



Developing a 360° Video Tour for Student and Worker Training: A Guide for Academic Faculty and Other Educators

Field Research and Consultation
Group

Version 1.1



**ENVIRONMENTAL
& OCCUPATIONAL
HEALTH SCIENCES**

SCHOOL OF PUBLIC HEALTH
UNIVERSITY of WASHINGTON

Developing a 360° Tour for Student and Worker Training: A Guide for Academic Faculty and Other Educators

Field Research and Consultation Group

Contents

Introduction | 2

Equipment | 2

Viewing | 4

Process | 5

Contact information | 17

Introduction

Touring workplaces is a common method used to help students of occupational health and safety understand work processes, hazards, and controls. During the COVID pandemic, it wasn't possible to take students out to workplaces, so educators needed an alternate way to bring the workplaces to their students. Using 360° videos and technology similar to that used by realtors to show their properties it is possible to bring the workplace to the students. The system described in this primer allows the students to explore the workplaces on their own, with embedded informational hotspots, photos, and videos. To allow for the independent learning of the students, the added information covers only the processes and not the potential hazards and controls, though that information could be added for other uses. The 360° videos can be viewed from a networked computer, stand-alone computer, or virtual reality (VR) headset. The system has many other potential uses, such as: training workers for new job tasks, training students and professionals on hazard identification, and evaluating knowledge. The uses of the system have yet to be fully explored.

This guide was developed to help others develop their own systems by detailing the various components and steps used to produce a video. The software and hardware products referenced are not the one-and-only products that can be used. The guide is broken up into sections by Equipment, Viewing, and Processes.

In summary, a special 360° camera is used to capture video or still scenes of a workplace. You can then use standard video editing software to edit the video as needed and then import the clips into specialized 360° tour editing software. In this program, you'll build a tour using clips from different areas of the worksite and add supplemental information (text, photos, videos, pdf's, etc.). Next, the tour is exported to either a special viewer file, a website or VR headset and presented to the audience.

As of December 2023, the websites and price estimates were valid.

Equipment

Camera & Tripod

What I Use: GoProMax, ~\$400,

<https://gopro.com/en/us/shop/cameras/max/CHDHZ-202-master.html> and a basic tripod

General Considerations

To shoot 360° video, you will need a digital video camera with the capacity to shoot fully spherical 360° video and photos. The camera will typically have at least two extremely wide-angle lenses on opposite sides of the camera. It should be noted

that this differs from 3-dimensional (3D) video, which uses 2 lenses on the same side to gain a 3-dimensional perspective.

The videos from the different lenses will need to be “stitched” together to form a 360° video in a useable format. Some systems may do this when you download and export the video, others may have this as a separate step. The GoPro Max does this when you export the files.

Using a memory card that is compatible with the camera and as fast and large as is affordable will help with the production.

A basic tripod that extends up to approximately 5 ft can be used. Tripods with expensive smooth spinning heads are not required because once set, you won't be moving the camera.

Video & Graphics Editor

What I Use: Adobe Premiere/Creative Cloud, Premiere \$21/mo | Creative cloud \$55/mo (Can get ~60% academic discount)

General Considerations

Editing the video clips is periodically needed, depending on several factors. The most common reason for editing a video is to be able to keep the clip focused on what is desired. Video can also be edited to change lighting, alter the audio, or even obscure people's faces or other identifiers. Title clips and other graphics can be made in the video editing program. The editor software used needs to be able to handle 360° videos.

Periodically, the exported video will not be readable by the other programs and will need to be re-encoded. Encoding is the process of compressing a video using the selected format.

Computer

What I Use: Lenovo Legion 6 (Windows 10 OS), ~\$2000

General Considerations (for a PC)

The computer used for processing the video and developing the tour should have a large hard drive, be relatively fast, have a large memory, and perhaps most importantly have hardware graphics processor (as large and fast as feasible). An external hard drive (solid state drive works well) is also a very desirable component because a one-minute video file can be hundreds of megabytes in size and the final product can be multiple gigabytes in size. A Windows PC is used throughout this document, but the programs run similarly on Apple computers running iOS.

