



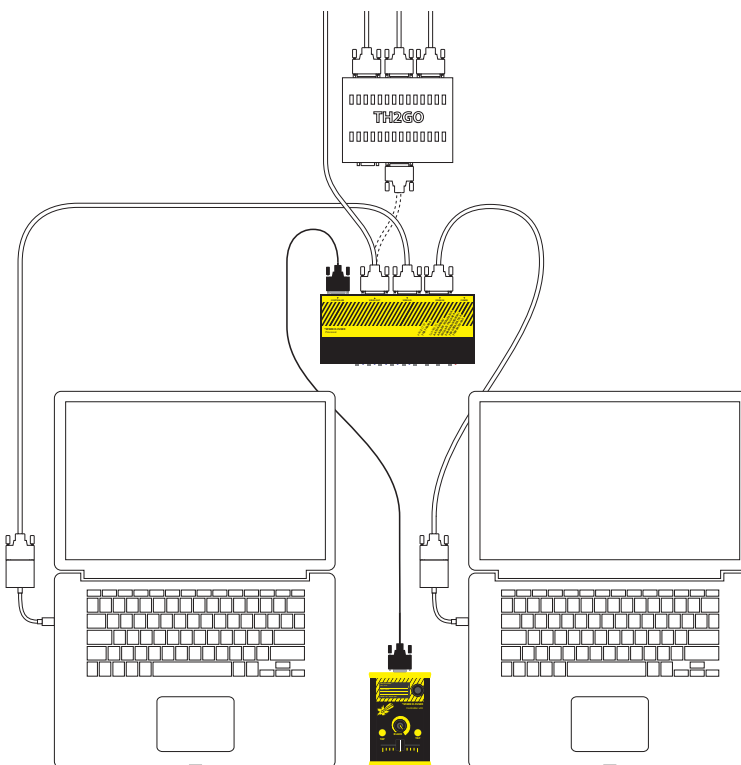
To get started with the *spark d-fuser, please watch the ['getting started' video](#) – it's best seeing these things in action. This document gives some more detail and explains the troubleshooting options if things aren't working as expected. Behaviour shown is for the latest controller firmware - currently v26.

Document v1.1



1. Out of the box

The 'out of the box' section of the getting started video shows how to get started with the mixer. A few notes - While you transport the controller, ensure its held in a case where nothing will press on the knobs. It doesn't matter which order you power on controller and processor.



You can use DVI, VGA or HDMI cabling. Here's the detail: The video sockets on the processor are single-link DVI-I (Integrated), meaning that DVI-D cabling and VGA cabling (via DVI-A to VGA adapters) can be used interchangeably. The 750 is also fully compatible with HDMI sources and outputs: use DVI-D to HDMI cabling and choose an appropriate resolution from the controller's menu.

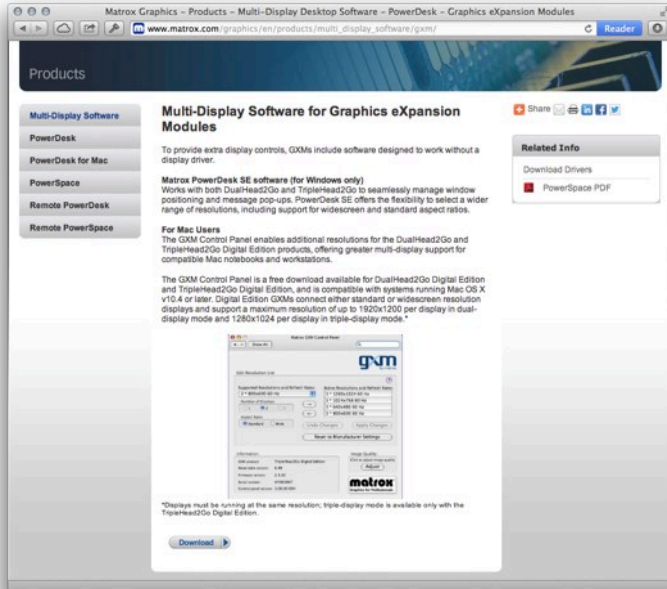
If you have the choice of DVI or VGA when connecting your equipment together, try DVI first. You should get lossless quality and better negotiation between devices on what resolutions are available.

