

# Epiphany AV.io HD



September 26, 2016  
Release 3.1.0

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# Thank you for choosing Epiphan Video!

At Epiphan Video, product function and quality are our top priority. We make every effort to make sure that our products exceed your expectations.

## Product feedback

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Your feedback is important! We regularly contact our customers to ensure our products meet your performance and reliability requirements. We strive to continually enhance our products to accommodate your needs. Please let us know how you think we can improve our products by emailing your suggestions to [info@epiphan.com](mailto:info@epiphan.com).

## Specifications

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Go to the [USB Video Grabbers](#) page of the Epiphan Video website to get the most recent product specifications and additional information about AV.io HD.

## Warranty

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All Epiphan Video products are provided with a 100% return to depot warranty for one year from the date of purchase.

## Technical support

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Epiphan's products are backed by our professional support team. If you are having issues with your product, please gather details about your system and contact our team by:

- E-mailing [support@epiphan.com](mailto:support@epiphan.com)
- Live chat via the link on our [support site](#)
- Phone toll free at 1-877-599-6581 or call +1 613-599-6581

Be sure to include as much information about your problem as possible, including:

- Problem description
- Details of the video or audio source (type, resolution, refresh rate, etc.)
- Product serial number
- Your operating system and version number

# Firmware 3.1.0 release notes

Firmware 3.1.0 updates brings all Epiphan Video capture cards in line with the latest behind-the-scenes efficiency, fixes to limitations and known issues and new changes to the AV.io Config Tool. With this latest version of the firmware, each grabber will provide the same effortless, high-quality video capture experience.

## Overview

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AV.io HD is the easiest HD capture card you'll ever use. It doesn't need any special drivers installed on your computer – plug it in to your USB port and start using it right away. It's as simple as using a webcam! Windows, Mac and Linux operating systems automatically detect AV.io HD, ensuring compatibility with your favorite software, including Skype, Wirecast and QuickTime.

## What's new

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This section provides detail on the main features included in firmware release 3.1.0.

### Use input signal resolution

Previous versions of AV.io Config software have allowed for you to pass through the resolution of your input source as the resolution of the output source, but 3.1.0 has some updates on how this works. See [Configuration options](#) for more details.

### Custom resolution creation

You can now create a list of up to three custom resolutions that can be used as output formats. You can add these in the [User modes](#) tab of the AV.io Config software.

### Significant changes to limitations, known issues and troubleshooting

Many changes have been made since the last firmware release for AV.io HD. There have been lots of improvements to the efficiency and functionality. See [Limitations and known issues](#) and [Troubleshooting](#) for more details.

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# About AV.io HD

To use AV.io HD, there's no software to install; simply connect the cables and go. It works on Windows, Mac and Linux and integrates seamlessly with your favorite third-party applications such as Skype, Adobe FMLE, Wirecast, VLC media player and Quicktime.



# Registering your AV.io HD

## Why should I register my AV.io HD?

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It will allow you to activate your product warranty, give you notifications of firmware and software updates and get you our free personalized customer support.

## How to register

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1. Go to [epiphan.com/register](https://epiphan.com/register)
2. Provide the required information. Your six digit serial number is found on your device. A valid e-mail address is required for product registration.

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# Quickstart

Setting up your AV.io HD device to capture live video and audio content couldn't be easier!

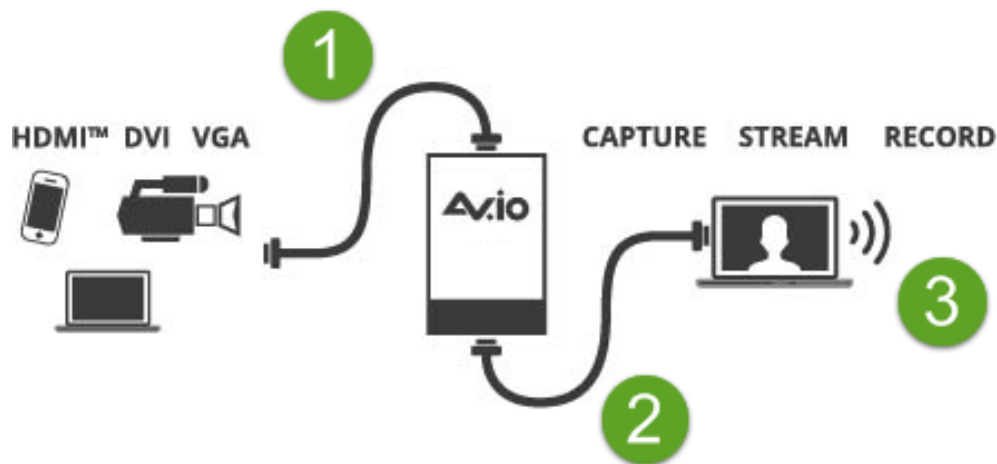
Before you begin the connection process, you will require:

- An HDMI™, DVI or VGA video source (with or without audio)
- Your AV.io HD device
- A capture desktop computer, laptop or notebook
- A USB 3.0 cable (included with purchase) to connect to your AV.io HD to your capture computer
- A DVI cable, VGA to DVI cable, or HDMI adapter (all three included with purchase) to connect your video source to your AV.io HD

Once you have these things ready to go, you can now begin the simple process of hooking up your AV.io HD so you can start capturing!

To connect your AV.io HD for capture:

1. Connect your AV.io HD device to your video source
2. Connect your AV.io HD device to your computer
3. Open your favorite third-party application, select AV.io HD from the list of available cameras and start capturing!



And that's it! No drivers to install and no extensive set-up! Just connect the cables and you're ready to go!

# Getting started

Welcome and thank you for buying Epiphan Video's AV.io HD!

This guide contains all the information necessary to successfully use AV.io HD to quickly and easily capture live video content without any configuration – simply connect the cables and you're ready to go!



This guide starts off by jumping right into it by showing you how to start capturing video, then we'll take you through how AV.io HD works, followed with some technical reference material, and we'll conclude with a walkthrough of some optional video capture configuration.



Let's get started!

## What's in the box?

Your AV.io HD product contains everything you need to easily capture live video content with minimal setup. Your purchase includes the following:

**Table 1** Description of included purchase contents (for identification only, color and appearance of individual cables/adapters may vary).

|                               |   |   |
|-------------------------------|---|---|
| <p>AV.io HD video grabber</p> |  | <p>Your video capture device!</p>   |
| <p>DVI-to-VGA cable</p>       |  | <p>Connects a video source with a VGA port to your AV.io HD's DVI port. This cable is included with your AV.io HD purchase.</p> |

|   |  |   |
|---|--|---|
| <p>DVI single link cable (1 m / 3 ft)</p> |   | <p>Connects a DVI source to your AV.io HD's DVI port.</p>   |
| <p>HDMI-to-DVI adapter</p>                |   | <p>Connects an HDMI source to your AV.io HD's DVI port</p>  |
| <p>USB 3.0 cable (1 m / 3 ft)</p>         |  | <p>The USB 3.0 cable connects your AV.io HD video grabber with your computer's USB 3.0 or 2.0 port.</p> |

## System requirements

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System requirements are the barebones technical essentials your computer needs to work with AV.io HD.

