MAGIC AE4 DAB/DAB+

Audio Encoder

Quick Guide

Version: 1.210 (31 October 2019)

AVT Audio Video Technologies

- DAB/DAB+ Audio Encoder
  - DSP-based DAB/DAB+ Audio Encoder
  - Up to four DAB/DAB+ Audio Encoders
  - Full 19” x 1U housing with integrated AC power supply
  - 19” mounting brackets
  - Without fan, noiseless operation

Front View

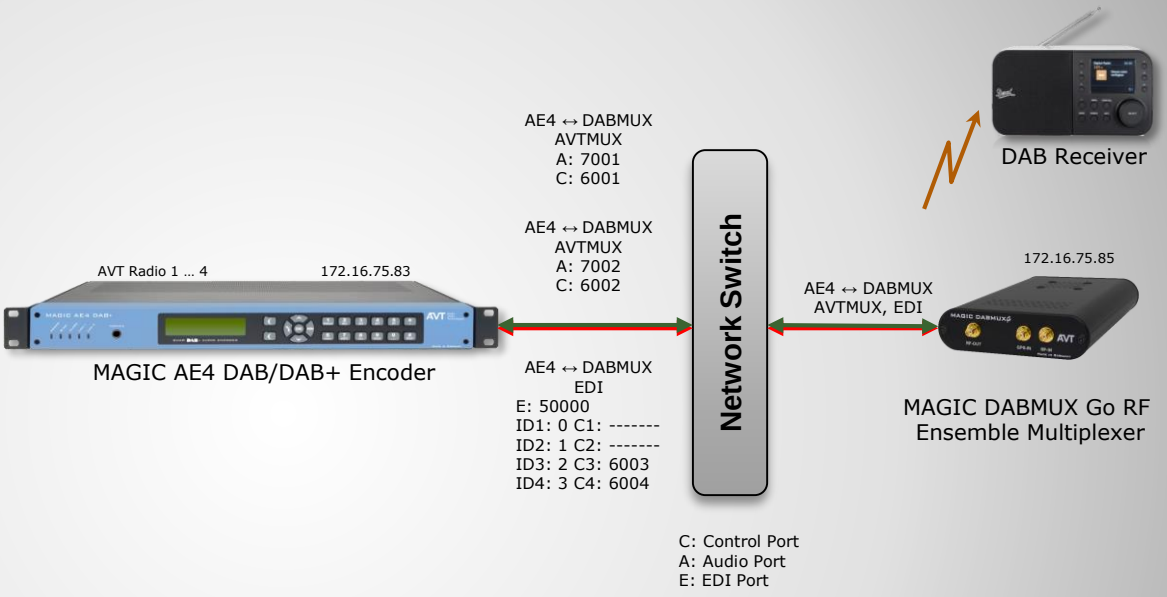
- Integrated wide range power supply
  90V – 250VAC/ 30W
- 2 x LAN interfaces
  - Coded Audio
  - Control interface (Web browser)
  - PAD interface: Dynamic Label and Slide Show via FTP
  - NTP
- Support PTy and Traffic Announcement via UECP
- TTL/Relay (programmable GPIO interface)
  - 8 x TTL Inputs or Outputs
  - 8 x Relay outputs
- Analogue stereo Audio input/output
  - IN AUDIO 1 and 2
  - OUT AUDIO 1 and 2
- 4 x Digital AES/EBU Audio input/output
  - DIGITAL AES 1-2 and DIGITAL AES 3-4

Rear View

- Fully compatible to
  - ETSI TS 102 563 (DAB+)
  - ETSI EN 304 001 (DAB)
- DAB/DAB+ Audio Encoder
  - Up to 4 x DAB/DAB+ Audio Encoders
- DAB/DAB+ Monitoring Audio Decoder
  - Monitoring Decoder for one of the four Encoder signals
- Audio interfaces
  - 1 x Analogue Stereo Audio input
  - 1 x Analogue Stereo Audio output
  - 4 x AES/EBU Audio input
  - 4 x AES/EBU Audio output
  - 1 x AES67 8ch input (optional)
  - 1 x AES67 8ch output (optional)
  - Monitoring Stereo Headphone interface
- Special functions
  - Integrated Audio router
  - Power consumption typically 17 W
  - Synchronisation via NTP
- Data services
  - Dynamic Label/DL+ (UECP/FTP)
  - MOT Slide Show/Categorised Slide Show (FTP)
- Service Information
  - TA triggering (UECP, TTL input)
  - PTy (UECP)
- 2 x LAN interfaces
  - IPv4
- Output protocols
  - AVTMUX with Secure Streaming
  - EDI (optional) with Secure Streaming
  - MUXENC (optional) with Secure Streaming
- Alarm signalling & monitoring
  - SNMP v1c, v2c
- Configuration & Control
  - Configuration & Control via HTML5 Web browser

Functions

- Configuration example:
  - IP leased line connection using AVTMUX protocol with Secure Streaming for program 1 and 2
  - IP leased line connection using EDI for program 3 and 4
- Analogue and digital AES/EBU Audio interfaces for uncompressed Audio
- Dynamic Label and Slide Show via FTP Transfer to the Encoder
- TA activation through GPI contact (TTL input) of the Encoders.
- Remote configuration of the Encoder data rate and data service from MAGIC DABMUX Go RF.



Interconnection Encoder/Multiplexer

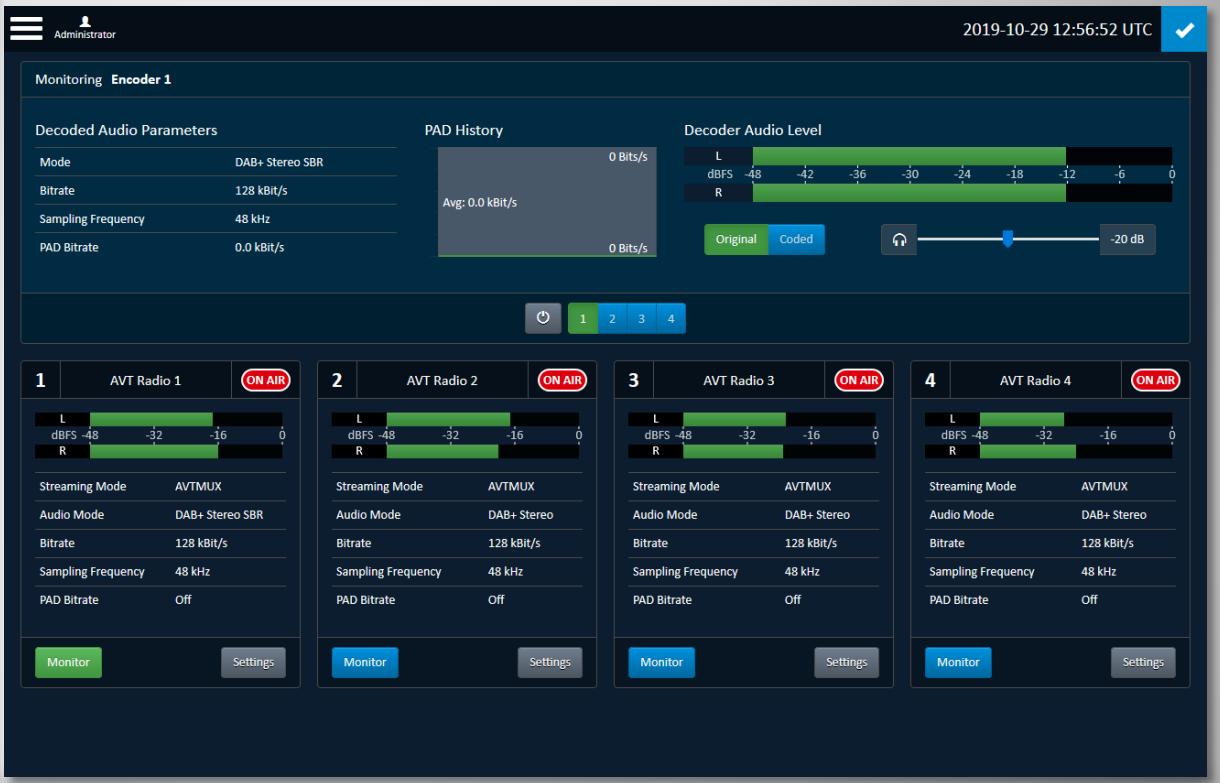
MAGIC AE4 DAB/DAB+

Configuration

AVT Audio Video Technologies

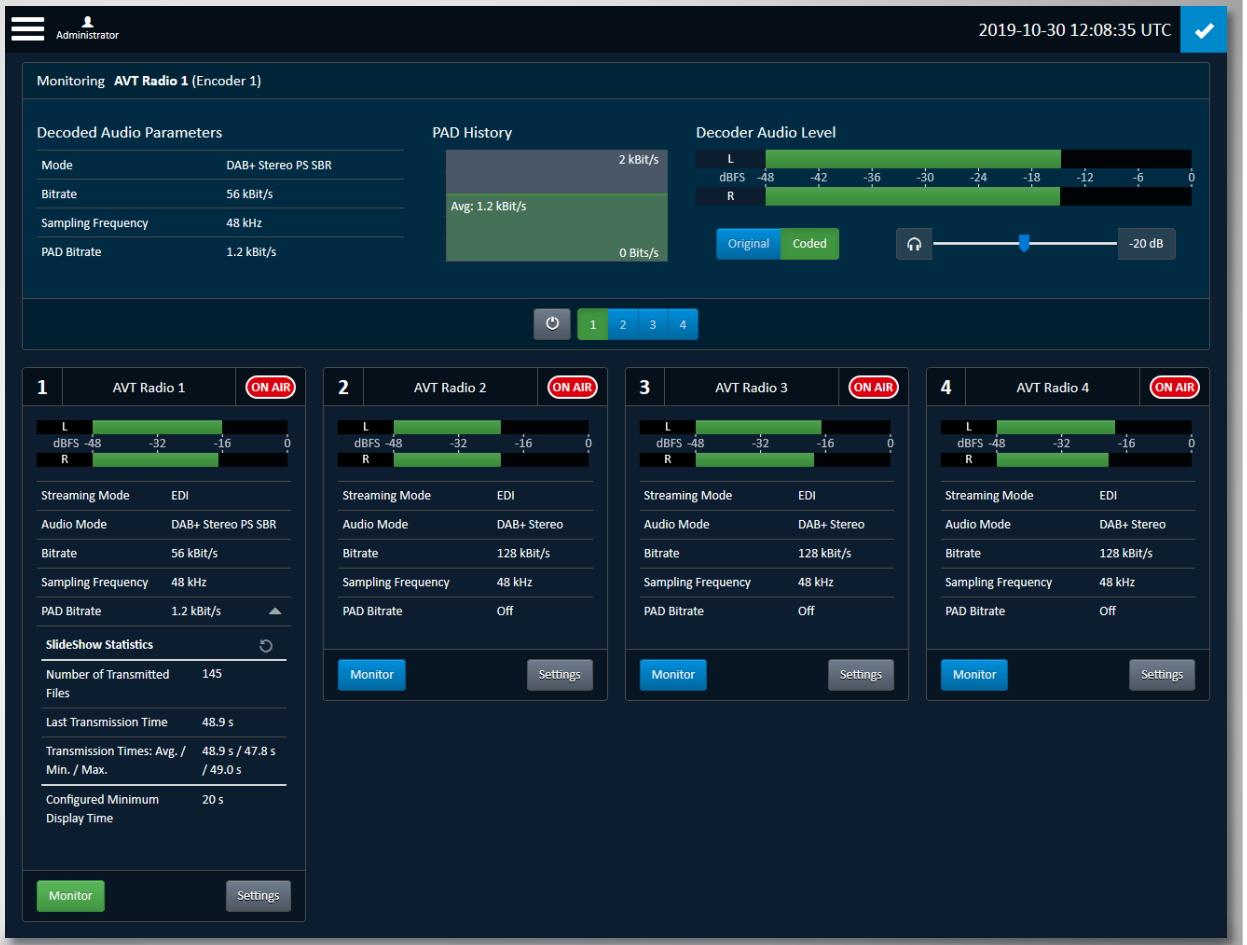
- Web browser
  - The white hook in the top right corner indicates PC is connected to the unit. The Icon's background colour shows the system status:
    - Green: No alarm
    - Blue: There was an alarm
    - Red: There is an alarm

