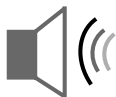

The NWS has issued a
Severe Thunderstorm
Warning for James County



Option  **+TTS**
Text-To-Speech



**BLUE
BOX**

Text-To-Speech Option (+TTS) Installation/Setup Manual Supplement



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Manual No.:	OPT-TTS-MS
Document Version:	1.3
Release Date:	January 27, 2016
Changes:	Update for addition of option +2I-SPAN and other enhancements.

Overview

This manual supplement provides setup and operating instruction for option **+TTS**. Cobalt Digital **+TTS** is a complete 21CVAA digital text-to-speech generation / audio insertion solution for embedded and discrete audio systems. **+TTS** is a software option available for many Cobalt card models using the 20-slot openGear® frame architecture (and available for numerous BBG-1000 Series standalone desktop units). Platforms utilizing existing openGear® infrastructure can be 21CVAA-ready with only an easily incorporated option feature upload to the card. For platforms not utilizing an existing openGear® infrastructure, the BBG-1022-FS with option **+TTS** rack-mounted 1RU solution can be used for compact, straightforward integration into a broadcast facility. Option **+2L-SPAN** adds both a masculine and feminine Spanish voice choice suited for use with Spanish-language playout text sources.

- Note:**
- Spanish-language option **+2L-SPAN** provides optimized Spanish-text processing and aural presentation. It does **not** provide translation to/from English-to-Spanish.
 - If **+TTS** is already installed, addition of **+2L-SPAN** requires SD library card to be replaced with a new card (supplied with option **+2L-SPAN**) that contains the added Spanish libraries. (See Installing Library SD Card onto Host Card, p. 7 for SD card installation instructions.) Existing English-language voices are included with the option **+2L-SPAN** upgrade license.

+TTS interfaces with industry standard Windows Share folder systems to receive non-proprietary text, XML, or similar plain text files, and converts and inserts realistic human-voice audio into user-configured audio channels (typically an SAP channel pair intended for this playout). **+TTS** allows for prioritization based on the organization's discretion (for example, severe weather alerts out-prioritizing school closings). Alert tones are inserted over the main program channels to alert the visually impaired that emergency content is to occur on the SAP channel. Alerts can be played a configurable number of times, and alerts with higher priority can interrupt current lists for breaking news. Once the interrupt message is broadcast, **+TTS** automatically reverts to normal audio programming. Compatible Cobalt cards and standalones offer the synergy of also providing keying to support keyed text scrolls when used in conjunction with option **+KEYER**.

+TTS Option Functional Description

(See Figure 1.) Option **+TTS** interfaces with ASCII text or XML-tagged data files located in Windows Share folders. The voice synthesis library and processing is local to the hosting card or device.

The Windows Share folders are directed to Watch Folders, in which whenever a file appears in the watched folder, this indicates the file is ready for use and queues for playout by the TTS synthesis engine.

In the case where more than one file is queued, the three Watch Folders are prioritized such that Watch Folder 1 has the highest priority, with Watch Folder 3 having the lowest priority (for example, Watch Folder 1 would handle severe weather alerts, while Watch Folder 3 might handle school closings).

The option also provides for interpreting a separate GPI signal which effects the incorporation of ducked program audio with warning tones and the synthesized speech being predominate audio in a user-selected SAP channel pair(s). The TTS audio can be routed to SAP embedded or AES output audio channels. All audio synthesis and routing is internal to the hosting card or device; no external baseband is used in the routing.

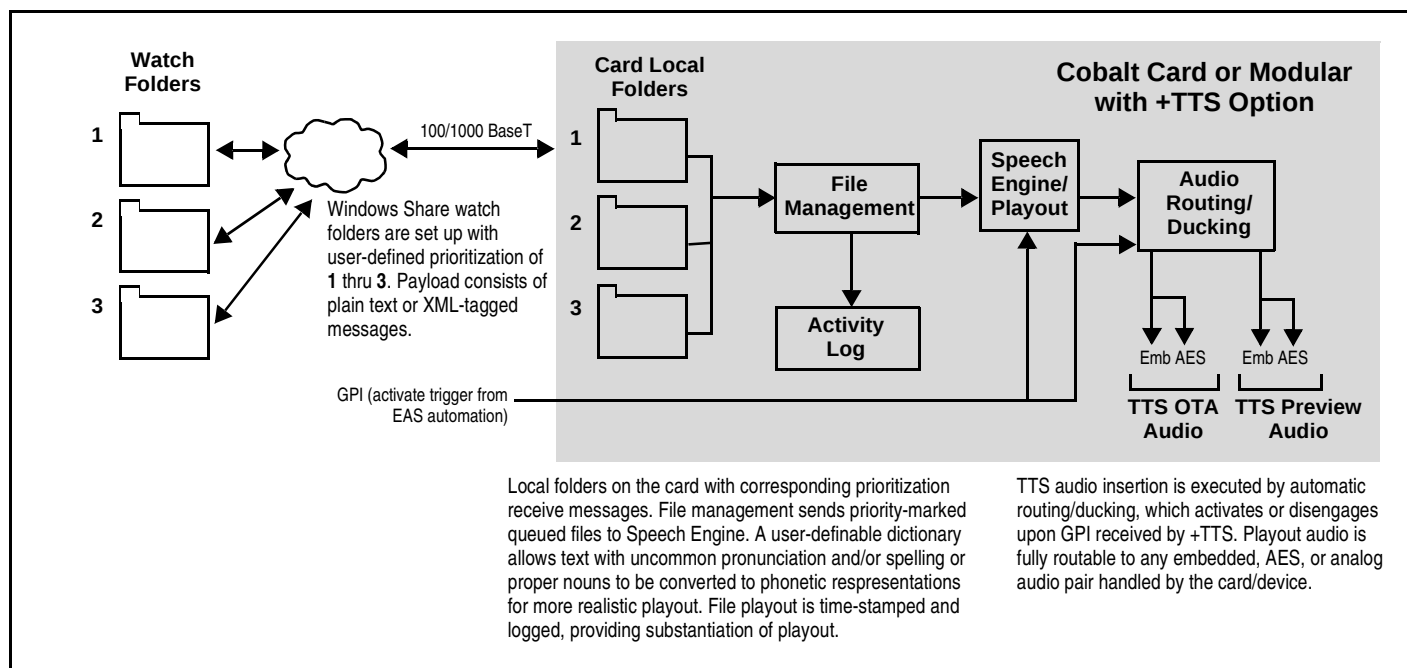


Figure 1 +TTS Simplified Overview

Option **+TTS** provides for both tone insertion and text insertion. Typically, warning tones always precede an aural message to make certain listeners/viewers know the message is an alert. As such, **+TTS** can be set up for tone and text insertion, with different ducking levels for both tone and text synthesis as well as delay from tone cessation to start of text message.

