Software User Guide

For

ANT-1776 series

ANT-1776

ANT-1776ZB

Document information

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DR3	Jan-24	3rd Draft release	I. Bar
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1. Overview

The Maris software suite includes the following elements:

1. ***Maris Guard:*** A central hub for the Maris platform and it is the first step when setting up your system.
2. ***Maris Browser:*** Set up the video boards on your network and enter data for many different parameters.
3. ***Maris Player:*** A standard player for video streaming developed by Maris. The settings match those in Maris Browser.

The three software applications work together to enable you to manage your network of video boards and view the video output.

1.1 Getting Started

Before setting up your video board and cameras, you need the following information:

- The IP address of the computer.
- The IP address of the Maris video board(s).
- The camera interface type.

2. Maris Guard

Maris Guard is a central hub for the Maris platform and it is the first step when setting up your system.

- Discover the IP addresses of the Maris products in each subnet.
- Change the IP address of the board (optional).
- Update the firmware.
- View the available storage and memory options.
- Download the video files, configuration settings and log files from the board.

2.1 Installing Maris Guard

>> To install Maris Guard

1. Double click the provided Maris installation .exe file.
2. Follow the on-screen prompts.
3. Check **Create a desktop shortcut**.
4. Click **Next** and then **Install**.
5. When the installation is complete, follow the prompts to install winPcap and Visual C.

The following icons for Maris Guard and the Maris Player appear on the Desktop:

Figure 1: Desktop Icons

If the Maris Guard installation fails, delete the Maris folder (C:\Program Files (x86)\Maris) and reinstall.

If the winPcap or Visual C installation fails, reboot the computer and reinstall.

2.1.1 Installation Notes

If you are updating or reinstalling Maris, click **Yes** if the following message appears during the installation process:

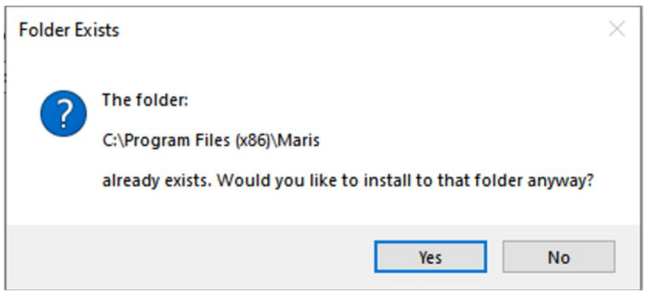


Figure 2: Installation Folder

If the following message appears at the end of the installation process, click **No** and then click **Finish**.

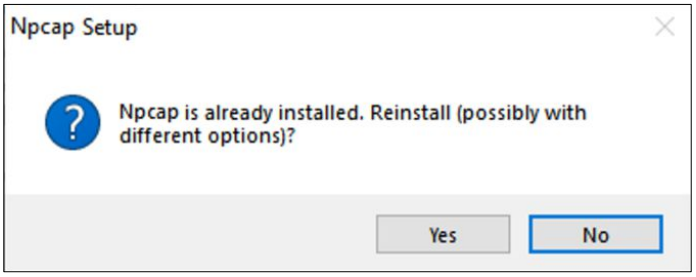


Figure 3: Npcap Message

2.2 The Maris Guard Home Screen (Board)

Maris Guard opens to the following screen with information about the Maris product that has been detected.

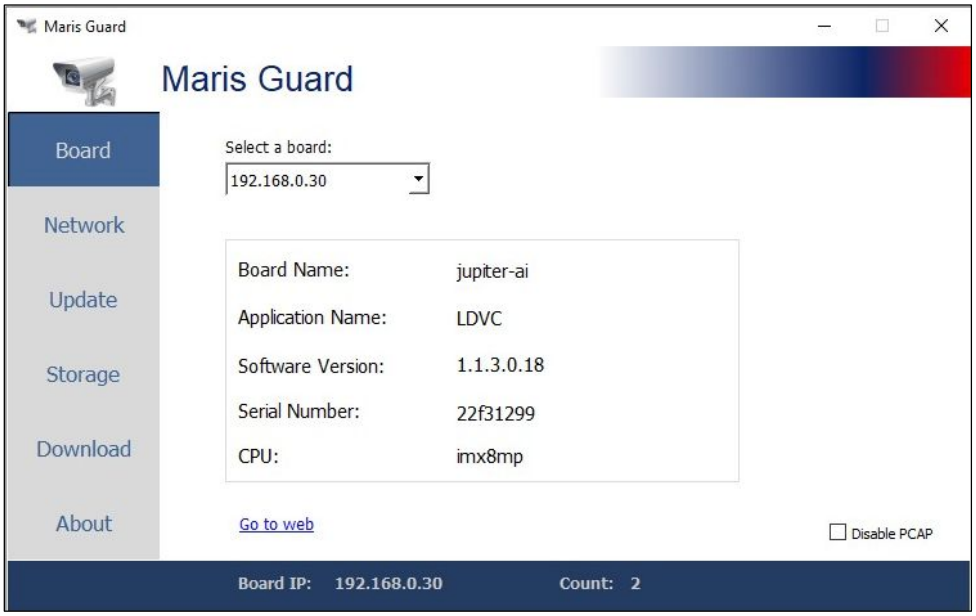


Figure 4: Maris Guard Home Screen (Board)

The IP address of the current board appears in the **Select a board** drop-down as well as in the information bar at the bottom of the window. The number of boards in the network (Count) is also displayed in the information bar.

The default IP address for a Maris network board is 192.168.0.30. To change it, see below.

If you have more than one board with different IP addresses, you can choose them from the **Select a board** drop-down list.

If you have one or more boards with the default IP address, we recommend that you add them one at a time. After adding each board, change the IP address using the Network option (see below).

The **Board Name** is the type of Maris board and the **Software Version** is the Maris version installed on the board.

Click **Go to Web** at the bottom of the window to open the Maris Browser application and define settings for your Maris products.

You can open the Maris Browser application in any web browser (Chrome, Firefox, Safari, Edge, etc.) by typing http://192.168.0.30 in the address bar, where 192.168.0.30 is the IP address of the board.

2.3 Network Settings

Click **Network** to view or adjust the board's IP address settings. The default IP address for a Maris board is 192.168.0.30.

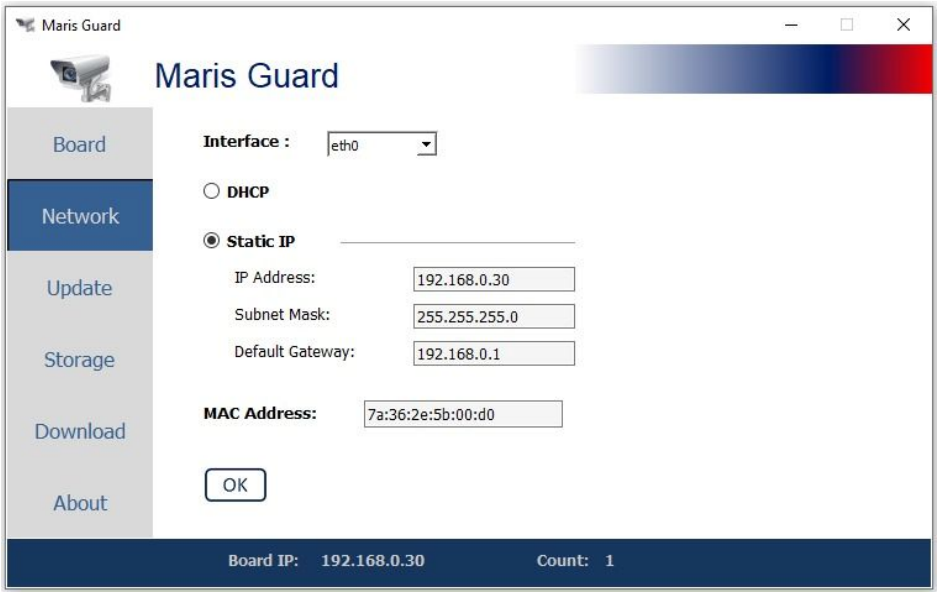


Figure 5: Network Settings

>> To update the board's IP address

1. You can select **DHCP** for the dynamic allocation of an IP address. However, it is recommended to select **Static IP** and manually enter the board's IP address.

- Edit the **Subnet Mask** and **Default Gateway**, if necessary.
- The board's **MAC Address** is displayed and it can be changed.

2. Click **OK** to save any changes.

2.4 Update

The Update option enables you to do the following:

- Update the board's firmware.
- Restore the board's settings to the factory default (optional).
- Reboot the board.

Figure 6: Update Board

When you have been provided with a firmware update, complete the steps below.

Note: You can update the firmware in Maris Browser too, see p. 22.

>> To update the board's firmware

1. When the board is connected to the network, click the three dots to select the firmware update file.

- **Note:** There are two update files. First install the file named "update-<version number>" and then install "partial-<version number>". If your board is a non-AI product, you will have the "update-<version number>" file only.

2. Select on which partition to install the update.

   Selecting **Partition 1** *and* **Partition 2** provides redundancy such that if the firmware cannot be loaded from one partition, it can be loaded from the second partition.

3. Click **Update**.

   After a few minutes, a message appears to indicate the update was successful.

- Click **Halt** at the bottom of the screen to cancel the update.

  The updated version number appears on the Desktop icon and in the About screen.

Note: It is normal for the progress bar and text to be red during certain parts of the upgrade process. Do not interrupt the process until it is completed.

If there is an issue with the board, or if technical support advises, click **Reboot** to reboot the board.

If you wish to completely reset the board, or if technical support advises, you can restore the factory settings as follows:

>> To restore the factory default settings

1. Click **Factory Default**.
2. Click **Yes** in the window that opens.
3. After restoring the factory defaults, it is recommended to reboot the board.

- **Note:** Restoring the factory defaults returns the IP address of the Maris board to the default of 192.168.0.30.

  To manually change the IP address, see the Network option (page 7).

2.5 Storage

The Storage option enables you to view details about the board's storage capacity. You can also format external storage such as an SD card or USB memory stick.

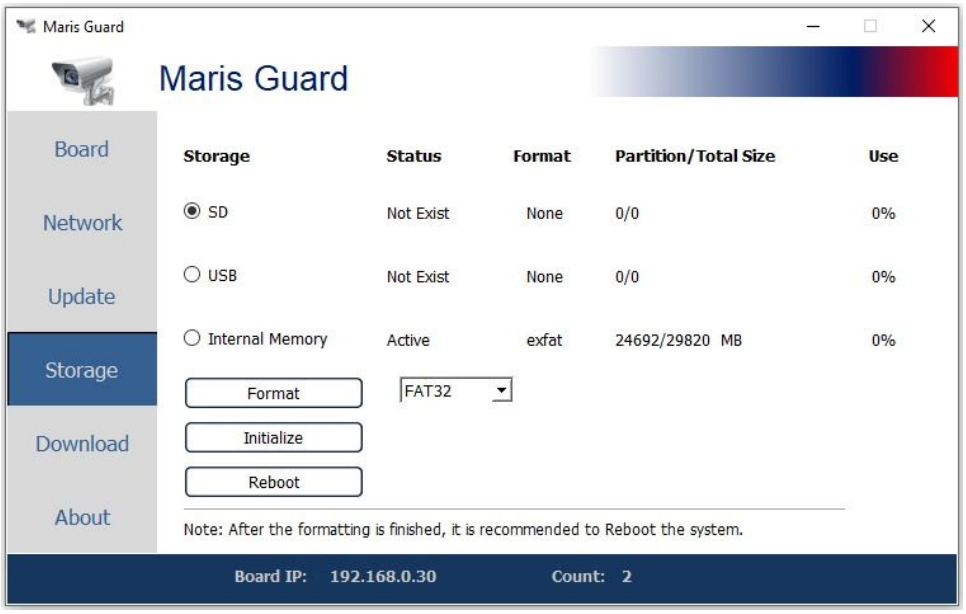


Figure 7: Storage Settings

For the various storage methods, you can see their status, format type, total amount of storage and the percentage used.

