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Delta Media Server

AMD FirePro and Radeon Pro Display Setup

Technical Guide





AMD FirePro and Radeon Pro Display Setup : Technical Guide

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This guide covers AMD FirePro and Radeon Pro GPUs, for Windows 7 and Windows 10. It covers requirements for even numbers of graphics outputs in rectangular arrangements, within the maximum available pixel width of 16384 px.

Note that the sequence: Emulate > Group > Sync should be followed.

EDID (Extended Display Identification Data):

- is a protocol to allow communication between a device (graphics card) and its connected displays (monitors)
- records display information to the GPU so that it doesn't have to repeatedly communicate with displays when drawing to them
- maintains the required arrangement on working displays if one (or more) display fails:
 - If the display EDIDs are not emulated ('spoofed'), and connection between server and a display is broken, then the display arrangement reverts to single display mode, causing media distortion across the working displays, or black output across multiple displays.
 - When EDID-emulated, working displays maintain the output as if the broken connection (missing display) was still working, minimising disruption to the main output.

Note: it is advisable to keep a note of the relevant IP address of the server so that you can still VNC into the server if you happen to lose visuals – which can happen if an incorrect EDID is applied, such as a resolution forced that was unsupported by the connected display.

AMD FirePro (Win 7)

For FirePro W5100 / W7100 / W9100 under Windows 7, using AMD driver 15.[n]. The location of settings may vary between AMD graphics drivers, so please see manufacturers guidance if you cannot find emulation and grouping options.



Alternatively, you can emulate, group and Genlock your system through the web interface (see the <u>Stack Control</u> User Guide).

- FirePro Advanced Settings⁵
- FirePro EDID Emulation (Spoofing)⁶
- Dual GPU EDID Emulation¹²
- FirePro Evefinity Grouping⁽¹⁶⁾
- Dual GPU Grouping²³
- FirePro Synchronization (Genlocking)⁽³¹⁾

FirePro Advanced Settings

Right click the Desktop, and left-click AMD FirePro Advanced Settings:



FirePro EDID Emulation (Spoofing)

Right click on the desktop to gain access to the AMD FirePro Advanced Settings, and Click *AMD FirePro > EDID Emulation > Accept* to continue. In the example here, one GPU (AMD FirePro W9100) has been identified:

	FirePro Advanced Settings Preferences	×)
> Presets 🧭	EDID Emulation	?
 ✓ AMD FirePro™ AMD FirePro™ Settings Synchronization Error-Correcting Code (ECC) SDI/DirectGMA 	Manage EDID emulation for display connections. Configuration outside of official AMD specifications is not covered under AMD product warranty.	^
EDID Emulation Desktop Management Desktop Color	Force EDID Emulation Refresh Select display connections to configure:	
 My Digital Flat- Panels Properties (Digital Flat- Panel) Display Color (Digital Flat-Panel) HDTV Support (Digital Flat-Panel) Custom Resolutions (Digital Flat-Panel) Audio Default Audio Device 	AMD FirePro W9100 1 Discard Apply	

> See here (12) for dual GPU installations.

Begin EDID Emulation

Click on the + icon on the left-hand side of the GPU. This will bring up a drop-down menu to show how many ports are available on the GPU. Click to expand 'Display Connections':

	FirePro Advanced Settings
> Presets 🧔	EDID Emulation ?
 > AMD FirePro™ AMD FirePro™ Settings Synchronization Error-Correcting Code (ECC) SDI/DirectGMA EDID Emulation > Desktop > Management > Desktop Color > My Digital Flat- Panels Properties (Digital Flat- Panel) Display Color (Digital Flat-Panel) HDTV Support (Digital Flat-Panel) Custom Resolutions (Digital Flat-Panel) > Audio > Default Audio Device 	Manage EDID emulation for display connections. Image EDID emulation outside of official AMD specifications is not covered under AMD product warranty. Image EDID Emulation Refresh Select display connections to configure: Image AMD FirePro W9100 1 Image Connections Image Connections Image EDID Emulation Refresh
	EDID Emulation Options: Remove Manage branch Manage EDID Defaults

On this GPU, there are 6 available ports, showing what type of connections there are. In this instance, the GPU supports Mini DisplayPort

Note: Earlier versions of AMD may not have EDID Emulation as an option – you can emulate with DeltaMonitor through the Stack web interface if you can't find the option in the Control Center (see the <u>Stack Control</u> User Guide).

Manage EDID emulation for display connections

To apply EDID emulation to any connection, check its left-side box. Moving over a connection will reveal three icons on the right-hand side:

	FirePro Advanced Settings
> Presets 🧔	EDID Emulation ?
 ✓ AMD FirePro™ MD FirePro™ Settings Synchronization Error-Correcting Code (ECC) SDI/DirectGMA EDID Emulation 	Manage EDID emulation for display connections. Configuration outside of official AMD specifications is not covered under AMD product warranty.
Desktop Management	Force EDID Emulation Refresh Select display connections to configure:
My Digital Flat-	AMD FirePro W9100 1
Pariets Properties (Digital Flat- Panel) Display Color (Digital Flat-Panel) HDTV Support (Digital Flat-Panel) Custom Resolutions (Digital Flat-Panel) Audio Default Audio Device	 > Graphics Card Display Connectors ✓ Display Connections ② ③ Connection 1 - Mini DisplayPort (Connected : PLE2208HDD) ③ ⊕ Connection 2 - Mini DisplayPort (Connected : PLE2208HDD) ③ ⊕ Connection 3 - Mini DisplayPort (Connected : PLE2208HDD) ③ ⊕ Connection 4 - Mini DisplayPort (Connected : PLE2208HDD) ③ ⊕ Connection 5 - Mini DisplayPort (Connected : PLE2208HDD) ③ ⊕ Connection 6 - Mini DisplayPort (Connected : PLE2208HDD)
	EDID Emulation Options: Remove Manage branch Manage EDID
	Defaults Discard Apply

- The Magnifier shows raw information about the current EDID.
- The page icon downloads the current EDID, in this case, the PLE2208HDD EDID from the connected monitor.
- The large + will add an EDID to connections with a ticked check box. This will open a dialog:

EDID Em	ulation
EDID e emulat configi Any ex	mulation may affect any existing AMD Eyefinity configurations that include ed displays. To minimize this impact, configure EDID emulation before uring AMD Eyefinity. isting EDID emulation settings for the selected connections will be lost.
Apply EDID emu	lation to these connections:
AMD Fire	Pro W9100 1
	T
Select EDID:	
From Display	k:
PLE2208HDD	0(AMD FirePro W9100 1 Port 1 - Mini DisplayPort)
From File:	
C:\Program	Files\7thSense\Delta\Utilities\EDID Files\7th Browse
Q View i	Raw EDID
Connection Pro	perties:
Emulation	Emulate always
Connection	DisplayPort (Active Adapter)
Lanes	2
Bit Rate	2.7 GHz
Bandwidth	2.7 GHz
Color Depth	8 bit
3D Caps	None
	Discard Apply

In the Connection Properties:

- Lanes should be set to 4.
- Bit Rate: dual link or above, 5.4 GHz, otherwise 2.7 GHz.
- Bandwidth should be changed to 5.4 GHz for higher output EDIDs, e.g. 4096 × 2160@60.
- **Color Depth** 8 bit or 10 bit depending on output required. This is important for <u>Working in 10-bit</u> <u>Colour Depth</u>.

Select the EDID that you want to use and change the properties underneath. You can either apply the EDID from the display (if connected) or load a *.bin file in the local directory (select 'From File' and Browse to the file).

Finding the right EDID

7thSense provides a collection of available EDIDs, located in: C:\Program Files\7thSense\Delta\Utilities\EDID Files. Change the file type (bottom right) to binary to see these files:

🖳 Open						×
← → × ↑ 📙 « Local Disk (C:) → Program Files → 7thSense → De	lta → Utilities → E	DID Files	√ Ū	Search EDID Files	Q
Organise 🔻 New folder					· · · · · · · · · · · · · · · · · · ·	
7thConnect	Name	Date modified	Туре	Size		^
Delta	7th 800x600@50.bin	09/08/2017 11:40	BIN File	1.K	В	
Guides	7th 800x600@60.bin	09/08/2017 11:40	BIN File	1 K	B	
HelpFiles	7th_800x600@75.bin	09/08/2017 11:40	BIN File	1 K	В	
Licencing	7th_1024x768@50.bin	09/08/2017 11:40	BIN File	1 K	В	
Logs	7th_1024x768@60.bin	09/08/2017 11:40	BIN File	1 K	В	
MI MEx64	7th_1024x768@75.bin	09/08/2017 11:40	BIN File	1 K	В	
MI MEXP6	📋 7th_1280x720@50.bin	09/08/2017 11:40	BIN File	1 K	В	
IVILIVIEX60	7th_1280x720@60.bin	09/08/2017 11:40	BIN File	1 K	В	
Sequences	7th_1280x720@75.bin	09/08/2017 11:40	BIN File	1 K	В	
Shows	7th_1280x720@96_Stereo.bin	09/08/2017 11:40	BIN File	1 K	В	
System	7th_1280x720@120_Stereo.bin	09/08/2017 11:40	BIN File	1 K	В	
Thumbs	7th_1280x768@50.bin	09/08/2017 11:40	BIN File	1 K	В	
Utilities	7th_1280x768@60.bin	09/08/2017 11:40	BIN File	1 K	В	
BootStrap	7th_1280x768@75.bin	09/08/2017 11:40	BIN File	1 K	В	
EDID Files	7th_1280x800@50.bin	09/08/2017 11:40	BIN File	1 K	В	
	7th_1280x800@60.bin	09/08/2017 11:40	BIN File	1 K	В	
	7th_1280x800@75.bin	09/08/2017 11:40	BIN File	1 K	В	
Logs 🗸	7th_1280x800@96_Stereo.bin	09/08/2017 11:40	BIN File	1 K	В	~
File <u>n</u> ame:				~	Binary files(*.bin)	\sim
					<u>O</u> pen	Cancel .::

