

# Using Cantabile with the Cantabile Media Server

Derek Cook © 2025



## Introduction and Background

This guide shows you how to setup and configure Top Ten Software's [Cantabile Media Server](#) (CMS) to run with the [Cantabile](#) live host in order to create an environment where Cantabile can select and trigger videos for synchronised playback with a Cantabile Song. The CMS can also be used with other software as it is "loosely coupled" with Cantabile and should respond to any live or studio host capable of generating the MIDI commands and send them to the CMS.

In my Pink Floyd Tribute band, Welsh Floyd, we had a light show and video show to go with the music. The lightshow is provided using DMXIS as per my [Cantabile and DMXIS Guide](#) and I used to use Show Cue Systems SCS11 to provide video playback that was selected by program changes and triggered when starting the Cantabile transport. SCS11 was the only affordable PC package that I found at the time that could be triggered from MIDI (that I found anyway). However, whilst SCS11 was functional, it was clunky, came at a cost (but cheap compared to Mac video packages that supported MIDI control), and was a bit of a nightmare to setup regarding CODECS and their compatibility with your host computer. Also, whilst the overall concept worked, SCS11 often had a noticeable and variable delay between receiving the command to start a video and the video starting. This was usually not a problem, but there were certain songs where I wanted the audio backing track, DMX and video cues to be tightly synchronised – which was very hit and miss with SCS11 and more miss than hit!

So, when I learnt that Brad was experimenting with a Media Server that could work with Cantabile, I was intrigued, as I was looking for something to replace SCS11 before I renewed the support for it to get it upgraded.

You can read up on the early experiments on the Cantabile Community thread [Experimental Video Playback Solution \(cantabile-media-server\)](#). I was looking at this around August 2024. I have revisited this subject and written a guide as the subject has come up again recently on the forum, and I realised that a year has passed since I looked at this, and I had forgotten a lot of what I had done.

So, I decided to revisit this and write this guide before I forgot again!

Please note this guide does not repeat Brad's instructions on how to install the CMS components. The Guide focuses on how I have set it up to work for me, as I think there is nothing like a worked example to give people ideas!

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August 2025

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## Determine Your Configuration

The first step is to determine how you intend running the CMS in relation to Cantabile. You should consider the following permutations and decide which is right for you:

- Cantabile and the CMS and Media Display are on the same computer;
- Cantabile and the CMS are on the same computer with the Media Display on a different computer;
- Cantabile is on one computer, and the CMS and Media Display are both installed on a different computer.

This can of course be changed later, but it does determine on what you are initially setting up on what machine.

In my own usage, so far, I prefer to keep video and the music generation very separate, as I do not want video generation to interfere with the music. This may now be less of an issue as processors and GPUs get more powerful, and I have built my new gig rack with the hope that I might combine them in future, but I want to get back to a known good on a separate laptop first so I can compare and contrast.

So, in this guide I will be taking the approach of Cantabile being on one computer, and the CMS and Media Display are on a different computer.

This choice determines how you are going to connect Cantabile to the CMS. If Cantabile and the CMS are on the same computer, then you will need to make the MIDI connection using something like [LoopMIDI](#).

If you are running Cantabile and the CMS on different computers, then you need something else to form the MIDI connection between the two computers. For this I use [RtPMIDI](#), and a network connection between them.

Whilst it is feasible to connect two computers via a single cable and have them auto-negotiate a connection, I have previously found that this can be hit and miss (although this might have been down to the combination of my computers at the time). Therefore, in my Gig Rack I have a [Netgear GS305 Switch](#) to form a small Local Area Network (LAN). They are really cheap, and since introducing one, I have never had a connection problem.

Another thing to decide is whether or not you want to trigger the videos by MIDI Machine Control (MMC) or MIDI Time Code (MTC).

MMC will give you basic control to start and stop video. MTC will give you fully synchronised playback. As it happens my usage requires the use of both which I will explain as we get into the detail, and I will provide examples of using both.

In summary, what I needed and what I will be covering below is to be able to:

- Display a static image for promotion of the band (logo, website, Facebook, etc.) when we are not playing.
- I have one song where the video needs to be manually started whilst we are playing a free form intro and before we start Cantabile for the main part of the song (which requires the use of MMC).
- I want all other songs to be synced to MTC, as whilst not strictly necessary on stage (a simple, precise and consistent start would suffice) it is really handy when practising and you might be seeking backwards/forwards (and Brad implementing MTC was really cool!).

With all that covered, it is time to dive into the detail.

You will also need a Web Browser to display the CMS output. I will be using Firefox.

## Install the Cantabile Media Server and Required Components

Follow the **Installation** guidance given in the **Readme** section of the [Cantabile Media Server](#) guidance to download and install the required packages.

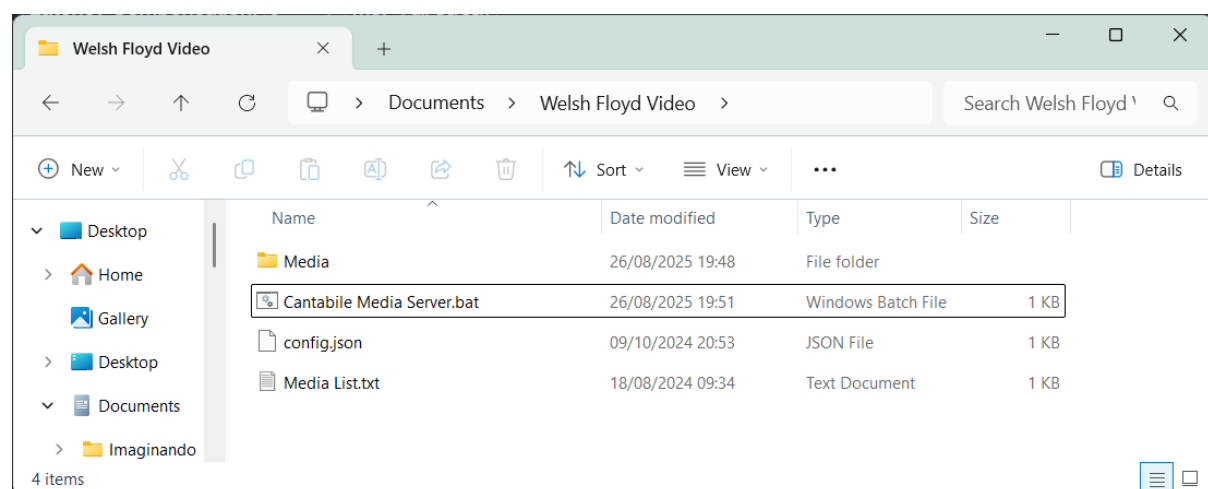
For my usage, I have no need for the CMS PDF scrolling features, so I did not install GhostScript.

Once installation is complete, familiarise yourself with the information given in the Configuration section of the [Cantabile Media Server](#) guidance so that what I have written below makes sense!

## The Video Folder Structure

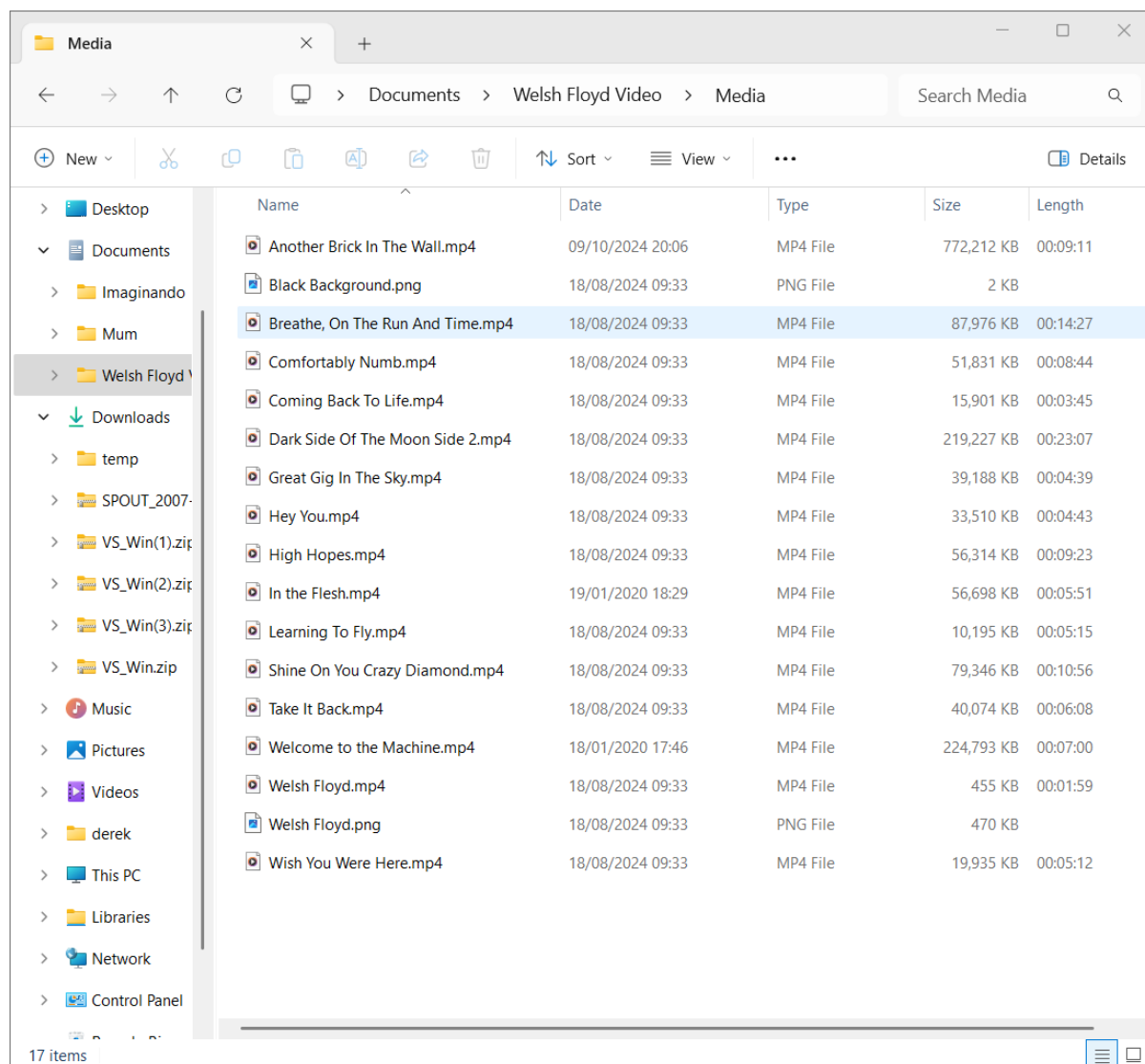
You will need to decide how you will structure the data on your computer.

Under my Documents folder, I have created a Subfolder called **Welsh Floyd Video**, and you can see from the screen shot below that I have a few items in the folder.



Artefact	Description
Media	The folder in which I have my pictures and video media that I wish to display
Cantabile Media Server.bat	A Windows batch file to simplify the running of the media server (see later for details).
config.json	A text configuration file used to setup the media server.
Media List.txt	A text file containing information on the files in the Media folder.

Below is a screenshot of my **Media** folder and its contents. You can see it is mainly MP4 videos with some PNG files.



A small note on MP4 files. Other than the ones I have created myself, the Welsh Floyd videos that I “inherited” when I took over video duties were quite old MOV files that needed converting to MP4.

This is something that proved to be problematic on some videos and none of the free converters I tried were 100% successful – and they were mostly command line driven with far too many parameters to fully understand. Sometimes I would have what appeared to be a successful conversion, but the video would stall at some point.

In the end I used a commercial package called [MOVAVI](#) and paid for a year’s subscription to get them all successfully converted and it also upscaled the videos to 1080P, so one less thing to tax the laptop with in real-time.

## Setup The Cantabile Media Server Configuration File

Now we have the software installed and some media files, it's time to set up the configuration file for the CMS.

The configuration is defined in a JavaScript Object Notation (JSON)<sup>1</sup> file called **config.json**, which can be easily created in something like Windows Notepad or a dedicated JSON editor. As there is not much to define, I just used Notepad.