Tour Software

What I Use: Pano2VR (by Garden Gnome, ~€450, but there can be an academic license, but only for educational purposes)

General Considerations

This is the software that will be used to build and output the tours. You will import the separate clips, connect them in a tour, add supplemental information, and output the product for the end user. The Pano2VR program can output the tour for viewing over the internet (upload an HTML5 folder), via a virtual reality (VR) headset, or by running from a computer using their package viewer app.

Some technical factors to consider when choosing a product include:

1. Will you use still photos or videos?
2. Will you store your content locally or on a cloud system?
3. How will you be using the end-product?
4. What devices/platforms can use the end-product?
5. How well will the program handle large video files?
6. What are the systems' hardware requirements/recommendations?

Viewing

Package Viewer

What I Use: GGPKG Viewer (free download for Pano2VR output)

General Considerations

The Pano2VR program can output the tour as a package file, for use on a computer without needing the internet. The GGPKG Viewer package viewer software needs to be used to view the output. The output files are quite large (>1GB), but once loaded, play easily on a computer.

Other tour development programs may have their own viewing options.

VR Headset

What I Use: Meta Oculus Quest 2 & 3, ~\$400

General Considerations

The first thing to consider when purchasing a VR headset is whether it will be compatible with the output that your tour program develops. In addition, how does it run on the device? The Quest VR headset has specific apps that have been approved to run on it. Some developers have yet to get their products approved and need to supply their app on the AppLab (as has been done by the app VR

Tourviewer). Be aware that as new hardware versions are released, the software needs to remain compatible.

VR Headset App

What I Use: VR Tourviewer, €75 (academic discount is available)

General Considerations

Depending on the output from your tour building system, you may or may not need to use an app on the VR headset to view the tour. This app may or may not support all the functionality in your original product. It may be possible to remotely view what the headset wearer is viewing (“casting”) on a separate computer (VR Tourviewer, Remote Viewer does this for my system).

Casting Video to Remote Computer

What I Use: VR Tourviewer Remote Viewer, €50 (academic discount is available)

General Considerations

It may be possible to cast (remotely project images from the headset to a computer) your VR headset display to a computer without using a third-party app; one option is VR Tourviewer Remote Viewer. The computer running this app needs to have the tour files saved on it and be connected to the same WiFi as the VR headset. Because the files are on both the headset and computer, the only information streaming via WiFi is minimal (time, direction looking, etc.), which allows for such large files to be used wirelessly. Some WiFi systems may not be compatible with this use because of their security, so a cellular/WiFi hotspot may be required.

Processes

Pre-process

To smoothly develop a high-quality, well-focused video, prior to stepping foot on-site and filming any activities, several things should be considered. The following section discussed some of these attributes and actions that should be developed prior to filming.

Develop the Concept

Somehow, somewhere, the idea of developing a curated 360° video of a workplace will come to you. These videos can be used for several purposes, some of which are listed below:

Purposes

- Educating students on workplace processes, hazards, and/or controls

- Educating workers on workplace hazards, and/or controls
- Training a worker how to do a job, and do it safely
- Evaluating workplace hazards and controls
- Evaluate knowledge of workplace processes, hazards, and/or controls
- Promotional materials

The purpose or purposes of the video should be well defined prior to developing the content. This will allow you to make a well-focused product. It is easily possible to develop a video with multiple purposes, but if these are known in advance, that will ease the process.

Audience

Next, the audience should be identified. This will help you develop a script because you will know what “story” you want to tell your audience. It will also allow you to find extra material that will be added to the video. In addition to knowing the audience, you will need to know how the audience will interact with the video. Some issues to consider are:

- How will the user view the video?
 - Over the internet
 - From an employer-controlled computer
 - Using a VR headset
- How long will the user have to view the video?
- Where will the user view the video?

