PRIME Display Matrix Configuration User Guide

Version 4.10.9

April 2025

SINCE DAY ONE.

Chyron PRIME Display Matrix Configuration User Guide • 4.10.9 • April 2025 • This document is distributed by Chyron in online (electronic) form only, and is not available for purchase in printed form.

Table of Contents

See the separate document on creating EDIDs: *GPU Render EDID Guide.pdf

PREREQUISITES

Choosing Correct Cables: DisplayPort

On each Display Matrix PRIME system is an NVIDIA Quadro RTXA5000 with 4 DisplayPort connectors. These DisplayPort GPU outputs will be powering the Display Matrix. It is important to note that all DisplayPort cables support the same infrastructure. However, there is a difference in cable quality. To ensure the highest quality cable is used, it is recommended purchasing a DisplayPort cable which specifically supports up to 4K (2160p 60Hz, 2160p 59.94Hz, 2160p 50Hz). Gold plated cables are highly recommended.

Choosing Correct Cables: HDMI

Some clients may choose to convert their DisplayPort signal to HDMI. In these instances it is important to purchase the proper HDMI cable as well as a proper Display Port to HDMI adapter.. For video wall solutions, it is recommended purchasing a DisplayPort cable which specifically supports up to 4K (2160p 60Hz, 2160p 59.94Hz, 2160p 50Hz). Gold plated cables are highly recommended. Please make sure the Display Port to HDMI adapter also supports up to 4K (2160p 60Hz, 2160p 59.94Hz, 2160p 50Hz). It is really important to check the specifications on the converter and the cable to make sure that it meets the specified requirements..

Choosing Monitors That Fit Your Solution

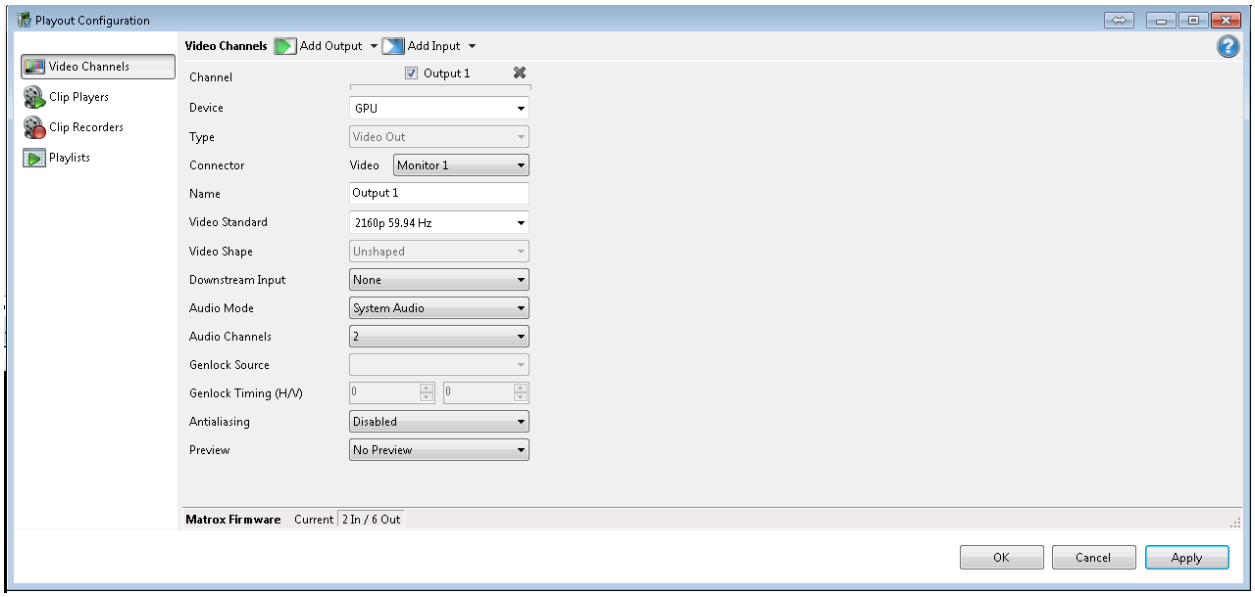
Verify that the monitors in your configuration natively support the Refresh Rate intended to be used in the Display Matrix solution. Mismatching Refresh Rates will result in stuttering video. (i.e. If you are using 1080p 59.94 as your output, then your monitor should have a native refresh rate of 59.94)

What About HDR?

HDR is supported with NVIDIA Quadro RTXA5000, and as stated above, all DisplayPort cables support the same infrastructure. So once again it is recommended purchasing a DisplayPort cable which specifically supports up to 4K (2160p 60Hz, 2160p 59.94Hz, 2160p 50Hz) which also states in the spec that it is HDR compliant. The same precaution will need to be taken when purchasing HDMI cables for an HDR solution.

Configuring the Display Matrix

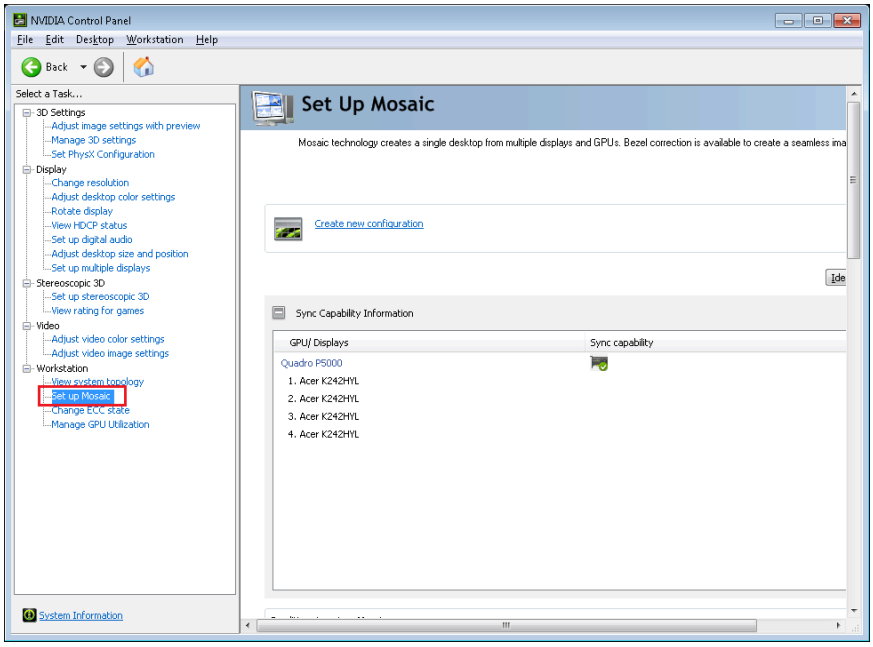
1) PRIME Playout Configuration Needs To Be Setup Initially As Shown Below



