



Media Control Server MCS-EX Integration Guide for Crestron Control Systems

Version 2.5



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Overview

This document describes how to install integrate the Autonomic Controls Media Control Server into a Crestron control system installation. This guide assumes that you have setup MCS on the host computer and can communicate with it remotely from other PCs on the network using the Mirage PC client application.

For instructions on setting up the Media Control Server application, please refer to the Getting Started document included with the MCS installation. You'll find it in the Start menu of the host computer, under Autonomic Controls.

MCS and the associated Crestron module offer a ready-to-use solution for IP control of iTunes, Media Player and Media Center playback. The control service allows the Crestron Control System to interactively access your digital media player's functionality and will display feedback for those actions. You can browse your digital media collection, initiate playback, and manage the playback queue without having direct access to the Media Server's display.

In addition to the Crestron control module, MCS ships with Mirage, Autonomic Controls' desktop client application. Mirage will allow you to use a UMPC, laptop computer, or other devices to remotely browse music, movies, TV, videos and pictures stored on your Media PCs.

Setting up MCS for Crestron Control.

Requirements.

The Media Control Server module requires a Crestron 2 series processor. In order to browse music by album cover and see now playing graphics, your touch panel must be capable of displaying dynamic graphics. Visit www.crestron.com to determine which touch panels support this feature.

If your touch panel does not support dynamic graphics, you can still use Media Control Server, however, only text information will be available.

Preparation.

Download the Crestron control module from www.autonomic-controls.com/support.htm. The control module downloads with two VT-Pro-e touch-panel layouts for X-Panel at common Crestron touch panel resolutions. These layouts are compatible with any Crestron touch panel which supports dynamic graphics. The pages can be copied directly into your touch panel project.

For your convenience, we have created several specific VT-Pro-e touch panel projects for the more popular Crestron touch panels. These are available as a separate download from our [support page](#).

Once you have downloaded the control module and required touch panel files, un-zip the files into a new directory on your hard drive.

You will find the following files:

1. **Autonomic Controls MCS Sample v2.5.smw.** This is a complete sample program which uses the Autonomic Controls MCS module and touch panel files.
2. **Autonomic Controls MCS v2.5.umc.** This is the Autonomic Controls MCS Crestron control module. This file may be placed in the project directory, or in your SIMPL user modules directory.
3. **Autonomic Controls MCS IP Processor v2.5.usp.** This is the Autonomic Controls SIMPL+ module which is responsible for IP communications with the server. This file may be left in the project directory, or in your SIMPL user SIMPL+ modules directory.
4. **Autonomic Controls MCS X-Panel 800x600 v2.5.vtp.** VT-Pro-e X-panel project. In addition to using this interface as a PC client, it is also useful for testing purposes and for copying to Crestron existing touch panel projects of matching resolution.

Programming the Crestron Control System.

In order to verify that the MCS server application is operating properly and to reduce the number of variables during your first run through, Autonomic Controls strongly recommends that you run the included sample program stand-alone on your Crestron processor and touch panel before integrating the system into your projects.

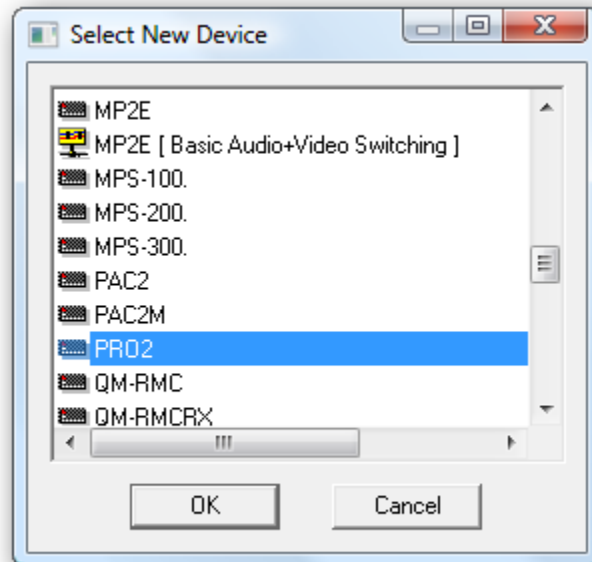
The first step is to open the Autonomic Controls MCS Sample program in SIMPL and modify the required parameters for your network and Media server.

