



ANTRICA

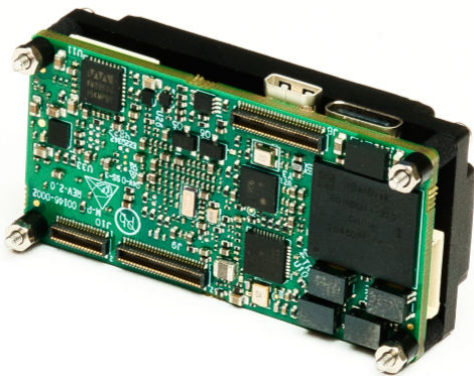
encoders | decoders

Software User Guide

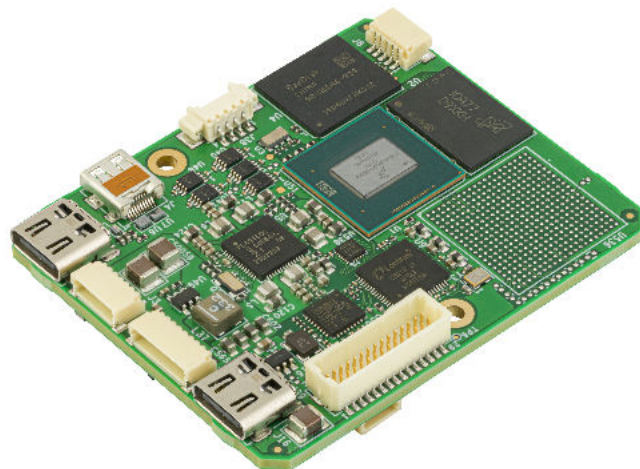
For

ANT-1776 series

ANT-1776



ANT-1776 ZB



Document information

Version	Date	Change Description	Name
DR2	8/2023	2 nd Draft release	I. Bar
DR2.1	28/9/2023	Layout edits to DR2 - no technical changes	D. Mason

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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.

Getting Started

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

- The IP address of the computer
- The port number of the computer
- The IP address of the Maris video board(s)
- The camera type
- The streaming protocol.

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. This can be done after setting the IP for the local network.
- Export configuration.
- Download or delete video and log files from the board.

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:

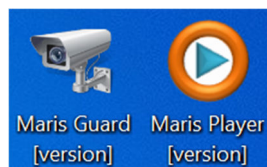


Figure 1: Desktop Icons

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.

The Maris Guard Home Screen (Board)

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



Figure 2: Maris Guard Home Screen (Board)

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

At the bottom of the window you can see the IP address of the current board and the number of boards in the network (Count).

Click **Go to Web** to open Maris Browser in the default web browser and define settings for your Maris products.

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.

The screenshot shows the Maris Guard web interface for network settings. The 'Network' tab is active in the left sidebar. The main content area is titled 'Maris Guard' and shows the following configuration for the 'eth0' interface:

- Interface:** eth0
- DHCP:** (unselected)
- Static IP:** (selected)
- IP address:** 192.168.0.30
- Subnet Mask:** 255.255.255.0
- Default Gateway:** 192.168.0.1
- MAC Address:** 16:5b:36:36:40:0f

An 'OK' button is located below the MAC address field. At the bottom of the interface, a status bar displays 'Board IP: 192.168.0.30' and 'Count: 1'.

Figure 3: Network Settings

- Select **DHCP** for the dynamic allocation of an IP address.
- Select **Static IP** to 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.

Click **OK** to save any changes.