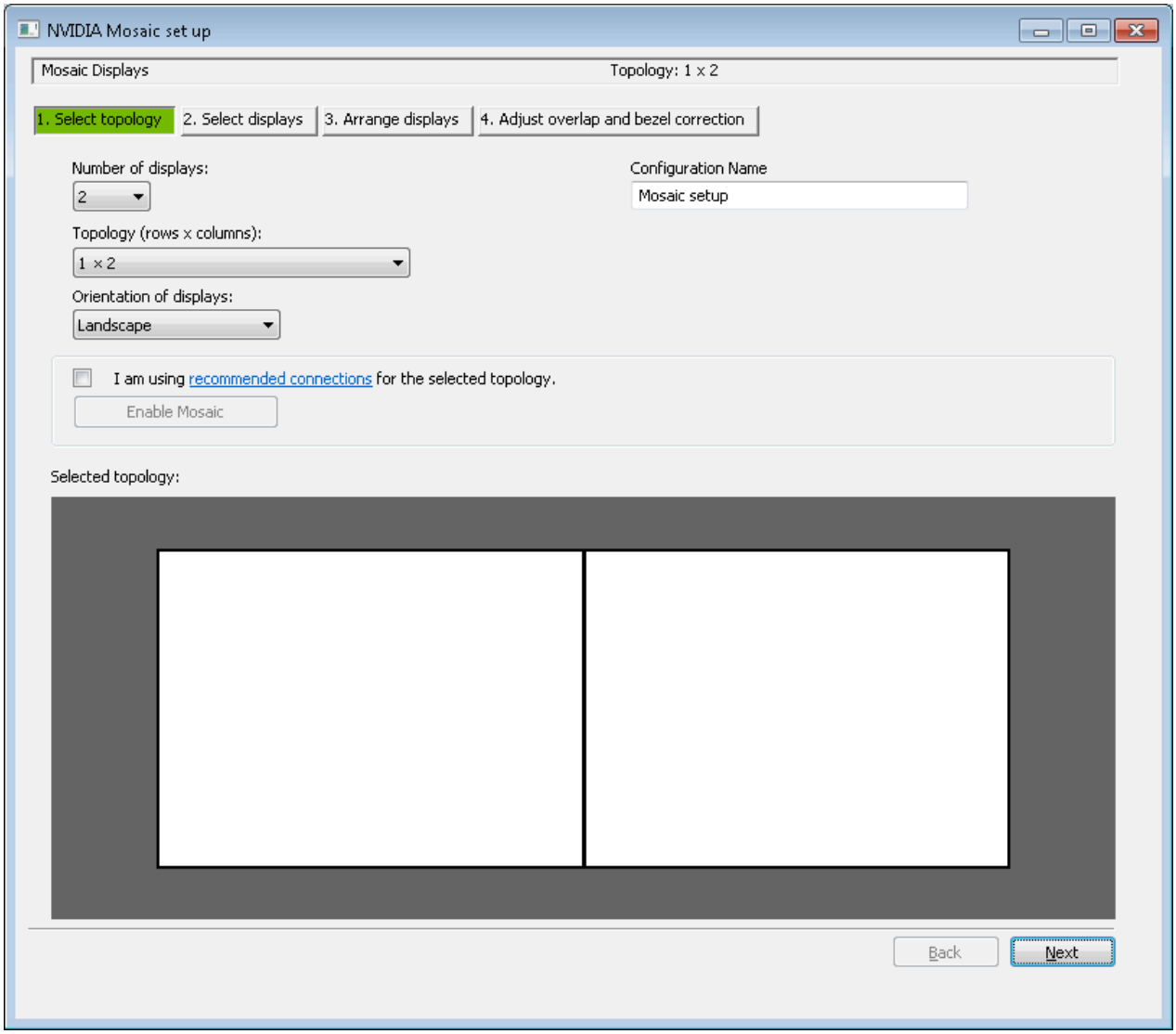
Please note the Video Standard resolution is nonstandard.
With this Setup, it allows us to configure 1 GPU across 4 Monitors Maximum

2) Setting up the Display Matrix Mosaic

Launch Nvidia Control Panel and click on **Set Up Mosaic** as shown below.

