Kandao Live

User Guide

LIVE

Contents

1. Product Introduction

Kandao Live provides an easy solution for VR real-time broadcasting. It simplifies the production process of VR materials and makes your creation work more efficient. What's more, Kandao Live improves VR live with its powerful stitching algorithms and graphics processing technology.

1.1 Function

Kandao Live is described as below:

Preference	Language	Chinese/English
	DHCP	Choose the wireless card to enter the DHCP mode
Camera list		The cameras available to connect
Refresh		Refresh the camera list that can be connected
Video Type	2D	Stitching the source files into common panoramic videos/images
	3D	Stitching the source files into 3D panoramic videos/images
Display Mode	Per-camera Preview	6 camera previews
		Single camera preview
	Stitched Preview	360°rectangular previews
		360°common previews
	Highlight/Shadow Clipping	It could help notify the areas of lost pixel detail due to over or underexposure.
Single Camera Adjustments		Adjust singe camera Exposure/Shutter/ISO/WB/Temp/Tint
Histogram		RGB diagram display
Stitching Setting	Main-angle Orientation	Yaw: −180°to 180°
		Pitch: −90°to 90°
		Roll: −180°to 180°
	Stitching Quality	Normal/High Quality(Realtime optical flow)
	2D/3D	2D/3D mode
	Preferred Distance	Choose the preferred distance to decide what areas should be focused and stitched in the best effect
	Exposure Compensation	The parameters of exposure compensation will be adjusted at a fixed time.
	Reverse	The video/image/live can be upside-down.

Image Processin	LUT	LUT import. It supports ".cube/.look" format now.	
	WB	Temp and tint.	
	Tone	Exposure, Contrast, Highlights, Shadows, Whites and Blacks	
	Preference	The parameters of exposure compensation will be adjusted at a fixed time.	
Enhancement	Denoise	Adjust the intensity of reducing noise.	
Curve	RGB	RGB curve adjustments. You can adjust RGB values or specific rgb(red, green, blue).	
Logo	Top/Bottom	Logo picture for top/bottom. It supports ".jpg/.png" format now.	
Live Streaming Setting	Resolution	Adjust live resolution, currently the maximum is 4K * 4K	
	Video Codec	Set the live video encoding type	
	Bitrate	Set live video bit rate	
	Audio Source	Set the live audio stream	
	Streaming	Set the live stream address, RTMP/LAN/SDI is optional	
	Start Live	Start Live	
	Rec	Live with recording	
Help	Upgrade	Upgrade to latest software version	
	Activate	Activate to remove watermark	

2. Hardware Requirement

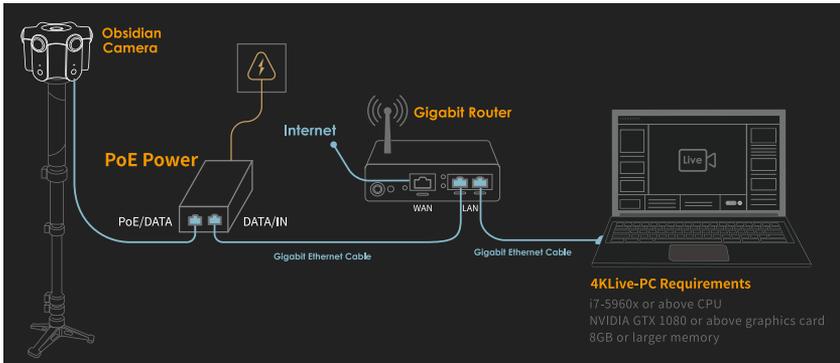| Items	Recommended Configuration
CPU	Intel® Core™ i7 or the higher-level CPU Xeon processors：E5-2630V4 and above
Graphics Card	NVIDIA GTX 1080 or better
RAM	At least 8 GB
Operation System	Windows 10 64bit
Graphic Drivers	load the latest graphics driver at http://www.geforce.cn/drivers https://www.nvidia.com/en-us/geforce/