Partners

Next, the partner should be identified, if not already. In cases where you’ve developed the idea of a video, you may need to find a partner willing to allow you to film the video at their site. This may mean reaching out to multiple layers of management. It will help to have a brief description of the project, its purposes, how it will be used, its benefits to the workforce/company, and potential impacts on their workforce/company. Making an example video clip available for viewing will help the decision-makers visualize the end-product.

Once the partner organization has consented to the video, you will need to determine their role. Will they simply give you access to the site and let you “do your thing”? or will they have input on the script, help film, review videos and/or final products, etc.?

Depending on what and how you are filming, you may need to get consent from the workers to film them. This is best done in writing. If a worker is accidentally filmed and has not given consent, when it was required, it is always possible to blur their face during the post-production phase.

The Storyboard

Once the purpose of the video has been fully developed and permissions have been granted, a storyboard should be developed, if possible. This will help you in the field while filming as well as during the post-processing phase in editing the video. A storyboard is traditionally a graphic tool sequentially showing the different parts of the story (video). For example, it can be a list of the work tasks, narrative of what you'd like to say about the tasks, and what visuals you'll use. After you've filmed, you can add the video file names and have actual text and other features you'll add to the video. It also helps to include the duration of each video clip so you can calculate the duration of the finished video. If your partner is actively collaborating on the project, it will help to have the storyboard on a cloud-based server so they can give direct input.

Extra Materials

While considering the videos, you should think about what supplemental materials you may want to add to the video. This will be things like images (e.g., JPG & PNG files), documents (e.g., PDF & DOCX files), websites, and supplemental videos (e.g., MP4 & MOV files). When acquiring the supplemental materials, permission should be sought from the materials' owner. When using the materials for educational purposes, little resistance has been given requesting permission. Proper attribution should be used in the video.

Video Duration

The duration of the video will partly be determined by the topic, how and where the users will view the video, and the purpose of the video. People have limited patience for watching the same video clip for more than a minute or so, unless there are changing activities, or the scene is changing. Having multiple video clips in one video can work, but the total duration of the video needs to be considered with respect to the users and their time constraints. There may also be total duration constraints based on the tour production software used and the method in which the user will view your video. Video files can be extremely large and 360° videos are even larger than typical.

Shoot video

Action or no action

When shooting video, it is important to think about what the workers will be doing in the scene. Having action is typically better than having static workers and having workers is typically better than having no workers in the scene. Having action all around makes the video more interesting to view, but important views can be ignored unless you take measure to highlight the important action/items. This can be done by using the clip twice or cutting it and reframing the initial view, which will be discussed later.

The scene

When shooting 360° video, it's more educational to see interesting things all around the camera. If there is a rich visual in front of the camera, but a vast emptiness behind, it may be wasting the potential of the media. Though if the front portion is important enough, it can be an effective use of the media. While filming, be aware that you may be in the video scene, though you may be able to edit it out. Some cameras may have remote controls, allowing you to hide from the camera.

Audio

When shooting the video, it's not critical to capture the audio, but it makes for a more rich and captivating session for the viewer. Care should be taken to ensure that the audio doesn't overwhelm the viewer, though some audio adjustments may be possible using video editing software. Care should also be taken to ensure that there is no wind-derived noise or other similar white noise being captured. This noise can be difficult to remove. While filming, be aware that your voice may be captured in the audio, though you may be able to edit it out.

Lighting

It is important to consider the lighting for your shoot. Some under- or over-exposed scenes or areas of scenes can be corrected with video editing software, some may not. Cameras in auto mode may have a hard time "deciding" what area of a scene is important if some areas are dark and some light. This is especially true for 360° cameras, where more area is being viewed. Some cameras have the capability to adjust the exposure, so a scene isn't ruined.

