

Whirligig

Introduction

Whirligig is an immersive video and image player. That is to say, it is designed to playback a wide range of projection types and video formats.

Whirligig also tries to go beyond playback and includes many additional features that will help in 360 degree video production and viewing.

Not only does it support the latest VR headsets, such as OSVR, Vive and Oculus Rift, but it can also be used with a standard monitor.

Features

- Save and load your position in films with up to 8 save slots.
- Playback a wide selection of video formats with the addition of installed codecs.
- Fully customisable Xbox controller functions.
- Full Vive controller integration.
- Mouse control.
- Loop videos.
- Easy to navigate explorer.
- ROOMS! Watch your films in a living room or drive in cinema (additional rooms will be added in time).
- Watch stereo videos in either over-and-under or side-by-side formats.
- Anaglyph options for viewing 3D content on a standard monitors.
- Drag media onto Whirligig.exe to automatically load.

Projection Formats

- Fisheye 100 through to 360 degrees.
- Barrel/Equiangular/Panoramic 180 and 360 degrees.
- Cinema/Flat screen. (adjustable aspect ratio)
- Cinema Curved/Flat screen curved. (adjustable aspect ratio)

Custom Formats

- Cube Map Horizontal Tee
- Cube Map Horizontal
- Cube Map Vertical Tee
- Cube Map Vertical
- Facebook Cube Map 3x2
- GardenGnome Cube Map 3x2
- Kodak PixPro SP360

- LatLong 360x90
- Octane
- Panasonic A500
- Ricoh Theta S
- Vray Cubemap Invert
- Vray Cubemap

All formats support Mono, Side by Side and Over-Under stereo options.

Compatible device setup

Vive/OSVR

To run Whirligig using the Vive /OSVR make sure your Vive/OSVR headset is working with SteamVR and run Whirligig from either your desktop shortcut or within SteamVR itself.

Oculus Rift

To run Whirligig within the Oculus Rift start up the Oculus store and run Whirligig from either Steam or your desktop icon, if you have installed one. You should then see a health warning. Once you have accepted that, Whirligig should run as normal.

Desktop monitor

If you do not have a VR headset or have not turned on your VR headset then Whirligig will default to Desktop mode. Once in Desktop mode you can navigate with the mouse to look around and use the menus in the same way as with the VR setup.

Video Codec support and setup

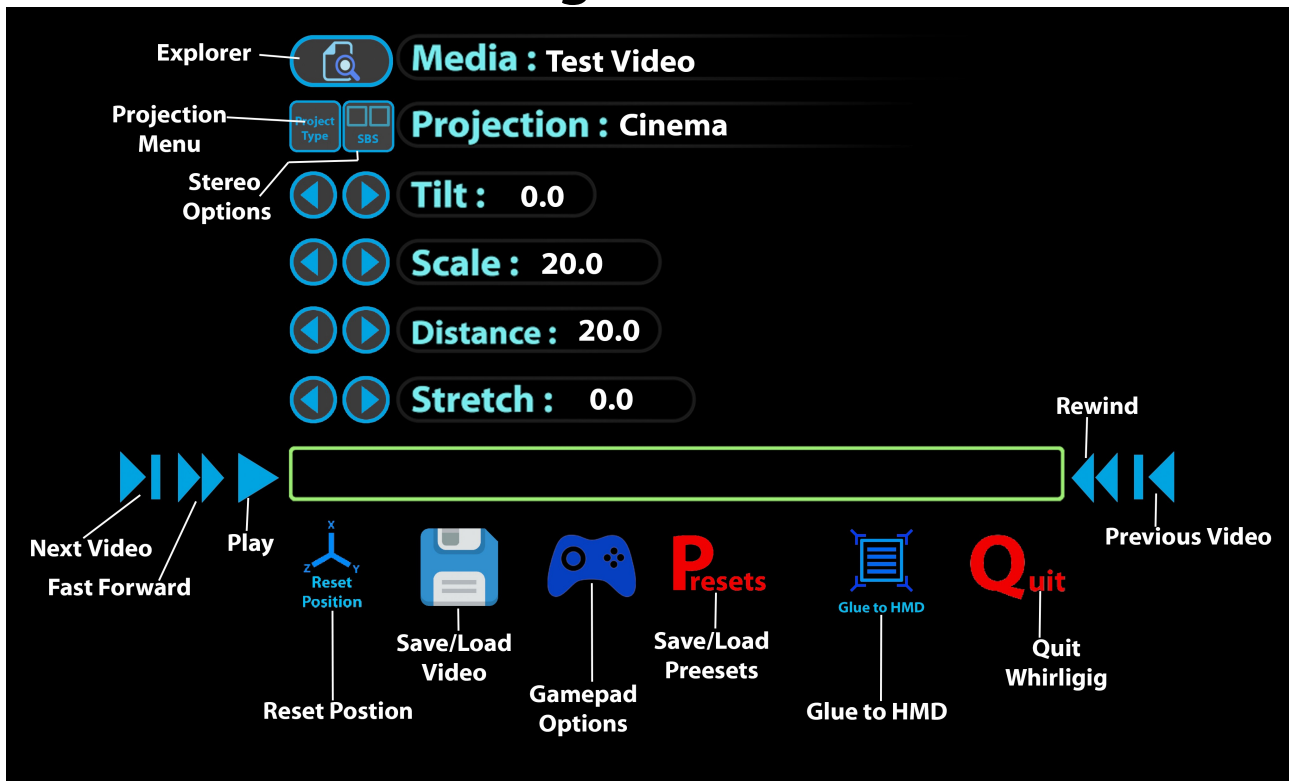
Whirligig uses direct show filters to play back video. Because of this, the player can support a wide range of video formats as long as you have the appropriate codecs installed and are setup correctly for Whirligig.