3.Directions

3.1 Connect

3.1.1 Connecting via Router

Prepare a POE power, a Gigabit router, an Obsidian camera, Gigabit Ethernet cables and a PC with recommended configuration (i7-5960x CPU, NVIDIA GTX 1080 graphics card and 8 GB memory or above).
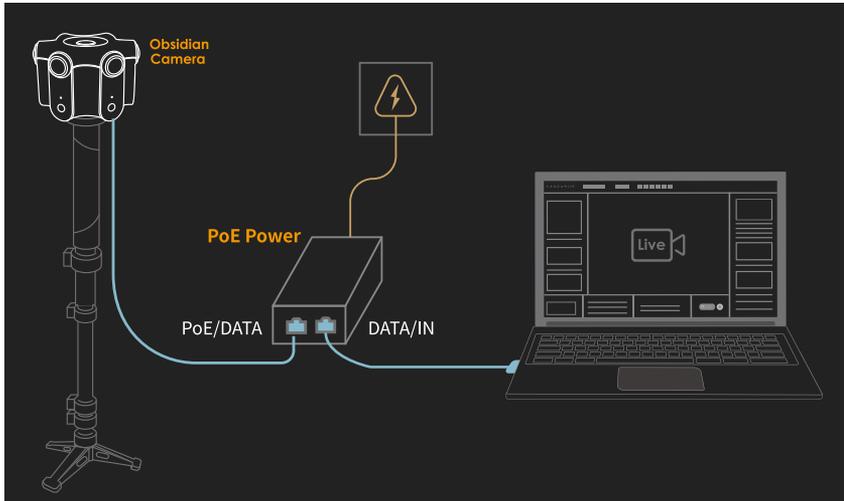To ensure the fluency of live streaming, connect the Camera and the PC via the Gigabit Ethernet Cable as "Live Streaming Demo" shown below.

3.1.2 Connecting via DHCP

You could also connect via DHCP without a router as following,
1) You could set DHCP service under [Preference]. Choose the corresponding wireless card.
2) Refresh camera list for 15 seconds until connect success.
   If the camera is not connected after 30 seconds, please return to step one or restart the camera.
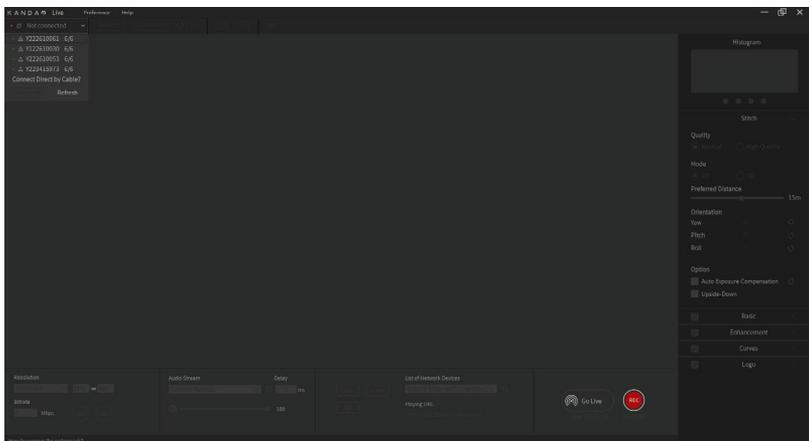
Note: Make sure the network is stable and downstream data speed should be above 10 Mbps, or the Live will be broken or lost.
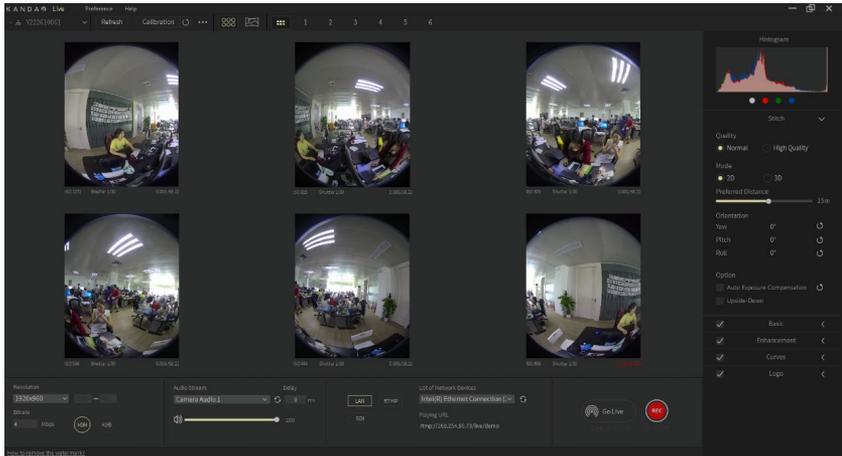
3.2 Live Streaming Setting

