



EASyIP **EAS Network Receiver** **(Patent Pending)**

OPERATION **MANUAL**



TRILITHIC
INNOVATIVE ENGINEERING

Trilithic Company Profile

Trilithic is a privately held manufacturer founded in 1986 as an engineering and assembly company that built and designed customer-directed products for telecommunications, military and industrial customers. From its modest beginnings as a two-man engineering team, Trilithic grew over the years and broadened its offerings of RF and microwave components by adding broadband solutions to its product line. This was accomplished with the acquisition of components manufacturer Cir-Q-Tel and instruments manufacturer Texscan.

Today, Trilithic is an industry leader providing telecommunications solutions for major broadband, RF and microwave markets around the world. As an ISO 9000:2001 certified company with over 40 years of collective expertise in engineering and custom assembly, Trilithic is dedicated to providing quality products, services and communications solutions that exceed customer expectations.

Trilithic is comprised of three major divisions:

- **Broadband Instruments & Systems**
Offers test, analysis and quality management solutions for the major cable television systems worldwide.
- **RF Microwave Components**
Provides components and custom subsystems for companies specializing in cellular, military and other wireless applications.
- **Emergency Alert Systems**
Leading supplier of government-mandated emergency alert systems used by broadcast TV, cable TV, IPTV, DBS, and radio stations.

Table of Contents

1. General Information	5
Helpful Website	5
Where to Get Technical Support	5
How this Manual is Organized	6
Conventions Used in this Manual	7
Precautions	8
2. Introduction	9
What is the EAS Network Receiver?	9
What does the EAS Network Receiver do?	9
Application of the EAS Network Receiver	10
Overview of the EAS Network Receiver	11
Front Panel View	11
Rear Panel View	12
3. Installation	13
Prerequisites	13
Installing the EAS Network Receiver	14
4. Initial Configuration	15
5. Required Encoder/Decoder Setup	18
6. Network Receiver Management Program	19
Overview	19
How to Install the Software	19
How to Un-Install the Software	23
System Tab	25
Managing Multiple Network Receiver Systems	26
Configuring Your Network Receiver Communication Settings	28
Programming a Configuration to Your Network Receiver	29
Retrieving a Configuration from Your Network Receiver	30
Uploading Your PC Time to Your Network Receiver	30
Resetting/Rebooting Your Network Receiver	31
Importing and Exporting Your Network Receiver Configuration Settings	32
Upgrading Your Network Receiver Firmware	32
Configuration Tab	34
Time Settings	35
Network Settings	36

Audio Inputs Tab	37
Audio Input Channel Settings	38
Speaker Settings	39
Encoder/Decoders Tab	40
Adding a New Encoder/Decoder to the Contact List	41
Modify an Existing Encoder/Decoder in the Contact List	42
Deleting an Existing Encoder/Decoder from the Contact List	43
Logs Tab	44
Utilities Tab	46
7. Web Browser Configuration	47
Overview	47
Time Configuration	48
Network Configuration	49
Audio Input Configuration	50
Encoder/Decoders Configuration	52
Message Log	53
System Actions	54
8. EAS Network Receiver Deployment	55
9. Specifications	56
Warranty Information	58

General Information



Helpful Website

The following website contains general information which may be of interest to you:

<http://www.trilithic.com>

Trilithic's website contains product specifications and information, tips, release information, marketing information, Frequently Asked Questions (FAQs), bulletins and other technical information. You can also check this website for product updates.

Where to Get Technical Support

Trilithic technical support is available Monday through Friday from 8:00AM to 5:00PM EST. Callers in North America can dial 1-317-895-3600 or 1-800-344-2412 (toll free). International callers should dial 1-317-895-3600 or fax questions to 1-317-895-3613. You can also e-mail technical support at eassupport@trilithic.com.

For quicker support response when calling or sending e-mail, please provide the following information:

- Your name and your company name
- The technical point of contact (name, phone number, e-mail)
- The EAS Network Receiver serial number and firmware version number
- The EAS Network Receiver Management Software version number
- A detailed description of the problem you are having, including any error or information messages

How this Manual is Organized

This manual is divided into the following chapters:

- Chapter 1, “General Information” provides Trilithic contact information and describes how this Operation Manual is structured.
- Chapter 2, “Introduction” introduces what the EAS Network Receiver is and what it does. This chapter discusses the practical application of the Network Receiver. Finally, this chapter will also explain the connections and LED indicators of the EAS Network Receiver.
- Chapter 3, “Installation” describes the steps needed to install the EAS Network Receiver.
- Chapter 4, “Initial Configuration” describes the steps needed to perform the initial configuration of the EAS Network Receiver.
- Chapter 5, “Required Encoder/Decoder Setup” describes the steps required to perform the setup of the EAS Encoder/Decoders using the EASy PLUS Configuration Software to enable communication from the EAS Network Receiver.
- Chapter 6, “Network Receiver Management Program” describes how to use the management program to view and change how the EAS Network Receiver operates.
- Chapter 7, “Internet Configuration” describes how to access and configure your EAS Network Receiver using an Internet web browser.
- Chapter 8, “EAS Network Receiver Deployment” shows a system diagram of the typical deployment of an EAS Network Receiver.
- Chapter 9, “Specifications” shows the technical specifications of the EAS Network Receiver.

Conventions Used in this Manual

This manual has several standard conventions for presenting information.

- Connections, Menus, menu options, and user entered text and commands appear in **bold**.
- Section names, Web and email addresses appear in *italics*.



Note: A note is information that will be of assistance to you related to the current step or procedure.



CAUTION: A caution alerts you to any condition that could cause a mechanical failure or potential loss of data.



WARNING: A warning alerts you to any condition that could cause personal injury.

Precautions



WARNING: Do not use the EAS Network Receiver in any manner not recommended by the manufacturer.



CAUTION: Configuration changes to the EAS Network Receiver do not take affect until you select the **Program Configuration** button from the EAS Network Receiver Management Program. This will send the currently displayed configuration parameters to the instrument and should be the last configuration operation that is performed.



CAUTION: Changes to any parameters located on the **Configuration** tab do not take affect until you select the **RESET Hardware** button from the EAS Network Receiver Management Program or cycle the power to your instrument.

What is the EAS Network Receiver?

The EAS Network Receiver is an Ethernet capable two or four channel radio tuner that can be located anywhere Emergency Alert System (EAS) radio signals are available. The purpose of the instrument is to relay off-air EAS information to Trilithic EAS Encoder/Decoders over a standard Ethernet network. The instrument is used to simplify and enhance the implementation of large scale audio/video systems in which EAS radio monitoring assignments are difficult to receive or are too numerous for an EAS Encoder/Decoder to handle alone.



Note: The EAS Network Receiver chassis is capable of housing two Network Receivers. This allows four radio or baseband audio inputs in a single chassis. Each Network Receiver in a two unit chassis is connected and configured separately.

What does the EAS Network Receiver do?

The EAS Network Receiver includes two radio tuners that work in the AM, FM, or National Weather Service radio bands. Each tuner can be disabled, allowing a baseband audio input instead of a radio input. Each of the inputs is continuously monitored for EAS Frequency Shift Keying (FSK) tones. When these tones are detected, an internal audio recorder is started and one-or-more EAS Encoder/Decoders are contacted via Ethernet. Each EAS Encoder/Decoder can then retrieve the EAS information (including the audio recording) from the Network Receiver(s) via the network.

Application of the EAS Network Receiver

When the EAS Network Receiver is used in conjunction with one or more EAS Encoder/Decoders, the instrument will:

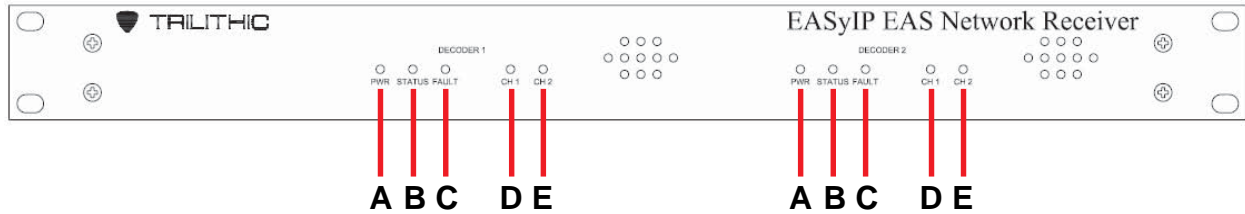
- Provide reception of radio stations that are too distant for direct reception by the EAS Encoder/Decoder.
- Provide a means to hold EAS messages in a queue, thus preventing the loss of messages due to simultaneous reception from radio stations.
- Provide a means to expand the maximum amount of monitoring assignments that a single EAS Encoder/Decoder can handle.
- Allow multiple EAS Encoder/Decoders to use the same EAS Network Receiver.
- Allow multiple EAS Network Receivers to contact the same EAS Encoder/Decoder.
- Monitor the same stations as the EAS Encoder/Decoder rear panel inputs for redundancy in fringe reception areas.

When the EAS Network Receiver is used without an EAS Encoder/Decoder, the EAS Network Receiver's internal logs can be:

- Used to verify the operation of EAS sources.
- Connected as a subscriber on a Cable or IPTV system, or as a listener to a broadcast station for proof-of-performance validation.

Overview of the EAS Network Receiver

Front Panel View

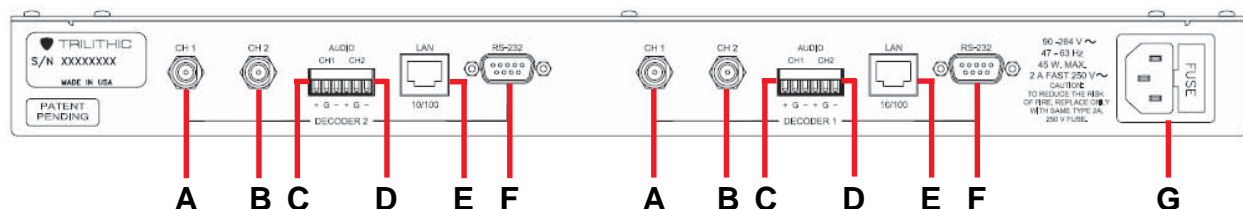


Note: The EAS Network Receiver chassis is capable of housing two Network Receivers. This allows four radio or baseband audio inputs in a single chassis. Each Network Receiver in a two unit chassis is connected and configured separately.

The front panel of the EAS Network Receiver includes the following LEDs for **DECODER 1** and **DECODER 2**:

- A. **PWR** - This LED will illuminate when DC power is applied to the corresponding Network Receiver.
- B. **STATUS** - This LED will flash when the corresponding Network Receiver is functioning.
- C. **FAULT** - This LED will illuminate or flash when there is a problem detected with the corresponding Network Receiver.
- D. **CH1** - When Channel 1 is configured to use the radio tuner and the radio signal strength is acceptable, this LED will illuminate. When Channel 1 is configured as an audio input, this LED turns off when no audio is being received. The LED flashes when EAS messages are being received.
- E. **CH2** - When Channel 2 is configured to use the radio tuner and the radio signal strength is acceptable, this LED will illuminate. When Channel 2 is configured as an audio input, this LED turns off when no audio is being received. The LED flashes when EAS messages are being received.

Rear Panel View



Note: The EAS Network Receiver chassis is capable of housing two Network Receivers. This allows four radio or baseband audio inputs in a single chassis. Each Network Receiver in a two unit chassis is connected and configured separately.

