ANT-5000 Encoder Release Notes

Version 1.3.6

Firmware images:

```
installer-1.3.6.img.xz        # Installer SD card image

encoder-update-system-1.3.6-sw.img  # Encoder web update image
dante-avx-1.3.6-sw.img        # Dante enable web update image
enable-terminal-1.3.5-sw.img # Enable on screen terminal
```

Changes

Fixes broken audio capture introduced in installer version 1.3.4 (Images updated from earlier versions are not affected).

Version 1.3.5

Firmware images:

```
installer-1.3.5.img.xz        # Installer SD card image

encoder-update-system-1.3.5-sw.img  # Encoder web update image
dante-avx-1.3.5-sw.img        # Dante enable web update image
enable-terminal-1.3.5-sw.img # Enable on screen terminal

Antrica-license_1.3.5-1_amd64.deb # License tool package
antrica-license_1.3.5-1_arm64.deb # License tool package
```

Changes :

License tool has been reworked:

- It should be much clearer as to what mac addresses will be applied and what licenses will be generated.
- “`mac_config.json`” has been renamed to “`device_config.json`” and now included more information about each device configured.

Encoder system:

- More robust startup on configuration corruption - the web interface will be available if the mac address config or platform verification is corrupted.
- MAC addresses should always be displayed on startup or changes.
- "`Enable-terminal-1.3.5-sw.img`" will cause a reboot and display of on-screen terminal.

Version 1.3.4

Firmware images:

```
installer-1.3.4.img.xz        # Installer SD card image

encoder-update-1.3.4-sw.img   # Encoder web update image
dante-avx-1.3.4-sw.img        # Dante enable web update image
enable-terminal-1.3.4-sw.img  # Enable on screen terminal

Antrica-license_1.3.4-1_amd64.deb # License tool package
antrica-license_1.3.4-1_arm64.deb # License tool package
```

Changes :

The license is now specific to each individual device and is applied by using an update file generated License tool (see LICENSE_TOOL_README.docx)

The MAC addresses for the device can be modified using the license tool.

The default IP address of the device is static: 192.168.0.224 - unless Dante is installed on the system.

For developers who wish to access the device as an Ubuntu box the "`enable-terminal-1.3.4-sw.img`" update can be applied through the web interface. After this is applied the encoder application will not be started by default and an on-screen terminal will be displayed instead. This allows any modifications to the system to be done as required.

To revert to starting the encoder by default delete the file:
"`/userdata/.terminal`" and reboot.

Version 1.3.2

Firmware images:

```
installer-1.3.2.img.xz
encoderimg-update-1.3.2-sw.img
dante-avx-1.3.2-sw.img
antrica-license_1.3.2-1_amd64.deb
antrica-license_1.3.2-1_arm64.deb
```

Changes:

- Per device copy protection and encoder licensing supported:
  - Encoder only works on Antrica enabled devices
  - Watermark removed with license file
  - A single license can be generated for a group of devices
  - A License tool is provided to generate a per device license.
    System page in UI has been updated to add:
    - LOAD LICENSE
    - DOWNLOAD LICENSE INFO
- Dante updated to latest release: 1.7.2.1
- Update to Armbian version: v25.8.1

It is recommended to do a clean install with this release to ensure correct working of the licensing process.

Version 1.3.0

Firmware images:

```
installer-1.3.0.img.xz
encoderimg-update-1.3.0-sw.img
encoderimg-license-1.3.0-sw.img
dante-avx-1.3.0-sw.img
```

Changes:

- Dante is not installed by default.
  - Can be installed via update
- Copy protection and encoder licensing supported:
  - Encoder only works on Antrica enabled devices

    - Watermark removed with license file
- Audio can be shared between Dante and 4K Encoder

Overview:

This is a firmware image for the Orange Pi 5 plus. It can be installed onto an internal MMC module or NVME card.