3.2.1 Connect the camera

Turn on Obsidian and open Kandao Live Software, connect them by clicking the bottom on the top left corner of Live and choose the live camera.
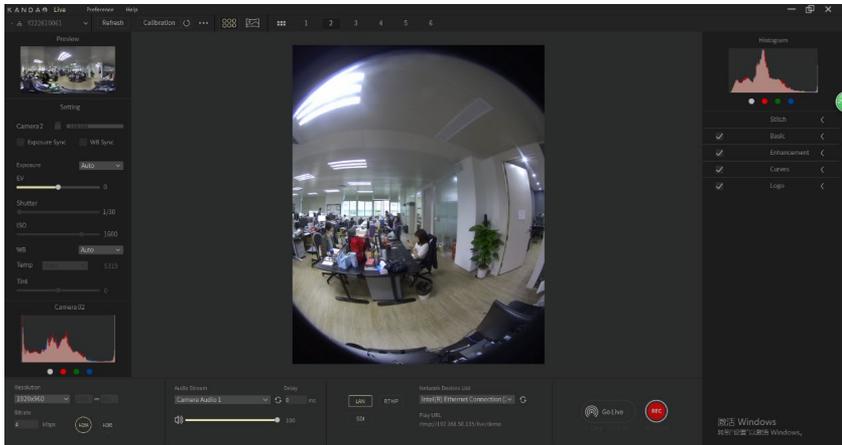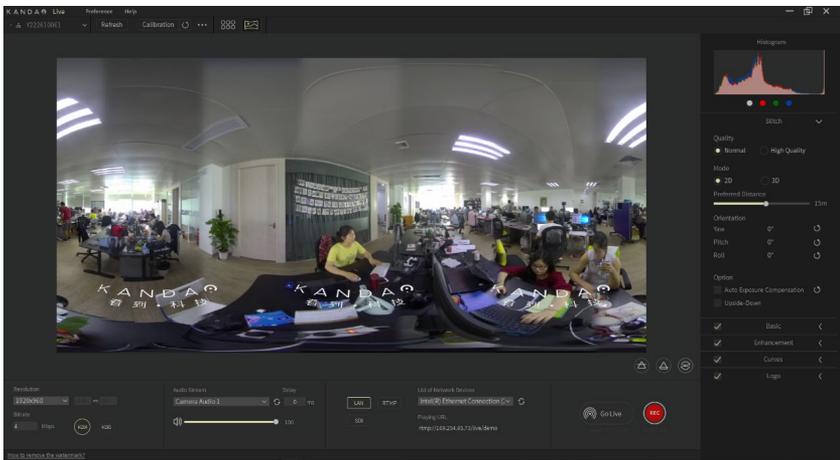
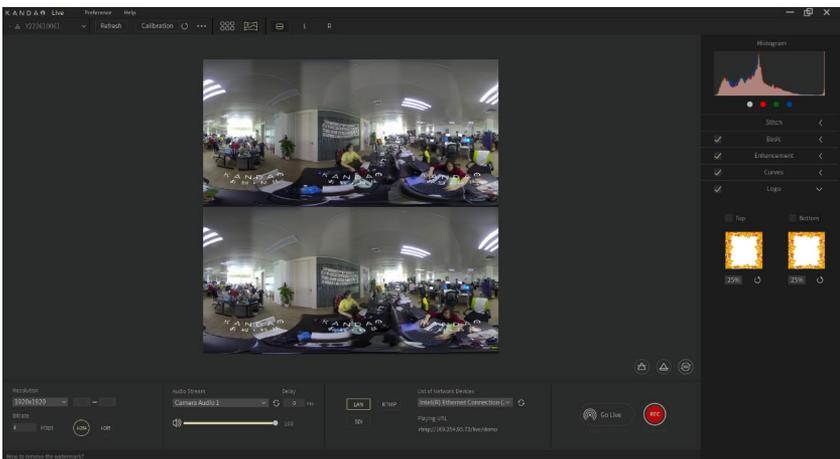## 3.2.1 Preview Mode of Live Streaming

