

# Table of Contents

<b>1</b>	<b>Soft and Hardware Requirements</b>	<b>3</b>
1.1	Software Requirements	3
1.2	Hardware Requirements	3
<b>2</b>	<b>Installation</b>	<b>3</b>
<b>3</b>	<b>Getting Started</b>	<b>3</b>
3.1	Menu	4
3.2	Playlist	4
3.3	Media Info Panel	4
3.4	Playback control	4
<b>4</b>	<b>Menu Options</b>	<b>4</b>
4.1	File	4
4.2	Playlist	5
4.3	Settings	5
4.4	Help	6
<b>5</b>	<b>Configure Media in the Playlist</b>	<b>7</b>
5.1	3D Type	7
5.2	Aspect Ratio	8
5.3	Invert	8
5.4	Zeroplane	8
5.5	3D Volume	8
5.6	Duration	9
<b>6</b>	<b>Media Info Panel</b>	<b>10</b>
<b>7</b>	<b>Playback Control</b>	<b>11</b>
<b>8</b>	<b>Appendix</b>	<b>12</b>
8.1	File formats	12
8.1.1	MULTISTREAM	12
8.1.2	SIDE-BY-SIDE STEREO	12
8.1.3	SIDE-BY-SIDE 2D+DEPTH	13
8.1.4	TOP-BOTTOM STEREO	13
8.1.5	TOP-BOTTOM 2D+DEPTH	14
8.1.6	2 CHANNEL DEPTH	14
8.1.7	4-TILE	15
8.1.8	5-TILE	15
8.1.9	8-TILE	16
8.1.10	8-TILE WIDE	16
8.1.11	8-TILE HIGH	16
8.1.12	9-TILE	17
8.1.13	SISVEL	17

8.2 Folder options.....	18
8.2.1 Watch folder option.....	18
8.2.2 Startup playlist option.....	19

# 1 Soft und Hardware Requirements

Before the installation of ioPlayer 2 Standard you should check your soft and hardware configuration to ensure that ioPlayer 2 Standard will perform as expected. Please note that ioPlayer 2 Standard requires some advanced GPU computing power and up to date GPU drivers for the high resolution 3D contents (also see: FAQs).

## 1.1 Software Requirements

ioPlayer 2 Standard works on the following versions of Windows operating systems:

- Windows 7, 64-bit (for Windows 7 Service Pack 1 needs to be installed)
- Windows 8.1, 64-bit
- Windows 10, 64-bit

Further it requires the installation of:

- OpenGL 3.3 or later
- Latest GPU drivers from NVIDIA or ATI

## 1.2 Hardware Requirements

To properly run ioPlayer 2 Standard (especially when using 4K 3D glasses-free displays) we suggest to use a dedicated NVIDIA GPU (GTX 760 or higher).

# 2 Installation

To install the Standard Version of the ioPlayer just double-click on the installer executable and navigate through the wizard to install ioPlayer 2 Standard. This will create a program group and a desktop-icon. After a successful installation the application can be started via the new icon on the desktop or in the start menu. The installer will also associate .rf3d-playlist files with the ioPlayer 2 Standard.

# 3 Getting Started



Fig. 1: ioPlayer 2.0 desktop icon

When you double click the ioPlayer 2.0 desktop icon or start the ioPlayer 2 you will see the ioPlayer 2 main window that contains the Menu, the Media Info Panel, the Playlist and the Playback Control :

