# Setup autostereoscopic display

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# Hardware

- 1. Connect 3D Global's autostereoscopic 3D display device via HDMI or DP cable to the PC
- 2. Connect the tracking camera via USB cable to the PC
- 3. Find the Autostereoscopic Display ID. It should be on the display's back side and looks like 05F, 05D, S1D, 05G or something similar.



# Software

### 3D Global View Optimizer installation

Install the latest version of the 3D Global View Optimizer software and allow the installation of the camera driver.

# DALS application installation

Install DALS for stereo configuration:

1. Run the DALS installer

2. Select one of DALS stereo configurations to install. Then, press Next button:

🔀 Setup - Digital Adaptive Light Scope 1.6.7.4	5		-		$\times$
Select Components Which components should be installed?					
Select the components you want to install; de install. Click Next when you are ready to cont	ear the compor tinue.	nents you	do not v	want to	-
DALS++ Stereo (motorized Z-axis)				~	
[	< <u>B</u> ack	<u>N</u> ext	>	Can	cel

3. Select your Autostereoscopic Display ID in the "Autostereoscopic display config pack" list of the next page. If you don't see your ID, uncheck the "Autostereoscopic display config pack" checkbox. Then, press Next button.

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5. Proceed DALS installation.

# Manual configuration files setup for displays which ID are not included to the installer

If you did not find your Autostereoscopic Display ID in the list of IDs included to the installer:

- 1. Find the folder with config files for the Autostereoscopic Display ID here: https://www.dropbox.com/sh/17bm9mt81gqbli5/AADJpreFmNRHmDayjVcZ2vava?dl=0. For example, for S1D it is "13 S1D".
- 2. Copy all files from this folder to the '%PROGRAMDATA%\OctoNus Software\Digital Microscope' folder.
- 3. Find a copied file with '.reg' extension. Run it and then press Yes. It will update the Windows Registry to add information about the autostereoscopic display.

#### Adjust autostereoscopic visualization to achieve best stereo quality

If the stereo on your workstation is configured incorrectly, you will not be able to see a stereo image via the DALS app: ghosting will be very noticeable, left and right pictures will not be combined into one 3D image etc.

## Adjust stereo for displays with a head tracking camera

To configure autostereoscopic visualization with head tracking, you should do the following:

- Run DALS on regular display
   Open a stereo test, for example, the Depth Test (Main menu: Help Stereo Tests Depth Test) Stereo Viewer 4.8.13.64 x64



if you don't see the right panel, just close the 'depth test' image and open it again

#### 3. Activate AutostereoscopicS1D full screen mode with checked Head tracking flag:

a. Select the AutostereoscopicS1D mode in the list of available stereo modes

	Dis	play			
			Stereo —		
		Anaglyph (Red/Blue)		-	t)
		Anaglyph (Red/Blue) Interlaced (Polarized) Horizontal Anamorphic Vertical Anamorphic Graphics Driver Virtual Reality Autostereoscopic S1D			
					0 px
		Ster	eo view offset		
		I	Mono mode -		
b.		■ Left	Right	🗌 Both	

c. Press the Stereo button and press the Full screen button:

Display	Display	Display
Stereo	Stereo	Stereo
Autostereoscopic S1D 🔹 🗭	Autostereoscopic S1D 🔹 🔁	Autostereoscopic S1D 🔹 🔁
1 Stereo	You should use this stereo mode only in full-screen mode	You should use this stereo mode only in full-screen mode
Stereo frame distance	Stereo frame distance	Stereo frame distance
0 px	0 px	0 px
Stereo view offset	Stereo view offset	Stereo view offset
	o	0
Head tracking	Head tracking	Head tracking
Mono mode		
Left Right Both	💽 Left 🗌 Right 🗌 Both	🖸 Left 🗌 Right 🔲 Both

- d.
  e. The video data will be displayed on the second autostereoscopic display in full screen mode
  f. Check the Head tracking checkbox:
  Display

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Stereo	
Autostereoscopic S1D 🔹 🔁	
Stereo 📮 Full screen	
You should use this stereo mode only in full-screen mode	
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0 px	
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o	
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Mono mode	
🖸 Left 🗌 Right 🗌 Both	
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ට් 🔂 📑 Fit Fill 🖂 🔲 100	* <b>-</b> Q