The rear panel of the EAS Network Receiver includes the following inputs/outputs for **DECODER 1** and **DECODER 2**:

- A. **CH1** - F-Connector antenna input for the channel 1 radio tuner (AM, FM, or NOAA)
- B. **CH2** - F-Connector antenna input for the channel 2 radio tuner (AM, FM, or NOAA)
- C. **AUDIO CH1** - Three-pin (positive, ground, negative) balanced audio input for the channel 1 radio tuner
- D. **AUDIO CH2** - Three-pin (positive, ground, negative) balanced audio input for the channel 2 radio tuner
- E. **LAN** - RJ-45 connector for a 10/100 base-T Ethernet connection.
- F. **RS-232** - 9600 Baud serial interface for performing initial IP address configuration.
- G. **AC Power** - US standard grounded power input with user-replaceable 2 Amp, 250 Volt fast-blow (normal) fuse

Prerequisites

Equipment and Software Required to Install the EAS Network Receiver:

- A computer running Microsoft Windows with an RS-232 port and HyperTerminal software is required for initial configuration.
- A PC running Microsoft Windows with a network connection is required for configuring the Network Receiver for EAS operation. The network must be able to allow communication between the Network Receivers, encoder/decoders, and the configuration computer as follows:
 - 10/100 Base-T Ethernet interface, one for every two radio/audio inputs.
 - Support outgoing UDP transmissions to encoder/decoders network.
 - Supports incoming TCP connection from encoder/decoders network.
 - Supports incoming TCP connection from configuration computer's software.
 - A static IP must be assigned for each of the Ethernet connections required.
- An appropriate location with a suitable antenna where monitored radio stations can be received.

Installing the EAS Network Receiver

The following section explains the procedure used to physically install the EAS Network Receiver. In order to properly setup the Network Receiver the following steps must be completed in this order. Do not skip any steps.



Note: DO NOT plug in the EAS Network Receiver's power cord until instructed to.

1. Mount the EAS Network Receiver in a standard 19 inch rack using four retaining screws.
2. Connect an antenna or audio input to each of the channels to be used. If you are using baseband audio inputs, balanced audio is preferred. Only one source (radio or baseband audio) can be used on a single channel.
3. Connect an Ethernet cable between the EAS Network Receiver and an active Ethernet port on a switch or router. If the Network Receiver contains four radios, two Ethernet jacks will be provided and both must be connected to the network.
4. Connect a serial cable (9 pin to 9 pin straight through) from the **RS-232** connection of the EAS Network Receiver to the serial port of the PC. (This port will be used for initial configuration.)
5. Plug the EAS Network Receiver's power cord into the AC power input.

Initial Configuration

The factory default IP address for the EAS Network Receiver is “10.1.65.79”. By default it monitors port 59910 for a connection from the EAS Network Receiver Management Software. Those familiar with networking may be able to install the configuration software and configure the instrument over the network, bypassing the following procedure.

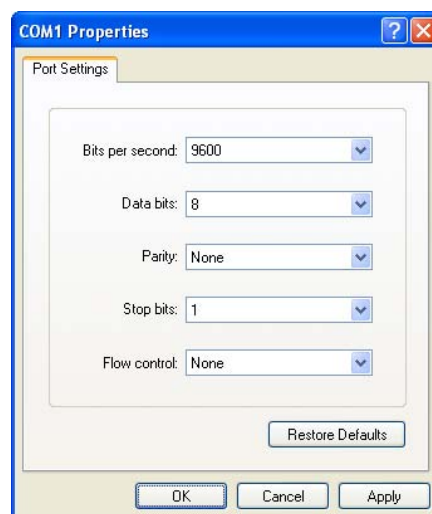
Perform the following steps to complete the initial configuration of the EAS Network Receiver:

1. Connect the RS-232 cable (supplied) between the Network Receiver’s RS-232 port and a PC with an RS-232 port and HyperTerminal software.
2. Start a HyperTerminal session for the serial port (COM 1) that the Network Receiver has been connected to on a laptop or PC.



Note: HyperTerminal is used for illustration purposes only, any terminal emulator will work with this setup procedure.

3. Configure the port setting properties for the HyperTerminal session as follows;
 - **Bits per second:** 9600 Baud
 - **Data bits:** 8
 - **Parity:** None
 - **Stop bits:** 1
 - **Flow control:** None



4. Select the **OK** button to connect to the Network Receiver, and then cycle the AC power to the Network Receiver. Once the following text appears, press any key on the PC keyboard before the countdown reaches zero.

```
EAS Network Receiver V00.92
PLATFORM: easyip_decoder
APPLICATION: EAS Network Receiver
-----
NETWORK INTERFACE PARAMETERS:
IP address on LAN is 10.1.65.97
LAN interface's subnet mask is 255.255.0.0
IP address of default gateway to other networks is 10.1.1.1
HTTP server is enabled.
HARDWARE PARAMETERS:
MAC Address is 00:02:7C:00:23:AE
-----
Press any key within 5 seconds to change these settings.
Press A to Accept the settings, or M to Modify?
```

5. The text “Press A to Accept the settings, or M to Modify?” will appear, press the **M** button and then press the **Return** button.
6. The text “Reset configuration to default values (Y/N)?” will appear, press the **N** button and then press the **Return** button.

7. When prompted, enter the following settings:

- IP address for your network (i.e. 192.168.0.19) and press the **Enter** button.
- Subnet Mask IP address for your network (i.e. 255.255.255.0) and press the **Enter** button.
- Gateway IP address for your network (i.e. 192.168.0.1) and press the **Enter** button.
- The text “HTTP Server enabled. Disable it (Y/N)?” or “HTTP Server disabled. Enable it (Y/N)?”, press the **Y** or **N** button and then press the **Return** button.



Note: The HTTP Server must be enabled to configure the EAS Network Receiver using an Internet Web browser.

```
Reset configuration to default values (Y/N)? n
For each of the following questions, you can press <Return> to select the value
shown in braces, or you can enter a new value.
NETWORK INTERFACE PARAMETERS:
Static IP address [10.1.65.97]? 192.168.0.19
Static IP address is 192.168.0.19
Subnet Mask IP address [255.255.0.0]?
Gateway address IP address [10.1.1.1]? 192.168.0.1
Gateway address IP address is 192.168.0.1
HTTP Server enabled. Disable it (Y/N)? n

EASy Network Decoder Hardware Configuration:

Ethernet MAC Address:
00:02:7C:00:23:AE

Saving IP changes to FLASH...Done.
ACE: Have IP address on interface eth0: 192.168.0.19
```

8. After the final entry, additional information will appear, including the port that the software must use to connect to the Network Receiver over the Ethernet.

Required Encoder/Decoder

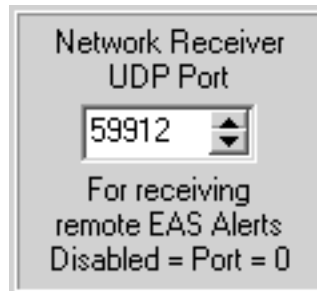
Setup

Prior to accepting messages from the EAS Network Receiver, the encoder/decoder must be configured for operation on the network. Refer to the encoder/decoder instructions to perform this operation. A network path must be available for the EAS Network Receiver to initiate contact with the encoder/decoder over a UDP connection. In addition, the encoder/decoder must be able to initiate a TCP connection to the Network Receiver over the Network Receiver's configuration port (default 59910).

The minimum software/firmware version for the encoder/decoder to support the Network Receiver operation is version 6.50. Ensure that the encoder/decoder, the EASyNIC card, and the configuration software have been upgraded. See your specific hardware or software Operation Manual for more information on how upgrade your firmware and software.

Perform the following steps to configure your encoder/decoder:

1. Start the EASy PLUS Configuration Software and go to the **Digital** tab, **Digital Config** sub-tab. In the **Network Receiver UDP Port** field, configure the UDP port that the Network Receiver will use for initial contact. By default, the Network Receiver uses port 59912.



2. On the **System** tab, select the **Program Configuration** button and wait for the configuration to complete.
3. Cycle the power to the encoder/decoder for the change to take affect.



Note: Changes to the network settings, including changes to ports being monitored, require that the instrument be power cycled before these changes will take affect.



Note: To disable monitoring for Network Receivers, change the Network Receiver UDP Port field to zero, program the configuration, and then power cycle the encoder/decoder.

Network Receiver

Management Program

Overview

Configuration of the EAS Network Receiver can be performed by using the EAS Network Receiver Management Program as shown in this chapter or through an Internet Web browser. For more information on how to configure your EAS Network Receiver through an Internet Web browser, see **Chapter 7: Web Browser Configuration**.

How to Install the Software

To install the EAS Network Receiver Management Program, perform the following steps:

1. Depending on the operating system you are installing the program on, you may need to log on as the local administrator.



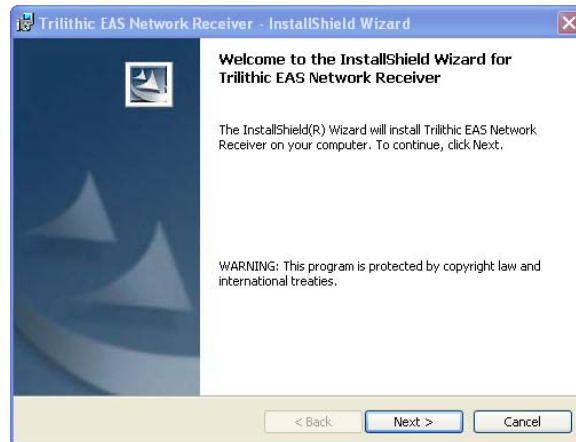
Note: Check with your network or systems administrator if you're not sure about your current login account permissions.

2. Insert the software CD in the appropriate drive, if using a CD to install.
3. If you have Autorun enabled for the CD-ROM drive, the software setup program will start automatically. Otherwise, select the **Start** button then select **Run**, and type `[drive]:\Setup.exe`, then select the **OK** button. (Substitute the appropriate drive path in the command.)



Note: If you have a previous version of the EAS Network Receiver Management Program installed on your system, you will be prompted to un-install the software before proceeding with the installation of the new software. For more information, see the [How to Un-Install the Software](#) Section of this chapter.

4. The “Welcome to the InstallShield Wizard for Trilithic EAS Network Receiver” screen appears, select the **Next >** button to proceed to the next step of the installation wizard.

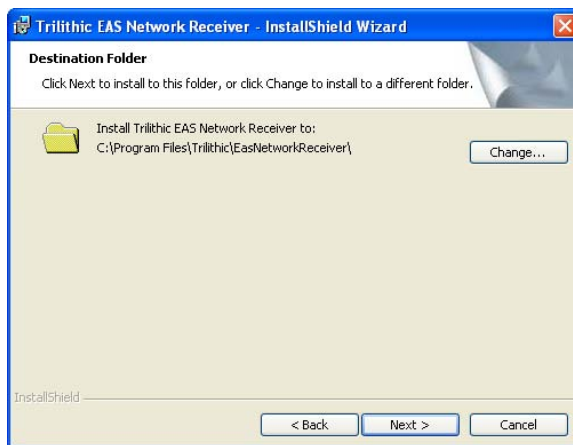


Note: To cancel the installation of the software at any time during the installation, select the **Cancel** button.

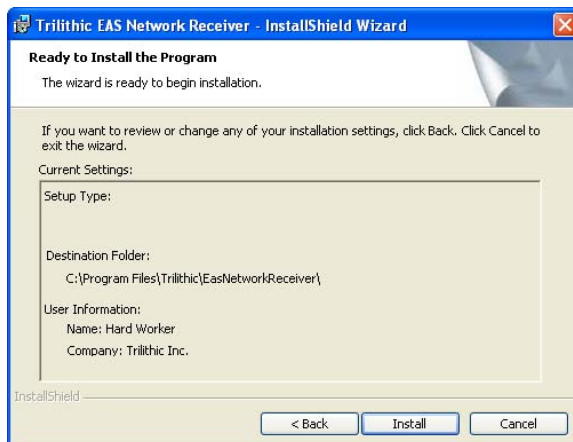
5. The “License Agreement” screen appears, select “I accept the terms of the license agreement” radio button, and then select the **Next >** button to proceed to the next step of the installation wizard or select the **Cancel** button to exit without installing.



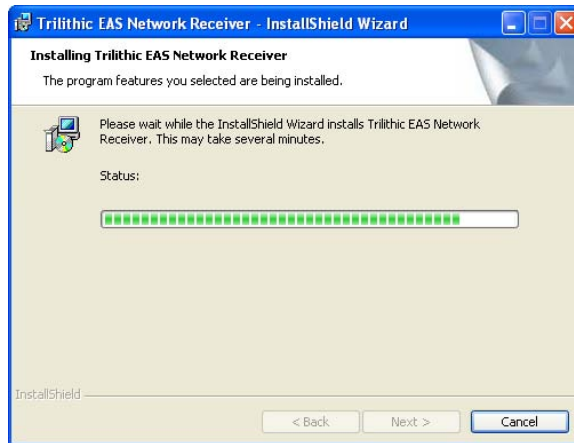
6. The “Destination Folder” screen appears, select the **Next >** button to accept the default installation directory, or select the **Change...** button to change the installation directory and then select the **Next >** button.



