CloudGate „Marwis“
Manual

Version 1.3

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Connecting the Marwis/UMB

The Marwis device / UMB bus is connected via the RS485 interface on the CloudGate device (green connector on the left side) using the pins:

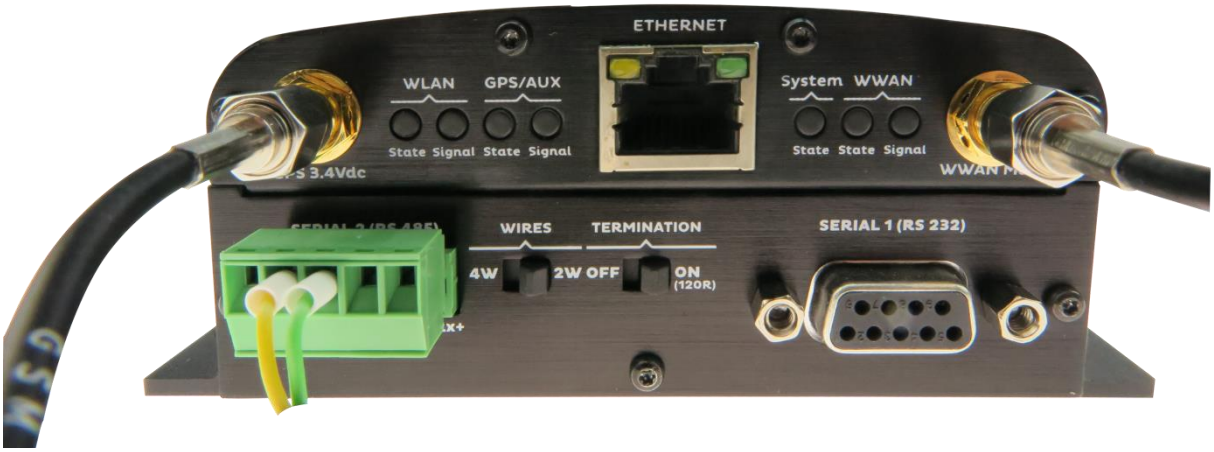
TX+ = A (green)

TX- = B (yellow)

Switch settings:

Wires: 2W

Termination: On



Power Supply

MARWIS and CloudGate have to be connected to a power supply that is not interrupted when the vehicle is restarted.

This applies especially to vehicles with a start-stop system.

Explanation:

If the power supply is interrupted frequently it cannot be guaranteed that the MARWIS LEDs acquire their operating temperature.

The CloudGate needs approximately 2 minutes for starting. Since there is no buffer, the data of this period will get lost.

Status LEDs

The application controls the 2 „WLAN" status LEDs on the left side of the CloudGate front panel.

- LEDs off: the application is not (yet) running, or is being started.

- Both LEDs blink synchroniosly red/off (after startup): clock is not set yet. The application is waiting for the clock to be set (which happens after a connection to the internet could be established).

In normal operations, the "WLAN State" LED (left) shows the status of the UMB communication and GPS data:

- Green: normal communication / no error. Data is being queued for transmission to the server. Short "flickering" indicates communication with the device(s).
- Constant red: error in UMB communication (no data from the Marwis device)
- Red Orange "blinking": no or no valid GPS data
- Constant orange: GPS data outdated (older than 1.5 seconds)
- Green/Orange "blinking": GPS location

Note: "blinking" is in 500 ms interval (i.e. color is changing every half second), independent of the polling interval

The "WLAN Signal" LED indicates the status of the server connection.

- Green: connection established. "Flickering" indicates data transmission with the server
- Orange: no MARWIS id – no communication with the server because no Marwis is connected
- Orange/Red "blinking": some internal error in server communication
- Red: no connection to server