A built-in user-definable dictionary can substitute plain phonetic spelling for hard-to-decipher words and proper noun phonetic emphasis. User-configurable folder prioritization allows higher-priority alerts to preempt lower alerts, with queued resumption of lower alert upon end of higher alert (three levels of priority are provided). Playback triggering can be from watched folder activity (new file), GPI, or manual intervention. An English-language speech engine is standard, with several male and female voice choices available as a user setting. Fine-tune controls allow tailoring message speed, pitch, and other aural aspects.

+TTS Facility Integration Overview

(See Figures 2 and 3.) **+TTS** and its host card/device physically interfaces with the facility EAS automation and program stream using the following interfaces:

Note: The descriptions below are for physical (wiring) connections between facility EAS assets and the Cobalt +TTS host card or device. Also included is an overview of facility assets required for the Windows Share folder system required to use the +TTS option. Controls and settings specific to the hosting device are described in +TTS Option Host Controls and Settings, p. 7.

- **Ethernet** connection to Windows Share folders on EAS automation server (provides text to be synthesized by **+TTS**). (Mac OSX and Linux are also supported.)
- **GPI** received from EAS automation (provides trigger to effect ducked program audio and assert warning tones and synthesized TTS audio, and resume to normal audio at cessation).
- **Program video SDI path** – The host device must be inserted into the video path to embed TTS audio on the SAP channel pair.

Ethernet Physical Interface

The hosting Cobalt card or BBG-1000 series standalone device uses 100/1000 BaseT Ethernet interface to connect with external devices that provide EAS warning text.

- On BBG-1000 series standalone devices (such as the BBG-1022-FS), this is the same physical port as the device control port.
- On openGear[®] card-based versions (such as the 9922-FS card), a Rear I/O Module with a card-specific dedicated Ethernet port must be used (unless hosted by a frame that allows card-specific Ethernet connections via the frame)

Note: When ready to activate option, refer to Admin settings instructions in Admin, p. 18. These instructions set the host card/device for DHCP or a user static IP address.

GPI Physical Interface

The hosting Cobalt card or BBG-1000 series standalone device uses GPI received from the EAS automation system to effect EAS audio insertion (normal program resumption following a TTS sequence is automatic unless another action is propagated). The GPI is monitored by the hosting card/device which, in turn, the device/card uses to invoke a pre-configured TTS audio routing setup that automatically sets the device/card to insert the EAS TTS audio on a user-selectable SAP channel pair. Figure 3 shows GPI connections to GPI 3-terminal Phoenix connectors and RJ-45 GPI connectors (either type may be present depending on model).

SDI Physical Interface

With TTS to be inserted on a SDI embedded channel pair, the hosting device/ card is inserted in the program video SDI path in a daisy-chain arrangement.

Note: Cards and devices that host +TTS are available with SDI signal paths using bypass relay protection, helping ensure signal pass-thru should the host device experience a power loss or other issue.

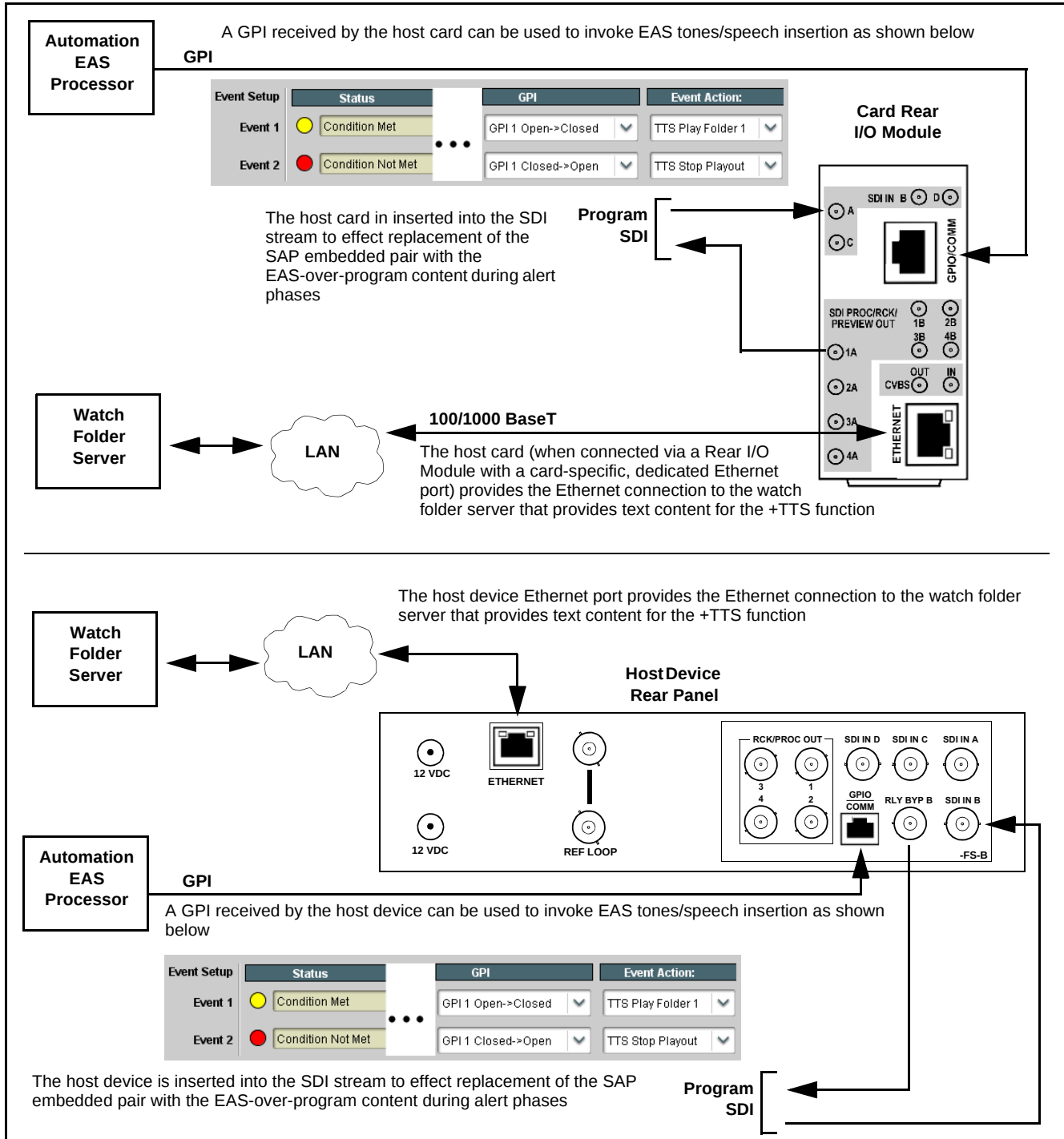


Figure 2 Typical Facility Integration (openGear Card-Based and BBG-1000 Series-Based +TTS Hosts)

