



amino

Using DVEO Encoded Streams and Amino IP-STBs without Middleware

Application Note
(v1.6)



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Purpose

The purpose of this Application Note is to document how to map 2-15 IP video streams originating from DVEO head-end equipment to display on a TV or monitor connected to an Amino IP-STB, enabling a remote controlled channel lineup and without requiring any IPTV middleware.

Context

DVEO is a provider of encoders, transcoders and streamers for various IP video applications, such as managed IPTV services and over-the-top (OTT) delivery using the public Internet.

Amino is a manufacturer of a range of IPTV set-top boxes (IP-STB) and the company's products are fully compatible with DVEO's head-end equipment.

DVEO products include satellite-to-IP servers that provide a complete "head-end in a box." To provide IPTV and OTT services an operator must typically purchase "middleware" that, among other things, maps IP streams to channels that can be selected using an STB or TV remote control. In order to deliver low-cost services to less than a few hundred users or to demonstrate a proof-of-concept, in both cases without incurring the potentially substantial expense and complexity of middleware, DVEO suggests utilizing an Amino IP-STB coupled to one of DVEO's play-out, VOD or live satellite servers.

This document describes a do-it-yourself approach to manually preparing an Amino IP-STB, such as the low-cost A140 (pictured below), for use with DVEO head-end equipment, and using a straight forward channel lineup without IPTV middleware. The STB has a proprietary JavaScript language and by following the steps below the user will be able to create and output a simple channel lineup using the Amino box.



Recommended Environment, Tools and Skills

- Laptop or similar computer with IP
- Amino 140 IP-STB with IP connection to laptop
 - Plus an Amino wireless keyboard (required to access the STB OS)
 - Learn more about the Amino 140 here: <http://www.aminocom.com/products/a140/>
- DVEO MPEG Gearbox II™ multichannel transcoder or other DVEO model depending on needs
 - It receives multiple transport streams, transcodes them to MPEG-2 or H.264, and outputs them to an IP network or CDN supporting various protocols: UDP, RTP, HTTP Live Streaming (HLS), HTTP Smooth, RTMP (Open Flash). It accepts several types of inputs: 8-VSB (SMPTE 310M), DVB-S/S2, DVB-T, DVB-ASI, and IP (various protocols).
 - Download [Data Sheet](#) and [Quick Start Guide](#).
- Knowledge about setting up IP ports
- Basic Linux OS and C programming knowledge

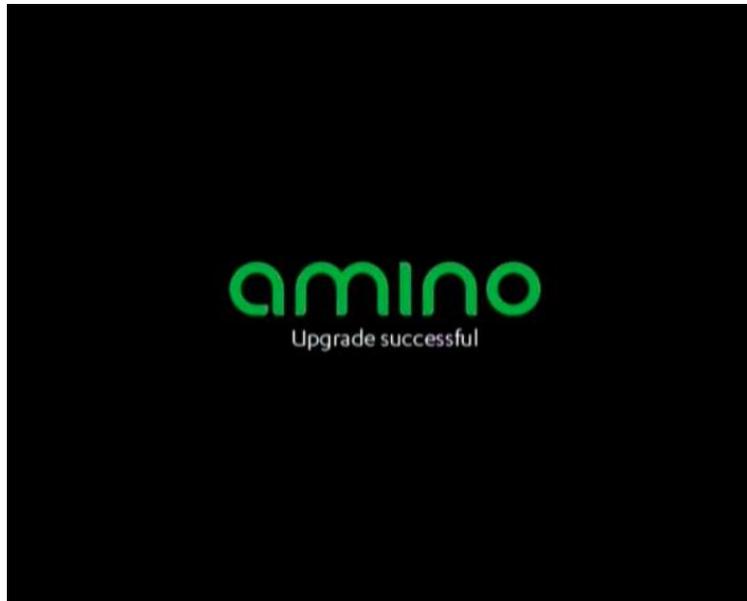
Step 1: Update the STB Firmware (optional)

- a) In case the Amino STB is more than, say, a year old, it would be recommended to first contact [Amino Customer Support](#) to verify the status of STB firmware and, if necessary, to obtain the latest version, learn more [here](#). Once downloaded, store the firmware on an empty USB Stick. Make sure the file is on the USB stick by itself and of the file type .mcfs
- b) Plug the USB stick into the Amino USB port.
- c) Unplug the power from the Amino and while pressing the small reset button next to the USB stick, plug in the power again.
- d) Release the button when this splash page appears:



- e) After about a minute a couple of screens will appear:





- f) Wait around one minute until the system reboots.

