DAT/EM OpenXR™ Stereo: How to set up and use DAT/EM OpenXR stereo with displays that provide OpenXR runtimes

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Overview

Starting with DAT/EM version 8.4, DAT/EM stereo applications such as Summit Evolution™ and LandScape™ support some glasses-free, lenticular lens-type eye tracking displays and VR headsets using the manufacturer's OpenXR™ runtimes and a specially developed DAT/EM OpenXR stereo application.

- Development was done with the Acer® SpatialLabs™ View Pro displays (15.6" and 27"); they are known to work well.

- Support for other monitor-type displays depends on the manufacturer supplying OpenXR runtimes and two cameras (one for each eye). As of the date of this document, DAT/EM has researched several displays to find that they do not provide OpenXR runtimes or have other specifications that are not as good as other options, so we do not plan to support them.

- Support for VR headsets depends on both the VR headset providing OpenXR runtimes (very common) and having DAT/EM support for the hand controllers. As of the date of this document, for VR headsets, DAT/EM has only tested the Meta® Quest® brand and only supports Meta Quest hand controllers.

The following table shows the status of various stereo displays as of March 2026:

Stereo Display Brand/Model	**Provides OpenXR runtimes and good specifications. Supported.**	**May provide OpenXR runtimes, but not tested. Contact DAT/EM.**	**Missing specifications. Not supported.**
Acer SpatialLabs View Pro 27" part ASV27-2P	•		
Acer SpatialLabs View Pro 15.6" Part ASV15-1BP	•		
Acer Aspire 3D 15 SpatialLabs Edition Laptop, part A3D15-71GM-79ZM	•		
Acer SpatialLabs "View" (plain *View* without the word *Pro*), "Nitro," and "Predator" models			•
Meta® Quest® VR headsets and hand controllers	•		
Lenovo ThinkVision 27 3D			•
Looking Glass			•
Samsung Odyssey G90XF and other Odyssey models			•
Sony ELF-SR2 Spatial Reality displays			•
XREAL-ONE AR glasses			•
All other displays or brands of VR headsets		•	

Setup

Nvidia® GPU Requirements and Setup

All the supported stereo displays (listed above) require an nVidia-brand graphics adapter (GPU). If you do not already have it installed in the computer, select the appropriate GPU model, install it, and install the newest nVidia video driver for the matching model GPU according to the following sections.

Compatible GPUs for the Acer® SpatialLabs™ View Pro and Aspire 3D 15 Laptop

DAT/EM's video adapters (GPU) recommendations are roughly the same as for Acer SpatialLabs recommendations for the View Pro displays, except sometimes DAT/EM excludes the lower-performing models in the Acer SpatialLabs' list. Acer SpatialLabs does not always list the nVidia "Professional" models, which appear in the table below, but they work very well. DAT/EM's goal is to allow the View Pro to display the full 4K resolution at a minimum of 60Hz, but preferably 120Hz, while refreshing DAT/EM superimposition quickly. The table below shows which GPUs are compatible. If you want to use an existing GPU and you are not sure whether it will work, find it in the table below or send the model name to support@datem.com for review.

GPU Model	Works	Uncertain refresh rate or testing pending. Contact DAT/EM.	Does not work
nVidia® Blackwell™ Pro 4000 or higher (released 2025)		• Expected to work, but untested as of March 2026.	
nVidia RTX™ Ada generation 4000 or higher (released 2023)	•		
Quadro RTX A-series 4000 or higher (released 2021)	•		
Quadro RTX-series 4000 or higher, or 3000 or higher laptop version (released 2018)	• Offers at least 60Hz refresh.	• May offer 120Hz refresh for the 27" View Pro.	
Quadro P-series 4000 or higher (released 2017)		• As of March 2026, DAT/EM and Acer SpatialLabs are trying to determine whether the old P-series will work.	
nVidia GeForce® RTX 2080 (or higher) for desktops **nVidia GeForce RTX 3070ti (or higher) for laptops** **DAT/EM suggests "or higher" models that have at least 16GB onboard RAM.**		• Acer SpatialLabs lists these GeForce GPUs. DAT/EM has not tested them; we suggest a model with at least 16GB onboard RAM and that you check quality reviews for GeForce GPUs.	
Acer SpatialLabs Aspire 3D 15 laptop with nVidia GeForce RTX 4050	• DAT/EM tested with 16GB added RAM. Good for travel/demos. Intel i7 processor works, but is under recommendations for day-long Summit work.		
nVidia Quadro series having a release date 2016 or earlier, including M- and K-series			•

Compatible GPUs for a VR Headset

See the manufacturer's recommendations* for nVidia-brand GPUs for the VR headset. It is very likely that the GPUs we list above for the Acer SpatialLabs View Pro will also work for a VR headset.

*As of the date of this document, the use of VR headset brands is limited to the Meta Quest, because DAT/EM applications support the Meta Quest hand controllers. Please contact DAT/EM Support about any other brand.

GPU Hardware and Video Driver Installation

All the supported stereo displays require an nVidia GeForce or Professional-line GPU and matching driver. Prepare the GPU:

1. If you purchased the nVidia GPU separately and will install it yourself, install it according to the manufacturer's instructions.

2. Be aware that video driver installation may need an Administrator login, depending on your organization's policies. Schedule an Administrator to help, if necessary.

3. Download and install the newest nVidia video driver for the GPU model. The driver can be found on nVidia's website www.nvidia.com (or your localized nVidia site).

   Hint: You can see the model name in **Windows Device Manager** > **Display Adapters**.

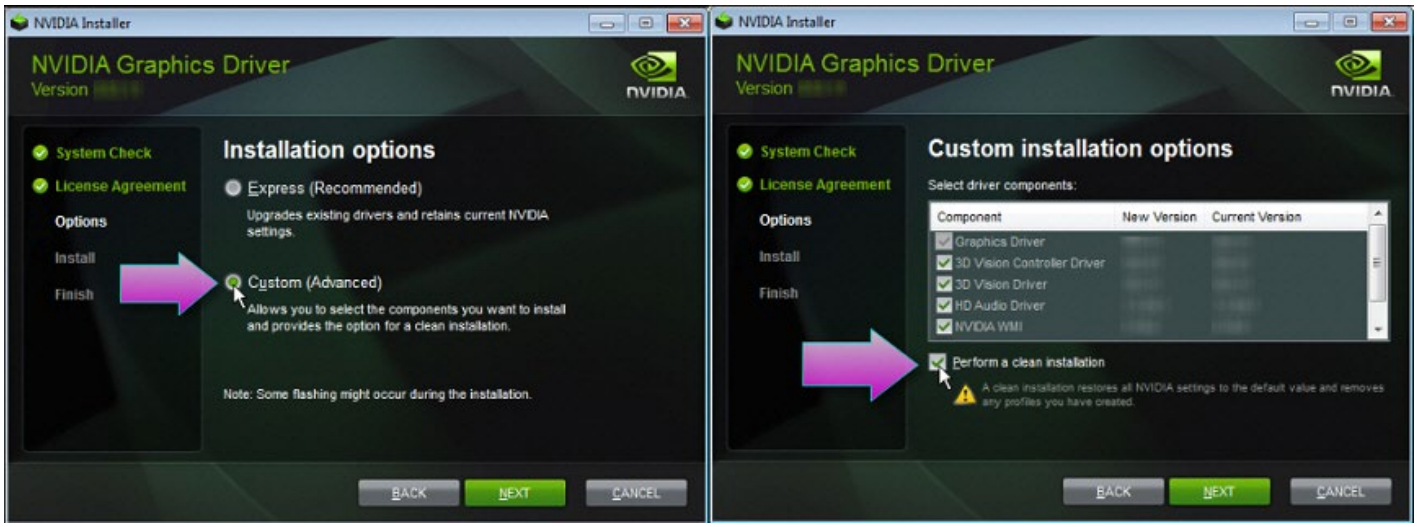
   Be sure you can select the exact model of your GPU in the nVidia site's driver search. Be careful of the similarly named models. Any "Quadro RTX," "RTX," "A," "Ada," or "GeForce" names should match the model exactly. If it is not listed, you may need to select a different category in one of the other menus to result in a different model list.

   - DO NOT download a driver from any site other than nVidia.com or a localized nVidia site. A driver obtained anywhere else could be old, a bad model match, or insecure.

   - DO NOT use any driver saved from past installations. NVidia drivers are specific to the GPU model and operating system, and should be the newest matching driver offered by nVidia at the time of installation.

   - If you have a professional-series nVidia GPU (such as an RTX 4000 Ada), DO NOT install a "GeForce RTX" driver; unfortunately, nVidia driver setup will allow installation of a GeForce driver for a professional model, but then it will lead to serious errors, including Windows blue screen errors. If this happens, boot in safe mode, use Windows Add/Remove Programs to remove the GeForce driver, then start over with the correct video driver. Search for the exact model of GPU at nVidia's drivers site to avoid this problem.

For best results, select the “Custom (Advanced)” and “Perform a clean installation” choices:



4. Reboot after installing the video driver.

Turn off Windows Automatic Driver Downloads (Optional)

If Windows is set to download hardware drivers automatically, it will often replace the video driver with the wrong-numbered driver (sometimes it is much older, and sometimes it is a driver for the wrong model of GPU!). When this happens, it may become incompatible with the stereo display requirements. Then you may need to repeat the correct video driver installation quite often.

The OpenXR-type of stereo is less sensitive to video driver changes than other types of stereo displays that use OpenGL with frame sequential stereo; however, we have seen one issue with a Windows Feature Update that affected the ability for the Acer SpatialLabs Experience Center to update smoothly (see the Troubleshooting section at the end of this document if it happens to you). We imagine that having the wrong video driver installed automatically could cause problems in the future.