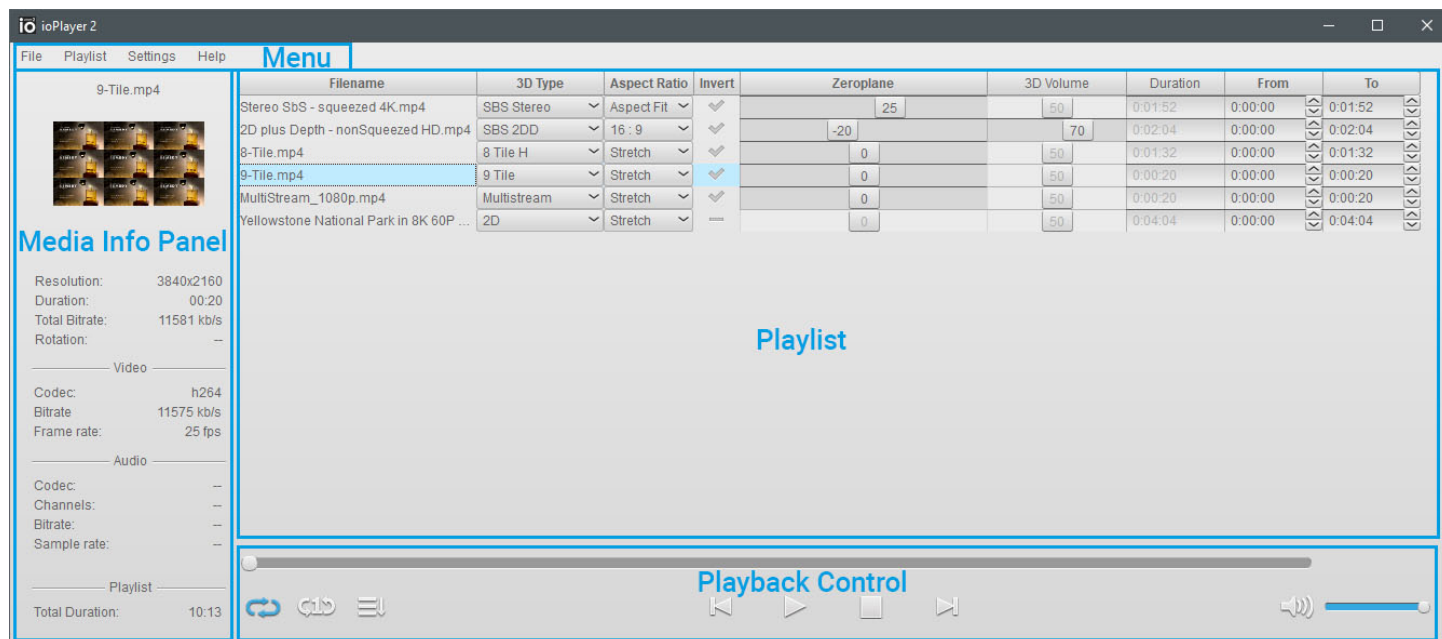


Fig. 2: ioPlayer 2.0

### 3.1 Menu

The Menu contains of the File settings, Playlist settings, general Settings and a Help section.

### 3.2 Playlist

In the center of the ioPlayer 2 main window the actual playlist is displayed. Here, you can add and arrange 3D media files by drag-&-drop as well as configure them.

### 3.3 Media Info Panel

The Media Info Panel is placed in the left part of the RealiyPlayer 2 main window. It will show information about the activated media file in the playlist.

### 3.4 Playback control

The playback controls are arranged below the playlist in the main window and include all the basic controls to play, stop, pause, skip, seek as well as to loop and repeat files. Also you can set the volume. Shortcuts to control the Playback are available too and are listed in the shortcuts table below.

## 4 Menu Options

### 4.1 File

In the "File"-menu you add media files and open, save and store your playlists as well as close the player. An extra option is to assign a folder on your machine where media files will be loaded directly into the current playlist. With this option you can add files from a network to a running playlist and use it for remote playback.

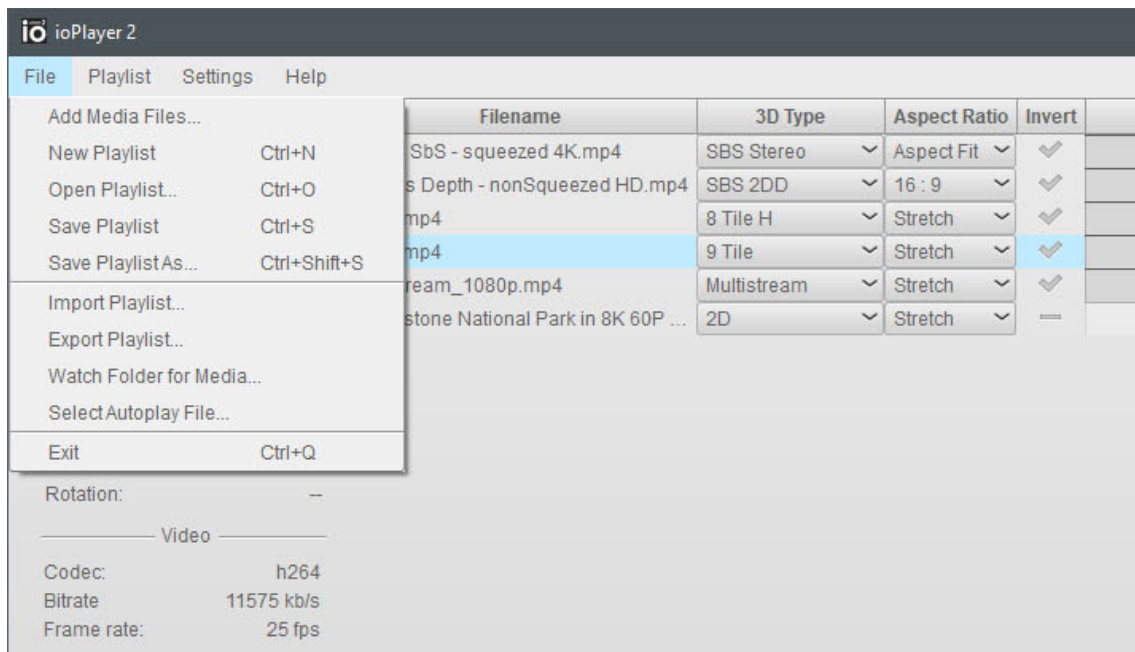


Fig. 3: File-Menu option in ioPlayer 2.0

There is also a watch folder setting for playing media and an autoplay option on startup. Please see the appendix for more information about this function.

## 4.2 Playlist

In the "Playlist"-menu you remove selected media files or you can clear the whole playlist.