Update

The Update option enables you to do the following:

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

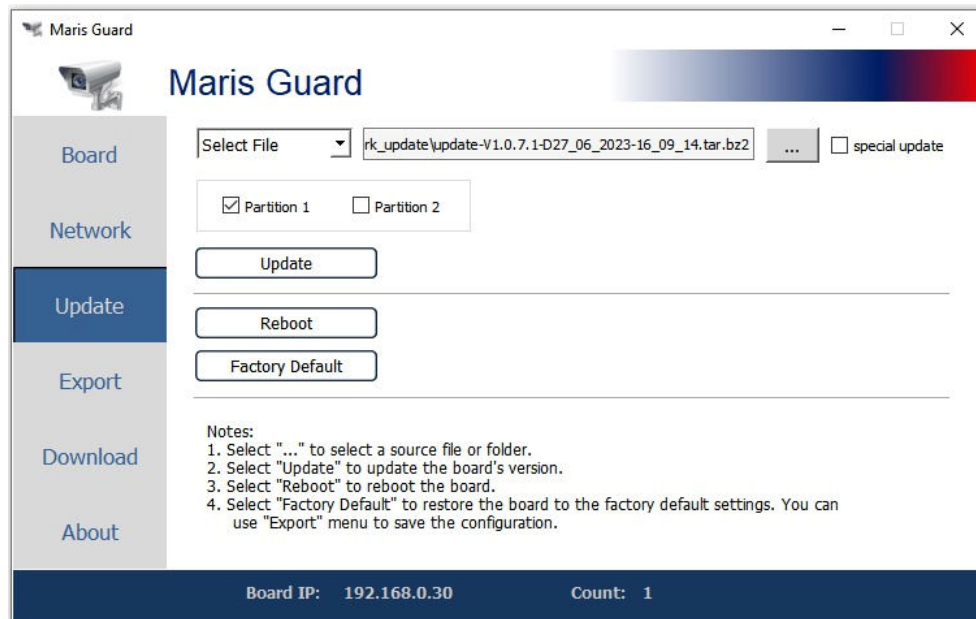


Figure 4: Update Board

>> 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.
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.

>> To reboot the board

- Click **Reboot**.

>> 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.

Export

The Export option enables you to export the board's configuration settings.



Figure 5: Export Configuration

>> To export the board's configuration settings

1. When the board is connected to the network, click the three dots to select the folder where you want to export the configuration files.
2. Click **Export**.

The configuration settings for the selected board are exported to the chosen folder.

Downloading & Deleting Files

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

1. Video recordings
2. Log reports.

When you download video recordings and log reports in Maris Guard, you download all the files from the board so the files are downloaded with a folder structure. Using the Maris Browser you can select individual video files or certain types of log file.

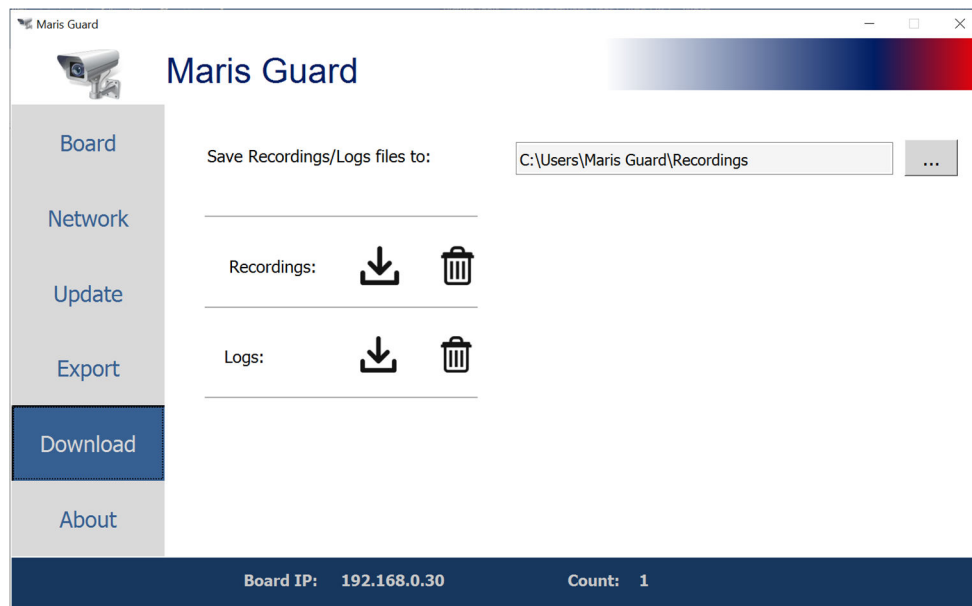


Figure 6: Download Recordings

>> 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 button 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.

