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User Guide

Epiphan AV.io SDI™

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Product feedback

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.

Specifications

Go to the Epiphan Video website to get the most recent product specifications and additional information about this product.

Warranty

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

Technical support

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
- 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

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Firmware 4.0.0 release notes

Firmware 4.0.0 is a maintenance release that fixes some minor issues and improves the memory allocation performance of the AV.io SDI.

Overview

AV.io SDI is the easiest SDI 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 SDI, ensuring compatibility with your favorite software, including Skype, Wirecast and QuickTime.

What's fixed

Corrected display of 1920×1080p 30 fps images from SDI

Images captured at 1920×1080p 30 fps using AV.io SDI display properly now when viewed on Windows 10 in VLC player 2.2.6 and in Pearl-2.

Registering your AV.io SDI

Why should I register my AV.io SDI?

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

1. Go to 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.

Table of contents

Registering your AV.io SDI ... iii

Getting started ... 1

About AV.io SDI ... 1
What's in the box? ... 1
Hardware ... 2
Hardware diagrams ... *2*
Indicator LED details ... *4*
Quickstart ... 5
Technical specifications ... 6
System requirements ... *7*

Capture ... 8

How AV.io SDI works ... 9
Set up your AV.io SDI for capture ... 10
Resolutions, capture rates and aspect ratios ... 11
Automatic image scaling & audio resampling ... 12
Third-party applications ... 13

Configuration ... 14

Install the AV.io Config tool ... 15
Windows ... *15*
Mac ... *16*
Linux ... *17*
Update firmware using the AV.io Config tool ... 19
Identifying the input resolution on your AV.io SDI ... 23
Configure settings using AV.io Config tool ... 24
Advanced configuration options ... 26
Use input signal resolution (disabled by default) ... *26*
Preserve aspect ratio (enabled by default) ... *27*
Performance mode (enabled by default) ... *27*
Audio selector for multichannel inputs (disabled by default) ... *27*
Set custom resolution user modes ... 28

Appendices ... 31

Troubleshooting ... 32
Limitations and known issues ... 35
Software license ... 36

Getting started

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

This guide contains all the information necessary to successfully use AV.io SDI 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 SDI works, followed with some technical reference material, and we'll conclude with a walkthrough of some optional video capture configuration.

Let's get started!

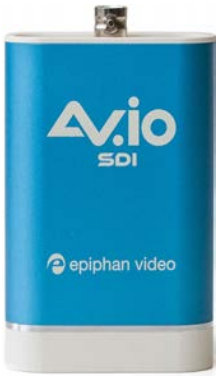
About AV.io SDI

To use AV.io SDI, 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.

What's in the box?

Your AV.io SDI 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).*

AV.io SDI video grabber		Your video capture device!

SDI cable (0.5 m)		Connects an SDI source to your AV.io SDI.
USB 3.0 cable (1 m / 3 ft)		The USB 3.0 cable connects your AV.io SDI video grabber with your computer's USB 3.0 or 2.0 port.

Hardware

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

Topics covered include:

- Hardware diagrams
- Indicator LED details

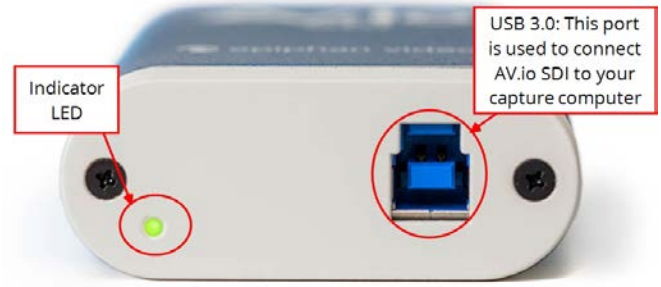
Hardware diagrams

Your AV.io SDI 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 SDI 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 SDI 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 SDI 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 AV.io SDI initializing	Firmware update in progress AV.io SDI initializing
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

