

HP REVERB G2 VR HEADSET, STEAMVR & WINDOWS MIXED REALITY

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#### HIGHLIGHT:

The HP Reverb G2 VR Headset is built on the Windows Mixed Reality platform. Integration with SteamVR requires the Windows Mixed Reality bridge app.



Frequently asked questions about HP's professional head-mounted display (HMD) - built on the Windows Mixed Reality (WMR)

The HP Reverb G2 Virtual Reality Headset offers stunning immersive computing with significant ease of setup and use in a cost effective solution. This solution is well suited for Engineering Product Dev and design reviews, AEC (Architecture, Engineering & Construction) reviews, location-based entertainment, and MRO (Maintenance, Repair and Overhaul) training use environments.

Take advantage of the complete Windows 10 Mixed Reality and SteamVR ecosystems.

platform - and integration with SteamVR.

**IMPORTANT NOTE:** HP Reverb G2 Virtual Reality Headset is not recommended for children under the age of 13. All users should read the HP Reverb G2 Virtual Reality Headset User Guide to reduce the risk of personal injury, discomfort, property damage, and other potential hazards and for important information related to your health and safety when using the headset. Windows Mixed Reality requires Windows 10 November 2019 Update installed on the workstation or PC. Features may require software or other 3rd-party applications to provide the described functionality. To minimize the possibility of experiencing discomfort using a VR application, ensure that the PC system is equipped with the appropriate graphics and CPU for the VR application. Learn more about HP VR Ready configurations here.

#### REFERENCES:

HP Reverb G2 Virtual Reality Headset QuickSpecs
HP Reverb G2 Virtual Reality Headset Datasheet



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#### 1.0 STEAMVR

#### O 1.1: WHAT ARE STEAM AND STEAMVR?

Steam is a software publishing and distribution platform with an active community of VR enthusiasts that allows you to collect a library of VR and non-VR experiences. SteamVR is a software framework that connects VR software to VR hardware, it was created by the Valve Corporation and fills the same role as Microsoft's Windows Mixed Reality platform or Facebook's Oculus platform.

Steam and SteamVR provide the software back-end to products like the HTC Vive, Valve Index, and the Steam controller. Steamworks is a set of tools and services that help game developers and publishers get the most out of distributing games on Steam.

#### Q 1.2: HOW DO I INSTALL STEAMVR ON MY SYSTEM?

- First, install Steam download and run Steam from <a href="store.steampowered.com/about.">store.steampowered.com/about.</a>
- Then, install SteamVR once Steam is installed and you have created a Steam account, go to *STORE* and search for "SteamVR." Select the install option.
- Finally, install Mixed Reality for SteamVR now that SteamVR is installed, go to *STORE* and search for "Windows Mixed Reality for SteamVR." Select the install option.

#### Q 1.3: HOW DO I LAUNCH AN APPLICATION THAT REQUIRES STEAM VR?

Connect your Windows Mixed Reality headset and launch the Windows Mixed Reality Portal. You may need to complete room set up if you are in a new location.

- Open Steam and run SteamVR from the library. You will launch into Steam's home room.
- SteamVR should show your headset and controllers in blue.
- Select and run a SteamVR application from the Steam library.

## Q 1.4: CAN I DEVELOP DIRECTLY ON A WINDOWS MIXED REALITY HEADSET WITHOUT USING STEAMVR? WHERE CAN I FIND GUIDANCE & SUPPORT?

**FOR UNREAL ENGINE 4 (UE4):** Yes, you can develop for Windows MR without using SteamVR using Unreal Engine 4. You must use Windows April 2018 update or later, and UE4 version 4.21 or later. SteamVR will still launch automatically when starting UE4. There are two steps to disable this: (1) In SteamVR, under developer settings, disable 'Start SteamVR when an application starts.' (2) In your UE4 project, under plug-ins, disable the SteamVR plug-in and restart the editor. Developing for WMR should not be significantly different than developing for SteamVR. The Unreal Engine does most of the work for you and hides the details. Access UE4 documentation here.