Changing the processor type.

In SIMPL, open System View by clicking on the configure icon in the toolbar.

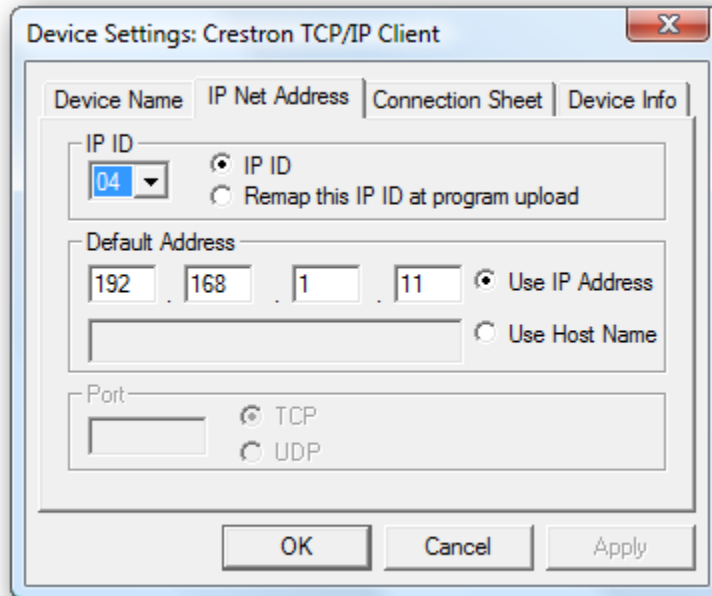


The sample program assumes a Crestron Pro-2 processor. Change the processor type if necessary by right clicking on the processor in the system tree, and select Replace Processor.



Configuring the Media Server IP address.

Expand the Ethernet card device in the system tree (in this case, C2ENET-1). Double click on IP-ID 04 and change the IP address to match the address or host name of the host media pc.



*Tip: Extenders are always controlled through the host media PC. If you wish to control an extender, use the IP address of the **host PC**, not the extender here.*



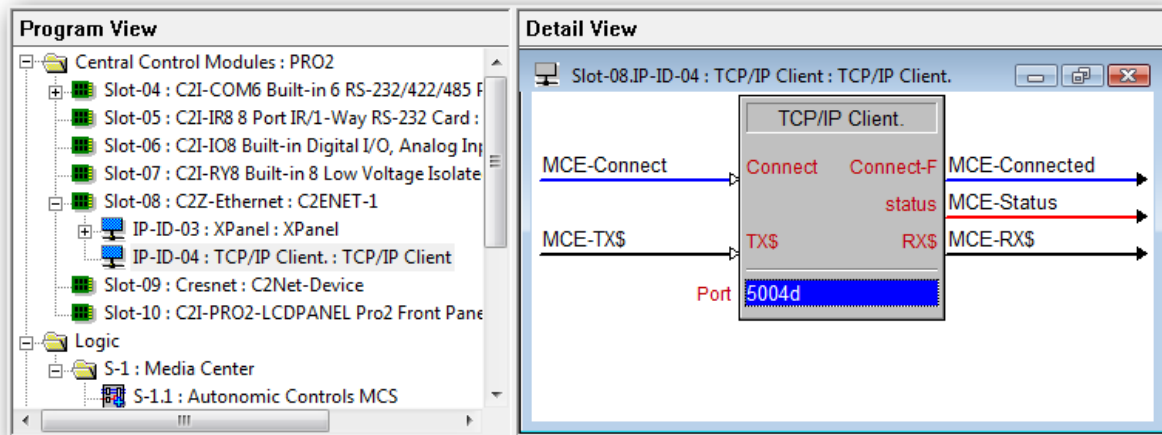
*Tip: By default, MCS is designed to run over an IP socket, however, it can be configured to be controlled over an RS-232 port on the PC. For more information, see the **Advanced Server Configuration**.*

Configuring the IP Communications Port Number.

An IP port is a communications “channel” that two devices use to communicate with each other. By default, MCS uses port 5004 for IP command protocol communications and feedback.

