

DeltaV Live Video Integration Guide

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Overview

This document outlines the procedures on how to integrate the video web components into the DeltaV Live system. It is assumed that the DeltaV software is installed on a Windows 10 operating system.

Supported Codecs

There are no specific limitations on the types of web cameras that may be used other than the CCTV/camera source must be an IP camera that streams content over web browsers.

The video codecs are currently supported in DeltaV Live include:

- Ogg Theora
- WebM with VP8
- WebM with VP9

Note that MPEG, H.264, and H.265 are not currently supported.

The audio codecs that are currently supported include:

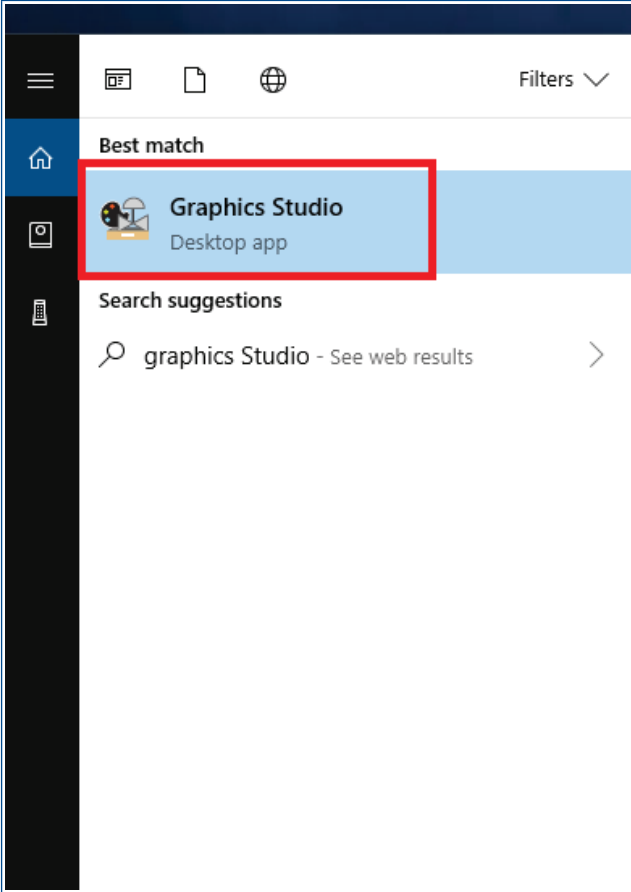
- PCM audio
- MP3
- Ogg Vorbis
- Ogg Opus
- WebM with Vorbis
- WebM with Opus

DeltaV Live Display Setup

This section briefly describes the steps in Graphic Studio to create a sample DeltaV Live display that embeds a browser control to show a camera feed hosted in the Relay Server.