System requirements to use AV.io HD include:

|   |   |
|---|---|
| <b>Video source</b>                               | Any VESA-compatible VGA, DVI or HDMI source. (AV.io HD cannot capture from HDCP encrypted sources)  |
| <b>Video capture workstation</b>                  | Any computer (laptop/desktop/other format) with: <ul style="list-style-type: none"> <li>• a compatible USB 3.0 host controller for SuperSpeed operation; or,</li> <li>• a USB 2.0 host controller (will limit maximum frame rate and resolution support)</li> </ul> |
| <b>Video capture workstation operating system</b> | Windows 7, Windows 8.1, Windows 10<br>Mac OSX 10.10 and up<br>Linux distribution with kernel 3.5.0 or higher  |
| <b>Processor frequency</b>                        | Minimum recommended value: 2.4 GHz  |
| <b>RAM</b>  | Minimum recommended value: 4 GB   |

## Technical specifications

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Technical specifications for AV.io HD are included in the table below.

|                           |   |
|---------------------------|---|
| <b>Connectors</b>         | DVI-I (integrated, digital and analog)<br>USB standard B type                     |
| <b>Input</b>              | HDMI (audio compatible)<br>VGA and DVI  |
| <b>Audio (HDMI) Input</b> | 16-bit and 24-bit PCM encoded audio at 32 kHz, 44.1 kHz and 48 kHz                |
| <b>Audio (UAC) output</b> | 16-bit 48 kHz stereo audio  |
| <b>Capture latency</b>    | Near-zero latency, although certain third-party applications may contribute delay |
| <b>HDCP Compliance</b>    | High-bandwidth digital content protection (HDCP) protected content                |

|  |   |  |
|--|---|--|
|  | cannot be captured  |  |
| <b>LED</b>   | LED indicates the status of AV.io HD  |  |
| <b>OS support<br/>(32-bit and 64-bit)</b>  | Windows 7, Windows 8.1, Windows 10<br>Mac OS X 10.10 and up<br>Linux distribution with kernel 3.5.0 or higher |  |
| <b>USB support</b>   | USB 3.0 and 2.0   |  |
| <b>Input Resolution</b>  | Standard and non-standard resolution from 640x360 up to 1920x1220   |  |
| <b>Supported output resolutions<br/>(at 15, 23.97, 24, 25, 29.97, 30, 50, 59.94 or 60 fps)</b> | 640x360<br>848x480<br>1024x768<br>1280x1024<br>1920x1080  | 640x480<br>960x540<br>1280x720<br>1600x1200<br>1920x1200 |
| <b>Dimensions</b>  | 3.54" x 2.36" x 0.91" (90 mm x 60 mm x 23 mm)   |  |

# Hardware

This section describes the physical features of your AV.io HD, including diagrams and hardware feature descriptions.

Topics covered include:

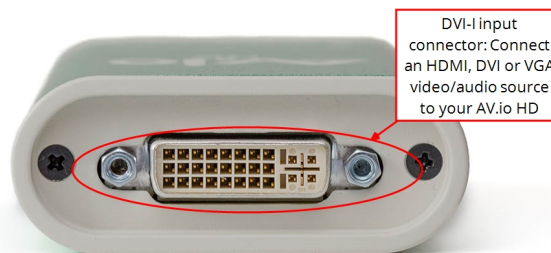
- [Hardware diagrams](#); and,
- [Indicator LED details](#)

## Hardware diagrams

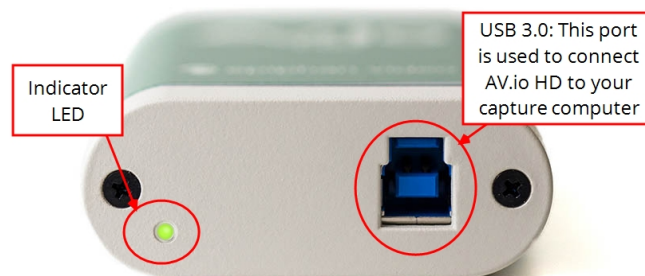
Your AV.io HD device includes an input, an output and an indicator light.

Input/output ports and indicator lights are identified and explained in the top and bottom cap view AV.io HD images below. Indicator light details are explained in the proceeding section.

### Top cap view:



### Bottom cap view:



## Indicator LED details

The color and action of the indicator LED depends on whether you are connected by USB 3.0 or USB 2.0. For maximum performance, always use a USB 3.0 port and the included USB 3.0 cable. Note that frame capture rate will be reduced when connected via USB 2.0.

From the operating system's UVC drivers, the application will receive the AV.io HD supported color space, resolution and frame rates. If you're not sure if your controller is USB 3.0 or USB 2.0, plug AV.io HD into the capture computer and look at the indicator LED. After initial boot up (red LED), blue is used for USB 3.0 and green is used for USB 2.0:



Blue LED means USB 3.0



Green LED means USB 2.0

| Connection type/LED color | USB 3.0 connection                                   | USB 2.0 connection                                   |
|---------------------------|--|--|
| Solid red                 | Firmware update in progress<br>AV.io HD initializing | Firmware update in progress<br>AV.io HD initializing |
| Blinking red              | Adjustment to VGA input in progress                  | Adjustment to VGA input in progress                  |
| Solid green               | N/A  | USB 2.0 connection active                            |
| Blinking green            | N/A  | Video and/or audio transferring successfully         |
| Solid blue                | USB 3.0 connection active                            | N/A  |
| Blinking blue             | Video and/or audio transferring successfully         | N/A  |

# Capture

Setting up your AV.io HD device to capture live video content couldn't be easier!

Before you begin the connection process, you will require:

- An HDMI, DVI or VGA video source
- Your AV.io HD device
- A capture computer, laptop or notebook
- A USB 3.0 cable (included with purchase) to connect to your AV.io HD to your capture computer
- A DVI cable, VGA to DVI cable, or HDMI adapter (all three included with purchase) to connect your video source to your AV.io HD

Once you have these things ready to go, you can now begin the simple process of hooking up your AV.io HD so you can start capturing!

## How AV.io HD works

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Once you're ready to start capturing, you'll need either a built-in or third-party application to capture video and audio content with AV.io HD.

The application communicates with AV.io HD and negotiates a **frame rate** (frequency at which frames in a video sequence are displayed) and **frame resolution** (size of a single video frame in pixels). Higher frame rate means smoother video capture while resolution determines the aspect ratio of the video output as well as its resolution and degree of definition.

With the help of AV.io HD, the content from your video source is automatically configured and captured on your computer through your selected application. If the application requests a frame size that is smaller or larger than your video source, AV.io HD automatically scales the video for you. For consistent and widely compatible output, audio is automatically resampled to 16-bit 48 kHz stereo audio.

No configuration required!