As standard, Whirligig supports Windows default video formats. On Windows 7, this is pretty much only avi's. I believe for Windows 8 and 10 the support is larger.

To insure that you have the largest number of video formats available, I suggest that you install the appropriate codecs. There are many ways to do this but I recommend one of two ways. You can either install the LAV codecs and then use a tool such 'CodecTweakTool' to set the LAV codec to be the preferred video playback format for all codecs. Or you can install a codec pack which installs all the codecs and sets them up for you. This is the far easier solution. I recommend

'klite', as this is the one I have used extensively and provides the widest range of support available. Klite is downloadable from http://www.codecguide.com/download_kl.htm

Using the Menu



The menu system is where you can change all of the common settings in Whirligig. To do so, you can either use the up and down arrow keys to select the appropriate option (an option is selected when highlighted in green), then use the left and right arrow keys to change those settings. Alternatively, you can look directly at the arrows in the option you wish to change and press the play/pause key (enter, space, left mouse, xbox controller/a, Vive controller trigger), you can also use the mouse to control the crosshair and select with the (enter, space, left mouse, xbox controller/a, Vive controller trigger).

Video

Once you have selected the video you wish to play using the explorer (f8) or clicking/selecting the explorer icon you can then cycle through all of the videos within that folder by using the left and right keys next to Video.

Projection

Fisheye, Barrel, Cinema, Cinema Curved, Rooms, Custom Projection.

Here you can cycle through all the available projection formats. Note that you

will not be able to cycle through the stereo options using the Format part of the menu. To cycle through the stereo options, either use the assigned Xbox button, Vive icon or 'y' on the keyboard.

Tilt

Tilt your media forward or backward in degrees.

FOV/Name/Room (Fisheye, Barrel, Rooms, Custom Format)

In Fisheye and Barrel, this allows you to change the field of view by degrees.

In Custom Format this allows you to change between the custom formats available.

In rooms this will allow you to change the rooms that are available, currently Drive-in Cinema and Living Room.

Scale (Cinema, Cinema Curved)

This allows you to change the scale of your cinema screen.

Radius (Fisheye, Barrel, Rooms or Custom Format)

Change the radius in meters while in Fisheye, Barrel and Custom Format . While in Rooms, this has no affect.

Distance (Cinema, Cinema Curved)

Change the distance of the screen in meters from the user.

Rotation (Fisheye, Barrel, Rooms or Custom Format)

Change the rotation by degrees while in Fisheye, Barrel and Custom Format . While in Rooms, this has no affect.

