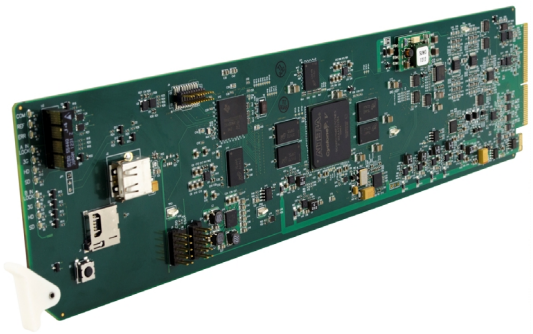
Option



Emergency Alert System Text Crawl Generation Option (+EAS) Manual Supplement

COBALT

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Option

⚠	**Read and understand** the content of this supplement and all setup procedures herein before implementing the Emergency Alert System (EAS) functions described herein for practical use. Proper and expected EAS crawl insertion **must** be manually observed and verified upon setup and subsequently during a regularly scheduled EAS test (and optimally upon any actual emergency communications). More information regarding EAS requirements and practices are specified and promulgated in USC CFR 47 Part 11.

Overview

This manual supplement provides descriptions and operating instruction for the **+EAS** Option available as an option on various new Cobalt® cards and BBG-1000 standalone units, and as a purchased field-installed licensable feature upload for the same models. Compatibility of this option for various card and device models is indicated on the web page for the card or device.

+EAS Option Functional Description

(See Figure 1.) Option **+EAS** provides for automated keying Emergency Alert System (EAS) text crawls in the active program video output. The function receives its text stream via a card serial data input. The EAS crawl start can be set to trigger upon receiving the serial data message, or be set to use a GPI to trigger start of the EAS crawl.

Embedded in the received serial data are commands which set the message severity to be shown by the keyed crawl (severity is correlated to user-specified text color and background color for the crawl). User controls allow control of the crawl speed and repeat of the crawl burn-in (if desired).