- Monitoring Decoder
  - Displays the Audio and PAD parameters of the selected Encoder
  - Displays PAD History and Audio Level
  - Selection (green colour) of coded or original Audio
  - Selection of the Audio level of the Headphone
  - Selection of the Encoder via buttons "1 to 4" or direct in the Encoder field via "Monitor"



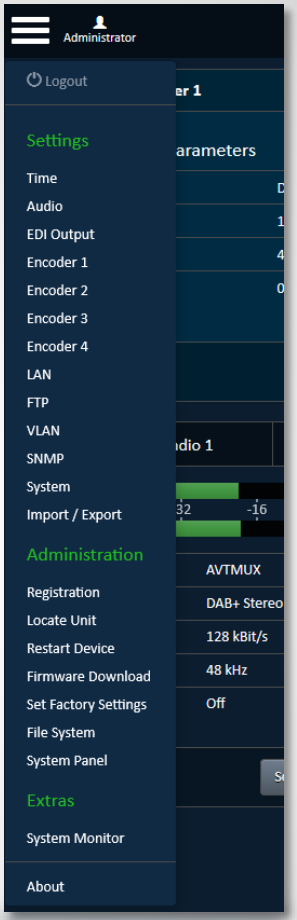
Main Panel

- Encoder details
  - Mode
  - Bitrate: Total data rate (Audio + PAD)
  - Sampling frequency
  - PAD Bitrate
  - Expand the PAD info to show PAD details
  - Audio level L and R
- Click the SETTINGS button to jump to the respective configuration page.



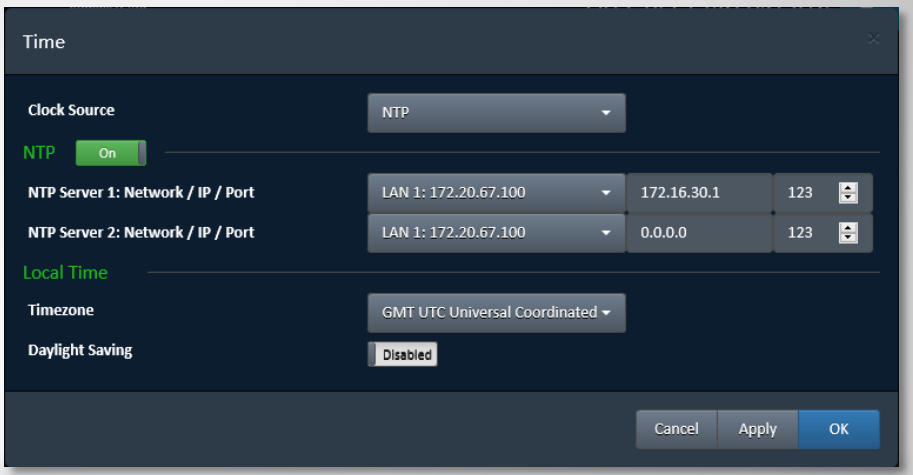
Main Panel

- Settings
  - General settings:
    - Time for synchronisation
    - LAN parameters
    - Audio interfaces
    - PAD (FTP)
  - Individual settings of the Encoders
    - Encoder 1 to Encoder 4
  - Interface settings
    - EDI Output
    - VLAN
    - SNMP
- Administration
  - Product related details
  - Reset
  - Firmware Download
  - Factory settings
- Extras
  - System Monitor
- About
  - Software Version



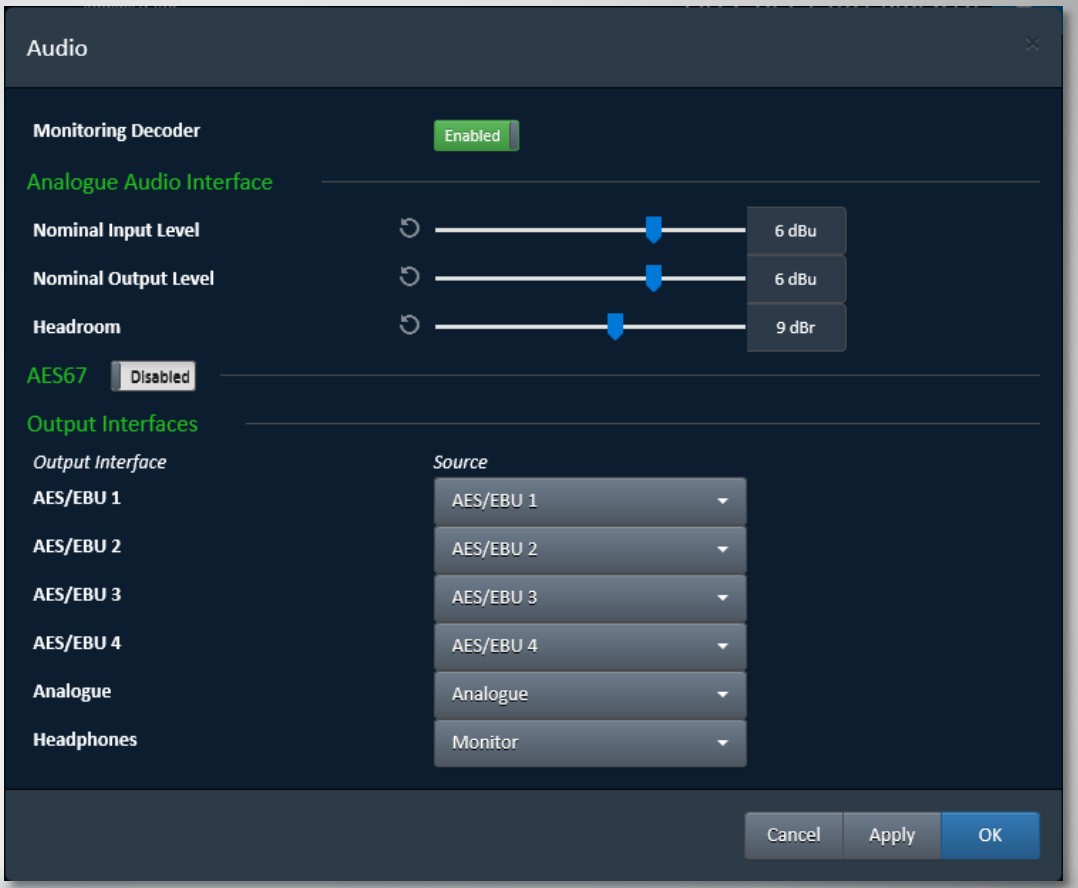
Menu Structure

- Time Settings
  - If NTP is enabled two NTP server can be configured.
  - Entering of IP addresses and ports
  - Configuration of NTP as clock source
  - Selection of local time in UTC Offset box



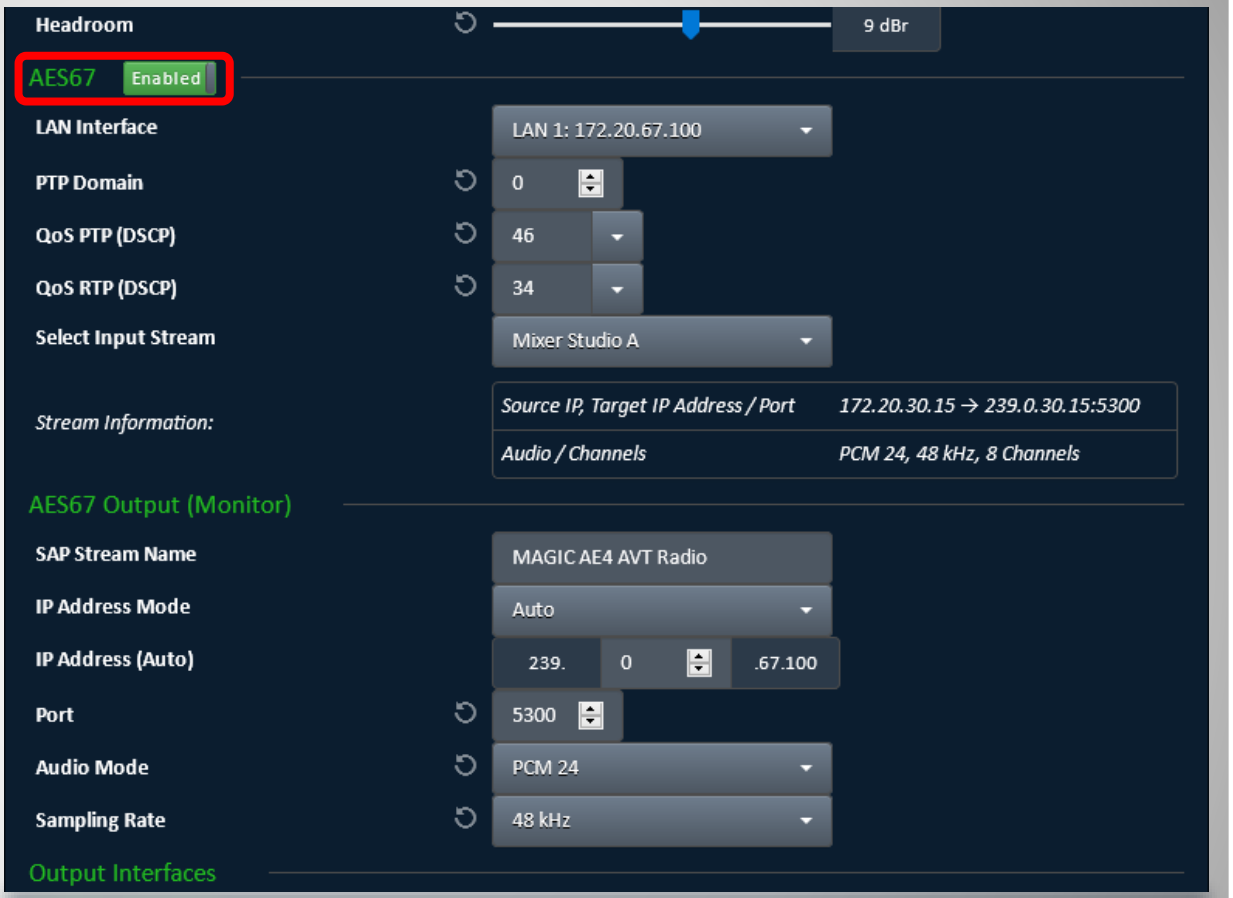
Time

- Audio Level Settings
  - Nominal Input and Output Levels can be set.
  - Headroom level can be set
- Audio Monitoring Settings
  - Selection of the default Monitoring channel. It is the channel after booting
- Audio Output Interfaces Settings
  - An internal Audio matrix allows the configuration of the Audio outputs
  - The source for the outputs can be each input (analogue or digital AES/EBU 1 to 4) and the monitoring decoder output
  - Each output can be configured individually