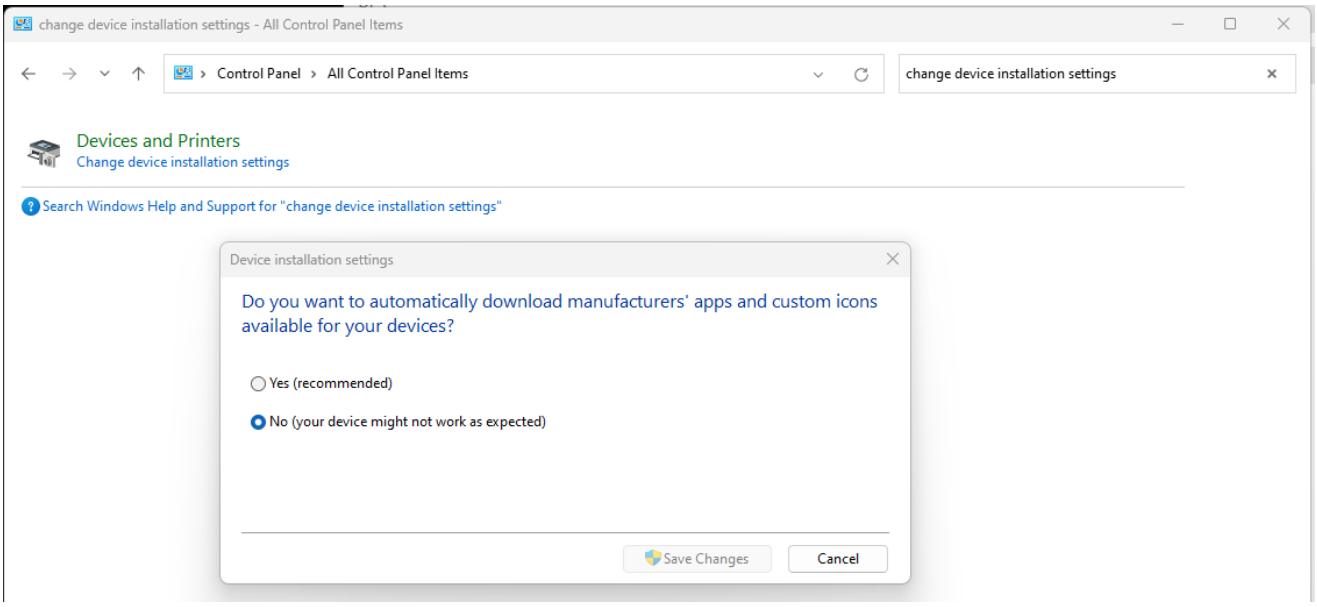
DAT/EM does not know of a way to turn off only the video driver updates without turning off driver updates for all other hardware. We urge you to discuss this with your IT Department to see if they know of a way to do that. For now, we offer the general Windows setting to turn off all automatic driver updates. This will avoid problems with the wrong video driver during weekly Windows updates; however, it does not prevent driver updates during Windows Feature Updates, such as 26H1.

The following settings are optional and are suggested to avoid potential issues with the video driver changing too often/unexpectedly:

1. Start the Windows Control Panel.

2. In the search field at the upper right, enter “**change device installation settings**” and select “**Change device installation settings**” from the **Devices and Printers** result.

3. Set **No (your device might not work as expected)**.



Although you may have turned off automatic driver downloads as shown above, Windows will still install them with annual feature updates, which happen once or twice a year. Feature update numbers and release dates appear on this Microsoft Windows 11 web page:

- Windows 11: https://learn.microsoft.com/en-us/windows/release-health/windows11-release-information

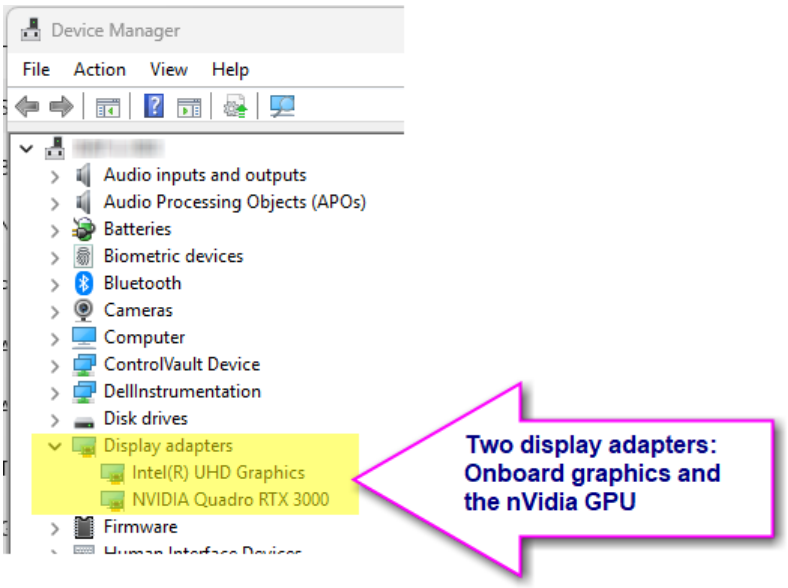
DAT/EM is not suggesting that you delay annual feature updates. They are important. Simply be aware of what will happen and plan the time – and possibly IT Department help – for new nVidia driver installations and settings.

Optionally Disable Onboard GPU in the BIOS for Dell Laptops Only

For previous types of stereo displays, such as nVidia 3DVision, you had to disable any onboard graphics adapter in the BIOS or UEFI-compliant BIOS on Dell laptops. Doing this would make the nVidia GPU the only GPU used after booting up the laptop. This setting is not required for the View Pro or VR headset to work; however, on a **Dell** laptop, you may still want to disable it to save time later.

Important! DO NOT disable the onboard graphics adapter in the BIOS on any non-Dell laptop brands, including the Acer SpatialLabs Aspire 3D 15. Other brands may not have the setting in the BIOS, or, even if they do, they might malfunction when you disable it. The setting on non-Dell brands could result in a black screen problem, which is extremely difficult to fix. For non-Dell brands, simply boot up with both GPUs active (this is the default BIOS setting) and set individual applications to use the nVidia GPU shown in “Set Stereo Applications to Use the nVidia GPU in Windows 11” on page 13.

On a **Dell laptop**, if you see two graphics adapters listed in **Windows Device Manager** > **Display Adapters**, you may leave them both active or you may choose to disable the on-board graphics adapter from the BIOS. If you disable onboard graphics, it will leave only the nVidia GPU in **Windows Device Manager** > **Display Adapters**, and there will be no question about which GPU is being used for stereo applications. In that case, you can skip the instructions in “Set Stereo Applications to Use the nVidia GPU in Windows 11” on page 13.



If you have a Dell laptop and you want help disabling the onboard graphics adapter, contact DAT/EM Support.

If you have any other brand of laptop, or a desktop that shows more than one graphics adapter in **Windows Device Manager** > **Display Adapters**, you will instead set specific applications to the nVidia GPU. Instructions are given in "Set Stereo Applications to Use the nVidia GPU in Windows 11" on page 13. Software must be installed first, however, so continue with the next sections in order.

Hardware and Acer SpatialLabs Experience Center Setup

Hardware Setup for a VR Headset

Unpack the VR headset (Meta Quest) and set up according to the manufacturer's instructions. Make sure it is working with the manufacturer's (stereo or non-stereo) demos. Ignore the ads and coupons for games. 😊

Hardware and Experience Center Setup for the Aspire 3D 15 Laptop

For the Acer SpatialLabs Aspire 3D 15 laptop:

1. The Aspire 3D 15 laptop is only sold with 16GB RAM. Summit Evolution's minimum requirement is 32GB RAM. Order and install the additional 16GB RAM. If you are not confident doing this yourself, your IT or a local computer IT/repair shop may be able to help. Contact Acer SpatialLabs Support for information on the type of RAM to order and instructions to install it.

2. After adding RAM, set up user logins as typical with a new laptop. Set up a connection to the Internet. Verify normal Windows operation.

3. Install, update, or verify the current version of the Acer SpatialLabs Experience Center ("driver package") software. Since DAT/EM tested a preconfigured Aspire laptop, we do not know whether the driver package is typically preinstalled. If you see the Experience Center desktop icon, it is already installed; run Experience Center to see if it requests an update. Otherwise, install Experience Center now.

The following is a link to Acer SpatialLabs' "Drivers and Manuals" page where you can enter the product's serial number to get the most current version:
https://www.acer.com/us-en/support/drivers-and-manuals

Note: Once you have the Experience Center installed and you run it, it will detect when updates are available and install them automatically.

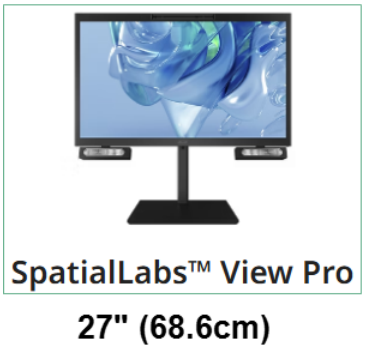
4. If the Experience Center was preinstalled, run it now. If there is an update available, it will ask to update. Allow it to update any time it offers to do so. Reboot after any update.

5. Run the Experience Center software and select **SpatialLabs Model Viewer Pro** > **Launch App** > **Sample Models** > and choose any of the models, such as the **Wooden Stool** or **Ukulele**. Look at the display. It should detect your eyes within a second or two. Verify it can display stereo, then close the demo (do not save the model) and close the Experience Center software.

Instructions to ensure the best GPU is being used will be shown below after DAT/EM software installation.

Hardware and Experience Center Setup for the Acer SpatialLabs View Pro (27" or 15.6")

The Acer SpatialLabs View Pro displays (27" and 15.6") are fully supported for DAT/EM stereo using the DAT/EM OpenXR application.



The View Pro is a single-panel, glasses-free, lenticular lens-type display with eye tracking. Summit's OpenXR implementation delivers 100% of the resolution of the display to each eye (not 50% per eye as may be true for other brands' implementations). Both the 15.6" and 27" View Pro display options work with Summit Evolution.

> **Endorsement from a DAT/EM software engineer:** "*I am really impressed with the Acer SpatialLabs View Pro. Does it work for photogrammetry? Yes, absolutely! It definitely beats the old nVidia 3DVision and it is so easy to use. Being glasses free and just turning your head to the Acer and seeing 3D stereo views is awesome. I would pick this over 3DVision every time. I was pretty impressed with it, honestly!" – WK*

You may need to purchase a cable or cable adapter, depending on whether it is a laptop or desktop computer and whether it is the 27" or 15.6" View Pro:

The 27" View Pro Needs a User-Supplied DisplayPort Cable to connect to a Desktop Computer (not to a laptop)

Acer SpatialLabs does not supply a DisplayPort (DP) cable with the 27" View Pro. They supply an HDMI cable suitable for laptop connections only.

