

EASyCAP

Encoder/Decoder

Operation Manual



think ahead.

Trilithic Company Profile

Trilithic is a privately held manufacturer founded in 1986 as an engineering and assembly company that builds and designs customer-directed products for telecommunications, military, and industrial customers. From its modest beginnings as a two-man engineering team, Trilithic has grown 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 five major divisions:

- **Broadband Instruments and 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.
- **XFTP**
Offers a specialty line of field technical products for cable operators and technicians, as well as a line of products for installing electronics in the home of the future.

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Chapter 1

General Information

Introduction

The Trilithic EASyCAP (Model EASyCAP-1) EAS (Emergency Alert System) Encoder/Decoder is a two-U rack mounted control center capable of performing manual or automated EAS messaging for Cable, Broadcast, and Wireline systems, in accordance with CFR 47 part 11 FCC regulations, and the EAS Cable Handbook.

The EASyCAP receives EAS messages from up to six audio sources (internal or external), decodes the FSK EAS message, and operates the target system equipment to replay the message for viewers/listeners. In addition, messages can be originated by the user via local or remote control of the EASyCAP. The EAS Audio sources for the EASyCAP include internal AM/FM/NOAA radios and external audio inputs that can be connected to any known EAS audio source. EAS Audio is decoded by the internal AFSK circuitry, it is then sorted and interpreted to determine the type of emergency or test, locations for which the emergency applies, and other information supplied in the EAS Header. If a voice message is contained in the EAS message, it is recorded for possible playback to subscribers. EAS messages then pass through a series of tests to determine if the message matches predefined, user configurable parameters. If these tests pass, EAS activation (message playback) to the system occurs. To play an EAS message to viewers/listeners, the EASyCAP activates TTLs, Contact Closures, RS-485 data commands, RS-232 data commands, and several IP based protocols, it also supplies pertinent video and re-encodes/plays the EAS FSK and recorded audio. The TTLs, Contact Closures, and serial data commands, and IP protocols activate routing equipment and end-user devices to provide the emergency audio and video to all viewers/listeners.

In addition to the EAS messaging capabilities, the EASyCAP records all received and transmitted messages in it's internal log for later retrieval.

FCC Certification



The Trilithic EASyCAP Encoder/Decoder is certified to comply with 47 CFR, Part 11 (FCC regulations) for EAS encoders and decoders, and is registered with the FCC under identification number: P4V-EASYCAP-1.

Persuant to FCC 15.21 of the FCC rules, changes not expressly approved by Trilithic, Inc. might cause harmful interference and void the FCC authorization to operate this product.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an output on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Unpacking and Inspection

When the EASyCAP Encoder/Decoder arrives, immediately inspect the shipping container and contents for visible damage. Keep all packing materials until the equipment's intended performance characteristics have been verified. If any of the equipment is damaged or fails to operate properly due to transportation damage, immediately file a claim with the transportation company or, if insured separately, with the insurance company.

Each EASyCAP Encoder/Decoder will arrive in its own shipping container. The container will, at a minimum, include the following components; EASyCAP Encoder/Decoder & AC Power Cord.

Claims for Damage in Shipment

Claims for shipping damage should be directed to the shipping and/or freight delivery service used. Claims should be made within 7 days to insure prompt handling of the claim.

Helpful Website

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

<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. This website can be referenced 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 EASysupport@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 serial number of the EASyCAP Encoder/Decoder
- A detailed description of the problem you are having, including any error or information messages

Before any Trilithic EAS encoder/decoder can be returned for repair, Trilithic will issue a return material authorization (RMA) number. **NO RETURNED EQUIPMENT WILL BE ACCEPTED WHICH DOES NOT HAVE AN RMA NUMBER PROMINENTLY DISPLAYED ON THE OUTSIDE SHIPPING CARTON AND ON THE SHIPPING LABEL.** A complete and full description, in writing, regarding the service issues with the equipment must be supplied inside the shipping container with each piece of equipment for which an RMA number has been issued.



NOTE

Hardware or software modifications and changes may occur at any time during production, shipping, and/or during the equipment's life span. These changes may occur or be implemented by Trilithic, Inc. without prior written notice or warning.

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, “Overview” gives an overview of the EASyCAP Encoder/Decoder hardware and how it works.
- Chapter 3, “Configuration” describes the steps necessary to configure the EASyCAP Encoder/Decoder.
- Chapter 3, “Appendix” describes the specifications and warranty of the EASyCAP Encoder/Decoder.

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 e-mail 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.

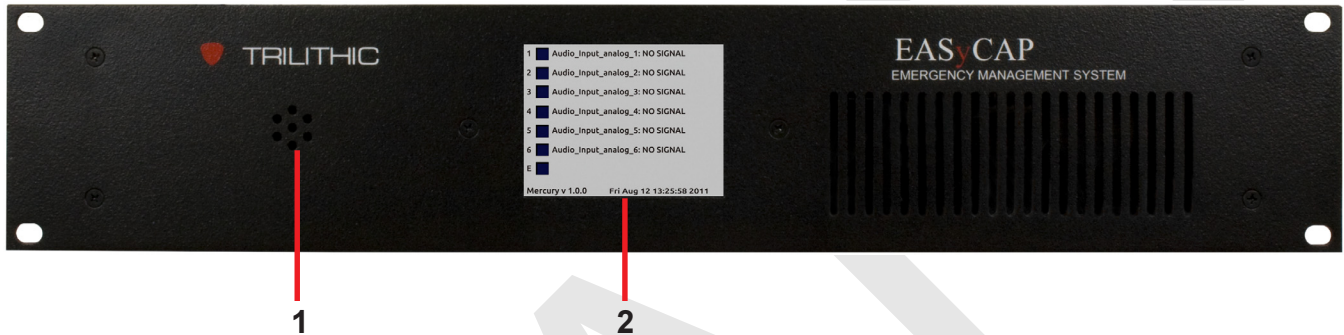
Wiring Recommendations

- Shielded audio wire for all TTL, contact closure, and audio connections
- Shielded RS-232 and printer cables
- Shielded (coaxial) video cables
- Shielded RS-485 data cable
- Shielded Category 6 or 7 Ethernet cables for all Ethernet connections.