**FOR UNITY:** Unity 2017.2 and later features built-in Windows Mixed Reality and HoloLens support, which includes a wide range of tools, packages, and resources that make it simple to author a game or app for both VR and MR, and makes it available in the Microsoft Store. <u>Learn more here.</u>

### Q 1.5: HOW DO I MIGRATE HTC-BASED CONTENT (STEAMVR) TO WINDOWS MIXED REALITY?

You can play most experiences designed for the HTC Vive by using the <u>Windows Mixed Reality bridge</u> for SteamVR. This is available for free on the Steam store. Not all experiences are guaranteed to work; for example, the buttons may seem inappropriate or missing. If you are the content developer, you can enable the appropriate plug-in in your game's editor.

### Q 1.6: CAN I LAUNCH STEAMVR WITHOUT AN INTERNET CONNECTION (OFFLINE)?

An internet connection is required to download and install SteamVR. Once the installation is complete, you can run SteamVR offline.

#### O 1.7: HOW DO I DO A OUICK CALIBRATE IN STEAMVR?

If you find that the center of the VR space is offset or the VR floor isn't the appropriate height, you can use this quick method to make the adjustments:

In SteamVR, open the left nav > select **DEVELOPER** > select **DEVELOPER SETTERINGS** > scroll to find the **QUICK CALIBRATE** button > set the headset on the floor in the center of the VR space > click the **QUICK CALIBRATE** button.



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## Q 1.8: MY STEAMVR GAMES DON'T APPEAR TO WORK CORRECTLY WITH MY HP MOTION CONTROLLERS. WHAT SHOULD I DO TO FIX THIS?

While developers are working to update their games for HP Motion Controller compatibility, we have provided custom controller bindings for many of the most popular games on Steam. With "Windows Mixed Reality for SteamVR" fully updated to version 1.2.444, these bindings should be picked up automatically when your game is running. However, if your game doesn't seem to register your actions at this time, you can manually search for custom binding profiles using the SteamVR Settings menu. To do this

- Open the SteamVR menu by pressing the right motion controller's menu button.
- Select the "Settings" icon in the bottom-right corner of the SteamVR menu.
- Select the "Controllers" tab.
- Select the "Manage Controller Bindings" option.

From here, you can change your active controller binding to "Custom", which will open up the option to try community-shared game bindings. If no custom game bindings have been shared for this game yet (or if you aren't fully satisfied with the ones you've tried), you can also create your own custom game bindings, and even help the rest of the community by sharing them after a few game sessions.

#### 2.0 HP REVERB G2 VR HEADSET

### Q 2.1: IS THERE A SPECIFIC ORDER I SHOULD FOLLOW TO CONNECT MY HEADSET CABLES TO A PC?

IT IS RECOMMENDED TO DO IT IN THIS ORDER:

- Connect the 6-meter cable to the headset first before connecting to the PC or power supply.
- Leave the 6-meter cable connected to the headset after initial insulation.
- When the headset is not in use, disconnect the power adapter from the 6-meter cable.<sup>3</sup>

#### Q 2.2: HOW DO I KNOW THE CABLES ARE COMPLETELY PLUGGED IN?

Verify the cable connected to the headset is fully seated. There is a small dot on the top of the cable that will line up next to the top edge of the headset when it has been fully inserted.<sup>3</sup>

### Q 2.3: HOW DO I OPTIMIZE THE HEADSET RESOLUTION IN STEAMVR AND/OR ON WMR?

**WINDOWS MIXED REALITY PORTAL (RUNNING ON WINDOWS 1809 AND EARLIER):** There is currently no way to change the resolution.

**WINDOWS MIXED REALITY PORTAL (RUNNING ON WINDOWS 1903 AND LATER):** Press the Windows key and type "Headset Display Settings." Settings can be adjusted under *RESOLUTION*. **STEAMVR:** Open the menu in the upper-left of Steam VR and select *SETTINGS*. In *SETTINGS*, click the

GENERAL menu. Set RENDER RESOLUTION to CUSTOM. Adjust the resolution using the slider.

With Microsoft release 1809 and earlier, all computer systems require an external display attached in addition to the VR headset. If only the VR headset is attached (e.g. backpack configuration) or if the system "thinks" that only a VR headset is attached without an external display, the operating system will blank (black out) the VR headset. One solution is to upgrade to Windows 10 version 1903 (May 2019 release). You can also purchase a hardware EDID emulator to fool the system into thinking an external display is attached (search Amazon for "EDID Emulator"), or connect an external display to the system.