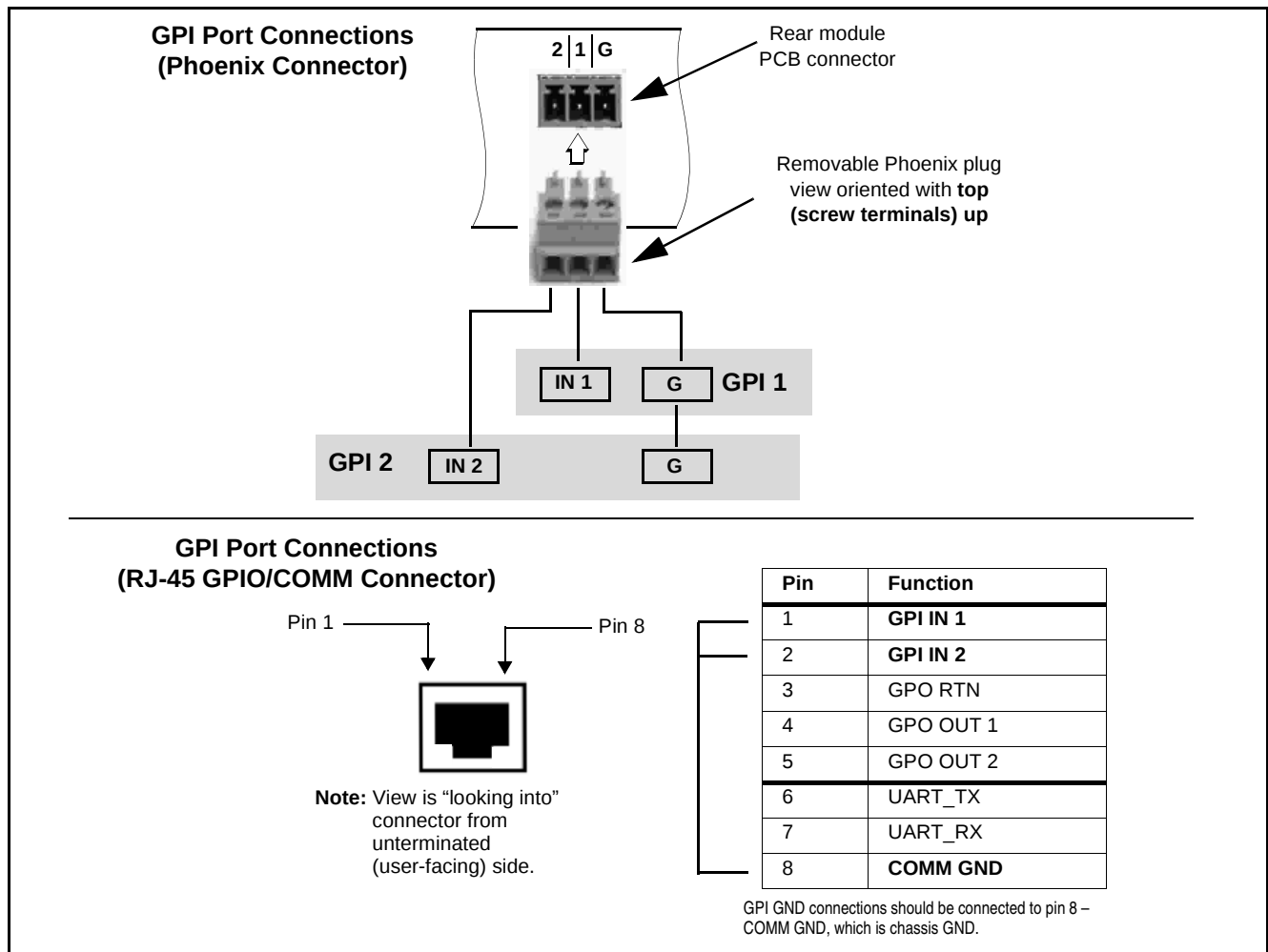


Figure 3 GPI Connections to Rear I/O Modules or BBG-1000 Rear Panel

Watch Folder Network Setup

Note: Although some example information regarding Windows Share setup is provided here, it is beyond the scope of this document to provide basic instruction regarding this function. Personnel performing this setup should have necessary experience and skill in this area before attempting Windows Share setup.

GUI controls provide selection of watch folder environments as either Local or Network folders.

- **Local** folder integration – an SSH pointing to the card or device’s TCP/IP address sets share to push files to this address.
- **Network** folder integration – a network share is set up that matches your environment. The card or device then watches these folders and takes files in for payout as the file(s) become available.

These UI controls and fields are described in detail in +TTS Option Host Controls and Settings, p. 7.

Installing the +TTS Option (Field Upgrade for openGear Cards)

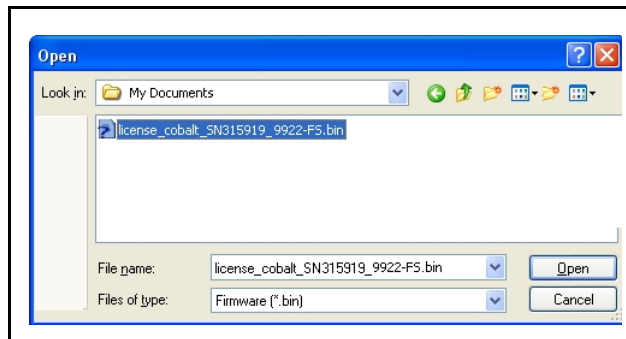
If **+TTS** is being installed as a field upgrade, the upgrade process consists of:

- Uploading the **+TTS** option license to the card.
- Installing the library SD memory card module on the host card.

Note: Option +TTS is available only on new BBG-1000 series models, or by returning the unit to Cobalt for option installation.

Uploading +TTS Option License File to Card

1. Copy the option upload file received from Cobalt in a convenient location on a computer connected to the frame hosting the card that is to receive the option (“target” card).
2. With the target card selected in DashBoard, click the Upload button and browse to the feature license file (in the example below, license_cobalt_SN315909_9922-FS.bin).



3. Follow the on-screen prompts. With intended card selected (“Slot 18 9922-FS” in example above), click **Finish**. When the card comes back online, the feature appears in the DashBoard controls.

