

On-air Content Validation (OCV) is a powerful feature on the DVStation that helps to monitor and verify transport stream structures, channel-lineup and service composition. By checking the transport stream structure against a reference snapshot, the DVStation ensures that the meta-data accompanying the video and audio services are set up properly so that the content itself can be accessed by receivers. OCV is available as part of the standard feature set on the TSP100 and TSP092 cards (in LIF, POD or REM-POD versions) and the DVStation-Mini range.

For OCV to work, a reference to which to compare the current broadcast is required. To set the reference you can manually configure each channel and its parameters, or alternatively DVStation provides a snapshot feature where the current structure is memorized at the touch of a button. The most powerful utilization of the OCV can be achieved by importing the stream reference information directly from the Multiplexer configuration system.

A software option for the DVStation enables the automatic reading of the expected transport stream structure from the Multiplexer Configuration using the EIS Mux Config protocol. The DVStation can be made to query and refresh the snapshot whenever the channel line-up has been modified. Auto-OIV configuration has been implemented and verified against the Harmonic NMX Digital Service Manager. This functionality is an optional add-on.

ABOUT THE EIS<>MUX CONFIG PROTOCOL

EIS<>Mux Config is an protocol interface between the EIS (Event Information Server) and the Mux Config (Multiplexer Configuration) components in a digital head-end as described in the DVB Simulcrypt specification.

In the DVB-Simulcrypt system architecture, the EIS is the functional unit in charge of holding and distributing schedule information within the head-end. The EIS ensures that Program Specific Information (PSI) from the PSI/SI generator is up to date by issuing updates using the Mux Config component.

ABOUT THE NMX AUTOMATION SERVER

Harmonic's NMX Digital Service Manager™ (NMX) is a definitive video network management solution. NMX encompasses a powerful set of tools for monitoring and managing compressed digital video and audio services as well as the systems through which these services flow. As a result, operators can run their technical infrastructure in a way that parallels their business – as a series of revenue-generating services, rather than as a set of discrete hardware components.

Harmonic uses the EIS<>Mux Config interface to connect the NMX automation server with various components, including the Pixelmetrix DVStation, in their digital head-end architecture.

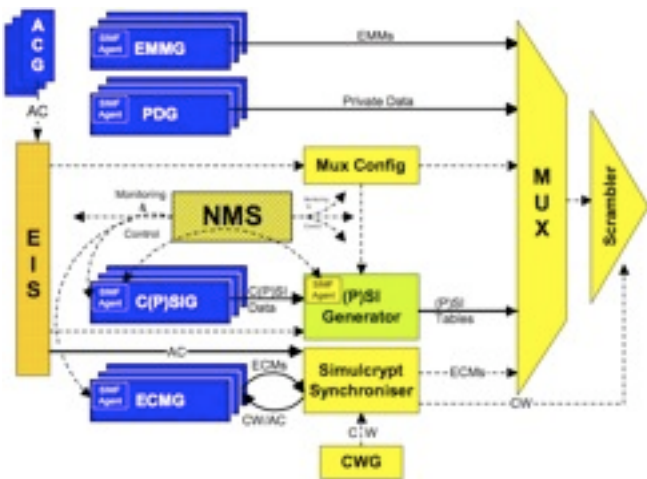


Figure 1: A digital head-end according to the DVB-Simulcrypt specification

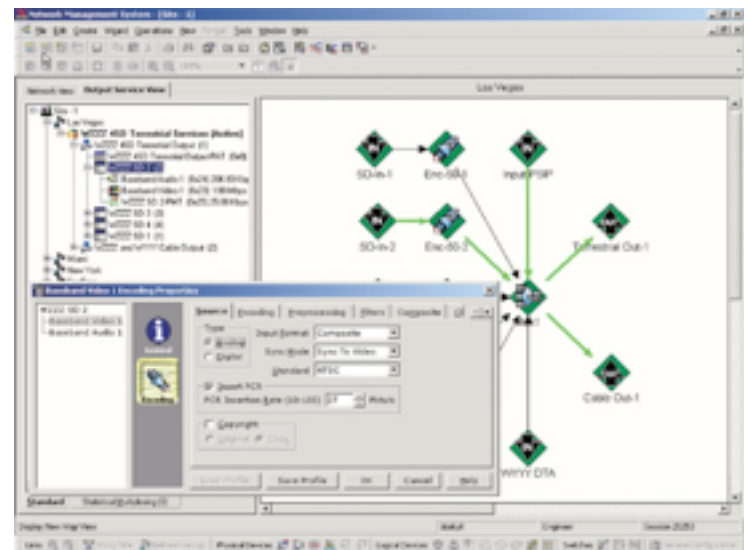


Figure 2: Harmonic's NMX Automation Server

ABOUT THE DVSTATION FAMILY

The DVStation family of products by Pixelmetrix are the most advanced guardians available to continuously monitor the quality of television signals and content over digital broadcast networks. The DVStation's advanced Preventative Monitoring technology is insurance against the perils of catastrophic network failure and loss of business.

The DVStation can monitor thousands of parameters within hundreds of digital television signals. All real time, all simultaneously, all continuously, and all from one easy-to-use, self-contained device. Through an open and extensible architecture, the DVStation ensures that your investment remains future-proof and extensible.



