INSTRUCTION MANUAL

MODEL CAP-DEC 1

Common Alerting Protocol

Universal Intermediary Device

FCC ID: MVZ CAP-DEC 1

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FCC warning

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.

FCC Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B 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.

WARRANTY

For a period of 1 year from date of shipment, Gorman-Redlich warrants the CAP-DEC 1 to be free from defects in materials and workmanship and will repair or replace, at its option, any CAP-DEC 1 unit that fails in normal service without a charge for parts or labor and with a flat $25 fee, prepaid by purchaser, to cover shipping and handling. Units can only be accepted for adjustment under Warranty following notification by letter, telephone or e-mail. Units showing evidence of modification or abuse, in the judgment of Gorman-Redlich, cannot be accepted for repair under Warranty, but will be repaired for a reasonable fee, with the consent of the purchaser.

COMMON ALERTING PROTOCOL AND THE EMERGENCY ALERT SYSTEM

The Common Alerting Protocol (CAP) is an XML-based data format for exchanging public warnings and emergencies between alerting technologies. CAP allows warning messages to be distributed consistently and simultaneously across multiple warning systems. This protocol allows for the inclusion of large amounts of information about emergency situations which can range from general situational data to information intended for specific alerting platforms.

The Emergency Alert System (EAS) is a national warning system in the United States put into place on January 1, 1997. In addition to alerting the public of local weather emergencies such as tornadoes and flash floods, the EAS enables the President of the United States to address the public on short notice via radio and television broadcast. EAS regulations and standards are governed by the Public Safety and Homeland Security Bureau of the FCC. EAS has become part of the Federal Emergency Management Agency's (FEMA) Integrated Public Alert and Warning System (IPAWS) and is jointly coordinated by FEMA, the Federal Communications Commission (FCC), and the National Weather Service (NOAA/NWS).

GENERAL DESCRIPTION OF MODEL CAP-DEC 1 UNIVERSAL INTERMEDIARY DEVICE

The Gorman-Redlich CAP-DEC 1 Universal Intermediary Device retrieves CAP formatted alert files from various sources on the internet. These files are compared to a variety of standards and specifications, including the CAP v1.2 standard, the FEMA IPAWS Profile and the EAS-CAP Implementation Guide to ensure message validity as well as being filtered by location and effective time period. Valid messages are then transformed into an EAS Specific Area Message Encoding (SAME) formatted header and passed on, along with additional audio, to attached EAS equipment for transmission in a similar fashion to EAS alerts received over the air.

NOTE: Gorman-Redlich Mfg. Co. strongly suggests operating the CAP-DEC 1 device with an uninterruptible power supply (UPS) for both surge protection and battery back-up functionality.

Front Panel

1. Intake ventilation grate
2. Universal Serial Bus (USB) port to the right of the ventilation grate
3. Red power LED labeled "POWER" to the right of the USB port

Side Panel

1. Exhaust ventilation grate
2. RS232 serial data port labeled "SERIAL PORT"

Rear Panel

1. PS/2 mouse port labeled "MOUSE"
2. PS/2 keyboard port labeled "KEYBOARD"
3. RS232 serial data port labeled "SERIAL PORT"
4. VGA video-out port labeled "VGA PORT"
5. Four (4) Universal Serial Bus (USB) ports labeled "USB 1" "USB 2" "USB 3" and "USB 4"
6. 10/100/1000 RJ45 ethernet port labeled "LAN"
7. 1/8-inch TRS line audio input jack labeled "AUDIO IN"
8. 1/8-inch TRS audio output jack labeled "AUDIO OUT"
9. 1/8-inch TRS microphone input jack labeled "MIC IN"
10. a) BNC alert audio connector labeled "ALERT AUDIO" (older units)
    b) Power reset button labeled "RESET" (newer units – upgrade available)
11. Barrel-type power jack labeled "12V 5A"

The CAP-DEC 1 Intermediary Device

The FCC classifies Common Alerting Protocol (CAP) equipment into three categories: integrated devices, universal intermediary devices and component intermediary devices.

The Gorman-Redlich CAP-DEC 1 unit is set to operate as a universal intermediary device. This means that it will transform valid CAP alerts into EAS messages and output them as bursts of FSK data, attention tone, message audio and EOM which can be input to a variety of EAS encoder/decoder devices.