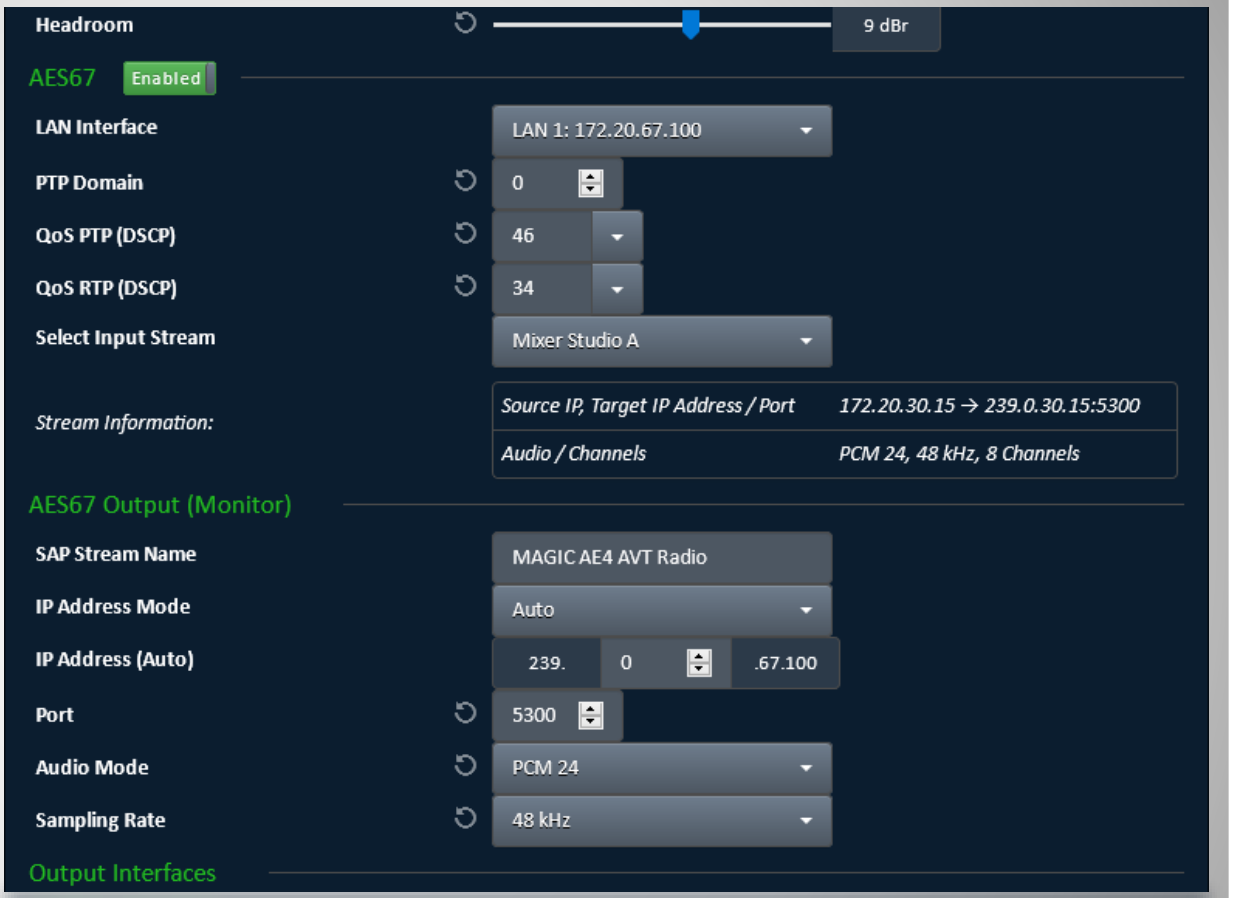
Audio

- Enabling AES67 on the AUDIO page will immediately reconfigure the device.
  - Coded audio streams are briefly interrupted.
  - Audio output interfaces are reconfigured:
    - AES/EBU 1, Analogue and Headphones are set to Monitor.
    - AES/EBU 2-4 are disabled.



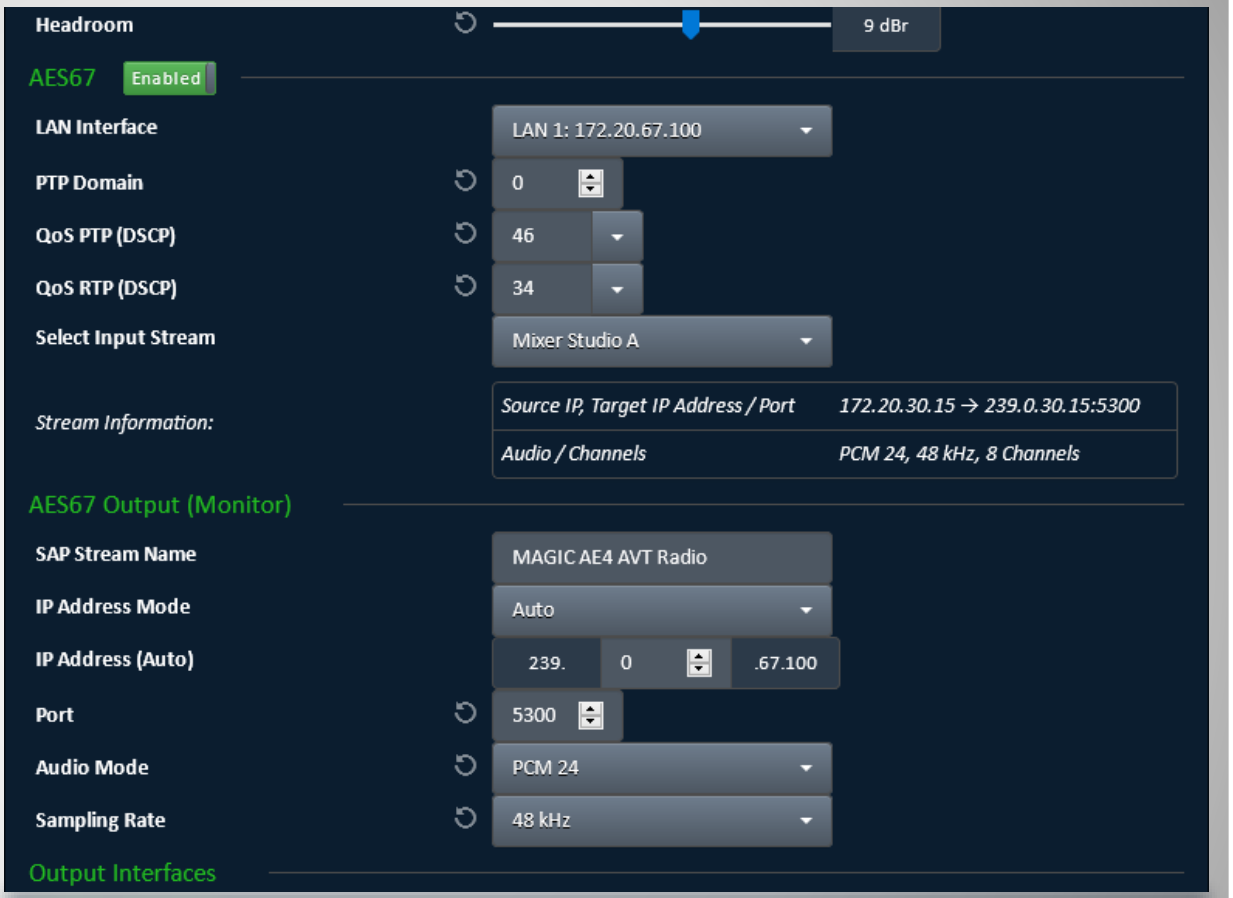
Audio – AES67 (1)

- The device can receive one AES67 stream with up to 8 audio channels.
  - LAN INTERFACE: Select the Network for AES67 RX and TX.
  - PTP Domain: Chose a clock synchronisation domain.
  - QoS PTP (DSCP): DSCP classification of the clock synchronizing protocol.
  - QoS RTP (DSCP): DSCP classification of the audio streams.
  - SELECT INPUT STREAM: The *MAGIC AE4* will discover AES67 streams in the network automatically. Chose a stream from the list.
  - STREAM INFORMATION: Details on the chosen AES67 RX stream:
    - Source IP address
    - Target IP address
    - Target Port
    - Audio bit depth
    - Audio sampling rate
    - Number of channels