Quickstart

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

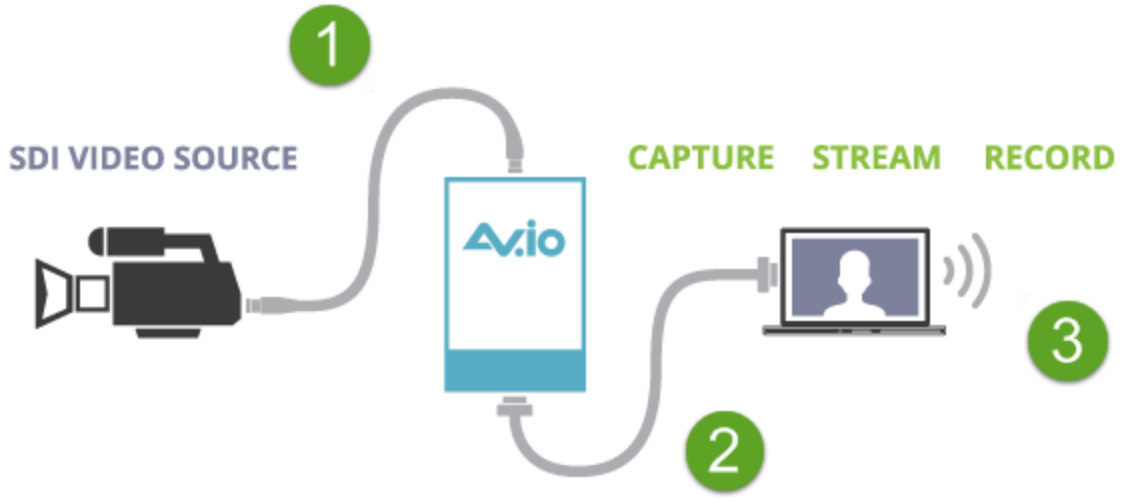
Before you begin the connection process, you will require:

- A 3G-SDI, HD-SDI or SD-SDI video source (with or without audio)
- Your AV.io SDI device
- A capture desktop computer, laptop or notebook
- A USB 3.0 cable (included with purchase) to connect to your AV.io SDI to your capture computer
- An SDI cable (included with purchase)to connect your video source to your AV.io SDI

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

To connect your AV.io SDI for capture:

1. Connect your AV.io SDI device to your video source
2. Connect your AV.io SDI device to your computer
3. Open your favorite third-party application, select AV.io SDI 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!

Technical specifications

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

Connectors	BNC style SDI connector USB standard B type
Input	SDI (3G-SDI, HD-SDI, SD-SDI) with BNC-style connector
Audio (SDI) Input	16-bit and 24-bit PCM encoded audio at 48 kHz
Audio (UAC) output	16-bit 48 kHz stereo audio
Capture latency	Near-zero latency, although certain third-party applications may contribute delay
HDCP Compliance	High-bandwidth digital content protection (HDCP) protected content cannot be captured
LED	LED indicates the status of AV.io SDI
OS support (32-bit and 64-bit)	Windows 7, Windows 8.1, Windows 10 Mac OS X 10.10 and up Linux distribution with kernel 3.5.0 or higher
USB support	USB 3.0 and 2.0
Input Resolution	Standard and non-standard resolution from 640x360 up to 1920×1080
Supported output resolutions (at 15, 23.97, 24, 25, 29.97, 30, 50, 59.94 or 60 fps)	640×360 640×480 960×540 1280×720 1920×1080
Dimensions	3.54" × 2.36" × 0.91" (90 mm × 60 mm × 23 mm)

System requirements

System requirements are the barebones technical essentials your computer needs to work with AV.io SDI. System requirements to use AV.io SDI include:

Video source	A 3G-SDI, HD-SDI or SD-SDI video source.
Video capture workstation	Any computer (laptop/desktop/other format) with: • a compatible USB 3.0 host controller for SuperSpeed operation; or, • a USB 2.0 host controller (will limit maximum frame rate and resolution support)
Video capture workstation operating system	Windows 7, Windows 8.1, Windows 10 Mac OS X 10.10 and up Linux distribution with kernel 3.5.0 or higher
Processor frequency	Minimum recommended value: 2.4 GHz
RAM	Minimum recommended value: 4 GB

Capture

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

Before you begin the connection process, you will require:

- A 3G-SDI, HD-SDI or SD-SDI video source
- Your AV.io SDI device
- A capture computer, laptop or notebook
- A USB 3.0 cable (included with purchase) to connect to your AV.io SDI to your capture computer
- An SDI cable (included with purchase)to connect your video source to your AV.io SDI

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

How AV.io SDI works

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 SDI.