You can create your own configuration from scratch or by copying, pasting and amending my example below. Or you could also start with one of the examples given by Brad in the **Configuration** section of the [Cantabile Media Server Readme](#) guidance.

Below is my example, followed by an explanation of my settings. Refer to the **Configuration** section of the [Cantabile Media Server Readme](#) guidance for more details on the parameters.

You can see that JSON is a structured format, a little like a programming language. You can learn about the syntax over at [Introducing JSON](#). Here is a quick primer:

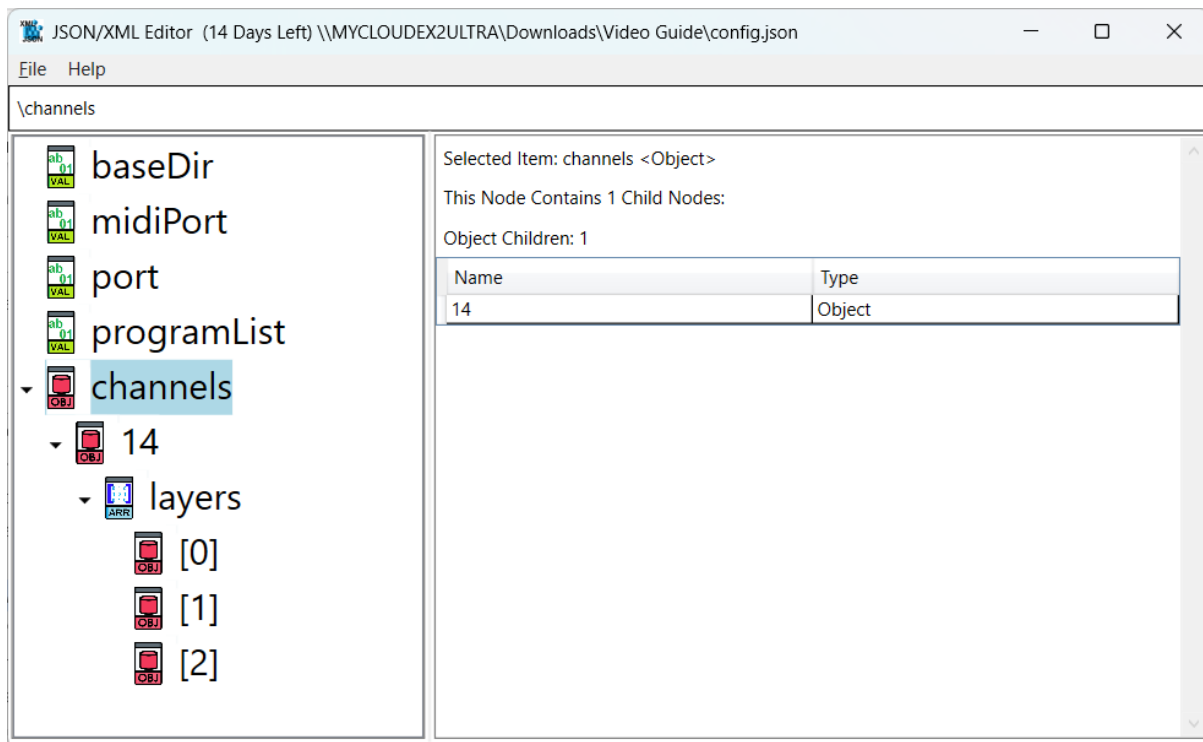
- { } enclose an "object", which includes the CMS, Channels within the CMS, etc. Objects can be defined within objects (e.g. channels and layers in the example below).
- An object contains a list of unordered name / value pairs, where the name of an object is followed by a colon (:) and then the value.
- Name / value pairs are separated by a comma (,).
- [ ] denotes an array of objects; for example, an array of the layer objects that I have defined.
- Indentation of the lines help to identify the structure within the file.

```
{
  "baseDir": "Media",
  "midiPort": "VIDEOPC",
  "port": 3000,
  "programList": "Media List.txt",
  "channels": {
    "14": {
      "layers": [
        {
          "mediaFile": "Welsh Floyd.png",
        },
        {
          "syncMode": "master",
          "mediaFile": "Shine On You Crazy Diamond.mp4",
        },
        {
          "syncMode": "mtc",
          "useProgramList": true,
        },
      ],
    },
  },
}
```

---

<sup>1</sup> JSON, or JavaScript Object Notation, is a lightweight, human-readable text-based format used for storing and transmitting data between a server and a web application. It uses a combination of key-value pairs and arrays to represent structured data, making it a popular and language-independent choice for data interchange in web development and other applications. JSON is used quite a lot by Cantabile, and of course the CMS is built using NodeJS.

If you decide to use a JSON Editor, then **config.json** would look something like this within the editor.



You can see that the structure is much more apparent.

The parameters I am using and why I have set them as I have is given in the table below.

Parameter	Description
<b>baseDir</b>	This is the location where the media files are located. I have set this to the <b>Media Files</b> subfolder. As I start the CMS in the main folder I have defined above, you do not need to define the absolute path, just the relative path (under the main folder) is enough.
<b>midiPort</b>	The MIDI Port that the CMS will be listening to for MIDI Events. <b>VIDEOPC</b> is the name of my RtPMIDI port (see later for my MIDI setup).
<b>port</b>	The webserver port that the video data will be streamed to (to be picked up by the web browser). The value I have set of <b>3000</b> is a common default value for a local port on the same computer. Start with this and only change if you need to (e.g. if something else is running that is also using this port).
<b>programList</b>	The name of the file that contains the list of program changes and what media files to select for each program change. I have this set to <b>Media List.txt</b> , which is described below.
<b>channels</b>	<p>This is the MIDI channel that the CMS will be listening on. I have set this to MIDI Channel <b>14</b>, which is the MIDI Channel in my gig setup reserved for Video Control (15 and 16 are DMXIS bank and cue control.)</p> <p>Within this channel I have defined an array of three <b>Layers</b> to meet my different needs as described above. Layer visibility is controlled from Cantabile by a MIDI CC, which is described later.</p> <ul style="list-style-type: none"> <li>• [0] When visible this layer displays the static image defined by <b>mediaFile</b>, in this case "<b>Welsh Floyd.png</b>".</li> <li>• [1] When visible, this layer shows the video specified by <b>mediaFile</b>, in this case "<b>Shine On You Crazy Diamond.mp4</b>". The <b>syncMode</b> is set to <b>Master</b>, which means that the start/stop of the video in this layer will be controlled by incoming MIDI MMC commands.</li> <li>• [2] When visible, this layer will respond to MIDI Program Change commands (on my defined channel of 14) and because <b>useProgramList</b> is defined and set to <b>true</b> this layer uses the data defined in <b>Media List.txt</b> to map an incoming program change command to a particular video. The <b>syncMode</b> is set to <b>MTC</b>, which means that the start/stop and video playback position of the video in this layer will be controlled by incoming MIDI MTC messages.</li> </ul>

## Setup the Program List

If you wish to have different media files for different songs, then you need to map program changes to Media files. This is defined within the file identified by **programList**. In my case this is defined in **Media List.txt**.

This is a simple text file that can be edited in any editor such as Windows Notepad (or something more exotic if you prefer).

The content of the file is pretty simple in structure, and my Welsh Floyd example is given below. The songs that are commented out are ones for which I do not have videos, and for those songs the default media file will be loaded if a Program Change is received and there is no mapping; in this case a PNG file that just provides a black background. Another option would be to not comment the program changes out and specifically select the black background for all programs that do not have a video file.

- Lines that start with a # character are comments and are ignored.
- **default** specifies the media file to be used in a layer if a Program Change mapping is not defined.
- **base** specifies whether or not program change commands are zero index based (0-127) or one index based (1-128).
- Lines starting with numeric values are interpreted as program change values. For example, if program change **2** is received by the CMS, then **Welcome to the Machine.mp4** is the video file selected ready for playback.

```
# specifies the default for any programs not explicitly stated
default: Black Background.png

# specifies the base program number (0 or 1)
base: 0

# program number to media file mapping
0: Welsh Floyd.png
1: Shine On You Crazy Diamond.mp4
2: Welcome to the Machine.mp4
3: In the Flesh.mp4
4: Another Brick In The Wall.mp4
# 5: Mother
# 6: Pigs on the Wing
# 7: Echoes Part 1
# 8: Echoes Part 2
9: Breathe, On The Run And Time.mp4
10: Great Gig In The Sky.mp4
11: Dark Side Of The Moon Side 2.mp4
12: Wish You Were Here.mp4
13: Comfortably Numb.mp4
# 14: Run Like Hell
# 31: Astronomy Domine
# 32: What do you want from me
33: Learning To Fly.mp4
34: High Hopes.mp4
35: Take It Back.mp4
36: Coming Back To Life.mp4
#37: One of these days
38: Hey You.mp4
```

That is it in terms of overall configuration for the setup I need. I am sure there are many other permutations that can be created.

## Create a Windows Batch File

Cantabile Media Server is a program that has to be run from the command line. Therefore, you may wish to create a Command Line Batch File that can be run by just double clicking it like any other Windows program.

A batch file is just a simple text file that can be edited in Notepad or similar, but it has an extension of .bat rather than .txt, so Windows knows what to do with it.

The contents of the batch file I have created ***Cantabile Media Server.bat*** to run Cantabile Media Server is quite simple and it is shown below.

```
CD \Users\derek\Documents\Welsh Floyd Video\  
cantabile-media-server --verbose
```

- The first line is a Change Directory (CD) command to make sure that the program starts in my base directory. You can also specify this in the batch file properties.
- The second line is the command ***cantabile-media-server*** to launch the CMS. I have specified the command line parameter ***--verbose*** as I like to see information like that (especially when debugging), but in practice this is not necessary, and you can remove it if you do not want to see such information. I probably will now I have everything running smoothly. The CMS documentation describes all the available command line parameters

Once you have created the batch file, you can simply run it by using Windows Explorer to navigate to the folder it is within and double click on it. You can also create and copy a shortcut onto the Windows desktop or other preferred location to make the CMS more accessible.



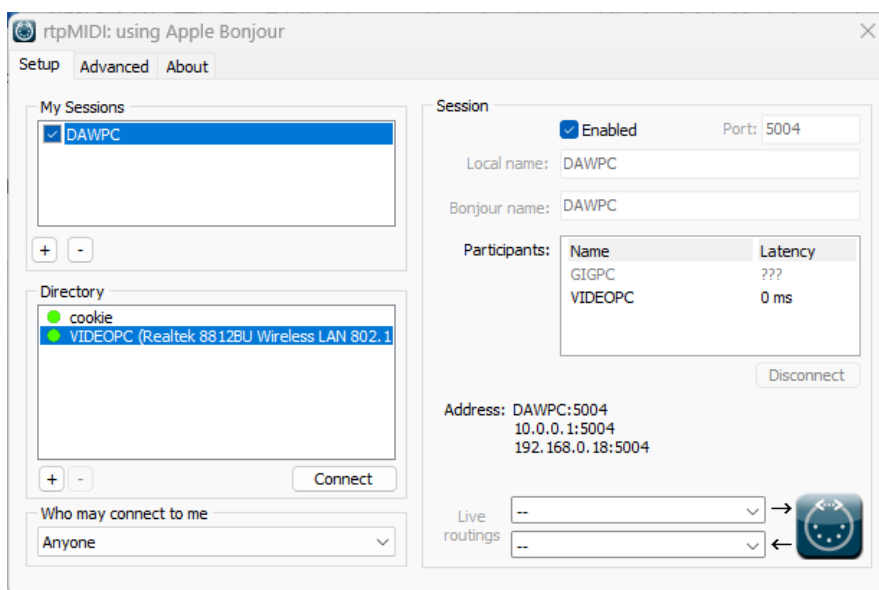
## Setup RtPMIDI or LoopMIDI

As mentioned above you will need a means of connecting Cantabile to the Cantabile Media Server so that Cantabile can provide the Cantabile Media Server with the MIDI commands that control it.