### Q 2.4: WHAT IS THE RECOMMENDED MINIMUM PLATFORM CONFIGURATION?

**GRAPHICS:** DX12 capable graphics. NVIDIA® GTX 1080, NVIDIA® Quadro® P5200, AMD Radeon™

Pro WX 8200, (update or later); equivalent or better

**PROCESSOR:** Intel® Core™ i7, Intel® Xeon® E3-1240 v5; equivalent or better

**POWER:** Included power adapter required

**MEMORY:** 16 GB RAM or more **VIDEO OUT:** DisplayPort™1.3

**USB PORTS:** 1x USB 3.0 Type-C<sup>™</sup> or Type-A (with included adapter)

**OS:** Significant improvements have been added to the Windows Mixed Reality platform to optimize for the visual quality of this device. For the best performance, please

ensure you have the latest updates from Windows 10: version 1903/1909

(KB4577062 or later) or 2004 (KB4577063 or later)



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### Q 2.5: CAN I DO A FREE ROAM OR LARGE-SCALE ROOM SET UP? HOW DO I SET UP FOR A FREE ROAM EXPERIENCE?

The tracking system on the HP Reverb G2 VR Headset is designed to work in an area where you have an unobstructed view of your walls and floor. Large scale experiences, such as where you pass between rooms or hallways and see many different walls, requires an external tracking system. There are many external tracking systems available, such as those manufactured by Mo-Sys, OptiTrack, Vicon, and PhaseSpace.

### Q 2.6: HOW DO I ADJUST THE INTERPUPILLARY DISTANCE (IPD) OF THE HEADSET?

Use the mechanical IPD adjust on the bottom-left of the HP Reverb G2 headset. Adjust the distance between the lenses until you achieve the greatest visual clarity.

#### O 2.7: WHAT SHOULD I DO TO GET A CRISPER IMAGE?

There are a few things you can try if you feel that your display looks a little blurry:

- Make sure that your headset is on your head correctly with your eyes centered to the lenses.
- Try to adjust the IPD (interpupillary distance). Reverb G2 uses a hardware IPD. To change it, look for IPD adjustment on your headset.

If you need glasses or contacts, you'll need to wear them when using the device.

- Check that your lenses are clean (microfiber cloth only no fluids).
- Because of the advanced headset design, there may be some minor image ghosting in the first few minutes when starting the device while cold until the LCDs have the opportunity to warm up.

### Q 2.8: ARE THERE GOOD OPTIONS TO MAKE THE HP REVERB G2 HAND CONTROLLERS RECHARGEABLE?

The only option currently is to use rechargeable AA batteries with an external charger. Rechargeable batteries are not recommended, but if used we highly recommend 1.5 V rechargeable batteries. Nonrechargeable lithium AA batteries may provide longer battery life than standard alkaline batteries. Do not mix battery chemistries. Do not exceed 3.6 V total combined battery voltage.

### Q 2.9: HAS THE HEADSET BEEN SUCCESSFULLY TESTED WITH CABLE EXTENSIONS?

Cable extensions are not recommended as they may not maintain bandwidth. The provided 6.0 meter cable is considered optimal.<sup>3</sup>

## Q 2.10: IS THE VIDEO SIGNAL CABLE DISPLAYPORT™ OR MINI-DISPLAYPORT™ AT THE PC END?

The cable attached to the headset is DisplayPort<sup>™</sup> 1.3; the HP Reverb G2 VR Headset comes with a DisplayPort<sup>™</sup> to mini-DisplayPort<sup>™</sup> adapter.<sup>3</sup>

# Q 2.11: CAN THE DISPLAYPORT™ BE ADAPTED TO WORK ON A LAPTOP THAT ONLY HAS HDMI? ARE THERE ANY KNOW HDMI ADAPTERS THAT WILL WORK RELIABLY WITH THE HEADSET?

No, the HP Reverb G2 VR Headset requires DisplayPort<sup>™</sup> 1.3; HDMI adapters cannot handle the bandwidth required. You can, however, use a USB-C<sup>™</sup> port on your laptop with a USB-C<sup>™</sup> to DisplayPort<sup>™</sup> adapter, provided it supports DisplayPort<sup>™</sup> 1.3.