In SIMPL, switch back to Program view. Open the program tree and select the Ethernet slot, and then open the TCP/IP Client symbol configured for MCS.

Change the Port to 5004.



Tip. If you changed the default control port in the MCS configuration tool to something other than 5004, adjust accordingly.

Configuring the Autonomic Controls Module.

INPUTS	Type	
IP_Connect	Digital	Initiates TCP/IP connection while signal is high. (High/1: Connect, Low/0: Disconnect (Level Sensitive))
Command\$	Serial	Input for direct command strings to MCS
RX\$	Serial	Receive serial data from TCP/IP client
Status	Analog	Analog status input from TCP/IP client
Events_Enabled	Digital	Enables asynchronous messages from server to TCP/IP client. High/1: Enable, Low/0: Disable (Level Sensitive)
Browse_*	Digital	Initiates browse command for media types (determined by context) on a rising edge.
Browse_Queue	Digital	Initiates browsing the playback queue on a rising edge.
CurrentList_AddQueue	Digital	Adds the currently listed media to the playback queue on a rising edge.
CurrentList_PlayNow	Digital	Adds the currently listed media to the playback queue and begins playback immediately on a rising edge.
Play/Pause	Digital	Play pause toggle.
Play	Digital	Discrete play command.
Record	Digital	Discrete record command..
Pause	Digital	Discrete pause.
Stop	Digital	Discrete stop.
Skip_Next	Digital	Advance to next track in queue.
Skip_Prev	Digital	Advance to previous track in queue.
Rewind	Digital	Rewind currently playing media
FastForward	Digital	Forward through currently playing media
Browse_Instances	Digital	Initiates browsing of sources configured in MCS on rising edge.
Shuffle_Toggle	Digital	Toggle Shuffle on and off on a rising edge.
Repeat_Toggle	Digital	Toggle Repeat on and off on a rising edge.
PageFlip_*_From_TP	Digital	Receives page flip presses from interface and executes page logic on a rising edge.
PageFlip_KB	Digital	Displays the keyboard on a rising edge.
PageFlip_KB_Off	Digital	Suppresses the keyboard on a rising edge.
SavePlaylist	Digital	Discrete command to Save the current queue as a playlist. Function also available via contextual buttons.

Search	Digital	Discrete command to search currently browsed media. Function also available via contextual buttons.
Clear_Queue	Digital	Discrete command to remove all songs from the playback queue and stop playback. Function also available via contextual buttons.
Zones	Digital	Discrete command to initiate browsing of zones available to MCS. Function also available via contextual buttons.-
Actions	Digital	Discrete command to bring up action list for currently playing media. Function also available via contextual buttons.
Scrollbar_Position	Analog	Send an analog value (0-65535) to scroll through list of media.
Direct_Volume	Analog	Set the volume of current instance directly (0-50)
Previous_Page	Digital	Browse previous number of list items.
Next_Page	Digital	Browse next number of list items.
Go_Back	Digital	Initiate last browse command in browse history.
Home	Digital	Browse to top of list
End	Digital	Browse to end of list
Volume_Up	Digital	Increment volume of current instance
Volume_Down	Digital	Decrement volume of current instance
Mute_Toggle	Digital	Toggle between mute on and off for current instance.
Channel_Up	Digital	IR emulation channel up button.
Channel_Down	Digital	IR emulation channel down button.
Live_TV	Digital	IR emulation return to live TV from recorded TV
Information	Digital	IR emulation info button.
Guide	Digital	IR emulation guide button.
Back_IR	Digital	IR emulation back button.
DVDMenu	Digital	IR emulation DVD Menu button.
GreenButton	Digital	IR emulation WMC Start button.
Up	Digital	IR emulation Remote Up button.
Down	Digital	IR emulation Remote Down button.
Left	Digital	IR emulation Remote Left button.
Right	Digital	IR emulation Remote Right button.
Select	Digital	IR emulation Select/Ok button.
Num_Pad_*	Digital	0-9 number pad.
Num_Pad_Enter	Digital	Number pad enter.
Num_Pad_Clear	Digital	Number pad clear.
Thumbs_Up	Digital	Pandora Thumbs Up function.
Thumbs_Down	Digital	Pandora Thumbs Down function.