Post-Processing

Edit video clips

After filming the videos, you will need to download the video files from the camera or storage card and store it for later editing and use. Some 360° video systems require you to "stitch" videos together to make one 360° video. The GoPro system requires free proprietary software to download and stitch the videos in a seamless manner. Files can be saved in multiple formats and sizes (resolutions). The video file format and size used need to be compatible with the tour software and viewing systems. Incompatibility may lead to issues like not being able to import the files, only audio or video being imported, or not being able to playback videos. Having too large files may also lead to poor playback quality or delays in playback, especially if playing over the internet.

When outputting your video files be aware that you may need to indicate what file type or "container" to use. These refer to things like AVI, MOV, and MP4 files. You may also need to indicate what codec to use, which are the systems used to compress and code the video and audio components. Some codecs are AVC (H.264), HEVC (H.265), and

MPEG-2. These codecs are used to compress and encode the video and audio files. If uncompressed, a one-minute section of high definition video file would require 15 GB of storage. You will need to use a file type and codec that are compatible with your software. Some systems may not be compatible with newer codecs, even though they provide smaller files with higher quality video. There are several online resources describing the different file types and codecs. Sometimes it may be necessary to re-encode a video file if your software isn't accepting a file type/codec that it should. Programs such as Adobe Media Encoder (for purchase), VLC (free) and HandBrake (free) can be used.

It is good practice to download the video files in their original format so you can always go back and reprocess the file if you need to without having to revert to a version with a lower resolution.

Some factors to consider when manipulating the video are; length, video quality, aspect ratio, and partitioning the action. Understanding the uses and audiences of your video will be critical when you are developing the tour and will dictate how you adjust these factors.

Length – You will need to know how long your audience will have to view your tour and how long they will be able to pay attention to your message. One rule-of-thumb is to limit tours to ten minutes or less. Because the tours are interactive, there is an unknown factor of how long someone will view the materials, but keeping the topic tight can help in comprehension and memory of the topic. In addition to your viewer, the longer the video, the larger the file and more difficulties you'll have in saving, transferring, and sharing the files.

Video quality – When developing a video, try to maintain the best quality possible until the last stages. There are a number of stages when you can define and alter the quality of the video. The following are recommended stages and options:

- a) The Camera – It is best to shoot your video at the highest resolution possible. It will always be possible to step down the resolution as needed. If you don't shoot the video with high resolution, you'll never be able to recreate it, unless you reshoot your scenes. The GoPro Max allows you to shoot at 5.6K resolution and 30 frames per second (fps). Consider shooting at this resolution and drop it down later, as needed. The number of frames per second (fps) dictates the smoothness of the video. Typical videos run at 29 or 30 fps. Table 1 lists common video sizes.

Table 1 Common video sizes

Name	Resolution (pixels)	Synonyms	Aspect ratio
5K	5120 x 2880		16:9
4K	3840 x 2160	2160p, UHD	16:9
1080p	1920 x 1080	HD, Full HD, FHD	16:9

- b) Downloading the raw video – As an example, the GoPro Player App can be used to download video from the camera or the SD card. The settings used to export the file from a .360 file (the format used internally by GoPro) to an .mp4 video file are:
 - a. Codec: H.264
 - b. Resolution: 4K
 - c. Bitrate: keep as is
 - d. Check only: Horizon Level (uncheck World Lock)
- c) Encoding the video – Even though the GoPro software has encoded the video as H.264, you may need to reencode the videos (resaving the video as a H.264). This can be done this using Adobe Media Encoder. Ensure that you save it out as H.264 with 4K resolution. You can reduce the resolution at this stage if you so desire.
- d) Editing the video – If you’re editing the video, when you output the updated video, you’ll be able to change the resolution. This is the stage where you’ll also be able to alter the aspect ratio, which is the relative size of the x-axis vs. the y-axis of the video.