If you are setting up the 27" View Pro on a desktop computer that has a GPU with DisplayPort connections, such as the nVidia RTX A4000 or RTX 4000 Ada, you will need to purchase a "4K" (also known as UHD, Ultra High Definition) or "8K" DP cable. It should be a full-size DP connector on both ends, and should be rated for at least 4K resolution at 120Hz.

Silkland 8K cable at Amazon.com is an example (DAT/EM does not necessarily endorse Amazon or the Silkland brand; this is only an example). This example lists "4K @540Hz." That is even better than the "4K @120Hz" required for the View Pro. Do not buy any cable that does not list refresh rates for different display resolutions, or that lists 4K(3840x2160) at less than 120Hz.

Do not use an HDMI-to-DP adapter for desktop computer connections with the 27" View Pro using the supplied HDMI cable. Customers have tried this, and it failed.

The 15.6" View Pro Needs a User-Supplied HDMI-to-DP Adapter to connect to a Desktop Computer (not to a laptop)

The 15.6" View Pro only has an HDMI connector. It is most suitable for laptop connections using the provided HDMI cable; however, DAT/EM successfully tested the 15.6" View Pro on a Dell desktop computer using an HDMI-to-DP adapter added to the provided HDMI cable.

The adapter must be capable of at least 4K at Ultra High Definition (UHD). Here is an example of an adapter we used successfully for the View Pro 15.6" (DAT/EM does not necessarily endorse Amazon or the Highwings brand; this is only an example): https://www.amazon.com/dp/B0C4XH8LZ1?ref=ppx_yo2ov_dt_b_fed_asin_title&th=1

In the instructions below, "DP cable" and "HDMI to DP" adapter refer to cables and adapters with the above specifications only.

1. Follow Acer SpatialLabs' instructions to unpack and set up the View Pro display hardware.

2. Connect the USB-C and either DisplayPort (DP) or HDMI cables:

   - Connect the provided USB-type cable between the View Pro and the computer. This is the same for either the 27" and 15.6" models.
     1. The smaller USB-C end goes to the View Pro.
     2. The bigger USB-A end goes to the computer.

- The next cable connection depends on the View Pro model and whether it is a desktop or laptop:

  - ✓ **27" or 15.6" View Pro to a laptop computer:** Connect the provided HDMI cable from the View Pro to the laptop.

  - ✓ **27" View Pro to a desktop computer:** Connect the user-supplied DP cable from the View Pro to a DP port on the desktop's nVidia GPU.

  - ✓ **15.6" View Pro to a desktop computer:** Plug the HDMI cable end into the 15.6" View Pro's HDMI port. Add the user-provided HDMI-to-DP adapter to the other end of the provided HDMI cable, then plug the adapted DP end into a DP port on the desktop computer's nVidia GPU.

  Hint: If you do not have access to the original cables from the View Pro box, please contact DAT/EM Support or Acer SpatialLabs for advice on the high-speed-rated cable types to purchase. Cables with similar-looking ends are not all the same and they do not all work.

  Hint: Pure red color ghosting (such as ghosting of red Summit superimposition lines) is an indication that the cable is not the right type. There is nothing wrong with the display. A higher-rated cable solves the problem.

  Hint: For the 27" View Pro, do not plug in both HDMI and DP cables to the display at the same time, leaving one of them "empty" (not connected to anything on the other end). A cable that is only connected on one end may make the View Pro go dark until the extra cable is removed.

3. Acer SpatialLabs provides the Experience Center for the View Pro displays. It is a collection of drivers, .NET components, and demo applications. It must be installed before using either Acer SpatialLabs demos or DAT/EM stereo application:

   - ✓ **Download the Acer SpatialLabs Experience Center** package (you may also see the title "Care Center", but the software downloaded is called "Experience Center").

     Go to the "Drivers and Manuals" page where you can enter the display's serial number to download the most current version:
     https://www.acer.com/us-en/support/drivers-and-manuals

   - ✓ Install the Experience Center.

   In the future, it will detect when updates are available and install them automatically when you run the SpatialLabs Experience Center.

   Do not try to run any Experience Center or DAT/EM applications now. DAT/EM requires at least two displays and more settings before use. Continue with the sections below.

Add More Desktop Monitors

There must be at least two Windows displays, with the stereo display on the far-right side. A built-in laptop display counts as one, a VR headset counts as one, and a 27" or 15.6" View Pro display counts as one. You may need to add one or more Windows displays. A typical multiple screen setup might be:

- a built-in laptop screen and an external View Pro or VR headset
- a desktop computer with the View Pro and one or more non-stereo desktop displays
- an Acer SpatialLabs Aspire 3D 15 on the right and an external non-stereo display on the left.

The stereo screen must be the rightmost display in the Windows display configuration. Placing the stereo screen between other desktop monitors may sound like you could do it, but it is very difficult to set up in Windows and get it to work. Do not even try it. Place the stereo screen on the right.

1. Shut down the computer (power off).
2. Connect one or more additional Windows displays. Position all displays on the desk with the stereo display (or Aspire 3D 15 laptop) on the far right.
3. Boot up and log on.
4. Right click on a blank area of the Windows desktop and select **Display Settings**. Make settings:

    a. For versions after November 26, 2025, for desktops and any laptop *other than* the Acer SpatialLabs Aspire 3D 15, any display of your choice can be the Windows Main Display. It does not matter what number this display has (use **Identify** to help find its number). While it is highlighted, set "**Make this my main display**" and set "**Extend desktop to this display**."

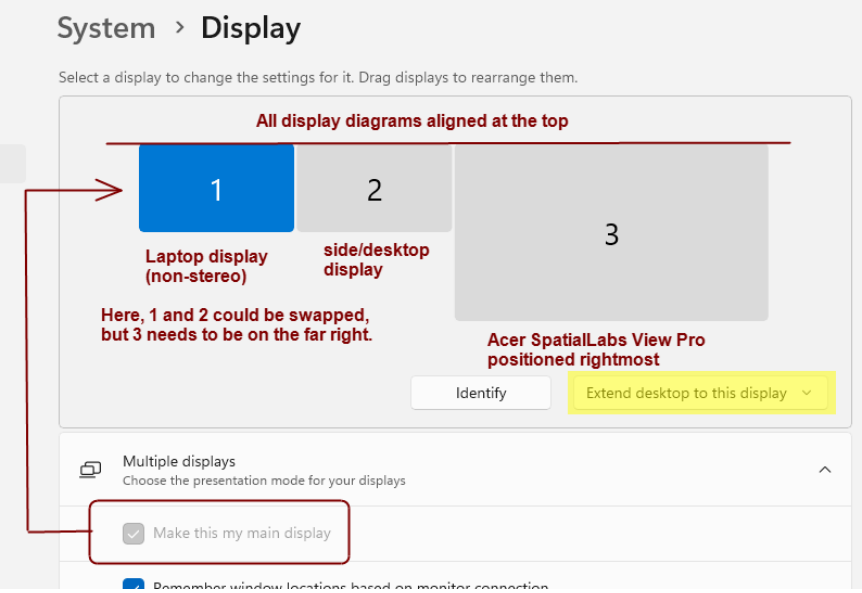
    For the Acer SpatialLabs Aspire 3D 15, click on the laptop's display and set it to set "**Make this my main display**" and set "**Extend desktop to this display**."

    b. Drag and drop the remaining diagrams to match their physical left-to-right positions with their top edges aligned. It does not matter how Windows numbered the displays; the numbers do not need to be in order. Use the **Identify** option to help.

    c. Verify that the diagrams have their top edges aligned. You can click on a diagram and move it in a vertical direction until top aligned with the others.

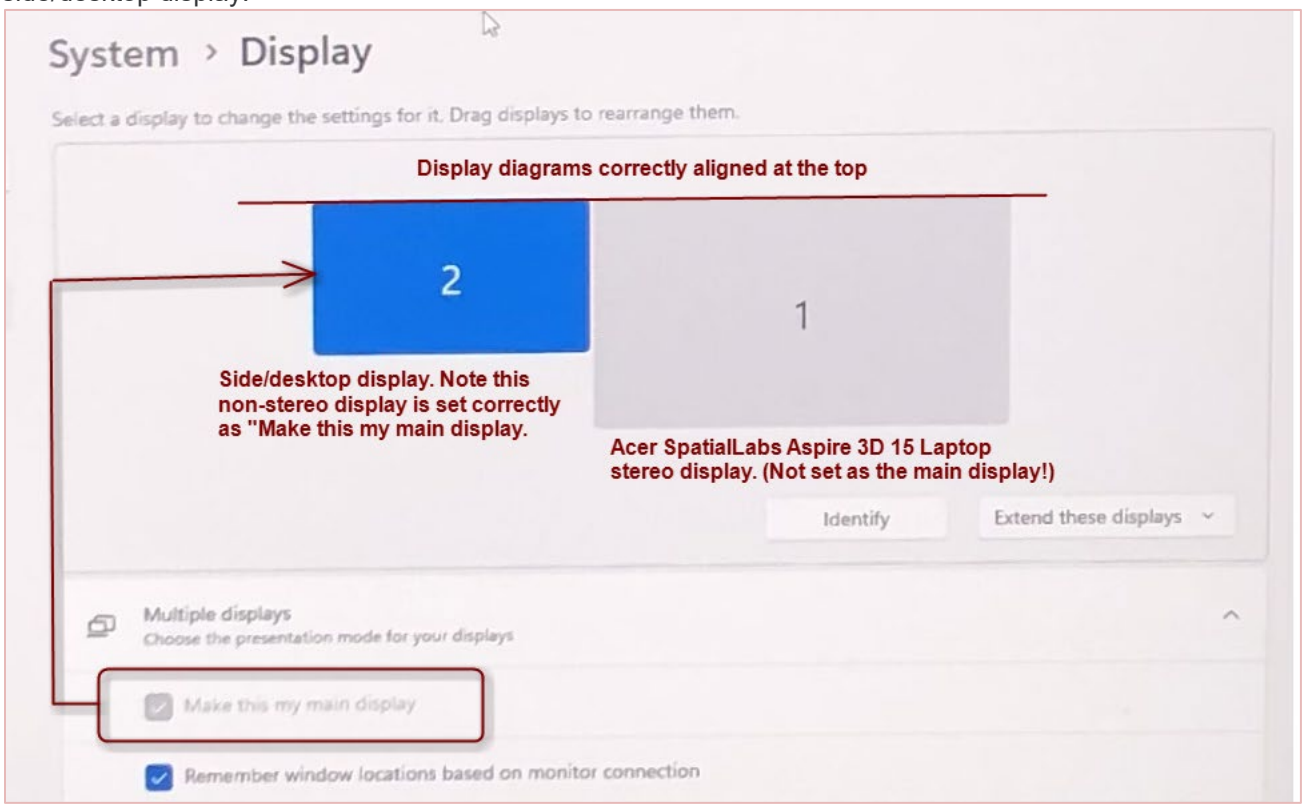
    The following are examples:

Example of a Dell laptop with a View Pro on the far-right side and the non-stereo laptop and side/desktop monitors in either order to the left of the View Pro. The laptop is set as “Make this my main display.”



