

MedieInfo MAX

Created by Jens Krogsgaard – 28-9-2026

Revision	Date	Description
V0	28-9-2026	Document created
V02	30-9-2026	
V03	6-10-2026	Lib lvgl must be 8.3.11
V04	7-10-2026	Language – English and German have been implemented – you can now select the language on the display.
V05 (version U2.02)	7-10-2026	Language corrected – SystemInfo created on Display

Pictures, music, video and slides – all in one compact ESP32-S3 unit

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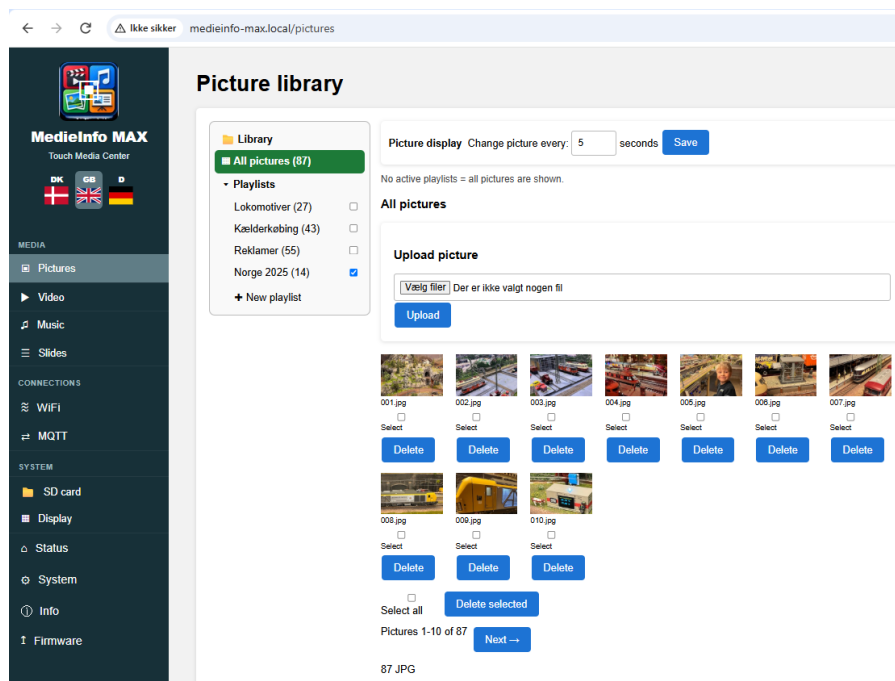
1. Intro

MedieInfo MAX is a Project UNION project built around a 3.5-inch ESP32-S3 capacitive touch display. The idea is simple: one small stand-alone unit that can show pictures, play music and video, and present slides – while almost everything is configured from an ordinary web browser.



The everyday setup is handled through the MedieInfo MAX web-config interface. There is no need to change the program code every time the content or settings are changed. From a PC, tablet or phone, the user opens the device's web interface, where media, connections and system settings are collected in one clear menu.

The main menu is divided into logical sections. Under Media you will find Pictures, Video, Music and Slides. Connections contains WiFi and MQTT, while System contains SD Card, Display, Status, System, Info and Firmware.



1.1. Pictures

MedieInfo MAX can be used as a small digital picture display. Pictures are stored on the SD card and selected and managed through web-config. This makes it easy to change the displayed content without reprogramming the ESP32.

Library

All pictures (87)

Playlists

Lokomotiver (27)

Kælderkøbing (43)

Reklamer (55)

Norge 2025 (14)

+ New playlist

Picture display

Change picture every: 5 seconds

Save

Norge 2025

Edit

Delete

Active playlist

Select all

Remove from playlist

	#	Picture	Filename
☐	1		IMG_0229_MAX.jpg
☐	2		IMG_5126_MAX.jpg
☐	3		IMG_5164_MAX.jpg
☐	4		IMG_5188_MAX.jpg
☐	5		IMG_5212_MAX.jpg
☐	6		IMG_5234_MAX.jpg
☐	7		IMG_5280_MAX.jpg
☐	8		IMG_5343_MAX.jpg
☐	9		IMG_5351_MAX.jpg



1.2. Video – with optional sound

Video is one of the features that makes MediInfo MAX more than a simple picture viewer. Video clips can be played directly on the small display. When a matching MP3 file is available, the video can also be played with sound through the connected 8-ohm loudspeaker.

A dedicated Project UNION converter prepares normal video files for the format used by MediInfo MAX. This makes it possible to use your own short films and animations on the device.

Video library

Library

All videos (13)

Playlists

Modelbane (6) ☒

Timewinder (2) ☐

Test_20fps (3) ☐

Checked = active on touch display

New playlist

+ Create

Modelbane

[▶ Play playlist](#)[Delete playlist](#)

Playlist contents

- ☐ ABC.mjpeg
- ☐ TimeWinder_3.mjpeg
- ☐ Railjet_1.mjpeg
- ☐ TimeWinder_fly_1.mjpeg
- ☐ WLE_1.mjpeg
- ☐ timewinder_fly_orig.mjpeg
- ☐ timewinder_musik_orig.mjpeg
- ☒ 19_Railjet_godt_klip_MAX.mjpeg
- ☒ 13_SBB_66_MAX.mjpeg
- ☒ 21_Nohab_LKAB_kører_tæt_godt_MAX.mjpeg
- ☒ 17_e120_bom_op_MAX.mjpeg
- ☒ 16_SVT137_MAX.mjpeg
- ☒ 18_SVT137_evt_yt_MAX.mjpeg

[Save contents](#)

Upload video

Vælg filer

Der er ikke valgt nogen fil[Upload](#)

19_Railjet_godt_klip_MAX.mjpeg
13 MB

[▶ Play](#)[Delete](#)

13_SBB_66_MAX.mjpeg
11 MB

[▶ Play](#)[Delete](#)

21_Nohab_LKAB_kører_tæt_godt_MAX.mjpeg
10 MB

[▶ Play](#)[Delete](#)

17_e120_bom_op_MAX.mjpeg
10 MB

[▶ Play](#)[Delete](#)

16_SVT137_MAX.mjpeg
10 MB

[▶ Play](#)[Delete](#)

18_SVT137_evt_yt_MAX.mjpeg
7 MB

[▶ Play](#)[Delete](#)

1.3. Music

MediInfo MAX also works as a compact music player. MP3 files are stored on the SD card and can be selected from web-config. Volume is adjusted with a slider for simple and intuitive operation.