Aspect ratio – The aspect ratio is the ratio of the horizontal size to the vertical size of your video. Using a typical modern video camera, you’ll be using a 16:9 aspect ratio. If you view this video on a cell phone, there will be quite a bit of black around your video (called letterboxing), unless it is played holding the phone sideways. If you want a video optimized for use on a cellphone, you will need to alter the aspect ratio either in shooting the video or in the editing process.

Different software and platforms may have limitations on file size and quality. Pano2VR Can handle video up to 4K in resolution, but that is pressing it. It cannot handle the newer compression protocol (codec) H.265 (HEVC), only H.264.

Partitioning the action – This is not a technical term, but one I use to describe breaking up a video into different segments. If a video clip has multiple actions taking place in different areas of the 360° space, you may want to either copy the video and use it twice or split the video into multiple clips so you can refocus the viewer’s perspective on what you want them to be seeing.

Other issues - If you need to, you can blur out attributes of your video clips, including faces, proprietary equipment, and commercial references. This can be done using different types of blurs (Gaussian or mosaic) and masks. With some editing programs, you can move the blurring mask if that entity moves, and some will even automatically follow the entity.

Develop tour

Once you have the video clips edited, you'll need to develop the tour. Depending on what tour software you choose to use, your process will differ. I will outline the process using Pano2VR.

1. Insert clips

Copy the clips into the storyline in Pano2VR. This will be the order in which the clips will be played. You can adjust them as needed. When you save the Pano2VR file (*.p2vr), it will only save the reference to the video files, which saves space. This means that if you need to re-edit a clip, you can easily do so without re-inserting it into the storyline, as long as you keep its name the same and it's in the same location. If you need to move or rename a video file on your computer, as Pano2VR opens your p2vr file, it will ask you to locate the missing clip.

2. Add navigation

When you have your clips in the appropriate order, you'll need to add navigation hotspots¹ that can be clicked to allow the viewer to move from one clip to the next. You can also set the video clip to play through and when complete automatically transition to the next clip, loop to the beginning, or stop.

3. Add supplemental information

To enrich the tour that you are developing, you can add additional information, via hotspots, in a variety of media. The media you choose will be dictated by the source and content of your information. To help develop a coherent tour with supplemental information that helps tell the story, use a spreadsheet to list all the clips and identify all processes and activities that you would like to describe within that clip. Then write a short description of the process or action that can be copied into the information hotspot. If an external file (PDF, video, or photo) will be inserted into the hotspot, describe what is needed and where it was found. Different types of supplemental information are listed below.

- a. "How to" information – Depending on the complexity of your user interface and your audience, it may be wise to have a "How to" graphic at the beginning of your tour.

¹ A hotspot is an icon that you place on the clip that the viewer will see and can generally click on. The action associated with the specific hotspot can vary from navigating to another clip, popping up information, a photo, a video, a PDF file, or website.

- b. Information hotspots – Use information hotspots to point out specific activities and processes in the video. Because the video is 360°, feel free to insert them all over, but be aware that depending on the curiosity of the viewer, they may not see all of your hotspots. You may have to copy, split, or partition the clip to lead the viewer to where you want them. To draw the viewer’s attention to a specific area of the video, you can orient the video so it starts with your specific area of interest in the center of their field of view. The information that you place in the video and withhold will be dictated by use of your video. For example, you may only want to highlight work processes and activities, not hazards or controls (this will enable you to ask the students to identify the hazards and controls on their own).
- c. PDF’s – PDF files can be good sources of information in an appealing format with graphics and text. Using a PDF for a document has the advantage over a website’s URL in that you can use the system without being connected to the internet and will typically load quicker than a website. Be sure that you have approval and an appropriate credit for the material. If you are developing your tour for educational purposes, many people are fine with you using their material, if you give them credit.
- d. Images and videos – image and video files can be added to provide supporting visual information on various attributes of your tour. You can give the viewer a closeup view of specific activities. The images and videos can be taken by yourself or “harvested” from the internet. If you choose to download these from the internet, ensure that you have permission to use the materials for the purpose of your tour and attribute the materials to their source. Since you are using the materials for workplace health and safety educational purposes, people are more likely to freely grant me permission to use their materials.
- e. Websites – Websites can be another source of supplemental information, but care should be taken when using them. When the viewer is viewing your tour, they will need to have an internet connection and calling up the website can be delayed. In addition, website addresses and materials can change over time, leaving you with a blank in your tour. You may be able to output the material from a website to a static PDF file that you can embed directly.