>> To format an SD card or USB memory stick

- **Caution:** When formatting storage, all the current data will be erased.

1. Click **Format**.
2. Select the file system from the drop-down.

3. Click **Yes** in the window that opens.
4. When the formatting is completed, it is recommended to click **Reboot** to reboot the system.

2.6 Download

You can download or delete the following files from the board:

1. Video recordings.
2. Log reports.
3. Configuration settings (download only).

In Maris Guard, when you download video recordings or log reports, all the files from the board are downloaded with a certain folder structure. Using the Maris Browser you can select individual video files or certain types of log file (see p. 38).

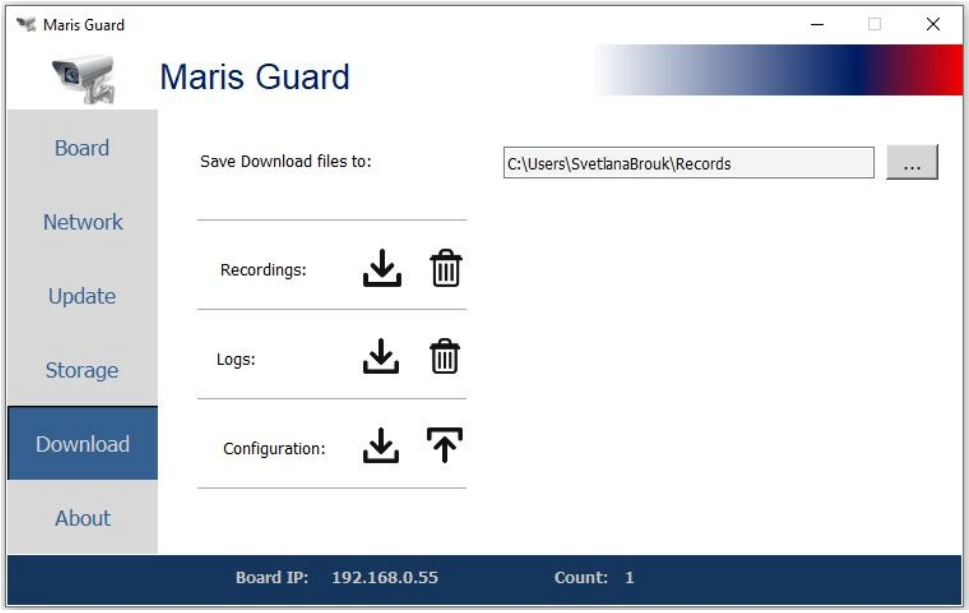


Figure 8: Download Recordings

>> To download the video recordings or log reports

1. When the board is connected to the network, click the three dots to select the folder where the files will be downloaded.

   For video recordings, choose a location with sufficient space.

2. Click the Download icon in the Recordings or Log section.

   The files will be downloaded to a …\Record or …\Log folder within the folder that you specified.

   Recordings are organized by mux and at the end of each file name is mux1, mux2, mux 3, etc.

>> To delete all the video recordings or log files

1. When the board is connected to the network, click the Delete icon in the Recordings or Log section.

   Note: This deletes files from the board. It does *not* delete files from your computer.

2. Click **Yes** in the warning pop-up.

   The files will be deleted from the board.

>> To save the board's configuration settings

1. When the board is connected to the network, click the Down arrow .
2. In the window that opens, click the three dots to select the folder where you want to save the configuration files.
3. Click **Upload**.

- The configuration settings for the selected board are saved to the chosen folder. The name of the folder is "cfg" followed by the date and time, and the file name is ldvc_1.cfg.

>> To import configuration settings for the board

1. When the board is connected to the network, click the Up arrow .
2. In the window that opens, click the three dots to select the folder from where you want to import the configuration files.
3. Locate the folder based on the date and time, and click **Open**.
4. Click **Upload**.

   The configuration settings are imported and installed on the selected board.

   A message indicates that the import was successful.

2.7 About

The About screen displays the Maris Guard version number and build date.

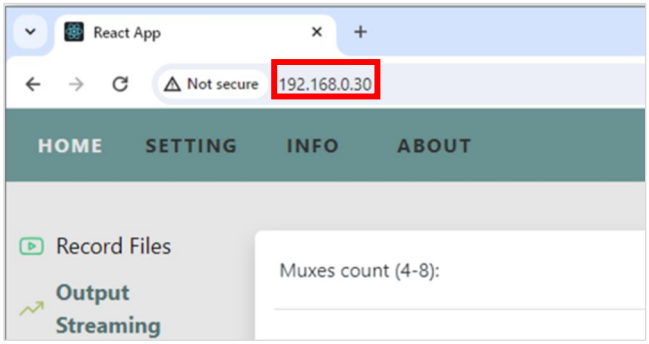
3. Maris Browser

The Maris Browser enables you to control the video from the boards and cameras that you have set up, and enter the settings for multiple parameters.

3.1 Opening the Maris Browser

Open the Maris Browser in one of the following ways:

- In any web browser, enter the IP address of the board.



- From the Board option in Maris Guard (see p. 7), click **Go to web** at the bottom of the window.

The Maris Browser opens. Ensure the status in the top right is “Connected”.

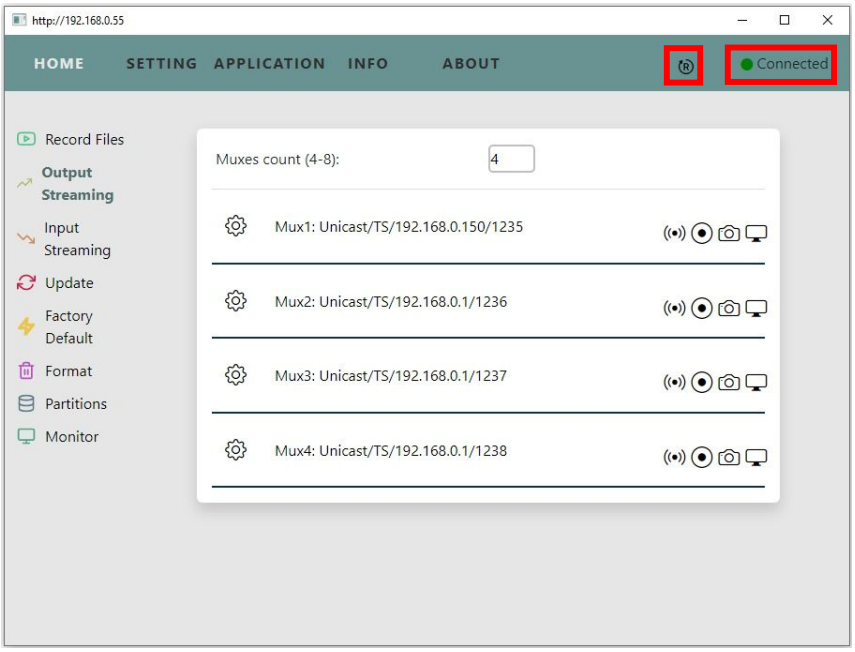


Figure 9: Maris Browser

If necessary, you may click in the top right to reboot the board.

3.1.2 Right Click Menu

The Maris Browser has the following options for the right click menu:

Option	Explanation
Back	Return to the previous screen.
Forward	Go forward to a previously visited screen.
Reload	Reload the page, e.g., after saving or making another change.
Save page	Save the page.
View page source	View the page source.

3.2 Record Files (Video Recordings)

Home > Record Files

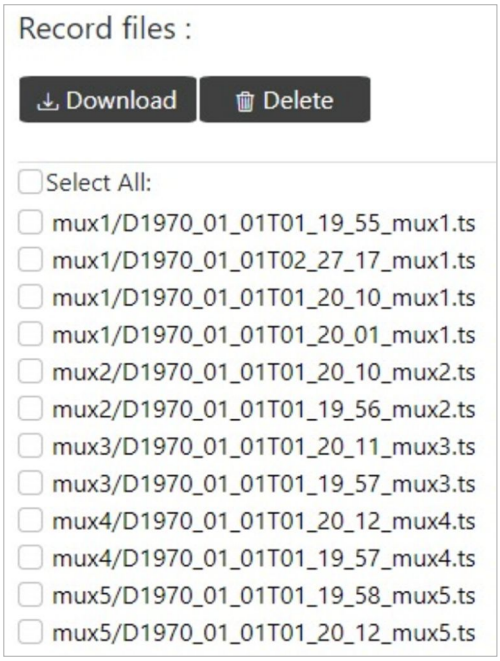


Figure 10: Video Recordings

In the Record Files option you can see the video files that have been recorded and stored on the selected board. The files can be in the board's internal memory or on an external memory card such as an SD card or SSD storage device.

Mux: The number of the Mux appears at the beginning and end.

D: Date of the recording in the format YYYY_MM_DD

T: Time of the recording in the format HH_MM_SS

To change the default date and time, go to **Settings > Time and Date**.

You can either download or delete the files.

If you want to download all the video files from the board, this can be done using Maris Guard as well – see p. 10.

>> To download video files from the board

1. Select **Home > Record Files**.
2. Select one or more files, or check **Select All**.
3. Click **Download**.

The files are downloaded to the folder defined in the Maris Guard Download option, see p. 10.

You can now view the video files and play them from your computer using the Maris Player or a different player.

>> To delete files from the board

1. Select **Home > Record Files**.
2. Select one or more files, or check **Select All**.
3. Click **Delete**.

   The selected files are deleted.

3.3 Output Streaming

Home > Output Streaming

In Output Streaming you can define settings for the video output.

When you open the window, four Muxes appear. To display additional Muxes, increase the Muxes counter at the top of the screen (up to 8).

Figure 11: The Mux Counter

The name of the Mux includes the casting method, the streaming protocol, the IP address and port number. For example: Mux1: Unicast/TS/192.168.0.30/1235.

You can have a set-up with more than one Mux (up to eight), or you can define several Muxes for the same camera. The latter case is when you want to stream the video to a number of computers or IP addresses, or you want to stream the video with a different resolution and frame rate according to the bandwidth of each recipient. Additionally, you may want to set up one mux for recording and another for streaming.

There are four buttons to the right of the Mux name: .

Button	Function
	Stream the video from the camera connected to the board.
	Record the video from the camera connected to the board. You can record even if you are not streaming.

Button	Function
	Take a snapshot of the video.
	If a monitor is connected to the board, click the Display button to output non-compressed video to the monitor.

3.3.1 Mux Settings

Click the gear to view the **Mux settings**.

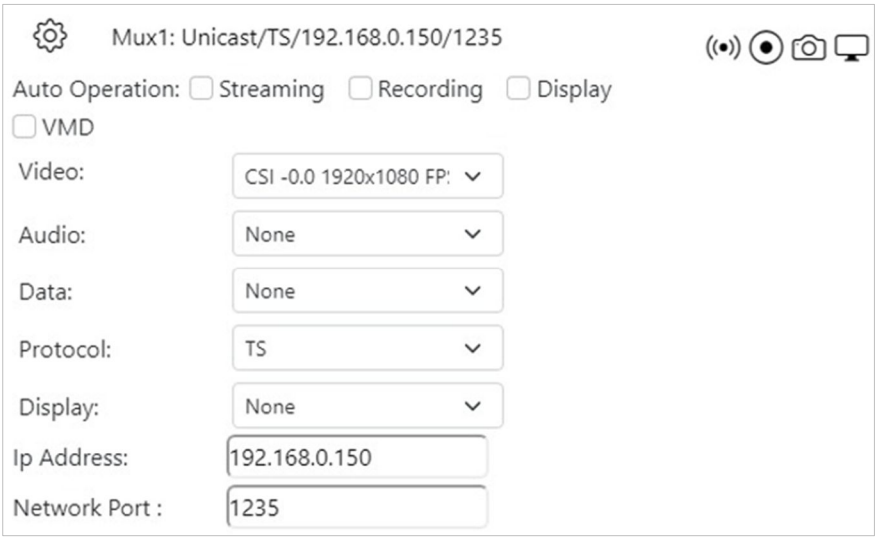


Figure 12: Mux Settings

Mux Settings	Explanation
Auto-operation	Check the relevant items and they will start automatically each time the board is activated after a reset or reboot: Stream, Recording, Display, VMD.
Video	Choose the camera for this Mux. Grayed out cameras have not been detected, however, you can select them and define their settings.
Audio	Choose a channel for the audio. The options are None, Data1, Data2, Data3 and Data4. **Note:** The settings for the channel are configured in **Settings > Audio** (page 33).
Data	Choose a channel for the data. **Note:** The data settings are configured in **Settings > Data** (page 36).