Six camera preview

Single camera preview

Equirectangular preview

The preview includes 2D and 3D. Click the "Pano" bottom to switch the preview mode. You could view "L/R/TOP&BOTTOM" under 3D preview mode. "L" means the left eye perspective and "R" means the right.
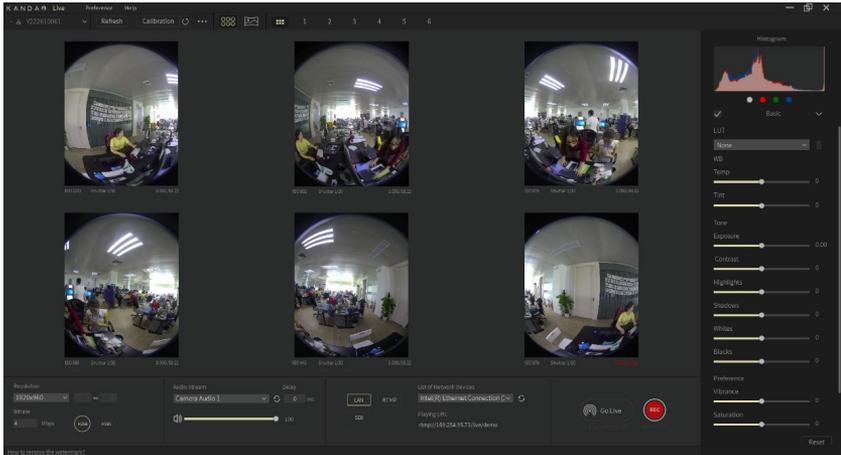
3.2.3 Parameters Setting of Live Streaming

3.2.3.1 Stitch

1) Reverse: The video/image/live can be upside-down.
2) Quality: Normal and High Quality(Realtime optical flow).
3) Mode: 2D and 3D (Left, Right, Top&Bottom).
4) Preferred distance: Choose the preferred distance to decide what areas should be focused and stitched in the best effect
5) Auto exposure compensation: The parameters of exposure compensation will be adjusted at a fixed time.
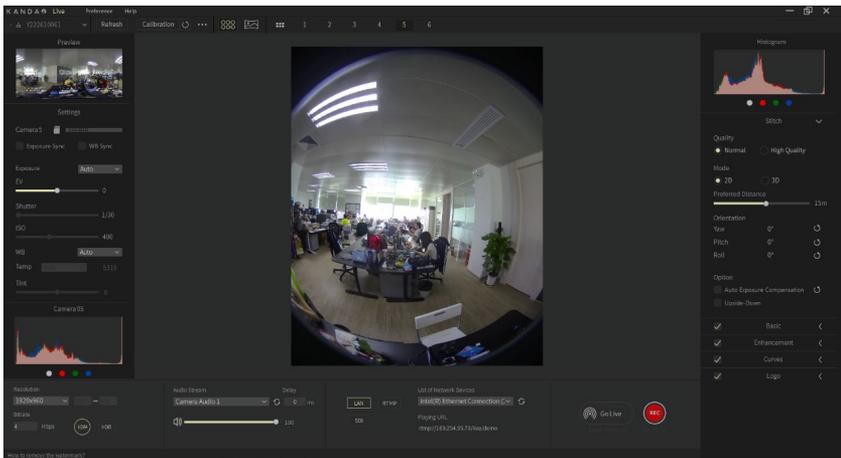6) Orientation: adjust main angle. Yaw: −180°to 180°; Pitch: −90°to 90°; Roll: −180°to 180°.