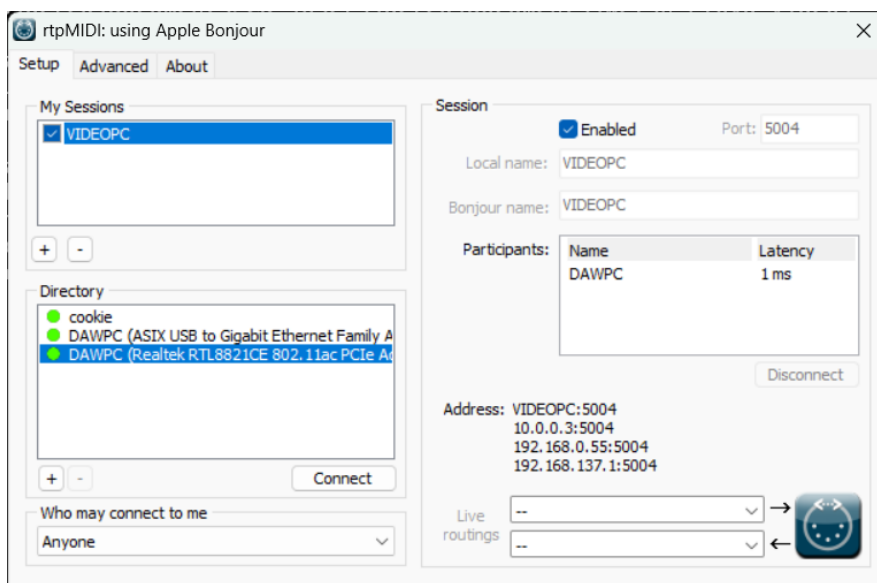
As I have Cantabile and Cantabile Media Server running on different computers, I have elected to connect them using [RtPMIDI](#).

Refer to [RtPMIDI Tutorial](#) for a detailed tutorial on setting up [RtPMIDI](#). There are also plenty of other tutorial resources such as YouTube Videos if you search for “RtPMIDI Tutorial”.

In my RtPMIDI setup I have Cantabile on my DAWPC or GIGPC. For this example I am running on my DAWPC, so this is the RtPMIDI port created for that computer, and the screenshot below shows the RtPMIDI session running on my DAWPC. You can see it has identified and connected to my VIDEO PC. My GIGPC was turned off and unavailable whilst writing this guide.

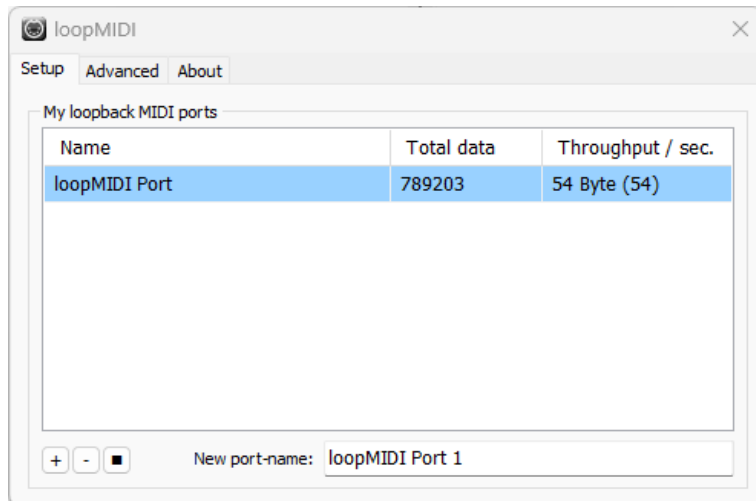


The screenshot below shows the RtPMIDI session running on my VIDEOPC. You can see it has identified and connect to my DAWPC.



It's as simple as that, and RtPMIDI is fantastic at connecting two computers using MIDI with no need for additional MIDI hardware, although as mentioned above I find that a cheap network switch absolutely guaranteed successful network connection, certainly with my older dual laptop setup, and when I upgraded my rig I kept the network switch in the setup.

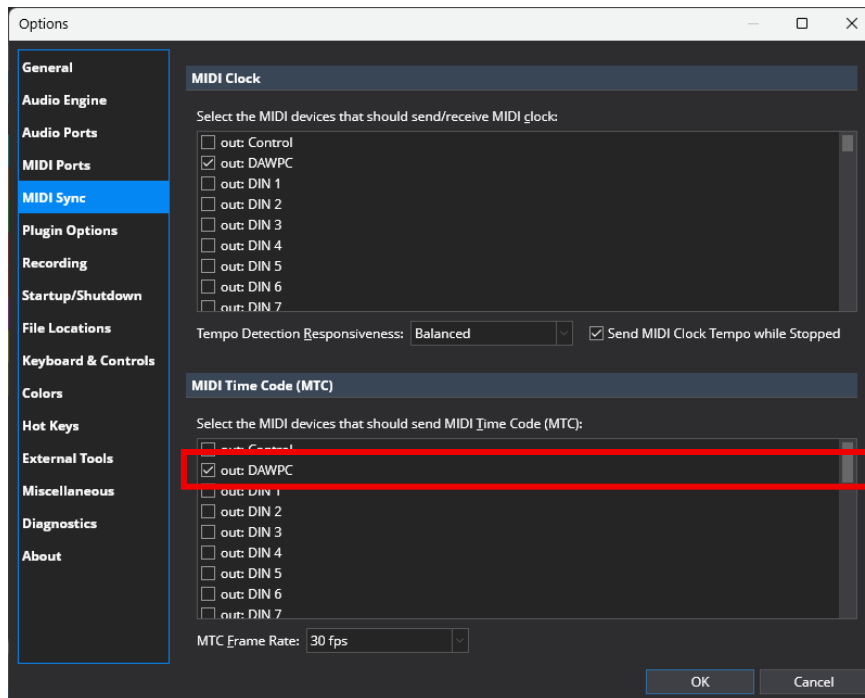
If you running Cantabile and Cantabile Media Server on the same computer, then they are easily connected using a MIDI connection utility such as [LoopMIDI](#).



## Setup Cantabile

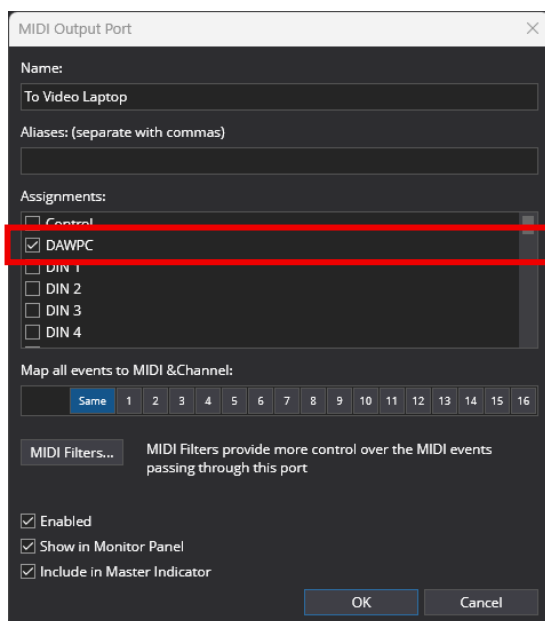
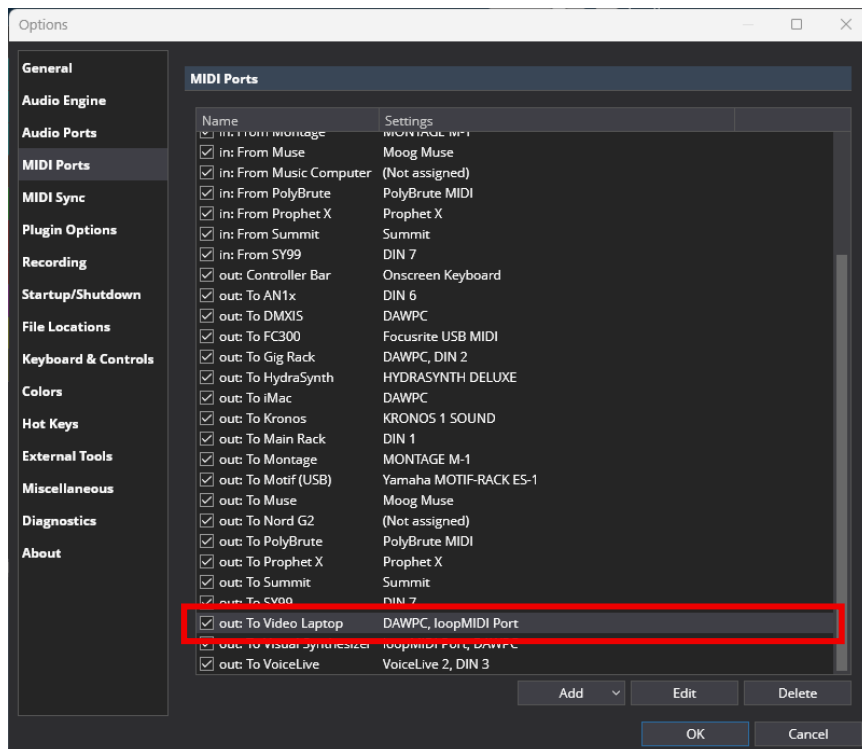
That is all the external configuration now completed, so it's time to turn our attention to Cantabile.

In **Tools /Options / MIDI Sync**, select which ports you wish to send MTC to. DAWPC is selected for MTC, which is my [RtPMIDI](#) port that is sending MIDI data over my network to the **VIDEOPC**. In my live Rig, the MTC Port would be my **GIGPC**. Also in the MTC list I have loopMIDI selected, but this is out of shot as I have quite a long list of MIDI devices!



Cantabile also needs a defined virtual port to send the data to. This is setup in **Tools /Options / MIDI Ports**. You can see below that I have one called **To Video Laptop**, which is mapped to the RtPMIDI

DAWPC port and the loopMIDI port, which allows me to test locally with a loopMIDI connection if needed.



If you want the media server on the same computer, then you would use a local midi connector like [LoopMIDI](#).

Now we are ready to configure the individual songs.

## Put The Required Bindings in your Songs

Because of my planned usage of selecting and displaying/controlling one of three layers, I have three different approaches, which are all shown below. The key thing to note is the control change bindings controlling layer visibility, which is explained below.

CC	Function	Layer Function
Controller 80: Ch14	Controls the visibility of layer 0 on Channel 14	Band Logo
Controller 81: Ch14	Controls the visibility of layer 1 on Channel 14	Free form MMC control video
Controller 82: Ch14	Controls the visibility of layer 2 on Channel 14	All other videos which are MTC controlled

The CC Values are explained below.

CC Value	Function
0	The layer is inactive and hidden.
1	The layer is active and hidden.
2	The layer is active and visible.

You will see below for each set of bindings I am simply sending CCs 80-82 to control the visibility as required when a song is loaded. Only one layer needs to be visible at any one time in my setup.

The overall list of bindings for each layer is shown below.

The bindings are used in each song depending on what Layer I want to show/control.