Mux Settings	Explanation
Protocol	Choose the streaming protocol: TS, RTP, RTSP/RTMP, GIGE, AI-Encoder. If you need to choose the codec, see p. 18 below. **RTP:** For the RTP protocol, see the note in the Network Port field below. **RTSP/RTMP:** There is no need to click in the Maris Browser to start streaming. Maris Player enables streaming when you click **Play**.
Display	Choose the display. In some cases there may be two monitors to display the video.
IP Address	For the TS and RTP protocols, enter the IP address of the device where the stream will be received, for example a computer. For the RTSP/RTMP protocol it is not necessary to enter an IP address.
Network Port	Enter the network port for the connection. The RTSP and RTMP ports are entered in **Settings > System > RTSP/RTMP Server**. **Note re the RTP Protocol:** When using the RTP protocol to stream to two different Muxes, the network port numbers cannot be consecutive and there has to be a gap of one or more between them. E.g., 1235 and 1237. If the network port numbers are consecutive, video will not be streamed to the second Mux and will not be viewable in the Maris Player.
Save	**Important:** Click to **Save** the changes for the specific Mux that you have been defining.

Note: The streaming protocol, IP address and network port need to be defined the same way in Maris Player, see p. 45.

3.3.2 Additional Mux Settings

When the Mux settings are open, click to the right side of the Save button to open additional settings.

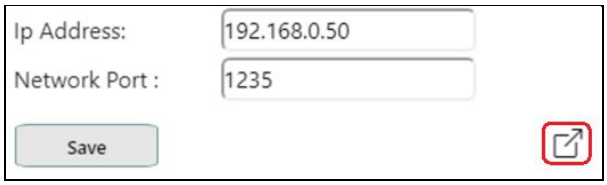


Figure 13: Opening additional Mux settings

On the right of the screen, click the **plus sign** to open a section and the **cross** to close a section.

Figure 14: Opening and closing a section

As with the main Mux settings, the additional settings are defined for each Mux separately.

Important: Click **Save** underneath the list of settings to keep any changes that you make.

Mux Settings	Explanation
Record	
Index	
Encryption	Turn on or off
Cycle Mode	Enabled=create files of…
Cyclic Time	The cycle can be, for example, 60 seconds in length.
Container	AI: TS: Compressed data. Raw: Non-compressed data. **Note re Raw data:** Download YUV Player from the Internet to view the video files that have the .yuv suffix. When recording, note the resolution so that you can set the correct the resolution in YUV Player and view the video correctly.
Camera Loss	
Action	Wait Video Stop Virtual Video 1 (black on white) Virtual Video 2 (white on black)
Frame Rate	
Frame Rate	Full: The camera's native (default) frame rate. User fps: Enter a lower frame rate. Range: from 1 up to the native frame rate.
FPS	Set the number of frames per second.
Video Scaling	
Mode	Disabled: Use the default resolution. Scale: You can change the resolution of the streamed video.
Dest W (Destination Width)	The width (in pixels) of the streamed video.
Dest H (Destination Height)	The height (in pixels) of the streamed video. This is the resolution of the video. When bandwidth is at a premium, you can lower the resolution. The resolution must be divisible by 16. If the number is not divisible by 16, the integer value is used. E.g., if you enter 650, the system will use 640.
Jitter Buffer	
Mode	Disabled: The jitter buffer is off. Manual: Enter the bitrate and buffer size. Auto: Enter the values as described in "Encoding" below.

Mux Settings	Explanation
Encoding	
Encode Mode	Select CBR.
Bitrate (kbits/sec)	Enter the bitrate for the encoding (Default: 5,000). When bandwidth is at a premium, you can lower the bitrate.
GOP	Enter the size of the Group of Pictures (Range: 1 – 300). Low number: More data is transmitted. High number: Less data is transmitted.
AI (Artificial Intelligence) – *for supported products only*	
Enable Hailo HW	Turn this setting on to activate the AI. **Notes:** 1. Maris has implemented Hailo AI. You can use different AI software if you have installed and implemented it. 2. When the message "No models found" appears, either the board does not support AI, or you need to install the "partial" update file – see p. 22.
Confidence	Select a value from 0 to 10. AI in Maris identifies and labels objects in real time on the streaming video in Maris Player. When the value is low, more objects will be identified but the accuracy is low. When the value is high, fewer objects will be identified, but they will be correctly identified. **3:** Only people are detected. **6 and above:** People and objects are identified. The recommended value is 6, which provides a good balance. See p. 43 for an example.
AI Model	**People:** Only people are detected. **Drone:** Only drones are detected. **All:** People and objects are detected. **Note:** When using AI on a number of Muxes simultaneously, you must choose the same model on each Mux. **Draw Rectangle:** Place a rectangle around the detected object. Warn Port: Network Port: IP Address:
Virtual Video	
Resolution	Choose the resolution.
FPS	Choose the number of frames per second.
Extended Codec	
Codec	Choose from H264, HEVC (H265), MPS, MJPEG.

Mux Settings	Explanation
Color	Choose Gray Level or Colorful.
TS Flush	Select On or Off.
Mirror	Choose the horizontal or vertical mirror settings.
Rotate	Rotate the video output.
Split Setup	
X Overlay	
Y Overlay	
Count W (Width)	1—5
Count H (Height)	1—5
Net Protocol	UDP, TCP
Overlay	
Overlay ID	You can save up to four templates for text that is overlaid on the video.
Mode	Enabled/Disabled
Color	Select the color of the text that is overlaid on the video: Black, white, red, green, blue, yellow, orange
Size	Select the text size: Small, medium, large
Location	Select the location where the text will be displayed: Top right, top left, bottom right, bottom left, defined
Type	Select the text that will appear: User text, Time and Date, GPS, Counter
Text	When you select “User text” in “Type” above, enter the text that will appear.
Order by	One line, Lines
TTL	
TTL	Choose a value for the TTL.
VMD (Video Motion Detection) settings	
Size Sensitivity	Enter the size in pixels.
Motion Sensitivity	Low number: Fewer motion events will be detected and registered. High number: More motion events will be detected and registered.
Frame Distance	Low number: Frames that are close to each other are compared. High number: Frames that are further apart are compared. When the frames are further apart, there is a greater chance of motion being detected.
Start Action (ms)	Start recording if a change took place within this period of time.
Stop Action (sec)	Stop recording after this period of time has lapsed.
Show Rectangle	Display a rectangle on the video where the movement took place.

Mux Settings	Explanation
PIP	
Enable/Disable	
Mux	1-8
Resolution	Select the screen resolution
FPS	Enter the frames per second
Fake KLV	
Mode	Turn this setting on when sending metadata.

3.4 Input Streaming

Home > Input Streaming

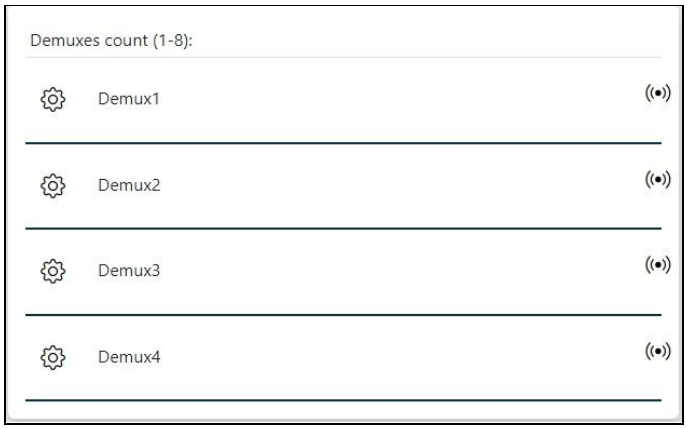


Figure 15: Input Streaming

For each Mux you can enter the corresponding Demux settings.

Click ((•)) to stream the video from the camera connected to the board.

3.4.1 Input Streaming Example

Two IP addresses can be detected in Maris Guard, e.g., 192.168.0.65 and 192.168.0.55.

A camera is connected to a board with the 65 IP address and its video output is displayed on a monitor that is connected to a board with the 55 IP address.

The board connected to the camera (65) is output because it sends the data and the board connected to the monitor (55) is input because it receives the data. The port is the same for both devices.

For both devices, click the Streaming icon ((•)) – the Mux in Output Streaming and the Demux in Input Streaming.

For Output Streaming enter the IP address of the second board (192.168.0.55, the monitor/Demux) but for Input Streaming there is no need to enter an IP address because the data is not being streamed further, it terminates at the second board (monitor).

Note: If the streamed data is compressed then it has to be decompressed to be displayed on the monitor.

3.4.2 Demux Settings

Click the ⚙ gear to view and edit the **Demux settings**.

Note: You have to define each Demux separately.

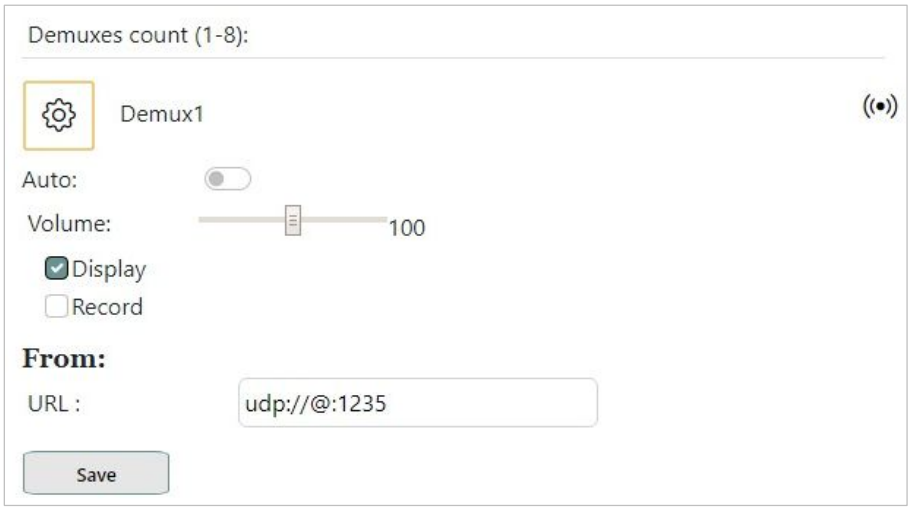


Figure 16: Demux Settings

Demux Settings	Explanation
Auto	The streaming will start automatically each time the board is activated after a reboot or reset.
Volume	Set the volume level.
Display	
Record	
From	URL
Save	**Important:** Click to **Save** the changes for the specific Demux that you have been defining.

3.5 Update

Home > Update

The Update option enables you to update the selected board's firmware. This can also be done in Maris Guard, see p. 8.

