



EEG Application Note

Using iCap Alta with Third-Party IP Video Playout Systems

Applies to Products: iCap Alta VM – Transport Stream or 2110 Version

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Alta Overview:

iCap Alta™ is a software product for use with IP video workflows that handle live broadcast captioning workflows involving remote human closed caption transcribers and/or fully automatic cloud captioning services such as EEG Lexi™.

The Alta software is delivered as a VM image and can be deployed on-premises or in a customer-controlled cloud environment. Depending on the configuration, many channels of video and caption data can be handled by a single VM, and each channel can pass captions to third-party systems through a number of formats.

The iCap Alta product comes in two build versions:

- Alta-TS, for use with MPEG Transport Streams as the input and output format
- Alta-2110, for use with the SMPTE 2110 suite of standards

Both products take an IP stream in for use as a low-latency, encrypted, audio and video reference to remote captioning services. The stream can be unicast or multicast.

Audio Input and Caption Output Formats

Accepted audio formats (Alta-TS Build)

- MPEG Transport Stream with audio in codecs including MPEG-1, SMPTE 302M, AC-3, or AAC
- Supports one audio language (or iso-track) per PID, with the audio in mono, stereo, or 5.1

Accepted Audio Formats (Alta-2110 Build)

- SMPTE 2110-30

Caption Output Formats (Alta-TS Build)

- CEA 608/708 data embedded into user data structures in MPEG-2 video, AVC video (SEI data), or HEVC video
- DVB Bitmap Subtitles in its own elementary stream
- DVB Teletext in its own elementary stream
- CEA-708 data in SMPTE 2038 format (VANC data in its own elementary stream, compatible with the ASPEN system)
- Direct telnet connection of “CTRL+A” data

Caption Output Formats (Alta-2110 Build)

- CEA 608/708 data (SMPTE 334 packetization) in SMPTE 2110-40 stream
- DVB Teletext data (OP 47 packetization) in SMPTE 2110-40 stream
- Direct telnet connection of “CTRL+A” data

Grouping Alta Channels with iCap Access Codes

The Concept of Access Codes and Grouping:

An iCap “Access Code” is a unique code that allows your contracted captioning service to securely connect to a specified Alta channel (or group of channels sharing the same code as shown in Figure 1). The captioner will receive program audio reference from the channel (or primary channel of the group) and return real-time text data to the channel(s) over the iCap Network.

While the Alta channels themselves can be hosted on one or across several virtual machines – Access Codes can be issued to a single channel, or to a selected “group” of channels (regardless of where each encoder in the group is hosted).

A single Alta channel can belong to many access codes. For example, in Figure 1, channels 11, 12, 16, and 17 belong to both Access Codes *Example01* and *Example02*. These two access codes would not be used in operations at the same time - one or the other would be chosen based on the desired channel configuration for the current programming.