Step 2: Set-up of a Central Web Server for the Portal Pages (optional)

- a) Install a machine with Linux or Windows OS and ensure it has a standard web server on it.
- b) On the root of the web server, unzip the portal zip file provided by DVEO.
- c) Edit the chnl.txt file and add the desired channel lineup. Sample entries would look like this:
Amino Fresco Channels File
Version: 2
01: igmp://225.0.1.2:1234?chan_name=WTVJ-SD MP2
02: igmp://225.0.1.3:1234?chan_name=WTVJ-HD MP2
03: rtsp://192.168.123.222?chan_name=WFLX-SD MP2
04: igmp://239.110.110.114:11113?chan_name=WFLX-HD MP4
05: igmp://239.252.0.27:1825?chan_name=WFOR-HD MP2
06: igmp://224.1.1.0:10000?chan_name=WPLG-HD MP2
07: igmp://225.1.1.60:5501?chan_name=WTVJ-SD MP4
08: igmp://225.0.1.1:1234?chan_name=WTVJ-SD adtec MP4
09: http://yuzu.com.mx/stb/stb/main.php?chan_name=Mex-SD MP4
- d) Make sure the web server allows cross domain calls or the portal will not be able to retrieve the list of channels (chnl.txt) from the JavaScript.
- e) Make sure this web server is accessible from the network where the STB is located.

Step 3: Set the Home Page in the STB

- a) Using the wireless keyboard for the Amino, press ALT + M. When presented with the password prompt, type “leaves”.
- b) Scroll down to “Browser” and change the Home Page.
- c) If a central web server is used with a channel list portal, then use its URL. For example:
http://192.168.123.136/portal/index.html
If a web server portal is not used, then use the pages locally in the STB with this home page:
file:///mnt/nv/index.html
- d) Make sure to enable “Full Screen Mode” and select the GFX resolution as desired for the channel identification overlay (SD GFX seems to work best for all video resolutions).
- e) After the first change a password prompt will appear, type “snake”.
- f) Select the restart option on the menu.
- g) Enjoy the channel lineup (use channel up and down to navigate).

Step 4: Reset or Edit the Channel List for the STB.

- a) If a central web server is used, the channel list is always the same and it comes from the server configuration file.
- b) If a link is used as the home page (file:///mnt/nv/index.html), the channel list can be modified using the Amino wireless keyboard by pressing ALT+C. This channel edit page will also be displayed the first time the STB is used after setting the Home Page.
- c) Edit the name and link of each channel, and add or remove channels on this page.

Step 5: Additional Portal Features

- a) The red button will toggle between subtitles being enabled or disabled.
- b) The green button will present a list of subtitles for the channel, allowing the user to select a language of choice.
- c) The yellow button will present a list of audio tracks for the channel, allowing the user to select a language of choice.
- d) The portal also enables the STB to recall the last channel that was watched and select it automatically when the device is powered on again.

Step 6: DVEO Equipment – Additional Functions and Features

- a) The DVEO equipment can act as the Central Web Server.
- b) The DVEO equipment can also act as the DHCP server of the STB and automatically set the web server home page of all the devices without having to use the ALT-M menu or wireless keyboard. Just make sure the STB is configured for DHCP using the standard remote.
- c) The DVEO equipment can also be used to upgrade all the devices on the network to the correct firmware and keep them up to date. This is done by using the built-in DHCP server and a multicast stream.
- d) The DVEO equipment allows for editing of the channel list using a simple web interface in its GUI. It can even automatically populate the correct URL if the streams are created from that same machine.

For more information call DVEO at +1 858 613-1818 or visit www.dveo.com