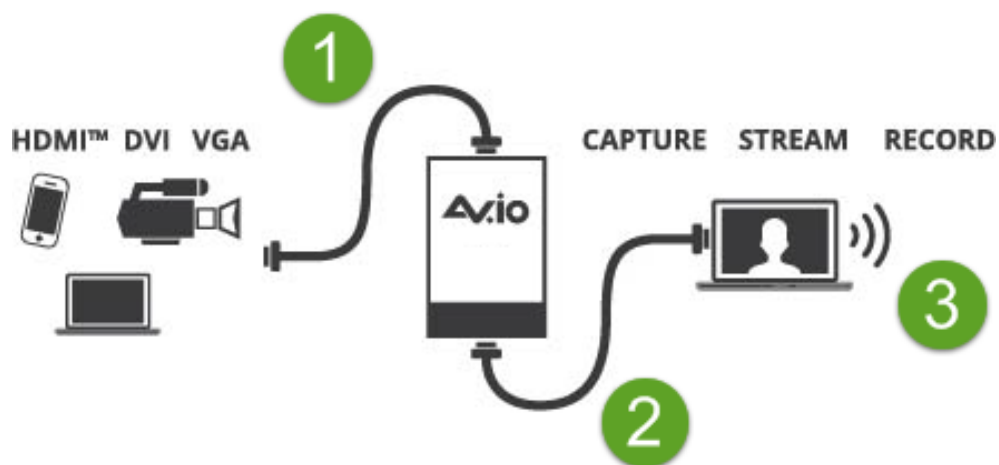
## Set up your AV.io HD for capture

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Connecting your AV.io HD to your capture computer is simple and is accomplished in three easy steps.

To connect your AV.io HD for capture:

1. Connect your AV.io HD device to your video source
2. Connect your AV.io HD device to your desktop computer, laptop or notebook
3. Open your favorite third-party application, select AV.io HD from the list of available input sources and start capturing!



And that's it! No drivers to install and no extensive set-up! Just connect the cables and you're ready to go!

## Resolutions, capture rates and aspect ratios

The **resolution** (also known as frame size or display mode) of a video signal, digital image, TV screen, computer monitor or other display device is a count of the number of pixels displayed horizontally and vertically. For example the resolution 1920x1080 (which is 1080p) creates an image that is 1920 pixels wide and 1080 pixels tall.

The **aspect ratio** of an image describes the proportional relationship between its pixel width and height. The resolution 1920x1080 (1080p) is quite a bit wider than it is tall. The ratio of its width to height is 16 to 9, represented as an aspect ratio 16:9.

AV.io HD outputs resolutions in commonly supported aspects ratios. The table below is a color-coded legend for interpreting the table of product resolutions below it:

| Aspect Ratio | Common Use  |
|--------------|---|
| 4:3          | Standard TV (NTSC/PAL) display and non-widescreen computer displays |
| 16:9         | Widescreen (HD) TV displays (1080p, 1080i, 720p etc)                |
| 16:10 (8:5)  | Widescreen computer displays  |
| 5:4          | Sometimes used in larger format computer monitors                   |

AV.io HD generates a list of the following possible resolutions for your capture application to select for output display:

|         |         |          |           |           |
|---------|---------|----------|-----------|-----------|
| 640x360 | 848x480 | 1024x768 | 1280x1024 | 1920x1080 |
| 640x480 | 960x540 | 1280x720 | 1600x1200 | 1920x1200 |

Captured video content is output to your application at **15, 30 or 60 frames per second** (your application chooses one of these frame rates) when captured over USB 3.0.

## Automatic image scaling & audio resampling



If your source content is larger or smaller than the frame size chosen by the application, AV.io HD automatically **scales your source** to match the desired frame size! No user configuration required!


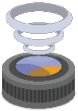



AV.io HD also automatically performs **audio resampling**, meaning that no matter the bit depth or frequency of audio through an HDMI audio source, AV.io HD automatically resamples your audio so that your application gets a consistent audio sample rate and bit depth, even if you change the video source!

## Third-party applications

AV.io HD uses pre-installed drivers on your OS (called **UVC drivers** and **UAC drivers**) to communicate with third-party applications and capture content. Due to AV.io HD's use of UVC/UAC technology, there is no need for driver installation. Just like a webcam, your AV.io HD device is immediately recognized as a camera device (like a web cam) and can be used to capture content via any UVC-compatible third-party application.

Third-party applications that work with AV.io HD include, but are not limited to the following list. Try your favorite capture application!

| Zero-install applications (included with your OS)  |   |   |
|--|---|---|
| <br><b>Skype</b><br>(with Windows 8.1 and Windows 10) | <br><b>Windows Camera app</b><br>(with Windows 8.1 and Windows 10) | <br><b>QuickTime</b><br>(with Mac OSX) |

| Popular applications available for download  |  |   |
|--|--|---|
| <br><b>Skype</b>      | <br><b>Wirecast</b>         | <br><b>QuickTime</b> |
| <br><b>Adobe FMLE</b> | <br><b>VLC media player</b> |   |

# Configuration options

Your AV.io HD device is ready to use right out of the box; however, there is support for additional configuration should you need it.

AV.io HD allows you to make adjustments to a captured VGA source and save the new capture settings to your AV.io HD for future use. For detail on how to adjust VGA capture settings, see [Advanced settings for VGA capture](#).

Firmware updates and changes to default capture settings can be applied to your AV.io HD using Epiphan's AV.io Config tool.

Detailed instructions on how to use AV.io Config can be found using the links below:

- [Install the AV.io Config tool](#)
- [Configure settings using AV.io Config tool](#)
- [Update firmware using the AV.io Config tool](#)

The AV.io Config tool allows you to change several settings to make changes to your video capture experience if necessary. Most users won't need to use this utility for anything other than firmware updates, but advanced users may find these tweaks help them get the most out of their AV.io HD.

These settings include:

- **input signal resolution**
- **aspect ratio preservation**

## Input signal resolution (disabled by default)

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There are two key descriptors used in the process of video capture using a UVC-based device:

**Extended Display Identification Data (EDID):** The EDID describes to the video source, video player or computer which standard video formats (resolutions, frame rates, etc.) are supported by the capture device as video input.

**UVC Descriptor:** The UVC describes to the capture host computer which formats are available at the capture device USB port.

AV.io HD does not enforce a direct relationship between the input and output signals. The list of EDID and UVC descriptions are identical so that if the input and output formats are the same, the signal can pass through without scaling. However, if input and output are set to different formats, AV.io HD will automatically upscale or downscale video to the format requested as output by the capture software.

The **Use Input Signal Resolution** option allows you to use a video format that is not included on the EDID or UVC descriptors. When **Use Input Signal Resolution** is selected in the AV.io config tool, the input signal format is added to the UVC descriptor, which allows a 1:1 capture from the input video source. If the program you are using is compatible with the signal, you can capture your source in its original format.

For example, if your video resolution was 1680×1200, a resolution which is not on the EDID or UVC descriptor list, normally you would have to select the closest possible resolution from the provided output descriptor list in your capture application, and then AV.io HD would automatically scale the video up or down to that format. However, if you select the **Use Input Signal Resolution** option, your capture application's list will have 1680×1200 as an option for output format.

There are two scenarios in which this feature will not perform as expected.

1. Not all third-party applications are able to support custom resolutions. AV.io HD will send the custom resolution to the application, but if it is unable to use the resolution, the application will override any AV.io HD custom capture settings.
2. In a Windows environment, due to restrictions set by Microsoft's Windows Hardware Quality Labs certification, most graphics adapters or drivers will not output resolutions not included in the EDID file of the connected display device. In the scenario where a resolution that is not included in the AV.io HD standard resolution is requested, the Graphics adapter and driver will apply the resolution requested and then upscale it to AV.io HD's default resolution. This means the **Use input signal resolution** feature will not add a custom resolution to the UVC descriptor and the capture software will be limited to the pre-defined resolutions.

