

USER MANUAL

AW Multi Display Composer

A Crestron Smart Graphics™ module

V5.0.0

Developed by



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Description

AW Multi Display Composer is a high-end Crestron Smart Graphics™ component (SmartObject™) designed to help developers build sophisticated drag-and-drop user interfaces to control the Analog Way video processors in Crestron environment. This module can handle up to four independent displays connected to an Analog Way video composer.

Requirements

This module is supported by 3-series & 4-series Crestron's processors as long as these processors provide an Ethernet connection. It will only work with Smart Graphics compliant panels such as TSX Series (TSW, TST, ...), TSD2020, TPMC-V Series (V12, V15, V24), DGE-1, DGE-2, Smart Graphics™ XPanel and web XPanel, windows surface pro (windows 8.1 with adobe air 3.5 and upper versions). Apple iPad, Apple iPhone and Android are not supported yet.

Note: Due to limited performances, TSX panels are not recommended to handle a large number of layers, especially if dynamic snapshots are required in the user interface.

Minimum software versions:

Software	Versions
SIMPL Windows	4.14.31 or above
VTPro-e	6.2.02.08 or above
Smart Graphics™	2.17.01.01 or above
Device database	200.50.001.00 or above
Crestron database	203.05.001.00 or above

Module main features

- Visualization in real time of a screen content (Preview and/or Program) with layer positions and source snapshots
- Layer source management through drag and drop
- Capability to change position and size of a layer through a tap or flick of a finger
- Supports a layout of up to 8 screens or aux to be displayed in one instance
- The displays layout is entirely customizable defining each "screen" position and size
- Customizable look and feel
- Source panel becomes automatically scrollable when the number of sources exceeds panel bound
- All layers are automatically resized when the PiP resolution changes
- Source panel can be locked in order to restrict users for changing the source assigned to a layer
- Layers repositioning and resizing can be disabled
- Layers z-order can be modified by the control system
- Layers rectangle can be limited to the main layer rectangle
- Machine IP address prefix can be set in the controller program for panel configuration reuse

Installation

To install the package, follow these steps:

- Make sure the Crestron VPro-e application is not running. Locate and double-click the program **AW_SmartGraphicsPackage_5.0.0_setup.exe** then follow the installation instructions.
- Launch VPro-e and create a new program.
- Display VPro-e's smart graphics control browser.
- Look for **"Technidream"** category, you should find the new module in there.
- Drag and drop the module on your panel and customize it.

Updates

Updating the module with a new version requires a few steps:

- Close VPro-e.
- Uninstall any previous version using Windows uninstall application procedure.
- Install the new version of the module (see **Installation** section above).
- Check that the version has been correctly installed:
 - Open a program using the Smartgraphics module,
 - Go to VPro-e "Smart Graphics control browser" panel
 - Make a right click on the module to update,
 - Select "update control" and confirm.
 - Open a page using the module and check that the module is rendered correctly.
 - Selecting the module on the page, check in the "Property panel" that "VersionNumber" is set with the correct value.

If a module is not correctly rendered in a page after an update:

- Please check that all the modules' properties are set correctly: sometime VPro-e does not copy properties as expected, and some properties are wrongly set.
- If the problem is not resolved, it might be needed to rebuild the broken module: include a new module instance, and copy the old module properties in the new one using right click button.

Usage

- In order to enable communication with the Main demo module, one must define:
 - The **Mac address join**
 - The **Serial number join**
 - The **License join**
- Define the main screen (output) resolution as any layer position and size will be calculated from these values. E.g.: **Target virtual width = 1920** **Target virtual height = 1080**
- Define the number of sources that will be used in your application, and provide them logo, name, and snapshot HTTP URL if available.
- Define the number of layers available and provide to each of them, the name and join numbers considering your application requirements. You might not need to set all the join signals.

- Define join numbers for optional features such as Disable source join, disable user edit join.
- Once the module is properly configured, compile and enjoy your new compositing application.