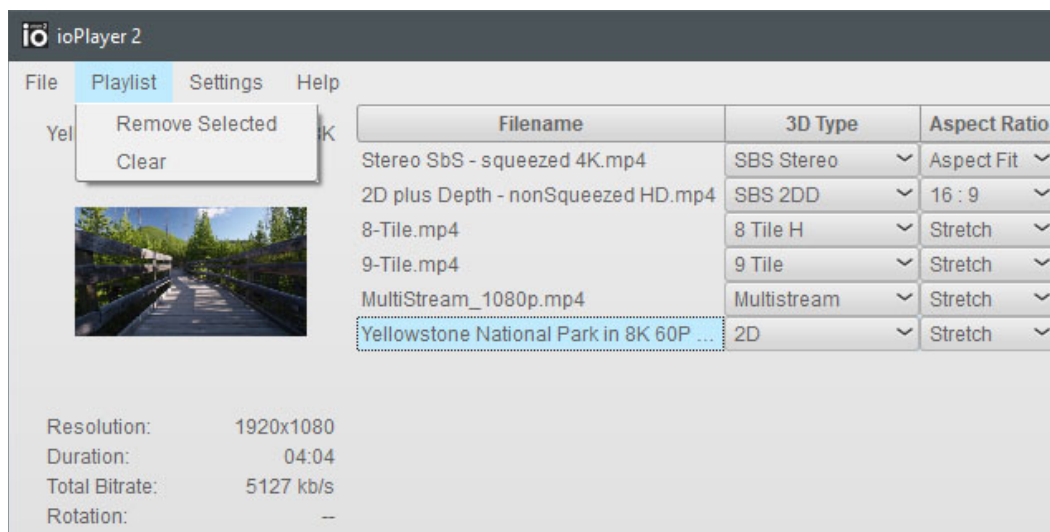


Fig. 4: Playlist-Menu option in ioPlayer 2.0

## 4.3 Settings

In the "Settings"-menu you set the display settings of your ioPlayer 2.0 Version. In case you are using the ioPlayer 2.0 for other displays you will find them in the Display Settings menu. Below there is a short description on how to change the display settings.

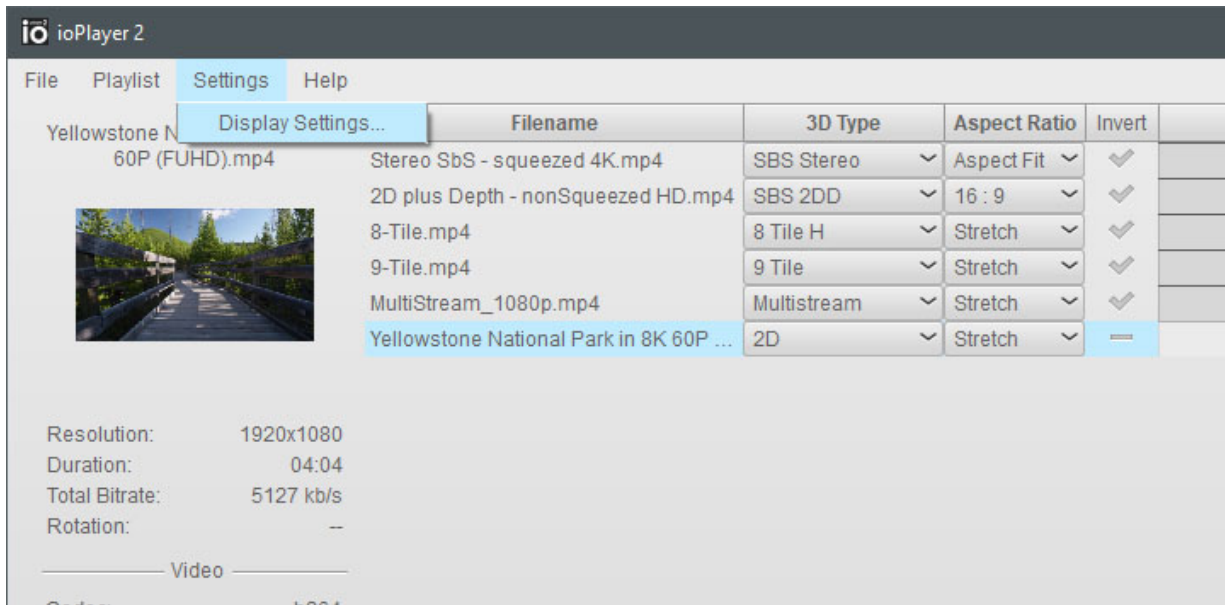


Fig. 5: Settings-Menu option in ioPlayer 2.0

In case you are using a 3D LED wall or displays with fewer views you can change the display settings accordingly. In the standard version of ioPlayer 2.0 the following displays and modes are supported:

- 2D Displays
- Stereo interlaced Mode
- 4-View auto-stereoscopic Displays
- 9-View auto-stereoscopic Displays

