Table of Contents

metaGVR.com/manual

support@metagvr.com

WARNING : All contents of this document are subject to change under various circumstances such as the app updating or our process being refined over time. For the most up to date user manual, please head over to www.metagvr.com/manual or scan this QR Code to go there now. If you require help you can contact us at support@metagvr.com

Introduction

MetaG is an all-in-one solution that offers a flexible, portable and user-friendly way to present a three-dimensional space to your customers while obtaining instant feedback on what each user is observing and pointing at, using our MetaG Controller app on an Android tablet or phone.

A Tour of the Contents of the Travel Case

This travel case should contain the following items:

1 x Tablet

3 x VR Headsets

6 x VR Controllers

4 x Device Chargers

1x Quick Start Guide

1x User Manual

One Time Hardware and Software Setup

Tablet setup

This step will require an Android tablet.

1. Start the Android tablet included in your travel package. You may need to charge the device if the battery is depleted.
2. Please completed the standard Android setup process by following the on-screen instructions.*
3. Install and set up the Meta Horizon app# and the MetaG Controller apps by scanning the link(s) below going to their respective URL's.

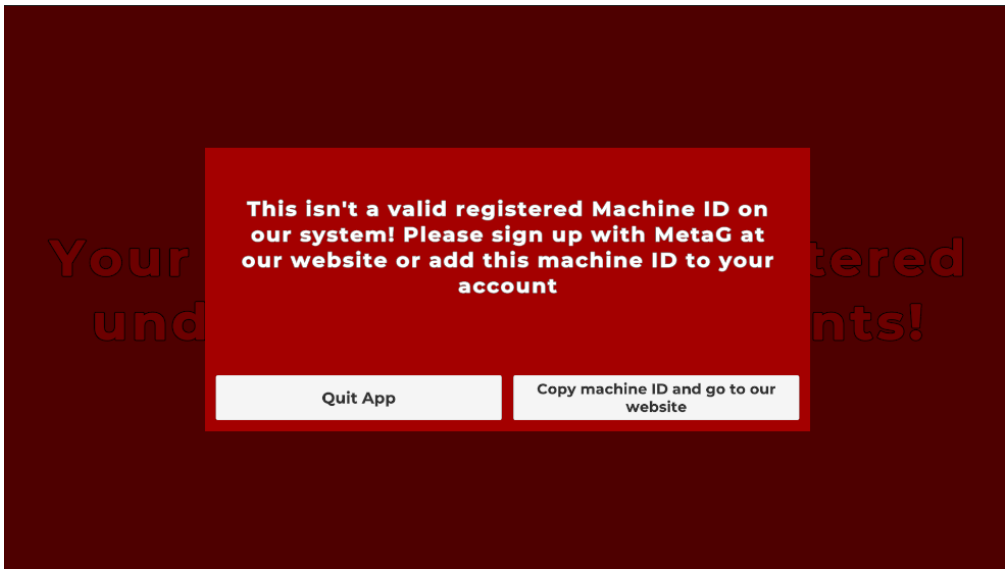
https://play.google.com/store/apps/details?id=com.oculus.twilight

META HORIZON APP
Required for managing your VR devices

https://www.metaGVR.com/cApp

MetaG Controller App
Required for controlling VR Devices

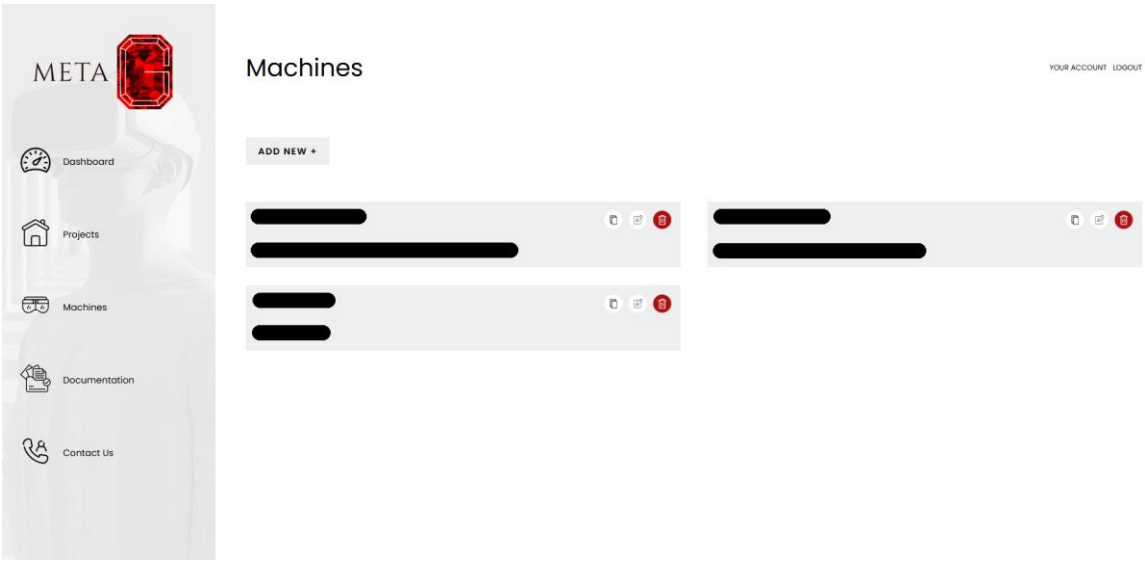
4. Once you open the app, it should show the below message:



5. Tap on the ‘Copy machine ID and go to our website’ and log into the MetaG portal. Your tablet’s machine code will be added to your keyboard clipboard.
6. From the sidebar, select ‘Machines’.

7. Click on ‘Add new +’ and paste the machine code under ‘Machine Code’. Additionally, provide a name to identify the tablet. This could be

the operator’s name, an inventory code or anything else.



Now, open the app again, and you should be able to access your headset management screen, where you can view all your projects, areas, and views.

Enabling developer mode

This needs to be done only once. Once it’s done, we can use this account on all our Quest devices. On a laptop or desktop computer, please follow these steps:

1. Go to: https://developer.oculus.com/manage/organizations/create/
2. Log in with your account (The same account that has been used on all the Quest devices we set up).
3. If needed, enter your credit card or phone number. Click on Add next to the method of your choice.. Once your account is verified, go back to the main developer page.
4. Enter your organization’s name. If you are a personal user, you can also enter your name. Enable the checkbox and click on Proceed.
5. Agree to the Non-disclosure agreement.
6. Go to https://developer.oculus.com/manage/verify/ to verify your account. Here, you need to either add a credit/debit card or enter the confirmation code received on your mobile number.

Setup the VR Headsets

This will have to be done once per VR Headset.

1. Pull out tabs on both the controllers.

2. Point at the next button and hit the trigger(the button near your pointer finger).
3. Select your language and use the trigger to hit next.
4. Adjust the lens depth to match your needs (Low depth is more immersive but higher depth is required if your user wears glasses).
5. Select 'Add WIFI on this device'.
6. Select your WIFI network and enter your password (point any controller and pull the trigger on it to click on a letter.)
7. From here, we will need the Horizon app running on the android tablet (NOTE : Ensure the Android tablet and the VR headset are on the same WiFi network).
8. In the horizon app, Hit the button at the top right and select Pair headset.
9. Select Quest 3 and pick ‘I have already setup WIFI on the headset’.
10. Select an avatar for this account then let the headset restart.
11. The headset will now update its software. Once done, we can proceed.
12. On the tablet, accept all and be sure to enable body and hand tracking.
13. A payment method isn't required here. Select ‘Not now’ at the bottom
14. The headset will now start a tutorial for its features. This can be skipped if you're setting up multiple devices but it's recommended to go through once to get familiar with the menu system.
15. You should now be on the home environment of Horizon OS.
16. On your tablet,tap on the hamburger icon. Select devices and then tap on your Meta Device.
17. Turn bluetooth on if prompted and wait for the tablet to connect to the Quest device.
18. Finally, tap on Headset Settings>Developer mode and toggle it on.
19. The device is now fully set up with your meta account and we have a developer account that allows you to operate the device successfully.

