TORSIONSOFT

Torsion Multi-Projector Display System

Quick Start Tutorial

December 16, 2014

http://www.edge-blending.com/

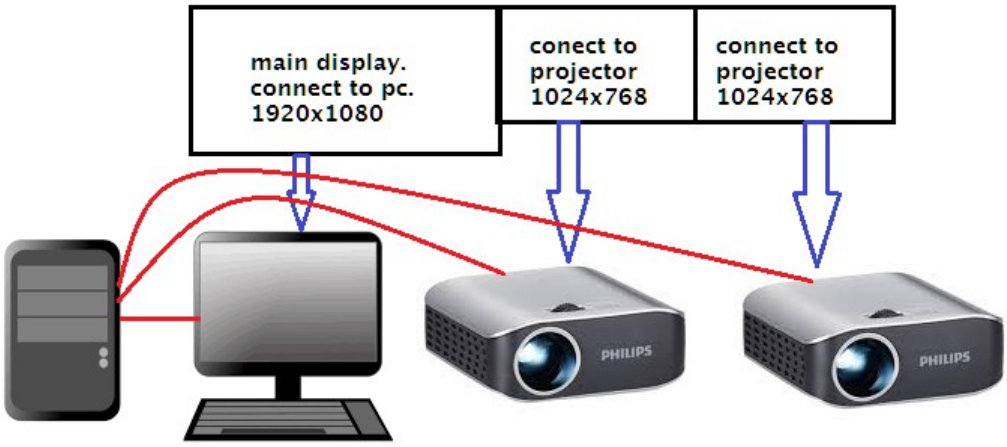
1. Installation

1.1 Hardware & Software Configuration

- **Hardware**:

PC or laptop with Multi-Core CPUs, at lease 256M memory. nVidia or ATI video card which support Dicrex 10, the video card should be able to support at least **three video outputs**.

- **Video outputs**:
  - Connect the main output to a monitor with 1920x1080 resolution.
  - Connect second & third outputs to two projectors with 1024x768 resolution.



- **Software**:

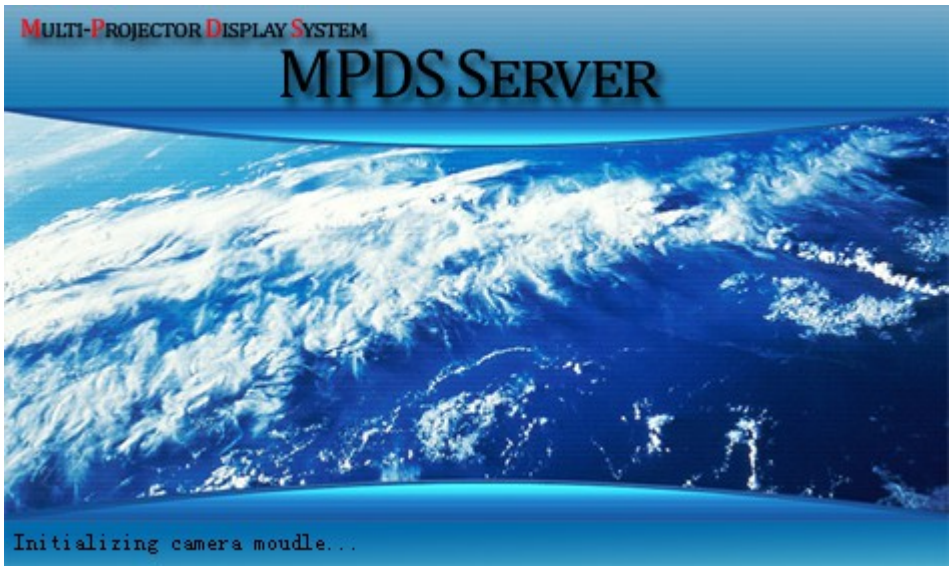
Windows 7 with Aero desktop enabled.

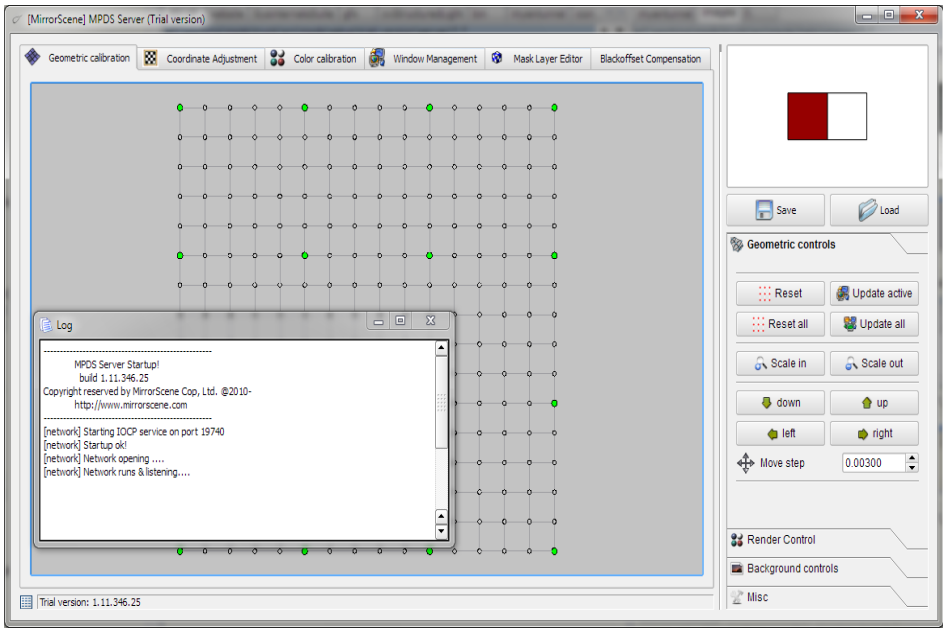
Goto http://www.edge-blending.com/ and download the trial version and extract it to a specific directory, let's suppose the directory is c:\blend, then you will see three sub-directories: c:\blend\controll, c:\blend\server, c:\blend\torsion.

2. Start

2.1 Start Server

Goto **c:\blend\server** and run **server.exe**:



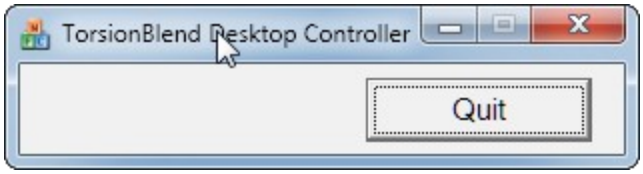


2.2 Start Controller:

If you are running 32-bit windows, please goto c:\blend\controller\controller_32,

If you are running 64-bit windows, please goto c:\blend\controller\controller_64,

double click controller.exe, then wait a while and you will see a popup window like this:



2.3 Start Torsion:

Goto c:\blend\torsion\bin and run torsion.exe.

3. Calibrations

There are three calibrations.Geometric calibration, Coordinate calibration and Color calibration. All the calibrations can be done on server side.

3.1 Geometric Calibration

The goal of geometric calibration is to make the grid horizontal lines and vertical lines looks perfect and the whole display content looks seamlessly.