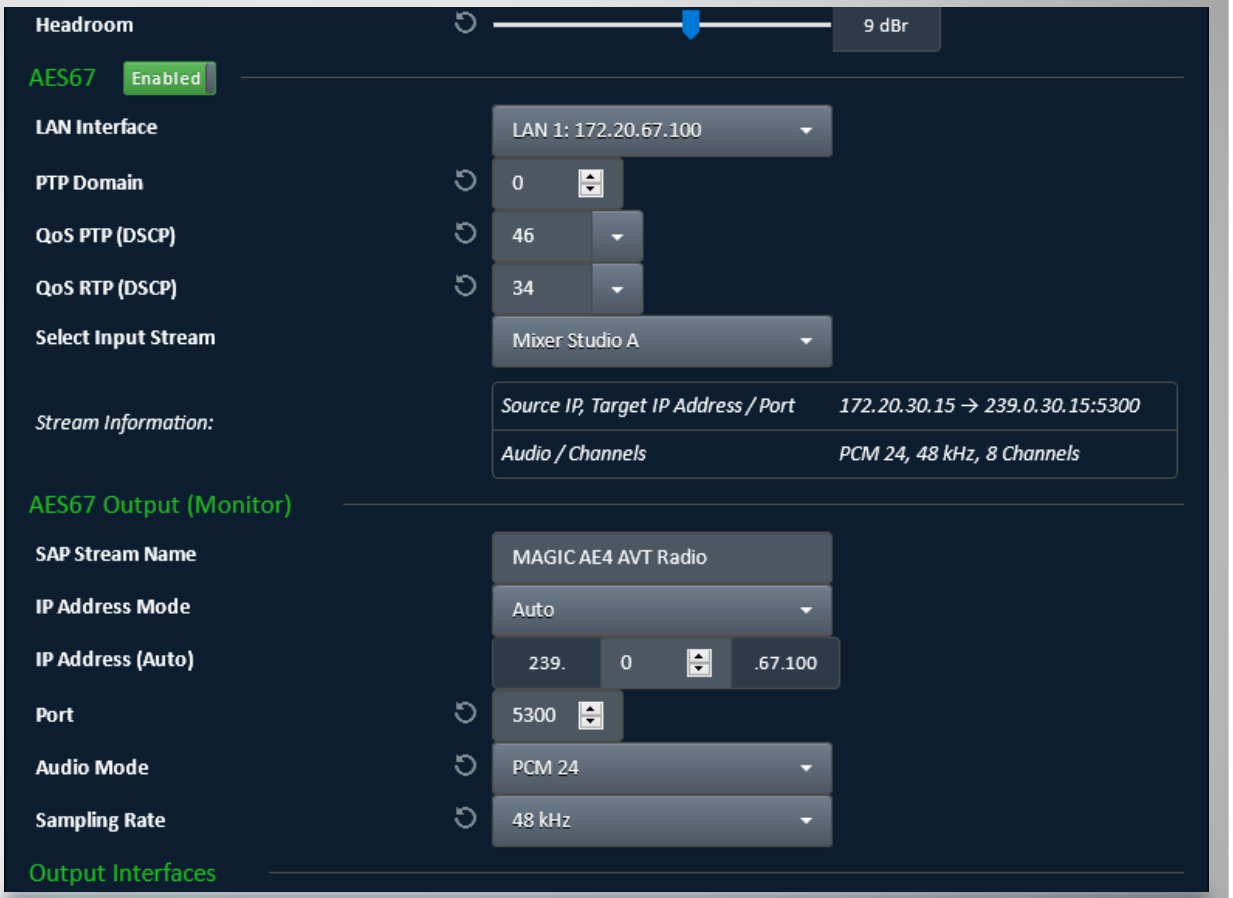
Audio – AES67 (2)

- The device will output one AES67 stream with 8 channels.
  - SAP STREAM NAME: Identifier of the AES67 stream in the network.
  - IP ADDRESS MODE
    - MANUAL: Enter any target multicast IP address for the AES67 stream.
    - AUTO: The target multicast IP address of the AES67 stream is derived from the *MAGIC AE4's* IP address. Only the multicast subnet can be changed.
  - PORT: Target port of the AES67 stream.
  - AUDIO MODE: Algorithm for audio coding:
    - L16: Linear PCM 16 bit
    - L24: Linear PCM 24 bit
  - SAMPLING RATE: Sampling rate of the AES67 stream:
    - 32 kHz
    - 48 kHz



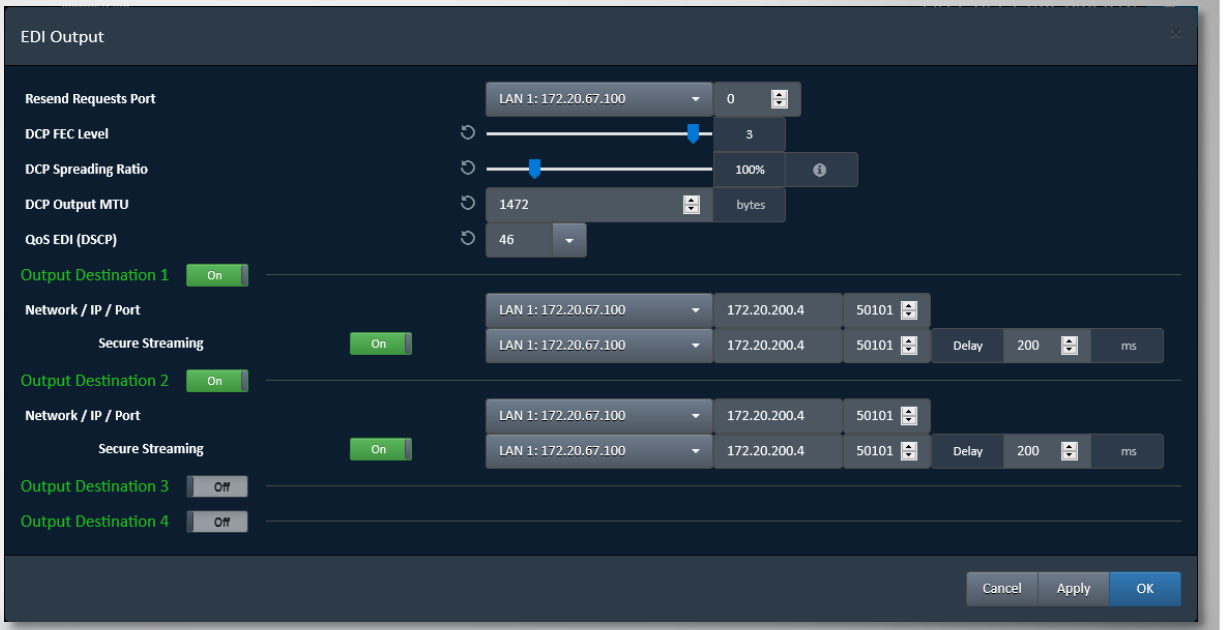
Audio – AES67 (3)

- General information on Audio over IP / AES67 as well as tips for interworking with DANTE, RAVENNA and Livewire+ are available in the DOWNLOAD section of our website under QUICK GUIDES.



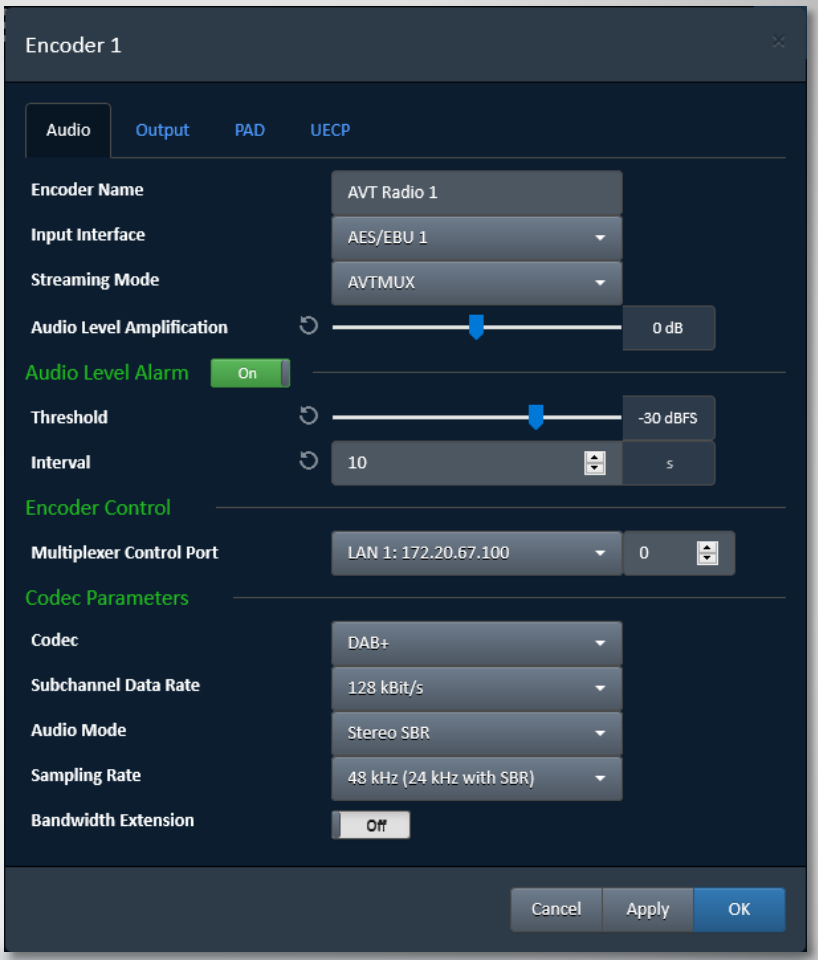
Audio – AES67 (4)

- EDI Output
  - Enter EDI parameters
  - Define up to four destinations.
  - Enter IP address and Port of each destination (Multicast or Unicast IP address)
  - Secure streaming can be enabled for each destination