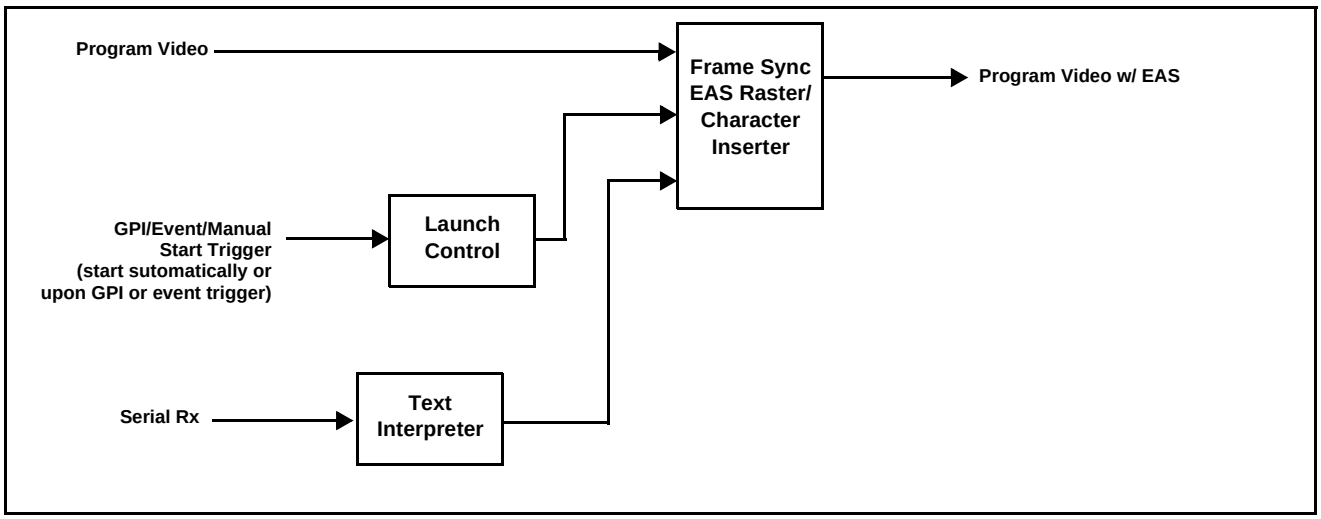


Figure 1 EAS Simplified Functional Diagram

+EAS Interconnect

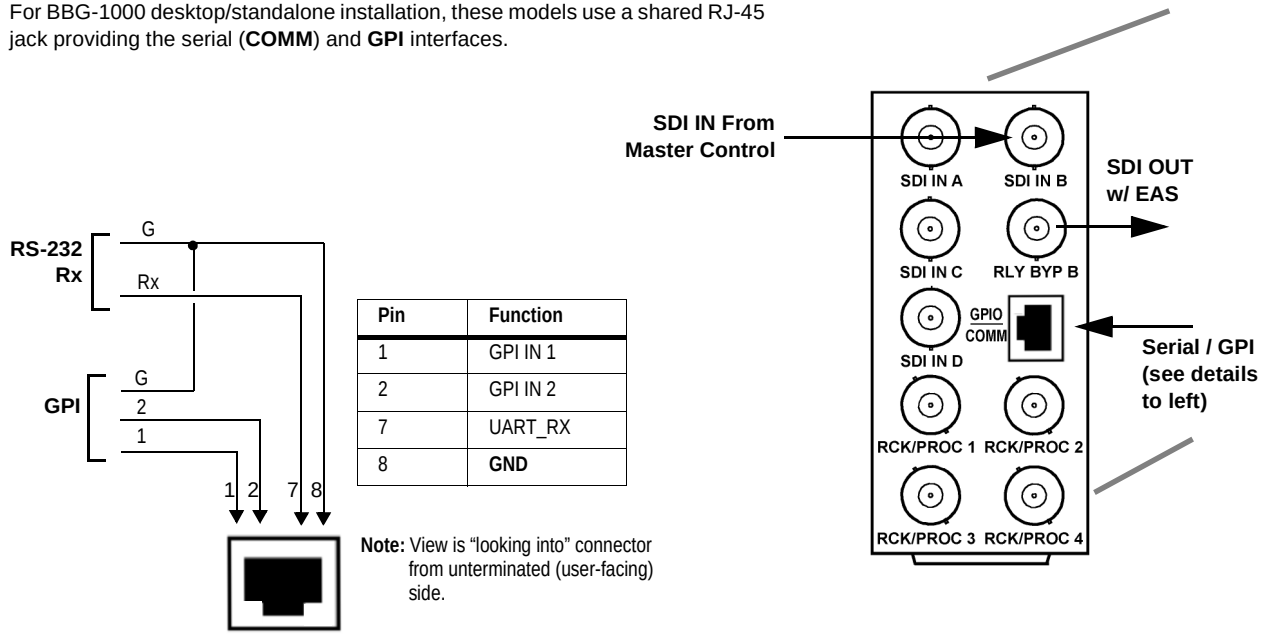
Option **+EAS** is intended for use with external EAS alert systems which provide both a logic GPI trigger (optionally) as well as a serial data output in which coding is present that indicates severity level, as well as providing the user-facing text string that is used for the alert burn-in.

Figure 2 shows typical interconnection between the external EAS alert system and the card/device hosting the **+EAS** option.

For systems where an openGear® card is hosting the **+EAS** option, a rear module with both GPI and serial (COMM) interfaces must be installed in order to use the **+EAS** option. Consult "Rear Modules" in card Product Manual or the card's web page for rear module assortment and descriptions available for the card.

For openGear® (card-based) installation, card slot must be fitted with a rear module that offers both serial (**COMM**) and **GPI** interfaces. In this example, these interfaces are broken out via shared RJ-45 connector **GPIO / COMM**.

For BBG-1000 desktop/standalone installation, these models use a shared RJ-45 jack providing the serial (**COMM**) and **GPI** interfaces.



Pin	Function
1	GPI IN 1
2	GPI IN 2
7	UART_RX
8	**GND**

Note: View is "looking into" connector from unterminated (user-facing) side.

Figure 2 Typical Interconnections For EAS GPI / COMM Rx

Uploading Option Feature (Field Upgrade Only)