The application communicates with AV.io SDI 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 SDI, 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 SDI automatically scales the video for you. For consistent and widely compatible output, audio is automatically resampled to 16-bit 48 kHz stereo audio.

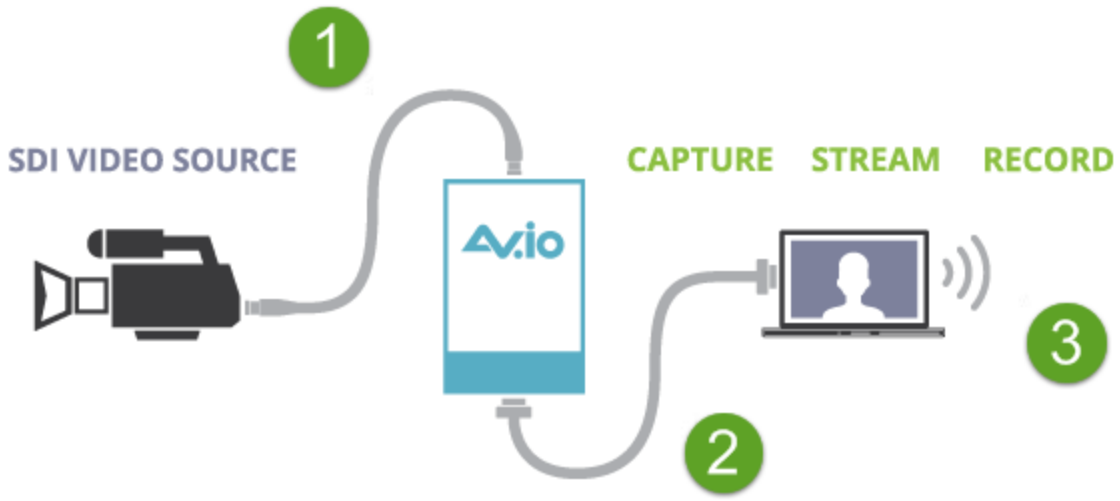
No configuration required!

Set up your AV.io SDI for capture

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

To connect your AV.io SDI for capture:

1. Connect your AV.io SDI device to your video source
2. Connect your AV.io SDI device to your desktop computer, laptop or notebook
3. Open your favorite third-party application, select AV.io SDI 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 1920×1080 (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 1920×1080 (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 SDI 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, SD-SDI resolution
16:9	Widescreen (HD) TV displays (1080p, 1080i, 720p etc)

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

640×360	960×540	1920×1080
640×480	1280×720	

Captured video content is output to your applicationat **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 SDI automatically **scales your source** to match the desired frame size! No user configuration required!

AV.io SDI also automatically performs **audio resampling**, meaning that no matter the bit depth or frequency of audio through an SDI audio source, AV.io SDI 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 SDI 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 SDI's use of UVC/UAC technology, there is no need for driver installation. Just like a webcam, your AV.io SDI 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 SDI include, but are not limited to the following list. Try your favorite capture application!

Zero-install applications (included with your OS)		
Skype (with Windows 8.1 and Windows 10)	**Windows Camera app** (with Windows 8.1 and Windows 10)	**QuickTime** (with Mac OS X)

Popular applications available for download		
Skype	**Wirecast**	**QuickTime**
Adobe FMLE	**VLC media player**	

Configuration

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

Firmware updates and changes to default capture settings can be applied to your AV.io SDI using Epiphan's AV.io Config tool. For settings to persist after power cycling, please allow 5 seconds before disconnecting or restarting device.

