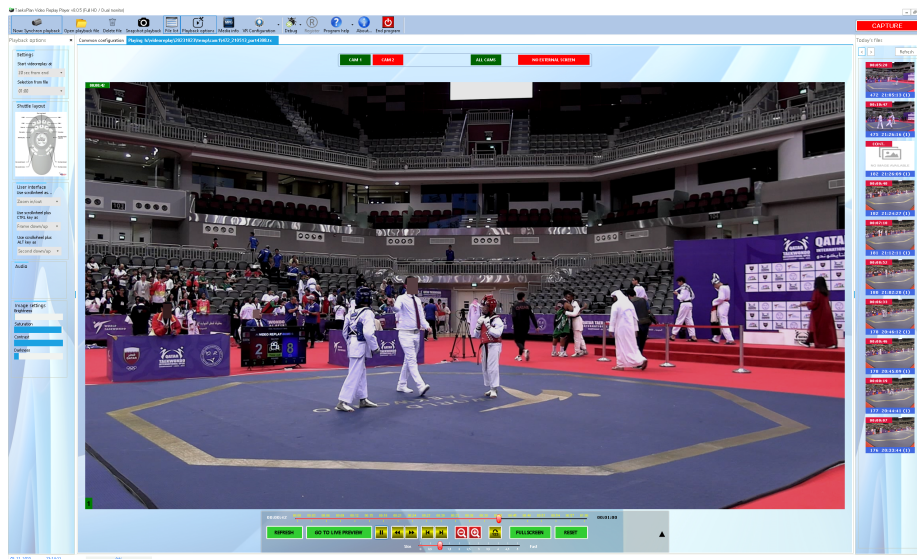




Taekoplan Video Replay v8

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Title page 1

Introduction

by SenSoft Automation - The Netherlands

*TaekoVRHD is software for adding video replay to your event.
It is able to handle Full HD / 4K and multiview camera
devices.*

Taekoplan Video Replay v8

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All the testers for their hard work and the European Taekwondo Union for allowing me to use a European Championship as first major event!

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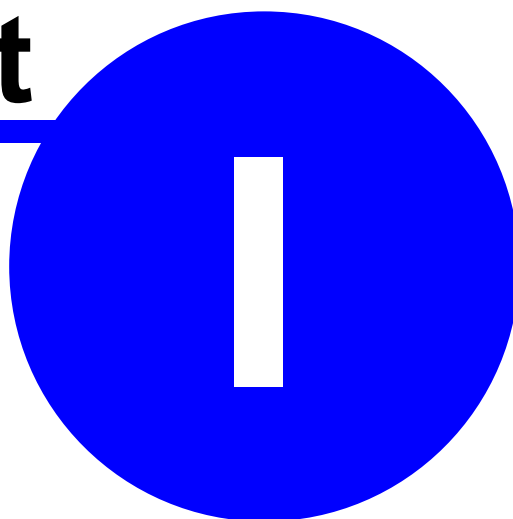
Table of Contents

Foreword	0
Part I Introduction	6
Part II Main modules	9
1 Capture	11
Capture Configuration	14
Camera config.....	15
Select camera device.....	15
Video device.....	17
Directshow	17
IP camera.....	19
NDI Stream.....	21
Video settings	22
Audio settings	26
Sample configs.....	26
Watch while capturing.....	31
What devices are best to use.....	33
Multiview 4K.....	35
Common config.....	37
Visual settings.....	37
Folders	38
Capture settings.....	39
CleanUp	41
Connection config.....	41
Streaming camera preview	42
Daedo TKStrike connection.....	42
Providing stream for OBS.....	44
Camera controls	46
Picture-in-picture	48
2 Player	53
Player Configuration	56
Player config.....	57
Common config.....	60
Settings	63
Zoom	64
Recording	65
Misc	66
Camera controls.....	67
Playback options	69
Filelist	72
Fileinfo	74
Part III Appendix	75
1 Menubar options	77
Capture	77
Player	78
2 FFMPEG commandboxes visible	80

3 Playback files	82
4 Requirements	83
5 Video transfer notes	84
6 About	86
7 Contour Shuttle	87
8 H264 Encoder bitrates	89
9 Capture Client/server	90
Part IV Other modules	94
1 Debug	96
2 Webserver	97
3 Graph info	98
Part V Embed scoreboard	99
1 Internal Capture Server	101
2 IVRScoreboard	105
3 Capture remote screen over UDP	110
Index	113



Part



1 Introduction

TaekoVRHD v8

Latest version: 8.3.0



TaekoVRHD.NET is a tool for capturing and playback of video for the video replay during taekwondo events.

It can be used for any sport like Karate or Judo.



***Full HD/4K/IP - Dual
Monitor - upto 4 Cams
synchron***

Capture

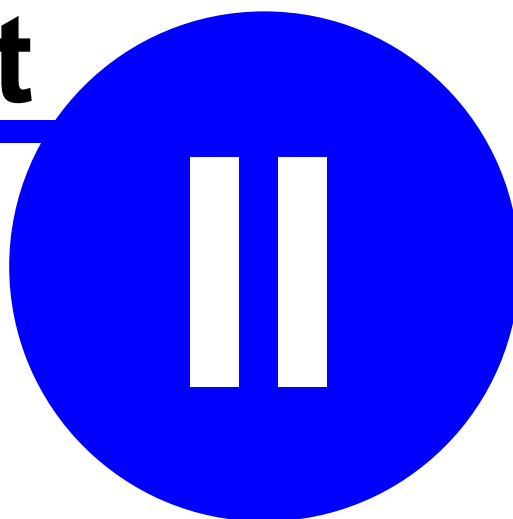
***TaekoPlan Video Replay for .NET
2023 v8.2.1***

(c) 2018-2023 SenSoft Automation - Netherlands

It can be used with standard or high definition consumer camera's. See appendix for specifications!
It also support IP camera's with different resolutions.

(c) 2018-2024 SenSoft Automation - Alphen aan den Rijn - The Netherlands

Part



2 Main modules



This section contains basic information about the main modules of the video replay software. The software is split into two separate programs, one for the capture and one for the videoreplay.

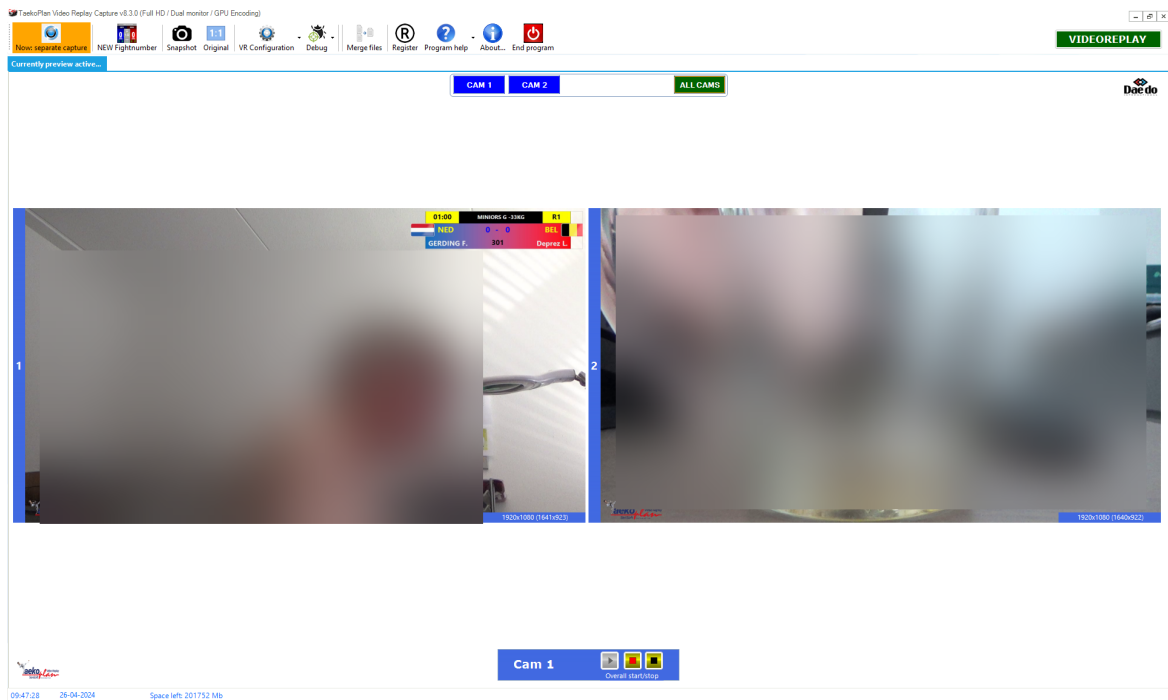
2.1 Capture

The capture is the central part of the video replay software. Up to two cams can be attached at the same time.

Each camera needs to be [configured](#) ¹⁵ before it can be used.

There are two views with preview/capture options. The first view only shows the two preview/capture screens (one for each cam).

The second one shows a combination of preview and playback.



The previews are fitted into the available space on the screen. Aspect ratio is also maintained for the previews.

On top you see the cam navigation bar:



You can select each of the maximum 4 cams to be shown as single cam on the screen or all cams together in a matrix.

The active option is colored green. The other available, but not active camera's are coloured blue.

Each capture preview has a button bar available which appears when hovering over the preview screen with your mouse.





Start the preview for the selected camera. After clicking this button, the button will switch to



to disable it.



Start the capture for the selected fight. The button will switch to disabled state



So you can not click it twice.



Stop the current capture if active, if only preview is active, it will stop the preview and will remove the preview image.

Capture can be done either for any standalone camera's or for all camera's synchronized.

If you want to use synchronized recording, use the menu option on top to activate this by clicking the **Synchron (asynchron) recording (2 cams)**.



Now: Synchron capture

Synchronized recording means that both cams will be started shortly after each other. To avoid that they get out-of-sync, a mechanism is built in to keep them on track towards each other.

If one cam falls behind for whatever reason, the other one will just 'wait' and resume. So we can guarantee that both recordings have the same timeline.

This is important during playback when you can switch between the two cams.

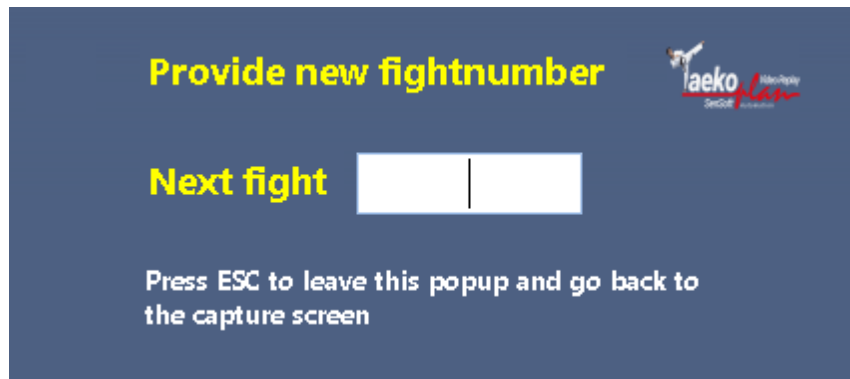
Before you can start recording, you need to enter a fightno. This fightno. is part of the filename of the recording(s).w

The fightno. can only consist of digits and a point if applicable.

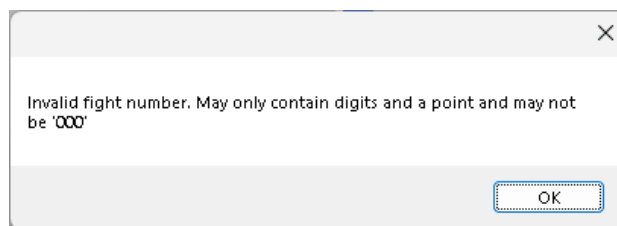
When starting a capture, the fightnumber entry will come automatically. At any time you can click



NEW Fightnumber to get the entry form.

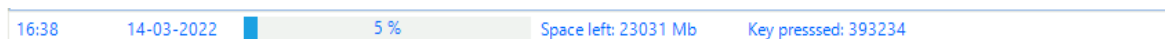


if you don't enter a fightnumber. you will get a notification:



Note: if you have enabled audio recording, then the audio output of your system is set to 0, so no output. This has to do with the fact that the microphone and speakers of your system will interfere and produce a very high sound, which might also cause problems with your system.

On the bottom of the mainscreen you see the statusbar:



You can see the date/time as well as the CPU Usage (5%) of the application.
The space left shows you the number in Mb's on the storage drive.
The message next to this shows you the latest recorded info message from the system.

2.1.1 Capture Configuration

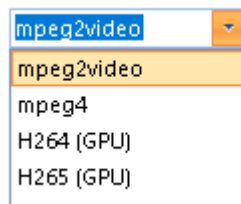
This version of the Video Replay software is capable of capturing and watching the footage at the same time.

For that you need to setup the camera config as follows:

Encoder to be used

Select the encoder for creating the capture file.

There are four options:



Select the encoder you want to use. Most common for .TS files (transport stream) as mpeg2video or mpeg4.

They will allow you to open the currently captured file and watch it at the same time.

So:

- Use mpeg2video or mpeg
- Set the bitrate to 3000K
- Set the video container to .TS

2.1.1.1 Camera config

The camera config enables you to provide configuration for up to 5 devices.

See the child chapters for detailed info how to configure.

2.1.1.1.1 Select camera device

First of all, select the no. of cams to be used (synchronously or asynchronously).

No. of active cams 2

Up to 4 active cameras can be selected.

Start cams synchronized

Check this box if you want to start multiple cams at the same time for preview and capture.

Refresh preview

Refresh the preview as shown in the black area

IP Camera database

This will point you to the ISpyconnect.com website.

Clear configuration

This will clear the whole configuration for the selected device so you re-enter information

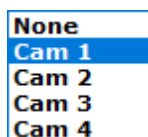
Save configuration

Saves the current configuration for the selected device

Next step is to select the device for which you want to do the setup:

You can setup upto 5 devices and assign them individually to a camera in the program.

To assign them, open the pulldown to select the camera.



If a camera is not available at startup, the **ACTIVE** caption will change to **INACTIVE**. You can create 5 configurations and select the Cam number to give them the correct order.

Upto 4 cams can be shown simultaneously.

Graphics card(s): NVIDIA GeForce RTX 3060 Laptop GPU (472.56)

Available HW encoders: NVENC H264 - NVENC H265 - MS_H264 - MS_H265

Graphics specs

This is an overview of the capabilities of the graphics card

2.1.1.1.2 Video device

For the type of videosource there are three options:

Directshow RTSP/IP camera/UDP NDI

Video device Cam Link 4K Refresh

Directshow capture Single camera

Video format (wi x he) 1920x1080 YUY2, 16 bit

Frames per second 50

Available options are: Directshow, IP camera and NDI stream.

Windows camera device (AVCHD)

This is a cam like Sony, Panasonic or JVC handycam which is connected through Firewire,
AVCHD is standard format which provides compressed HD video.

2.1.1.1.2.1 Directshow

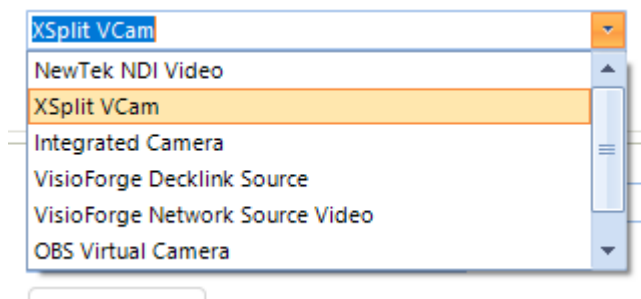
Windows Directshow Device

Video device	Cam Link 4K	Refresh
Directshow capture	Single camera	
Video format (wi x he)	1920x1080 YUY2, 16 bit	
Frames per second	50	

Any camera that is recognized by Windows OS as a valid camera. It should appear in the Device Manager.

It can be any camera connected to USB2/3 or Thunderbolt port.

For example an external webcam, Camlink HDMI, Magewell HDMI etc.



This is just an example list. Your devices might be different.

Directshow capture

This is the way the camera is being handled by the software

Directshow capture	Single camera
Video format (wi x he)	Single camera
	Multiview, connected 1 cam
	Multiview, connected 2 cams

Single camera does read the stream as is from the inputsource, a camera or a webcam.

Video format

This is the format that you want to use as inputsource

vi x he)

ond

1920x1080 YUY2, 16 bit

1920x1080 NV12, 12 bit

1920x1080 YUY2, 16 bit

The formats are coming from the camera device itself.

Frames per second

This is the framerate of the inputsource. This can be any reate, for example a camera might provide 50fps whereas an IP camera only provides 25 or 30fps.

2.1.1.1.2.2 IP camera

UDP / RTMP / RTSP (IP Stream)

This is an IP camera connected over a network which can be reached with a specific IP address.

IP camera URL

192.168.1.68

X

UDP/RTSP/RTMP engine

RTSP Low Latency TCP

Login

admin

X

Password

X

Port

88

X

Video command

videoMain

X

Connectionstring

rtsp://admin:404020E408@192.168.1.68:88/videoMain|

Video format and frames per second are coming from the IP camera

IP Camera URL

This is the plain IP address for example 192.168.1.68. No additional parameters needed.

UDP/RTSP/RTMP Engine

This is the engine used for reading the stream coming from the IP camera.

```
Auto (LAV engine)
Auto (GPU decoding, LAV)
RTSP Low Latency TCP
RTSP Low Latency UDP
```

Login

This is the login required to access the camera videostream.

Password

This is the password for access

Port

This is the portnumber for the camera

Video command

This is the parameter required to retrieve the correct videostream from the camera.

Connectionstring

This string will be used to access the camera in the application. It is combined from all of the 5 input fields mentioned.

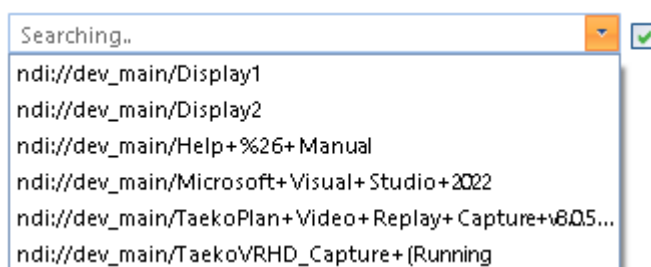
As each camera has it's own connection string, we can not give a full list of camera's and how to connect them.

For example for a Foscam it would look like this:

IP camera URL

```
rtsp://admin:404020E408@192.168.1.41:4000/videoMain
```

And for a Reolink 820a: **rtsp://admin:xxxx@192.168.1.xx/h264Preview_01_sub**



Select one of the sources.

NDI Engine

You can choose the latest NDI API interface or an older one, called **Legacy**, which will work for all NDI devices connected.

Local NDI

When you check this box, the NDI search engine will only look for local sources, otherwise the whole network segment will be checked.

2.1.1.1.3 Video settings

Video settings

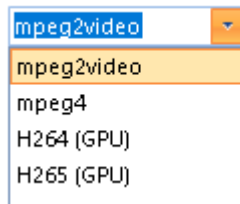
Encoder to be used	mpeg2video
Bitrate for encoding	3000K
Video container	ts
Stop during playback	No
Deinterlace source	None
Video renderer	EVR (Vista/Win7)
Force framerate	Default
Framerate for preview	Source
Scoreboard PIP	No

PIP Setup

Encoder to be used

Select the encoder for creating the capture file.

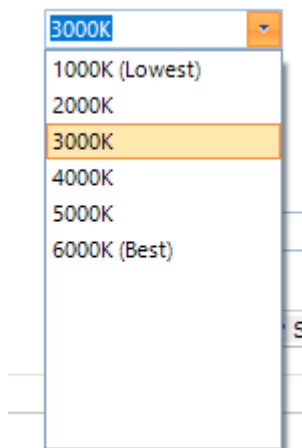
There are four options:



Select the encoder you want to use. Most common for .TS files (transport stream) as mpeg2video or mpeg4.

Bitrate for encoding

Select the bitrate for the capture file. The quality goes from less good to high. Please select the correct one based on your requirements and disk space.

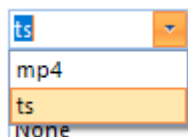


Select the one you want to use.

Video container

Here you select the type of container for the video file. If you are not known with these, please leave it at ts.

MP4 is a container which needs a stop to be able to play the file, whereas TS allows the outputfile to be played while capturing.