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Hardware Overview

Front Panel View



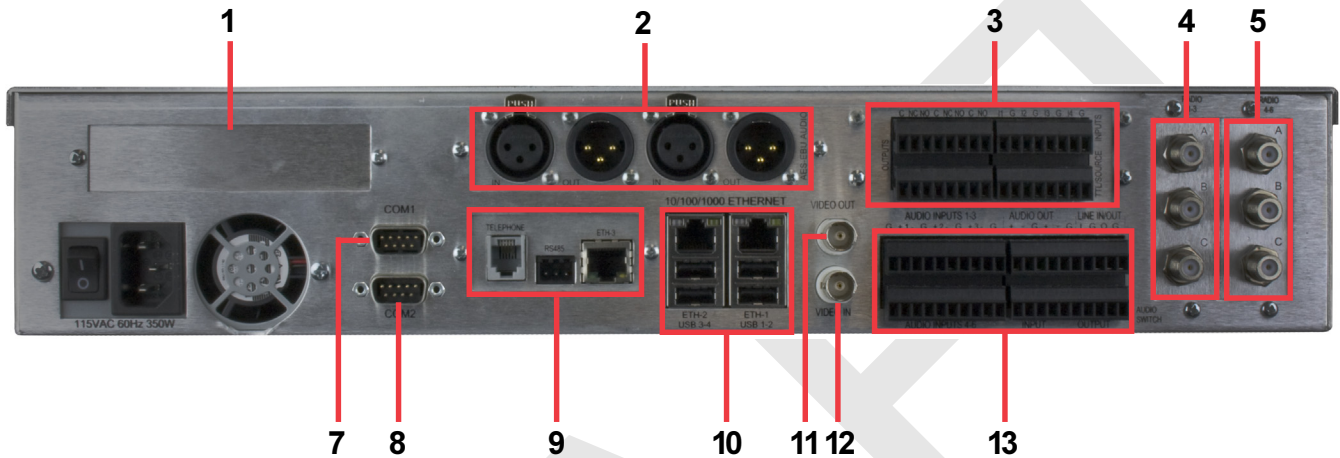
1. **Speaker** - Used for monitoring audio inputs and to provide aural feedback during EAS activations.
2. **Touchscreen LCD display** - Provides visual feedback during programming, setup, monitoring, and activations and it is used for local control of the EASyCAP and access to the on-board menu system.



NOTE

The keypad and LCD display provide an on-board menu system, allowing for a limited amount of configuration, tests, and encoding functions. A secure web interface provides more comprehensive configuration and control of the encoder/decoder.

Rear Panel View



1. **PCIe Expansion Slot (Optional)** - This is a PCIe expansion slot that will accommodate a 1, 4, or 16 lane PCIe card. This is reserved for future use.

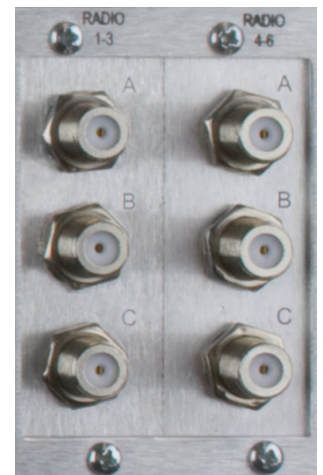
2. **AES-EBU Digital Audio** - This is an AES-EBU expansion slot that accommodates two AES-EBU digital audio switches. Each switch provides a pair of channels using 110 Ohm XLR connections. Each switch provides a pair of channels using 110 Ohm XLR connections. Internal switches are provided to replace the AES-EBU program audio with alert audio. Alert audio automatically locks to the incoming bit rate and sample rate (up to 192 kHz). Configurable as a switch or an audio source.



3. **General Purpose Inputs/Outputs** - The EASyCAP Encoder/Decoder comes with six (6) general purpose outputs, four (4) general purpose inputs, and two (2) TTL outputs:



- **General Purpose Outputs** - This provides a programmable contact closure output (switch) used to activate equipment to route EAS message audio and video, sound alarms, etc. during EAS activations.
 - **General Purpose Inputs** - This provides a means for operators or external automation equipment to trigger or abort events (such as message retransmission) within the EASyCAP.
 - **TTL Outputs** - These provide a five (5) volt DC signal (and ground connection) used to activate EAS audio and video routing equipment. A current source is also provided.
4. **Radios 1-3** - This is an AM/FM/NOAA radio receiver board with three radio tuners (A, B, and C) per board.
5. **Radios 4-6** - This is an AM/FM/NOAA radio receiver board with three radio tuners (A, B, and C) per board.



6. **COM1** - (RS-232 Connection) Provides an RS-232 compliant serial data connection to provide streaming EAS information to external character generators, as well as to provide a serial input/output for the EASyCAP.
7. **COM2** - (RS-232 Connection) Provides an RS-232 compliant serial data connection to provide streaming EAS information to external character generators, as well as to provide a serial input/output for the EASyCAP.

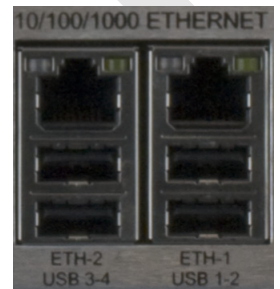


8. **Communications Board** - This is a communications board that is equipped with the following:

- One 10/100 Ethernet Port
- One Telephone Modem Port
- One RS-485 Port



9. **Ethernet** - Two 10/100/1000 Ethernet Ports. Provides an Ethernet interface for remote configuration, operation, and maintenance of the EASyCAP, as well as providing digital EAS messages across a network to a stations audio and video equipment and allowing distant monitoring stations to be transported over Ethernet to the EASyCAP.



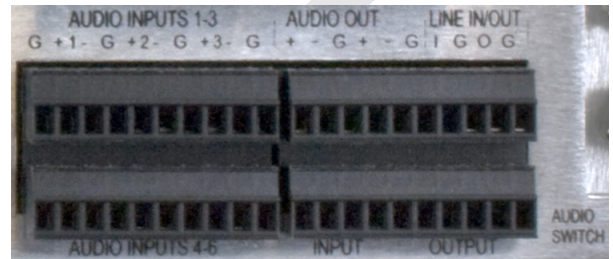
USB Ports - Four USB ports are provided for USB communication.

10. **CG VIDEO IN** - NTSC video input connection (normal station video) for the character generator.

11. **CG VIDEO OUT** - NTSC video output connection (EAS modified station video) to the transmitter.



12. **Audio Interface Board** - This provides six (6) balanced 600 Ohm audio inputs, one (1) line input, one (1) line output, two (2) EAS audio outputs, one (1) program audio input, and one (1) program audio output.



- **Audio Inputs 1-6** - This provides a means for connecting up to six (6) external audio sources for EAS monitoring, or for supplying audio for transmission.
- **Audio Outputs & Line Output** - This provides EAS audio outputs that may be distributed for EAS messaging and monitoring.
- **Line Input** - This provides a connection for a line-level microphone input for message origination.
- **Input** - This provides a balanced stereo audio input with which a system/station may supply “normal” program audio. This audio is replaced by the EASyCAP during messaging.
- **Output** - This provides EAS information audio during messaging, otherwise it contains the “Input” signal.

Rear Panel Details

COM1 (RS-232 connection) - 9-pin RS-232C DTE interface used for configuration, control, and log retrieval from a PC or laptop via a 9-pin NULL-MODEM cable.

Pin 2: Receive data*

Pin 3: Transmit data*

Pin 4: Data terminal ready

Pin 5: Signal ground*

Pin 6: Data set ready

Pin 7: Request to send

Pin 8: Clear to send

Pin 9: Ring indicator

* Required signal

COM2 (RS-232 connection) - 9-pin RS-232C DTE interface used for control over external character generators/video insertion equipment.

Pin 2: Receive data

Pin 3: Transmit data

Pin 4: Data terminal ready

Pin 5: Signal ground

Pin 6: Data set ready

Pin 7: Request to send

Pin 8: Clear to send

Pin 9: Ring indicator

Radios 1-3 - Provides three AM/FM/NOAA tuners with independent antenna inputs.

Radios 4-6 - Provides three AM/FM/NOAA tuners with independent antenna inputs.

Audio switch (optional) - Line-level balanced stereo audio switch used to replace normal programming audio with EAS audio during EAS activations.