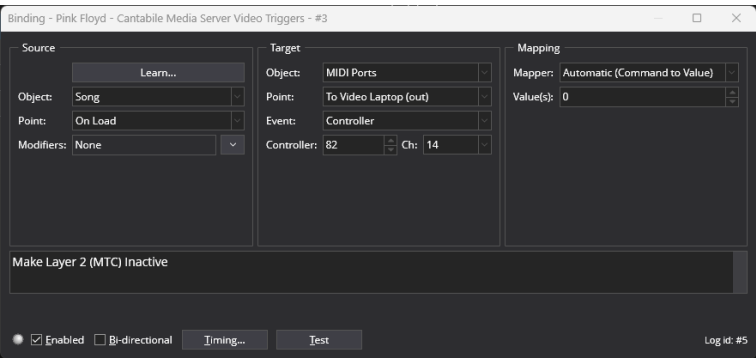
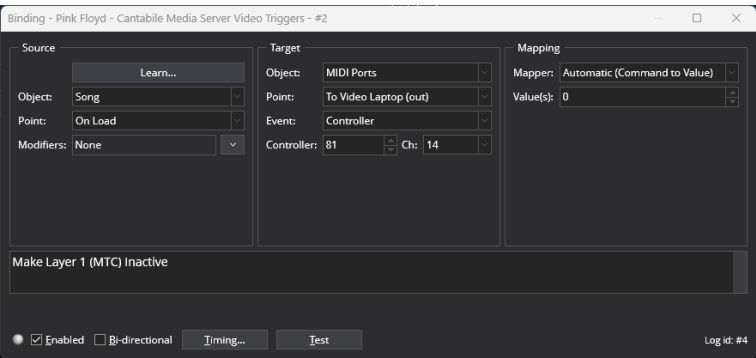
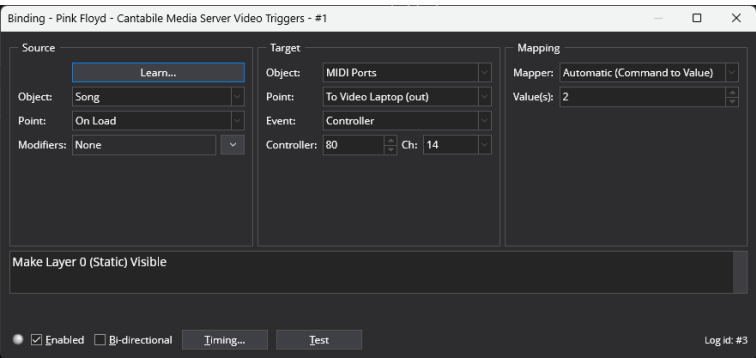
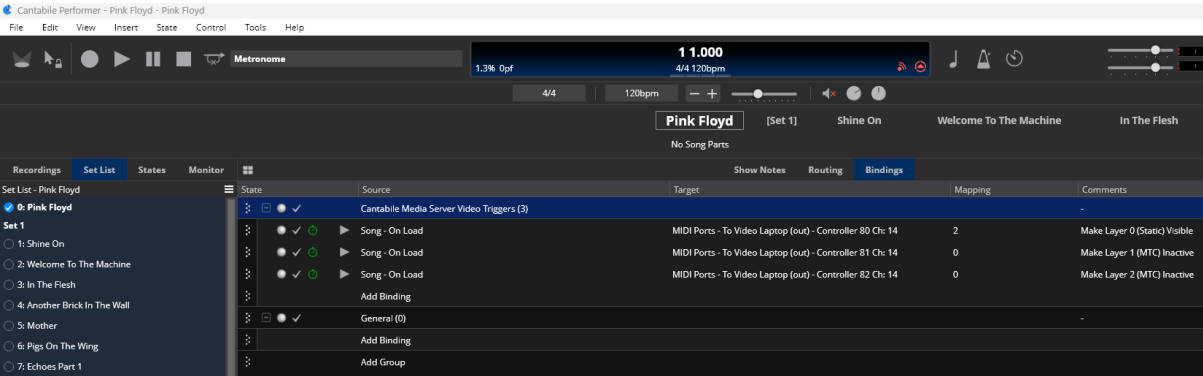
Layer	Used in
0	<p>My default Song called <b>Pink Floyd</b> which I will have selected before the band comes on stage, during the interval and when the band finishes the gig.</p> <p>This layer shows a static PNG file providing the band name and logo and information on our web site and social media pages. The function of this “song” is only to display this (and the text notes have some reminders of things I should check whilst setting up!).</p>
1	<p>Only used in <b>Shine on You Crazy Diamond</b> as we play the intro to this song free form and are only running Cantabile when the whole band comes in. So an MTC scheme would not work in this case. Therefore the layer is setup to control its own synchronisation, and the video will be started/stopped by MMC commands.</p> <p>The way this works live, is I play that iconic keyboard intro, and I have unused keys on my keyboard to start the video (and stop if needed) when our guitar player starts playing his intro solo, which is when the video needs to start.</p> <p>When I start Cantabile for the entire band to come in, we want the video to carry on playing, which is why MTC would not work as it would in effect reset the video.</p>
2	<p>Used in all other songs. Program Change bindings in each song are sent to the Video PC port, and the CMS will select the required video according to the Program Change command received.</p> <p>MTC is used to play/stop/synchronise the video. The generation of MTC is handled by the Cantabile Transport, so nothing needs to be set up in the song for that aspect.</p>

I will now describe the bindings in detail in three example songs, which I will use throughout the rest of the guide.

## Band Logo

The CC bindings make layer 0 visible, with layers 1 and 2 made inactive and invisible.

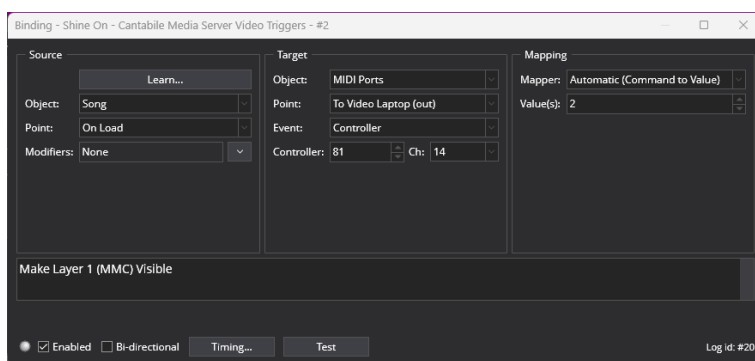
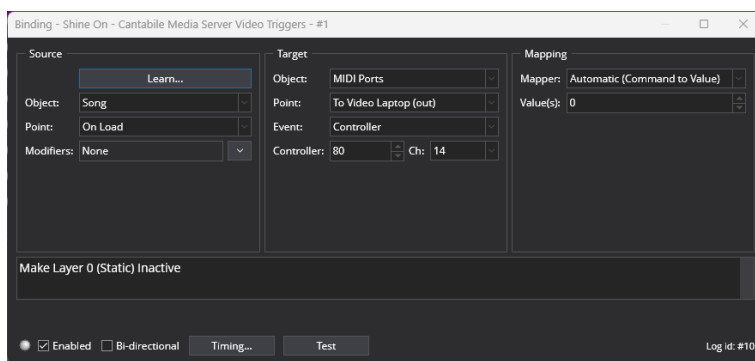
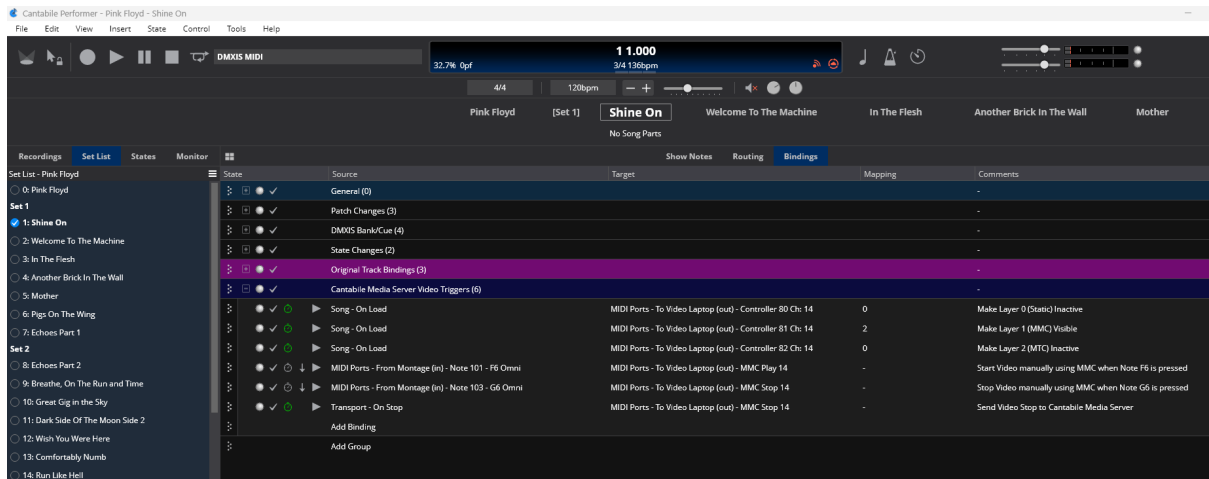
As this layer is preset to show the band logo only, nothing else is required in this set of bindings other than the control of layer visibility.



## Shine On You Crazy Diamond – Manual Video Trigger

The CC bindings make layer 1 visible, with layers 0 and 2 made inactive and invisible.

I have a binding set so that when I press the F6 key on my Montage M7 an MMC Play command is sent to the Video laptop on Channel 14. If for some reason we need to stop the song, I also have bindings to send an MMC stop command to the video laptop on Channel 14 if I press the G6 key (before I start the transport) or if the transport has started and I stop the transport.



Binding - Shine On - Cantabile Media Server Video Triggers - #3

Source	Target	Mapping
Learn... Object: Song Point: On Load Modifiers: None	Object: MIDI Ports Point: To Video Laptop (out) Event: Controller Controller: 82 Ch: 14	Mapper: Automatic (Command to Value) Value(s): 0

Make Layer 2 (MTC) Inactive

☒ Enabled
 ☐ Bi-directional
 Timing...
Test
Log id: #14

Binding - Shine On - Cantabile Media Server Video Triggers - #4

Source	Target	Mapping
Learn... Object: MIDI Ports Point: From Montage (in) Event: Note Note: 101 - F6 Ch: Omni Routing Mode: Continue Modifiers: None	Object: MIDI Ports Point: To Video Laptop (out) Event: MMC Play Device ID: 14 Ch: 1	Mapper: Automatic (Direct)

Start Video manually using MMC when Note F6 is pressed

☒ Enabled
 ☐ Bi-directional
 Timing...
Test
Log id: #7

Binding - Shine On - Cantabile Media Server Video Triggers - #5

Source	Target	Mapping
Learn... Object: MIDI Ports Point: From Montage (in) Event: Note Note: 103 - G6 Ch: Omni Routing Mode: Continue Modifiers: None	Object: MIDI Ports Point: To Video Laptop (out) Event: MMC Stop Device ID: 14 Ch: 1	Mapper: Automatic (Direct)

Stop Video manually using MMC when Note G6 is pressed

☒ Enabled
 ☐ Bi-directional
 Timing...
Test
Log id: #9

Binding - Shine On - Cantabile Media Server Video Triggers - #6

Source	Target	Mapping
Learn... Object: Transport Point: On Stop Modifiers: None	Object: MIDI Ports Point: To Video Laptop (out) Event: MMC Stop Device ID: 14 Ch: 1	Mapper: Automatic (Direct)