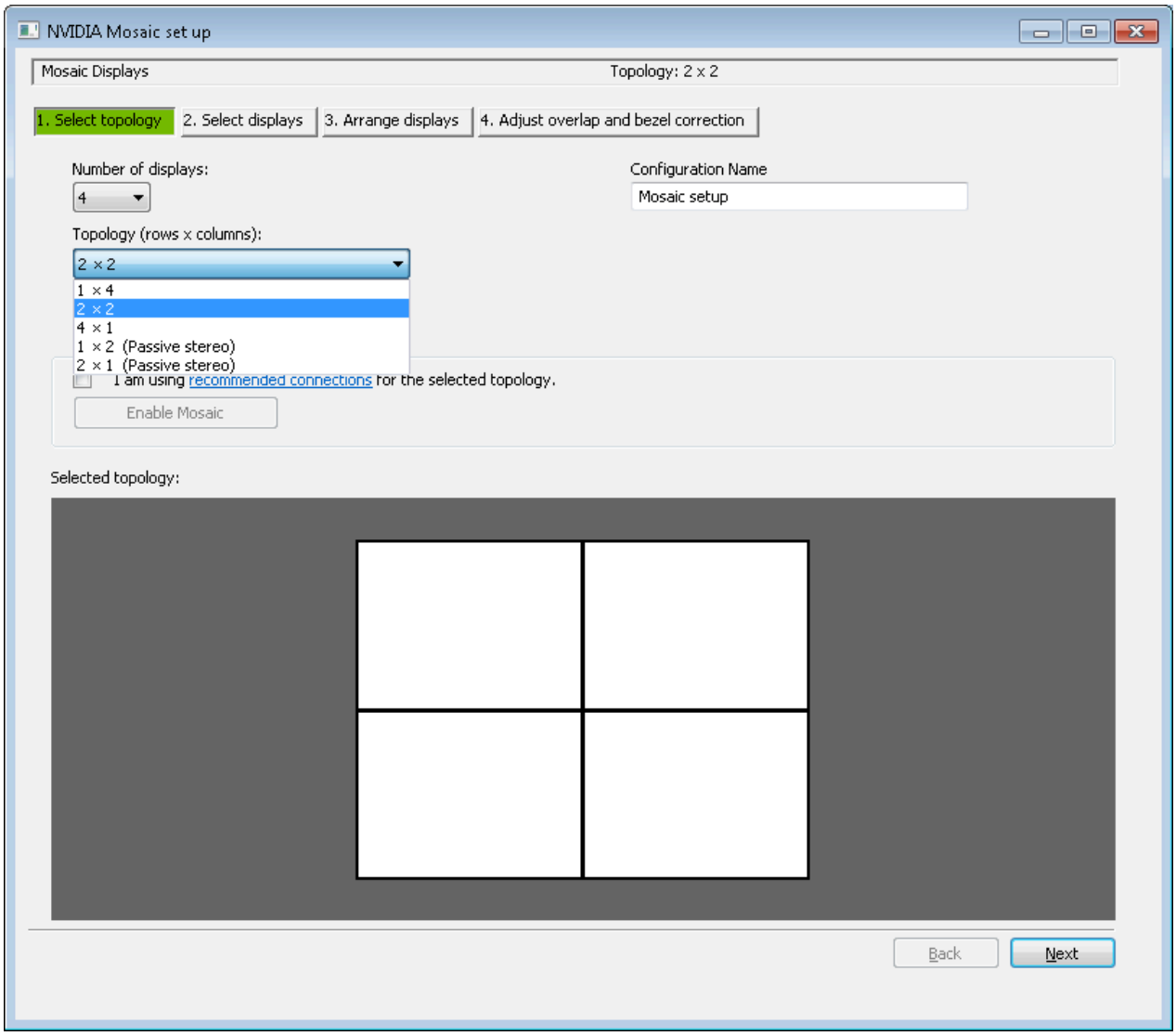


Click on **Create New Configuration**, that opens Nvidia Mosaic Setup Window as shown below.

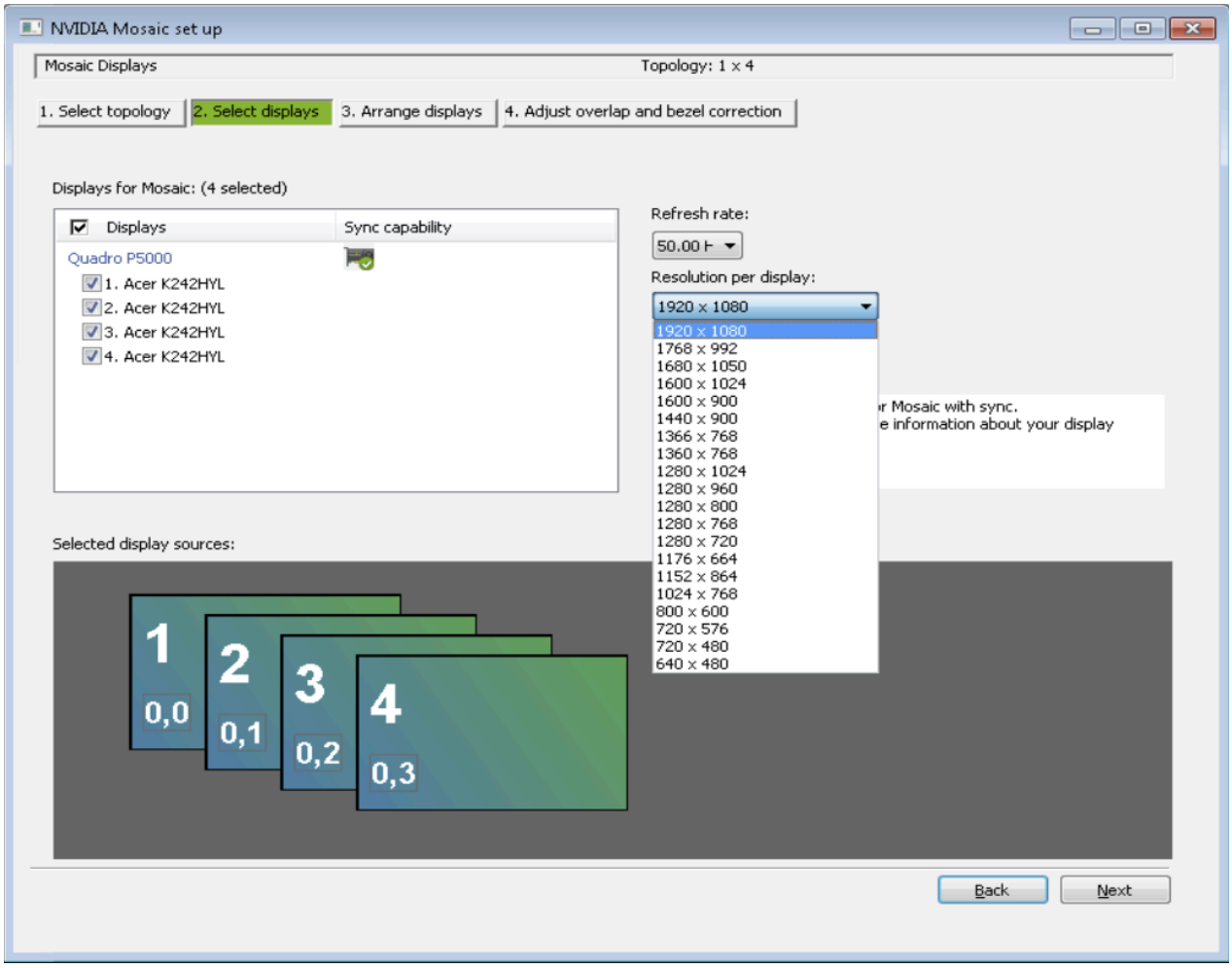

NVIDIA Mosaic set up
Mosaic Displays
Topology: 1 x 2
1. Select topology
2. Select displays
3. Arrange displays
4. Adjust overlap and bezel correction
Number of displays:
2
Configuration Name
Mosaic setup
Topology (rows x columns):
1 x 2
Orientation of displays:
Landscape
I am using recommended connections for the selected topology.
Enable Mosaic
Selected topology:
Back
Next

Select Number of Displays and Topology one would like to set up along with Configuration Name.