Input - Connect the normal program audio source to the audio switch input.

Output - Connect the audio switch output to the transmitter.

Audio switch signal lines (Definition of audio switch signals, from left to right)

- (-) Negative balanced program audio input for left channel
- (+) Positive balanced program audio input for left channel
- (G) Ground
- (-) Negative balanced program audio input for right channel
- (+) Positive balanced program audio input for right channel
- (-) Negative balanced program audio/EAS output for left channel
- (+) Positive balanced program audio/EAS output for left channel
- (G) Ground
- (-) Negative balanced program audio/EAS output for right channel
- (+) Positive balanced program audio/EAS output for right channel

CG VIDEO

VIDEO IN - Connect normal programming video to the VIDEO IN.

VIDEO OUT - Connect the VIDEO OUT to the transmitter.

Audio inputs - Six balanced line-level audio inputs are provided for additional EAS monitoring sources. These inputs can be connected to EAS audio sources such as TV tuners, satellite receivers, or external radio tuners.

- (+) Positive baseband input for the respective channel
- (-) Negative baseband input input for the respective channel
- (G) Ground

Audio outputs - EAS audio is available on two line-level balanced audio outputs. Use these outputs to connect to EAS distribution/routing equipment or studio speakers. This is the audio generated by the EASyCAP during EAS activation.

- (+) Positive baseband input for the respective channel
- (-) Negative baseband input input for the respective channel
- (G) Ground

Contact closures - Used for distribution/routing equipment that requires a contact closure for activation, or for operator alarms during EAS operations.

(C) Common contact

(NC) Normally-closed contact

(NO) Normally-open contact

Ethernet and Telephone Interface - Provides an Ethernet interface for remote configuration, operation, and maintenance of the EASyCAP, as well as providing digital EAS messages across a network to a stations audio and video equipment and allowing distant monitoring stations to be transported over Ethernet to the EASyCAP. In addition to the Ethernet, a telephone interface allows DTMF or data communication for remote control of the EASyCAP, and remote generation of emergency messages.

RS-485 - This is a standard 1/8th load RS-485 communications port that is provided for controlling external character generators.

AES/EBU Audio - Provides independent synchronized AES/EBU audio switches for in-line replacement of programming audio during EAS operations. If an input is provided (from a station source), the output sample rate will be equal to the input sample rate. If no input is provided, the output sample rate will be 48KHz.

AES/EBU input 110 W XLR female

Pin 1: Ground/drain

Pin 2: Balanced +

Pin 3: Balanced -

AES/EBU output 110 W XLR male

Pin 1: Ground/drain

Pin 2: Balanced +

Pin 3: Balanced -

Contact closure inputs - provide a means for controlling the EASyCAP using automation equipment or operator switchboard.

Input 1, abort - When closed, causes any EAS message being received to be disregarded, and any EAS message being transmitted to be stopped. The EASyCAP will attempt to stop all video displays and audio switches, then return to monitoring for EAS messages.

(G) Contact ground

(I1) Approximately 3.75 mA pull-up opto-isolated input (5 Volt @ 0 mA)

Input 2, trigger - When closed, causes any EAS message waiting to be transmitted to begin transmission, regardless of the state of the hold-off input (input 3).

(G) Contact ground

(I2) Approximately 3.75 mA pull-up opto-isolated input (5 Volt @ 0 mA)

Input 3, hold-off: Configurable for active-open or active-closed. When active, this prohibits any EAS message waiting to be transmitted from starting transmission except by the trigger input (Input 2), user activation, or the event delay time-out (configurable).

(G) Contact ground

(I3) Approximately 3.75 mA pull-up opto-isolated input (5 Volt @ 0 mA)

Input 4, trigger RWT: When momentarily closed, causes a required weekly test to be transmitted.

(G) Contact ground

(I4) Approximately 3.75 mA pull-up opto-isolated input (5 Volt @ 0 mA)

Chapter 5

Configuration

System Login

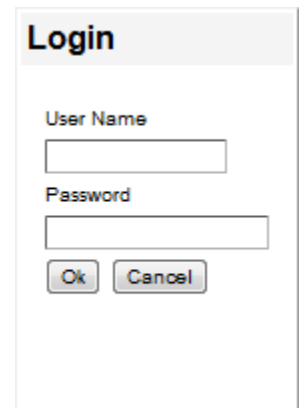
The user interface for the EASyCAP Encoder/Decoder uses a secure web Encoder/Decoder (HTTPS) over port 443. Trilithic recommends using the Mozilla Firefox (V3.6 or newer) web browser.

The certificate used by the EASyCAP Encoder/Decoder is not signed by a trusted certificate authority (VeriSign, etc) so web browsers will automatically display a security alert about the certificate the first time you connect. At this point, acknowledge the security alert and continue to the site even though the certificate isn't trusted.

When using Mozilla Firefox (V3.6 or newer), the web browser will retain the security setting for the next time you connect to the Encoder/Decoder. However, if you are using Internet Explorer, the security alert will be displayed every time that you connect to the web Encoder/Decoder. To disable this, you must install the Trilithic certificate onto your PC. This can be done by clicking on the Certificate Error message (next to the URL), then click "View certificates", and finally press the "Install Certificates" button.

Perform the following steps to login to the EASyCAP Encoder/Decoder:

1. Enter `https://` followed by the IP address of the EASyCAP Encoder/Decoder into the URL bar of the web browser and then press **Enter** on your keyboard.
2. The login screen will appear as shown to the right.
3. Enter the username and password for the desired user account and then select the **OK** button. The factory default user account has a username and password of **Administrator**.
4. The EASyCAP user interface homepage will appear. Select from the options shown to the left to display the corresponding system configuration settings.



The screenshot shows a web browser window with a title bar that says "Login". Inside the window, there are two text input fields. The first is labeled "User Name" and the second is labeled "Password". Below these fields are two buttons: "Ok" and "Cancel".



Each configuration page has an Edit button used to unlock the user interface. This button will change to a Save button that is used to save changes before exiting the page.

Network Settings

Network Interfaces

To setup the network interfaces of the Encoder/Decoder, select the plus (+) sign to the left of **Network**, and then select the **Interfaces** link. The **Interfaces** setup page will be displayed as shown below.

Network Connection - The EASyCAP Encoder/Decoder must be on a network where CAP feeds are available and it must also have network connectivity to the EASy Series Encoder/Decoder. Two different network configurations are possible as follows:

- **Single Network Connection** - If both the EASyCAP Encoder/Decoder and EASy Series Encoder/Decoder are on the same network (or subnet) only the Ethernet connection **eth0** should be configured. In this configuration select the **Disabled** check box for the second Ethernet port **eth1**, otherwise communications will be unreliable.
- **Dual Network Connection** - If the EASyCAP Encoder/Decoder and EASy Series Encoder/Decoder are on two different networks (or subnets) both Ethernet connections **eth0** and **eth1** must be configured. In this configuration each Ethernet port is assigned to a different network (or subnet).

Select the **Edit** button to change the network settings, and then adjust the following settings:

LAN Port 1 (eth0)

The following settings can be adjusted for LAN Port 1 (eth0)

- **DHCP** - Select this checkbox to enable DHCP to automatically assign the IP Address, Subnet, and Gateway of the Encoder/Decoder. When this check box is selected these fields will be grayed out and cannot be manually adjusted.
- **IP Address** - When DHCP is not enabled, enter the IP Address of the Encoder/Decoder into this field.
- **Subnet** - When DHCP is disabled, enter the Subnet Mask of the Encoder/Decoder into this field.
- **Gateway** - When DHCP is disabled, enter the Gateway of the Encoder/Decoder into this field.