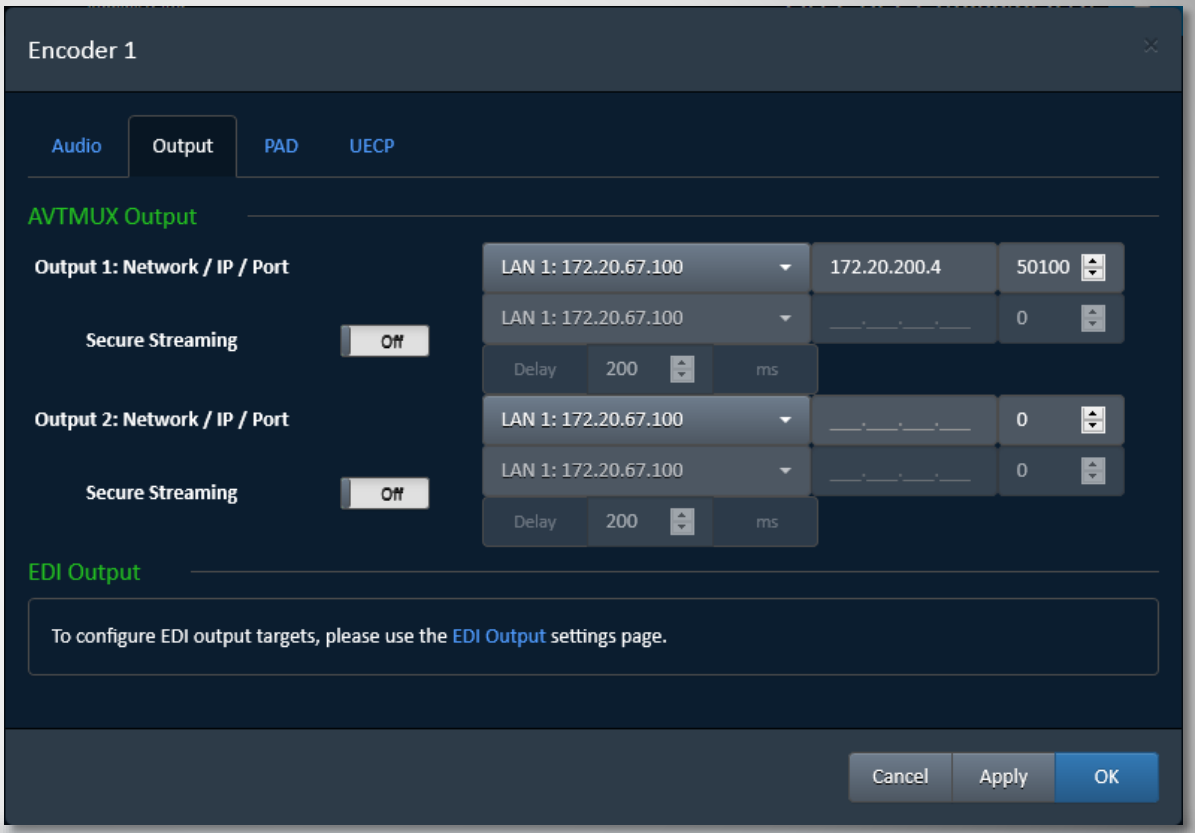
EDI Output

- Configuration of the Encoder can be entered either via MENU – ENCODER X or via the SETTINGS button of each encoder on the main panel.
- Audio Settings
  - Selection of Streaming mode, Input interface, QoS and Audio Level Amplification
- IP Settings
  - Entering of the Multiplexer Control Port
- Coding Settings
  - Selection of DAB or DAB+, Data Rate, Coding Mode and Sampling Rate



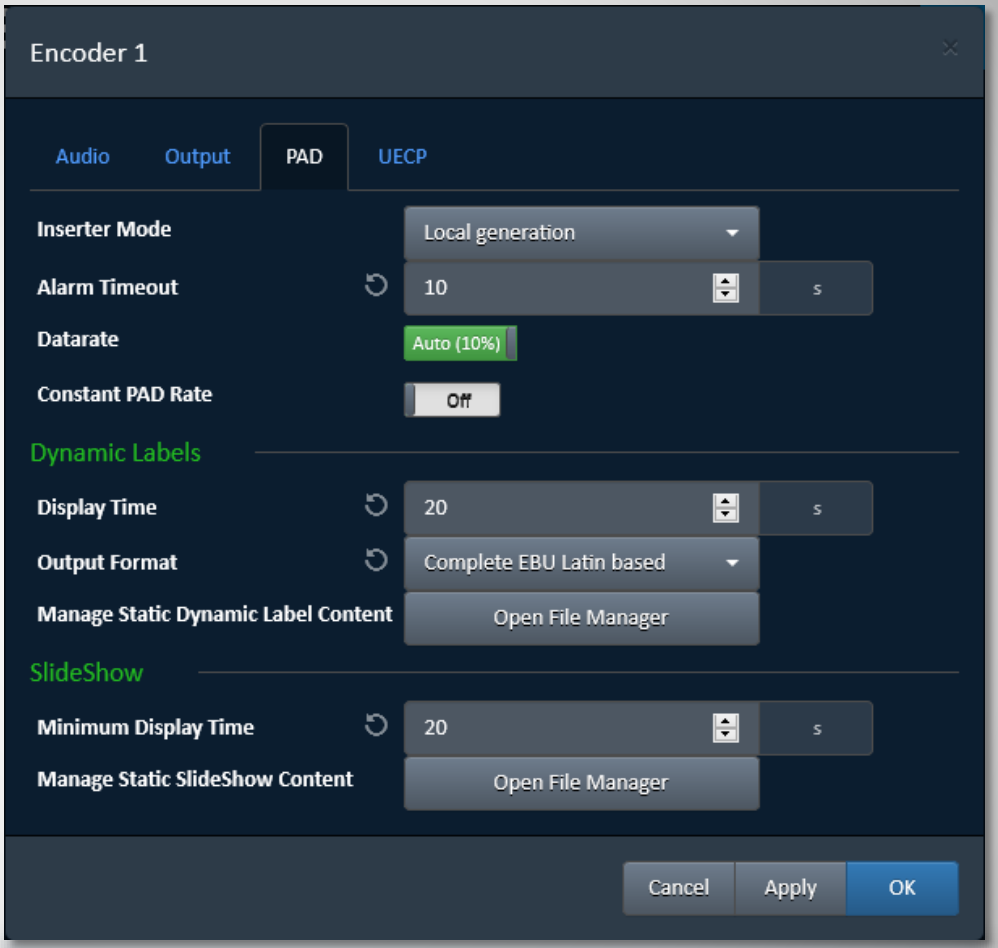
Encoder - Audio

- On the OUTPUT page enter the parameters for the respective STREAMING MODE selected on the AUDIO page.



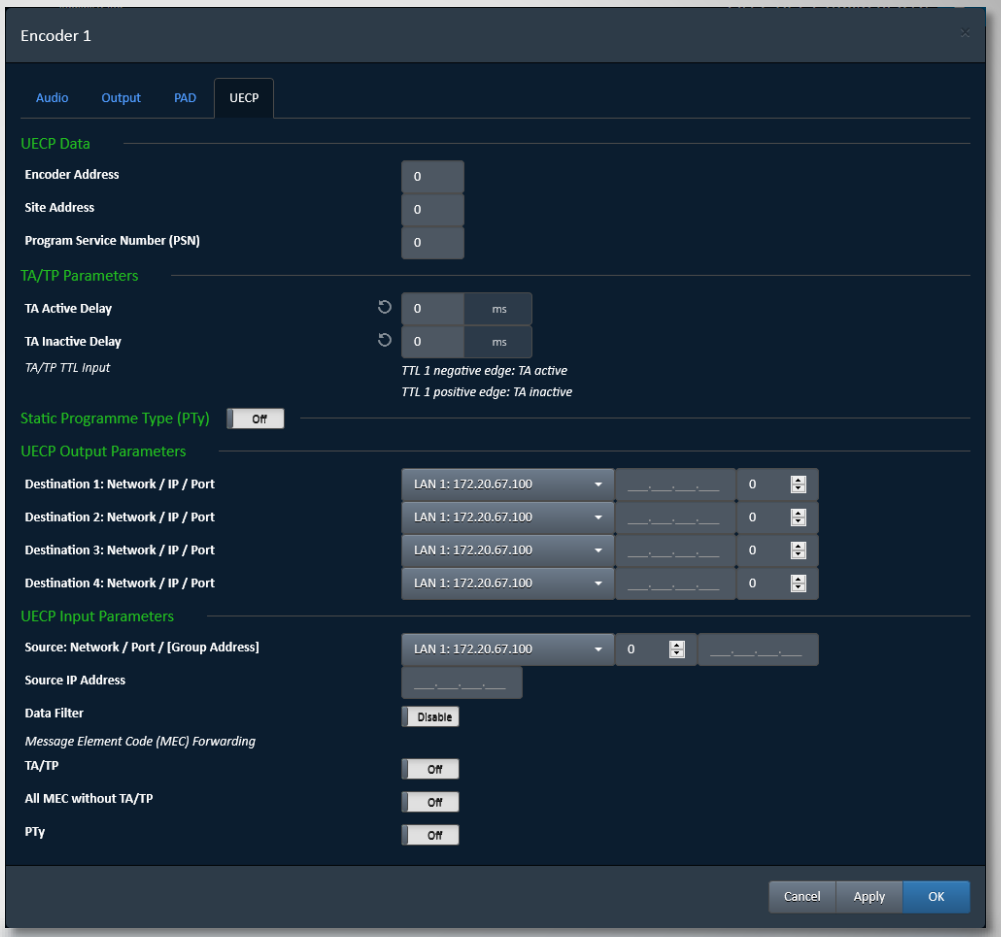
Encoder - Output

- General PAD Settings
  - Selection of Inserter Mode, Local generation or via AVTMUX or via AVTMUX redundancy
  - Entering of Alarm Timeout and maximum Data rate
- Dynamic Label Settings
  - Entering of the display time in seconds
  - In Output Format selection of the charset (character set). The characters are displayed on the DAB+ receiver
  - Via button “Open File Manager” the files can be defined
- Slide Show Settings
  - Entering of the display time in seconds
  - Via button “Open File Manager” the files can be defined
- Direct FTP
  - Direct FTP can be configured in a separate page



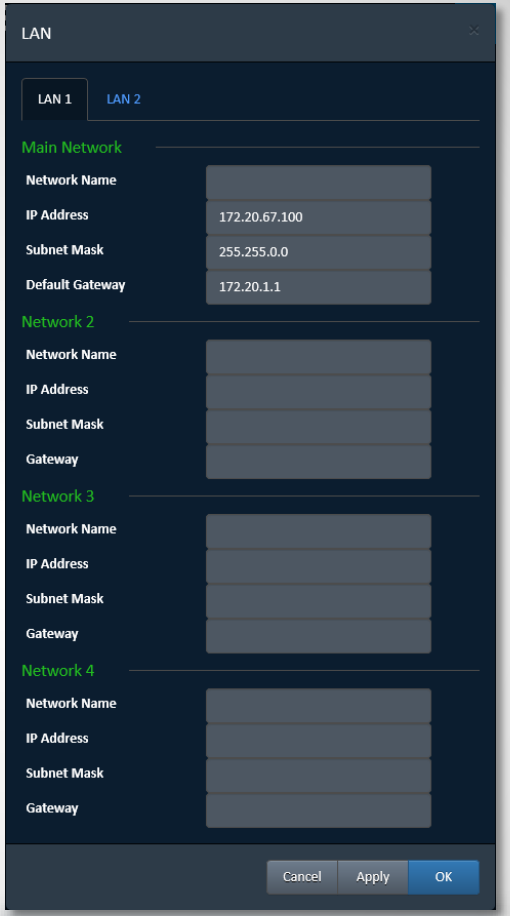
Encoder - PAD

- Select the UECP page to configure Traffic Announcement / Traffic Programme.
- TA/TP Parameters
  - Enter the TA Active and TA Inactive Delays in ms. Is not required for the function. This can be used to compensate for the offset between audio and UECP transmission.
  - A UECP destination must be configured for the function.
  - Negative edge activates TA
  - Fixed assignment of the TTL inputs to the TA signalling of the audio encoders
- UECP Output Parameters
  - Enter the IP address of the Multiplexer for OUTPUT DESTINATION 1
- Assignment of TA signalling
  - Encoder 1: TTL 1
  - Encoder 2: TTL 2
  - Encoder 3: TTL 3
  - Encoder 4: TTL 4