This firmware release is based on a minimal Ubuntu 24.04 (Noble) root filesystem with the addition of a docker image to provide a 4K encoder:

- HDMI capture up to 4KP60 BGR, 4:2:2, BGR24
- Audio capture from HDMI or AUX input
- Encode up to four streams:
    - Video codec support for H264 and H265
        - Configurable: resolution, framerate, profile, bandwidth, GOP, rate control.
        - Individual max Video resolution of 4KP60
        - Total Video encoding bandwidth of 8KP60
    - Selectable audio input from HDMI or AUX
        - Audio codec support for G711 or AAC
    - OSD label with configurable text, colour and position.
- RTSP and UDP servers can be enabled for each encoded stream:
    - UNICAST or MULTICAST transport
    - ONVIF discovery for the RTSP streams
- Capture video preview and status information on connected HDMI display
- WEB based user interface for status information and configuration.

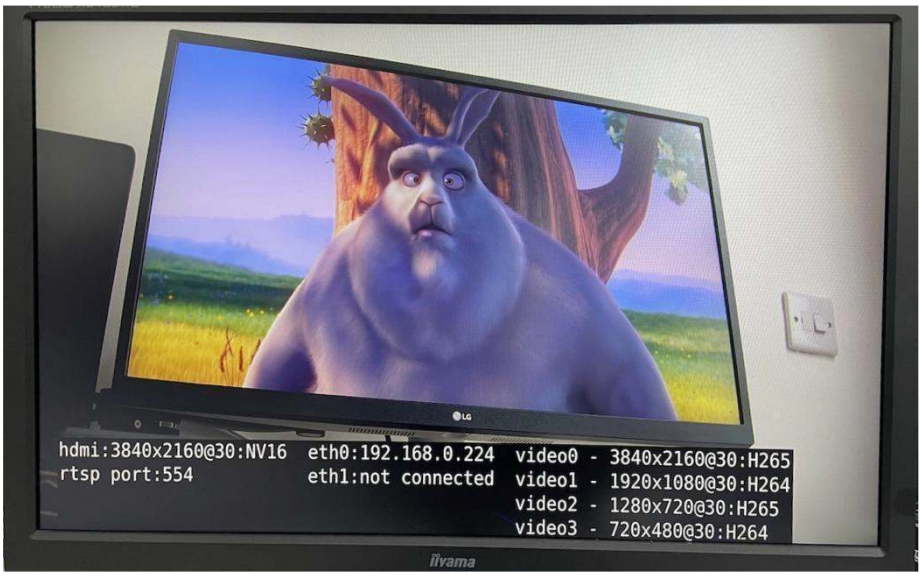
This release can also be enabled as a Dante AV-H encoder with an update file.

Installing the firmware image

The process to install the firmware onto internal flash module or NVME card is as follows:

1. write the bootable image: ‘`installer-1.3.4.img.xz`’ to an SD card
2. Insert the SD card into the SD card slot in the front of the device
3. Apply power to the device
4. The device will boot as display a splash screen and update messages during the installation process:

After the final message is displayed remove the SD card. The device will reboot to complete the device initialisation and after a final reboot will show the HDMI input passthrough on the HDMI output together with status information:



Install process writes cypher key to hardware fuse and encodes CPUID to local file.

- Encoder will not start without correctly encrypted CPUID

NOTE: As the installer image writes the cypher key this installer image must only be used by Antrica and should not be supplied to the customer.

The installed encoder image is not licensed and will show the “Encoded with Antrica 4K Encoder” watermark on preview image and all encoded streams.

To create a license file (specific to the device) use the license-tool-gui tool provided.

To add Dante functionality install the update file:

```
dante-avx-1.3.4-sw.img
```

This will install the DanteAV encoder functionality which will be available after rebooting the device.