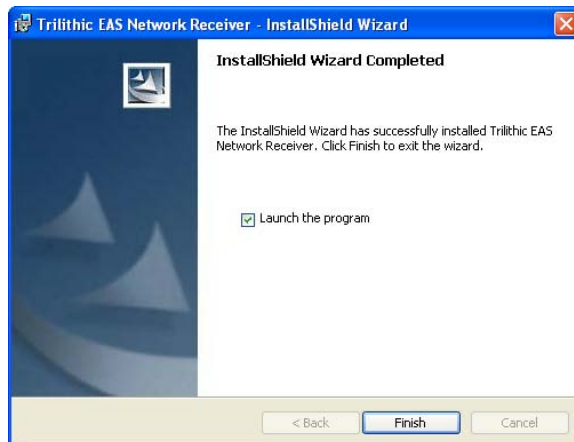
7. The “Ready to Install the Program” screen appears, select the **Install** button to proceed with the installation.



8. The “Installing Trilithic EAS Network Receiver” screen appears to indicate the status of the software installation.



9. The “InstallShield Wizard Completed” screen appears, select the **Finish** button to confirm the software installation. The software installation is now complete and can be started by selecting the Desktop icon or by selecting the program from the **Start** menu.



How to Un-Install the Software

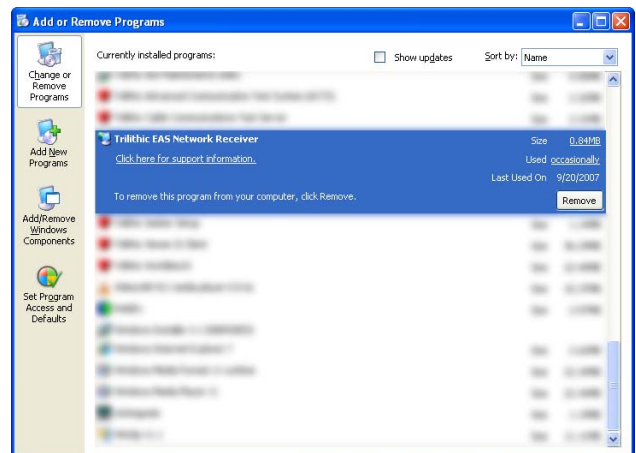
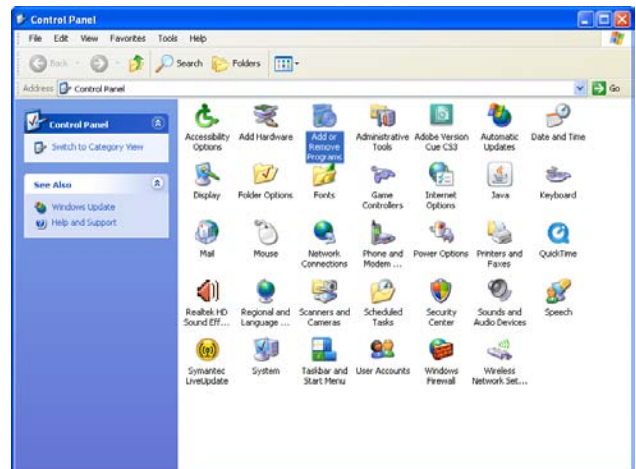
To un-install the EAS Network Receiver Management Program, perform the following steps:

1. Depending on the operating system you are installing the program on, you may need to log on as the local administrator.

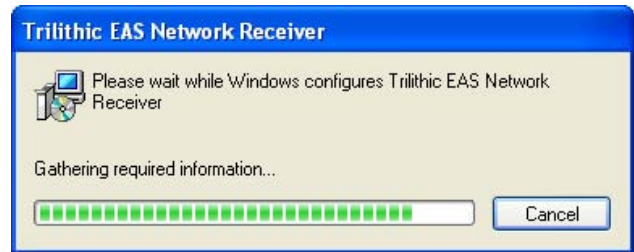


Note: Check with your network or systems administrator if you're not sure about your current login account permissions.

2. Select the **Start** button, then select the **Control Panel** icon. The “Control Panel” window will appear.
3. From the “Control Panel” window, select the **Add or Remove Programs** icon. The “Add or Remove Programs” window will appear.
4. From the “Add or Remove Programs” window, scroll through the listed of currently installed programs and select **Trilithic EAS Network Receiver**.
5. Select the **Remove** button to start the un-install of the software.



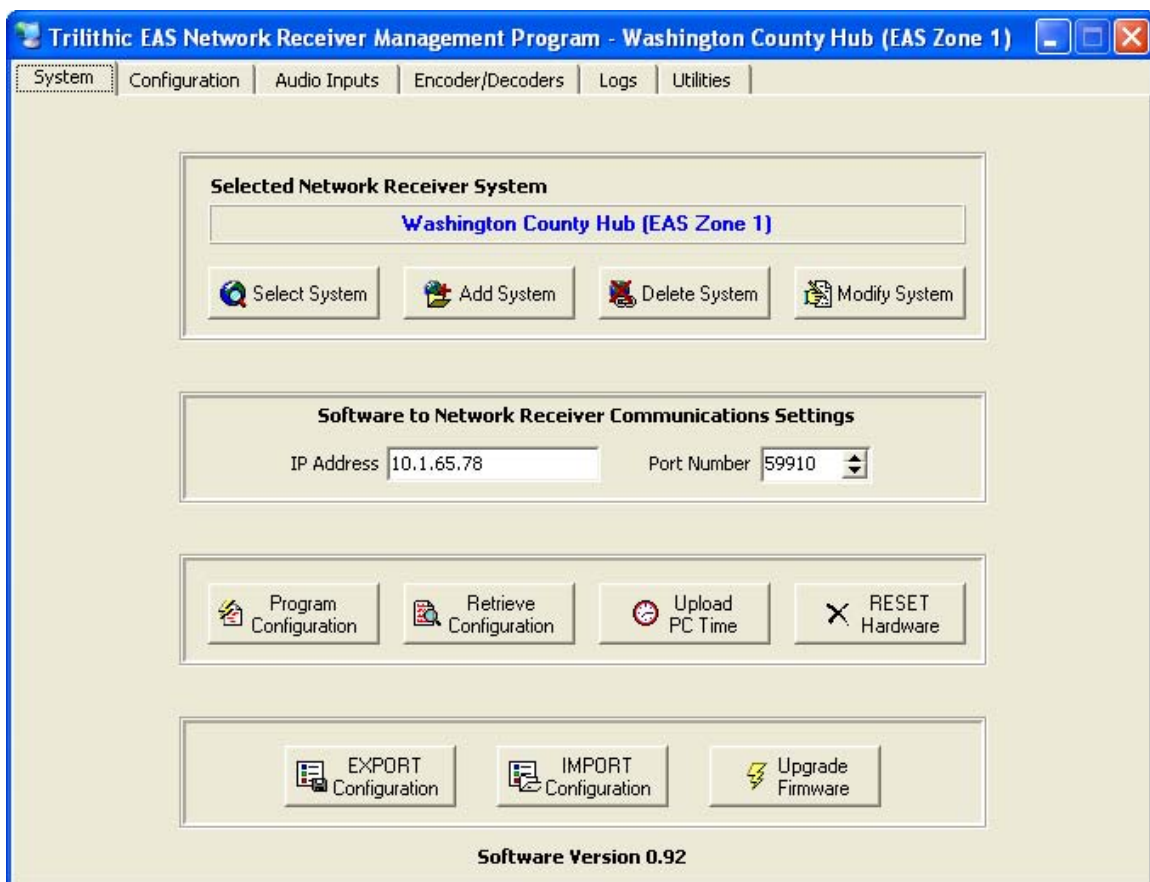
6. The text “Are you sure you want to remove Trilithic EAS Network Receiver from your computer?” will appear. Select the **Yes** button to continue or select the **No** button to quit the un-install of the software.
7. The software will begin to un-install. A window will appear showing the progress of the un-install. Once the un-install is complete, the progress window will disappear.
8. Your software is now successfully un-installed. All program files as well as shortcuts and links to the program that were installed as part of the initial installation should now be removed.



System Tab

The **System** tab is primarily used to control the behavior of the EAS Network Receiver Management Program itself. From the **System** tab is possible to:

- Maintain a database of several configurations that are usually used for several Network Receivers.
- Control the IP address and port that the software uses to connect to the Network Receiver.
- Transfer configuration information to the Network Receiver.
- Import and export configuration files to and from the Management Program.
- Upgrade the system firmware.



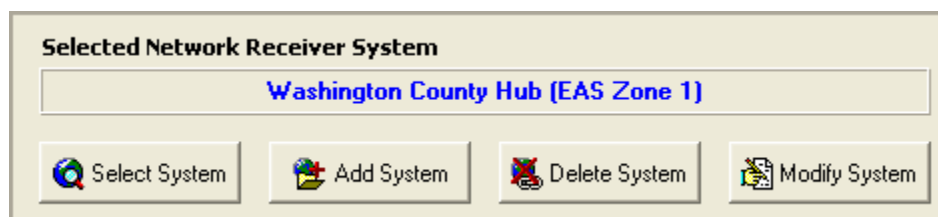
Managing Multiple Network Receiver Systems

Multiple configurations are supported to allow several EAS Network Receivers to be managed from a single PC running the EAS Network Receiver Management Program. Use of this feature keeps the configuration information and logs separated from other Network Receivers managed from the same PC. If only one Network Receiver is being maintained, this feature can be ignored. This feature is also useful for four channel systems that include two Network Receivers.

Adding a New Network Receiver System

Perform the following steps to add a new Network Receiver system:

1. On the **System** tab of the software, select the **Add System** button.



2. The "Add a Network Receiver System" window will appear, enter a descriptive title in the **System Name** field, and then select the **ACCEPT** button.



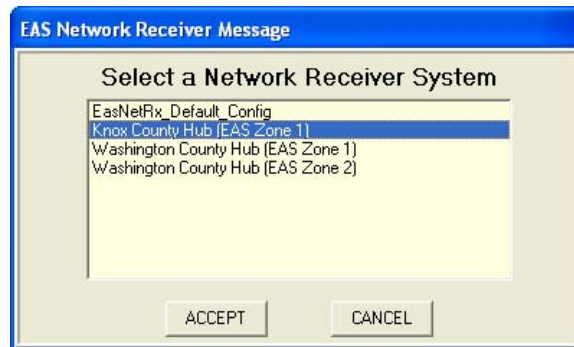
Note: Do not use the special characters “\”, “/”, “.”, “?”, “*”, “:”, and “,” when creating a new system name, they are prohibited.



Note: When a new Network Receiver system is created, the contents of the previously accessed Network Receiver system are copied into it.

Selecting an Existing Network Receiver System

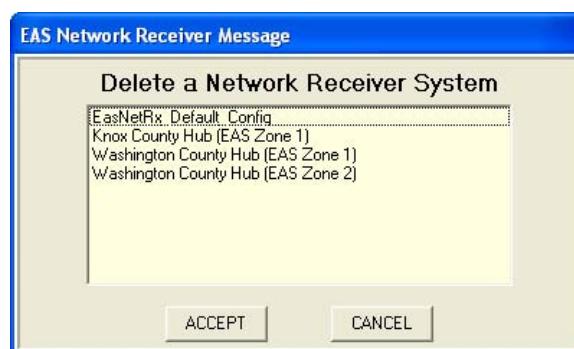
To select a previously added Network Receiver system, on the **System** tab of the software, select the **Select System** button, highlight the desired system name, and then select the **ACCEPT** button.



Note: Always verify the correct system has been selected before making changes to the configuration parameters.