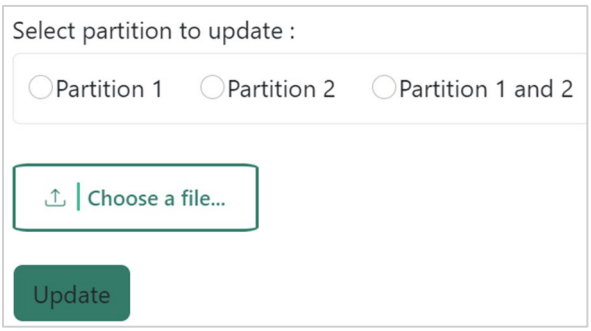


Figure 17: Update Firmware

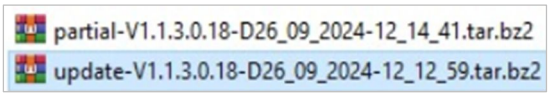


Figure 18: Update Files (example)

For all products, install the *update* file. For AI-enabled products, install the *partial* file after installing the *update* file.

>> To update the board's firmware

1. Select on which partition to install the update.

   Selecting **Partition 1 and 2** provides redundancy such that if the firmware cannot be loaded from one partition then it can be loaded from the second partition.

2. Click **Choose a file** to select the firmware update file from your computer.

3. **Note:** There are two update files. First install the file name "update-<version number>" and then install "partial-<version number>". If your board is a non-AI product, you will have the "update-<version number>" file only.

4. Click **Update**.

5. Click **OK** in the window that opens.

   After a few minutes, a message notes if the update was successful or if there was an error.

3.6 Factory Default

Home > Factory Default

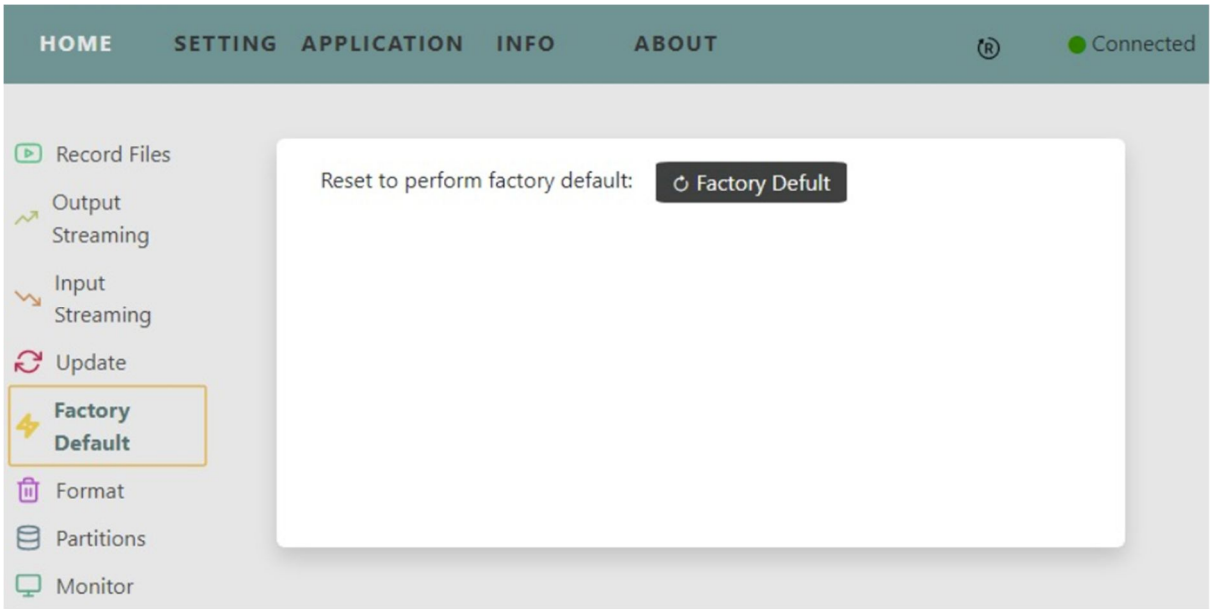


Figure 19: Factory Reset

This option enables you to reset the board to the factory settings. This can also be done in Maris Guard – see p. 9.

>> To restore the factory default settings

1. Click **Factory Default**.
2. Click **OK** in the window that opens.

   After a few minutes, a message indicates that the update was successful.

Note: After a factory reset, it is recommended to reboot the board. Click in the top right of Maris Browser.

Important: The default IP of a board is 192.168.0.30 following a factory reset.

Therefore, if you are accessing Maris Browser via a web browser *and* the IP of the board is not 192.168.0.30, then after a factory default reset you will *not* be able to view the board in the browser.

If you don't have a different board which is defined as 192.168.0.30, then you can view the board by entering "192.168.0.30" in a web browser.

If you need to change the board's IP address before re-opening the browser, open Maris Guard and update the board's IP address via the Network option – see p. 7.

Note: If streaming was taking place, then the stream can still be viewed and recorded until you manually reboot the card or reload the settings. After the reboot or reload you need to update the board's IP address, as explained above.

3.7 Format

Home > Format

This option enables you to reformat and erase all data from the board or a memory card (internal or external memory).

You can also change the storage format. Note that all the data will be deleted when changing the format.

You can check the current format of the board's storage options by going to **Info > Storage** (page 39) or by using the Storage option in Maris Guard (page 9).

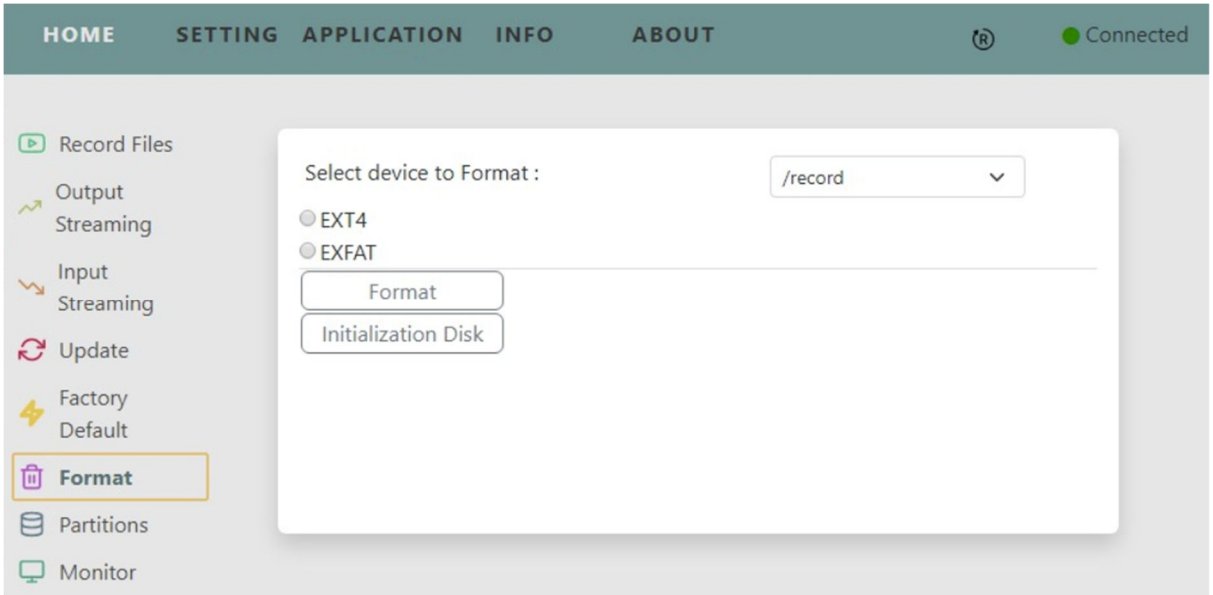


Figure 20: Format Board

>> To reformat the board

1. From the drop-down, select the device to format.

   The board's internal storage appears as "/record". If an SD card has been inserted, it appears as "/sd1".

2. Select the file format.

3. Click **Format**.

4. Click **OK** in the window that opens.

   After a few minutes, a message indicates that the formatting was successful.

3.8 Partitions

Home > Partitions

This option enables you to manage the board's storage partitions.

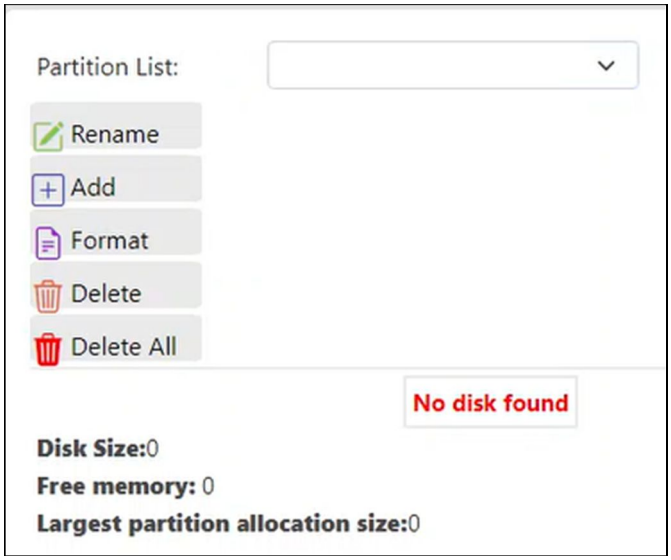


Figure 21: Partitions

Option	Explanation
Partition List	The list of partitions.
Rename	Select a partition and rename it.
Add	Add a partition.
Format	Format the selected partition.
Delete	Delete the selected partition.
Delete All	Delete all the partitions.

3.9 Monitor

Home > Monitor

Select a Mux and view video, audio and streaming data in real time.

Figure 22: Monitor

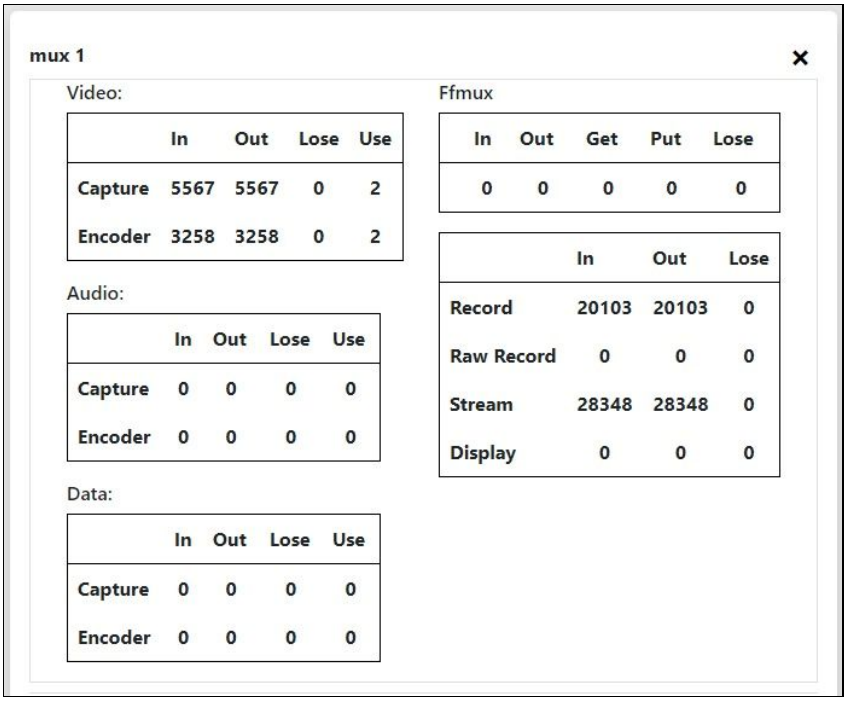


Figure 23: Monitor view

Note: When audio or metadata are being transmitted, the Audio and Data sections will be populated respectively.