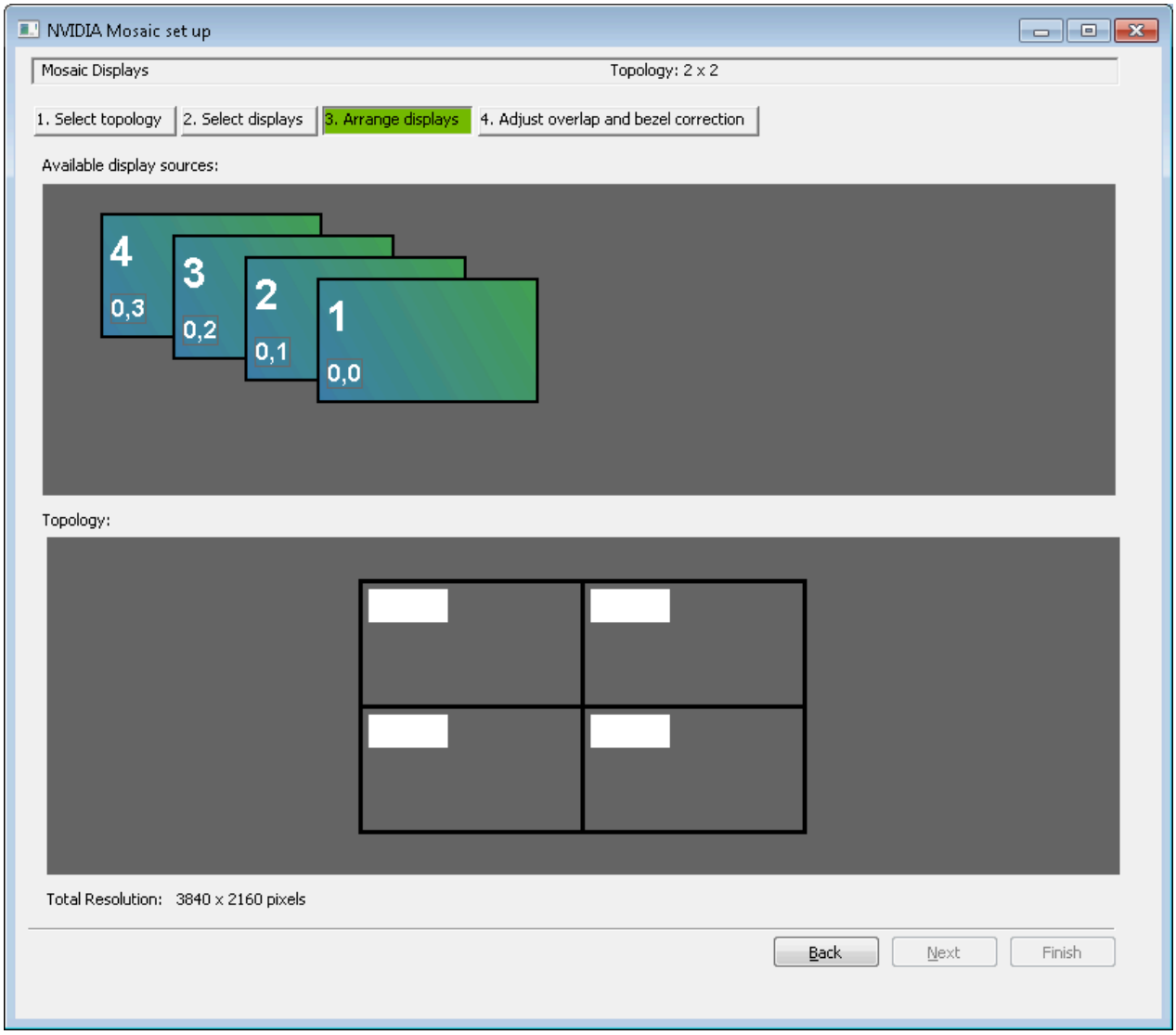
*Following example shows Number of displays: 4; Topology : 2x2



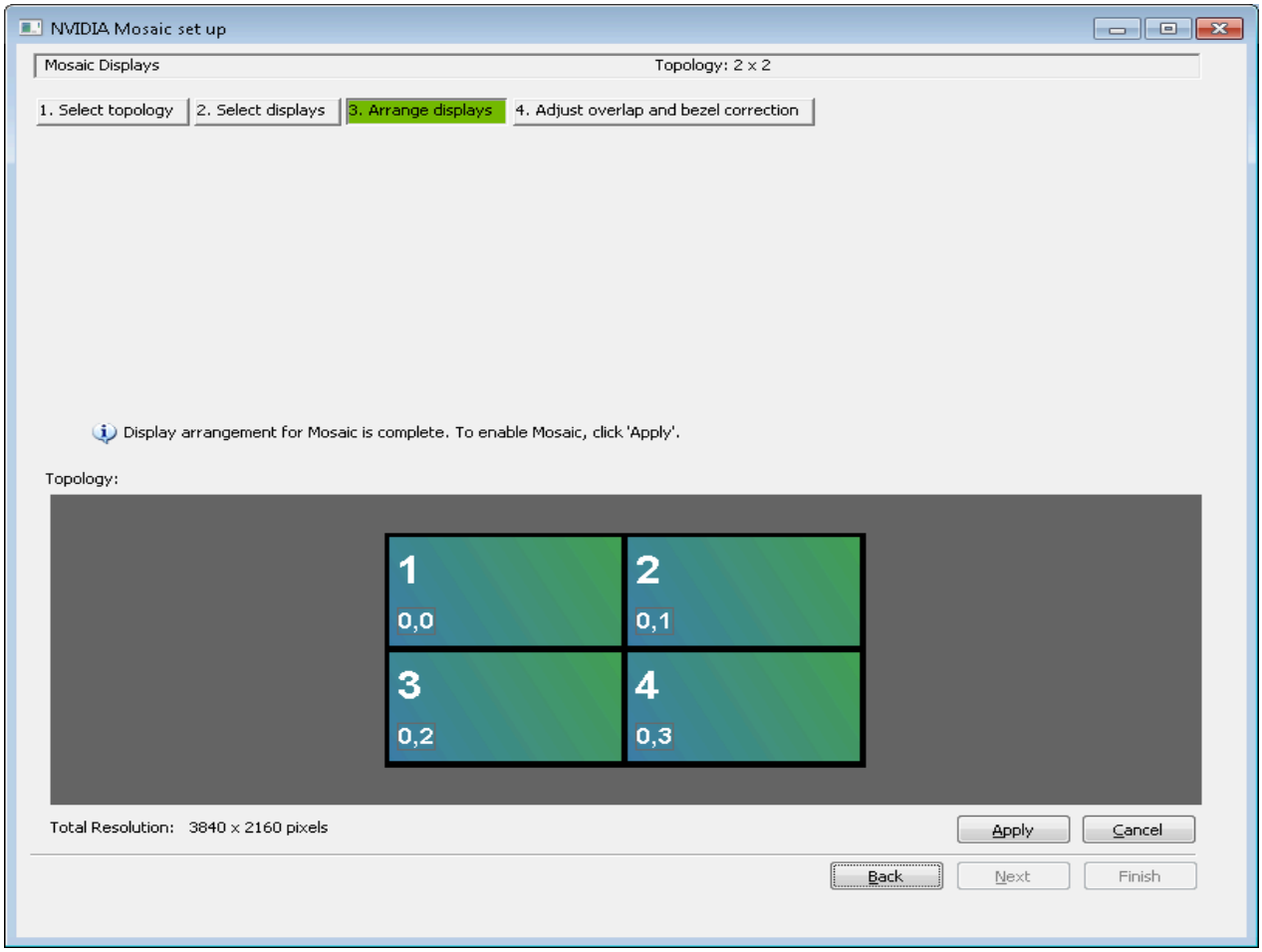
Click **Next** and Select Displays that you would like to use in this topology on the next page
Refresh Rate and Resolution per display can be set here using their respective dropdowns