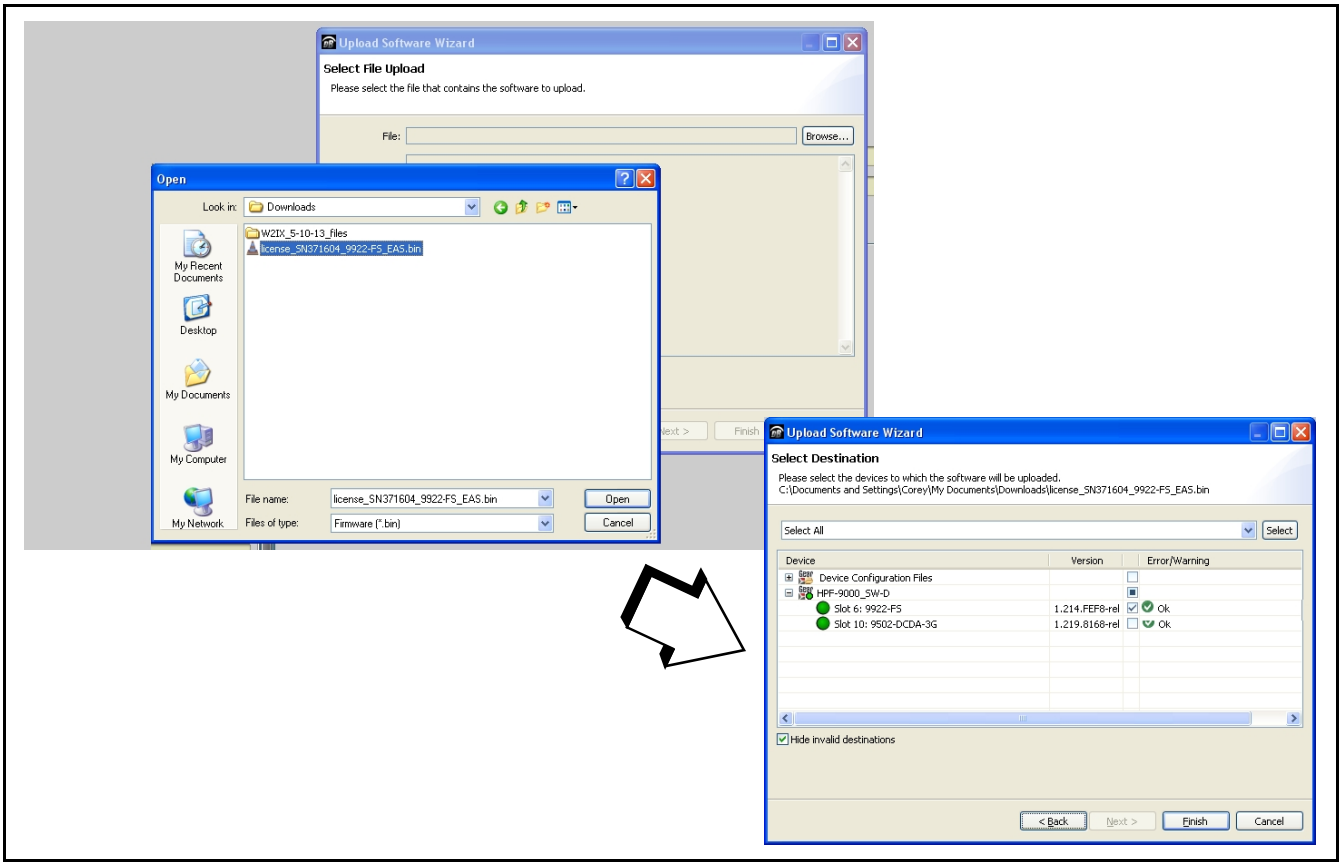
Note:
- If your card/device was purchased with the option(s) covered here, this procedure is not required for your card/device. If you have purchased this feature to be field-installed on an existing card/device, perform the upload procedure here to upload the feature key file sent by Cobalt, and to activate the feature on your card.
- To order features and obtain a license key, contact Cobalt® sales at sales@cobaltdigital.com or at the contact information on the cover of this supplement. Please provide the Serial Number of your card (displayed in the Card Info pane) when contacting us for your feature key. A key is tied to the card's serial number and will only work with that card. Please indicate if upgrades are needed for more than one card.

Activate licensable feature as described below.

1. Cobalt typically supplies a .bin file (by e-mail; file size < 10kB) that activates the licensable feature. Download this file to a convenient location on a computer connected to the card's frame (or BBG standalone network).

Note: During this procedure, the card will go offline while the feature is installed. Make certain card is not carrying OTA signal.

2. In DashBoard for the card being upgraded click the **Upload** button and browse to the feature license file (in the example below, *license_SN371604_9922-FS_EAS.bin*).



3. Select the file, click **Open** and then follow the prompts. With intended card selected ("Slot 6 9922-FS" in example above), click **Finish** and wait for completion and click **Close**. When the card comes back online, the feature appears in the DashBoard controls and is ready for use.

Note:
- Applying the licensable feature has no effect on prior settings. All control settings and drop-down selections are retained.
- Added features, when first appearing after installation, are set to their factory default states. For features having a direct impact on the output signal, all controls are initially set to disabled or null.

Serial Text Formatting for Option +EAS

Figure 3 shows the typical serial coding used in a Sage™ ENDEC message sent by the device to be received as encoded text by a receiver such as **+EAS**. Present in typical EAS serial data received by option **+EAS** is a reserved severity character at the start of the string (see below). This character sets the crawl graphic attributes to the attributes user-selected using the **EAS > Crawl** sub-tab attribute controls for the three severity levels.

Note: If the received message does not contain the severity marking character, Severity 1 will be assumed and attributes assigned to Severity 1 (per the **EAS > Crawl** sub-tab settings) will be used.