Select the EDID for the right resolution, bit depth as well as frame rate. Display devices (projectors, monitors) have their own set of embedded EDIDs that can also be used. Open the selected EDID then 'Apply', to apply it to all of the selected AMD display connections.

The Advanced Settings page will now display which EDID is connected to the relevant ports. In this instance, the **7th_WUXGA@60** has been applied to all six of the ports of the GPU:

	⊖ × FirePro Advanced Settings Preferences
> Presets 🧭	EDID Emulation ?
 ✓ AMD FirePro™ AMD FirePro™ Settings Synchronization Error-Correcting Code (ECC) SDI/DirectGMA 	Manage EDID emulation for display connections. Configuration outside of official AMD specifications is not covered under AMD product warranty.
EDID Emulation	Force EDID Emulation Refresh
Desktop Color	Select display connections to configure:
Panels	AMD FirePro W9100 1
Properties (Digital Flat- Panel) Display Color (Digital Flat-Panel) HDTV Support (Digital Flat-Panel) Custom Resolutions (Digital Flat-Panel) ~ Audio Default Audio Device	 > Graphics Card Display Connectors > Display Connections Connection 1 - Mini DisplayPort (Emulated : 7th_WUXGA@60) Connection 2 - Mini DisplayPort (Emulated : 7th_WUXGA@60) Connection 3 - Mini DisplayPort (Emulated : 7th_WUXGA@60) Connection 4 - Mini DisplayPort (Emulated : 7th_WUXGA@60) Connection 5 - Mini DisplayPort (Emulated : 7th_WUXGA@60) Connection 6 - Mini DisplayPort (Emulated : 7th_WUXGA@60)
	EDID Emulation Options: Remove Manage branch Manage EDID Defaults Discard Apply

Dual GPU EDID Emulation

This is very similar to single GPU servers. Dual GPU operation for adding graphics power uses AMD CrossFire to link the cards. Delta servers instead simply need the extra display heads, so first of all ensure Crossfire is disabled. Open 'AMD FirePro Advanced Settings', and select 'AMD CrossFire' from the left-hand menu:



Now select 'EDID Emulation' from the left-hand menu. If asked whether to 'Force EDID', click 'Apply'.

Now click the + markers to expand the list of connections per GPU detected. For each GPU in turn: tick all heads required, then move over the top connection and click the big + icon on the right:



A new dialog will open. Select the EDID from the current display, or from a specific EDID file if available by clicking browse:

EDID En	nulation
EDID emul confi Any	emulation may affect any existing AMD Eyefinity configurations that include ated displays. To minimize this impact, configure EDID emulation before guring AMD Eyefinity. existing EDID emulation settings for the selected connections will be lost.
Apply EDID en	nulation to these connections:
AMD Fire	ePro W9100 5
AMD Fire	ePro W9100 11
Select EDID:	
From Disp	lay:
PLE2208H	DD(AMD FirePro W9100 5 Port 1 - Mini DisplayPort)
From File: C:\Program	n Files\7thSense\Delta\Utilities\EDID Files\7th Browse
QView	v Raw EDID
Connection P	roperties:
Emulation	Emulate always
Connection	DisplayPort (Active Adapter)
Lanes	2
Bit Rate	2.7 GHz
Bandwidth	2.7 GHz
Color Depth	8 bit
3D Caps	None
	Discard Apply

Finding the right EDID

7thSense provides a collection of available EDIDs, located in: C:\Program Files\7thSense\Delta\Utilities\EDID Files. Change the file type (bottom right) to binary to see these files.

All heads should show with the EDID information. Restart the server.

	FirePro Advanced Settings	Preferences	
> Presets 🧭	EDID Emulation	?	1
 ✓ AMD FirePro™ (€) Disable Display 	Manage EDID emulation for display connections.		1
AMD FirePro™ Settings AMD CrossFire™	Force EDID Emulation	Refresh	×.
Synchronization	Select display connections to configure:		1
EDID Emulation	AMD FirePro W9100 5		٦
Desktop Management	Graphics Card Display Connectors		
AMD Eyefinity™	 Display Connections 		
Multi-Display Create Eyefinity Display Group	Connection 1 - Mini DisplayPort (Connected : PLE2208HDD)		
Re-enable Eyefinity	Connection 2 - Mini DisplayPort (Connected : PLE2208HDD)		
My Digital Flat-	Connection 3 - Mini DisplayPort (Connected : PLE2208HDD)		
Properties (Digital Flat-	Connection 4 - Mini DisplayPort (Connected : PLE2208HDD)		
Display Color (Digital			
Flat-Panel) HDT∨ Support (Digital	Connection 5 - Mini DisplayPort (Connected : PLE2208HDD)		
Flat-Panel) Custom Resolutions (Digital Flat-Panel)	Connection 6 - Mini DisplayPort (Connected : PLE2208HDD)		
v Audio	AWD FIREPRO W9100 11	=	
Default Audio Device	> Graphics Card Display Connectors		
	 Display Connections 		
	Connection 1 - Mini DisplayPort (Connected : PLE2208HDD)		
	Connection 2 - Mini DisplayPort (Connected : PLE2208HDD)		
	Connection 3 - Mini DisplayPort (Connected : PLE2208HDD)		
	Connection 4 - Mini DisplayPort (Connected : PI F2208HDD)		
	Connection 5 Mini DisplayPort (Connected - PLE2208UDD)		
	Connection 6 - Mini DisplayPort (Connected : PLE2208HDD)		
	EDID Emulation Options:		
	Remove Manage branch Manage EDID	-	,
	Defaults	Discard Apply	

FirePro Eyefinity Grouping

For the most reliable results, first ensure that each display to be grouped has the correct resolution applied to it in Windows. (Windows search: 'display settings'.) These must all be the same, since mixed resolution displays are not supported in AMD Eyefinity groups. Failure to do this can often result in a Eyefinity group of the wrong resolution being created.

Troubleshooting: a Note on Scaling

Scaling is a feature in AMD for handling media of non-native resolution. When switched on, it will either maintain aspect ratio, force-fill the screen, or centre a lower-resolution in a higher-resolution display. Occasionally an EDID has the scaling flag enabled in the CEA extension block, and AMD seems to want to default to a scaled output.

If on the actual display (not VNC) you are seeing black borders, or the aspect ratio appears incorrect, check for scaling before Eyefinity Grouping.

Scaling options can be found under older AMD Catalyst[™] Control Center > *My Digital Flat Panels*, either as an option or within Properties.

