

MediaFirst Video Processing

Encoding Live v7.x

Release Notes

Rev RA

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1 Introduction

1.1 MFVP Encoding Live v7.1

MFVP Encoding Live v7.1 is a major evolution based on MFVP Encoding Live v7.0.

MFVP Encoding Live v7.1 is available on:

• G6, G7, X1 and software edition (Linux-based).

Linux-based versions support CentOS v6.7 and v7.2. The software edition perfectly fits the data center deployments and one of the first steps of the integration in a cloud environment.

Version v7.1 comes with video quality enhancements providing gains in bandwidth using all codecs (MPEG-2, H.264 and HEVC).

MFVP Encoding Live is also looking at future technologies & standard such as HDR (HDR10, SMPTE 2084, HLG).

Avoiding loss of VQ due to multiple encodes, this version is also designed to get closer to the content by ingesting SMPTE-2022-6 and Dolby-E standards.

Below are the new implemented features:

Platforms

• Software edition (Linux CentOS & RedHat v6.7 & v7.2), G6, G7 and X1

Audio

Dolby E fallback on PCM when not present

Input

- SDI input, PCM 5.1 aggregation
- One program ID per input source in active/active mode

Subtitles

ARIB B24 pass-through

Metadata

• Nielsen watermark insertion on audio track

Video

- Video quality enhancements
- Inter/Intra bias
- Adaptive loop filter
- Updated adaptive quantizer algorithm

1.2 Main new features

1.2.1 Source status API

The SOAP API has been updated to provide more information on the source status. For the source or both sources in active/active, the API will give their current status.

- OK, everything is fine
- Degraded, audio PID has been lost
- Error, video or all audio PIDs have been lost

1.2.2 Detail enhancement filter

This filter is designed to increase the sharpness of the encoder. We recommend using it only on the highest resolutions.

This filter is configured in the video pre-processing part. Once activated, his strength can be defined. You can also choose the lowest resolution it will be activated on.

1.2.3 Dolby ATMOS pass-through

If present at the input, encoder can pass-through the Dolby ATMOS information. This is automatic if the stream is passed through the encoder.

Information are added in the output PMT to signaled the ATMOS information.

1.2.4 Dolby-E fallback to PCM

If Dolby E is stream is not present in the source, it is now possible to define a fallback audio input.

This feature ensures that if a program does not have Dolby-E present at the input getting audio from the fallback PCM input.

Dolby E								
Program configuration:	N/A							
Program	N/A							
Audio fallback channel:	SDI (G1 P2) 👻							

1.2.5 5.1 PCM input aggregation

5.1 requires 6 audio tracks and 3 SDI audio pairs. The encoder provides configuration to define which SDI audio tracks must be aggregated to create the 5.1 stream.

Audio Input Settings				
Input:	SDI (G	Gn Pn) 🔻		
Language:				
Forced visually impaired track:				
Audio Multichannels:		Group/Pair	Left/Right	
	L:	SDI (G1 P1) 👻	Left 👻	
	R:	SDI (G1 P1) 👻	Right -	
	C:	SDI (G1 P2) 🔻	Left 👻	
	LFE:	SDI (G1 P2) 👻	Right -	
	LS:	SDI (G2 P1) 👻	Left 👻	
	RS:	SDI (G2 P1) 👻	Right -	
Audio mode:	Auto		•	

The captured stream can then be encoded in 5.1 or stereo using AAC or Dolby codecs.

1.2.6 One program per input source

In active/active mode the dual input redundancy feature now allows having one program ID per input source (primary & secondary).

This allows you to capture the same channel from two different ways and be able to easily capture both.

1.2.7 Nielsen watermark insertion

Nielsen watermark is designed to measure channel audience. To do so, watermarks are inserted in audio tracks. MFVP Encoding Live can add these watermarks into the audio.

Add Nielsen watermarking						
Enable:						
SID:	9000					
Check digits:	DK					
Distribution type:	Program content 👻					
Watermarking:	NAES II 👻					
	Rescan					

Information entered in the watermark are defined by Nielsen.

1.3 Important notices

1.3.1 Operating system

Operating System Maintenance

To avoid any disturbance on the normal operation of MFVP Encoding Live, any IT operations like package installation/upgrade, OS configuration and security scans, should be done during a specific maintenance window. MFVP Encoding Live service should be gracefully shut down prior to the maintenance window.

Once the maintenance is complete, MFVP Encoding Live service should be restarted and a check should be done to verify that the service is operational.

Third-party software

To ensure normal operation of the MFVP Encoding Live software, it should be installed on a dedicated machine. There shouldn't be any third-party software installed on the same unit.