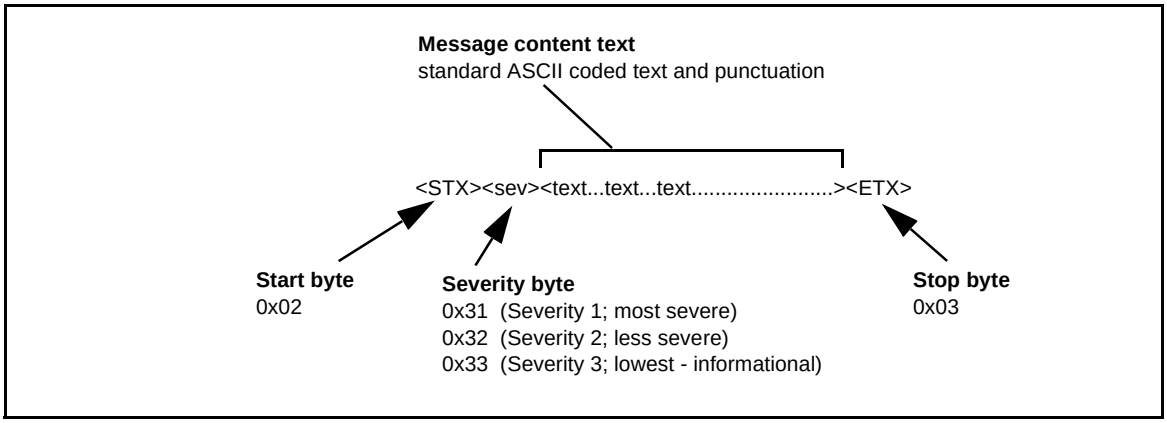


Figure 3 Typical EAS Text Message Coding

+EAS Controls and Examples

Table 1 individually lists and describes the EAS controls available using DashBoard™ for cards/devices equipped with the **+EAS** option.

Table 1 +EAS Option Control List and Descriptions

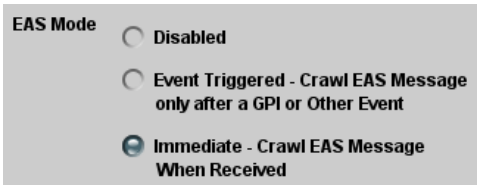
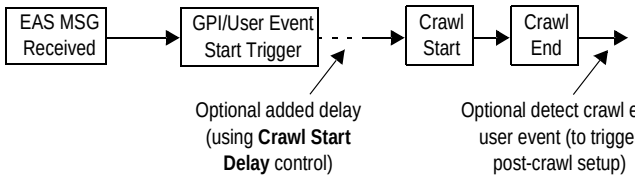
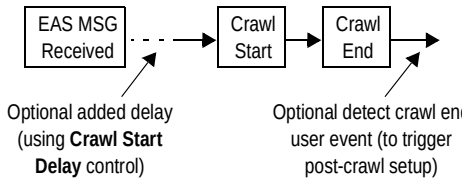
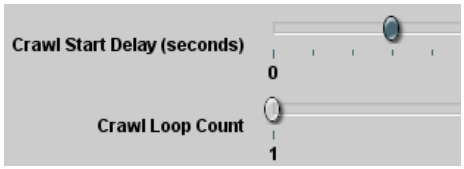
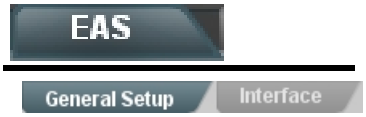
	Provides master controls that direct the playout of all EAS insertions, including triggering mode, as well as and crawl speed and looping. Also provides an event log.
• **EAS State (Status)** 	Displays status of crawl activity. When crawl is not currently being inserted, shows “Crawl Stopped”.
• **EAS Triggering Mode Select** 	Selects how EAS is played out when a trigger is received as follows: • **Disabled** – EAS is never played out regardless of received triggering. In the Event Setup table, no EAS-related events will be generated or triggered upon. • **Event Triggered** – EAS text string will be received and buffered, but will be played out (inserted into key) only when an accompanying trigger is received.  This is useful in cases where some time is required to acquire the entire text string before playout can be executed. For external systems where this is a concern, a GPI signal is typically provided as a “ready-go” signal to activate the crawl. (See Event Setup Controls, p. 10 for an example of GPI triggering setup.) • **Immediate** – EAS text string will start playout as soon as the complete message text is received.  **Note:** The **Crawl Start Delay** control described below can be used to buffer the playout start for systems where the separate GPI trigger described above is not available, but delay may still be desired.
• **Crawl Start Delay and Loop Control** 	• **Crawl Start Delay** sets the delay (in seconds) from when text is first received to when the playout insertion is executed. • **Crawl Loop Count** sets the number of times (from 1 to 3) the active crawl insertion will be repeated for a given message. **Note:** For a given EAS message/event, an automated or external stop control is not necessary to stop the crawl. Crawl key insertion and scroll will stop and normal video will resume when the **Crawl Loop Count** is exhausted.

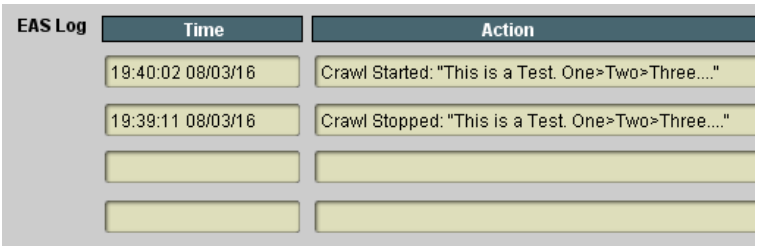
Table 1 +EAS Option Control List and Descriptions — continued



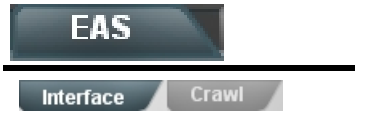
(continued)

- **Activity Log Display**

Displays a log of the four most recent EAS insertion actions.



