# PRIME Display Matrix Configuration User Guide Version 4.10.7

January 2025



Chyron PRIME Display Matrix Configuration User Guide • 4.10.7 • January 2025 • This document is distributed by Chyron in online (electronic) form only, and is not available for purchase in printed form.

This document is protected under copyright law. An authorized licensee of Chyron PRIME Display Matrix Configuration may reproduce this publication for the licensee's own use in learning how to use the software. This document may not be reproduced or distributed, in whole or in part, for commercial purposes, such as selling copies of this document or providing support or educational services to others.

Product specifications are subject to change without notice and this document does not represent a commitment or guarantee on the part of Chyron and associated parties. This product is subject to the terms and conditions of Chyron's software license agreement. The product may only be used in accordance with the license agreement.

Any third party software mentioned, described or referenced in this guide is the property of its respective owner. Instructions and descriptions of third party software is for informational purposes only, as related to Chyron products and does not imply ownership, authority or guarantee of any kind by Chyron and associated parties.

This document is supplied as a guide for Chyron PRIME Display Matrix Configuration. Reasonable care has been taken in preparing the information it contains. However, this document may contain omissions, technical inaccuracies, or typographical errors. Chyron and associated companies do not accept responsibility of any kind for customers' losses due to the use of this document. Product specifications are subject to change without notice.

Copyright © 2025 Chyron, ChyronHego Corp. and its licensors. All rights reserved.





### **Table of Contents**

Prerequisites	4
Choosing Correct Cables: DisplayPort	4
Choosing Correct Cables: HDMI	4
Choosing Monitors That Fit Your Solution	4
What About HDR?	4
Configuring the Display Matrix	5
1) PRIME Playout Configuration Needs To Be Setup Initially As Shown Below	5
2) Setting up the Display Matrix Mosaic	6
3) Configure EDID	13
4) Set NVIDIA Quadro Sync	14
5) Double check Windows display settings	16
6) Play graphics	17

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



### PREREQUISITES

#### **Choosing Correct Cables: DisplayPort**

On each HX/MX Display Matrix PRIME system is a NVIDIA Quadro P5000 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 certified cable. Cables not certified are subject to poor video quality or loss of video output.

More information about choosing correct DisplayPort cables can be found here.

Additionally, DisplayPort certified cables can be found here.

#### **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. However, unlike DisplayPort cables, not all HDMI cables support the same specifications.

For video wall solutions it is recommended purchasing a cable that supports a minimum 4K at 60Hz. These specifications can be delivered with a Premium High Speed HDMI Cable. More information on the Premium High Speed HDMI cable can be found <u>here.</u>

The purchase of the Ultra High Speed HDMI cable is also available for clients who wish to ensure they are using the highest quality cable. More information can be found <u>here.</u>

Premium and Ultra High Speed HDMI certified cables and can be found here.

#### **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.

#### What About HDR?

HDR is supported with NVIDIA Quadro P5000, and as stated above, all DisplayPort cables support the same infrastructure. So once again it is important to purchase a DisplayPort certified cable.

The same caution will need to be taken when purchasing HDMI cables for a HDR solution. The minimum recommended cable continues to be the Premium High Speed HDMI Cable.



### **CONFIGURING THE DISPLAY MATRIX**

🕈 Playout Configuration				
	Video Channels 💽 Add Out	put 🕶 🔟	Add Input 🔻	
Video Channels	Channel		🔽 Output 1	*
🛞 Clip Players	Device	GPU		•
📸 Clip Recorders	Туре	Video Out		-
Playlists	Connector	Video 🚺	Ionitor 1	•
	Name	Output 1		
	Video Standard	2160p 59.	94 Hz	•
	Video Shape	Unshaped		Ŧ
	Downstream Input	None		•
	Audio Mode	System Au	udio	•
	Audio Channels	2		•
	Genlock Source			-
	Genlock Timing (H/V)	0	n O	A V
	Antialiasing	Disabled		•
	Preview	No Preview	N	•
	Matrox Firmware Current	2 In / 6 Out		

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.

NVIDIA Control Panel		
<u>File Edit Desktop Workstation Help</u>		
Select a Task Solidit a Task	Set Up Mosaic Mosaic technology creates a single Create new confloaration Create new confloar	desktop from multiple displays and GPUs. Becel correction is available to create a seamless ina Ide Sync capability Total
System Information	<pre></pre>	

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





💷 NVIDIA Mosaic set up					- • •
Mosaic Displays		To	pology: 1 × 2		
1. Select topology 2. Select	t displays 3. Arrange displays	4. Adjust overlap and	bezel correction		
Number of displays:			Configuration Name		
2 🔻			Mosaic setup		
Topology (rows × colum	ns):				
1 × 2	•				
Orientation of displays:					
Landscape	•				
I am using recom	mended connections for the select	ed topology.			
Enable Mosaic					
Selected topology:					
				<u>B</u> ack	Next



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

NVIDIA Mosaic set up		
Mosaic Displays	Topology: 2 × 2	
1. Select topology 2. Select displays 3	Arrange displays 4. Adjust overlap and bezel correction	
Number of displays:	Configuration Name	
4 🔻	Mosaic setup	
Topology (rows × columns):		
2 × 2		
2 × 2		
1 × 2 (Passive stereo)		
2 × 1 (Passive stereo) I am using <u>recommended connec</u>	<u>ctions</u> for the selected topology.	
Enable Mosaic		
Selected topology:		
	Back	Next