Send Video Stop to Cantabile Media Server

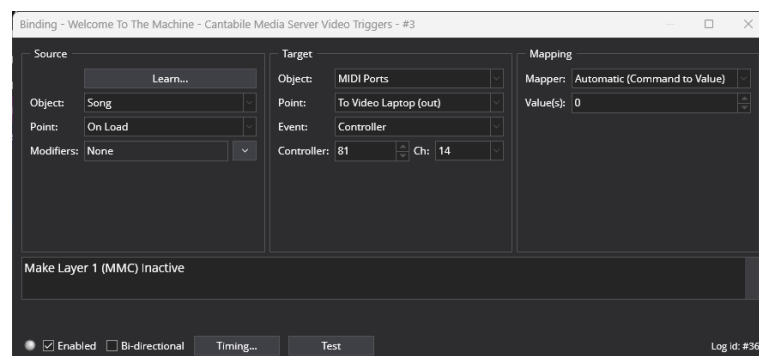
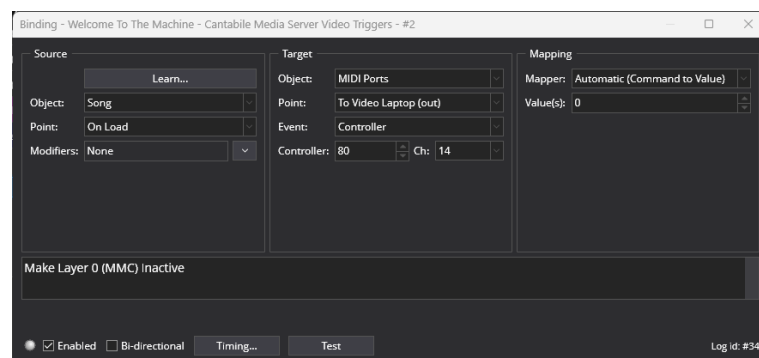
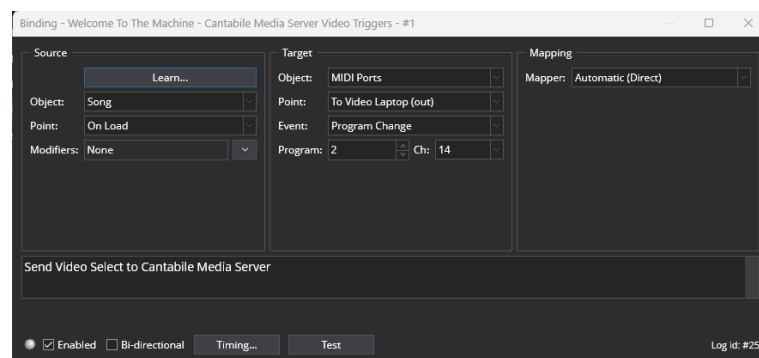
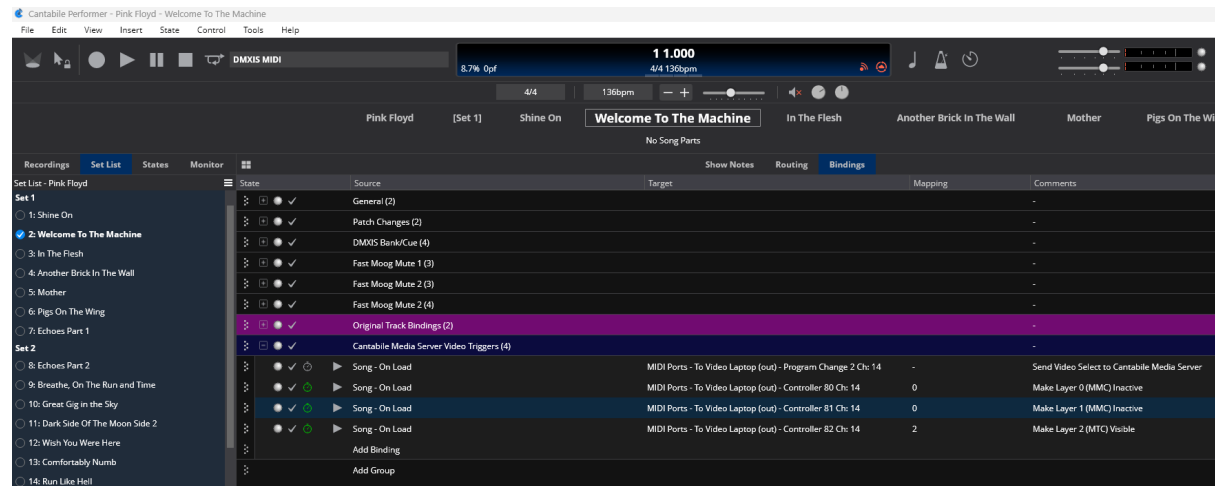
☒ Enabled
 ☐ Bi-directional
 Timing...
Test
Log id: #24

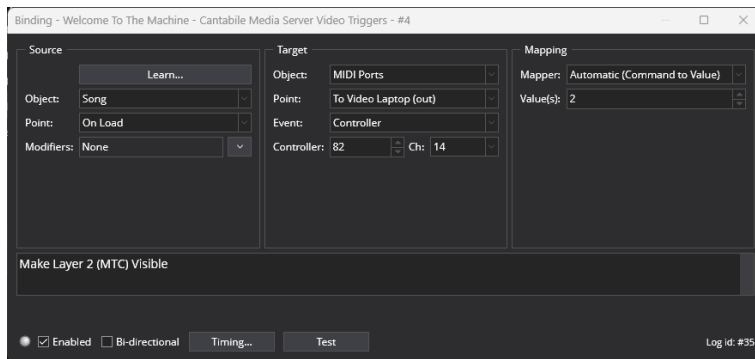


## Welcome to the Machine – MTC Trigger

There is a binding to send a Program Change command on channel 14 with the value of 2. CMS will detect the program Change and select the Video file associated with the Program Change.

The CC bindings make layer 2 visible, with layers 0 and 1 made inactive and invisible.





As MTC is automatically handled by the Cantabile Transport, and we have enabled the sending of it to the VIDEOPC port, there is nothing specific to set up in the song unlike MMC.

## Testing the MIDI Connection

After all of that setting up, it is now time to test the MIDI connection between the DAWPC and the VIDEOPC. As a former systems engineer, I like to test incrementally rather than go all out “big bang”!

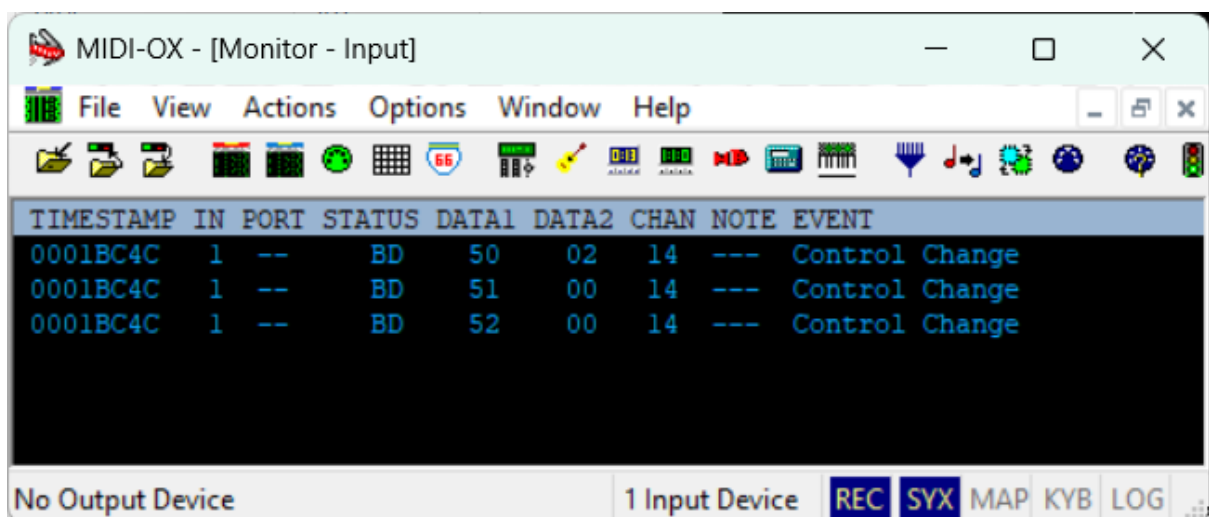
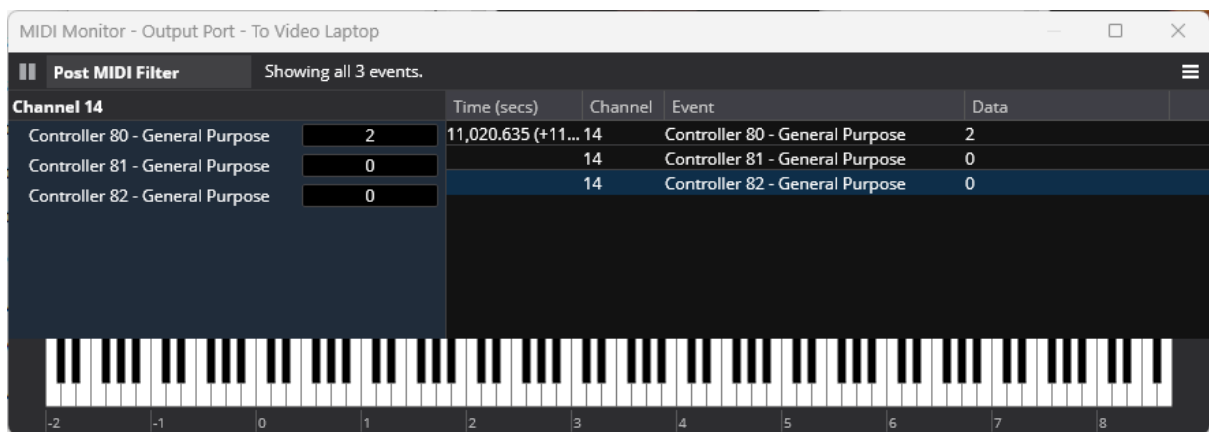
I will cover an example of each layer below with an example song. The screenshots that you see are:

- Cantabile MIDI Monitor on my **To Video Laptop** Port, so I can see what is being sent.
- The evergreen and trusty MIDIOX on my VIDEOPC, to verify that the data is being correctly received on the video PC.

### Band Logo

On song selection I can see the three MIDI CCs being sent and received to make Layer 0 visible (CC80 = 2, CC 81 and 82 set to 0).

MIDOX is displaying data as Hexadecimal. 0xBD in the Status is a CC command on channel 14 and 0x50 is 80 in decimal.



## Shine On You Crazy Diamond – Manual Video Trigger

On song selection I can see three MIDI CCs being sent and received to make Layer 1 visible (CC81 = 2, CC 80 and 82 set to 0).

A short while later I press F6 on my Montage keyboard which triggers the MMC Play binding (the first sysex message in the monitors), and a little while after that, I press G6 on my Montage keyboard which triggers the MMC Stop binding (the second sysex message in the monitors).

MIDI Monitor - Output Port - To Video Laptop

Post MIDI Filter Showing all 7 events.

Channel 14	Time (secs)	Channel	Event	Data
Controller 80 - General Purpose	0	13,471.801 (+13,471.801)	14 Controller 80 - General Purpose	0
Controller 81 - General Purpose	2	14	Controller 81 - General Purpose	2
Controller 82 - General Purpose	0	14	Controller 82 - General Purpose	0
	13,479.128 (+7.327)	-	Sys-Ex	sysex[6] F0 7F 0E 06 02
		14 (sysex)	MMC Play	1
	13,486.700 (+7.572)	-	Sys-Ex	sysex[6] F0 7F 0E 06 01
		14 (sysex)	MMC Stop	1

Below the table is a piano roll visualization showing a range of notes from -2 to 8.

MIDI-OX - [Monitor - Input]

File View Actions Options Window Help

TIMESTAMP	IN	PORT	STATUS	DATA1	DATA2	CHAN	NOTE	EVENT
0027230C	1	--	BD	50	00	14	---	Control Change
0027230C	1	--	BD	51	02	14	---	Control Change
0027230C	1	--	BD	52	00	14	---	Control Change
00273FAF	1	--	F0	Buffer:		6 Bytes		System Exclusive
SYSX: F0 7F 0E 06 02 F7								
00275D43	1	--	F0	Buffer:		6 Bytes		System Exclusive
SYSX: F0 7F 0E 06 01 F7								

No Output Device 1 Input Device REC SYX MAP KYB LOG

## Welcome to the Machine – MTC Trigger

On song selection I can see the program change command to on channel 14 to select Program 2 and the three MIDI CCs being sent and received to make Layer 2 visible (CC82 = 2, CC 80 and 81 set to 0).

When I start the Cantabile transport, MTC is not shown in the Cantabile Monitor, but you can see it advancing in the MIDIOX Monitor. The MTC “Full Frame” at the end is a seek to 00:00:00 when I stopped the transport.