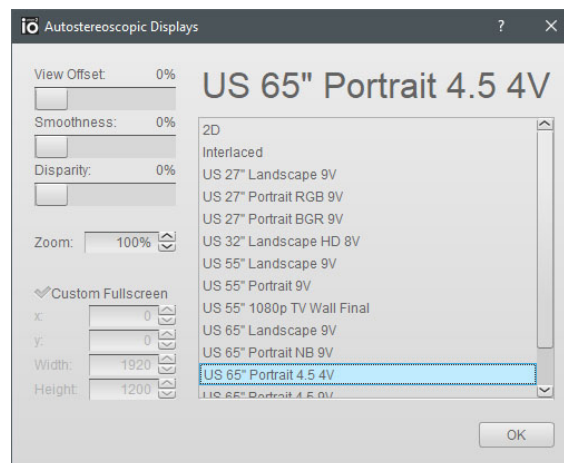


Fig. 6: Display Setting option in ioPlayer 2.0

Further one can define the exact pixel position of the playback window by setting the top left pixel and the size of the window. This is called Custom Fullscreen and comes handy if only a part of the display shall act as playback area.

## 4.4 Help

In the "Help"-menu you will find the current version of the ioPlayer 2.0 and you can manage your license.

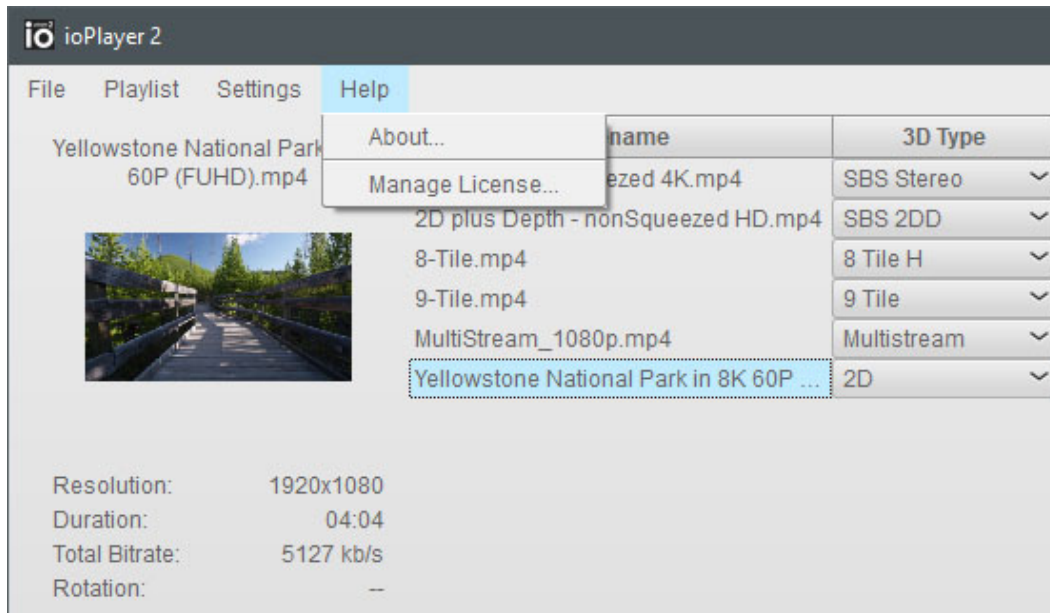


Fig. 7: Help-Menu option in ioPlayer 2.0

## 5 Configure Media in the Playlist

When adding media files to your playlist you will need to configure some of your files since there are quite many different kind of formats and settings when it comes to playing glasses-free 3D contents.