3.2.3.2 Basic

Adjust the overall picture settings, for example, LUT import, WB (Temp, Tint), Tone (Exposure, Contrast, Highlights, Shadows, Whites, Blacks) and Preference (Vibrance, Saturation).
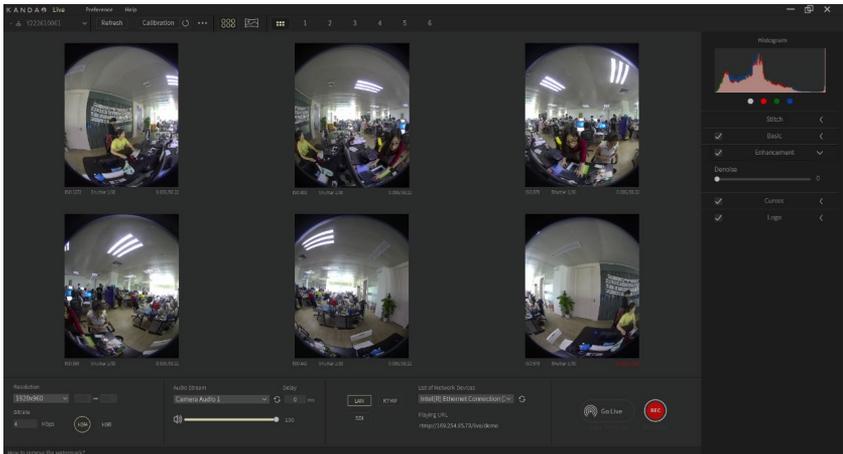

Adjust the individual lenses' settings (WB, exposure, shutter, ISO, color temperature, etc.) by clicking on the preview or the lens number on the top menu.
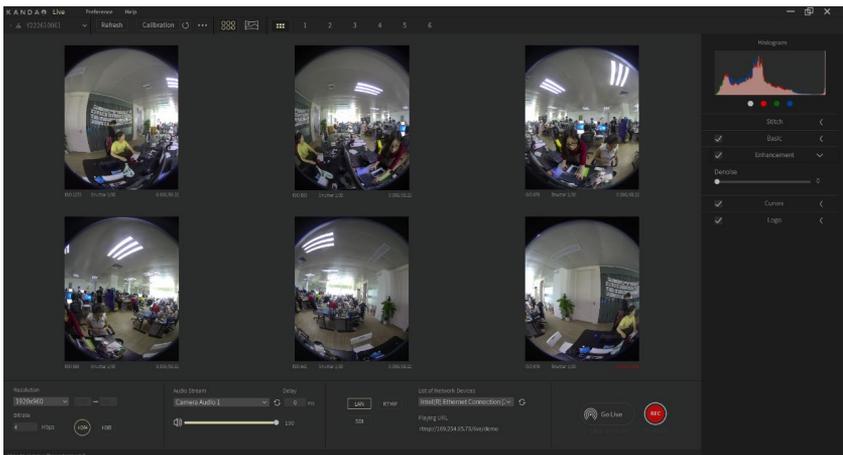
3.2.3.3 Enhancement

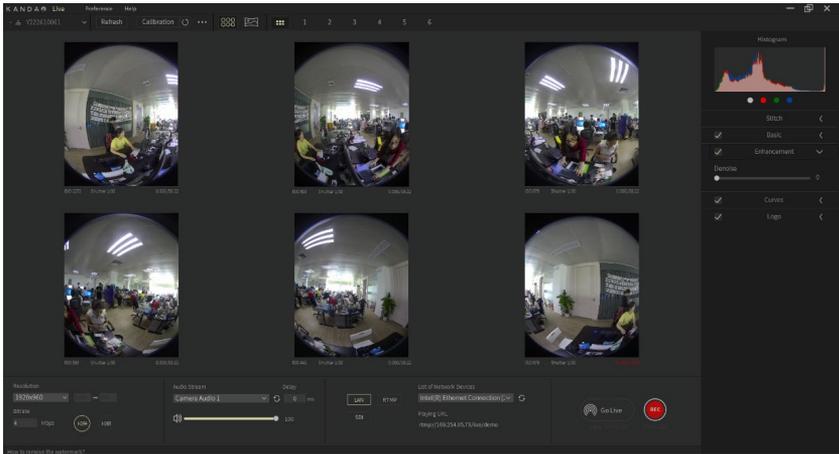Support denoise function. You can adjust the intensity of reducing noise.

3.2.3.4 Curve

Support RGB curve adjustments. You can adjust RGB values or specific rgb(red, green, blue). Double click to restore.