Music

Now playing

Afspiller 00:00

« Previous Play / stop Stop Next »

Volume: 71 % Mute

Repeat file or playlist ☐

Music library

All music files (37)

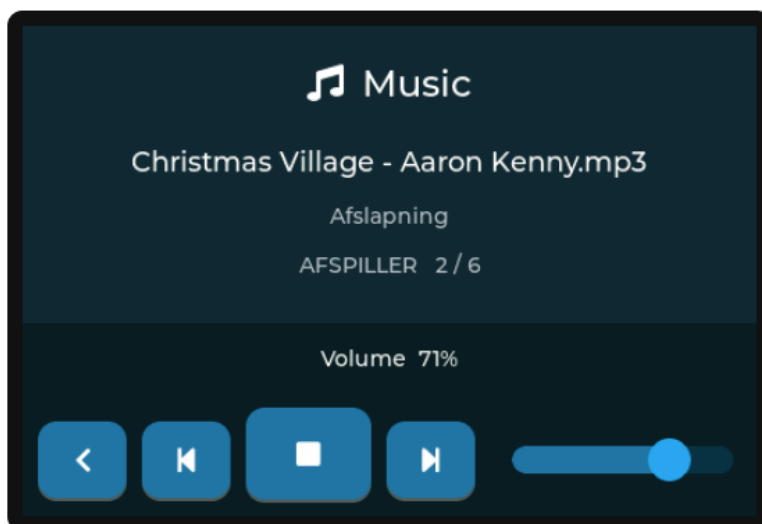
Playlists

- Modelbane (14) ☐
- Musik til videoer (2) ☐
- Afslapning (6) ☒
- + New playlist

Afslapning (6)

Play playlist Edit Delete

#	MP3	Duration	Order	
1	Christmas Homecoming - Aaron Kenny.mp3	02:08	↑ ↓	▶
2	Christmas Village - Aaron Kenny.mp3	01:31	↑ ↓	▶
3	Down The Street Blues - Unicorn Heads.mp3	04:50	↑ ↓	▶
4	stripper.mp3	01:58	↑ ↓	▶
5	Highway One - Steve Adams.mp3	03:01	↑ ↓	▶
6	Home for the Holidays - Chris Haugen.mp3	03:30	↑ ↓	▶



1.4. Slides

Slides make it possible to show text-based information directly on the display. They can be used for messages, station information, descriptions or other information where a simple presentation is preferred instead of creating an image first.

Configurable slides

U1.39a MUSIC-PLAYER-PANEL: Slide properties plus title and 3 MQTT data lines.

Playlist

Display time seconds

Only slides marked 'Active in playlist' change automatically. < and > still work manually.

Slide 1

Active in playlist	☒
Theme	Rød / Red
Icon	Vejr / Weather
Font size	Kompakt / Compact Adjusts spacing and layout on the 480x320 display.
Title	Vejr - Kælderkøbing

Line 1

Label	Temperatur
MQTT Topic	WDP/Custom/Temperature/Home/Cellar/temperature
JSON-field	 Empty = full payload
Unit	°C

Line 2

Label	Fugt
MQTT Topic	WDP/Custom/Temperature/Home/Cellar/humidity



1.5. Manage the SD card from web-config

Much of the flexibility comes from the SD card. The built-in SD card browser makes it possible to manage files directly from the browser. Files can be uploaded, deleted and renamed, making it easy to maintain the media library.

In normal use, the SD card can therefore remain in MediInfo MAX when pictures, music, videos or other files need to be updated.

Files on SD card

Upload, rename, delete and sort files directly on the SD card.

/

Capacity
479.8 MB

Used
275.6 MB

Free
204.3 MB

Vælg filer Der er ikke valgt nogen fil

New folder

Upload

Create folder

Name ↑	Type ↑	Size ↑	Action
 _System Volume Information	Folder		RenameDelete
 _pic_playlists	Folder		RenameDelete
 _thumb	Folder		RenameDelete
 diagnostic.log	File	39.0 KB	RenameDelete
 _fonts	Folder		RenameDelete
 _mjpeg	Folder		RenameDelete
 _music	Folder		RenameDelete
 _night7	Folder		RenameDelete
 _pic	Folder		RenameDelete
 _weather	Folder		RenameDelete

1.6. Display and system

Web-config is not only used for media. It also provides settings and information for the device itself. Display settings, status, system information and firmware functions are collected under System, so normal operation and maintenance use the same interface. And here you can also select the language on the touchscreen display. On the display you can click on  and check System info.



MedieInfo MAX

Touch Media Center

DK

GB

D

MEDIA

Pictures

Video

Music

Slides

CONNECTIONS

WiFi

MQTT

SYSTEM

SD card

Display

Manual snapshot of the current 480 x 320 touch display. The image is u the button.