Stretch (Cinema, Cinema Curved)

Whirligig will auto detect the aspect ratio of the media when in Cinema/Cinema Curved mode. If, however, the screen aspect ratio isn't properly configured then you can stretch and crush the screen to your desired specifications.

Keyboard Shortcuts



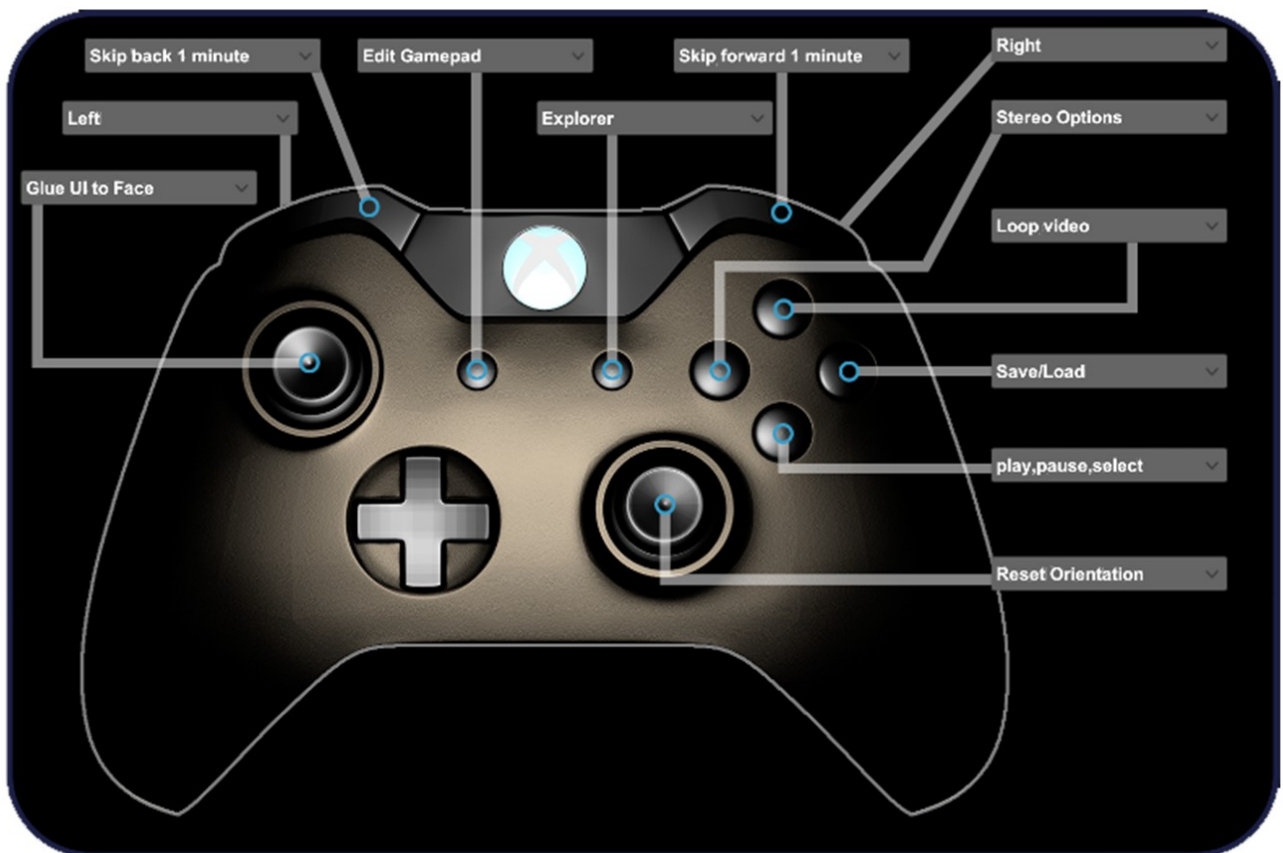
- y - Stereo Options (Mono, Side-by-side, Over-and-under)
- j - rotate left 20 degree
- k - rotate right 20 degrees
- PageUp - Jump forward 1 minute
- page down - Jump back 1 minute
- m - Mirror
- Escape - Cancel
- l - loop
- o - Swap Eyes
- g - Glue UI to HMD
- r - Reset position
- s - Save Load place
- x - Xbox Gamepad options
- , - Tilt Up
- . - Tilt Down
- - Volume Down
- = - Volume Up
- q - Zoom In
- a - Zoom Out
- 1,2,3,4,5,6,7,8,9,0 - Input numeric value for tilt,rotation,distance,stretch.
- f1 - Help menu
- f2 - Hide menu
- f3 - Grid attached
- f4 - Grid not attached
- f5 - Grid not attached
- f6 - Full menu
- f7 - Anaglyph settings for Desktop
- f8 - Explorer
- f9 - Reset to Opening screen.
- f10 - Switch from VR to Desktop
- h - Change Menus