4. Open **3D Global View Optimizer**. Check if head tracking works when position of your head is inside the shaded area:



- Also, please check these parameters:
  - a. Media Player status is connected
    b. HQ mode is enabled

  - c. **Camera** is connected d. **FPS** 35





b. Select the **Steady Tracking** item from the list of available tracking modes





d. Adjust the View offset to see the right stereo using the Move Views Left and Move Views Right buttons: 3D Global - View Optin



## Adjust stereo for displays without a head tracking camera

Procedure is the same, but:

- Uncheck "Head tracking" checkbox in the OSV
   Adjust stereo view using the appropriate slider in the DALS or Ctrl+Alt+Left / Ctrl+Alt+Right shortcuts:

Display	
Stereo	
Autostereoscopic S1D 🔻 🗭	
Stereo 🕞 Full screen	
You should use this stereo mode only in full-screen mode	e
Stereo frame distance	
0 p	x
Stereo view offset	
	4
Head tracking	

Configure 2 and more autostereoscopic displays with different IDs connected to one computer

Because of different '.reg' files for different IDs of autostereoscopic displays we have to create several Windows Users: one Windows user account for each unique Autostereoscopic Display ID.

Also it is necessary to separate DALS configuration folders for these users. So, got each Windows user account where you want to setup autostereoscopic display configuration:

1. Log in to the Windows User

6.

- Log in to the Windows User
   Copy already configured DALS configuration folder to new DALS configuration folder.

   a. For example, copy whole "%PROGRAMDATA%\OctoNus Software\Digital Microscope" folder the to the folder "%PROGRAMDATA%\OctoNus Software\Digital Microscope S3D".

   Find necessary display configuration files corresponding to the autostereoscopic display for this Windows User as written in section above and copy them to new DALS configuration folder.
   Open 'Environment Variables' in the Windows settings
   Add 'DMCONFIGS' variable into the User variables section and set its value to new DALS configuration folder:

X

- Environment Variables

Variable	Value
CUDA_CACHE_MAXSIZE	200000000
DMCONFIGS	C:\ProgramData\OctoNus Software\Digital Microscope S3D
OneDrive	C:\Users\user\OneDrive
Path	C:\Users\user\AppData\Local\Microsoft\WindowsApps;C:\Users\us
QtMsBuild	C:\Users\user\AppData\Local\QtMsBuild
TEMP	C:\Users\user\AppData\Local\Temp
тмр	C:\Users\user\AppData\Local\Temp
stem variables	
stem variables Variable	Value
stem variables Variable ComSpec	Value C:\WINDOWS\system32\cmd.exe
stem variables Variable ComSpec CUDA_PATH	Value C:\WINDOWS\system32\cmd.exe C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v11.2
stem variables Variable ComSpec CUDA_PATH CUDA_PATH_V10_1	Value C:\WINDOWS\system32\cmd.exe C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v11.2 C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v10.1
stem variables Variable ComSpec CUDA_PATH CUDA_PATH_V10_1 CUDA_PATH_V11_2	Value C:\WINDOWS\system32\cmd.exe C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v11.2 C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v10.1 C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v11.2
stem variables Variable ComSpec CUDA_PATH CUDA_PATH_V10_1 CUDA_PATH_V11_2 CUDA_PATH_V9_2	Value C:\WINDOWS\system32\cmd.exe C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v11.2 C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v10.1 C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v11.2 C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v9.2
stem variables Variable ComSpec CUDA_PATH CUDA_PATH_V10_1 CUDA_PATH_V11_2 CUDA_PATH_V9_2 DriverData	Value C:\WINDOWS\system32\cmd.exe C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v11.2 C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v10.1 C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v11.2 C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v9.2 C:\Windows\System32\Drivers\DriverData
stem variables Variable ComSpec CUDA_PATH CUDA_PATH_V10_1 CUDA_PATH_V11_2 CUDA_PATH_V9_2 DriverData EMS_HOME	Value C:\WINDOWS\system32\cmd.exe C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v11.2 C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v10.1 C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v11.2 C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v9.2 C:\Windows\System32\Drivers\DriverData D:\Programs\Sentinel LDK\Sentinel EMS

In case of problems with setup 2 or more autostereoscopic display, ask developers for help.