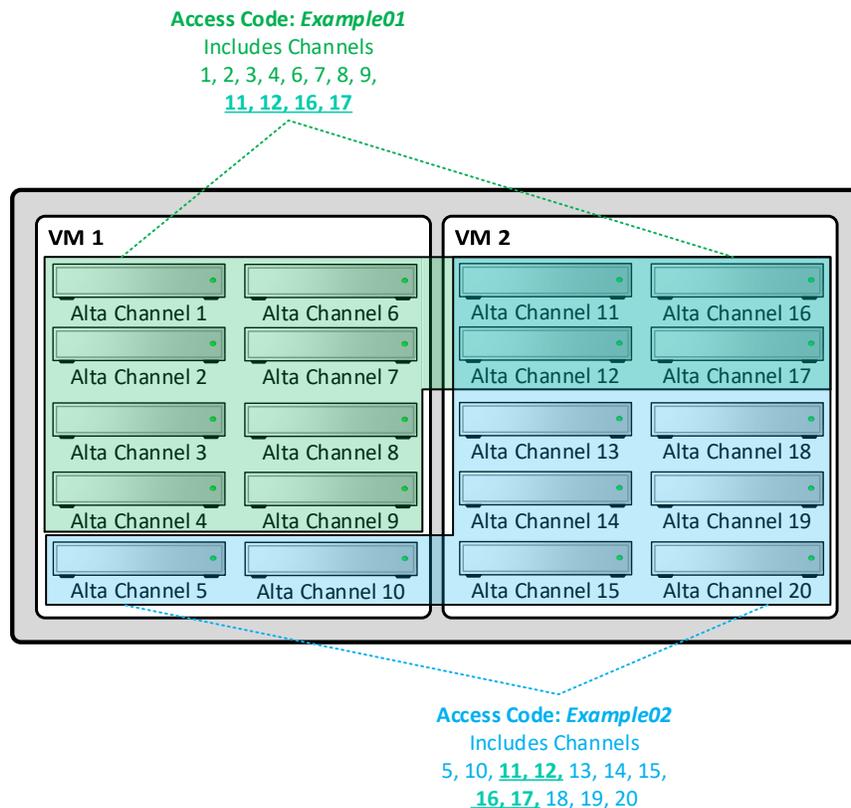


Figure 1: Example Groupings of Alta Channels Using iCap Access Codes

Using iCap Admin to Assign Access Codes to Alta Channels (or Groups of Channels):

The iCap Admin page is where your Alta Channels can be assigned access codes and arranged into groups. Figure 2 details how an Access Code containing a group of encoders such as *Example01* from Figure 1 will actually appear in the iCap Admin interface.

The Primary Encoder (Alta Channel) for the Access Code will receive the source audio and provide a reference to the captioner over iCap. Caption data returning from iCap will be distributed to the primary encoder and all secondary encoders listed in the group.

The iCap Admin site can be found at <https://www.eegicap.com/iCapAdmin/> - All iCap Admin credentials are supplied by EEG at the time of Alta purchase.

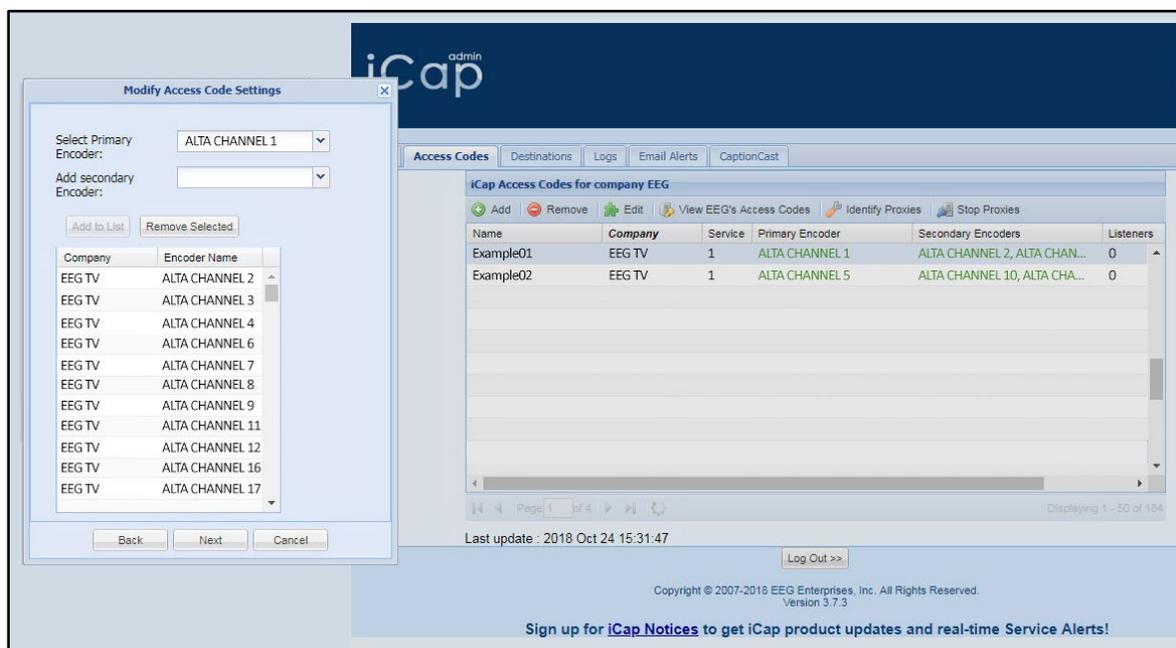


Figure 2: Maintaining Access Codes in the iCap Admin Site

Direct Telnet Connection of CTRL+A data to Third Party IP Video Playout

This specific output option is recommended when it is desired to use Alta for A/V communication with iCap-equipped captioners, but final closed caption packetization is performed in an external third-party IP or IP/SDI hybrid video playout product, such as Evertz Overture RT or Grass Valley iTX.