In the example here, log shows a complete cycle for one message event, consisting of a crawl start and crawl stop.

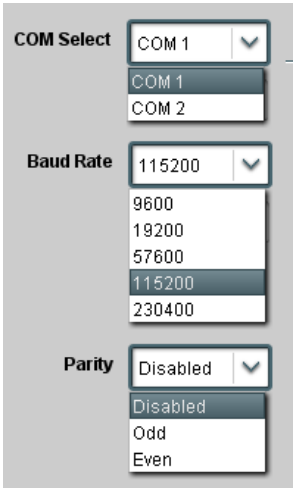


Provides controls for setting the serial comms details for the interface between the external EAS system and the +EAS card/ device. Also shows the message text and severity level for a queued message.

- **Message Displays**

Displays queued text string as well as associated severity status. **Clear** allows status display and the corresponding message to be cleared. If a crawl is currently in progress, clicking **Clear Queued Message(s)** will stop the crawl immediately.

- **COMM (Serial) Setup Controls**



For EAS Rx, sets COMM receive for port, bit rate and parity as shown.

Note: Where rear module exposes only one COMM port, set control here to use **COM 1**.

Table 1 +EAS Option Control List and Descriptions — continued

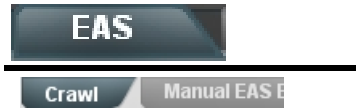
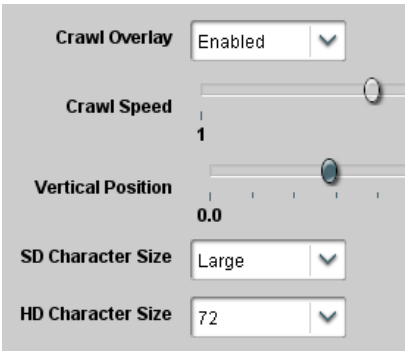
	Provides controls for setting the crawl speed, positioning within the active raster, as well as character and background size/ appearance attributes.
• **Crawl Text Attributes** 	Allows setting crawl text speed, burn-in position, and character size as follows: • **Crawl Overlay** – Provides master enable/disable for crawl key/text burn-in. • **Crawl Speed** – Sets the relative speed at which the text scrolls from right to left across the burn-in background key. (Setting “1” is slowest and “6” is fastest.) • **Vertical Position** – Sets the vertical position of the full-width burn-in background key and text (text is always centered vertically within the background banner key). (Setting “0” positions the burn-in at top of image.) For SD usage, burn-ins positioned near the top of the active image will impinge on and corrupt line 21 closed-captioning waveform. Make certain burn-in is not positioned in this area. (Position control set greater than **1.0** avoids this issue.) If position is set too much in the bottom direction (greater control settings) in some cases the burn will not appear in the active raster. • **Character Size (HD, SD)** – **SD** controls selects from Small or Large choices for SD program video. **HD** control selects from 16 px to 234 px choices for HD program video.
• **Text/Background Color Select** 	Allows setting the text and background colors from various choices for each of three Severity levels. (See examples in this section.) **Note:** Color selection is subjective and not necessarily dictated by any requirements. However, it is recommended that **red** be used for **Severity 1** level.

Table 1 +EAS Option Control List and Descriptions — continued

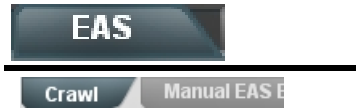
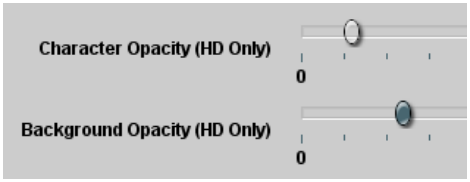
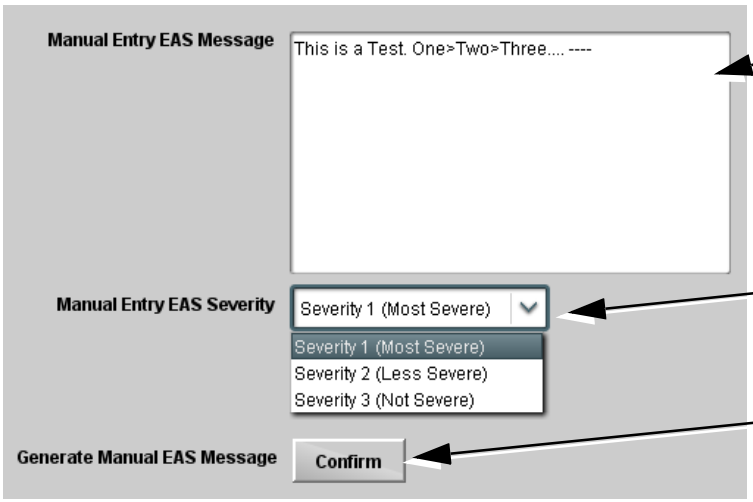
	**(continued)**
• **Text Opacity Control (HD Only)** 	For HD programming, allows setting the opacity of text and background. (See examples in this section.) **Note:** Typically, it is recommended to have **Character Opacity** (text) set at the maximum setting for optimal readability in most cases.
 	Crawl insertion spans the entire raster width in all cases, with text scolling from right to left. In the example here, **Vertical Postion** is set to 80 (appr. 80% down from top). In the example here, Background Opacity is set to 50%.