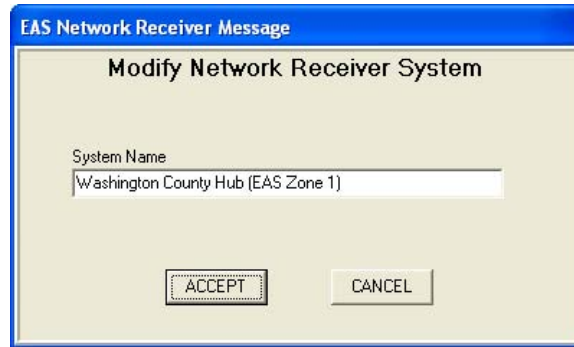
Deleting an Existing Network Receiver System

To delete a Network Receiver system that is no longer needed, on the **System** tab of the software, select the **Delete System** button, highlight the desired system name, and then select the **ACCEPT** button.



Modifying the Name of an Existing Network Receiver System

To modify the name of the selected Network Receiver system, on the **System** tab of the software, select the **Modify System** button, enter the new Network Receiver system name, and then select the **ACCEPT** button.



The screenshot shows a dialog box titled "EAS Network Receiver Message" with a subtitle "Modify Network Receiver System". Inside the dialog, there is a text input field labeled "System Name" containing the text "Washington County Hub (EAS Zone 1)". Below the input field are two buttons: "ACCEPT" and "CANCEL".

Configuring Your Network Receiver Communication Settings

To configure the EAS Network Receiver Management Program to communicate with an EAS Network Receiver, on the **System** tab of the software, enter the configured communication parameters of the desired Network Receiver in the **IP Address** and **Port Number** fields.



The screenshot shows a panel titled "Software to Network Receiver Communications Settings". It contains two input fields: "IP Address" with the value "192.168.10.10" and "Port Number" with the value "59910".

Programming a Configuration to Your Network Receiver

Before changes to the Network Receiver configuration can take effect, the configuration must be sent to the Network Receiver.



Note: Before sending the selected configuration parameters to the Network Receiver, you must configure your Network Receiver communication settings for the desired Network Receiver.

To send a configuration to the desired Network Receiver, on the **System** tab, select the **Program Configuration** button. A status window should appear and disappear without reporting any errors.



CAUTION: Changes to any parameters located on the **Configuration** tab do not take effect until you select the **RESET Hardware** button from the EAS Network Receiver Management Program or cycle the power to your instrument.

Retrieving a Configuration from Your Network Receiver

You can load a Network Receiver's configuration parameters into the EAS Network Receiver Management Program:

- If more than one PC is used to manage the Network Receivers, this operation can be performed before changes are made so that the PC configurations reflect the most recent changes.
- During troubleshooting, load the configuration to verify that the software reflects the last programmed configuration.
- If installing the EAS Network Receiver Management Program on a new PC, configurations can be updated from the Network Receivers themselves.



Note: Before retrieving the selected configuration parameters from the Network Receiver, you must configure your Network Receiver communication settings for the desired Network Receiver.

To load a Network Receiver's configuration parameters into the EAS Network Receiver Management Program, on the **System** tab, select the **Retrieve Configuration** button. A status window should appear and disappear without reporting any errors.

Uploading Your PC Time to Your Network Receiver

The Network Receiver contains an internal clock that is used in the processing of logs. Verify that your time zone and time are set correctly on the PC, and then send your PC's time to your Network Receiver by selecting the **Upload PC Time** button.

Resetting/Rebooting Your Network Receiver



CAUTION: Changes to any parameters located on the **Configuration** Tab do not take affect until you select the **RESET Hardware** Button from the EAS Network Receiver Management Program or cycle the power to your instrument.



Note: When changing the **IP Address** or **Configuration Port** field on the **Configuration** tab, the **IP Address** and **Port Number** fields on the **System** tab should remain set to the old IP address and port number until the **RESET Hardware** button has been selected.



Note: Before resetting/rebooting the Network Receiver, you must configure your Network Receiver communication settings for the desired Network Receiver.

To reset the Network Receiver, on the **System** tab, select the **RESET Hardware** button. A status window should appear and disappear without reporting any errors. The Network Receiver may take as long as sixty seconds to complete a reset cycle.

If the value of the **IP Address** and/or **Configuration Port** field was changed on the **Configuration** tab, update the **IP Address** and/or **Port Number** fields on the **System** tab immediately after the successful reset.

Importing and Exporting Your Network Receiver Configuration Settings

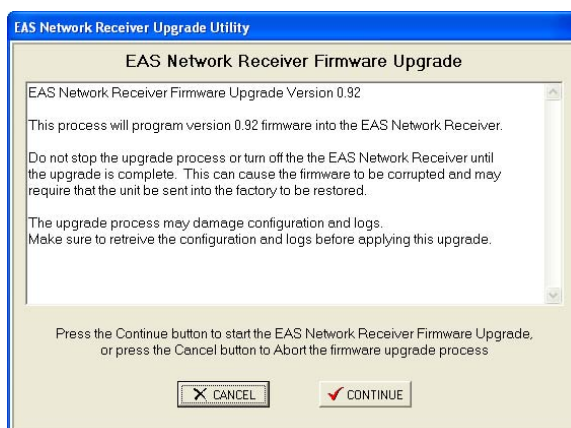
To export the configuration settings of your Network Receiver system, on the **System** tab of the software, select the **EXPORT Configuration** button, enter the desired name of the configuration, and then select the **Save** button.

To import a configuration setting file that was previously exported, on the **System** tab of the software, select the **IMPORT Configuration** button, select the desired configuration file, and then select the **Open** button.

Upgrading Your Network Receiver Firmware

Perform the following steps to upgrade the firmware of your Network Receiver system:

1. On the **System** tab of the software, select the **Upgrade Firmware** button. The “EAS Network Receiver Upgrade Utility” screen appears as shown in the graphic to the right.
2. Select the **CONTINUE** button to program the new firmware into your Network Receiver or select the **CANCEL** button at any time to exit without modifying your Network Receiver firmware.

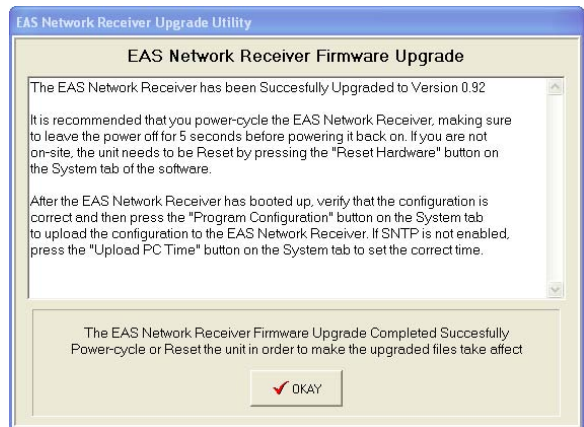
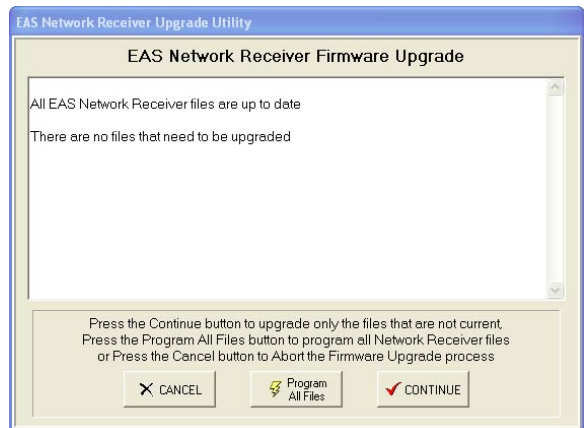
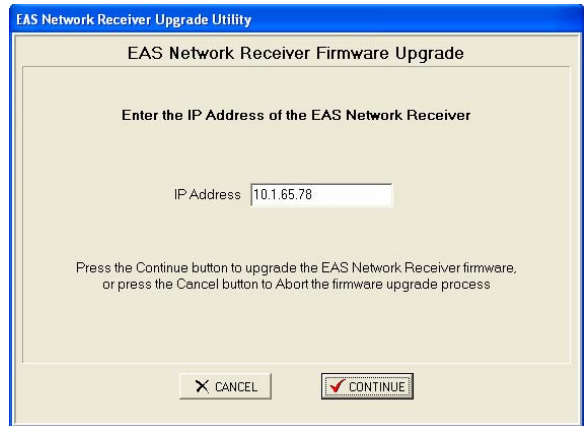


CAUTION: Do not stop the upgrade process or turn off the EAS Network Receiver until the upgrade is complete. This can cause the firmware to be corrupted and may require that the unit be sent into the factory to be restored.



CAUTION: The upgrade process may damage configuration and logs. Make sure to retrieve the configuration and logs before applying this upgrade.

3. On the next screen, enter the IP address of the Network Receiver that you wish to upgrade, and then select the **CONTINUE** button.
4. The upgrade utility will verify what version of firmware is installed in your Network Receiver and notify you whether your device needs a firmware upgrade. Select the **CONTINUE** button to upgrade only the files that are not current, otherwise, select the **Program All Files** button to program all Network Receiver files.
5. Once you have started the firmware upgrade, the upgrade utility will show the status of the upgrade. Once the upgrade is complete, select the **OKAY** button.
6. It is recommended that you power-cycle the EAS Network Receiver, making sure to leave the power off for 5 seconds before powering it back on. If you are not on-site, the unit needs to be reset from the **System** tab by selecting the **RESET Hardware** button. For more information, see the [System Tab, Resetting/Rebooting Your Network Receiver](#) Section of this chapter.
7. After the Network Receiver has booted up, verify that the configuration is correct, and then from the **System** tab select the **Program Configuration** button to upload the configuration to the Network Receiver.
8. If SNTP is not enabled, from the **System** tab select the **Upload PC Time** button to set the correct system time.



Configuration Tab

The **Configuration** tab is used to setup the EAS Network Receiver's time and network configuration.



CAUTION: Changes to any parameters located on the **Configuration** Tab do not take affect until you select the **RESET Hardware** Button from the EAS Network Receiver Management Program or cycle the power to your instrument. For more information, see the [System Tab, Resetting/Rebooting Your Network Receiver](#) Section of this chapter.

Trilithic EAS Network Receiver Management Program - Washington County Hub (EAS Zone 1)

System Configuration Audio Inputs Encoder/Decoders Logs Utilities

Time Zone

Eastern, Std/Day Enable SNTP

Primary SNTP Server

Secondary SNTP Server

Sync Interval 24 hours

IP Address 10.1.65.78 Configuration Port 59910

Subnet Mask 255.255.0.0 **Enable Web Server**

Default Gateway 10.1.1.1

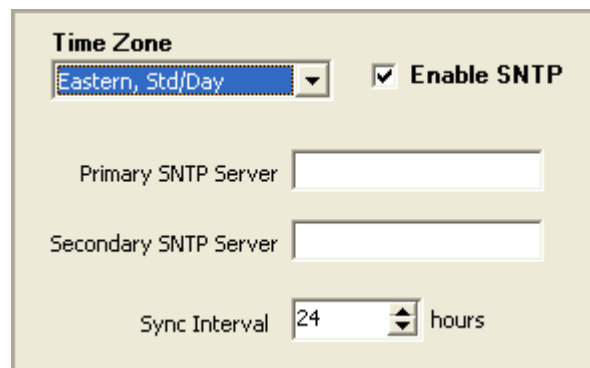
Host Name NetRx

Warning: changing any setting on this page requires the configuration to be programmed. The Network Receiver then needs to be rebooted in order for the changes take affect.

Time Settings

Perform the following steps to setup the time settings for your Network Receiver:

1. Select the down arrow next to the **Time Zone** drop-down box, and then highlight your time zone from the list provided.
2. If you are using Simple Network Time Protocol (SNTP) to automatically adjust the Network Receiver's clock, select the **Enable SNTP** checkbox to enable this feature and then:
 - Enter the IP address of the SNTP server in the **Primary SNTP Server** field.
 - Enter the IP address of the backup SNTP server (if applicable) in the **Secondary SNTP Server** field.
 - Use the up or down arrow button to choose from a sync time between 4 and 168 hours in the **Sync Interval** field.