1.3.2 Specific alarms

There are two new sets of alarms in MFVP Encoding Live. The first one are associated to the application performances. The second ones reflect the health of the input buffer.

Performance alarms

Two new alarms have been added that will be raised based on the encoding density on the current HW. MFVP Encoding Live can raise alarms when the maximum HW performances are reached and when the HW maximum performances are exceeded.

If the **max performances are reached** then the output is working without any impact but the maximum density is reached. You should remove services/profiles or use simpler input sources to ensure the encoder behavior.

You can increase the threshold using this advanced parameter:

graphMonitor.alarm.max.performance.reached.raise (default: 10, max. 1 000).

The higher is the value the less this alarm will be raised and the closer you will be to exceed the performances.

If the max performances are exceeded then the output is degraded. This alarm is raised as soon as an image is dropped due to performance issues. If this is the case then the configuration is too dense for the HW MFVP Encoding Live is running on. In this case you should decrease the configuration density.

The alarm is raised as soon as one image is dropped. You can increase this threshold using the below parameter:

graphMonitor.alarm.max.performance.exceeded.raise (default: 1, max. 500)

Input buffer status

When capturing MPEG-2 TS sources, MFVP Encoding Live comes with a measurement of the IP input buffer. Two new alarms have been added to signal jitter outside the normal behavior. The default value of the buffer is around 300ms. These alarms are the following:

Capture buffer is empty (raised if buffer level is 0) Capture buffer is full (raised if buffer is more than 500ms)

If these alarms are raised then the input source should be checked since high variations of the input buffer may create discontinuities and frame drops at the output.

1.3.3 External Interfaces

External interfaces include the support of the new features and several additions are integrated. Please refer to external interface documentation: SOAP API and SNMP traps list.

The default SNMP community names and password have been changed. All the new installation will have the below community names:

- public_envivio / public_!envivio!
- private_envivio / private_!envivio!

In case of upgrade, the community names won't be changed to keep the interoperability.

1.3.4 Advanced parameters

To activate features, advanced parameters might be required. These parameters must be added in the support page of each encoder: <u>http://encoderIP/support</u>

Confirmation message on stop encoding: *stop_encoding_confirmation=true* Regionalized Statmux: *smx.regionalid=true* Change DVB subs language: *private.language.ZHO=chi* Different timeout for source switch: *ipReceiver.switchCycleDurationInMs* Set Dolby Digital passthrough: *dolbyTranscoder.auxdata.passthru=false*

1.3.5 Migration

Software edition

MFVP Encoding Live v7.0 software edition works on CentOS & RedHat v6.6, v6.7 and v7.2. No migration is possible from versions older than MFVP Encoding Live based on CentOS 6.4, but CentOS v6.5 is also supported.

Migration of configurations from 5.0 and 6.0 to version 7.0 is supported. Migration from previous version is possible, check possible constraints with your Ericsson support representative.

Migration instructions are described in MFVP Encoding Live installation guide and must be followed to ensure proper migration to this version.

1.3.6 Network Configuration

A single gateway must be set on the encoder. Multiple gateways on the encoder can generate connection loss to the encoder web interface or connection errors for SNMP / NTP service.

On G5, the default NIC 6 configuration is 10.0.0.1XX / 255.255.255.0 (where XX are the two last digits of the unit serial number).

1.3.7 Akamai Compliance

Smooth Streaming: T0 feature must be used to ensure proper N+M redundancy.

Flash RTMP: To ensure a single TCP connection per stream, configure a Flash RTMP output per video stream

1.3.8 Software edition (Linux) restrictions

The software edition does not have the exact same features set as the appliance version. Please see below the list of features that are not present today in the SW edition:

- NTP isn't displayed in the UI and configuration must be done at the OS level.
- NICs configuration must be done at OS level.

Both configurations are described in the installation guide.

1.3.9 DVB subtitles in Smooth streaming

MFVP Encoding Live inserts the DVB bitmaps inside a sparse track. The segment length of the video and the subtitles sparse tracks are aligned in terms of duration.

For example, if you have a 2-second segment for video, then you'll have a 2-seconds segment for subtitles.

1.3.10 Blackout redundancy

When configuring the blackout redundancy only webdav servers with no credentials will work.

To configure the blackout redundancy the below advanced parameter must be added: *channelState.URL=http://webdavServer/...*

1.3.11 Statmux output

To ensure interoperability with IRDs advanced parameters might be added:

mpeg2ts.NullPacketStuffing=false statmux.timeStampControl=true mpeg2ts.statmux.cbr=true rtp.keepStuffing=true mpeg2ts.statmux.cbr.brCoeff=1

2 Release Status

2.1 Known restrictions in MFVP Encoding Live v7.1

System configuration

When changing the NIC configuration between static and DHCP, the value is not updated in MFVP Encoding Live web interface.