Table 1 +EAS Option Control List and Descriptions — continued

EAS Manual EAS Entry	Allows manual actuation of EAS test insertion. This is useful to test and assess visual impact and aesthetics of burn-in for all three Severity levels. Actuation here does not require any external EAS assets or interconnection.



Entry area/pad for manual message insertions text

Selection sets the type of message to be inserted in manual test

Pressing **Confirm** and confirming with prompt immediately starts the burn-in insertion on the output raster

Note: • The manual EAS entry function described here can be used in an emergency if automated assets are not present or functional.

• If **EAS Mode** (insertion mode) is set for **Event Triggered** (as described in **EAS > General Setup**, p. 5), Generate Manual EAS Message using controls here won't work (the message insertion will be "waiting for" a GPI or other configured trigger). To insert or test using manual generate, make certain **EAS Mode** is set to **Immediate**.

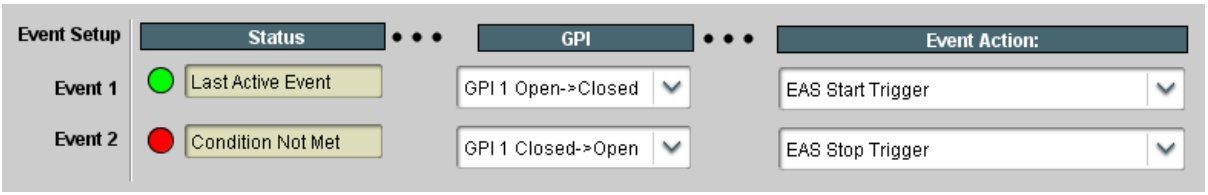
Table 1 +EAS Option Control List and Descriptions — continued

Where +EAS is licensed for a card/device, the **Event Setup > Event Triggers** sub-tab has added choices associated with EAS actions.

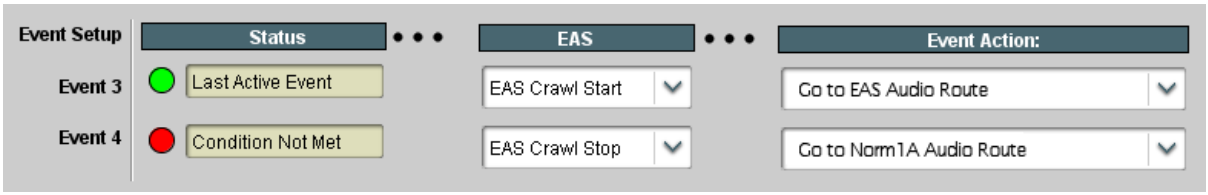
An added **EAS** trigger column exposes EAS actions that can be used as triggers to activate other actions. These triggers and actions can be used with other card/device attributes to step into and out of EAS modes and normal operation (as shown in the example below). The Event Action column also has choices that allow actions upon other triggers (such as GPI) to start and stop EAS (also shown in an example below).

In the example here for **Event 1** and **Event 2**, GPI 1 is being used to start (and optionally) stop the crawl when **EAS > General Setup** is set to use Event Triggered operation. Note that while the Event 2 **EAS Stop Trigger** is not necessary to stop the crawl, the defined event here is useful should the need arise to abort the crawl sooner than its full content playout (as in the case of an erroneous “false alarm”). (A GPI correlated to an EAS Stop Trigger can be used to immediately stop a crawl even if all the crawl text has not yet been displayed.) Also note that EAS crawl for a given message ceases after the Crawl Loop Count is exhausted.

Note: Although EAS Start Trigger starts an EAS text crawl, if no EAS message has been received, no text crawl will be generated.



In the example here for **Event 3** and **Event 4**, when a **Crawl Start** or **Crawl Stop** event has been detected, these events can serve as triggers to respectively invoke user preset “Go to EAS Audio Route” or “Go to Norm1A Audio Route”. These presets would be user-defined presets that perform special audio routing when a crawl is active, and resume to normal after the crawl has stopped.



Note: • Refer to Product Manual for detailed descriptions of the Event Setup tab and its sub-tabs, which contains important information regarding the use of event presets and actions.

Table 1 +EAS Option Control List and Descriptions — continued

Logo Insertion	Provides logo insertion (such as station ID "bug") to be inserted into output raster. Logo insertion can be correlated to triggers such as GPI in conjunction with the Event Setup controls.