LAN Port 2 (eth1)

The following settings can be adjusted for LAN Port 2 (eth1)

- **Disabled** - Select this checkbox to disable this port when only using one Ethernet connection. When this check box is selected these fields will be set to “0.0.0.0”, be grayed out, and cannot be manually adjusted.
- **DHCP** - Select this checkbox to enable DHCP to automatically assign the IP Address, Subnet, and Gateway of the Encoder/Decoder. When this check box is selected these fields will be grayed out and cannot be manually adjusted.
- **IP Address** - When DHCP is not enabled, enter the IP Address of the Encoder/Decoder into this field.
- **Subnet** - When DHCP is not enabled, enter the Subnet Mask of the Encoder/Decoder into this field.
- **Gateway** - When DHCP is not enabled, enter the Gateway of the Encoder/Decoder into this field.



CAUTION

Attempting to assign both network interfaces to DHCP may cause unreliable communication.

DNS 1 & DNS 2


The following Domain Name Encoder/Decoder (DNS) settings can be adjusted:

- **DNS 1** - Enter the primary DNS Encoder/Decoder address in this field.
- **DNS 2** - Enter the secondary DNS Encoder/Decoder address in this field.

After making changes, select the **Save** button to save the network settings. If the IP Address of the Encoder/Decoder has changed, you will need to close the browser window and reopen to login to the Encoder/Decoder at the new IP Address.

Network Time Protocol (NTP) Encoder/Decoder

To setup a Network Time Protocol connection to the Encoder/Decoder, select the plus (+) sign to the left of **Network**, and then select the **NTP** link. The **NTP** setup page will be displayed as shown below.



The screenshot shows the Trilithic web interface. At the top, there is a red shield logo and the word 'TRILITHIC'. On the left, a sidebar menu is visible with 'Network' expanded. Under 'Network', 'NTP' is selected. The main content area shows the NTP configuration page. It has a title 'NTP' and a text input field labeled 'NTP Server Name' with the value '10.1.65.123'. Below the input field are two buttons: 'Edit' and 'Logout User: Administrator'.

Select the **Edit** button and then enter the URL or IP Address of the NTP Encoder/Decoder to connect to. After making changes, select the **Save** button to save the NTP Encoder/Decoder settings.

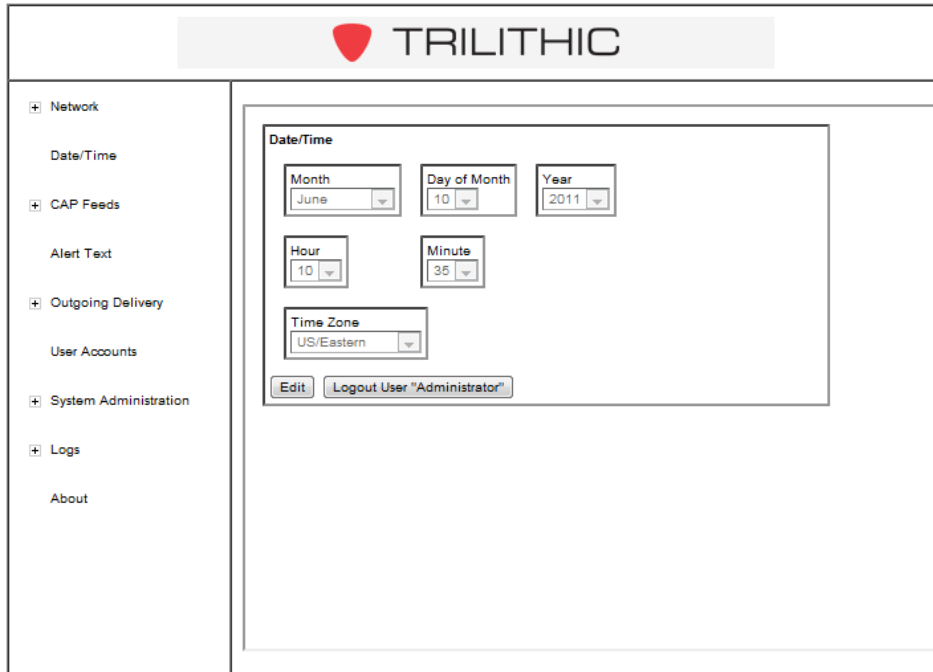


NOTE

During initial configuration time and date should be set manually. Afterwards, if an NTP Encoder/Decoder is configured the Date/Time will automatically synchronize with the NTP Encoder/Decoder.

Date/Time Settings

To adjust the Date/Time settings of the Encoder/Decoder, select the **Date/Time** link. The **Date/Time** setup page will be displayed as shown below.



Select the **Edit** button to change the Date/Time settings, and then adjust any of the following settings:

- **Month** - Select the current month from the dropdown list.
- **Day of Month** - Select the current day from the dropdown list.
- **Year** - Select the current year from the dropdown list.
- **Hour** - Select the current hour from the dropdown list.
- **Minute** - Select the current minute from the dropdown list.
- **Time Zone** - Select the time zone from the dropdown list.

After making changes, select the **Save** button to save the Date/Time settings.

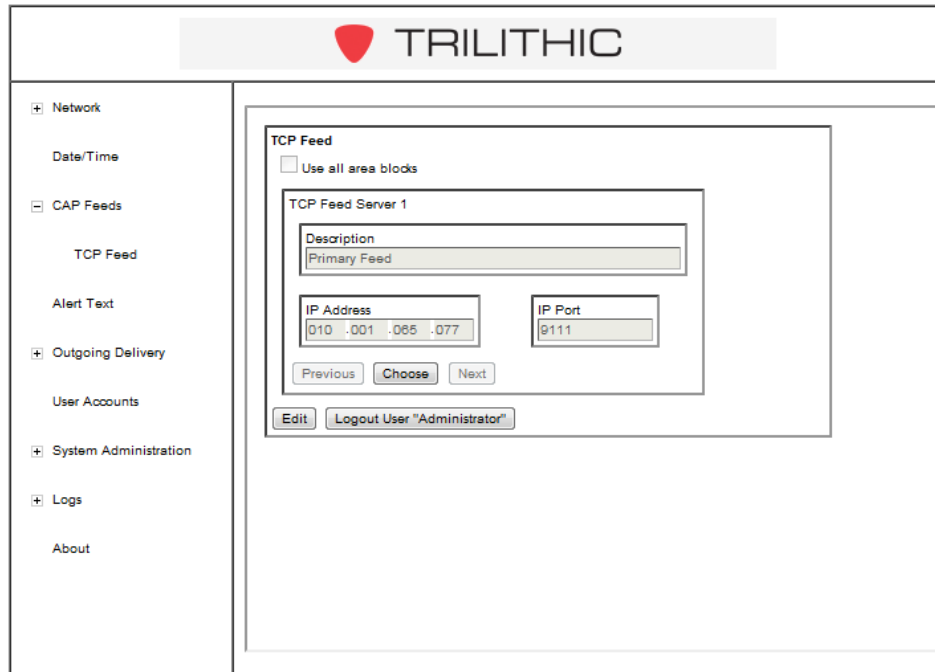


NOTE

During initial configuration time and date should be set manually. Afterwards, if an NTP Encoder/Decoder is configured the Date/Time will automatically synchronize with the NTP Encoder/Decoder.

