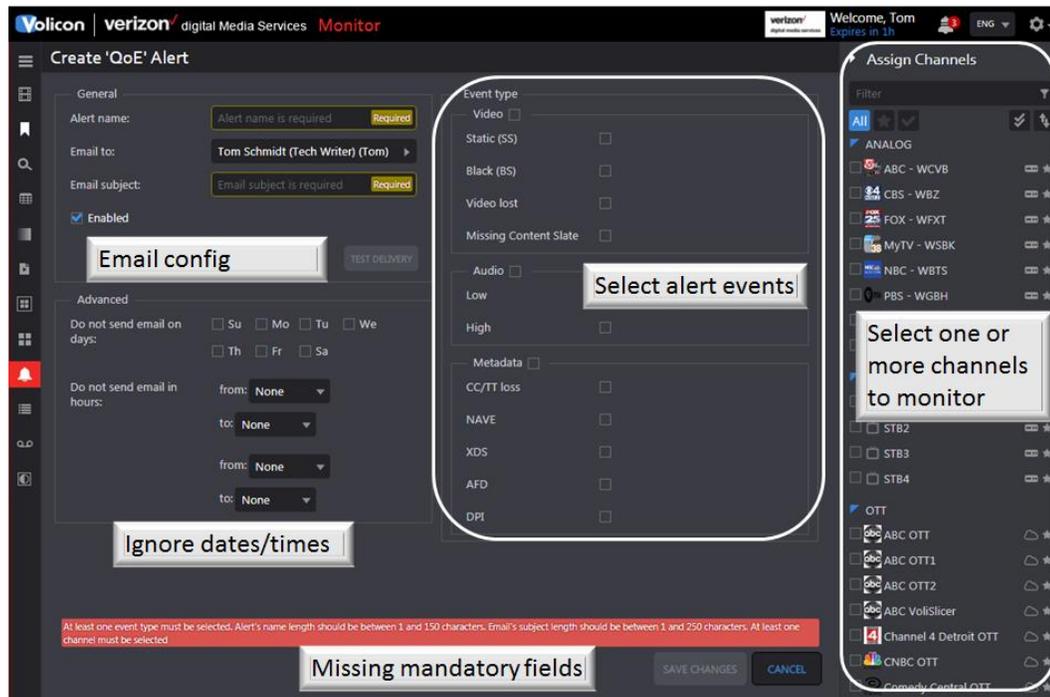


Figure: Create a new alert

Once you have created the alert, press the **<Save changes>** button at the bottom of the page. Press the **<Test delivery>** icon to send a test email to insure the alert was configured properly.

9.5.2.2 Editing an alert

To edit an alert hover over the alert. MIS will display the edit  icon on the right hand side of the alert. Pressing the icon opens the same page you used to create the alert, except now it is filled in. Press **<Save changes>** when you are finished editing the alert.

9.6 Absolute quality graph tab

This tab allows you to monitor one or more channels. Use the channel dashboard to select the channel or channels you want to monitor.

Click the  **<Add metric to graph>** icon associated with each channel to add one or multiple graphs. Select a unique color for each graph to make it easy to identity.