About

The About screen displays the Maris Guard version number.

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 many parameters.

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, click **Go to web** at the bottom of the window.

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

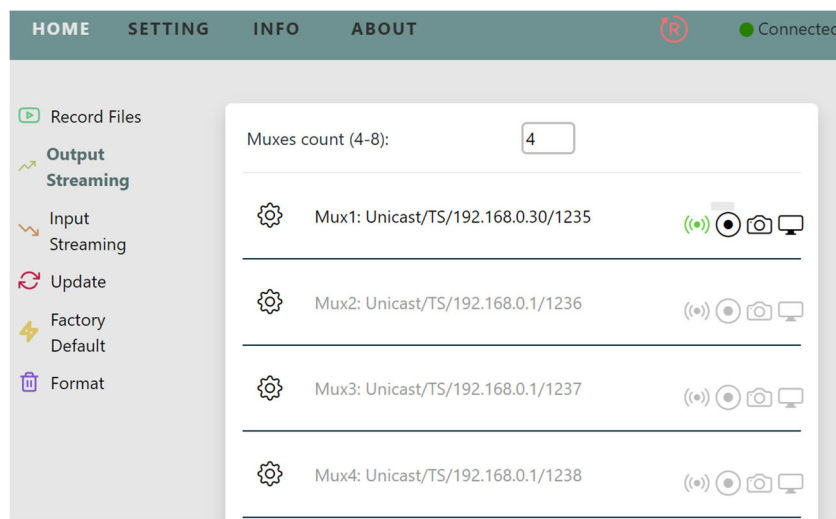



Figure 7: Maris Browser

Click  to reboot the selected board.

Record Files (Video Recordings)

Home > Record Files

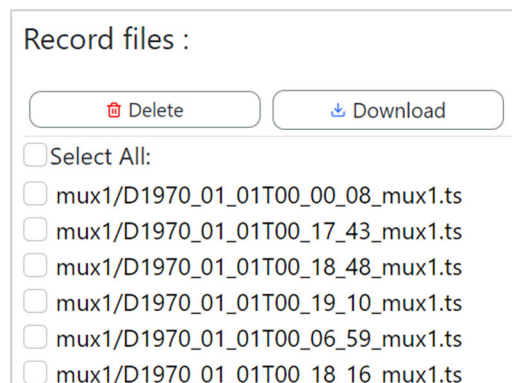


Figure 8: Video Recordings

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.

The most recent files appear at the top of the list and the file names are in the following format:

mux1/D1970_01_01T00_58_44_mux1.ts

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. Note that some of the files are telemetry files.

If you want to download all the video files from the board, this can be done in Maris Guard as well.

>> *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 page 8.

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.

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 from 4 up to 8.

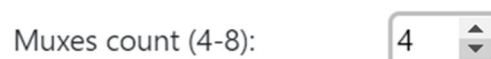










Figure 9: The Mux Counter

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 up to eight 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 fps 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.
	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.

Mux Settings

Click the Mux **Settings**  gear for additional settings.

 Mux1: Unicast/TS/192.168.0.30/1235
   

Auto Operation: Stream Recording Display

VMD

Video:

Audio:

Data:

Protocol:

Display:


Figure 10: Mux Settings

Mux Settings	Explanation
Auto-operation	Check the relevant item(s) and it will start automatically each time the board is activated. 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. Note: The settings for the channel are configured in Settings > Audio (page 19).

Mux Settings	Explanation
Data	Choose a channel for the data. Note: The data settings are configured in Settings > Data (page 20).
Protocol	Choose the streaming protocol. TS; RTP; RTSP/RTMP
Display	Choose the display. In some cases there may be two monitors to display the video.
IP Address	Enter the board's IP address.
Network Port	Enter the board's network port. The RTSP and RTMP ports are entered in Settings > System > RTSP/RTMP Server .
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.

Additional Mux Settings

Click  to the right side of the Save button to open additional settings.