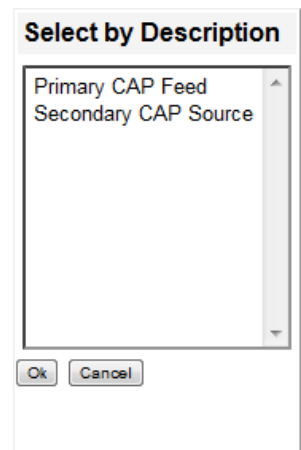
CAP Settings

To setup the CAP feeds to the Encoder/Decoder, select the plus (+) sign to the left of **CAP Feeds**, and then select the **TCP Feed** link. The **TCP Feed** setup page will be displayed as shown below.



There are two ways to display the CAP Feeds that are currently configured, choose from either of the following methods:

- Select the **Previous** or **Next** buttons to scroll through the CAP Feeds, the settings of the selected CAP Feed will automatically be displayed.
- Select the **Choose** button to view a list of the CAP Feeds. Select the name of the CAP Feed and then select the **OK** button to view its configuration.



TCP Feed Settings

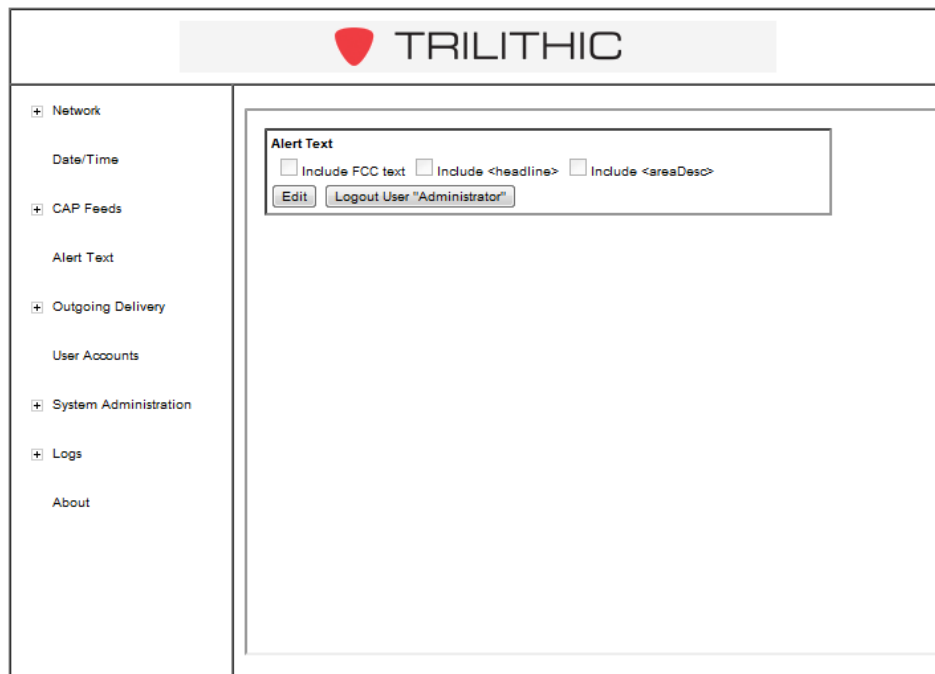
Select the **Edit** button to change the TCP Feed settings, and then adjust any of the following settings:

- **Use All Area Blocks** - When this box is selected, this allows processing of all the <area> blocks within a CAP message. If off (unchecked), only the first <area> block will be processed. This option should be left off (unchecked) in order to comply with current CAP to EAS implementation guidelines.
- **Description** - Enter the description that you wish to display for this feed in the **CAP Feed List**. This description should be detailed enough to be able to easily discern it within the **CAP Feed List**.
- **IP Address** - Enter the IP Address of the CAP Feed into this field.
- **IP Port** - Enter the IP communication port number.

After making changes, select the **Save** button to save the TCP Feed settings.

Alert Text Settings

To setup the alert text settings for the Encoder/Decoder, select the **Alert Text** link. The **Alert Text** setup page will be displayed as shown below.



The **Alert Text** setup page is used to configure which additional elements are included in the alert text. Select the **Edit** button to change the alert text settings, and then select from the following check boxes.

- **Include FCC text** - When this box is selected, the EAS Header Translation will be included in the alert text. This box should always be selected unless the FCC agrees to drop the requirement for this text to be sent. If the FCC does indeed drop this requirement, Trilithic recommends that this box should not be selected.
- **Include <headline>** - When this box is selected, the CAP Headline will be included in the alert text. Trilithic recommends that this box should not be selected.
- **Include <areaDesc>** - When this box is selected, the CAP Area Description will be included in the alert text. Trilithic recommends that this box should not be selected.

After making changes, select the **Save** button to save the alert text settings.

Accepted Events

To setup the accepted events for the Encoder/Decoder, select the **Accepted Events** link. The **Accepted Events** setup page will be displayed as shown below.

The screenshot shows the TRILITHIC web interface. The sidebar on the left contains a menu with the following items: Network, Date/Time, CAP Feeds, Alert Text, Accepted Events, Accepted Locations, Outgoing Delivery, Encoder/Decoder, User Accounts, System Administration, Upgrade, and Reboot. The main content area is titled "Accepted Events" and contains a list of event types with checkboxes. The checked events are: BZW - Blizzard Warning, EVI - Evacuation Immediate, SMW - Special Marine Warning, FLW - Flood Warning, WSW - Winter Storm Warning, TSW - Tsunami Warning, SPW - Shelter in Place Warning, CAE - Child Abduction Emergency, and TOE - 911 Telephone Outage Emergency. The unchecked events are: SPS - Special Weather Statement, HLS - Hurricane Statement, FLS - Flood Statement, DMO - Practice/Demo Warning, FLA - Flood Watch, and TOA - Tornado Watch. At the bottom of the main content area are three buttons: "Save", "Cancel Edit", and "Logout User \"timo\"".

The **Accepted Events** setup page is used to configure which types of events to process. Select the **Edit** button to change the accepted events settings, and then select the check box next to each type of event to process.

After making changes, select the **Save** button to save the alert text settings.

Accepted Locations

To setup the accepted locations for the Encoder/Decoder, select the **Accepted Locations** link. The **Accepted Locations** setup page will be displayed as shown below.

The screenshot shows the TRILITHIC web interface. On the left is a sidebar with navigation options: Network, Date/Time, CAP Feeds, Alert Text, Accepted Events, Accepted Locations (selected), Outgoing Delivery, Encoder/Decoder, User Accounts, System Administration, Upgrade, and Reboot. The main content area is titled "Accepted Locations" and contains a table with the following data:

County	State	FIPS	County Subdivisions
All of District of Columbia	DC	011000	N/A
District of Columbia	DC	011001	All subdivisions
Adams	IN	018001	All subdivisions
Bartholomew	IN	018005	Northwest, North, Northeast
Benton	IN	018007	Northwest, West, Southwest
Blackford	IN	018009	All subdivisions
Boone	IN	018011	All subdivisions
Brown	IN	018013	All subdivisions
Carroll	IN	018015	All subdivisions
Cass	IN	018017	All subdivisions
Marion	IN	018097	All subdivisions
Ohio	IN	018115	All subdivisions
All of Kentucky	KY	021000	N/A

Below the table are buttons for "Add", "Subdivisions", and "Delete". At the bottom of the main content area are buttons for "Save", "Cancel Edit", and "Logout User 'timo'".

