



Generating EAS Alerts for ZvPro & HDb2000 models

About the Emergency Alert System (EAS)

ZeeVee devices now support the Emergency Alert System (EAS) by integrating with the Monroe R189 EAS Encoder/Decoder. Using EAS, you can tie systems into national (Federal, FEMA, etc.) or local (city, county, state) alert systems. ZeeVee processes alerts sent with either EAS-NET™ or MPEG streaming Monroe functionality.

When an alert is active, all current audio and video will be interrupted and replaced with the alert. The text of the alert displays in white font on a blue background. The front panel display also shows a flashing message indicating that an EAS alert is in progress. The status tab in Maestro will also display a warning.

When using EAS-NET,™ it is important to ensure that both the R189 and ZeeVee modulator have synchronized system clocks. When using MPEG streaming, the alert will be processed immediately which eliminates the need for synchronized system clocks.

To configure your system for EAS generated alerts, you need to:

- Choose to use either EAS-NET or EAS-MPEG Streaming
- Configure Maestro on the ZeeVee unit according to EAS choice
- Configure Monroe EAS R189

EAS FUNCTIONALITY REQUIREMENTS AND PREREQUISITES

This document assumes the reader has an understanding of the basics behind configuring both the ZeeVee device and the Monroe R189 EAS Encoder/Decoder. For more detailed instructions, please refer to the user manuals for the appropriate device.

To set up the EAS within the ZeeVee system, the following system functionality and requirements need to be in place.

Needed for EAS-Net

- Any ZvPro or HDbridge2 device running 1.9.0 or higher firmware
- Monroe R189 EAS Encoder/Decoder with additional EAS-Net license
- IPv4 network connectivity between the ZeeVee devices and the R189
- Connectivity to a Network Time Protocol (NTP) server

Needed for EAS-MPEG Streaming

- Any ZvPro or HDbridge2 device running 1.9.2 or higher firmware
- Monroe R189 EAS Encoder/Decoder with additional Stream MPEG 1/2 license
- IPv4 network connectivity between the ZeeVee devices and the R189

Each ZeeVee system requires use of either EAS-Net or EAS-MPEG Streaming.

Configuring Maestro for EAS-NET

For EAS-NET, configure using Maestro as follows:

1. Open Maestro.
2. Click on the Device tab and enable Show advanced controls.
3. Change the “Disabled” status below the EAS Mode field to specify the type of EAS mode (EAS Net).
4. Specify a port value in the EAS Port field. EAS Port has an allowable range of 0-65534. Note that port values between 1 and 1023 are well known ports and should be avoided. ZeeVee recommends using a port value of 4096 or greater. In the case that a port value is specified that results in a system conflict (e.g. 80), Maestro will display an error once the configuration is applied. The EAS port should be identical on all devices in a multi-unit deployment.
5. (Optional — For use of EAS Relay only) Change the EAS Relay to “On”. The EAS Relay configuration is required only for installations where more than eight EAS-Net devices are installed. Monroe R189 allows only eight devices to be configured, so the relay feature provides a way to use more than eight devices. This number includes both ZeeVee and non-ZeeVee devices.

Only one ZeeVee unit should be set up as a relay per installation or headend.

By default the **EAS Relay** is off. When the EAS Relay is set to “On”, the system will forward the alert sent by the Monroe R189 to all other known ZeeVee devices. The alert is forwarded sequentially so a large installation might see a delay before all modulators begin processing the alert.

The ZeeVee EAS Relay feature allows you to configure one ZeeVee unit in the Monroe R189. That one device communicates with the Monroe box and its information cascades down to the other ZeeVee units.

The screenshot shows the Maestro web interface with the 'Device' tab selected. The 'Show advanced controls' checkbox is checked. The 'EAS Mode' dropdown is set to 'EAS NET', the 'EAS Port' is set to '4096', and the 'EAS Relay' is set to 'On'. Red arrows point to these specific settings.

The screenshot shows the Maestro web interface with the 'Network' tab selected. The 'Show advanced controls' checkbox is checked. The 'NTP 1' and 'NTP 2' fields are filled with '1.pool.ntp.org'. Red arrows point to these fields.

6. Connect ZeeVee units to one or more NTP servers. This connection ensures that all system clocks are in sync so when the Monroe sends an alert to the ZeeVee device, the alert processes at the appropriate time.