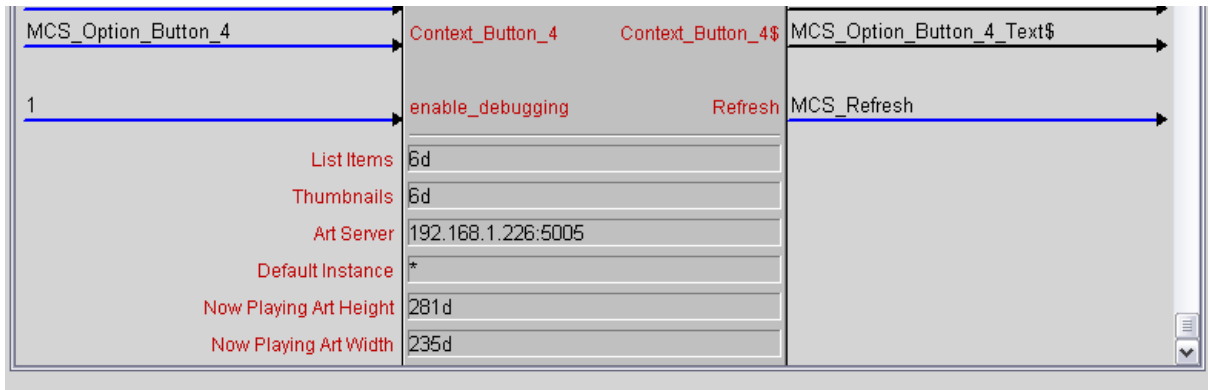
Dialog_Button_*	Digital	Select buttons for user prompts from interface.
Art_Error_Monitor_*	Analog	Analog from Dynamic Graphic objects' error join for list items. Tracks value of analog and re-propagates album art URL's as needed.
Title_Select_*	Digital	Pulse to select the corresponding title in a list.
Title_AddToPlaylist_*	Digital	Pulse to select the corresponding title in a list and add to the playback queue.
Title_PlayNow_*	Digital	Pulse to select the corresponding title in a list and play back title immediately.
Alpha_Search_Up	Digital	Jump to first letter feature: scroll down alphabet.
Alpha_Search_Down	Digital	Jump to first letter feature: scroll up alphabet.
Context_Button_*	Digital	<p>Pulse to send command for contextual buttons. Buttons 1-4 are multi-function based on current state of MCS.</p> <p>Button 1: Actions when on Now Playing page, PageFlip to Now Playing page when not on the Now Playing page, blank if on Now Playing page but no media is playing.</p> <p>Button 2: Save Playlist when browsing the Queue and there is media in the Queue, blank when browsing the Queue but the queue is empty, otherwise Zones.</p> <p>Button 3: Search when browsing media that is searchable, Clear Queue when on Now Playing or Browsing the Queue, otherwise blank.</p> <p>Button 4: Controls when not on the Remote page, otherwise blank.</p>
Enable_Debugging	Digital	Outputs verbose debugging messages to the text console while high. High/1 Enable, Low/0 Disable (level sensitive)

OUTPUTS	Type	
Connect	Digital	Connection signal to TCP/IP Connect input.
IP_Status_Text\$	Serial	TCP/IP Client connection status message.
List_Position\$	Serial	Outputs current position in a list.
List_Caption\$	Serial	Outputs title of currently browsed list.
TrackLength_fb\$	Serial	Length in minutes:seconds of the currently playing track.
TrackTime_fb\$	Serial	Progress in minutes:seconds of the currently playing track.
TrackNumber_fb\$	Serial	The number of the currently playing track in the playback queue.
Current_Media_Type	Analog	Analog value indicating the type of media that is currently being browsed.
Browse_Buttons_Mode	Analog	Analog value that determines the format of the browse buttons based on the MCS Configuration. 0 = Windows Media Center, 1 = Windows Media Player and iTunes (music only)
Button_State	Analog	Analog value that determines the state of contextual buttons.
Transport_fb	Analog	Feedback for the current state of the transport. 0 = Stop, 1 = Play, 2 = Pause, 3 = Forward, 4 = Rewind.
Record_fb	Analog	Feedback for record status. 1 = Recording, 0 = not recording.
Current_Track_Progress_fb	Analog	Progress of the currently playing media in an analog value (0-65535). For use with a gauge or slider.
Shuffle_fb	Analog	Feedback for state of Shuffle mode. 0 = off, 1 = on.
Repeat_fb	Analog	Feedback for state of Repeat mode. 0 = off, 1 = on
PageFlip_*_To_TP	Digital	Signals to drive appropriate subpages on interface.
D_Pad	Digital	Signal to drive D_Pad subpage (for smaller format panels)
Num_Pad	Digital	Signal to drive Num Pad subpage (for smaller format panels)
Search_Enabled	Digital	High/1 if currently browsed media is searchable
Alpha_Enabled	Digital	High/1 if currently browsed media is searchable by first letter
Chapters_Button	Digital	High/1 if current movie title has chapters available