Now on server program, click the tab “Geometric” to enter geometric interface as below:

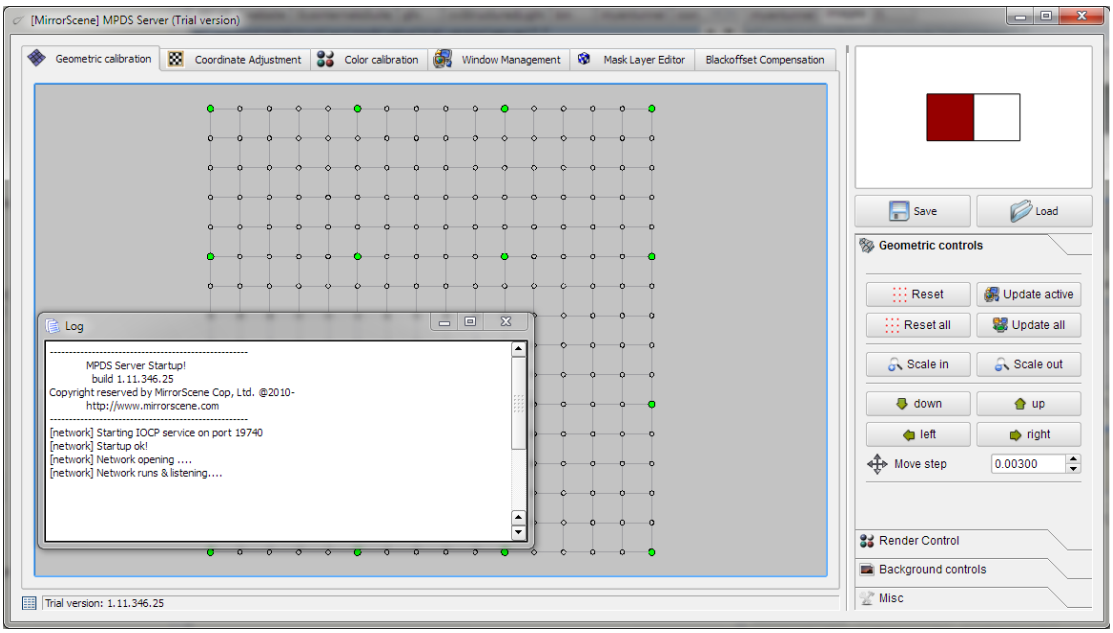


Figure 3.1-1 Geometric Calibration Window

3.1.1 Select Projector

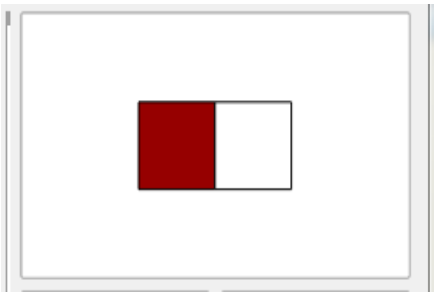


Figure 3.11-1 Select Projector

Each rectangle present a project, use mouse to click the rectangle to select the projector, the red one present the current selected projector.

3.1.2. Change Render Setting

Step1. Enable wareframe rendering mode: Click Render Control Page On the right part, then select *Wareframe mode* option like bellow:

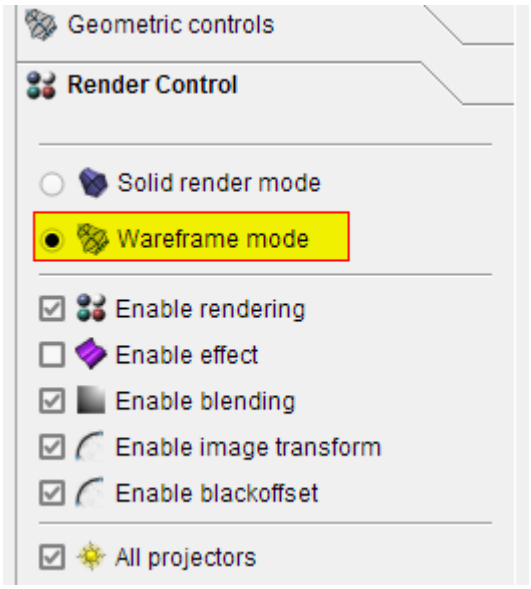


Figure 4.12-1 Render Control Panel

Step 2. Goto Geometric control page and click button Update all, Shows like bellow:

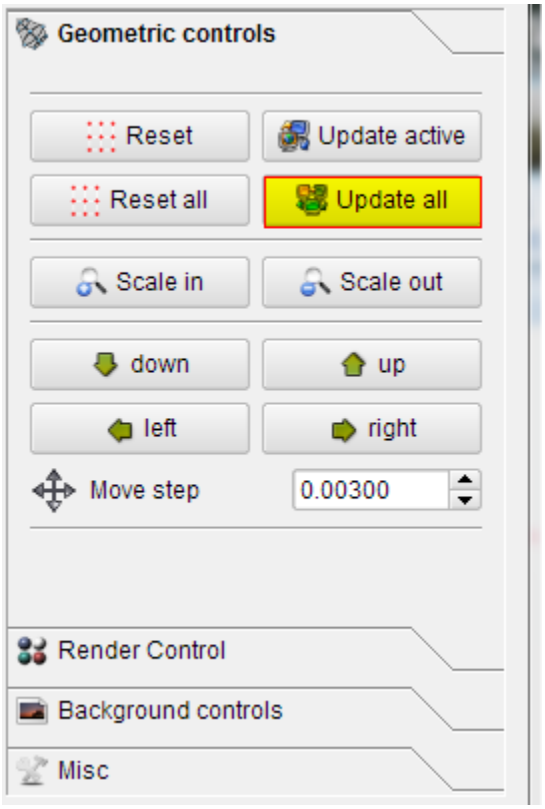


Figure 4.12-2 Geometric Control Panel

After done above steps, you will get the output like this:

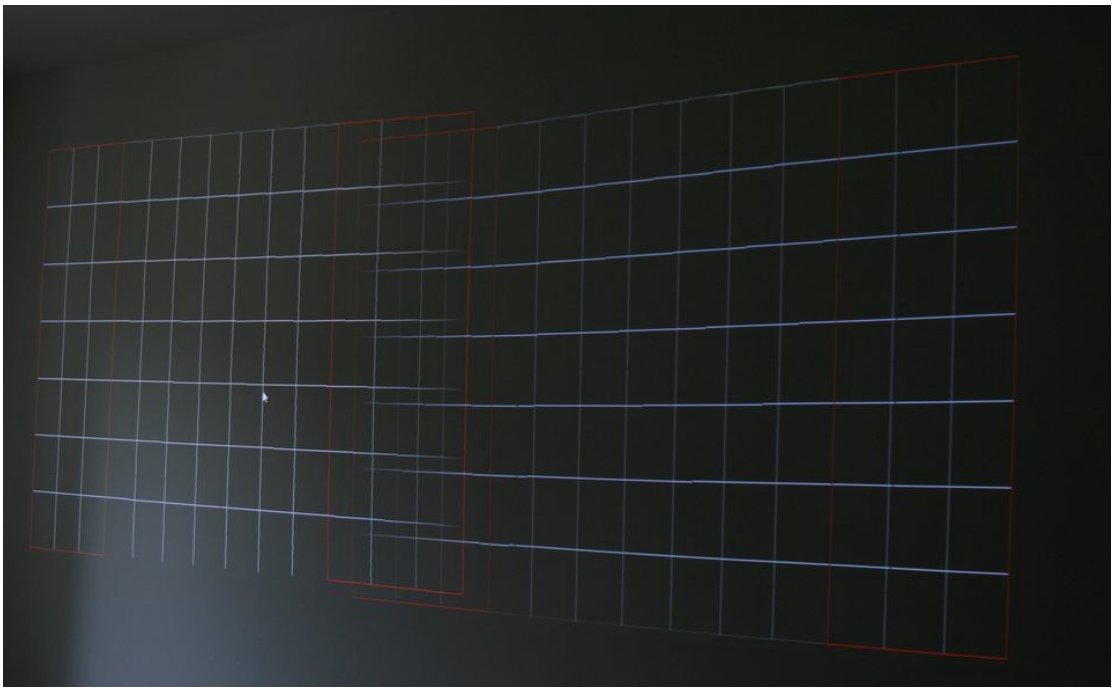


Figure 3.1-3 Ready to **Geometric**

3.1.3 Geometric Adjustment

Now check the window area of geometric calibration, you will see some green points and some white points. Green points are control points and white points are regular mesh points, these white points are controlled by green points, so first select a green point by mouse and move it by using arrow key on keyboard, like use left arrow key to move left , press right arrow key to move the point to right direction. During the movement, you will see the projected output is changed as the same time.

Now it's time to edit mesh, first select the first projector, the highlight area bellow include the right part of control points, they will be rendered as red color in output.

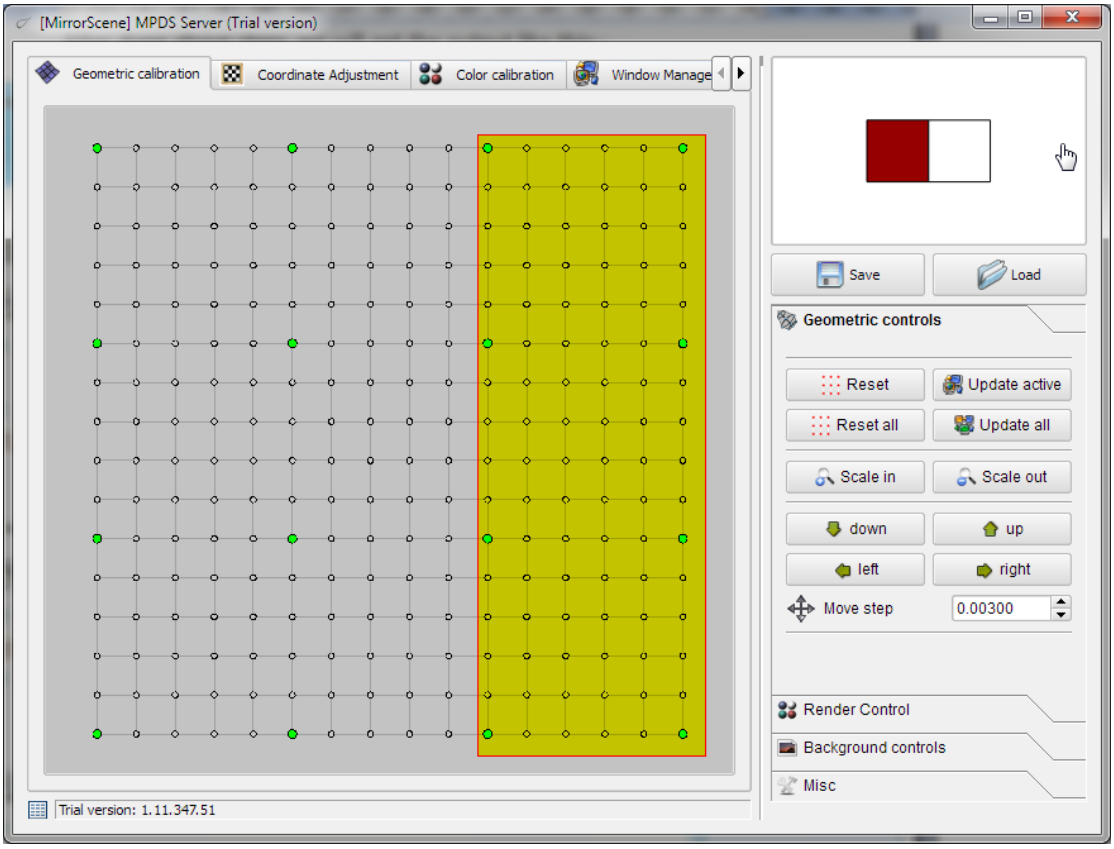


Figure 3.1.3-1

Tip: If you have selected one point

Arrow keys, Left, Right, Up, Down, will move the selected points.

Ctrl-Left : select the next left point;

Ctrl-Right : select the next right point;

Ctrl-Up : select the next up point;

Ctrl-Down : select the next down point;

Step 1.Now select one of control point (green point) to move, try to make the red area of output looks correct and full fill the public area of two projectors as possible as you can, now the mesh maybe like this :