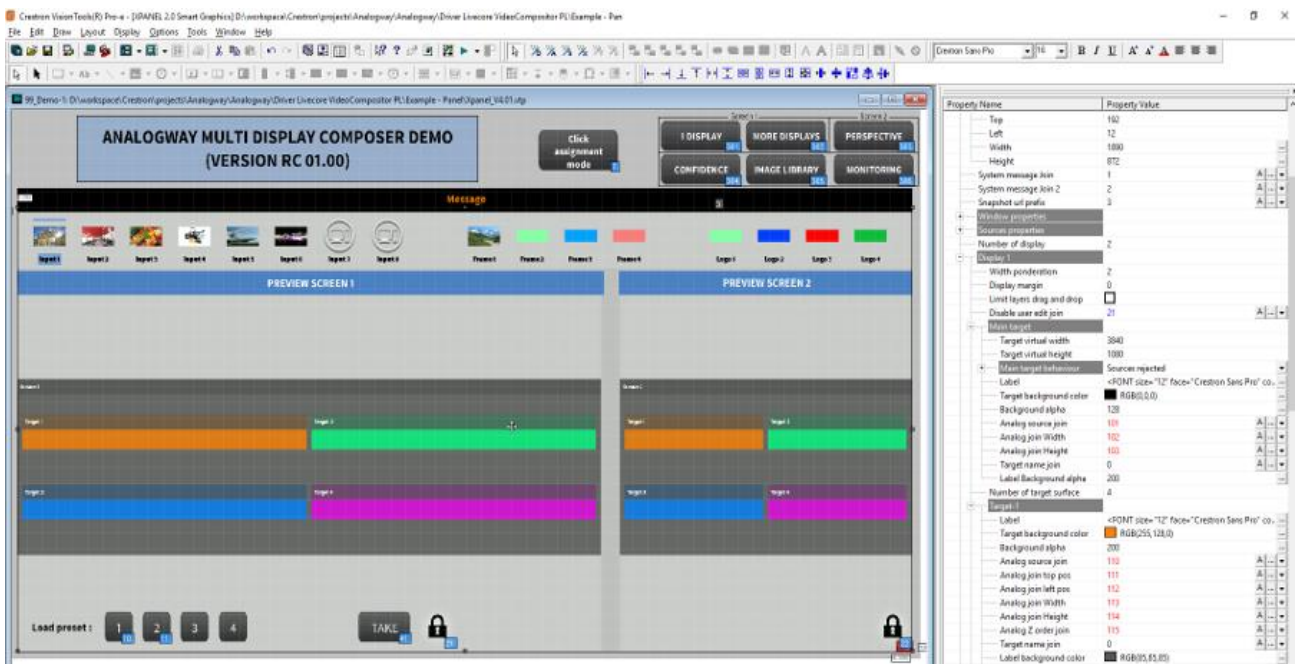


Figure 1: Style customization in VPro-e

Module layout

The image below shows the different module areas:

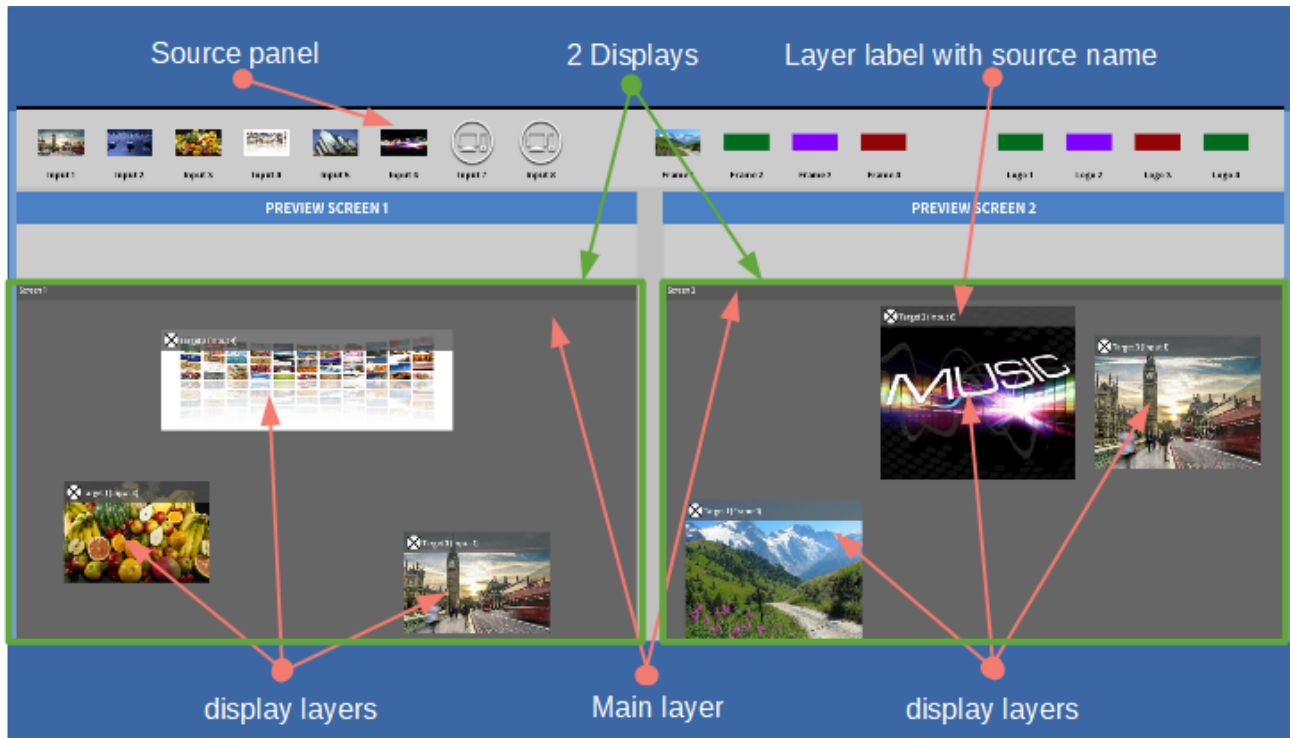


Figure 2: Source snapshots can be displayed inside each layer of each display

Any layer can be easily repositioned or resized on the touchscreen:

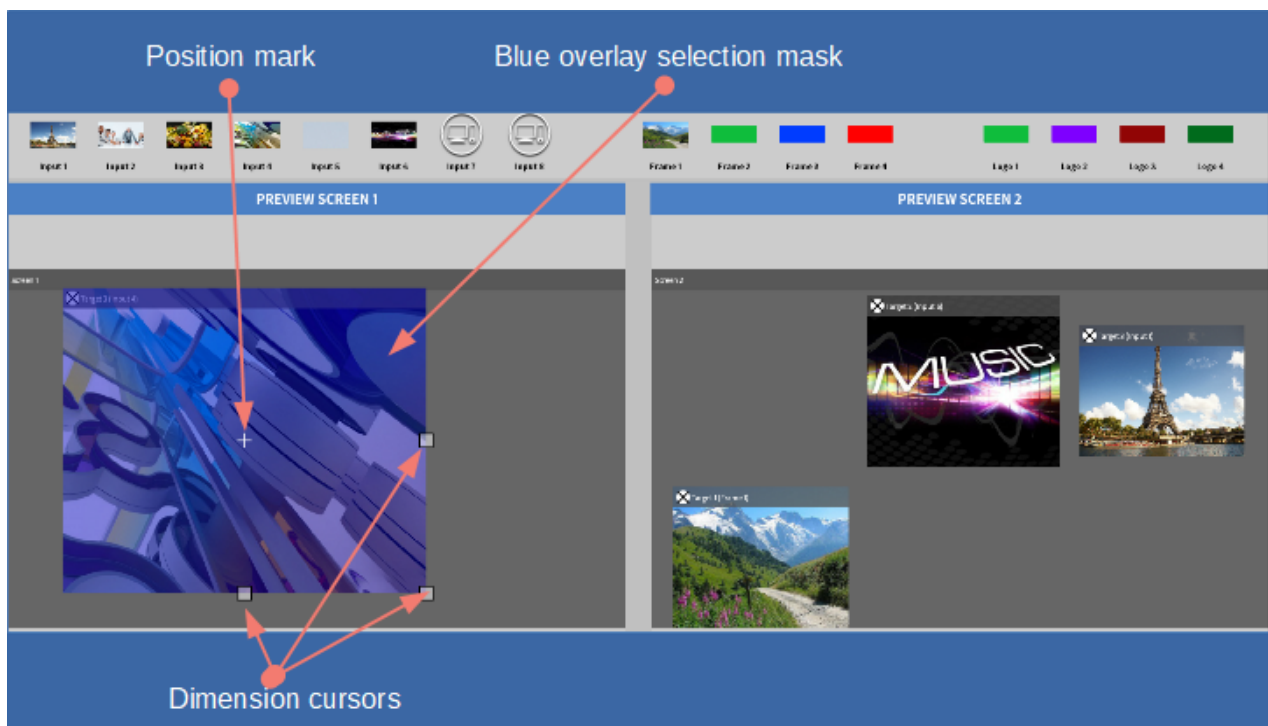


Figure 3: AW Video Compositor provides large size anchors for easily resizing a layer on the touchscreen