Touch display language

English

Save

Refresh display

MedieInfo MAX

Touch Media Center



Pictures

Video

Music

Slides

System Info

WiFi

Connected

SSID

WiFi modem-2531

IP

192.168.0.243

MQTT

Connected

SD card

Ready

Free memory

18 KB

Version

U2.02

Back

Status

Hostname	medieinfo-max
WiFi	Connected
SSID	WiFi modem-2531
IP	192.168.0.243
mDNS	http://medieinfo-max.local/
Free heap	20828 bytes
Uptime	0:13:43

1.7. WiFi and MQTT

MedieInfo MAX follows the same principle as the other Project UNION projects. WiFi is configured through web-config, and MQTT has its own page under Connections. Network information therefore does not need to be hard-coded in the program.

WiFi

Mode	Normal
SSID	WiFimodem-2531
IP	

Available networks	WiFimodem-2531 (-80 dBm)
Manual SSID	
Password	*****
Hostname	medieinfo-max

[Save and restart](#)

Setup: **MedieInfo-MAX-Setup** – 192.168.4.1

MQTT

Status	OK
Broker	
Info	OK

Aktiv	Ja
TLS	Ja
Broker	
Port	8883
User	
Pass	*****

[Gem](#)

[Test](#)

1.8. A small unit with many possibilities

MedieInfo MAX combines several functions that would otherwise require separate solutions in one compact unit. The touch display provides local operation, the SD card stores the media content, and web-config makes the project easy to configure and maintain.

The hardware is deliberately simple: a JC3248W535EN ESP32-S3 display unit, a microSD card and an 8-ohm loudspeaker. A 3.7 V LiPo battery can also be connected if portable operation is desired.



MedieInfo MAX is part of Project UNION and follows the same basic idea as the other projects: a user-friendly web configuration interface that allows the finished device to be adapted without changing the source code.

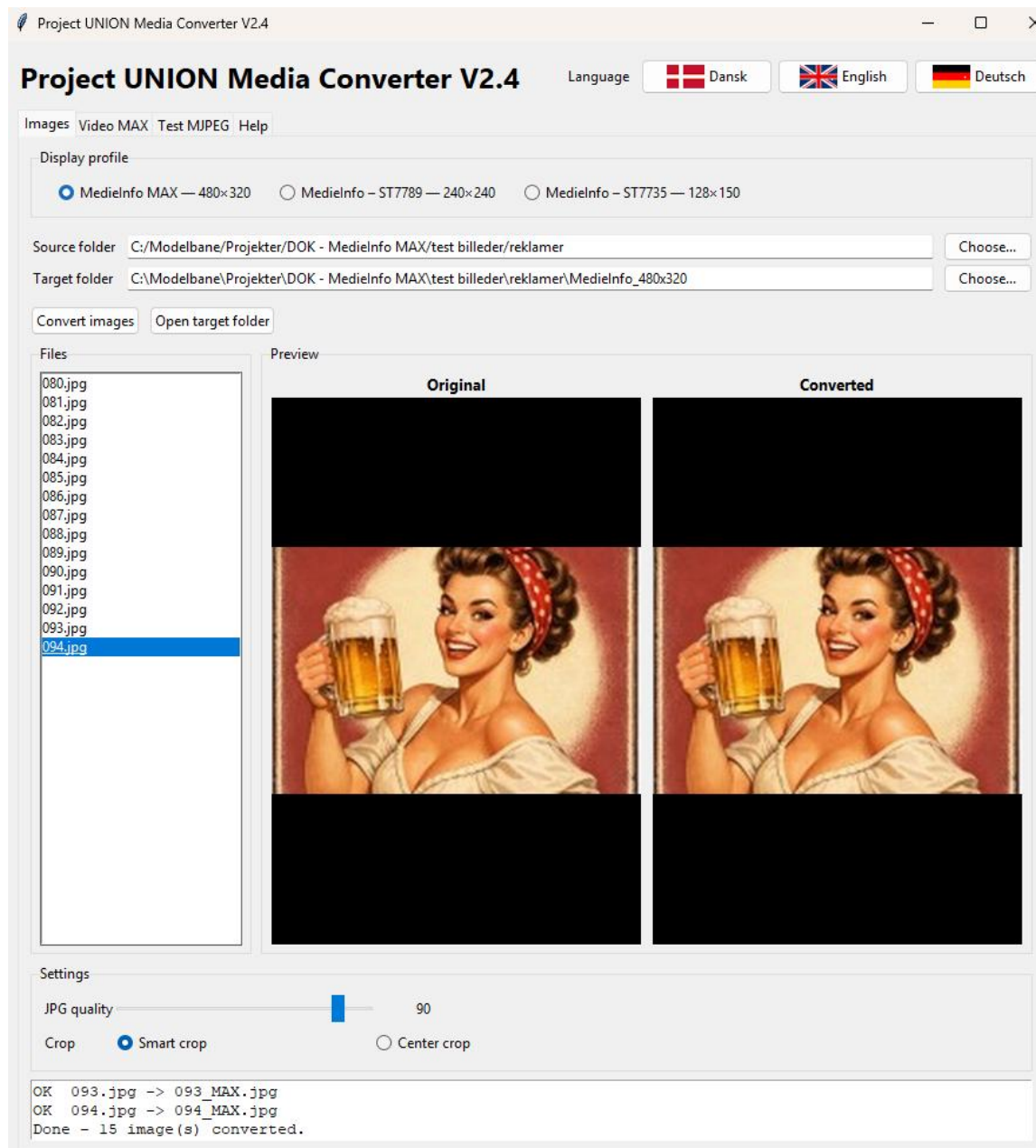
2. Preparing media with Project UNION Media Converter

Pictures and videos from a camera or phone are normally not in the ideal format for the 480 × 320 pixel MediInfo MAX display. Project UNION Media Converter prepares the files before they are uploaded to MediInfo MAX. The converter is designed for the Project UNION MediInfo displays and includes a dedicated MediInfo MAX profile.