Windows chooses the numbers for the displays. Set a non-stereo display as “Make this my main display,” no matter which number it is.

Example of the Acer SpatialLabs Aspire 3D 15 laptop with built-in stereo display and one required side/desktop display:



Windows chooses the numbers for the displays. Set either display as “Make this my main display,” no matter which number it is. Here, the non-stereo display is set as the main display.

5. Apply changes.

6. Move the system mouse cursor across the displays. Make sure the mouse cursor leaves each display and enters the next display in a logical direction. If it jumps to the wrong side of the next monitor, adjust the diagrams again. Keep the stereo display in the rightmost position.

Troubleshooting hint: If it will not set up correctly, it could be there is a corrupt saved display configuration in Windows (EDID) that is causing trouble. Once DAT/EM software v.8.4 or higher is installed, you can use **DATEM Administration Tool** > **Monitor Tools** > **Reset** (EDID values). Then reboot, then try Windows Display Settings again to arrange the displays. See also the Troubleshooting section at the end of this document.

NVidia Control Panel Settings for the View Pro and Aspire 3D 15 laptop

For the View Pro and Aspire 3D 15 laptop, make settings in the nVidia Control Panel as follows:

1. Right click on a blank area of the desktop and select **nVidia Control Panel** > **Display** > **Change Resolution** from the list on the left. Select the setting that allows the maximum resolution for the display at 60Hz or 120Hz:

    - The 15.6” View Pro has a hardware limit of 60Hz refresh. Set it to 1920x1080 (native) at 60Hz.

    - The 27” View Pro allows higher refresh rates. The goal for the 27” View Pro is the full 4K resolution at 120Hz. Depending on the video card, 4K should be offered in 60Hz, 120Hz, or possibly even as high as 160Hz. It is not necessary to set it to 160Hz, and 160Hz may even shorten the life of the GPU from constant overheating. Preferably set 4K (3840x2160) at 120Hz, if offered. ***Note:*** *If this setting does not result in offering at least 60Hz, set if to another resolution in the default list offering 60Hz or 120Hz and try it; however, do not use “Customize” to try to force it to find a setting with 60Hz or 120Hz. If you cannot find at least 60Hz in the default list, there is something else wrong, such as the wrong (too old) GPU or wrong cable. Send a screen capture of the options to DAT/EM Support.*

2. To prevent a flicker when Summit draws tiles (during panning and zooming), still in the **nVidia Control Panel**, select **Manage 3D Settings** > **Max Frame Rate**. Turn this on and set it to the same number as the refresh rate of the View Pro. So, for example:
    - If the View Pro is set to 60Hz, set **Max Frame Rate** to 60 Frames per Second (FPS).
    - If it is set to 120Hz, set **Max Frame Rate to 120** FPS.
    - If it is set to 160Hz, set **Max Frame Rate** to **160** FPS.

Fun Fact! If you are accustomed to setting many more options for other types of stereo displays, rest assured, you do not need to set them for the View Pro displays. It is not even necessary to turn on “Stereo – Enable.”

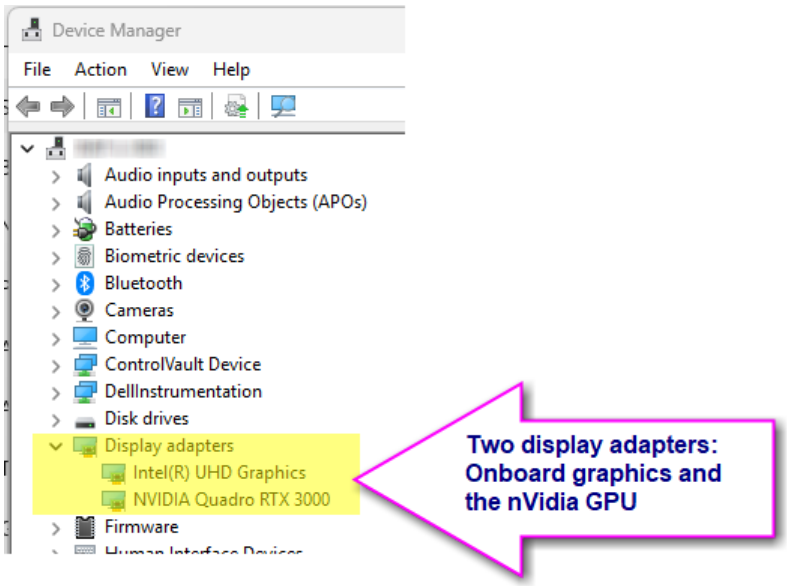
Install DAT/EM Software

Install a compatible DAT/EM Setup version 8.4 beta (dated August 2025) or higher. Follow the directions that were provided with the beta or release software.

Set Stereo Applications to Use the nVidia GPU in Windows 11

For any laptop or desktop that shows two GPU names in **Windows 11 Device Manager** > **Display Adapters**, set stereo applications to use the nVidia GPU:

1. Check that there are two video adapters listed in **Windows 11 Device Manager** > **Display Adapters**. If there is only one, skip this section. If there are two, continue.



Continue if there are two adapters in the list

2. Right click on a blank area of the Windows 11 desktop. Select **Display Settings**.

3. Scroll down to **Related Settings** and click on **Graphics**. By now, it should show the area titled "**System** > **Display** > **Graphics**."

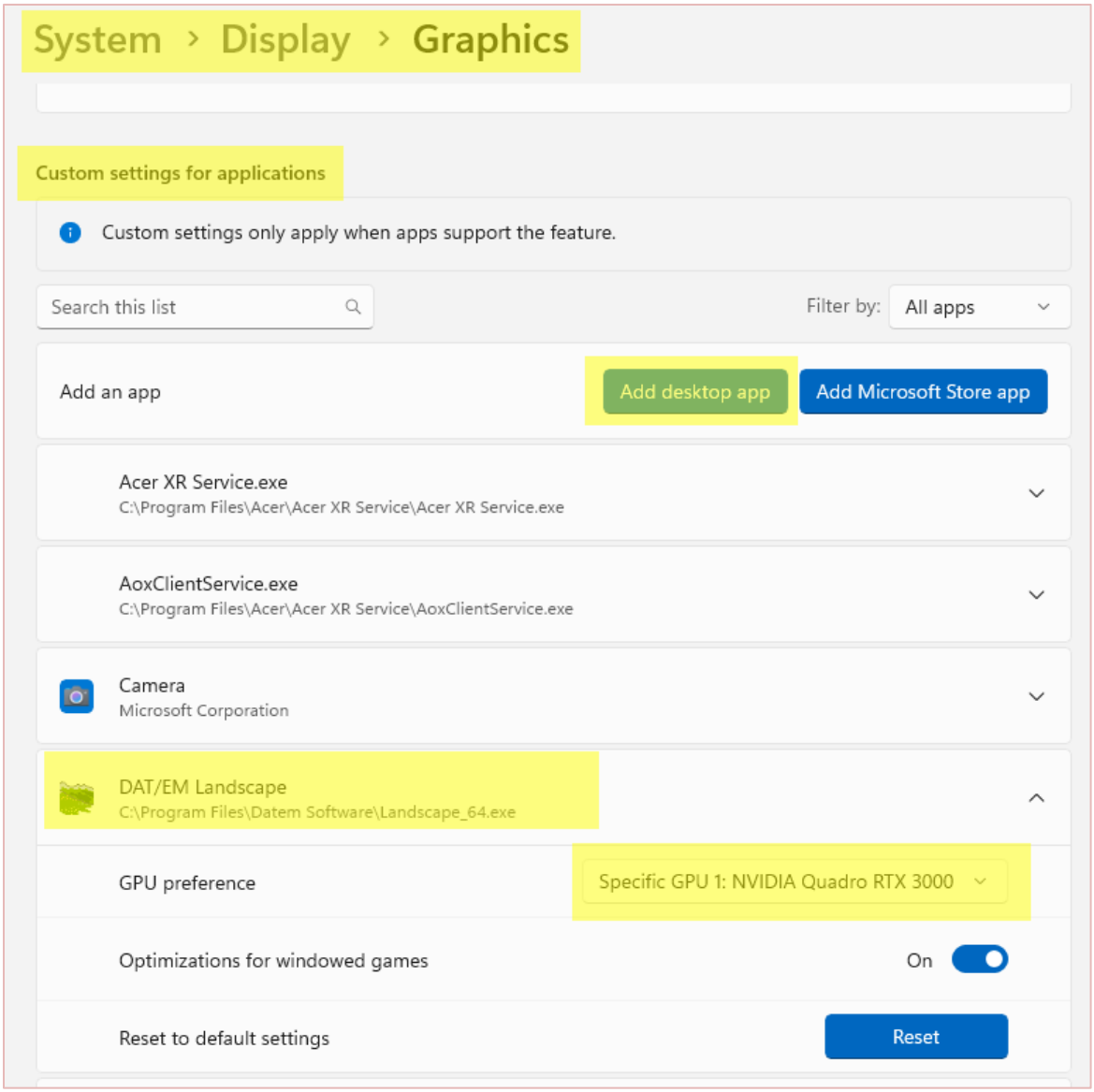
4. Under **Custom settings for applications**, select the **Add desktop app** button. Browse to each of the following stereo and graphics applications in turn. Depending on your license, you may not have all the DAT/EM applications listed; add the ones you have. When an application is added to the alphabetical list, click on it, and set **GPU preference** to the specific nVidia GPU.