Hints for the operation

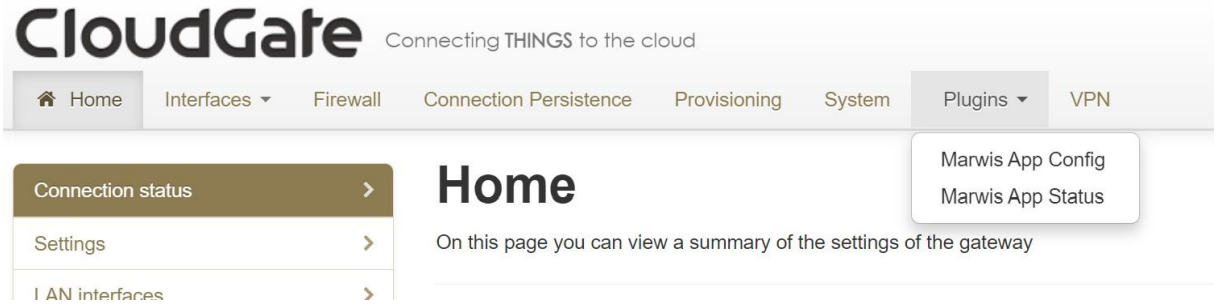
- Switch off Bluetooth connections
  Try to deactivate all Bluetooth connections (Car, mobile phones) close to the CloudGate antennae since they may interfere with the GPS and GPRS signals.
  If the CloudGate does not receive any valid GPS data during 60 s it will interrupt the data transmission to ViewMondo and data will be lost.
- Data visualization only in ViewMondo
  The MARWIS-App as well as the LufftConfigTool offer the possibility to look at the data online simultaneously to the transmission. However, both tools communicate with MARWS over Bluetooth. Due to the above mentioned problems none of them should be used simultaneously with the CloudGate. If you want to look at the data online please use ViewMondo.

Configuration User Interface

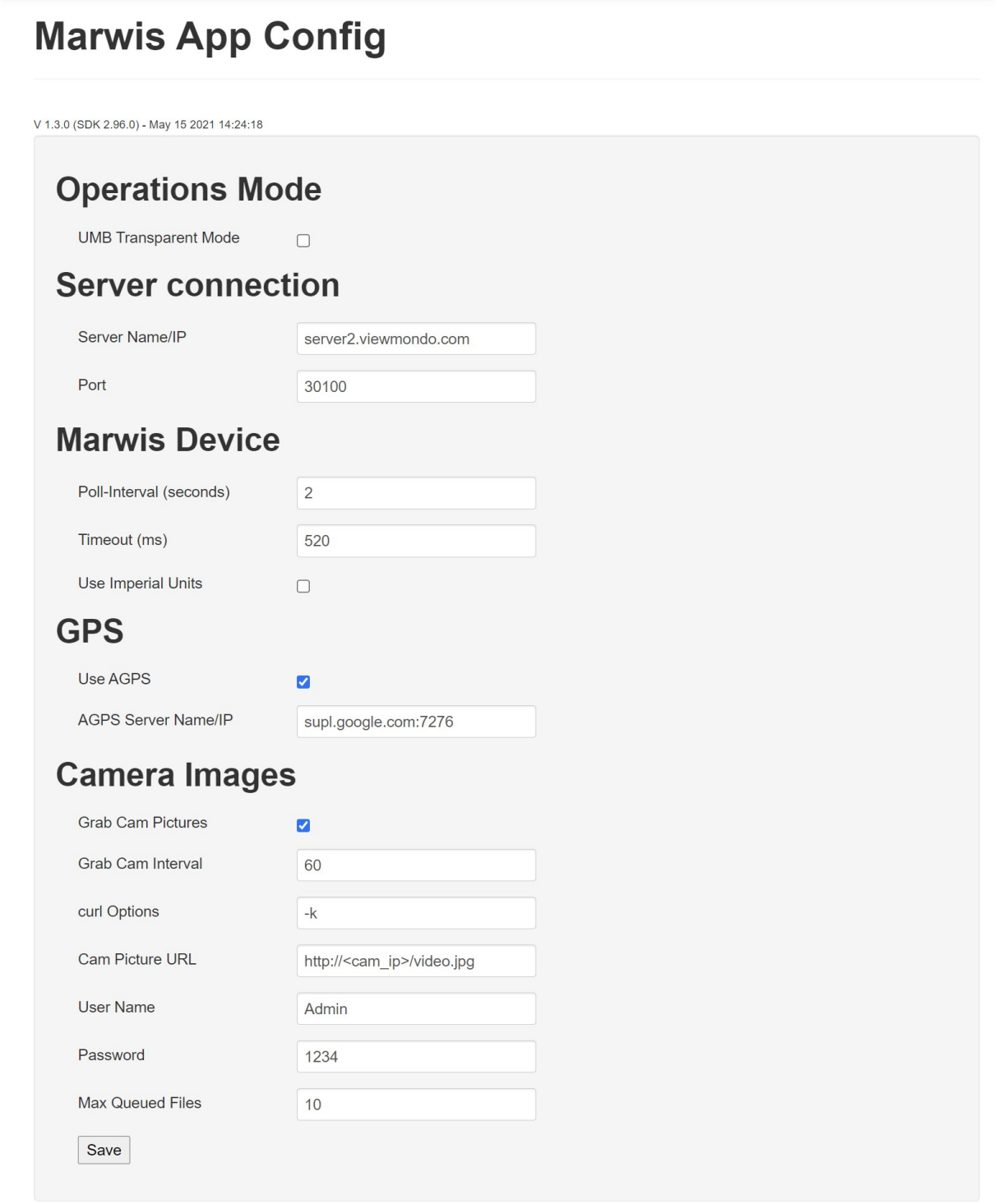
Most Important settings can be performed via an extension of the CloudGate user interface.