To connect, click on the Device tab and enable Show advanced controls. Then fill in the fully qualified domain name as appropriate in the NTP server fields.

Configuring Maestro for EAS-MPEG2

If using EAS-MPEG, you need to choose between EAS-MPEG2 and EAS-MPE2G-MCAST.

The EAS-MPEG2 configuration option is for those MPEG streaming installations using unicast IP addresses. When selecting this option, the EAS IP MCAST and EAS Relay fields will become disabled.

For EAS-MPEG2, configure using Maestro as follows:

1. Open Maestro.
2. Click on the Device tab and enable Show advanced controls.
3. Change the “Disabled” status below the EAS Mode field to specify the type of EAS mode (EAS MPEG2).
4. Specify a port value in the EAS Port field. EAS Port has an allowable range of 0-65534. Note that port values between 1 and 1023 are well known ports and should be avoided. ZeeVee recommends using a port value of 4096 or greater. In the case that a port value is specified that results in a system conflict (e.g. 80), Maestro will display an error once the configuration is applied. The EAS port should be identical on all devices in a multi-unit deployment

The screenshot shows the Maestro web interface. At the top, there is a navigation bar with tabs: Status, Channel Plan, AV Source, RF, Device, Network, ZvShow, STB, Admin, Support, and About. The 'Device' tab is selected. Below the navigation bar, there is a header area with the Zv logo, 'Headend: Unnamed', 'User Name: admin', and 'Maestro' logo. The main content area displays a table of systems. The table has columns: System, Device Name, Actions, Firmware, Idle Screen, EAS Mode, EAS IP MCAST, EAS Port, EAS Relay, and Dig. Audio. The selected system is '5_support_2540' with EAS Mode set to 'EAS MPEG2' and EAS Port set to '25600'. Two red arrows point to these fields. The interface also includes buttons for Manage All, Refresh All, Apply, Reset, and Device Help.

Configuring Maestro for EAS-MPEG2-MCAST

If using EAS-MPEG, you need to choose between EAS-MPEG2 and EAS-MPE2G-MCAST.

The EAS-MPEG2-MCAST configuration option is for those installations using MPEG streaming to multiple devices using a multicast IP address. When selecting this option the EAS Relay field will become disabled.

For EAS-MPEG2-MCAST, configure using Maestro as follows:

1. Open Maestro.
2. Click on the Device tab and enable Show advanced controls.
3. Change the "Disabled" status below the EAS Mode field to specify the type of EAS mode (EAS-MPEG2-MCAST).
4. Enter the multicast address where the ZeeVee device receives EAS MPEG2 multicast streams in the EAS IPMCAST field. Valid multicast IPs are between 224.0.0.0 and 239.255.255.255.
5. Specify a port value in the EAS Port field. EAS Port has an allowable range of 0-65534. Note that port values between 1 and 1023 are well known ports and should be avoided. ZeeVee recommends using a port value of 4096 or greater. In the case that a port value is specified that results in a system conflict (e.g. 80), Maestro will display an error once the configuration is applied. The EAS port should be identical on all devices in a multi-unit deployment.

ZeeVee devices do not implement IGMP. Therefore, it is important to note that both the R189 and ZeeVee modulators should be connected to the same LAN segment.

The screenshot shows the Maestro web interface. At the top, there is a navigation bar with tabs: Status, Channel Plan, AV Source, RF, Device, Network, ZvShow, STB, Admin, Support, and About. Below the navigation bar, there is a table with columns: System, Device Name, Actions, Firmware, Idle Screen, EAS Mode, EAS IP MCAST, EAS Port, EAS Relay, and Dig. Audio. The table contains one row with the following data: System: 1 selected, Device Name: _5_support_254, Actions: Reboot, Defaults, Password, Firmware: 1.9.8.30041, Idle Screen: Default, EAS Mode: EAS MPEG2, EAS IP MCAST: 225.1.1.1, EAS Port: 25600, EAS Relay: Off, Dig. Audio: Set All. Red arrows point to the EAS Mode, EAS IP MCAST, and EAS Port fields in the table. The interface also includes buttons for Apply, Reset, and Device Help, and a message: "1 system has been changed. Click 'Apply' to save your new settings."