Outside of these restrictions, the feature is recommended in any scenario where you wish the resolution of your captured video to be identical to the original video source.

## Preserve aspect ratio (enabled by default)

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When enabled, your AV.io HD preserves the aspect ratio of your input signal by adding black bars to the sides or top and bottom of the frame (only for cases when the application using the signal requests a frame size with a different aspect ratio). For example, with this option enabled, a 4:3 input signal gets black bars added to the sides of the image when viewed in an application that requests a 16:9 aspect ratio. With this option disabled, the 4:3 image is instead stretched to fit the full 16:9 size.

Now that you've learned what these configuration settings do, you may want to [Configure settings using AV.io Config tool](#) or [Update firmware using the AV.io Config tool](#).

## User modes

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The AV.io Config tool gives users the ability to specify custom resolutions. You can make use of up to three at one time, so you don't have to worry about changing the list every time you change which source you have

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connected.

To change the custom resolutions with the AV.io Config tool:

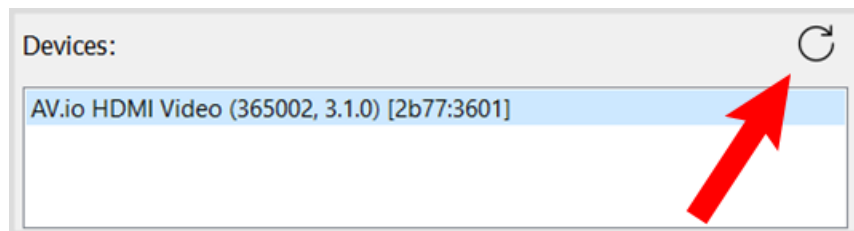
1. If needed, install the AV.io Config tool. For details specific to your OS, see [Install the AV.io Config tool](#).
2. Connect your AV.io HD device to your computer, laptop or notebook.
3. Open the AV.io Config tool.



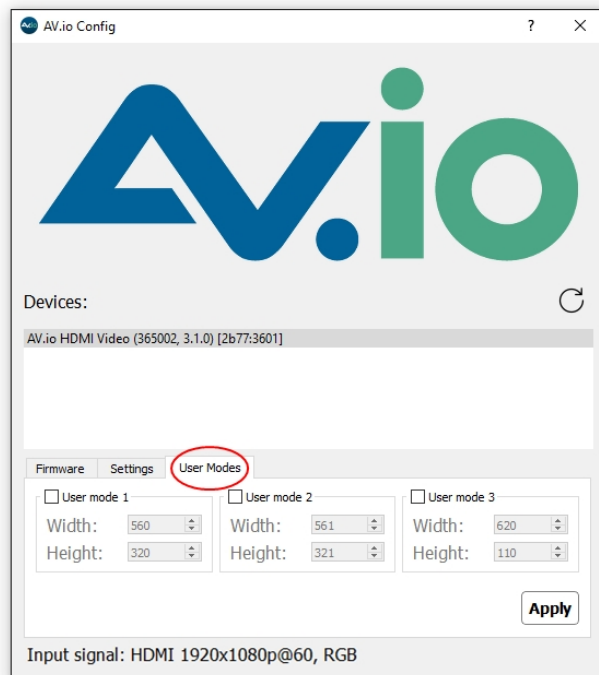
4. Select your AV.io HD device from the list under the Devices heading.



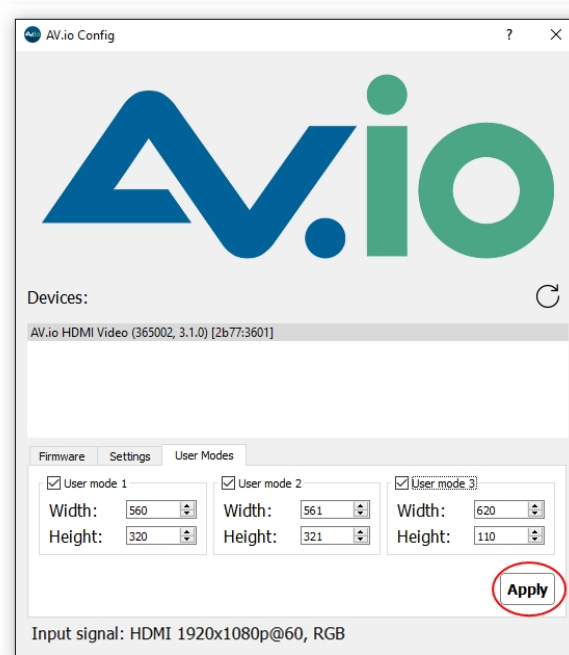
If your video grabber is not displayed, press the Refresh icon to refresh the list of connected devices.



5. Click the **User modes** tab; the User modes page appears.



6. To create a custom resolution, click the check box for one of the user modes. The grayed-out area becomes open for changes.
7. Select the text box labeled **Width**, erase the number that is currently in the box, and type out the width of the custom resolution you wish to use. Then do the same for the resolution height in the text box labeled **Height**.
8. Click **Apply**; The custom resolution you defined will now be added to the list of output resolutions that you are allowed to select from the settings menu from the third-party application of your choice.



9. If needed, you may follow the same process for **User mode 2** and **User mode 3**. If all three are checked and applied, all three custom resolutions selected will appear in the list of resolutions. You may change the definition of any of these three resolutions at any time.

There are two scenarios in which this feature will not perform as expected.

1. Not all third-party applications are able to support custom resolutions. AV.io HD will send the custom resolution to the application, but if it is unable to use the resolution, the application will override any AV.io HD custom capture settings.
2. In a Windows environment, due to restrictions set by Microsoft's Windows Hardware Quality Labs certification, most graphics adapters or drivers will not output resolutions not included in the EDID file of the connected display device. In the scenario where a resolution that is not included in the AV.io HD standard resolution is requested, the Graphics adapter and driver will apply the resolution requested and then upscale it to AV.io HD's default resolution. This means the **User modes** feature will not add the custom resolutions to the UVC descriptor and the capture software will be limited to the pre-defined resolutions.

Outside of these restrictions, the feature is recommended in any scenario where you wish to use a custom output resolution.

## Install the AV.io Config tool

---

Epiphan's AV.io Config tool is used for loading firmware updates on your AV.io HD and for advanced settings changes.



You may install AV.io Config on the same computer(s) where you use AV.io HD, or only on one computer for configuration. All firmware updates and settings changes are saved to the device and work without any software installed on the computer.

To install the AV.io Config tool, follow the directions below for your computer's operating system.

### Windows

1. Download the AV.io Config package under the **Windows** heading on the AV.io HD Downloads page on Epiphan's web site.  
<http://www.epiphan.com/support/avio-hd-drivers-documentation/>
2. Extract all the files from the zip file (remember the location you're unzipping to).
3. Browse to the unzip folder and open the AV.io Config tool by double-clicking on **AVioConfig.exe**. (Depending on your local security settings, you may need to right-click and choose to run the file as an administrator).
4. AV.io Config starts! If your video grabber is connected to the computer by USB, it is detected.