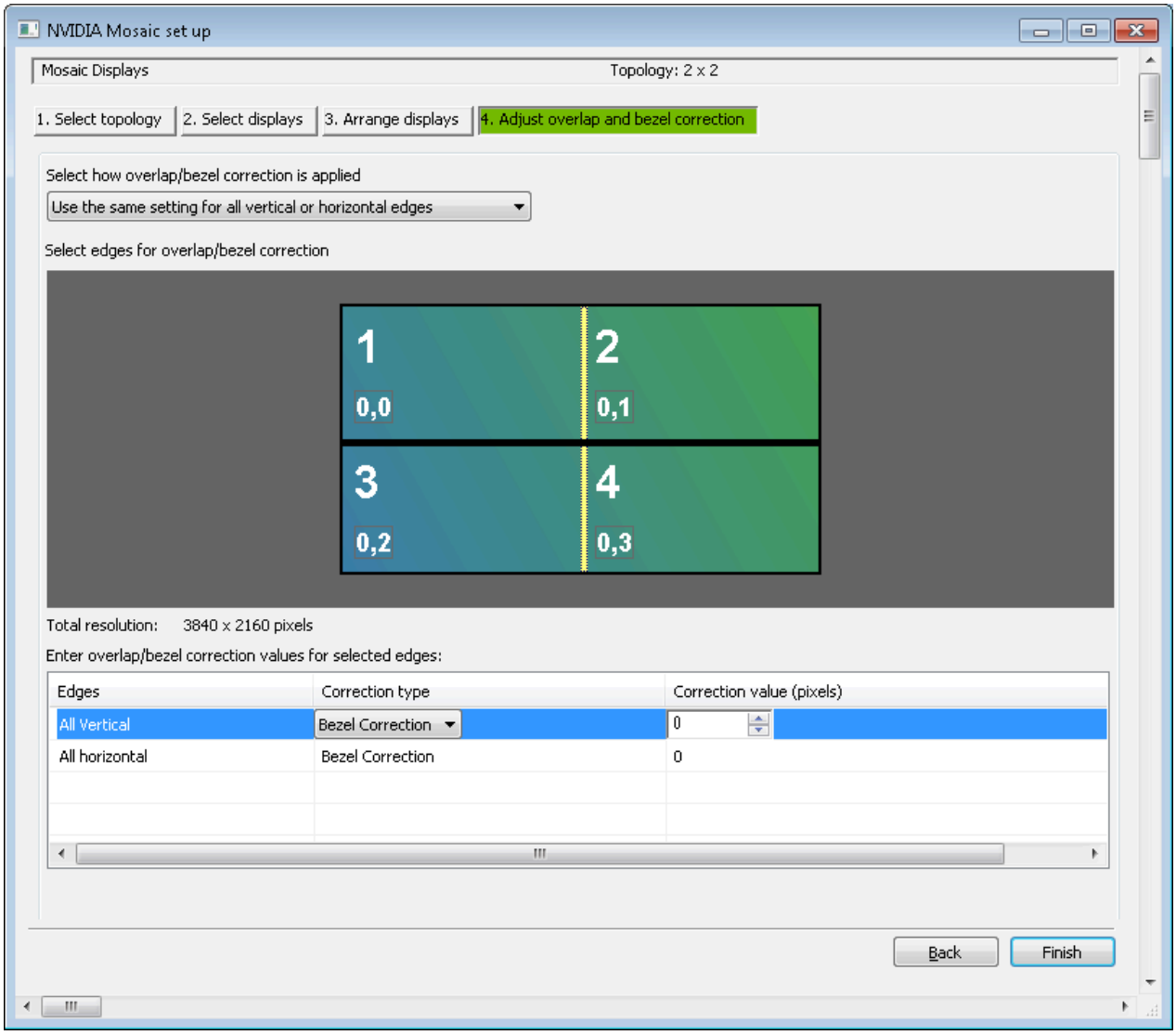
Click **Next** and move on to Arranging Displays in your Topology as shown below



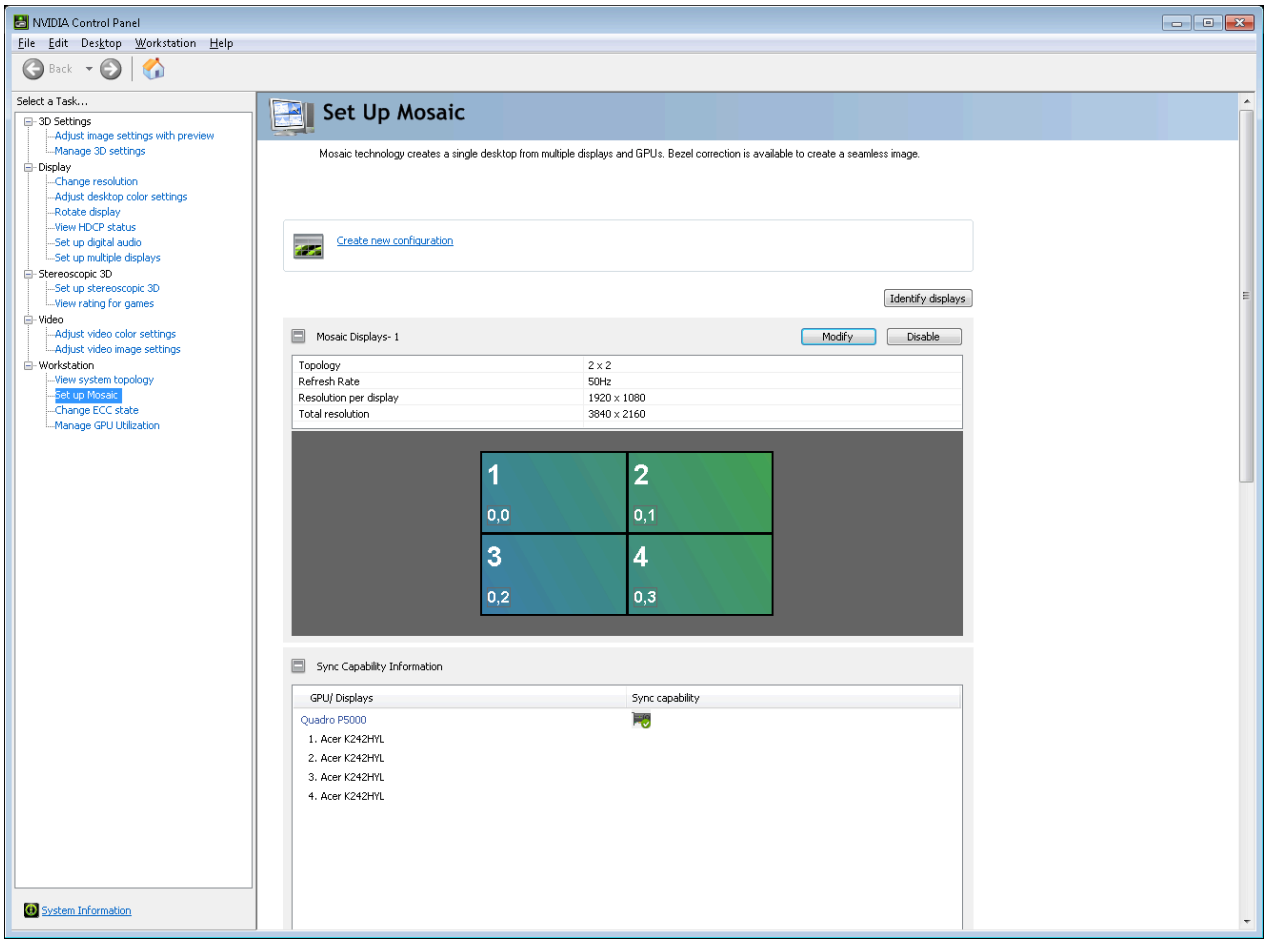
Drag and Drop Displays according to tour Topology requirements and Click **Apply** and Click **Next** when Topology is applied.