3.2.3.5 Logo

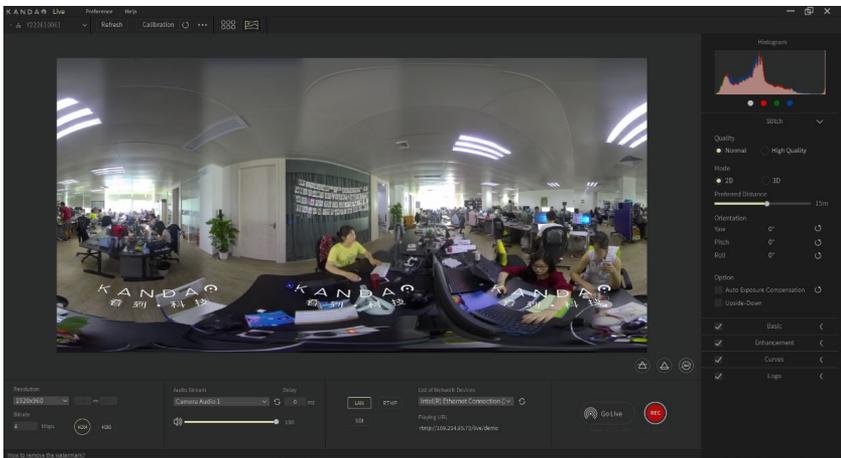Support logo picture for top/bottom. It supports ".jpg/.png" format now.

3.2.4 Live streaming setting

3.2.4.1 Resolution/Codec/Bitrate
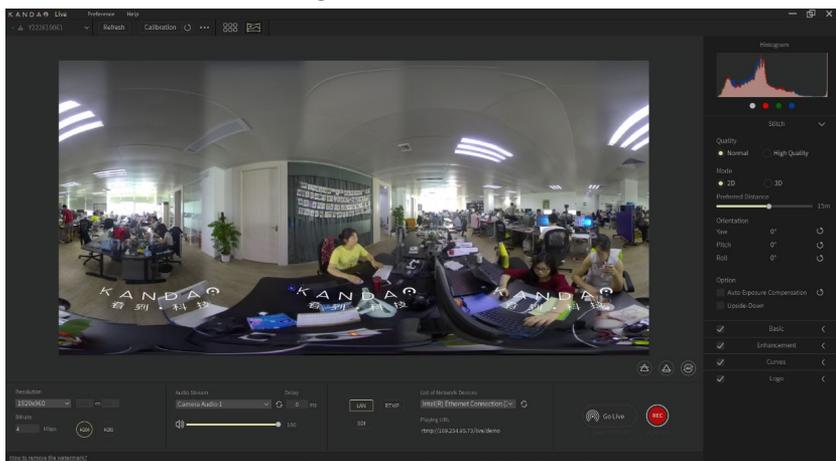The resolution is 3840*3840 at max now; the current codec could support h264/h265.

You can choose the resolution and bitrate based on your network bandwidth to get a reliable stream. Please test before you start live streaming.
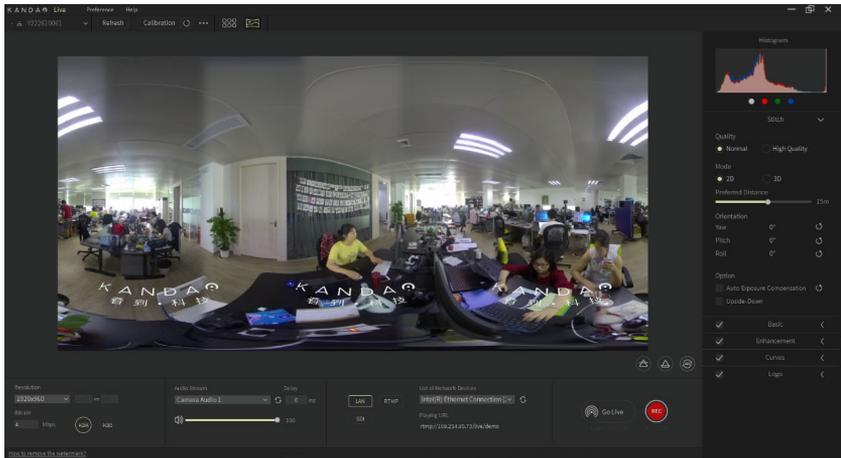
3.2.4.2 Streaming Way

1) LAN

Live streaming via local area network(LAN). When you start a live on LAN, you could only watch it via the devices on the same LAN, The live stream is pushed to the streaming service of the local machine, and other devices in the local area network can obtain the live stream through the RTMP address generated by the local machine. Selecting a network device can check the RTMP address of the live stream obtained by other devices in the network segment where the device is connected. Changes to network device options do not affect live streaming.