3.10 Settings

The Settings option enables you to set the parameters for the following categories:

- System
- Audio
- Display
- Data
- Log

3.10.1 System Settings

Settings > System

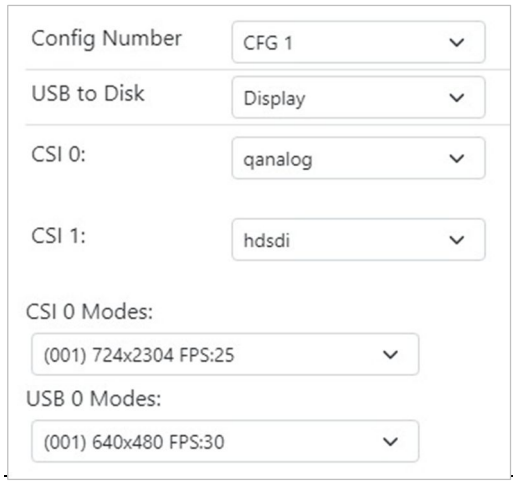
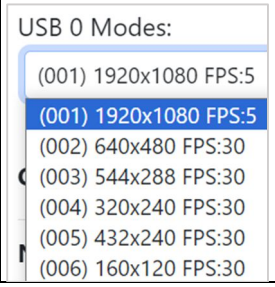


Figure 24: System Settings

Important: Click **Save** underneath the list of settings to keep any changes that you make.

Setting	Explanation
Config Number	You can save up to four configurations.
USB to Disk	The default is “Display”. When the board is connected by USB to a computer, select “Enable” to view it as a disk drive in File Explorer.
CSI 0	Choose the camera interface based on the specific board and/or camera that you have. **Important:** If the wrong interface is selected and saved, the camera will not be detected.
CSI 1	
USB 0 Modes	 The video resolution and frame rate are auto-detected for a USB camera. However, if the video output is unclear or has artefacts, you can select other options from the drop-down list to improve the video display.

3.10.1.1 Sony Camera Settings

When you have a Sony camera, in the **CSI 0** field, select “sonyblock”.

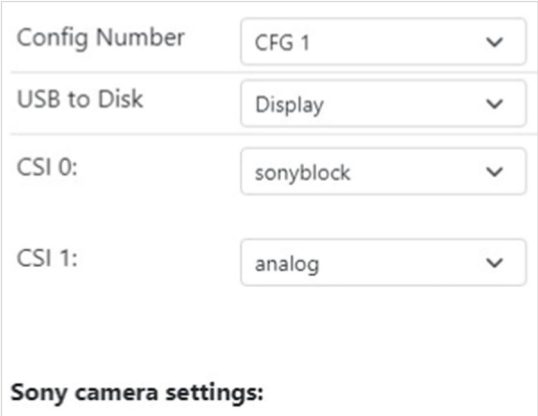


Figure 25: System Settings (Sony)

There are additional settings for a Sony camera:

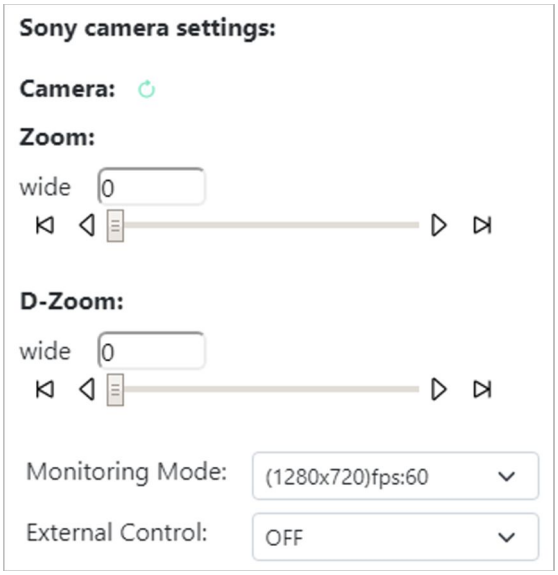


Figure 26: Sony Camera Settings

Setting	Explanation
Camera Restart	**Camera:** Click the green circle to restart the camera.
Zoom	Enter a value or move the slider to adjust the zoom.
Digital Zoom	Enter a value or move the slider to adjust the digital zoom.
Monitoring Mode	Select the desired video resolution and frame rate from the drop-down.
External Control	On/Off

3.10.1.2 NextVision Camera Settings

When you have a gimbal-enabled camera, you can control it using an app such as NextVision. A gimbal enables you to remotely move the camera position, and the software also enables you to zoom in and out.

To enter additional settings, go to **Settings > Data > UART to Ethernet**.

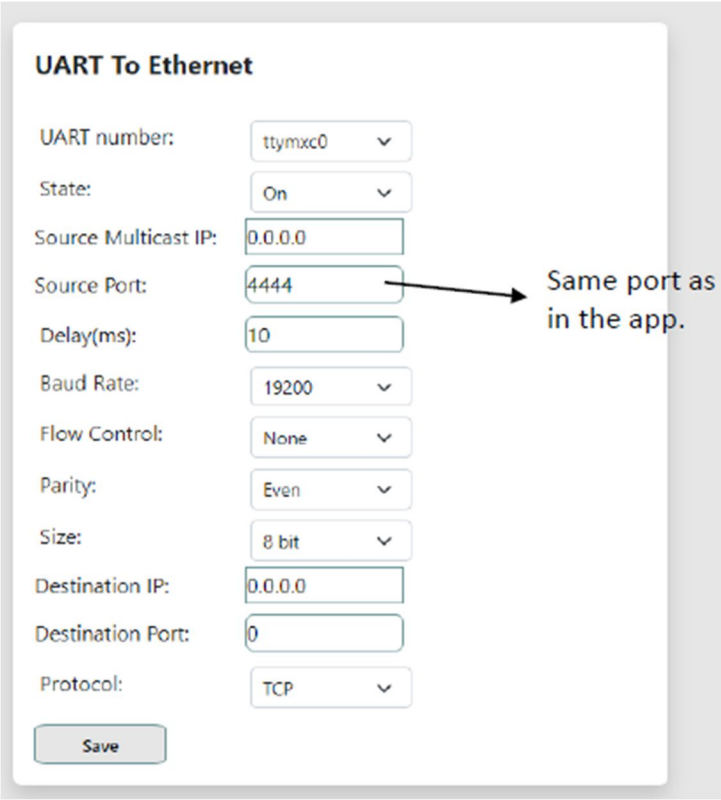


Figure 27: UART to Ethernet Settings

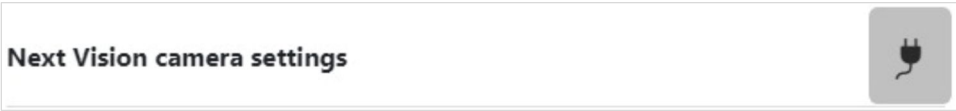
Setting	Explanation
State	Set to “On”.
Source Port	4444 – The same as the port in the app.
Delay (ms)	10
Baud rate	19200
Flow Control	None
Parity	Even
Size	8 bit
Protocol	UART, UDP, TCP

>> To switch between UDP and TCP or vice versa

1. Change the **State** to “Off”.
2. Select the desired **Protocol**.
3. Click **Save**.
4. Turn the **State** back to “On” and click **Save**.

>> To enable NextVision

- In Settings, click the black plug icon.



>> To view the NextVision settings

- In Settings, click **NextVision Camera Settings**.

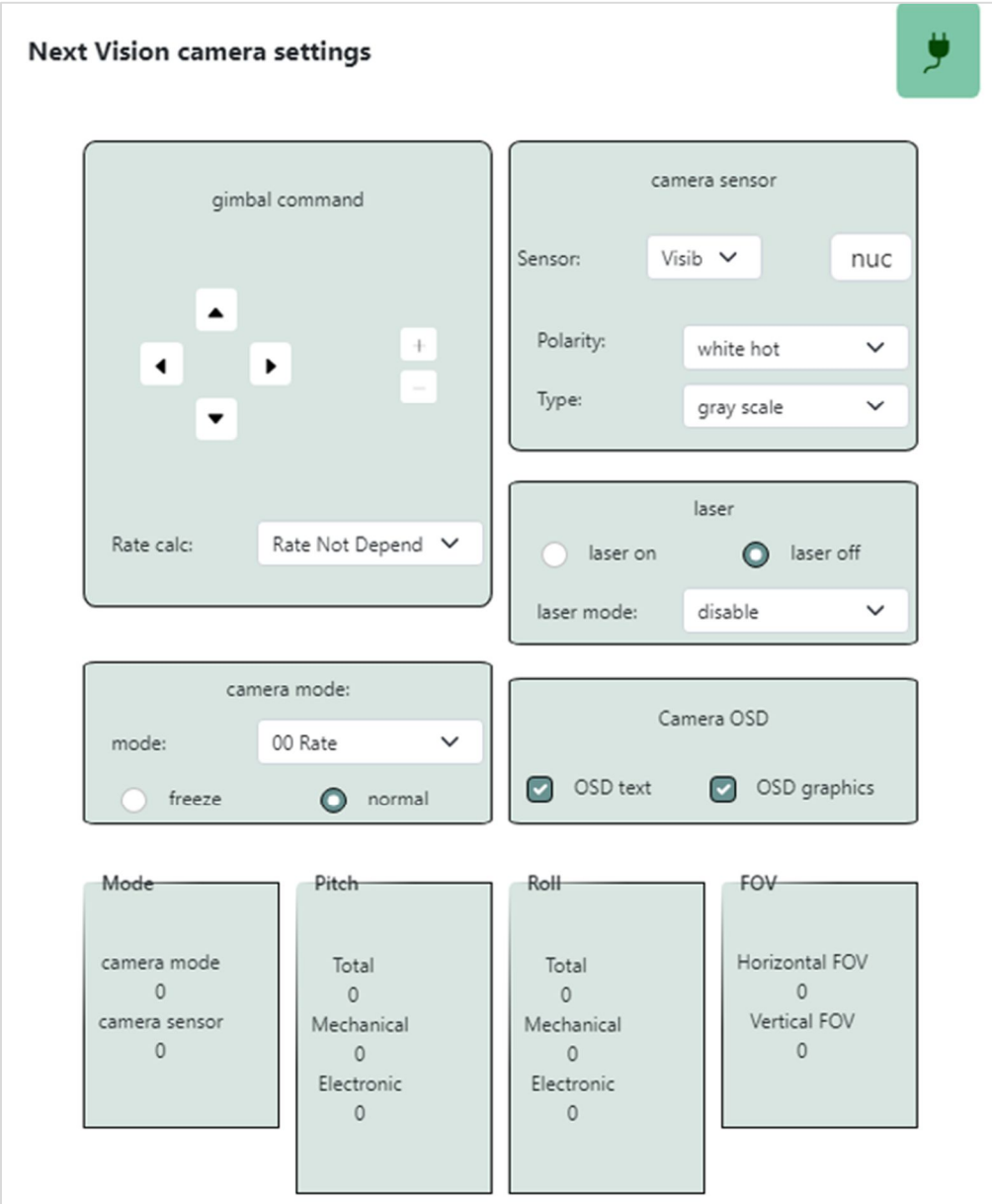


Figure 28: NextVision Camera Settings

Control the camera using the **Gimbal Command** section. Adjust the settings, if necessary, in the other sections.

The Mode, Pitch, Roll and FOV sections at the bottom of the window display data from the camera.