Adjust the overlap and bezel correction looking at the display monitors and click **Finish.**



Final Mosaic Setup has been applied that lists all the properties of your Topology
One can Click on **Modify** and Modify the Topology to make any changes required or **Disable** the Mosaic Setup to go back to default settings.

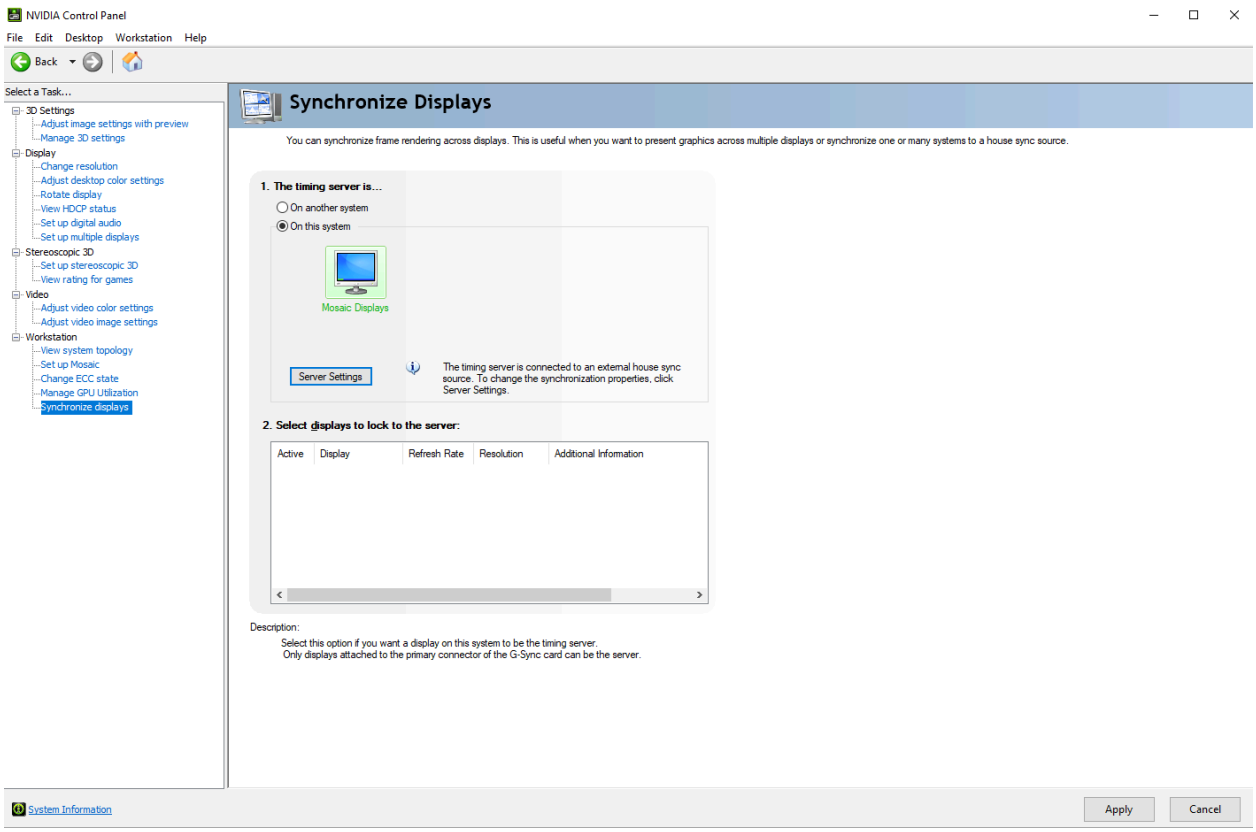


3) Configure EDID

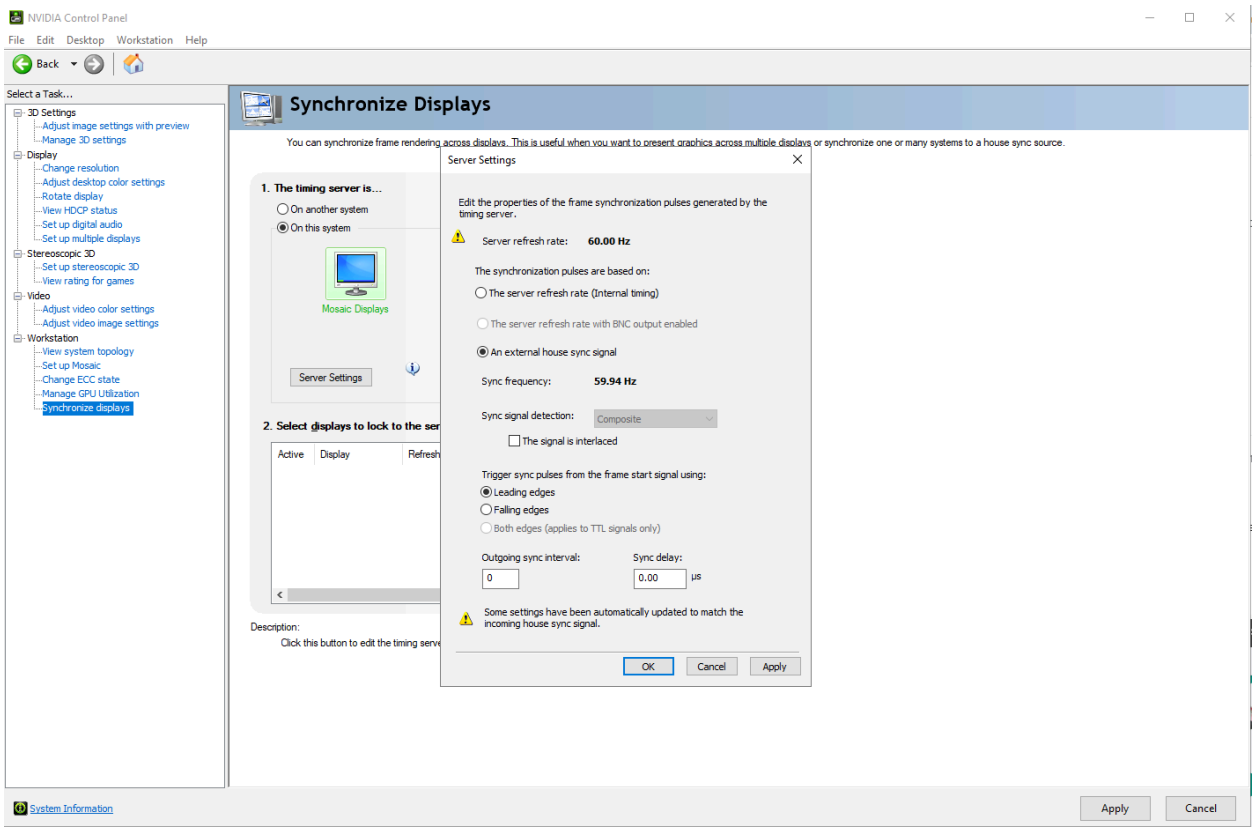
Refer to GPU Render EDID Guide

4) Set NVIDIA Quadro Sync

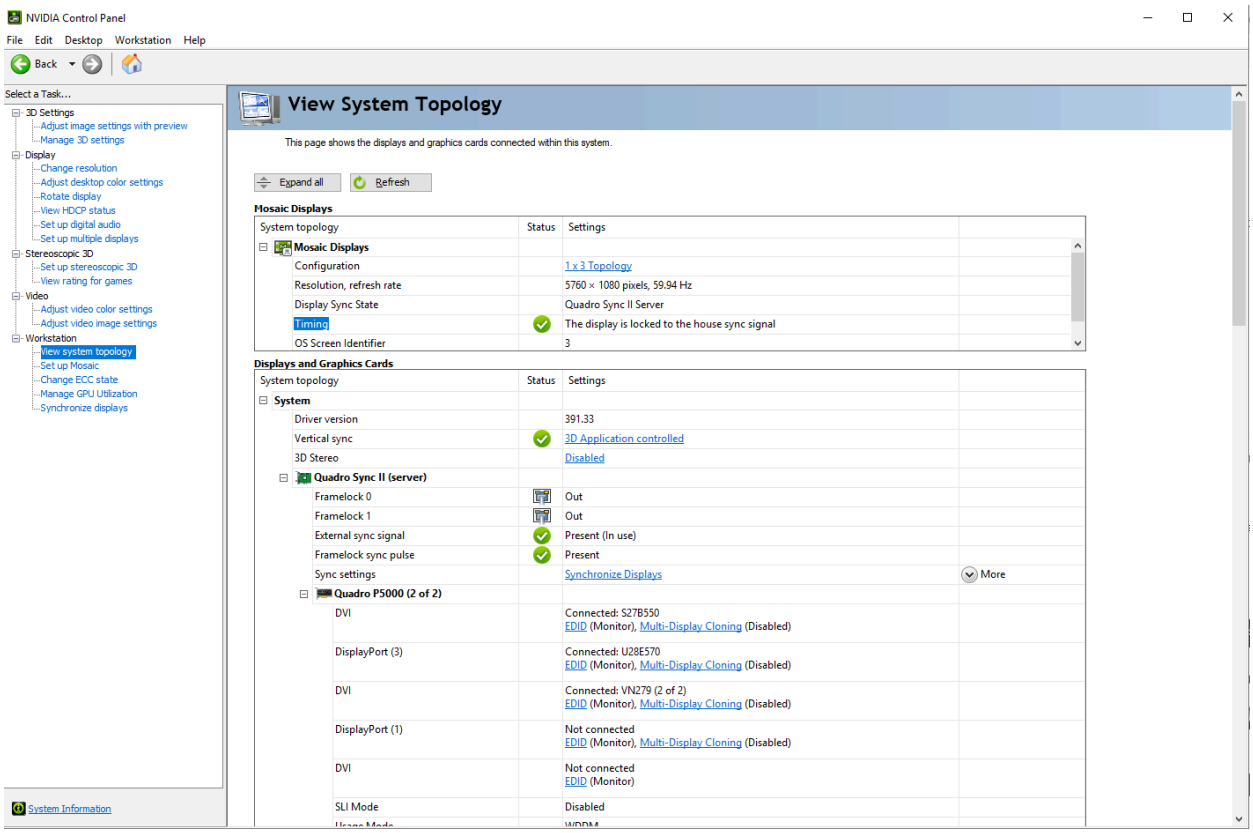
When using the optional Matrox BNC video inputs as part of the PRIME Display Matrix solution, the NVIDIA Quadro Sync must be configured. This ensures that the refresh rate of the monitor is synchronized to the refresh rate of the source video. Both the Matrox and NVIDIA cards should receive reference in, and both can take either bi-level or tri-level sync. This should be configured after the NVIDIA Mosaic.