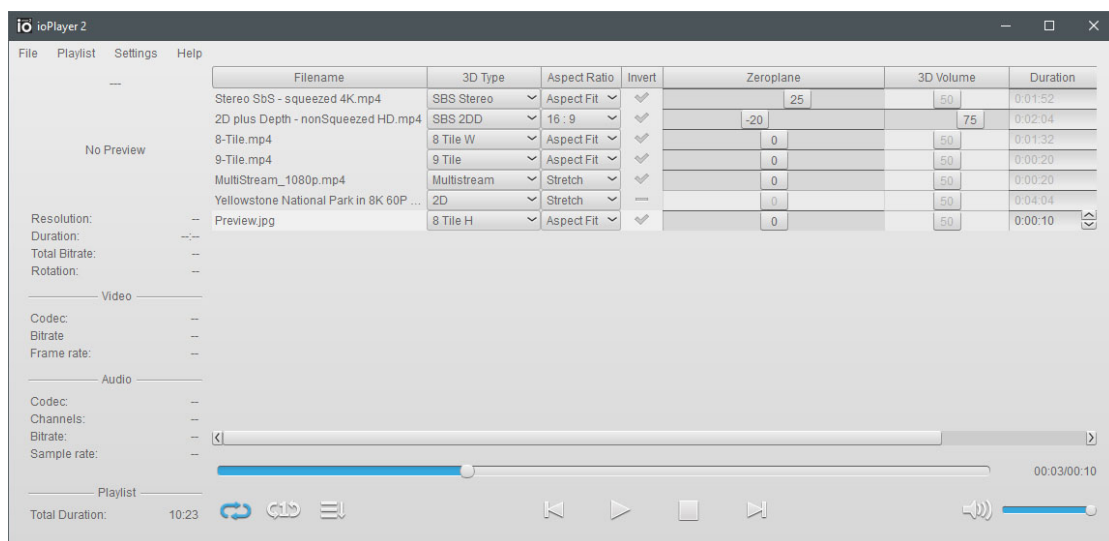


Fig. 8: Playlist in ioPlayer 2.0

### 5.1 3D Type

The **3D type** determines the content type of your media file. With glasses-free 3D contents there are many different types of formats that mostly depend on the amount of views and the way these views are arranged within the format container. For all the multistream file formats there is no need to manually set the file format as it is automatically detected by ioPlayer 2.0. Other formats can be recognized by the name of the file. For this the 3D media file needs the following naming: "TITLE\_TYPE.EXTENSION", where TYPE is the 3D type of the video or image, i.e. "Skyline\_SBS.mp4" for side-by-side video content, or "flower\_large\_9t.png" for a 9-Tile image.

See appendix for a comprehensive list of supported 3D types and their respective 3D file types.

## 5.2 Aspect Ratio

For selecting the Aspect Ratio there are the following options available:

- **Aspect Fit:** This option will keep the aspect ratio of the underlying content. Note that this may not show the expected results for squashed formats such as half-width side-by-side.
- **Aspect Fill:** This option will keep the aspect ratio, but zoomed in to avoid black bars.
- **Stretch:** Always stretch content to fit the size of the playback window. This is also the default setting and will be used if not set differently by the user.
- **Other aspect ratios:** You can select standard aspect ratios, irrespective of screen and media aspect ratios like 4:3, 16:9 or 16:10.

## 5.3 Invert

The invert option is used to change the view order in case the contents are arranged in the wrong view order (since this would result in an inverse depth display). We assume in the ioPlayer 2.0 that the views are arranged from right to left. For 2D contents the invert option is disabled since there is no need to invert anything.

## 5.4 Zeroplane

The “Zeroplane”-Slider allows you to change the center of the whole 3D scene, which is displayed in relationship to the 3D display. In this way, you can optimize the display of 3D scenes: Higher values make the 3D scene go further into the screen, while lower values make it seem closer to the viewer. Here again the option is disabled for 2D contents.

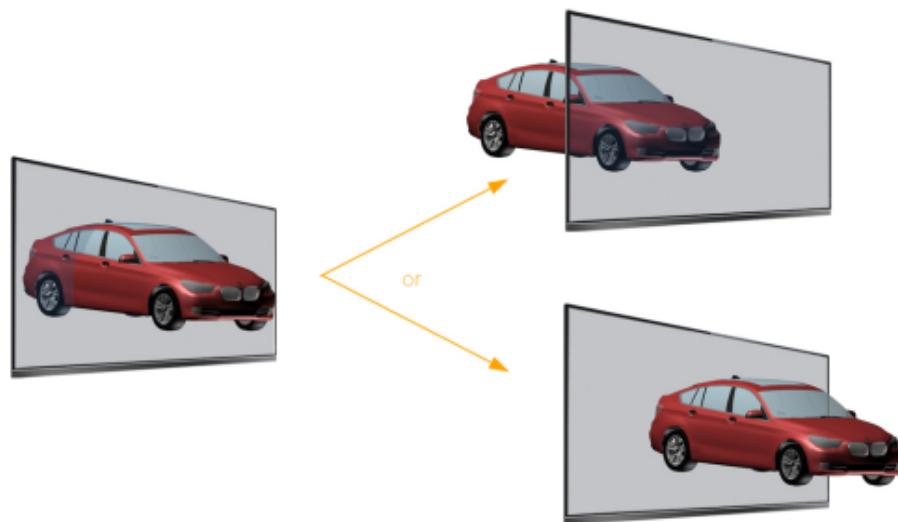


Fig. 9: The effect of Zeroplane settings



## 5.5 3D Volume

Determines how three-dimensional a scene looks. A value of zero results in a flat image, while higher values will make objects in the front come closer and objects in the back go further into the screen.

**Please note that this option is only enabled for content with a depthmap!**

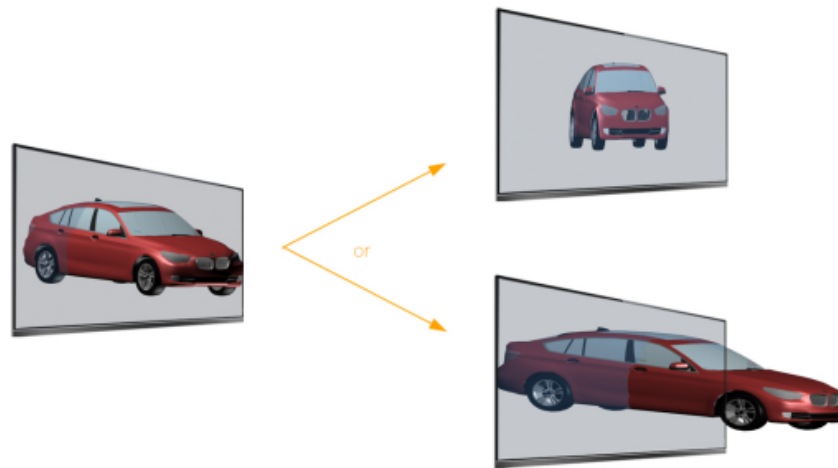


Fig. 10: The effect of 3D Volume settings

## 5.6 Duration

Shows the duration of the media in a “hours:minutes:seconds-format”. For images it can be used to control the duration of their playback. For videos the value can currently not be changed.