You can download the converter program here: [Download program](#)

System requirements: Windows 10 or Windows 11 (64-bit).

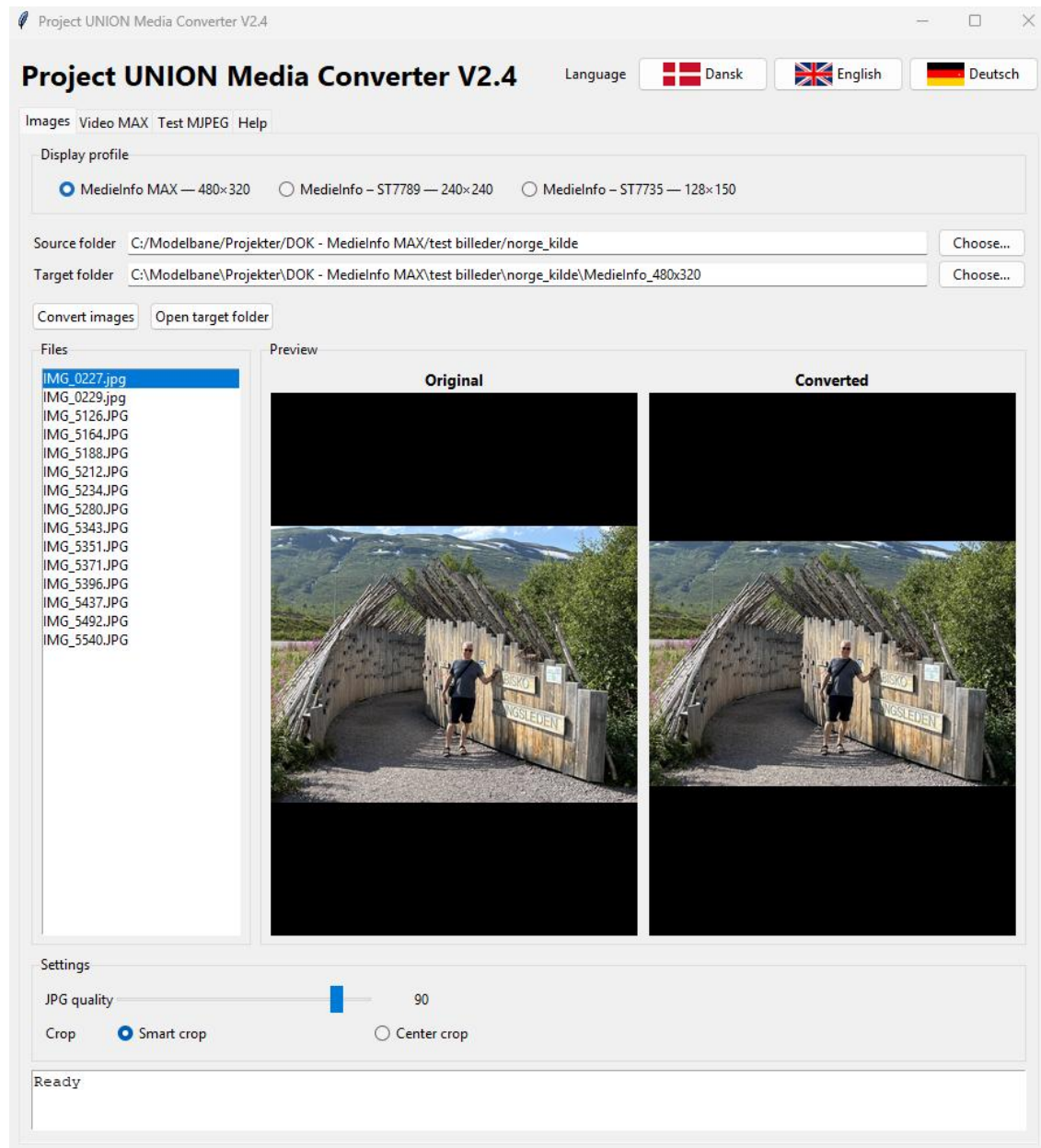
The program has separate sections for images and video. It also provides previews, so the result can be checked on the PC before the converted files are transferred to the SD card.



2.1. Preparing pictures

On the Images page, select the folder containing the original pictures and choose MediInfo MAX as the display profile. The converter creates JPG files in the correct 480 × 320 resolution and adds _MAX to the converted filename.