Log on to the CloudGate device, using the username and password (factory default is “admin” and “admin”).

From the main menu, open “Plugin” and “Marwis App Config”



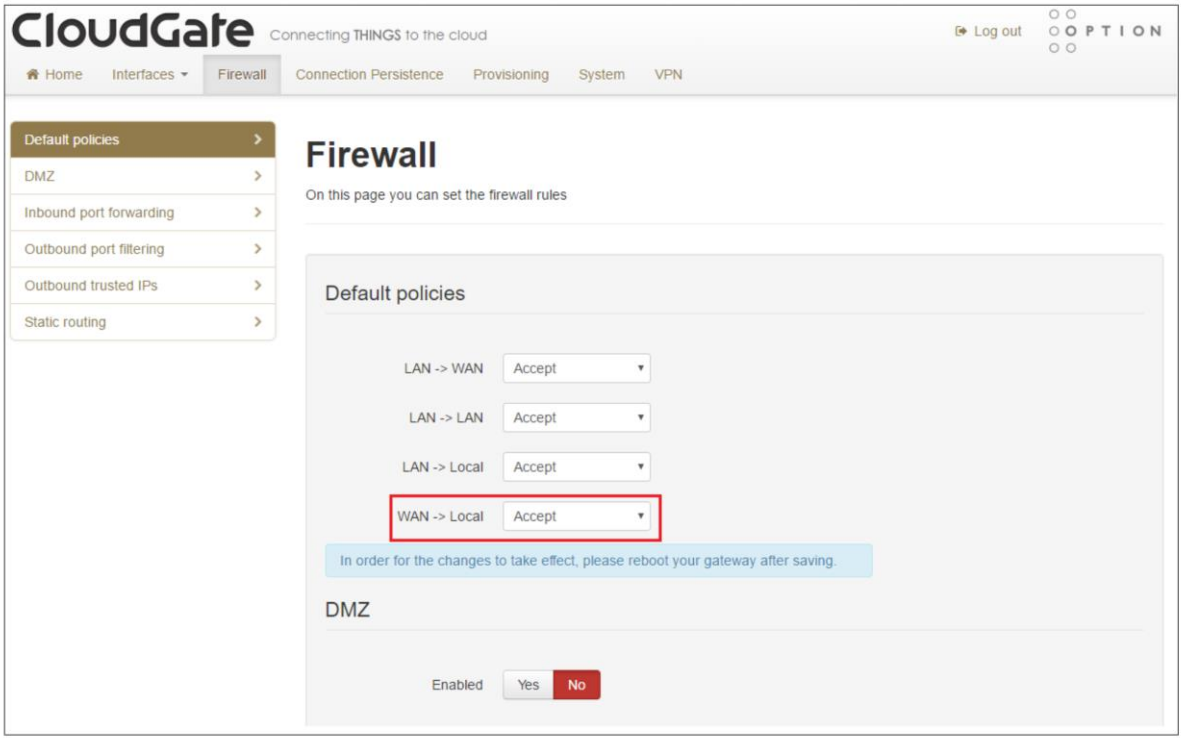
A form with basic settings for the Marwis app is shown:



Note for Camera Images: the parameter "Cam Picture URL", "User Name" and "Password" need to be configured for access to the camera image.

Note: if "UMB Transparent Mode" is selected, the Cloudgate App acts as a "RS485 terminal adapter", i.e. the communication from/to the RS485 port is provided as an IP port, thus providing transparent access to the UMB bus. In this mode, the GPS chip is not activated, and the respective status LEDs will be switched off.