## 6 Media Info Panel

In the left part of the ioPlayer 2.0 window the Media Info Panel is shown. You can see a preview image of your selected media file. It shows you the file name, the resolution, the duration as well as the video and audio codec information, the bit- and frame rate of the content. We suggest you to read the guidelines of encoding contents for glasses-free 3D displays in the appendix. There you can find instructions about encoding 3D contents.

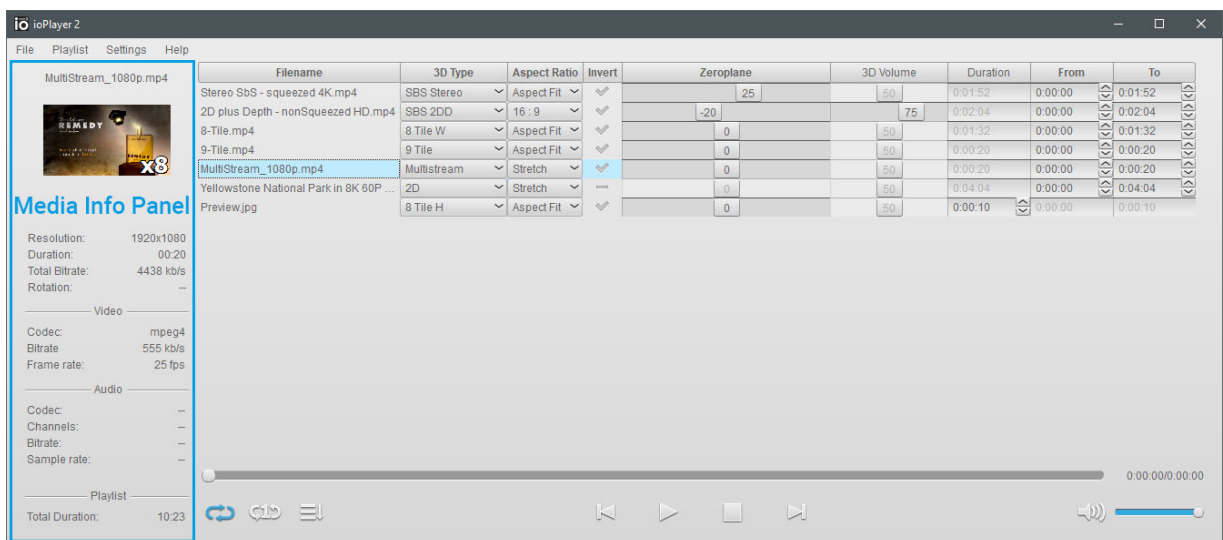










Fig. 11: Media Info Panel in ioPlayer 2.0

Please note that multistream media files will be detected by the ioPlayer 2.0 and it will show you the amount of views by indicating a number in front of the preview image (in this case it is "x8" meaning that there are 8 views included in the multistream file).

## 7 Playback Control

The Playback controls contain all the standard controls of today's media players. Below is a table of the functions of the control buttons:

Table. 1: Control buttons in ioPlayer 2.0

Icon	Function
	Play/Pause Button
	Stop Button
	Previous File in List
	Next File in List
	Loop Playlist
	Repeat File
	Playlist not looped
	Turn Sound off/on

## 8 Appendix

### 8.1 File formats

#### 8.1.1 MULTISTREAM

Multistream videos are automatically recognized when adding them to the playlist. The media info panel will show the number of video streams in the bottom right corner of the preview image. When defining a multistream video as a different 3D type, only the first stream is used.

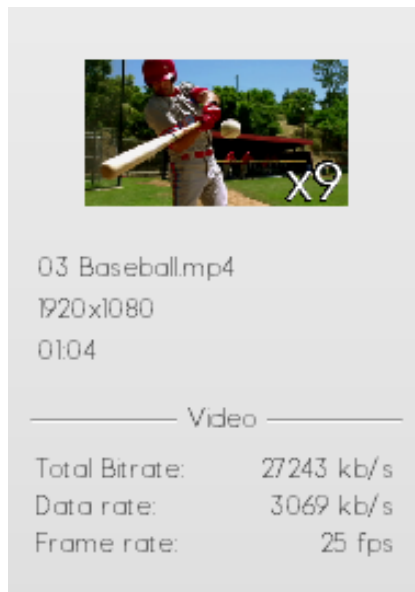


Fig. 12: Preview of multistream file in ioPlayer 2.0

#### 8.1.2 SIDE---BY---SIDE STEREO

Side-by-side stereo files consist of 2 views (left & right). To make sure that the player detects the file as a side-by-side stereo please add \_sbs or \_hsbs to the filename (example: video\_sbs.mp4).