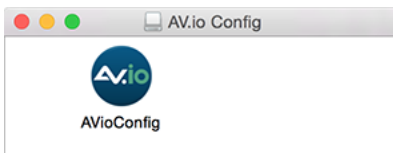


## Mac

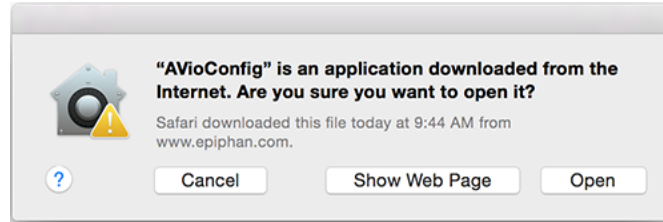
1. Download the AV.io Config package under the **Mac OS X** heading on the AV.io HD Downloads page on Epiphan's web site.

<http://www.epiphan.com/support/avio-hd-drivers-documentation/>

2. Double-click the downloaded file to open the disk image package.



3. If desired, drag the AVioConfig application to your desktop or another location where you will find it for future use.
4. Double-click the AVioConfig application icon to launch AV.io Config; a warning box appears.



5. Click **Open**.
6. AV.io Config starts! If you video grabber is connected to the computer by USB, it is detected.



## Linux

1. Download the AV.io Config package under the **Linux** heading on the AV.io HD Downloads page on Epiphan's web site.

<http://www.epiphan.com/support/avio-hd-drivers-documentation/>

2. Untar and unzip the contents of the .tar.bz2 file (tar -xjvf can be used to untar and unzip in one command).
3. Browse (or change directories) to the unzip folder.
4. Either: Double-click the AV.io Config application icon or execute the AV.io Config application from the command line to launch AV.io Config (./AVioConfig).
5. AV.io Config starts! If you video grabber is connected to the computer by USB, it is detected.



## Configure settings using AV.io Config tool

Epiphan's AV.io Config tool gives advanced users the ability to change several settings to their video capture experience. The settings that can be changed include: Re-numerate input signal resolution, aspect ratio preservation and performance mode. See [Configuration options](#) for more details.

To change the configurable settings with the AV.io Config tool:

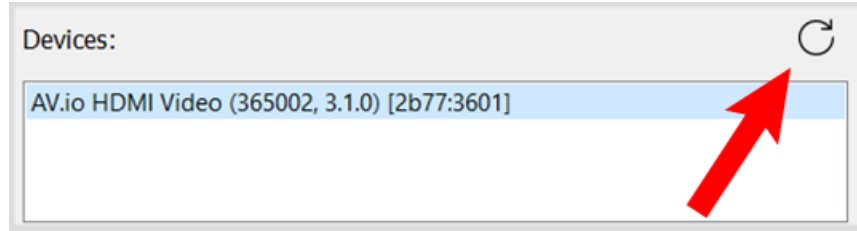
1. If needed, install the AV.io Config tool. For details specific to your OS, see [Install the AV.io Config tool](#).
2. Connect your AV.io HD device to your computer, laptop or notebook.
3. Open the AV.io Config tool.



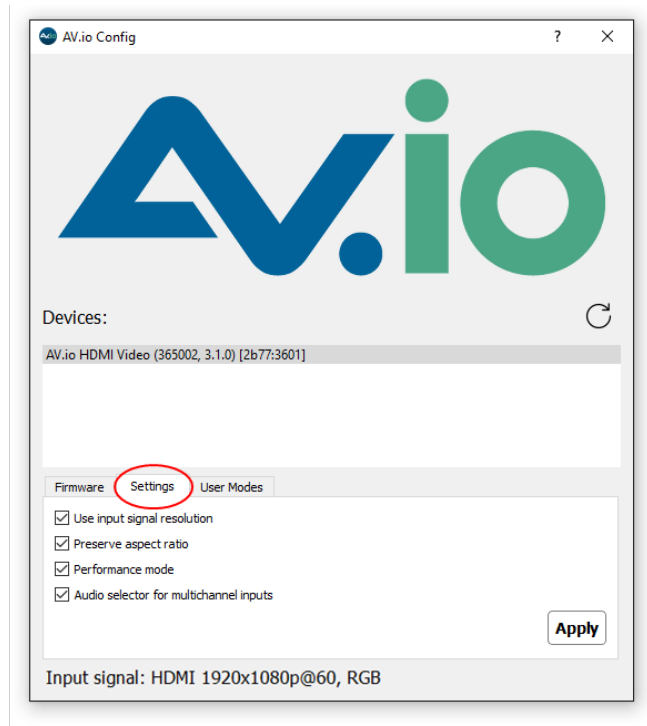
4. Select your AV.io HD device from the list under the Devices heading.



If your video grabber is not displayed, press the Refresh icon to refresh the list of connected devices.



5. Click the **Settings** tab; the settings page appears.



6. Enable or disable the individual settings by clicking each checkbox according to your needs. See [Configuration options](#) for a description of each setting.

## Identifying the input resolution on your AV.io HD

The AV.io Config tool can help you figure out exactly what information your video source is sending. Plug in the source and select your device. The UI detects information about the source and presents it at the bottom of the window.



The line tells you what connector the video source is using (in this case, HDMI), the exact resolution of the source (1920×1080p), the frame rate the source is outputting (60 fps) and the color model (RGB).

## Update firmware using the AV.io Config tool

From time-to-time Epiphan Video releases firmware updates for our video grabbers. If you [register your product](#) and agree to be notified of product updates, you'll receive an email when there is an AV.io HD update available for download.

When new firmware is available, you can load this firmware onto your AV.io HD using the AV.io Config tool and the steps below.



Attempting to update firmware while running virtual machines will result in firmware upgrade failure.

To update firmware using the AV.io Config tool:

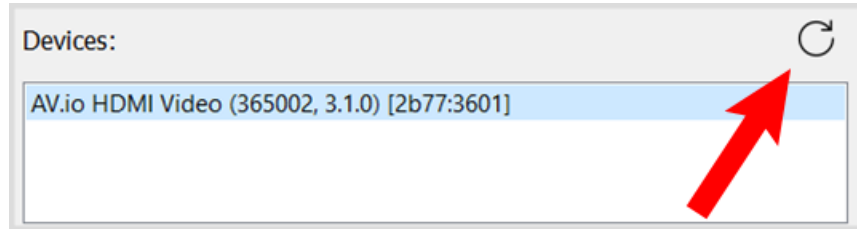
1. If you haven't already done so, download and install the AV.io Config tool. See [Install the AV.io Config tool](#).
2. Download the firmware update file from the Epiphan website, as described in your firmware update notification email or discussion with your vendor.
3. Connect your AV.io HD device to your computer, laptop or notebook.
4. Open the AV.io Config tool.



- 5. Select your AV.io HD device from the list under the Devices heading.



If your AV.io HD device is not displayed, press the Refresh icon to refresh the list of connected devices.



- 6. Using the diagram below, check the current firmware version of your AV.io HD. If it is the same version as the new firmware you downloaded, there is no need to do the firmware update.

- 7. Click the **Firmware** tab



- 8. Click the **folder icon** to navigate to the saved location of the firmware, and click **Update** to update your video grabber to the selected firmware; an update bar appears and displays the progress of the update.



Do not disconnect your AV.io HD at any point during the update process! Doing so may cause irrevocable errors and/or permanently damage the device.