In order for the configured IP Port to be accessible through the mobile network internet connection, a "public accessible" IP address is required (if the IP address is not static, a "Dynamic DNS" service can be configured under "System/Dynamic DNS"), and the Firewall settings of the CloudGate router need to be set to allow access to "local" from the WAN interface:



Change the values to your needs, and click "save". This will save the values to the config file (see below) and re-start the Marwis app (not re-boot the device!), so that the changed parameters will take effect.

Note on AGPS usage: the LTE version of the CloudGate router does not support AGPS (the chipset uses a different mechanism to refine the GPS location data), so for the LTE version, "Use AGPS" can/should be disabled

Configuration files

There are 2 configration files, located in the „\myconfig" folder on the CloudGate device.

File security for these files permits the "admin" user to read/write these files, so they can be edited by logging on via SSH and using a text editor (vi).

Booth configuration files are empty by default, i.e. all default values apply.

/myconfig/marwis.ini

Contains common parameters for the app.

[MARWIS]	
GPS-STARTUP-DELAY=15	Delay for initializing the GPS chip after startup.
ENABLE-AGPS=ON	AGPS active
AGPS-SERVER-NAME=supl.google.com:7276	AGPS Server
SERVER-NAME=viewmondo.com	Data Server
SERVER-PORT=30100	Server Port
SERVER-TIMEOUT=2000	Communication-Timeout Server in ms
SERVER-RECONNECT-DELAY=10	Server re-connect timeout in S
STANDBY-TIMEOUT-LOCATION=60	Standby Timeout for location change in S
LOCATION-CHANGE-MIN-DIFFERENCE-MM=100	Minimum Delta in mm between 2 GPS Samples for location change
MAX-SEND-QUEUE-ENTRIES=86400	Maximum number of measure samples entries in „Send Queue" („storage")
UMB-MASTER-ADDRESS=61695	UMB Master address.
DEVICE-IO-RESET-TIMEOUT=60	Device Reset timeout in sec. After this time, device data (Marwis – ID) is reset, and transmission of data to the server is stopped (WLAN State LED will turn red). The Marwis device can be changed - different serial number will be recognized.
DEVICE-TIMEOUT=250	Timeout device communication in ms

DEVICE-IO-RETRIES=3	Number of retries for UMB communication
DEVICE-POLL-IV=5000	Device Poll-Interval (and data transmission interval) in ms. Minimum: 1000 ms! Should always be in whole seconds !
MARWIS-UMB-ADDRESS=40961	UMB address for the Marwis device
SEND-ERROR-VAL-ON-IO-FAULT=ON	Send error values on communication error with Marwis
USE-IMPERIAL-UNITS=OFF	Use default sensor channels for imperial units
UMB-TRANSPARENT-MODE=OFF	Transparent / RS485 Terminal Server Mode
UMB-TRANSPARENT-MODE-PORT=2404	TCP/IP Port for transparent RS485 Terminal Server Mode

/myconfig/sensor_config.ini

Here, the sensor channels to be polled can be configured freely.

Note: if any sensor channel is configured in this file, none of the "default" channels is active, i.e. if this file is used, all sensor channels that should be polled need to be configured here.

[SENSOR-CHANNELS]	
NUM-CHANNELS=0	Number of configured channels
DEVICE-ID-xx=0	UMB Device ID for channel xx
CHANNEL-NR-xx=0	UMB Channel Nr for channel xx
IS-ACTIVE-xx=ON	Channel active/inactive

If the file is empty (default), or NUM-CHANNELS=0, the default channels (in metric or imperial units, depending on param USE-IMPERIAL-UNITS above) will be used.