Grouping

When media is to be displayed over more than one display, the display outputs need to be Grouped. Select 'Create Eyefinity Display Group' on the left. This will show how many monitors are connected:

	FirePro Advance	ed Settings		Preferenc	x
> Presets 🧭	Create Eyefinity D	isplay Group			?
 ✓ AMD FirePro™ Disable Display 	Create an AMD Eyefinit	y display group. Combine mul	tiple displays to work toget	her as a single desktop.	
AMD FirePro™ Settings Synchronization Error-Correcting Code	Supported configuration	ons for your display group: dimension mixed alignmen	nt	Show mor	<u>re</u>
SDI/DirectGMA EDID Emulation	-				
Management → Desktop Color AMD Eyefinity™ Multi-Display					
Create Eyefinity Display Group My Digital Flat- Panels Properties (Digital Flat-	*	2	3	(4)	
Panel) Display Color (Digital Flat-Panel) HDTV Support (Digital Flat-Panel) Custom Resolutions (Digital Flat-Panel)					_
V Audio	Select a display arra	ngement for your display gr	oup:	Identify All	I
	Use the currer	it arrangement			
	Use a new arra	angement			
		Create a new array	ngement using a different g	roup of displays.	_
				Next	

Click on 'Use a new arrangement' and then 'Next' and choose the matrix you want (AMD format: columns × rows):

	FirePro Advanced Settings	Preferences
> Presets 🧭	Create Eyefinity Display Group	?
✓ AMD FirePro™ ()	Create an AMD Eyefinity display group. Combine multiple displays to work together as a single	e desktop.
Duplicate Desktop AMD FirePro™ Settings Synchronization Error-Correcting Code	Supported configurations for your display group (2x1): standard mixed dimension mixed alignment	Show more
(ECC) SDI/DirectGMA EDID Emulation	Select a layout for the display group:	
V Desktop Management	2x1	
Desktop Color → AMD Eyefinity™ Multi Display	2x1	
Create Eyefinity Display Group	3x1	
V My Digital Flat-	4x1	
Properties (Digital Flat- Panel)	1x2	
Display Color (Digital Flat-Panel)	2x2	
HDTV Support (Digital Flat-Panel)	1x3	
(Digital Flat-Panel)	LX4	
Audio Default Audio Device		
		Next

Here a standard 2 × 2 arrangement has been selected: if the appearance is correct, click 'Next' and then 'Start arrangement' for correct placement of the displays in actual physical order:

	FirePro Advanced Settings	Preferences
> Presets 🧭	Create Eyefinity Display Group	?
 AMD FirePro™ Disable Display 	Create an AMD Eyefinity display group. Combine multiple displays to work together as a single d	esktop.
AMD FirePro™ Settings Synchronization	Supported configurations for your display group (2x2):	Show more
Error-Correcting Code (ECC)	standard mixed dimension mixed alignment	
SDI/DirectGMA	Rearrange your displays as needed.	
Desktop Management	Start arrangement	
Set Preferred Display		
AMD Eyefinity™ Multi-Display		
Create Eyefinity Display Group		
My Digital Flat-		
Properties (Digital Flat- Panel)		
Display Color (Digital Flat-Panel)	1 🖌 3	
Flat-Panel)		
(Digital Flat-Panel)		
V Audio		
Default Audio Device		
	2 4	
	T	
	Back	Next

Each monitor will illuminate blue in turn. Click the square in the dialog corresponding to its physical position:



When finished, the actual correspondence will be displayed:



When you click Next you can save the .xml file of the arrangement:

Save Eyefinity Display Group	
* ①	
Save this display group as:	
My Display Group 2018Jul24_1221	
	<u>O</u> K

Now that you have a grouped display, return to the Windows display resolution configuration to verify that the resolution of the overall grouping matches the sum of the individual display resolutions.

You are now ready to synchronise displays to an external sync source if required.

Dual GPU Grouping

For dual GPU grouping, open 'AMD FirePro Advanced Settings'. Select 'Create Eyefinity Display Group'. This will show the available displays, but not which GPU they are connected to. With AMD, displays are grouped as desktops, not as one entire group of displays. You therefore need to address each GPU in turn and group its outputs, following the same process as for a single GPU.

To select the first desktop to group, just click on the blue square of first display. You will see that the number sequence may appear a bit random:



With the first display selected, click Next:



Select a layout for this display group (i.e. the outputs for one of the graphics cards). AMD format is: columns × rows:

AMD FirePro™ Disable Display AMD FirePro™ Settings AMD CrossFire™	Create an AME) Eyefinity display g	group. Combine mul	tiplo dicplaye to work to a	700 D D D D D D
Disable Display AMD FirePro™ Settings AMD CrossFire™				upie displays to work too	ether as a single desktop.
AMD FirePro™ Settings AMD CrossFire™					
AMD CrossFire ^{1M}	Supported cor	nfigurations for you	ur display group (2x1	1):	Show more
Curshrapization	standard	mixed rotation	mixed dimension	mixed alignment	
Error-Correcting Code					
(ECC)					
SDI/DirectGMA	Select a layo	out for the display	y group:		
EDID Emulation	2.2		-		
Desktop	282		.		
Desktop Color					
AMD Evefinity™					
Multi-Display					
Create Eyefinity Display Group					
My Digital Flat-					
Panels 📕					
Properties (Digital Flat- Panel)					
Display Color (Digital					
Flat-Panel)					
HDTV Support (Digital Flat-Panel)			35	No.	
Custom Resolutions					
(Digital Flat-Panel)					
Audio 💿					
Default Audio Device					
Default Audio Device					

Click 'Next' and then 'Start arrangement'. Displays can now be rearranged into the actual physical order for this part of the overall display.

Each monitor will illuminate blue in turn. Click the square in the dialog corresponding to its physical position:



When finished, the actual correspondence will be displayed. Click Next and save the .xml file for this display group:

Save Eyefin	nity Display Group		
	*	1	
Save this	display group as:		
My Displ	lay Group 2018Jul24	_1221	
			<u>K</u>

With the first group made, return to 'Create Eyefinity Display Group', where you will see the group you have just made, and the ungrouped displays. Click on one of the ungrouped displays (i.e. the next desktop):



Click 'Next' and, as before, select the matrix layout and proceed to arrange the displays so that they correspond to their physical layout.

When all displays have been grouped, save the .xml file for this display group:

Save Eyef	inity Display Group			
			_	_
		(2)	
Save thi	s display group as:			
My Dis	play Group 2018Jul2	4_1221		
				<u>O</u> K

It may be that your desktops, as far as Windows is concerned, are not in the right order. Right-click the Windows desktop and select 'Screen Resolution':

🔵 🗢 💆 « Disp	lay Screen Resolution 	← ← Search C	Control Panel
Change the ap	opearance of your displays		
	1	2	Dete <u>c</u> t <u>I</u> dentify
Di <u>s</u> play:	1. PLE2208HDD -		
Di <u>s</u> play: <u>R</u> esolution:	1. PLE2208HDD ▼ 3840 × 2160 ▼		
Di <u>s</u> play: <u>R</u> esolution: <u>M</u> ultiple displays:	1. PLE2208HDD ▼ 3840 × 2160 ▼ Extend these displays ▼		
Di <u>s</u> play: <u>R</u> esolution: <u>M</u> ultiple displays: <u></u> Ma <u>k</u> e this my n	1. PLE2208HDD ▼ 3840 × 2160 ▼ Extend these displays ▼ nain display		Advanced settings
Di <u>s</u> play: <u>R</u> esolution: <u>M</u> ultiple displays: <u>Make this my n</u> Make text and oth	1. PLE2208HDD ▼ 3840 × 2160 ▼ Extend these displays ▼ nain display er items larger or smaller		Advanced settings

Drag the desktop groups into the right order, 'Apply' and click 'OK'.

Restart the server.

You are now ready to synchronise displays to an external sync source if required. The procedure is the same as for a single GPU, so this time, open 'AMD FirePro Advanced Settings'.

FirePro Synchronization (Genlocking)

Synchronization between GPUs, and/or with an external signal source (genlocking) requires installation of an AMD FirePro S400 Synchronization Module in each Delta Media Server. This can be linked to a central house sync/reference generator.

Genlocking your system ensures that all output/displays play at precisely the same rate to prevent media tearing. 7thSense Design recommend using House Sync genlocking via the BNC reference port, rather than the framelocking method using the RJ45 ports. This procedure will synchronise your server(s) to a house sync source when using AMD GPUs.

Ensure that a House Sync Generator is plugged in to the S400 Genlock card.

Timing Clients

From the FirePro Advanced Settings, select Synchronization. Each port that has been connected will be displayed. With the Sync Generator connected, the 'House Sync' will show the refresh rate of the Sync Generator instead of 'Idle'. The displays will always appear as a red cross at first, this is just to show that they have been registered in the Advanced settings.

	FirePro Advanced Settings	Preferences
> Presets 🧔 🎓	Synchronization	?
 AMD FirePro™ () AMD FirePro™ Settings 	Synchronize video output across multiple displays using a synchronization module.	
Synchronization	Timing Server	
(ECC)	None	•
SDI/DirectGMA		Configure
Desktop		Configure
Management	Timing Clients	
AMD Evefinity TM	Display Display Group V-Sync State	
Multi-Display	I.7th_WUXGA@60 : AMD FirePro W9100 60 Hz	
Set Preferred Display	1 7th WILVGA @60 (AMD EirePre W0100 60 Hz	
Display Group		
Position Windows	I.7th_WUXGA@60 : AMD FirePro W9100 60 Hz	
Arrange Eyefinity Display Group	□ 📃 1.7th_WUXGA@60 : AMD FirePro W9100 60 Hz 🗙	
Disable Eyefinity Display Group	□ b RJ-45(1)	
Adjust Bezel Compensation	RJ-45(2)	
Adjust Overlap Compensation	Identify Detect	Configure
Customize Eyefinity Desktop Resolution	External Connectors Status	
Vanels	📥 👁 🕷 RJ-45(1): Idle	
Properties (Digital Flat-Panel)	🚔 🌑 🕷 RJ-45(2): Idle	
Display Color (Digital Flat-Panel)	💿 🌒 House Sync: 720p 60 Hz	
HDTV Support (Digital Flat-Panel)	Refresh	
Custom Resolutions (Digital Flat-Panel)		Arriv
v Audio	Digcard	

Check all the displays you want to sync.