Time Zone

Eastern, Std/Day **Enable SNTP**

Primary SNTP Server

Secondary SNTP Server

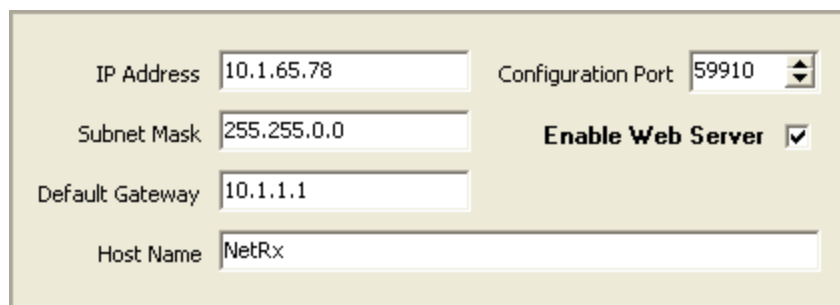
Sync Interval 24 hours



CAUTION: Enabling SNTP and configuring invalid SNTP Servers can have an adverse affect on the Network Receiver time.

Network Settings

The EAS Network Receiver requires a static IP address assigned by your Network Administrator. At a minimum, a valid IP address and subnet mask are required. If the EAS Network Receiver, EAS Encoder/Decoder, or EAS Network Receiver Management Program are not on the subnet, a valid gateway address (within the subnet) is required. Verify all settings with your Network Administrator.



The screenshot shows a configuration form with the following fields and values:

IP Address	10.1.65.78	Configuration Port	59910
Subnet Mask	255.255.0.0	Enable Web Server	<input checked="" type="checkbox"/>
Default Gateway	10.1.1.1		
Host Name	NetRx		

IP Address - Enter the value of the static IP address for the Network Receiver.

Subnet Mask - Enter the value of the subnet mask address for the Network Receiver's subnet.

Default Gateway - Enter the value of the gateway address for the subnet, or leave blank.

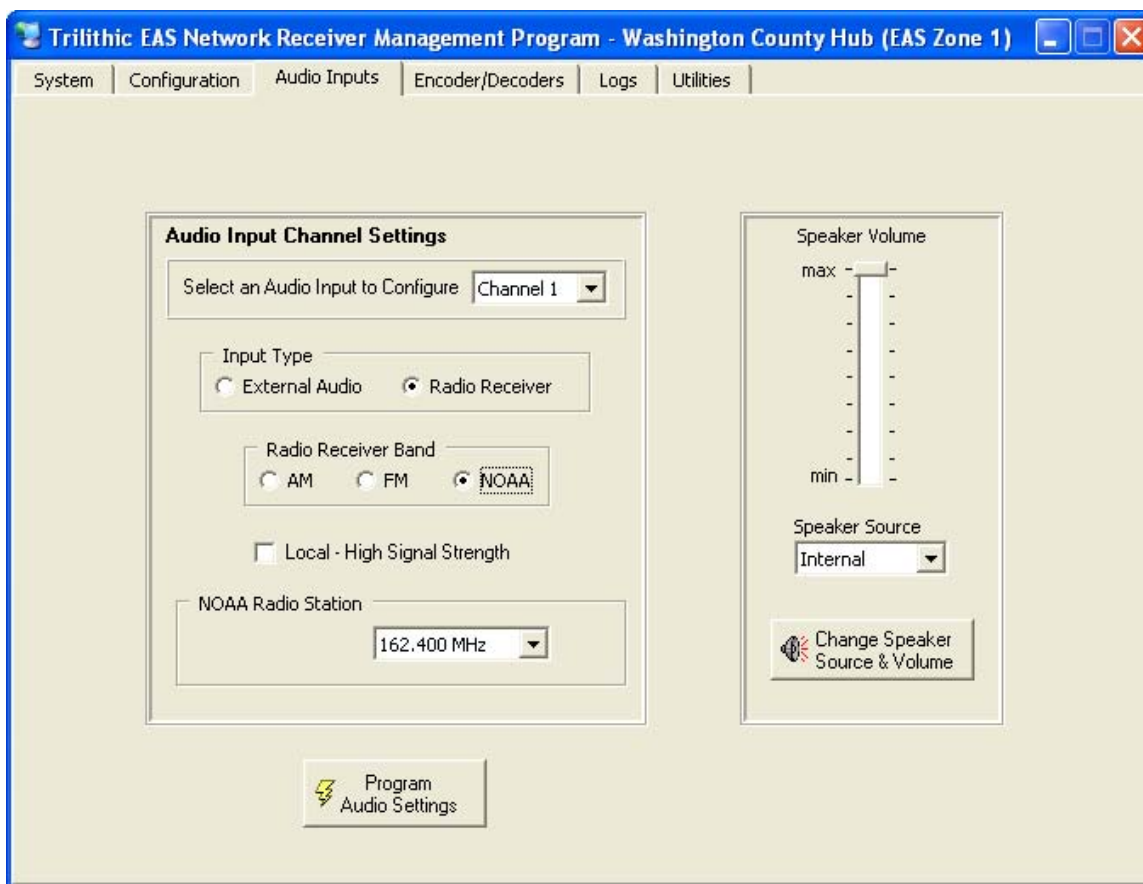
Host Name - Enter the name of the Network Receiver to be registered with the DNS server(s), or leave blank.

Configuration Port - Enter the value of the TCP/IP port that will be used for both the EAS Network Receiver Management Program and the EAS Encoder/Decoder to transfer data.

Enable Web Server - Select the checkbox to enable the Web access feature of the EAS Network Receiver. This feature allows you to remotely access most configuration parameters from a Web browser, locally or through the Internet.

Audio Inputs Tab

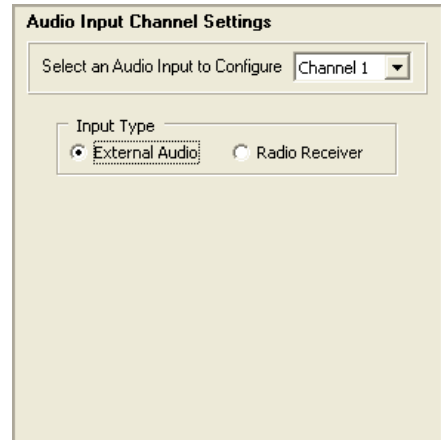
The **Audio Inputs** tab is used to choose radio stations or configure a baseband audio input to be used for EAS monitoring. EAS sources are specified in State and Local EAS plans, not chosen by the user. In addition to configuring EAS sources, the front panel speaker can be configured in order to verify reception.



Audio Input Channel Settings

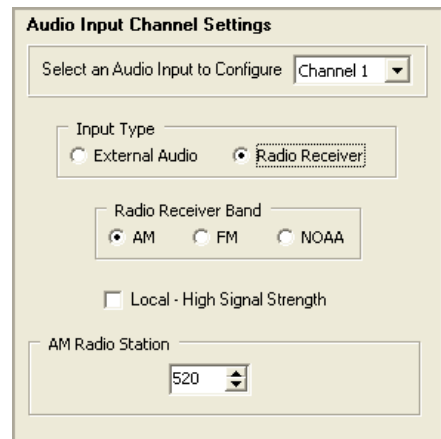
Perform the following steps to setup the audio input channel settings for your Network Receiver:

1. Select the down arrow next to the **Select an Audio Input to Configure** drop-down box, and then highlight the desired channel (**Channel 1** or **Channel 2**).
2. Select the **External Audio** radio button if the selected channel is either not used, or is connected to an audio source, otherwise select the **Radio Receiver** radio button.



The screenshot shows the 'Audio Input Channel Settings' window. At the top, there is a dropdown menu labeled 'Select an Audio Input to Configure' with 'Channel 1' selected. Below this, there is a section titled 'Input Type' with two radio buttons: 'External Audio' (which is selected) and 'Radio Receiver'.

3. If the selected channel is an antenna input and you have selected the Radio Receiver radio button perform the following steps:
 - Select the **AM**, **FM**, or **NOAA** radio button, where NOAA is the National Weather Radio band.
 - If the station is a nearby, high-power radio station, select the **Local - High Signal Strength** checkbox.
 - Select the correct radio frequency for your selected radio band at the bottom of the **Audio Input Channel Settings** area.



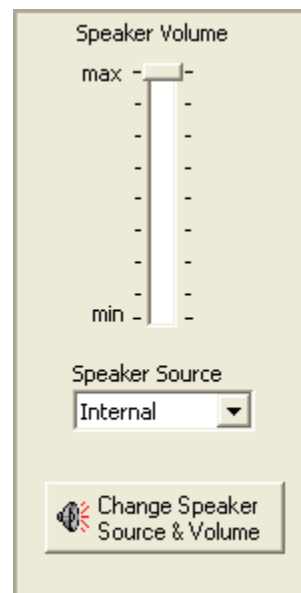
The screenshot shows the 'Audio Input Channel Settings' window. At the top, there is a dropdown menu labeled 'Select an Audio Input to Configure' with 'Channel 1' selected. Below this, there is a section titled 'Input Type' with two radio buttons: 'External Audio' and 'Radio Receiver' (which is selected). Underneath, there is a section titled 'Radio Receiver Band' with three radio buttons: 'AM' (selected), 'FM', and 'NOAA'. Below that is a checkbox labeled 'Local - High Signal Strength' which is unchecked. At the bottom, there is a section titled 'AM Radio Station' with a dropdown menu showing '520'.

4. Select the **Program Audio Settings** button to set the configuration for the selected channel and repeat for each audio input channel that needs configured.

Speaker Settings

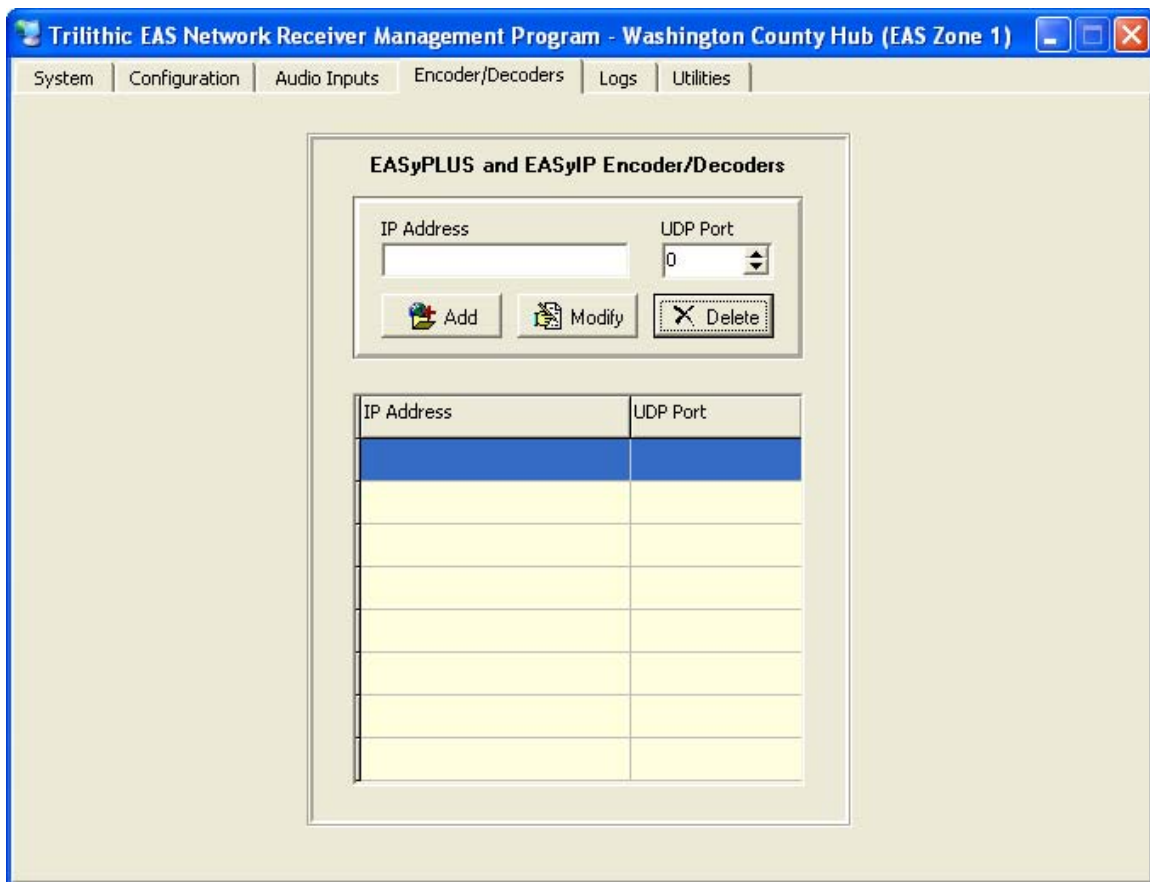
Perform the following steps to verify the audio input channel settings for your Network Receiver:

1. Select the down arrow next to the **Speaker Source** drop-down box and then highlight the desired channel (**Channel 1** or **Channel 2**).
2. Adjust the front panel speaker volume by adjusting the slider up or down.
3. Verify the audio settings by selecting the **Change Speaker Source & Volume** button. The front panel speaker should contain clear audio from the selected channel. Some EAS specific audio sources may not contain audio until an EAS message is activated.
4. Repeat this procedure for each audio input channel that has been configured. After verifying the audio input channel settings for you Network Receiver, set the **Speaker Source** drop-down box to **Internal** to mute the front panel speaker.