Open NVIDIA Control Panel and select Synchronize displays. Notice the configured Mosaic is the only option in this configuration. Choose the Mosaic and click Server Settings.



Set the synchronization pulses to be based on an external house signal.



Once the changes have been applied refer to View System Topology. Confirm that Mosaic Displays Timer is locked to house sync signal, that External Sync Signal is Present (In Use), and that the Framelock Sync Pulse is Present.



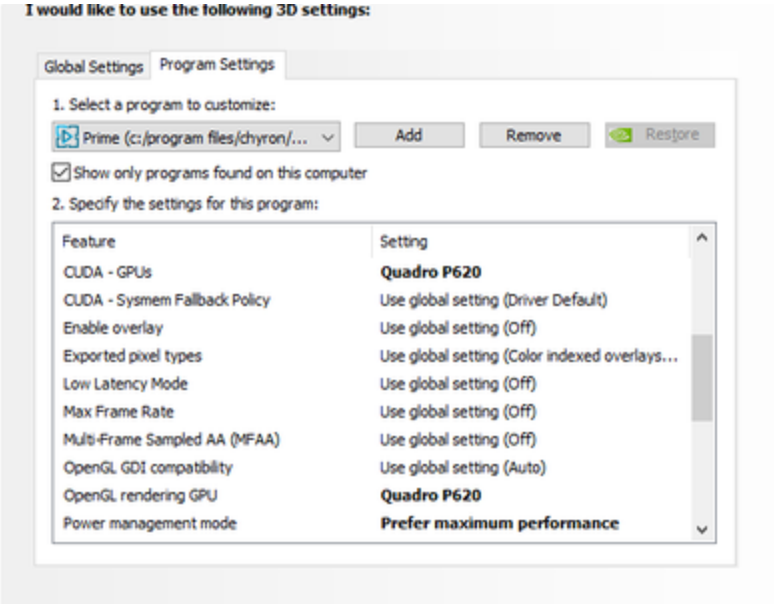
4) Dual GPUs Configuration

***Please Note**, this step is critical if your Chyron system came with a secondary video card for Windows. You must set two additional NVIDIA settings within the NVIDIA Control Panel. If you do not set these properties you will experience unexpected results in PRIME and also Output stuttering and visual tearing on Prime Engine Channels.