\*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

NVIDIA Mosaic set up			
Mosaic Displays		Topology: 1 × 4	
Mosaic Displays          1. Select topology       2. Select displays         Displays for Mosaic: (4 selected)         Image: Displays         Quadro P5000         Image: Displays         Image: Displays	3. Arrange displays 4. Adjust overla Sync capability	Topology: 1 × 4         ap and bezel correction         ap and bezel correction         S0.00 F ▼         Resolution per display:         1920 × 1080         1920 × 1080         1920 × 1080         1920 × 1080         1920 × 1080         1920 × 1080         1920 × 1080         1920 × 1080         1920 × 1080         1600 × 1024         1600 × 900         1440 × 900         1440 × 900         1460 × 900         1460 × 900         1460 × 900         1460 × 900         1460 × 900         1460 × 900         1460 × 900         1460 × 568         1280 × 768         1280 × 768         1280 × 768         1280 × 768         1280 × 768         1280 × 768         1280 × 576         720 × 480         640 × 480	r Mosaic with sync. e information about your display
}	0,3		Back Next



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

NVIDIA Mosaic set up		
Mosaic Displays	Topology: 2 × 2	
1. Select topology 2. Select displays 3. Arra	nge displays 4. Adjust overlap and bezel correction	
Available display sources:		
4 0,3 0,2 3 2 1 0,1 0,0		
Topology:		
Total Resolution: 3840 × 2160 pixels		
	<u>B</u> ack	Next Finish



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

NVIDIA Mosaic set up				- • <b>·</b>
Mosaic Displays		Topology: 2 × 2		
1. Select topology 2. Select displays 3. A	rrange displays 4. Adjust over	lap and bezel correction		
i) Display arrangement for Mosaic is	complete. To enable Mosaic, click	'Apply'.		
Topology:				
			_	
	1	2		
	0,0	0,1		
	3	4		
	0,2	0,3		
Total Resolution: $3840 \times 2160$ pixels			Apply	⊆ancel
		[	Back Next	Finish



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

1osaic Displays		Topology: 2 x 2	
. Select topology 2. Select	t displays 3. Arrange displays 4. Adj	ust overlap and bezel correction	
belect how overlap/bezel co	rrection is applied		
ose the same setting for an			
Select edges for overlap/bea	zel correction		
	1	2	
	0,0	0,1	
	3	4	
	0,2	0,3	
Total resolution: 3840 × 2	2160 pixels		
Total resolution: 3840 × 2 Enter overlap/bezel correcti	2160 pixels ion values for selected edges:		
Total resolution: 3840 × 3 Enter overlap/bezel correcti Edges	2160 pixels ion values for selected edges: Correction type	Correction value (pixe	els)
Total resolution: 3840 × 3 Enter overlap/bezel correcti Edges All Vertical	2160 pixels ion values for selected edges: Correction type Bezel Correction 💌	Correction value (pixe	els)
Total resolution: 3840 x 2 Enter overlap/bezel correcti Edges All Vertical All horizontal	2160 pixels ion values for selected edges: Correction type Bezel Correction Bezel Correction	Correction value (pixe 0 💽 0	els)
Total resolution: 3840 x : Enter overlap/bezel correcti Edges All Vertical All horizontal	2160 pixels ion values for selected edges: Correction type Bezel Correction  Bezel Correction	Correction value (pixe) 0	els)
Total resolution: 3840 x : Enter overlap/bezel correcti Edges All Vertical All horizontal	2160 pixels ion values for selected edges: Correction type Bezel Correction Bezel Correction	Correction value (pixe 0 -	els)
Total resolution: 3840 x : Enter overlap/bezel correcti Edges All Vertical All horizontal	2160 pixels ion values for selected edges: Correction type Bezel Correction  Bezel Correction	Correction value (pixe 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	els)
Total resolution: 3840 x : Enter overlap/bezel correcti Edges All Vertical All horizontal	2160 pixels ion values for selected edges: Correction type Bezel Correction Bezel Correction	Correction value (pixe 0 +	els)
Total resolution: 3840 x : Enter overlap/bezel correcti Edges All Vertical All horizontal	2160 pixels ion values for selected edges: Correction type Bezel Correction Bezel Correction	Correction value (pixe 0 v 0	els)



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.

🛃 NVIDIA Control Panel					
<u>File E</u> dit Des <u>k</u> top <u>W</u> orkstation <u>H</u> elp					
🕝 Back 🔻 🌍 🛛 🐔					
Select a Task					A
E-3D Settings	Set Up Mosaic				
Adjust image settings with preview	Mosaic technology creates a single	e desktop from multiple displays ar	nd GPUs. Bezel correction is avai	lable to create a seamless image.	
Display					
Rotate display					
Set up digital audio	Create new configuration				
Set up multiple displays					
Set up stereoscopic 3D				Identify displays	
				ranimy ashars	
Adjust video color settings	Mosaic Displays- 1			Modify Disable	
- Workstation	Topology	2 × 2			
View system topology	Refresh Rate Recolution per dirplay	50Hz	1090		
Change ECC state	Total resolution	3840 × 3	2160		
Manage GPU Utilization					
				]	
		1	2		
		0.0	0.1		
		0,0	<b>2.1</b>		
		3	4		
		0,2	0,3		
	🔲 Suns Conshilty Information				
	GPU/ Displays		Sync capability		
	Quadro P5000		<b>F</b>		
	2. Acer K242HYL				
	3. Acer K242HYL				
	4. Acer K242HYL				
System Information					-

#### 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.



#### 5) 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.





#### 6) 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.

### **CONTACT SALES**

EMEA • North America • Latin America • Asia/Pacific +1.631.845.2000 • sales@chyron.com