Encoder/Decoders Tab

The Encoder/Decoders tab is used to configure where EAS messages are delivered. The Network Receiver forwards received EAS messages to a group of EAS Encoder/Decoders that are included in the contact list. Up to eight EAS Encoder/Decoders can be activated (added to the contact list) from a single EAS Network Receiver. This tab is provided to configure the encoder/decoders that must be contacted with EAS alert messages.

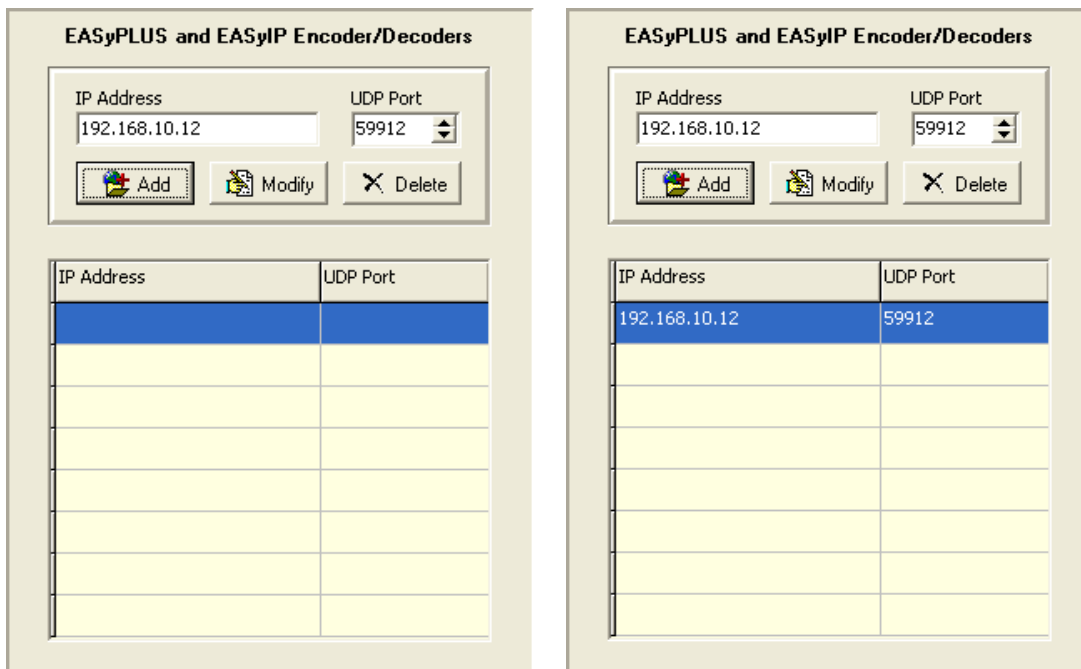


CAUTION: Configuration changes to the EAS Network Receiver do not take affect until you select the **Program Configuration** button from the EAS Network Receiver Management Program. This will send the currently displayed configuration parameters to the instrument and should be the last configuration operation that is performed. For more information, see [System Tab, *Programming Your Network Receiver Configuration*](#) in this chapter.

Adding a New Encoder/Decoder to the Contact List

Perform the following steps to add a new encoder/decoder to the contact list:

1. On the **Encoder/Decoders** tab of the software, enter the IP address of the encoder/decoder that you wish to add in the **IP Address** field.
2. Use the up or down arrow button to choose a UDP port number of the selected encoder/decoder uses to receive Network Receiver alerts in the **UDP Port** field. For more information on how to set the UDP port number of an encoder/decoder, see **Chapter 5: Required Encoder/Decoder Setup**.
3. Select the **Add** button to add the selected encoder/decoder to the list. The IP address and UDP port of the new encoder/decoder will appear in the first available slot in the contact list.



The image shows two screenshots of the 'EASyPLUS and EASyIP Encoder/Decoders' software interface. Both screenshots show a form with 'IP Address' and 'UDP Port' fields, and 'Add', 'Modify', and 'Delete' buttons. The IP address is '192.168.10.12' and the UDP port is '59912'.

Left Screenshot: The 'Add' button is highlighted with a red border. The table below is empty.

IP Address	UDP Port

Right Screenshot: The 'Add' button is not highlighted. The table below has the first row filled with the IP address and UDP port.

IP Address	UDP Port
192.168.10.12	59912

Modify an Existing Encoder/Decoder in the Contact List

To modify the IP address and UDP port number of an existing encoder/decoder, perform the following steps:

1. On the **Encoder/Decoders** tab of the software, select the desired encoder/decoder from the contact list. The selected encoder/decoder's IP address and UDP port number will automatically appear in the **IP Address** and **UDP Port** fields.
2. Enter the new IP address or UDP port number in the **IP Address** and **UDP Port** fields, and then select the **Modify** button. The changes will be reflected in the contact list below.

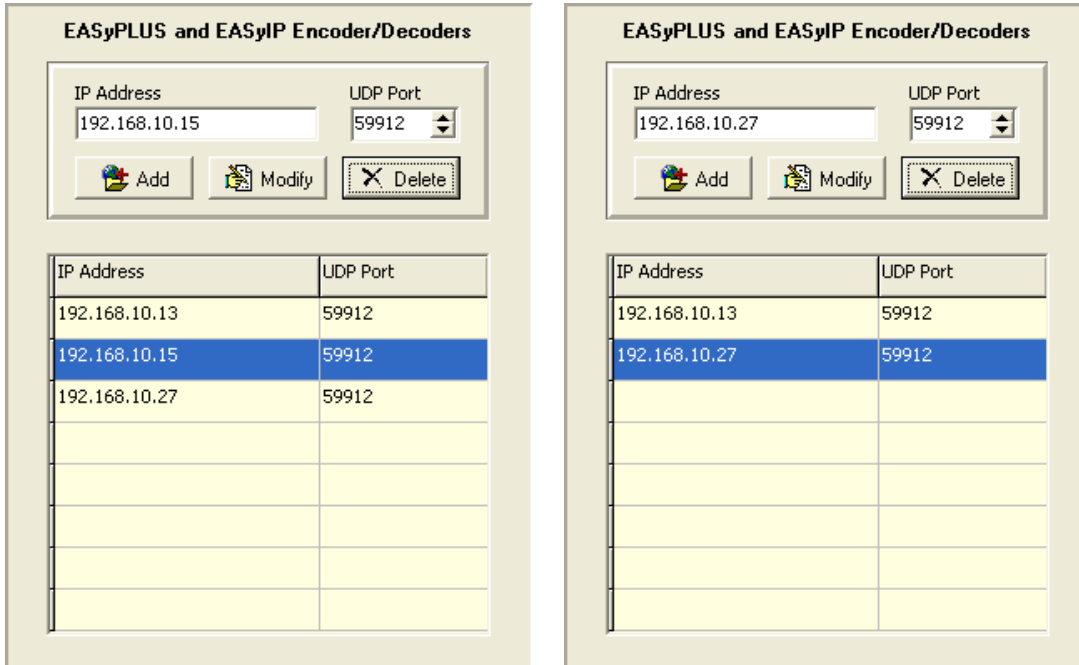
The image shows two side-by-side screenshots of the 'EASyPLUS and EASyIP Encoder/Decoders' software interface. Each screenshot displays a control panel at the top with two input fields: 'IP Address' and 'UDP Port'. Below these fields are three buttons: 'Add', 'Modify', and 'Delete'. The 'Modify' button is highlighted in both screenshots. Below the control panel is a table with two columns: 'IP Address' and 'UDP Port'. In the left screenshot, the first row of the table is highlighted in blue and contains the values '192.168.10.12' and '59912'. In the right screenshot, the first row is highlighted in blue and contains the values '192.168.10.13' and '59912', indicating that the IP address has been updated while the UDP port remains the same.

IP Address	UDP Port
192.168.10.12	59912

IP Address	UDP Port
192.168.10.13	59912

Deleting an Existing Encoder/Decoder from the Contact List

To delete an existing encoder/decoder from the contact list, on the **Encoder/Decoders** tab of the software, select the desired encoder/decoder from the contact list, and then select the **Delete** button. The changes will be reflected in the contact list below.



The image displays two side-by-side screenshots of the 'EASyPLUS and EASyIP Encoder/Decoders' software interface. Each screenshot shows a form at the top with 'IP Address' and 'UDP Port' fields, and three buttons: 'Add', 'Modify', and 'Delete'. Below the form is a table with two columns: 'IP Address' and 'UDP Port'.

Left Screenshot: The 'IP Address' field contains '192.168.10.15' and the 'UDP Port' dropdown is set to '59912'. The 'Delete' button is highlighted with a dashed border. The table below has three rows: the first row has IP '192.168.10.13' and port '59912'; the second row has IP '192.168.10.15' and port '59912' (highlighted in blue); the third row has IP '192.168.10.27' and port '59912'.

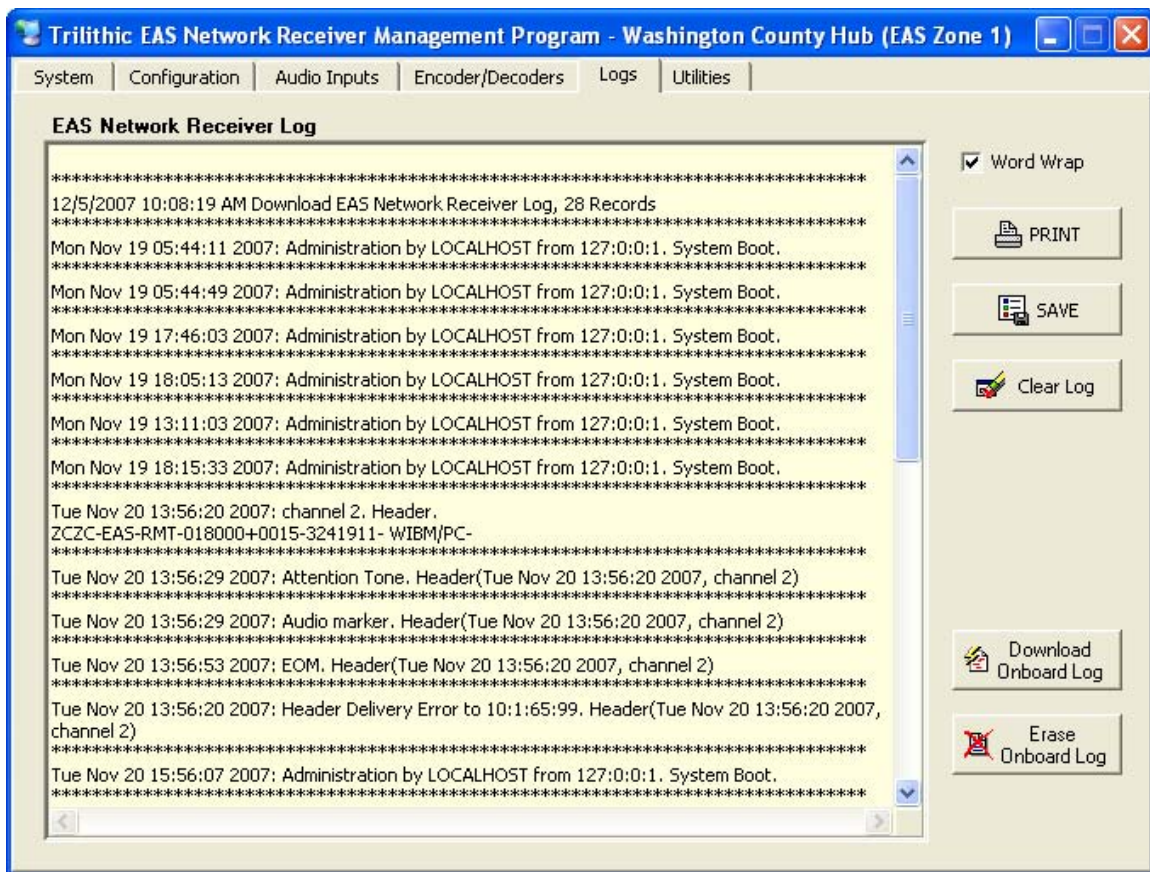
Right Screenshot: The 'IP Address' field contains '192.168.10.27' and the 'UDP Port' dropdown is set to '59912'. The 'Delete' button is highlighted with a dashed border. The table below has three rows: the first row has IP '192.168.10.13' and port '59912'; the second row has IP '192.168.10.27' and port '59912' (highlighted in blue); the third row is empty.