Fig. 13: Side-by-side file

### 8.1.3 SIDE---BY---SIDE 2D+DEPTH

Side-by-side 2D+depth files consist of 2 images: one is the color image and one the according depth map (depth image). To make sure that the player detects the file as a side-by-side 2D +depth please add \_2dd or \_sbs2dd to the filename (example: video\_2dd.mp4).



Fig. 14: Side-by-side 2D+ depth file

### 8.1.4 TOP---BOTTOM STEREO

Top-bottom Stereo consists of 2 views (left & right) that are put not side-by-side but top and bottom of each other. To make sure that the player detects the file as a top-bottom file please add \_tb or \_htb to the filename (example: video\_ tb.mp4).



Fig. 15: Top-bottom Stereo

### 8.1.5 TOP---BOTTOM 2D+DEPTH

Top-bottom 2D+depth files consist of 2-views: one image view and one according depth map where the image is on top of the depth map. To make sure that the player detects the file as a side-by-side 2D+depth please add \_tb2dd to the filename (example: video\_tb2dd.mp4).



Fig. 16: Top-bottom 2D+depth

### 8.1.6 2 CHANNEL DEPTH

2 channel depth files consist of 2 views and 2 depth maps. The 2 image views are placed in the first column and the two according depth maps in the second column. To make sure that the player detects the file as a 2 channel depth file please add \_2chd to the filename (example: video\_2chd.mp4).

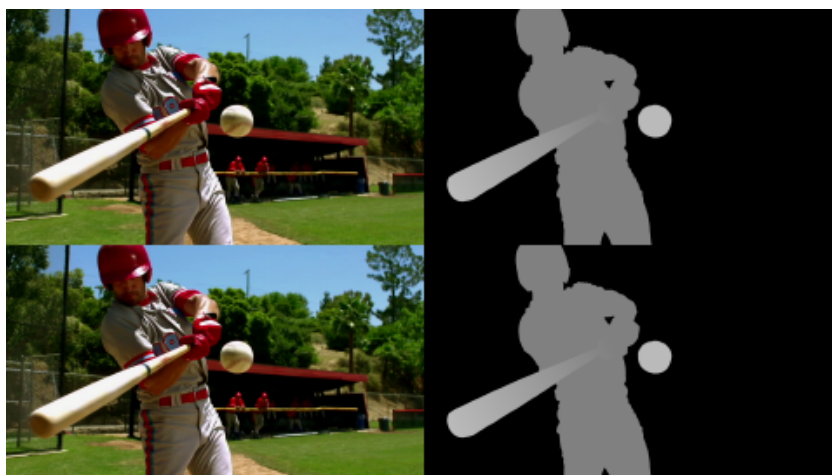


Fig. 17: 2 channel depth

### 8.1.7 4---TILE

4-tile files consist of 4 views in one image by putting the views in 2 rows. To make sure that the player detects the file as a 4-tile please add \_4t or \_4tile to the filename (example: video\_4t.mp4).



Fig. 18: 4-tile

### 8.1.8 5---TILE

5-tile files consist of 5 views in one image by putting the views in 2 rows. View 5 is split up in the third row to fit into the frame. To make sure that the player detects the file as a 5-tile please add \_5t or \_5tile to the filename (example: video\_5t.mp4).



Fig. 19: 5-tile



### 8.1.9 8---TILE

8-tile files consist of 8 views in one image by putting the views in 3 rows. View 7 and 8 are split up in the third row to fit into the frame. To make sure that the player detects the file as a 8-tile please add \_8t or \_8tile to the filename (example: video\_8t.mp4).



Fig. 20: 8-tile

### 8.1.10 8---TILE WIDE

8-tile wide files consist of 8 views in one image by putting 4 views each on 2 rows. To make sure that the player detects the file as a 8-tile wide please add \_8tw to the filename (example: video\_8tw.mp4).



Fig. 21: 8-tile wide

### 8.1.11 8---TILE HIGH

8-tile high files consist of 8 views in one image by putting 4 views each on 2 columns. To make sure that the player detects the file as a 8-tile high please add \_8th to the filename (example: video\_8th.mp4).





Fig. 22: 8-tile high

### 8.1.12 9---TILE

9-tile files consist of 9 views in one image by putting 3 views each on 3 rows. To make sure that the player detects the file as a 9-tile wide please add \_9t or \_9tile to the filename (example: video\_9t.mp4).