Channel 14	Time (secs)	Channel	Event	Data
Controller 80 - General Purpose	0	14	Program Change	2
Controller 81 - General Purpose	0	14	Program Change (Banked)	2
Controller 82 - General Purpose	2	14	Controller 80 - General Purpose	0
Program Change	2	14	Controller 81 - General Purpose	0
Program Change (Banked)	2	14	Controller 82 - General Purpose	2

TIMESTAMP	IN	PORT	STATUS	DATA1	DATA2	CHAN	NOTE	EVENT
00295FD9	1	--	CD	02	--	14	---	PC: Elec Grand Piano
00296069	1	--	BD	50	00	14	---	Control Change
00296069	1	--	BD	51	00	14	---	Control Change
00296069	1	--	BD	52	02	14	---	Control Change
00296A95	1	--	F1	00	--	--	---	MTC Quarter Frame
00296A9E	1	--	F1	10	--	--	---	MTC Quarter Frame
00296AA7	1	--	F1	20	--	--	---	MTC Quarter Frame
00296AAF	1	--	F1	30	--	--	---	MTC Quarter Frame
00296AB8	1	--	F1	40	--	--	---	MTC Quarter Frame
00296AC1	1	--	F1	50	--	--	---	MTC Quarter Frame
00296AC9	1	--	F1	60	--	--	---	MTC Quarter Frame
00296AD2	1	--	F1	76	--	--	---	MTC Quarter Frame
00296ADA	1	--	F1	02	--	--	---	MTC Quarter Frame
00296AE3	1	--	F1	10	--	--	---	MTC Quarter Frame
00296AEC	1	--	F1	20	--	--	---	MTC Quarter Frame
00296AF3	1	--	F1	30	--	--	---	MTC Quarter Frame
00296AFC	1	--	F1	40	--	--	---	MTC Quarter Frame
00296B06	1	--	F1	50	--	--	---	MTC Quarter Frame
00296B0E	1	--	F1	60	--	--	---	MTC Quarter Frame
00296B17	1	--	F1	76	--	--	---	MTC Quarter Frame
00296B1F	1	--	F1	04	--	--	---	MTC Quarter Frame
00296B28	1	--	F1	10	--	--	---	MTC Quarter Frame
00296B30	1	--	F1	20	--	--	---	MTC Quarter Frame
00296B3A	1	--	F1	30	--	--	---	MTC Quarter Frame
00296B42	1	--	F1	40	--	--	---	MTC Quarter Frame
00296B49	1	--	F1	50	--	--	---	MTC Quarter Frame
00296B53	1	--	F1	60	--	--	---	MTC Quarter Frame
00296B5C	1	--	F1	76	--	--	---	MTC Quarter Frame
00296B61	1	--	F2	00	00	--	---	Song Position Ptr
00296B61	1	--	F0	Buffer:	10 Bytes	--	---	System Exclusive
SYSX: F0 7F 7F 01 01 60 00 00 00 F7								

## Setup The Web Browser

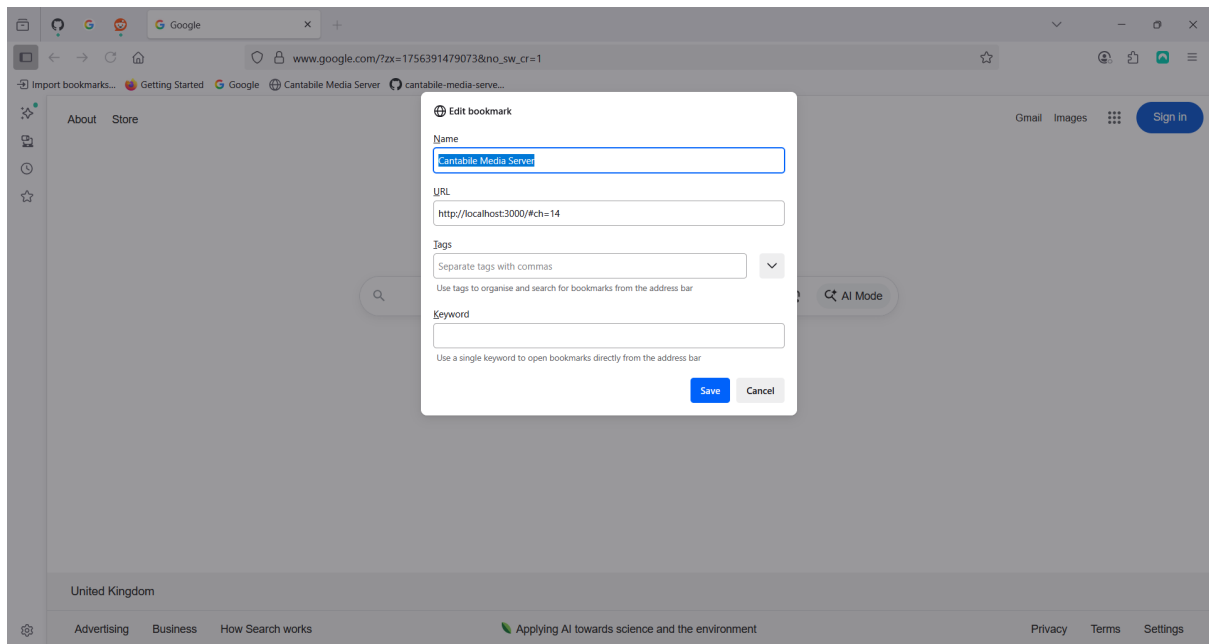
The next task is to setup the web browser to receive the CMS output.

To do this enter the following in the browser address field

```
http://localhost:3000/#ch=14
```

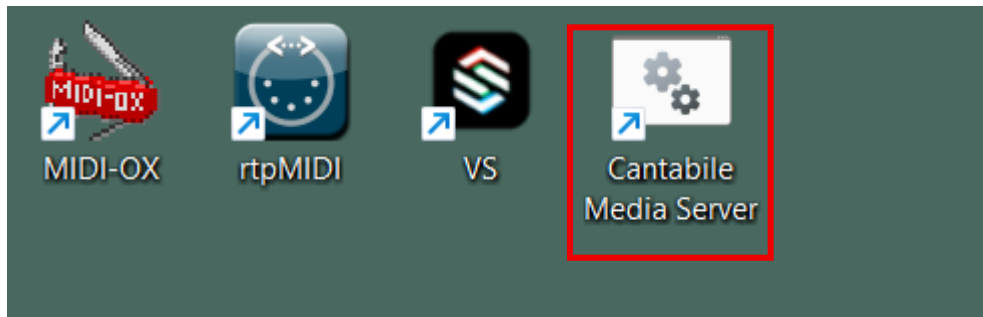
This tells the browser to listen to local host on port 3000 channel 14, which is my selected port and channel.

To make things easier you can bookmark the address using your browser's bookmark function.



## In Use

After all that, it is now time to give it a run. As mentioned earlier, you can create a shortcut to the CMS Batch file, which I have on the desktop of my Video laptop, called "Cantabile Media Server".



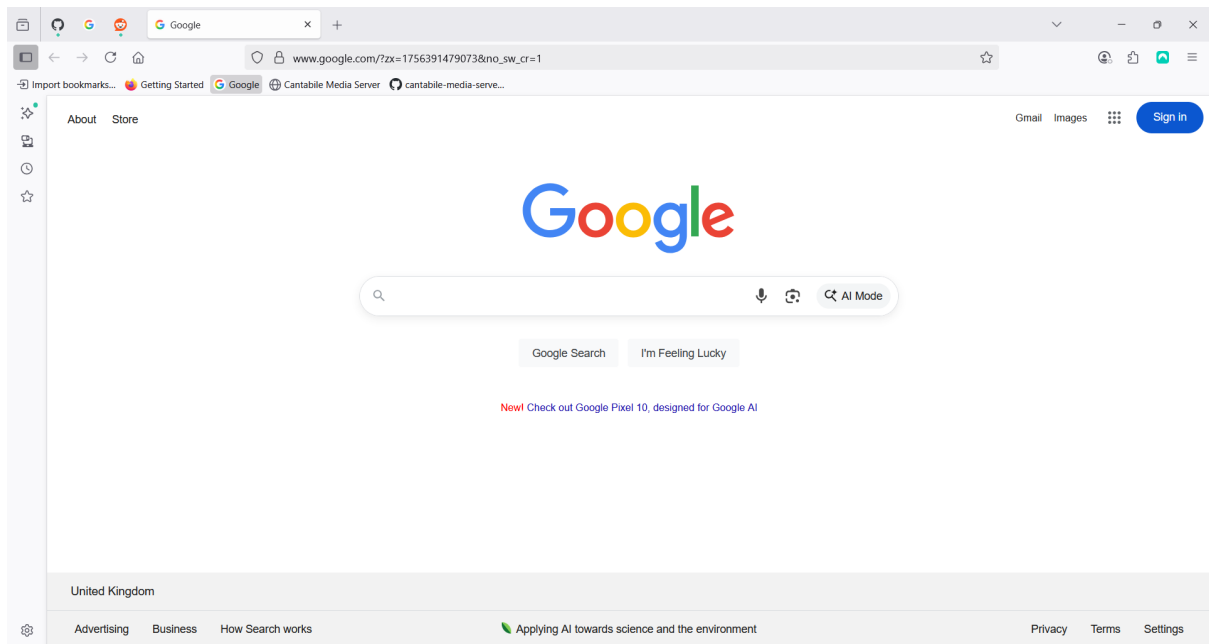
If you double-click on this bookmark, it will launch the batch file, and a command line window will open. As I have the -verbose option specified I will get diagnostic information.

The Warning in red below is because I do not have GhostScript installed, which can be ignored if you are not using the PDF features built into the CMS.

```
C:\WINDOWS\system32\cmd. x + v
C:\Users\derek\Documents>CD \Users\derek\Documents\Welsh Floyd Video\
C:\Users\derek\Documents\Welsh Floyd Video>cantabile-media-server --verbose
cantabile-media-server 0.0.13
Copyright (C) 2024 Topten Software. All Rights Reserved
{
  "baseDir": "Media",
  "midiPort": "VIDEOPC",
  "port": 3000,
  "programList": "Media List.txt",
  "channels": {
    "14": {
      "layers": [
        {
          "mediaFile": "Welsh Floyd.png"
        },
        {
          "syncMode": "master",
          "mediaFile": "Shine On You Crazy Diamond.mp4"
        },
        {
          "syncMode": "mtc",
          "useProgramList": true
        }
      ]
    }
  }
}
WARNING: PDF support won't work due to:
- unable to locate Ghostscript executable - ENOENT: no such file or directory, scandir 'C:\Program Files\gs'.
Server running on [::]:3000 (IPv6)
```

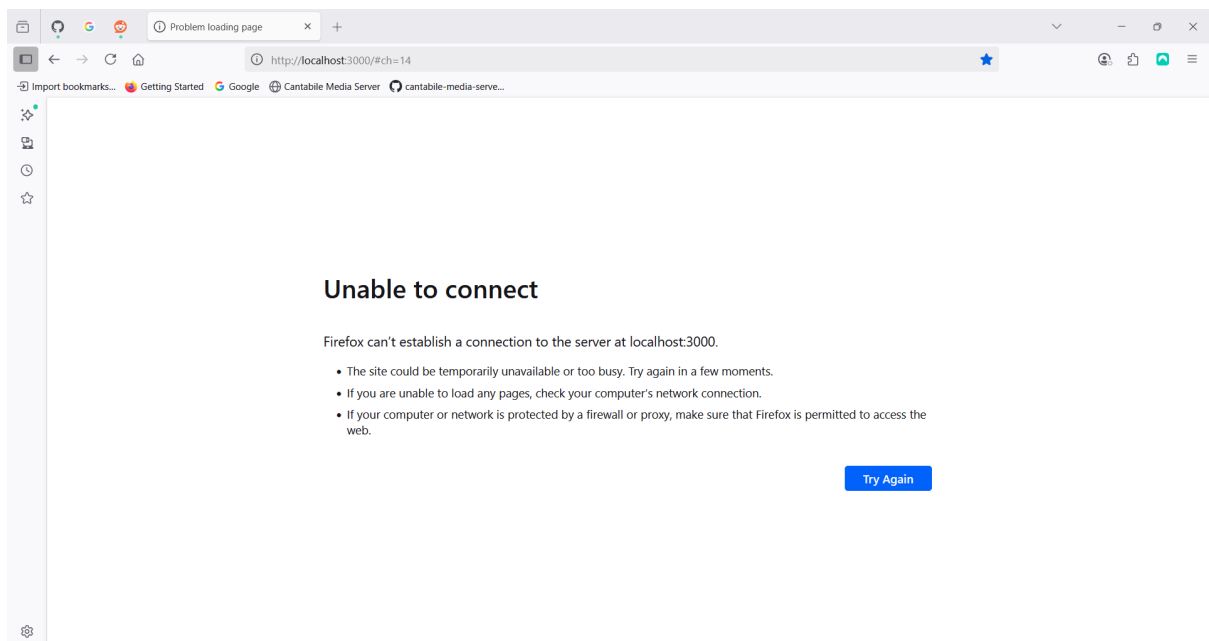
If you need to stop the CMS, then press CTRL+C in the command line window.