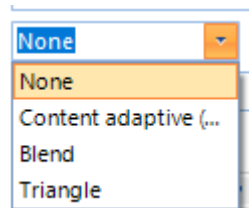


Stop during playback

If you so not want to capture during a break between fights, set this to Yes, otherwise leave it to No. Capture will by default not run between fights.

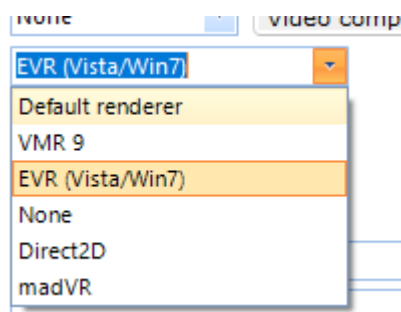
Deinterlace source

If you have an interlaced video input, you need to de-interlace it to avoid stripes in the picture.
The following options are available:



Video renderer

The video renderer is the engine which creates the picture on your screen.
The following renderers are available:

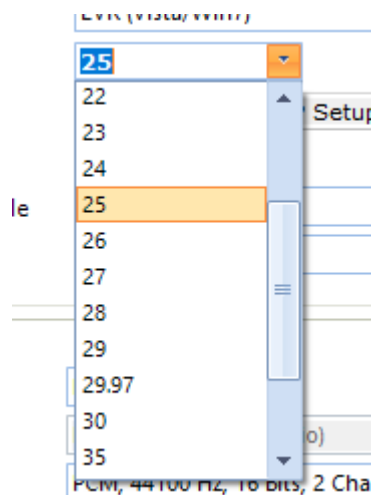


Each has its own specifications. Choose the one which provides you the best picture.
This highly depends on graphics card used.

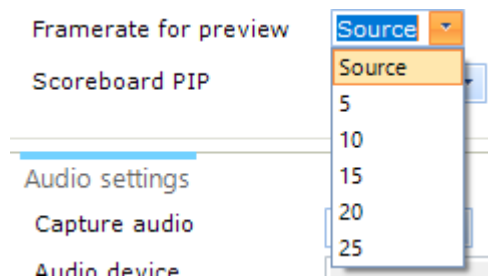
Force framerate

The framerate is the number of frames per seconds provided by the camera device.
Most common are 25, 29.97 and 30 fps.

Select the default or one of the possible framerates or use default if you do not encounter issues with capture.



Framerate for preview



When you have issues with high CPU load or memory usage, you can change the framerate used in the preview window(s).

For example, if you have two windows, each showing a 50 fps stream from the camera's, your CPU usage might become high.

Also memory usage will increase. In order to lower it, you can change the framerate to a lower number.

25fps is perfect for a preview.

Note that the capture is **ALWAYS** at the requested framerate (so 50fps will be captured as 50fps).

Only change this if the provided framerate is higher than 25. In any other situation (for example using IP Camera's) you do not need to change this setting.

Leave it on **Source**.

Scoreboard PIP

This allows a picture-in-picture of the scoreboard.

For more info see the [Picture-in-picture](#) topic.

2.1.1.1.4 Audio settings

Audio settings	
Capture audio	Yes, source ▼
Audio device	Microphone (Realtek(R) Audio) ▼
Audio Codec	MP3 ▼

Capture Audio

Select **No** if you do not want to capture audio, **Yes** if you want to capture audio using the Audio device selected.

And select **Yes, source** if you want to capture audio coming from the source (for example an IP camera).

Audio device

Select a device to be used from your system. The available ones are listed in the box.

Audio codec

This is the type of encoding for the audio.

If you want to use audio for playback also, you can use either AAC (Uncompressed) or Mp3 (MPEg-3 layer, compressed).

2.1.1.1.5 Sample configs

Below are two configs shown for a directshow device and for an IP camera:

Directshow device:

Directshow

RTSP/IP camera/UDP

NDI

◀ ▶ ✕

☒ Directshow active

Video device

Cam Link 4K (2)

Refresh

Directshow capture

Single camera

Video format (wi x he)

1920x1080 I420, 12 bit

Frames per second

50

Video settings

Encoder to be used

mpeg2video

Bitrate for encoding

3000K

Video container

ts

Stop during playback

No

Deinterlace source

None

Video renderer

EVR (Vista/Win7)

Force framerate

50

Framerate for preview

25

Scoreboard PIP

Yes

PIP Setup

Audio settings

Capture audio

Yes

Audio device

Microphone (Realtek(R) Audio)

Audio Codec

AAC

IP Camera over RTSP

Directshow
RTSP/IP camera/UDP
NDI

☒ RTSP/IP active

Source type
RTSP

IP address source
192.168.1.68

UDP/RTSP/RTMP engine
Auto (LAV engine)

Login
admin

Password

Port
88

Video command
videoMain

Connectionstring
rtsp://admin:404020E408@192.168.1.68:88/videoMain

Video format and frames per second are coming from the IP camera

Video settings

Encoder to be used
mpeg2video

Bitrate for encoding
3000K

Video container
ts

Stop during playback
No

Deinterlace source
None

Video renderer
EVR (Vista/Win7)

Force framerate
Default

Framerate for preview
Source

Scoreboard PIP
No

PIP Setup

Audio settings

Capture audio
No

Audio device
Microphone (Realtek(R) Audio)

Audio Codec
MP3

UDP Stream

Directshow

RTSP/IP camera/UDP

NDI

☒ RTSP/IP active

Source type

UDP

IP address source

224.0.1.0

UDP/RTSP/RTMP engine

Auto (LAV engine)

Login

Login to connect

Password

Password to connect

Port

9000

Video command

Commandline

Connectionstring

udp://224.0.1.0:9000

Video format and frames per second are coming from the IP camera

Video settings

Encoder to be used

mpeg2video

Bitrate for encoding

3000K

Video container

ts

Stop during playback

No

Deinterlace source

None

Video renderer

EVR (Vista/Win7)

Force framerate

Default

Framerate for preview

Source

Scoreboard PIP

No

PIP Setup

Audio settings

Capture audio

No

Audio device

Audio Codec

AAC

NDI Input

Directshow

RTSP/IP camera/UDP

NDI

◀ ▶ ✕

☒ NDI active

NDI source

ndi://dev_main/Test+Pattern

Local NDI

NDI engine

NDI

Video settings

Encoder to be used

NDI Wrapper

Bitrate for encoding

3000K

Video container

ts

Stop during playback

No

Deinterlace source

None

Video renderer

EVR (Vista/Win7)

Force framerate

Default

Framerate for preview

Source

Scoreboard PIP

No

PIP Setup

Audio settings

Capture audio

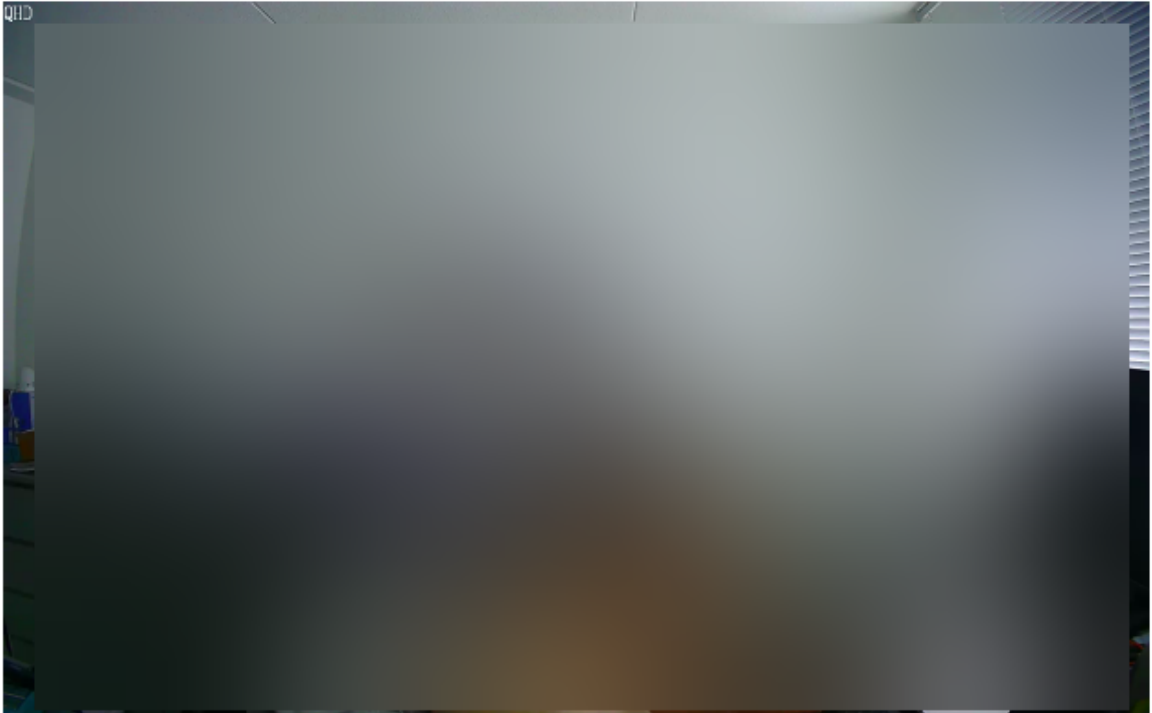
No

Audio device

Audio Codec

For IP camera's it is important to use TCP as protocol, not UDP.

You can check for the preview to be working:



2.1.1.1.6 Watch while capturing

This version of the Video Replay software is capable of capturing and watching the footage at the same time.

For that you need to setup the camera config as follows:

- **Use mpeg2video or mpeg (encoder to be used)**
- **Set the bitrate to 3000K**
- **Set the video container to .TS**

Directshow
RTSP/IP camera/UDP
NDI

☒ Directshow active

Video device
Cam Link 4K
Refresh

Directshow capture
Single camera

Video format (wi x he)
1920x1080 YUY2, 16 bit

Frames per second
50

Video settings

Encoder to be used
mpeg2video

Bitrate for encoding
3000K

Video container
ts

Stop during playback
No

Deinterlace source
None

Video renderer
EVR (Vista/Win7)

Force framerate
50

Scoreboard PIP
No
PIP Setup

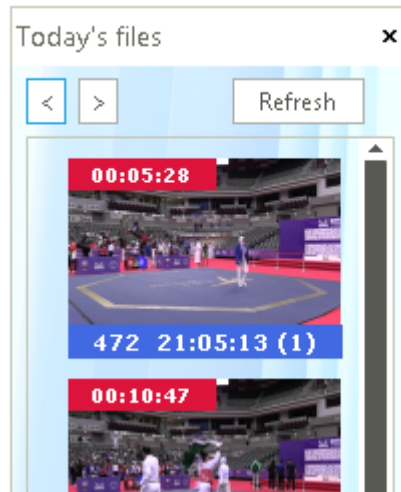
If you use these settings (you can apply them to directshow or IP camera's) you are able to watch the footage while the capture continues. You do not have to start/stop the capture.

Just start it and enter a fictitious fight number. Capture will start and click on the

VIDEOREPLAY

button to open the player.

In the filelist of the player it will always be the first shown capture:



The outputfiles created will have the extension .TS (transport stream).

Double clicking on the image will open the footage.

This is also required if you want to refresh the watched footage to the latest timestamp.

2.1.1.1.7 What devices are best to use...

Basically, you can connect any type of device to capture.

Based on experience, you might go for specific options as there are more conditions to be met before you can successfully capture.

Camcorders

Camcorders might provide the best quality.

There are more brands with good camera's (Sony, Panasonic), based on HDMI output.

You can connect these camera's to your laptop by using USB Video devices.

To get to 50fps you should use USB3 devices, but please be aware that a lot of the cheaper USB Video devices are not compatible with USB3.

They will work, but only at 25fps.



Rather use a somewhat more expensive device like the **Camlink 4K**. This one is USB3 compatible and can provide up to 60fps per camera.

Only issue could be that you need one USB3 port per device, so you can't use a USB hub and the USB3 ports need to have a separate **Root Hub**.

If not you can only use one camera.



If you want to use a USB Video stick from any other brand which is USB2 compatible, you are able to use more devices on the same USB Root Hub. But still you will manage 50fps. A lot of the cheaper brands give 50fps as specification, but we tested a lot of them and the result was very annoying.

Multiview



You can also a multiview device which allows you to input up to 4 HDMI device and bundle this to a 4K HDMI input for the laptop. You need to split this into 4 camera streams in a 4 camera raster. The software is able to split this raster in 4 separate videostreams, each Full HD. You can select the option in the camera configuration.

IP camera's

You can use up to 4 IP camera's easily. As most Full HD IP camera's are using 25 or 30 fps, connecting them is quite simple. Quality is ok but especially with Video Replay it is important to have more frames per second rather than the best quality picture.

If you want to connect an IP camera, you need to have the correct connection information. Every IP camera provides a videostream which needs to be opened.

Most of the time you need login, password and the correct string to connect.

Check the camera manual or search in the camera config. There is a button to show a database of IP camera's and how to connect them.

IMPORTANT:

At any time, your laptop should be able to process the incoming data!

Using a laptop with I5 processor might not be the best choice. You need at least I7 and SSD disk to be sure.

And a 4K camera input over HDMI needs 4 times the bandwidth of a Full HD input. Two camera's, both 50fps Full HD, are almost the maximum for a good laptop. For IP camera's, you can easily connect 4 of them.

2.1.1.1.8 Multiview 4K

In the device settings you can tell the system to handle the input as Multiview input. If you have a multiview device with 4 inputs and 1 output providing a 4K signal, you can split that into 4 separate video streams in the software.



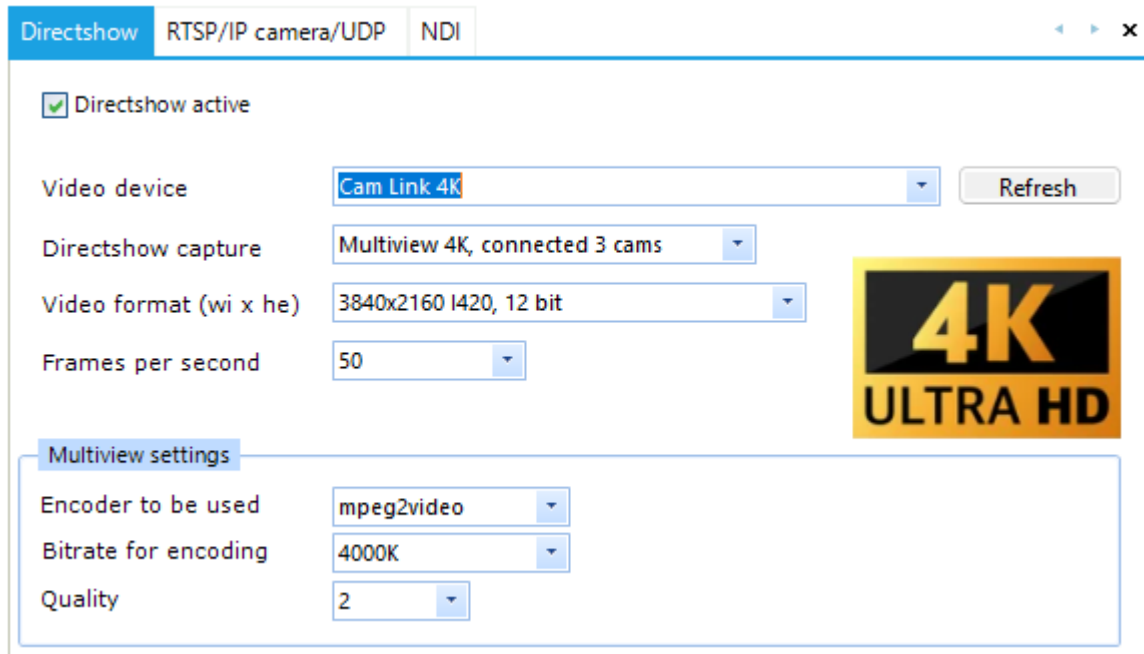
You need to use a device which is capable to provide the 4K signal to the computer. This can for example be a Camlink 4K.



After connecting the device, it is visible in the list of devices.



For the Multiview input, use the following settings (these are examples, you may change them accordingly):



The video device as mentioned (this can be any brand device capable of providing 4K stream).

The Directshow capture is not a single camera, but it is coming from the Multiview device. Please make sure to provide the correct number of inputs.

The devices do not have to be named as Cam1, Cam2 and Cam3, but can also be Cam2, Cam3 and Cam4 for example.

The video format will be 3840x2160 (4K). The frames per second is most of the time 30fps or even 60fps (depending on the device).

When you use the Multiview, a separate stream is created because the Camlink can only be used once.

So one stream is picking up the Camlink stream and is being split into max. 4 separate streams. The streams are considered to be Full HD camera's and as such handled as camera's.

The whole way of working is just as if you are connecting 4 camera's to 4 devices on your system. But that scenario is not possible as you would need 4 separate root hubs for your USB-3 connections.

So a Multiview is a perfect way of handling multiple camera's on one computer.

The Multiview settings are used to provide the stream to the camera streams. The settings as shown are default and most of the time sufficient.

The quality is a parameter, the lower the better! So not the other way round.

Also bear in mind that using 4 camera's will only work smooth with at least an I7 or AMD Ryzen 7 processor.

Important: as the video device (like Camlink) is providing 4 streams, there is no audio currently provided.

That will be coming in a future update of the software.

2.1.1.2 Common config

The common configuration contains settings that define specific user requirements.

Common configuration

Common configuration settings



Court info Court number: <input type="text" value="1"/>	Capture settings Heartbeat check every ... sec: <input type="text" value="0"/> Hide overall STOP capture button: <input type="text" value="No"/> Create thumbnails for player: <input type="text" value="No"/> Register codecs on start: <input type="text" value="No"/> Show terminal window for FFmpeg: <input type="text" value="Yes, minimized"/> Engine to use for preview picture: <input type="text" value="FFmpeg"/>
Visual settings Show marker panel: <input type="text" value="No"/> Show captions in menubar: <input type="text" value="Yes"/> Show debug messages: <input type="text" value="Yes"/> Show detailed SDK info: <input type="text" value="Yes"/> Beep on any keypress: <input type="text" value="No"/>	Diskspace/Cleanup Lower limit of free space in Mb: <input type="text" value="20000"/> Mb
Folders Folder for FFmpeg 32bits: <input type="text" value="e:\codecs\redist\ffmpeg\win32\"/> Folder for FFmpeg 64 bits: <input type="text" value="e:\codecs\redist\ffmpeg\win64\"/> Folder for CloseConsole App: <input type="text" value="e:\codecs\redist\FFmpeg\CC\"/> Folder for all Codecs: <input type="text" value="e:\codecs\redist\"/> Folder for TaekoVRHD Player: <input type="text" value="E:\TaekoVRHD_VF.NET2_Player - 7.00\bin\x64\"/> Folder for recordings: <input type="text" value="h:\videoreplay\"/> Folder for snapshots: <input type="text" value="h:\videoreplay\"/>	Security Password for access to config: <input type="text"/>
	Application info Application running as Windows: <input type="text" value="64bits"/>

2.1.1.2.1 Visual settings

Visual settings are as follows:

Visual settings	
Show marker panel	<input type="text" value="No"/>
Show captions in menubar	<input type="text" value="Yes"/>
Show debug messages	<input type="text" value="Yes"/>
Show detailed SDK info	<input type="text" value="Yes"/>
Beep on any keypress	<input type="text" value="No"/>

Show marker panel

This will show or not show the marker panel on the capture screen.



Show captions in menubar

Set this to Yes to display the text captions in the menubar of the program.
Setting No will only show the icons

Show debug messages

Set this to Yes to show all messages, including errors.

Show detailed SDK info

Set this to Yes to show detailed info messages from the used SDK

Beep on any keypress

Set this to Yes to hear a system beep when a key is pressed. This might be useful if you are in doubt whether a keypress reaches the program

2.1.1.2.2 Folders

You can provide the required folders for the correct operation of the software:

Folders	
Folder for FFMPEG 32bits	E:\Codecs\Redist\FFMPEG\win32\ ...
Folder for FFMPEG 64 bits	E:\Codecs\Redist\FFMPEG\win64\ X ...
Folder for CloseConsole App	E:\Codecs\Redist\FFMPEG\CC\ X ...
Folder for all Codecs	E:\Codecs\Redist\ X ...
Folder for TaekoVRHD Player	E:\TaekoVRHD_VF.NET2_Player - 7.00\bin\x86 X ...
Folder for recordings	h:\videoreplay\ X ...
Folder for snapshots	h:\videoreplay\ X ...