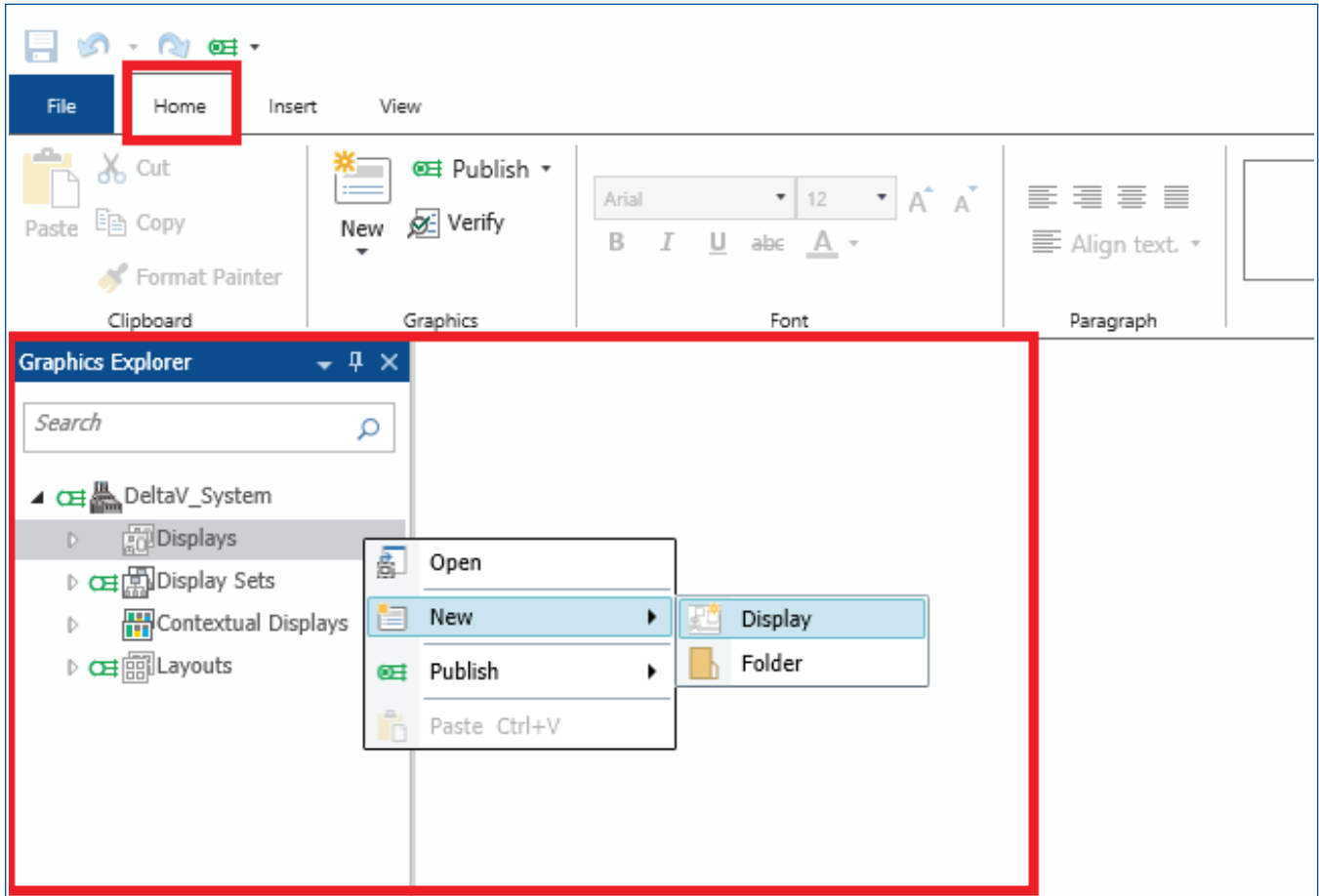
Launch Graphics Studio

Graphics Studio is the tool in the DeltaV system for creating DeltaV Live graphics. To launch the tool, type Graphics Studio at the bottom left corner box in the Windows screen and then select Graphics Studio as shown below.



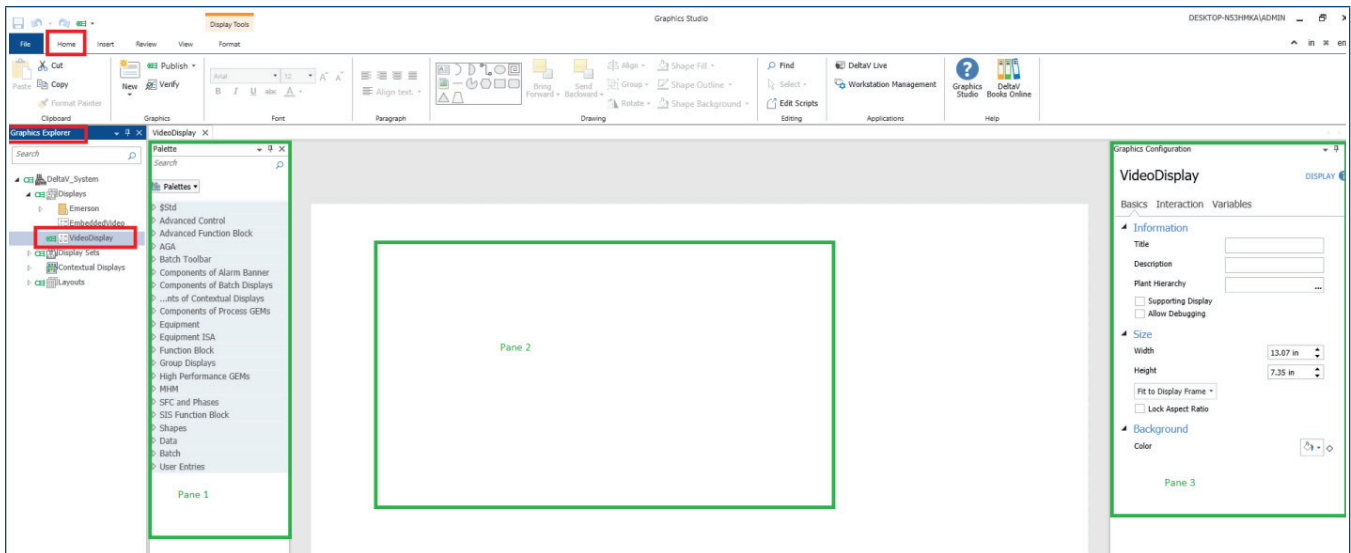
Create New DeltaV System Display

Open Graphics Studio and choose DeltaV System->Displays->New->Display in the Graphic Explorer pane as shown below. Give a name for the new display. This example is called "VideoDisplay".



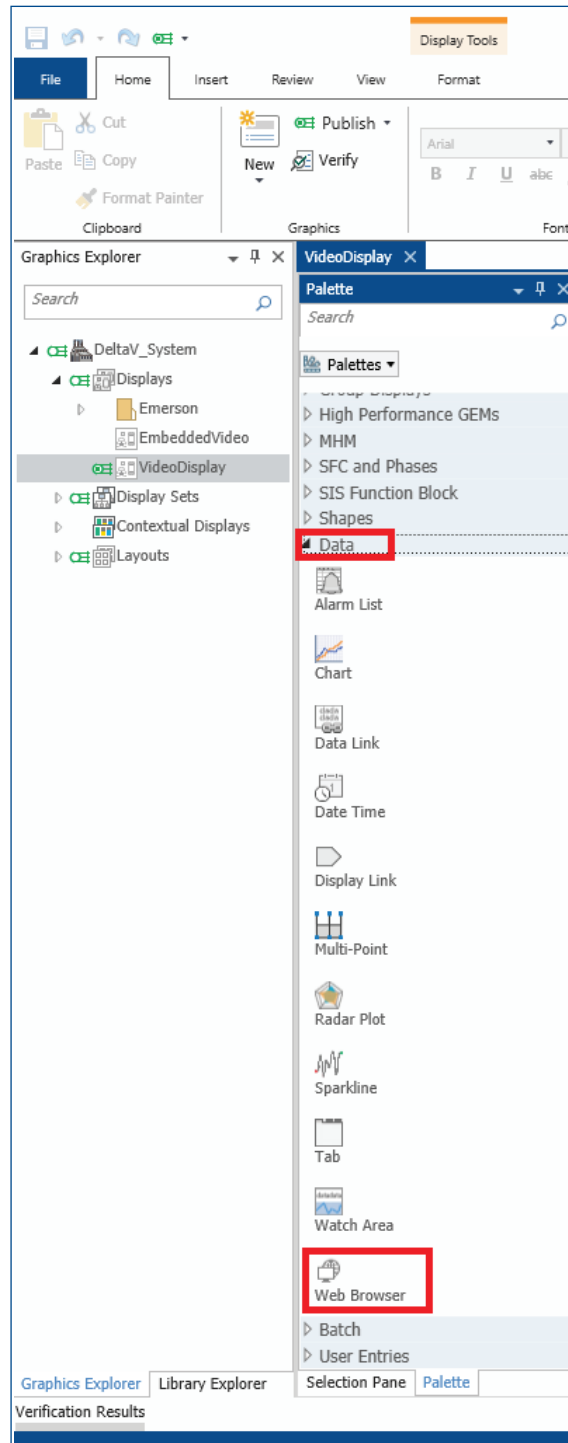
Select the Newly Created Display - VideoDisplay