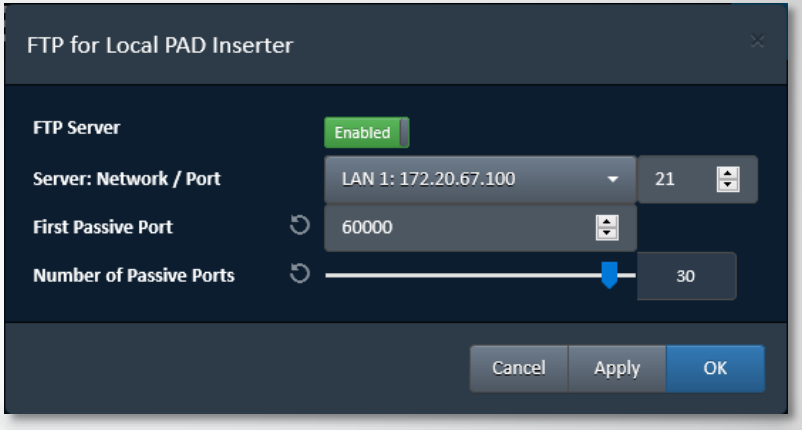
Encoder - UECP

- LAN1 & LAN 2 Settings
  - Enter up to 4 different IP addresses for each LAN interface



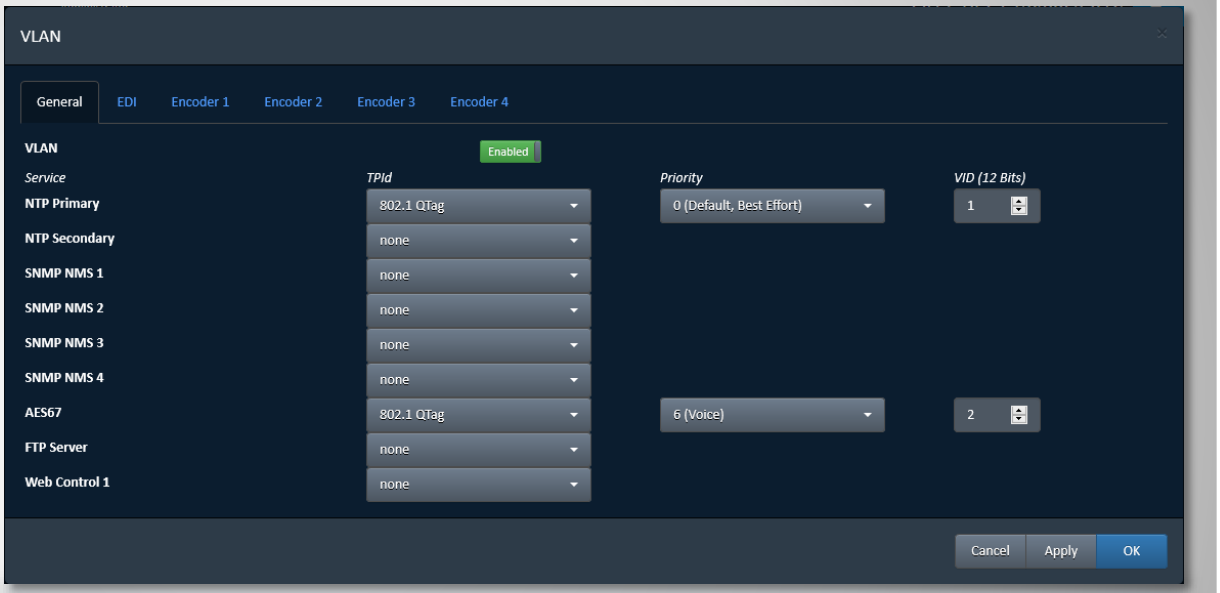
LAN

- FTP Settings
  - Enable FTP
  - Entering FTP Server IP address and Port address
  - Entering First Passive Port and Number of Passive Ports



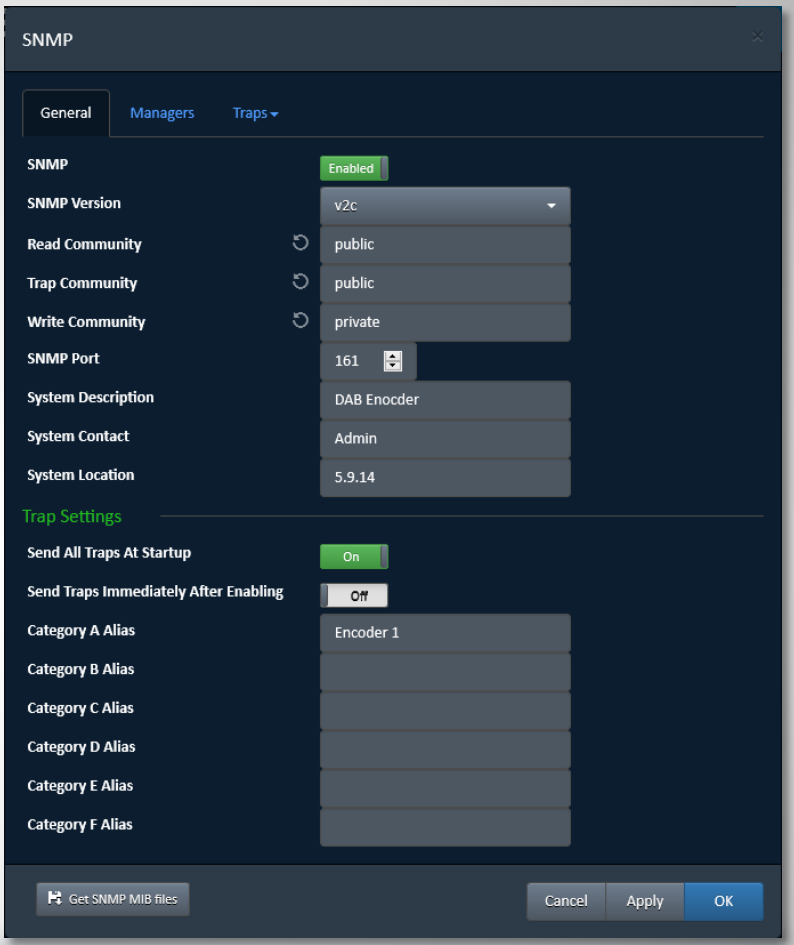
FTP

- VLAN Settings
  - Enter VLAN-Mode, Priority and VLAN ID for each service.



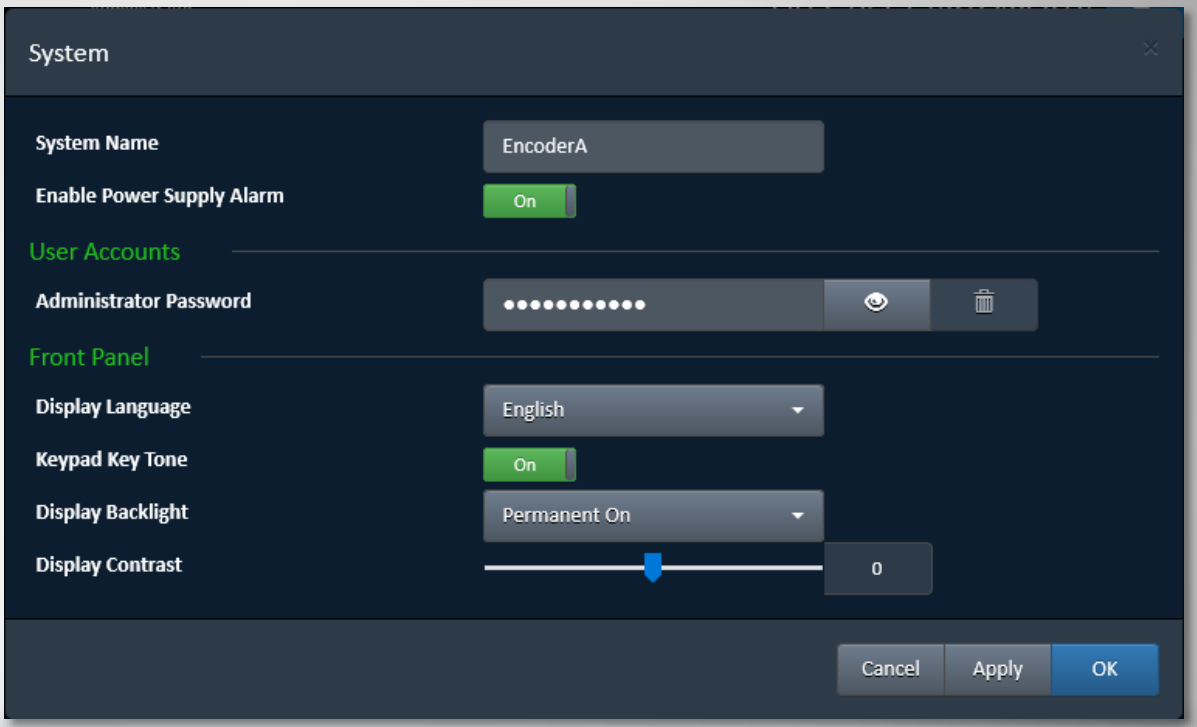
VLAN

- SNMP
  - GENERAL: Setup the SNMP agent.
  - MANAGERS: Enter up to 4 Network Management Systems.
  - TRAPS: Enable Traps for each event individually and group events into categories.
- Download the MIB files via the GET SNMP MIB FILES button in the bottom left corner.



