



AI-Media Application Note

Alta™ ProLiant Getting Started Guide

Last Revised: November 2022

Introduction

This document describes basic instructions for the configuration and operation of the iCap Alta ProLiant system for live closed captioning and other ancillary data such as SCTE-35/SCTE-104 digital program insertion cues.

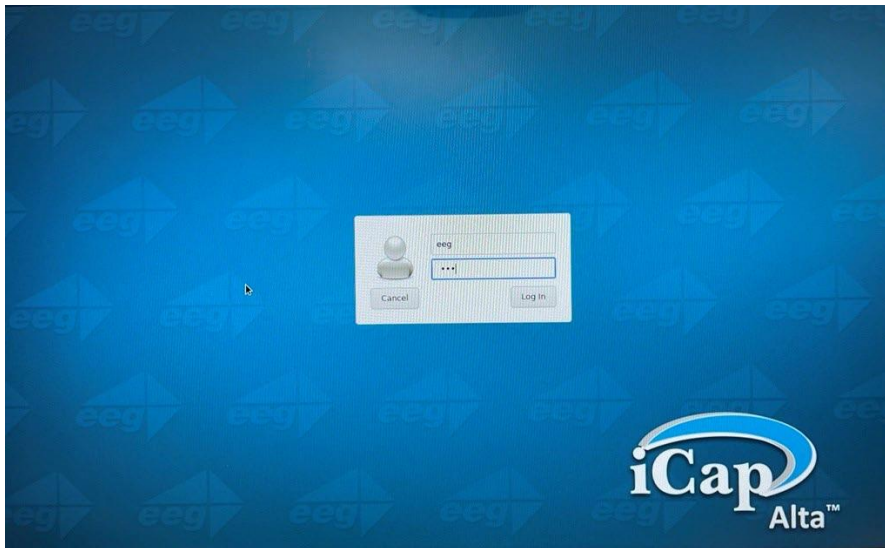
The iCap Alta product comes in two versions:

- 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

The installation instructions in this document apply to both product versions unless otherwise noted.

Getting Started

To configure the Network settings, start by connecting a Keyboard, mouse and monitor to the server and power it on. The initial login screen will be displayed:



The login credentials are:

Username: eeg



Password: eeg

When login completes the OS desktop will be displayed. Click on the Web Browser globe icon in the app bar at the bottom of the screen to launch Firefox. The main *iCap Alta* web interface will be displayed. Login with the same credentials:

Username: eeg

Password: eeg

Please login

eeg Login

From the menu select *System / Network Configuration*. The Network Interface list eno5 through eno8 will be displayed. Click *Edit* to configure each interface.

It is possible to run all Alta-related functions (receive & transmit of media streams, webbased management, outbound connections to iCap/Lexi, and licensing validation) through a single network interface (NIC). It is also possible to divide these functions for reasons including increased bandwidth for media streams, QoS, and security separation of outbound iCap traffic and media networks.

The network for outbound iCap traffic should usually go through eno5 or the "first" network adapter if possible. This will prevent you from having to re-configure a different adapter as the "default route" for outbound traffic out of your local subnets.

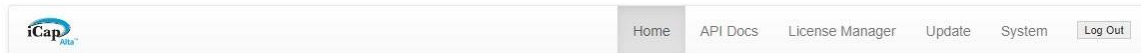
For multicast media streams, use the "Multicast Interface" setting on each stream to set the IP address that for media transmit/receive.

For unicast media stream reception, provide the IP address of the interface to receive the stream on in the "input" field of the Alta channel. If only a port number is provided, unicast streams will be received across all interfaces on that port (and you must not send multiple unicast streams on the same port, even to different interfaces). For unicast stream transmission, the lowest numbered interface with a subnet matching the destination will be used, unless a different default route is configured.

Alta uses a Network Activated licensing system requiring HTTPS access to the Cloud-based licensing server. Please refer to the [Licensing Requirements Appnote](#) for important details. Each independent video I/O stream running on your Alta system is a Channel. You can set up any number of Channels, and save unique settings configurations to each one. Turning the channel ON activates it. Your license controls the number of channels that can be active or turned on simultaneously. Turning on a new channel that exceeds your license limit will fail and the instance will moved to the "Stopped" state.

Creating Channels

To create each Alta channel click [Add New Channel](#):



Alta Channels

[Add New Channel](#)

New Instance Settings ✕

Stream Settings

iCap Settings

FEC Settings

SCTE-35 Settings

CCMatch Settings

Telnet Settings

Other Settings

[Create Instance](#)

Stream Settings

Name
Custom name for identifying this instance

Primary
Listen address for the primary video stream
Source
Listen address for a caption source stream used for bridging captions into the primary stream
Output
Destination address for processed primary stream output
iCap Reference
Listen address for stream to be used for iCap video/audio reference
Multicast Interface
IP address of interface to subscribe to multicast through

Name

This is the name that will display in the instance list for this channel of settings.

Primary

This parameter provides the source for the IP video input stream. The setting can take the following forms:

- “3000” - listen for RTP unicast on port 3000. The sending device will need to send to the virtual machine IP address on port 3000.
- “udp://0.0.0.0:7000” – listen for UDP unicasts on port 7000, from any source, headed to the VM interface.
- “udp://239.120.200.101:5000” – listen for UDP multicast on multicast address 239.120.200.101, on port 5000. The multicast request will be registered with your router, which will then forward multicasts on this address to the VM interface.