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SPARK D-FUSER » Beyond the 'Getting Started' video



http://www.matrox.com/graphics/en/products/multi_display_software/gxm/

The D-Fuser has been tested with the Matrox TripleHead2Go Digital Edition. Use DVI from processor to TH2Go. Like the d-fuser processor, the TH2Go's outputs are DVI-I, so you can output DVI or VGA via dongles.

Your TH2Go must have the d-fuser dual and triplehead resolutions set as 'active resolutions'. This is a one-time operation, set via the Matrox software (pictured, with URL) while connected to your laptop's USB port.

- 2* 800x600 60Hz**
- 2* 1024x768 60Hz**
- 3* 640x480 60Hz**

Note it is best to power your TH2Go using a USB charger on the same power strip as the mixer, rather than laptop power. Then your link to the projectors will keep the stability the mixer provides.



2. Mixing with DVI

The 'mixing with DVI' section of the getting started video shows that you can set the mixer to different resolutions. But what happens if your source and output don't match? Or there's just black? This section will get into the detail of mixing with multiple resolutions and what the *spark d-fuser gives you when things don't seem to be working right.



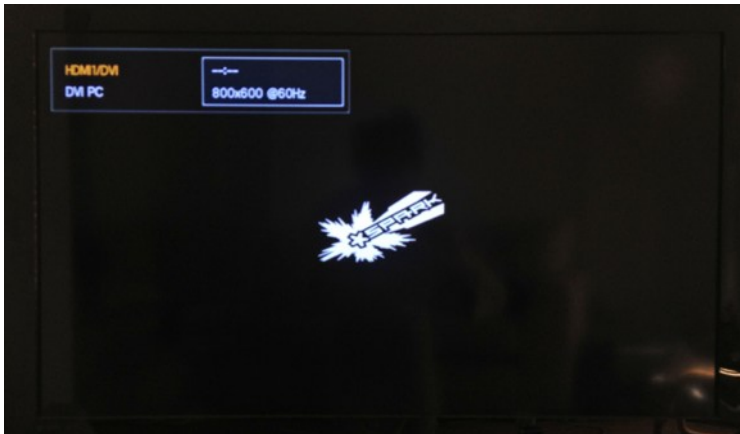
On first use the processor will output the resolution most likely to work on anything: 640x480 at 60Hz. You can always see if the d-fuser is outputting, as it displays a *spark logo until a source is connected. Your first step will be to change this to the native resolution of the display you're outputting to. Note any plugged in source is by default scaled to fit within d-fuser's output, so you get all of the source, undistorted. There is a little trick with the *spark logo however: it is displayed 1:1, ie. pixel for pixel, so that you can get a sense of how the output is set before any sources are selected. This can be seen in practice in the following few steps. Here we have the logo sizewise filling much of the 640x480 output, and this 4x3 non-widescreen format is then stretched out across the widescreen TV.

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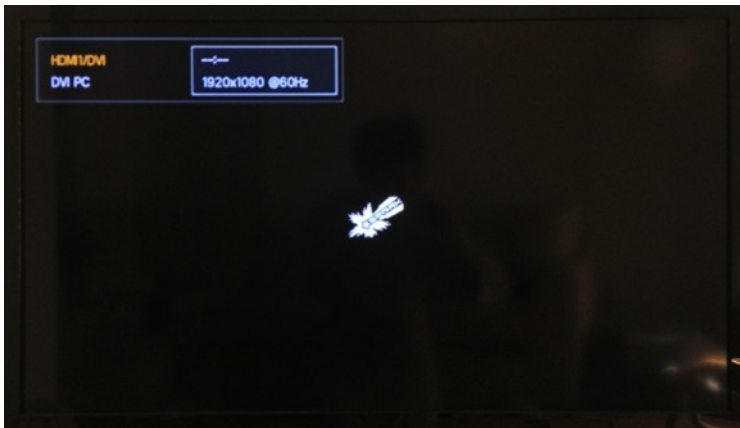
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When you set a resolution, the bottom line of the display should briefly display 'Setting...' while the action is being carried out, and then should display 'Sent: Resolution'. Once you have set the processor to a resolution, it will power-on with that resolution until changed to another.