Install the MetaG Viewer App

This step will require a laptop or desktop computer

1. In a web browser, head over to www.metaGVR.com/vApp and download the viewer application.
2. Download the Meta Quest Developer Hub from.https://developers.meta.com/horizon/downloads/package/oculus-developer-hub-win/

3. Install the application on your computer and sign into your Meta account (The same used in the above step while creating a meta account and enabling developer permissions).
4. Accept the terms and you should find yourself on the developer hub home page.
5. Click on Devices from the left tab.
6. Turn your VR headset on and plug it into your computer using a USB or USB-C cable.
7. If you have the developer mode enabled, you should see your headset pop up under Devices.
8. To install the application, you can either drag the application file onto the window and drop it on ‘Connected device Meta Quest 3’ or click on browse and select the .apk file
9. Wait for the installation to finish.
10. Once you see the green tick mark, you can unplug the device and it’s now ready for use.
11. Follow steps 5 to 10 for all VR Headsets so the app is installed perfectly on all of them.

Creating content for MetaG

Best practices for creating VR Content

➔ Remember, in VR the camera isn’t just the point from which the shot is taken, It’s your user’s eyes. Consider what eye level would be apt for the experience that you’re going for. In most cases, your clients will be seated for this experience. Place the camera at around eye level when in a chair.

➔ All rotation will be accounted for by the headset. Set Pitch parallel to the horizon and roll perfectly flat. Use the Yaw component of rotation to point the user towards the focus of the scene so at 0° rotation the user is facing the way they should. If using a 360° camera, ensure that the camera is perfectly level to the ground on both axes and then point its forward direction towards a point of interest.

➔ The user will be seeing the scene as if they’re present in the scene. So, ensure they’re located in a place accordingly. E.g.: In normal rendering or photography, it makes sense for a camera to be placed over a bed at the center of the room. However, in VR that shot would feel odd as our feet appear to be inside the bed.

➔ In VR, the image MUST be 2:1 per eye, so that level of detail is consistent across the horizontal and vertical direction. Thus, the following aspect ratios emerge
    - ◆ Single Eye or Equirectangular Images MUST be 2 : 1
    - ◆ SideBySide or Left/Right Images MUST be 4:1
    - ◆ Top/Bottom Images MUST be 1:1
➔ Resolution is an important consideration in virtual reality. Too low and the illusion breaks as the world looks fuzzy and out of focus. Too high and the performance starts to suffer. Below is a recommended range to stay within for final renders or photographs shown to the clients:
    - ◆ 3000x1500 to 8000x4000 for Equirectangular
    - ◆ 3000x3000 to 8000x8000 for Top/Bottom
    - ◆ 6000x1500 to 16000x4000 for Left/Right

Experiment with lower resolution for test renders. You may be able to get away with as little as 1500x750 if all you want to do is check the scene's lighting or experiment with camera positioning in VR.

➔ Layout is another consideration. Equirectangular images cut render time and size in half as only one image is shown to both eyes. This destroys the illusion of depth however it's great for larger scenes where render time gets out of hand or when testing a scene to decide what camera position to use for the final render.
➔ When choosing where to set the camera in the scene, consider the following:
    - ◆ **Shape and size of the room:** Some rooms may require multiple shots due to how large they are or their shape. Users may want to look around corners or look closer at certain details
    - ◆ **Emotional Importance:** Some places hold high emotional importance and may deserve multiple shots. E.g.: A balcony is a small space that can be seen clearly in one image. But, it may still justify 2 shots to sell the emotion of the space, like one on the swing in the balcony and one looking out at the view at the edge of the railing.
    - ◆ **Who you're showing it to:** A meeting room should logically be shot from the middle of the room for the most detailed information about the space. However, If you're preparing a demo for someone who will sit at the head of that table, consider taking a shot from that position. This will help them visualise as they will experience it every day.
    - ◆ **Not every room deserves a render:** For some spaces like a pantry or storage room, clients may prefer spending the rendering

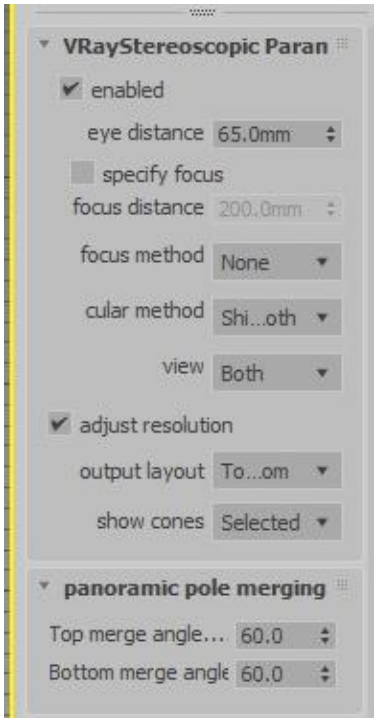
time on a different angle of their bedroom or an extra shot of the home office from the desk instead VR renders are time consuming due to the resolution requirements so we must weigh the opportunity cost.

- While using a 3D camera, it’s much easier to delete an image than to go back to a location and set it up for photography again. Shoot many images from many different locations, heights and lighting conditions and then select your shots after the fact.

Creating your content for Virtual reality

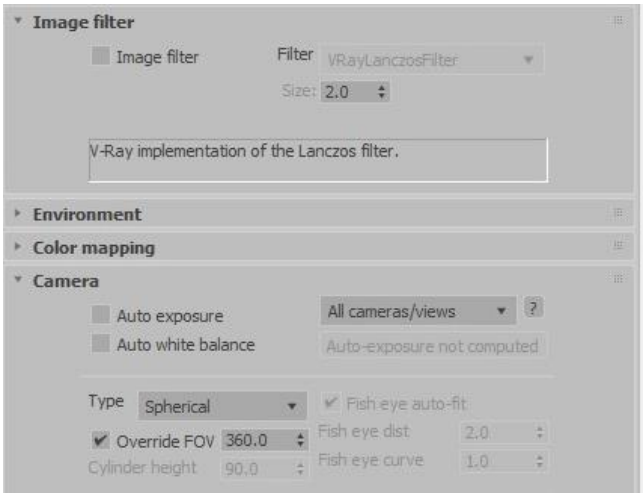
3DS Max (VRay)

1. Open your existing scene you want to prepare for VR and make the following changes.
2. Set the output resolution to a 2:1 ratio. (6000x3000 recommended)
3. Go to the Command Panel > Create > Helpers > VRay and select VRayStereoscopic. Place it anywhere in your scene and set it up as shown below:



Ensure that the helper is enabled.
Then, set the interocular distance/ eye distance to 65mm.
Enable ‘Adjust Resolution’ to let the helper adjust your resolution as you change the layout and finally set ‘Output Layout’ to ‘Top/Bottom’.