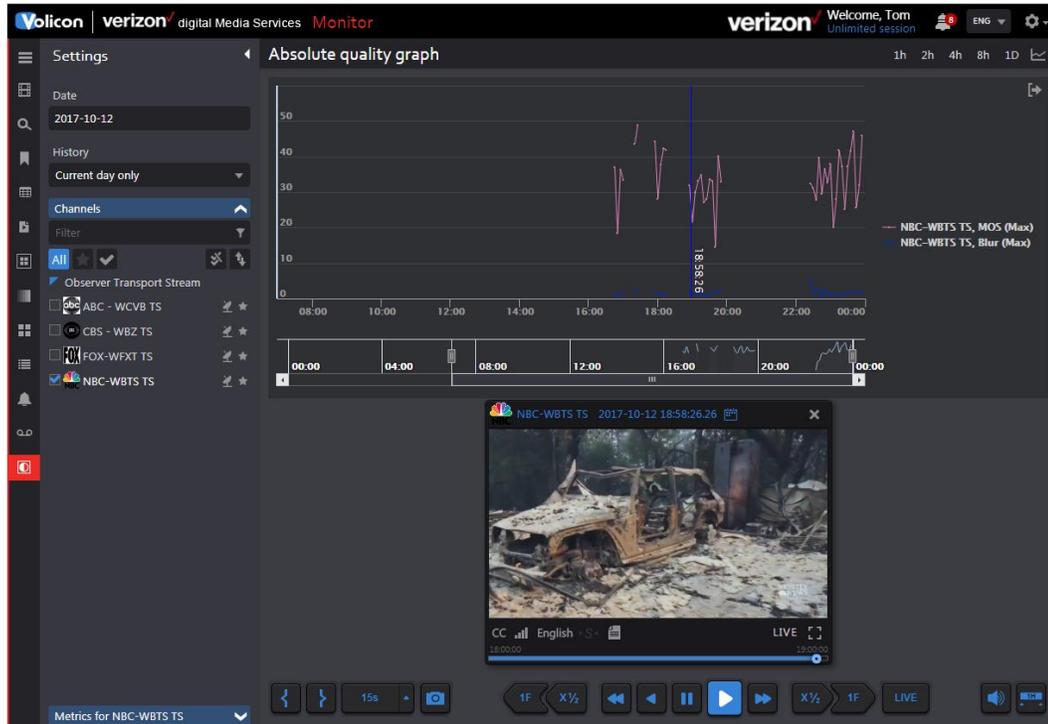


Figure: Absolute quality graph

9.6.1 Graphing options

There are five metrics. Each one may be color coded and selected to display average, maximum, minimum or range.

Video Quality: aggregation of all four metrics

MOS: mean opinion score; perceived video quality

Blur: image sharpness

Blockiness: discrete cosine transform (DCT) digital encoding artifact

Contrast: difference in color and light over the image

9.7 TS analysis – system view tab

The status of each transport stream is reported using the metrics defined in the ETSI TR 101 290. The TSA module generates a set of status indicators that provide consistency across network using a wide variety of different devices.

The dashboard provides a compact overview of transport stream status.

Priority 1 faults: critical items that prevent the receiver from being able to lock or decode any of the constituent streams.

Priority 2 intermediate faults: recommended for consistent or periodic monitoring that can affect successful operation of individual or groups of streams.

Priority 3 less severe faults: Those generally permit signals to be decoded but may interfere with specific functions, such as program descriptions or time and date indicators. Click the **<Event log>** icon to obtain details. Clicking on one of the channels switches to the MIS analyzer feature.

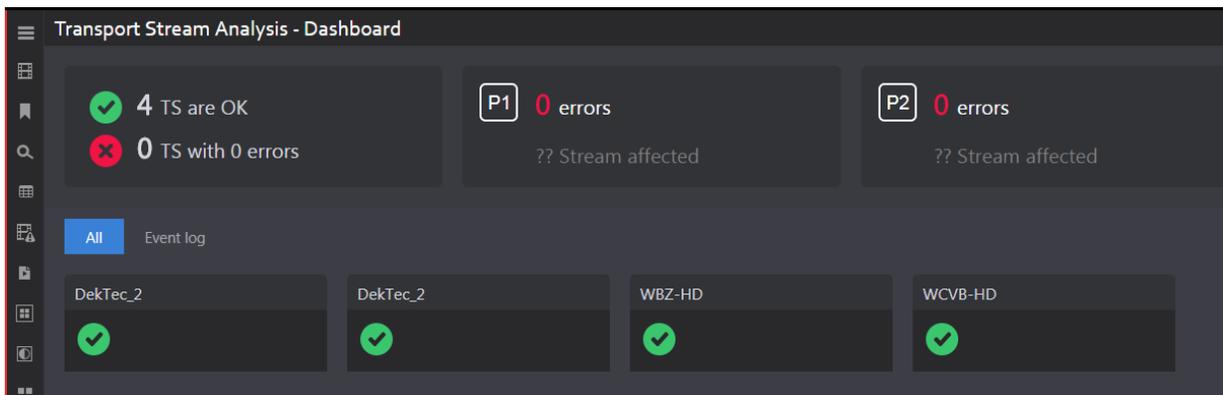


Figure: Transport stream dashboard

9.8 TS analysis - input view tab

Select a channel to review by selecting it in the channel dashboard as with other MIS features. There are three view selections: Monitor, Inventory and Impact.

9.8.1 Monitor view

Monitor view displays an enumerated list of monitored parameters along with a bitrate pie chart displaying how the available bandwidth has been allocated. The lower pane displays error event detail.