Xbox Controller

Whirligig offers support for both Xbox 360 and Xbox One controllers.

The buttons on these controllers are totally customisable. To access this menu simple press 'x' on the keyboard, the assigned 'Edit Gamepad' button or click/select the gamepad icon on the menu, you will see the display below appear in your headset. You can then choose options for the gamepad with the drop down menus for each key. Simply click/select outside of the window to close the Gamepad options.

Default settings



Vive Controller

Whirligig offers full Vive controller support. To access this support simple turn on the controllers. Once on, you have a laser pointer on one controller and menu options on the other.

The Vive laser pointer acts as the cross hairs and can be used to select menu option in the main menu using the trigger or options attached to the other controller, also using the trigger.

While in the explorer mode you can use the touch pad to navigate. Navigation up and down can be done simple by running your thumb along the top or bottom of the touch pad. To go left and right click the touch pad left and right. Trigger while in Explorer triggers the current selection.



A rundown of all available icons on both the controllers and menu



----- **Reset player position**



Mirror

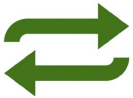
----- **Turn mirror to monitor off/on**



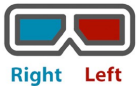
----- **Open media explorer**



----- **Save and load positions**



----- **Loop media off/on**



Right Left

----- **Change eye order**



Glue to HMD

----- **Glue the UI to headset off/on**



Side by Side

----- **Change stereo options Mono/SBS/OU**



----- **Edit Gamepad options**

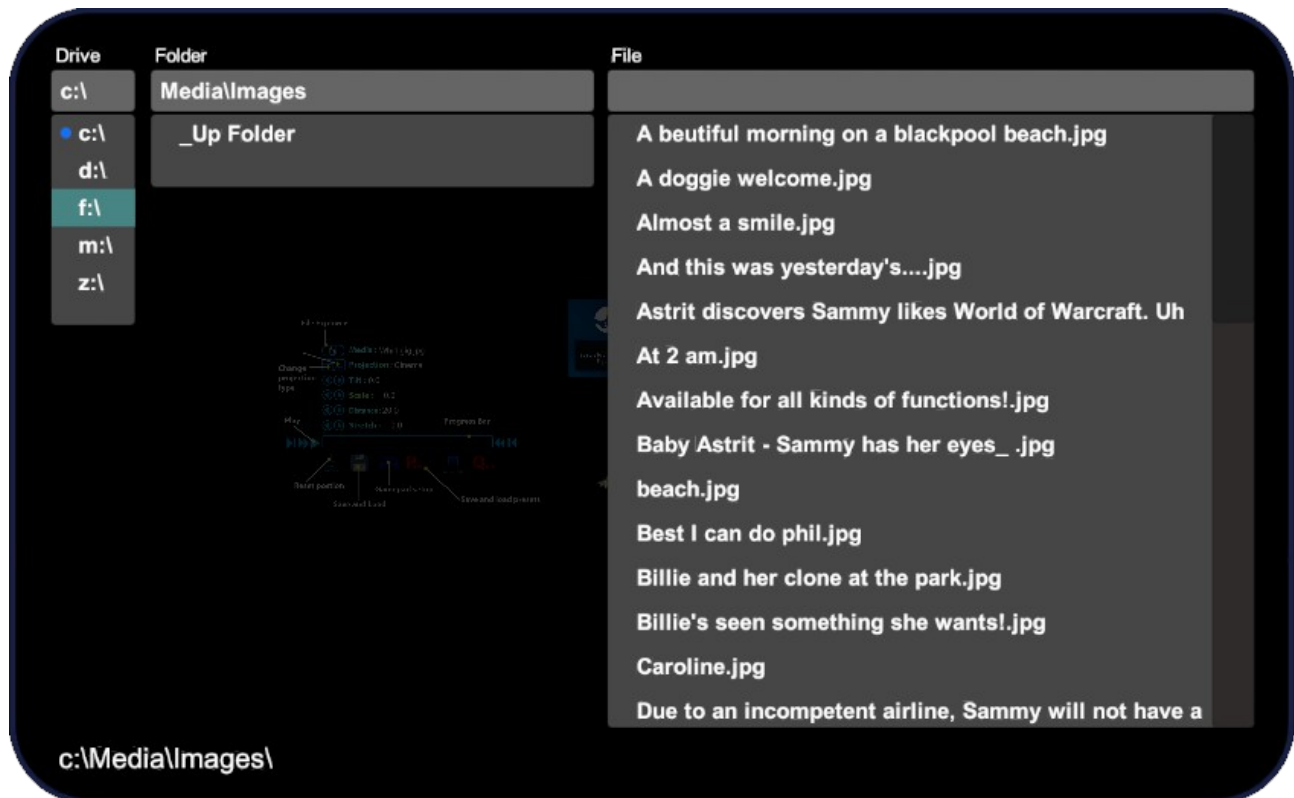
Volume Control



----- **Progress Bar**

Explorer

(f8, Vive controller and Xbox assigned key)



You can navigate through your folder system by using the explorer. To open the explorer, simply press f8 or your assigned Xbox controller button or trigger the explorer icon on your Vive controller or the explorer icon on the menu.

Once in the explorer you will be presented with three selection boxes in the headset. The first is the drive you wish to explore, the second is the folder in the drive and the third is the file you wish to load. Selecting the drive in the first selection box which will load the folders in the second that are contained in the root of that drive. You can then select a folder in the folder section and that will enter that folder showing you the folders within that folder. To go up a folder simply select '_Up folder' at the top of the list. Whenever you go into a folder that contains files you can load you will be presented with them on the right. Selecting them will load them. Then all you need to do is close the explorer to watch the media.