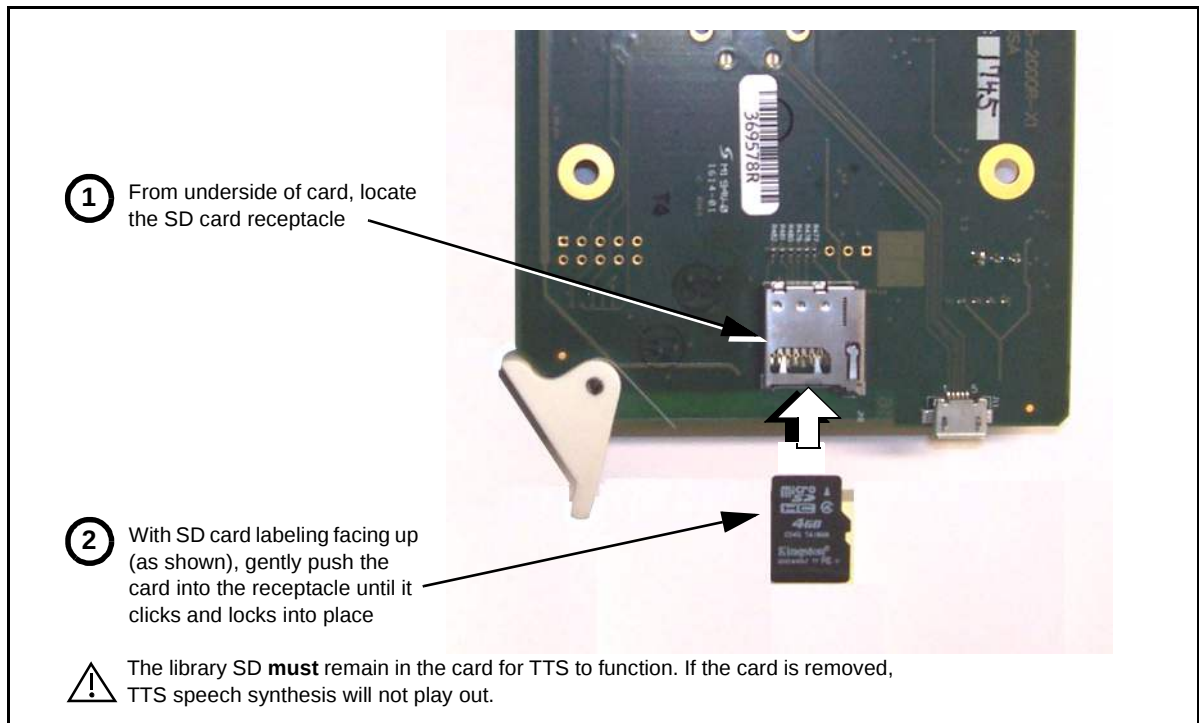
Installing Library SD Card onto Host Card

Option **+TTS** requires a synthesis library card to be installed on the host card. Install the SD card as shown and described below.



Electronic device or assembly is susceptible to damage from an ESD event. Handle only using appropriate ESD prevention practices.

If ESD wrist strap is not available, handle card only by edges and avoid contact with any connectors or components.



+TTS Option Host Controls and Settings

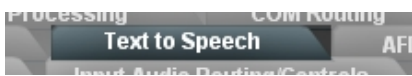


Table 1 individually lists and describes the DashBoard™ controls for performing card/device setup using the **+TTS** option. Where helpful, examples showing usage of a function or setting are also provided. All controls here are accessed using the **Text to Speech** tab which appears on cards/devices equipped with the **+TTS** option. These controls provide the following functions:

- Set the host card/device to interface with the Windows Share folder system (set up as described in Watch Folder Network Setup, p. 5).
- Provide an audio preview of TTS message(s).
- Allow tailoring audio synthesis of unconventional-pronunciation words or proper nouns with replacement to phonetic substitutes, as well as voice selection and pitch/speed trim.
- Setup of tones and TTS audio routing to desired playout channels.

- Note:**
- Depictions here show DashBoard™ controls and dialogs. BBG-1000 series devices may use the built-in html5 web server, without the need for DashBoard to be installed or use for remote control access to the device. Web html5 controls and dialogs are the same as the DashBoard controls shown here.
 - Settings described here assume Windows Share physical and file systems setup is in place, and the host card/device is connected to the system. If this is not yet done, perform steps described in Watch Folder Network Setup, p. 5 before starting here.

Table 1 +TTS Option Control Menu List and Descriptions

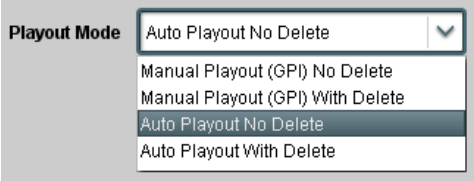
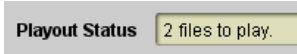
	Watch Folders sub-tab provides controls and settings for connecting the prioritized local folders to network Windows Share folders, looping (repeat) select, and selection of the voice type for each watch folder payout.
• Manual Pause/Stop 	Provides controls for manually pausing or stopping a file playing. • If the file payout is paused, the file resumes from the pause point when Play/Resume is pressed. • If the file payout is stopped, the file payout is stopped, and the file is removed from any queue.  If this control is left in Stop or Pause, new TTS audio will not play out. Typically, this control should be left in the Play/Resume position, which in turn allows normal automation to assume control of file payout.
• Playback Mode 	Selects to start payout immediately upon receiving a file in a watch folder, or defer payout until a GPI is also received. • Auto Payout immediately plays out a file. • Manual Payout (GPI) cues the received file, but starts payout only when a defined GPI is received. This mode can compensate for any delays and help ensure the file is ready for payout by using the additional automation check of the GPI. If the file payout is stopped, the file payout is stopped, and the file is removed from any queue. • No Delete and With Delete choices respectively allow queued file to be saved or deleted after payout. Note: Typical usage utilizes the Manual Payout (GPI) modes, with a user-defined GPI initiating payout. This is done in conjunction with settings performed using the Presets > Event Triggers tab/sub-tab. Controls here allow correlating GPI actions with event actions such as play selected folder. See Presets > Event Triggers, p. 17 for more information.
• Playback Status 	Shows the total number from all watch folders of files recognized and ready to play.
Note: This sub-tab contains controls for setting interface parameters for the three watch folders supported by +TTS (with Folder 1 being assigned highest priority, and Folder 3 being assigned lowest priority). As an example of usage, Folder 1 would carry severe weather alerts, while Folder 3 might carry school closings. All three watch folder areas contain identical controls. Therefore, only the Watch Folder 1 controls are shown and described here.	

Table 1 +TTS Option Control Menu List and Descriptions — continued

Text to Speech Watch Folders	(continued)
• Overall Folder Status/Setup Controls Folder Status Folder has 1 queued file(s) and 3 total file(s). Replay Last Connection  //Cobalt-45857b1/tts_1/ Folder Type Network (Samba/CIFS) ▼ Network Mount //Cobalt-45857b1/tts_1 Directory Username tts Password	Provides controls for selecting the folder type, entering mount and directory locations (as applicable) and checking the status of the connection. • Folder Status shows presence of any queued files. • Connection indicator and field shows green if a valid connection is present, or red if the connection cannot be made. Where a valid connection exists, the mount/directory data is shown. • Folder Type selects between Local folder or network folder. • Local sets card/device to use an SSH pointing to the card or device's TCP/IP address sets share to push files to this address. • Network sets up a network share that matches your environment. The card or device then watches these folders and takes files in for playback as the file(s) become available. • Network Mount and Directory sets up a network share that matches your environment. The card or device then watches these folders and takes files in for playback as the file(s) become available. The Replay Last button allows a played file to manually be immediately repeated.
• FTP Mode and Poll Rate Controls FTP Mode Passive ▼ Passive Extended Passive Active Extended Active FTP Poll Rate 3 seconds ▼ 3 seconds : : : 5 minutes	• FTP Mode selects the client/server control/data port query scheme to be used. Passive is default mode and can be changed to suit environment per the selections available. • FTP Poll Rate sets (from 3 seconds to up to 5 minutes) how often queries are performed.
• Loop Count and Text Play Delay Controls Loop Count 2 Tone to Text Delay 1 seconds ▼	• Loop Count selects how many times a queued text will play out in the same session. ⚠ 21CVAA specifies that looping be set for a minimum of two loops. • Tone to Text Delay sets (in seconds) the delay between cessation of the warning tone and the start of the speech synthesis playback.