Add intro

At the beginning of your tour, you should have at least one intro scene with a title and basic instructions on how to navigate through your tour.







Add credits

At the end of your tour, you should have at least one scene with credits for your organization as well as your partners.

Copyright

You may consider whether you want to copyright your tour. This can be done by using Creative Commons (<https://creativecommons.org>). A copyright gives, “give every person and organization in the world a free, simple, and standardized way to grant copyright permissions for creative and academic works; ensure proper attribution; and enable others to copy, distribute, and make use of those works.” The Creative Commons (CC) license options are listed in Table 2.

Table 2 Creative Commons license options.

Creative Commons License Option	Name	Icon
Simply giving credit for use	CC BY	
Give credit + adaptations must be shared under the same terms	CC BY-SA	
Give credit + non-commercial uses are permitted	CC BY-NC	
Give credit + adaptations must be shared under the same terms + non-commercial use only	CC BY-NC-SA	
Give credit + no derivatives or adaptations permitted	CC BY-ND	
Give credit + non-commercial uses are permitted + no derivatives or adaptations permitted	CC BY-NC-ND	

The copyright icon and description should be on the introduction or credit scene.

Edit all text

The tour building software used to build my tours, Pano2VR, does not have an inherent spell checker, so it is highly recommended to type all of your informational supplements into a program that allows you to check the grammar/spelling, prior to copying into your tour building program. If you are not able to do this, there are always other times to review your text, but it is easiest done at the beginning.

Output

After you've finalized your tour, you can output it to test out the flow and all supplemental information to ensure that it all works. Once accomplished, you'll output the tour to your format of choice. For example, you can publish the tours to the web, a VR headset, and special viewer file. A summary of the advantages and disadvantages of each format and factors follows:

a. World wide web

Publishing tours to the web can allow unlimited access to your content, which can be a pro and/or a con. Depending on the structure of your website, you may also be able to limit who can access your site. When using highly complex content with high resolution video, playback may be slowed or truncated, depending on the viewer's bandwidth. When using Pano2VR web output, there is a great deal of flexibility in the look and function of the product. It is really up to the developer to install different functionality (i.e., navigation options and special effects).

b. VR headset

When outputting from Pano2VR to a VR headset running VR Tourviewer, many special effects embedded in Pano2VR "skins" will not transfer, leaving a more barebones, but highly useable experience. This lack of extra functionality should be considered when developing your tours and giving viewers instruction for use. It may be advisable to develop two versions of a tour, one for the web and one for the VR headset, by starting with the web version and when complete, alter it for the VR headset.

c. GGPKG Viewer (Pano2VR package viewer)

If you are able to load the file and run the program directly from a Windows PC, then the best option is to use the GGPKG Viewer app. Downloading and using the app is free of charge, but it can get complicated to get the tour file because they can be extremely large and difficult to send (multiple GB). When publishing tours for use with the Pano2VR package viewer app (GGPKG Viewer), you might use the web version of the tour because the package viewer app allows use of most, if not all of the functionality found in Pano2VR.