Generally, you MUST specify a primary IP video parameter or your instance will not start. The only exception to this is if you are using a separate iCap Reference video stream, in the iCap-to-telnet bridging mode.

Source

This parameter is optional and permits an additional input stream which will be used for caption bridging (in caption bridging, caption data from the “Source” stream will be transferred to the “Primary” stream). The same address formats permitted for the Primary stream are permitted for the Source stream.

Output

This parameter sets the destination address and port for the output video stream. The destination can be either unicast or multicast. All output data is sent in RTP format. [iCap Reference](#)

This parameter is optional and permits an additional input stream which will be used as the audio source to a remote transcriber connecting through iCap. The stream may be audio-only, or may also contain a video elementary stream which will be used to send reduced frame-rate picture reference data. The same address formats permitted for the Primary stream are permitted for the iCap Reference stream.

Multicast Interface

This parameter is optional, and is recommended only for setups where the virtual machine is connected to multiple NIC interfaces and networks, and where IP multicast is used for the input/output streams. In these cases, the Multicast Interface parameter should be given the IP address of one of the interfaces which sits on the network where all multicast input and output traffic will be directed. (It is not currently possible with the Alta VM to subscribe to different multicasts on multiple interfaces within the same instance).



SCTE-35 Settings Submenu

SCTE-104 Command Listen Address

This parameter is optional and can be used to open a local port on the VM to accept SCTE-104 commands from an external automation controller, which will be used to generate SCTE-35 splicing and segmentation data in this instance's output stream.

The parameter can be a port number only in a VM with a single network interface, or should include a local IP address and a port number in a multi-homed configuration.

The default port specified for communication in the SCTE-104 standard is 5167, however please note that if you are running multiple Alta instances on a single VM, you must have a different IP address/port number combination for each instance that accepts SCTE-104 commands.

When this parameter is specified, SCTE-35 data will be announced in the output stream PMT on a default PID of 0x1f2. Splices will be injected based on the SCTE-104 commands received from the Automation System over the specified port. SCTE-104 command receipt will be logged in the system log as well.

SCTE-35 PIDs

Up to eight PIDs may be allocated for SCTE-35 data from the Alta instance. If multiple PIDs are specified, the SCTE-104 controller uses the `DPI_PID_index` field in the incoming SCTE-104 messages to direct Alta which PID each message is for.

Do not specify a PID for SCTE-35 service that may already contain upstream data of any type.

Other Settings Submenu

Logging Level

This parameter sets the verbosity of logging for the Alta instance. We recommend the "0" setting when troubleshooting, and to leave the parameter blank otherwise.

Once each setting is configured and the Alta instance has started up, you should begin to see an output stream arriving at the destination that matches the "primary" input stream.

Caption Output Format

This setting controls the format used to write captioning data into the output transport stream. Alta supports ATSC CEA-708 in MPEG-2 or H264, SMPTE RDD-11 CEA-708, DVB Text (teletext) or DVB Subtitles (bitmap).

Note that the ASTC user data setting is not compatible with the Alta "low latency mode", and requires a processing delay of approximately one complete video GOP.



DVB Text Config

Use only with the DVB Text Caption Output format. Specifies how many languages of DVB Text data to output, and provides a language identifier and Teletext magazine and page for each.

DVB Bitmap Config

Use only with the DVB Bitmap Caption Output format. Specifies how many languages of DVB Subtitle data to output, and provides a language identifier and page identifier for each.

Transport Rate

This parameter is optional and can be used to constrain a fixed transport rate on the output stream. If the parameter is not specified or set to 0, the input transport rate will be auto-detected from the stream's PCR data and bitrate, and will be replicated on the output. If a known transport rate is desired, it is often preferable to use this setting to avoid the possibility that temporary data loss/corruption on the input could lead to changing transport rate on the output as well.

This feature can also be used to increase the output transport rate above the input rate to accommodate additional data insertion by Alta. This could be necessary if the input transport stream has insufficient null packets to replace with timely insertion of captions, subtitles, or SCTE-35 trigger data.

A fixed transport rate separate from the input rate cannot be used in "Low Latency Mode".

Low Latency Mode

This checkbox can be used to disable detailed de-multiplexing of the transport stream passing from the master input to the master output.

Certain Alta product features such as ATSC format captioning in user data or SEI require data insertion in video picture display order, and therefore an additional buffer delay of approximately one Group of Pictures (GoP) is introduced.

In low latency mode, this additional delay passing through Alta is not incurred. SCTE-35 injection can still be used, along with captioning in formats that do not embed in the video elementary stream, such as SMPTE-2038 or DVB Subtitles.

For full control of input-to-output latency in Low Latency mode, also see "UDP Buffer Size" in "Other Settings".



UDP Buffer Size

This parameter is optional and allows finer control over the output buffer size used between Alta's internal transport stream processing and the network output buffer.

Higher values provide greater resistance to output hits when the underlying computer or network is busy. Lower values reduce the input-to-output delay of the stream passing through the Alta system.

It is also may be necessary to use higher values to maintain low output jitter when a stream is being used in the standard re-multiplex mode (not Low Latency Mode) that has significant variation in the size in bytes of successive GoPs.

Test Captions

This option begins outputting a stream of scrolling test captions on Language 1 whenever the Alta instance is started. The stream of test captions will continue until a live iCap captioner first sends to data to the encoder. After this occurs, the test captions will not resume again unless the instances is stopped and restarted.