Folder for FFMPEG 32bits

This is the path to the folder where FFMPEG32.EXE (32bits version) is located. By default it is in the Redist folder.

The FFMPEG.EXE is important for many parts of the video-replay system, so check for the correct path!

Folder for FFMPEG 64bits

This is the path to the folder where FFMPEG32.EXE (64bits version) is located. By default it is in the Redist folder.

Folder for CloseConsole App

This is the path to the folder where CloseConsole.EXE is located. By default it is in the Redist folder. Please note that those three settings are going to be obsolete in one of the next versions of the software.

Folder for all Codecs

This is the path to the folder with all the required codecs for the program. By default it is the 'Codecs/redist' folder in the installation.

Folder for TaekoVRHD Player

This is the path to the folder where the player is installed. By default this is the application folder.

Folder for recordings

This is the folder where the recordings will be stored.

In the folder a date stamp is applied by the software to distinguish between the days.

Folder for snapshots

This is the folder where the snapshots will be stored.

2.1.1.2.3 Capture settings

Recording settings	
Heartbeat check every ... sec	0
Hide overall STOP capture button	No
Create thumbnails for player	No
Register codecs on start	No
Show terminal window for FFMPEG	Yes, normal
Engine to use for preview picture	FFMPEG

Heartbeat check everysec

Set a value in seconds to enable the heartbeat check. If set, the system will check for a recording to be saved to disk. If there is no change in the disksize, most of the time this points to an error in the configuration.

If the heartbeat is reached without any change in disksize, the capture will stop.

Second (full)screen during preview

Set this to Yes to allow a fullscreen to show when double clicking on the video area.

Hide overall STOP capture button

Set this to Yes to hide the stop button for accidental clicking.

Create thumbnails for player

Set this to Yes to create thumbnails each second of the image stream from the device. When these are available you can select them to be shown in the player.

Register codecs on start

Set this to Yes to register all codecs in the default codecs folder to be registered.

Show terminal window for FFMPEG

When enabled, the terminal window will be shown for preview and capture. This is meant for checking purpose. If all is running smooth, you may hide the windows.

The three options are 'Yes', 'Yes, minimized' and 'No'.

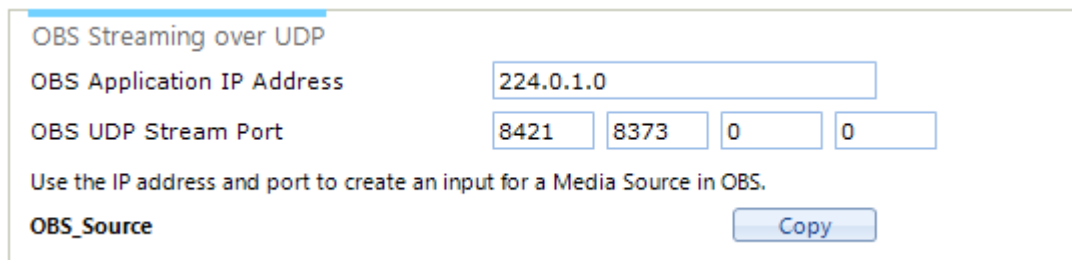
Engine to use for preview picture

This is the engine which is used when showing the preview in the capture application. It depends on OS/CPU and graphics card which engine is best to use.

If you do only see a black picture, you need to switch.

NOTE:

In version 8.3 the [OBS stream](#)⁴⁴⁾ is already by default available on IP address 224.0.1.0 and the ports mentioned in the connection config module:



OBS Streaming over UDP

OBS Application IP Address

OBS UDP Stream Port

Use the IP address and port to create an input for a Media Source in OBS.

OBS_Source

So for camera 1 the stream URL is **udp://224.0.1.0:8421** and for caera 2 it is **udp://224.0.1.0:8373**. You can use this stream for any other streamserver that accepts udp streams.

2.1.1.2.4 CleanUp

Diskspace/Cleanup

Lower limit of free space in Mb Mb

Lower limit of free space in Mb

This is the limit of remaining diskspace for the capture to stop.
The operator will be notified that there is no disk space left.
Set the limit to for example 10 Gb. This looks a lot, but the capture outputfiles are written using cache, so the remaining disk space can never be calculated exactly.

2.1.1.3 Connection config

The connection configuration provides the options for connecting to specific software.

Connections

Setup of connections for scoreboard, TaekoPlan and streaming



BudoScore connection BudoScore scoreboard connection <input type="text" value="No"/>	Daedo 2018 connection Daedo TK-Strike connection <input type="text" value="No"/> <input type="text" value="≥ V3.X"/> Webserver port <input type="text" value="8085"/> Start recording based on <input type="text" value="Every new round"/> Capture after fight ends <input type="text" value="No"/>
TaekoPlan connection Use TaekoPlan connection <input type="text" value="No"/> TaekoPlan server IP address <input type="text" value="192.168.1.1"/> Port <input type="text" value="1100"/>	Remote connection Daedo or KP&P Network IP Address of this computer to use <input type="text"/>
Streaming camera preview Activate network streaming <input type="text" value="No streaming"/> URL for streaming <input type="text"/> Key for streaming <input type="text"/> NDI Output name <input type="text"/> Optional: Login <input type="text"/> Password <input type="text"/>	Connection assistance Daedo TkStrike External Event Listeners <div> <div>New TkStrike External Event Listener</div> <div> <div>URL 0.0.0.0</div> <div>Test Connection</div> <div>Ok</div> </div> </div> <p>Use these settings in the Daedo Scoreboard Configuration. 'Test connection' should give Ok as reply in TKStrike. These settings are required to use the 'new look' scoreboard PIP.</p>
OBS Streaming over UDP OBS Application IP Address <input type="text" value="224.0.1.0"/> OBS UDP Stream Port <input type="text" value="8421"/> <input type="text" value="8373"/> <input type="text" value="0"/> <input type="text" value="0"/> Use the IP address and port to create an input for a Media Source in OBS. OBS_Source <input type="button" value="Copy"/>	<input type="button" value="Save configuration"/>

You can connect several programs to the video replay system to make it work fully automated or to provide streaming.
see the child chapters for more info on the specific topics.

2.1.1.3.1 Streaming camera preview

Streaming camera preview

Activate network streaming

URL for streaming

Key for streaming

Optional:

Login

Password

You can directly stream the picture of the first camera device to a streaming service on the internet.

At the moment we support any service, Youtube is named as such, but by using the appropriate URL and key/login combination you might be able to stream to any service.

If you need assistance on this or a small change in the program to achieve it, please call our support team.

For Youtube streaming you need to have an account with Youtube. This can be a free account at any time.

Streaming camera preview

Activate network streaming

URL for streaming

Key for streaming

Select Youtube from the list and provide your key, linked to the channel you want to use. You can create more than 1 channel on Youtube.

The RTMP URL is the default one for Youtube; they also have a backup URL. The streaming is tested and working on a free Youtube account.

2.1.1.3.2 Daedo TKStrike connection

Daedo connection

For the connection with Daedo you can select which version to connect to. Currently only version 3.x is active.

You can start the capture at every new fight and have it stopped when the operator confirms the result to the OVR provider.

Or you can choose to start/stop with every round.

Look at the picture to see how you need to connect TKStrike to the program.

Please note that the connection is going outside of the TP4webserver.

It is a fully separate peer-to-peer connection.

Daedo TKStrike connection

Daedo TK-Strike connection	Yes	(Version 3.x +)
Port for data communication	8085	
Port for scoreboard data	8087	
Start recording based on	New fight configured	
Capture after fight ends	No	

To have Daedo TK Strike start/stop your video replay, set the Daedo TK-Strike connection to Yes. The TKStrike version needs to be 3.x or higher.

Also select the **port for data communication** to be used. By default it is 8085, but you can select any port as long as it is not blocked by the firewall.

The data communication takes care of starting/stopping the capture for each fight.

The **port for scoreboard data** is meant to provide the new look scoreboard with data. Leave it blank if you do use the internal capture server or no scoreboard at all.

You can start capture as:

Start recording based on	New fight configured
	New fight configured
	Every new round

Remote connection Daedo or KP8P

The first option starts the recording as soon as match is loaded in TK-Strike. The second option starts/stops a recording at every round.

To be able to communicate with Daedo, you need to configure TK-Strike to provide the data:

Connection assistance Daedo

TkStrike External Event Listeners

New TkStrike External Event Listener

URL

http://192.168.1.5:8088

Test Connection

Screenshot of the daedo Configuration External tab

Use these settings in the Daedo Scoreboard Configuration. 'Test connection' should give Ok as reply in TKStrike. These settings are required to use the 'new look' scoreboard PIP.

If you don't know the IP address of your system, check the box:

Remote connection Daedo or KP&P

Network IP Address of this computer to use
192.168.1.5


If you use both data and scoreboard, you need to create two listeners in TKStrike.

If you have more than one connection to a network, you need to select the correct one, to be entered in TK-Strike.

Test the connection in TK-Strike by clicking the TEST Connection button.

You should receive **Ok** as status.

If not, please check the IP address and port to be correct.

If you see  the Daedo Logo on the mainscreen, it means that you have a connection to the TK-Strike system.

the Daedo Logo on the mainscreen, it means that you

2.1.1.3.3 Providing stream for OBS

The latest version 8.3 provides a new feature to stream directly to OBS or any other tool for streaming to the internet.

OBS Streaming over UDP

OBS Application IP Address
224.0.1.0

OBS UDP Stream Port
8421
8373
0
0

Use the IP address and port to create an input for a Media Source in OBS.

OBS_Source
Copy

Every connected camera (Directshow or IP) will produce a stream which can be picked up by OBS and processed.

In the connectconfig module you can see the IP address and ports used for each camera.

You can make a nice picture of a single camera, but also mix them in a picturewall.

If you click on a port, the full connectionstring is shown and can be copied by clicking the **Copy** button.

OBS UDP Stream Port

8000

8001

0

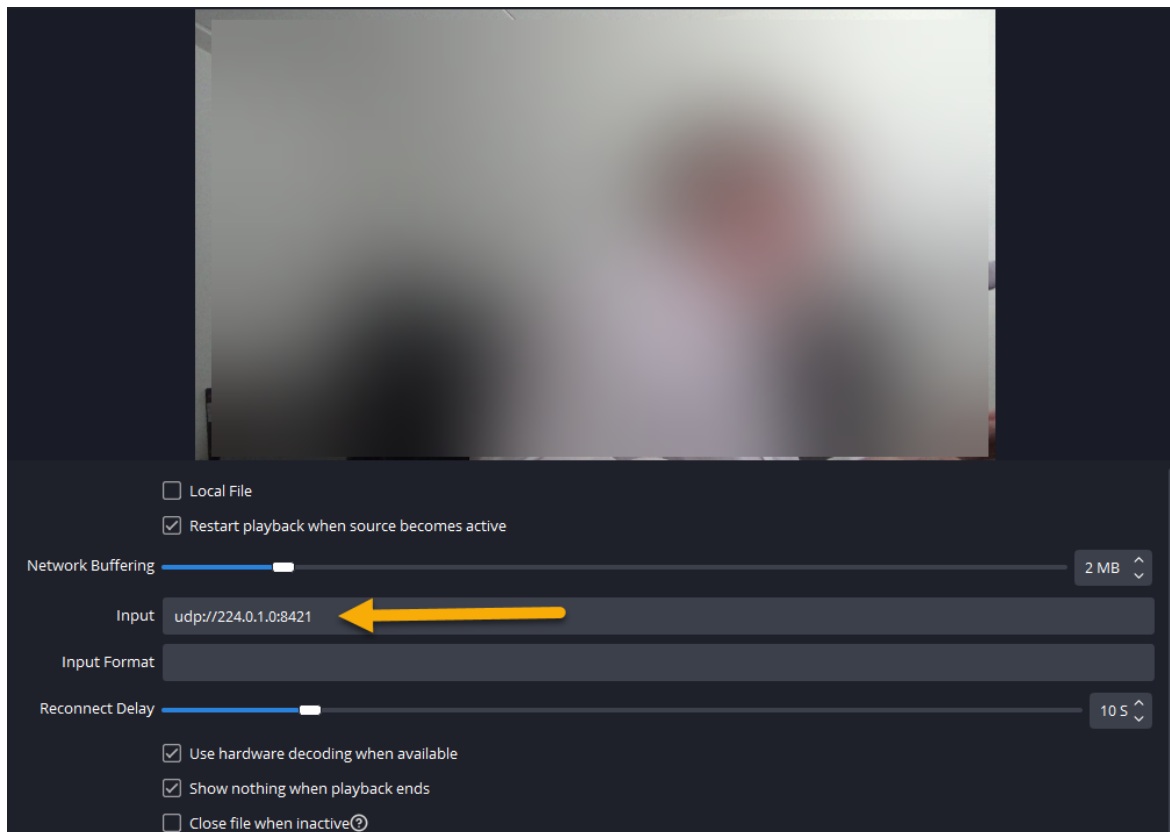
0

Use the IP address and port to create an input for a Media Source in OBS.

Source to be used In OBS: 'udp://224.0.1.0:8000'

And pasted in OBS.

In OBS you need to add a **Media Source** object:



Enter the connectionstring and click on **OK**.

Please note that 224.0.1.0 is a so called **Multicast** IP Address which enables multiple listeners to pick up the stream.

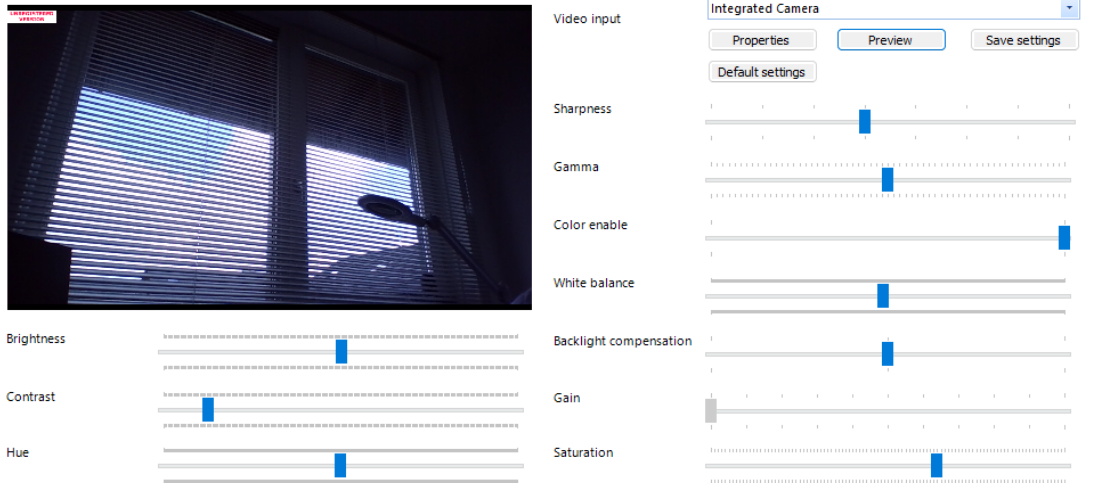
The same stream is for example used in the player to get the live preview.

2.1.2 Camera controls

Some camera's (especially webcams) allow for configuration of hue, colour, saturation, contrast etc.

Camera Control

Setup your camera controls for optimized preview/capture quality

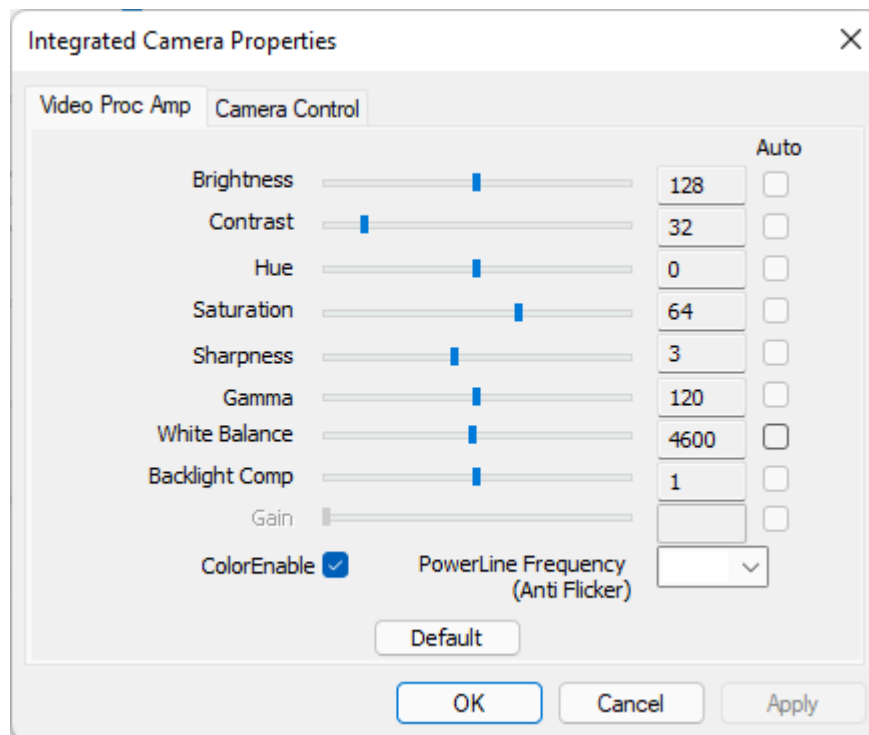


In this module you can adjust several settings for an integrated webcam. Select the device from the video input pulldown box and click on preview.

In the small black box the preview will be shown. Change your settings and click on **Save settings**. The changes will be reflected in the window immediately.

When capturing with a device that enables camera controls, the device will be configured at the start of the preview according to the settings of the controls.

Properties will show the Windows device properties page.



Default settings will revert the settings to the factory ones

Preview will show the preview of the selected cam

The disabled options (settings) are not available for the selected device.

2.1.3 Picture-in-picture

Picture-in-Picture

Setup Picture-in-Picture for showing an external source (scoreboard)



Picture in Picture Scoreboard Visible scoreboard: <input type="text" value="Internal capture server"/> Scoreboard position on screen: <input type="text" value="Top right"/> Width visual scoreboard: <input type="text" value="300"/> or % <input type="text" value="10"/> Communication port: <input type="text" value="2000"/> Assigned Windows handle: <input type="text" value="20909960"/>		Internal capture server Network IP Address of this computer to use: <input type="text" value="192.168.1.5"/> Folder for capture server: <input type="text" value="E:\TaekoVRHD_VF.NET2_Capture - 7.00\bin\x64"/> Start the server at startup: <input type="text" value="No"/>
		New look scoreboard Start the IVRScoreboard at startup: <input type="text" value="No"/>
<input type="button" value="Start IVRScoreboard"/> <input type="button" value="Start Capture Server"/>		Internal NDI Source IP Address Video Replay: <input type="text" value="192.168.1.5"/> <input type="button" value="Connect and stream"/> Use this IP address in the Capture Client on the scoreboard system
<input type="button" value="Save configuration"/>		

Picture in Picture Scoreboard Visible scoreboard: <input type="text" value="None"/>

You can position the scoreboard of TK-Strike or KP&P or any any picture in the video replay stream.

Select any of the options in **Visible scoreboard**.

Picture in Picture Scoreboard Visible scoreboard Scoreboard position on screen Width visual scoreboard Communication port	<input type="text" value="Internal capture server"/> <input type="text" value="None"/> <input type="text" value="Internal capture server"/> <input type="text" value="New look scoreboard"/> <input type="text" value="Original scoreboard (NDI source)"/>
--	--

90

The second screen of Daedo or KP&P will be captured and is visible in the Capture server.

Picture in Picture Scoreboard		
Visible scoreboard	[inal scoreboard (internal capture)]	
Scoreboard position on screen	Top right	
Width visual scoreboard	300	or % 20
Communication port	2000	
Assigned Windows handle	0	

Change this only in case you get an error for the server not found.