After the new Display named VideoDisplay is created, a new tree item will be created under the DeltaV System->Displays section. If the display is not already open, double-click on the VideoDisplay item to do so, it will show three areas on the right hand side, the Selection pane (on the left in the picture below), the canvas (the large white space in the center below) and the Graphics Configuration pane (on the right in the picture below).



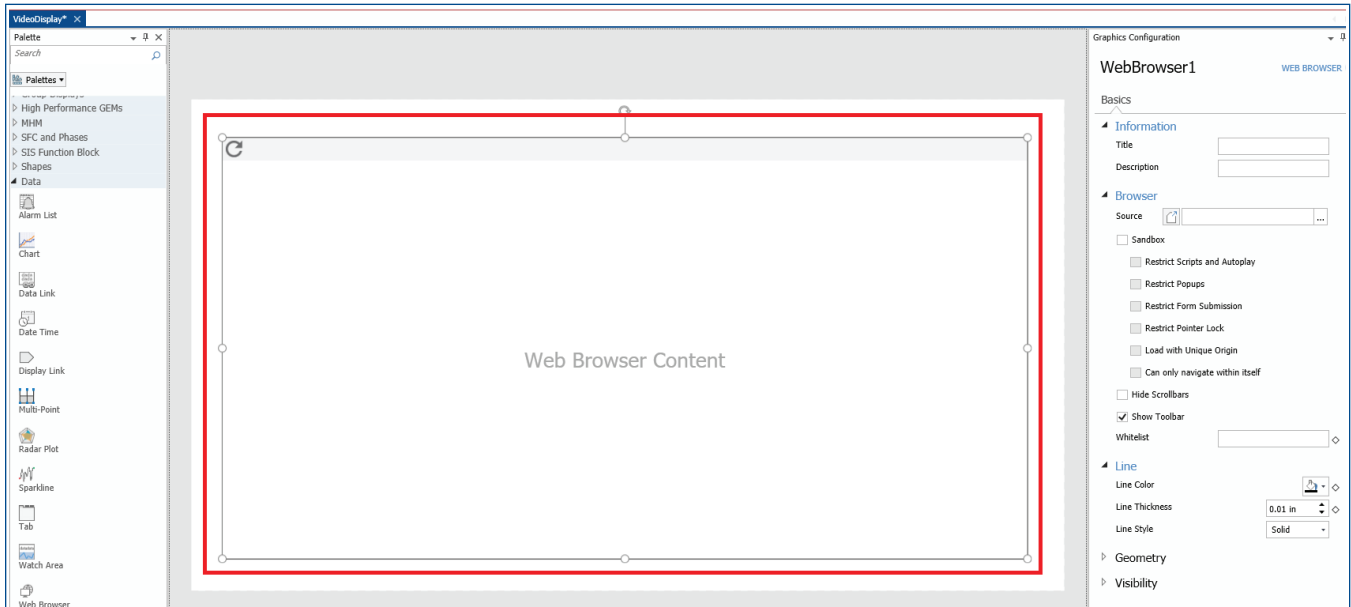
Choose Web Browser

After selecting the VideoDisplay in the Graphics Explorer, expand the Data section in the Palette and then select Web Browser as shown below.



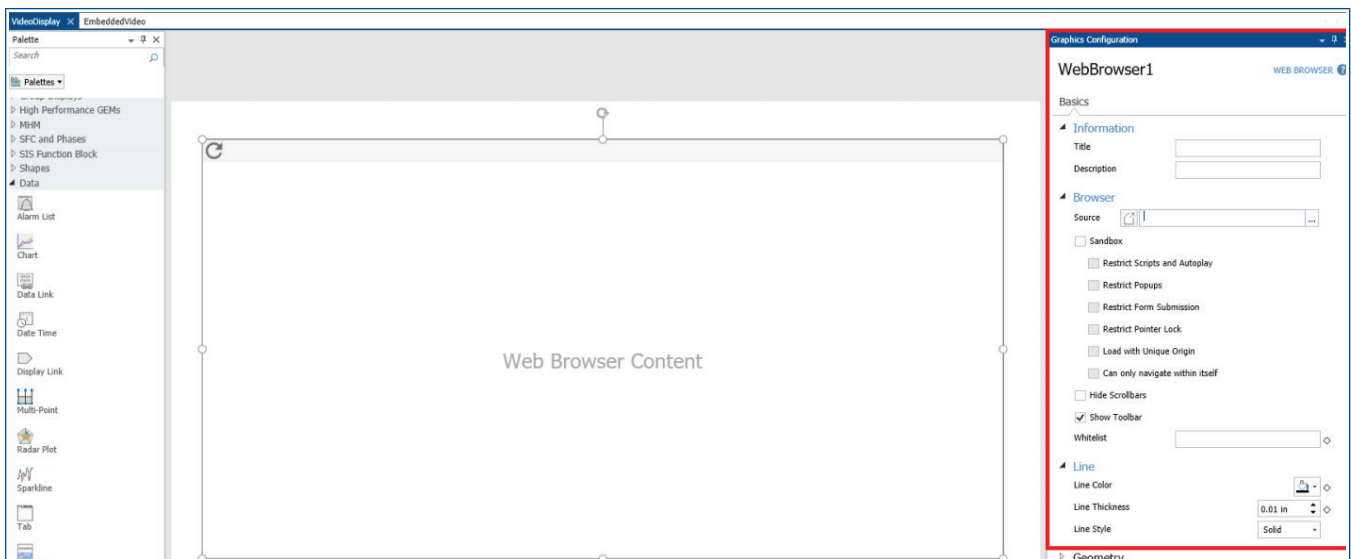
Add the Web Browser

Drag the Web Browser to the canvas, expand the control to the desired size, and place it on the desired location of the document.