3.10.1.3 Network Settings

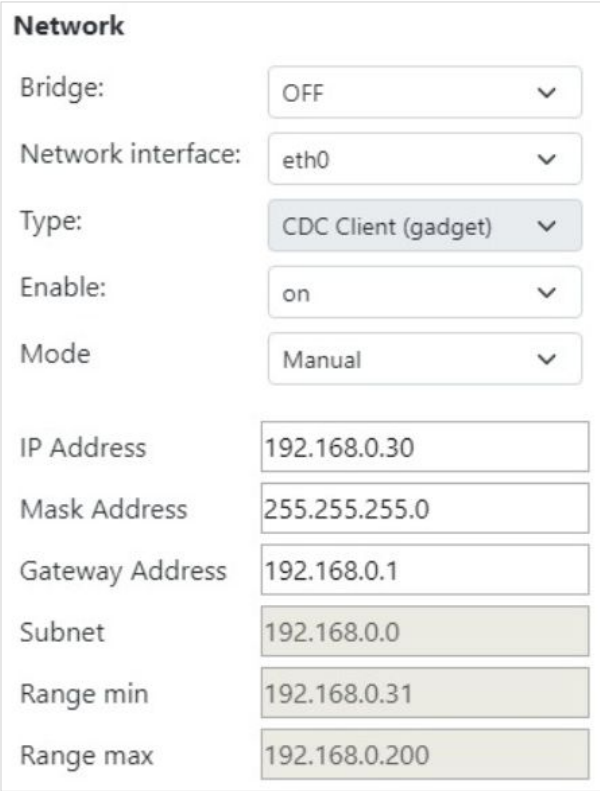


Figure 29: Network Settings

Network	
Bridge	On/Off
Network Interface	Choose the network interface, such as Ethernet, WLAN or USB. When Bridge is “on”, select Ethernet (eth1) as the Network Interface.
Type	CDC Host or CDC Client (gadget).
Enable	Select “On” or “Off”.
Mode	Select Manual, DHCP or DHCP Server.
IP Address	Enter the board’s IP address.
Mask Address	Enter the mask IP address.
Gateway Address	Enter the gateway IP address.
Subnet	
Range (min)	The minimum and maximum range of IP addresses for the gateway.
Range (max)	
Command Control UART	
UART Control	
State	
Baud Rate	

Flow Control	
Parity	
Size	
Time and Date	
Source	GPS or User
Offset (±24)	Offset from the current time.
Time/Date	The board's time and date.
RTSP/RTMP Server	
Mode	
RTSP Port/ RTMP Port	Enter the RTSP or RTMP port numbers.
Authentication	If it is necessary to log onto the server, turn **Authentication** on and enter the **User** and **Password**.
Display Drivers	
Display Output	
Record Auto Delete	
Mode	
Disk Free Size (MB)	
GPS	
Control UART	
State	
Device Name	
Delay (ms)	
Baud Rate	
Parity	
Size	
Flow Control	
Boot Main/Boot Secondary	
Boot Main/ Boot Secondary	Boot Main or Boot Secondary.
Get Encryption Key	
	Choose the encryption file and click **Upload**.
Onvif	
Onvif	When Onvif is activated, you can control the movement of a compliant camera.

Protocol Type	Choose the protocol type: Pelco-D, Sony Block, UDP Forward, Pelco-D & Sony Block.
GIGE	
Mode	On/Off
NTP	
Mode	On/Off
IP Address	The IP address of the NTP server. To use the time based on an NTP server, ensure that the computer and Maris board are correctly connected to the network and internet. To see the time and date based on the NTP server, enter the server's IP address, reboot the board using Maris Guard (p. 8) or Maris Browser (p. 12), and then refresh the Maris Browser web page. You can also unplug the board and plug it back in. Now go to **Settings > System > Time and Date** and the correct time and date should now appear.
Discovery Messages	
Application	NONE, QUAD_DVR, DVRU, NAS_CONTROL, EMERALD, MICROHARD, INBAL, SPACE_IL.

3.10.2 Audio Settings

Settings > Audio

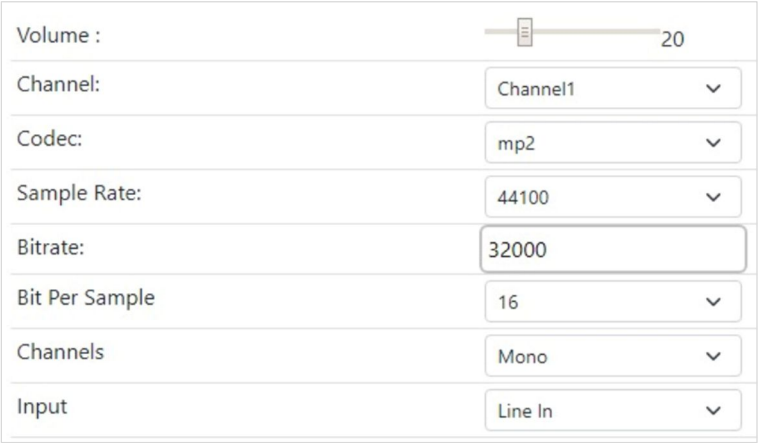


Figure 30: Audio Settings (default settings)

You can set the following parameters for the audio settings:

- Volume
- Sample Rate
- Channels
- Channel
- Bitrate
- Input
- Codec
- Bits per Sample

To conserve bandwidth you can reduce the bitrate.

Click **Save** to keep any changes.

The following screen is an example when the settings have been defined:

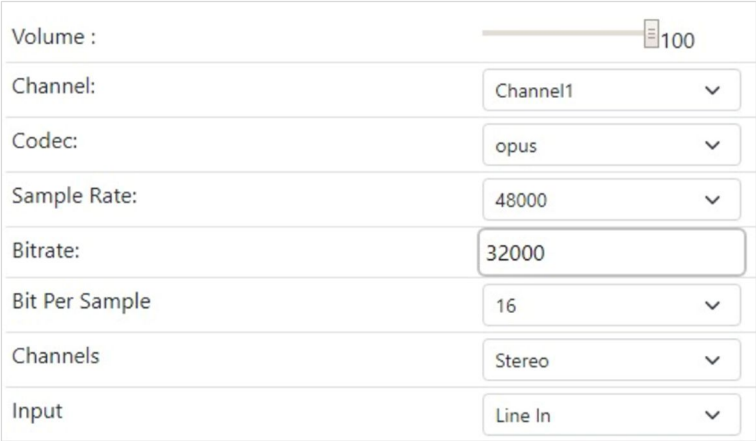


Figure 31: Audio Settings (example)

Note: The recommended volume is 100.

3.10.2.1 Transmitting & Receiving Audio Between Two Boards

In the example below, we describe how to transmit and receive audio between two Maris Jupiter AI video boards.

IP address of Board A: 192.168.0.65

IP address of Board B: 192.168.0.55

Network port: 1235

Open two instances of Maris Browser by entering “192.168.0.65” in one browser tab and “192.168.0.55” in a second tab.

First we transmit the audio from Board A to Board B.

In the Maris Browser, carry out the following steps for Board A:

1. Go to **Settings > Audio**.
2. Set the following:

- **Volume:** 100
- **Codec:** Opus
- **Channels:** Stereo

3. Click **Save**.
4. In a separate instance of Maris Browser, carry out the steps above for Board B.

In the Maris Browser, continue with these steps for Board A:

1. Go to **Home > Output Streaming**.
2. Choose Mux 1.

3. Set the following:

- **Video:** Ensure the correct camera is selected
- **Audio:** Channel 1
- **IP Address:** 192.168.0.55
- **Network Port:** 1235

4. Click **Save**.

In a separate instance of Maris Browser, carry out the steps below for Board B:

1. Go to **Home > Input Streaming**.
2. Choose Demux 1.
3. Set **Port** to 1235
4. Click **Save**.
5. In Maris Browser for Board A (Mux 1), click the streaming button to turn it on (green) .
6. In Maris Browser for Board B (Demux 1), click the streaming button to turn it on (green) .

Now we transmit the audio from Board B to Board A.

In the Maris Browser for Board B, do the following:

1. Go to **Home > Output Streaming**.
2. Choose Mux 1.
3. Set the following:

- **Video:** Ensure the correct camera is selected
- **Audio:** Channel 1
- **IP Address:** 192.168.0.65
- **Network Port:** 1235

4. Click **Save**.

In the Maris Browser for Board A, do the following:

1. Go to **Home > Input Streaming**.
2. Choose Demux 1.
3. Set **Port** to 1235
4. Click **Save**.
5. In Maris Browser for Board B (Mux 1), click the streaming button to turn it on (green) .
6. In Maris Browser for Board A (Demux 1), click the streaming button to turn it on (green) .

The audio is now transmitted and received between the two Maris Jupiter AI video boards.

3.10.3 Display Settings

Settings > Display

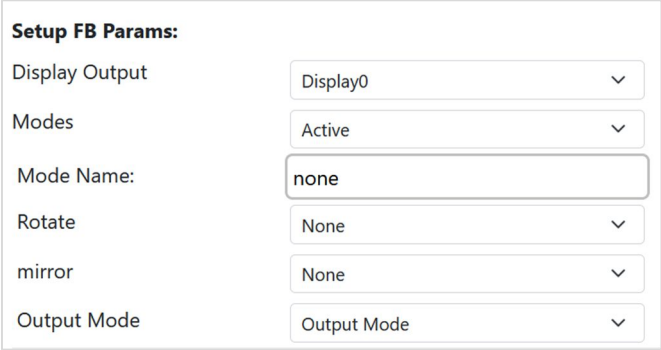


Figure 32: Display Settings

You can set the following parameters for the display settings:

- Display Output
- Modes
- Mode Name
- Rotate
- Mirror
- Output Mode

>> To adjust the display settings

1. For each **Display Output** in the drop-down list, set **Modes** to “Active”.
2. Enter text for the **Mode Name** and adjust any other settings as needed.
3. Click **Save**.

3.10.4 Data Settings

Data has two options:

- UART to Ethernet
- Data Source

Settings > Data > UART to Ethernet

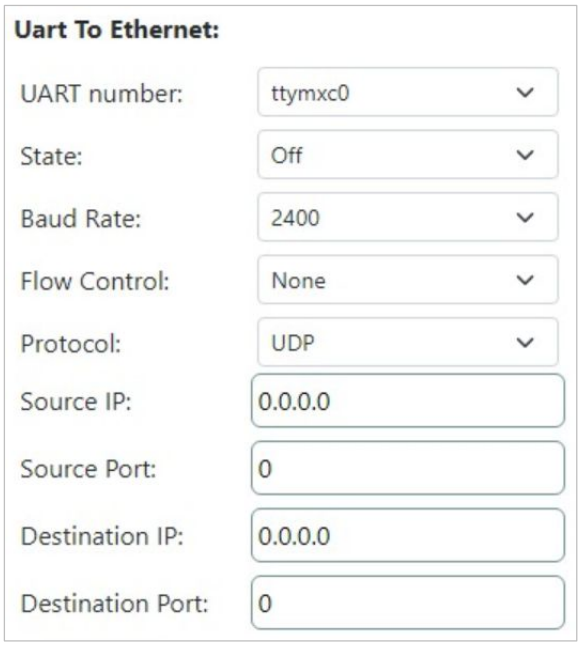


Figure 33: UART to Ethernet Settings

You can set the following parameters for the data settings. **Note:** The precise settings that appear depend on the selections made from the drop-down lists.

- UART Number
- Source Port
- Flow Control
- Source Port
- Parity
- State
- Delay (ms)
- Protocol
- Destination IP
- Size
- Source Multicast IP
- Baud Rate
- Source IP
- Destination Port

>> To adjust the UART to Ethernet settings

1. Set **State** to “On”.
2. Adjust any other settings as needed.

- **Note:** Source IP and Source Port are the parameters for the Ethernet to UART transmission while Destination IP and Destination Port are for the UART to Ethernet transmission.

3. Click **Save**.

Settings > Data > Data Source

Data Source has the following options:

- Source ID
- Protocol
- Source Type
- Recording Options
- Source Port

3.10.4.1 Transmitting Metadata

Carry out the steps below when you wish to transmit metadata with the video.

Note: You require a third party application to transmit the metadata.

1. Set the **Fake KLV** mode to "On". See p. 20.
2. Set the Data Source parameters, or leave the default settings.
3. In Output Streaming (p. 15), from the **Data** drop-down list select the same Data Source ID as defined above.
4. Click **Save**.
5. Run the third party application.
6. In Maris Browser, activate streaming for the relevant mux .
7. In Maris Player, select **Play File > Play**.
8. In Maris Player, select **Tools > Statistics**.