Click the 'Configure' button to select the sync source:

Configure Timing Client					
1.PLE2208HDD : AMD FirePro V7900 (ATI FireGL) (60 Hz) Display Group 2					
Timing Signal Source:	Timing Signal Source:				
House Sync	•				
Signal configuration					
Signal Type:	720p 60 Hz Sync to field 1				
Triggering Edge:	Rising				
Scan Rate Coefficient:	1:1				
Sync Delay (µs):	0 🌩				
Use these settings for all selected timing clients.					
	<u>O</u> K <u>Cancel</u>				

Timing Source Signal

can either be the first display and sync from that or just the normal House Sync. The signal type is displayed here as resolution and refresh rate, e.g. 720p 60 Hz.

Triggering Edge

by default, Rising. Only critical in mixed-GPU scenarios where another default differs.

Scan Rate Coefficient

The EDID rate and Sync rate must match to some extent, either equal, or one a multiple of the other.

Examples:

EDID is 1920x1080@25, House Sync must be 25 Hz (1:1) or 50 Hz (1:2). EDID is 1920x1080@120, House Sync must be 120 Hz (1:1) or 60 Hz (2:1).

Check 'Use these settings for all timing clients'.

Click 'Apply'. The red crosses will all now be green ticks, and the green light for House Sync will flash on and off:

	FirePro Advanced Settings	Preferences
> Presets 🧭 🧯	Synchronization	?
✓ AMD FirePro™ AMD FirePro™ Settings	Synchronize video output across multiple displays using a synchronization module.	
Synchronization	Timing Server	
Error-Correcting Code (ECC)	Nee	
SDI/DirectGMA	None	· · · · · · · · · · · · · · · · · · ·
EDID Emulation		Configure
Desktop Management	Timing Clients	
Desktop Color	Display Display Group V-Sync State	
AMD Eyefinity™ Multi-Display		
Set Preferred Display		
Create Eyefinity Display Group	☑ ■ 1.7th_WUXGA@60 : AMD FirePro W9100 3 60 Hz ④ √	
Position Windows Taskbar	✓ ■ 1.7th_WUXGA@60 : AMD FirePro W9100 3 60 Hz	
Arrange Eyefinity Display Group	☑ I.7th_WUXGA@60: AMD FirePro W9100 3 60 Hz √	
Disable Eyefinity Display Group	RJ-45(1)	
Adjust Bezel	🔲 💼 RJ-45(2)	
Adjust Overlap Compensation	Identify Detect	Configure
Customize Eyefinity Desktop Resolution	External Connectors Status	
Vy Digital Flat-	💼 🌑 🕷 RJ-45(1): Idle	
Properties (Digital Flat-Panel)	📸 🚳 RJ-45(2): Idle	
Display Color (Digital Flat-Panel)	💿 🔹 House Sync: 720p 60 Hz	
HDTV Support (Digital Flat-Panel)	Refresh	
Custom Resolutions (Digital Flat-Panel)	Diamed	Apply
~ Audio	Digcard	Арру

All ports are now synced together.

Restart the server, then navigate back to the Advanced Settings and check that the connections are still present.

House Sync

House sync is shown along bottom, this is updated as soon as 'Refresh' is clicked, and the House Sync indicator will flash green. The LED on the S400 card in the server will now be illuminated steady green. So if the incoming signal from the generator changes, the House Sync will reflect this.

Genlock Polling via DeltaMonitor

Remote server control via the Stack web interface enables AMD graphics sync systems to be addressed remotely. By enabling DeltaMonitor's <u>Genlock Polling</u> you can ensure that any temporary loss of sync signal can be re-established automatically.

Lost Sync?

Genlock can be lost if the signal is interrupted (for example if a cable falls out or the sync generator rate is changed): this S400 LED will change from steady green to a slow flash.

If genlock is lost, check all connections and sync generator settings. Restart the server to re-grab the genlock settings.

Note: It is good practice to check all linked servers if there has been genlock loss. If it was due to the source sync generator, genlock will be lost and need resetting on all master and slave servers.

AMD Radeon Pro 18.Q2.1

For AMD Radeon[™] Pro WX4100, WX 5100, VII and WX 7100 graphics cards, and for FirePro[™] W600, using Radeon Pro Software, Enterprise Edition, version 18.Q2.1, under Windows 10.



Note that currently only one of these cards can be used per server in Windows 10. A single GPU can be synced, but not two in the same server.

- Advanced Settings⁽³⁶⁾
- EDID Emulation³⁷
- Display Grouping⁴¹
- Synchronization (Genlocking)⁴⁷

Advanced Settings

First connect display adapters into all required GPU ports. These must all be of the same type.

From Windows Start, open AMD Radeon Settings:


EDID Emulation

Select EDID Emulation from the left-hand menu, then click to small + box under 'Select display connections to configure', to expand the available GPU connections:

RADEON	Radeon Pro and AMD FirePro Advanced Settings	
PRU	Prefer	ences
 > Presets AMD Radeon Pro > and AMD FirePro™ AMD Radeon Pro and AMD FirePro™ Settings Synchronization SDI/DirectGMA EDID Emulation > My Digital Flat- Panels Properties (Digital Flat- Panel) 	EDID Emulation Manage EDID emulation for display connections. Image EDID emulation outside of official AMD specifications is not covered under AMD product warranty. Image Force EDID Emulation Refresh Select display connections to configure: Refresh Image AMD Radeon (TM) Pro WX 7100 Graphics 3 Image AMD Radeon (TM) Pro WX 7100 Graphics 3 Image Product Structure Image AMD Radeon (TM) Pro WX 7100 Graphics 3 Image Product Structure Image AMD Radeon (TM) Pro WX 7100 Graphics 3 Image Product Structure Image AMD Radeon (TM) Pro WX 7100 Graphics 3 Image Product Structure Image AMD Radeon (TM) Pro WX 7100 Graphics 3 Image Product Structure Image AMD Radeon (TM) Pro WX 7100 Graphics 3 Image Product Structure Image Product Structure Image Product Structure Image Product Structur	?
	EDID Emulation Options: Remove Manage branch Manage EDID Defaults Discard Ap	ply

In this example, a single Radeon WX 7100 in installed, and you can see that whilst we have four adapters in the GPU ports, only one is connected. Select the connected port:

- the magnifier shows raw information about the current EDID
- the page icon downloads the current EDID, in this case, the PLE2208HDD EDID from the connected monitor
- the large + will add an EDID to connections with a ticked check box. Click this to open a dialog:



From the dialog, select EDID 'From File' (file type *.bin) and browse to C:\Program Files\7thSense\Delta\Utilities\EDID Files:

EDID	Emulation
!	EDID emulation may affect any existing AMD Eyefinity configurations that include emulated displays. To minimize this impact, configure EDID emulation before configuring AMD Eyefinity. Any existing EDID emulation settings for the selected connections will be lost.
Apply ED	D emulation to these connections:
⊞ AN	D Radeon (TM) Pro WX 7100 Graphics 3
Select EF	ID•
O From	Display:
PLE2	08HDD(AMD Radeon (TM) Pro WX 7100 Graphics 3 Port 1 - DisplayPort)
From	File:
C	View Raw EDID
Connecti	on Properties:
Emulatio	n Emulate always
Connect	on DisplayPort (Active Adapter)
Lanes	2
Bit Rate	2.7 GHz
Bandwid	h 2.7 GHz
Color De	oth 8 bit
3D Caps	None
	Discard Apply

In the Connection Properties:

- Lanes should be set to 4.
- Bit Rate: dual link or above, 5.4 GHz, otherwise 2.7 GHz.
- **Bandwidth** should be changed to 5.4 GHz for higher output EDIDs, e.g. 4096 × 2160@60.
- **Color Depth** 8-bit or 10-bit depending on output required. This is important for <u>Working in 10-bit</u> <u>Colour Depth</u>.

Select the EDID that you want to use and change the properties underneath. You can either apply the EDID from the display (if connected) or load a *.bin file in the local directory (select 'From File' and Browse to the file).