SNMP interface

The SNMP service must be restarted after a change of community names to take them into account.

Support page

When generating a support package, the user must not reload the page. If he does, one support package will be generated each time he reloads the page.

When adding advanced parameters, the "Apply" button won't restart the service. You need to restart the service manually to ensure the parameters are added.

Statmux

The statmux bitrate can be exceeded for a few seconds when starting/stopping a service.

The CBR bitrate must be higher than the minimum VBR bitrate.

CBR bitrate is not respected if there is a slate at the input.

Pre-processing

Embedded pre-processing filters are not designed to support 10bits processing. In case of 10bits stream filters will be automatically de-activated.

Video codec

In MFVP-EL UHD, when a config is highly loaded, a "Max performance exceeded" message displays. We recommend using build 7.0.10(101) or later instead for G6 2072 UHD.

PCM 5.1

Audio adjustments parameters (Automatic level, Gain, Mute and Audio delay) cannot be changed "on the fly".

2.2 Solved restrictions in MFVP Encoding Live v7.1 (Build 7.1.8 (058))

Case	Component	Severity	Description / Impact	Identified in version	Comment / Workaround
#PRB0203102	Virtual IP	Major	Bitrate drops on all services when adding new service	7.0.11 (113)	
#48336	Encoding	Major	When outputting interlaced HEVC, two consecutive IDR are added.	7.1.10 (067)	

This table lists the major issues resolved in this version.

2.3 Solved restrictions in MFVP Encoding Live v7.1 (Build 7.1.8 (058))

Case	Component	Severity	Description / Impact	Identified in version	Comment / Workaround
PRB0204015	Capture	Major	Audio drops out when transcoding Dolby Digital or Dolby Digital +.	-	Set the following advanced parameters in mpeg4.cfg:
					dolbyTranscoder.auxdata.passthru= false
PRB0203846	Encoding chain	Major	Stream sync alarms do not clear from GUI after disturbances with one MPEG-2 1080i UP! source	7.1.5 (039)	
PRB0203960	Output	Major	NTP is not inserted into MPEG-2 EBP	7.1.7(050)	
46052	Capture	Major	In SDI/422/10 bits capture, frame are not interlaced by the convertToYuvFilter	-	

Case	Component	Severity	Description / Impact	Identified in version	Comment / Workaround
PRB0203929	GUI & App	Major	SCTE-20 caption option is not available in the UI when encoder is configured in MPEG-2 using Internet TV ATSC export type	7.1.7(050)	
PRB0203845	Output	Major	alarms do not clear from GUI after disturbances with 720p compressed inputs (MPEG-2 and MPEG-4)	7.1.5 (039)	

2.4 Solved restrictions in MFVP Encoding Live v7.1 (Build 7.1.5 (039))

Case	Component	Severity	Description / Impact	Identified in version	Comment / Workaround
PRB0203668	Encoding chain	Major	Potential memory leak with SMPTE and SDI inputs	7.1.5 (037)	
PRB0203670	Encoding chain	Major	EBP cadence issue for AVC_SD profile when ingesting either SMPTE or SDI inputs	7.1.5 (038)	

2.5 Solved restrictions in MFVP Encoding Live v7.1 (Build 7.1.5 (038))

This table lists the major issues resolved in this version.

Case	Component	Severity	Description / Impact	Identified in version	Comment / Workaround
PRB0203643	System	Major	EBP IDR frames have inconsistent deltas btwn consecutive PTS values	7.1.5 (037)	
PRB0203642	Subtitles	Major	CC missing texts on all output profiles from all input types	7.1.5 (037)	

2.6 Solved restrictions in MFVP Encoding Live v7.1 (Build 7.1.5 (037))

Case	Component	Severity	Description / Impact	Identified in version	Comment / Workaround
	Nielsen	Major	Unexpected transient alarm about Nielsen SDK init at start encoding	7.1.5 (036)	
	Codec	Major	Memory leak may happen when start/stop a service	7.1.5 (036)	

2.7 Solved restrictions in MFVP Encoding Live v7.1 (Build 7.1.5 (036))

Case	Component	Severity	Description / Impact	Identified in version	Comment / Workaround
Bugzilla 47613	Capture	Major	Nielsen information is not correct if configuration is modified from the UI	7.1.5 (035)	Re-apply the configuration file or restart the encoding service
Bugzilla 47592	Nielsen	Major	Watermark is not present when input audio is set to SDI (Gn Pn)	7.1.5 (033)	