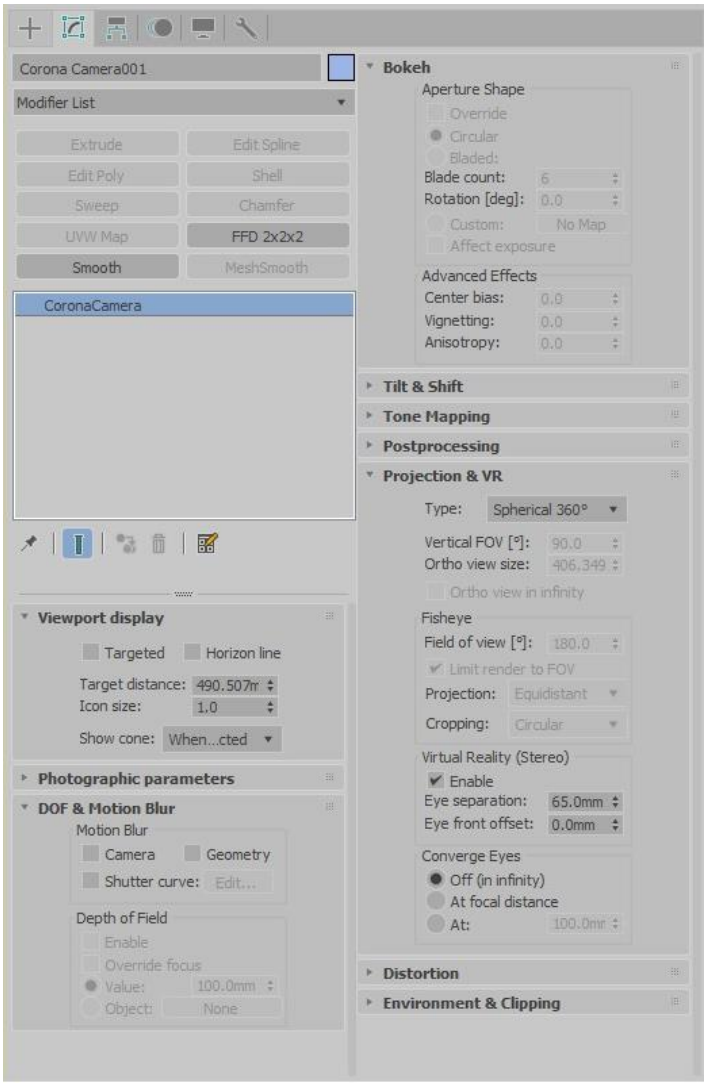
4. Under V-Ray settings in your render settings, you can set up the stereoscopic render as shown below



Turn ‘Image filter’ off. Then, under the ‘Camera’ tab, set ‘Type’ to ‘Spherical’ and enable ‘Override FOV’.Set its value to ‘360’ to get a full capture of the scene.

Max (Corona)

1. Open your existing scene you want to prepare for VR and make the following changes.
2. Set the output resolution to a 1:1 ratio. (6000x6000 recommended)



3. Add a Corona Camera

4. Set ‘Targeted’ to off. Under the sub-menu of ‘Projection & VR’, set ‘Type’ to ‘Spherical 360’.

5. You can now render Equirectangular/ single eye images that are useful for quickly testing scenes in VR.

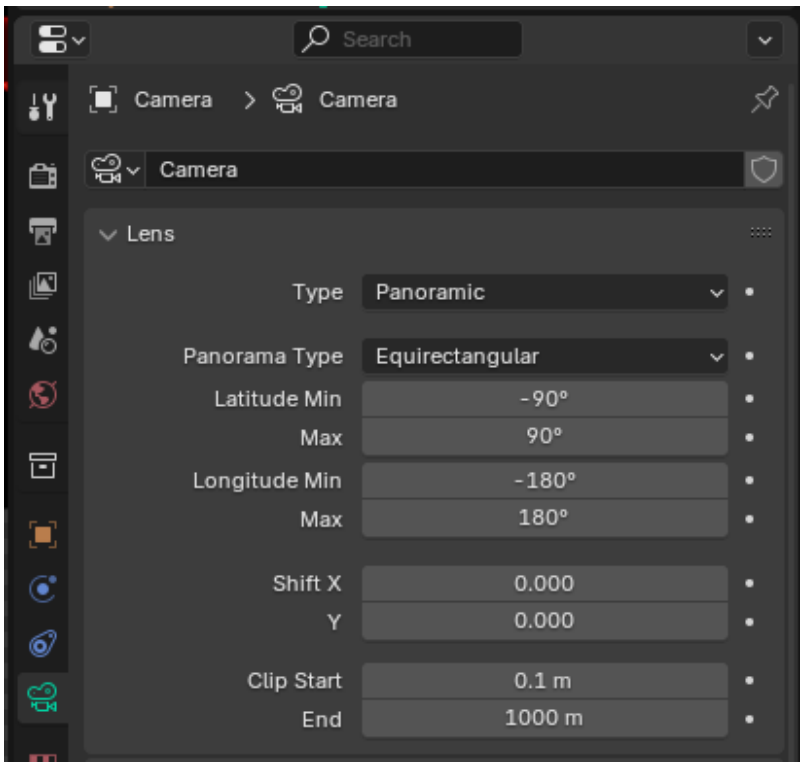
6. Under ‘Virtual Reality (Stereo)’ enable stereoscopic rendering by checking ‘Enable’ and set the ‘Eye separation’ to ‘65mm’.

7. You can now render Stereoscopic Top/Bottom images that will give a better sense of

depth at the cost of render time.

Blender

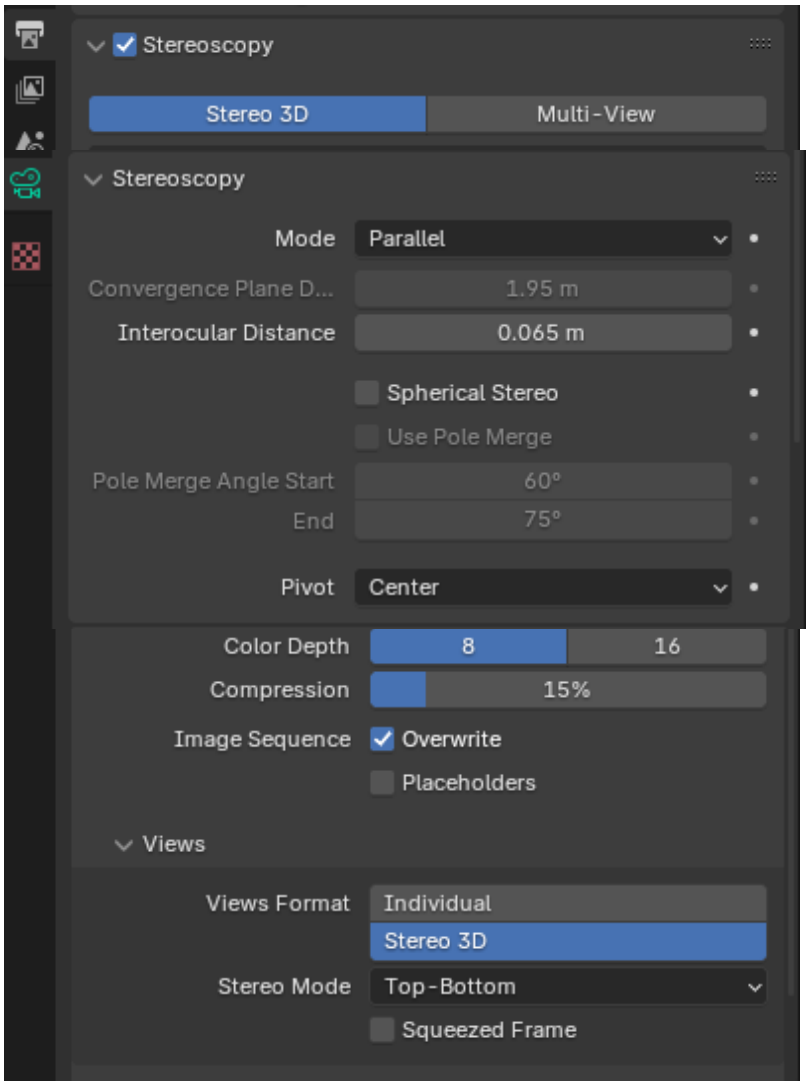
1. You must use the Cycles renderer to produce 3D images as Eevee doesn't yet support 3D images.