Log file

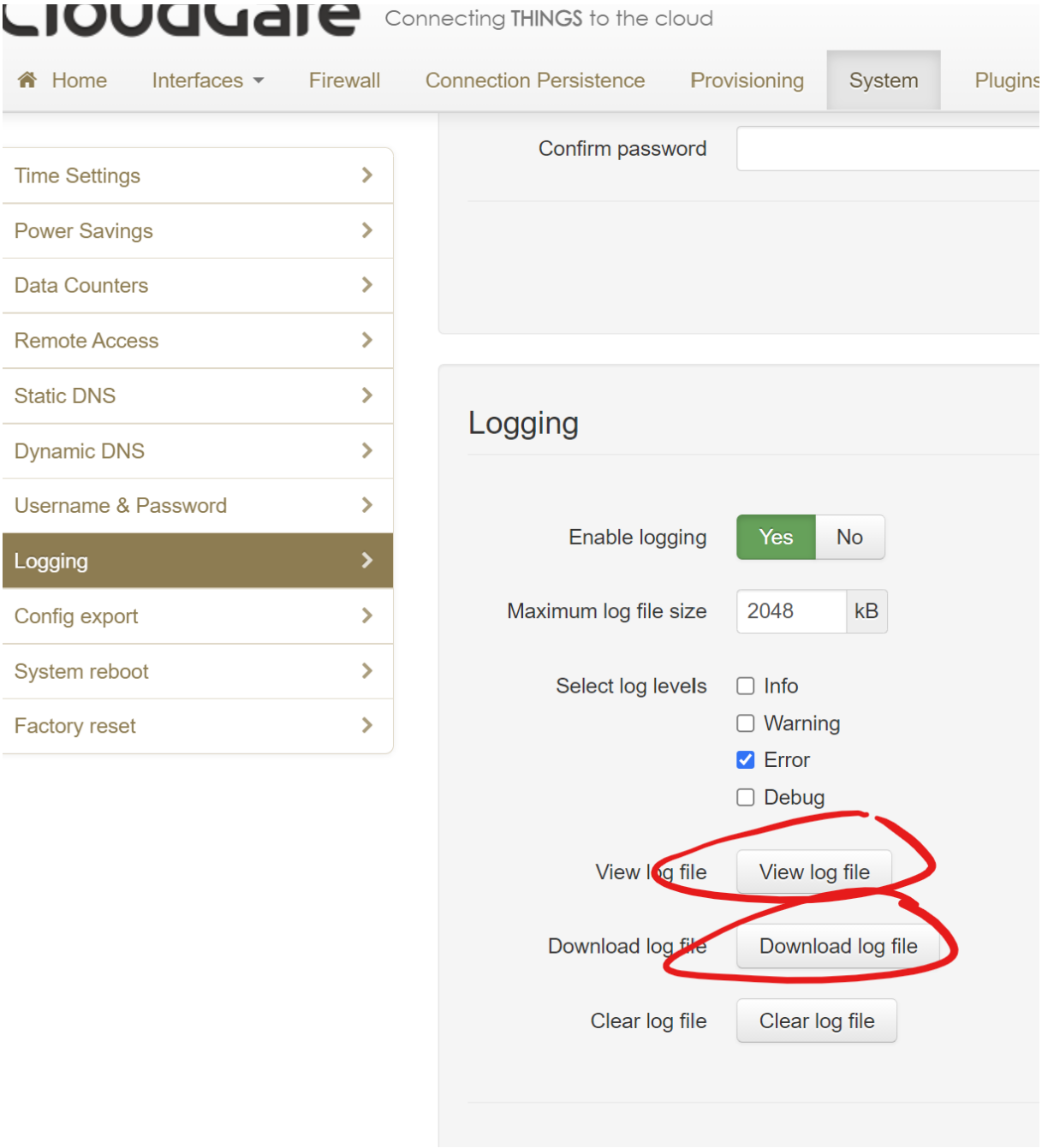
The application is writing a log file:

/tmp/marwis.log

The file is size-restricted to 0.5 Mbyte. If this size is reached, the file is renamed to /tmp/_marwis.log, i.e. the maximum space occupied by the log file is 1 MB.