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Gorman-Redlich CAP-DEC 1 rear panel
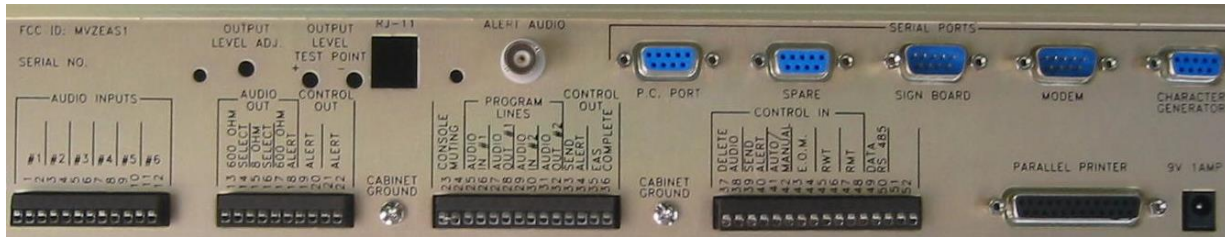
Gorman-Redlich EAS1 Encoder/Decoder rear panel

Hardware Connections

Connections for Setup

Prior to using the CAP-DEC 1 unit, some minor initial setup must be performed to ensure proper operation. This setup requires your interaction with the unit via normal PC interface hardware (e.g. keyboard, mouse, monitor).

1. Connect a mouse using either a PS/2 connection to the MOUSE port or a USB connection to any of the available USB ports on the rear of the CAP-DEC 1 unit.
2. Connect a keyboard using either a PS/2 connection to the KEYBOARD port or a USB connection to any of the available USB ports on the rear of the CAP-DEC 1 unit.
3. Connect a monitor using a VGA cable to the VGA PORT on the rear of the CAP-DEC 1 unit.
4. Connect a network-attached ethernet cable to the RJ45 LAN port on the rear of the CAP-DEC 1 unit.
5. Power on the CAP-DEC 1 unit by attaching the 12V 5A AC adapter (labeled CAP-DEC 1 power supply) to the power jack (labeled 12V 5A) on the rear of the CAP-DEC 1 unit and plug it in to the power source. Gorman-Redlich strongly suggests using an uninterruptible power supply (UPS) with the CAP-DEC 1 unit.

Unit Setup

Once the unit is powered up with the above connections, the CAP-DEC 1 unit may be configured as desired to station-specific preferences including network setup, printer installation, monitoring and interface options (e.g. logging devices), USB peripherals (e.g. flash drives), etc. (*see Software Setup section below*).

Due to the varied nature of such setup from one station to another, it is impossible to cover all possible setup procedures. Manufacturer's instructions should be followed for installation and use of devices such as printers, USB drives, USB-to-RS232 adapters, logging devices or software, etc.

The CAP-DEC 1 unit must be configured for connectivity with your station's specific network setup. Again, due to the varied nature of such systems, it is impossible to cover all possibilities here. The steps necessary to ensure CAP-DEC 1 connectivity mirror those required for any PC on your network. This includes opening/unblocking ports for HTTP requests (default: 80) and SMTP activity if email functionality is desired (default: 25). The CAP-DEC 1 executable (software) should be allowed access through station firewall and other network protection. If your station's network utilizes dynamic host control protocol (DHCP), simply attaching the CAP-DEC 1 to the network should provide connectivity. If static IP addressing is required, such settings may be entered by navigating to START | Control Panel and searching for the View Network Connections option. Right-mouse-click the connection to be used and choose Properties. Contact your station's network technician for station-specific setup details.

Connections for Operation

Once the unit has been properly configured for operation, interface devices such as a keyboard, mouse and monitor are not required for normal operation although they may be left attached for monitoring, testing or further setup. The network cable must remain attached so that the unit is able to receive CAP alerts and the power cable must remain attached. The following connections must be made to ensure delivery of CAP-converted EAS alerts between the CAP-DEC 1 unit and the EAS decoder.