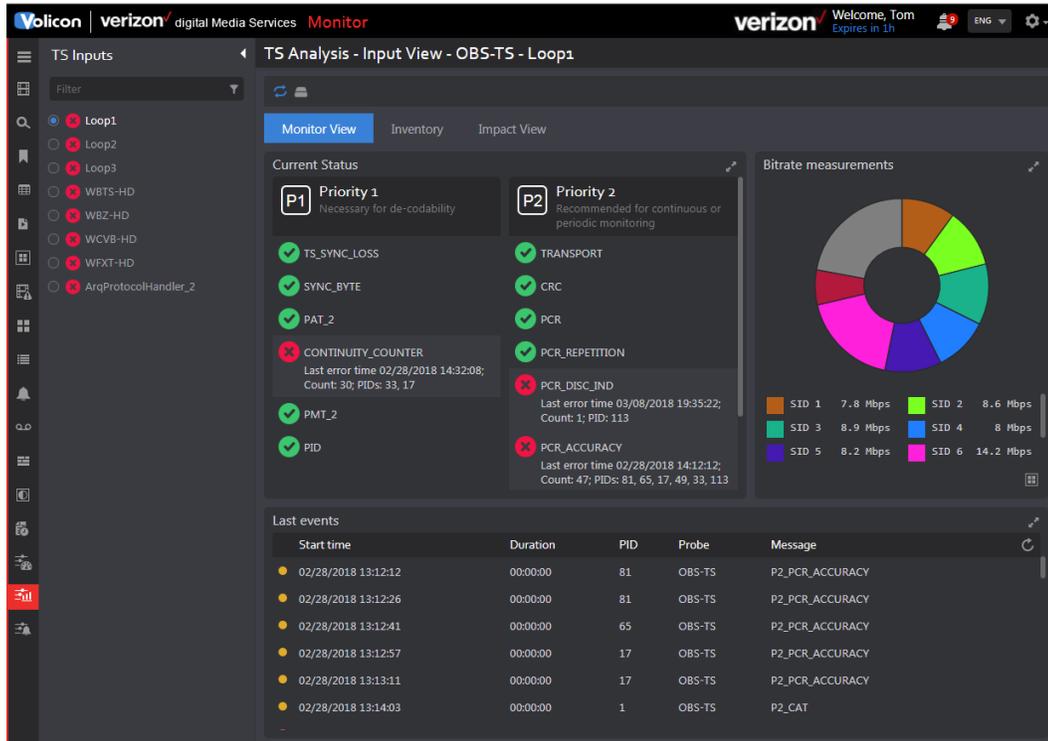


Figure: TS analyzer detail view

9.8.2 Inventory

Displays detailed information for each PID.

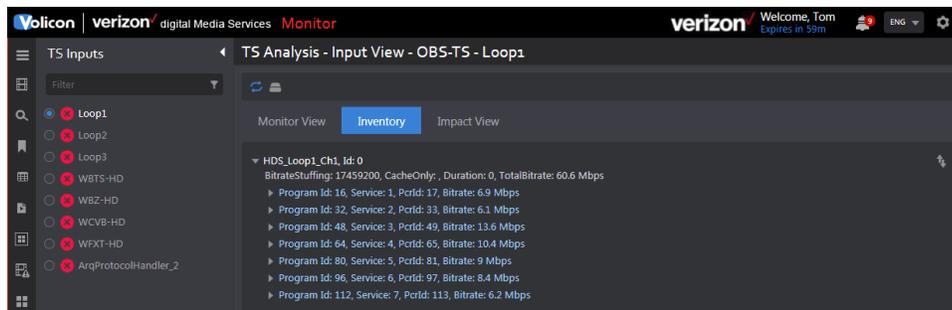


Figure: PID inventory

9.8.3 Impact view

Impact view opens the viewer and displays status of Priority 1 and 2 errors while playing the program in either archive or real time.