2. Select your camera and enter the camera tab.
3. Change 'Type' to 'Panoramic'.
4. Under that, set 'Panorama type' to 'Equirectangular'.
5. You can now create flat 3D images. Note that these images should be 2:1. The recommended minimum resolution is 4000x2000. To create images with depth, we must go on

and toggle some more settings.

6. Go to the Output tab.
7. Enable Stereoscopy.
8. Under the Views section, set the ‘View Format’ select ‘Stereo 3D’.
9. Set ‘Stereo Mode’ to ‘Top-Bottom’.



10. Select your Camera and enter the Camera Tab.

11. Under ‘Stereoscopy’ set ‘Mode’ to ‘Parallel’ and set ‘Pivot’ to ‘Center’.

12. In Blender, set the image resolution to a 2:1 ratio. The recommended minimum resolution is 4000x2000. When you save the image, it will output a 1:1 file that has a 3D Top/Bottom layout.

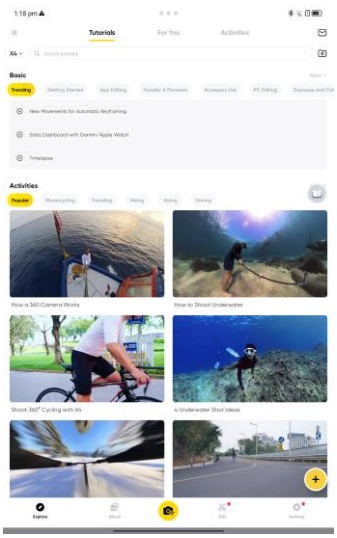
NOTE: Rendering in Top/Bottom will double the render time over simple Equirectangular but will give a better sense of depth as 3D data is preserved.

Capturing 360 Images using an Insta360

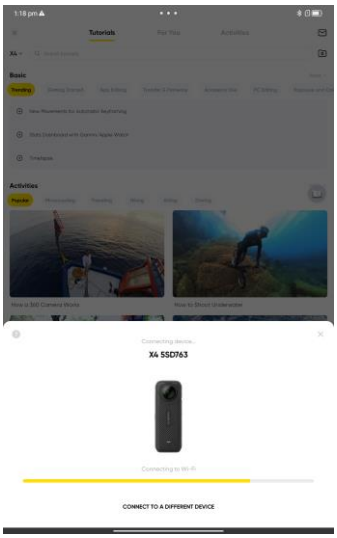
Follow the steps on Insta360's website or user manual to set up your 3D camera.

This video assumes that you've already gotten to the point where you have your 3D camera fully set up, the app has been installed on your phone and you are comfortable capturing 3D images.

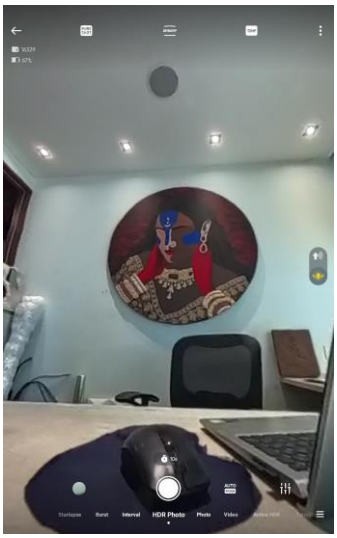
1. Mount the Insta 360 on a tripod using the ¼' mount at the bottom.
2. Keep the feet of the tripod as close as possible while ensuring the camera is stable and not at risk of tipping over.(This helps as we can preserve more of the scene and won't have to crop too much when exporting the image.)
3. Turn on your tablet's WiFi and bluetooth
4. Open the Insta360 app
5. Log in/Sign up and get to the home screen



Click on the + to add a new camera.

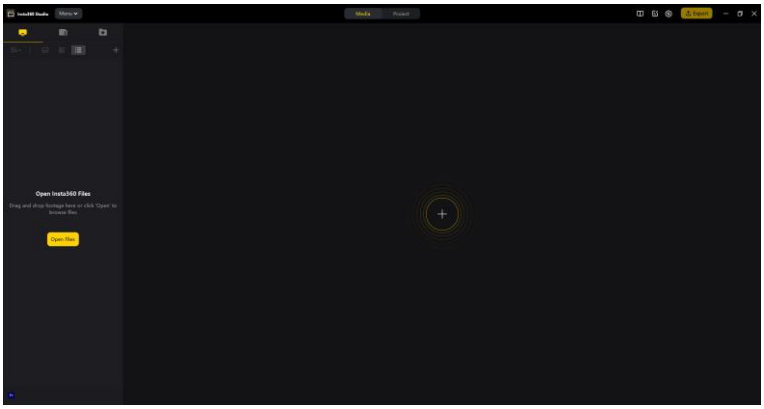


Select your camera and wait as it connects.



Once your device is paired, you should be dropped into the camera's viewport

6. You can now leave the room and snap a photograph of the scene using the app or use a timer and walk out of the room.



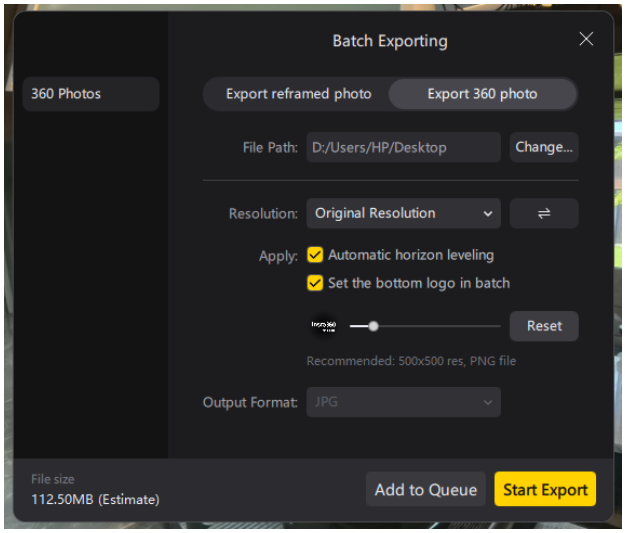
7. Repeat until you've captured the scene.
8. Connect the camera to a laptop or desktop computer and download the Insta360 studio from the Insta360 website. Then, log into your account and get to the home screen

9. Drag and drop the .INSP files from the camera's SD card into the application window.

10. Now, we can go through to select which images we want to add to our export. You can use the icon at the bottom right to switch to Dewarp so we can easily preview a scene in the selection process.