- When the update is finished the progress bar turns green and displays “Update Completed” (Note the firmware update will not be automatically reflected in the Devices list unless the **Refresh** icon is clicked). You may now safely disconnect your AV.io HD if needed.




When updating firmware on a Mac, the “Update Completed” text will not be displayed. The firmware upgrade is complete when the progress bar fills the width of the AV.io Config window and the window contents are no longer greyed out.

## Advanced settings for VGA capture

AV.io HD allows you to precisely adjust the **brightness/contrast** and **pan/tilt** (horizontal and vertical sync) capture settings when capturing from a VGA source.

VGA capture adjustments are made using a third-party application and are saved to your AV.io HD device.

For example:

| Original VGA capture   | Adjusted VGA capture  |
|--|---|
|  <p><b>Issues:</b> The captured VGA source is too bright and shifted slightly out of the frame.</p> |  <p><b>Resolution:</b> VGA capture adjustments help balance brightness &amp; contrast and fit the source into the frame</p> |

The following table lists several examples of third-party applications capable of VGA capture adjustments (any other tool that exposes UVC adjustments for VGA sources can also be used):

VGA capture applications

| Windows                  | Mac                      | Linux                 |
|--------------------------|--------------------------|-----------------------|
| Adobe FMLE (recommended) | Adobe FMLE (recommended) | v4l2ucp (recommended) |
| GraphStudioNext          | Webcam Settings app      | uvcdynctrl            |
| AMCap                    |                          | gucvview              |

See below for examples of how to adjust VGA capture settings and restore defaults on Windows, Mac and Linux computers:

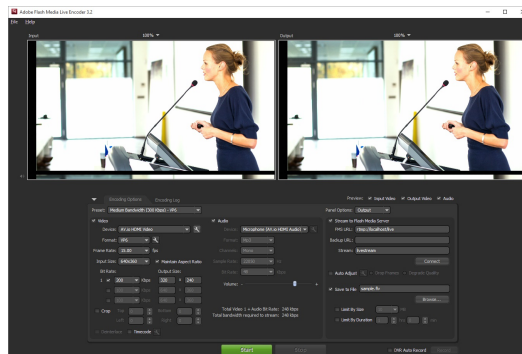
- [Adjusting VGA capture settings on Windows/Mac \(using Adobe FMLE\)](#)
- [Restoring VGA capture settings to default on Windows/Mac \(using Adobe FMLE\)](#)
- [Adjusting VGA capture settings on Linux \(using v4l2ucp\)](#)
- [Restoring VGA capture settings to default on Linux \(using v4l2ucp\)](#)

## Adjusting VGA capture settings on Windows/Mac (using Adobe FMLE)

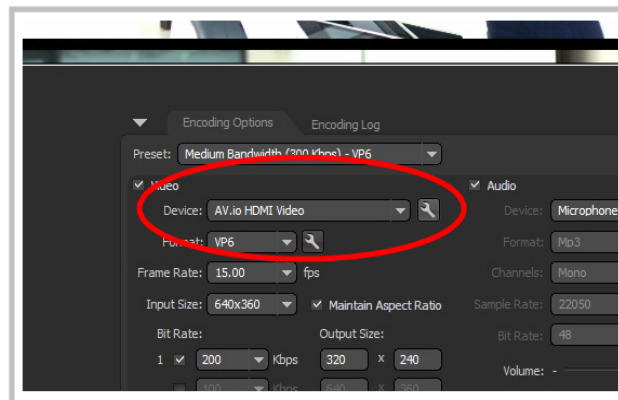
VGA capture settings can be set on your AV.io HD device using any number of different applications on Windows/Mac (see [VGA capture applications](#)). This example shows how to use Adobe's free Flash Media Live Encoder (FMLE) to make these changes. You do not need to use Adobe FMLE for the rest of your capture session, the changes are saved to the AV.io HD device.

To adjust your AV.io HD VGA capture settings on your Windows or Mac computer (using Adobe FMLE):

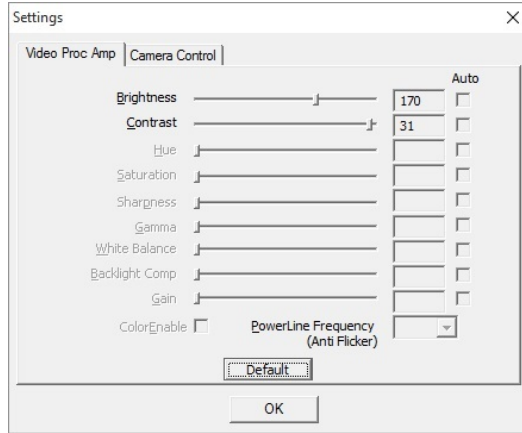
1. Connect your AV.io HD to both your source and capture computer and open Adobe FMLE.



2. In the default view under the **Encoding Options** tab, select AV.io HD from the **Device** dropdown menu.

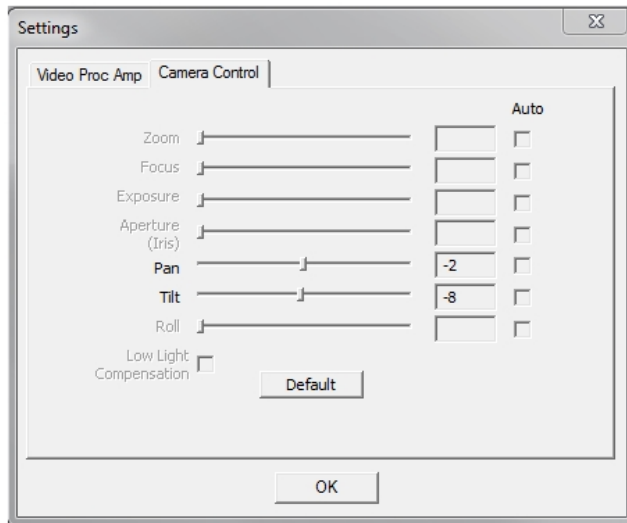


3. Click the **wrench icon**; the Settings windows opens.
4. Click the **Video Proc Amp** tab and adjust the Brightness and Contrast values.



- 5. Click the **Camera Control** tab and set the Pan and Tilt values.

**Pan** affects horizontal sync and can resolve issues where the image is too far to the left or right of the screen. **Tilt** controls vertical sync and can resolve issues where the bottom edge of the frame isn't properly detected. For best results, change the values in small increments and test.



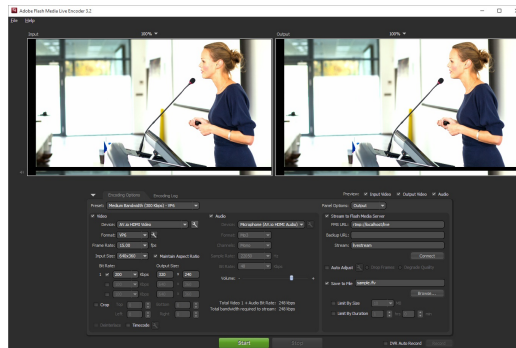
- 6. Click **OK** to save your changes.