After setting up your Mosaic, please go to the NVIDIA Control Panel > (Under) 3D Settings > Manage 3D settings > Click on the Program Settings Tab

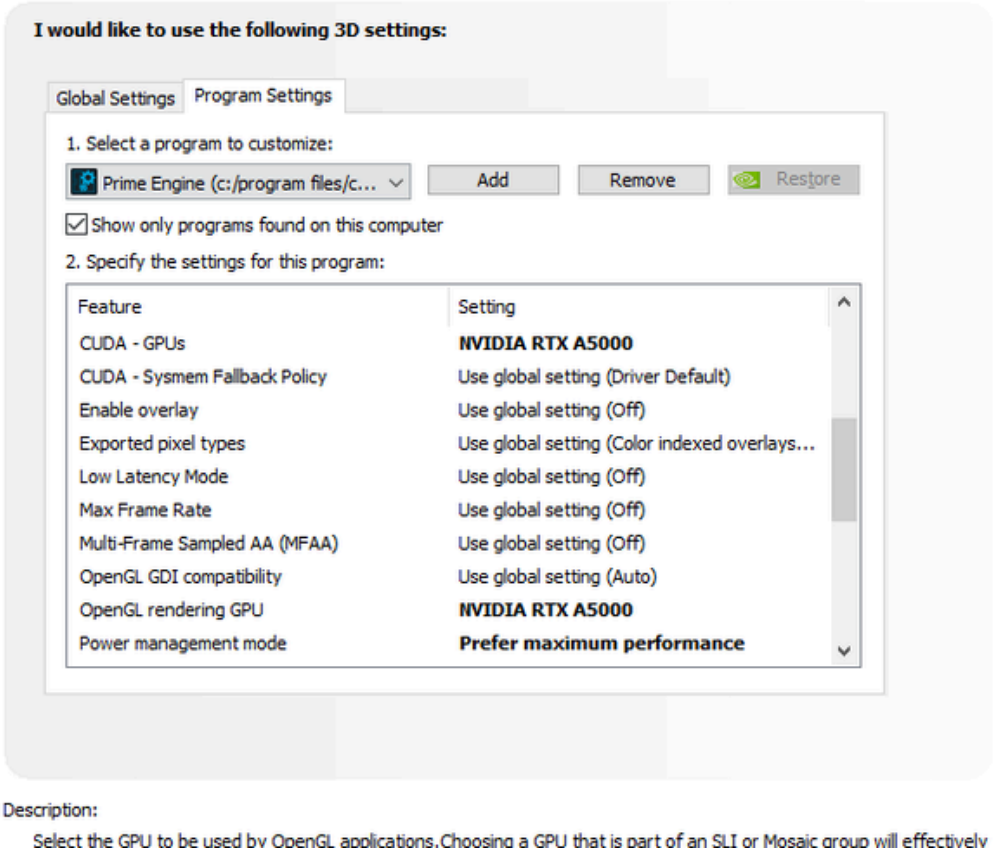
PRIME's Executable

- Select the PRIME version you want to apply the setting to
- For the video card that is connected to the Windows Desktop Monitor, please set the CUDA - GPUs and OpenGL rendering GPU options to that particular video card in which PRIME Playout/Scene Designer and Windows will be using.
    - In this case, I have set the Quadro P620 to PRIME's executable



PRIME Engine's Executable

- Select the PRIME Engine executable
- For the video card in which you have up to 4 displayports connected and set up for Mosaic, please set the CUDA - GPUs and OpenGL rendering GPU options to that particular video card in which PRIME Engine will be using.
    - In this case, I have set the RTX A5000 to PRIME Engine's executable

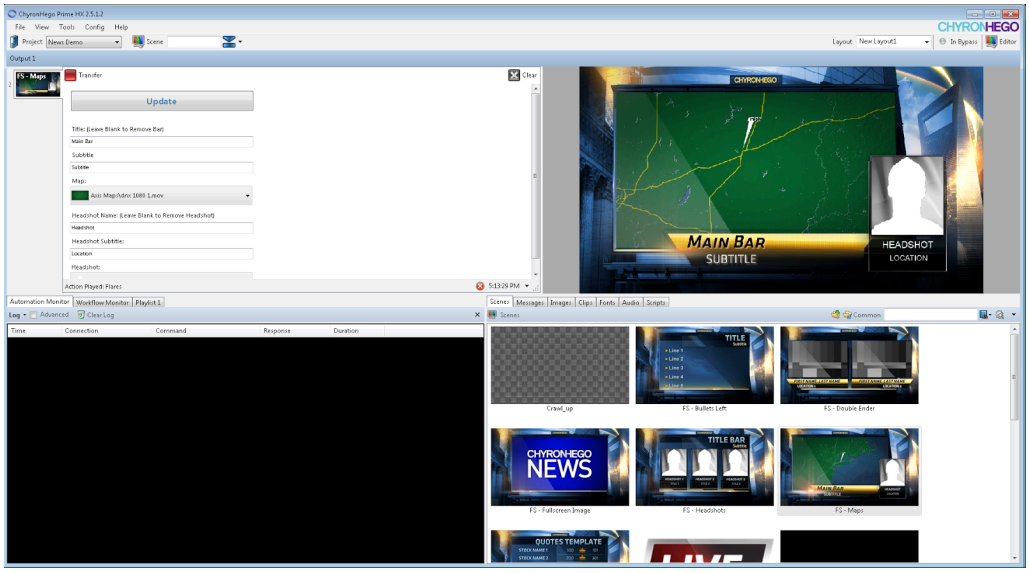


6) Double check Windows display settings

It's important to make sure that the Windows Display settings are set properly. Right-click on the desktop and navigate to the Display Settings. Ensure that Scale and Layout as well as Display Resolution are using the recommended settings.

7) Play graphics

Launch Prime Application and Play any Scene on the Output channel, it should display the Graphic across all those 4 Display devices



ABOUT US

Chyron is ushering in the next generation of storytelling in the digital age. Founded in 1966, the company pioneered broadcast titling and graphics systems. With a strong foundation built on over 50 years of innovation and efficiency, the name Chyron is synonymous with broadcast graphics. Chyron continues that legacy as a global leader focused on customer-centric broadcast solutions. Today, the company offers production professionals the industry's most comprehensive software portfolio for designing, sharing, and playing live graphics to air with ease. Chyron products are increasingly deployed to empower OTA & OTT workflows and deliver richer, more immersive experiences for audiences and sports fans in the arena, at home, or on the go.

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