Internal capture

Network IP Address of this computer to use

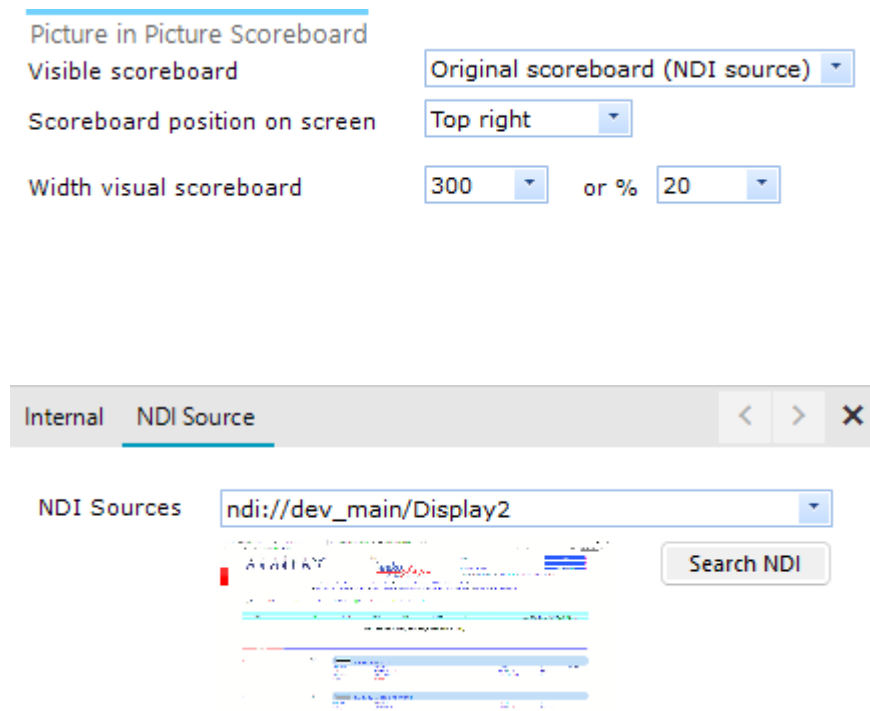
Folder for capture server

The scoreboard looks like this:



Original scoreboard (NDI source)

You can also stream the scoreboard from the Daedo laptop by using vMix tool to the VR laptop. Every NDI source has a unique name in the network and can be reached from everywhere. Select this option if you use NDI.



The screenshot shows the vMix NDI Source configuration window. At the top, there are four settings: 'Picture in Picture Scoreboard' (checked), 'Visible scoreboard' (set to 'Original scoreboard (NDI source)'), 'Scoreboard position on screen' (set to 'Top right'), and 'Width visual scoreboard' (set to '300' or '% 20'). Below these settings is a tabbed interface with 'Internal' and 'NDI Source' tabs. The 'NDI Source' tab is active, showing a list of NDI sources. The first source is selected, with its name 'ndi://dev_main/Display2' shown in a dropdown menu. To the right of the list is a 'Search NDI' button. Below the list, there is a preview of the selected NDI source, showing a scoreboard with various statistics and a red 'X' icon.

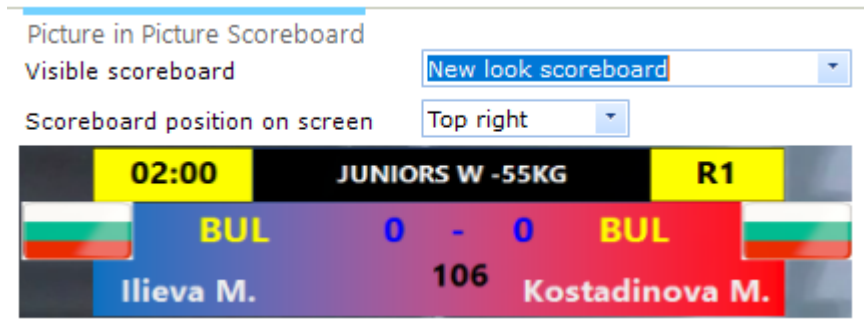
Click the Search NDI button to get a list of all NDI sources available. Select one of the sources and you will see a preview. You do not have to configure NDI any further.

If you want to monitor NDI sources, you can download NDI tools at <http://ndi.tv/tools>

vMix can be downloaded from <https://cdn.vmix.com/download/vMixDesktopCaptureNDI.zip>

New look scoreboard

You can also use the internal scoreboard, which does not show the original scoreboard but an image based on data coming from the TK-Strike application.

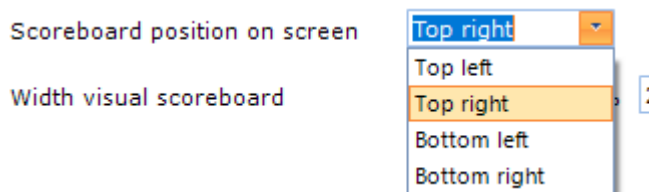


For this scoreboard you need to have the connection to Daedo TKStrike or KP&P working.
This scoreboard is currently not available with the new version.

Some additional options to position the scoreboard types

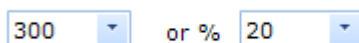
Scoreboard position on screen

You can position the PIP in any of the four corners of the picture.



Width visual scoreboard (internal capture server)

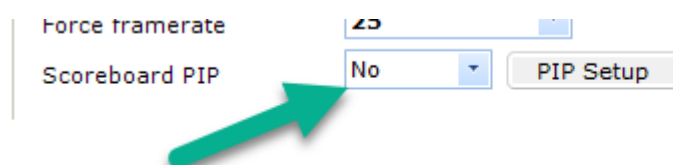
You can select either a width or a percentage of the screen to be filled. The width does NOT apply to the new look scoreboard which has a fixed width.



For the internal scoreboard through the Capture client/server you need to set the port. By default it is 2000.

The **Assigned Windows handle** shows the ID for the server window. If it is not available, you do not have the server running or it can't be assigned.

To be able to use the PIP feature, you have to set the following parameters in the camera configuration:




Set it to **Yes** to have PIP in your camera picture.

You can set PIP for every camera used, but please note that it might be CPU intensive, so check the CPU load when using it.

Add a logo

You can add a logo to the output. This will by default be positioned in the bottom left corner.

Embedded logo	
Capture logo file	C:\Nieuwe TaekoPlan logos\TaekoPlanVR200.png X ...
Capture logo transparent	Yes ▾
Resize logo to	200 x 76 Keep ratio

The logo for TaekoPlan Video Replay by SenSoft Automation. It features a stylized figure in a dynamic pose above the text 'aeko plan' in a bold, sans-serif font. Below this, 'SenSoft' is written in a smaller font, and 'Automation' is written in a very small font at the bottom. The words 'Video Replay' are written in a script font to the right of 'aeko plan'.

Select the file from your disk.

You can enable transparency by selecting **Yes** in the **Capture logo transparent** box.

By default the logo will be inserted with the original size.

If you want to resize, just enter the new width and height in the boxes.

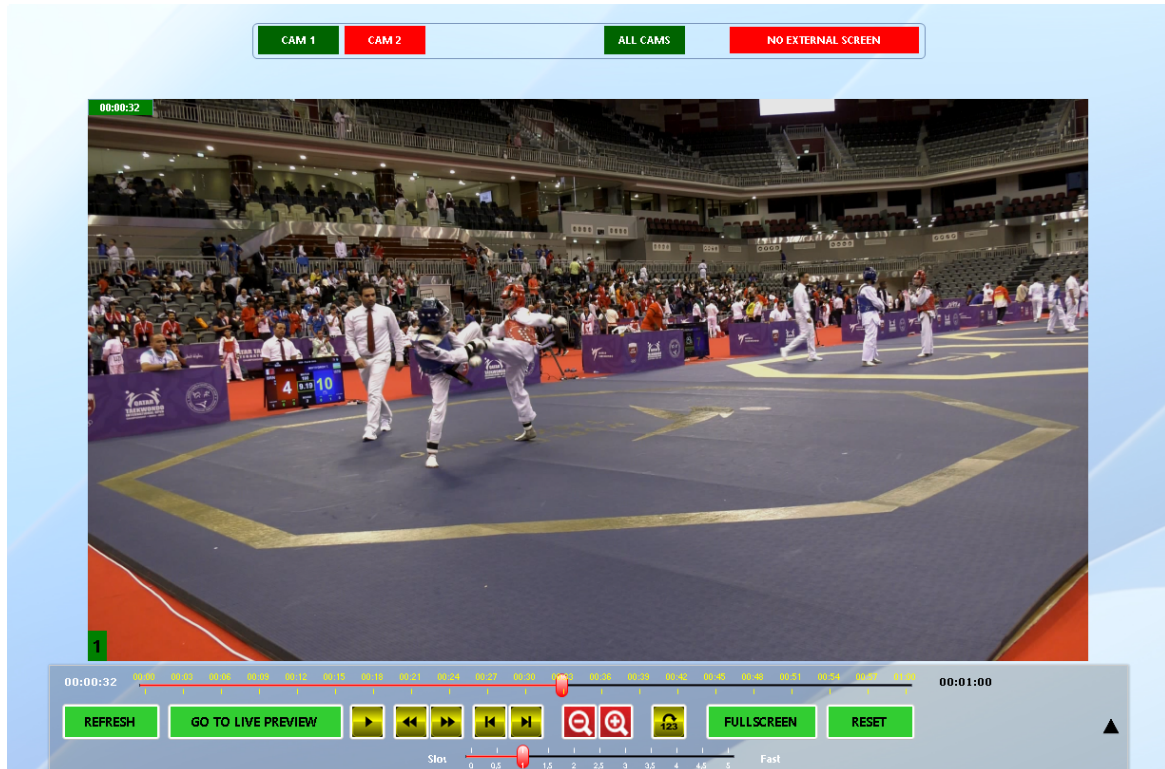
Click the **Keep ratio** button to maintain the aspect ratio of the image.

If you only fill the new width, and click **keep ratio**, the height will be entered automatically.

Double-click on the image to get the original size filled.

2.2 Player

This is the playback facility to be used during video replay.



Playback is initiated by either clicking on the Video Replay button, in the capture program to start immediate playback of the current recording, or by selecting a file from the menubar option [Open Playback file](#)^[82] or by double clicking on a movie in the filelist.

When playback is running, you see the caption as shown below:

Each playback has its own timeline, showing the total time of the file. It will size itself to the available space on the screen.



You can move to any part of the playback by clicking on the timeline, or by holding the mouse button down and moving your mouse.

The screen will be updated immediately.

When you hover over the playback screen, two button bars will show up, respectively on top and bottom.

Below all functions will be explained in depth:



REFRESH

Refreshes the playback file with the latest selection of the main capture file

GO TO LIVE PREVIEW

Click this to go to the live preview of camera 1 if the capture is running. You will see the actual image. Click on **CLOSE LIVE PREVIEW** to go back to the player screen. When you are in live preview and you click refresh, the picture will go back to player mode with the latest footage visible.



Pauses the current playback. It will change to



so you can resume playback.



Clicking this one will move the playback one second reverse.



Clicking this one will move the playback one second forward



Clicking this will move the playback one frame forward



Clicking this will move the playback one frame backwards



Activate slow motion mode. Clicking again will switch back.

Zoom in/out:

You also have the option to zoom in and out on the playback



You can zoom in by using the mousewheel (up or down is zoom in or out). You can also use the + and - keys or the scrollbar on the right of the playback screen.

During zoom you can scroll the picture to all directions by clicking the left mouse button, holding it down and moving it.

The selected zoom will be maintained even when playing the file normally.

FULLSCREEN

Click here top go to fullscreen mode.

RESET

Click RESET to reset the zoom, if applied, or reset the slow motion, if activated, The picture will go back to initial settings.



Important: Zooming in does not always provide better quality picture. It will be less good than the original.

To show the playback fullscreen, just double click on the current screen or click on

FULLSCREEN



To return to normal mode, double click the fullscreen playback or click **Normal view**

For all screens it is important to know that the screen aspect ratio is always maintained. So the available size decides the width and height for the playback.

Synchronized recording/playback

When you have used synchronized recording with two cams, you can switch between the two cams by clicking the blue Cam buttons on top of the playback screen.

The active cam will become red during playback. The cams resume where the other one was switched.

2.2.1 Player Configuration

Enter topic text here.

2.2.1.1 Player config

The player configuration defines settings for the playback option.

Player Configuration


Setup for the playback configuration



Player settings

Video Output Renderer	EVR (Vista/Win7) ▼
Video decoding through	GPU ▼
GPU Decoding	DXVA2Native ▼
Deinterlace method	None ▼

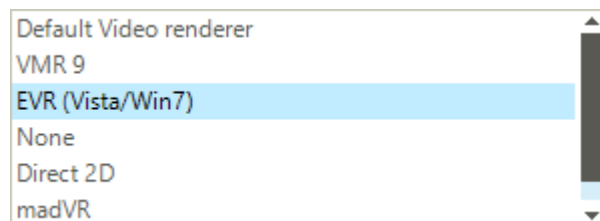
Audio settings

Audio output device	Default DirectSound Device ▼
Default volume level	Min  Max
Default audio status	Balanced ▼
With memory playback, use audio	No ▼

Save configuration

Video output renderer

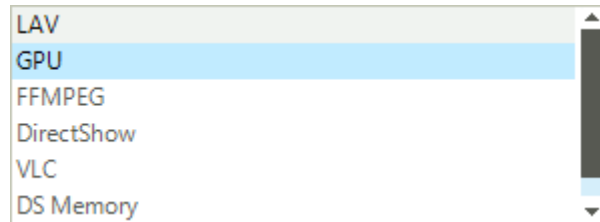
The renderer used by Windows to show the picture. Select the one that is giving the best output for your system.



EVR/Vista is the best renderer (quality), VMR9 the fastest.
MadVR is a third party, experimental renderer.

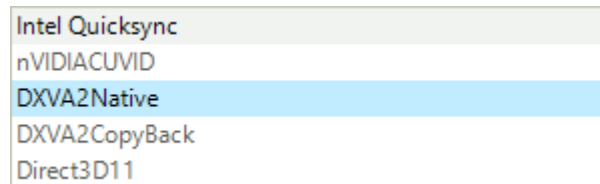
Video decoding through

If you need to use a specific codec to play the file, you can force the program to use this one. provide the name as registered in Windows.



The most common decoder to use is LAV. That uses CPU load. If you have a modern graphics card you may also use GPU as option.

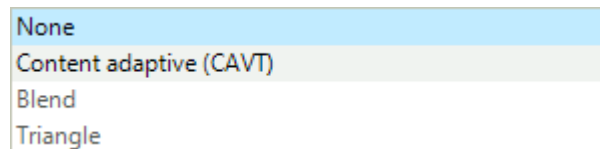
If so you have the following options:



AMD processors do not support Intel Quicksync, so you need to go for any of the other options.

Deinterlace method

If your MP4 movie is interlaced, you need to de-interlace it. You can that by using any of the three options:

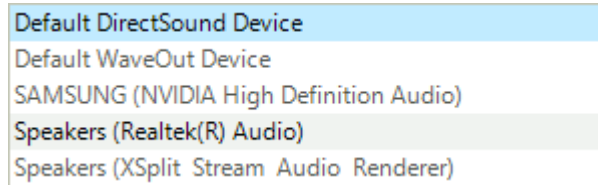


Audio settings

The following audio settings are available. Most of the time the MP4 movie might be without sound, but if captured with sound, you can set the audio parameters

Audio output device

Select the output device from your system to be used for the audio of your playback file



These are examples from a system; your setup might be different. **Default Directsound Device** is a standard Windows output device for audio and is available on any Windows system.

Default volume level

Select the default volume level for the output of the audio. Use the slider to select a level from 0 (no sound) to 100 (full sound)

Default audio status

This selects either sound or no sound (mute) as default setting

With memory playback, use audio

When you have selected memory playback (load the whole movie in memory before starting the playback), you may choose to use audio or not.

Use the **Save configuration** button to save your changes.

2.2.1.2 Common config

The common configuration contains settings that define specific user requirements.

Common configuration

Common configuration settings



Players No. of active players: 2		Dual monitor Use dual monitor mode for: Video Replay	
Settings Show captions in menubar: Yes Show debug messages: Yes Show detailed SDK info: No Show filelist on start: No Beep on any keypress: No Ask confirmation to start Videoreplay: No Toolbar always visible: No Autoshow second screen: No Folder for all Codecs: E:\TaekoVRHD_VF.NET2_Player\bin\x64\Release\ Folder for FFmpeg 32bits: E:\TaekoVRHD_VF.NET2_Player\bin\x64\Release\ Folder for FFmpeg 64 bits: E:\TaekoVRHD_VF.NET2_Player\bin\x64\Release\		Recording Folder for recordings: f:\Videoreplay\ Folder for snapshots: f:\videoreplay\ Open full playbackscreen when starting Video Replay: Yes Default start for Video Replay: 20 sec from end Use thumbnails for player if created during capture: No Minimize player on stop: Yes Max no. of files in filelist: 20	
Zoom Activate zoom: Yes Zoom unit: 3 Zoom maximum: 45 Type of zoom: Software		Misc Fullscreen mode: Borderless Password for access to config: Shuttle Contour Devicetype: Shuttle Pro V2 Windows process: 64bits	
Save configuration			

Players No. of active players: 4
--

Select the number of active players here. You can choose from 1 upto 4.

The common configuration has four sections:

Common settings

Create single file after stop recording	Yes
Show marker panel	Yes
Show captions in menubar	No


Create single file after stop recording

This will compress all separate recordings from the same fight into one complete file. The markers are also merged into one file, timestamps within the separate recordings are being updated in the final output file, so the markers will go to the correct point in the output file.

Show marker panel

This will show or not show the marker panel on the capture screen.

Show captions in menubar

 [Set markers](#)

This will switch the captions in the menubar. If you select **No** then no captions will be shown and the toolbar will be smaller. This will suit lower resolution screens.

Recording settings

Folder for recordings	D:\VideoReplay	...
Folder for snapshots	D:\VideoReplay	...
Minimum amount of free space before warning	500	Mb
No. of frames per second	25	▼
Stop recording during playback	Yes	▼
Restart recording after video replay	Yes	▼
Open full playbackscreen when starting Video Replay	Yes	▼
Scoreboard connection	Yes	▼
After stopping video replay	Show single preview	▼
Default start for video replay	Begin of recording	▼

Folder for recordings

This is the folder where the recordings will be stored. In the folder a timestamp is applied by the software to distinguish between the days.

Folder for snapshots

This is the folder where the snapshots will be stored.

Minimum amount of free space before warning

This is the limit under which a marker will be shown during recording which shows the remaining disk space.

No. of frames per second

Select the no. of frames per second for the capture. The more frames, the better the playback will be able to show actions.

Stop recording during playback

Shows only the preview while playing back the last scenes that were captured

Restart recording after video replay

After video replay is finished and the stop button is clicked, the preview will continue recording. The output will be stored in a new file on disk.

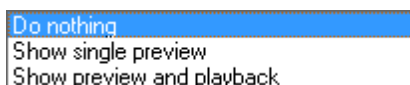
Open full playbackscreen when starting Video Replay

After clicking the Video Replay button, the playback will open fullscreen instead of embedded.

Scoreboard connection

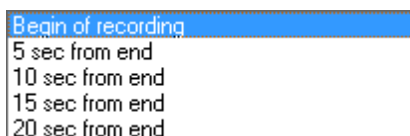
If yes, then data from the Budoscore scoreboard system (if connected) will be provided in the footage

After stopping Video Replay



Select one of the three options from this pulldown.

Default start for Video Replay



After selecting Video Replay, the footage will start at the selected point in time.

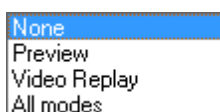
Dual monitor

Use dual monitor mode

All modes

Use Dual monitor mode

You have the following choices here:



None: No dual monitor enabled

Preview: shows only the preview screen on a second monitor

Video Replay: show the Video Replay screen on a second monitor

All modes: shows all (preview/record and video replay) on the second screen

Zoom settings

Zoom unit

50

Zoom maximum

10000

Zoom unit

Select the zoom steps for zoom in or out

Zoom maximum

The maximum range for zoom. Please note that the quality for zoom is highly depending on the quality of the recording.

High definition recording provides the best possible zoom range.

2.2.1.2.1 Settings

Settings

Show captions in menubar	Yes	▼
Show debug messages	Yes	▼
Show detailed SDK info	No	▼
Show filelist on start	No	▼
Beep on any keypress	No	▼
Ask confirmation to start Videoreplay	No	▼
Toolbar always visible	No	▼
Autoshow second screen	No	▼
Folder for all Codecs	E:\TaekoVRHD_VF.NET2_Player\bin\x64\Release\	...
Folder for FFMPEG 32bits	E:\TaekoVRHD_VF.NET2_Player\bin\x64\Release\	...
Folder for FFMPEG 64 bits	E:\TaekoVRHD_VF.NET2_Player\bin\x64\Release\	...