Device Configuration

The 4K encoder can be configured by connecting to the device using a browser. The default IP address is set by DHCP, the default username and password are: ‘admin’, ‘admin’

When initially logged in the home tab will show the status of the HDMI input and a preview of captured stream:

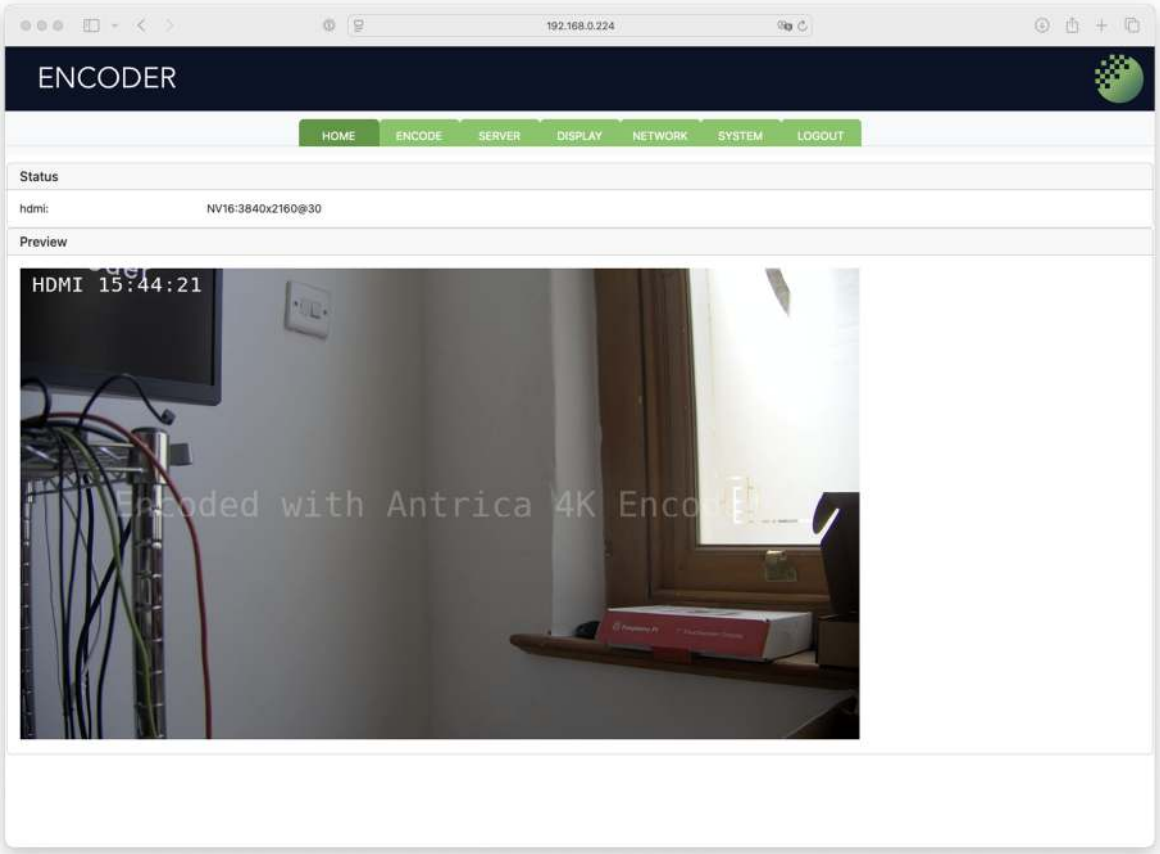


Figure 2 WEB HOME TAB

Configuration of the device is provided through pages selected by the tabs:

ENCODE, SERVER, DISPLAY, NETWORK, SYSTEM

ENCODE

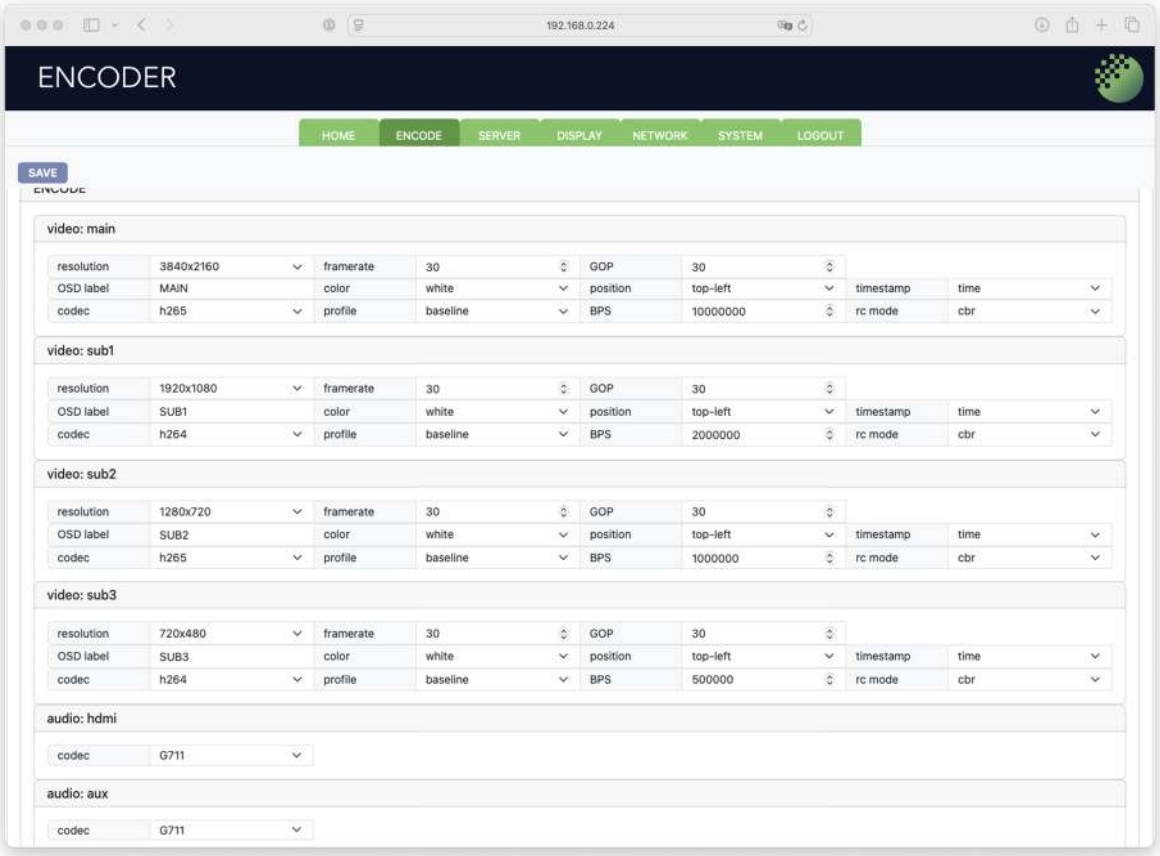


Figure 3 ENCODE TAB

The ENCODE page allows the configuration of each availble encoder video and audio streams. Note the total video encoder bandwidth must not exceed 8K@30fps