Configure the Web Browser

Configure the WebBrowser1 in the VideoDisplay using the provided properties in the Graphics Configuration pane.



Configure the Web Browser Source Property

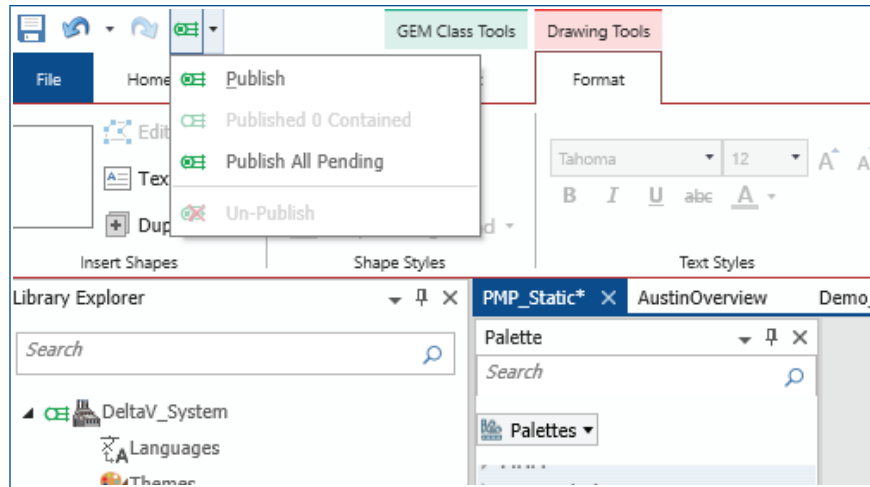
The Source property of the WebBrowser is where you enter in the address to web components such as a relay server for CCTV camera feed.

Note that the entry into the Source property needs to be in quotation marks.

This Whitelist property is required to allow DeltaV Live to communicate with a relay server. It does not need to be in quotation marks, and it is sufficient to provide just the IP address or server name (**http://10.233.30.188** in the example below).

The screenshot shows the configuration window for 'WebBrowser2'. The 'Basics' tab is active, and the 'Browser' section is expanded. The 'Source' property is set to "http://10.223.30.188/mainpanel/0/mainpanel" and is circled in red. Below it, several security options are listed with checkboxes: Sandbox, Restrict Scripts and Autoplay, Restrict Popups, Restrict Form Submission, Restrict Pointer Lock, Load with Unique Origin, and Can only navigate within itself. The 'Whitelist' property is set to http://10.223.30.188 and is also circled in red. The 'Line' section is expanded, showing 'Line Color' (with a color picker), 'Line Thickness' (0.01 in), and 'Line Style' (Solid).

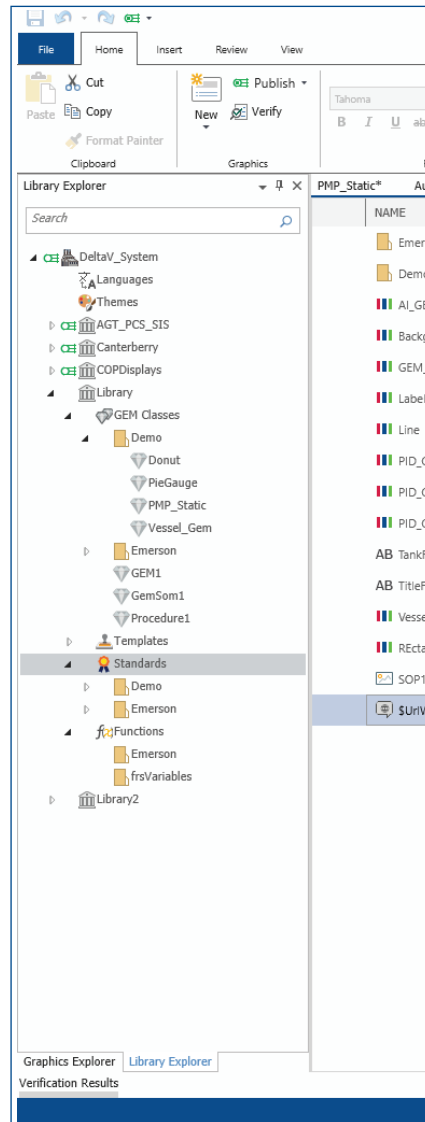
Save and publish the display using the buttons on the top left of the application.