VTPro-e properties

General	Description
Position and size -> Top	The object top left corner vertical position Y (in pixel)
Position and size -> Left	The object top left corner horizontal position X (in pixel)
Position and size -> Width	The object width (in pixel)
Position and size -> Height	The object height (in pixel)
Mac address Join	It is necessary to set this join correctly in order to synchronize Analog Way control system drier with the VideoCompositor. In case this join is wrong, the module might not be displayed on the panel.
Serial number Join	It is necessary to set this join correctly in order to synchronize Analog Way control system drier with the VideoCompositor. In case this join is wrong, the module might not be displayed on the panel.
License Join	The serial license join. This join is a necessity to use the module.
Snapshot url prefix	This join can be used to make snapshot handling more flexible, by poviding the ability to let the control system set the ip address of the compositing mahchine. Indeed, if a snaphot URL is "http://192.168.10.209/api/device/snapshots/inputs/1", one can split it into " http://192.168.10.209/api/device/" that can be sent through this join and set the "Source properties->Source-1->Snapshot URL" property with "snapshots/inputs/1". The whole snapshot URL will be rebuilt once the control system sends the first part containing the IP.

Window Properties	Description
Window background color	The window background color
Window background alpha	The window background transparency level
Source panel dimension	The source panel dimension. Corresponds either to the width or to the height of the panel depending on the source container orientation
Target panel margin	The gap (in pixel) between the source panel and the target panel
Scroll bar dimension	The scroll bar dimension. Corresponds either to the width or to the height of the scroll bar depending on the source container orientation
Scroll bar bg color	The scroll bar background color

Scroll bar cursor color	The scroll bar cursor color
Snapshot load speed	The dynamic snapshots refresh rate. Important: higher rates will use more CPU and memory. Recommended value is 'Low speed'

Sources Properties	Description
Panel orientation	The source panel orientation (vertical or horizontal)
Nb source per line / Nb source per column	The number of sources per line or per column depending on the source panel orientation. If this value equals '0' or '1', the source will be displayed in a single line or a single column, otherwise, the sources will be distributed over multiple columns
Disable sources join	Disable the sources when the signal is high
Enable click source selection	Join used to enable source selection with mouse click instead of using drag and drop. When this signal is high, the module goes in "Click to assign" mode meaning that a source needs to be clicked to be active. Any layer clicked when a source is active will be assigned the active source. Active source will blink until the user disable it by clicking on it one more time.
Source name highlight color	The color of an active source highlight when "click to assign" mode is enabled.
Source dimension	The source's logo width and height in pixel
Vertical source margin	The vertical space between two sources in pixels. This will only be applied if the margin is higher than the source dimension.
Horizontal source margin	The horizontal space between two sources in pixels. This will only be applied if the margin is higher than the source dimension.
Number of sources	Total number of sources
Empty place	If checked, the source will not be displayed. An empty space will be displayed instead of the source.
Source capabilities Join	Join used to set the source capabilities
Source hide Join	Join used to hide the source dynamically
Source name	The source name
Source name Join	Join used to set the source name through the program

Source num	This source identifier. This number will be sent to the control system while dropping the source onto a target. A target receiving this identifier will retrieve the corresponding source information
Virtual Snapshot source Join	This join can be used to follow the snapshot of a source. If the source ID value is passed through this join, then any layer (target) will have to take the same snapshot as the related source.
Remote image URL	Used to display the source icon
Snapshot URL	The dynamic source snapshot URL. This is the URL provided by the Analog Way switcher for each source, frame and logo
Background Image Path	The default source static image

Display properties	Description
Number of display	The number of display this module will manage (max = 8)

Display main target properties	Description (These properties can be found in each display)
Display X	X coordinate where this display should be displayed
Display Y	Y coordinate where this display should be displayed
Display Width	Display width
Display Height	Display height
Limit layers drag and drop	The children targets cannot go beyond the main target's borders using touchscreen interface. Note that targets can go beyond that limitation using joins positions even if this option is enabled
Disable user edit join	Used to disable the user ability to resize and re-position layers
Main Screen/Target virtual width	The screen target width
Main Screen/Target virtual height	The screen target height
Main Screen/Main target behaviour / Sources accepted	If this option is selected, the native layer will accept sources