Note: This feature, while part of the +EAS licensed option, is **entirely independent of +EAS setup and functions**. While logo insertion can be correlated with EAS functions (using the Event Setup controls), the primary use case for logo insertion is hourly station ID insertions (as triggered by a GPI separate from EAS control functions).

Uploading Your Logo Image to Cobalt Card or BBG-1000 Device

A user memory area for images is reserved in the card/device. A standard .png file is converted to a .bin file which is uploaded to the card/device, where the .bin then provides the logo graphic used by the card/device. The conversion consists of an online tool that takes in a .png and outputs the image .bin file which is then uploaded to the card/device as described in the steps below.

Note: • Your file **must** be a **.png** file with a .png extension.

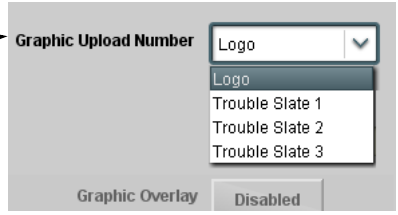
- No scaling is applied or available using the generator tool. (For example, if a 100 x 100 pixel image is uploaded to the tool, the image overlay will also be 100 x 100 pixel regardless of program video format or raster dimensions.
- Transparency aspects in your native file are preserved in the generator conversion.

Use the conversion tool as described below.

1. With your .png sized as desired for insertion, go to **http://a-cdi-eng/com:55080/cgi-bin/image_upload.py**.

2. Using **Graphic Upload Number** drop-down on **Logo Insertion** tab, select the DashBoard graphic ID where you want the image to be available (for logo insertion, choose the **Logo** item).

This drop-down selects under which DashBoard name (**Logo** thru **Trouble Slate 3**) the uploaded graphic will be associated with. (For Logo Insertion here as described here, use **Logo** choice. Depending on card/device options loaded, choices other than Logo may not appear.)



3. Browse to your file. A prompt will appear to save the generated .bin file. Select Save (or Save As) to store the generated file in your desired folder. Close the tool when done.

4. In DashBoard on the card/device page, click **Upload** to upload the image file to the card/device. Follow the prompts to browse to and upload the file.

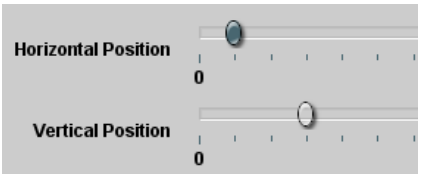
5. The image is now ready to be used by the card/device.

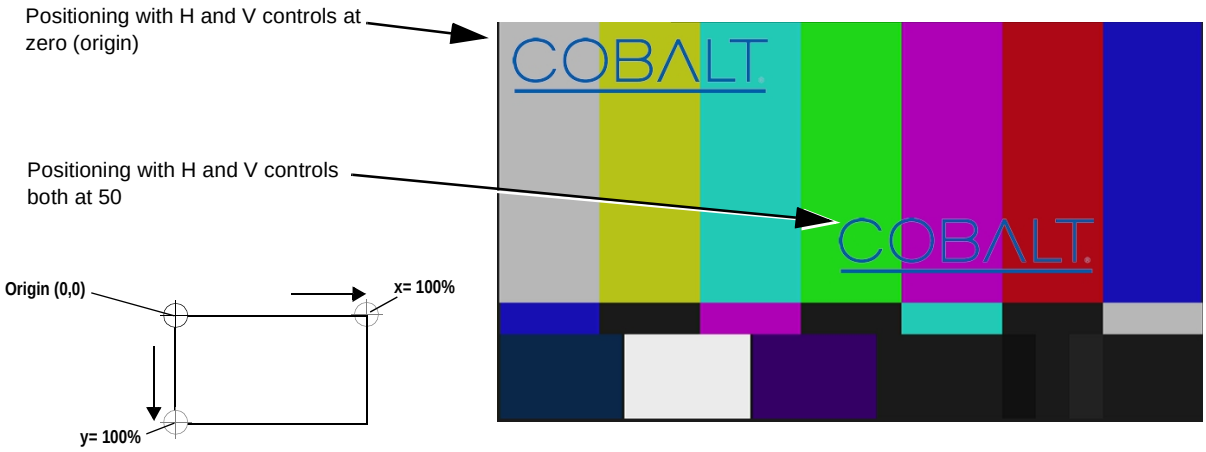
- **Logo Overlay Test Control**

- **Graphic Overlay (Disable/Enable)** allows the selected graphic to be manually test inserted to assess aesthetics and positioning.
- **Graphic Overlay Status** shows if a graphic file associated with the DashBoard graphic name ("Logo" in this case) is loaded and ready for use.

Note: Make certain control is set to Disabled after assessing manual insertion. The graphic can then be inserted using automation as described further in this section.