Figure 3: DVStation-210 from Pixelmetrix

USING OCV FUNCTIONALITY

For OCV to work effectively, the reference snapshot must first be set up. This snapshot file can be generated using four methods:

- Retrieve service information using the EIS<->Mux Config protocol:** Using this option, the SI structure is imported directly from the NMX Automation Server. Since the SI structure is imported directly from the automation server, possible transmission and human errors can be eliminated. In addition, the SI structure snapshot can be set to be automatically updated whenever the automation server changes it. (Figure 4)

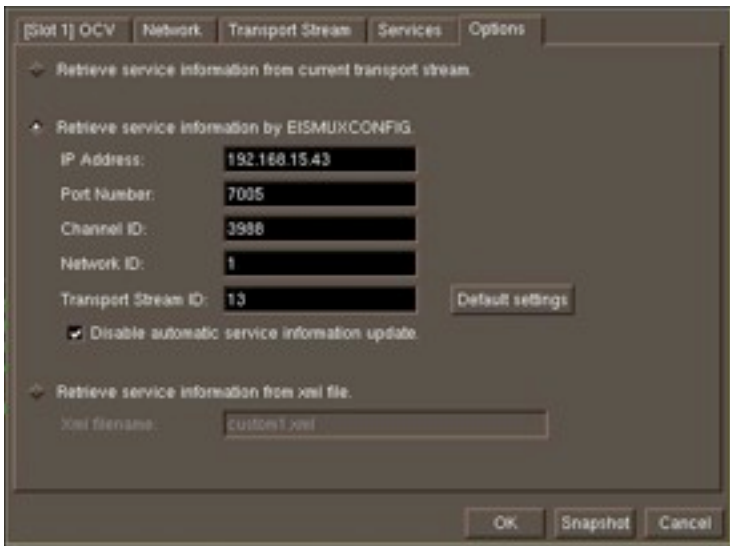


Figure 4: EIS<->Mux Config setup

- Retrieve service information from current transport stream:** Using a unique snapshot function, the current transport stream structure as seen by the TSP can be made into a reference snapshot as seen in Figure 5. This is the easiest method to create a reference snapshot, but has the slight risk of propagating any unintentional human errors at the encoders



Figure 5: Taking a snapshot manually

- Retrieve service information from an XML file:** Once set, the transport stream structure snapshot can be exported and re-used in other DVStations.
- Manual Configuration:** If required, the transport stream structure can be defined by setting each data point by hand.

ENABLING OCV

To activate this feature, configure the reference snapshot as previously described and then select the **Enable Content Validation Management** button (Figure 6). Once the service information structure has been captured, it is displayed on the OCV dialog as shown in Figure 4 and saved as a reference snapshot.

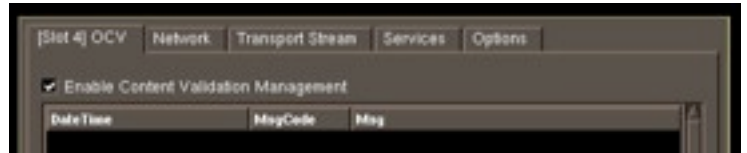


Figure 6: Enabling OCV

Alarm notifications can be configured based on this reference snapshot. The reference snapshot itself may be edited using the dialog in Figure 7.



Figure 7 : TS information structure

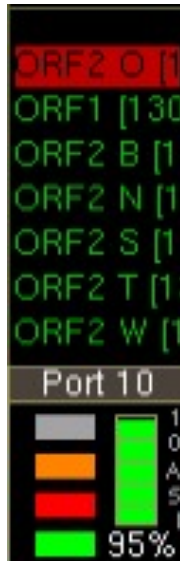
Any deviation from the set snapshot raises a visual notification on the main display in addition to the standard alarm behavior on the DVStation (Figure 8).

In the example shown in Figure 8 at right, an unreferenced service error is shown. The highlighted portion reflects the minimal subset of service components in error. If all the services are highlighted, the error is at a transport stream level.

The following errors are checked:

- Service name
- Missing service
- Unexpected service
- Service ID
- Service category
- PMT PID
- Conditional access
- Component count
- Missing component
- Unexpected component
- Component category
- Component language
- Age Rating

Figure 8: Services with errors in the metadata are signaled with a red highlight



ORDERING INFORMATION

OCV and the EIS<->Mux Config integration support is available as an option on the:

- DVStation-210
- DVStation-Remote
- DVStation-Mini

ABOUT PIXELMETRIX

Pixelmetrix Corporation is the global expert in Preventive Monitoring for digital, cable and IPTV networks. The company provides equipment and network intelligence systems to television broadcasters for the management and monitoring of quality of service and quality of experience. Headquartered in Singapore, Pixelmetrix has offices in the United States and Europe.

Pixelmetrix has been conferred the Frost & Sullivan Industrial Technologies Award 2009, C+T Technology Development Award 2009, Engineering & Technology Emmy® Award 2007, Broadcast Engineering publication Pick Hit Award 2005 and 2008, TV Technology publication STAR Awards (Superior Technology Award Recipient) 2000, 2004 and 2007, BIRTV Product of the Year Award 2006, Cable-Satellite/Mediacast Product of the Year Awards 2003 and 2004, as well as the Peter Wayne Award 2000, for Best Design and Innovation.

For More Information

To learn more about the DVStation, request a demo, or learn how Pixelmetrix might help you optimize video network integrity, contact us today!

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