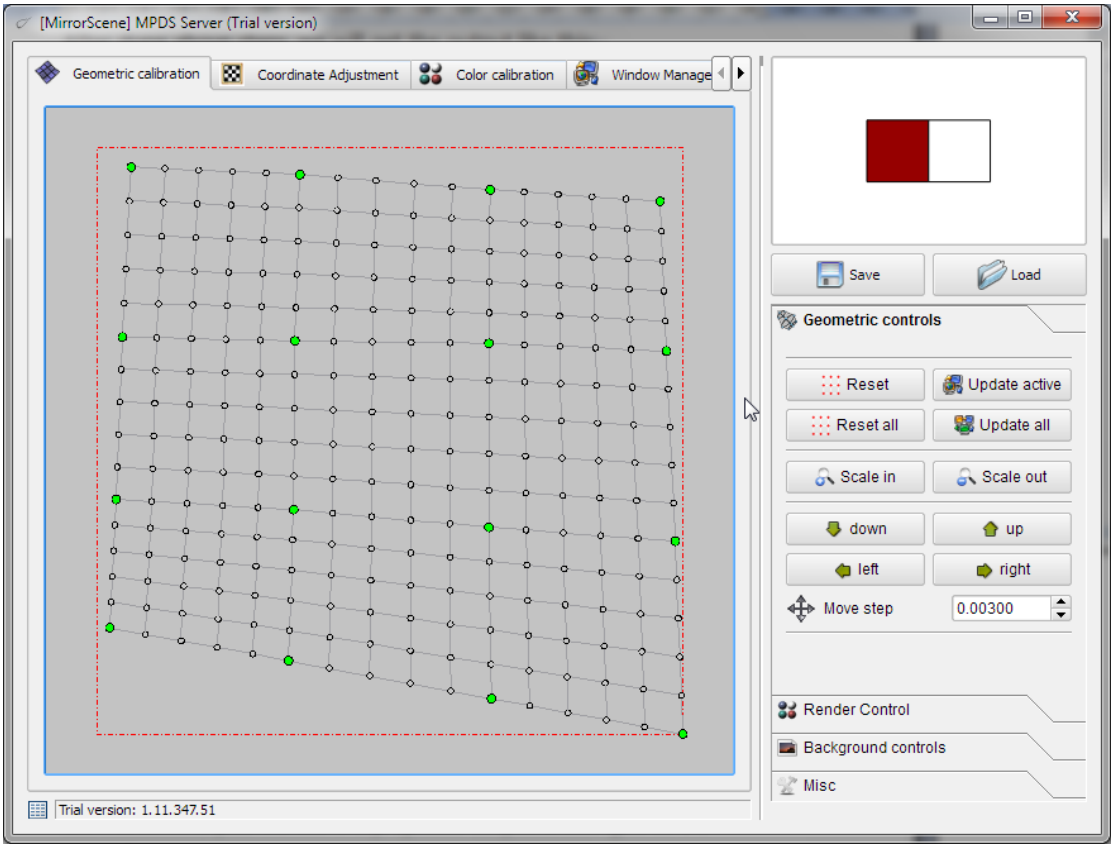


Figure 3.1.3-2

Step 2. Now select the second projector and do the same works like above, In the output of display, make the middle two red areas match together. Now the output looks like this:

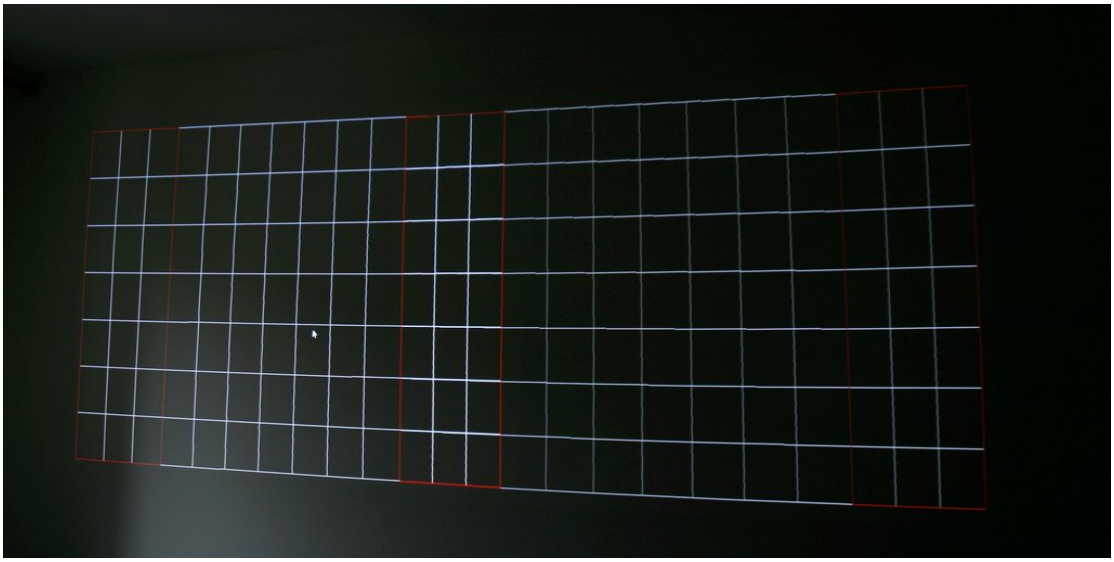


Figure 3.1.3-3

Note: if you can't make the two areas match by only adjust control points, you can select the corresponding white points and move them to the property position.

1. Each projector's output contain two red areas. **The right red area of the left projector should coincide with the left red area of right projector.**

2. After finish the adjustment on middle red area, try to adjust another area to make it as same size as the middle red area.

3.2 Coordinate Calibration

Click Coordinate Calibration Tab to enter coordinate calibration interface:

Figure 3.2-1 Select Coordinate Adjustment

The interface looks like this:

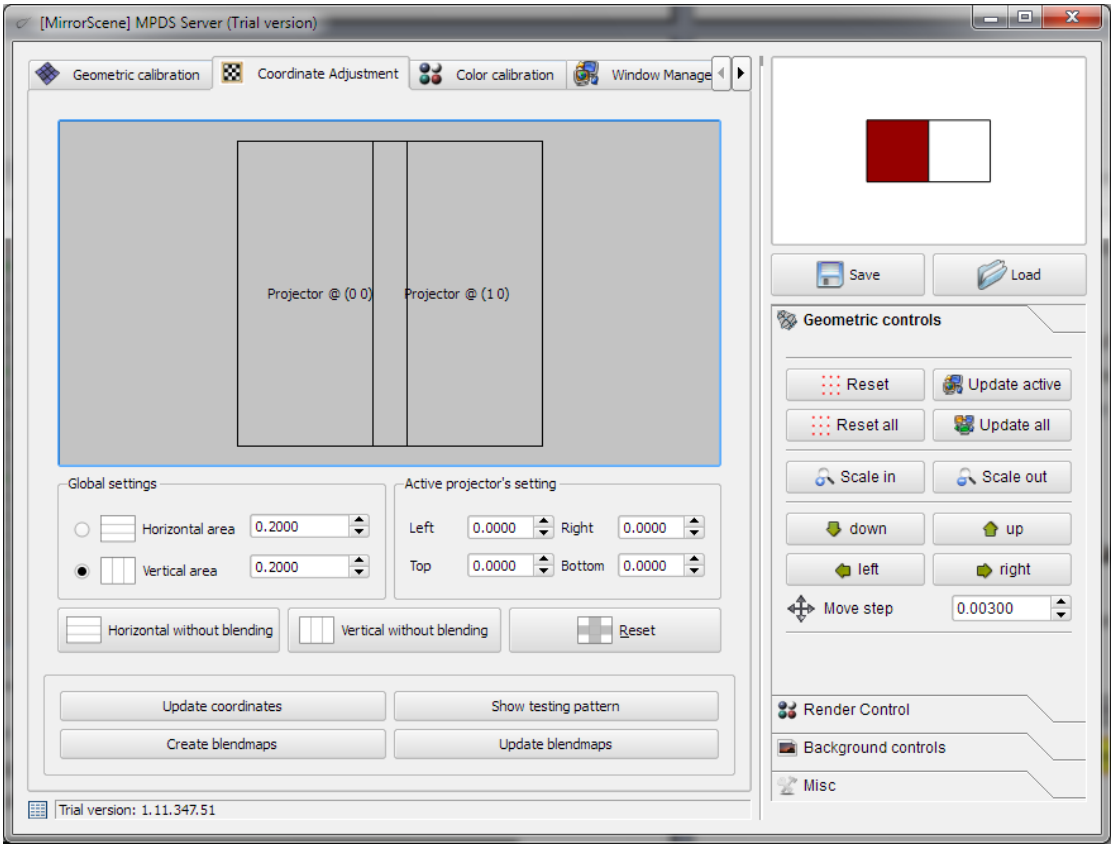


Figure 3.2-2 Coordinate Adjustment Window

Step 1. Change render setting from wareframe mode to solid mode by click Render Control page and select *Solid render mode* option, like bellow:

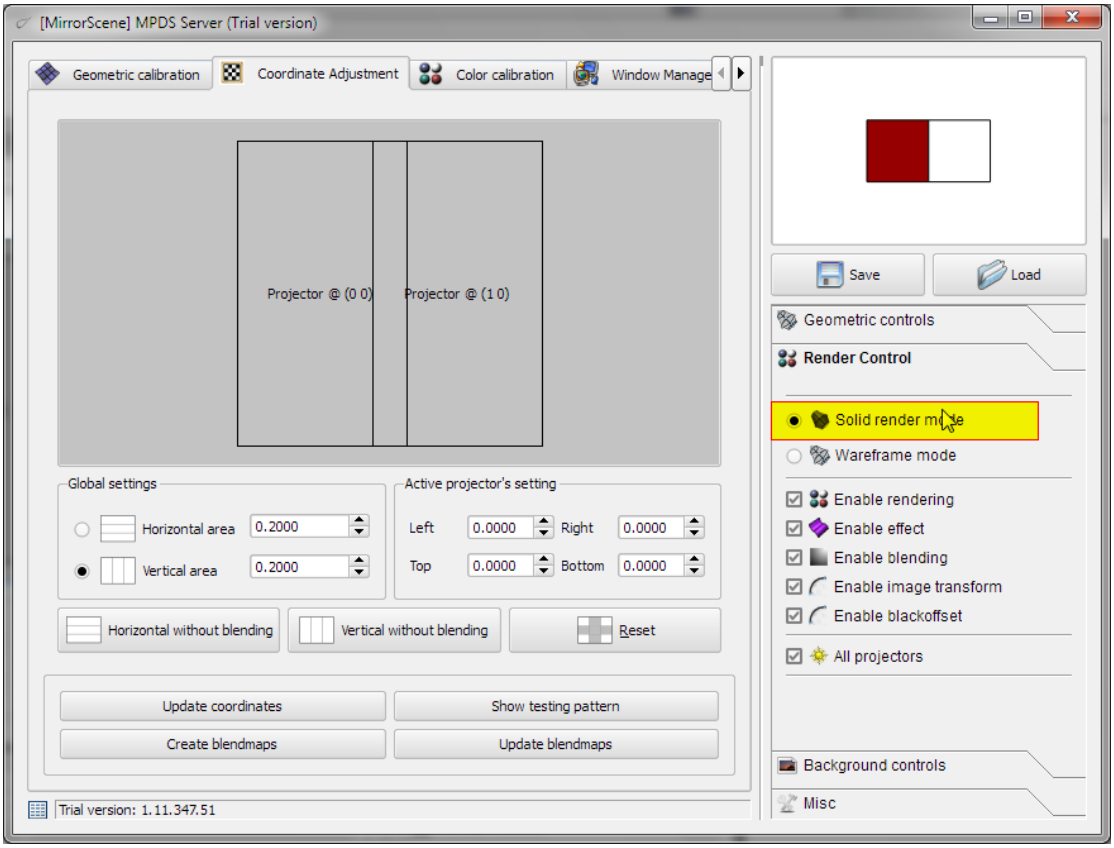


Figure 3.2-3 Select Solid Render Modle

Step 2. Now Click button **Update Coordinate**, then Click button **Show testing pattern**, now the output looks like this:

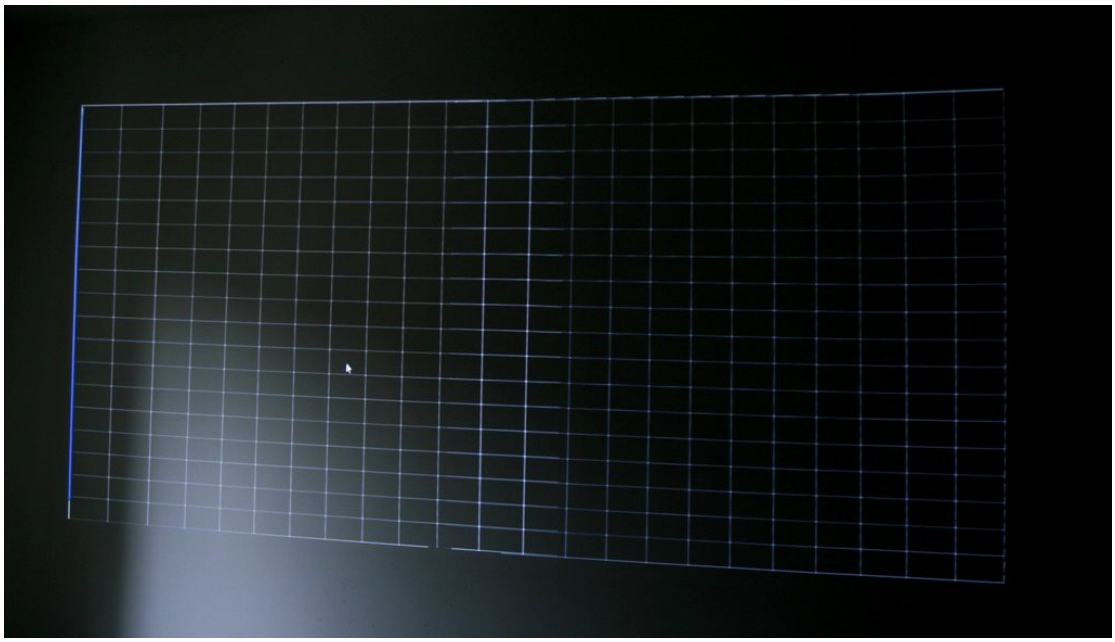


Figure 4.2-4 Start to Coordinate Adjustment

Step 3. Try to adjust Vertical area value to make the grid looks uniformly.