The Alta output should be compatible with any third-party product that supports US 608/708 “CTRL+A” caption encoding over a point-to-point Telnet or TCP/IP connection.

When an Alta channel is activated, an initial connection will be made to the third-party product at a specified port and IP address. This IP address and port must be accessible through standard unicast routing from the Alta VM.

All captions sent to the Alta channel over iCap will be echoed to this external receiving device.

The Alta channel will attempt to keep this connection open throughout its lifetime – therefore you should disable the Alta channel targeting a third-party telnet device before attempting to use a different product or service to send captions to the device, as most devices do not smoothly handle multiple simultaneous telnet input connections.

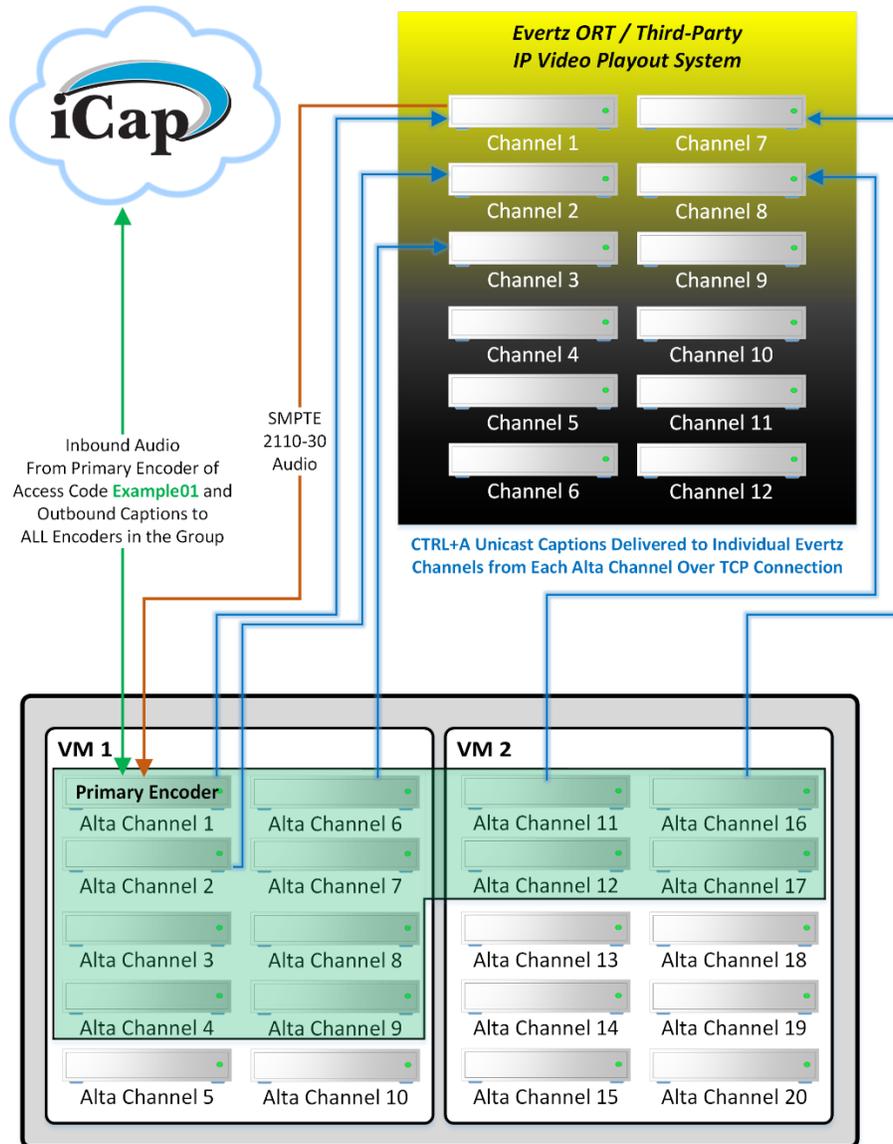


Figure 2: Workflow Detail Showing Audio Delivery to the Primary Alta Channel of the Group, Outbound Captions from iCap to ALL Alta Channels in the Group, and CTRL+A Unicast Captions Delivered from each Alta Channel to Specified Third-Party Playout Channels.