Now launch your web browser



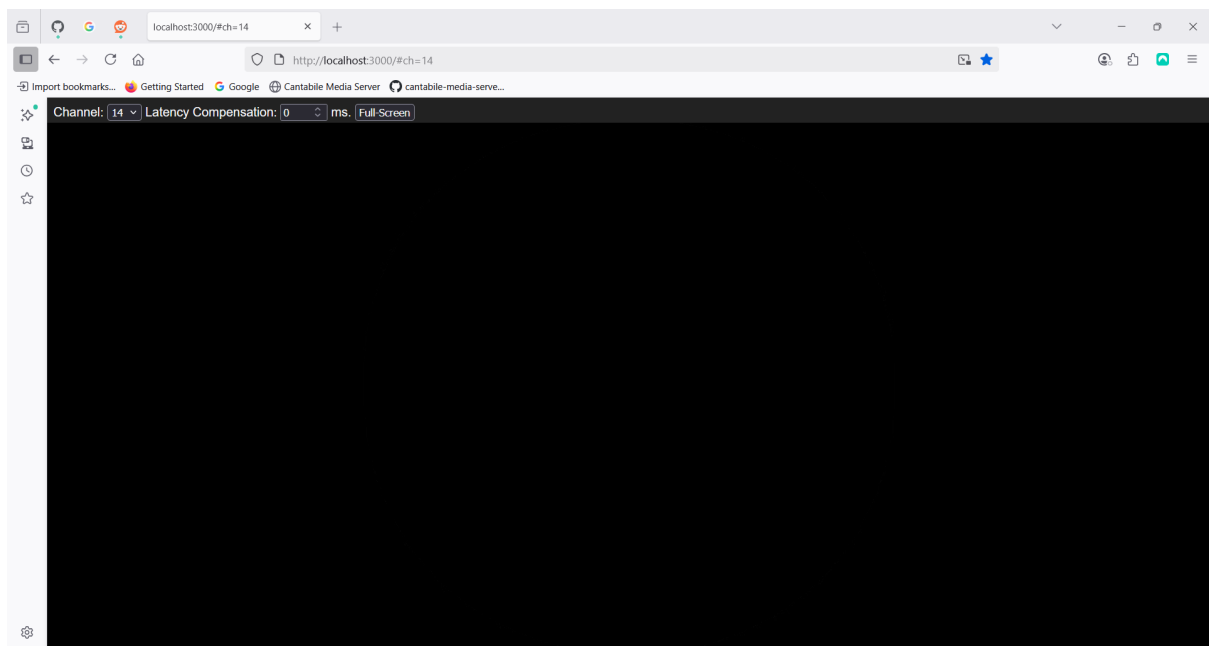
Use your saved bookmark to get the browser listening to port 3000.

If CMS is not running or the port details are wrong, you will see the following.





If all is working as it should be, then you will get something like the following.



And with Cantabile, CMS and the Web browser all setup you are now ready to play some videos under the control of Cantabile.

I will now show what happens in each of the three songs we have been looking at. Normally of course you would by now have the Web Browser in full screen mode to get rid of all of the “window furniture” and sending the output to your video display system (a nice HD projector in my case).

## Band Logo

When I select my Pink Floyd Song to display the band logo, you can see Layers 1 and 2 being made inactive on channel 14 (reported as 13 below). CMS does not seem to report the layer that is made active and visible.

```
C:\WINDOWS\system32\cmd. x + v
Copyright (C) 2024 Topten Software. All Rights Reserved
{
  "baseDir": "Media",
  "midiPort": "VIDEOPC",
  "port": 3000,
  "programList": "Media List.txt",
  "channels": {
    "14": {
      "layers": [
        {
          "mediaFile": "Welsh Floyd.png"
        },
        {
          "syncMode": "master",
          "mediaFile": "Shine On You Crazy Diamond.mp4"
        },
        {
          "syncMode": "mtc",
          "useProgramList": true
        }
      ]
    }
  }
}
WARNING: PDF support won't work due to:
- unable to locate Ghostscript executable - ENOENT: no such file or directory, scandir 'C:\Program Files\gs'.
Server running on [::]:3000 (IPv6)
WebSocket Broadcast: {"action":"show","channelIndex":13,"layerIndex":1,"display":"inactive"}
WebSocket Broadcast: {"action":"show","channelIndex":13,"layerIndex":2,"display":"inactive"}
```

And the following is displayed.



I'd love to get this band going again, as I really miss playing Pink Floyd. Maybe one day...

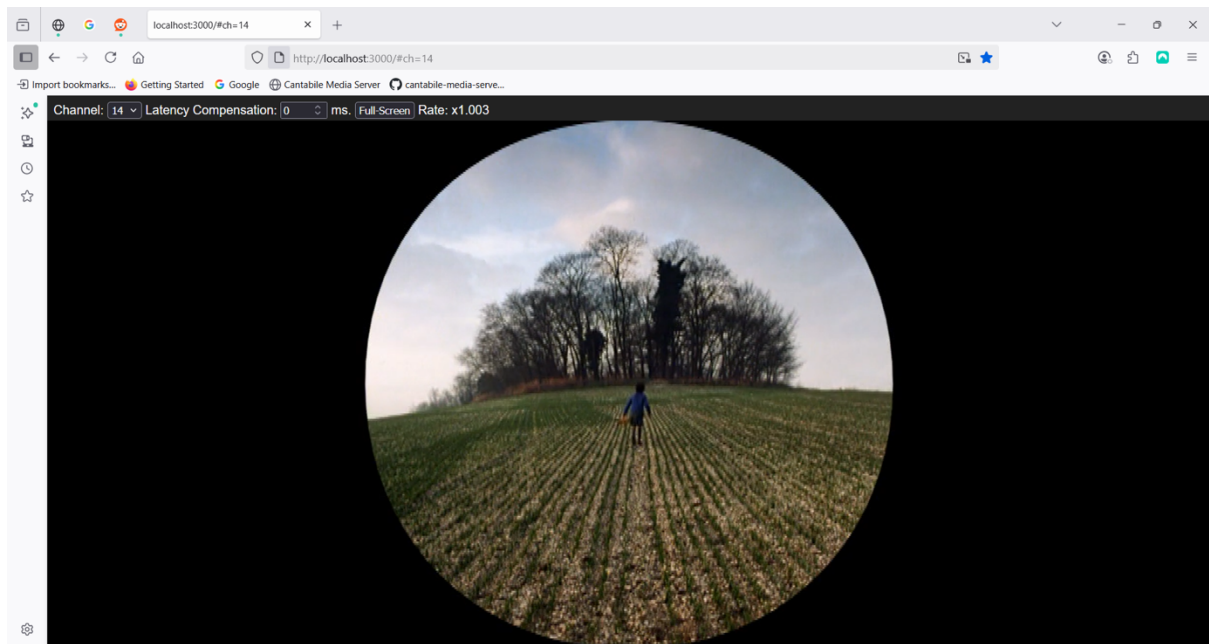
## Shine On You Crazy Diamond – Manual Video Trigger

When the song is selected the only thing that you will see is the change in layer visibility on channel 14 (reported as 13 below).

```
C:\WINDOWS\system32\cmd. x + v
Copyright (C) 2024 Topten Software. All Rights Reserved
{
  "baseDir": "Media",
  "midiPort": "VIDEOPC",
  "port": 3000,
  "programList": "Media List.txt",
  "channels": {
    "14": {
      "layers": [
        {
          "mediaFile": "Welsh Floyd.png"
        },
        {
          "syncMode": "master",
          "mediaFile": "Shine On You Crazy Diamond.mp4"
        },
        {
          "syncMode": "mtc",
          "useProgramList": true
        }
      ]
    }
  }
}
WARNING: PDF support won't work due to:
- unable to locate Ghostscript executable - ENOENT: no such file or directory, scandir 'C:\Program Files\gs'.
Server running on [::]:3000 (IPv6)
WebSocket Broadcast: {"action":"show","channelIndex":13,"layerIndex":0,"display":"inactive"}
WebSocket Broadcast: {"action":"show","channelIndex":13,"layerIndex":2,"display":"inactive"}
```

When I press the F6 key on my Montage M7, you will see an MMC play command being issued in Layer 1, which starts the video.

```
C:\WINDOWS\system32\cmd. x + v
{
  "baseDir": "Media",
  "midiPort": "VIDEOPC",
  "port": 3000,
  "programList": "Media List.txt",
  "channels": {
    "14": {
      "layers": [
        {
          "mediaFile": "Welsh Floyd.png"
        },
        {
          "syncMode": "master",
          "mediaFile": "Shine On You Crazy Diamond.mp4"
        },
        {
          "syncMode": "mtc",
          "useProgramList": true
        }
      ]
    }
  }
}
WARNING: PDF support won't work due to:
- unable to locate Ghostscript executable - ENOENT: no such file or directory, scandir 'C:\Program Files\gs'.
Server running on [::]:3000 (IPv6)
WebSocket Broadcast: {"action":"show","channelIndex":13,"layerIndex":0,"display":"inactive"}
WebSocket Broadcast: {"action":"show","channelIndex":13,"layerIndex":2,"display":"inactive"}
WebSocket Broadcast: {"action":"play","channelIndex":13,"layerIndex":1,"currentTime":0}
```



If I then press G6 on my Montage M7, this triggers the command to stop the video playing in Layer 1.

```

C:\WINDOWS\system32\cmd. x + ~
{
  "baseDir": "Media",
  "midiPort": "VIDEOPC",
  "port": 3000,
  "programList": "Media List.txt",
  "channels": {
    "14": {
      "layers": [
        {
          "mediaFile": "Welsh Floyd.png"
        },
        {
          "syncMode": "master",
          "mediaFile": "Shine On You Crazy Diamond.mp4"
        },
        {
          "syncMode": "mtc",
          "useProgramList": true
        }
      ]
    }
  }
}
WARNING: PDF support won't work due to:
- unable to locate Ghostscript executable - ENOENT: no such file or directory, scandir 'C:\Program Files\gs'.
Server running on [::]:3000 (IPv6)
WebSocket Broadcast: {"action":"show","channelIndex":13,"layerIndex":0,"display":"inactive"}
WebSocket Broadcast: {"action":"show","channelIndex":13,"layerIndex":2,"display":"inactive"}
WebSocket Broadcast: {"action":"play","channelIndex":13,"layerIndex":1,"currentTime":0}
WebSocket Broadcast: {"action":"stop","channelIndex":13,"layerIndex":1}

```

## Welcome to the Machine – MTC Trigger

When I select this song, you can see a little more being reported by CMS

```
C:\WINDOWS\system32\cmd. x + v
{
  "port": 3000,
  "programList": "Media List.txt",
  "channels": {
    "14": {
      "layers": [
        {
          "mediaFile": "Welsh Floyd.png"
        },
        {
          "syncMode": "master",
          "mediaFile": "Shine On You Crazy Diamond.mp4"
        },
        {
          "syncMode": "mtc",
          "useProgramList": true
        }
      ]
    }
  }
}
WARNING: PDF support won't work due to:
- unable to locate Ghostscript executable - ENOENT: no such file or directory, scandir 'C:\Program Files\gs'.
Server running on [::]:3000 (IPv6)
loading media file /media/Welcome to the Machine.mp4 on ch 13 layer 2
WebSocket Broadcast: {"action":"loadLayer","channelIndex":13,"layerIndex":2,"layerState":{"channelIndex":13,"layerIndex":2,"display":"visible","mediaFile":"/media/Welcome to the Machine.mp4","mimeType":"video/mp4","currentTime":0,"isPlaying":false,"hiddenWhenStopped":false}}
WebSocket Broadcast: {"action":"show","channelIndex":13,"layerIndex":0,"display":"inactive"}
WebSocket Broadcast: {"action":"show","channelIndex":13,"layerIndex":1,"display":"inactive"}
```

You can see that the correct song is loaded into Layer 2 in response to the program change and various aspects reported relating to the setup of Layer 2, including the fact that the file is identified as an MP4 file.