SERVER

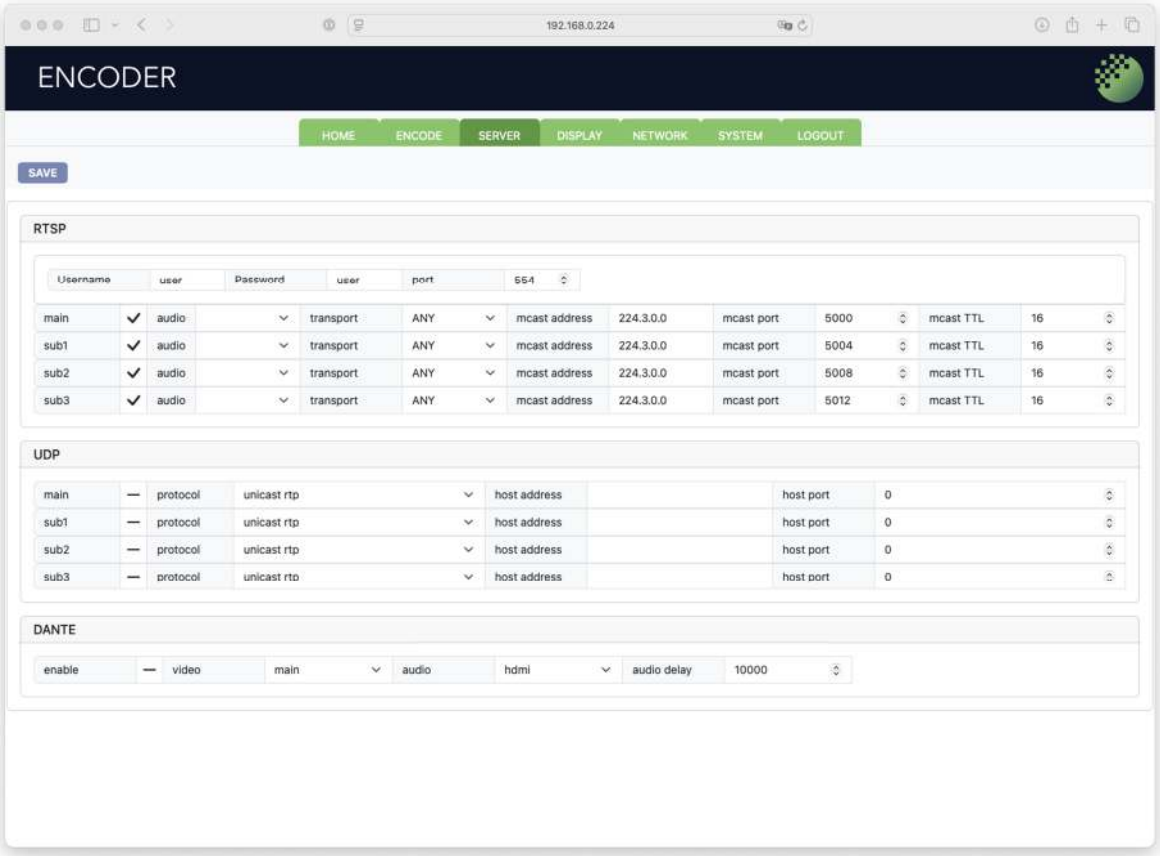


Figure 4 SERVER TAB

The sever tab configures the services (RTSP, UDP, DANTE) associated with the video encode streams.

Note each of the rtsp streams can have the following URL parameters:

To modify the transport stream (when enabled in the configuration):

```
ts=multicast
ts=unicast
ts=tcp
ts=udp
```

To enable audio (when enabled in the configuration):

```
audio=1
```

For example to enable audio on the main stream:

```
rtsp://user:user@192.168.0.224:554/main?audio=1
```