Table 1 +TTS Option Control Menu List and Descriptions — continued

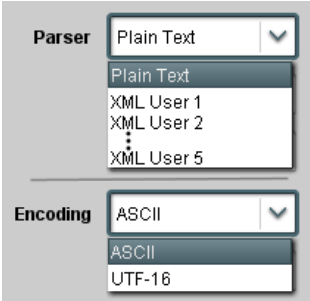
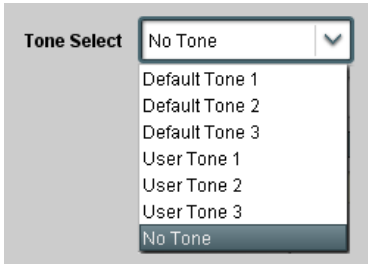
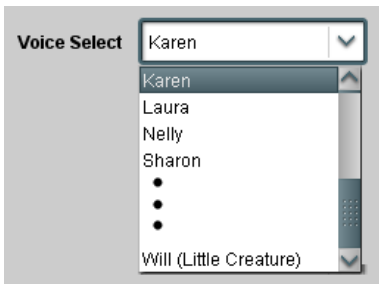
Text to Speech Watch Folders	(continued)
• Parser and Encoding Select 	• Parser selects the parsing format to be interpreted by TTS. The XML User 1 thru XML User 5 settings use tagging as defined using the XML Parser Setup controls shown on page 14. • Encoding sets TTS to work with standard ASCII 8-bit encoded characters, UTF-8, or UTF-16 16-bit characters.
• Tone Select 	• Default Tone selects from 1 of 3 default tones (which can be auditioned in the preview mode). • User Tone selects from 1 of 3 user tone uploads. Note: • User tones can presently only be uploaded at Cobalt facilities. Contact product support for more information • No Tone setting is primarily for preview/audition functions only where the tone need not be present. Practical usage should always use tones.
• Voice Select 	Provides for selection from seven female voices or from 12 male voices. Note: The synthesized voices have varying degrees of auditory “weight” or gravitas, allowing voices used to be tailored to the context of the message type being played. Due to the highly subjective nature of this attribute, it is recommended to experiment with all voices and decide which voice fits best for the context of messages in each folder type. Note: (Option +2L-SPAN only) Added Spanish-language voices Rodrigo (masculine) and Rosa (feminine) appear in the drop-down when option +2L-SPAN is licensed. These voices are tailored for Spanish-language text sources only and should not be used with English-language authored text.

Table 1 +TTS Option Control Menu List and Descriptions — continued

Text to Speech Preview	Preview sub-tab allows audition of TTS audio payout via payout of a preview file or by writing a text string which can immediately be played. Preview allows user-entered text string to be converted for highly specific assessment of synthesized speech payout.
Note: Regardless of source of preview content, desired audio channel(s) Preview checkboxes on Text to Speech Audio Routing tab must be checked (enabled) for TTS preview audio to be embedded on desired channel(s). See Audio Routing, p. 16 for more information.	
• Preview Folder/Text Source Select Folder Type Manual Text Entry Manual Text Entry Network (Samba/CIFS) Network (FTP)	Selects the source for the preview audio payout as follows: • Network (Samba/CIFS) or Network (FTP) selects preview content imported via network connection. • Manual Text Entry allows text string entered in Preview Text box (see below) to be played. This mode requires no network connection or assets to be used. Note: Payout Mode in Watch Folders sub-tab must be set to Auto Payout for preview to be inserted into output audio. If set to Manual Payout (GPI), the card or device will expect a GPI to trigger payout.
• Preview Setup (from folder) Folder Status Network Mount Directory Username Password FTP Mode FTP Poll Rate	Where a preview is desired using a preview folder separate from the watch folders, provides controls for connecting to the preview folder and checking the status of the connection. • Folder Status shows presence of any queued files. • Network Mount and Directory sets up a network share that matches your environment. The card or device then watches these folders and takes files in for payout as the file(s) become available. • FTP Mode selects the client/server control/data port query scheme to be used. Passive is default mode and can be changed to suit environment per the selections available. • FTP Poll Rate sets (from 3 seconds to up to 5 minutes) how often queries are performed. Note: Using text from a preview folder (instead of using the Preview Text entry dialog) is intended for cases where unusually long text strings are to be checked. Using the Preview Text entry dialog described below instead of preview folder-sourced text is adequate for most uses.
• Tone-to-Text Delay Select Tone to Text Delay 0 seconds 0 seconds 1 seconds 2 seconds 3 seconds 4 seconds	Sets the delay from end of last tone to when text payout commences as shown.
• Tone Select Tone Select No Tone Default Tone 1 Default Tone 2 Default Tone 3 User Tone 1 User Tone 2 User Tone 3 No Tone	• Default Tone selects from 1 of 3 default tones (which can be auditioned in the preview mode). • User Tone selects from 1 of 3 user tone uploads. Note: • User tones can presently only be uploaded at Cobalt facilities. Contact product support for more information • No Tone setting is primarily for preview/audition functions only where the tone need not be present. Practical usage should always use tones.