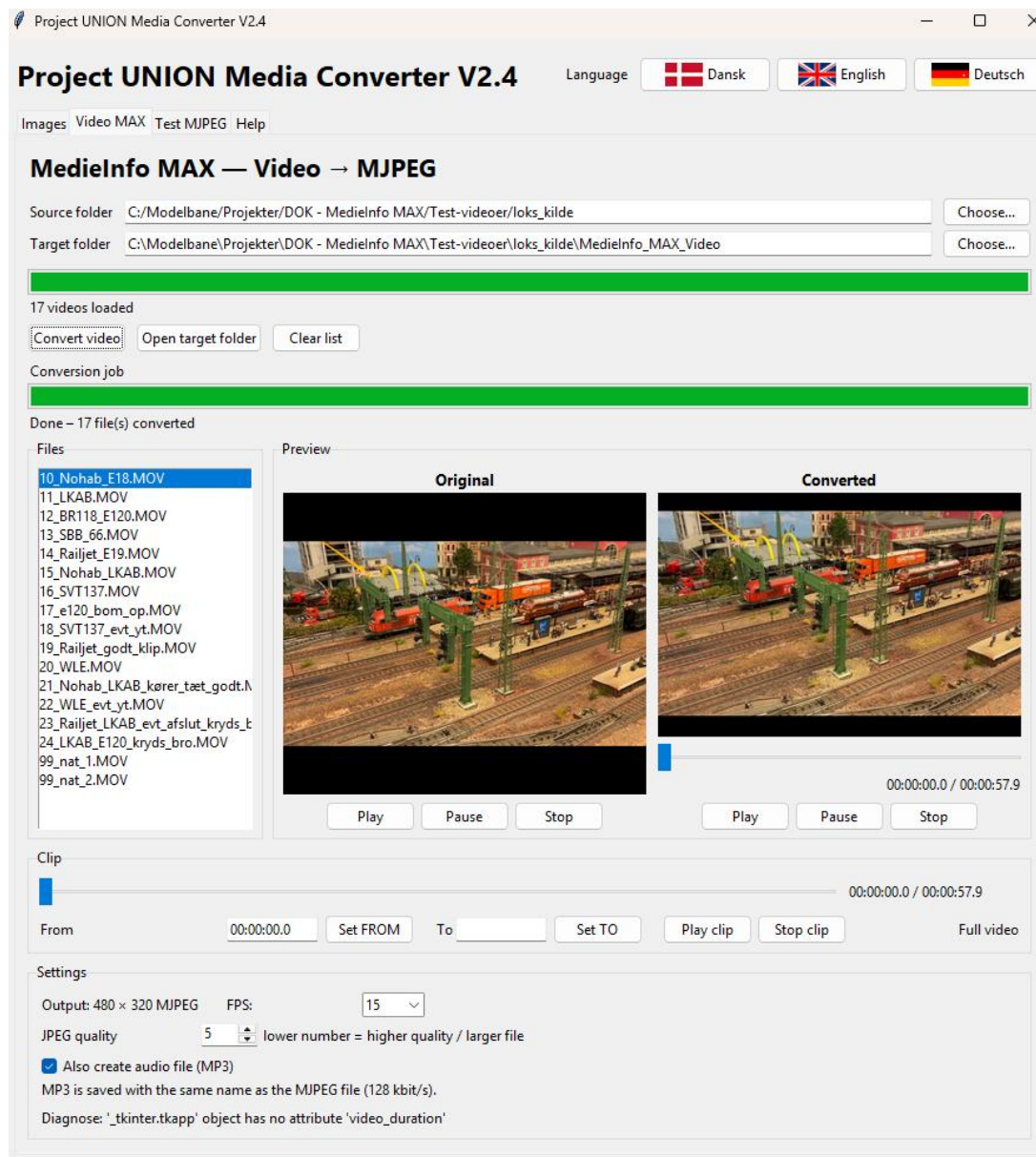
The picture can be adapted using Center Crop or Smart Crop, and the JPG quality can be adjusted. The preview shows how the converted picture will look before the conversion is started. Smart Crop requires OpenCV; if it is not available, Center Crop can be used.



2.2. Preparing video

The Video MAX page converts ordinary video files to the MJPEG format used by MediInfo MAX. The output is 480 × 320 pixels. The frame rate can be selected as 15, 20 or 25 FPS, and JPEG quality can be adjusted to balance picture quality and file size.

A video can be used in full or trimmed before conversion. Use the timeline and the FROM and TO controls to select the required part of the clip. The original video and the converted MJPEG version can both be previewed directly in the converter.



Video with sound

If 'Also create audio file (MP3)' is selected, the converter extracts the audio track and creates an MP3 file at 128 kbit/s. The MP3 is saved with the same base name as the converted MJPEG video. MediInfo MAX can then play the video together with its matching audio file.

For every converted video, the converter also creates a small .fps file. MediInfo MAX uses this information to play the MJPEG frames at the correct speed.

Settings

Output: 480 × 320 MJPEG FPS:

JPEG quality lower number = higher quality / larger file

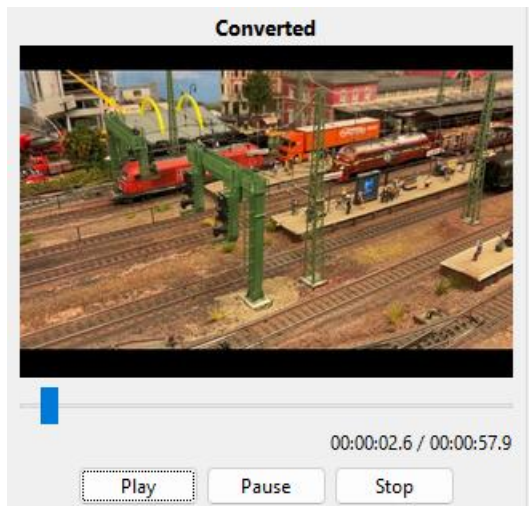
☒ Also create audio file (MP3)

MP3 is saved with the same name as the MJPEG file (128 kbit/s).

Diagnose: '_tkinter.tkapp' object has no attribute 'video_duration'

2.3. Checking the result

The Test MJPEG function can be used to open and play a converted MJPEG file on the PC. This is useful for checking the conversion before the file is uploaded to MediInfo MAX.



Project portal: <https://www.krogsgaardsmodelbane.dk/union/>

Jens Krogsgaard – Project UNION

3. Coding – prepare environment

This guide describes how to set up your environment in order to compile code for

ESP32-S3 Capacitive Touch LVGL Display 3.5"



<https://ardustore.dk/produkt/esp32-s3-capacitive-touch-lvgl-display-3-5>

Link from AliExpress: https://www.aliexpress.com/item/1005007566315926.html?utm_source=chatgpt.com

3.1. Downloads

Download user manual and data. About 1 GB !