11. When prepping to export images, we can hold SHIFT to select all images up to our click location or CTRL to select specific images that we click on.

12. Right click and select ‘Start Export’.

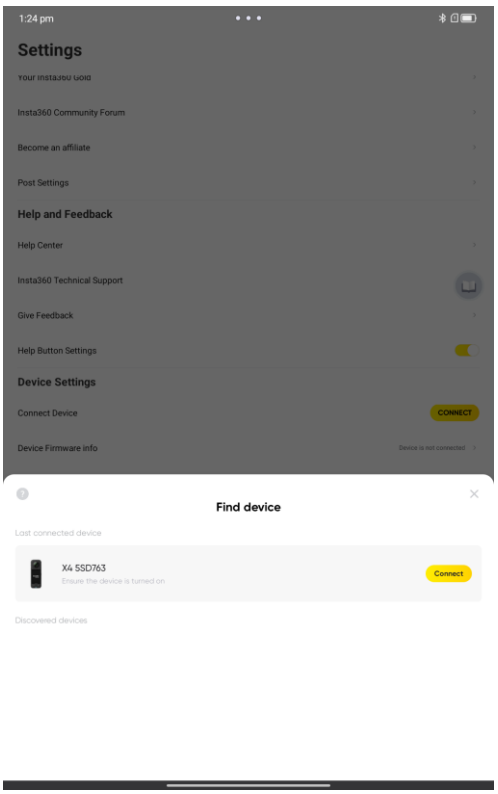


13. Set the export up as shown in the image alongside.

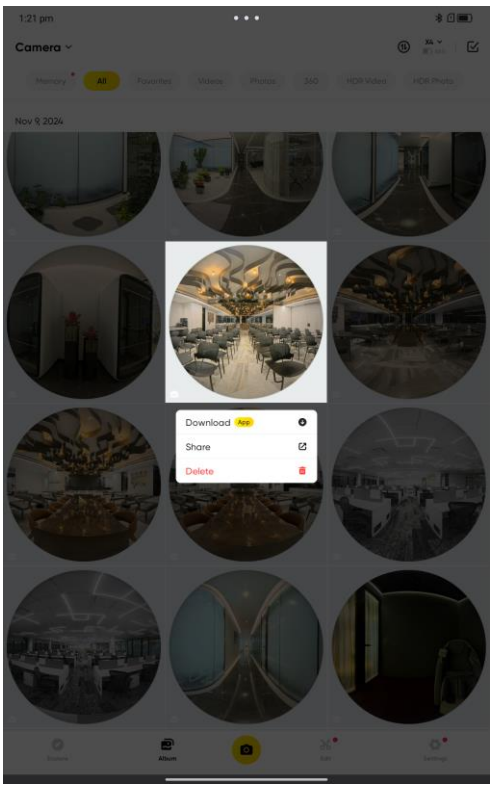
14. Change over to ‘Export 360 photo’. Set the output path as per your preferences. Set to ‘Original Resolution’. Ensure that ‘Automatic horizon leveling’ is on. ‘Set Bottom logo in batch’ is optional. Check the visibility of your tripod.

15. You can now click on ‘Add to Queue’ if you want to import more images to the queue. ‘Start Export’ if you’re ready to move on to uploading the image(s) once the export is done.

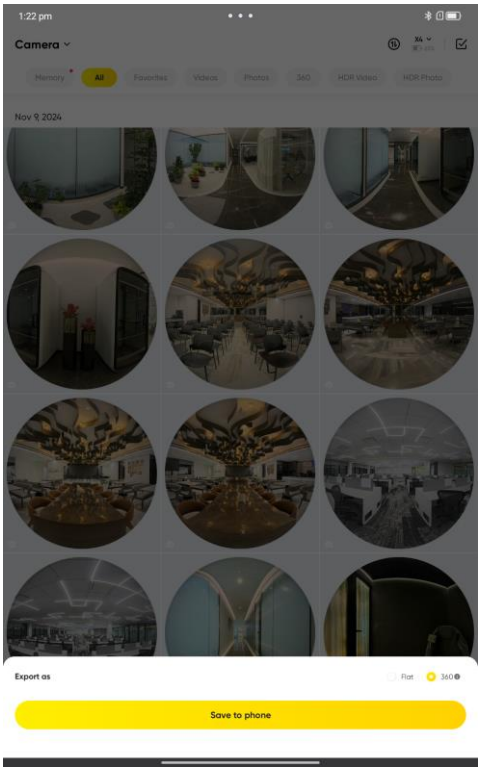
NOTE: **ALTERNATIVE METHOD OF EXPORTING WHEN ON THE SITE**. This method of exporting images is NOT RECOMMENDED as it limits quality. However, in case of emergencies it allows you to export images from the camera in a format that can be used with MetaG in situations where you don’t have access to a PC or a USB cable.



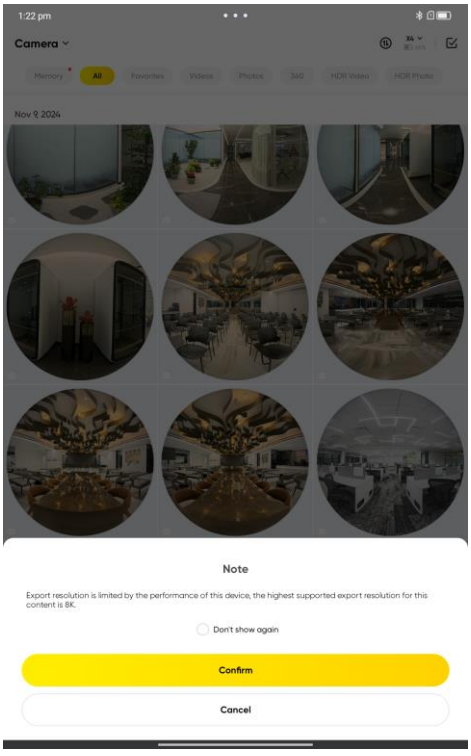
Pair your Insta360 camera with your phone or Tablet



Go to ‘Album’ and long press on the image you want to export



Remember to switch from ‘Flat’ to ‘360’ to get an Equirectangular output

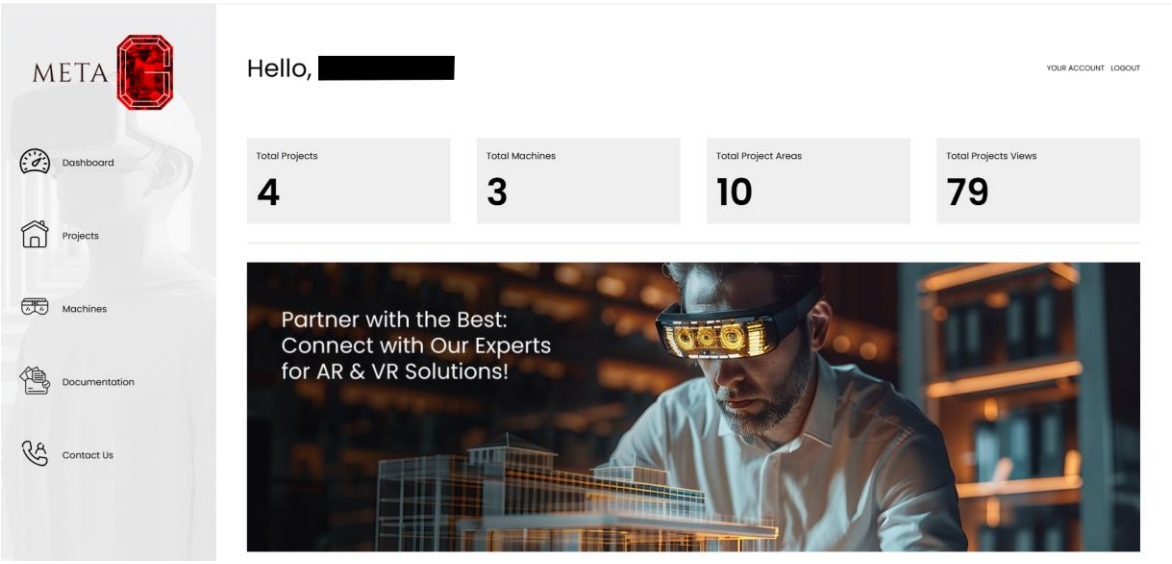


This is the main downside as the resolution is limited. However, we can hit ‘Confirm’ to save the image

to our Phone/Tablet’s internal storage. From here we can directly upload the image to our website.