## Restoring VGA capture settings to default on Windows/Mac (using Adobe FMLE)

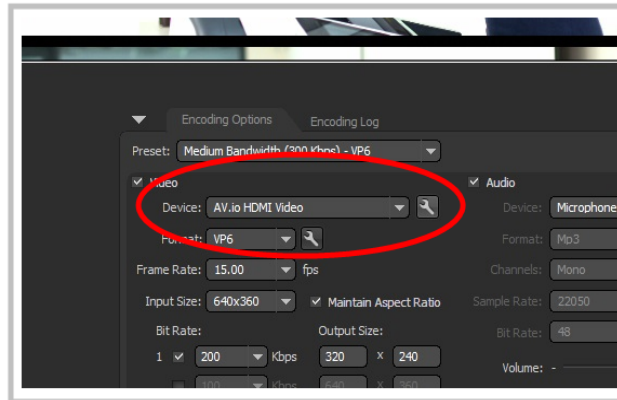
Adjustments made to VGA capture settings using a third-party application are saved to the AV.io HD unit itself. Reverting the changes to the default values requires the use of a third-party application.

To restore the default AV.io HD VGA capture settings on your Windows or Mac computer (using Adobe FMLE):

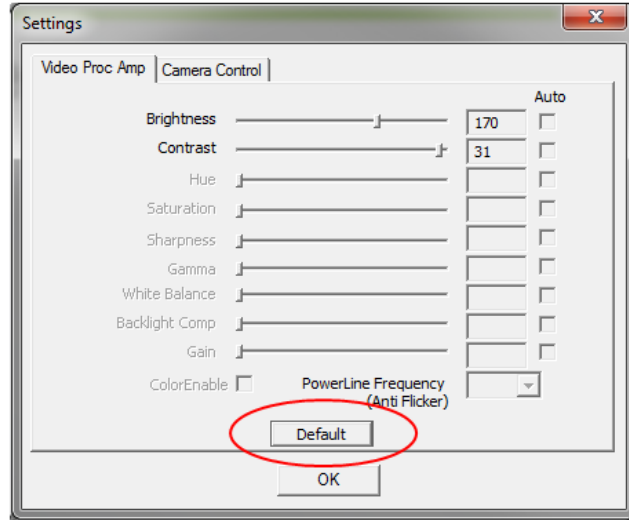
1. Connect your AV.io HD to both your source and capture computer and open Adobe FMLE.



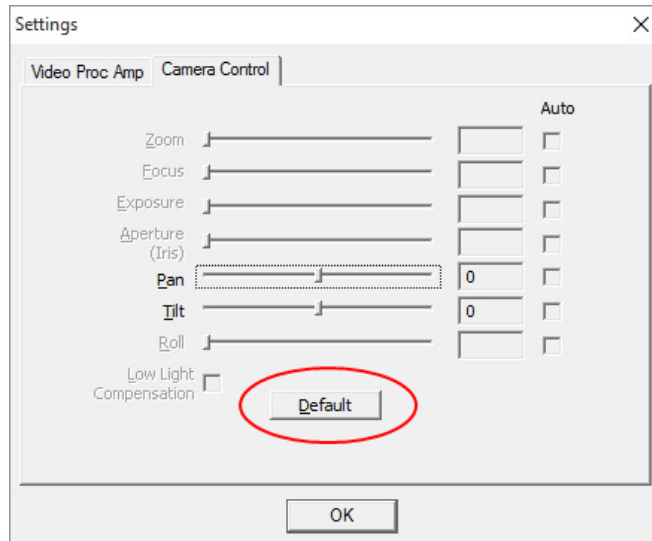
2. In the default view under the **Encoding Options** tab, select AV.io HD from the **Device** dropdown menu.



3. Click the **wrench icon**; the Settings windows opens.
4. Select the **Video Proc Amp** tab and click the **Default** button; brightness/contrast settings are restored.



- 5. Select the **Camera Control** tab and click the **Default** button; the pan/tilt default settings are restored.



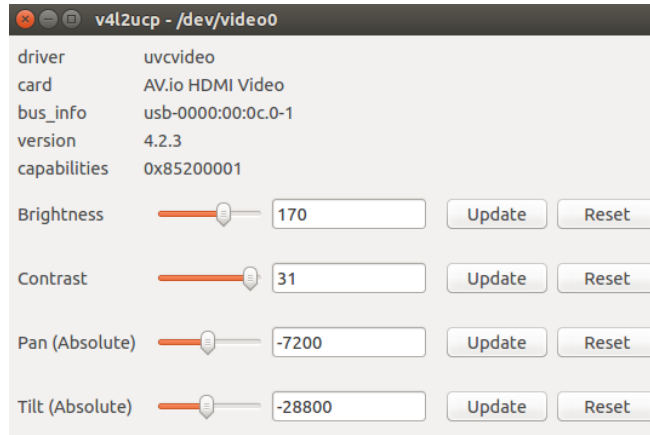
- 6. Click **OK** to save your changes.

## Adjusting VGA capture settings on Linux (using v4l2ucp)

VGA capture settings can be set on your AV.io HD device using any number of different applications on Linux (see [VGA capture applications](#)). This example shows how to use v4l2ucp to make these changes. You do not need to use v4l2ucp for the rest of your capture session, the changes are saved to the AV.io HD device.

To adjust your AV.io HD VGA capture settings on your Linux computer (using v4l2ucp):

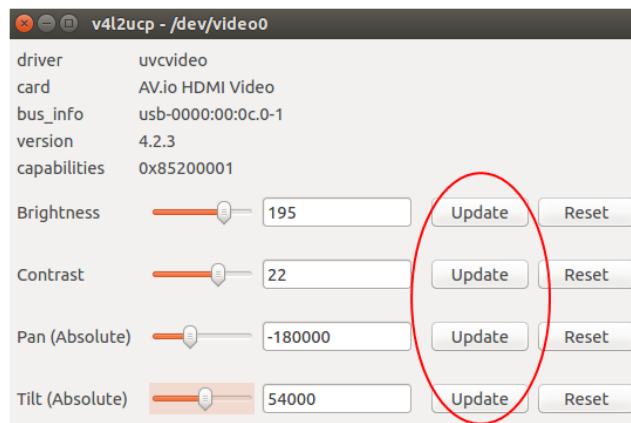
- 1. Connect your AV.io HD to both your source and capture computer and open v4l2ucp.



- Adjust the Brightness, Contrast, Pan and/or Tilt slider values as required.

**Pan** affects horizontal sync and can resolve issues where the image is too far to the left or right of the screen. **Tilt** controls vertical sync and can resolve issues where the bottom edge of the frame isn't properly detected. For best results, change the values in small increments and test.

- Press **Update** for each setting changed; the respective setting adjustments are saved.