Finding the right EDID

7thSense provides a collection of available EDIDs, located in: C:\Program Files\7thSense\Delta\Utilities\EDID Files. Change the file type (bottom right) to binary to see these files:

🛃 Open						×
← → × ↑ 🔤 « Local Disk ((C:) > Program Files > 7thSense > Del	lta → Utilities → E	DID Files	✓ Ö Search	EDID Files	Q
Organise 🔻 New folder						?
7thConnect	^ Name	Date modified	Туре	Size		^
Delta	7th 800x600@50.bin	09/08/2017 11:40	BIN File	1 KB		
Guides	7th 800x600@60.bin	09/08/2017 11:40	BIN File	1 KB		
HelpFiles	7th 800x600@75.bin	09/08/2017 11:40	BIN File	1 KB		
	7th_1024x768@50.bin	09/08/2017 11:40	BIN File	1 KB		
Logs	7th_1024x768@60.bin	09/08/2017 11:40	BIN File	1 KB		
	7th_1024x768@75.bin	09/08/2017 11:40	BIN File	1 KB		
MLIMFx04	7th_1280x720@50.bin	09/08/2017 11:40	BIN File	1 KB		
MLMFx86	7th_1280x720@60.bin	09/08/2017 11:40	BIN File	1 KB		
Sequences	7th_1280x720@75.bin	09/08/2017 11:40	BIN File	1 KB		
Shows	7th_1280x720@96_Stereo.bin	09/08/2017 11:40	BIN File	1 KB		
System	7th_1280x720@120_Stereo.bin	09/08/2017 11:40	BIN File	1 KB		
Thumbs	7th_1280x768@50.bin	09/08/2017 11:40	BIN File	1 KB		
Utilities	7th_1280x768@60.bin	09/08/2017 11:40	BIN File	1 KB		
BootStrap	7th_1280x768@75.bin	09/08/2017 11:40	BIN File	1 KB		
EDID Eiler	7th_1280x800@50.bin	09/08/2017 11:40	BIN File	1 KB		
	7th_1280x800@60.bin	09/08/2017 11:40	BIN File	1 KB		
HDSDI Audio	7th_1280x800@75.bin	09/08/2017 11:40	BIN File	1 KB		
Logs	✓ ☐ 7th_1280x800@96_Stereo.bin	09/08/2017 11:40	BIN File	1 KB		~
File <u>n</u> ame:				~ Binary	files(*.bin)	\sim
				<u>0</u>	pen Cance	

Select the EDID for the right resolution, bit depth and frame rate. Some EDIDs indicate specific interface types (HDMI, DVI); take care to select the correct option. Display devices (projectors, monitors) have their own set of embedded EDIDs that can also be used. Open the selected EDID then 'Apply', to apply it to all of the selected AMD display connections.

The Advanced Settings page will now display which EDID is connected to the relevant ports.

Unexpected screen resolution?

If, after emulation, the resolution is different from what you are expecting (an EDID can contain multiple resolutions and refresh rates), you will need adjust Windows display settings.

Right-click on the desktop and select 'Display Settings'. In 'Customize your display', scroll down to the bottom of the page and select 'Advanced Display Settings'. Then select 'Display Adapter Properties.

In the Display Adapter Properties window, click 'List all Modes' at the bottom and then select the resolution from the drop-down menu (this may need to be applied per output).

With the correct resolution now set for each output, proceed to grouping configuration your displays.

Display Grouping

From AMD Radeon Settings, select from the left-hand menu, 'Create Eyefinity Display Group':



Select 'Use a new arrangement' and click 'Next'.

Now select your primary display (the one marked with an asterisk in its top left-hand corner) and click Next:



Select your desired matrix from the dropdown menu and press 'Next':



If you need to rotate any display, do this here, or just click 'Next':



Click 'Start Arrangement' which will cause each screen to turn blue:



Click each display in sequence for its matrix position. When correct, click Next.

The next step allows for alignment should you require it. Finally click 'Next'.

The displays will go black, the group will now configure itself, and once complete, will bring up a window where you can save the group name as 'My Display Group [Date]' – or as you prefer – and press 'OK':

Save Eyefinity Display Gr	oup		
*			
			2
Save this display group	as:		>
My Display Group 2018	Jul10_1303		
			<u>O</u> K

Synchronization (Genlocking)

Synchronization with an external signal source (genlocking) requires installation of an AMD FirePro S400 Synchronization Module in each Delta Media Server. This is linked to a central house sync/reference generator.

Genlocking your system ensures that all output/displays play at precisely the same rate to prevent media tearing. 7thSense Design recommend using House Sync genlocking via the BNC reference port, rather than the framelocking method using the RJ45 ports. This procedure will synchronise your server(s) to a house sync source when using AMD GPUs.

Timing Clients

From the Radeon Pro Advanced Settings, select Synchronization. Each port that has been connected will be displayed. They will always appear as a red cross at first, this is just to show that they are being registered in the Advanced settings.

RADEON		
PRO	Radeon Pro and AMD FirePro Advanced Settings	Preferences
> Presets 🧭	Synchronization	?
AMD Radeon Pro → and AMD FirePro™ AMD Radeon Pro and AMD FirePro™ 0 officer	Synchronize video output across multiple displays using a synchronization module.	
Synchronization	Timing Server	
SDI/DirectGMA	None	~
EDID Emulation	None	
AMD Eyefinity™ Multi-Display		Configure
Set Preferred Display	Timing Clients	
Create Eyefinity Display Group	Display Display Group V-Sy	ync State
Position Windows Taskbar	L 📕 1.7th_4K : AMD Radeon (TM) Pro WX 7100 Graphics 60	Hz 🗙
Arrange Eyefinity Display Group	Image: Interpretent content of the second	Hz 🗙
Disable Eyefinity Display Group	Image: Interpretent content of the second	Hz 🗙
Adjust Bezel Compensation	E I.7th_4K : AMD Radeon (TM) Pro WX 7100 Graphics 60 I	Hz 🗙
Adjust Overlap Compensation	□ m RJ-45(1)	
Customize Eyefinity Desktop Resolution	□ 🔒 RJ-45(2)	
My Digital Flat-	Identify Detect	Configure
Properties (Digital Flat- Panel)	External Connectors Status	
	💼 👁 RJ-45(1): Idle	
	🚨 🌑 RJ-45(2): Idle	
	House Sync: 720p 60.00 Hz	
	Refresh	
		Discard Apply

Check the displays you want to sync.

Click the 'Configure' button to select the sync source:

Configure Timing Client				
🧱 1.7th_4K : AMD Rad	deon (TM) Pro WX 7100 Graphics (60 Hz) Display	y Group 1		
The settings for thi display group.	s timing client are shared with other timing clier	ts that are connected to the same		
Timing Signal Source:				
House Sync		~		
Signal configuration				
Signal Type:	720p 60.00 Hz	Sync to field 1		
Triggering Edge:	Rising	¥		
Scan Rate Coefficient:	1:1	Ŷ		
Sync Delay (µs):		0 🌲		
Use these settings for	or all selected timing clients.			
		<u>O</u> K <u>C</u> ancel		

Timing Source Signal

can either be the first display and sync from that or just the normal House Sync. The signal type is displayed here as resolution and refresh rate, e.g. 720p 60 Hz.

Triggering Edge

by default, Rising. Only critical in mixed-GPU scenarios where another default differs.

Scan Rate Coefficient

The EDID rate and Sync rate must match or (a feature of AMD GPUs) be a valid multiple. *Examples*: EDID is 1920x1080@25, House Sync must be 25 Hz (1:1) or 50 Hz (1:2).

EDID is 1920x1080@60, House Sync must be 60 Hz (1:1) or 30 Hz (2:1).

Check 'Use these settings for all timing clients'.

Click 'Apply'. The red crosses will all now be green ticks:

RADEON		
PRO	Radeon Pro and AMD FirePro Advanced Settings	Preferences
> Presets 🦪	Synchronization	?
AMD Radeon Pro ∼ and AMD FirePro™	Synchronize video output across multiple displays using a synchronization module.	
AMD Radeon Pro and AMD FirePro™ Settings	Timing Server	
Synchronization	·········	
SDI/DirectGMA	None	~
EDID Emulation		Configure
Multi-Display [™]		Conligure
Set Preferred Display	Timing Clients	
Create Eyefinity Display Group	Display Display Group V-Sync	State
Position Windows Taskbar	☑ 📃 1.7th_4K : AMD Radeon (TM) Pro WX 7100 Graphics 1 60 Hz	0.
Arrange Eyefinity Display Group	☑ 📃 1.7th_4K : AMD Radeon (TM) Pro WX 7100 Graphics 1 60 Hz	<u>،</u> ا
Disable Eyefinity Display Group	☑ 📃 1.7th_4K : AMD Radeon (TM) Pro WX 7100 Graphics 1 60 Hz	◎ √
Adjust Bezel Compensation	☑ 📃 1.7th_4K : AMD Radeon (TM) Pro WX 7100 Graphics 1 60 Hz	٠
Adjust Overlap Compensation	□ 🔒 RJ-45(1)	
Customize Eyefinity Desktop Resolution	□ 🔒 RJ-45(2)	
Vy Digital Flat-	Identify Detect	Configure
Properties (Digital Flat- Panel)	External Connectors Status	
	💼 👁 🗴 RJ-45(1): Idle	
	🔒 🗶 RJ-45(2): Idle	
	House Sync: 720p 60.00 Hz	
	Refresh	
	Discard	i <u>A</u> pply

All ports are now synced together.

Restart the server, then navigate back to the Advanced Settings and check that the connections are still present.