The **Accepted Locations** setup page is used to configure which locations to process. Select the **Edit** button to change the accepted locations settings.

Select the **Add** button to add a location. The **Add Location Codes** dialog box will appear, select the state from the dropdown list and then select the counties from the list. Select the **OK** button to accept the changes.

Select the location from the list and then select the **Subdivisions** button to add a county subdivision. The **County Subdivisions** dialog box will appear, select the check box next to the desired subdivisions. Select the **OK** button to accept the changes.

After making changes, select the **Save** button to save the alert text settings.

The "Add Location Codes" dialog box shows a dropdown menu set to "Alabama". Below it is a list of counties with checkboxes:

- All of Alabama (001000)
- Autauga (001001)
- Baldwin (001003)
- Barbour (001005)
- Bibb (001007)
- Blount (001009)
- Bullock (001011)
- Butler (001013)
- Calhoun (001015)
- Chambers (001017)

Buttons for "Ok" and "Cancel" are at the bottom.

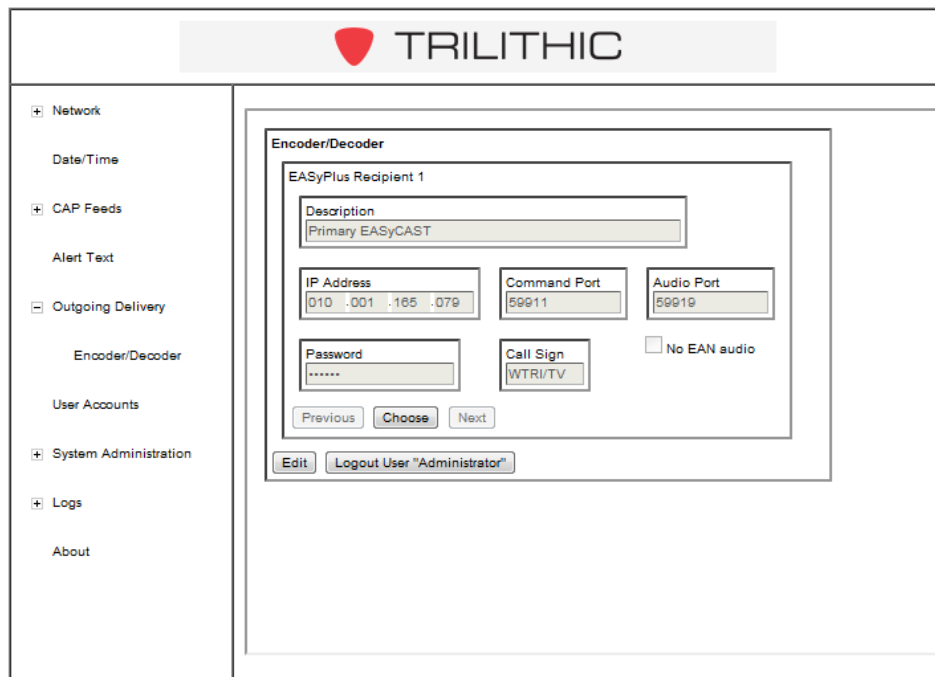
The "County Subdivisions" dialog box shows a grid of checkboxes for various subdivisions:

<input checked="" type="checkbox"/> Northwest	<input type="checkbox"/> North	<input type="checkbox"/> Northeast
<input checked="" type="checkbox"/> West	<input type="checkbox"/> Central	<input type="checkbox"/> East
<input checked="" type="checkbox"/> Southwest	<input type="checkbox"/> South	<input type="checkbox"/> Southeast

Buttons for "Ok" and "Cancel" are at the bottom.

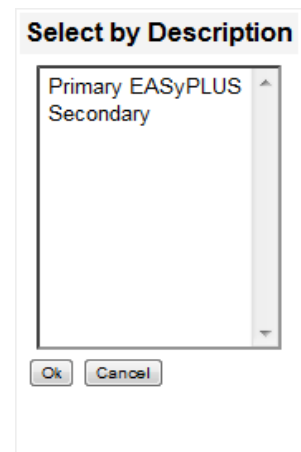
Outgoing Delivery Settings

To setup the outgoing delivery settings from the Encoder/Decoder to EASy Series Encoder/Decoders, select the plus (+) sign to the left of **Outgoing Delivery**, and then select the **Encoder/Decoder** link. The **Encoder/Decoder** setup page will be displayed as shown below.



There are two ways to display the settings of the encoder/decoders that are currently configured, choose from either of the following methods:

- Select the **Previous** or **Next** buttons to scroll through the EAS encoder/decoders, the settings of the selected EAS encoder/decoder will automatically be displayed.
- Select the **Choose** button to view a list of the Encoder/Decoders. Select the name of the Encoder/Decoder and then select the **OK** button to view its configuration.



Encoder/Decoder Settings

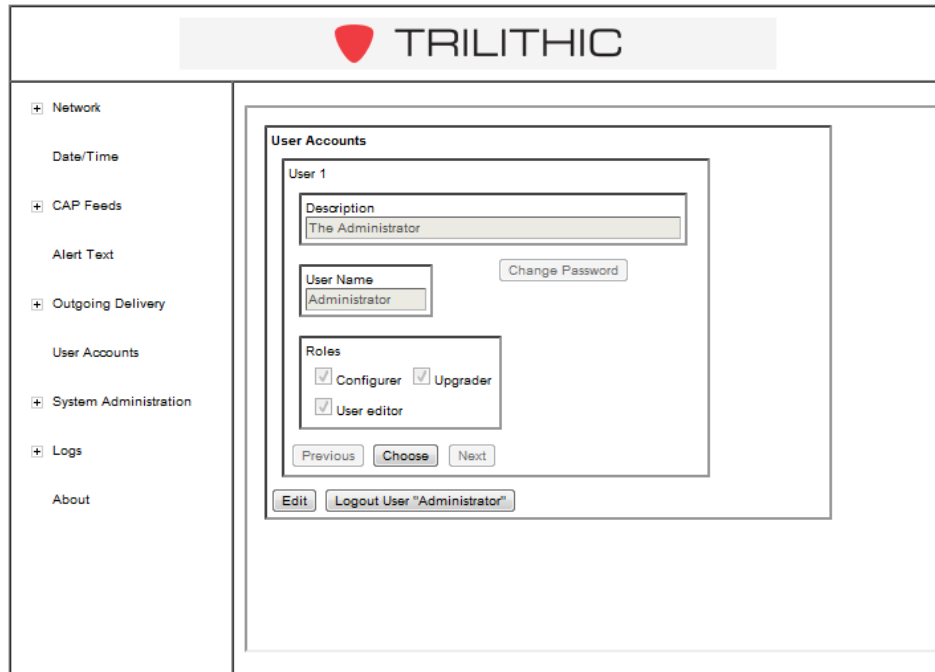
Select the **Edit** button to change the encoder/decoder settings, and then adjust any of the following settings:

- **Description** - Enter the name that you wish to display for this encoder/decoder. This name should be descriptive enough to be able to easily discern it within the EAS Encoder List.
- **IP Address** - Enter the IP address used to connect to the selected encoder/decoder.
- **Command Port** - Enter the TCP command port used to communicate with the selected encoder/decoder. The default value is 59911.
- **Audio Port** - Enter the TCP port used to transfer audio from the Encoder/Decoder to the encoder/decoder. The default value is 59919.
- **Password** - Enter the password used to login to the configured Encoder/Decoder. This should be a special CAP account added to the user accounts of the Encoder/Decoder, and given EAS Alert and Ethernet permissions in the user account.
- **Call Sign** - Enter the station identification that will be included in the alert text.
- **No EAN audio** - When this box is selected the EAN audio stream will not be used, Encoder/Decoders will receive EAN audio from a local audio input.