   "C:\Program Files\Datem Software\XRDesktopUI.exe"
   "C:\Program Files\Datem Software\OrthoViewer_64.exe"
   "C:\Program Files\Datem Software\PointCloudST.exe"
   "C:\Program Files\Datem Software\ProjectViewer_64.exe"
   "C:\Program Files\Datem Software\StereoPlotter_64.exe"
   "C:\Program Files\Datem Software\StereoViewerUI.exe"

   You may also want to set the GPU for the Acer SpatialLabs Experience Center applications, such as the following. DAT/EM made this list; you may want to verify with Acer SpatialLabs Support if you use the Experience Center often:

   "C:\Program Files\Acer\Acer XR Service\AoxClientService.exe"
   "C:\Program Files\Acer\Acer XR Service\Acer XR Service.exe"
   "C:\Program Files\Acer\SpatialLabs\ExperienceCenter\SpatialLabs Experience Center.exe"
   "C:\Program Files\Acer\SpatialLabs\Model Viewer\FVMV\Binaries\Win64\SpatialLabsModelViewer.exe"
   "C:\Program Files\Acer\SpatialLabs\Player\SpatialLabs Player.exe"
   Any other SpatialLabs .exe files that display stereo.

Example setting showing DAT/EM LandScape set to an nVidia GPU:



Testing the Stereo Display

The following sections show testing the stereo display with various applications.

Test Stereo Using a VR Headset

This section is under construction.

See some hints for using a VR headset on page 24.

Test Stereo Using the Acer SpatialLabs Experience Center Demos

Test stereo using the Acer SpatialLabs Experience Center demos:

1. Run the SpatialLabs Experience Center software from the desktop shortcut > **SpatialLabs Model Viewer Pro** option > **Launch App** > **Sample Models** (on the left).

2. Select a model, such as the **Wooden Stool**. Look at the stereo display. It should detect your eyes quickly and be in stereo. You can pan and rotate the demo using the left system mouse button. Verify it can display stereo, then close the demo and close the Experience Center.

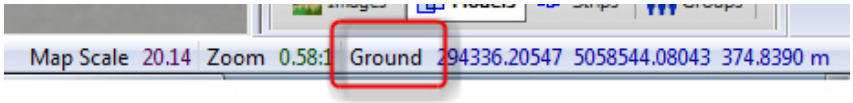
Test Stereo Using a DAT/EM Stereo Application

DAT/EM has multiple applications that will work on the Acer SpatialLabs View Pro display. We will show a stereo test using DAT/EM Summit Evolution. You may try other DAT/EM stereo applications as well.

For the View Pro and VR headset display, DAT/EM uses an OpenXR application that is launched after Summit Evolution. Expect two Summit windows. Proceed with a test for stereo:

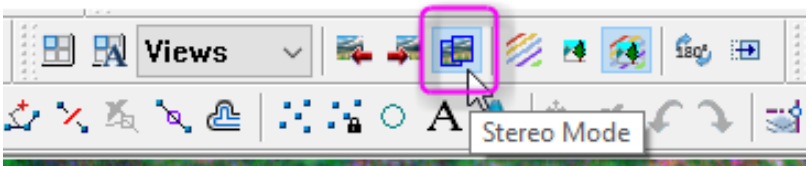
- ✓ Start Summit. We will call this "Summit 1." Place the Summit 1 window on a side monitor (not the View Pro monitor!). You can shrink the size of the window so that you can still access the toolbars, menus, and embedded bird's-eye view, but it is not necessary to have a large Main View.

- ✓ Open a project and open an oriented, stereo-capable model with approximately 60% overlap. (Do not use an "Orthophoto Feature Collection type project, which opens only one image at a time in mono; do not open an 85% or more overlap model, or it will always seem quite flat). The stereo model should have "Ground" coordinates showing in the lower right corner of the Summit 1 window.



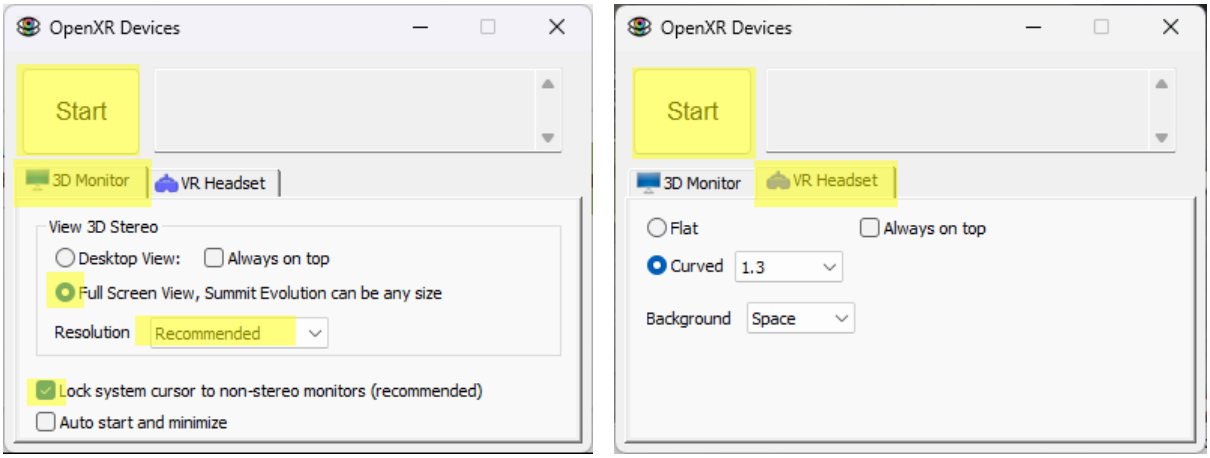
Summit 1 must show "Ground" in the lower right corner

Note: Summit 1 needs to have **Stereo Mode** highlighted on its Image View toolbar. It must not be on the Left or Right Only options.



Note: Summit 1's elevation value should be near the ground. Hint: An easy way to get the cursor to ground is to run **Summit** > **Tools** > **Move To Ground** and select a control point, if available.

✓ Select **Summit 1** > **View** > **OpenXR 3D Monitor**. Choose the tab that best describes the display, either **3D Monitor or VR Headset**. For the **3D Monitor** tab, set **Full Screen View**. Select the **Start** button to begin rendering to the 3D display. Leave the OpenXR Devices window on a non-stereo display.



3DMonitor in Full Screen View (left) or VR Headset with default values (right)

Where the windows are positioned matters!

- The original Summit 1 window should stay on a non-stereo display and may be sized as you like. It may or may not have a view of the images, depending on the OpenXR options you selected. You can use it for toolbar and menu selections. (See more details on the OpenXR application settings below.) You may choose other settings later, but for now, you are only checking to see that stereo is working in Full Screen View mode.

- Keep the OpenXR Devices dialog on the non-stereo display that shows Summit 1.

If you want to move the cursor, you can.

Summit Lite users especially, take note! If you have **Summit** > **Tools** > **Options** > **Input Devices** > **System** mouse set on, you will right click in the main view *in Summit 1, even if it is all black* to start mouse control of Summit. With **System** mouse set in Summit, the **OpenXR Devices** > **3D Monitor** tab > **Lock system cursor to non-stereo monitors (recommended)** setting is not active. This setting only works when there is a dedicated 3D input device connected in Summit Professional or Feature Collection.

✓ **For View Pro and Aspire laptop:** Look at the View Pro and allow its eye tracking function to find your eyes. It should only take a second, and you should be able to see the model in stereo. For best results:

- Allow the display's eye tracking to find your eyes. Only one person should view the display at one time, so there is no flicker when it is trying to determine whose eyes to track.

- It should seem as if you are looking down at the ground from far up in the air.

- There should be no question whether you see stereo. If you ask yourself, "Am I seeing stereo?" then something is probably wrong. Good stereo should be obvious and should fill the stereo view area all the way to the edges of the view, provided the zoom allows the overlap area of the images extend to the edge of the view. If the cursor is near the edge of the stereo overlap area, it is normal that there will be a part of the view that is not in stereo.

Hint: If you do not want to see the “ghost” of the image that extends beyond the overlap area, turn on **Summit** > **Tools** > **Options** > **Main View** > **Clip to Stereo Region**.

✓ If you can see stereo, the test is successful and complete.

How to Use the DAT/EM OpenXR 3D Monitor/Headset Application

The OpenXR application has several view methods and other settings

✓ **Always Expect two Summit windows:** When using the DAT/EM OpenXR 3D Monitor/Headset application, there will be two Summit windows:

1) One non-stereo Summit window positioned on a desktop monitor. This has either no image view or a 2D image view, and may be used for all menus, toolbars, or any other components that need a system mouse pick. We will call this “Summit 1.”

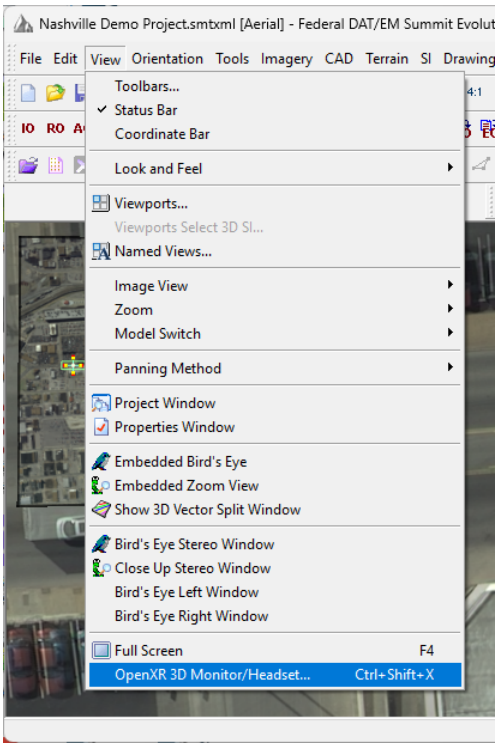
2) A stereo Summit window on the View Pro or VR headset stereo view. This shows the stereo view in either full screen or regular Summit window mode, according to settings in the DAT/EM Open XR 3D Monitor application.