Monroe R189 Configuration

After configuring the ZeeVee unit for EAS, configure Monroe R189 in the Setup tab on the web administration page.

Configuring Network and Time

In the Setup section:

1. Click on Time and enter the NTP configuration location (name or IP address) on the R189. This location should match the server configured on the ZeeVee device.

Name: 'OneNet-IF EAS'

Encoder Decoder **Server** Setup

Server Encoder Decoder Audio Video/CG Alerts
EMail GPIO Printer Alert Storage Network Time Users

WARNING: Change Default Password for user 'Admin'!

Back Refresh OptLog <172.16.5.16> User:Admin Wed May 4 11:05:10 2016 EDT Logout

Setup Time

Server Date and Time Configuration

Make changes to date and/or time and/or timezone, then press Submit button.

Date and Time
May 4 2016
Mon:Day:Year
11:05:10
Hrs:Mins:Secs
Difference from UTC = -4.0

Server Time Zone
If changed, server software will restart when changes are submitted!
Eastern

[Official time link](#) (if your browser has Internet access).

Submit Date/Time/Timezone Changes Cancel Changes

Network Time Protocol (NTP) Configuration

The One-Net clock can be synchronized to a remote clock using NTP. Provide a valid remote NTP server name or IP address accessible from your network. This can be another One-Net that has NTP enabled. If the NTP Server name is left blank, and NTP is enabled, this One-Net can still be used as an NTP master clock for other systems, but will simply run it's own clock.
IMPORTANT: Make sure UDP port 123 is open in any firewalls between this server and the NTP server.

NTP Server name or IP Address (restart NTP to submit changes): time.nist.gov

Check this to start/restart NTP. Uncheck to stop NTP. Changes are immediately effective!

NTP Server Info

```
server 216.229.0.179, port 123
stratum 1, precision -29, leap 00
refid 'NCTS' delay 0.05803, dispersion 0.00000 offset 0.008244
rootdelay 0.00000, rootdispersion 0.00000, synch dist 0.00000
reference time: dad480d.03eabfeb Wed. May 4 2016 11:04:45.015
```

2. Click on Audio and then the Audio Output Levels/Tests tab.
3. Select 48000 samples per second. ZeeVee devices require audio that has been sampled at 48000 samples per second.
4. Be sure to click "Accept Changes" to save.

Name: 'OneNet-IF EAS'

Encoder Decoder Server **Audio** Setup

Server Encoder Decoder Audio Video/CG Net Alerts
EMail GPIO Printer Alert Storage Network Time Users

WARNING: Change Default Password for user 'Admin'!

Back Refresh OptLog <172.16.5.16> User:Admin Wed May 4 11:08:58 2016 EDT Logout

Setup Audio

Decoder Audio Encoder Audio **Audio Output Levels/Tests** Radio Tuners

Direct Audio Output Levels and Tests

This server provides audio output on an internal speaker and on sound card speaker output ports. This page allows direct setting of any output level indexed by audio device. It also provides tests of audio playback. It also provides links for resetting forwarding and encoding audio output associations.
All changes effective immediately. On some browsers, hitting enter after setting the level will not result in the change being submitted. However, clicking any other button or the background will submit the changed level.

48000 Sample/sec **Audio Output Sample Rate** (set as small as possible for your system.
All associated sound files should be set to this rate. Note: Multiplexer requires 16000. Digigram AES PCI Audio out requires 32000 or more samples/sec)

80 **EAS Header/Tone/EOM Amplitude percent (25-100, dflt=80. If changed remember to rerun Init Multiplexer.)**

Front Panel Speaker

(Linux audio mixer device "/dev/mixer0")

Mono Audio Forwarding/Encoder Output Enable (Click link)