House Sync

House sync is shown along bottom, this is updated as soon as 'Refresh' is clicked, and the House Sync indicator will flash green. The LED on the S400 card in the server will now be illuminated steady green. So if the incoming signal from the generator changes, the House Sync will reflect this.

Genlock Polling via DeltaMonitor

Remote server control via the Stack web interface enables AMD graphics sync systems to be addressed remotely. By enabling DeltaMonitor's <u>Genlock Polling</u> you can ensure that any temporary loss of sync signal can be re-established automatically.

Lost Sync?

Genlock can be lost if the signal is interrupted (for example if a cable falls out or the sync generator rate is changed): this S400 LED will change from steady green to a slow flash.

If genlock is lost, check all connections and sync generator settings. Restart the server to re-grab the genlock settings.

Note: It is good practice to check all linked servers if there has been genlock loss. If it was due to the source sync generator, genlock will be lost and need resetting on all master and slave servers.

AMD Radeon Pro 21.Q1.2

For AMD Radeon[™] Pro WX 5100 and WX 7100 graphics cards, using Radeon Pro Software, Enterprise Edition, version 11.Q1.2.



Note that currently only one of these cards can be used per server in Windows 10. A single GPU can be synced, but not two in the same server.

On the Delta server, find the AMD Radeon Pro Settings Desktop app, and select the 'Settings' gearwheel icon:

				0 – 0	x נ
🔁 Home Create Strea	aming Performance			م 🚳 🌲 👛	E
System Graphics Display	Video Hotkeys Account	s Devices Gen			
Software & Driver	Release Notes	> Hardw		Shop AMD Product	
✓ More	Details				
Settings Snapshot ⑦ Import/export a snapshot of all user settings		∱ AMD	GPU Radeon (TM) Pro WX 7100 Graphi Primary/Discrete	VRAM 8192 MB GDDR5 1750 MHz	
Factory Reset ⑦ Restores all user settings and profiles to def		5	✓ More De	etails	
Reset Application Statistics ③ Reset statistics for all applications		5			
About Radeon [™] Pro Software		> AMD	CPU Ryzen Threadripper PRO 3955W 16 Cores	RAM 64 GB	

In the Graphics tab, you may need to select Quad buffer (if using 3D stereo), or 10-bit format:

其 Home Create Strea	aming Performance			۹	3	۰	*	E
System Graphics Display	Video Hotkeys Accoun	ts Devices	General					5
Texture Filtering Quality ⑦								
Surface Format Optimization ③								
Wait for Vertical Refresh ⑦								
Tessellation Mode								
OpenGL Triple Buffering 🕜								
10-Bit Pixel Format 🕜	Disabled							
GPU Workload 🕜								
Reset Shader Cache 🕜		5						
DGMA Enable/Disable DirectGMA support and confi								
Platform Compatibility Adjust settings based on the grouping of har								
Quad Buffer Stereo ⑦ Enable Quad Buffer Stereo to control the ste	Disabled	•						

EDID Emulation⁵⁴

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- Display Grouping⁵⁹
- Synchronization (Genlocking)⁶¹

EDID Emulation

Select Display on the top menu, and scroll down to 'Additional Settings' to 'Adjust EDID Settings':

🔁 Home Create Strea	aming Performance			Search	Q	3	<u>ب</u>	\$ Æ
System Graphics Display	Video Hotkeys Account	s Devices	General					
Kadeon i to image boost			Brightness				_	
GPU Scaling 🕥		-	Singintiness					
Scaling Mode 🧑	Preserve aspect ratio		Hue				-0-	 -
			Contrast					 -
Color Depth 🕜			Saturation				-0-	 -
Pixel Format (?)	RGB 4:4:4 Pixel Format PC Stan							
> Display Specs			> Overrides					
Additional Settings								
Adjust EDID Settings Manage EDID emulation for display connection								
Adjust FL/GL Settings Synchronize video output across multiple dis								
Eyefinity								
AMD Eyefinity Combine multiple displays to act as one		+						
Advanced Eyefinity		+						

Open Radeon Pro Settings, and expand the GPU section:

AMDZ RADEON PRO SETT	INGS		? _ D ×
Manage EDID emulation for display connections	S		
Configuration outside of official AME	Specifications is not covered under AMD produce	ct warranty.	
Remove All Emulations Removes all EDID emulations	Emulate All Displays Emulates all displays to their EDID		
— AMD Radeon (TM) Pro WX 7100 Grap	phics		
1 2	ů 4		
Connection 1 (DisplayPort) Connected (LCD Monitor17)	Connection 2 (DisplayPort) E Not Connected	Connection 3 (DisplayPort)	Connection 4 (DisplayPort)
÷		,	Advanced

Select 'Emulate All Displays' then click the 3-dot selector in the first display and choose 'Emulate':

AMDZ RADEON PRO SETTINGS	? _ 🗆 ×
Manage EDID emulation for display connections	
Configuration outside of official AMD Specifications is not covered under AMD prod	act warranty.
Remove All Emulations Emulate All Displays Removes all EDID emulations Emulates all displays to their EDID	
— AMD Radeon (TM) Pro WX 7100 Graphics	
1 2 2 4	
Connection 1 (DisplayPort) E Connection 2 (DisplayPort) E Connected (LCD Monitor1) E Connected (LCD Monitor2) E	Connection 3 (DisplayPort) E Connection 4 (DisplayPort) E Connected (LCD Monitor 3) E Connected (LCD Monitor 4) E
Emulate	
Export EDID	
← 💭 EDID	••• Advanced

Now select 'Source', choose 'From File' and then the source file arrow, to browse to select the correct EDID:

AMD	RADEON PRO SETTI	NGS				0 –	×
< X	E Emulate						
Create ar	nd configure EDID Emulation connection	15					
	DID emulation may effect any existing pefinity. Any existing EDID emulation	g AMD Eyefinity configurations that include emo settings for the selected connections will be los	ılated displays. To t.	minimize this impact,	configure EDID emul	ation before configur	ing AMD
Source From File	~	Source File Select source from file					
GPU 0 - AM From File	ID Radeon (TM) Pro WX 7100 Graph	Destination Connection Connection 1 (DisplayPort)	1	2	گ	4	
Destinati Maximum	ion Connection Properties n Resolution: 1280x1024, Connection: A	ctive dongle, Lanes: 2, Bit Rate: 2.7 GHz, >					
÷		C EDID			••• Advanced		

Select the EDID (*.bin file) that you want to use. 7thSense supplied EDID are found in C:\Program Files\7thSense\Delta\Utilities\EDID Files.

Finding the right EDID

7thSense provides a collection of available EDIDs, located in: C:\Program Files\7thSense\Delta\Utilities\EDID Files. Change the file type (bottom right) to binary to see these files:

🛃 Open						×
\leftarrow \rightarrow \checkmark \bigstar \blacksquare « Local Disk	k (C:)	→ Program Files → 7thSense → De	lta > Utilities > E	DID Files	マ Ö Search EDID	Files 🔎
Organise 👻 New folder						== • 1 ?
, 7thConnect	^	Name	Date modified	Туре	Size	^
Delta		7th 800x600@50.bin	09/08/2017 11:40	BIN File	1 KB	
Guides		7th 800x600@60.bin	09/08/2017 11:40	BIN File	1 KB	
HelpFiles		7th 800x600@75.bin	09/08/2017 11:40	BIN File	1 KB	
		7th_1024x768@50.bin	09/08/2017 11:40	BIN File	1 KB	
Logs		7th_1024x768@60.bin	09/08/2017 11:40	BIN File	1 KB	
		7th_1024x768@75.bin	09/08/2017 11:40	BIN File	1 KB	
MLMFx04		7th_1280x720@50.bin	09/08/2017 11:40	BIN File	1 KB	
MLMFx86		7th_1280x720@60.bin	09/08/2017 11:40	BIN File	1 KB	
Sequences		7th_1280x720@75.bin	09/08/2017 11:40	BIN File	1 KB	
		7th_1280x720@96_Stereo.bin	09/08/2017 11:40	BIN File	1 KB	
System		7th_1280x720@120_Stereo.bin	09/08/2017 11:40	BIN File	1 KB	
Thumbs		7th_1280x768@50.bin	09/08/2017 11:40	BIN File	1 KB	
Utilities		7th_1280x768@60.bin	09/08/2017 11:40	BIN File	1 KB	
BootStrap		7th_1280x768@75.bin	09/08/2017 11:40	BIN File	1 KB	
		📄 7th_1280x800@50.bin	09/08/2017 11:40	BIN File	1 KB	
		7th_1280x800@60.bin	09/08/2017 11:40	BIN File	1 KB	
HDSDI Audio		7th_1280x800@75.bin	09/08/2017 11:40	BIN File	1 KB	
Logs	\checkmark	7th_1280x800@96_Stereo.bin	09/08/2017 11:40	BIN File	1 KB	~
File <u>n</u> ame:					✓ Binary files	(*.bin) ~
L					<u>O</u> pen	Cancel

Select the EDID for the right resolution, bit depth and frame rate. Some EDIDs indicate specific interface types (HDMI, DVI); take care to select the correct option. Display devices (projectors, monitors) have their own set of embedded EDIDs that can also be used. Open the selected EDID then 'Apply', to apply it to all of the selected AMD display connections.