Note the logo here has got slightly smaller, that fixed size of logo taking up less space in the bigger canvas of 800x600. We're still giving a widescreen display a 4x3 format, so the output is stretched horizontally.



We said the first step would be to set the mixer to the native resolution of the display, and the demonstration of 800x600 isn't that. So here we are connected to a Full HD TV, using DVI-HDMI lead, so I'm going to select 1080P. Note the logo is now not stretched horizontally, as we're giving a widescreen output to a widescreen display.

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Now we see something new: 'Sent: Resolution + EDID', followed by a prompt of 'Processor Off+On?'. What EDID is and why 'Processor Off +On' can be necessary will require us to now plug in a computer source and look at setting resolutions there.

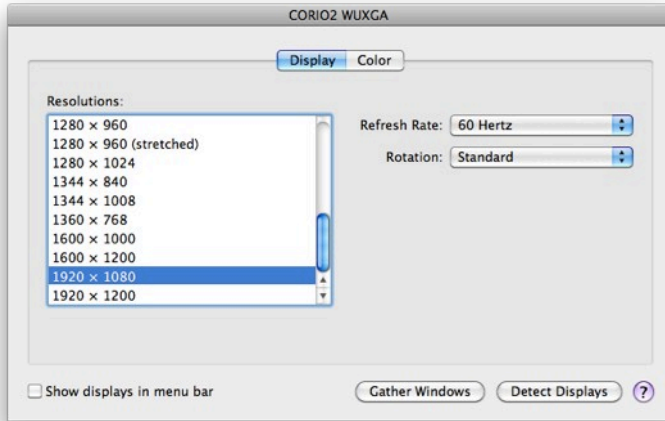
What EDID is and why 'Processor Off +On' can be necessary will require us to now plug in a computer source and look at setting resolutions there.



It is important to realise that setting resolution on the d-fuser doesn't change what your source is set to output. The processor will accept the format the source is outputting, and conform that to its own output format. So you need to set your ie. laptop to an appropriate resolution, and for you to be able to do that, the processor needs to tell your laptop what resolutions are appropriate to its output. Lets see this in practice. When the processor first powered on, it came on to VGA (640x480). On the computer, you would see something similar to the OSX screenshot. The processor has told the computer it is a 'CORIO2 WUXGA' display, and given it a list of resolutions typical of computer monitors. From that list, 640x480 has been selected, so our input is the same as the output.

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Having changed our output to the native resolution of the display, we see in this list typical of computer monitors, that same resolution, 1920x1080. We can choose this, and happily we have 1080P60 in and out.

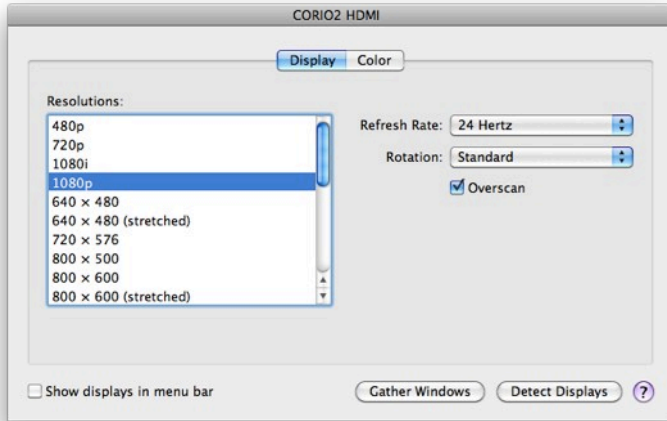
But what if we wanted to use the HD formats with film rate rates, such as 1080P24? This standard list of computer monitor formats we started with hasn't got these kind of formats. This is where that 'Resolution + EDID' comes in: the *spark d-fuser is set to advertise to your sources the formats appropriate to its output, it's made the change to its EDID, which is the name for this kind of communication from the display to source, it's just that the laptop hasn't noticed the change. The following message from 'Sent: Resolution + EDID' is 'Processor Off + On', and this is a prompt to you to do the one thing that will make the laptop take notice...