Dialog_Enabled	Digital	High/1 if MCS requires a dialog box for user input.
Actions_Enabled	Digital	High/1 currently playing media has actions associated with it.
Prev_Enabled	Digital	In list browsing = 1 if there is previous media in the list. Use to enable/disable Previous page button on interface.
Next_Enabled	Digital	In list browsing = 1 if there is more media in the list. Use to enable/disable Next page button on interface.
Back_Enabled	Digital	High/1 if there is browse commands available in browse history. Use to enable/disable Back button on interface.
Scroll_Enabled	Digital	High/1 if list contains more items than number that can be displayed. Use to enable/disable scrollbar, Next/Prev page buttons on interface.
ThumbsUp_Enabled	Analog	Equals 1 if Thumbs Up button available (for Pandora).
ThumbsDown_Enabled	Analog	Equals 1 if Thumbs Down button available (for Pandora)
Scrollbar_fb	Analog	Value for current position in list.
Volume_fb_Scaled	Analog	Volume level for current instance (0-50).
Mute_fb	Analog	Feedback for current mute status. 1 = Muted, 0 = unMuted.
Now_Playing_Art\$	Serial	URL for Now Playing Artwork. Connect to dynamic graphics join. Angled artwork with reflection.
Now_Playing_Art_Small\$	Serial	URL for smaller size Now Playing Artwork. Use for smaller resolution panels. Angled artwork with reflection.
Now_Playing_Thumb\$	Serial	URL for Now Playing Artwork. Use for smaller resolution files. Flat artwork no reflection.
Now_Playing_Thumb_Full\$	Serial	URL for Now Playing Artwork. Uses height/width parameters in module parameters. Flat artwork no reflection.
Browse_Art\$	Serial	URL for details artwork.
MCS_Browse_Art_Format	Analog	Determines format of artwork for details.
MetaData*\$	Serial	Contextual media meta data for currently playing media.
MetaLabel*\$	Serial	Contextual meta data labels for currently playing media.
MediaInfo*\$	Serial	Contextual information data on currently playing

		media.
Dialog_Buttons	Analog	Outputs number of dialog buttons needed to be displayed by MCS.
Dialog_Caption\$	Serial	Title of Dialog box.
Dialog_Text\$	Serial	Instructions for Dialog box.
Dialog_Default_Text\$	Serial	Text to display in text field by default when dialog with keyboard entry is invoked.
Button_Text_*\$	Serial	Labels for each of 3 dialog box response buttons.
List_AlbumArt_*\$	Serial	URL for artwork for corresponding list item.
Title_Enable_*	Analog	Feedback if particular list field is enabled. (1 enable list field to display media, 0 disable list field to reflect no media ie. At end of list).
Title_Text_*\$	Serial	Text to display for each corresponding list item.
List_SubText_*\$	Serial	Sub Text to display for each corresponding list item.
Display_Alpha_Index	Digital	Drives search by first letter display when used.
Alpha_Index_Letter\$	Serial	Feedback showing current letter when searching by first letter.
Context_Button_*\$	Serial	Text label for contextual buttons. Output of each corresponding signal reflects function as outlined in the Inputs section.
Refresh	Digital	Pulsed high when MCS requires a touchpanel refresh. Connect to an Ethernet Offline Manager refresh input or Poll Manager update request for an interface.