Connected Gorman-Redlich CAP-DEC 1 and EAS1 units
(universal intermediary device configuration)

Use as a Universal Intermediary Device
(With any certified EAS encoder/decoder, including Gorman-Redlich EAS1 products)

1. Connect the 1/8" TRS plug of the audio cable to the green AUDIO OUT port on the rear of the CAP-DEC 1 unit. Install the red and black wires of the audio cable into the EAS unit on a channel capable of monitoring for and parsing frequency shift keyed (FSK) EAS headers (see encoder/decoder manufacturer documentation for details).

   For Gorman-Redlich EAS1 units, the CAP-DEC 1 should be connected to the next available, unscanned audio input. For example, if your EAS1 currently scans 5 inputs, the audio cable should be connected to audio input #6 (terminals 11 and 12) as shown above.

NOTE: Unlike the Gorman Redlich EAS1, some other manufacturers do not use a transformer isolated balanced audio input. In the event the CAP-DEC 1 will be connected to an encoder-decoder unit with an unbalanced input, check your audio interconnect cable to make certain which of the conductors is connected to the ground on the audio plug that you insert into the audio out receptacle on the CAP-DEC 1.


TIP   SLEEVE

TIP = LEFT AUDIO / +
SLEEVE = GROUND

EAS1 Setup

Universal Intermediary Device Configuration

In the universal intermediary device configuration, the EAS encoder/decoder simply needs to be configured to monitor the audio input channel into which the CAP-DEC 1 audio output is connected. For Gorman-Redlich EAS1 encoder/decoders, this is achieved as follows:

1. Press the [MENU] key on the front panel of the EAS1 unit (button 7).
2. Enter the four-digit technician password.
3. At the Utility Menu screen, press the [DOWN ARROW] key to navigate to menu item 4 (SET SCANNING) and press [ENTER].
4. Ensure that the audio channel to which the CAP-DEC 1 audio output is connected is being scanned.
5. Press the [EXIT/0] key to return to the utility menu, press the [UP ARROW] key to navigate to menu item 3 (SET INPUT LEVEL) and press [ENTER].
6. Navigate to the audio channel to which the CAP-DEC 1 audio cable is connected and press [ENTER].
7. Set the input level to 75 (in lower-right corner of screen) using the arrow keys and then press the [EXIT/0] key until you return to the main screen with the clock displayed.

Software Setup

The CAP-DEC 1 software begins automatically once the unit has completed the boot-up process. Upon starting, the software dialog will appear on screen after an approximately 20 second initialization. The software consists of two dialogs: the main software dialog and the configuration dialog.
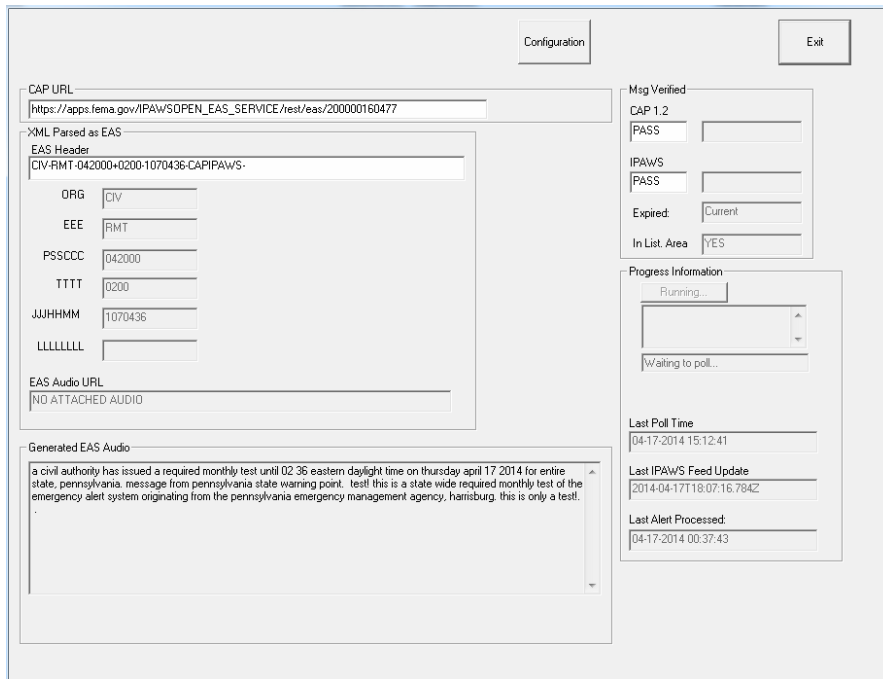
CAP-DEC 1 Main Software Dialog

The main software dialog contains information about and results from message processing as well as the button to open the configuration interface. Note that the alert information as displayed above will only show after an alert has been processed. Upon startup, all boxes will be blank except for *Last Poll Time* and *Last IPAWS Feed Update*.