After making changes, select the **Save** button to save the encoder/decoder settings.

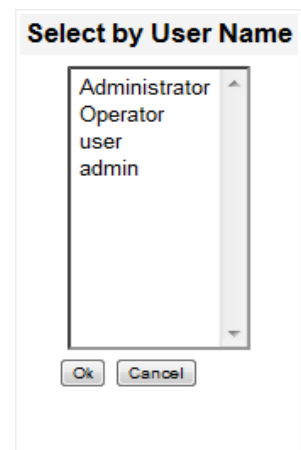
User Account Settings

To setup the user accounts for the Encoder/Decoder, select the **User Accounts** link. The **User Accounts** setup page will be displayed as shown below.



There are two ways to display the settings of the user accounts that are currently configured, choose from either of the following methods:

- Select the **Previous** or **Next** buttons to scroll through the user accounts, the settings of the selected user account will automatically be displayed.
- Select the **Choose** button to view a list of the User Accounts. Select the name of the User Account and then select the **OK** button to view its configuration.



User Settings

Select the **Edit** button to change the user account settings, and then adjust any of the following settings:

- **Description** - Enter the description that you wish to display for this user account. This description should be detailed enough to be able to easily discern it within the User Account List.
- **User Name** - Enter the user name into this field. This field cannot be changed after saving the user account. To change the user name in the future, simply delete the account and create a new account.
- **Change Password** - Select this button to change the user password.

Roles

To set the role of the user select any one of the following checkboxes.

- **Configurer** - This role allows the user to make changes to the configuration of the EASyCAP Encoder/Decoder.
- **Upgrader** - This role allows the user to upgrade the EASyCAP Encoder/Decoder software.
- **User Editor** - This role allows the user to make changes to all user accounts. Note that any user can change their own password and PIN at any time regardless of their own user account role.

System Administration Settings

Upgrades

To upgrade the EASyCAP Encoder/Decoder software, select the plus (+) sign to the left of **System Administration**, and then select the **Upgrade** link. The **Install Upgrade Package** page will be displayed as shown below.

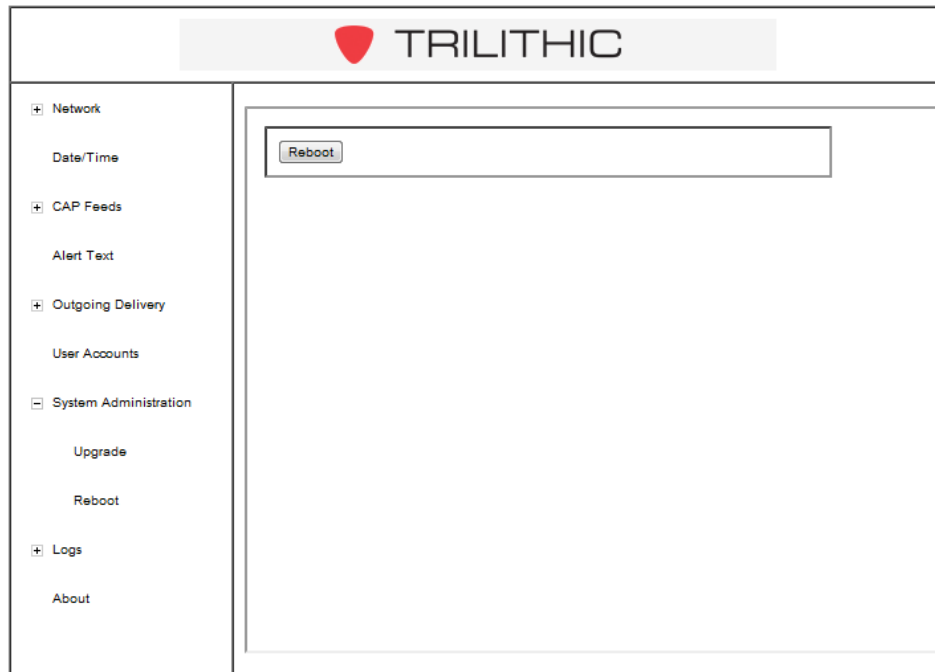


To upgrade the EASyCAP Encoder/Decoder software, select the **Select Package File** button. An **Upload File** dialog box will appear, select the **Choose File** button to select an upgrade file.

Once the upgrade file has been chosen, select the **Submit** button to upgrade the software or select the **Cancel** button to exit without upgrading.

Reboot

To reboot the EASyCAP Encoder/Decoder, select the plus (+) sign to the left of **System Administration**, and then select the **Reboot** link. The **Reboot** page will be displayed as shown below.



Select the **Reboot** button to reboot the Encoder/Decoder.

Logs

Alert Log

To view the CAP Alert information, select the plus (+) sign to the left of **Logs**, and then select the **Alert Log** link. The **Alert Log** page will be displayed as shown below. To download a copy of the alert log in ASCII text file format, select the **Download** button.

TRILITHIC

- Network
- Date/Time
- CAP Feeds
- Alert Text
- Outgoing Delivery
- User Accounts
- System Administration
- Logs
 - Alert Log
 - System Log
- About

Download Copy

```
-----  
Alert Reference: CAPorg,Required_Monthly_Test_6/7/2011_2:05:0  
At 06/07/2011 14:05:05 EDT: Received Alert  
Originator: EAS Participant  
Event: Required Monthly Test  
Sent: 2011-06-07T18:05:05-00:00  
Expires: 2011-06-07T19:04:58-00:00  
Languages:  
en-us with voice file resource  
At 06/07/2011 14:05:05 EDT: Alert Operation Completed  
Augmented alert with en-us alert text.  
At 06/07/2011 14:05:07 EDT: Delivery Completed  
Delivered alert to EASyPlus at 010.001.065.099  
-----  
Alert Reference: CAPorg,Special_Marine_Warning_6/7/2011_2:06:  
At 06/07/2011 14:06:30 EDT: Received Alert  
Originator: EAS Participant  
Event: Special Marine Warning  
Sent: 2011-06-07T18:06:13-00:00
```

System Log

To view the general system and application information, select the plus (+) sign to the left of **Logs**, and then select the **System Log** link. The **System Log** page will be displayed as shown below. To download a copy of the system log in ASCII text file format, select the **Download** button.