The Autonomic Controls Modules has six configurable parameters.



ListItems – This tells the module how many list items appear in your VT-Pro project. If you modify the included interface files, set this parameter to the number of text list items in your project. This value does not need to be changed for the sample program.

Thumbnails – This parameter specifies how many thumbnails appear in your VT-Pro project. If you modify the included interface files, set this parameter to the number of thumbnail list items in your project. This value does not need to be changed for the sample program.

Art-Server – This is the full address and port number of the Autonomic Controls web server which is responsible for serving album art to the touch panel. By default this value is 5005, but it is also configurable in the server configuration tool.

It should be set to the IP address of your server, a colon (:), and then the art port, (default 5005).

Default Instance – If you are controlling extenders, you can specify the default instance to connect to. For more information see the **Advanced Server Configuration** section. The default setting of * instructs the module to control the currently logged in session on the Media PC.

Now Playing Art Height & Width – This allows you to indicate the size of the now playing art to maximize picture quality for various size/resolution touchpanels. These dimensions should match the size of the Now Playing dynamic graphics object in your project for best results.

Configure your touch panels.

If you are going to test MCS with a physical touch panel, configure the touch panel normally in SIMPL and copy the digital, analog, and serial joins from the X-Panel symbol in the sample project.

Additionally, you will have to provide logic that drives the Connect input on the Autonomic Controls module high when the touch panel is online. For testing purposes, it is acceptable to set this signal to “1”.

If you are going to test the system with an X-Panel application, you do not need to make any further changes.



If you have followed all the steps up to this point, the program is now ready to be uploaded to the processor.

See the next page for setup instructions for the touch panel project.

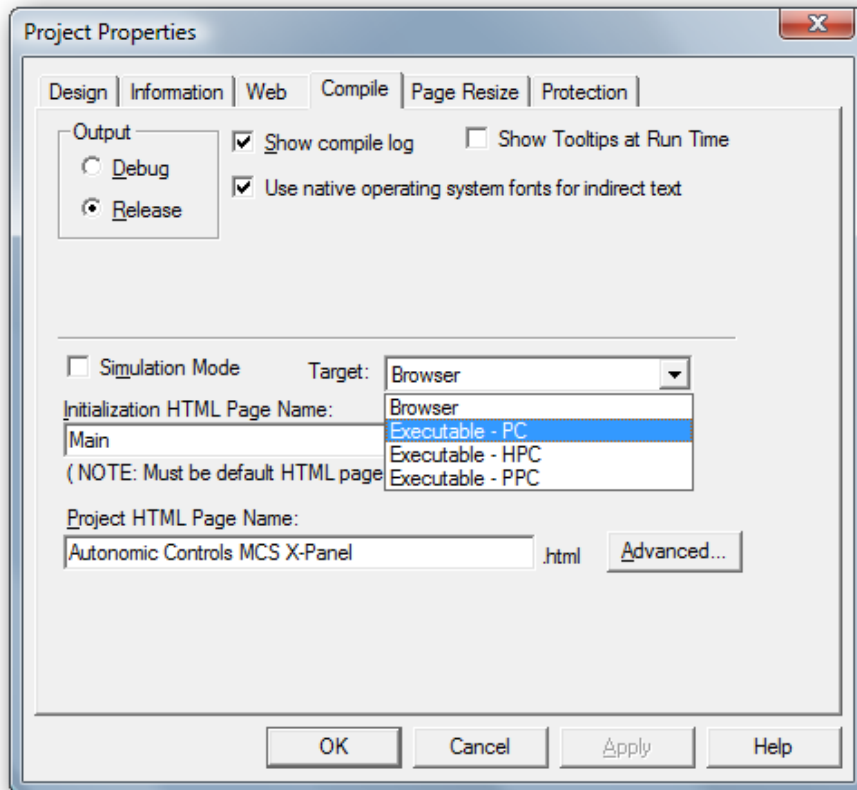
Configuring the VT-Pro files.

This guide will help you configure the X-Panel projects for EXE or Web browser consumption. If you are setting up a physical touch panel, no additional configuration is necessary, simply upload the project to the touch panel.

Open the VT-Pro-e file suitable for your application.