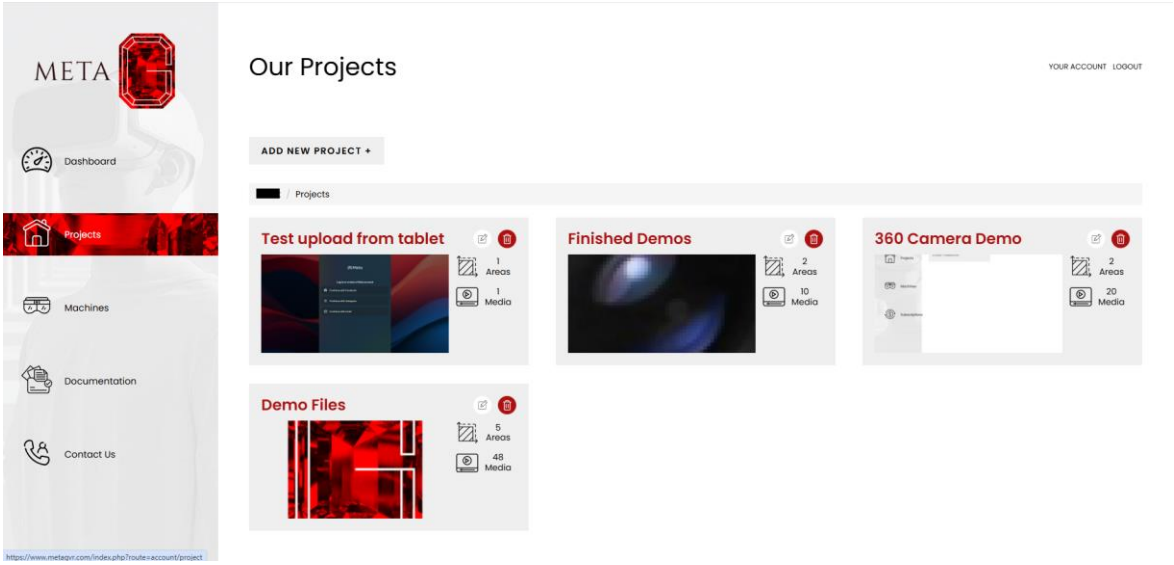
Managing your data in the cloud

Let us quickly go over uploading your content onto our web portal
Firstly, log into our web portal at https://www.metagvr.com/login.
From here, we can add, remove, manage our projects, areas within each project, views for each area and also the approved devices that are allowed to manage the tablets approved to access your data.

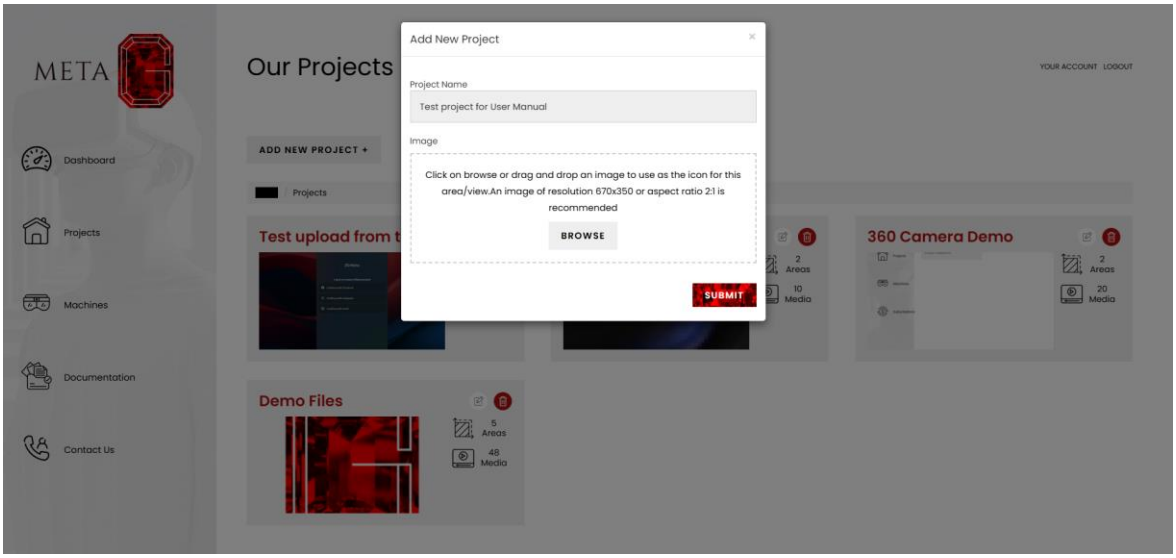


Manage the Project and Area breakdown

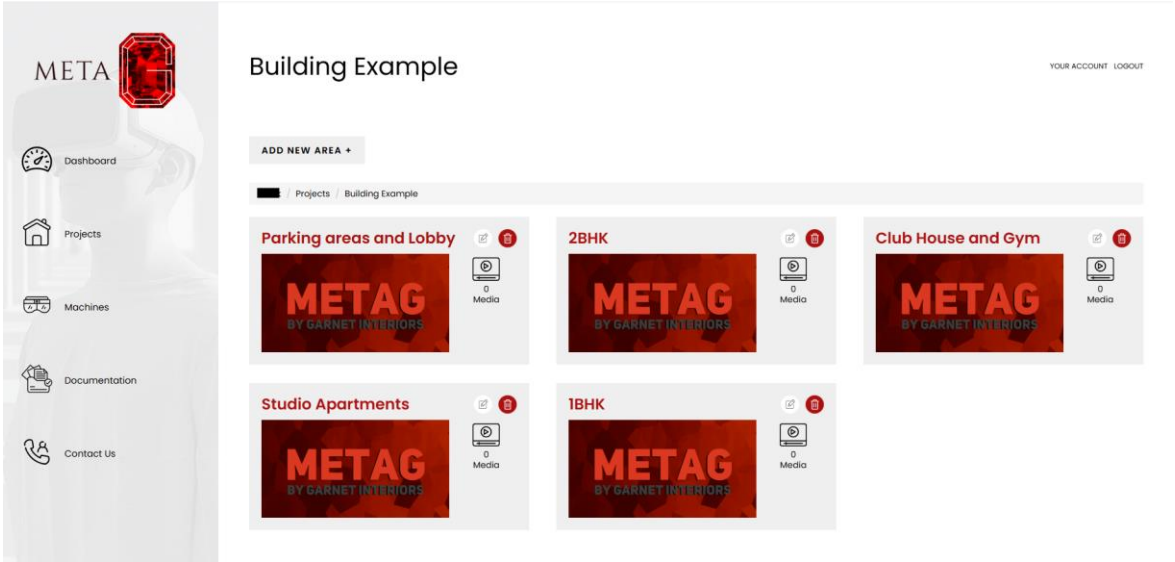
1. Click on Projects to see all the projects uploaded to your account.