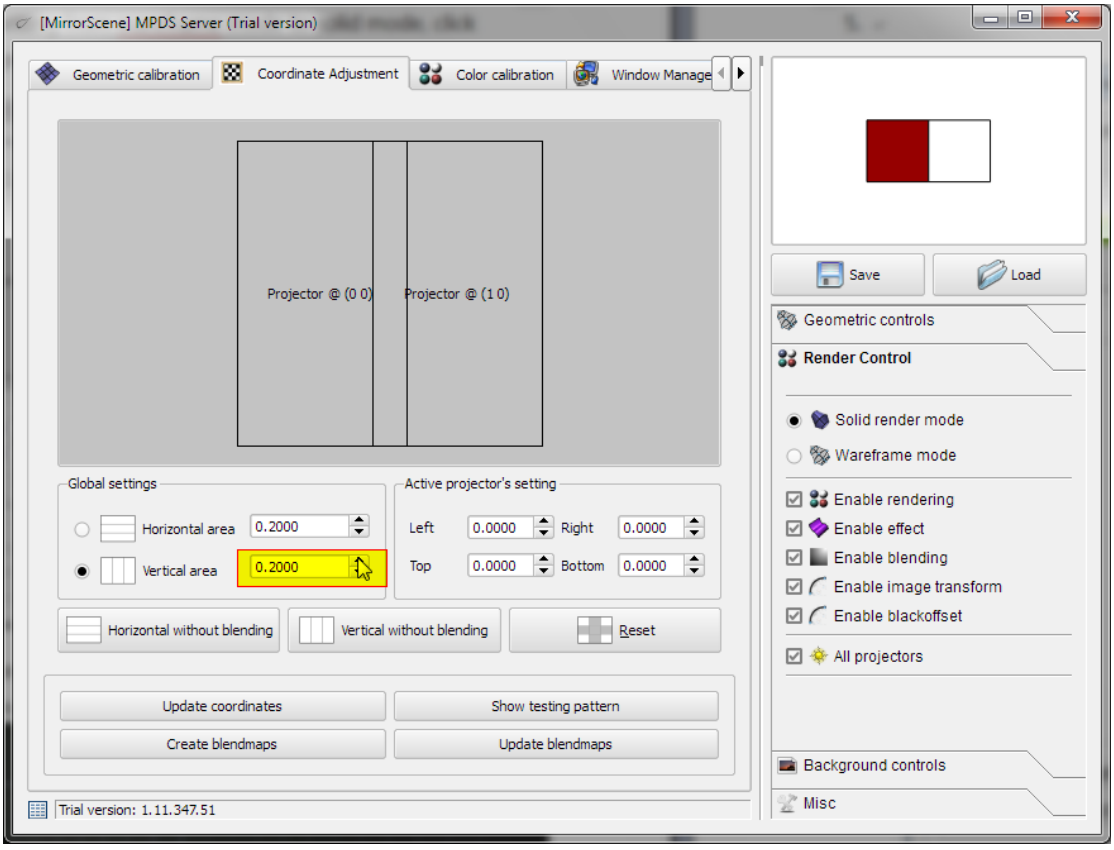


Figure 4.2-5 Adjusting Vertical Area Value

Step 4. Now the grid looks good, Click button **Create blendmaps**, after a few seconds, a message box will popup to inform the process has been finished:

Figure 4.2-6 Message Box of Blending Map Generated

Step 5. Then Click button Update blendmaps, then a message popup like this:

Figure 4.2-7 Message Box of Update Blending Map

Step 6. Now you have finished the coordinate calibration step. Goto next step.

3.3 Color calibration

Step 1. Click **Color calibration** tab to enter color calibration interface like bellow :

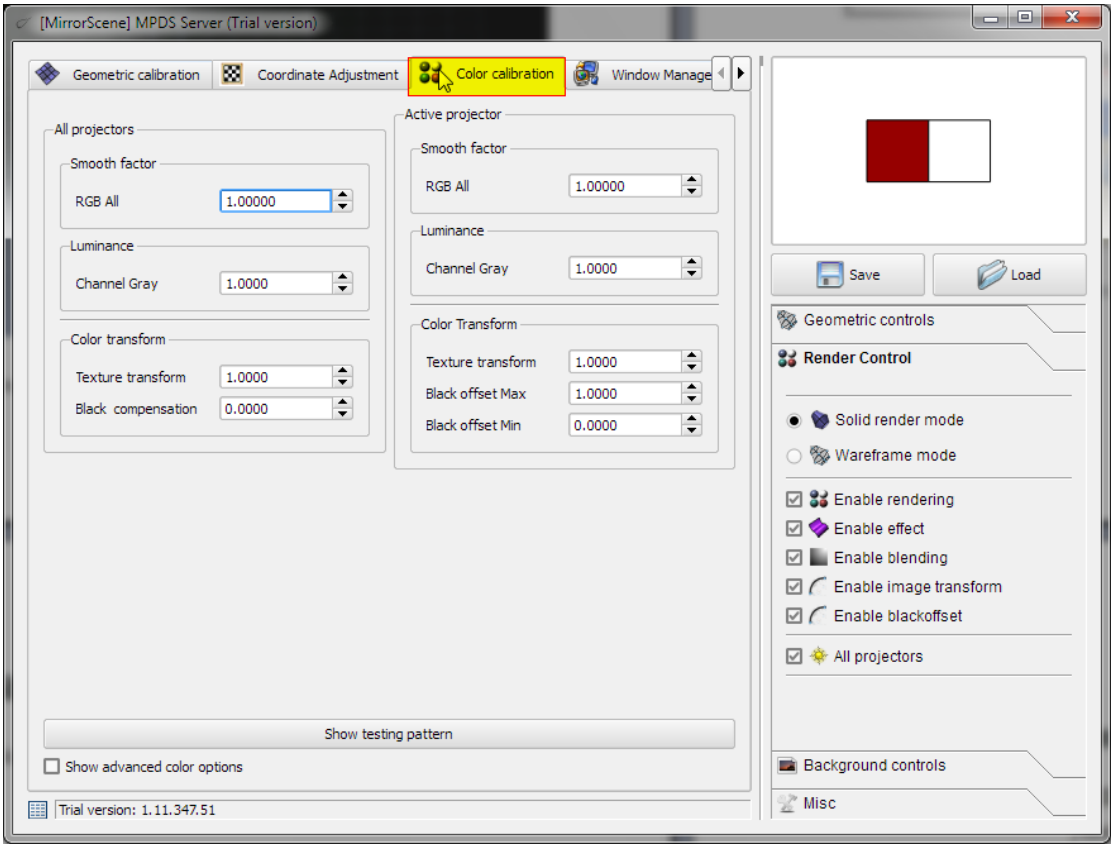


Figure 4.3-1 Color Calibration Window

Step 2. Click Background controls page to change a background image like this:

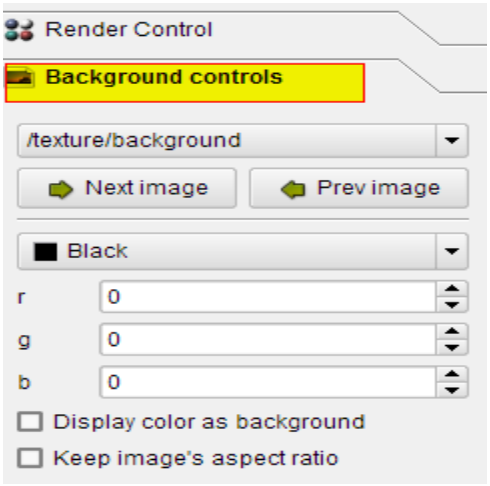


Figure 3.3-2 Background Controls Panel

Choose /texture/testing/color from combo list.