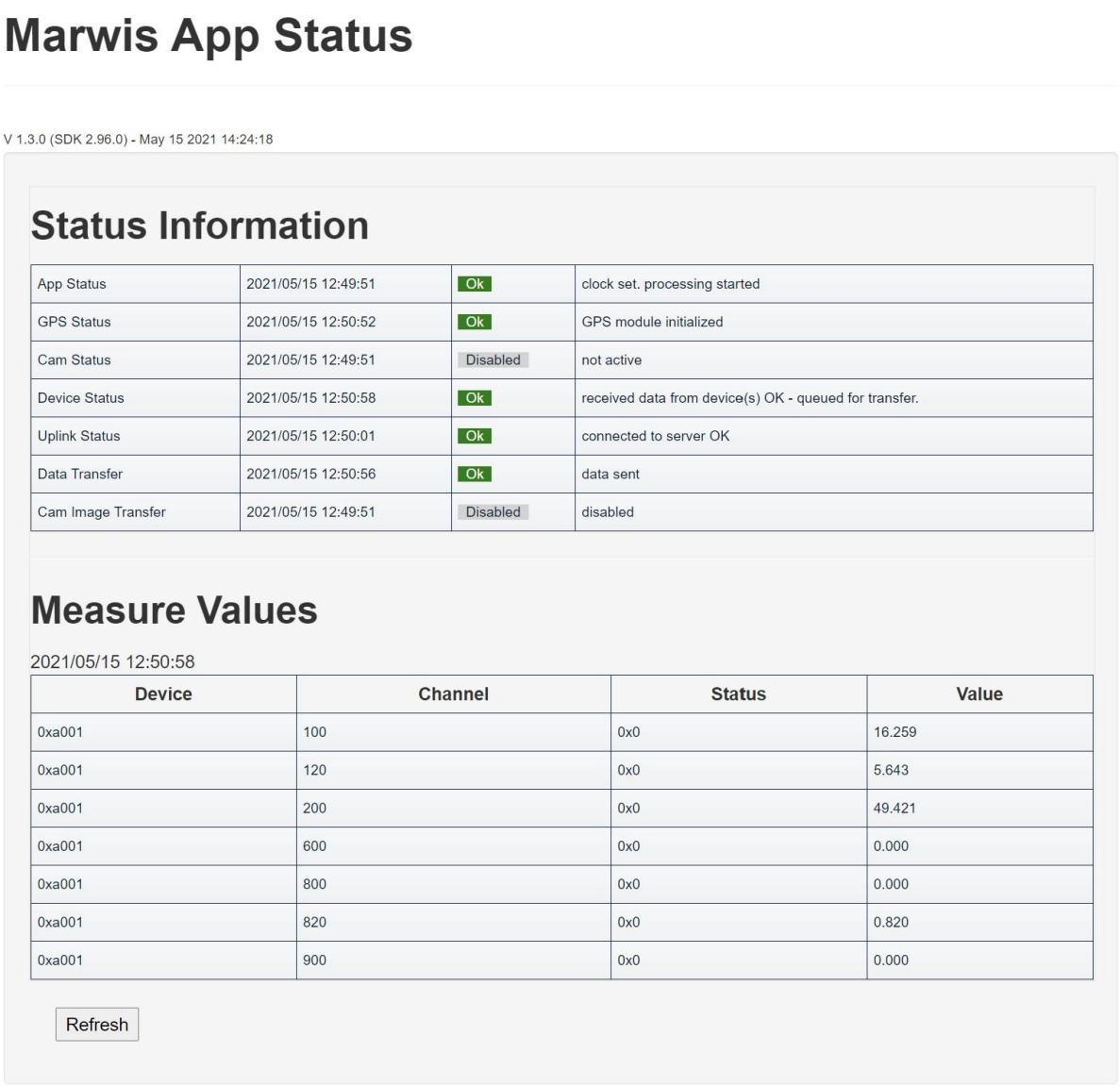
/tmp is a temporary file system in RAM, i.e. the log file is NOT persistent, and will be deleted on a reboot/power failure etc.

The log entries are also written to the device system log. This log can be viewed/downloaded on the "System/Logging" tab:



Marwis App Status

Here, status and error information about the app, device and server connection etc. are displayed:



Marwis App Status

V 1.3.0 (SDK 2.96.0) - May 15 2021 14:24:18

Status Information

App Status	2021/05/15 12:49:51	Ok	clock set. processing started
GPS Status	2021/05/15 12:50:52	Ok	GPS module initialized
Cam Status	2021/05/15 12:49:51	Disabled	not active
Device Status	2021/05/15 12:50:58	Ok	received data from device(s) OK - queued for transfer.
Uplink Status	2021/05/15 12:50:01	Ok	connected to server OK
Data Transfer	2021/05/15 12:50:56	Ok	data sent
Cam Image Transfer	2021/05/15 12:49:51	Disabled	disabled

Measure Values

2021/05/15 12:50:58

Device	Channel	Status	Value
0xa001	100	0x0	16.259
0xa001	120	0x0	5.643
0xa001	200	0x0	49.421
0xa001	600	0x0	0.000
0xa001	800	0x0	0.000
0xa001	820	0x0	0.820
0xa001	900	0x0	0.000

Refresh

Firmware-Update

Updating the MARWIS firmware is still possible with the Lufft Config Tool or the MARWIS app over Bluetooth.

Since a Bluetooth connection can disturb GPS and GPRS signals data loss may occur during firmware updates, see “hints for the operation”