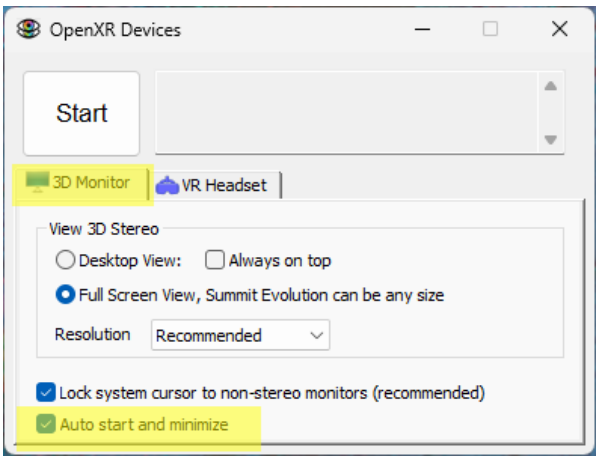
✓ **To start using the 'Open XR 3D Monitor/Headset' Application:** First start Summit 1. Position it on a non-stereo desktop monitor and open a project and a stereo model (more details are in the stereo test section above; we assume you have a good project and good settings if the test was successful).

✓ Then start **Summit** > **View** > **OpenXR 3D Monitor**.

✓ Choose the tab for the type of display, either **3D Monitor** or **VR Headset**. Make settings as described below.

Hint: If you always want to run the OpenXR option with **3D Monitor**, but without having to start it from the menu, check on **Auto start and minimize**. The next time Summit starts, the OpenXR Devices dialog will display automatically.





Since it is a separate application, it will also appear on the Windows Taskbar when running:

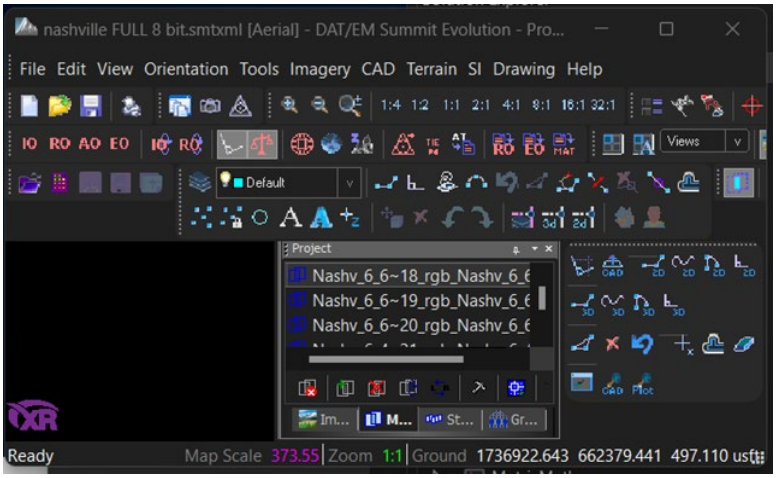
- Select the **Start** button to begin rendering to the 3D monitor or VR headset.
- The button will change to a **Stop** button that can end stereo viewing.
- Dialog options can be changed only when viewing is stopped.
- You can start and stop stereo viewing whenever you like.
- Errors and messages will appear on the edit box next to the **Start** button.
- For best results with eye tracking, only one person should look at the stereo display at one time. If someone looks over your shoulder and tries to see what you are seeing, the display may rapidly switch between sets of eyes. To you, it will seem to flicker. If you are the only person sitting in front of the display, it will find your eyes very quickly and reliably when you look over at the stereo display.

✓ On the **3D Monitor** tab, there are two main views and additional settings for them offered in the **View 3D Stereo** dialog area: **Full Screen View** and **Desktop View**. You may want to try both options to see which one you like better.

On a laptop, due to the small screen area, selecting **Fullscreen View** is probably best. **Fullscreen View** may look more impressive. **Desktop View** is the more traditional way of showing stereo in a window, and it can be useful, so it is another valid choice.

- **Full Screen View, Summit Evolution can be any size:** This setting shows a full screen view of Summit's stereo area. There is no relationship between the size of the Summit window on the desktop monitor to this full-screen view on the 3D monitor. Summit can be any size on the desktop monitor and the view will still be full screen on the 3D monitor. In this way, Summit does not need to use much desktop monitor space and makes a two-monitor solution more useful.

  For example, Summit on the desktop monitor could be small (or even minimized) like this…



Summit sized as small as possible on the desktop monitor

…and the 3D monitor will still have the full screen view like this:

Summit's stereo window in full screen mode on the stereo display

Pros for the "Full Screen View, Summit Evolution can be any size" setting:

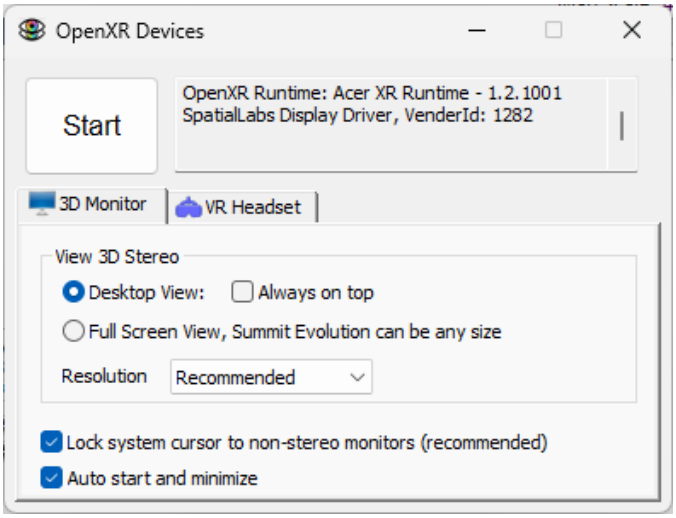
- Full screen view.
- Frees up desktop monitor space.
- Works regardless of Summit's window size.

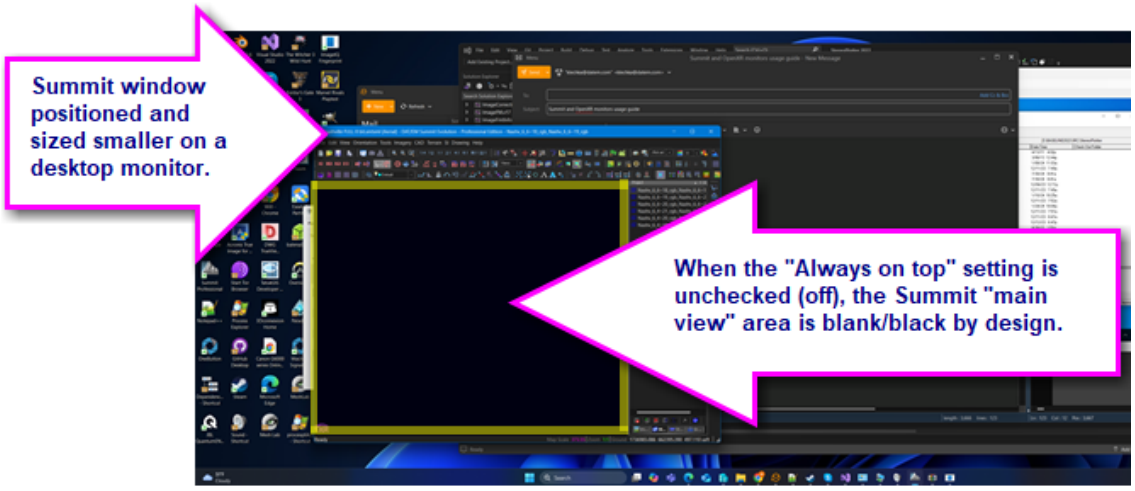
Cons for the "Full Screen View, Summit Evolution can be any size" setting:

- You cannot use the system mouse to pick Summit menus and toolbars on the 3D monitor, because they are not displayed there (they are on the desktop version).
- Since it is not a 'real' window you cannot click on the embedded bird's-eye view, although you can display it for position reference (**Summit** > **View** > **Embedded Bird's Eye**). As an alternative, the recommendation would be to use "Bird's eye stereo window" (**Summit** > **View** > **Bird's Eye Stereo Window**) as a clickable, docked window in Summit on the desktop monitor.
- Though you can still use the system mouse to control the Summit 3D cursor position in this mode, it is a bit strange, so a dedicated 3D input device in Summit would be better. This makes the **"Full Screen View, Summit Evolution can be any size"** setting a better option for Summit Professional and Feature Collection (Pro/FC) with a dedicated 3D input device than for Summit Lite.

  Note: If you want to use **Full Screen View** and you have Summit Lite or you are using a system mouse for input with Summit Professional or Feature Collection, contact DAT/EM Sales or your DAT/EM reseller for license uplift and Stealth/GGS 3D mouse quotes.
- For things like setting multiple viewports, it may be easier to **Stop** the OpenXR viewing mode, make the Summit view settings from Summit on the desktop monitor side, and then **Start** the viewing mode again.

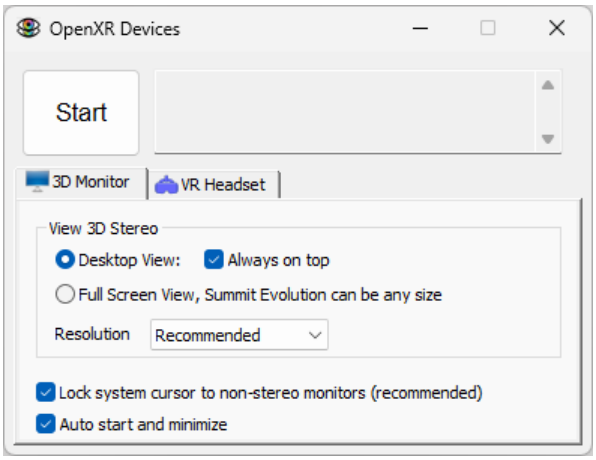
- **Desktop View:** This duplicates some or all the Windows Desktop onto the 3D monitor. You will see a copy of Summit over the Windows desktop on the 3D monitor. It will be centered automatically based on the center of the stereo portion of the display (not on the center of the entire Summit window). The primary (desktop) Summit window can be anywhere and sized to any size on a desktop monitor.
    - **Desktop View with 'Always on top' unchecked (off):** With **Always on top** unchecked, you will see a blacked-out, blank Summit “main view” in the window that is positioned on the desktop monitor; this is normal. The black view on the desktop monitor is used like a green screen in movies. This allows menus and other windows components to be obscured in the 3D stereo view on the 3D monitor:

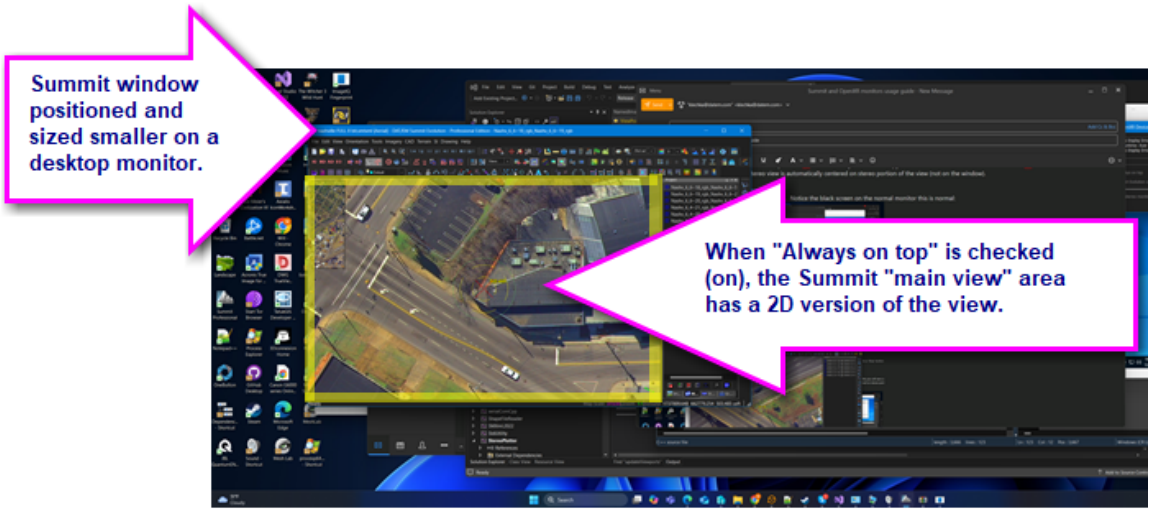


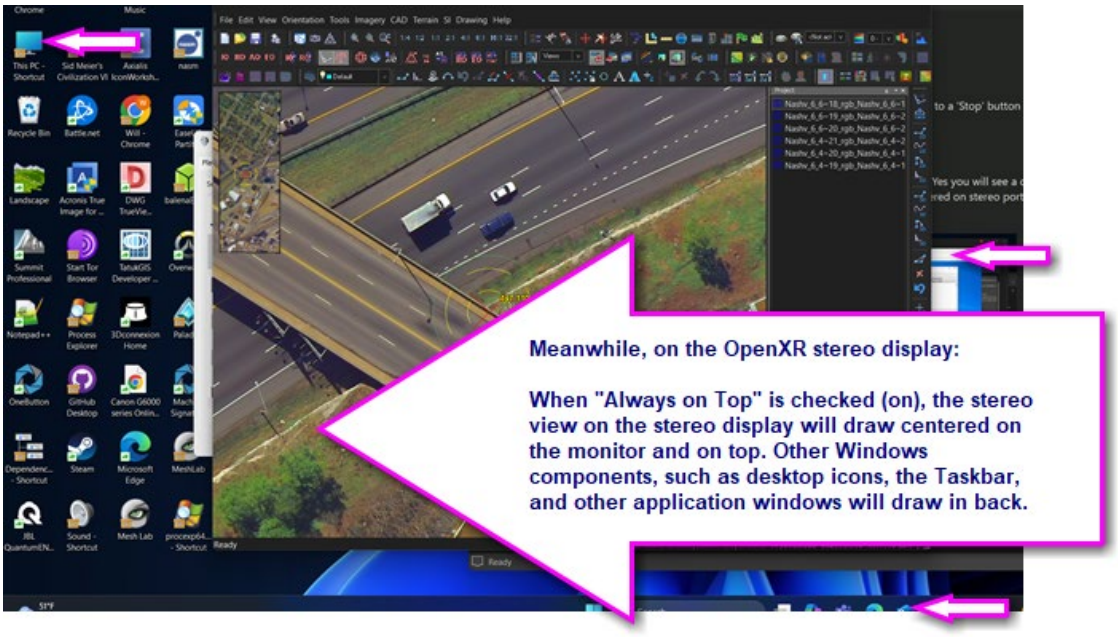


    - **Desktop View with 'Always on top' checked (on):** With **Always on top** checked on, on the desktop monitor, you will see a 2D version of the view in Summit’s “main view” area (not blacked out). On the stereo monitor, the 3D stereo view is always centered on the stereo monitor and displayed on top.

Portions of the desktop are duplicated on the stereo monitor, but the stereo view cannot be obscured by any window, menu, or any other graphics components.







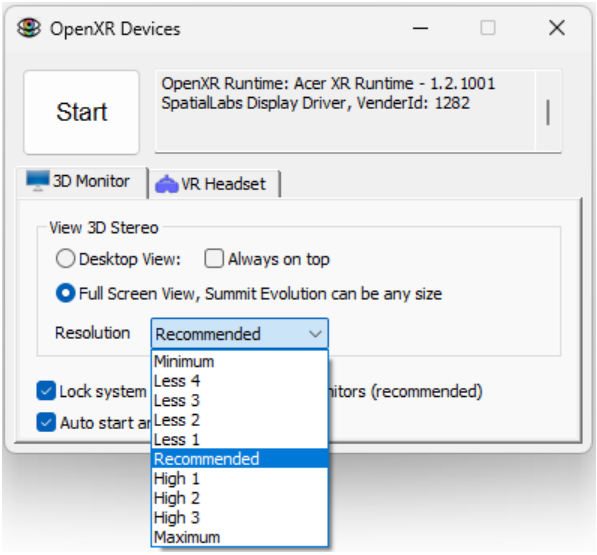
Pros for the "Desktop View" with "Always on top" setting:

- Windowed stereo! Just use Summit like you typically would, but look at the 3D monitor instead.
- Less need to turn off the 3D viewing. It can probably stay in this mode all or most of the time.

Cons for the "Desktop View" with "Always on top" setting:

- Takes up more screen space.
- Maybe the duplication will confuse people until they get used to it? We do not yet know. If you have an opinion, let DAT/EM Support know.

- **Resolution** is the resolution that will be displayed on the Acer SpatialLabs monitor.



  - **Recommended** is the resolution recommended by the device; it is also supposed to be the best performance. Typically, this is what to use, but there are options.

    Each other resolution choice represents a 1/8 part; each level is around 12.5% bigger or smaller than the next level.

  - **High 1**, **High 2**, **High 3**, and **Maximum** progressively reach the maximum resolution, which is the resolution reported by the device as its highest resolution. The maximum is not recommended by DAT/EM software engineers, due to text and other components appearing very tiny.

  - **Less 1**, **Less 2**, **Less 3**, and **Minimum** progressively reach the minimum resolution. Text and other components will appear larger.

Going to a high resolution while in **Desktop View** mode will result in the text being too small and the Desktop would not look good. If **Recommended** works, then use it. **High 1**, **2**, **3**, and **Maximum** can be used to show more of the Desktop. Note that Windows Desktop can be set to different scales and this could necessitate using a different resolution.

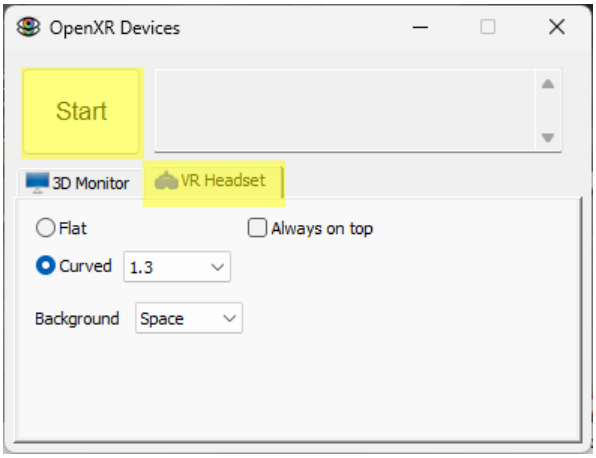
In **Full Screen View** mode, any resolution can be used, since the Desktop is not a consideration. **Recommended** is just fine here, but you could use the higher resolutions depending on your preferences.

DAT/EM Landscape and Point Cloud can also be shown in stereo on the View Pro. **Desktop View** should be selected when using these applications; if you use **Full Screen View**, you

will still see them, but the cursor will be turned off in **Full Screen View** (so use **Desktop View** for these).

You can run multiple stereo applications at once, but realize that things might look strange if you overlap their stereo views. In **Full Screen View** with multiple instances of Summit allowed (**Summit** > **Tools** > **Options** > **Project** > **Allow multiple instances of Summit**), the last Summit opened will be displayed.

✓ On the **VR Headset** tab:



Once you select **Start**, the controls for the Meta Quest work the same as for the Meta Link Desktop. DAT/EM Software Engineering recommends using Meta's desktop and only use DAT/EM's when appropriate for viewing 3D apps.