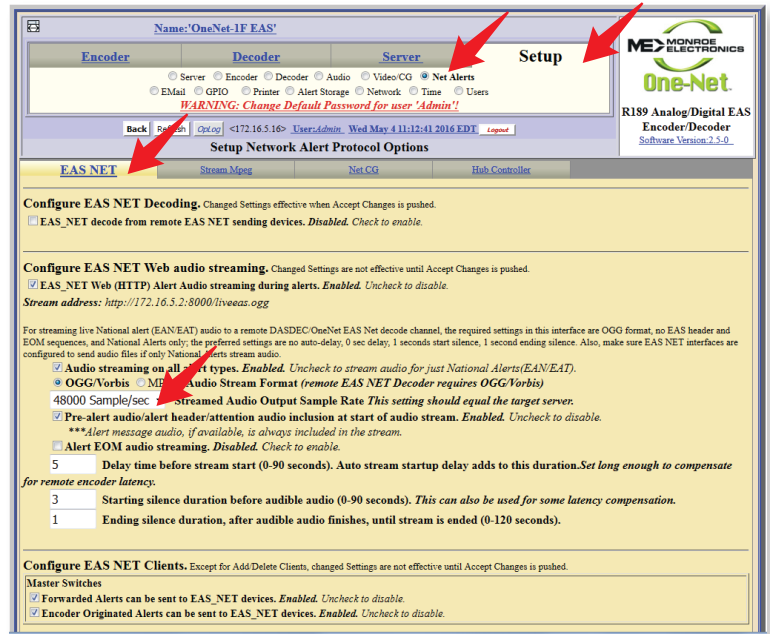
Configuring EAS Net Alerts

Once the network and time configuration have been verified, the next step is to configure EAS NET.

If the ZeeVee EAS Relay feature is being used then only the device configured as the relay needs to be configured.

In the Setup section:

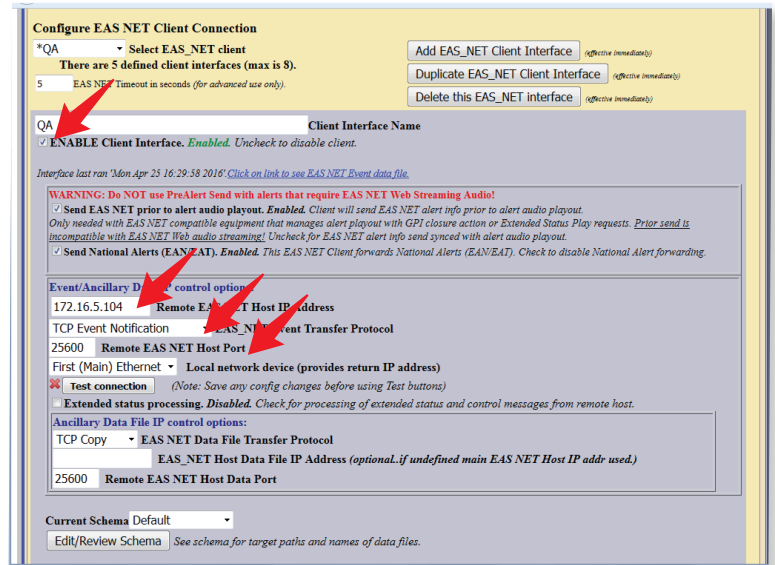
1. Click on Net Alerts and then click on the EAS Net tab.
2. Ensure that the Streamed Audio Output Sample Rate is set to 48000 samples per second.
3. Ensure that the Alert Forwarding and Enable Client Interface options are enabled.



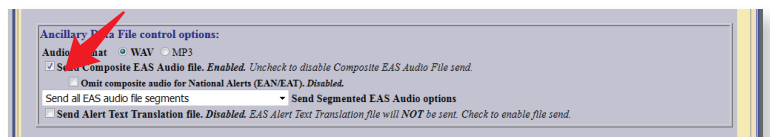
4. Configure the following options (see grayed area in image) for each ZeeVee device that receives alerts from the Monroe R189:

- Ensure client is enabled (ENABLE Client Interface).
- Ensure remote host address matches the ZeeVee device (Remote EAS NET Host IP Address).
- Set EAS_NET Event Transfer Protocol to "TCP Event Notification."
- Ensure the Remote EAS NET Host Port matches the value configured on the ZeeVee device.
- Ensure the Remote EAS NET Host Data Port matches the remote host port value.

5. Be sure to click "Accept Changes" to save.



- Ensure the Send Composite EAS Audio file option is enabled.