Note that the Destination Connection Properties will show the current values of the display being addressed. Typical post-emulation properties will be:

- Lanes: 4
- Bit Rate: dual link or above, 5.4 GHz, otherwise 2.7 GHz
- Bandwidth should be changed to 5.4 GHz for higher output EDIDs, e.g. 4096 × 2160@60
- **Color Depth** 8-bit or 10-bit depending on output required. This is important for <u>Working in 10-bit</u> <u>Colour Depth</u>.

Repeat for all displays:

AMDZ RADEON PRO SETT	INGS		? _ 🗆 ×
Manage EDID emulation for display connection	i5		
Configuration outside of official AMI	D Specifications is not covered under AMD produ	ict warranty.	
Remove All Emulations Removes all EDID emulations	Emulate All Displays Emulates all displays to their EDID		
— AMD Radeon (TM) Pro WX 7100 Gra	phics		
1 2	å e		
Connection 1 (DisplayPort) Emulated (7th_HD1080@60)	Connection 2 (DisplayPort) Emulated (7th_HD1080@60)	Connection 3 (DisplayPort) E Connected (LCD Monitor 3)	Connection 4 (DisplayPort) E
		Emulate	
÷	EDID	•••• /	dvanced

Unexpected screen resolution?

If, after emulation, the resolution is different from what you are expecting (an EDID can contain multiple resolutions and refresh rates), you will need adjust Windows display settings, accessible from here, and go to the Windows 'Advanced Display Settings' and find 'Display Adapter Properties' at the bopttom:

🔁 Home Create Streaming Performance	Search 🔍 🔇 🌲 🚈 📧
System Graphics Display Video Hotkeys Accounts Devices	; General
Clobal Display Display 1 Display 2 Display 3 Display 4 7th HD1080@60 - DISPLAYPORT (AMD Radeon (TM) Pro WX 7100 Graphics)	Arrange Displays 7 Desktop Color 7 Enable Clone 🖵
Display Options	Custom Color
AMD FreeSync ③ Not Supported ●	Custom Color ③ Enabled

In the Display Adapter Properties window, click 'List all Modes' at the bottom, and then select the resolution from the drop-down menu (this may need to be applied per output).

With the correct resolution now set for each output, proceed to grouping configuration your displays.

Display Grouping

From the main page of Display, scroll down to 'Additional Settings', 'Eyefinity', and select 'Advanced Setup':

其 Home Create Strea	aming Performance			Q	3		\$ £
System Graphics Display Radeon Pro Image Boost (2)	Video Hotkeys Accounts Disabled	Devices	General				
GPU Scaling 🕜	Disabled		Brightness			D	
Scaling Mode 🕜			Hue				-
			Contrast			_	
Color Depth ⑦		~	Saturation			-0-	 -
Pixel Format 🕜	RGB 4:4:4 Pixel Format PC Stan		> Custom Resolutio				
> Display Specs			> Overrides				
Additional Settings							
Adjust EDID Settings Manage EDID emulation for display connection							
Adjust FL/GL Settings Synchronize video output across multiple dis							
Eyefinity							
AMD Eyefinity Combine multiple displays to act as one		+					
Advanced Eyefinity	Advanced Setup	+					

This will show your displays in a default row. Use 'Select Layout' for a different arrangement.

vailable Displays	Use drag and drop to arrang displays into the Eyefinity gr	e		<u>(8)</u>	
2) - 7th_HD1080@60					
3) - 7th_HD1080@60					
4) - 7 m_no 1000@00	(1) - 7th_HD1080@60	(2) - 7th_HD1080@60	(3) - 7th_HD1080@60	(4) - 7th_HD1080@60	
Identify		Lavout Mode	Fit		

Select the arrangement of the required displays (example: 2 × 2):

lect Layo	ut			
4 x 1 4 x 1				
2 x 2				
1 x 4 3 x 1				
1 x 3	1080@60	(2) - 7th_HD1080@60	(3) - 7th_HD1080@60	(4) - 7th_HD1080@60
2 x 1				
	A-1			
		1	.1.	1

You can now drag the displays into the correct locations:

	D Eyefinity Pro Configu	ration Tool	≡×
Available Displays			
(1) - 7th_HD1080@60	(1) - 7th_HD1080@60		
(2) - 7th_HD1080@60			
(3) - 7th_HD1080@60			
(4) - 7th_HD1080@60			
		_	
		1	
Identify	Layout Mode	Fit	

Use the 'Identify' button if unsure of the physical correspondence. Then click the red 'Create' button to complete the layout.

Synchronization (Genlocking)

Synchronization with an external signal source (genlocking) requires installation of an AMD FirePro S400 Synchronization Module in each Delta Media Server. This is linked to a central house sync/reference generator.

Genlocking your system ensures that all output/displays play at precisely the same rate to prevent media tearing. 7thSense Design recommend using House Sync genlocking via the BNC reference port, rather than the framelocking method using the RJ45 ports. This procedure will synchronise your server(s) to a house sync source when using AMD GPUs.

From the main page Display tab, scroll down to 'Additional Settings', 'Adjust FL/GL Settings':

🔁 Home Create Strea	aming Perfo	mance			Search	Q	3	¢	٠	E
System Graphics Display	Video Hotkeys	Accounts	Devices	General						
Sync Width										
Polarity										
Interlaced/Progressive	Progressive									
G.Pixel Clock (KHz)										
G.Refresh Rate (Hz)	59.9988									
HDMI Link Status Monitoring	Disabled									
Current Link Settings	2.7 Gbps x 2									
Additional Settings										
Adjust EDID Settings Manage EDID emulation for display connection	Open Radeon Pro So	ettings	~							
Adjust FL/GL Settings Synchronize video output across multiple dis		dditional Setti	~							
Eyefinity										
AMD Eyefinity Combine multiple displays to act as one			+							
Advanced Eyefinity			+							

Timing Clients

From the Radeon Pro Advanced Settings, select Synchronization. Each port that has been connected will be displayed. They will always appear as a red cross at first, this is just to show that they are being registered in the Advanced settings.

radeon PRO	Radeon	Pro and AMD FirePro Advanced	Settings		Preferences
> Presets AMD Radeon Pro and AMD FirePro™ Synchronization AMD Evefinity™ Multi-Disenlav	Synchron Synchroni: Timing Ser	nization re video output across multiple displays using a synchr ver	onization modul	e.	?
Re-enable Eyefinity Display Group	None	ents			 Configure
		2010			
		Display	Display Group	V-Sync	State
		1./th_4K : AMD Radeon (TM) Pro WX /100 Graphics		60 Hz	*
		1.7th_4K : AMD Radeon (TM) Pro WX 7100 Graphics		60 Hz	×
		1.7th_4K : AMD Radeon (TM) Pro WX 7100 Graphics		60 Hz	×
		1.7th_4K : AMD Radeon (TM) Pro WX 7100 Graphics RJ-45(1) RJ-45(2)		60 Hz	×
	Identify External Co 2 0 0	Detect Detect RJ-45(1): Idle RJ-45(2): Idle House Sync: 720p 60.00 Hz			Configure
		Refresh		Discar	rd Apply

Check the displays you want to sync.

Click the 'Configure' button to select the sync source:

Configure Timing Client		
🧱 1.7th_4K : AMD Rad	deon (TM) Pro WX 7100 Graphics (60 Hz) Display	y Group 1
The settings for this display group.	s timing client are shared with other timing clier	ts that are connected to the same
Timing Signal Source:		
House Sync		~
Signal configuration		
Signal Type:	720p 60.00 Hz	Sync to field 1
Triggering Edge:	Rising	¥
Scan Rate Coefficient:	1:1	Y
Sync Delay (µs):		0 🌲
Use these settings fo	or all selected timing clients.	
		<u>O</u> K <u>C</u> ancel

Timing Source Signal

can either be the first display and sync from that or just the normal House Sync. The signal type is displayed here as resolution and refresh rate, e.g. 720p 60 Hz.

Triggering Edge

by default, Rising. Only critical in mixed-GPU scenarios where another default differs.

Scan Rate Coefficient

The EDID rate and Sync rate must match or (a feature of AMD GPUs) be a valid multiple. *Examples*: EDID is 1920x1080@25, House Sync must be 25 Hz (1:1) or 50 Hz (1:2).

EDID is 1920x1080@60, House Sync must be 60 Hz (1:1) or 30 Hz (2:1).

Check 'Use these settings for all timing clients'.