#### Q 2.12: ARE REPLACEMENT CABLES AVAILABLE FOR PURCHASE?

Yes, replacement cables can be purchased separately.<sup>3</sup>

#### Q 2.13: ARE REPLACEMENT LENSES AVAILABLE FOR PURCHASE?

No, the lenses are not replaceable. While the lenses are removable, doing so may void your warranty.

## Q 2.14: CAN YOU WEAR EYEGLASSES WHILE USING THE HEADSET? ARE THERE LENS SPACERS OR PROTECTORS AVAILABLE TO PROTECT MY EYEGLASSES?

Yes, most eyeglasses will fit comfortably with the headset. There are no spacers, but the face padding is sufficient to hold the HMD away from your eyeglasses in most instances.<sup>4</sup>



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#### Q 2.15: WHY LCD PANELS INSTEAD OF OLED PANELS?

LCD panels provide superior color and clarity compared to OLED panels, and they are also less expensive. Each pixel in a display is composed of colored sub-pixels, and the combinations of brightness of the sub-pixels combine to create the color your eyes see from the pixel. In LCD displays, each pixel has a red, green, and blue sub-pixel, which is an optimal arrangement. In most OLED panels, the sub-pixels are arranged in a PenTile pattern, which leaves most pixels with only two colors of sub-pixels. LCDs also have better fill ratios, meaning that there is less black space between pixels, creating less 'screen door' effect and greater image clarity.

### Q 2.16: IT LOOKS LIKE MY LEFT DISPLAY IS STRETCHED, AND THE RIGHT DISPLAY IS OFF-CENTERED AND HALF BLACK. HOW CAN I FIX THIS?

This can happen when your headset isn't running at the native resolution. Because of the nature of the high-resolution displays in the HP Reverb G2 HMD, not all systems can render the native resolution. There's a fix coming in a future Windows Update that will address the rendering issue when the headset isn't at the native resolution.

There are a few reasons why your system isn't able to render at the native resolution:

- The DisplayPort™ on the system might not be 1.3 compatible, or it might not support all four lanes.
- If you're using an adapter, it might not support be HBR3 compatible, or it might not support all four lanes.
- If your system has a hybrid GPU, that might be limiting the bandwidth available to the DisplayPort™.

#### Q 2.17: CAN I DISABLE THE WINDOWS BUTTON ON THE CONTROLLER?

You can only disable the Windows button by setting the entire computer to 'kiosk mode.' In kiosk mode, the user can only access a limited set of applications, and the Windows key is inactive. Kiosk mode may not be appropriate for your use case.

In previous versions of Windows, pressing the Windows button would close the running VR application and bring up the Welcome Cliff House. Now, it only brings up the quick action menu. You may not need to disable the Windows key on newer versions of Windows.

Information about setting your computer into kiosk mode can be found here.

### Q 2.18: MY HP MOTION CONTROLLER JOYSTICK WILL SOMETIMES STICK TO ONE SIDE. WHAT SHOULD I DO TO PREVENT THIS?

This issue is corrected by fully depressing the joystick until it clicks and it will move freely.

### Q 2.19: WHY ARE MY HP MOTION CONTROLLER MODELS NOT SHOWING UP CORRECTLY IN A GAME?

While most games don't display the controllers or use the models installed by the driver, some games use their own versions of the controller models, either to customize them or to display contextual help for the available inputs. Usually, this doesn't block any features of the games but might lead to confusion or even visual artifacts. This can only be fixed with an update of the game itself.

### Q 2.20: DOES THE HP REVERB G2 VR HEADSET SUPPORT GESTURE RECOGNITION?

No, WMR headsets do not currently support gesture recognition.

### Q 2.21: HOW DO I GET HP REVERB G2 TO WORK WITH VALVE KNUCKLES, HTC VIVE HAND CONTROLLERS, OR HTC VIVE OBJECT TRACKER?

This can be achieved using third-party software. <u>Find the instructions here</u>. Note that set up requires HTC external trackers (base stations) to track the controllers. If the base stations are moved, controllers will need to be completely reconfigured from the beginning of the set up process.