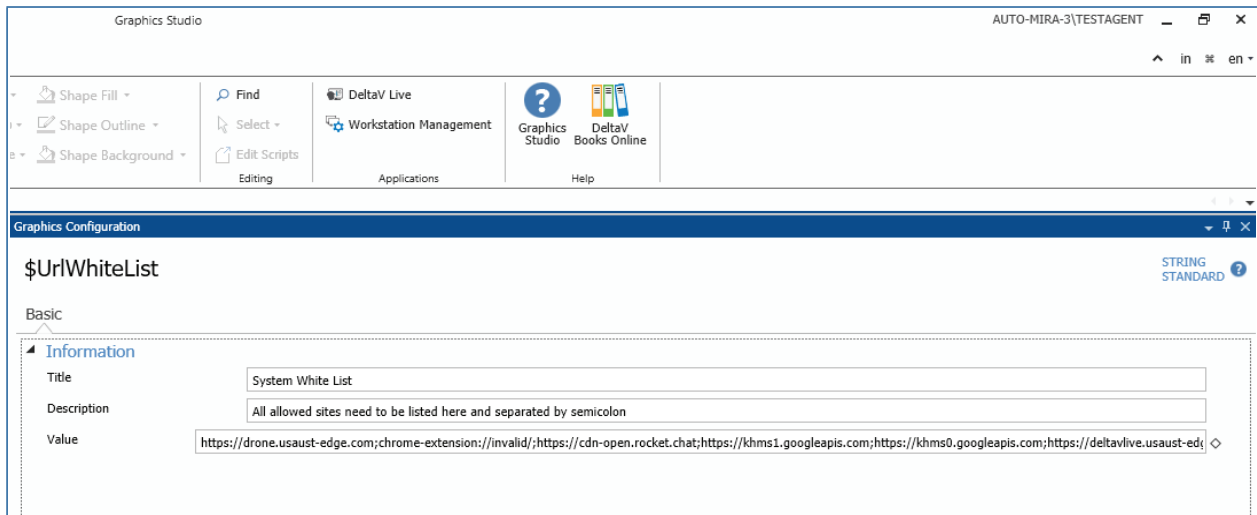
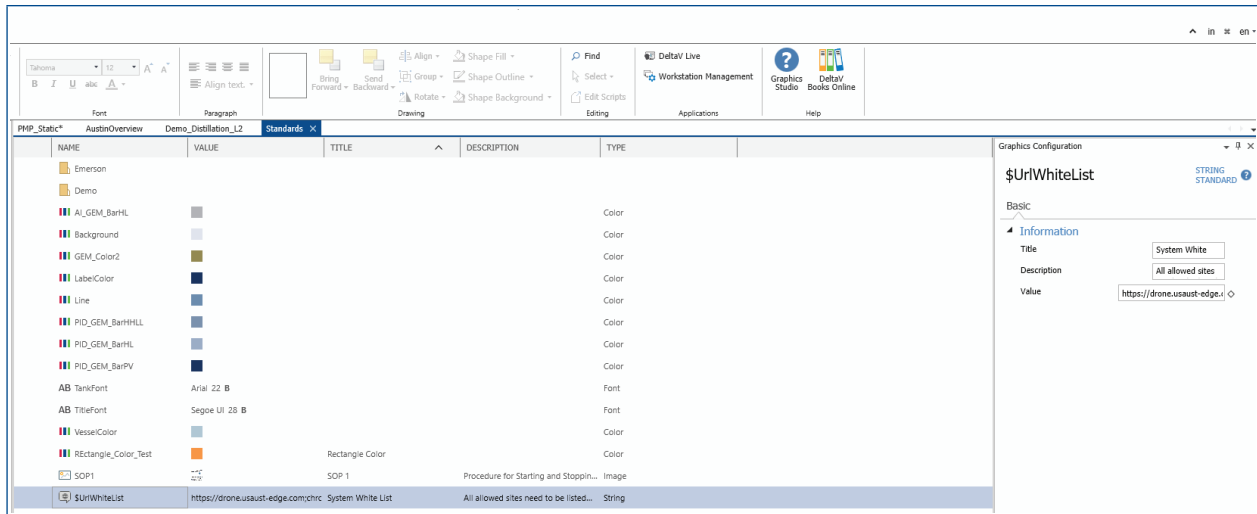
Configure the \$UriWhitelist Standard

There is also a system-wide whitelisting entry that is required. This is a Standard in DeltaV Live called \$UriWhitelist, and it also needs to be updated to include this new server.

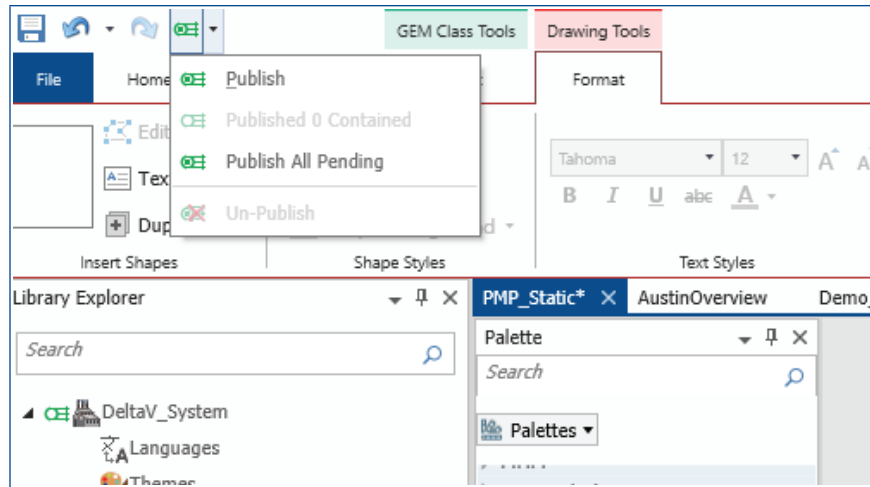
To change this standard, click on the Library Explorer tab in Graphics Studio, and double click on “Standards” to open the list of system-wide standards in the canvas pane.



Select the \$UriWhitelist standard shown below and expand the Graphics Configuration pane on the side. Enter in the IP address of the relay server in the Value section. Note if other addresses that need to be whitelisted are already listed here, they must be separated by a semicolon (no spaces) as shown below.



Save and publish this standard with the buttons on the top left of the application.



Example Configuration of Relay Server Web Components

This section explains the HTTP commands used to interact with an example Relay Server. Commands are usually accessed through CGI calls to the server from web pages, but sometimes it may be necessary to access these commands directly or through scripts which simulate web commands.