TRILITHIC

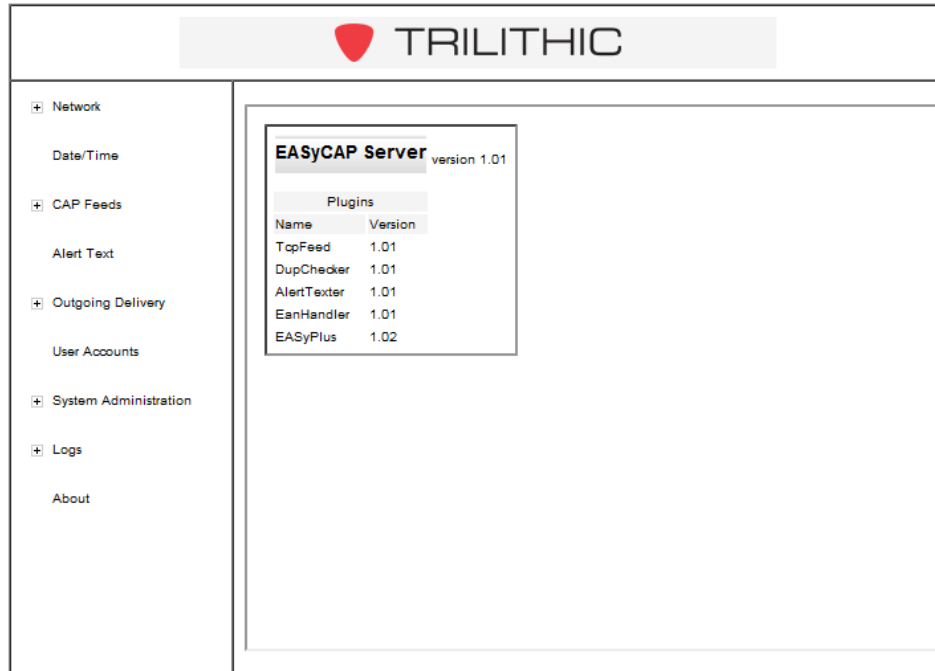
- Network
- Date/Time
- CAP Feeds
- Alert Text
- Outgoing Delivery
- User Accounts
- System Administration
- Logs
 - Alert Log
 - System Log
- About

Download Copy

```
-----  
At 06/07/2011 14:09:02 EDT: Plugin Manager Information  
plugin TcpFeed started  
-----  
At 06/07/2011 14:09:02 EDT: Plugin Manager Information  
plugin DupChecker started  
-----  
At 06/07/2011 14:09:02 EDT: Plugin Manager Information  
plugin AlertTexter started  
-----  
At 06/07/2011 14:09:02 EDT: Plugin Manager Information  
plugin EanHandler started  
-----  
At 06/07/2011 14:09:02 EDT: Plugin Manager Information  
plugin EASyPlus started  
-----
```

About

To view the EASyCAP version and plugin version information, select the **About** link. The **About** page will be displayed as shown below.



The screenshot shows the EASyCAP Server interface. At the top, there is a header with the TRILITHIC logo and name. Below the header is a navigation menu on the left side with the following items: Network, Date/Time, CAP Feeds, Alert Text, Outgoing Delivery, User Accounts, System Administration, Logs, and About. The main content area displays the 'EASyCAP Server version 1.01' information and a table of installed plugins.

Plugins	
Name	Version
TopFeed	1.01
DupChecker	1.01
AlertTexter	1.01
EanHandler	1.01
EASyPlus	1.02

Specifications

General Specifications

E.A.S. Encoder/Decoder compliant with all requirements defined in Part 11 of the FCC rules.

E.A.S. Encoder supports NWS SAME protocol decoding, including 1050 Hz tone detection.

Operating Temperature: 0 to +50 C

Max. Operating Humidity: 95%

Supply Voltage: 117 VAC +/- 15%

Processor and Memory

Dual Core Processor, 2GB RAM, 32GB SSD drive (minimum)

Chassis

2U RU chassis with 3.5" 320x240 color touch-screen LCD and speaker on the Front Panel

Communications

(2) RS-232 serial ports available on male DB-9 connectors

(4) USB ports

(2) 10/100/1000 BaseT Ethernet ports available on USB/RJ45 combo jacks

Audio

(6) Balanced 600 Ohm audio inputs for EAS monitoring each input can be configured for external audio or an optional internal radio receiver.

(1) Line input and (1) line output

(2) Balanced analog audio outputs, 600 Ohm

(1) Balanced stereo analog audio switch, 600 Ohm

Video

NTSC video character generator

RS-170A color analog video (source only, does not overlay onto video)

24-bit color, True Type fonts, static text, crawl text (up to 400 characters), and images

Analog video switch with video bypass for fail-safe operation synchronized to the input video to provide a clean switch on the vertical sync

General Purpose Inputs and Outputs

(6) General purpose outputs: isolated relay, maximum rating of 0.3 A @ 120 VAC or 1A @ 30 VDC

(2) TTL outputs: each TTL output can drive 2 TTL loads

(4) General purpose inputs: optically isolated dry contact closure inputs

Radio Receiver Boards

(2) Radio receiver boards can be installed into the EASyCAP

(3) Radio receivers are installed per board, each can be configured as AM, FM, or NOAA

AES-EBU Digital Audio Board

(2) AES-EBU digital audio switches: each switch provides a pair of channels, 100 Ohm XLR

Alert audio automatically locks to the incoming bit rate and sample rate (up to 192 KHz)

Configurable as a switch or an audio source

Communications Board

(1) 10/100 BaseT Ethernet port

(1) RS-485 serial port

(1) Telephone MODEM (33.6K & voice)

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Trilithic EAS 2-Year Limited Warranty

Trilithic, Inc. ("Trilithic") warrants to the buyer that the 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 reserves the right, before having any obligation under this limited warranty, to inspect the damaged product, and all costs of shipping the product to Trilithic for inspection shall be borne solely by the buyer. Trilithic's obligation under this limited warranty shall be limited, at Trilithic's sole option, to replacing or repairing the product, or to replacing or repairing any defective part, F.O.B. Indianapolis, Indiana. If neither of the two options is reasonably available, then Trilithic, in its sole discretion, may provide a prorated refund to the buyer of the purchase price of the product, as evidenced by the proof of purchase, less any applicable service fees in accordance with the following schedule: months 0-3 = 100%; months 4-12 = 50%; and months 13-24 = 25%. Batteries and fans are not included or covered by this limited warranty. Any product or part that is repaired or replaced under this limited warranty shall be covered only for the remainder of the original warranty period which applied to the original product or part, or for ninety (90) days, whichever is longer. All products or parts that are exchanged for replacement shall become the property of Trilithic.

In order to recover under this limited warranty, buyer must make a written claim to Trilithic within sixty (60) days of the occurrence and must present acceptable proof of original ownership of the product (such as an original receipt, purchase order or similar documentation). In order for this limited warranty to be effective, the product must have been handled and used as set forth in the documentation accompanying the product and/or its packaging. This limited warranty shall not apply to any damage due to accident, misuse, abuse, neglect, fire or other casualty. Further, this limited warranty shall not apply to any product which has been altered or where the damage was caused by a part not supplied by Trilithic. Trilithic retains the final decision whether a product is within warranty conditions.

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