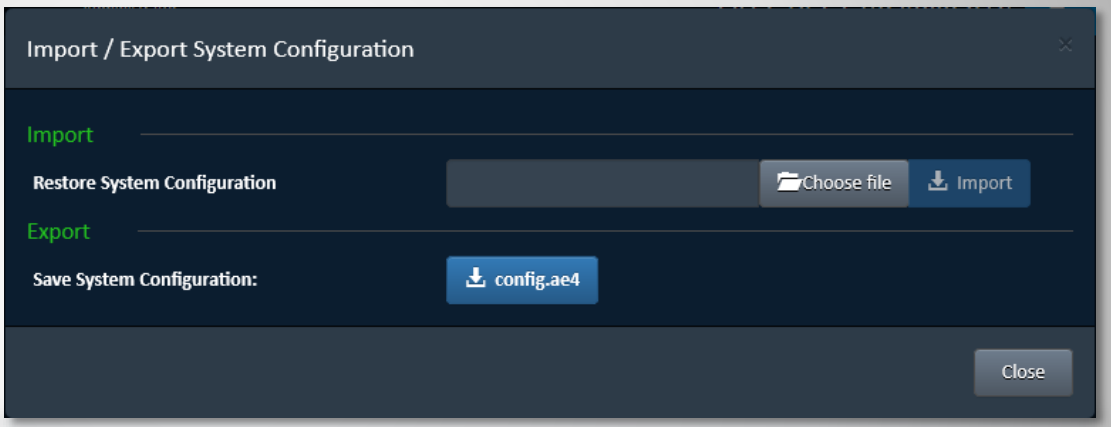
SNMP

- System Settings
  - Selection of front display language
  - Activation of Key Tone for front keypad
  - Configuration of backlight and Display contrast
  - System Name can be entered
  - Administrator password can be entered



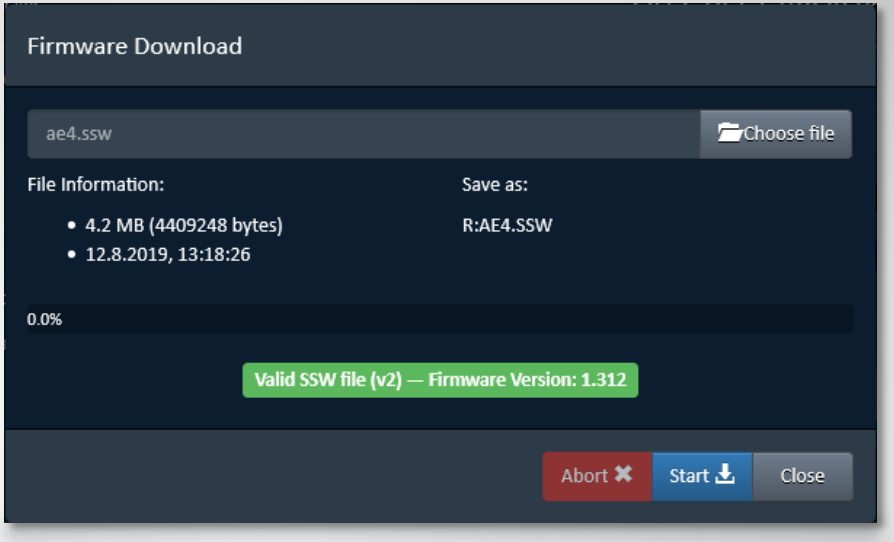
System

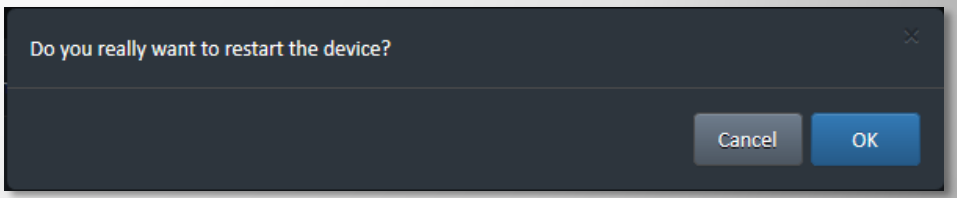
- IMPORT: Restore system configuration from an *.ae4 file from your PC.
- EXPORT: Backup system configuration to a *.ae4 file to your PC.



Import / Export

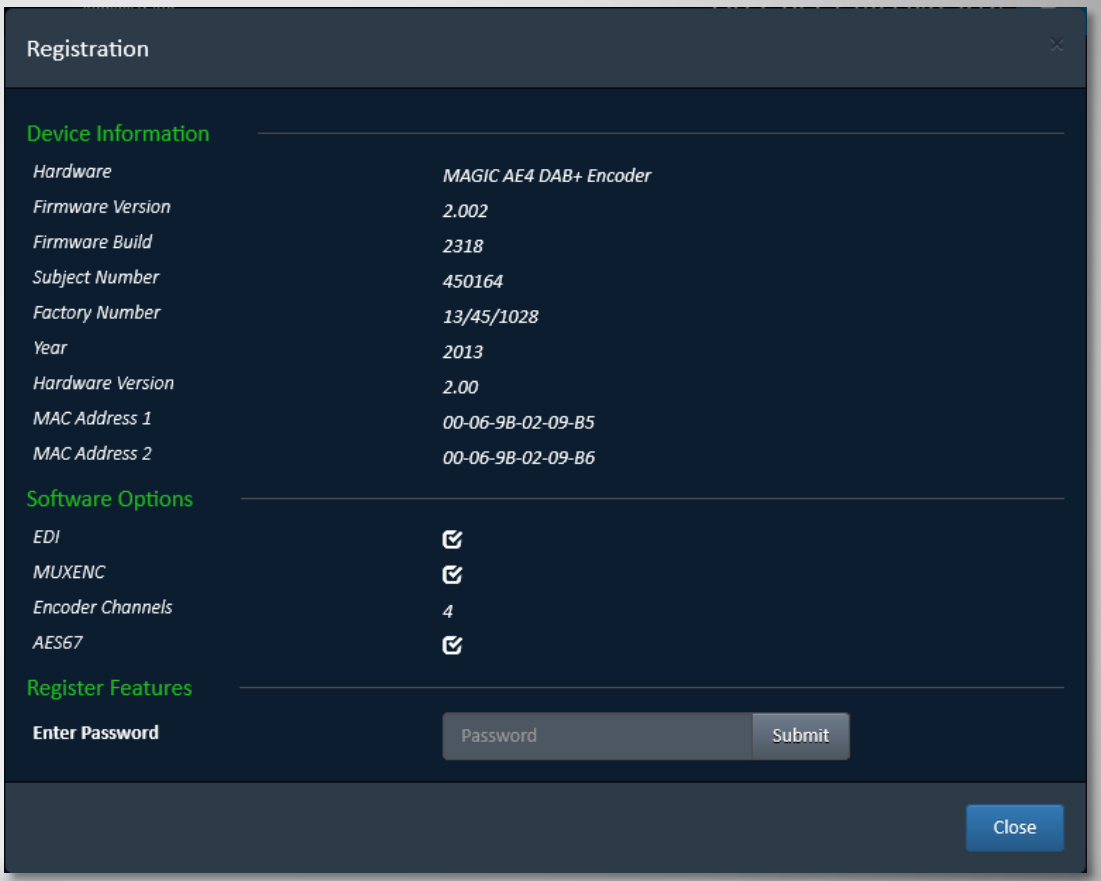
- Firmware Download
  - Via “choose file” the firmware download file can be selected
  - After selecting the Start button the download will be started and the download status will be indicated in percentage.
  - When the download has finished a reset of the unit will be executed after confirmation.
- Restart Device
  - After selecting the “OK” button a reset will be executed
  - The configuration will not be changed





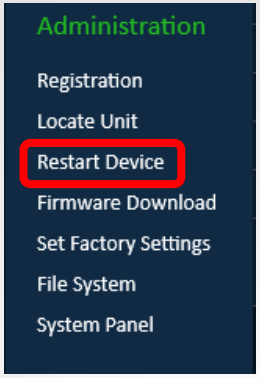
Firmware Download

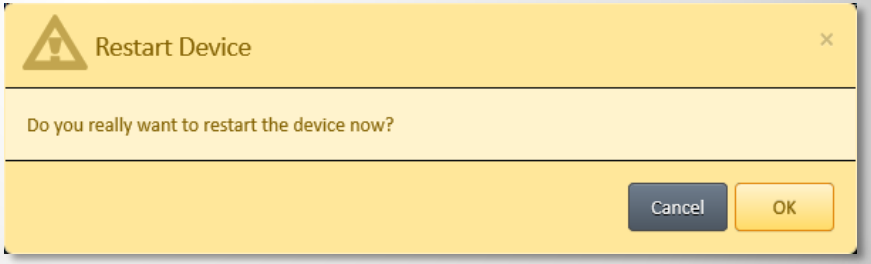
- The Registration shows:
  - Device Information
  - Available and installed Software Options
- Enter password to licence software options.



Registration

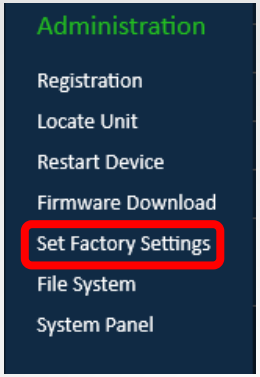
- You may restart the *MAGIC AE4*.
- Confirmation needed to restart the device.

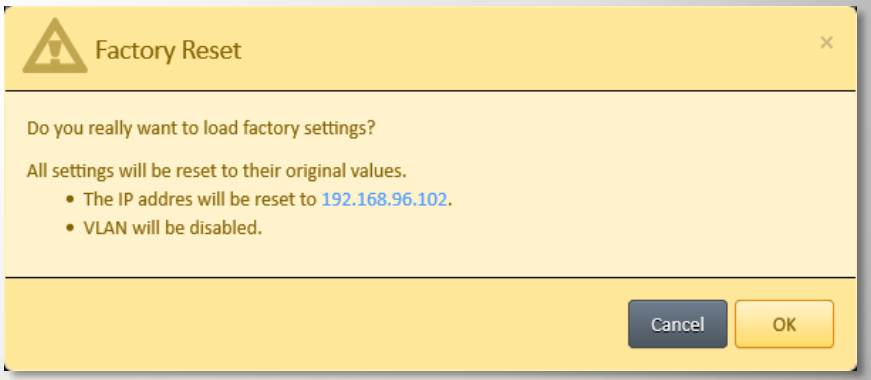




Restart Device

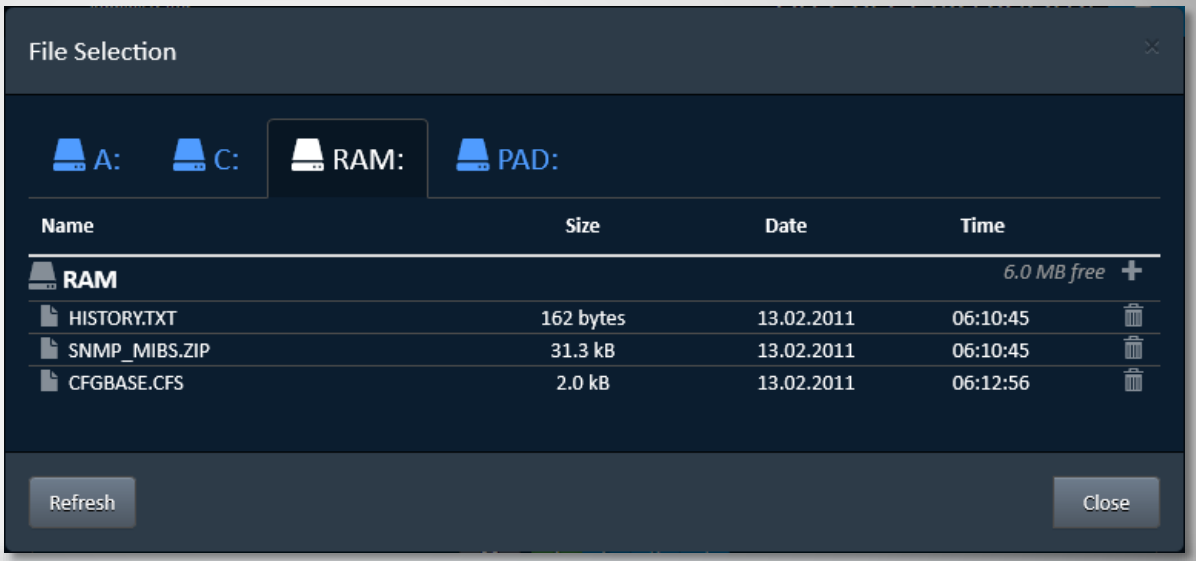
- Factory Reset
  - Only first IP is configured for LAN1 and LAN2
    - IP1 LAN1: 192.168.96.102
    - IP1 LAN2: 192.168.96.103
    - Gateway: 255.255.255.0
    - Subnet Mask: 192.168.96.1
  - VLAN is disabled
  - Timer
    - NTP is active
    - IP addresses not entered
  - EDI is switched off
  - FTP is switched off
  - Audio
    - 0 dB for input and output level
    - Audio inputs are switched to Audio outputs (analogue and digital AES/EBU)
    - Level alarms are active
    - Monitoring interface is switched to headphone
  - Encoder 1 to 4
    - Data Rate: 128kbit/s
    - Sampling Rate: 48kHz
    - Mode: Stereo
    - Audio Enc.1: AES1
  - Monitoring Decoder shows status of Encoder 1