When I start the Cantabile Transport, you can see MTC synchronisation taking place.

```
C:\WINDOWS\system32\cmd. x + v
{
  "layers": [
    {
      "mediaFile": "Welsh Floyd.png"
    },
    {
      "syncMode": "master",
      "mediaFile": "Shine On You Crazy Diamond.mp4"
    },
    {
      "syncMode": "mtc",
      "useProgramList": true
    }
  ]
}
WARNING: PDF support won't work due to:
- unable to locate Ghostscript executable - ENOENT: no such file or directory, scandir 'C:\Program Files\gs'.
Server running on [::]:3000 (IPv6)
loading media file /media/Welcome to the Machine.mp4 on ch 13 layer 2
WebSocket Broadcast: {"action":"loadLayer","channelIndex":13,"layerIndex":2,"layerState":{"channelIndex":13,"layerIndex":2,"display":"visible","mediaFile":"/media/Welcome to the Machine.mp4","mimeType":"video/mp4","currentTime":0,"isPlaying":false,"hiddenWhenStopped":false}}
WebSocket Broadcast: {"action":"show","channelIndex":13,"layerIndex":0,"display":"inactive"}
WebSocket Broadcast: {"action":"show","channelIndex":13,"layerIndex":1,"display":"inactive"}
WebSocket Broadcast: {"action":"play","channelIndex":13,"layerIndex":2,"currentTime":0.008333333333333333}
WebSocket Broadcast: {"action":"pause","channelIndex":13,"layerIndex":2,"currentTime":0.06666666666666667}
WebSocket Broadcast: {"action":"play","channelIndex":13,"layerIndex":2,"currentTime":0.075}
Unexpected SMPTE partial frame - jumping (24 != 28) [5,0,0,0,0,0,6]
00:00:00:18.2
```

In this case, the video is the iconic Gerald Scarfe video for the song, which is where the band and he first collaborated many years before the work he did on “The Wall”.

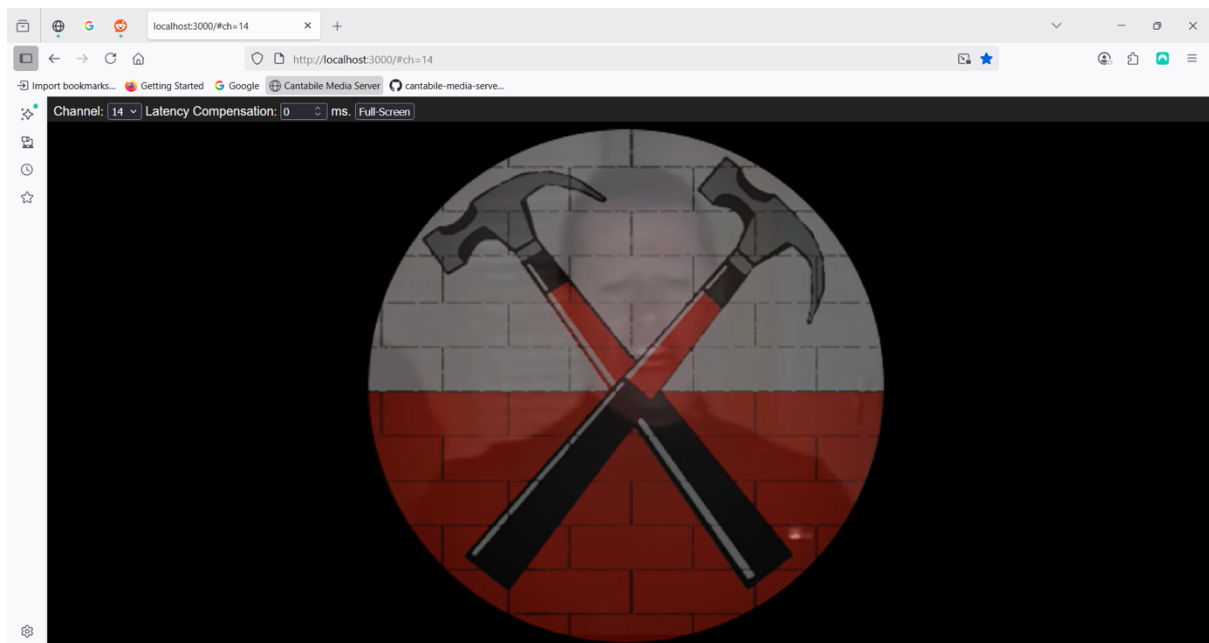
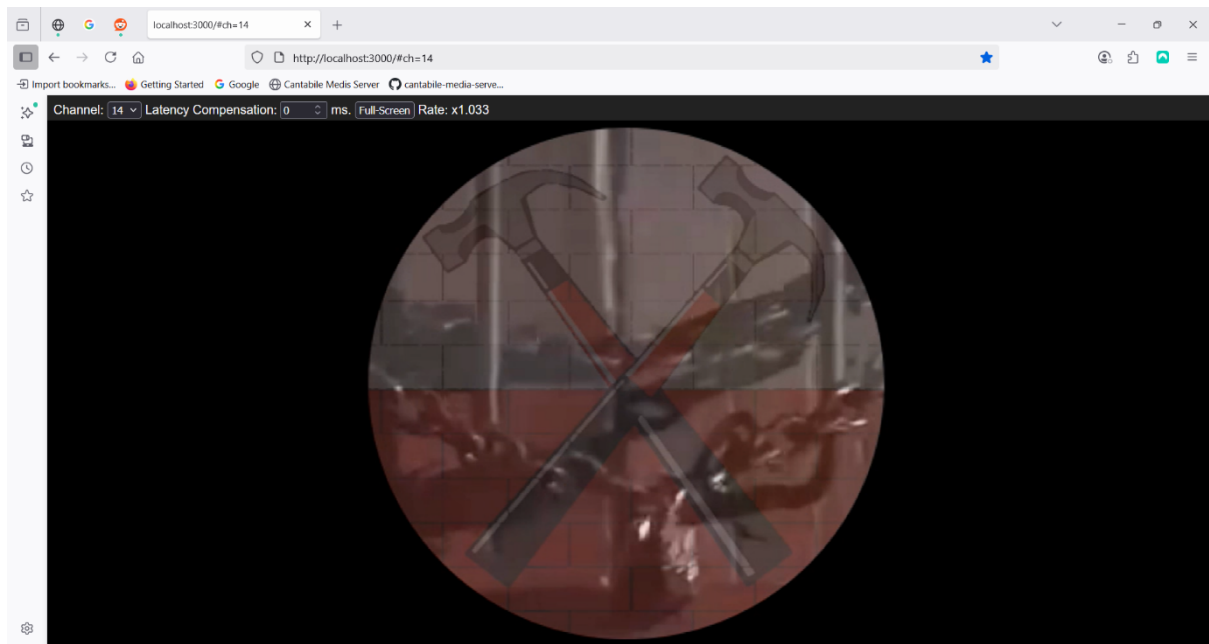


So that shows everything working. If I select the next song in the Setlist, this has the same bindings as “Welcome to the Machine” but now has a program change value of three to select the next video, which is “In The Flesh”, which is correctly selected.

```

C:\WINDOWS\system32\cmd. x + v
WebSocket Broadcast: {"action":"pause","channelIndex":13,"layerIndex":2,"currentTime":85.56666666666666}
WebSocket Broadcast: {"action":"pause","channelIndex":13,"layerIndex":2,"currentTime":85.1}
WebSocket Broadcast: {"action":"pause","channelIndex":13,"layerIndex":2,"currentTime":84.66666666666667}
WebSocket Broadcast: {"action":"pause","channelIndex":13,"layerIndex":2,"currentTime":84.43333333333334}
WebSocket Broadcast: {"action":"pause","channelIndex":13,"layerIndex":2,"currentTime":84.23333333333333}
WebSocket Broadcast: {"action":"pause","channelIndex":13,"layerIndex":2,"currentTime":84}
WebSocket Broadcast: {"action":"pause","channelIndex":13,"layerIndex":2,"currentTime":83.8}
WebSocket Broadcast: {"action":"pause","channelIndex":13,"layerIndex":2,"currentTime":83.56666666666666}
WebSocket Broadcast: {"action":"pause","channelIndex":13,"layerIndex":2,"currentTime":83.33333333333333}
WebSocket Broadcast: {"action":"pause","channelIndex":13,"layerIndex":2,"currentTime":83.13333333333334}
WebSocket Broadcast: {"action":"pause","channelIndex":13,"layerIndex":2,"currentTime":82.9}
WebSocket Broadcast: {"action":"pause","channelIndex":13,"layerIndex":2,"currentTime":82.66666666666667}
WebSocket Broadcast: {"action":"pause","channelIndex":13,"layerIndex":2,"currentTime":82.46666666666667}
WebSocket Broadcast: {"action":"pause","channelIndex":13,"layerIndex":2,"currentTime":82.23333333333333}
WebSocket Broadcast: {"action":"pause","channelIndex":13,"layerIndex":2,"currentTime":82}
WebSocket Broadcast: {"action":"pause","channelIndex":13,"layerIndex":2,"currentTime":81.8}
WebSocket Broadcast: {"action":"play","channelIndex":13,"layerIndex":2,"currentTime":81.80833333333334}
WebSocket Broadcast: {"action":"play","channelIndex":13,"layerIndex":2,"currentTime":83.63333333333334}
WebSocket Broadcast: {"action":"play","channelIndex":13,"layerIndex":2,"currentTime":83.64166666666667}
WebSocket Broadcast: {"action":"play","channelIndex":13,"layerIndex":2,"currentTime":84}
WebSocket Broadcast: {"action":"play","channelIndex":13,"layerIndex":2,"currentTime":84.00833333333334}
WebSocket Broadcast: {"action":"pause","channelIndex":13,"layerIndex":2,"currentTime":84.33333333333333}
WebSocket Broadcast: {"action":"play","channelIndex":13,"layerIndex":2,"currentTime":84.34166666666667}
WebSocket Broadcast: {"action":"pause","channelIndex":13,"layerIndex":2,"currentTime":84.46666666666667}
WebSocket Broadcast: {"action":"pause","channelIndex":13,"layerIndex":2,"currentTime":84}
loading media file /media/In the Flesh.mp4 on ch 13 layer 2
WebSocket Broadcast: {"action":"loadLayer","channelIndex":13,"layerIndex":2,"layerState":{"channelIndex":13,"layerIndex":2,"display":"visible","mediaFile":"/media/In the Flesh.mp4","mimeType":"video/mp4","currentTime":0,"isPlaying":false,"hiddenWhenStopped":false}}

```



And that is it! At this point the CMS is all correctly setup on my VIDEOPC, the MIDI connection is fully working, and Cantabile is controlling the CMS and I am seeing the media as expected.

## Conclusion

Hopefully this guide has been useful and shows you how to setup the CMS to work with Cantabile, and make use of it yourself.

Huge credit goes to Brad not only for his continued development of Cantabile, but for this side diversion into producing a Media Server that integrates nicely with Cantabile and my workflow, and it has allowed me to retire the clunky old SCS11. I do not know if Welsh Floyd will ever be active again, but I have the video solution ready to go if we ever do! I use different video software in my Spectral Streams show to reflect the fact this is an improvised set, and maybe I should document that as well.

As I said at the start of this guide, I have had to relearn what I setup a year ago and why. So, if nothing else, revisiting and documenting the setup in this guide will be invaluable for me in a few weeks' time, let alone a few months or years! But I hope it is of use to other Cantabile users with an interest in controlling video.

Derek Cook

August 2025