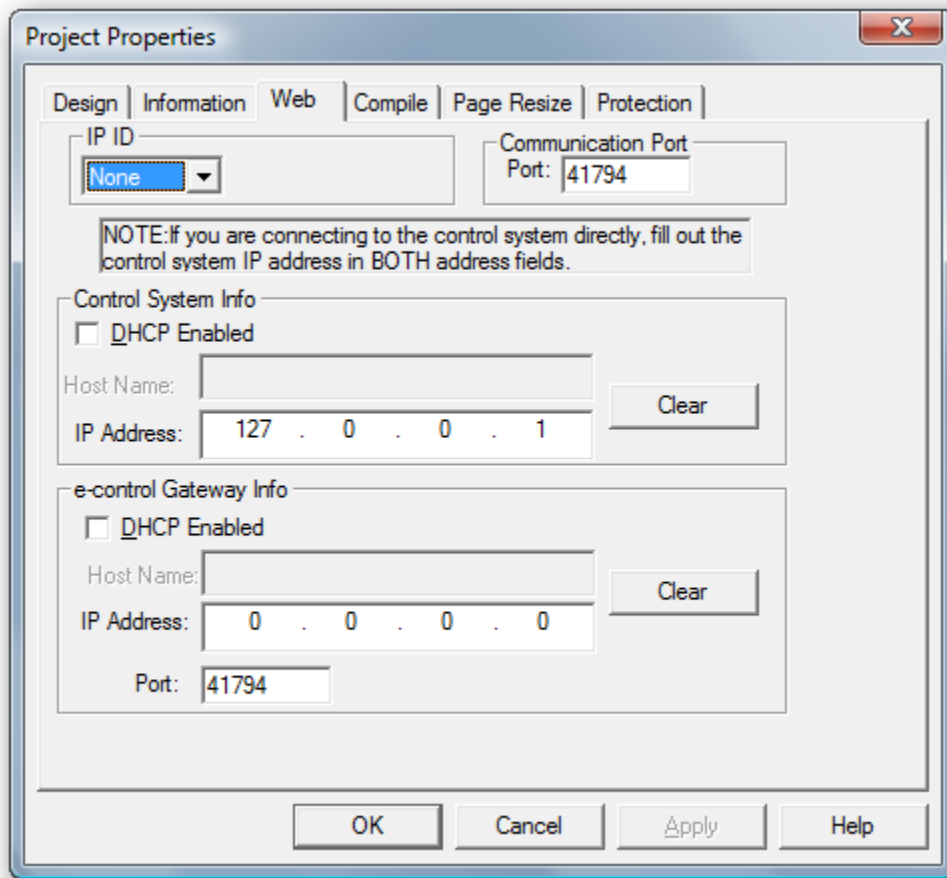
The first step is to choose your compile options. If you are using Microsoft Vista, compiling as an EXE is recommended since X-Panel browser projects are not compatible with Windows Vista.

Select the **Edit** menu, then click on **Properties**.



Set your target platform, and make sure the output is set for Release mode.

Once you have finished setting up the compile options, click on the Web tab.



If you are targeting a browser application and plan on uploading the project to the processors web-server, set the Control System IP address to 127.0.0.1 and the e-control Gateway address to 0.0.0.0

If you are targeting a EXE, or will host a browser application remotely set both address fields to the IP address or host name of the Crestron processor.

Click OK to close the Project Properties dialog box.

You can now click on the File menu, and click on Compile. You can now upload the web pages to the processor, or double click on the HTML or EXE file created by VT-Pro-e.

You're done! Enjoy Autonomic Controls Media Control Server



Important Note: Running the X-Panel project on the same computer as the host Media PC?

Certain one-way commands on the MCS controls (or home) page, as well as volume and mute feedback require that Windows Media Center (WMC) is the focused window.

Since WMC will not have the focus while you are operating the X-Panel project or Mirage on the same PC, those commands will not work in this configuration. Most media browsing commands will work fine in this configuration however and so it is acceptable to test this way.

In actual practice, MCS client applications are intended to be operated from remote devices while WMC is running full screen. These commands will work properly when operating the interface from a remote device.