Table 1 +TTS Option Control Menu List and Descriptions — continued

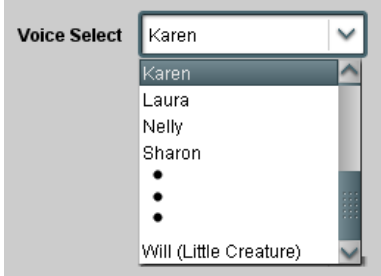
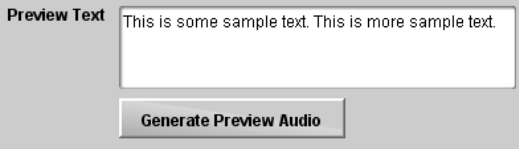
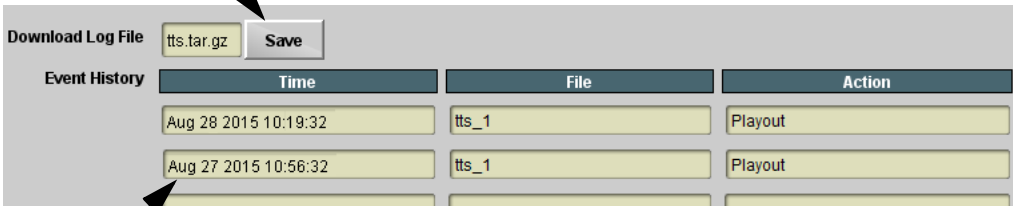
Text to Speech Preview	(continued)
• Voice Select 	Provides for selection from seven female voices or from 12 male voices. Note: The synthesized voices have varying degrees of auditory “weight” or gravitas, allowing voices used to be tailored to the context of the message type being played. Due to the highly subjective nature of this attribute, it is recommended to experiment with all voices and decide which voice fits best for the context of messages in each folder type. Note: (Option +2L-SPAN only) Added Spanish-language voices Rodrigo (masculine) and Rosa (feminine) appear in the drop-down when option +2L-SPAN is licensed. These voices are tailored for Spanish-language text sources only and should not be used with English-language authored text.
• Preview Text Entry / Play Preview 	Allows entry of preview/audition text (up to 256 characters). When text is entered, pressing Generate Preview Audio immediately queues and plays preview audio string through selected routing channels.
Text to Speech Logging	Logging sub-tab shows a log of TTS actions. This is useful for system validation and recorded verification of 21CVAA compliance.
Clicking Save opens a browser, allowing the log file to be downloaded to a desired directory  Log entries (newest at top) show date and time of action, as well as file called and action	

Table 1 +TTS Option Control Menu List and Descriptions — continued

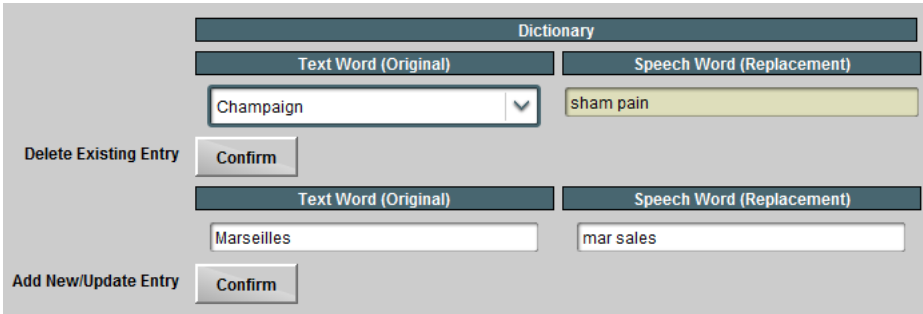
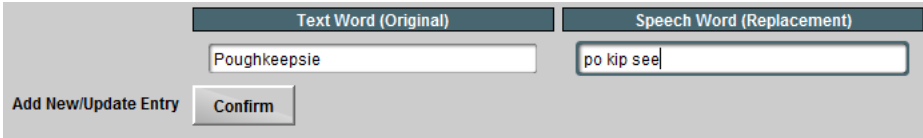
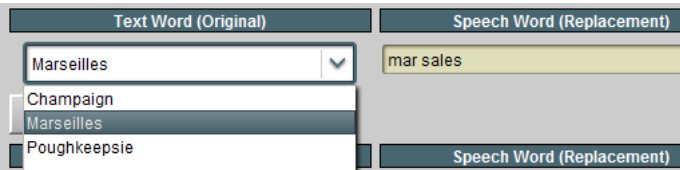
Text to Speech Dictionary	Dictionary sub-tab allows tailoring audio synthesis of unconventional-pronunciation words with replacement using phonetic substitutes.
Words with unconventional or alternate pronunciations can be entered in the Text Word (Original) field. The English-language phonetic replacement is entered in the Speech Word (Replacement) field. Shown here are unconventional proper noun names with phonetic replacements.  Click Add New/Update Entry to open dialogs for Original and Replacement words. A Confirm box appears which allows committing the entry.  As original and corresponding replacement words are added, a dictionary is developed in which all added original words can be seen using the Text Word (Original) drop-down. The Speech Word (Replacement) field shows the corresponding replacement word/phrase for the text word. Clicking Delete Existing Entry removes the synthesis correlation between the selected text word and its phonetic correlation. 	

Table 1 +TTS Option Control Menu List and Descriptions — continued

Text to Speech XML Parser Setup	XML Parser Setup sub-tab allows tagged record definitions to be correlated to fields which allows TTS to use tagged XML messages.
Multiple Parser Configurations The current +TTS firmware allows for up to five parser configurations (these being (3) individual parser configurations for each of the three Watch folders, (1) Preview folder, and (1) plain text parser that reads text in a file verbatim). Shown below are three sample XML elements: <pre><TAG_XYZ>First text to read</TAG_XYZ> <TAG_XYZ ATTRIBUTE="VALUE">Second text to read</TAG_XYZ> <PARENT_TAG><TAG_XYZ ATTRIBUTE="VALUE">Third text to read</TAG_XYZ></PARENT_TAG></pre> Earlier firmware only allowed you to specify the TAG you were looking for so in the example above all three text strings would be read out if you filtered on TAG_XYZ. You can now optionally specify an ATTRIBUTE/VALUE qualifier and/or a PARENT qualifier. In the example above this would allow you to filter for one or all of the three elements.	
Parser Select allows up to five User definitions to be set (which are then referenced in Parser selections performed on the Watch Folders sub-tab) Update Parser Fields updates all entries to the latest entered data The 16 fields available for each user definition allow setting up element definitions for each user parser	
Handling XML elements with or without closing tags (XML Text Source Select) An XML element may or may not have a closing tag: Closing tag: <TAG ATTRIBUTE="VALUE"> CONTENT </TAG> No closing tag: <TAG ATTRIBUTE="VALUE"> Noting the following example sources: Example 1: <crawl_text category="weather">severe thunderstorm warning for</crawl_text> Example 2: <crawl_text Weather="severe thunderstorm warning for">othertextothertext </crawl_text> Example 3: <crawl_text Weather="severe thunderstorm warning for"> The XML Text Source control has two settings: "Attribute Value" and "Text Content". Each of the five parser setups can be independently set. • The Text Content setting is the default. In this setting (noting Example 1) setting Tag=crawl_text (and optionally Attribute=category and Value=weather) and the parser would return "severe thunderstorm warning for". • For Examples 2 or 3, the control could be set to Attribute Value mode and set Tag=crawl_text and Attribute=weather. The parser returns "severe thunderstorm warning for" and ignore any text between the crawl_text start and stop tags.	