General Format of URL Commands

There are several commands the Relay Server will accept. The general format is:

[http://<host>:<port>/<command>/<camera number>/<argument list>](#)

<host> The IP address or hostname of the computer which is running the Relay Server

<port> The port Relay Server is listening in which is running the Relay Server

<command> The command that tells the server the type of request such as 'video', 'control', 'mainpanel', 'viewpanel' and etc. The sub-sections below describe the 'mainpanel' and 'viewpanel' commands.

<camera number> The number of the camera which is requested

<argument list> This can be one or many parameters the server needs to process the request

Live Video Panel Commands

There are two types of live video panel commands can be used as the Source property in the Web Browser control inside the DeltaV Live system. These two commands are called, the 'mainpanel' and 'viewpanel'.

Main Panel Command

This command shows the Relay Server default 1-up live view display. Section 3.3 shows the two live view layouts, with an example from a CCTV camera from IVC (Industrial Video and Control). The format of the command is:

`/mainpanel/<camera number>/mainpanel`

<camera number> is an integer greater or equal to 0 and less than or equal to the number of cameras supported.

Examples :

1) `/mainpanel/1/mainpanel` will show the first camera on the live video window on the main panel web page

2) `/mainpanel/3/mainpanel` will show the third camera on the live video window on the main panel web page

Live Panel Command

This command provides a list of parameters to display 1 or more cameras with different video control options. The format of the command is:

`/viewpanel/<cameranumber>/viewpanel&rows=<number of rows>&columns=<number of columns>&order=<ordering>&feeds=<feed numbers>&fps=<frames per second>&imagewidth=<image width>&imageheight=<image height>&useivcax=<use ivc ax>&enableptclk=<enableptclk>&enableovlfs=<enable overlay fullscreen>&enableovlgps=<enable overlay gps>&enableovlptz=<enable overlay ptz>`

<camera number> is an integer greater or equal to 0 and less than or equal to the number of cameras supported.

<number of rows> is the rows of the view panel and the number is range from 1 to n. If this parameter is not specified, the default value is 1. (optional)

<number of columns> is the columns of the view panel and the number is range from 1 to n. If this parameter is not specified, the default value is 1. (optional)

*Note: The <number of rows> * <number of columns> creates a table which represents the video display in a web page. Each cell in the table represents one video display.*

< ordering> is the way of the numbering the cells in the table. The ordering is either horizontal or vertical. The value is either "h" or "v". If this parameter is not specified, the default value is "h". (optional)

<feed numbers> is a list of camera numbers that will be assigned to the cells in the table. The format of the feed numbers can be comma separated between feed numbers and/or a dash separated between two feed numbers to specify the range. (optional)

<frames per second> is the frame rate for all specified feeds on this web page. If this parameter is not specified, the frame rate of each feed is default to the feed configured maximum capture video frame rate from the camera source. (optional)

<image width> is the width of all the live video images on this web page. If this parameter is not specified, the width of each image is default to 352. (optional)

<image height> is the height of all the live video images on this web page. If this parameter is not specified, the height of each image is default to 240. (optional)

<useivcax> is a boolean value to tell whether to use the IVC ActiveX control to view the video. The value is either "true" or "false". If this parameter is not specified, the default value is "false". (optional)

<enableptclk> is a boolean value to tell whether to enable point and click for all the live video on this web page. The value is either "true" or "false". If this parameter is not specified, the default value is "true". (optional)

<enableovlfs> is a boolean value to tell whether to enable full screen overlay on the video window for all the live video on this web page. The value is either "true" or "false". If this parameter is not specified, the default value is "true". (optional)

`<enableovlgps>` is a boolean value to tell whether to enable gps overlay on the video window for all the live video on this web page. The value is either “true” or “false”. If this parameter is not specified, the default value is “true”. (optional)

`<enableovlptz>` is a boolean value to tell whether to enable ptz control overlay on the video window for all the live video on this web page. The value is either “true” or “false”. If this parameter is not specified, the default value is “true”. (optional)

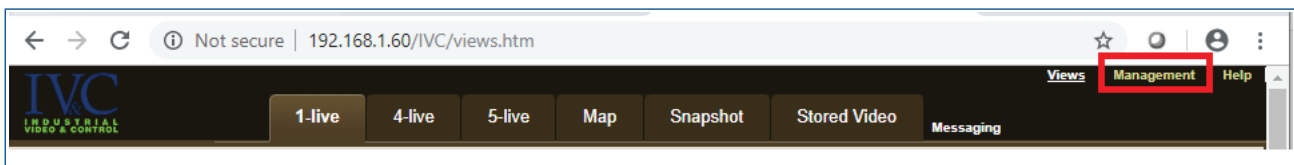
Examples :