The following settings can be changed:

Show captions in menubar

Set this to Yes to display the text captions in the menubar of the program.
Setting No will only show the icons

Show debug messages

Set this to Yes to show all messages, including errors.

Show filelist on start

Set this to Yes to show the list of files captured today and playable on the right side of the screen.

Beep on any keypress

Set this to Yes to hear a system beep when a key is pressed. This might be useful if you are in doubt whether a keypress reaches the program

Ask confirmation to start videoreplay

Set to Yes to confirm a choice of starting an available video replay file. If you say No the file will be played instantly

Toolbar always visible

Set to Yes to have the toolbar for the player (start, stop, zoom etc) always visible. If No it is will only show when you enter the videoview with the mouse

Autoshow second screen

Set to Yes to start the second screen instantly when starting the playback of the movie. If not you can show it manually.

Folder for all codecs

This is the folder where the codecs are stored. By default it is the Codecs/redist folder in the installation. You can change it to any folder.

You need to have valid and correctly installed codec and filters in that folder.

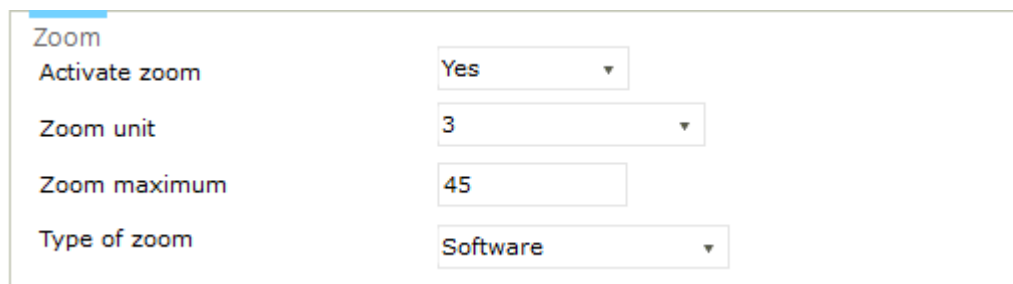
Folder for FFMPEG 32bits

This is the folder where the FFMPEG 32bits apps are stored. By default it is the Codecs/redist/FFMPEG/win32 folder in the installation. You can change it to any folder.

Folder for FFMPEG 64bits

This is the folder where the FFMPEG 64bits apps are stored. By default it is the Codecs/redist/FFMPEG/win64 folder in the installation. You can change it to any folder

2.2.1.2.2 Zoom



Zoom	
Activate zoom	Yes ▼
Zoom unit	3 ▼
Zoom maximum	45
Type of zoom	Software ▼

During playback you can zoom in and zoom out on the movie.

Activate zoom

Set this to Yes to have the zoom available. This is the default setting

Zoom unit

This is the step for each zoom tick. The higher, the faster the zoom be. A smaller step increases the zoom ratio only a little each time, which will take longer to get to a full or required zoom state.

Zoom maximum

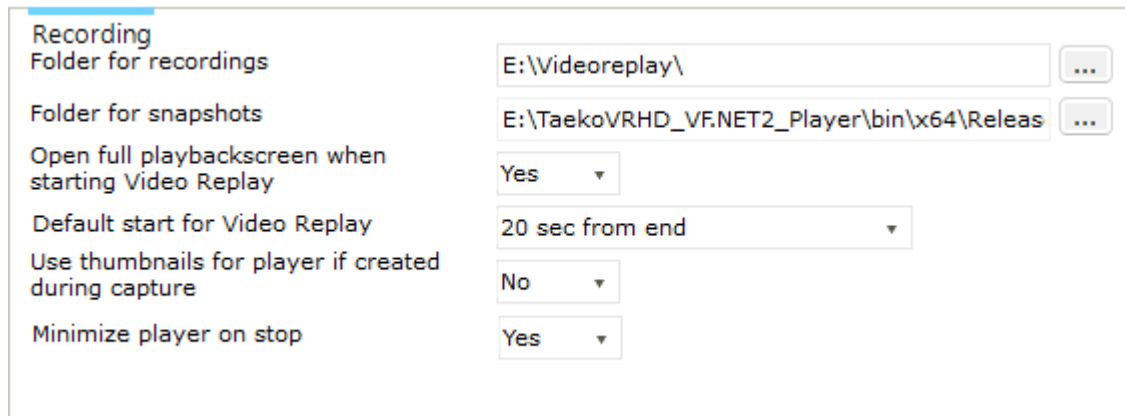
This is the limit for the zoom (based on the steps)

Type of zoom

There are two possible zoom options available.

Software zoom is fully software and is the best regarding smoothness while zooming in or out. Hardware zoom uses the GPU but is not that smooth. It will sometimes show a black screen inbetween.

2.2.1.2.3 Recording



The screenshot shows a settings window titled "Recording". It contains the following options:

- Folder for recordings**: A text field with the value "E:\Videoreplay\" and a browse button (...).
- Folder for snapshots**: A text field with the value "E:\TaekoVRHD_VF.NET2_Player\bin\x64\Releas" and a browse button (...).
- Open full playbackscreen when starting Video Replay**: A dropdown menu with "Yes" selected.
- Default start for Video Replay**: A dropdown menu with "20 sec from end" selected.
- Use thumbnails for player if created during capture**: A dropdown menu with "No" selected.
- Minimize player on stop**: A dropdown menu with "Yes" selected.

Folder for recordings

This is the folder where the movies for today are stored. This is the folder as set in the capture module.

Folder for snapshots

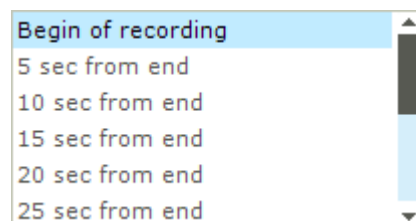
You can make a snapshots while playing and store the snapshots in a folder. Select here the folder where to store them

Open full playbackscreen when starting video replay

Set to Yes to start the player in fullscreen mode. if No you will get the normal docking interface.

Default start for video replay

This is the position where any video replay playback will start. You can select different options here.



The screenshot shows a dropdown menu with the following options:

- Begin of recording
- 5 sec from end
- 10 sec from end
- 15 sec from end
- 20 sec from end
- 25 sec from end

Use thumbnails for player if created during capture

If you have created thumbnails each second for the file, and you set this to Yes, then thumbnails will be visible when scrolling through the file.

Minimize player on stop

When set to Yes, the player will go to minimized window state as soon as you press the **Stop** button.

2.2.1.2.4 Misc

Here are some other options that can be set:

Dual monitor Use dual monitor mode for	Video Replay ▼
---	----------------

You can set this to either **None** or **Video Replay**

Misc Fullscreen mode	Borderless ▼
Password for access to config	<input type="text"/>

Fullscreen mode

You can select to have the fullscreen either borderless or with a standard windows border around it. The first one can't be moved, the second one can be resized.

Password for access config

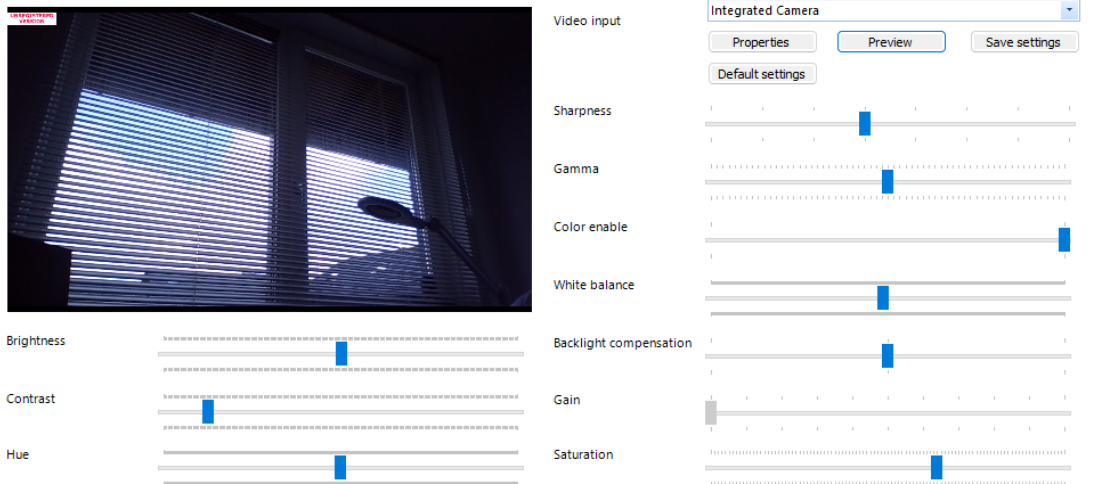
Set here a password to secure access to some modules, like player config, common config or camera controls.

2.2.1.3 Camera controls

Some camera's (especially webcams) allow for configuration of hue, colour, saturation, contrast etc.

Camera Control

Setup your camera controls for optimized preview/capture quality

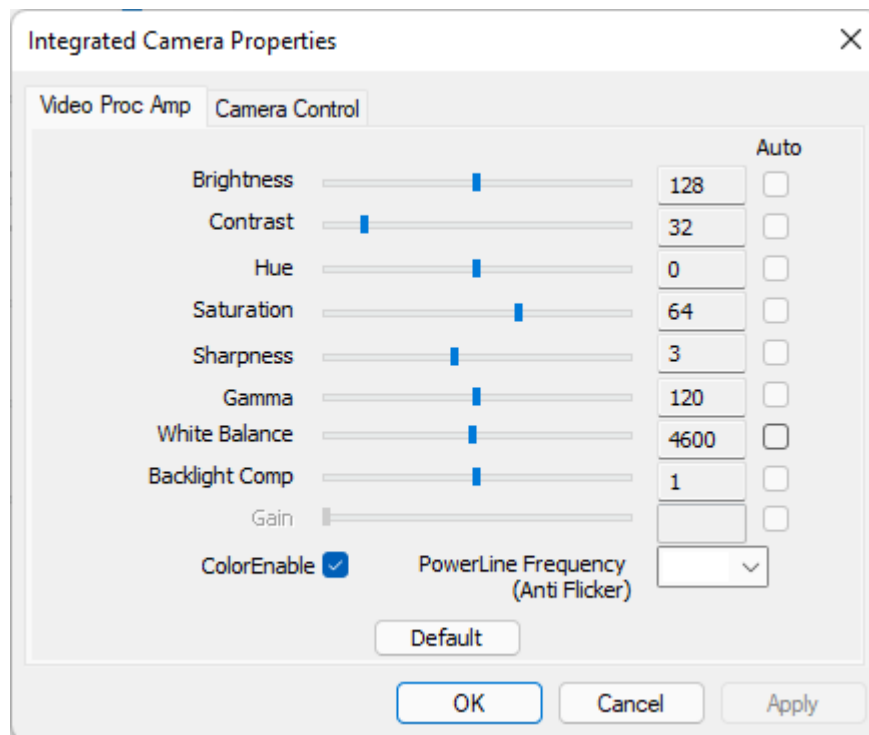


In this module you can adjust several settings for an integrated webcam. Select the device from the video input pulldown box and click on **Preview**.

In the small black box the preview will be shown. Change your settings and click on **Save settings**. The changes will be reflected in the window immediately.

When capturing with a device that enables camera controls, the device will be configured at the start of the preview or capture according to the settings of the controls.

Properties will show the Windows device properties page.



Default settings will revert the settings to the factory ones

Preview will show the preview of the selected cam

The disabled options (settings) are not available for the selected device.

2.2.1.4 Playback options

On the left side of the screen you can see a dock with playback options.

Settings

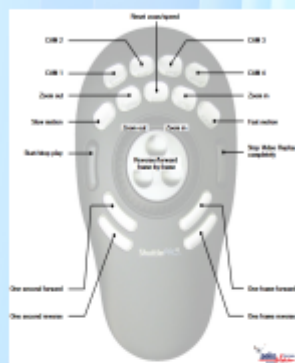
Start videoreplay at

20 sec from end ▼

Selection from file

01:00 ▼

Shuttle layout



User interface

Use scrollwheel as...

Zoom in/out ▼

Use scrollwheel plus
CTRL key as

Frame down/up ▼

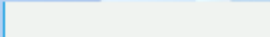
Use scrollwheel plus
ALT key as

Second down/up ▼

Audio

Image settings

Brightness



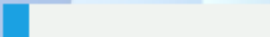
Saturation



Contrast



Darkness



Start videoreplay at

This option can be set to a default in the common config, but here you can set it (and change it) on the fly.

Selection from file

Here you select the length of the file to be reviewed. You can select a short time period as well as the whole file.

if you select a shorter period, the file will be created. Only that specific part of the file will then be available for watching.

The created 'Part' file will be removed automatically from disk after 30 minutes to save space.

Shuttle layout

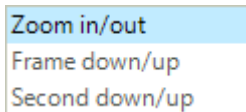
[Click here](#) to get the full view of the Shuttle Pro v2 layout as being used

Image settings

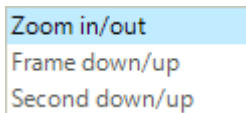
Here you can change the brightness, saturation, contrast and darkness for the currently visible movie.

User interface

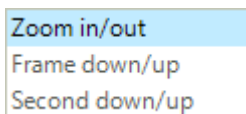
Use scrollwheel as...



Use scrollwheel plus CTRL-key as...



Use scrollwheel plus ALT-key as...



2.2.2 Filelist

In the menubar you can click on Filelist to show the filelist on the right side of the screen. You can also set the option in the common config.

Today's files ×

Refresh

00:05:28



472 21:05:13 (1)

00:10:47



475 21:26:16 (1)

CONT.



NO IMAGE AVAILABLE

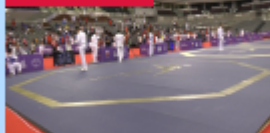
182 21:26:09 (1)

00:00:40



182 21:24:27 (1)

00:07:10



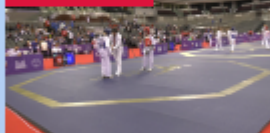
181 21:12:11 (1)

00:08:52



180 21:02:20 (1)

00:06:33



178 20:46:12 (1)

00:00:46



178 20:45:09 (1)

00:00:19



The first movie in the list is always the active capture. You can open this one for review..

The other ones are the finished ones. If you see a sample image, you can open the file by double click on it.

The fightnumber is shown as well as the time of capture start and between brackets, the camera number.

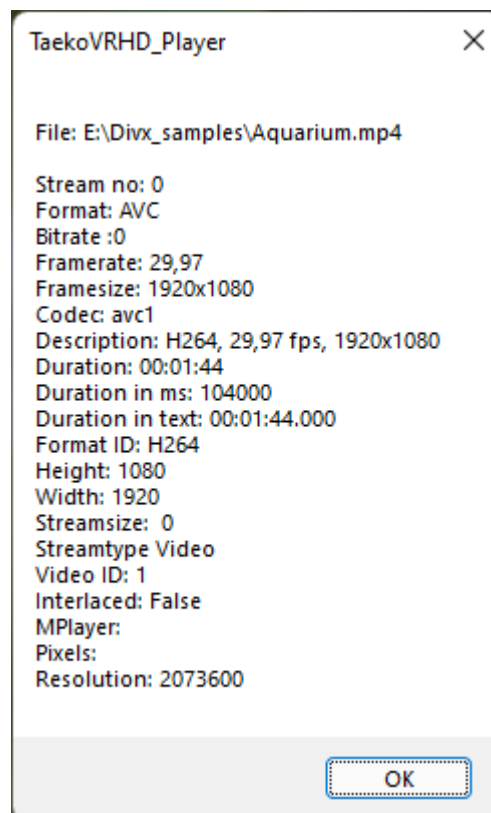
Doubleclick a movie to show it in the mainscreen.

2.2.3 Fileinfo

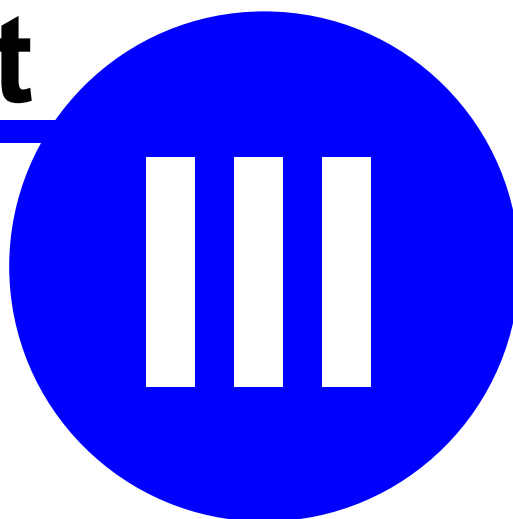
For each playback file you can check the file info.

This gives an overview of the length, used format, audio streams etc.

It is quite technical, but if you are interested you may look at it.



Part



3 Appendix



This section contains additional information about TaekoPlan Video replay

3.1 Menubar options

3.1.1 Capture

After the start of the program, a menubar shows up at the top of the screen. This will be adapted continuously depending on the selected item.



The buttons have the following meaning:

Now: separate recording

This shows the way of recording. Now: Separate recording means that all cams can be individually selected and navigated.

Now: synchron recording means that by starting for example a recording on cam 1, cam 2 and more if selected will also start recording

Fightnumber

Shows the fightnumber entry form to be able to enter a fightnumber for the next recording

Snapshot

Creates a snapshot of the active preview(s) in the folder as configured in the common configuration

Original

This shows the preview in original format, without resizing it

VR Configuration

This option has a submenu to start the different configuration screens.

Merge files

This option allows to merge more files of the same fightnumber together into one file.

Debug

Has a submenu with some additional options

Register

This shows the registration screen for the license

Program help

This shows the PDF helpfile as available for the program

About...

This shows the About... form

End program

Ends the program, releases all resources.

3.1.2 Player

After the start of the program, a menubar shows up at the top of the screen. This will be adapted continuously depending on the selected item.



Now: Synchron playback

This shows the way of playback. Now: Separate playback means that all cams can be individually selected and navigated.

Now: synchron playback means that by starting for example a playback of cam 1, cam 2 and more if selected will also start playback.

Open playback file

Select the file for playback. You can actually play any file or any format.

Delete file

Delete the currently selected file from the library. It will also be removed from disk

Snapshot playback

Creates a snapshot of the active preview(s) in the folder as configured in the common configuration

File list

This will show the file list on the right side of the main screen. You can select any file by double clicking on it.

Media info

This will show a form with technical details about the file currently playing

VR Configuration

This option has a submenu to start the different configuration screens.

Merge files

This option allows to merge more files of the same fightnumber together into one file.

Debug

Has a submenu with some additional options

Register

This shows the registration screen for the license

Program help

This shows the PDF helpfile as available for the program

About...

This shows the About... form

End program

Ends the program, releases all resources.

3.2 FFMPEG commandboxes visible

The capture program is using FFMPEG to capture the incoming videostreams from the devices.