   The number of packets transmitted appears:

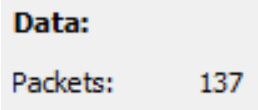


Figure 34: Transmission of metadata

3.10.5 Log Reports

Settings > Log Reports

In the Log Reports option you can download or delete the log reports.

You can also download all the log reports from the board using Maris Guard – see p. 10.

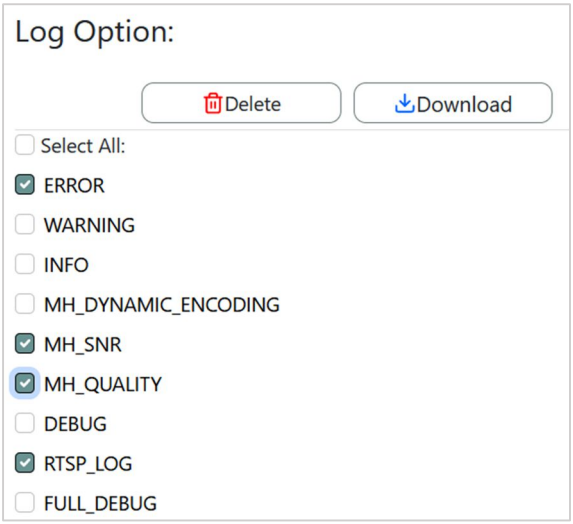


Figure 35: Log Reports

>> To download the log reports

1. Check **Select All** or select specific log types.
2. Click **Download**.

   A number of file windows open, as the log data is split into different categories. Choose a path and click **Save** in each window.

>> To save a specific selection of log types

1. Select a number of log types.
2. Click **Save** at the bottom of the window.

   Next time you open the Log Reports option, those log types will still be checked.

>> To delete log reports

1. Choose specific log types or check **Select All**.
2. Click **Delete**.
3. Click **OK** in the window that opens.

   All the log reports are deleted from the board.

3.11 Applications

The Maris Browser applications are client-specific.

3.12 Board Info

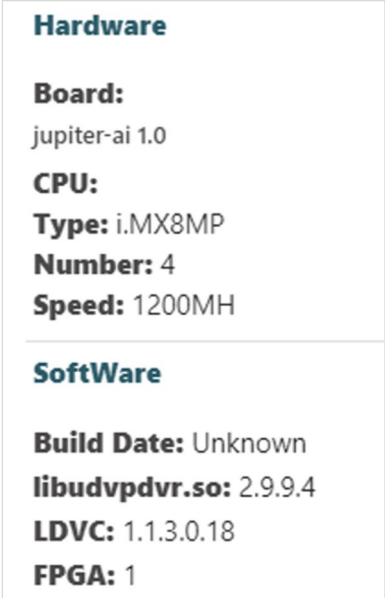
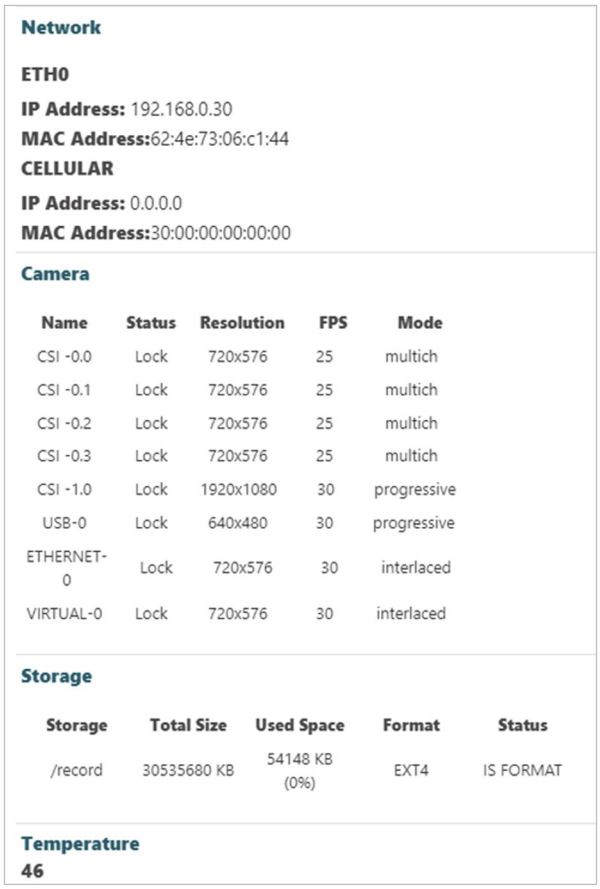


Figure 36: Board Info (1)



Network

ETH0

IP Address: 192.168.0.30
MAC Address:62:4e:73:06:c1:44
CELLULAR
IP Address: 0.0.0.0
MAC Address:30:00:00:00:00:00

Camera

Name	Status	Resolution	FPS	Mode
CSI -0.0	Lock	720x576	25	multich
CSI -0.1	Lock	720x576	25	multich
CSI -0.2	Lock	720x576	25	multich
CSI -0.3	Lock	720x576	25	multich
CSI -1.0	Lock	1920x1080	30	progressive
USB-0	Lock	640x480	30	progressive
ETHERNET-0	Lock	720x576	30	interlaced
VIRTUAL-0	Lock	720x576	30	interlaced

Storage

Storage	Total Size	Used Space	Format	Status
/record	30535680 KB	54148 KB (0%)	EXT4	IS FORMAT

Temperature
46

Figure 37: Board Info (2)

The Board Info option displays the following information about the board:

Setting	Explanation
Board	The name of the Maris board.
CPU	The board's CPU.
Software	Information about the board's firmware.
Network	The network type, e.g., ethernet or cellular, as well as the board's IP and MAC addresses.
Camera	A list of cameras. Active cameras have the status "Lock". They are detected in Maris Browser and you can define their settings.
Storage	The board's file storage capacity and usage. The **Format** setting is important when troubleshooting, as a fault can sometimes be caused by the incorrect format being used for the file storage.
Temperature	The board's current temperature in °C. The temperature must not exceed 80 °C. If necessary add a fan or other cooling elements.

3.13 About

The About option displays the Maris Browser version number and date.

4. Maris Player

Maris Player is a standard streaming player and can play video, including video compressed according to the H.264 and H.265 standards, similar to VLC and other players.

You can use the Maris Player to view the live video stream from a camera or to play back downloaded video, including low latency video.

Note: You can open multiple Maris Player windows at the same time with different ports and protocols, etc.

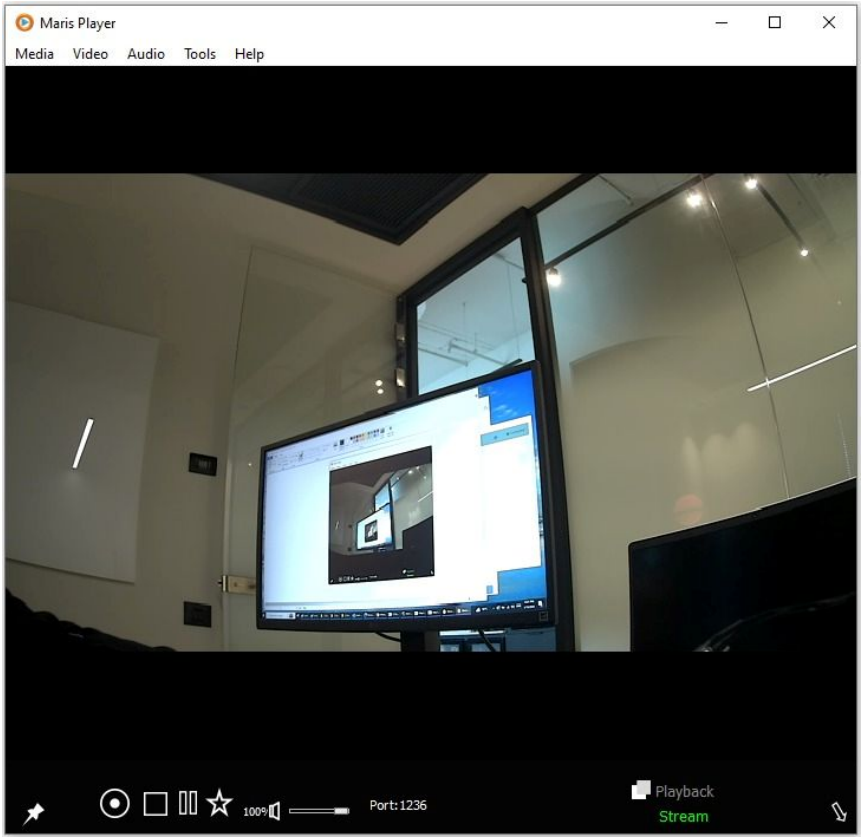


Figure 38: Maris Player

When AI is activated, rectangles appear in Maris Player with the names of the objects that have been identified. In the example below the following items are labeled: a screen (tv), a laptop, a cup and a person's hand.

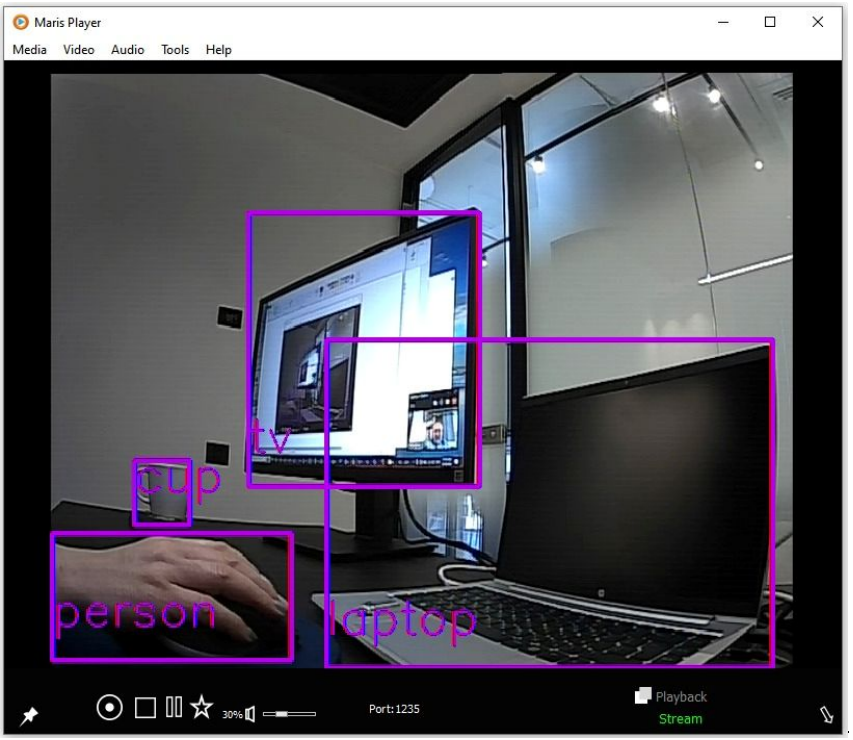


Figure 39: Maris Player with AI activated

See p. 18 for an explanation of the Confidence parameter where we explained that when set at 3, only people are detected and when set at 6 and above, people and objects are identified.

Note: The items detected also depend on the selected AI model.

4.1 Media Menu

The Media menu has the following options:

Menu Option	Explanation
Play File	Play a recorded video. You can choose the video speed and the direction of play (forwards or backwards.) Check **Streaming** and enter the port and the board's IP address to stream the video from the board. Click **Play**.
Network Streaming	See below.
Data	Check **Send Data by Ethernet** and enter the computer's **IP address** and the **Port** number. Select the location and name of the binary file. Click **Set** when you have entered the desired settings.
Switch Display	Select this menu option to switch between playback and stream modes in the Player.