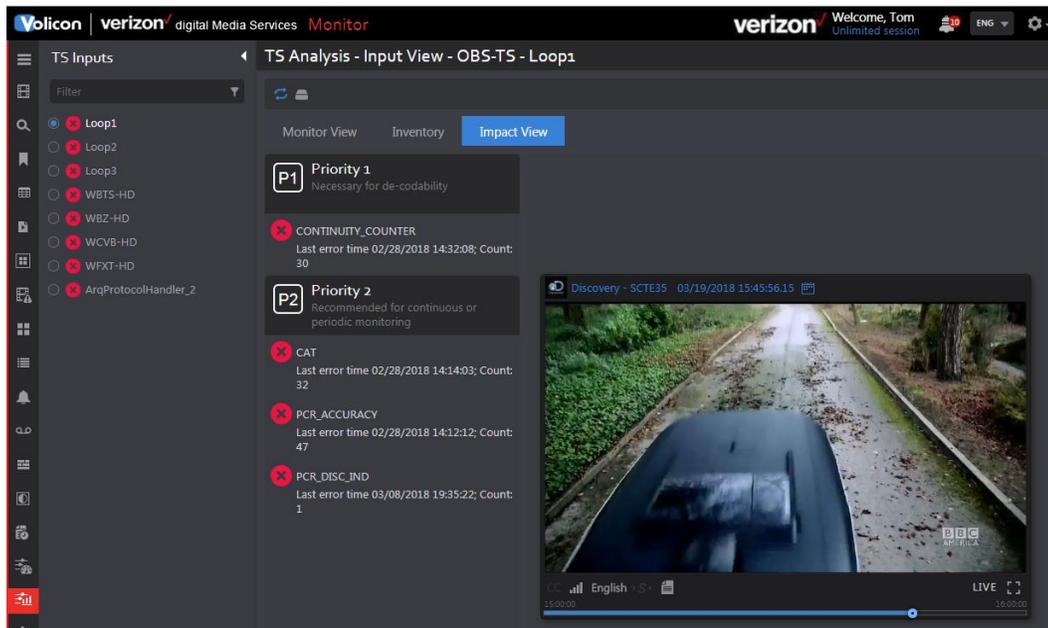


Figure: Impact view

9.9 TS alerts tab

This page displays transport steam alerts and allows you to add new alerts. Icons at the top of the alert section allow you to:



Check all: Selects all alerts; if there are no alerts this option is greyed out



Create new alert: manually create an alert



Remove selected alert: delete all selected alerts; this option is greyed out if there are no selected alerts



Enable alert: enables selected alerts; this option is greyed out if there are no selected alerts



Disable alert: disables selected alerts; this option is greyed out if there are no selected alerts



Customize columns: use this feature to select which columns to display

If there are more than a single page of fault clips, MIS displays multiple page numbers at the upper right hand corner of the screen.

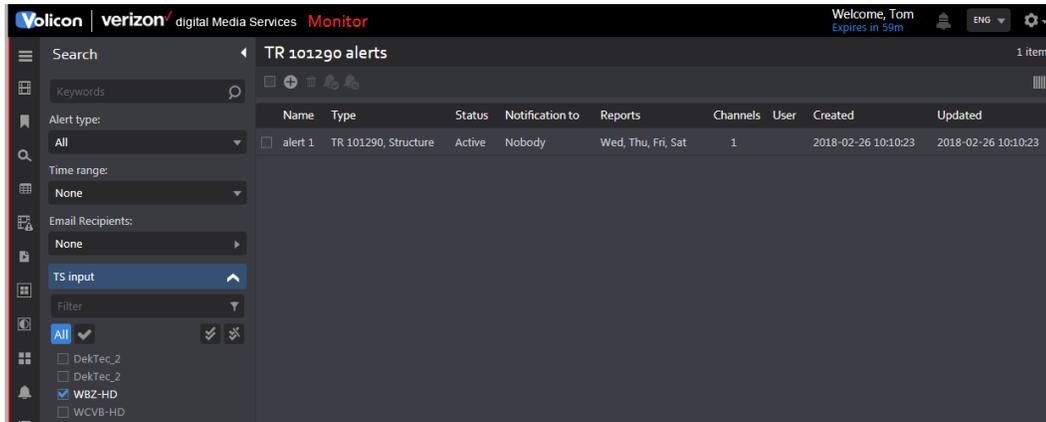


Figure: Transport stream alerts

9.9.1 Adding a new transport stream alert

To create a new alert click **<Create new alert>**. The page is divided into four sections: General, Advanced, Event type and TS input.

Figure: Create a new TS alert

9.9.1.1 General

In this section enter a descriptive **Alert name** and **Email subject** heading. Select one or more email addresses from the drop down list. Lastly check the **<Enabled>** check box to activate the alert.