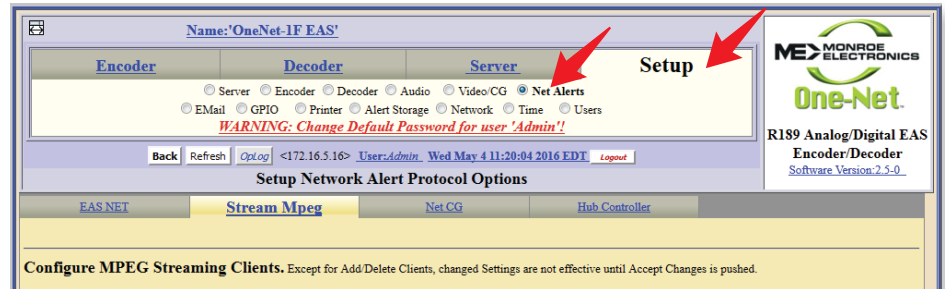


Configuring EAS MPEG Streaming Alerts

Once the network and time configuration have been verified the next step is to configure EAS MPEG.

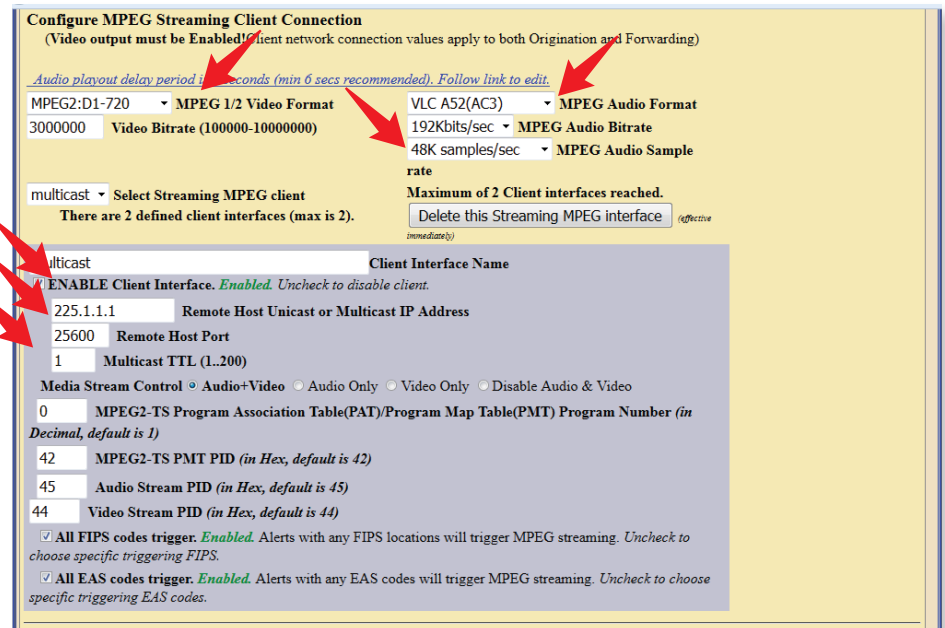
In the Setup section:

1. Click on Net Alerts, and click on the Stream Mpeg tab.



2. Configure the following for each ZeeVee device that receives alerts from the Monroe R189:

- Ensure MPEG 1/2 Video Format is set to MPEG2:D1-720
 - Ensure MPEG Audio Format is set to VLC A52(AC3)
 - Ensure MPEG Audio Bitrate is set to 192Kbits/sec
 - Ensure MPEG Audio Sample rate is set to 48K samples/sec
 - Check ENABLE Client Interface
 - Ensure remote host address matches the ZeeVee device (Remote Host Unicast or Multicast IP Address)
 - Ensure the Remote Host Port matches the remote host port value
3. Be sure to click "Accept Changes" to save.



The image shows settings needed for the ZeeVee modulator to process the alerts from the R189.

Testing the Configuration

The Monroe R189 can generate an alert on demand to test the system operation.