DISPLAY

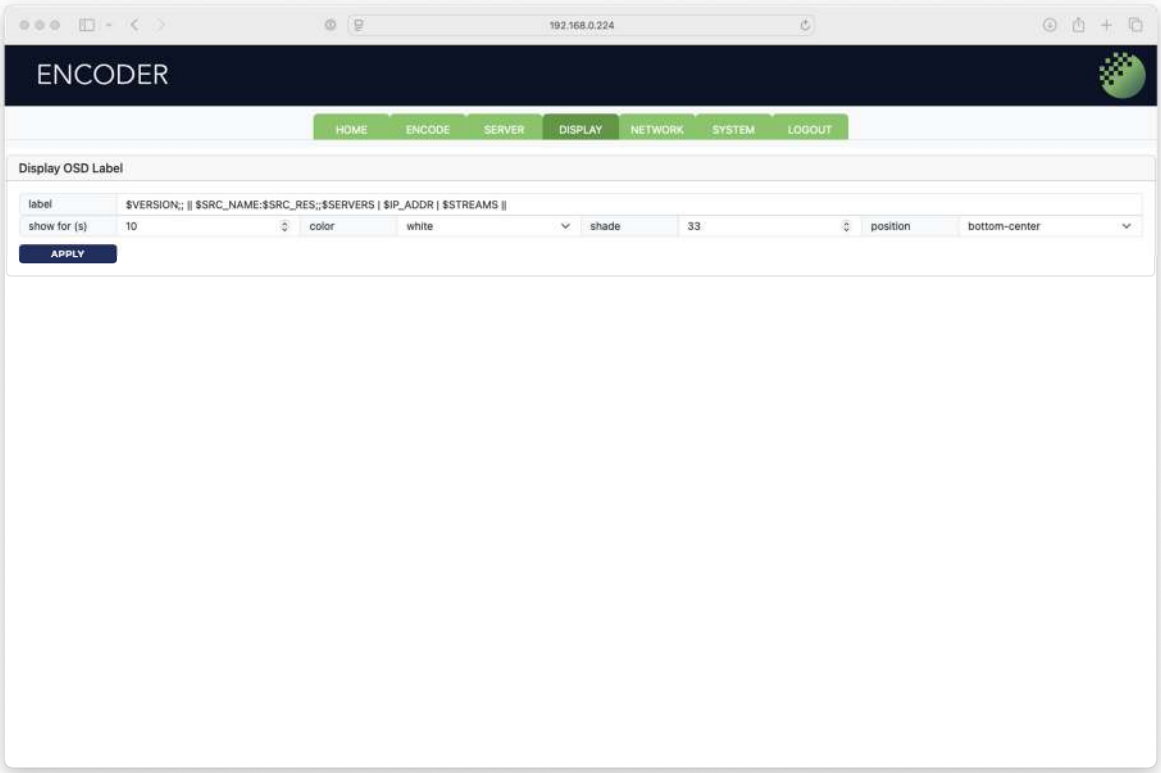


Figure 5 DISPLAY TAB

The DISPLAY page provides customisation of the HDMI passthrough OSD information displayed on startup or change of status. In the label string '||' is used to indicate the start and end of a table: columns are separated with a '|' and rows within the column are separated by ';;'

NETWORK

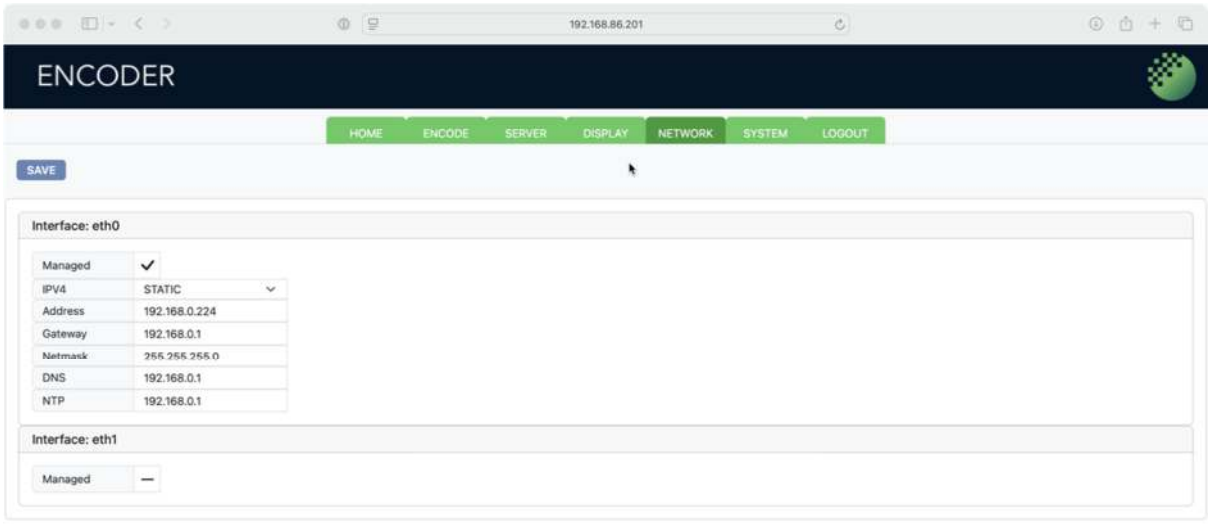


Figure 6 NETWORK TAB

The network tab is used to configure the IP address of eth0 (LAN1) and eth1 (LAN2).