The bulk of the CAP-DEC 1 software configuration is accomplished in the configuration dialog, which may be reached by clicking the "configuration" button at the top of the main CAP-DEC 1 software dialog.
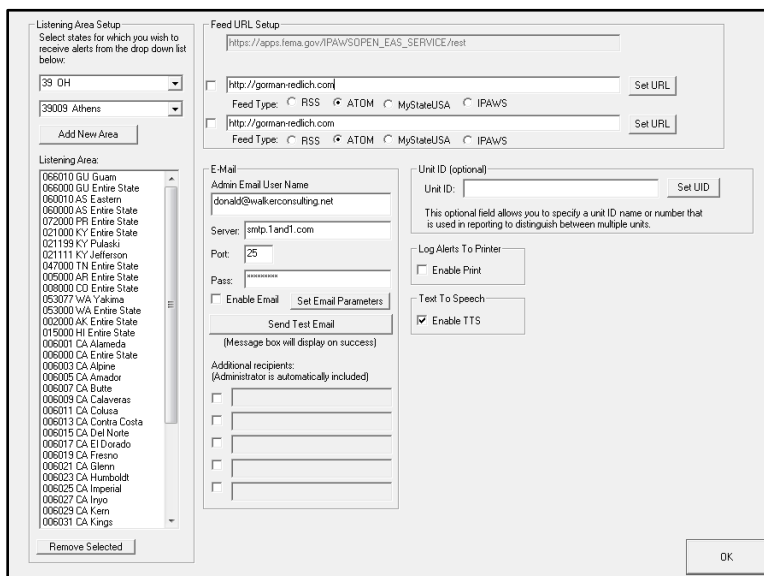
CAP-DEC 1 Software Configuration Dialog
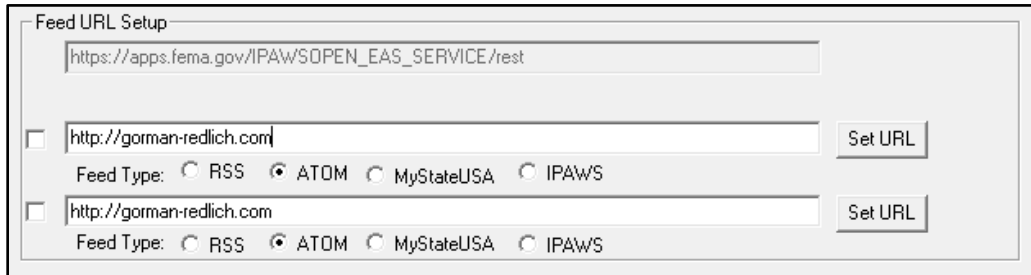
CAP Feed URLs

Depending on your state plan, you may be required to monitor more than one CAP alert server. The Gorman-Redlich CAP-DEC 1 unit makes it easy for you to monitor one or more CAP alert server URLs. These URLs and their options are setup in the "Feed URL Setup" area of the configuration dialog.

Enter the URL of the CAP feed that you wish to monitor into the text box and click the button marked "Set URL" to set the URL. Select the type of CAP alert feed that the URL is pointing to.

1. RSS – Select this option if the URL is for a Really Simple Syndication (RSS) feed.

2. ATOM – Select this option if the URL is for an ATOM feed.

3. MyStateUSA – Select this option to poll MyStateUSA feeds. MyStateUSA feeds should be entered in the format:
   http://mystateusa.com/CapService.svc/GetEasFromStartDate/?username=USER&password=PASS
   where USER and PASS represent the username and password provided to you by MyStateUSA.

4. IPAWS – This option will generally not be used by broadcasters. Your required IPAWS server is configured by default into URL1.