#### Q 2.22: CAN I ACCESS THE CAMERA DATA/SOFTWARE DEVELOPER'S KIT?

The camera data is not available for developers. However, when wearing the headset you can peek into the real world through the cameras using flashlight mode. You can access flashlight mode by opening the Windows menu with the controller, or if voice commands are on, by saying "flashlight."



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\*REGISTRY DISCLAIMER\*

Tips with an asterisk involve editing the registry (regedit. exe). You should not edit registry data unless it is necessary. An error in the registry may cause your system to malfunction. If this happens, you can restore the registry to the state it was in when you last started the computer successfully. For more information, see the user HELP guide for your operating system.

#### Q 2.23: CAN THE HP REVERB G2 BE USED OUTDOORS?

The headset is not designed for outdoor use. Using the system outdoors is unsafe because you cannot see your surroundings. Additionally, the tracking system is optimized for indoor environments, so you may spontaneously lose tracking and be unable to recover it if outdoors.

### Q 2.24: SOMETIMES I GET A WMR CABLE ERROR OR IT WORKS FOR A MINUTE AND THEN CUTS OUT - WHAT'S GOING ON?

You may be experiencing a random PC power issue. Be sure you are using the provided power adapter with the headset cable.

#### O 2.25: SHOULD I DISABLE PC SLEEP MODE WHEN WORKING IN VR?

It's best to disable sleep mode in the **WINDOWS SETTINGS**, under **POWER**. Neither Mixed Reality nor SteamVR work well after the PC system has gone to sleep. If you see issues after the system has gone to sleep, reboot.

### Q 2.26: I AM GETTING A 7-14 "SOMETHING WENT WRONG" ERROR WHEN I PLUG IN MY HEADSET. WHAT SHOULD I DO?

The 7-14 Something Went Wrong code means that some of the required USB2 components weren't found. Because of the extra-long cable of the HP Reverb G2, some of the tolerances for the USB signals are tighter. This means that one port on your computer may work more reliably than another.

If you're seeing a 7-14 "something went wrong" error, try the following steps:

- Make sure that you have the most recent drivers installed for your headset and your USB controller.
- Make sure you're using a Microsoft USB driver. There should be a "Microsoft" in the name of the "eXtensible Host Controller" device.
- Try plugging the cable into a different USB-3.0 port on your computer.
   (Try USB Type-C<sup>™</sup> and Type-A ports)
- Use the included USB C to A adapter to try different ports.
- Try plugging the headset in through a USB Hub to your computer.

NOTE: HP recommends using only USB controllers built into the motherboard with Reverb G2 devices. If you are unable to connect your device, please contact HP Support.<sup>3</sup>

### Q 2.27: I AM GETTING A 13-14 "SOMETHING WENT WRONG" ERROR WHEN MY PC RESUMES FROM HIBERNATE (S4). WHAT SHOULD I DO?

Sometimes during the resume process, the video card can't establish a connection, so unplugging the USB Type C<sup>™</sup> from your PC and plugging it back in may help to establish a connection.

## Q 2.28: OTHERS STATE I AM LOUD OR THAT MY AUDIO IS CLIPPING WHILE I AM USING THE MICROPHONE WITH SOME APPLICATIONS. WHAT SHOULD I DO TO PREVENT THIS?

The input volume levels are automatically set to 100% when the HP Reverb G2 microphone is first recognized by a Windows PC. Because of the Reverb G2's high-quality microphones, input sensitivity is much higher than the default Windows 10 settings expect. We recommend setting the Reverb G2 microphone input level starting at 50% and scale up from there. An optimal setting is specific to the user, especially when using applications that don't have an "auto-gain" microphone setting. Examples of applications that have "auto-gain" are Skype, Zoom, Teams, and Cisco WebEx, but not all VR social or broadcasting applications have this feature.

#### Q 2.29: WHERE IS THE BACK STRAP SUPPOSED TO BE WORN?

It is supposed to cradle the occipital lobe, which is the lump/bump on the back of your skull. Wearing it there will greatly improve FOV and sweet spot.

### Q 2.30: HOW CAN I POWER DOWN THE HEADSET WHILE STILL USING MY PC?

Unplug the AC connection adapter from the link box on the headset cable to remove power to the headset.