Main Screen/Main target behaviour/Sources rejected	If this option is selected, the native layer will refuse any source
Main Screen/Label	The native layer name
Main Screen/Background alpha	The alpha of the native layer background
Main Screen/Analog source join	Analog join used to send the source identifier dropped on a target. It is also used by the control system to set the target's source
Main Screen/Analog join Width	Analog join used to send/receive the main screen width
Main Screen/Analog join Height	Analog join used to send/receive the main screen height
Main Screen/Target name join	Use this join to change the target name. Sending a void string ("") will not have any effect, but sending the string containing only the space character (" "), will remove the title.
Main Screen/Label Background alpha	Selects the alpha of the target name background
src/top/left/width/height reference join	This join is the first analog join for layers src/top/left/width/height. The module will register as many analog join for this sequence as there are layers. Eg: 5 layers and the join value is 100 -> The module will register from 100 to 125 for layer 1 src/top/left/width/height, Layer 2: src/top/left/width/height, ..., Layer 5:src/top/left/width/height
Number of target surface	Number of layers (0->60)

Display Target Properties	Description (These properties can be found in each display)
Label	The target name
Target capabilities Join	Join used to set the target capabilities
Target out of capabilities Join	Join used to notify that a target cannot support a source that was assigned to it
Target background color	The target background color
Background alpha	The target background transparency level

Target name join	Use this join to change the target name. Sending an empty string ("") will not have any affect, but sending the string containing the space character only (" ") will remove the title
Label background color	The layer label background color
Label background alpha	The layer label background transparency level

Useful notes

Mac address, Serial number, Serial number joins:

It is critical to link these joins with the Analog Way main module in order to display the AW Video Compositor module.

The Snapshot URL prefix property is very useful when a panel layout is reused between different projects. When the machine IP address is set in the Crestron program, the programmer does not need to change all the sources snapshot URLs in the panel for each of the AW Video Compositor instance.

Sources snapshots:

Source objects own different image resources such as "Background image path", "Remote image URL" and "Snapshot URL". The background image path is the default logo representing the source (static image). The "Remote image URL" property provides a way to display the "current" source live snapshot above the logo (refresh rate defined by the "Snapshot load speed" property). If this image can be downloaded, the end user will be able to see the corresponding snapshot 'above' the logo. The "snapshot URL" property is used by layers to display a larger snapshot of the source (in most of the cases, this property will match the "Remote image URL" property).

Invisible overlapping and out of borders overlapping layers:

As mentioned above, the source panel becomes automatically scrollable when the number of sources exceeds the panel's bounds. However, even if not visible, the scrollable source panel can overlap other Crestron objects if the AW Video Compositor Z-order index is higher than the Z-order index of these objects.

It is highly recommended to give AW Video Compositor the smallest z-order index.

Using the module in a sub-page:

AW Video Compositor with source panel scrollbar should not be inserted in VTPro subpages. Due to a certain resource management of subpages, some widgets like buttons placed in the containing page can be no more responsive when the source list is scrolled.

To avoid such behavior, one could:

- Use AW Video Compositor module with scrollbar in pages exclusively
- Use AW Video Compositor without source scrollbar in subpages

- Put any other Smartgraphic widgets in other subpages. This is not recommended because this trick works only in certain version of VTPro and Smartgraphics.

The same issue can happen putting layers out of the AW Video Compositor object bounds. Even if this is not strictly forbidden, it is a good practice not to hide a layer by putting it “out of sight”. The best way to hide a layer is to put its dimension to “0”:

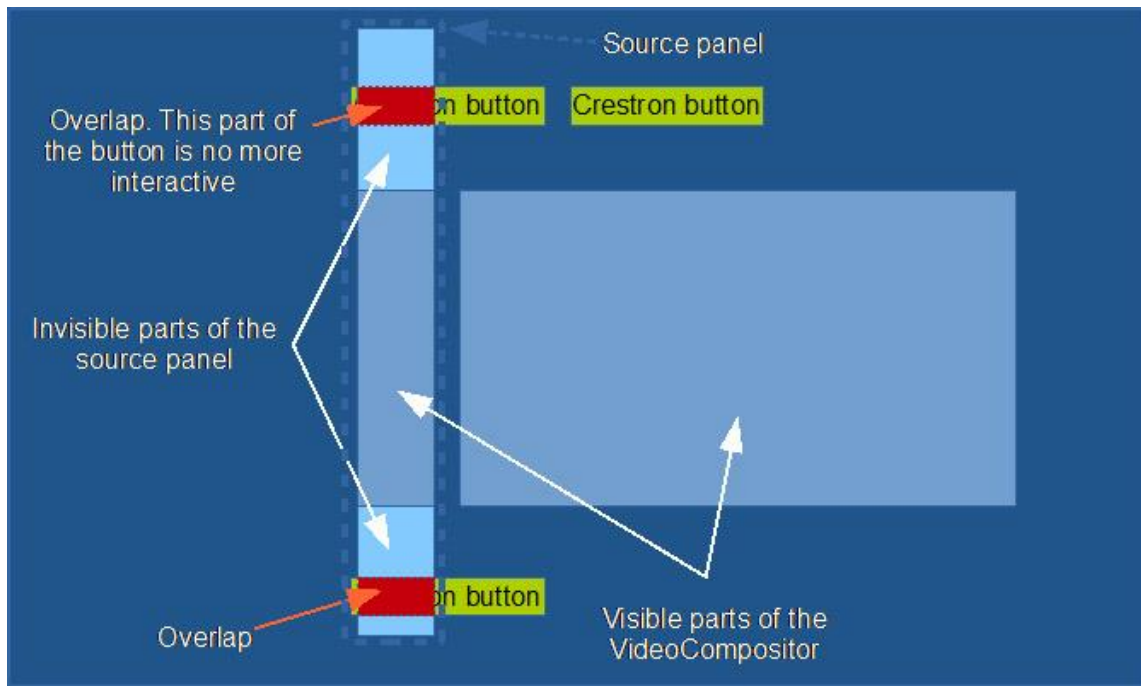


Figure 5: The source panel can overlaps other widget in the same page

To avoid this problem, just give the video compositor the smallest z-order index as shown below:

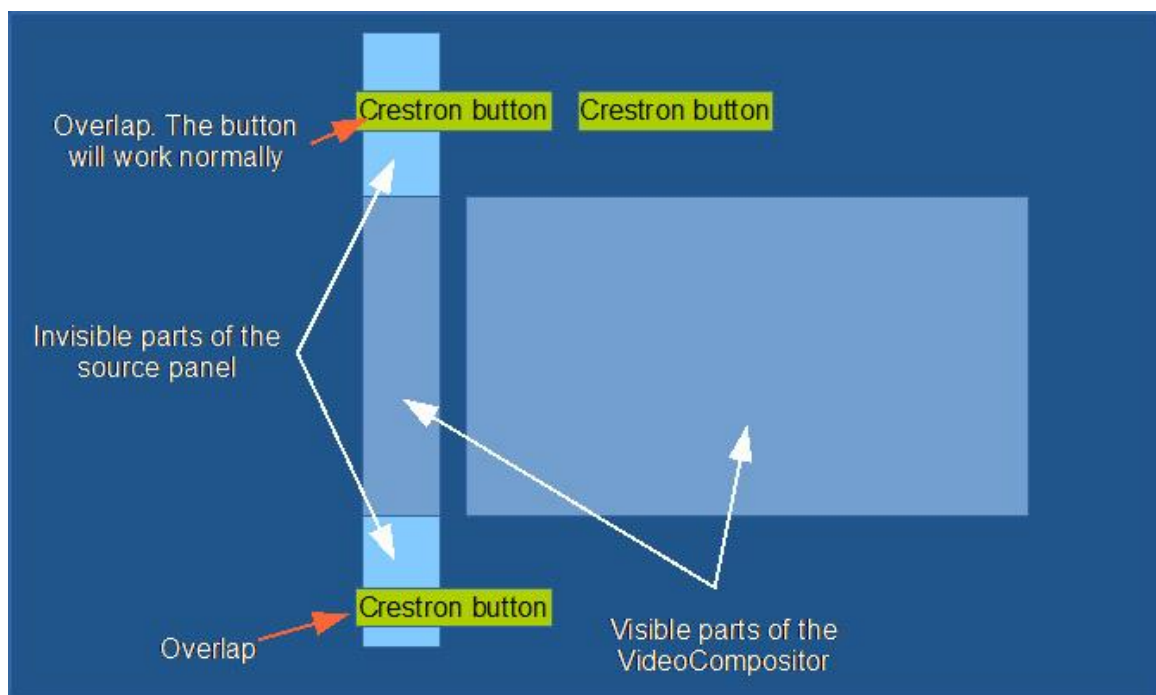


Figure 6: AW Video Compositor does no more break other widget interaction

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