The first URL, set to monitor the FEMA IPAWS message aggregator feed, is enabled by default and is not user-editable. Enable a second or third CAP alert URL by marking the check-box next to the URL entry field, entering a feed URL and clicking the "Set URL" button and selecting the feed type.

Feed URL Setup Controls

NOTE: If you know the URL(s) that you are required to monitor enter them on the programming sheet on the website and the unit's URLs will be preconfigured upon arrival.
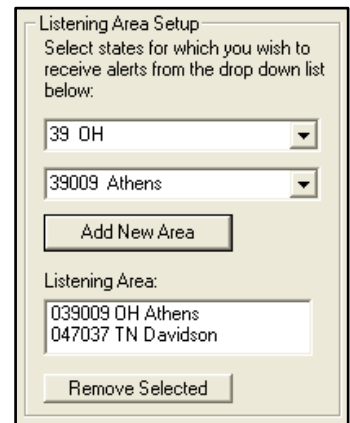
Listening Area Setup

The listening area for the device should be set up using the controls in the "Listening Area Setup" area of the configuration dialog.

To set up area filtering, first select the state for which you wish to receive alerts from the drop-down menu. Next, select the county you wish to add to the listening area and click the "Add New Area" button to move that state code to the list. You may add up to 50 individual counties to the listening area list.

When a county from a new state is added to the CAP-DEC 1 listening area, you will notice that an area called "Entire State" will also be added to the listening area. See note below for more details on the "entire state" location code as well as the CAP-DEC 1 listening area and how it behaves and how it differs from the EAS encoder/decoder listening area.

To remove a state code from the filter list, highlight the code by clicking on it in the Listening Area list and click the "Remove Selected" button below.

Note on CAP-DEC 1 Listening Area – The CAP-DEC 1 listening area is not necessarily the same as the listening area of an EAS encoder/decoder. The CAP-DEC 1 will trigger on any valid (properly formatted, non-expired) CAP message in its listening area and translate it into EAS header data and audio that is sent to a certified EAS encoder/decoder where it is filtered for
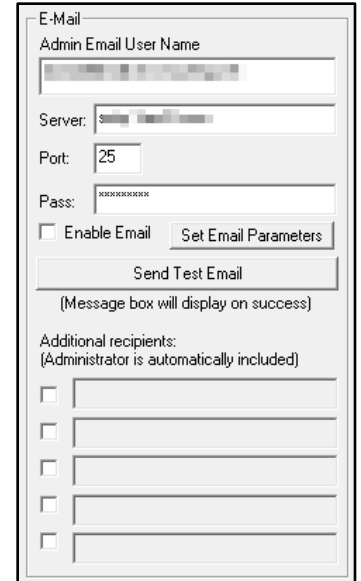
message validity and location as usual. The "Entire State" location code (comprised of the state FIPS prefix with a 000 county code) <u>does not</u> mean that the CAP-DEC 1 will trigger on alert messages addressed to any county in that state. Rather, for a message to be translated and forwarded under this code, the message must be specifically addressed to the entire state by inclusion of the entire state location code – as might be the case for a statewide governor-generated message or the weekly IPAWS RWT messages.

Email Setup

NOTE: Email Functionality Has Changed As Of v2.33 – *Read the following section carefully.*

If you wish to receive emailed reports of the CAP alerts received by the unit, as well as connectivity issue notifications:

1. Enter email username in the box marked "Admin E-Mail User Name".

2. Enter the outgoing email server address in the box marked "Server" and the port number in the box marked "Port."

3. Enter the email user's password in the box labeled "Pass." (*email passwords are AES encrypted and are not stored as plain text on the device*).

4. Mark the checkbox to Enable Email.

5. OPTIONAL: Enable additional email recipients by marking the checkbox next to the first available entry field and enter the email address.

6. Click the "Set Email Parameters" button to save the settings.

To turn off email alerts:

1. Uncheck the Enable Email box.

Test Emails

To verify correct email setup, click the "Send Test Email" button. If your settings are correct, you will receive a "Mail Sent!" pop-up box and each listed recipient should receive a message including the CAP-DEC 1 unit's UNIT ID, the time the test message was sent, and the version number and build date of the software.

If you have not entered the correct settings, you will receive a "Mail Not Sent! Check Settings" pop-up box.

