

QCAM5



Configuration Guide

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Emitec Messtechnik AG
Birkenstrasse 47
6343 Rotkreuz

+41 41 748 60 10
info@emitec.ch
www.emitec-industrial.ch



Emitec Group ■■■
#1 in Test & Measurement, worldwide.

Disclaimer: visuals/screenshots in this guide might slightly differ with software running on the QCAM5. These differences are minor and purely aesthetic, hence do not affect core functionality of the camera.

Document version

Version number	Release date
V1	15/06/2021
V2	12/08/2021
V3	29/10/2021
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Overview

OVERVIEW

Access to QCAM5 web interface

Default camera network configuration

- IP address : 192.168.8.2/24
- Gateway IP : 192.168.8.1
- Second fixed IP for support : 172.23.23.23/24
- Wifi-access : 192.168.5.1 (computer directly connected to the QCAM5 via WiFi)

Computer directly connected to QCAM5

1. Connect the camera with a RJ45 cable
2. Set the IP address of the PC → 192.168.8.43 (example)
3. On a web browser, navigate to: <https://192.168.8.2>

Access via a web browser

1. On a web browser, navigate to: [https://\[IP address of the camera\]](https://[IP address of the camera])

OVERVIEW

Access to QCAM5 web interface

User login Interface

Username:

Password:

Login

DEFAULT CREDENTIALS

Username	admin
Password	admin

OVERVIEW

Main menu

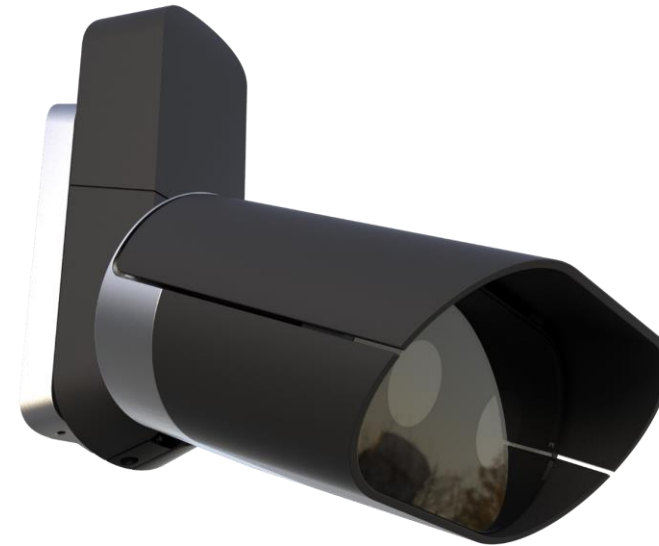
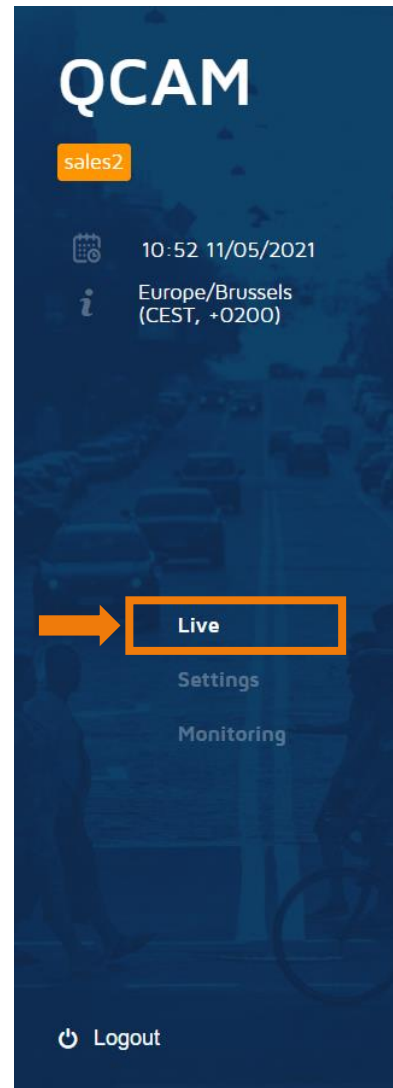
The screenshot shows the QCAM interface with several callouts pointing to specific elements:

- NTP or GPS date and time:** Points to the date and time display (10:52 11/05/2021) and location (Europe/Brussels (CEST, +0200)).
- Live stream & recognition:** Points to the 'Live' button in the main menu.
- Network & image settings:** Points to the 'Settings' button in the main menu.
- Camera monitoring:** Points to the 'Monitoring' button in the main menu.
- Camera name:** Points to the 'sales2' label above the live stream.
- Logout from the interface:** Points to the 'Logout' button at the bottom of the main menu.