Menu Option	Explanation
Start Streaming	Play a recorded video. You can choose the video speed and the direction of play (forwards or backwards.) Check **Streaming** and enter the port and the board's IP address to stream the video from the board. Click **Play**.
Stop All	Stop the video which is currently being played.
Hardware Acceleration	Enable hardware acceleration.
Tracking	Select the board, enter the **Mux** number and click **Start**.

4.2 Network Streaming

Select the streaming protocol.

When you have entered all the desired settings, click **Play** to display the video stream in Maris Player.

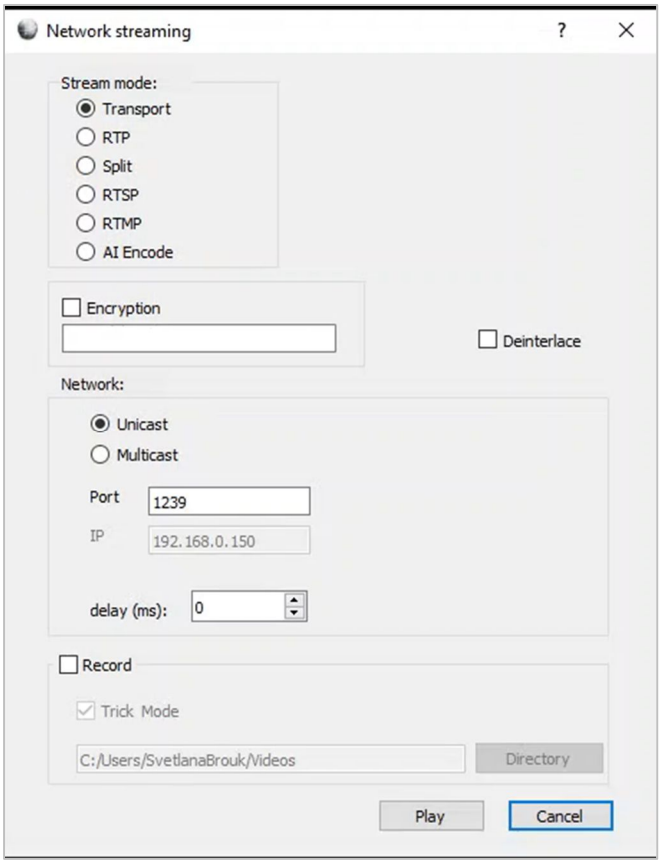


Figure 40: Network Streaming

Menu Option	Explanation
Streaming Mode	
RTP, RTSP, RTMP	See below.
Network	
Unicast	Enter the board's network **Port**. This is the same IP address and network port as defined for the selected Mux in the Mux Settings, see p. 16. "Unicast", the streaming protocol, the IP Address and network port appear in the description of the Mux, in the Mux settings: Mux1: Unicast/TS/192.168.0.150/1235
Multicast	Enter the board's **IP Address** and **Port**. This is the same IP address and network port as defined for the selected Mux in the Mux Settings, see p. 16. "Multicast", the streaming protocol, the IP Address and network port appear in the description of the Mux, in the Mux settings: Mux1: Multicast/TS/224.0.0.0/11111
Delay	Enter the value in ms.
Record	
Record	Record the video stream directly to your computer, as opposed to the video being recorded on the board or an external memory card. Select a **Directory** where the video files will be saved.
Trick Mode	Use the video speed and direction settings chosen in the Play File menu option.

4.2.1. Streaming Modes

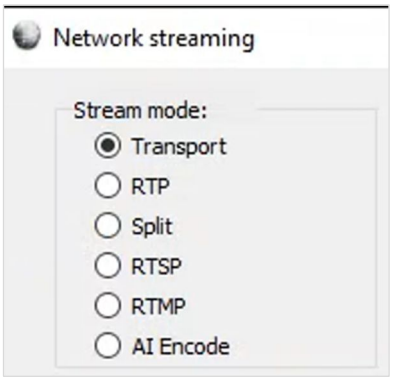


Figure 41: Streaming Modes

This section describes the following streaming modes:

- RTP
- RTSP
- RTMP

4.2.1.1. RTP

First, select the streaming protocol in the in the Maris Browser. See the **Protocol** field for the relevant Mux on p. 16.

Select the codec – see Additional Mux Settings (p. 18).

In the Maris Player, define the additional fields that open, including the codec.

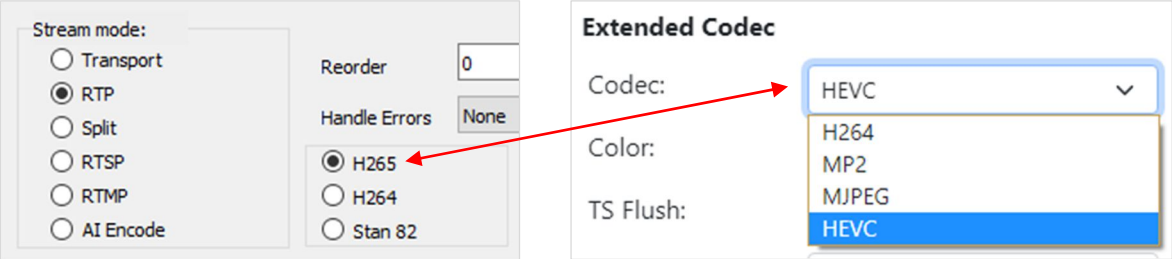


Figure 42: Maris Player *Maris Browser*

In this example, the RTP codec is set as H.265 in Maris Player and HEVC (H.265) in Maris Browser.

4.2.1.2. RTSP

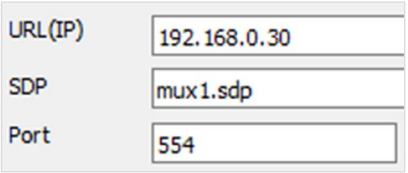


Figure 43: RTSP Settings

First, select the streaming protocol in the in the Maris Browser. See the **Protocol** field for the relevant Mux on p. 16.

The codec can be either H.264 or HEVC/H.265. However, it is not necessary to select the codec in Additional Mux Settings (p. 18).

URL (IP): Enter the IP address of the board.

SDP: Enter mux1.sdp, mux2.sdp, etc. depending on the Mux number. **Note:** You must type ".sdp" after the mux number.

Port: The port number is the same as that defined in **Settings > System > RTSP Server** (see p. 32).

Note: There is no need to click in the Maris Browser to start streaming. Maris Player enables streaming when you click **Play**.

4.2.1.3. RTMP

First, select the streaming protocol in the in the Maris Browser. See the **Protocol** field for the relevant Mux on p. 16.

Important: For the RTMP protocol, the Codec in Additional Mux Settings (p. 18) must be H.264 only and not HEVC or one of the other options.

URL (IP): Enter the IP address of the board.

SDP: Enter mux1, mux2, etc. depending on the Mux number. **Note:** *Do not* type ".sdp" after the mux number.

Port: The port number is the same as that defined in **Settings > System > RTMP Server** (see p. 32).

Note: There is no need to click in the Maris Browser to start streaming. Maris Player enables streaming when you click **Play**.

4.3 Video, Audio, Tools & Help Menus

The Video, Audio and Tools menus have the following options:

Menu Option	Explanation
Video	
Fit to Window **Fit to Video** **Full Screen**	Video display options.
Stabilizer	Stabilize the video display.
Audio	Choose the audio channel.
Tools	
Statistics	See below.
Log	Select items to be logged. Click **Update** to update the log reports.
Help	
Activate	If Maris Player has not been activated, contact your distributor for an activation code.

4.4 Statistics

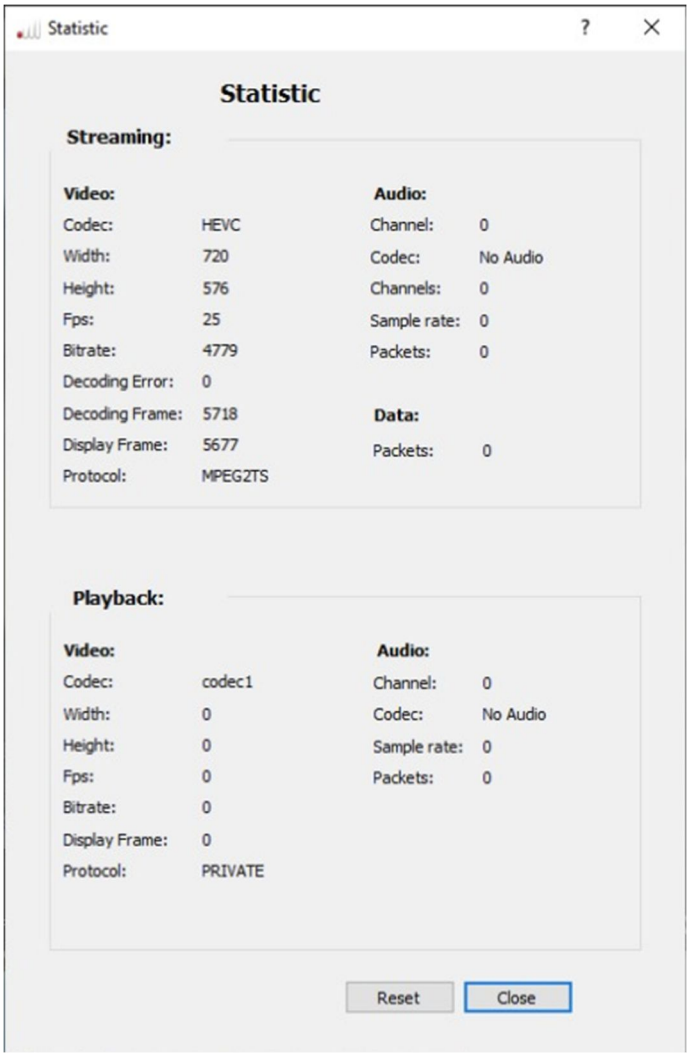


Figure 44: Statistics

View detailed information about the video and audio settings of the video stream or the recorded video being played.

You can see data such as the Codec, resolution, fps, bitrate and the streaming protocol. You can compare the data in the Statistics window with the settings you defined in Maris Browser.

When metadata is being transmitted, the number of packets in the **Data** section will be updated and when there is audio, the **Audio** section will be updated.

Click **Reset** to clear the data.

4.5 Control Bar

The Control Bar has the following options:

Icon	Explanation
	Pin Maris Player so that it always appears on your screen.
	Appears in Playback mode.
	Stop the video.
	Pause the video.
	Tag the video.
30%	Volume. Click to mute.
	Toggle between Playback and Stream.
	Hide/Restore the Control Bar.

4.6 VLC Media Player

This section contains notes relating to the streaming protocol when using VLC Media Player.

For details on selecting the streaming protocol, see “Mux Settings” on p. 15.

Streaming Protocol	Settings
Transport	In the Maris Browser Mux Settings, select the following: **Protocol:** TS (Transport) **IP Address:** IP address of the computer. **Network Port:** The port used for streaming. In the VLC Media Player, open the Properties and select the **Network** tab. In the **Network URL** field, enter “udp://@:<Network Port>. For example, if the Network Port is 1235, then in VLC enter “udp://@:1235”.
RTP	VLC does not work well with the RTP Protocol so we do not recommend it.
RTSP/RTMP	In the Maris Browser Mux Settings, select the following: **Protocol:** RTSP/RTMP **IP Address:** IP address of the computer. **Network Port:** The port used for streaming. In the VLC Media Player, open the Properties and select the **Network** tab. In the **Network URL** field, enter “rtsp://<IP Address of the Board>/mux<mux number>.sdp”.

Streaming Protocol	Settings
	For example, if the board's IP address is 192.168.0.55 and this is Mux 1, then in VLC enter "rtsp://192.168.0.55/mux1.sdp". The IP address of the board appears above the menu in the Maris Browser: **Note:** Do *not* click in the Maris Browser to start streaming. VLC enables streaming when you click **Play**.