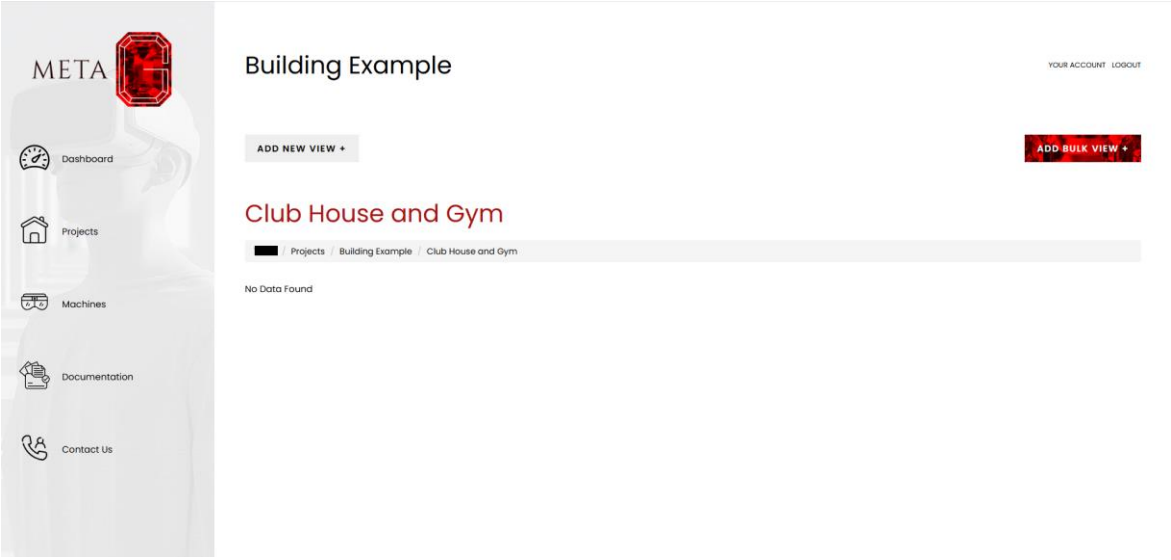
2. Click on add new project and enter the corresponding data to create a new project.



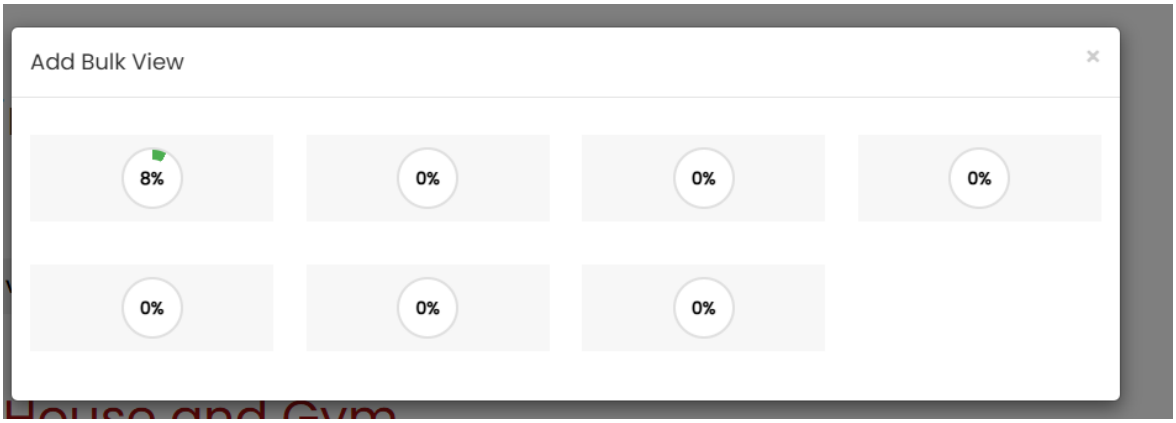
3. You don’t have to upload an icon yet as clicking on ‘SUBMIT’ will add a new project with our icon. If you have a thumbnail you want to use, click on ‘Browse’ and pick an image to use for the cover.
4. Finally, we can delete or edit projects using the little icons to the right of their name.
5. Clicking on a project will open it up and allow us to use the same controls for adding an area under this project.
   For example, a residential project may have the areas of 1BHK, 2BHK, 3BHK, Club House, Lobby and communal spaces as sub areas under the specific building project. A bungalow may be split up by room or indoor/outdoor.



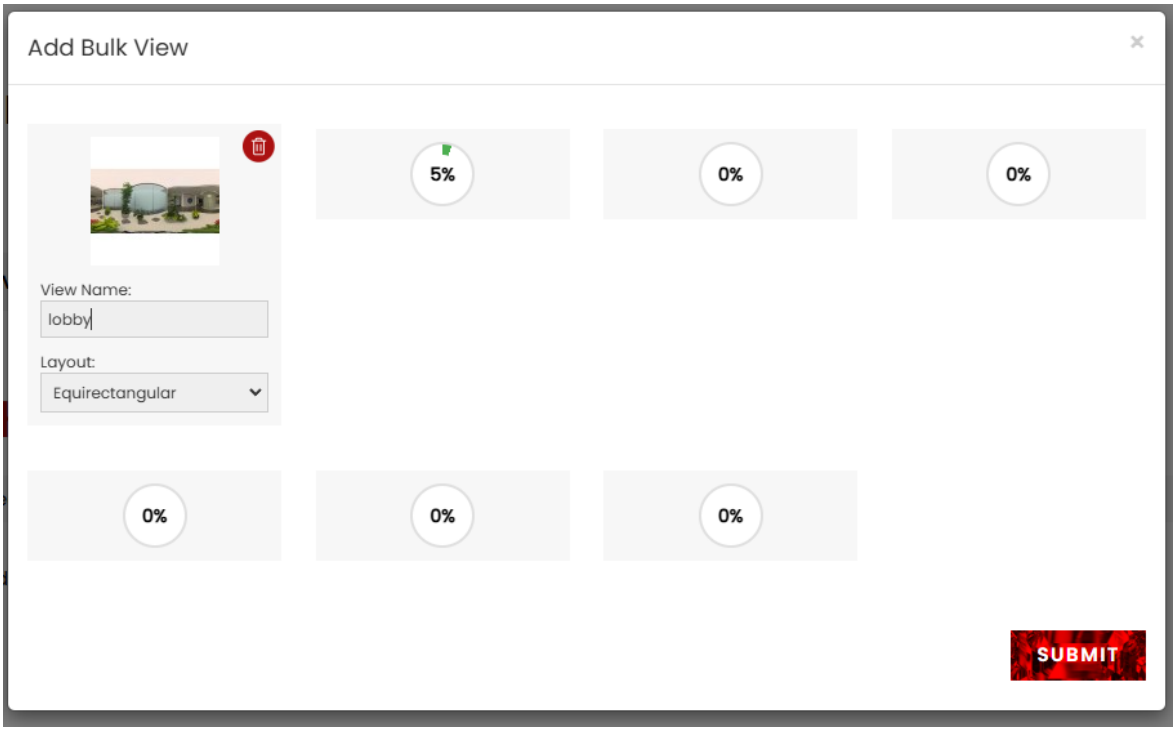
6. Finally, we can click on an area to open the area and begin adding views