Important: if you see 'Processor Off+On', remove and reconnect the power from the processor. This is not elegant, but it is reliable, and you've just disrupted the signal to the display anyway by changing resolution.

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Having power cycled the processor, the laptop's external display refreshes, and now look: a different name of attached display 'CORIO2 HDMI', and at the beginning of the resolution list we now have the full HDMI compatible list of Broadcast / HD resolutions.



If you can set the source's output to an appropriate resolution and the processor conform it to its own output, you can do tricks like output a lower resolution and have the processor upscale it. Here 720P will scale nicely to 1080P. If the aspect ratios don't match, by default the source will be fitted within the output. This behaviour can be changed in the mismatched sources part of the troubleshooting menu.



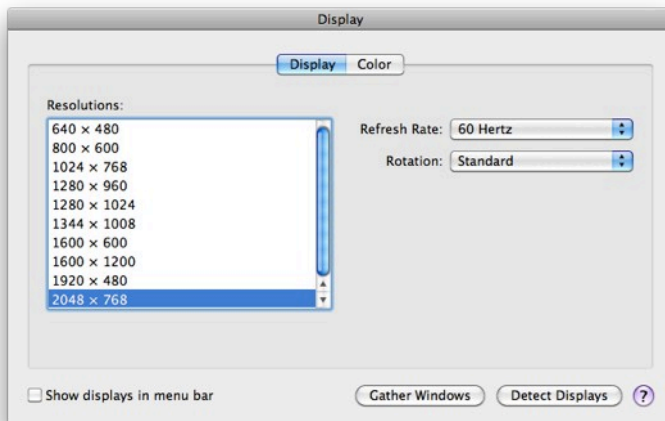
You will see this EDID change when going to and from the TripleHead resolutions...

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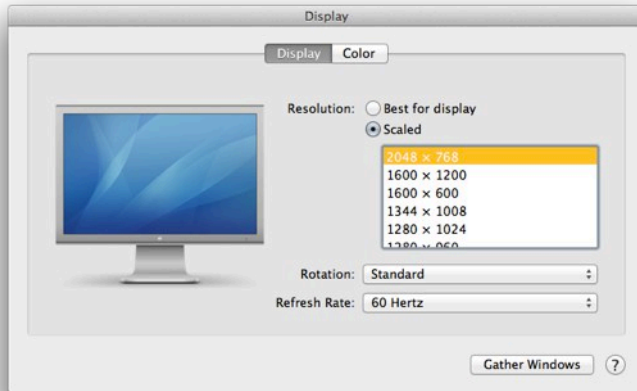
...and so sometimes only after power cycling the processor...



...will you see the Triplehead resolutions appear in the laptop's list.

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Note: On OSX 10.8, the system seems to block any 1920x480 resolution from appearing. You can verify OSX has picked up the TripleHead EDID information, as the 2048x768 and 1600x600 resolutions are listed.

The *spark d-fuser allows you to work around this, by taking a letterboxed 1920x480 canvas in a 1920x1080 format output and cropping it back down. This will give you 1:1 pixel throughput and next-to-no extra overhead for your computer.

1. Set laptop to 1920x1080.
You may need to set the processor to 1920x1080 and power cycle the processor for the laptop to pick up the resolution.
2. Set the processor to 1920x480.
Don't power cycle the processor, we don't want the laptop noticing the changed resolution.
3. Set the processor to 'Fill'
Troubleshooting Menu > Aspect: Mismatched res's > Fill
4. Done!

With this done, if the processor's output has your TripleHead content stretched vertically and missing top and bottom, your software is distorting it to full screen instead of displaying it letterboxed. Check your rendering canvas size / full-screen options to fix.

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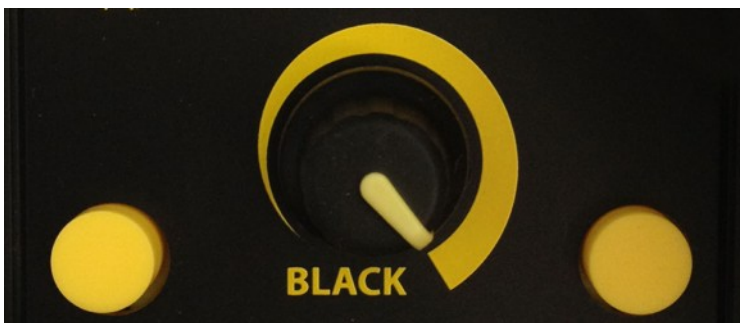
3. Troubleshooting

If things don't seem to be working, the *spark d-fuser has strategies to help. Enter the troubleshooting menu for some prompts.