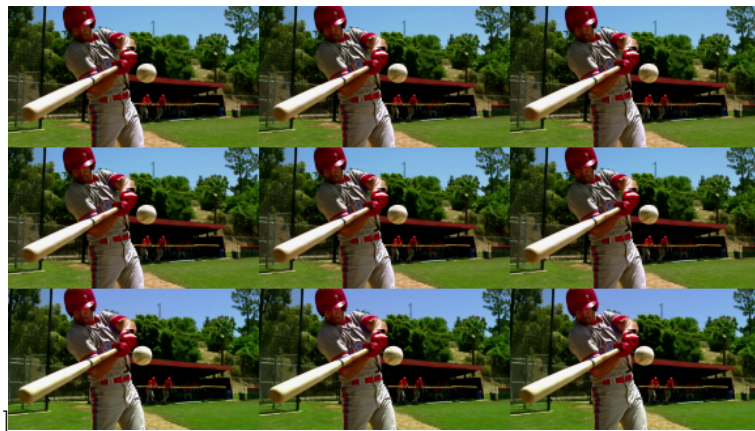


Fig. 23: 9-tile

## 8.2 Folder options

### 8.2.1 Watch folder option

The watch folder option helps you when you have your display connected to a network and you want to update the playlist by adding media files to the watch folder. So with this function you can remotely change the contents. You find the option in the Menu bar called "Watch folder for Media...". Once you open you will find the following dialogue:

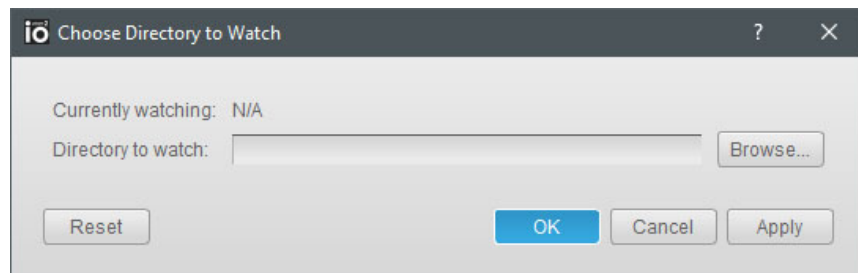


Fig. 25: Watch folder without directory to watch

First you have to add the folder that ioPlayer 2.0 should be watching for. Once you have chosen the folder you need to activate it by clicking on the "Apply"-button. The directory chosen will be also shown then in the "Currently watching"-section.

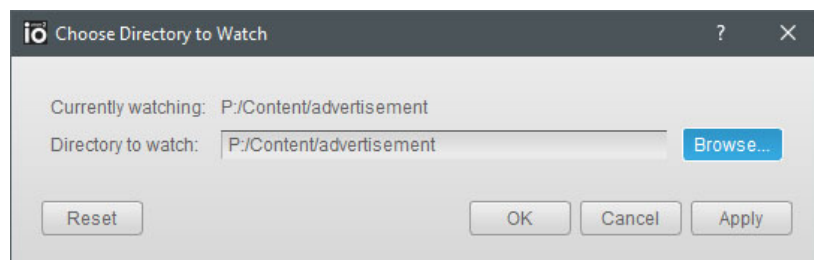


Fig. 26: Watch folder with directory to watch activated

## 8.2.2 Startup Playlist option

If you want to automatically start a playlist when starting up your system then you can use the option "Select Autoplay File" in the File-menu option of the ioPlayer 2.0.

Once you click the option you will find the following dialogue:

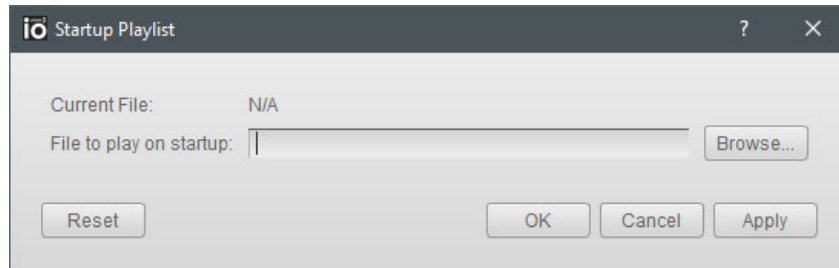


Fig. 27: Startup Playlist dialogue

Add the playlist that you want to play in auto-start mode and click the "Apply"-button. This will copy the playlist that you have chosen into the autorun folder of your Windows OS.

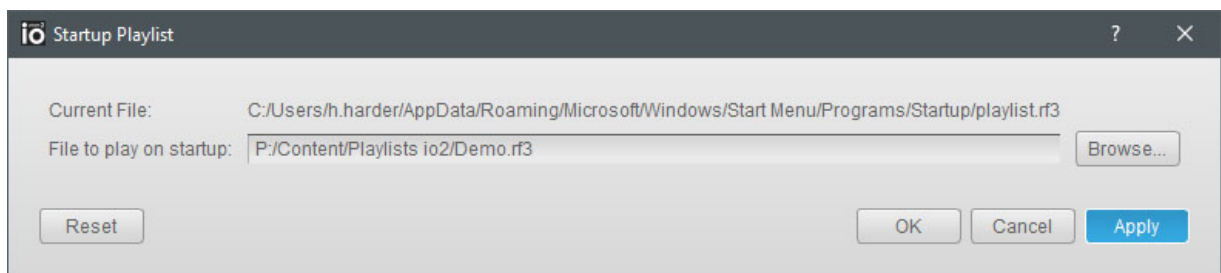


Fig. 28: Startup Playlist with chosen Playlist for autostart

If you want to remove an existing Startup Playlist, simply re-open the Startup Playlist dialog via the File-menu and press the "Reset"-button in the lower left corner of the dialogue. This will delete the playlist from the autorun folder.