To exit the explorer simply press f8 or the assigned Xbox controller button or Vive explorer icon again or click/select outside the explorer area.

Trouble Shooting

My mp4,MOV etc film don't play and just gives a fail error?

Whirligig is using directshow filters to playback video types. This means that in order to play back films you need to have the correct codecs install to play them. Try installing the codecs again. There are instructions above on how to install codecs correctly.

My media plays but I can only see a black screen.

This is likely to be a codec problem. Try reinstalling the codecs again as described above. Also when setting up the codecs set the decoding to software not hardware as this can also cause some problems.

Why does my film not playback smoothly.

This can be down to having the wrong or old codec installed, having a slower machine (VLC is very good at playing video, whereas my player can have problems with playback on certain systems), having very high resolution video and just about any number of other things. I'm trying hard to find the best settings for the player and making sure I have all the plugins up to date so hopefully smoother playback will come in the future. One thing you can try is reinstalling the codecs, see above.

The player doesn't seem to want to show my images.

Although my player supports viewing of png and jpg image formats it doesn't always display them correctly or at all. The biggest reason for this is normally a problem with the resolution. Try changing the resolution of the image to a factor of 16 so for example 4096 x 4096 would be fine. Also, Whirligig can have difficulty with very high resolution images. Try not to use images above 8172 x 8172. This problem can normally be solved by resizing the image and in some cases changing the format to jpg.

When playing videos on my CV1 I can't hear anything through the Oculus headphones. It does however work fine on my DK2

I have had early reports of this regarding the CV1 and have done my best to resolve it in the latest version. This is currently very difficult for me to properly test or resolve at the moment as I don't have a CV1 to work on. Currently the only solution I can offer is to use a separate pair of headphones plugged directly into your pc sound. Hopefully this will be resolved in the near future.