HDCP - Can Block DVI and HDMI

If you cannot see any output then HDCP might be blocking it. A sure sign is if the output drops out on connecting or mixing to a particular source. If you've never seen any output, check your cables and fade to black knob first!



Note that if the output is occasionally dropping out without any controls being touched, this isn't HDCP, its just that the signal might be suffering from interference or too long a cable run. Lower resolutions or frame-rates are less demanding, so try ie. dropping from 1080P60 to 1080P30 or 720P60.

The definitive check out the processor's output is whether the processor is able to display its own menu on its output. On the processor, press the left-most button on the front, labelled 'menu'. You should see a blue rectangle with white text in the upper left corner of the output image.

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If you cannot see the menu, or it and the working source cut out when crossfading to the other, then you want the HDCP troubleshooting option. The *spark d-fuser will display it's current HDCP strategy, and give you the option of it's alternative or cancelling. In the image shown here, the current HDCP strategy is off, and clicking will change this to on. Spin the control to change the action to cancel. You may want to power cycle the processor once changed to force displays and sources to connect with the new HDCP policy.



EDID - Advertises Resolutions

From the 'mixing with DVI' section, you will have seen EDID advertises resolutions from processor to your source, so that ie. your laptop gives you the appropriate list of resolutions to select from. As said there, the first line of troubleshooting is to power cycle the processor to force the picking up of a recently changed list of resolutions.

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The *spark d-fuser has an alternative way of choosing what resolutions are advertised. By default, it selects from an internal store of EDID profiles. However, it can also pass-through the EDID profile of the connected display. If the resolution you think should be an option on your laptop isn't there, this might make it happen. As a note of caution, while this sounds ideal, it requires the display to be connected from the start and can cause your laptop to refresh its external display if the connection to the display drops out. Like HDCP, the menu displays the current strategy and gives you the choice of actioning the alternative strategy or cancelling back to the menu.



Aspect - Mismatched Resolutions

If your sources are different resolutions from the output, the d-fuser processor will conform one to the other. If the resolutions are the same aspect ratio, this is a simple case of scaling. If they are not, ie. a 4:3 source going into a widescreen 16:9 output, then a decision needs to be made on how to handle this.

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Fit - This is the default the *spark d-fuser ships with. The source will be scaled up to fit within the output. No distortion, nothing missing.



Fill - The source is scaled up to fill the horizontal width of the output, with any excess top and bottom cropped off.



1:1 - This maps the source pixels directly to the output pixels, ie. no scaling. The source is centred in the output.



The current setting is the one displayed on entering this menu. Selecting cancel will not set a different mode and return you to the troubleshooting menu.

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Output - Mixing behaviour wrong

If the mixing behaviour has changed for the worse, this troubleshooting option may be able to straighten things out. You can first reset the controller to it's power-on settings, and/or reset the processor to it's default d-fuser state.



1. Controller. Action the reset to
 - Redetect sources
 - Reset missing sources from held frame to holding logo
 - Lose any changes made to keying parameters



Alternatively you can skip the controller reset and go on to reset the processor.



2. Processor. Action the reset to revert the state of the processor to how it should be for correct option with the controller. Especially useful if you've been using the TV One menu of the processor itself, and changed any of the many, many options available there.

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First we need to perform the TV One reset on the processor. On the processor itself, find the 'Menu' and 'Standby' buttons. They're the left- and right-most buttons on the front. Click the controller to proceed to the next step.



Now hold those two buttons down. The controller gives a 15sec countdown. Within this time you should hear a second beep from the processor, which is confirmation of the reset.



Click to proceed to the next step.



The controller now updates the processor from its TV One defaults to the d-fuser defaults. This may take a few seconds.

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When the update is done, click to return to the troubleshooting menu.