User manual: <https://ae-pic-a1.aliexpress-media.com/kf/S6b6bed63a3074f03beba904ea0d06a27m.pdf?spm=a2g0o.detail.0.0.7d24kmX7kmX7ZQ&file=S6b6bed63a3074f03beba904ea0d06a27m.pdf>

Data download link: <http://pan.jczn1688.com/directlink/1/HMI%20display/JC3248W535EN.zip>

	Navn	Ændringsdato	Type
> JC3248W535EN			
> 1-Demo	1-Demo	22-09-2026 09:15	Filmappe
2-Specification	2-Specification	22-09-2026 09:16	Filmappe
3-Structure_Diagram	3-Structure_Diagram	22-09-2026 09:16	Filmappe
> 4-Driver_IC_Data_Sheet	4-Driver_IC_Data_Sheet	22-09-2026 09:16	Filmappe
5-IO pin distribution	5-IO pin distribution	22-09-2026 09:16	Filmappe
6-User_Manual	6-User_Manual	22-09-2026 09:16	Filmappe
> 7-Character&Picture_Molding_Tool	7-Character&Picture_Molding_Tool	22-09-2026 09:16	Filmappe
> 8-Burn operation	8-Burn operation	22-09-2026 09:16	Filmappe

Download newest software for MediInfo MAX from this site:

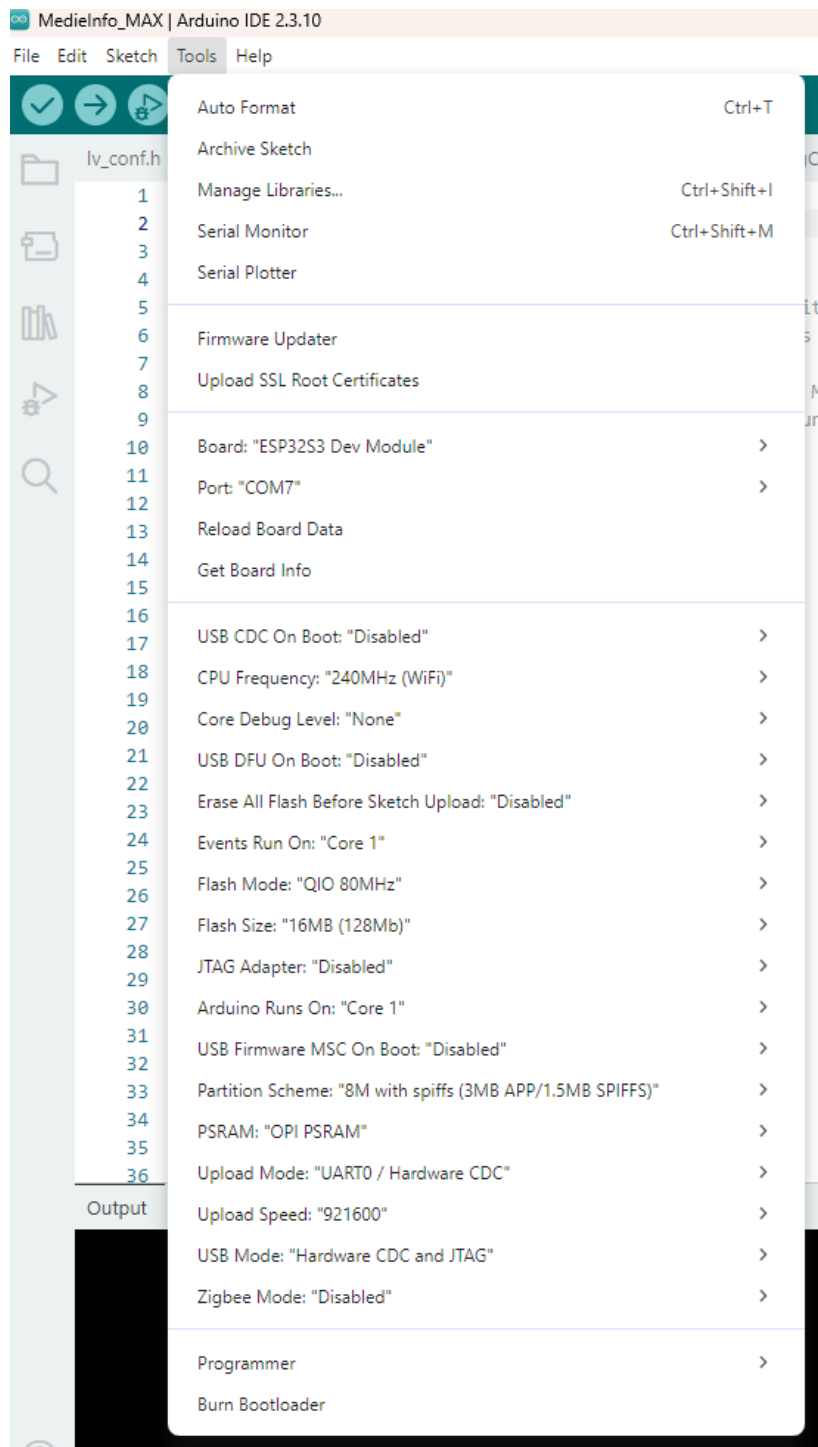
<https://www.krogsgaardsmodelbane.dk/union/>

And if you have problems download the file from the data download link – you can download the file you need from the site:

[Download ESP32-audioI2S-3.0.12.zip](#)

3.2. Setup Arduino IDE

Tools:

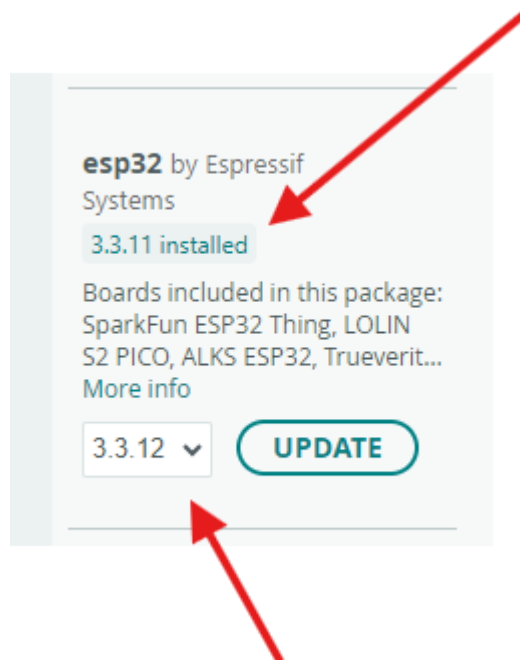


Board:



Esp32 Espressif

You must use 3.3.1.1



Do NOT update to 3.3.12

3.3. Install ESP32-audioI2S library

The required ESP32-audioI2S library is included in the downloaded manufacturer data package for the JC3248W535EN display.

Close Arduino IDE.

In the downloaded and extracted manufacturer package, locate the folder:

1-Demo\Demo_Arduino\libraries\ESP32-audioI2S-3.0.12

Copy the complete folder:

ESP32-audioI2S-3.0.12

to your Arduino library folder:

Documents\Arduino\libraries\

After copying, the library should be located at:

Documents\Arduino\libraries\ESP32-audioI2S-3.0.12

Start Arduino IDE again.

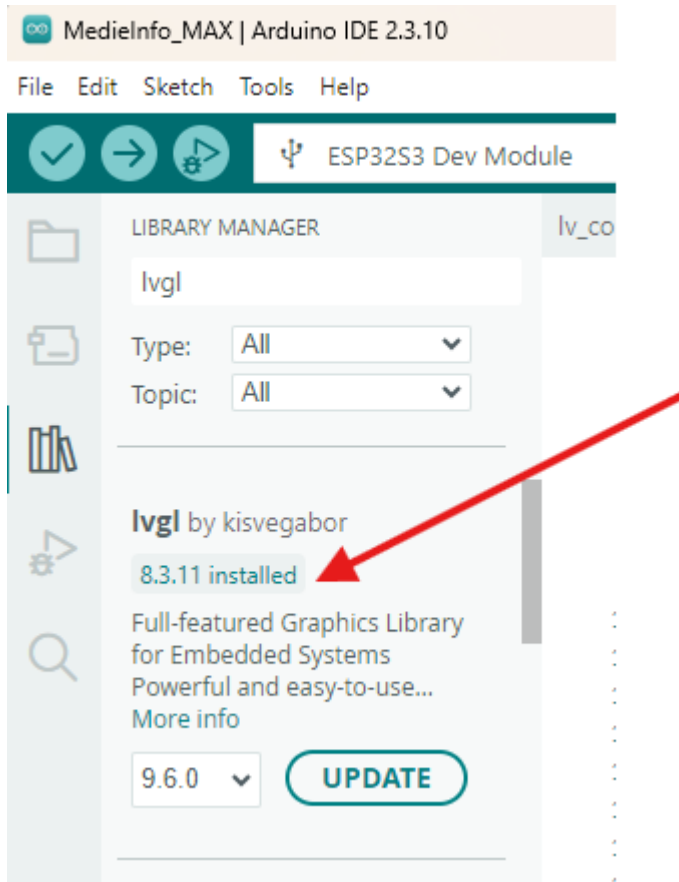
Important: MediInfo MAX has been developed and tested with **ESP32-audioI2S version 3.0.12** supplied by the display manufacturer. Do not replace this library with a newer version.

3.4. Library Project UNION Core

Use Library Project UNION Core 3.6 – download from here:

https://www.krogsgaardsmodelbane.dk/union/DCC_SoundCenter/downloads/libraries/ProjectUNION_Core_0_3_6.zip