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

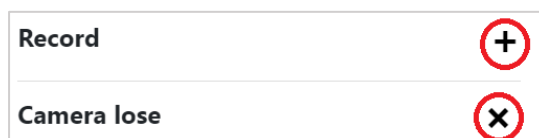


Figure 11: Opening and closing a section

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	
Container	TS: Compressed data. Raw: Non-compressed data.
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.
Encoding	
Encode Mode	Select CBR.

Mux Settings	Explanation
Bitrate (kbits/sec)	Enter the bitrate for the encoding (Range: 10,000 – 20,000) 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)	
Enable Hailo HW	Toggle this setting on to activate the AI.
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. The recommended value is 6, which provides a good balance. See page 25 for an example.
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.
Virtual Video	
Resolution	Choose the resolution.
FPS	Choose the number of frames per second.
Extended Codec	
Codec	Choose the Codec. H.264, HVEC, MPS, MJPEG
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.
TTL	
TTL	Choose a value for the TTL.

Mux Settings	Explanation
VMD (Video Motion Detection settings)	
Size Sensitivity	Enter the size in pixels
Motion Sensitivity	
Frame Distance	
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.

Input Streaming

Home > Input Streaming

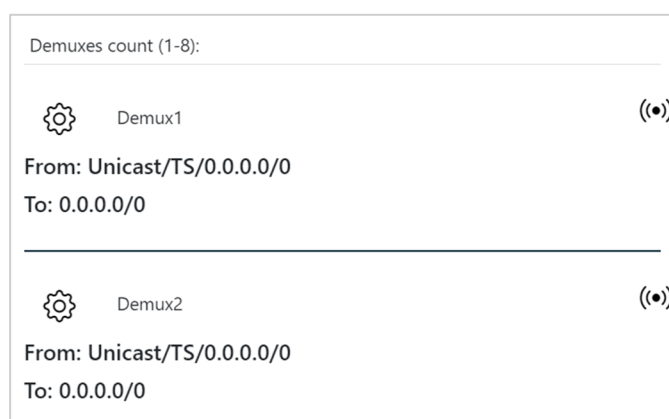



Figure 12: Input Streaming

For each Mux you can enter the corresponding Demux settings.


Click  to stream the video from the camera connected to the board.

An example of Input Streaming is as follows.

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

A camera has the 65 IP address and its video output is displayed on a monitor that has the 55 IP address.

The camera (65) is output because it sends the data and 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 camera in Output Streaming and the monitor in Input Streaming.

For Output Streaming enter the IP address of the monitor (192.168.0.55) 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 monitor.

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

Demux Settings

You have to define each Demux separately.

Demux Settings	Explanation
Volume	Choose the volume.
Protocol	Choose the streaming protocol.
Net Mode	Choose Unicast or Multicast
Port	Enter the board's network port.
IP Address	Enter the board's IP address.
Save	Important: Click to Save the changes for the specific Demux that you have been defining.

Update

Home > Update

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

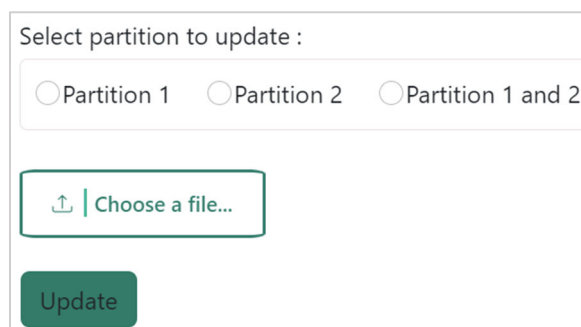


Figure 13: Update Firmware

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

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

Factory Default

Home > Factory Default

A rectangular button with a light gray border. On the left, the text "Reset to perform factory default:" is displayed. To the right of this text is a dark gray button with the word "Reset" in white.

Figure 14: Factory Reset


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

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

>> To restore the factory default settings

1. Click **Reset**.
2. Click **OK** in the window that opens.

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

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

Format

Home > Format

This option enables you to reformat and erase all data from the board.