You may see a box like this:

```

C:\Windows\System32\cmd.exe - e:\codecs\redist\ffmpeg\win64\FFMPEG1P.EXE -loglevel info -err_detect ignore_err -probesize 32000000 -rtbufsize 8...
frame=3441892 fps= 50 q=2.0 q=2.0 q=2.0 size=539554762kB time=19:07:17.80 bitrate=64209.4kbits/s dup=46 drop=0 speed=
frame=3441917 fps= 50 q=2.0 q=2.0 q=2.0 size=539560233kB time=19:07:18.30 bitrate=64209.6kbits/s dup=46 drop=0 speed=
frame=3441943 fps= 50 q=2.0 q=2.0 q=2.0 size=539565931kB time=19:07:18.82 bitrate=64209.8kbits/s dup=46 drop=0 speed=
frame=3441968 fps= 50 q=2.0 q=2.0 q=2.0 size=539571424kB time=19:07:19.32 bitrate=64209.9kbits/s dup=46 drop=0 speed=
frame=3441994 fps= 50 q=2.0 q=2.0 q=2.0 size=539577136kB time=19:07:19.84 bitrate=64210.1kbits/s dup=46 drop=0 speed=
frame=3442020 fps= 50 q=2.0 q=2.0 q=2.0 size=539582843kB time=19:07:20.36 bitrate=64210.3kbits/s dup=46 drop=0 speed=
frame=3442046 fps= 50 q=2.0 q=2.0 q=2.0 size=539588547kB time=19:07:20.88 bitrate=64210.5kbits/s dup=46 drop=0 speed=
frame=3442072 fps= 50 q=2.0 q=2.0 q=2.0 size=539594248kB time=19:07:21.40 bitrate=64210.7kbits/s dup=46 drop=0 speed=
frame=3442098 fps= 50 q=2.0 q=2.0 q=2.0 size=539599940kB time=19:07:21.92 bitrate=64210.9kbits/s dup=46 drop=0 speed=
frame=3442124 fps= 50 q=2.0 q=2.0 q=2.0 size=539605636kB time=19:07:22.44 bitrate=64211.1kbits/s dup=46 drop=0 speed=
frame=3442149 fps= 50 q=2.0 q=2.0 q=2.0 size=539611117kB time=19:07:22.94 bitrate=64211.3kbits/s dup=46 drop=0 speed=
frame=3442175 fps= 50 q=2.0 q=2.0 q=2.0 size=539616810kB time=19:07:23.46 bitrate=64211.5kbits/s dup=46 drop=0 speed=
frame=3442201 fps= 50 q=2.0 q=2.0 q=2.0 size=539622503kB time=19:07:23.98 bitrate=64211.7kbits/s dup=46 drop=0 speed=
frame=3442227 fps= 50 q=2.0 q=2.0 q=2.0 size=539628204kB time=19:07:24.50 bitrate=64211.9kbits/s dup=46 drop=0 speed=
frame=3442252 fps= 50 q=2.0 q=2.0 q=2.0 size=539633908kB time=19:07:25.00 bitrate=64212.1kbits/s dup=46 drop=0 speed=
frame=3442278 fps= 50 q=2.0 q=2.0 q=2.0 size=539639612kB time=19:07:25.52 bitrate=64212.3kbits/s dup=46 drop=0 speed=
frame=3442303 fps= 50 q=2.0 q=2.0 q=2.0 size=539645316kB time=19:07:26.02 bitrate=64212.5kbits/s dup=46 drop=0 speed=
frame=3442329 fps= 50 q=2.0 q=2.0 q=2.0 size=539651020kB time=19:07:26.54 bitrate=64212.7kbits/s dup=46 drop=0 speed=
frame=3442354 fps= 50 q=2.0 q=2.0 q=2.0 size=539656724kB time=19:07:27.04 bitrate=64212.9kbits/s dup=46 drop=0 speed=
frame=3442379 fps= 50 q=2.0 q=2.0 q=2.0 size=539662428kB time=19:07:27.54 bitrate=64213.1kbits/s dup=46 drop=0 speed=
frame=3442405 fps= 50 q=2.0 q=2.0 q=2.0 size=539668132kB time=19:07:28.06 bitrate=64213.3kbits/s dup=46 drop=0 speed=
frame=3442431 fps= 50 q=2.0 q=2.0 q=2.0 size=539673836kB time=19:07:28.58 bitrate=64213.5kbits/s dup=46 drop=0 speed=
frame=3442457 fps= 50 q=2.0 q=2.0 q=2.0 size=539679540kB time=19:07:29.10 bitrate=64213.7kbits/s dup=46 drop=0 speed=
frame=3442483 fps= 50 q=2.0 q=2.0 q=2.0 size=539685244kB time=19:07:29.62 bitrate=64213.9kbits/s dup=46 drop=0 speed=
frame=3442509 fps= 50 q=2.0 q=2.0 q=2.0 size=539690948kB time=19:07:30.14 bitrate=64214.1kbits/s dup=46 drop=0 speed=
frame=3442535 fps= 50 q=2.0 q=2.0 q=2.0 size=539696652kB time=19:07:30.66 bitrate=64214.3kbits/s dup=46 drop=0 speed=
frame=3442561 fps= 50 q=2.0 q=2.0 q=2.0 size=539702356kB time=19:07:31.18 bitrate=64214.5kbits/s dup=46 drop=0 speed=
frame=3442586 fps= 50 q=2.0 q=2.0 q=2.0 size=539708060kB time=19:07:31.68 bitrate=64214.7kbits/s dup=46 drop=0 speed=
frame=3442612 fps= 50 q=2.0 q=2.0 q=2.0 size=539713764kB time=19:07:32.20 bitrate=64214.9kbits/s dup=46 drop=0 speed=

```

If you see it and do not want to see it, you can either minimize it or you can complete hide it by setting:

OBS Application IP Address	192.168.1.x
Create thumbnails for player	No
Register codecs on start	No
Show terminal window for FFMPEG	Yes, minimized
Engine to use for preview picture	FFMPEG

Show terminal window to 'No' or to 'Yes, minimized'.

The window actually shows the progress of the capture.

In the picture shows:

Frame=....	Number of frames processed
fps=...	frames per second (50fps, connected to a Sony camcorder and a Camlink 4K device)
q=...	Quality factor of the capture (2 is almost the best)
size...	Size of the capture output on disk
time=...	Length of the recording (here more than 19 hours)
bitrate=...	Bitrate used to encode the videostream
dup=...	Number of duplicate frames (only 46 on more than 3M frames)
drop=...	Number of dropped frames








Speed=... Encoding speed (should be 1 for errorless encoding. Lower value means that the laptop can't keep up with the incoming videostream)

You will see one commandbox for preview and one for capture for each connected camera.



3.3 Playback files

The recordings are being stored in the path set in the common config.

The directory structure created looks as following:

Name	^	Date modified	Type	Size
 Cam1		16-3-2018 8:32	File folder	
 Cam2		16-3-2018 8:32	File folder	
 Cam3		16-3-2018 7:07	File folder	
 Cam4		16-3-2018 7:07	File folder	
 Completed		16-3-2018 7:07	File folder	
 images		16-3-2018 8:32	File folder	
 Markers		16-3-2018 7:07	File folder	

In the folders Cam1, Cam2, Cam3 and Cam4 are the recordings saved.

Name	^	Date	Type	Size	Length
 202_070742.mp4		16-3-2018 7:07	MP4 File	2,669,422 KB	01:24:54
 203_083233.mp4		16-3-2018 8:32	MP4 File	3,803,905 KB	

All recordings have the same format for naming.

The first digits upto the first underscore are containing the **fight** no.

Next a **timestamp** is inserted showing hours, minutes and seconds.

When playback is started, the program automatically identifies that one or two cams are being used. The option to switch between them is enabled in the player.

3.4 Requirements

The following requirements apply to create a decent system for video replay.

Notebook:

- I7 CPU 10th Gen. (especially for HD and dualcam)
- At least 8 Gb memory
- HD/SSD with at least 1 TB
- Videocard with at least Full HD (1920x1080) resolution (Nvidia or Radeon, Nvidia preferred)
- At least 2 USB-3 ports (separate Root Hubs) to connect two HDMI camera's
- Network port to connect IP camera Peer-to-peer
- Network connection to access remote camera's

Camera:

- Full HD directshow camera (Sony, Panasonic etc)
- 4K compatible camera
- Devices for HDMI input (Camlink, USB-Video)
- IP camera with wired or wireless connection

Each device that is recognized by Windows as camera device can be used and connected. The recognized devices will show up in the device list in the [camera config](#)¹⁵.

3.5 Video transfer notes

Please note that the right [equipment](#)^[83] is required to properly use the video replay system. Besides the equipment recommended, there are some important extra requirements that you need to take note of.

Cabling

Please don't think any cabling should work!

We can advise you to use high quality cable, especially if you are going to transfer over longer distances.



Firewire

If you are using firewire connection on both camera and computer, never use cabling consisting of firewire to USB and USB to firewire.

This will **not** work!

If you connect the device and Windows does not immediately show up with a message saying **Installing device....** then this connection is not working.



USB

If you are using USB connection on the camera and USB connection on the computer, please first check that the camera is capable of **USB streaming**.

When you connect your device and the computer is trying to install it as mass storage device or in terms like that, then the computer is only capable to use the storage on your camera.

Windows should start installing the device as **imaging** device.

If this is not working, then check whether the camera is capable of doing **USB streaming**.

You should find this information on the camera (on a label) or in the manual.

Camera without streaming capabilities can not be used for Video replay.



HDMI

Most modern camera's provide HDMI output which can be transferred using for example a CamLink or USB-Video device to a USB-3 port on your computer.

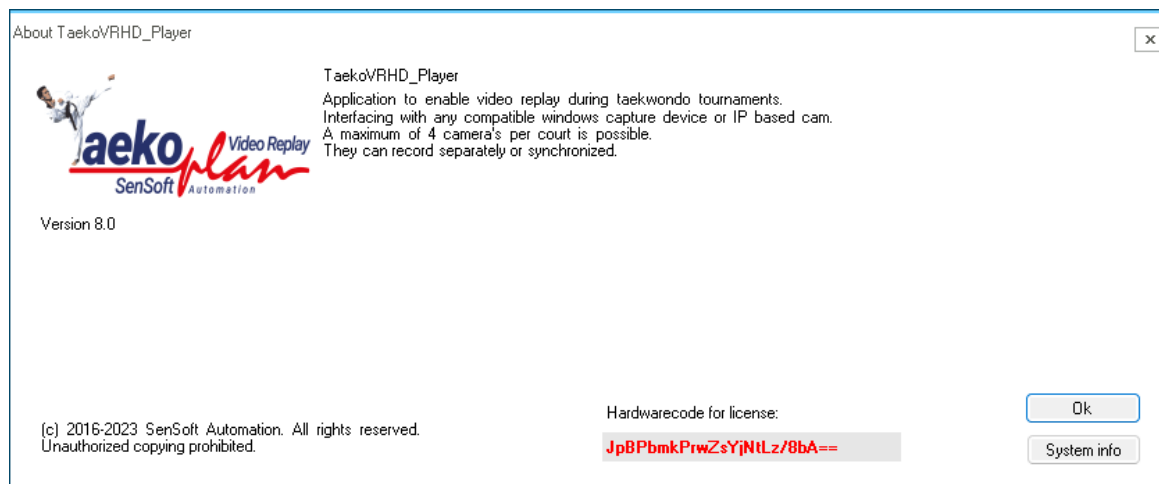
You can NOT connect camera HDMI output to HDMI port on a laptop!

So to be short:

- Use a camera with firewire, USB streaming or HDMI capability or use an IP camera over cabled network
- Use HQ cabling for firewire, USB and HDMI
- Never use adapters from firewire to USB and vice versa.
- Check proper installation under Windows for the device.
- Only devices recognized and installed under Windows can be used for Video replay.

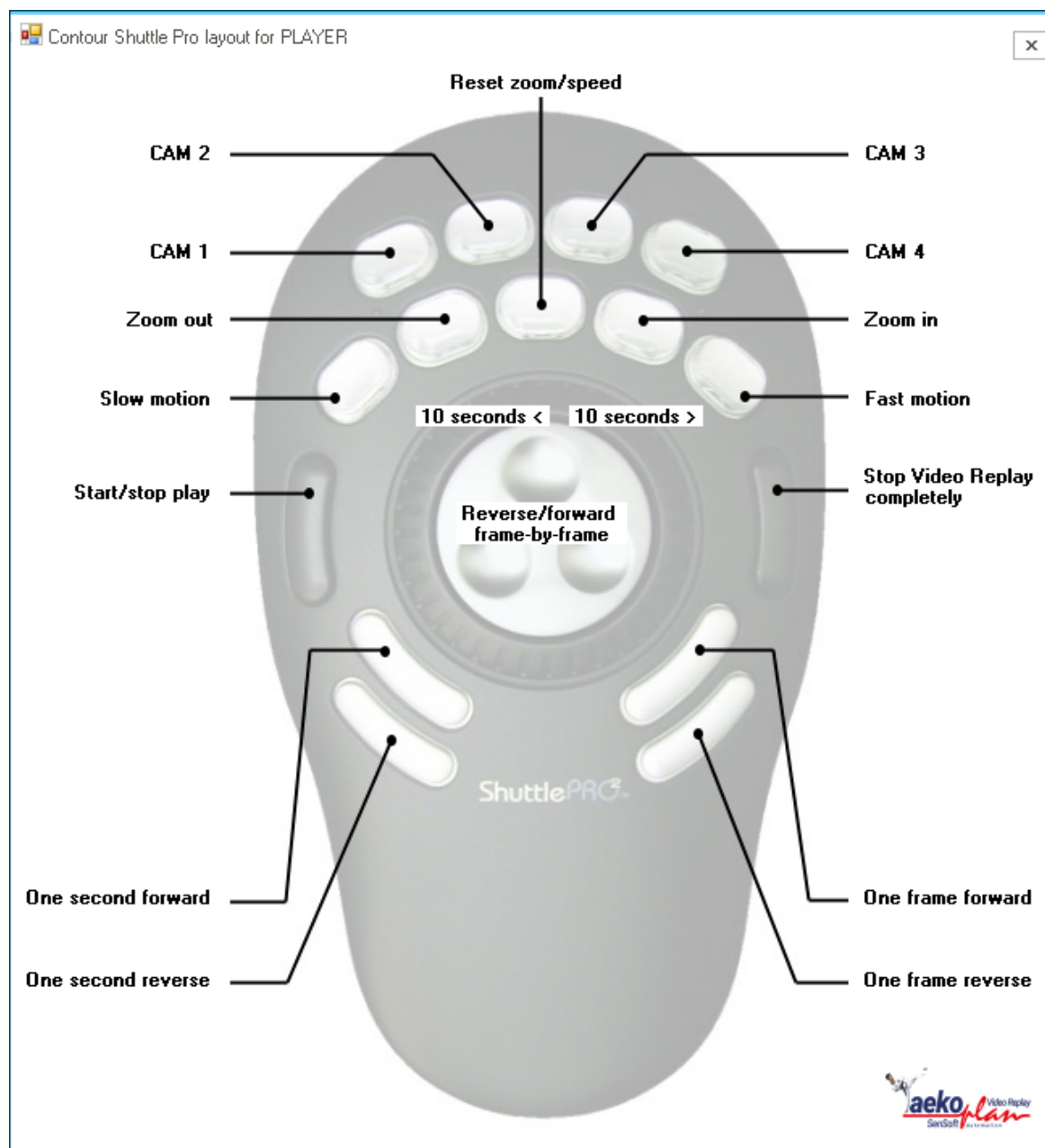
3.6 About

The about box shows program information.



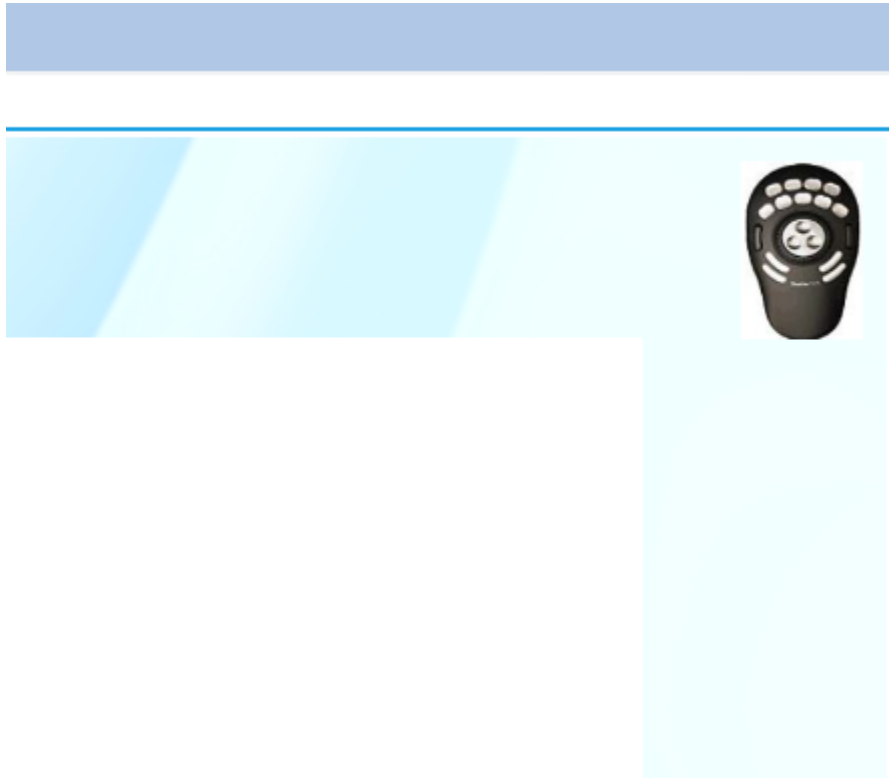
3.7 Contour Shuttle

You can use a Contour Shuttle to navigate your playback:



All basic functions are available.

When the shuttle is enabled in the software, you see the shuttle icon in the top right corner:



Select the Shuttle type you are using in the common configuration module:

Shuttle Contour
Devicetype

Shuttle Pro V2

Shuttle Pro V2

None

Shuttle Express

Shuttle Pro

Shuttle Pro V2

The image displays a configuration module for 'Shuttle Contour'. It includes a label 'Devicetype' and a dropdown menu currently set to 'Shuttle Pro V2'. Below this, a separate dropdown menu is shown with its list of options: 'None', 'Shuttle Express', 'Shuttle Pro', and 'Shuttle Pro V2'. The 'Shuttle Pro V2' option in this second menu is highlighted with a blue background.

You can use any of three types. The ProV2 has the most extensive set of functions available.

3.8 H264 Encoder bitrates

You might need to experiment with bitrates to get the best result for your capture.

Suggested bitrates for different video resolutions with H.264 Encoding

	Resolution	Suggested Bitrate
480P	720 x 480	1800 kbps
720P	1280 x 720	3500 kbps
1080P	1920 x 1080	8500 kbps

Suggested bitrate settings for mobile phones with different resolution

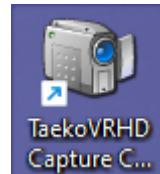
	192 x 144	320 x 240	480 x 360	640 x 480	1280 x 720	1920 x 1080
Ultra low bitrate	30 kbps	60 kbps	120 kbps	250 kbps	500 kbps	1 Mbps
Low bitrate	60 kbps	120 kbps	250 kbps	500 kbps	1 Mbps	2 Mbps
Medium bitrate	120 kbps	250 kbps	500 kbps	1 Mbps	2 Mbps	4 Mbps
High bitrate	250 kbps	500 kbps	1 Mbps	2 Mbps	4 Mbps	8 Mbps
Ultra high bitrate	500 kbps	1 Mbps	2 Mbps	4 Mbps	8 Mbps	16 Mbps

The higher the bitrate, the more load on the CPU/GPU.

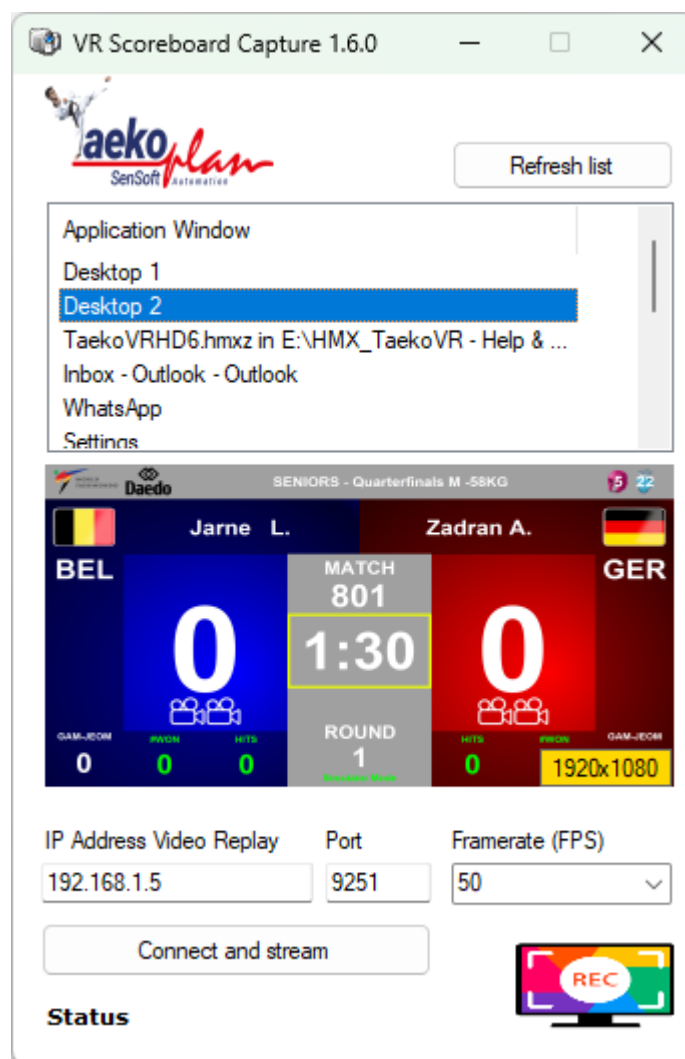
3.9 Capture Client/server

To use Picture-in-picture you can use the Capture client/server tools provided.