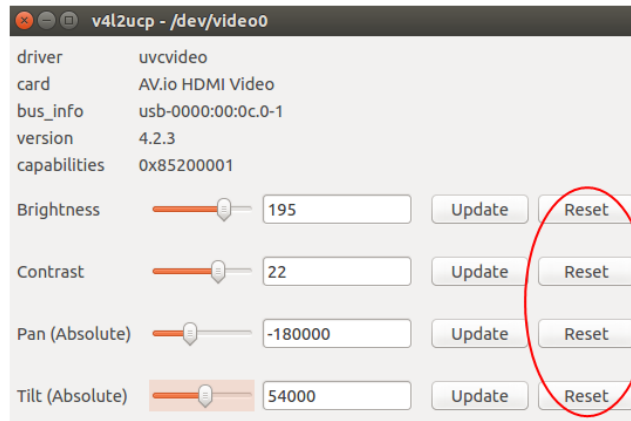


## Restoring VGA capture settings to default on Linux (using v4l2ucp)

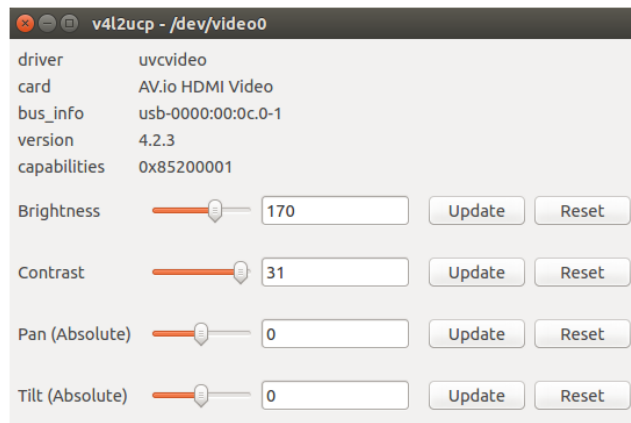
Adjustments made to VGA capture settings using a third-party application are saved to the AV.io HD unit itself. Reverting the changes to the default values requires the use of a third-party application.

To restore the default AV.io HD VGA capture settings on your Linux computer (using v4l2ucp):

- Connect your AV.io HD to both your source and capture computer and open v4l2ucp.
- Press **Reset** for each of the Brightness, Contrast, Pan or Tilt values you wish to restore.



3. Press **Update** for each setting changed; the respective setting adjustments are saved.



# Limitations and known issues

This section includes known issues or limitations that affect functionality or usability and ways that you can work around these limitations.

## Affecting all operating systems

- **UVC-314:** With the exception of the first capture after system reboot, the very first captured frame is always green.
  - **Workaround:** Remove the green frame in post-production editing. If streaming the captured video, begin streaming after the initial green frame has already been captured.

## Affecting Windows

- **UVC-270:** Windows 10: Sometimes, Windows 10 will not recognize the grabber properly when connected by a Fresco FL1100 USB 3.0 controller.
  - **Workaround:** Press the refresh icon to refresh the device list or unplug and reconnect the USB. If neither of these work, a different USB 3.0 host controller might be required.
- **UVC-270:** Windows 7/8.1: The AV.io Config tool may display the AV.io HD device more than once in the device list possibly causing user confusion.
  - **Workaround:** Simply press the refresh icon to refresh the device list; only one AV.io HD device is displayed.

# Troubleshooting

Use the follow table for help if you are experiencing problems or unexpected behavior from your AV.io HD.

## Affecting Windows

| Symptom(s)   | Action(s) to resolve  |
|--|---|
| Incorrect input resolutions detected                   | If using <b>Windows 8.1 or 10</b> with <b>VLC Media Player 2.2.1</b> , downgrade to an earlier version of VLC or use a different capture application, such as Adobe FMLE.   |
| Captured video file displays black screen when opened. | If capturing on <b>Windows 8.1</b> using <b>Windows Movie Maker</b> with your AV.io HD connected to an <b>Etron EJ88H USB 3.0/2/0 host controller</b> , switch to a different capture application, connect to a different USB port, or upgrade to Windows 10.   |
| Recorded file does not have audio.                     | If capturing on <b>Windows 8.1</b> using <b>Windows Camera</b> with your AV.io HD connected to a <b>Texas Instruments TSub USB 3.0 controller</b> , switch to a different capture application (such as VLC Media Player) or upgrade to Windows 10.  |
| Firmware update fails                                  | If updating on a computer running Windows <b>8.1 or 10</b> with your AV.io HD connected to an <b>Etron 3.0 host controller</b> , perform the firmware update on another computer (without an Etron USB host controller) or using another USB port on the same computer. Note that USB 2.0 can be used for firmware updates. |

## Affecting Mac

| Symptom(s)   | Action(s) to resolve  |
|--|---|
| AV.io HD is specified as the capture device in the application, but capture occurs using a different device connected to the computer (such as a web cam). | If using <b>VLC Media Player 2.2.1</b> , disconnect all capture devices except AV.io HD, downgrade to an older version of VLC media player or use a |

|  |   |
|--|---|
|  | different capture application.  |
| Recorded file does not have audio.   | If using <b>VLC Media Player 2.2.1</b> , downgrade to an earlier version or use a different capture application, such as Quicktime.                         |
| Video doesn't update (appears frozen) when using AV.io HD as the video source for Skype video calls. | Disconnect and reconnect AV.io HD. If the problem persists, use a different capture computer. This problem appears to happen with regular web cams as well. |

## Affecting Ubuntu

| Symptom(s)  | Action(s) to resolve  |
|---|---|
| Video cannot be resumed if stopped during a Skype call.   | If capturing on <b>Ubuntu 14.04 LTS</b> with your AV.io HD connected to an <b>Eron EJ168A USB 3.0 controller</b> , switch to a different USB port or simply avoid stopping the Skype call. If it is not possible to stop the Skype call or if it stops accidentally, disconnect and reconnect the device. You may need to restart the video call. |
| Video capture fails when the capture computer recovers from sleep mode, even if capture was stopped prior to sleep mode | If capturing on <b>Ubuntu 15.04</b> with your AV.io HD connected to a <b>Texas Instruments TUSB7320 USB 3.0 host controller</b> , switch to a different USB port or simply disconnect and re-connect AV.io HD's USB 3.0 cable to the capture computer.  |

## Affecting Chromebook

| Symptom(s)  | Action(s) to resolve   |
|---|--|
| AV.io HD is not detected as a valid audio device. | If capturing using <b>Chromebook Apps Clipchamp</b> and <b>WebRTC</b> on Google <b>Chrome OS v43.0.2357.125 (64 bit)</b> , use a different Chromebook app to capture both video and audio, such as Screencastify or MediaCore Capture. |

# Releases and features

This section outlines the features introduced with previous AV.io HD firmware releases.

## Release 2.1.1 features

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- VGA capture customization

## Release 1.0.13 features

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- Improved rate adjustment
- AV.io HD web help

## Release 1.0.10 features

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AV.io HD's initial release! Product features include:

- Simplicity of use
- HD video capture
- Automated capture configuration
- Extensive third party support

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October 6, 2016

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## Important Safety Warnings

**WARNING:** This product has no user-serviceable parts and the battery used in this device is not replaceable. Do not attempt to disassemble. Return the device for service.

**CAUTION, RISK OF ELECTRIC SHOCK:** This device may have multiple AC power cords installed. All power sources shall be disconnected before servicing to avoid shock hazard.

**ATTENTION:** Cet appareil ne contient aucun composant pouvant être entretenu ou réparé par l'utilisateur. En cas de panne, retourner l'appareil pour réparation.

**ATTENTION, RISQUE DE CHOC ÉLECTRIQUE:** Cet appareil peut être équipé de multiples cordons d'alimentation en courant alternatif. Pour placer cet appareil hors tension, débrancher tous les cordons d'alimentation sans exception.

## FCC & CE Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference
2. This device must accept any interference received, including interference that may cause undesired operation.

Marking by the symbol **CE** indicates compliance of this device with EMC directive of the European Community and meets or exceeds the following technical standard.

EN 55022 - Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment.



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