Logs Tab

Log maintenance is not required on the Network Receiver, however it contains a diagnostic log that may be used in troubleshooting the EAS system. These logs are not typically used in FCC required files, as the encoder/decoders will maintain a log of messages received from Network Receivers.



CAUTION: Logging stops when the log memory is full, therefore it is recommended that the logs be erased every three to six months.



Word Wrap - Enable or disable the word-wrap function of the log display window.

PRINT - Print the currently displayed log to the Windows default printer.

SAVE - Save the currently displayed log to a text file.

Clear Log - Clear the information that is currently displayed in the log display window.

Download Onboard Log - Connect to the selected Network Receiver and retrieve its log. Once downloaded, the log information will be displayed in the log display window.

Erase Onboard Log - Connect to the selected Network Receiver and erase its onboard log. Once erased, the log information that is displayed in the log display window will remain unchanged.



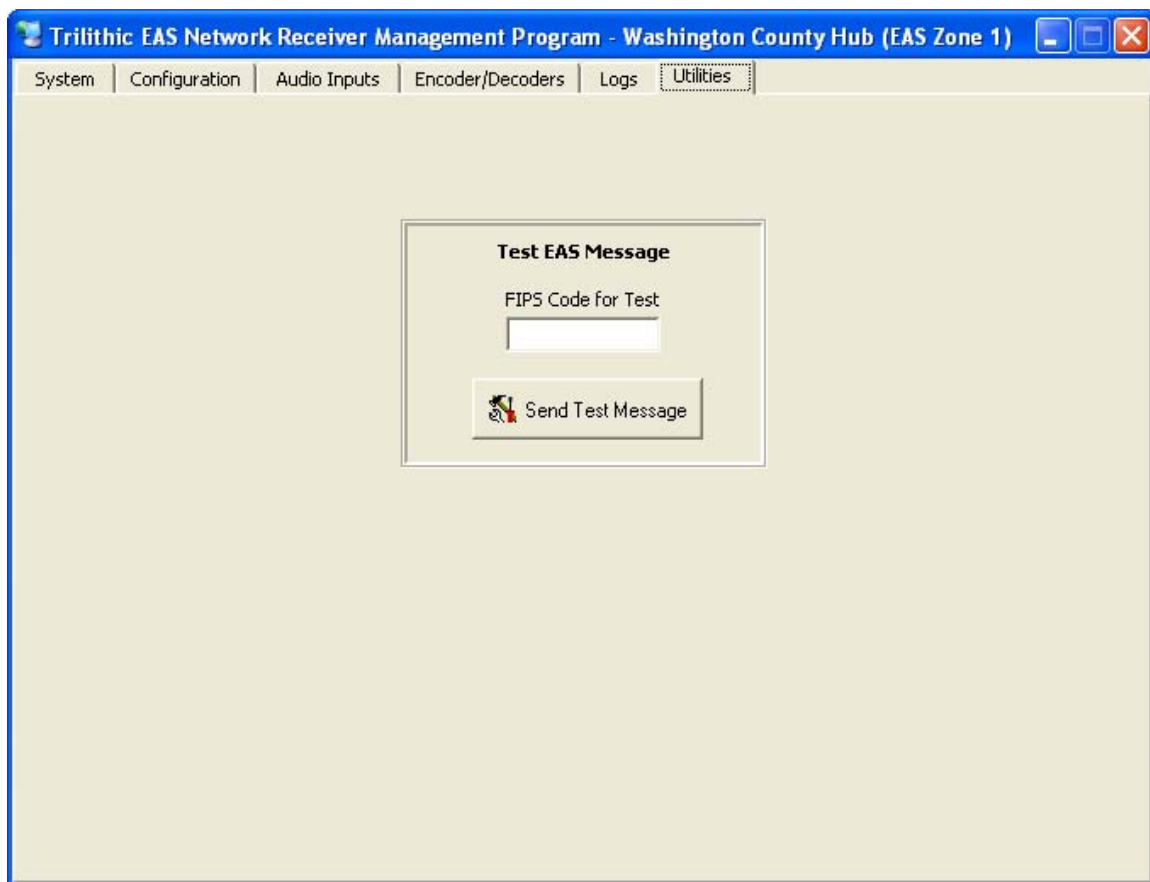
Note: Before downloading or erasing the log from the Network Receiver, you must configure your Network Receiver communication settings for the desired Network Receiver.

Utilities Tab

The **Utilities** tab is used to send an EAS test message. To send a EAS test message, enter the desired FIPS Code in the **FIPS Code for Test** field and then press the **Send Test Message** button.



CAUTION: Pressing the **Send Test Message** button may cause interruption of legitimate EAS messages as well as interruption of subscriber programs, proceed with caution.



Web Browser Configuration

Overview

Configuration of the EAS Network Receiver can be performed by using an Internet Web browser as shown in this chapter or through the EAS Network Receiver Management Program. For more information on how to configure your EAS Network Receiver through the EAS Network Receiver Management Program, see **Chapter 6: Network Receiver Management Program**.

To access the **Main Page** of the Internet Web browser EAS Network Receiver Configuration;

- Enter the address <http://XXX.XXX.XXX.XXX/index> into the URL address bar of your Internet Web browser. “XXX.XXX.XXX.XXX” denotes the configured IP address of your EAS Network Receiver. The factory default IP address for the EAS Network Receiver is “10.1.65.79”.
- Once you have entered the address above, press the **Enter** button on your keyboard, and then the **Main Page** will appear as shown below.



To access individual configuration parameter pages, select the corresponding hyperlink from the **Main Page**. You can return to the main page from any configuration parameter page by selecting the **Main Page** button.

Time Configuration

The **Time Configuration Page** is used to configure the same settings that are described in **Chapter 6: Network Receiver Management Program, Configuration Tab, Time Settings**.

TRILITHIC

Time Configuration

Time Zone

Enable SNTP

Primary SNTP Server

Secondary SNTP Server

Sync Interval Hours

Once you have completed the changes to your time settings, press the **Program Time Configuration** button to program your EAS Network Receiver with the new settings.

To program the internal clock of the Network Receiver, select the **Set Clock** button. The following page will appear. To set the proper system time, select the down arrow next to the appropriate drop-down box. When you have finished making changes, select the **Set Clock** button to program the internal clock of the Network Receiver.

TRILITHIC

Set Clock

Month Day Year

Hour Minute Second

Network Configuration

The **Network Configuration Page** is used to configure the same settings that are described in **Chapter 6: Network Receiver Management Program**, Configuration Tab, Network Settings.

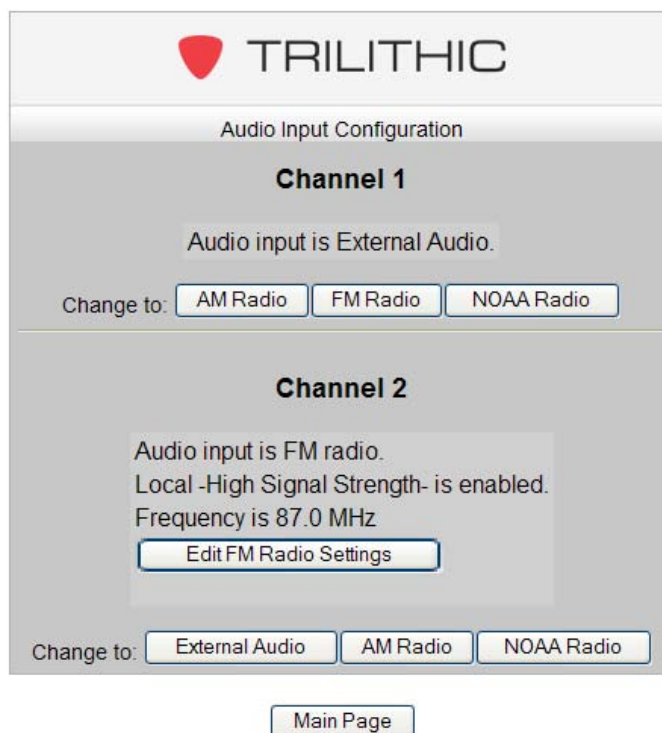
TRILITHIC	
Network Configuration	
IP Address	<input type="text" value="10.1.65.78"/>
Subnet Mask	<input type="text" value="255.255.0.0"/>
Default Gateway	<input type="text" value="10.1.1.1"/>
Configuration Port	<input type="text" value="59910"/>
Host Name	<input type="text" value="NetRx"/>
<input type="button" value="Program Network Configuration"/>	
<input type="button" value="Main Page"/>	

Once you have completed your changes to the network configuration settings, press the **Program Network Configuration** button to program your EAS Network Receiver with the new settings.

Audio Input Configuration

The **Audio Input Configuration Page** is used to configure the audio input channel settings for your Network Receiver.

To change the type of audio input for **Channel 1** and/or **Channel 2**, select **External Audio**, **AM Radio**, **FM Radio**, or **NOAA Radio** button.



TRILITHIC

Audio Input Configuration

Channel 1

Audio input is External Audio.

Change to:

Channel 2

Audio input is FM radio.
Local -High Signal Strength- is enabled.
Frequency is 87.0 MHz

Change to:



Note: The button that corresponds to the current audio input setting will not be displayed.

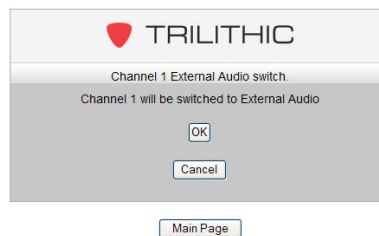


Note: To edit the current audio input settings, select the **Edit <input type> Settings** button. The corresponding settings page will be displayed, you can then configure your settings as described in **Chapter 6: Network Receiver Management Program**, [Audio Inputs Tab](#), [Audio Input Channel Settings](#).

If the selected channel is **External Audio** and you have selected the **AM Radio**, **FM Radio**, or **NOAA Radio** button or you have selected the **Edit <input type> Settings** button, the corresponding settings page will be displayed as shown below. These pages are used to configure the same settings that are described in **Chapter 6: Network Receiver Management Program, Audio Inputs Tab, Audio Input Channel Settings**. Once you have finished making configuration changes, select the **OK** button to save your changes and return to the **Audio Input Configuration** page or select the **Cancel** button to discard your changes and return to the **Audio Input Configuration** page.