TaekoVRHD Capture client application



Start the TaekoVRHD Capture client application:



Select the application window you want to capture. The client is running on the scoreboard laptop and NOT on your IVR laptop!

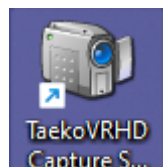
Enter the IP address of your IVR laptop in the 'IP Address Video Replay' textbox and the port to be used. This may be any port.

Set the framerate to a value which is sufficient for the scoreboard to be refreshed correctly.

Normally you could do it with 10fps (every 100ms a new frame).

Click on **Connect and stream** to send the output over the network.

TaekoVRHD Capture server application



The server application needs to run on the IVR laptop. Start the application and it will show you the settings form:

Setup TaekoPlan RDV Server

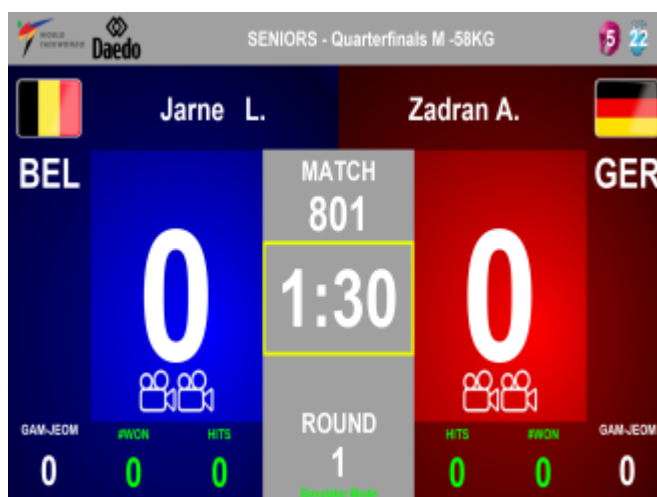
Port: 9251

IP Address: 192.168.1.5

Start

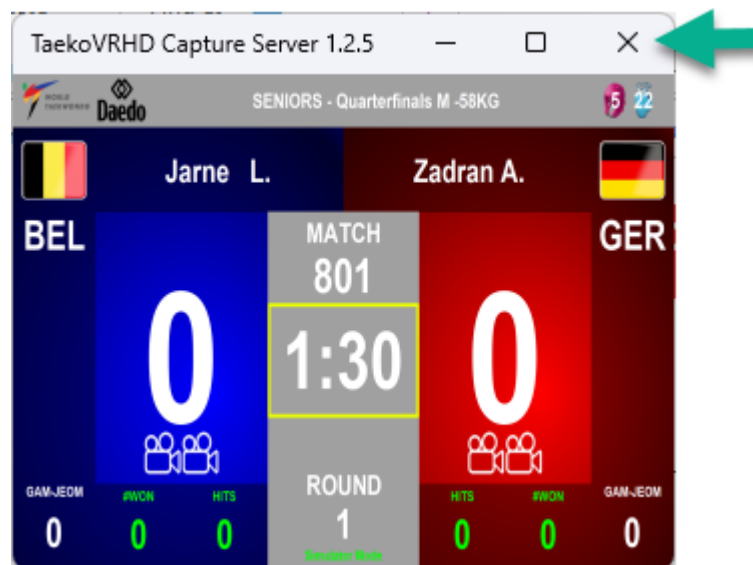
Enter the IP address of the laptop in the network. And the port should be the port as provided in the client. Click on **Start**.

The server should show the selected window form the client:



As you can see, the picture looks a little bit out of ratio.

Double-click the picture to get it windowed.

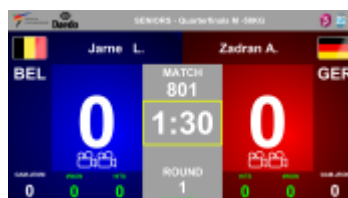


Now you can correct the aspect ratio as it should be added to the capture.
While dragging it, you can see the actual height/width in the bottom right corner:

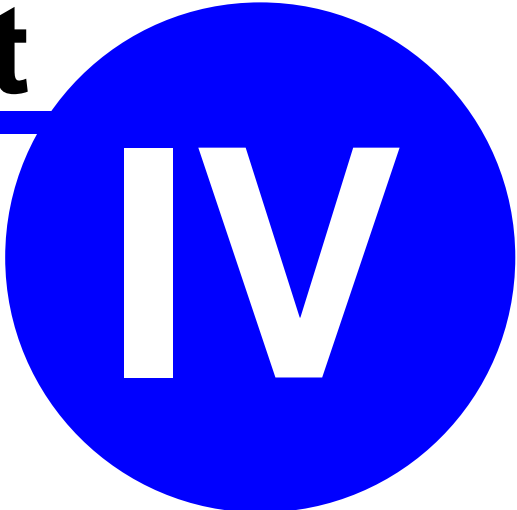


Adjust the size to what you want. Resizing will be done bicubic, so quality will be retained.

This an example of a small version:



Part



IV

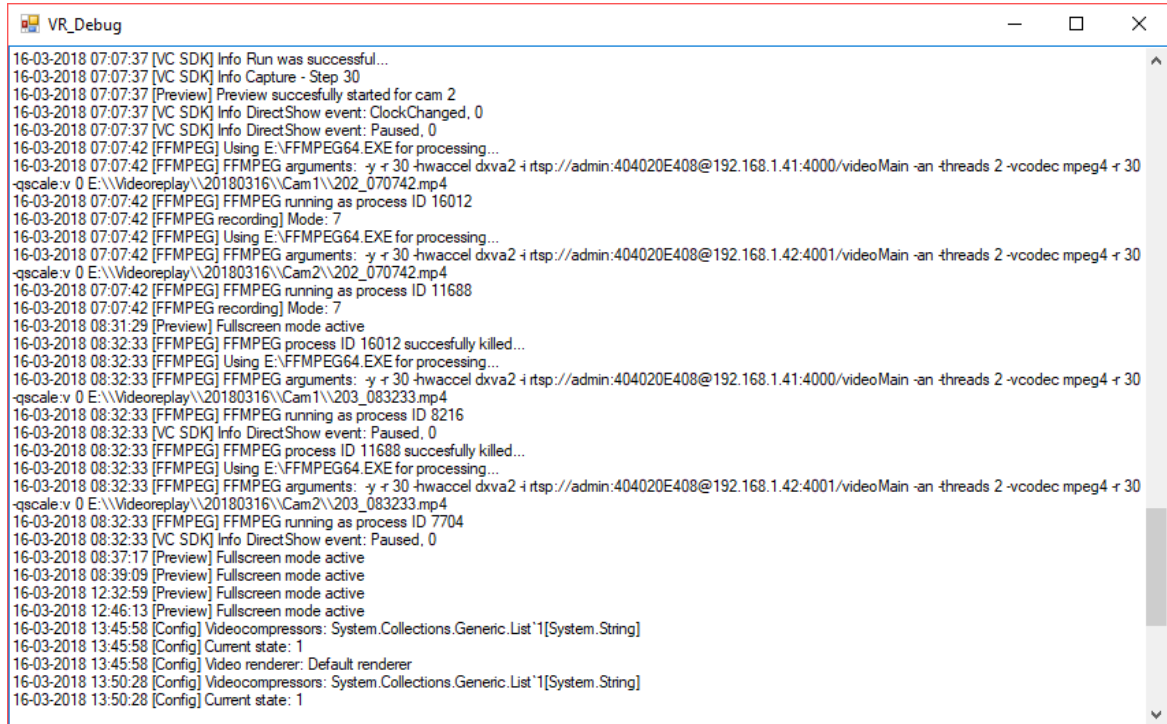
4 Other modules

Enter topic text here.

4.1 Debug

To be able to check for errors when a recording is not started, there is highly detailed debug option available.

It will provide info about the process of preview and recording.



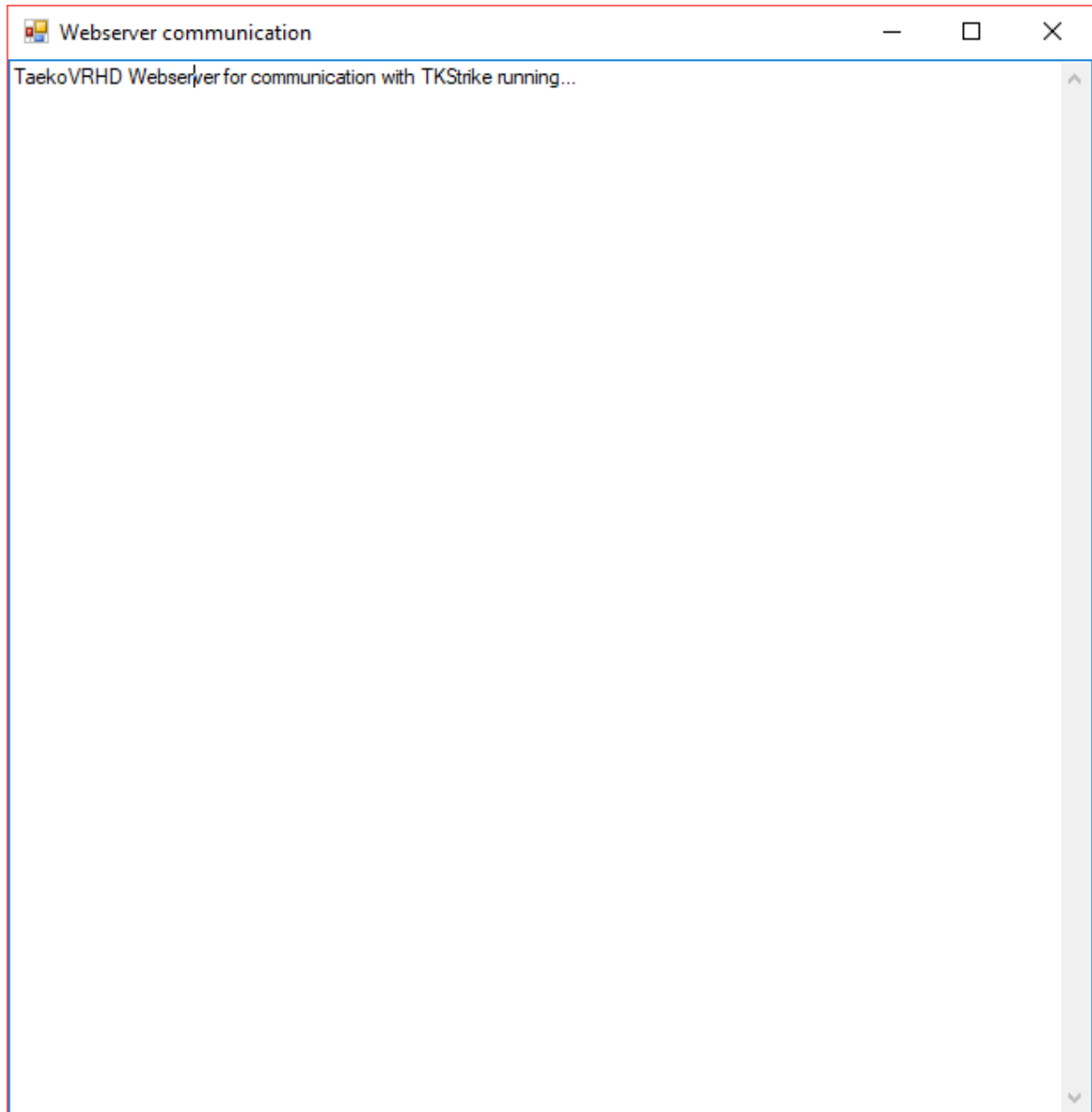
```

16-03-2018 07:07:37 [VC SDK] Info Run was successful...
16-03-2018 07:07:37 [VC SDK] Info Capture - Step 30
16-03-2018 07:07:37 [Preview] Preview successfully started for cam 2
16-03-2018 07:07:37 [VC SDK] Info DirectShow event: ClockChanged, 0
16-03-2018 07:07:37 [VC SDK] Info DirectShow event: Paused, 0
16-03-2018 07:07:42 [FFMPEG] Using E:\FFMPEG64.EXE for processing...
16-03-2018 07:07:42 [FFMPEG] FFMPEG arguments: -y -r 30 -hwaccel dxva2 -i rtsp://admin:404020E408@192.168.1.41:4000/videoMain -an -threads 2 -vcodec mpeg4 -r 30 -qscale:v 0 E:\Videoreplay\20180316\Cam1\202_070742.mp4
16-03-2018 07:07:42 [FFMPEG] FFMPEG running as process ID 16012
16-03-2018 07:07:42 [FFMPEG recording] Mode: 7
16-03-2018 07:07:42 [FFMPEG] Using E:\FFMPEG64.EXE for processing...
16-03-2018 07:07:42 [FFMPEG] FFMPEG arguments: -y -r 30 -hwaccel dxva2 -i rtsp://admin:404020E408@192.168.1.42:4001/videoMain -an -threads 2 -vcodec mpeg4 -r 30 -qscale:v 0 E:\Videoreplay\20180316\Cam2\202_070742.mp4
16-03-2018 07:07:42 [FFMPEG] FFMPEG running as process ID 11688
16-03-2018 07:07:42 [FFMPEG recording] Mode: 7
16-03-2018 08:31:29 [Preview] Fullscreen mode active
16-03-2018 08:32:33 [FFMPEG] FFMPEG process ID 16012 successfully killed...
16-03-2018 08:32:33 [FFMPEG] Using E:\FFMPEG64.EXE for processing...
16-03-2018 08:32:33 [FFMPEG] FFMPEG arguments: -y -r 30 -hwaccel dxva2 -i rtsp://admin:404020E408@192.168.1.41:4000/videoMain -an -threads 2 -vcodec mpeg4 -r 30 -qscale:v 0 E:\Videoreplay\20180316\Cam1\203_083233.mp4
16-03-2018 08:32:33 [FFMPEG] FFMPEG running as process ID 8216
16-03-2018 08:32:33 [VC SDK] Info DirectShow event: Paused, 0
16-03-2018 08:32:33 [FFMPEG] FFMPEG process ID 11688 successfully killed...
16-03-2018 08:32:33 [FFMPEG] Using E:\FFMPEG64.EXE for processing...
16-03-2018 08:32:33 [FFMPEG] FFMPEG arguments: -y -r 30 -hwaccel dxva2 -i rtsp://admin:404020E408@192.168.1.42:4001/videoMain -an -threads 2 -vcodec mpeg4 -r 30 -qscale:v 0 E:\Videoreplay\20180316\Cam2\203_083233.mp4
16-03-2018 08:32:33 [FFMPEG] FFMPEG running as process ID 7704
16-03-2018 08:32:33 [VC SDK] Info DirectShow event: Paused, 0
16-03-2018 08:37:17 [Preview] Fullscreen mode active
16-03-2018 08:39:09 [Preview] Fullscreen mode active
16-03-2018 12:32:59 [Preview] Fullscreen mode active
16-03-2018 12:46:13 [Preview] Fullscreen mode active
16-03-2018 13:45:58 [Config] Videocompressors: System.Collections.Generic.List`1[System.String]
16-03-2018 13:45:58 [Config] Current state: 1
16-03-2018 13:45:58 [Config] Video renderer: Default renderer
16-03-2018 13:50:28 [Config] Videocompressors: System.Collections.Generic.List`1[System.String]
16-03-2018 13:50:28 [Config] Current state: 1
  
```

You may need specific knowledge to be able to read the debug log, but you can, at any time send the log to us to help you determine the cause of a problem.

4.2 Webserver

There is a built-in webserver for the communication with the Daedo TKStrike scoreboard.

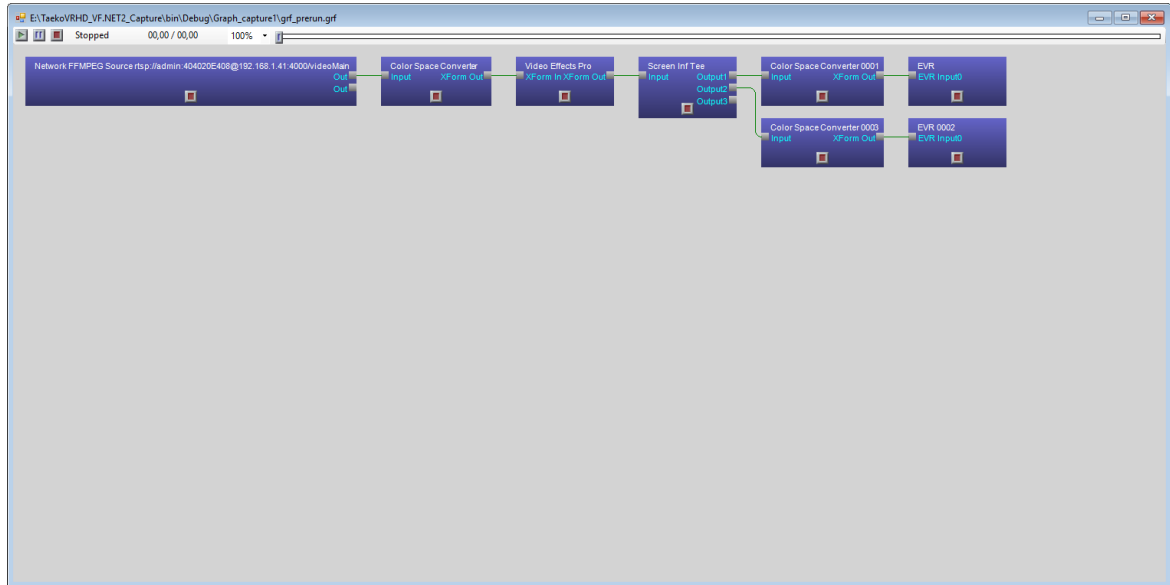


It will provide information and show the communication between the video replay system and Daedo.

4.3 Graph info

In case there is a problem with capturing, the program logs the latest graphs created by the engine.

An example looks like this:



This is typically a graph built for capturing an IP camera. Each capture or preview in Windows needs a graph to be built.

The software builds this graph based on the parameters set.