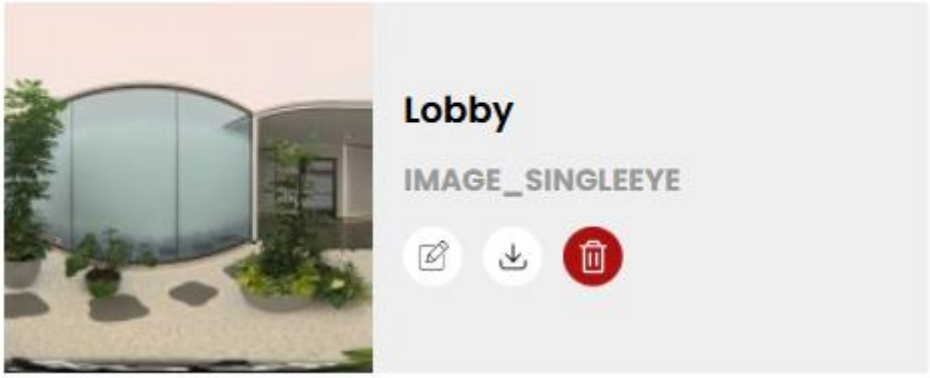
1. We can either add a single image if we are making modifications to an existing area. Click on ‘Add Bulk View +’ to quickly add a new area if we have all the images ready and sorted.
2. Click on ‘Add Bulk View +’ to bring up the file browser. We can now select all the images we want to add as new views and leave them to upload.
3. Wait as the upload finishes up.



4. We can rename views, change their type or remove them from this batch of uploads while the files are still uploading in the background.



5. Once it's done, we should ensure that the names and Image Layout are set up correctly. Then we can click on Submit to add these views to the area.
6. If we want to change any attributes about a view such as the data associated with the view, its layout or name, we can click on the little edit icon to modify the view or the little trash can to delete it.
7. If we want to take a backup, we can also download the data.



Instructions for Operator

Setup before the client can be put in VR:

Before the client arrives, do the following:

1. Put WiFi on on both your Tablet and all the Meta Quest devices you will require for the demo.
2. Connect to the same WiFi network.
3. Open the MetaG app on all devices.
4. The VR devices should automatically detect the running controller app and get connected.
5. It is highly recommended that you ensure that all the views you will require are downloaded and available on the tablet.
6. This is also a good time to double check that the views are correctly displaying on the VR headset(s).
7. If your views aren't in the side panel, there is a little refresh button. allowing you to sync with the server manually or a small globe icon letting you go to the website to upload the views.
8. You can also use the hand icon to enable or disable hand tracking quickly. In some cases, you may have poor tracking if the clients are very close to each other, there are many people in front of the client or if the lighting isn't up to the mark.
9. It may be better to disable tracking in case of such situations. If not then keeping it on, is the best for coordinating with clients.
10. You can use the three dots at the bottom of a headset's preview to access settings for just that headset. For now this is just the headset's name. We can also see a unique code for each headset that can be used for inventory and tracking headsets used by your sales force.

Headset comfort and fitment

Once the client arrives, headset fitment doesn't just ensure proper comfort but also gives the user the best experience in terms of picture quality and immersion.

1. OPTIONAL ADJUSTMENT : The face guard can be moved in or out to allow for users with glasses to fit them in the headset.
2. You will find 2 buttons inside the headset's face guard that can be pressed to allow the faceguard to slide forward and backwards. Otherwise, leave it at the second closest setting so most clients can

get a good field of view while limiting the need to clean the lenses if they are touched by a client's eyelashes or cheeks.

3. Loosen all the straps of the VR headset. The ones along the top are a simple velcro loop but the one along the back of the head requires some knowledge. Pull the little plastic tabs together to loosen the loop and pull them apart to tighten the loop. Be extremely careful when dealing with clients with long hair. It may also be wiser to instruct them on how to adjust the headset and let them put it on.
4. With all the straps loose, lower the headset onto the client's head and slowly begin tightening the straps till they're comfortable.
5. Once the headset is on, place their finger on the IPD adjustment at the bottom of the screen and ask them to move it till their vision is the clearest.
6. Finally, reset the orientation by either asking the client to make an okay hand gesture with their right hand's palm facing them or by holding the recenter button on the corresponding controller's right hand controller.
7. Confirm with the client that they're comfortable and have a clear view of the scene before proceeding with the experience.

Guided Experience Operation

Once the user(s) are settled in, We can begin the experience

1. You can open the sidebar by tapping on 'Open/Close' or swiping from left to right on the screen. From here, we can browse all our projects, areas under them and finally tap on a view to send it to all connected headsets.
2. You can close the sidebar by again tapping on 'Open/Close' or swiping from right to left. This should display a progress bar over each client's view and they should load into the new scene.
3. You should also be able to see your client's hands in their display previews so you can keep track of what clients are pointing at when they talk about.
4. Tapping on a client's preview will make that screen larger, so you can focus on specific clients if they have some detailed feedback.
5. In the client preview, the little circle indicates the connection strength. If it's green that's good and the view is updating at the expected frequency. If it's red then that means the connection isn't strong and risks dropping out. Finally, if the connection has been dead for long enough, the client is assumed to have disconnected so the

connection is closed. Don’t worry though as the headset should reconnect as soon as it’s able to.

6. The display also includes a battery indicator. Keep an eye on this and keep power banks on hand. In case of an emergency, you can request the client to keep the battery bank in their front shirt pocket or strap it to the headset’s strap using velcro straps.

FAQ

The VR headset isn't appearing on the Controller App

- Ensure that the Android tablet is on and the Controller app is open.
- Ensure that the VR headset is on and the Viewer app is open.
- Check if the Tablet is connected to a WiFi network and note down what network it's connected.
- Check if the VR headset is connected to the same WiFi network as the tablet.
- Try a different WiFi network.
- Check if the UDP messages are being picked up by the router on port 8080. This is the broadcast port used for detecting headsets in the local network.
- Close and open the app on both devices
- Restart both the devices
- There may be a version mismatch. Download the latest version of both apps from www.metagvr.com.

The client put on the headset and they say the screen is black

- Ensure the headset isn't asleep. Put the headset on the client's head yourself and adjust it as users often accidentally hit the power button on the left side of the headset when putting it on.
- Ensure the headset is powered on. They may have held the power button down and then tapped it to trigger the switch off sequence. It should be quick to reboot the headset and open the app again.
- Is the headset charged? If you have a spare, swap it in and put this headset on charge. Else, we could also connect this headset with a power bank or long power cord for the duration of the experience to keep it running while the demo is ongoing.
- If the headset won't turn on, leave it plugged in overnight and try again with a full battery.
- Finally, if the issue persists, consider contacting our support team and we can try our best to help you.

➔ The user's hands aren't showing up in the scene

- Is hand tracking on? Double check if it's enabled
- Meta devices only allow for hand tracking if the controllers aren't being held. Check if a button is being held down on one of the controllers as this may keep it active even if it's not in use

- Check if hand tracking is allowed in the settings. That setting may have accidentally been toggled off.
- Restart the device. Power cycling devices often help with most software issues.

Legal Agreement and Warranty

Contact us