Once you have completed and saved the alert use the **<Test delivery>** feature to email all recipients the alert.

9.9.1.2 Advanced

Normally alerts are sent as they occur. Use this section to inhibit alerts on certain days and times.

9.9.1.3 Event type

Check the desired alert priority. In the **Structure** selection select program map table (PMT) and program association table (PAT) changed to be notified if the tables are modified.

9.9.1.4 Assign TS inputs

Select the streams included in the alert.

10 MIS TOOLS

Pressing the gear icon located at the upper right corner of each page opens the tools menu. Access to these features is controlled by your account permissions.



Figure: MIS tools

Preferences: user account specific setting and time zone

Help & tutorials: online video tutorials

About: MIS and media player versions

Contact us: link to Volicon web site

Reset page settings: clears selected channels

Log Out: terminate MIS session

10.1 Preferences

This section allows you to customize the way MIS displays your information and to change your password.

If you make changes press the **SAVE CHANGES** icon at the bottom of the page. If MIS is able to successfully save your changes it displays a banner at the top of the page. To exit without making any changes press **CANCEL**.

Preferences are saved. You need to re-login for the changes to take effect

Figure: Preferences successfully updated

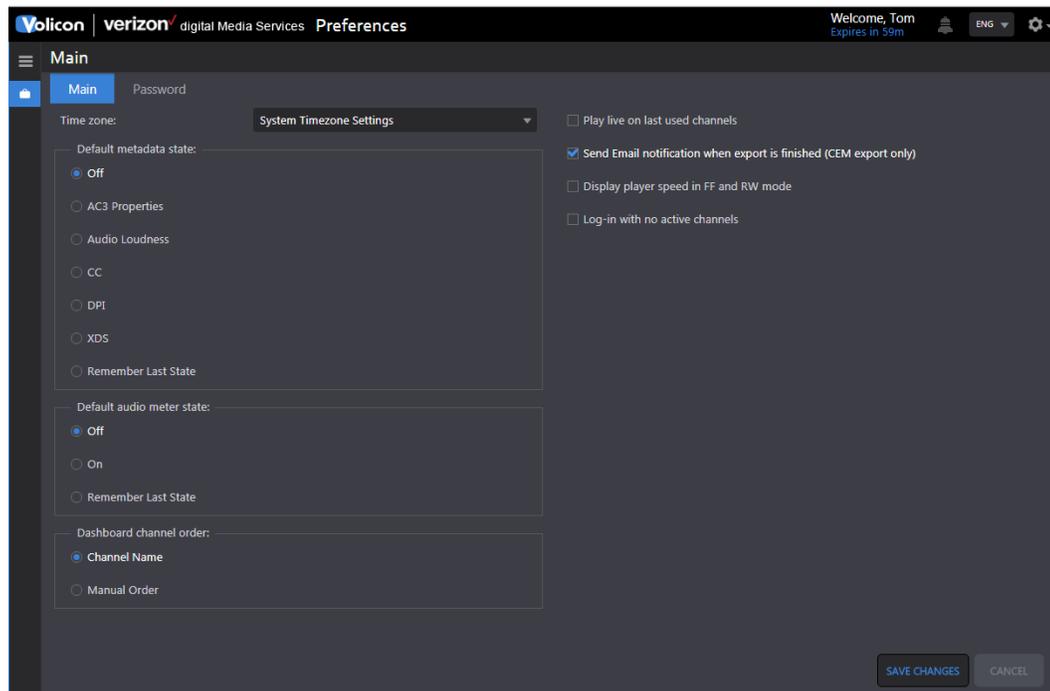


Figure: User preferences

10.1.1.1 Time zone

MIS defaults to the same time zone as your computer. If you want to override that setting and select a different time zone use the Time Zone dropdown.

10.1.1.2 States

The **Default metadata state** and **Default audio meter state** sets default viewer behavior. For example: if CC (Closed Captioning) is selected and the channel is Closed Captioned, it will be displayed whenever the channel is opened in the

viewer. You are still able to change the viewer behavior directly, however, the next time the viewer is opened it reverts to its default behavior.

Dashboard channel order: allows you to customize how channels are displayed (not yet implemented).

10.1.1.3 Far right hand column

Play live on Last used channels: automatically opens the channel in real time.

Send email notification when export is finished (CEM export only): sends an email to the address associated with your login.