Part



V

5 Embed scoreboard

TaekoVRHD offers two types of scoreboard to embed in your capture:

[Internal Capture Server](#)



[New look scoreboard](#)

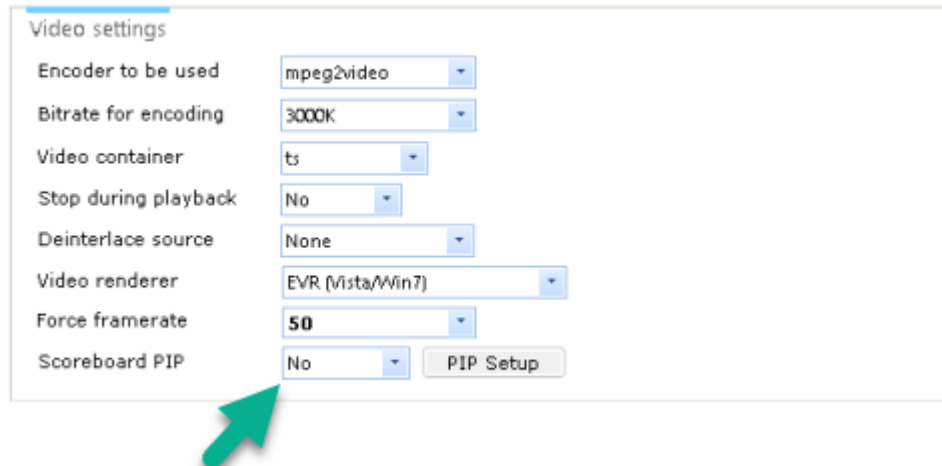
ALL CAMS



5.1 Internal Capture Server

The internal capture server can be added by following the next steps:

In Camera config select to add Picture-in-Picture to your capture:

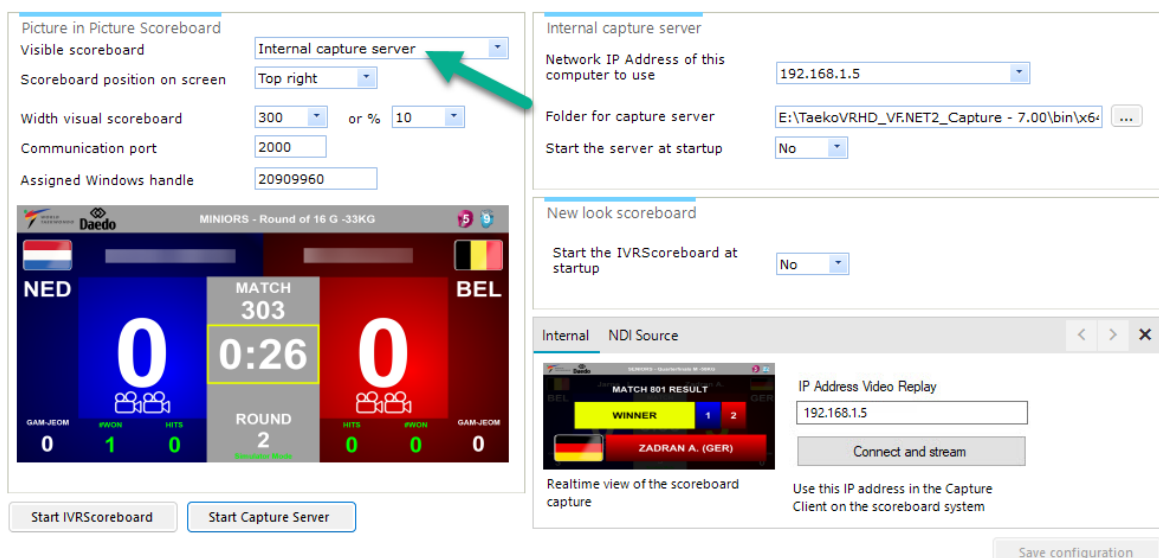


Video settings

Encoder to be used	mpeg2video
Bitrate for encoding	3000K
Video container	ts
Stop during playback	No
Deinterlace source	None
Video renderer	EVR (Vista/Win7)
Force framerate	50
Scoreboard PIP	No

PIP Setup

Click on PIP Setup to open the PIP settings:



Picture in Picture Scoreboard

Visible scoreboard	Internal capture server
Scoreboard position on screen	Top right
Width visual scoreboard	300 or % 10
Communication port	2000
Assigned Windows handle	20909960

Start IVRScoreboard Start Capture Server

Internal capture server

Network IP Address of this computer to use	192.168.1.5
Folder for capture server	E:\TaekoVRHD_VF.NET2_Capture - 7.00\bin\x64
Start the server at startup	No

New look scoreboard

Start the IVRScoreboard at startup	No
------------------------------------	----

Internal NDI Source

IP Address Video Replay	192.168.1.5
Connect and stream	

Realtime view of the scoreboard capture

Use this IP address in the Capture Client on the scoreboard system

Save configuration

On visible scoreboard select **Internal Capture Server**

Select the width and height of the embedded scoreboard and the position.
Check for the correct folder for the Capture server to be able to start it.
By default this is ALWAYS the application folder.

Select **Yes** to the **Start the server at startup** to have it running on your IVR laptop.

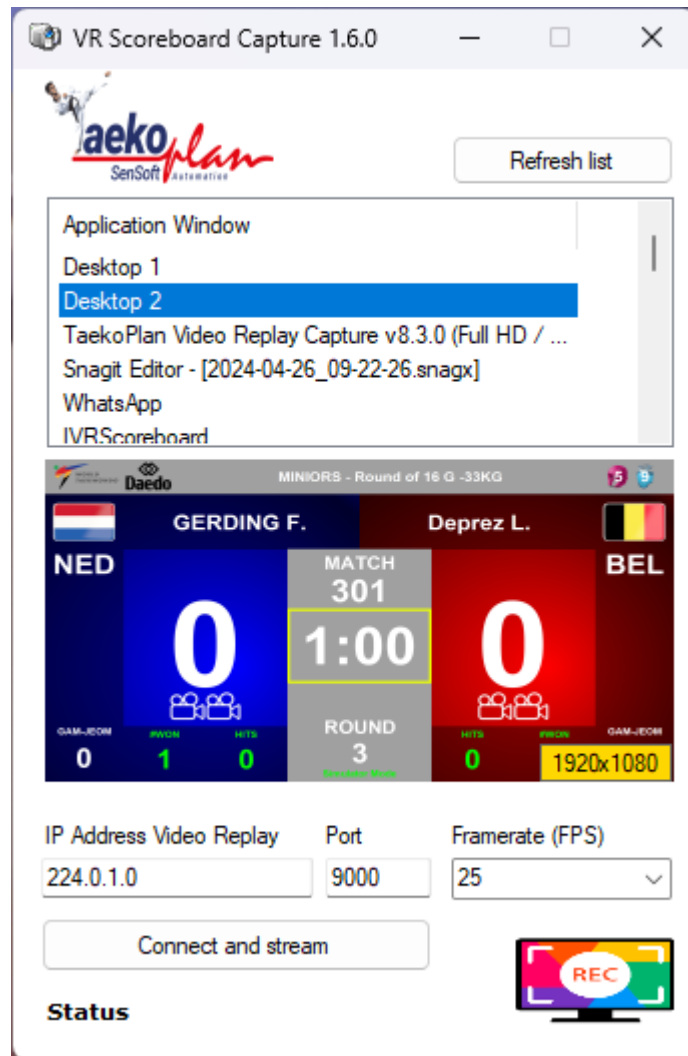
Note: the **Client** is running on the scoreboard (TKStrike or KPNP) and the **Server** is running on the IVR laptop.

Client application

The client is running on the scoreboard as mentioned.

Start the application over there.

You only need the executable to be copied to the scoreboard laptop.



The application windows shows you all the windows that can be captured. Desktop 1 and 2 are fullscreen captures and the other windows are the application windows itself.

Select the window you want to capture.

The **IP Address** is the address of the laptop where to send the data to or it can be a multicast IP address which enables more receivers to pick up the capture.

Multicast IP's start from 224.0.0.0 and up.

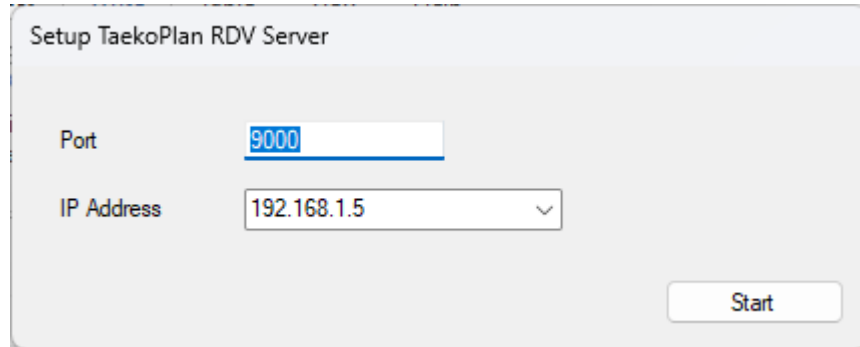
The **Port** is the port to be used in combination with the IP address.

Framerate is the number of frames (images) sent per second. 25 is a usual number, which allows for a frame per 40 milliseconds.

Click on **Connect and stream** to start the transmission.

Server application

The server application is available in the application folder of TaekoVRHD.
Start the application and it will show a small setup:



This will set the IP address and Port for the receiving part.

The IP address and the port should correspond to the IP address and port set in the client.
Click on **Start** to open the server application window.



It shows the capture as shown in the client.

You can make this picture smaller or larger by dragging as usual.

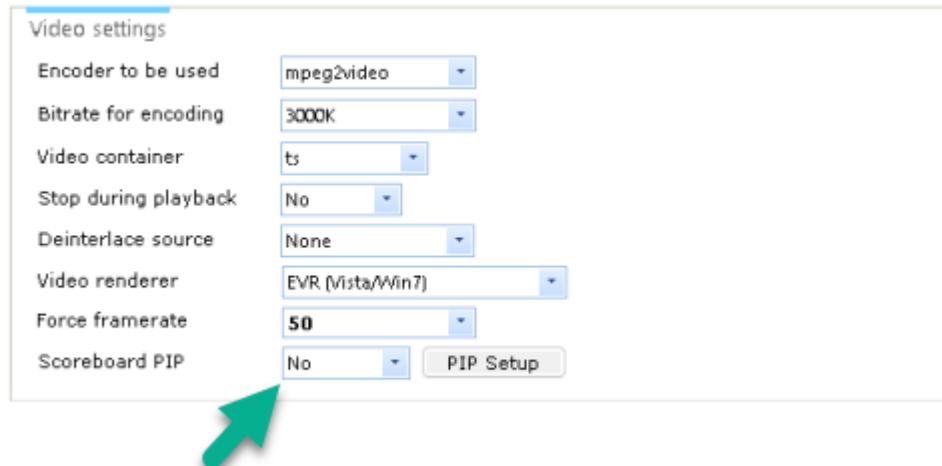
Double click on the application to remove or show the title bar.

The capture application is looking explicitly to the **TaekoVRHD Capture Server 1.2.5** window to be able to pick it up.

5.2 IVRScoreboard

The new look scoreboard can be added by following the next steps:

In Camera config select to add Picture-in-Picture to your capture:



Video settings

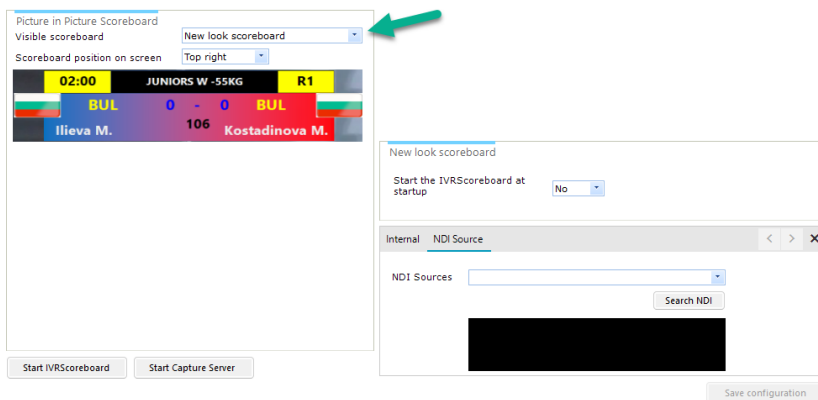
Encoder to be used	mpeg2video
Bitrate for encoding	3000K
Video container	ts
Stop during playback	No
Deinterlace source	None
Video renderer	EVR (Vista/Win7)
Force framerate	50
Scoreboard PIP	No

PIP Setup

Click on PIP Setup to open the PIP settings:

Picture-in-Picture

Setup Picture-in-Picture for showing an external source (scoreboard)

Picture in Picture Scoreboard

Visible scoreboard: New look scoreboard

Scoreboard position on screen: Top right

Start the IVRScoreboard at startup: No

NDI Source

NDI Sources

Search NDI

Save configuration



On visible scoreboard select **New look scoreboard**

The new look scoreboard server application is located in the application folder of TekoVRHD.

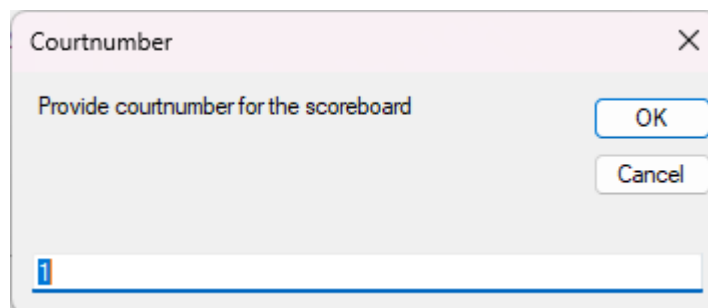
Select **Yes** to the **Start the IVRScoreboard at startup** to have it running on your IVR laptop.
There is **No** client required.

Server application

The server application is available in the application folder of TaekoVRHD.
Start the application and it will show the scoreboard

	1:14	Juniors M -73kg R16	R1	
	DEN	0 - 0	SWE	
	HRNIC E.	102	CHERIF A.	
	Gam Jeom 0	0 Rounds Won 0	Gam Jeom 0	

You can provide an argument to the shortcut in Windows with the court number so for example 'VideoReplayScoreboard.exe 1', which will start the scoreboard for court 1.
If you do not enter the argument, you will be prompted at the start:



The URL for connecting to the scoreboard is **224.0.1.0:portnumber**.
The portnumber is 8900 + courtnumber, so for court 1 the port is 8901, for court 8902 etc.

In KPNP the setup is done in the configuration tab:

Configuration ×

Rule External Division / Level

Ver.2.0.14i1

OVR

Supplier WT ▼ Setting

Communication Type TCP/IP ▼ Disconnect ■

☐ Only Match Info.

☐ Pre-Registration Setting Connect ■

☒ Use WT Protocol Setting Connect Test

IVR

Supplier WT ▼ Setting

Communication Type UDP ▼ Disconnect ■

TVG

Supplier WT ▼ Setting

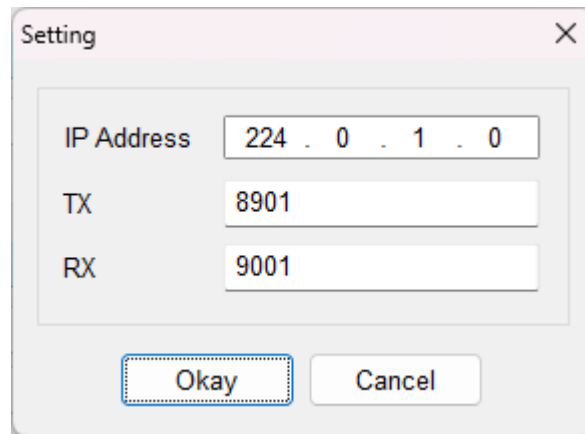
Communication Type UDP ▼ Connect ■

Apply

Okay

Close

Select **WT** as supplier and open the **Setting**. Communication type is **UDP**.



Enter the IP address as mentioned (multicast IP) and the TX port as mentioned above. The RX port is not relevant and not used.

Click on **Connect** to test the connection.

In **Daedo TKStrike** the settings are used as provided in the **connection config** in the capture application.

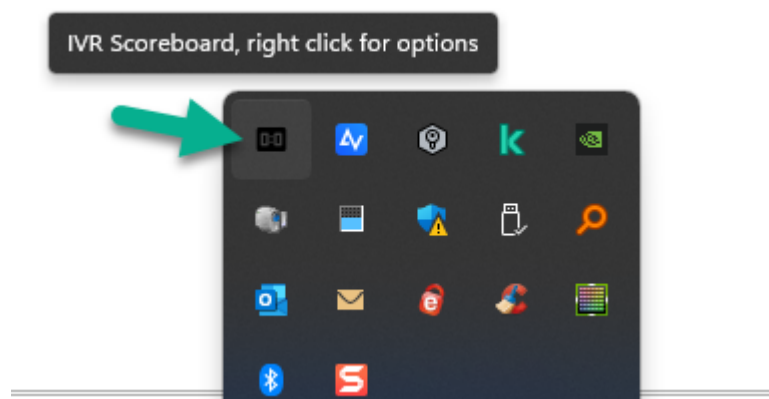
There you need to create an external provider for data and communication.

Currently there is **NO** option to start/stop the capture tool from within KPNP. This will come in one of the next updates.

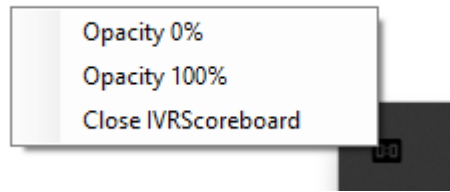
The capture application is looking explicitly to the **IVRScoreboard** window to be able to pick it up.

You might notice that the scoreboard is visible all the time.

You can change this behavior by going to the system tray of Windows desktop and right click the application icon:



It will show you a context menu:



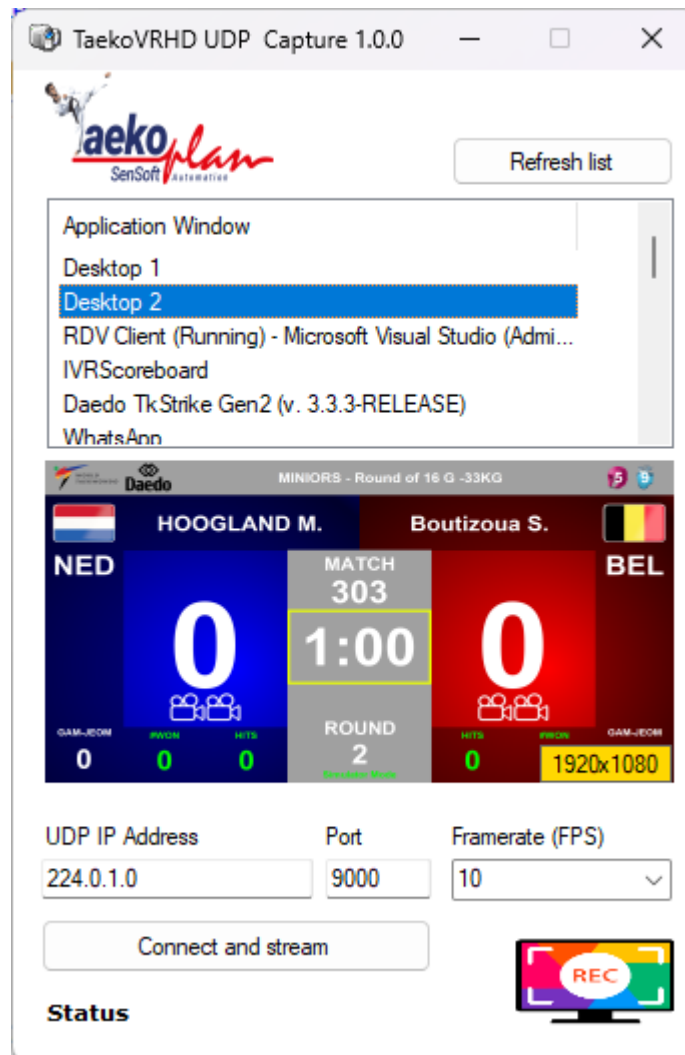
If you select **Opacity 0%**, the scoreboard will still be there, but not visible anymore. The system tray options are still there.

If you select **Opacity 100%**, the scoreboard will be visible and can be closed which is not recommendable.

You can also close the IVRScoreboard from this menu.

5.3 Capture remote screen over UDP

You can also use the UDP Capture application to get a window or full desktop from for example a scoreboard as a new camera picture



Basically the interface is the same as the Capture client/server application. Only difference is that this client does not have a server but it provides a UDP stream which can be picked up in a device assigned to a camera.

For that use the following settings in the camera config:

Directshow

RTSP/IP camera/UDP

NDI

☒ RTSP/IP active

Source type

UDP

IP address source

224.0.1.0

UDP/RTSP/RTMP engine

Auto (LAV engine)

Login

Login to connect

Password

Password to connect

Port

9000

Video command

Commandline

Connectionstring

udp://224.0.1.0:9000

Video format and frames per second are coming from the IP camera

Video settings

Encoder to be used

mpeg2video

Bitrate for encoding

3000K

Video container

ts

Stop during playback

No

Deinterlace source

None

Video renderer

EVR (Vista/Win7)

Force framerate

Default

Framerate for preview

Source

Scoreboard PIP

No

PIP Setup

Audio settings

Capture audio

No

Audio device

Audio Codec

AAC

The IP Address 224.0.1.0 is a multicast IP address which means that the UDP stream can be rerouted to more than one device.

For this device only the IP address and port needs to be filled and need to be the same as set in the UDP Capture client.

You do **NOT** need to set the **scoreboard PIP** to Yes for this device, as the camera output will already show the scoreboard.
It can be captured/recorded like any other device.

Index

- A -

About 77, 86

- C -

Camera 1 11

Camera 2 11

Capture 11

- E -

Exit 77

- F -

Fight no. 11

Frame forward 53

Frame reverse 53

Frame stepping 53

Fullscreen playback 77

- H -

Hardware 83

- M -

Menubar 77

- N -

Naming convention 82

- O -

Open playbackfile 77

- P -

Pause 11

Playback 53, 77

Playback file 53

Playback files 82

Player 53

Preview 77

- R -

Recording restart 53

Requirements 83

- S -

Slow motion 53

Start 11

Stop 11

Synchronized recording 11, 53

- V -

Video replay 53

- Z -

Zoom in 53

Zoom out 53