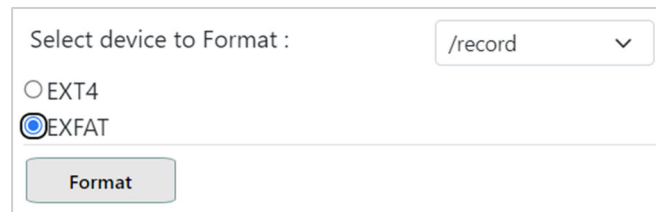
A dialog box titled "Select device to Format :". It contains a dropdown menu with the text "/record" and a downward arrow. Below the dropdown are two radio button options: "EXT4" (unselected) and "EXFAT" (selected). At the bottom of the dialog is a "Format" button.

Figure 15: Format Board

>> To reformat the board

1. Select the storage area with which to format the board.
2. Click **Format**.
3. Click **OK** in the window that opens.

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

Settings

The Settings option enables you to set the following parameters:

- System
- Audio
- Display

- Data
- Log

System Settings

Config Number	CFG 1
USB to Disk	Enable
CSI 0:	qanalog
CSI 1:	hdspi
USB 0 Modes:	(001) 1920x1080 FPS:5

Figure 16: 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	Enable: When the board is connected by USB to a computer, it can be viewed as a disk drive in File Explorer.																
CSI 0/1	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.																
USB 0 Modes	<table border="1"> <tr> <td>USB 0 Modes:</td> <td>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.</td> </tr> <tr> <td>(001) 1920x1080 FPS:5</td> <td></td> </tr> <tr> <td>(001) 1920x1080 FPS:5</td> <td></td> </tr> <tr> <td>(002) 640x480 FPS:30</td> <td></td> </tr> <tr> <td>(003) 544x288 FPS:30</td> <td></td> </tr> <tr> <td>(004) 320x240 FPS:30</td> <td></td> </tr> <tr> <td>(005) 432x240 FPS:30</td> <td></td> </tr> <tr> <td>(006) 160x120 FPS:30</td> <td></td> </tr> </table>	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.	(001) 1920x1080 FPS:5		(001) 1920x1080 FPS:5		(002) 640x480 FPS:30		(003) 544x288 FPS:30		(004) 320x240 FPS:30		(005) 432x240 FPS:30		(006) 160x120 FPS:30	
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.																
(001) 1920x1080 FPS:5																	
(001) 1920x1080 FPS:5																	
(002) 640x480 FPS:30																	
(003) 544x288 FPS:30																	
(004) 320x240 FPS:30																	
(005) 432x240 FPS:30																	
(006) 160x120 FPS:30																	

Network	
Network interface:	eth0
Type:	CDC Client (gadget)
Enabled	on
Mode	Manual

Figure 17: Network Settings

Network	
Network Interface	Choose the network interface, such as Ethernet, WLAN or USB.
Type	CDC Host or CDC Client
Enabled	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.
Time and Date	
	Set the board's time and date.
RTSP/RTMP Server	
	Enter the RTSP or RTMP port numbers.
Display Drivers	
Record Auto Delete	

Audio Settings

You can set the following parameters for the audio settings:

Screenshot instead of list

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

To conserve bandwidth you can reduce the bitrate.

Click **Save** to keep any changes.

Display Settings

Setup FB Params:

Display Output Display0

Modes Active

Mode Name:

Rotate None

mirror None

Output Mode Output Mode

Figure 18: Display Settings

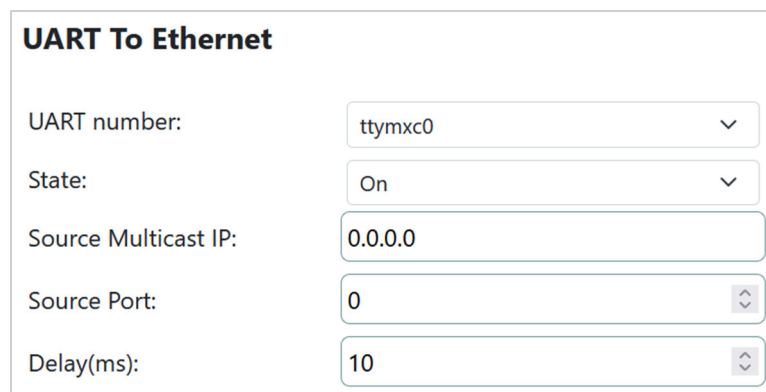
You can set the following parameters for the display settings:

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

Data Settings



UART To Ethernet

UART number:

State:

Source Multicast IP:

Source Port:

Delay(ms):

Figure 19: Data Settings

You can set the following parameters for the data settings:

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

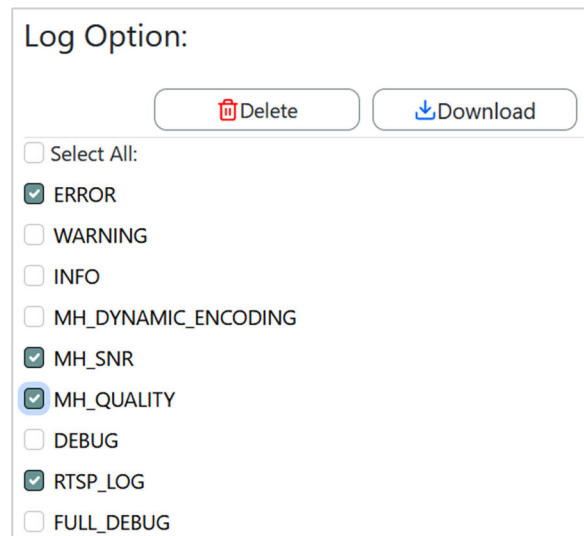
>> To adjust the data settings

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

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.



Log Option:

Select All:

ERROR

WARNING

INFO

MH_DYNAMIC_ENCODING

MH_SNR

MH_QUALITY

DEBUG

RTSP_LOG

FULL_DEBUG

Figure 20: 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.

Board Info

Hardware
Board: jupiter-ai 1.0
CPU: Type: i.MX8MP Number: 4 Speed: 1600MH
SoftWare
Build Date: Jun 21 2023 09:16:12 libudvdrv.so: 2.9.9.4 LDVC: 1.0.7.1 FPGA: Unknown

Figure 21: Board Info (1)

Network																																			
eth0 IP Address: 192.168.0.30 MAC Address: a2:02:f5:7e:40:a3																																			
Camera																																			
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Figure 22: 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

Setting	Explanation
Software	Information about the board's firmware.
Network	The network type, 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.

About

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

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 other players such as VLC. It has some capabilities that VLC does not have, such as displaying video from the RTP transport protocol.