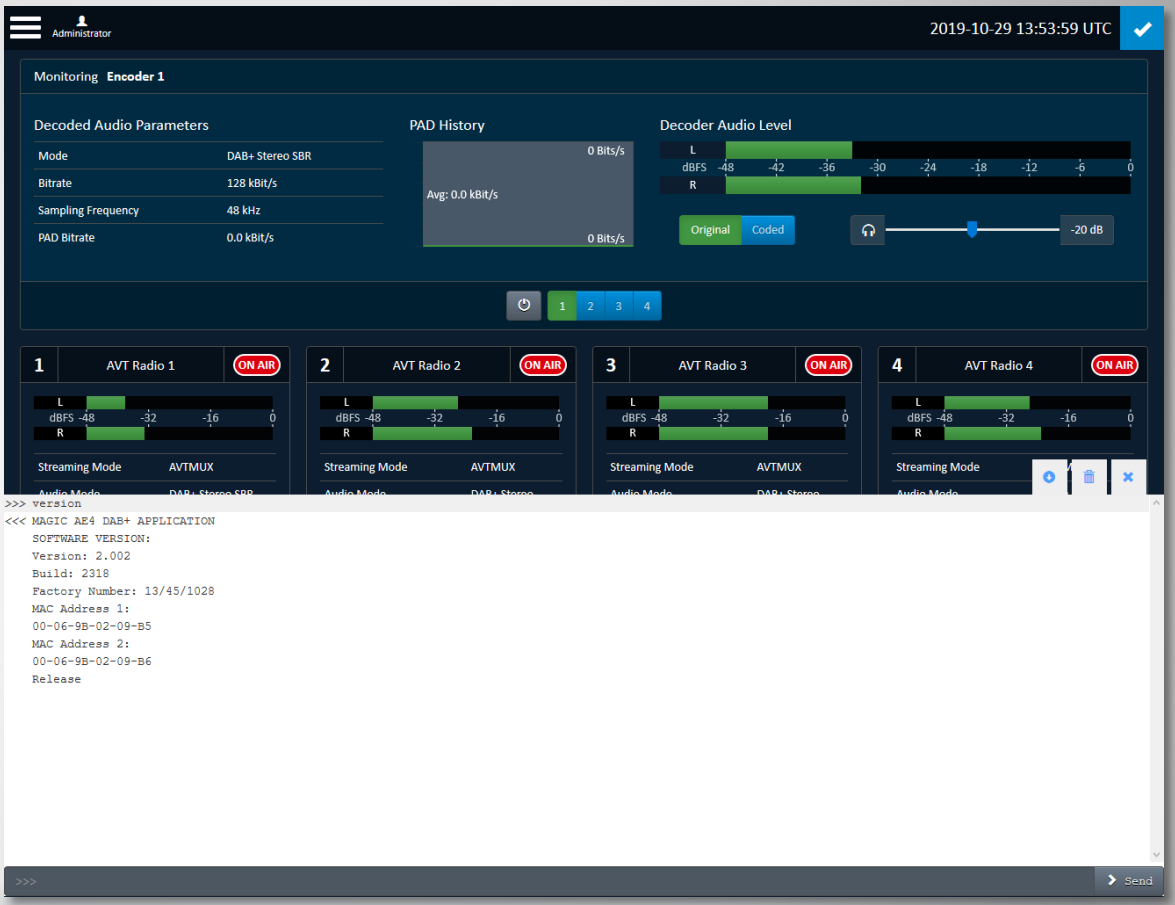
Factory Reset

- Explore the file system of the device.
- Click the waste bin icon to delete a file. Be cautious, this may render the system unusable.
- Click the “+” icon to the right to upload a file to the device.



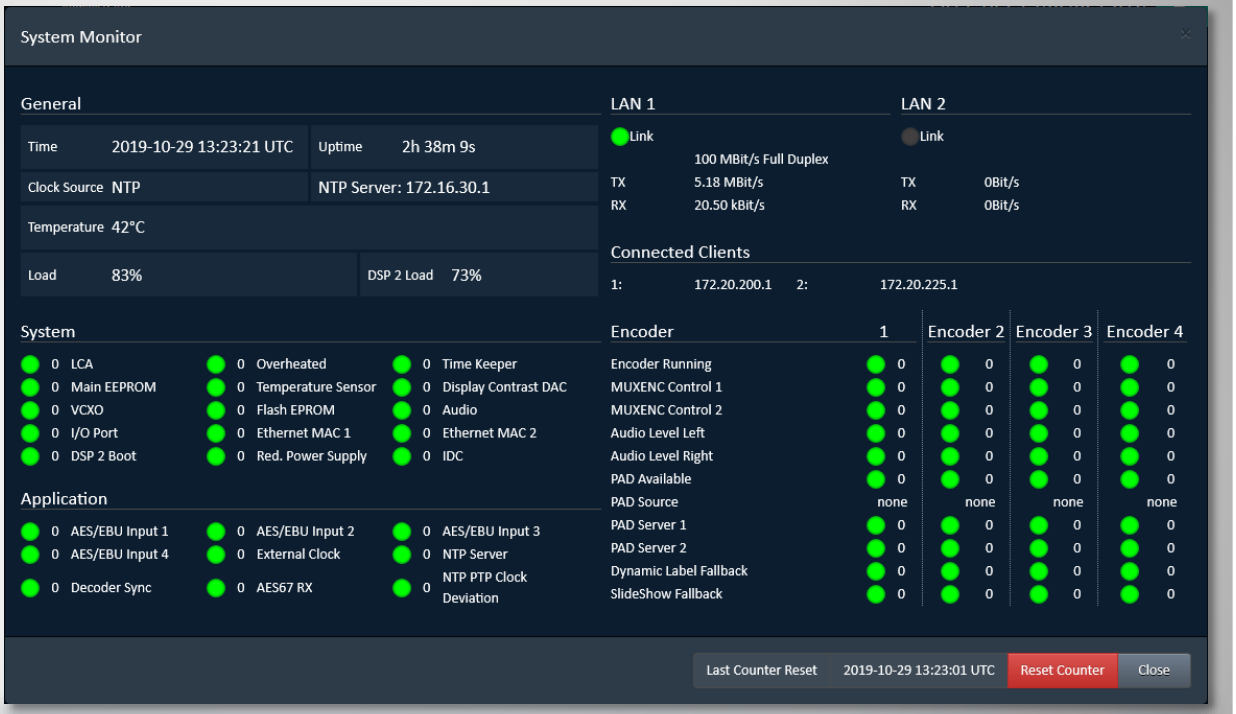
File System

- The System Panel is shown at the bottom of the web page.
- It accepts debug commands such as:
  - Version
  - Help
  - Ping
- Type a command for help.



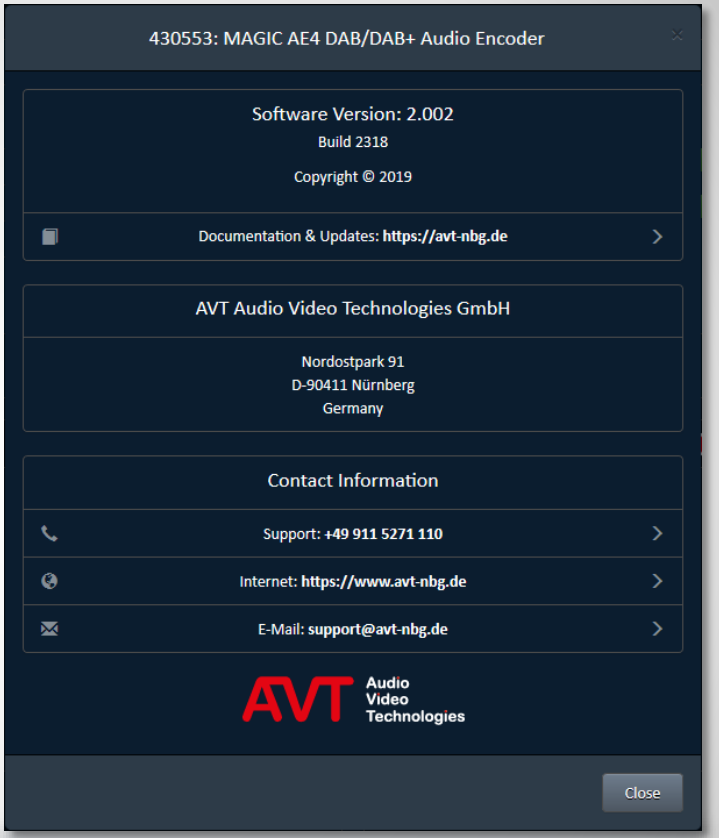
System Panel

- System Alarm
  - Hardware related alarms, such as Main Eprom, Flash Eprom etc.
- Channel1 Alarm to Channel 4 Alarm
  - Encoder related alarms such as Audio level alarm, PAD alarm etc.
- Application Alarm
  - AES/EBU input alarms
  - NTP Server alarm
  - Monitoring Dec. Sync alarm
- System State
  - Indication of Temperature, Time, DSP Load and Uptime
- Network connections
  - Details of LAN1 and LAN2
  - NTP Server IP address
  - IP addresses of Connected Clients



System Monitor

- Indication of the Firmware Version
- AVT`s Post address
- Internet: AVT`s home page
- Support addresses
  - Phone number
  - Email address



About

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Support