You likely won't need to use the AV.io Config tool for more than firmware updates, but advanced settings can help you tweak the performance to get the most out of your AV.io SDI.

Advanced configuration options include:

- **Use input signal resolution**
- **Preserve aspect ratio**
- **Performance mode**
- **Audio selector for multichannel inputs**

Detailed instructions on how to use AV.io Config include:

- Install the AV.io Config tool
- Update firmware using the AV.io Config tool
- Configure settings using AV.io Config tool
- Advanced configuration options
- Set custom resolution user modes
- Advanced settings for VGA capture

Install the AV.io Config tool

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

You may install AV.io Config on the same computer(s) where you use AV.io SDI, 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. For settings to persist after power cycling, please allow 5 seconds before disconnecting or restarting device.

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

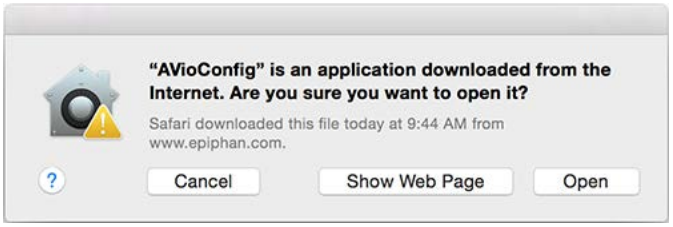
Windows

1. Download the AV.io Config package under the **Windows** heading on the AV.io SDI Downloads page on Epiphan's web site.
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 you video grabber is connected to the computer by USB, it is detected.

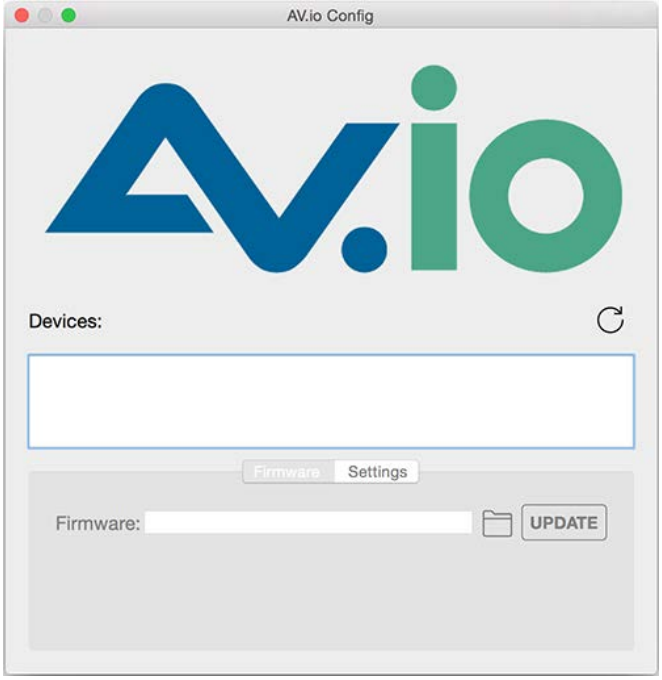
Mac

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

AV.io Config
Devices:
Firmware
Settings
Firmware:
UPDATE

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 SDI update available for download.

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

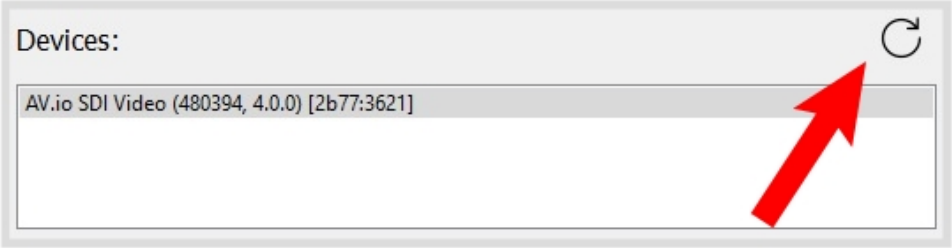
Attempting to update firmware while running virtual machines will result in firmware upgrade failure. For updates to persist after power cycling, please allow 5 seconds before disconnecting or restarting device.