Table 1 +TTS Option Control Menu List and Descriptions — continued

Text to Speech Voice / Alert Setup	Voice/Alert Setup sub-tab allows tailoring speech characteristics such as voice speed (“reading speed”) and pitch, and allows selection of alert tones.
Voice Speed and Pitch controls allow tailoring the reading speed and pitch from the default characteristics Note: Settings performed here will be applied to all TTS playouts. Make certain settings are appropriate for intended messages. User Alert Tone Upload Select allows custom alert tone files to be uploaded to the card/device. The associated fields indicate when a file has been successfully uploaded to the card/device. The screenshot displays the 'Voice / Alert Setup' interface. At the top, there are two horizontal sliders: 'Voice Speed (Nominal = 1.0)' and 'Voice Pitch (Nominal = 1.0)'. Both sliders range from 0.50 to 1.50, with a central knob at 1.00. To the right of each slider is a numeric input field set to 1.00. Below the sliders is a 'User Alert Tone Upload Select' dropdown menu, currently showing 'User Alert 1' with a list of 'User Alert 1', 'User Alert 2', and 'User Alert 3' as options. Underneath the dropdown are three rows of status indicators: 'User Alert Tone 1' with a green circle and 'Present' button, 'User Alert Tone 2' with a red circle and 'Missing' button, and 'User Alert Tone 3' with a red circle and 'Missing' button. At the bottom left, 'TTS Engine Status' is shown with a green circle and 'Present' button. A dark blue bar at the bottom center contains the text 'Voice Enabled by Acapela'.	

Table 1 +TTS Option Control Menu List and Descriptions — continued

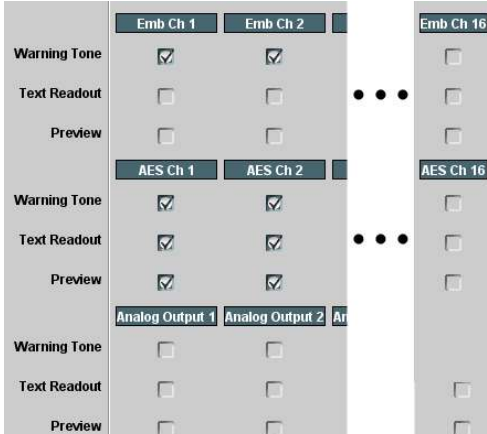
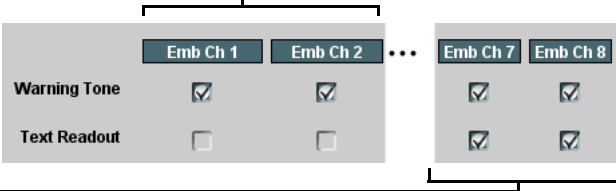
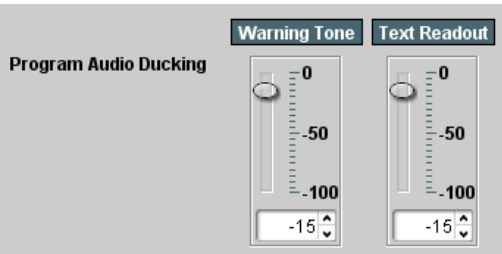
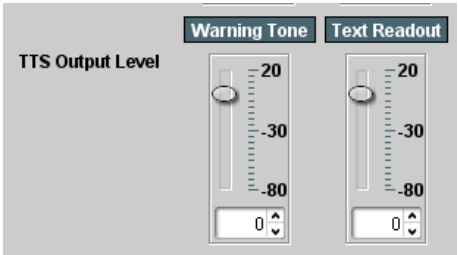
Text to Speech Audio Routing	Text to Speech Audio Routing tab provides controls for inserting and routing TTS tones and/or TTS speech onto audio channels processed by the card or device.
Note: TTS insertion using these controls is intended for use with SMPTE PCM embedded or AES-3id baseband PCM audio only. TTS insertion cannot directly interface with undecoded Dolby data streams.	
• Per-Channel TTS/Tones Insertion Controls  In the example here, Main programming L/R channels (Emb Ch 1/2) are set for tone insertion only (since this programming will contain the normal keyed warning message visual text crawl) SAP programming L/R channels allotted for visually-impaired (Emb Ch 7/8 in this example) are set for both TTS and tone insertion 	Allows setting individual audio output channels for insertion of tones and/or TTS audio. Note: - Typically, TTS is inserted only on audio channels designated as SAP special use for visually-impaired audience. Main channels use only tones, typically accompanied with a keyed text crawl. - Tones and/or TTS should only be inserted on mono or LR main channels. - Factory default sets warning-tone-only insertion on Emb Ch 1/2 and warning tones + text readout (playout) on SAP Emb Ch 7/8. - Preview uses a separate file folder (or text entry box for basic playout if desired). The Preview checkboxes here must be correspondingly checked to route preview playout to any desired audio output channels. (In the example here, Preview is enabled for AES Ch1/2 outputs.)
• TTS/Tones Program Ducking Controls 	Provides separate controls which independently duck program audio below either tones or TTS audio. The dBrel amount the control is set for is the amount program audio will be ducked in the presence of tones and/or TTS audio. Note: The default setting of -15 dBrel is recommended for most uses where program audio meets ATSC loudness.
• TTS/Tones Level Controls 	Provides separate controls which independently set the level of tone and/or TTS insertions. ⚠ These controls set the tone and TTS speech insertion at -20 dBFS peak with default setting here of 0. Where ATCS A/85 is used, it is recommended to set the controls at this default as a starting point to assess insertion level in relation to program audio level. In any case, both the tones and TTS audio should assume predominance over program audio in all cases (which is mostly a function of the ducking controls described above).