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

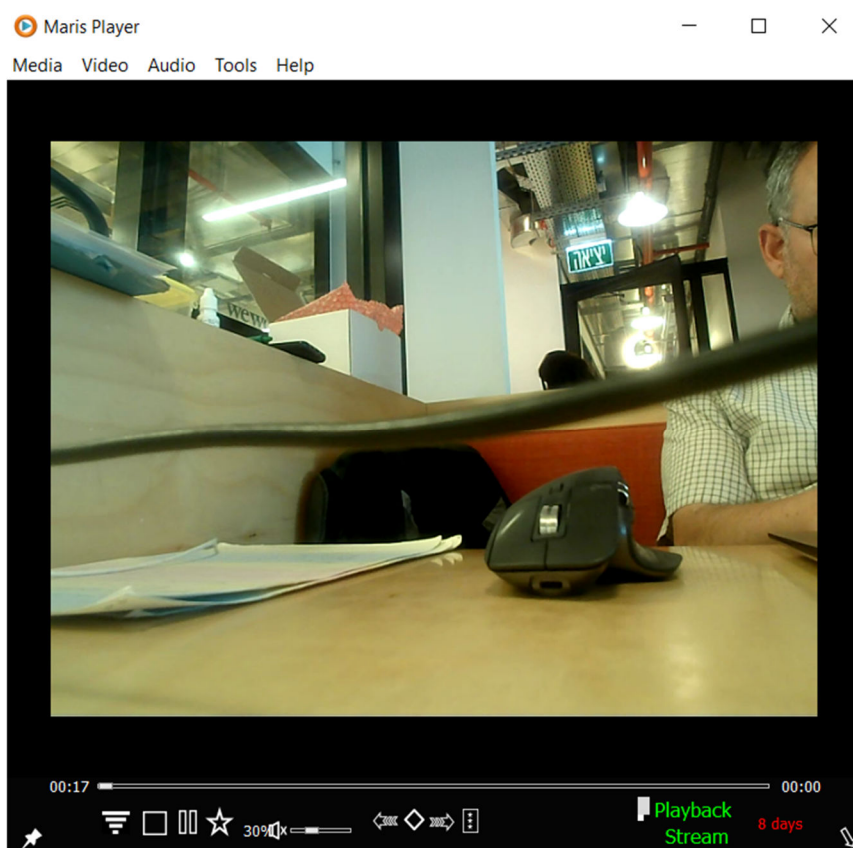


Figure 23: Maris Player

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.

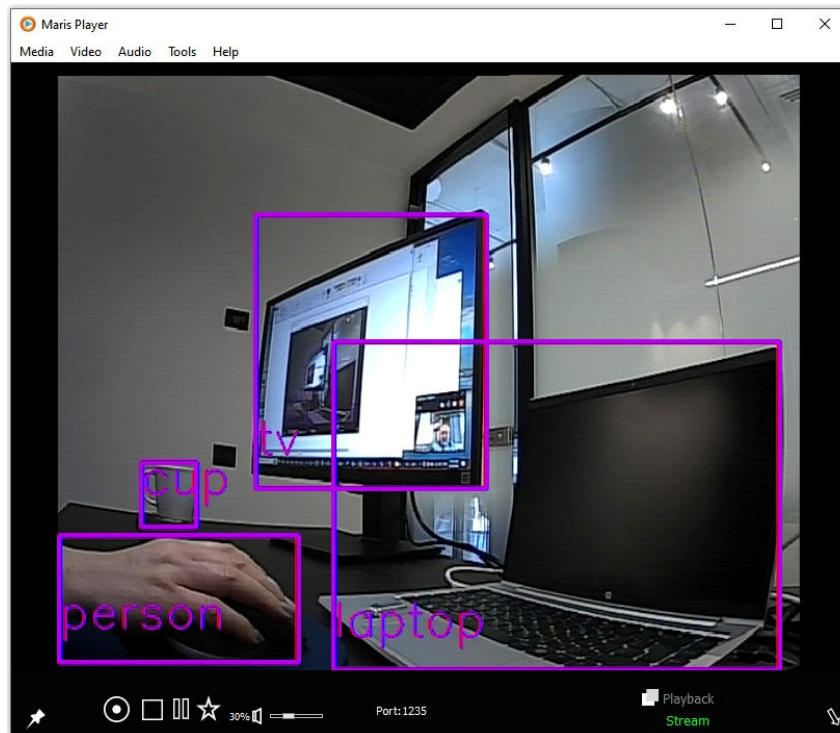


Figure 24: Maris Player with AI activated

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

Media Menu

The Media menu has the following options:

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

Menu Option	Explanation
	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	
Tracking	Select the board, enter the Mux number and click Start .