Step 3. Then Click button Next image until the output show image like this:

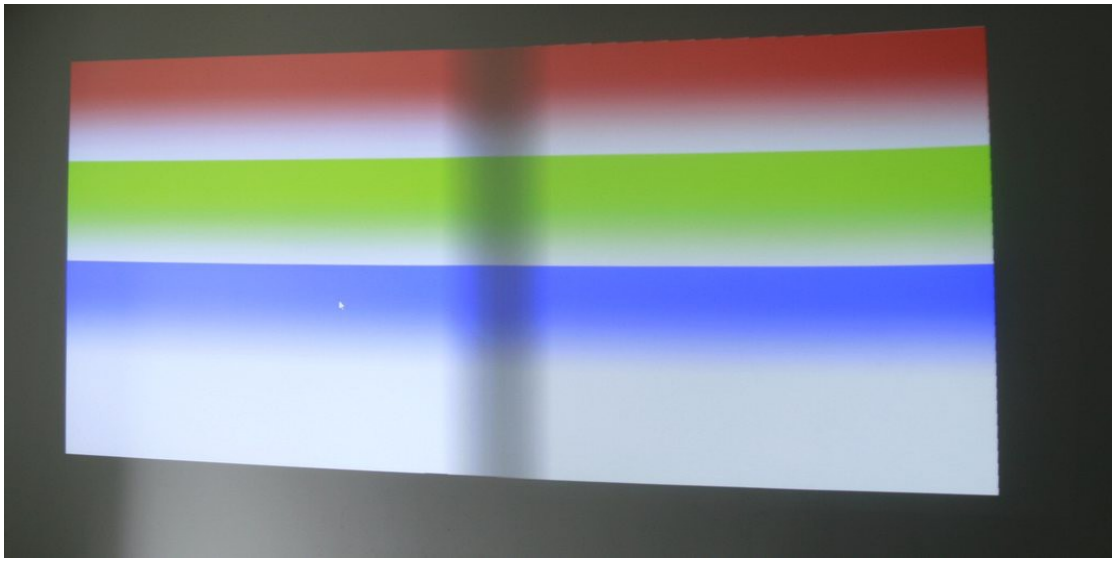


Figure 3.3-3 Photo of Color Calibration

Step 4. Back to color calibration interface, try to adjust smooth factor value:

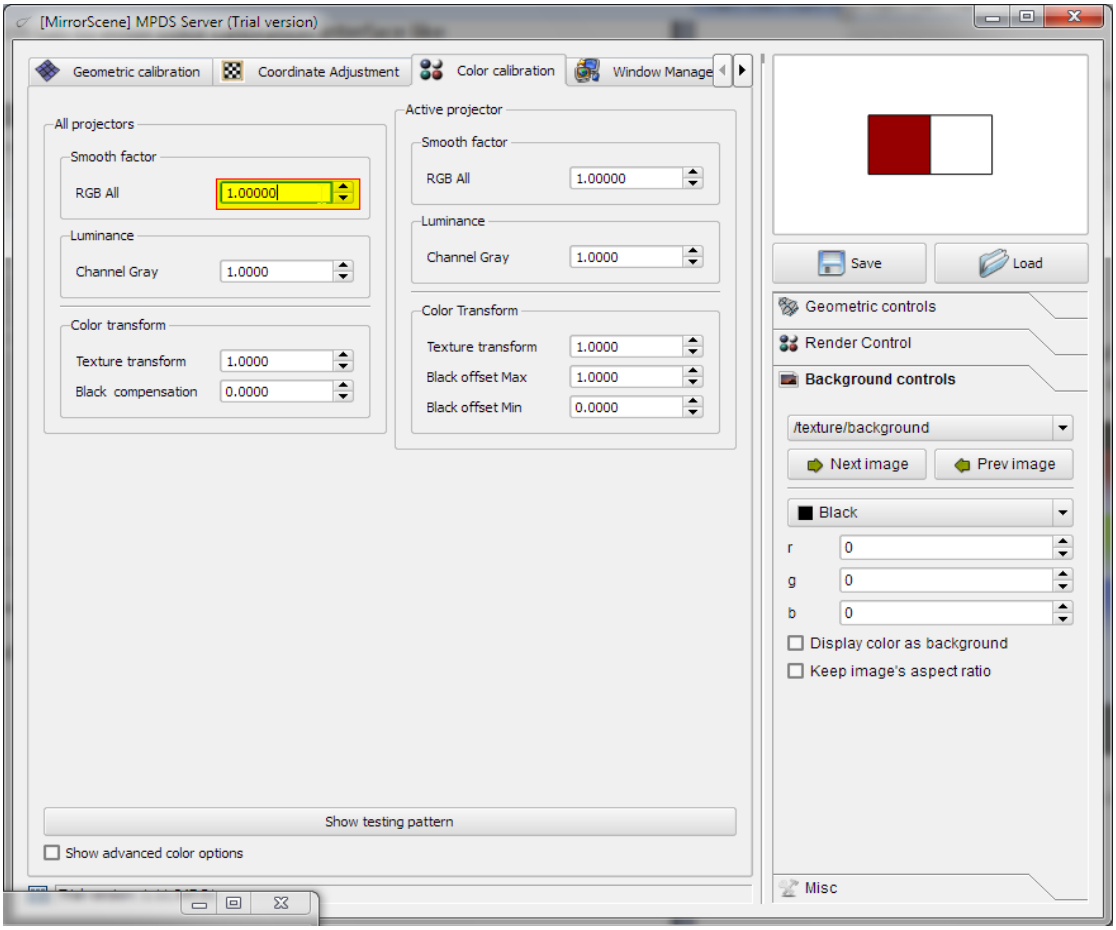


Figure 3.3-4 Adjust Smooth Factor Value

Adjust it and check output till you get a satisfied result. most of case, 1.0 will works fine,