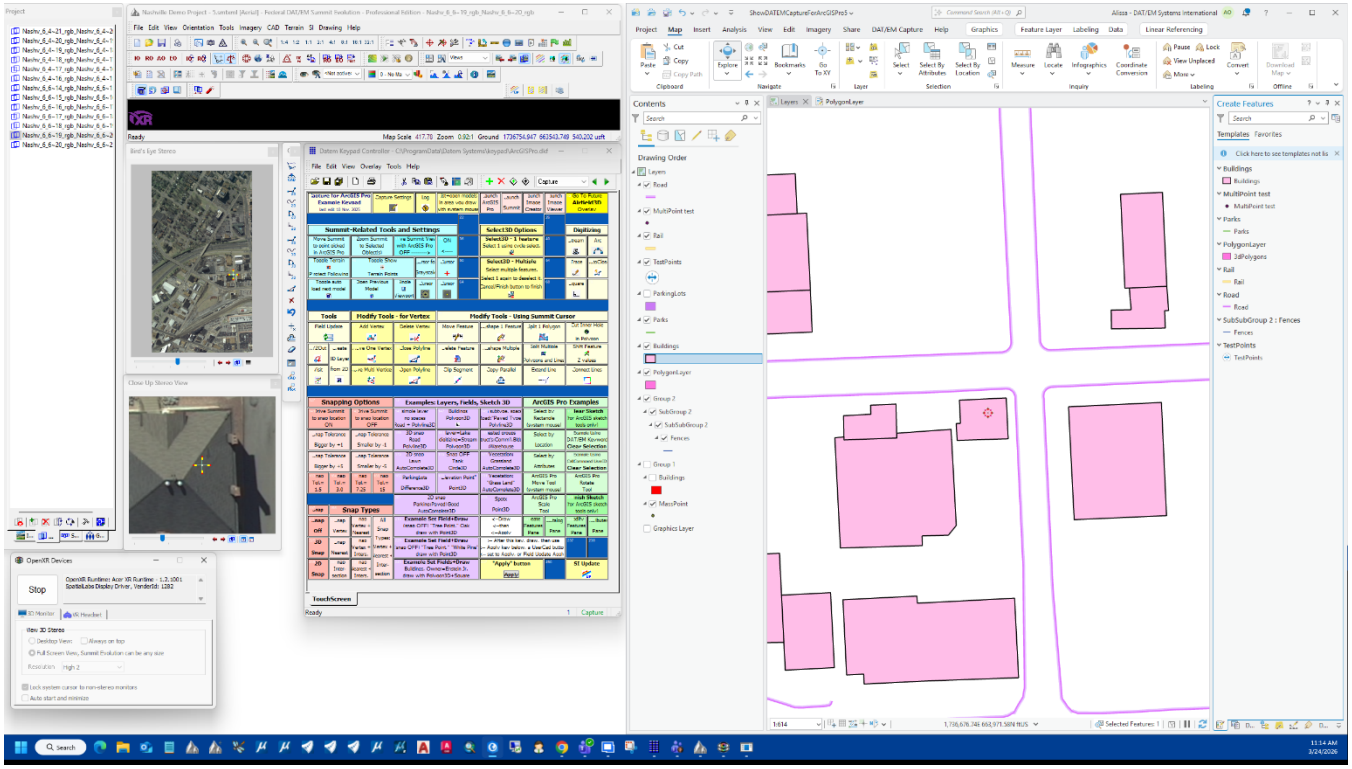
- Aim either controller to move the cursor.
- L/R Grab + Thumb sticks to both size the Desktop and set the distance.
- X and A are left mouse clicks
- Y and B are right mouse clicks - this differs from the Meta controls' they do not do right click, but a special menu appears.

The size of objects is controlled with the controller joysticks. You can move the screen in and out. It works exactly like the Quest's Desktop control.

For more information about setup and use for VR headsets, contact DAT/EM Support.

Hints for Arranging Summit 1 View Components

Since the stereo view will be cast to the stereo display while “Summit 1” stays on a non-stereo display, it is now possible to rearrange view components of Summit 1 to better access them, without taking up too much screen area. How you do this is up to you. Here is an example to give some ideas:



- The Summit 1 window is sized much smaller. In OpenXR Full Screen View mode, its display is black anyway, so you may not want or need to see much of the black area. You might make a different choice when not using Full Screen View.
- Summit’s **Project** window is undocked and made longer than the Summit 1 window
- **Summit** > **View** > **Bird’s Eye Stereo Window** is on and undocked
- **Summit** > **View** > **Close Up Stereo Window** is on and undocked
- The Summit 1 toolbars are customized. Toolbars are turned off and on and rearranged. Hint: After customizing, right click on a blank area of the toolbars and select **Lock Toolbars**. This will prevent you from accidentally moving or hiding any toolbars or the menu bar.
- The DAT/EM Keypad is displayed (or it could be on a separate touch screen)
- The OpenXR application is in the lower left corner. Note: It must be stay on a non-stereo display.
- ArcGIS (or MicroStation/AutoCAD/Global Mapper) is fit to half the non-stereo display. This example shows a wide display with enough space. You could also add a display to hold the CAD/GIS window by itself, so it could be sized even wider. Note: Keep the stereo display on the far right of all displays.

Acer SpatialLabs Experience Center Version Maintenance

Approximately every two weeks, or on a regular schedule of your choice, check for Acer SpatialLabs Experience Center updates. Checking is easy:

- ✓ Close Summit and close the DAT/EM OpenXR application.
- ✓ Open the SpatialLabs Experience Center. It can be started from its desktop icon, 

, or search Windows for "Experience" and it should find it.
- ✓ As it starts, it will check for any Experience Center updates.
  - If there is an update available, it will lead you through the update process. Allow it to update.
  - If there is no update, it will start normally, and you can simply close it again.

Troubleshooting a View Pro Display Setup

No stereo display

"I have done everything right, but I can't get it to display stereo!" Make sure the Acer SpatialLabs display is the rightmost display in Windows' Display Settings. Then log on as Administrator and clear the EDIDs from Windows' registry using **DATEM Administration Tool** > **Monitor Tools** > **Reset** (EDID values). This will make Windows forget all the monitor settings that have been made so far – especially corrupt settings – and allow you to start over. After clearing the EDIDs from the registry, reboot. Then repeat the Windows Display Settings and nVidia Control Panel settings described above in this document. Check that you have the correct cable (information above).

Flicker or shimmer on panning and zooming (drawing tiles)

If the monitor flickers or shimmers when Summit draws tiles (panning and zooming), check the nVidia Control Panel's **Manage 3D Settings** > **Max Frame Rate** setting. It should be on and set to the same number as the refresh rate Hz of the display. Examples: If the display is set to 60Hz, set **Max Frame Rate** to 60 Frames per Second (FPS); if the display is set to 120Hz, set **Max Frame Rate** to 120 FPS.

The 27" View Pro display is completely dark (particularly during a new setup)

The 27" View Pro display is completely dark (particularly during a new setup). Do not leave an unattached monitor cable plugged in to the computer. For example, when using a DisplayPort cable attached to the Acer SpatialLabs 27" display, if there is also an otherwise-unattached HDMI cable plugged in to the HDMI port on the display, it can make the Acer SpatialLabs display go dark until you remove the HDMI cable. You may need to reboot after removing the extra cable.

Ghosting on red color

There is ghosting on red color, especially pure red Summit superimposition vectors. This can happen when the HDMI or DisplayPort cable or cable adapter connected to the display is not rated for a high-enough Hz refresh at the resolution of the display. Either use the HDMI cable that was supplied in the original Acer SpatialLabs box (for a laptop), or purchase the recommended 4K or 8K DisplayPort cable (for a desktop). If a new cable purchase is necessary, buy one that is described as "4K UHD" or better. See the sections under Hardware and Acer SpatialLabs Experience Center Setup and page 7 for more information about cables.

Stereo only runs one time

Stereo only runs one time. When Summit and the OpenXR app or the SpatialLabs stereo demos open a second time, eye tracking does not work, because the eye tracking camera did not restart as expected (it shows as stopped in the Device Manager). It works again if you unplug and replug the USB cable. As of the date of this document, one person had this on one desktop computer; the same display worked on another computer. The problem was solved when they updated the Acer SpatialLabs Experience Center software. Contact DAT/EM if it happens to you.

Problems after Windows Sleep Mode

Problems after Windows Sleep mode: Sometimes the Acer SpatialLabs display does not wake up after Windows Sleep mode.

If the DAT/EM OpenXR Summit view was left in Full Screen view when the computer went into Sleep mode, it might wake up with Summit Full Screen swapped to another monitor. When this happened to DAT/EM, we had to use Alt-tab and try to exit.

Possible solutions:

a) Turn off Sleep mode in Windows Power & Sleep settings for when the computer is plugged in. You may allow it to lock the screen, but do not let it Sleep. You may want it to Sleep on a laptop when not plugged in, but be aware of item b) in that case.

b) If you must use Sleep mode and the display does not wake up, unplug the Acer SpatialLabs' **USB cable end at the computer** (do not disconnect the HDMI/DisplayPort cable). Wait a few seconds, then plug it in again.

Problems after Windows Update KB5074105 or KB5077181 (early 2026)

Summit's OpenXR application gives an error and the Experience Center will not run after Windows Update KB5074105 or KB5077181 (early 2026). Stereo will not display. Acer SpatialLabs released an Urgent Update to solve this problem. Use the following instructions.

If you try to run Acer SpatialLabs Experience Center, it will say there is an update available, but it may fail to install properly. If you have not run the Experience Center yet, it will be easier if you do not run it. Do this instead:

- ✓ Be prepared to reboot during this process.
- ✓ Run Windows "Add or Remove Programs" from System Settings.
- ✓ In the resulting list, search or scroll down to "SpatialLabs Experience Center," click on "..." to the right and select "Uninstall." (When it uninstalls, the rest of the SpatialLabs apps will also uninstall.)
- ✓ Reboot.
- ✓ Run "Add or Remove" again and see if there are any apps starting with "SpatialLabs." There should not be any, but if there are, you can uninstall them as well and reboot again.

Continue. Even if you have already run Experience Center and it failed to install the update, you can start here and continue with the instructions.

- ✓ Download the "Urgent Update" driver:
  - The AcerSptailLabs View Pro driver links can be found on this page. https://d20hwfev93w9j9.cloudfront.net/upload/file/startvr/Urgent%20Update%20-%20SpatialLabs%20Experience%20Center%20Fix_release.pdf
    The model numbers are very similar! Be careful to use the correct link.
    - Users who have the 27" View Pro Model ASV27-2P, be sure to get the 27" with the matching model number, which must have a 'P' at the end.
    - Users who have the laptop-sized 15.6" model ASV15-1BP, be sure to get the one with the matching model number, again with a 'P' at the end.
- ✓ Install the driver you downloaded. With the Acer SpatialLabs View Pro connected, right click on the driver, select "Run as Administrator," and install it.
- ✓ Reboot.
- ✓ Test stereo. Run the new SpatialLabs Experience Center.
  - If it does not run and gives an error, reboot. In some cases, users had to reinstall Experience Center two times and/or reboot two times. If you get stuck here, contact DAT/EM. Otherwise, try testing stereo again after successful reinstall/reboot.
  - If Experience Center asks you to update the software to an even newer version, go ahead and let it update. Reboot. Test stereo again.
  - If it runs, now test stereo. Choose **SpatialLabs Model Viewer Pro** > **Launch App**. Wait until it appears on the SpatialLabs display. Select "**Sample Models**" on the left list. Choose any sample model you like. Make sure it is in stereo, then use "X" in the upper right to close it and "No" to save the project. (This must be completely closed before running Summit.)
- ✓ Run Summit, then if it is not already set to open automatically, run **Summit** > **View** > **OpenXR 3D Monitor/Headset** > **Start**.

-END-