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 SDI device to your computer, laptop or notebook.
4. Open the AV.io Config tool.

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

> If your AV.io SDI 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 SDI. 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.

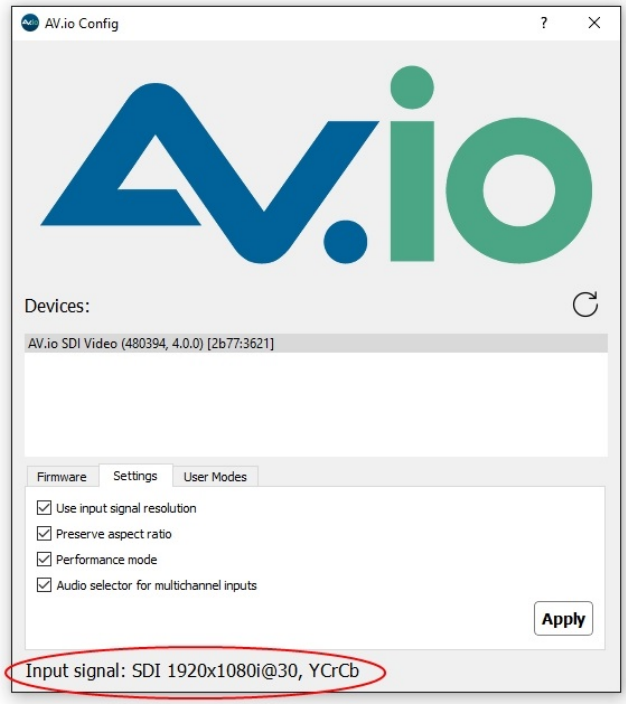
Do not disconnect your AV.io SDI at any point during the update process! Doing so may cause irrevocable errors and/or permanently damage the device.

9. 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 SDI 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.

Identifying the input resolution on your AV.io SDI

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).

Configure settings using AV.io Config tool

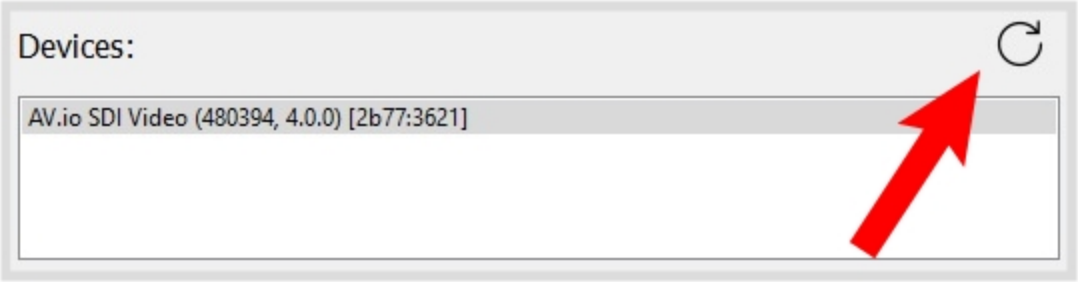
Epiphan's AV.io Config tool gives advanced users the ability to change several settings to their video capture experience. The settings that can be changed include: Re-numerate input signal resolution, aspect ratio preservation, audio pair selection and performance mode. For settings to persist after power cycling, please allow 5 seconds before disconnecting or restarting device. See Advanced configuration options for more details.