Display player speed in FF and RW mode: adds graphic overlay to video showing speed.

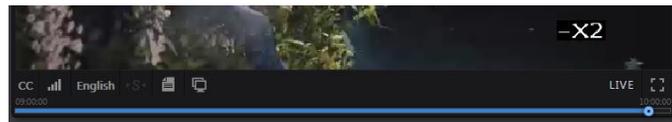
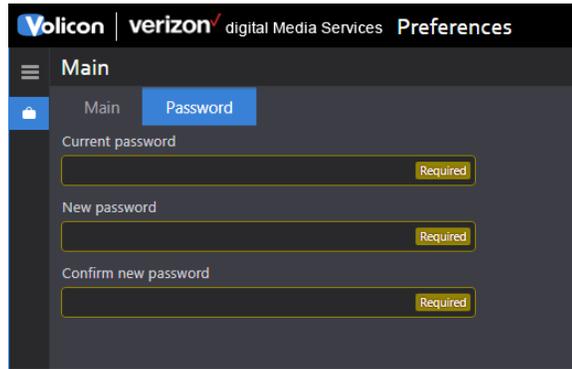


Figure: Player speed overlay

Log-in with no active channels: resets any selected channels at each log in.

10.1.2 Password

Use this feature to change your password. The system requires the new password to be entered twice. If they do not match MIS displays an error message and your old password continues to be in force. Depending on MIS security configuration you may see a message explaining password requirements.



The screenshot shows a web application interface for Volicon, with the Verizon logo and 'digital Media Services' text. The page title is 'Preferences'. A navigation menu on the left shows 'Main' as the active tab. The main content area contains three password input fields, each with a 'Required' label to its right. The fields are labeled 'Current password', 'New password', and 'Confirm new password'.

Figure: Change user password

10.2 Help & tutorials

Pressing <Help & tutorials> displays an overlay with multiple help videos. You can watch a video then <Close> the window without affecting the page you are currently on. There is link at the bottom of the page to log into Volicon Customer Support.