2) RTMP

It's mainly for internet broadcasting.

Usually the "sever address" and "key"(optional) are necessary for start a Live. The settings should be notified as the according platform rules and steps.

3) SDI

It's mainly for multi-devices Live. You could switch to different camera via SDI.

The SDI capture card outputs the non-encoded live stream; select the SDI capture card for push stream in [SDI Output Hardware List]. After the live broadcast starts, the live stream will be output through the selected SDI capture card.

Obsidian R/S — POE Gigabit Ethernet — Kandao Live — RTMP/SDI — Switcher — Internet — Media Server — Internet

PC Configuratation:
- OS:Windows 10 64-bit
- CPU:i7-5960x or above
- Graphics:Nvidia GTX 1080 or above
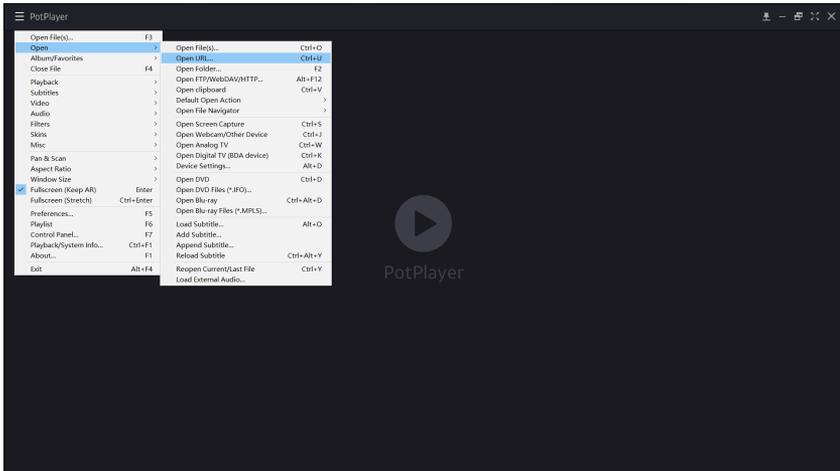- Memory:32GB or above

LAN/WAN Server   Supp
                      O

3.3 Watch Live

When you start Live, the upstream data speed should be at least 10 Mbps (actually it should double the bitrates you choose).

3.3.1 LAN Live watching

When you start a live on LAN, open PotPlayer/VLC via a PC on the same LAN, click [Menu]-[Open]-[Open URL].

Type in the address (rtmp://Computer IP address/live/demo). Click OK and then the live streaming starts.
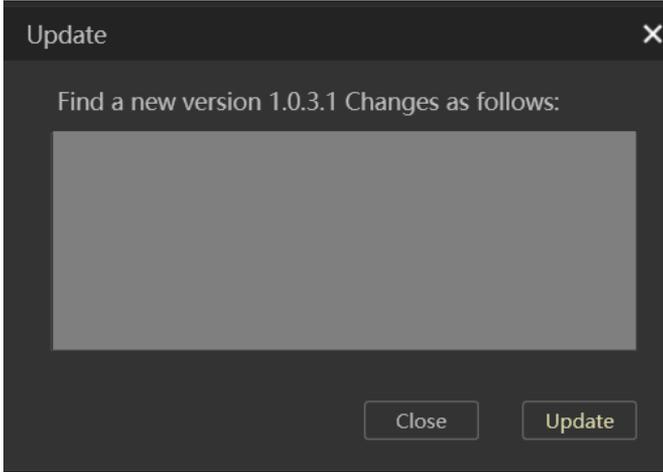
3.3.2 Online Live watching

You should enter the live room/address you create before. For example, if you start a live on Facebook, you could login in your Facebook account to check it.

3.1 Upgrading and Activating

3.4.1 Upgrading
Click on the [help]-[upgrade] to get the latest version.

3.4.2 Activating
If you want to activate and remove the watermark, please contact Kandao salesperson. Activating is only for removing watermark. The KandaoLive function would not be influenced without activating.

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www.kandaovr.com