Network Streaming

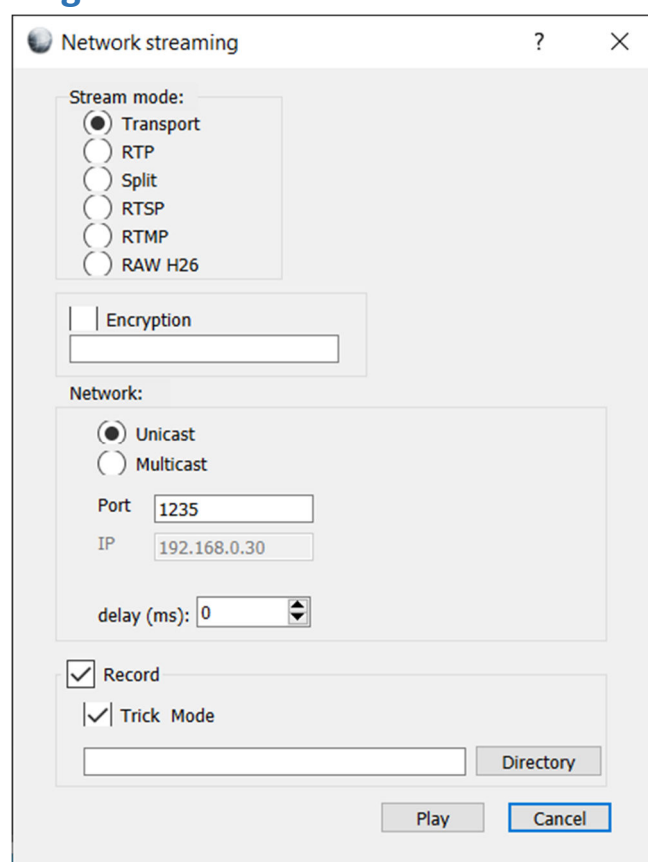


Figure 25: Network Streaming

Select the streaming protocol.

RTP: Define the additional fields that open.

RTSP/RTMP: URL (IP): Enter the IP address of the board.

SDP: Enter mux1.sdp, mux2.sdp, etc. depending on the Mux number.

Port: The port number is the same as that defined in **Settings > System > RTSP Server**.

Multicast: Enter the board's **IP Address**.

If there is a **Delay**, enter the value in ms.

Check **Record** to 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.

Check **Trick Mode** to use the video speed and direction settings chosen in the Play File menu option. When you have entered all the desired settings, click **Play** to display the video stream in Maris Player.

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.

Statistics

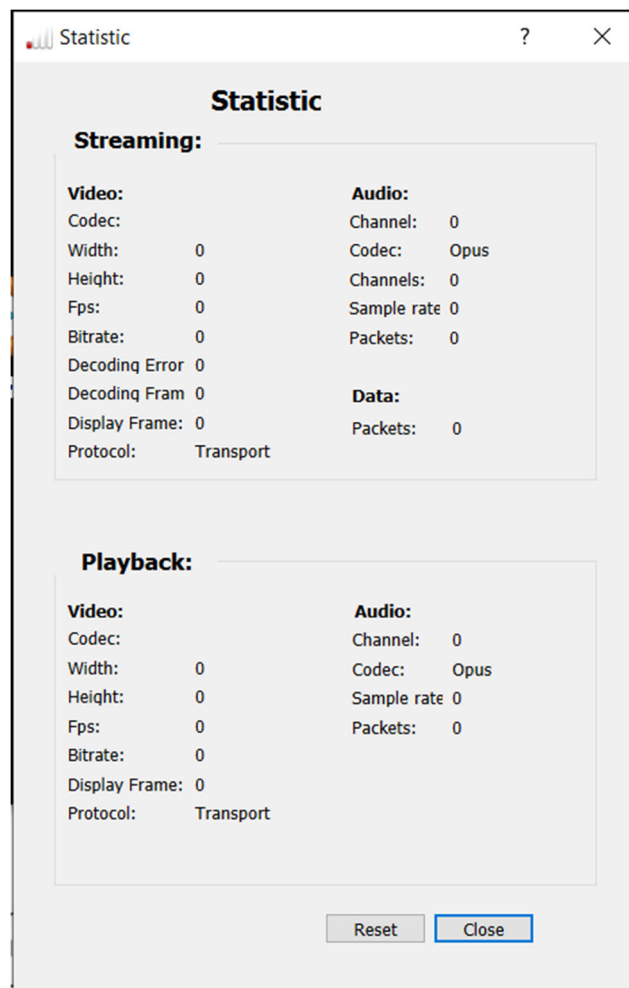


Figure 26: Statistics











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.

Click **Reset** to clear the data.

Control Bar

The Control Bar has the following options:

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