If the white part shows too light, change Luminance value a bit

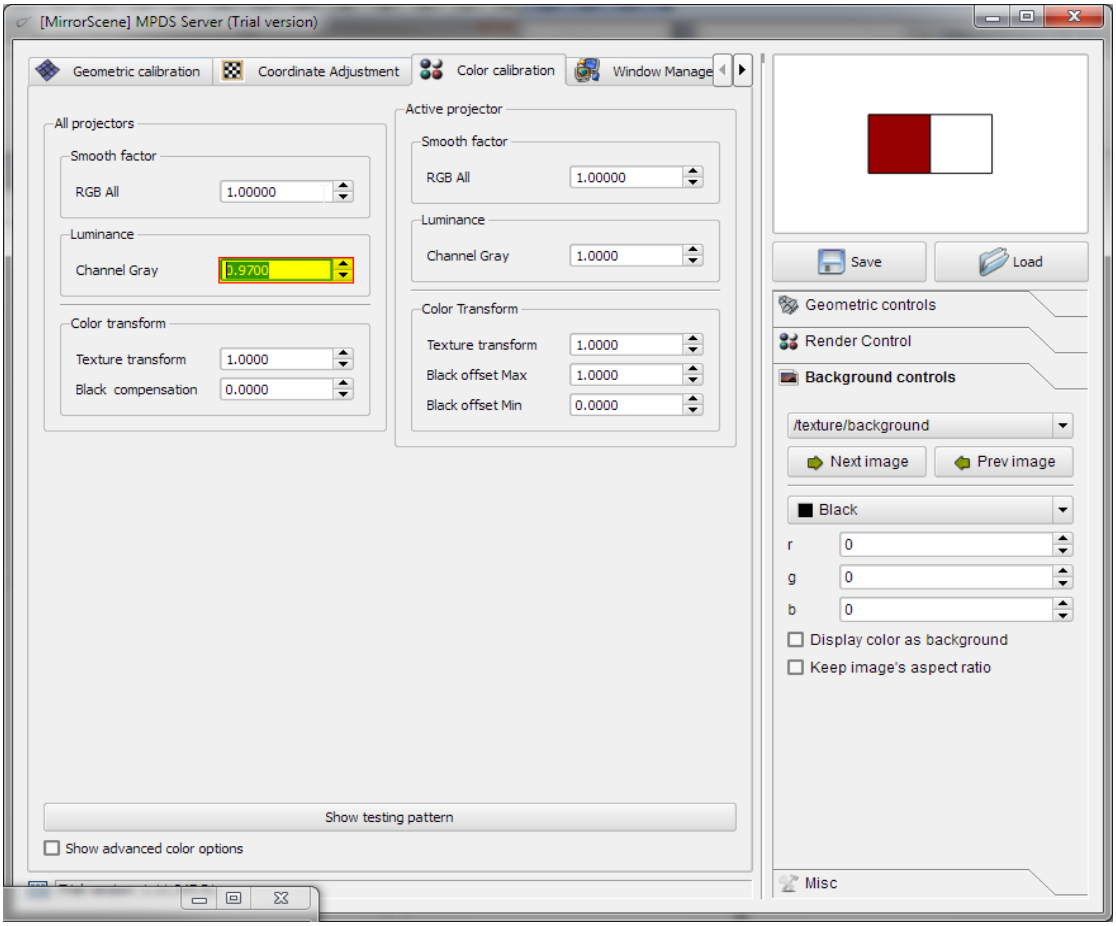


Figure 3.3-5 Adjust Luminance value

Adjust the two parameters above, until the output looks seamless :

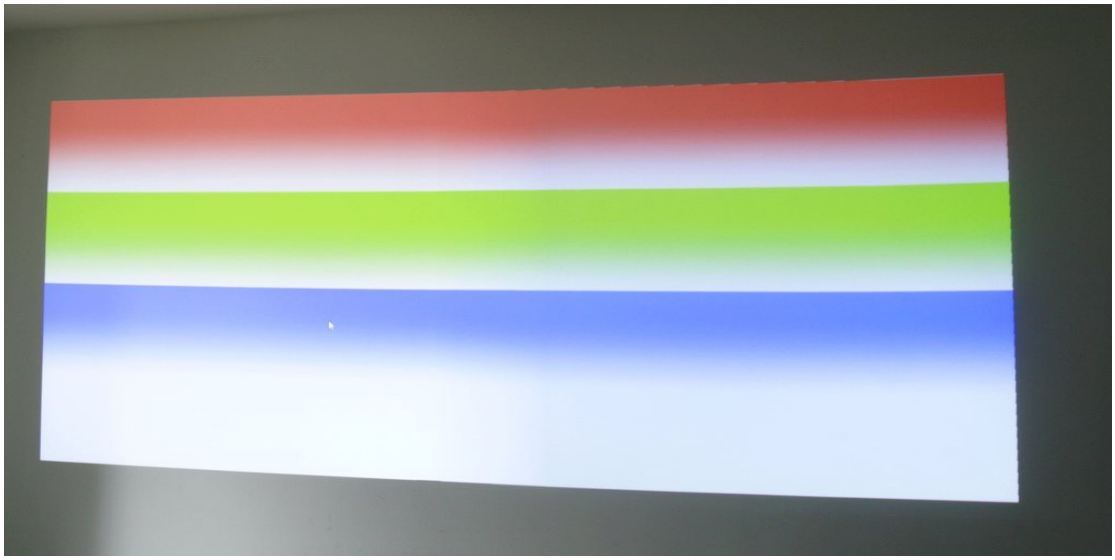


Figure 3.3-6 The Output of Color calibration

Step 5. Testing more. Change background image use above way to test the blending result.

Step 6. Save your data. After finish all the steps above, it's time to save your work, so next time when torsion startup, it will load and use these parameters automatically. Click button Save and type a file name, after that, server will save a file to save related data and torsion will save the parameters on its own location.

Note: The trial version dose not contain save or load function.

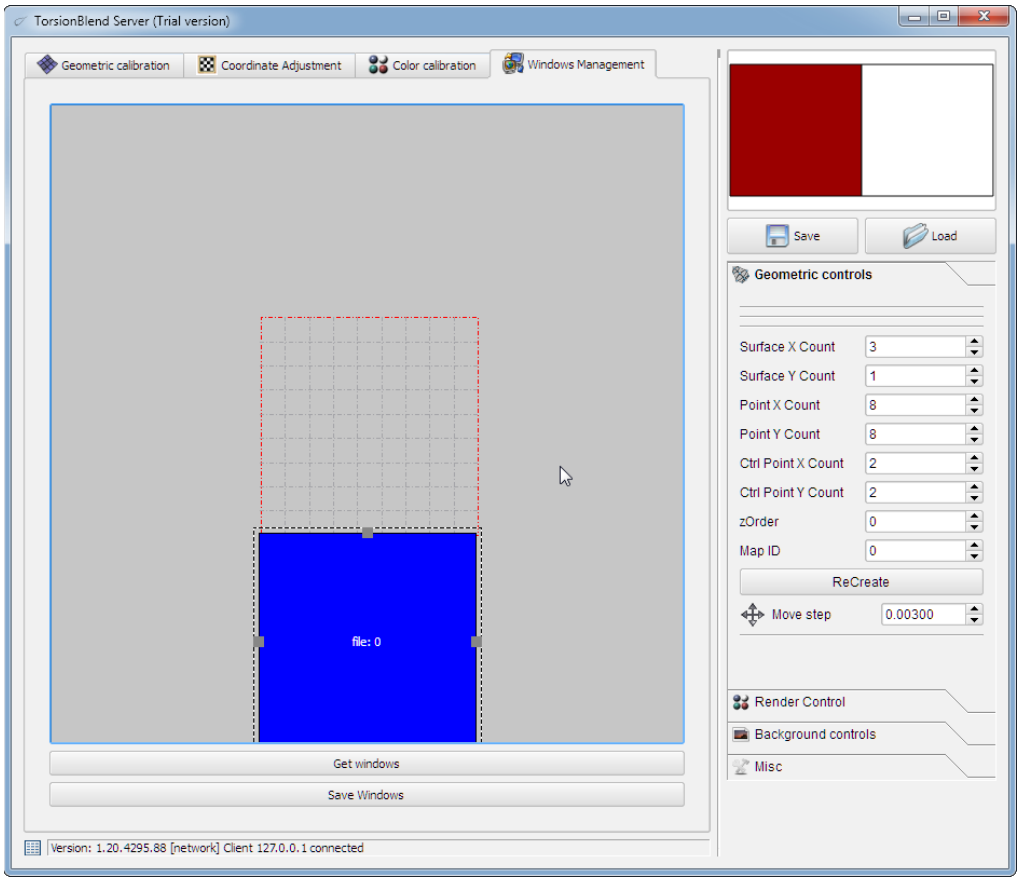
Chapter 4.

Windows Management

Click tab Window Management to enter window management interface.

The red area means the whole display area. use mouse scroll wheel to zoom in or zoom out.

Click button "Get Windows", a window will show up. Now double click the window, it will full fill on the display area.



At same time, the windows desktop will show on. Click button "Save Windows", then the window's information will be saved on client side, next time these information will be loaded by torsion automatically.

TorsionBlend Multi-Projector Display System Quick Start Tutorial