Operational Emails

The CAP-DEC 1 unit will send emails upon successful processing of a CAP alert message. An email will also be sent when the unit cannot connect to the CAP alert feed (provided that an active internet connection is available) and when the unit successfully reconnects to the alert feed.

NOTE: *To help ensure that emails are received, be sure to add the administrator email address to your email client's "trusted senders" list and ensure that your internet service provider (ISP) or local network settings are not preventing the use of the SMTP utilized for sending emails.*

Known good settings include:
Gmail: <full email address><smtp.gmail.com><587><password> (must request app-specific password if 2-factor auth enabled)
Yahoo!: <full email address><smtp.mail.yahoo.com><587><password>
MS Live Mail: <full email address><smtp-mail.outlook.com><587><password>
GoDaddy Hosted Mail: <full email address><smtpout.secureserver.net><465><password>
1and1 Hosted Mail: <full email address><smtp.1and1.com><587><password>

For other email providers, contact your service provider for server login information.

Print Setup

The option to have CAP alert reports logged to a printer is turned on or off via the checkbox located in the Log Alerts to Printer group box in the display. The default option is to <u>not</u> log alerts to a printer. For this option to function correctly a printer must be correctly installed and specified as the default printer. The CAP-to-EAS Decoder unit has built in support for thousands of USB printers; however, to ensure proper operation of your printer, be sure to follow printer manufacturer's instructions for correct installation and setup.

NOTE *To ensure printer compatibility with the CAP-DEC 1 unit, please ensure that your USB printer is Microsoft Windows 7 compatible.*

If the print option is turned ON and a printer is incorrectly setup or a software printer which requires user interaction (such as filename selection) is configured as the default printer, the software may require user input to proceed with alert processing. This condition may result in missed alerts.

Unit ID Setup

The optional Unit ID field allows you to specify a name or number to identify a particular CAP-DEC 1 unit (by default, the unit serial number). The unit identification appears in the printed and emailed reports to distinguish between reports from multiple CAP-DEC 1 units.
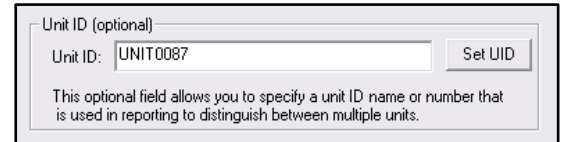
To specify a Unit ID, type the desired identification information into the Unit ID field and click the "Set UID" button.

Text to Speech Setup

The FCC Fifth Report and Order temporarily prohibited the use of text-to-speech (TTS) technology on the receiving end of CAP alert messages. This prohibition has since been reversed and the use of TTS is now allowed.
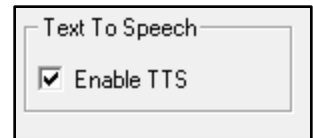
Due to the initial uncertainty regarding the use of TTS, the CAP-DEC 1 interface allows the use of TTS to be toggled on or off. As the prohibition has been lifted pending further consideration, TTS should remain ON.

Time Setup

To ensure correct calculation of alert expiration dates and valid time periods, it must be ensured that the unit is properly configured with the correct date, time and time zone settings. To do this, left mouse click on the clock in the lower right of the CAP-DEC 1 display and choose "Change date and time settings…" From within the resulting display (shown at right), ensure that the correct date, time and time zone are set. After the initial setting, the unit will automatically sync via the internet to ensure that the clock stays accurate.
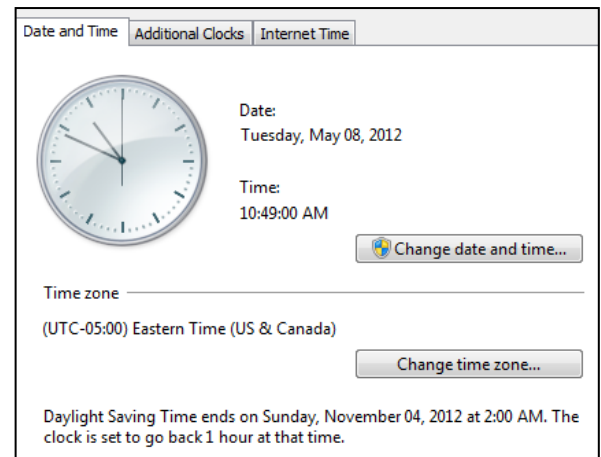
Operation