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

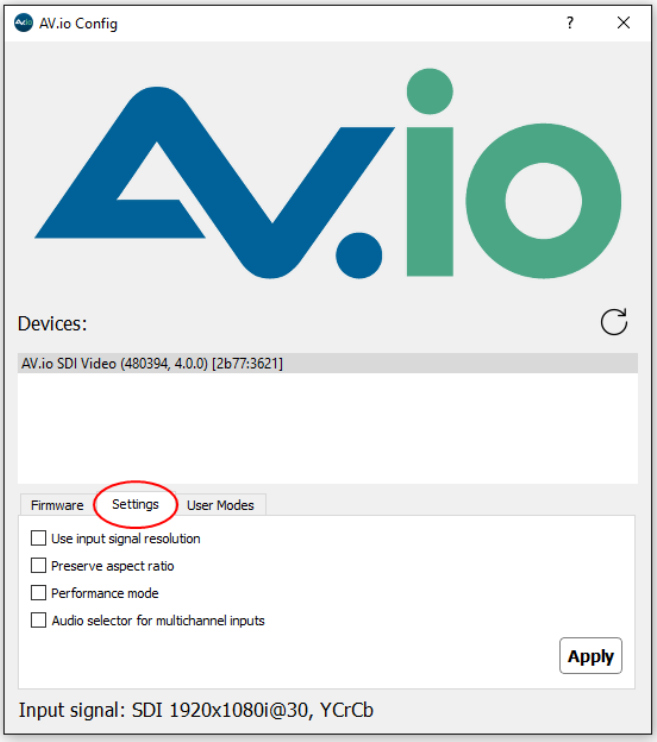
1. If needed, install the AV.io Config tool. For details specific to your OS, see Install the AV.io Config tool.
2. Connect your AV.io SDI device to your computer, laptop or notebook.
3. Open the AV.io Config tool.

4. Select your AV.io SDI 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, then click **Apply**. See Advanced configuration options for a description of each setting.

Advanced configuration options

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 SDI.

These options include:

- **Use input signal resolution**
- **Preserve aspect ratio**
- **Performance mode**
- **Audio selector for multichannel inputs**

Use input signal resolution (disabled by default)

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 SDI 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 SDI 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 SDI 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 SDI will send the custom resolution to the application, but if it is unable to use the resolution, the application will override any AV.io SDI 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 SDI standard resolution is requested, the Graphics adapter and driver will apply the resolution requested and then upscale it to AV.io SDI'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)

When enabled, your AV.io SDI 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.

Performance mode (enabled by default)

When enabled, your AV.io SDI enters and exits system suspend mode (i.e. sleep) faster by disabling support for the Suspend/U3 USB power state. This means AV.io SDI starts working again faster after your computer wakes from a system suspend state, at the cost of increased power consumption. Disabling this setting is ideal in situations where power consumption needs to be monitored, such as battery preservation in laptops.

Audio selector for multichannel inputs (disabled by default)

Your AV.io SDI can capture one of the (up to) 8 audio channel pairs provided over SDI. Use this option to allow your third party application to choose which audio pair to capture. By default, this is disabled and the first audio pair is captured.

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.

Set custom resolution user modes

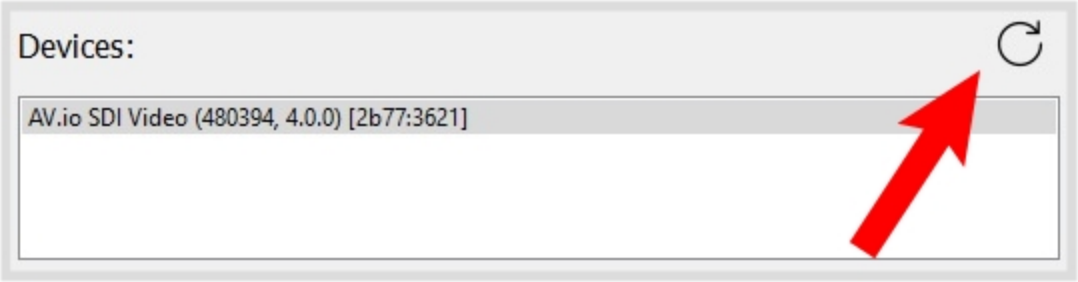
The AV.io Config tool gives users the ability to specify custom resolutions. You can make use of up to three at one time, so you don't have to worry about changing the list every time you change which source you have connected. For settings to persist after power cycling, please allow 5 seconds before disconnecting or restarting device.

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 SDI device to your computer, laptop or notebook.
3. Open the AV.io Config tool.