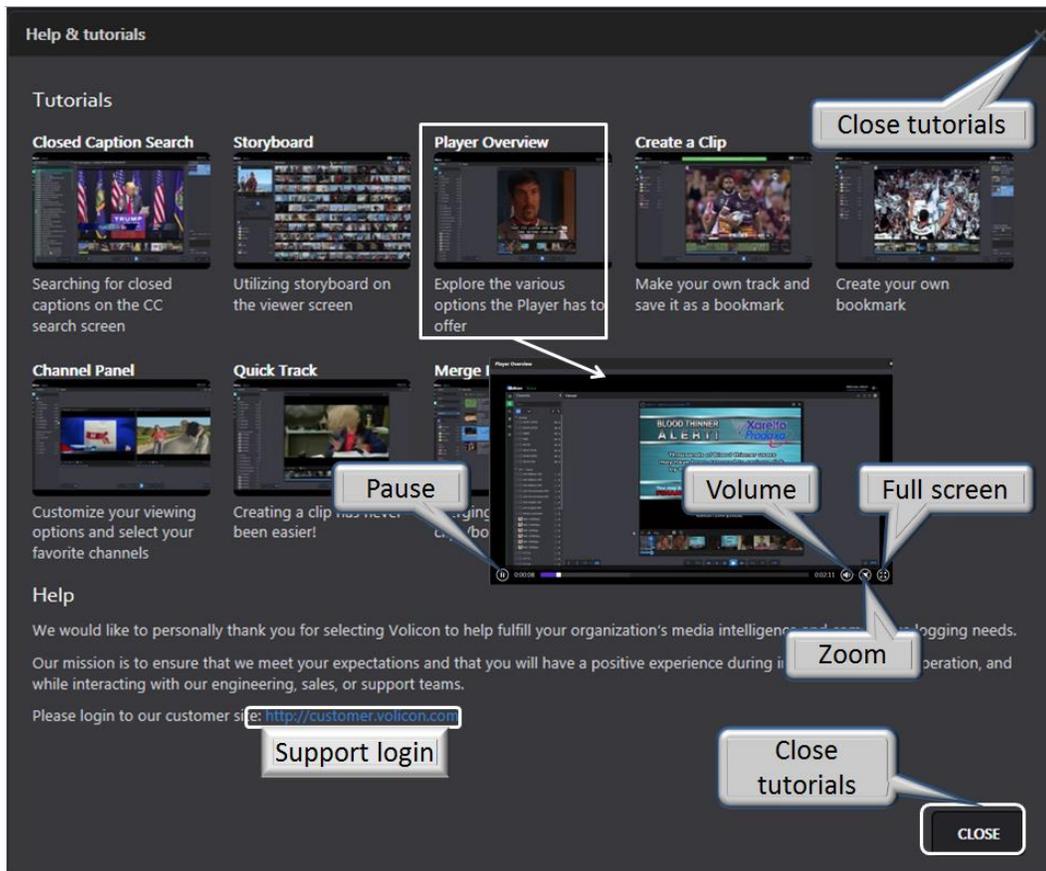


Figure: Tutorial page

10.3 About

Press **About** to view the MIS software version and the ActiveX controls used with Internet Explorer.

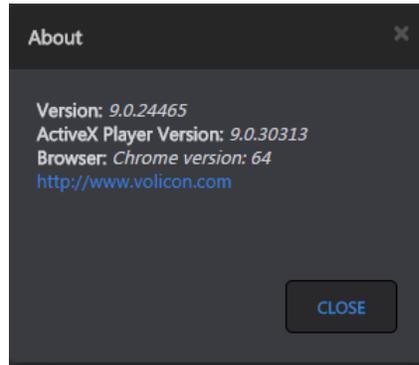


Figure: MIS software version

10.4 Contact us

Contact us option opens a link to the Volicon web site to submit a question. Contact your local MIS administrator before contacting Volicon directly with questions.

10.5 Reset page settings

This feature clears user page settings such as selected channels.

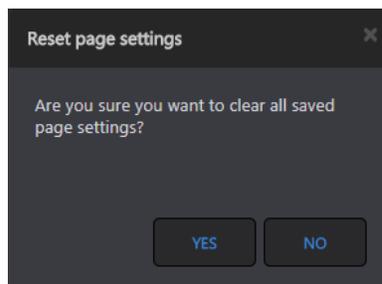


Figure: Reset page settings

10.6 Log out

When you attempt to log out you will be prompted to confirm the request as shown in the Log in section.

APPENDIX

MIS releases

Version	Build number	Date	Description
7.0 QB1	7.0.35351	02/11/13	New features: PLR, Mobile, Bug fixes
7.0 QB2	7.0.36068	04/01/13	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 the release notes for more details)
7.1	7.1.39589		Ability to search for content by program
7.2	7.2.39589		Wall of Monitors mode

Revision change history

Date	Description
5/14/13	7.0 QB3 Initial release, revision history
6/14/13	Updated enhancements
06/25/13	Remove internal references... related section; add lineup display sync issues
12/16/13	Update User Guide to Release 7.1. Revamp User Guide to target end users.
2/3/2014	Update User Guide to Release 7.2.

About Volicon

Volicon Verizon digital media services is the leading provider of enterprise Media Intelligence Solutions for broadcasters, networks, cable and IPTV operators, and governments worldwide.

The Media Intelligence Service records all types of broadcast content across multiple interfaces (SDI, TS, Analog & OTT), and stores content for up to 7 years in either high-resolution or low resolution proxies. With this solution you're able to view your content with a variety of players and formats, search and find content quickly with closed captioning, and export and share content easily with collaborators.

The platform is an enterprise-grade, highly reliable solution that is scalable to hundreds of channels and thousands of users.

Providing a window on content delivered via satellite, cable, or over-the-air signal, as well as Internet-based over-the-top (OTT) services, the Enterprise Media Intelligence Service offers portals tailored to the many different departments at broadcasting facilities. Volicon's Enterprise Media Intelligence Service provides functionality appropriate not only for engineering and operations, but also for production and promotions, new media, news, sales and traffic, media relations, and executive and legal departments.

The Enterprise Media Intelligence Service supports applications including compliance logging, content archiving, content repurposing for new media outlets, competitive analysis, producer and talent evaluation, ad verification and media sales, and executive review of content. Streams may be viewed singly or side by side on desktop and laptop computers, tablets and smartphones and television monitors (via multicast).

Volicon's patented Virtual Media Network (VMN), which supports both MIS systems and the Enterprise Media Intelligence Platform, comprises a multichannel video streaming engine, interactive search, content analytics, and service monitoring and alarm capabilities.