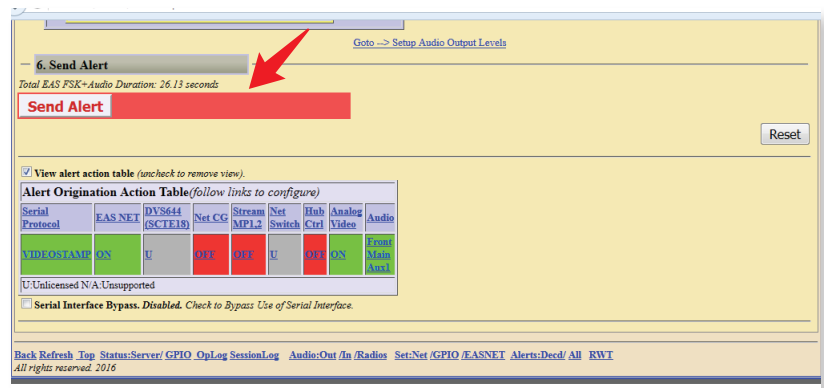
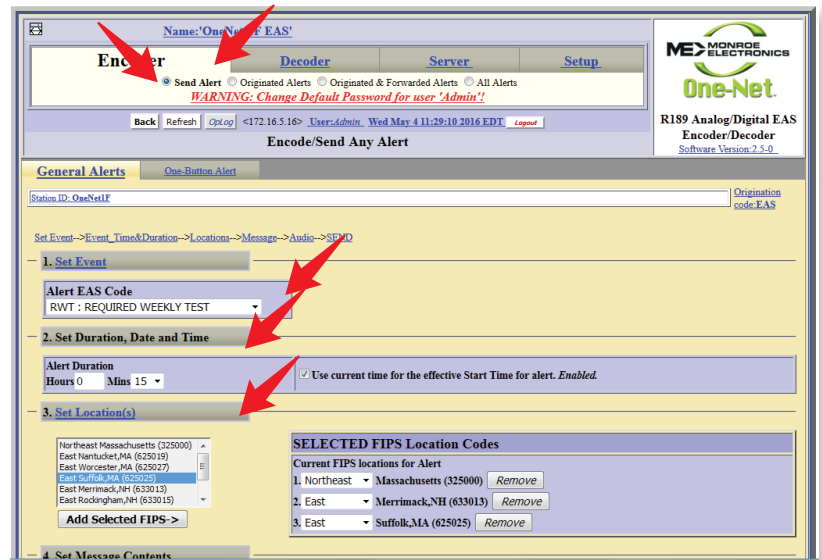
1. Click on the Encoder section/General Alerts tab.
2. Click Send Alert.
3. Select the following for your alert:
 - Desired alert code
 - Duration
 - Start time
 - FIPS.

Alert codes and FIPS are configurable but instruction is outside the scope of this document.

4. Configure the pre and post alert audio once you have set the alert details.

Both default or custom announcements must have a sampling rate of 48000. The announcement section shows both the duration and sampling rate as confirmation.

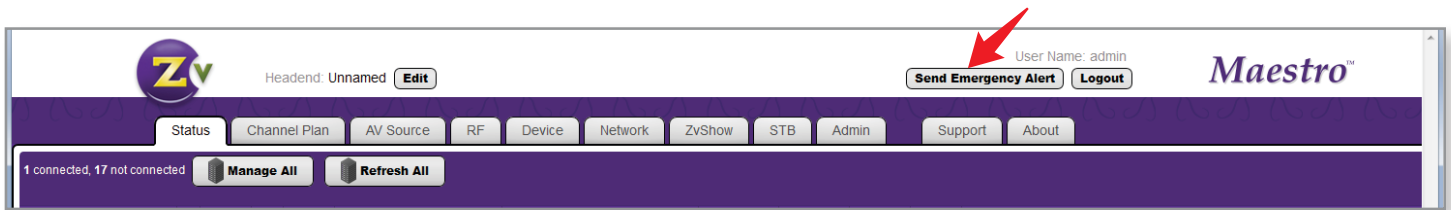
5. Click Send Alert.



Generating local alerts

ZeeVee provides a means to generate simple alerts directly from Maestro.

1. Click the Send Emergency Alert button located at the top of Maestro.



2. Enter the desired text which will be sent to all managed devices and optionally upload an encoded audio file and edit the duration of the alert.
3. Click Send Alert.

Emergency Alert System

Emergency Alert System

This will generate an emergency alert which will immediately replace the audio and video on the ZeeVee modulators actively being managed in this session.

To send an alert to all channels, be sure you have selected "Manage All" and all ZeeVee units are listed in the Maestro interface.

Enter the text to be displayed and optionally select the 48KHz 16bit stereo wave file to be played.

Emergency Alert Text

Select WAV file (optional)

Set Duration for this alert In Seconds

Send Alert Cancel

Please Note: Early versions of firmware used a light blue background for Local Alerts. If you are having difficulty seeing the text on Local Alerts, please be sure to update to the latest firmware.