4. Select your AV.io SDI 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 SDI will send the custom resolution to the application, but if it is unable to use the resolution, the application will override any AV.io SDI 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 SDI standard resolution is requested, the Graphics adapter and driver will apply the resolution requested and then upscale it to AV.io SDI'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.

Appendices

The following appendices are included in this section:

- Troubleshooting
- Limitations and known issues
- Releases and features

Troubleshooting

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

Affecting all operating systems

Symptom(s)	Action(s) to resolve
The captured VGA source is too bright/dark or is shifted out of the frame.	See Advanced settings for VGA capture for step-by-step instructions on how to customize VGA capture settings.

Affecting Windows

Symptom(s)	Action(s) to resolve
Incorrect input resolutions detected	If using **Windows 8.1 or 10** with **VLC Media Player 2.2.1**, 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 **Windows 8.1** using **Windows Movie Maker** with your AV.io SDI connected to an **Etron EJ188H USB 3.0/2/0 host controller**, 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 **Windows 8.1** using **Windows Camera** with your AV.io SDI connected to a **Texas Instruments TSub USB 3.0 controller**, 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 **8.1 or 10** with your AV.io SDI connected to an **Etron 3.0 host controller**, 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 SDI 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 **VLC Media Player 2.2.1**, disconnect all capture devices except AV.io SDI, downgrade to an older version of VLC media player or use a different capture application.
Recorded file does not have audio.	If using **VLC Media Player 2.2.1**, downgrade to an earlier version or use a different capture application, such as Quicktime.
Quicktime crashes when using a frame grabber to record video in MacOS 10.12	This issue is with the Operating System itself, and affects all brands of video grabbers. Quicktime is able to show a preview of the recording, but then sometimes crashes as soon as the recording starts. This problem can be circumvented by selecting the Maximum Quality Recording option in the Quicktime drop-down menu.
Video doesn't update (appears frozen) when using AV.io SDI as the video source for Skype video calls.	Disconnect and reconnect AV.io SDI. 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 **Ubuntu 14.04 LTS** with your AV.io SDI connected to an **Etron EJ168A USB 3.0 controller**, 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 accidently, 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 **Ubuntu 15.04** with your AV.io SDI connected to a **Texas Instruments TUSB7320 USB 3.0 host controller**, switch to a different USB port or simply disconnect and re-connect AV.io SDI's USB 3.0 cable to the capture

	computer.

Affecting Chromebook

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

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.

Affecting Mac

- Your grabber works best with systems that are running the latest version of the Mac OS. If your system is running an older version and you experience issues with your grabber, we recommend that you update your system to the latest Mac OS.
- **UVC-613**: VLC doesn't play audio for video that is captured using AV.io SDI when connected to a USB 2.0 port on the Mac.
    - **Workaround**: Use another media player such as QuickTime.
- **UVC-601**: The grabber doesn't capture audio and video when using an AMD Ryzen™ 3.0 USB host controller on Ubuntu.
    - **Workaround**: A different USB 3.0 host controller must be used.

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Environmental Information

The equipment that you bought has required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment. In order to avoid the dissemination of those substances in our environment and to diminish the pressure on the natural resources, we encourage you to use the appropriate take-back systems. Those systems will reuse or recycle most of the materials of your end life equipment in a sound way. The crossed-out wheeled bin symbol invites you to use those systems. If you need more information about collection, reuse and recycling systems, please contact your local or regional waste administration. You can also contact us for more information on the environmental performance of our products.

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 Compliance Statement

47 CFR Section 2.1077 Compliance Information

Unique identifier: AV.io SDI

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.

Responsible party (US contact):

Epiphan Video
116 University Avenue, Suite 100
Palo Alto, CA
94301, USA

www.Epiphan.com

CE Compliance Statement

Marking by the symbol CE indicates compliance of this device with the applicable directives of the European Community and meets or exceeds the following technical standards:

Directive 2014/30/EU - Electromagnetic Compatibility

Directive 2011/65/EU - RoHS, restriction of the use of certain hazardous substances in electrical and electronic equipment

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