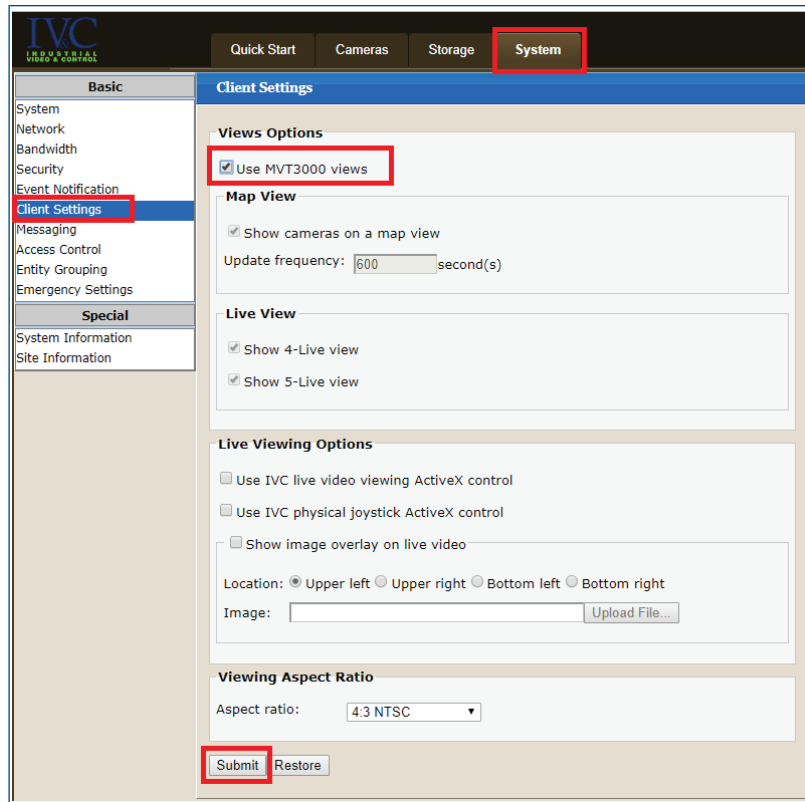
- 1) `/viewpanel/1/viewpanel` will show a 352x240 1-up display of camera number 1 using javascript and point & click is enabled
- 2) `/viewpanel/2/viewpanel&useivcax=true` will show a 352x240 1-up display of camera number 2 using IVC ActiveX control and point & click is enabled
- 3) `/viewpanel/3/viewpanel&enableptclk=false` will show a 352x240 1-up display of camera number 3 using IVC javascript and point & click is disabled
- 4) `/viewpanel/4/viewpanel&imagewidth=704&imageheight=480` will show a 704x480 1-up display of camera 4 using javascript and point & click is enabled
- 5) `viewpanel/0/viewpanel&rows=2&columns=3&order=h&feeds=1,3-5,10,12` will show a 352x240 6-up display of camera 1, 3, 4, 5, 10 and 12. Camera 1, 3 and 4 will be displayed at the first row. Camera 5, 10 and 12 will be displayed at the second row. The frame rate of each feed is set to the feed configured maximum capture frame rate from the camera source.
- 6) `/viewpanel/0/viewpanel&rows=2&columns=2&order=v&feeds=1-4&fps=10&useivcax=true` will show a 352x240 4-up display of camera from 1 to 4. Camera 1 and 3 will be displayed at the first row. Camera 2 and 4 will be displayed at the second row. The frame rate for showing the video for camera 1 to 4 is 10 frames per second. IVC ActiveX control will be used for showing video for camera 1 to 4.

Main Panel UI with IVC Camera / Relay Server Example

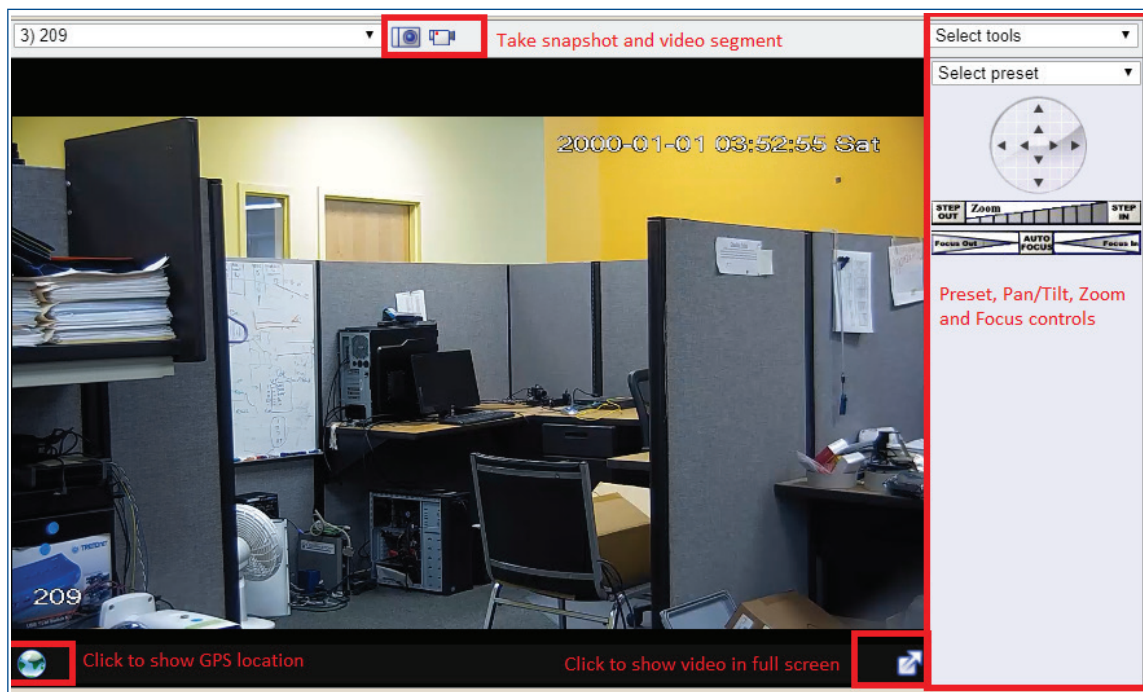
The following is an example of how to configure UI layouts using a camera and relay server from IVC, Industrial Video & Control.