3.5. Library lvgl – must be version 8.3.11



Library **lvgl** must be version 8.3.11

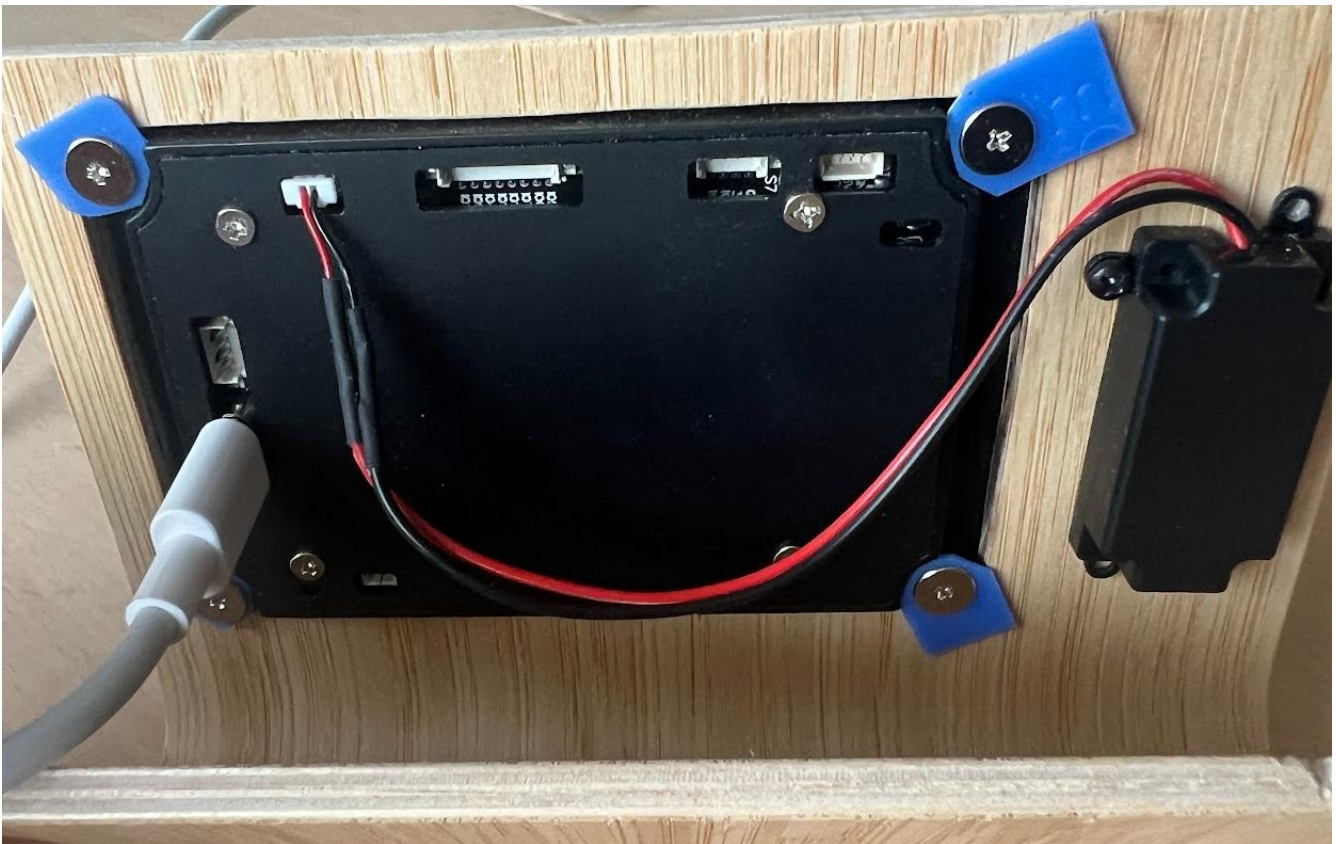
4. Building the prototype

MediInfo MAX requires very little additional hardware. Apart from the JC3248W535EN display module, only a microSD card and an 8-ohm loudspeaker are required. A 3.7 V LiPo battery can optionally be added for portable operation. This deliberately simple hardware configuration is also described earlier in this guide.

Loudspeaker

The display module has a dedicated loudspeaker connector marked **SPEAK**. The loudspeaker is connected using a **JST 1.25 mm 2-pin (2P) connector**.

A small 8-ohm loudspeaker is suitable. The prototype shown here uses a loudspeaker similar to the **ESU 50325**, a compact 16 × 35 mm, 8-ohm loudspeaker with sound chamber.



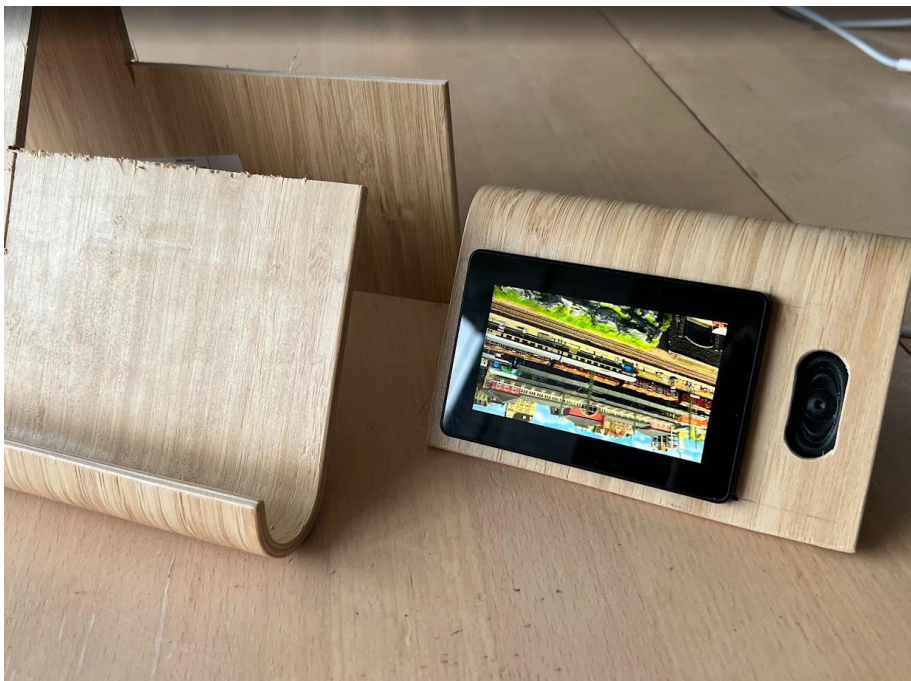
4.1. The IKEA VIVALLA enclosure

Instead of designing and 3D-printing a conventional plastic enclosure, the prototype was built into an **IKEA VIVALLA tablet stand**.

The VIVALLA is made from bamboo veneer and measures approximately **26 × 16 × 15.5 cm**. Its curved shape provides a stable base and gives MediInfo MAX a finished appearance while leaving plenty of room behind the display for the electronics and an optional battery. [IKEA](#)



Openings were cut in the front for the 3.5-inch display and the loudspeaker. The display is secured from the rear using its four mounting points.



One practical advantage of the VIVALLA construction is the open space behind the front panel. The display electronics remain easily accessible, while the horizontal base provides a convenient place for the optional LiPo battery.



The result is a simple enclosure that requires no 3D printer and only basic woodworking. The bamboo finish also gives the finished MedieInfo MAX a warmer and more furniture-like appearance than a conventional plastic electronics enclosure.