Click 'Apply'. The red crosses will all now be green ticks:

PRO	Radeo	on Pr	o and AMD FirePro Advanced	Settings		Preferenc
Presets 🥩	Synch	nroniz	ation			
AMD Radeon Pro and AMD FirePro™ Synchronization	Synchro	onize v	ideo output across multiple displays using a synchr	onization modul	e,	
MD Eyefinity™ Multi-Display	Timing	Serve				
Re-enable Eyefinity Display Group	N	one				~
						Configure
	Timing	Client	5			
			Display	Display Group	V-Sync	State
	~	1	7th_4K : AMD Radeon (TM) Pro WX 7100 Graphics	1	60 Hz	01
	~	1	7th_4K : AMD Radeon (TM) Pro WX 7100 Graphics	1	60 Hz	01
	~	1	7th_4K : AMD Radeon (TM) Pro WX 7100 Graphics	1	60 Hz	I
	~	1	7th_4K : AMD Radeon (TM) Pro WX 7100 Graphics	1	60 Hz	01
		📩 R	J-45(1)			
		2 R	J-45(2)			
	lden	ntify	Detect			Configure
	Externa	al Conr	ectors Status			
	10	🖲 R	I-45(1): Idle			
	2 0	Ø R	I-45(2): Idle			
	0	н	ouse Sync: 720p 60.00 Hz			
			Refresh			
		2.85				

All ports are now synced together.

Restart the server, then navigate back to the Advanced Settings and check that the connections are still present.

House Sync

House sync is shown along bottom, this is updated as soon as 'Refresh' is clicked, and the House Sync indicator will flash green. The LED on the S400 card in the server will now be illuminated steady green. So if the incoming signal from the generator changes, the House Sync will reflect this.

Genlock Polling via DeltaMonitor

Remote server control via the Stack web interface enables AMD graphics sync systems to be addressed remotely. By enabling DeltaMonitor's <u>Genlock Polling</u> you can ensure that any temporary loss of sync signal can be re-established automatically.

Lost Sync?

Genlock can be lost if the signal is interrupted (for example if a cable falls out or the sync generator rate is changed): this S400 LED will change from steady green to a slow flash.

If genlock is lost, check all connections and sync generator settings. Restart the server to re-grab the genlock settings.

Note: It is good practice to check all linked servers if there has been genlock loss. If it was due to the source sync generator, genlock will be lost and need resetting on all master and slave servers.

Pico AMD Radeon

Note that we only support active adapters for the Pico.

Emulating and grouping AMD Radeon displays with the Pico is slightly different. From Windows Start (or right-click the desktop), open AMD Radeon Settings:



Display

Select Display and then EDID Emulation:

AMDZ RADEON SETTIN	G S				? ☆ _ □ ×	
	Displays		EDID Emulation			
Manage EDID emulation for display connec	tions					
Configuration outside of official A	MD Specifications is not co	wered under AMD product wa	irranty.			
Remove All Emulations Removes all EDID emulations	Emulate All Displays Emulates all displays	s to their EDID				
+ AMD Radeon(TM) Vega 11 Graph	cs					
A Gaming	► Video	© Connect	Display	🕅 System	••• Advanced	

Emulate all four connections, or select a port to configure by expanding the Radeon bar:

AMDZ RADEON SETTIN	I G S		? ☆ _ □ ×
	Displays	EDID	Emulation
Manage EDID emulation for display conne	ections		
Configuration outside of official	AMD Specifications is not covered under AMD produ	ct warranty.	
Remove All Emulations Removes all EDID emulations	Emulate All Displays Emulates all displays to their EDID		
- AMD Radeon(TM) Vega 11 Grapi	hics		
4 4	21		
Connection 4 (DisplayPort) Not Connected	E Connection 3 (DisplayPort) E Not Connected	Connection 2 (DisplayPort)	Connection 1 (DisplayPort) Connected (SAMSUNG)
A Caming	► Video 🔮 Connect	Display 🚳	* System •••• Advanced

For the required connection, click the three dots and then 'Emulate'. Reading across, you have the Destination, the Connection and the graphic, with highlights in green (connected), blue (current selected) and black (not connected). Click 'Source' for the EDID of the selected connection:

AMDZ RADEON SETTINGS			? ☆ _ □ ×		
Dis	plays	EDID Emulation			
< 🗲 Emulate					
Create and configure EDID Emulation connectio			√ Save		
EDID emulation may effect any existin Eyefinity. Any existing EDID emulation	g AMD Eyefinity configurations that include em settings for the selected connections will be los	ulated displays. To minimize this impact, t.	configure EDID emulation before configuring AMD		
Source	Source Connection Select a connection				
Destination GPU 0 - AMD Radeon(TM) Vega 11 Grap	Destination Connection Connection 2 (DisplayPort)	4 3	² L		
Destination Connection Properties Connection: Display Port, Lanes: 4, Bit Rate: 2.7	GHz				
A Gaming	► Video @ Connect	Display	🐨 System •••• Advanced		

'Source Connection' changes to 'Source File'; click and browse to select the txt format EDID file you want.

Next, Click on Destination Connection Properties, and make sure the Bit Rate is correct. This needs to be 5.4 GHz for anything above WQHD (2560 × 1440):

AMDZI RADEON SETT		3 ☆ _ □ ×				□ ×		
	Displa	ys			EDID Em	ulation		
< 🔆 Connection Proper	ties							
Connection Display Port	~	Lanes 4	~	Bit Rate 2.7 GHz	~			
				1.62 GHz				
				2.7 GHz				
				3.24 GHz				
				5.4 GHz				
f Caming	1	Video	Connect	Display	@ / 9	System	••• Adv	anced

Now step back to the 'Emulate' page (there is no user confirmation) and click 'Save' on the right:

AMDZ RADEON SETTINGS				? 🛪 🗕 🗆 🗙
D	splays		EDID Emulation	
< 🔆 Emulate				
Create and configure EDID Emulation connecti	ons			🗸 Save
EDID emulation may effect any existi Eyefinity. Any existing EDID emulation	ng AMD Eyefinity configurations that include em n settings for the selected connections will be los	ulated displays. To minimize this impact, it.	configure EDID emulation	before configuring AMD
Source	Source File C:/Users/7thSense Design Ltd/Desktop/			
Destination GPU 0 - AMD Radeon(TM) Vega 11 Grap	Destination Connection Connection 2 (DisplayPort)	4 3	2	1
Destination Connection Properties Connection: Display Port, Lanes: 4, Bit Rate: 5	4 GHz			
A Gaming	Video 🕲 Connect	Display	⊘ System	••• Advanced

Gaming

For UHD or higher, there is just one setting here. Click 'Gaming' and in Global Settings, switch on 'Triple Buffer':

AMDA RADEON SETT	INGS					? 🌣 🗕	□ ×
<							
	Global Graphics			Performance I	Monitoring		
Configure graphics settings. Custom	settings configured in profiles override set	tings on the Global Graphics p	bage			more	🛱 Reset
Anti-aliasing Mode Vise application settings	Anti-aliasing Method 🗸 🗸	Morphological Filtering Off		Anisotropic Filtering Mode Use application settings		Texture Filtering Quality Standard	~
Surface Format Optimization	Wait for Vertical Refresh Off, unless application specifi	OpenGL Triple Buffering On	•	Shader Cache AMD optimized		Tessellation Mode AMD optimized	~
Chill Off							
A Gaming	► Video	📽 Connect	Di Di	splay 🞯 S	System	••• Advar	nced

Eyefinity Display Grouping

Having more than one connection now adds the 'Eyefinity' button.

The AMD driver for Pico currently only supports a single horizontal row of displays. [October 2019]

Click 'Eyefinity' and then on 'Quick Setup' to arrange the displays.

AMD	A RADEON SET	TINGS				3) ☆ _ □ ×
Quick S	etup is complete. Display gro	oup has been created					more
Discard	Ū	Arrange Displays	📮 🛛 Try Advanc	ed Setup 🥕			
A	🕅 Gaming	► Video	®® Connect	Display	🚥 Eyefinity	©≁ System	••• Advanced

Click a display to identify the actual output that is lit up blue:



The final display needs no identification.

Close Radeon Settings and restart the Pico.

Document Information

Date	Document edition	Software version	Revision Details	Author/Editor	
March 2016	1	Windows 7	New release	Helen Ward	
August 2017	2	Windows 7	New edition	Andie Davidson	
July 2018	3	Windows 7 and 10	Additions for Radeon Pro WX series cards under Windows 10; dual GPU setup (Win 7)	Andie Davidson	
September 2018	4	Windows 7 and 10	Note on troubleshooting EDID with scaling option before grouping	Andie Davidson	
October 2019	5	Windows 7 and 10	Pico AMD configuration added	Andie Davidson	
July 2021	6	Windows 7 and 10 Radeon Pro 18.Q2.1	Inclusion of Radeon Pro VII	Andie Davidson	
December 2021	7	Windows 10 Radeon Pro 21.Q1.2	Addition of 2021 AMD driver	Andie Davidson	
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