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#### 3.0 WINDOWS MIXED REALITY (WMR)

### Q 3.1: WHAT COMMON HEADSET TRACKING CHALLENGES MIGHT I RUN INTO AND HOW DO I RESOLVE THEM?

The tracking system should provide six degrees of freedom (6D0F), which means movement in three dimensions (front-back, left-right, and up-down) and rotation in three dimensions (yaw, pitch, and roll). Sometimes you may get only rotation tracking (3D0F). This usually occurs when the headset has been unable to see the floor and/or walls for more than a few seconds. The issue can be resolved by allowing the cameras to get a clear view of the floors and walls.

Another possible issue is that the floor is not in the right position, or your starting position in your VR experience is not where you want it to be in the real world. Both issues can be resolved by opening the Windows Mixed Reality window and going through room setup again.

### Q 3.2: WHAT KNOWN HAND CONTROLLER TRACKING CHALLENGES ARE THERE AND WHAT ARE THE RECOMMENDED SOLUTIONS?

The hand controllers will only track when the cameras on the headset can see them. Keep the controllers in the tracked area to maintain optimal tracking. If you still cannot see the controllers, be sure that they are paired to the headset.<sup>2</sup>

#### Q 3.3: CAN I RUN WMR WITHOUT AN INTERNET CONNECTION (OFFLINE)?

Yes, after initially configuring the Windows Mixed Reality Portal using an internet connection. The first time the Windows Mixed Reality Portal is set up, updates will download and install from the internet. After set up, you can work offline.

#### Q 3.4: HOW DO I RUN OCULUS APPLICATIONS ON THE WMR PLATFORM?

"Revive" allows you to run Oculus applications in SteamVR. You will need to have SteamVR set up on your system in order to take advantage of Oculus applications. Revive's Wiki page includes setup instructions and a troubleshooting guide - get it here.

#### Q 3.5: MY HEIGHT IS NOT CORRECT IN VR - HOW DO I FIX IT?

**OUTSIDE A VR EXPERIENCE:** Run room setup.

**INSIDE A VR EXPERIENCE:** Navigate to the Windows Cliff House, press the Windows button to open the start menu, click on *ALL APPLICATIONS* and open the *FLOOR ADJUSTMENT* app.

### Q 3.6: MULTIPLE SETS OF HP WMR DEVICES ARE DEPLOYED IN ADJACENT AREAS – IS MUTUAL INTERFERENCE GOING TO BE AN ISSUE?

WMR devices typically do not have trouble operating near each other. For example, you should not experience problems with tracking. However, the controllers and headsets are connected by Bluetooth®. Like all Bluetooth® devices, if there is too much radio interference then there may be connectivity issues.

### Q 3.7: DOES WMR SUPPORT THE DEVELOPMENT OF MULTI-PLAYER APPLICATIONS?

Creating multi-player applications is a complex challenge. While it is possible to create spaces that are shared in both VR and the real world, neither software platforms nor game engines offer native support today; currently, all solutions must be improvised.

#### Q 3.8: TIPS FOR CREATING SHARED VR SPACE BOUNDARIES?

You may have multiple people in VR while in the same area. It's important to have boundaries set up for each user that do not come close to overlapping the other users. People will often reach outside the boundary even if their feet don't walk outside of it. Considering two people doing this at the same time; a five-foot buffer between boundaries is recommended.



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### Q 3.9: HOW DO I DISABLE/ENABLE THE WINDOWS BUTTON ON THE CONTROLLER?\*

You may find that users accidentally press the Windows button on the VR controllers. This takes the user out of the VR experience and returns them to the Cliff House. You may need to create this DWORD to change its value:

**Key:** HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\Windows\Dwm

**Value:** DisableBloomFor6dof

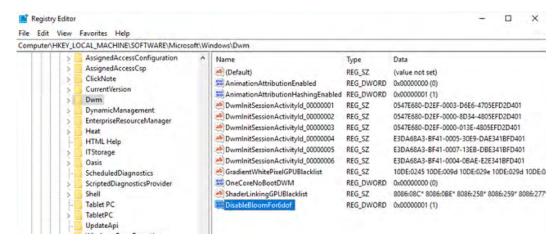
**Type:** REG\_DWORD

**Data:** WMR Controller Windows button functionality (0=Enable, 1=Disabled)

This will DISABLE the Windows button on the WMR controllers - reboot your computer for it to take effect.

[HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\Windows\Dwm]

"DisableBloomFor6dof"=dword:00000001



RESTORE DEFAULT: This will ENABLE the Windows button on the WMR controllers - reboot your computer for it to take effect.

[HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\Windows\Dwm] "DisableBloomFor6dof"=dword:0000000

#### Q 3.10: CAN I CHANGE THE HEADSET IDLE TIMEOUT?\*

By default, WMR headsets turn off after 15 minutes of idle. This will pause Mixed Reality and any VR experience being displayed. If you have a non-interactive demonstration, you may find you want to extend the default timeout. You may need to create this DWORD to set its value:

**Key:** HKEY\_CURRENT\_USER\Software\Microsoft\Windows\CurrentVersion\Holographic

Value: IdleTimerDuration
Type: REG\_DWORD

**Data:** Mixed Reality Portal idle timer specified in milliseconds

This will set the WMR HMD idle timeout to 3 hours. Restart Mixed Reality Portal (if open) to take effect.

[HKEY\_CURRENT\_USER\Software\Microsoft\Windows\CurrentVersion\Holographic] "IdleTimerDuration"=dword:00a4cb80



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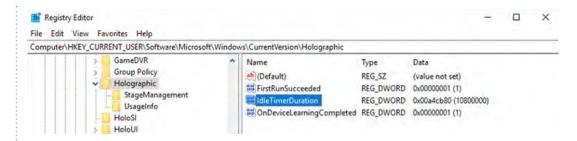
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RESTORE DEFAULT: This will set the WMR HMD idle timeout to 15 minutes. Restart the Mixed Reality Portal (if open) to take effect.

> [HKEY\_CURRENT\_USER\Software\Microsoft\Windows\CurrentVersion\Holographic] "IdleTimerDuration"=dword:000dbba0

#### O 3.11: THE MIXED REALITY PORTAL SAYS "CAN'T RUN MIXED REALITY ON THIS HEADSET" BUT THIS WORKED FINE WITH MY PREVIOUS WMR **HEADSET. WHAT SHOULD I DO?**

This may happen because your HP Reverb G2 requires a more powerful PC to ensure the best experience. For more information, please review the minimum PC requirements.

#### 4.0 GENERAL VR

#### O 4.1: WHAT IS MEANT BY SIX DEGREES OF FREEDOM?

Six degrees of freedom refers to the basic ways an object can move through 3D space. Three degrees correspond to rotational movement around the x, y and z axes; the other three relate to translational movement along the same axes, such as moving forward or backward, moving left or right, and moving up or down.

#### Q 4.2: AS A DEVELOPMENT OPTION, WHAT ARE THE TRADE-OFFS OF DEVELOPING FOR STEAM VR VS. SUPPORTING THE WINDOWS MIXED REALITY PLATFORM NATIVELY?

Supporting Windows Mixed Reality natively will allow your users to use your content without needing Steam VR. This can be important in corporate or secure environments where logging into a Steam account may not be possible.

#### Q 4.3: WHAT IS THE BEST WAY TO SECURE CONTENT?

Use standard best practices for securing storage devices on computers, such as hard drive encryption.

#### Q 4.4: WHAT ARE FIDUCIAL MARKERS?

Fiducial markers are visible objects used as reference points or measuring units. In VR, fiducial markers are used for positional tracking of HMDs and input devices. Fiducial markers can be utilized in both inside-out tracking and outside-in tracking.

#### Q 4.5: WHAT IS INSIDE-OUT TRACKING?

The HP Reverb G2 uses inside-out tracking, a positional tracking method to track the position of the HMD and controllers. With inside-out tracking, the cameras are locating on the HMD, as opposed to outside-in tracking, which relies on stationary external sensors.

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- One (1) year standard limited warranty. Optional Care Packs are available to extend your protection beyond the standard limited warranty. For details, v.
   Refresh in October 2021: 30% vertical tracking improvement based on an average user with arm length of 70 cm. Only available with headsets sold in 3. The 6M cable is now compatible with All AMD systems. Intel® systems continue to be compatible. Only available on headsets sold in the US.
- 4. With the new adjustable eve relief facemask, you can easily customize your eve distance from the lenses to get an improved visual experience. Only available on headsets sold in the US

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