Once the unit is properly configured as described above, the keyboard, video monitor and mouse used for configuration is no longer required. These items, however, may remain connected for monitoring, future configuration and local log access purposes. Monitoring and configuration may also be achieved by use of an optional KVM switch, VNC technology or other remote access tools (may require additional setup and/or hardware). Operation begins automatically upon unit power-on, boot up and initialization delay.
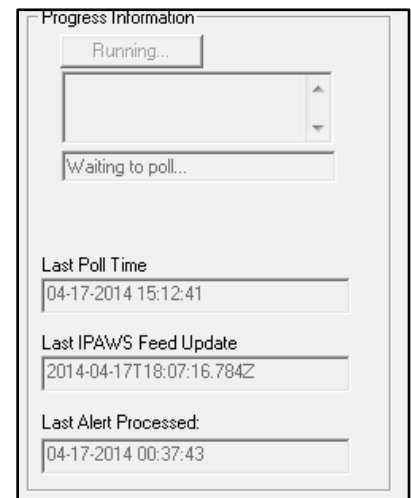
The CAP-DEC 1 will poll the specified CAP alert servers and attempt to process new alerts as described below at a periodic interval. Alert summary logs, original XML CAP alert files and attached resource files are stored locally in the CAPEAS directory of the storage device. Upon successful conversion from CAP to EAS, the unit may print and/or email an alert report based on the unit's settings. *Note that these printed reports do not necessarily replace required EAS logs.*

Alert Feed Polling

The CAP-DEC 1 software will periodically poll the specified alert feeds to check for new messages. Information about the polling status will be displayed on the main software dialog within the *Progress Information* area.

The *Progress Information* section displays the current operation (e.g. waiting to poll, reading feed, processing alerts). Also, the time stamps of the most recent feed polling cycle, the most recent FEMA IPAWS feed update and the most recent alert that was successfully processed are displayed. If the *Latest Poll Time* timestamp is not within a few minutes of the current time, check to make sure that there is not some situation (e.g. an improperly configured printer) which is requiring user input to proceed.

Note that *Last Poll Time* and *Last Alert Processed* are displayed in local time while *Last IPAWS Feed Update* is displayed directly in the format given by the feed, which is UTC.

Message Processing

Once an alert has been received, the CAP-DEC 1 will verify the alert's validity. First, the unit will verify that the message conforms to Common Alerting Protocol v1.2 specifications IPAWS Profile specifications and EAS-CAP Implementation Guide (ECIG) specifications. If the alert message passes this verification step, the message expiration date is checked to ensure that the alert is current. Finally, the targeted area of the alert is checked against the listening area list. The results of these checks are displayed in the *Msg Verified* group box on the user interface. If the message is invalid for any reason, the first reason for failure will be displayed.
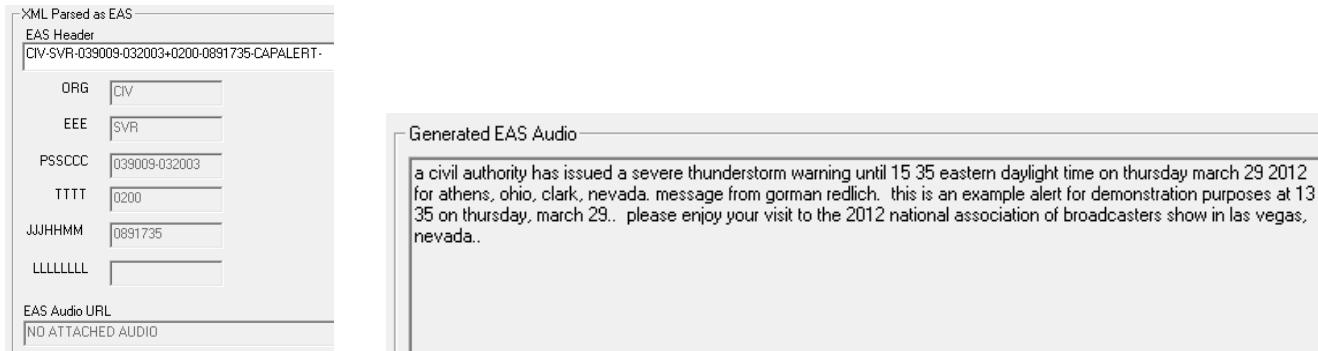
Message Success

If the message passes all of the above checks and it is not a duplicate message, it is then translated into an Emergency Alert System (EAS) header as per the ECIG and transmitted as FSK data tones from the audio jack, along with any associated message audio. If no message audio resource file is associated with the CAP alert and TTS is turned ON, the CAP-DEC 1 will render the CAP "enhanced text" as the audio portion of the message.