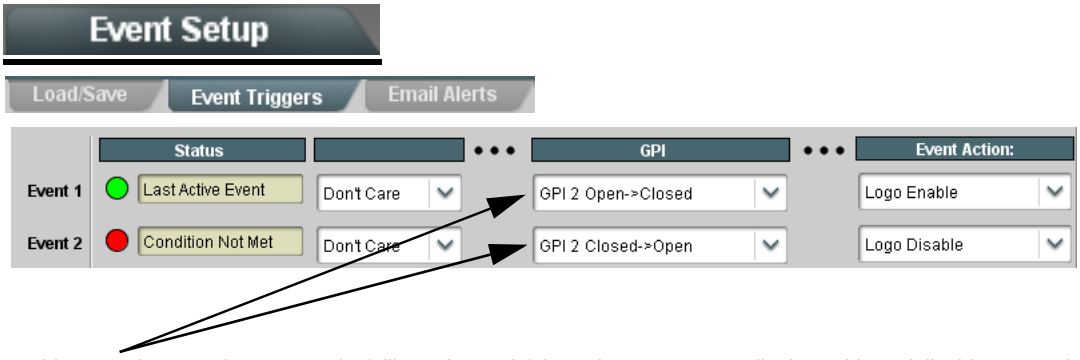
Table 1 +EAS Option Control List and Descriptions — continued

Logo Insertion	**(continued)**
• **Logo Positioning Controls** 	Sets logo burn-in position as follows: • **Horizontal Position** sets horizontal position (in percentage of offset from left of image area, left justified). (Range is 0 thru 100) • **Vertical Position** sets vertical position (in percentage of offset from top of image area, top justified). (Range is 0 thru 100)



Station ID Logo Insertion Setup Example

A card/device GPI is ideally suited as the trigger to enable and disable station ID “bug” insertion. The example below shows the setup using the Logo Insertion tab along with **Event Setup** tab to use a GPI to perform this function.



In this example, GPI 2 is set to use its falling-edge and rising-edge to correspondingly enable and disable Logo using the **GPI** and **Event Action** columns. (All other columns are set to Don’t Care for the function in this example.)

Integration with Cobalt Option +TTS

Option **+EAS** can be co-installed on Cobalt cards and BBG-1000 standalones that are also licensed with Text-to-Speech Option **+TTS**. The same GPI (or other control signals or conditions) used for EAS triggering can also be used (to a large extent) for TTS triggering if desired. On any model where **+EAS** is available, **+TTS** is also available.

If using **+EAS** in conjunction with **+TTS**, care should be taken to make certain the text fed to **+TTS** and **+EAS** is identical.

Troubleshooting

This section provides troubleshooting information specific to the **+EAS** function (for general troubleshooting information, please refer to the Product Manual for the card or device). If any error indication (as described in this section) occurs, use this section to correct the condition.

Table 2 Troubleshooting Processing Errors by Symptom

Symptom	Error/Condition	Corrective Action
Manual EAS insertion does not work	EAS Start bound to other action (such as GPI)	For manual insertion mode (**EAS > Manual EAS Entry** > Generate Manual EAS Message), EAS Mode must be set to **Immediate**. (See **EAS > General Setup**, p. 5.) If EAS insertion requires an event to trigger, EAS won't play out unless the specified event occurs.
Automated EAS insertion does not work	• EAS insertion not enable in DashBoard	• Default EAS controls set EAS insertion to disabled. EAS must be set to mode other than Disabled in two places: - In **General Setup** subtab, make certain EAS Mode is set to desired mode other than Disabled (see **EAS > General Setup**, p. 5). - In **Crawl** subtab, make certain Crawl Overlay is set to Enabled (see **EAS > Crawl**, p. 7).
	• Message not received	• All messages propagated via the COM connection should show up in the Queued EAS Message Text status field in the **EAS > Interface** subtab. If expected message is not present, this means message was **not** received. Check COM settings, connections, and upstream alert device(s). **Note:** A Manual Entry test is useful for distinguishing COM setup/data errors from other setup errors. Perform manual test first whenever COM error is suspected (see **EAS > Manual EAS Entry**, p. 9.)

Table 2 Troubleshooting Processing Errors by Symptom — continued

Symptom	Error/Condition	Corrective Action
Entire message (from start to end) not displayed, or message is truncated	Message start or stop occurs before message is ready or ended	An EAS Event Triggered mode should be used where serial data make take a relatively long time to accumulate in the card/device hosting EAS. GPI triggering can be used to then launch to insertion. Also available is using the Crawl Start Delay control to hold off on immediate message playout. See **EAS > General Setup**, p. 5. for more information.
Log indicates insertion performed, but insertion is not visible in output raster	Insertion positioned too low in raster for format being carried	On the **EAS > Interface** subtab, if the Vertical Position control is set too close to maximum (100.0), the crawl may not be visible in the active image area. See **EAS > Crawl**, p. 7 for more information.
Closed captioning on SD output raster shows errors or visible corruption during EAS insertion	Insertion vertical position impinging on line 21 closed captioning space	For SD usage, burn-ins positioned near the top of the active image will impinge on and corrupt line 21 closed-captioning waveform. Make certain burn-in is not positioned in this area. (Position control set greater than 1.0 avoids this issue.)

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