Load file/folder

Because there are multiple methods to view the tour videos and if you're not perfect (think typos and adding new material), you will have to reprocess your tours multiple times and load them into multiple locations, it helps to have a

checklist to follow when finalizing and loading videos. Table 3 shows the list of activities that can be used.

a. FTP to Website

Publishing your tour to the web will allow all who have your website address to view the tour. If using Pano2VR, a folder, containing all required content, is produced that you can post to your website. The folder is saved using HTML5 and using an appropriate file transfer protocol (FTP), you can simply copy the folder to your chosen location and then share that URL with your potential viewers. Depending on the complexity of the content, video resolution, and user's bandwidth, content viewed from the internet may be delayed, unsynchronized, or slow in playing.

b. Load to VR headset

Different VR tour development software systems may be aligned with different VR hardware and VR headset Apps. Pano2VR is aligned with Meta Quest (formerly Oculus) VR headsets and VR Tourviewer, which is a VR headset App.

After the VR Tourviewer App is installed on the VR headset, you'll connect the VR headset to your computer. On a Windows PC, after you allow communication between the headset and your computer, the headset will show up as an object under "This PC" in File Explorer. You'll then copy the output folder to this location on your VR headset: MTP USB device/Internal Shared Storage/VRTourviewer (NOTE: "MTP USB device" may be called "Quest").

c. Load for the computer-based app

Simply copy the *.ggpkg file to a convenient folder on your computer.

View

- a. Website: For a person to view the video from a website, you will need to give them the URL for the folder on your site. When they click that link (or folder), the tour will start.
- b. VR headset: Using a Quest VR headset with VR Tourviewer, you will simply open VR Tourviewer and go to the tour you wish to view and click on that to start it running.
- c. GGPKG Viewer: To run the tour from the file on your computer, simply click on the appropriate *.ggpkg file.

Table 3 Project completion activities

Action	Specific action	Location	√
Output regular version	To Output folder (HTML5 folder)	Local HD	
Output regular version to ggpkg	Save ggpkg file to chosen name	Local HD	
Change regular version name	Change name of Output folder	Local HD	
Output VR version	Change the interface for Meta Quest 2, output, and change name of Output file (VR Folder)	Local HD	
Copy regular folder to website	Transfer HTML5 folder to website (Cyberduck, Filezilla, etc.)	To website	
Copy VR folder to headset	VRTourviewer folder on Meta Quest 2	On Meta Quest 2	
Copy VR folder to <u>Tablet</u>	Copy folder to be able to cast remotely	C:\Program Files\VR Tourviewer Remote\VR-Tourviewer-Remote-Data\VRTourviewer\	
Copy VR folder to <u>Lenovo</u>	Copy folder to be able to cast remotely	C:\Program Files\VR Tourviewer Remote\VR-Tourviewer-Remote-Data\VRTourviewer\	
Copy ggpkg file to <u>Tablet</u>	Copy file	Local hard drive	
Copy ggpkg file to <u>Lenovo</u>	Copy file	Local hard drive	

Acknowledgement

I would like to thank Larry Sloan, CEO of the American Industrial Hygiene Association (AIHA) for his assistance and encouragement in writing this document.

Contact Info

Martin Cohen
Field Research and Consultation Group
frcg@uw.edu
<https://deohs.washington.edu/frcg>

The University of Washington reaffirms its policy of equal opportunity regardless of race, color, creed, religion, national origin, sex, sexual orientation, age, marital status, disability, or status as a disabled veteran or Vietnam era veteran in accordance with University policy and applicable federal and state statutes and regulations.

The University of Washington is committed to providing access, equal opportunity, and reasonable accommodation in its services, programs, activities, education, and employment for individuals with disabilities. To request disability accommodation contact the SPH Dean's Office at 206-543-1144 (phone) or 206-543-3813 (FAX), or the Disability Services Office at least ten days in advance at 206-543-6450 (phone), 206-543-6452 (TTY), 206-685-7264 (FAX), or dso@uw.edu.

The University of Washington occupies the traditional land of the Coast Salish peoples. Without them, we would not have access to this working, teaching, and learning environment. We honor and acknowledge the original caretakers of this land, who are still here.