The message information is then recorded to the CAP log file. The EAS header, along with the individual
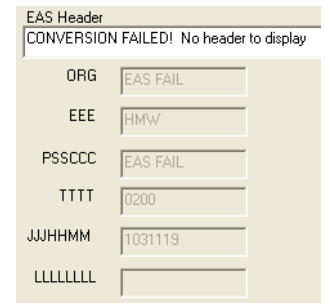
fields of the header and the "enhanced text" are displayed on the user interface as shown below.

CAP to EAS message conversion information, including the constructed CAP "enhanced text"

Message Failure

If the alert message fails the CAP conformity test, the unit will not attempt to verify IPAWS conformity and this fact will be recorded in the log file. If it passes the CAP verification but fails to create an EAS header, this will be displayed in the EAS alert information area of the user interface as well as noted in the log file.

Logging

In addition to the email and print summary logging capabilities described above in the setup section, the CAP-DEC 1 maintains comprehensive local logs of its alert message activity. Logs are stored on the unit's main storage device in the *CAPEAS* directory. These logs may be accessed locally on the unit via connected keyboard, display and mouse interfaces or over your local network from a PC connected to your LAN (as network setups may vary, contact your station IT personnel to set up network file sharing access). Navigate to *C:\CAPEAS* to access these files.

Summary Log

The main C:\CAPEAS directory contains the monthly log files which contain details about each message received. These details include the CAP-DEC 1 unit ID (useful if you are maintaining logs for multiple units), alert source, whether the alert passed CAP 1.2 and IPAWS Profile constraints, the unique alert identifier, whether the alert is within the unit's listening area, whether the alert is current or expired and additional message details. The log also contains the path to a local copy of the original XML formatted CAP message and any attached audio. If the message meets all constraints and is successfully converted into an EAS message, the resulting EAS header string is also included in the log file entry.

Original Message Files

Within the main *CAPEAS* directory is a sub-directory named *log*. The *log* directory holds all of the original XML formatted CAP messages that the unit receives regardless of the success or failure of converting them to an EAS message. If the message includes an attached EAS audio file, it is also stored in this directory. Each entry in the summary log file contains the path to its associated XML alert file and attached audio file (if present) in this directory.

Backing Up and Clearing Log Files

From time to time, it may be desirable to back up log files for long term storage or to clear log files to save space on the local storage device. *Please note that it is the user's responsibility to be aware of record keeping and message log requirements and ensure compliance with them.*

Users may find the log files as described above by navigating to the *C:\CAPEAS* directory on the unit's local storage device using an attached keyboard, display and mouse or via the network from a PC connected to the station's LAN (note that network access and permissions setup is required for this option). Logs may also be accessed remotely via optional VNC interface or a KVM switch (these options may require additional setup and/or hardware).

To backup log files, select the desired log file and the *log* directory and copy/paste them to your desired storage device, such as a USB jump-drive, external hard drive or network location.

To remove log files once backup copies are made, select the desired log file by left-clicking the file icon and pressing *delete* to remove the file. Next, navigate to the *C:\CAPEAS\log* directory. Select *Organize | Select All* from the menu bar or press the *ctrl+A* keystroke combination to select all files within the directory. Press the *delete* key to delete these files, answering "yes" to the dialog window when asked if you are sure that you want to delete the selected files. If the unit has received and logged a very large number of alerts, selection and manipulation of log entries may experience some delay.

EAS Logging

Users may eliminate the need for a physical printer attached to their EAS units with the EAS Monitoring software by Daniel Bissett. Please refer to http://gorman-redlich.com/PDF/EASMonitorGuide.pdf for details on using this software

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