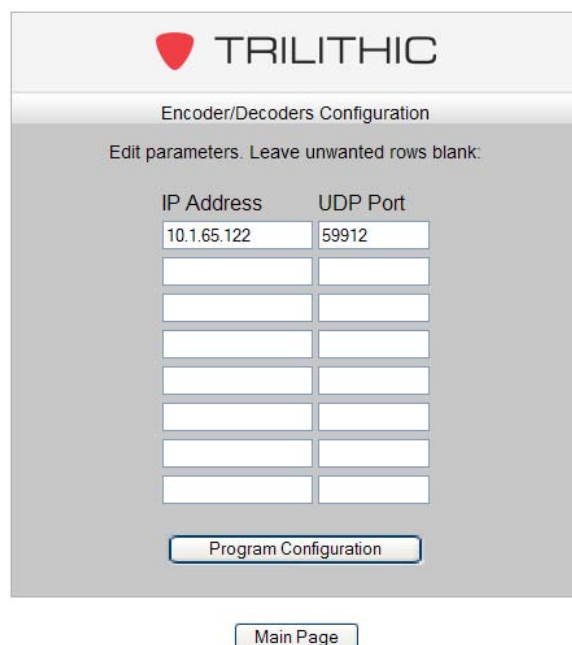
If the selected channel is **AM Radio**, **FM Radio**, or **NOAA Radio** and you have selected the **External Audio** button, the corresponding settings page will be displayed as shown below. To switch the audio channel to **External Audio**, select the **OK** button to save your changes and return to the **Audio Input Configuration** page or select the **Cancel** button to discard your changes and return to the **Audio Input Configuration** page.



Encoder/Decoders Configuration

The **Encoder/Decoders Configuration Page** is used to configure the encoder/decoder settings for your Network Receiver.

To add a new encoder/decoder to the contact list, enter the IP Address and UDP Port of the selected encoder/decoder in the corresponding field. To delete an existing encoder/decoder from the contact list, delete the IP Address and UDP Port of the desired encoder/decoder.



TRILITHIC

Encoder/Decoders Configuration

Edit parameters. Leave unwanted rows blank:

IP Address	UDP Port
10.1.65.122	59912

Program Configuration

Main Page

Once you have completed your changes to the encoder/decoders configuration settings, press the **Program Network Configuration** button to program your EAS Network Receiver with the new settings.

Message Log

The **Message Log Page** is used to view a diagnostic log that may be used in troubleshooting the EAS system. These logs are not typically used in FCC required files, as the encoder/decoders will maintain a log of messages received from Network Receivers.



TRILITHIC

Message Log

Main Page Delete Log

Mon Nov 05 17:17:07 2007: Administration by LOCALHOST from 127:0:0:1. System Boot.

Mon Nov 05 17:18:31 2007: Administration by LOCALHOST from 127:0:0:1. System Boot.

Mon Nov 05 17:21:18 2007: channel 1. Header.
ZCZC-CIV-RMT-018097+0100-3092220-NEFRMTST-

Mon Nov 05 17:21:18 2007: channel 2. Header.
ZCZC-CIV-RMT-018097+0100-3092220-NEFRMTST-

Mon Nov 05 17:21:29 2007: Attention Tone. Header(Mon Nov 05 17:21:18 2007, channel 1)

Mon Nov 05 17:21:29 2007: Audio marker. Header(Mon Nov 05 17:21:18 2007, channel 1)

Mon Nov 05 17:21:29 2007: Attention Tone. Header(Mon Nov 05 17:21:18 2007, channel 2)

Mon Nov 05 17:21:29 2007: Audio marker. Header(Mon Nov 05 17:21:18 2007, channel 2)

Mon Nov 05 17:21:55 2007: EOM. Header(Mon Nov 05 17:21:18 2007, channel 1)

Mon Nov 05 17:21:55 2007: EOM. Header(Mon Nov 05 17:21:18 2007, channel 2)

Mon Nov 05 17:26:19 2007: Administration by LOCALHOST from 127:0:0:1. System Boot.

Tue Nov 06 15:45:20 2007: Administration by LOCALHOST from 127:0:0:1. System Boot.

Tue Nov 06 16:07:37 2007: Administration by LOCALHOST from 127:0:0:1. System Boot.

Tue Nov 06 16:25:05 2007: Administration by LOCALHOST from 127:0:0:1. System Boot.

Tue Nov 06 16:27:54 2007: Administration by LOCALHOST from 127:0:0:1. System Boot.

Select the **Delete Log** button to delete the diagnostic log or select the **Main Page** button to return to the **Main Page**.

System Actions

The **System Actions Page** is used to reset the Network Receiver and send EAS test messages.

Select the **Reset** button to restart the Network Receiver.

To send a EAS test message, enter the desired FIPS Code in the **County Code** field and then press the **Test** button.



CAUTION: Pressing the **Send Test Message** button may cause interruption of legitimate EAS messages as well as interruption of subscriber programs, proceed with caution.

TRILITHIC

System Actions

Reset

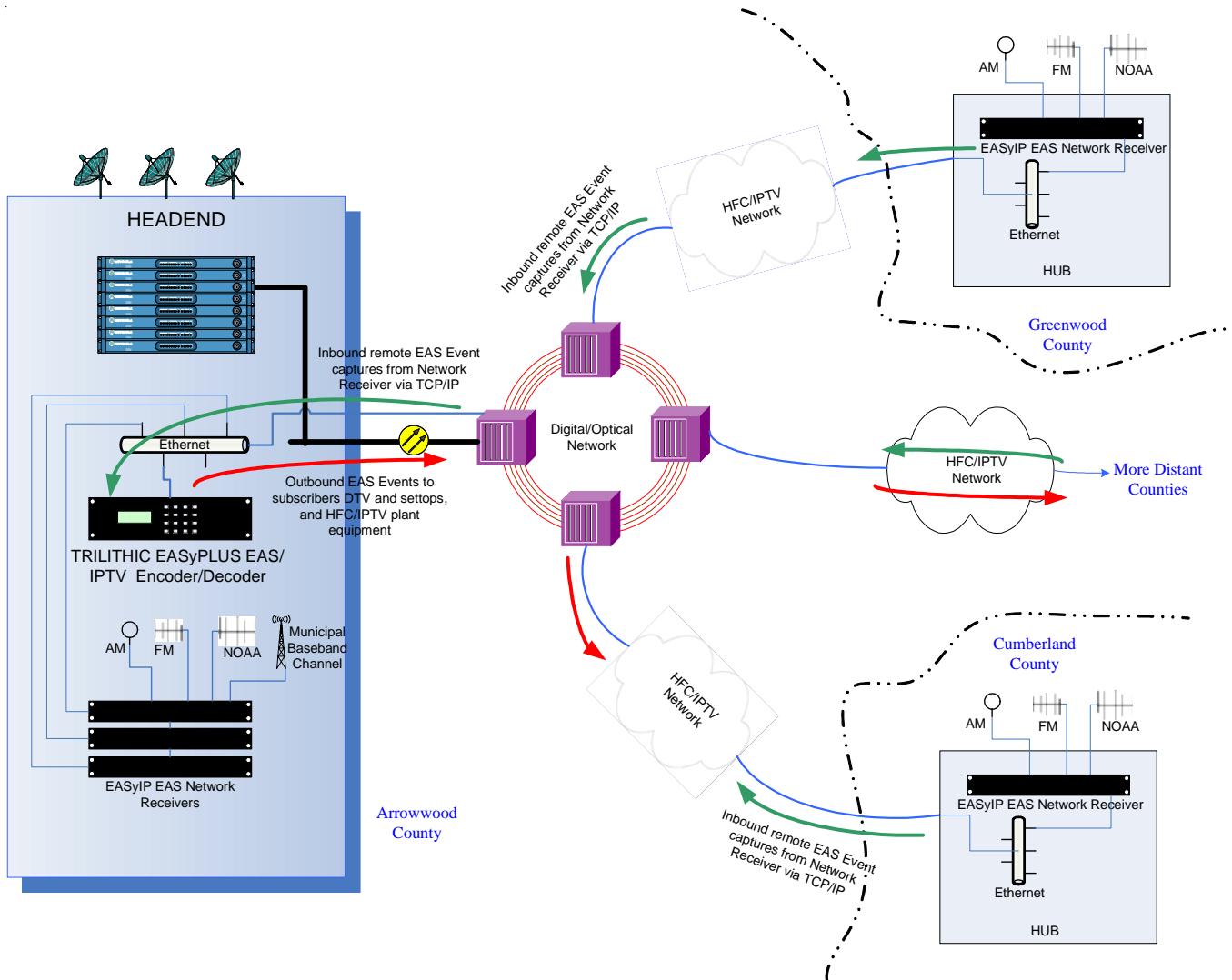
Warning: Pressing "Test" may cause interruption of a legitimate EAS message!

County Code Test

Main Page

EAS Network Receiver 8

Deployment



Specifications

Mechanical:

- Enclosure Dimensions: 1U - 19" rack mount
- General: Accommodates 1 or 2 EAS Network Receiver boards (allowing for 4 EAS monitoring ports)
- Front Panel: Speaker (per board assembly; 2 radio channels per board)
Power, Status, Fault, Channel 1 & Channel 2 activity indicators (per board)
- Back Panel: AC power input
1 - RS-232 serial port on DB9 connector (per board)
1 - 10/100 Base-T Ethernet port on RJ-45 jack (per board)
2 - 600 Ohm balanced baseband audio inputs on 6 pin modular screw terminal plug (per board)
2 - 75 Ohm antenna inputs on F connectors for internal radio receivers (per board)
- Communications: 1 - RS-232C serial port available on a DB9 connector
1 - 10/100 Base-T Ethernet port available on a RJ-45 jack
Supported network protocols: ARP, RARP, PING, UDP, TCP/IP, FTP, HTTP, SNTP and SNMP will be supported in a later firmware revision; Spring 2008.
- Processing & Memory: 32 bit RISC processor
Audio DSP
32 Mb RAM
32 Mb FLASH (nonvolatile)
RTC (real-time clock) with battery backup
Firmware upgrades are accomplished via FTP across the 10/100 Base-T Ethernet port.
Maintains an onboard nonvolatile log of all system activity (maximum 1 Mb), log entries include: receive EAS, EAS decode status, deliver EAS, errors, etc.
- Indicators: Power, status, fault, Channel 1 and Channel 2 activity indicators available on the front panel.
Speaker is available on front panel to monitor audio/radio inputs, includes volume control.

Audio:

General:

2 (4) audio inputs are monitored for EAS messages.
4 minutes of audio storage is provided for each input to store EAS audio messages.
All audio inputs have AGC.
Each audio input is selectable as external baseband audio or radio receiver.
Baseband audio inputs: balanced, 600 Ohm, modular screw terminal plugs.
Internal radio receivers: 2 (4) internal radio receivers, selectable as AM, FM, or NOAA.
75 Ohm F type connectors for the antenna inputs.
In-line pad to decrease input signal strength.

Minimum RF Input:

AM 25 dB μ V, FM 8 dB μ V, NOAA 25 dB μ V

Maximum RF Input:

60 dB μ V

Frequency Range:

AM 520 - 1720 KHz, FM 87.5 - 108 MHz, NOAA 162.4 - 162.55 MHz

Warranty Information

Trilithic, Inc. warrants that each part of this product will be free from defects in materials and workmanship, under normal use, operating conditions and service for a period of two (2) years from date of delivery. Trilithic, Inc.'s obligation under this Warranty shall be limited, at Trilithic, Inc.'s sole option, to replacing the product, or to replacing or repairing any defective part, F.O.B. Indianapolis, Indiana; provided that the Buyer shall give Trilithic, Inc. written notice.

Batteries are not included or covered by this Warranty.

The remedy set forth herein shall be the only remedy available to the Buyer under this Warranty and in no event shall Trilithic, Inc. be liable for incidental or consequential damages for any alleged breach of this Warranty. This Warranty shall not apply to any part of the product which, without fault of Trilithic, Inc., has been subject to alteration, failure caused by a part not supplied by Trilithic, Inc., accident, fire or other casualty, negligence or misuse, or to any cause whatsoever other than as a result of a defect.

Except for the warranty and exclusions set forth above, and the warranties, if any, available to the Buyer from those who supply Trilithic, Inc., there are no warranties, expressed or implied (including without limitation, any implied warranties of merchantability of fitness), with respect to the condition of the product or its suitability for any use intended for it by the Buyer or by the purchaser from the Buyer.



TRILITHIC
INNOVATIVE ENGINEERING

Trilithic, Inc.
9710 Park Davis Drive
Indianapolis, IN 46235
(317) 895-3600
(800) 344-2412