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.*
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.
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.
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.
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.

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.
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.

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.