Enabling the DVD Library in Windows Media Center

Assuming you have several locally copied DVDs on your hard drive you can get them to show up in My DVDs and play in Media Center. **Please observe all applicable copyright laws.**

1. How to get locally copied DVDs to show up in My DVDs:
 - a. Enable the DVD Library option in the Media Control Server configuration application. This will enable the DVD library interface in Windows Media Center.
 - b. Copy your DVD to your hard drive. It is recommended that when you copy DVDs locally that you select the option to have the data chunked at 1 gig and the output should be something of the form `c:\myDvds\Jaws\`.

Underneath `c:\myDvds\Jaws\` you'll find `c:\myDvds\Jaws\video_ts` and in `video_ts` you'll find a `video.ifo` file in addition to several other files.

- c. Add the `c:\myDvds\` folder to My Videos in XP or Dvd Library in Vista. The My DVDs gallery searches the same path as My Videos so if your DVD is not showing up go to My Videos, press CTRL-D, and go through the Videos Media Discovery wizard and add `c:\myDvds\`
- d. Enable rich metadata:
In `c:\myDvds\Jaws` create a file called `Jaws.dvdid.xml`. It's of the form:

```
<?xml version="1.0" encoding="utf-8" ?>
<Disc>
<Name>Jaws</Name>
<ID>00000000|00000000</ID>
</Disc>
```

Where the `00000000|00000000` is the CRC64 id of the DVD.

A web site (<http://www.dvdxml.com>) has been set up to help you with the creation of these `dvdid.xml` files. Jaws can be found here:

<http://www.dvdxml.com/download.php?view.5615>

Troubleshooting

Cannot establish a connection with the Media Control Server.

- Check Server Status in configuration application (step 1). Stop and restart server if necessary. Refer to Autonomic Controls if the server will not report “Running” or if the problem persists after reboot.
 - Check Licensing Status – rule out expired demo. Validate full time connection to the internet if running in demo mode.
 - Check Firewall status. Determine if the PC has third party firewall software such as Norton Antivirus. May need to manually make port exceptions in those cases.
 - Insure Control Server Port matches Port setting in TCP/IP connection on the processor.
 - Validate connection on local host and remote network PC using telnet to rule out networking problem. Ping the Crestron Processor from the host to insure connectivity between them.
 - Insure IP Table is properly populated on the Crestron.
-

No Album Art is displayed.

- Check the Art Server parameter in the Autonomic Controls MCS symbol in SIMPL. Make sure the parameter is in the format IPADDRESS:PORT where the IP address matches the host computer and the port matches the Web Server port setting in the MCS configuration application.
 - Check Firewall status in the MCS configuration application. Determine if the PC has third party firewall software such as Norton Antivirus. If so, you may need to manually make port exceptions in those cases.
 - Establish a baseline with the Sample VT Pro-e file. Validate that the analog and dynamic art joins have not changed on the thumbnail objects on the VT Pro pages.
 - Isolate the problem by typing http://host_name:5005/getart into a browser window. (Replace host-name with the server’s host name or IP address). If album art for the currently playing media is displayed in the browser, use the Crestron debugger to determine what URL the **MCE-Now-Playing-Art\$** signal is using.
-

Some of the remote control buttons do not function.

You may be running an X-Panel project or Mirage on the Media PC.

Certain one-way commands on the MCS controls (or home) page, as well as volume and mute feedback require that Windows Media Center (WMC) is the focused window.

Since WMC will not have focus while you are operating the X-Panel project or Mirage on the same PC, those commands will not work in this configuration. Most media browsing commands will work fine in this configuration however and so it is acceptable to test this way.

In actual practice, MCS client applications are intended to be operated from remote devices while WMC is running full screen. These commands will work properly when operating the interface from a remote device.

Navigation does not work (Music, Movies, Recorded TV, Videos, Pictures)

The navigation buttons on the left of the interface do not cause Media Center to navigate. This is not a malfunction, but a design decision meant to enable touch panel media browsing without impacting what is on the Media Center display.

If you would like these buttons to navigate the on-screen Media Center interface, set the **enable** input high on the Serial I/O symbol included in the sample application. This will cause Media Center to navigate with the touch panel by issuing the appropriate direct navigation commands to the MCS server.