If the interface is un manged it will default to the system setting (DHCP by default)

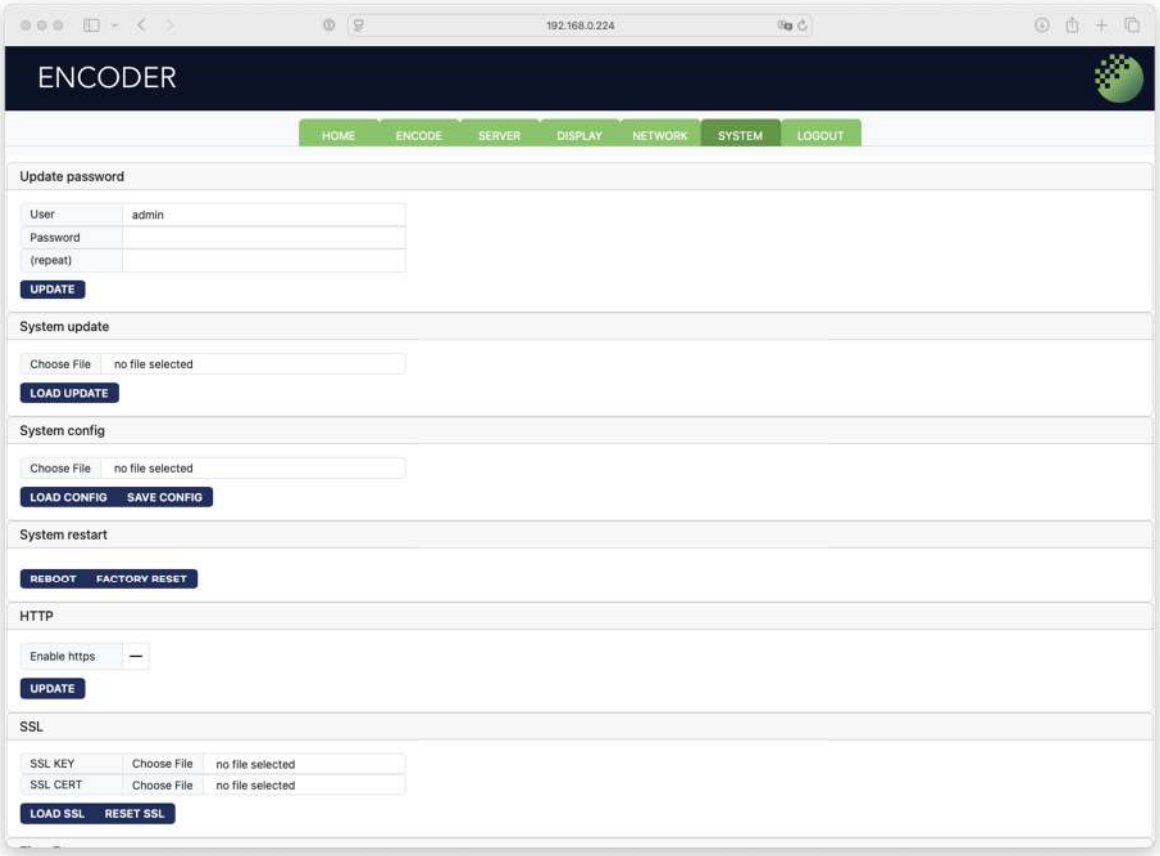


Figure 7 SYSTEM TAB

The system tab provides:

- Changing of the WEB access password,
- uploading of updates to the encoder image
- Save/Loading of configuration
- System reboot and factory reset
- HTTPS enable/disable.