Whirligig seems to of complete broken. How can I reset completely?

I've tried very hard to prevent issues with the player that make it unusable. If this does happen however you can reset it to it's original settings. To do this you need to go into the Roaming folder and delete the Whirligig folder.

Close Whirligig.

Navigate here :

C:\Users\%username%\AppData\Roaming

Find the folder called 'Whirligig' and rename or delete it.

Restart Whirligig.

The player should be restored to it's original state.

Thanks and credit goes to...

Aaron Bradbury (Original menu design and loads more)

<http://www.luniere.com/>

My good friend Aaron has been supportive of Whirligig from the start all those years ago. When I first managed to get the menu system working I turned to him to help me make Whirligig look coool. Aaron who has a keen eye for design and a great artistic hand (you can see that very easily by checking out his website) turned that hand to making a great looking menu for Whirligig. On top of that he is a fantastic film maker and is very excited in the VR revolution that is sweeping this world. When I originally had Whirligig on the Oculus Share I also included his Film 'Vortex'. You can see a still of this film as part of the two examples that come as defaults for the player. Aaron has also help to suggest features of the player for his production work. It is a great asset to have someone using you program at the coal face and suggesting features and pointing out problems.

I highly recommend you check out 'Vortex' and 'LovR' his latest film.

Thank you Aaron, may you and your beard stride forward into a successful world.

Andrew Hazelden

<http://www.andrewhazelden.com/blog/>

I've been creating Whirligig for a long time now and one of the things I've been very keen for the player to have is a direct connection with production and work flow.

Andrew has been a perfect person to know regarding this as you can't get deeper into production of 360 degree film and VR than he is. I've worked with many of his 360 degree tools especially the Domemaster3D set which without, computer generated 360 VR wouldn't be possible. He has suggested a great deal of improvements to Whirligig to aid in production and connectivity with PlayblastVR. This in turn has helped me to make Whirligig better.

I'll continue to improve Whirligig and make it a useful tool for production. The integration that Andrew has made with it has made this possible. If you have even the slightest inclination to create VR content you can't go far wrong by visiting his site.

NSC Creative

<http://nsccreative.com/>

Ah and we come to NSC Creative.

If you don't know anything about me then you won't know that I work, for my sins at NSC Creative. NSC Creative is one of the leading 360 degree dome producers in the world and has been making fulldome films for god knows how long. I think since 2000. All my experience in 360 degree film making has come from there and I've worked on pretty much all of there past 9 year films.

Since I started working on Whirligig a couple of years ago I have had the support of NSC Creative. NSC Creative is one of the best places to test my player as well, as we have a great team of people who want to review and QC 360 degree films at a continuous rate. My player has been adopted and integrated into this environment and as a result I could not get better feedback on usability, functionality and bug reports than the team I work with. NSC Creative have also assisted in developing my skills in programming and product development, which has made it possible for me to make Whirligig in the first place.

I salute you NSC Creative. If you are interested in seeing new content for VR at the highest possible standard then keep a keen on NSC Creative. They will be releasing some spectacular experiences right into your eyeballs that will literally blow your mind.

Everyone Else

I've missed off loads of people so I thought I'd lump them together here.

Thanks everyone who has supported me with donations. Thanks everyone who has tried, reviewed and reported back to me on the player and thanks to anyone who buys Whirligig in the future. I look forward to spending the money you paid for it :)

I hope all that didn't sound too award ceremony. If it did then sod it, you can't make a world without others and not mentioning them would be a bit self aggrandising.

Final notes from the author

I have been working on Whirligig for over two years now. I have put a lot of time and effort into making Whirligig a great player and also a great tool for video production and development. I hope to continue to making Whirligig even better.

If you find Whirligig useful, but missing an important feature or function, please let me know. Suggestions from users are the reason a lot of the functionality you see today exists. If it's something you would find useful then there's a good chance that others will too, so let me know your ideas for making Whirligig a tool for the future.

I hope you find Whirligig useful and enjoyable to use.

Happy watching.

Over and out.

Phil Day