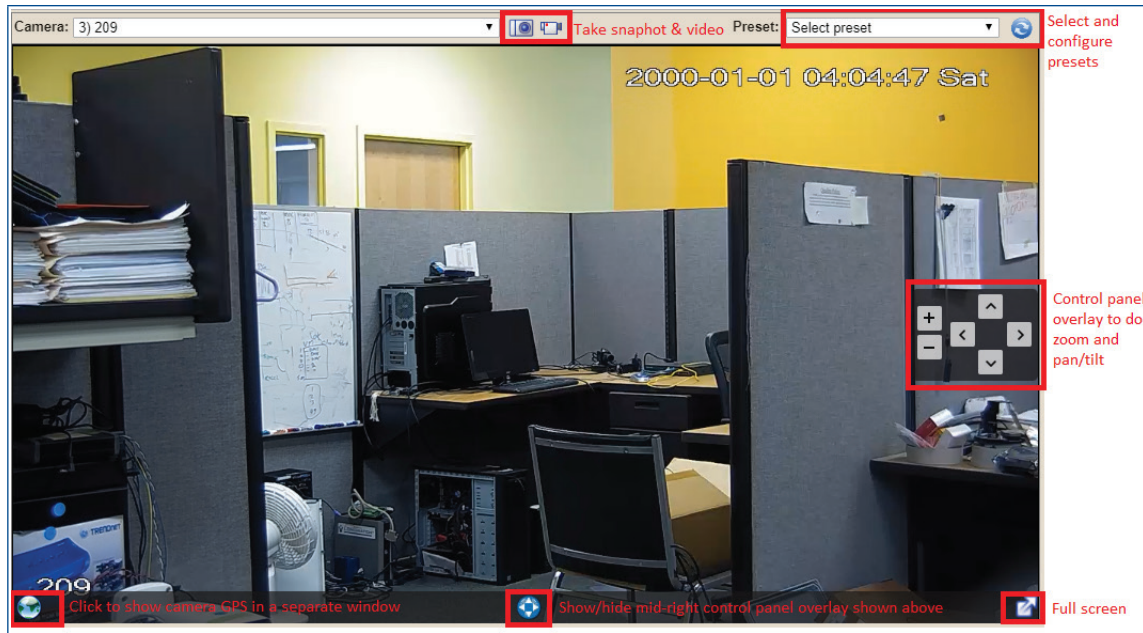
There are two kinds of main panel UI layouts depending on the Relay Server client setting. The Main Panel UI can be changed using the Relay Server management web page as shown below. By default, the “use MVT3000 views” checkbox is off.





Default Main Panel UI





Main Panel UI Components

This section describes the UI components as shown in the sub-sections above. The screenshots above show a PTZ camera with absolute positioning capabilities. The camera control UI looks slightly different for cameras don't have absolute positioning or no PTZ.

1) 1-up camera live view

This shows the live video of the selected camera. If the camera is a PTZ camera, clicking on the video window will move the camera to the center point x and y of the mouse click. The upper top left coordinate is (0,0).

2) Camera drop down list

This shows a list of cameras that are configured in the Relay Server. The list shows the camera number and name pairs. Changing the selection will change the live video inside the live view window.



3) Snapshot icon

Clicking on the icon will save a snapshot file on the specified snapshot location. The snapshot location can be configured using the Relay Server configuration page.



4) Video dump icon

Clicking on the icon will create a short video segment file on the specified stored video location. The stored video location can be configured using the Relay Server configuration page.



5) GPS overlay icon

The overlay icon is located at the bottom left corner of the live video window. Clicking on the icon will bring up a new browser window containing a map to show the GPS location of the camera.



6) Full screen overlay icon

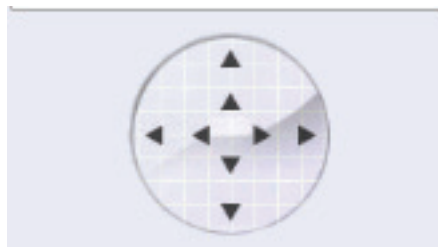
The overlay icon is located at the bottom right corner of the live video window. Clicking on the icon will show the live video in a full screen in the browser window.

7) Preset drop down list

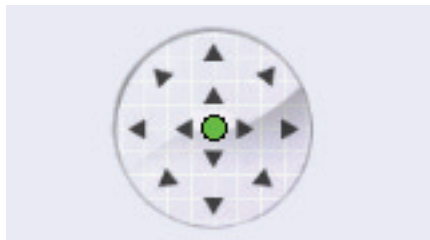
This shows the preset list of the camera. Selecting the preset will move the camera to the preset. The drop down is disabled if the camera doesn't have the preset capability.

8) Pan/Tilt graphic/button control

The pan/tilt control shows the arrows of the directional movements. Clicking on the directional arrows will move the camera to the selected direction. The inner arrows have smaller magnitude movements than the outer arrows. If the camera supports absolute movements, clicking on the arrow will move the camera by a half or one frame of the selected arrow direction. The measurement of a frame in the pan direction is from left to right of the live video window and top to bottom in the tilt direction. If the camera supports continuous movements, mouse down on the arrows will move the camera in the arrow direction and the camera will stop moving when the mouse is up. The graphic control doesn't show if the camera doesn't have the pan and tilt capability.



Default view (absolute):



Default view (continuous):

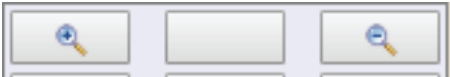



MVT3000 view:

9) Zoom graphic/button control

If the camera supports absolute zoom positions, the zoom graphic shows the 10 zoom levels and Step In and Step Out. Clicking on the zoom level graphic will move the camera to the specific zoom level. Clicking on the Step In area will zoom in one level and Step Out area will zoom out one level. If the camera has the continuous zoom capability, mouse down on the zoom in and out buttons will control the camera to continuously zoom in or out until the mouse is released from the buttons. This zoom graphic/button control doesn't show if the camera doesn't have the zoom capability.

Default view (absolute): 

Default view (continuous): 

MVT3000 view: 

10) Focus graphic/button control

If the camera supports absolute focus, clicking on the focus graphic will move the camera to the specific focus level. If the camera supports continuous focus, mouse down on the focus far and near buttons will continuously focus far or near until the mouse click is released. If the focus control UI doesn't show if the camera doesn't have the focus capability.

Default view (absolute): 

Default view (continuous): 

11) Panorama control

This control shows on the mainpanel UI if the panorama is explicitly created for the selected camera.

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