Table 1 +TTS Option Control Menu List and Descriptions — continued

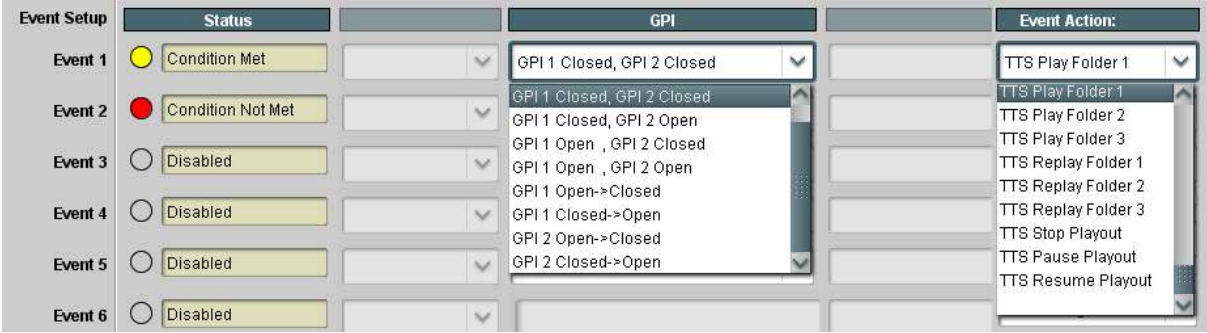
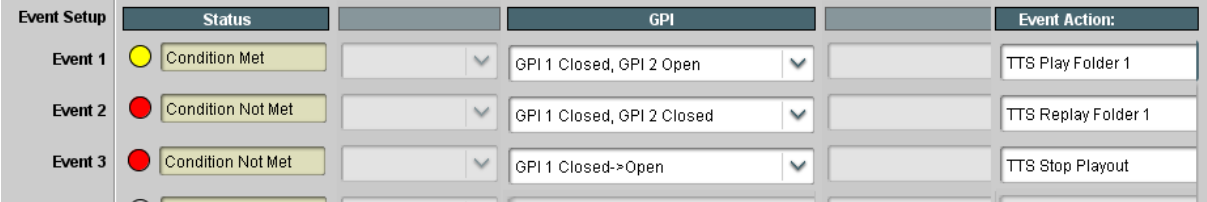
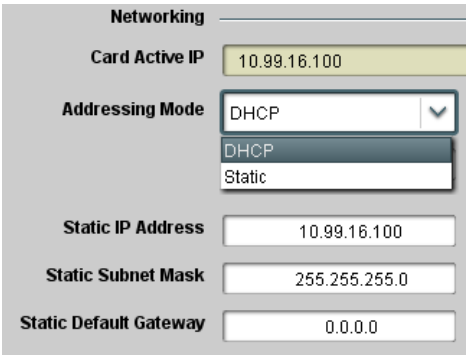
Presets Event Triggers Email Alerts		Presets > Event Triggers specifically related to option +TTS allow various GPI trigger actions to control TTS payout as described below.	
 • Event based preset loading is not passive and can result in very significant and unexpected card control and signal processing changes if not properly used. • Make certain TTS payout is not inadvertently tied to triggers other than GPI when using this tab to set up TTS actions. Typically, all columns of an event row (other than GPI) should be set to Don't Care. • Playout Mode on the Watch Folders sub-tab must be set to Manual Playout (GPI) in order for GPI actions here to be invoked. Event triggers and actions specifically of use for TTS are GPI trigger settings in the GPI column, and the Event Actions specifically related to TTS (which include Folder Play, Stop Playout, Pause Playout, Replay, and Resume Playout) as shown below.			
In the example here for Event 1, the GPI column is set to trigger on GPI conditions shown. When this occurs, a command to play Folder 1 is sent to the Watch Folders function and the queued contents of Folder 1 is immediately played. Other GPI settings can serve as triggers for any playout action (in the example here, Replay of Folder 1 and Stop Playout).			

Table 1 +TTS Option Control Menu List and Descriptions — continued

	Provides controls for setting the card comm IP address.
Note: Admin controls descriptions are duplicated here from Product Manual for convenience. Make certain to refer to Admin tab controls in the host device Product Manual for other important Admin settings that are independent of the +TTS option.	
• Card IP Physical Port Select Control 	Allows card dedicated IP interface (as set below) to use frame communications or dedicated rear I/O module Ethernet RJ-45 port. Note: • Frame net connection allows cards with per-card Ethernet connection to connect with network via a shared frame Ethernet port instead of per-card dedicated Ethernet connectors on the card's rear module. Frame net connection is available only on certain frame models. • Card slot must be fitted with a rear I/O module equipped with an Ethernet connector (such as RM20-9902-L) in order to use Rear I/O selection.
• Card Network Setup Controls 	Note: • The IP address setting here is independent of a frame IP typically used for DashBoard or other frame/card remote control. • The card/device Addressing Mode settings may be used for other card functions. Make certain settings used for TTS integration does not conflict with other card/device functions. • Addressing Mode allows setting address to static (user) address or via DHCP (where a DHCP server is available for the connection). • Static IP Address, Static Subnet Mask, and Static Default Gateway fields allow setting IP parameters when Static mode is selected. • Card Active IP shows the currently configured IP address (whether static or DHCP).

Troubleshooting

This section provides troubleshooting information specific to the **+TTS** 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
Queued message will not play	• Watch folder not connecting to TTS	• Make certain Connection indicator on Watch Folders sub-tab shows green. If indicator shows red, folder is not connected to TTS and audio will not play out.
	• Playout Mode not properly set.	• Make certain Playout Mode selector on Watch Folders sub-tab is set to match expected triggering (either auto play or manual play control using GPI).
	• Play/Resume not selected	• Make certain Stop - Pause - Play/Resume control is not left in Stop or Pause settings. These settings are for manual control. Automation usage should always have this control set to the Play/Resume position.

Table 2 Troubleshooting Processing Errors by Symptom — continued

Symptom	Error/Condition	Corrective Action
Queued message will not play (cont)	Audio Routing not properly set	Text to Speech Audio Routing tab channel select boxes must be properly set for both tones and TTS audio to play out on selected channels.
	Presets > Event Triggers Event Base Loading not enabled	Where GPI is to be used for TTS event triggers, the Event-Based Loading button on the Presets > Event Triggers page must be set to Enabled. See Presets > Event Triggers, p. 17 for more information.
	GPI Event Triggering inadvertently tied to triggers other than GPI	The Presets > Event Triggers page is used for other automated events and actions in addition to TTS. For setup rows purely used for TTS, make certain all other conditions (such as Acquired Video Format, etc.) are set to Don't Care. If any of these columns are set otherwise, the action will not commence as expected.
	Library SD card not installed	The TTS library SD card must be installed and remain in the host card for TTS to function. See Installing Library SD Card onto Host Card, p. 7 for installation instructions.
TTS plays out unexpectedly	GPI Event Triggering inadvertently tied to triggers other than GPI	The Presets > Event Triggers page is used for other automated events and actions in addition to TTS. For setup rows purely used for TTS, make certain all other conditions (such as Acquired Video Format, etc.) are set to Don't Care .
TTS tones or speech plays out too loud or soft	TTS Output Level not set for typical usage	The TTS Output Level controls on the Text to Speech Audio Routing tab set the insertion levels at approximately -20 dBFS peak when set to default zero (0) settings. This setting is appropriate where ATSC A/85 implementation of -24 LKFS is used.
Program audio not ducked enough during TTS tones/voice payout	Program Audio Ducking not properly set	The Program Audio Ducking controls on the Text to Speech Audio Routing tab set the relative dB levels at which program audio is ducked. The default setting of -15 dB is recommended for normal usage.
Preview generate doesn't produce test preview TTS text /tones	Playout Mode set to Manual (GPI)	Test preview using the Preview > Generate Preview Audio requires (at least temporarily) that this control be set to Auto Playout.
	Preview audio routing not selected	Preview checkboxes on the Text to Speech Audio Routing tab page must be correspondingly checked to route any preview playout to any desired audio output channels. See Audio Routing, p. 16 for more information.
Dictionary substitution doesn't pronounce as expected	Phonetic replacement (substitution) issue(s)	When using phonetic substitutions, certain consonants may need to be tried (for example, "j" instead of "g").
(Option +2L-SPAN only) TTS tones/voice won't play out	+2L-SPAN library SD card not installed	In addition to licensing the card/device for +TTS and also +2L-SPAN, the +2L-SPAN option requires a new SD library card to be installed on the card/device (this SD card is provided with purchase of the license). Install SD as described in Installing Library SD Card onto Host Card, p. 7.

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