The live stream shows a car on a road. The 'Detections' panel on the right lists the following license plates and their detection times:

Time	License Plate	Status
+ 7 seconds	1PYL606	Detected
+ 12 seconds	1VMV447	Detected
+ 14 seconds	1YKB229	Detected
+ 20 seconds	1BDI290	Detected
+ 21 seconds	1VPW986	Detected
+ 1 minutes	1UFH608	Detected
+ 1 minutes	2AFC088	Detected

LIVE MENU



OVERVIEW

MENU PRESENTATION

Live menu

The screenshot shows the QCAM interface with the following callouts:

- Logout from the interface**: Points to the 'Logout' button in the bottom left sidebar.
- Counts per vehicle category**: Points to the bottom status bar showing counts for three categories: 39319, 532, and 39.
- Reset counts**: Points to the circular reset button in the bottom status bar.
- Plate search**: Points to the search input field in the 'Detections' panel.
- Toggle between color to B&W video feed**: Points to the camera icon in the top right corner of the live video feed.
- Real-time detections**: Points to the list of detected vehicles in the 'Detections' panel.
- Live stream (press play to launch)**: Points to the play button in the bottom right corner.

QCAM Interface Details:

- Header: QCAM, sales2
- Time: 10:52 11/05/2021
- Location: Europe/Brussels (CEST, +0200)
- Menu: Live, Settings, Monitoring
- Logout button: Logout

Live Video Feed:

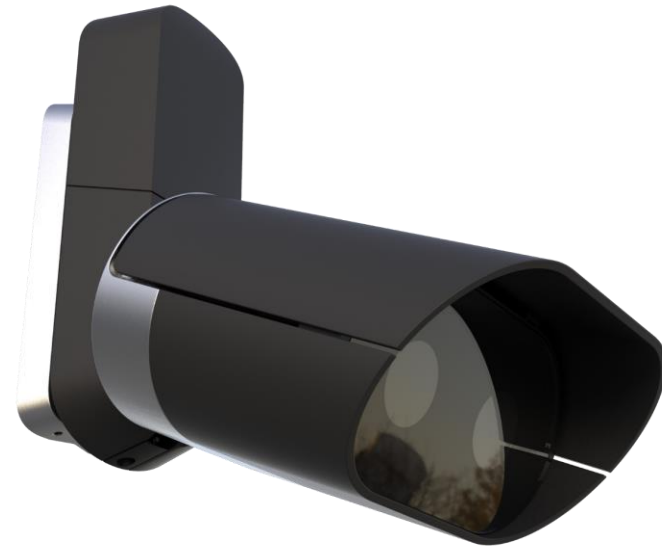
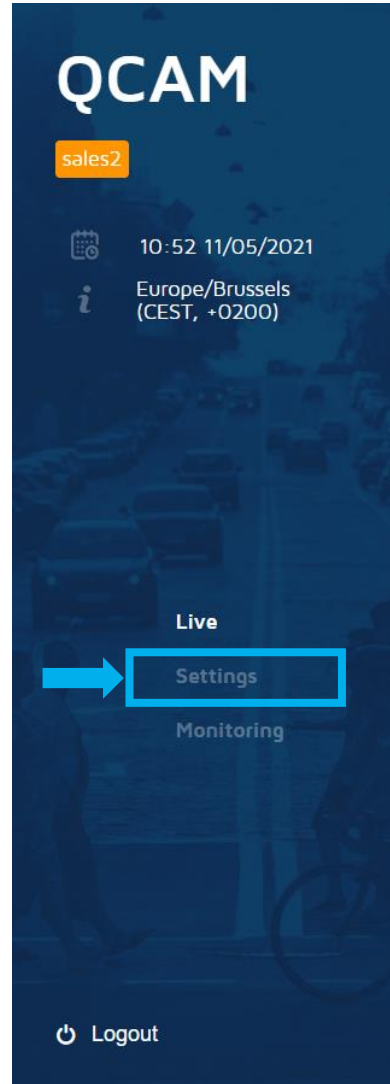
Live

39319 532 39

Detections Panel:

Time	Plate	Status
+ 7 seconds	1PYL606	Green
+ 12 seconds	1VMV447	Green
+ 14 seconds	1YKB229	Green
+ 20 seconds	1BDI290	Green
+ 21 seconds	1VPW986	Green
+ 1 minutes	1UFH608	Green
+ 1 minutes	2AFC088	Green

SETTINGS MENU



OVERVIEW

Menu presentation

Settings menu

1	Network settings : network & date/time synchronisation settings
2	Central server : connect camera to M ³ or other server(s)
3	Camera : image settings & camera orientation
4	Region of interest : define important zones in the image
5	iCar5-AverageSpeed : average speed certified application
6	Certified modules : modules required for official certification

The screenshot displays the QCAM web interface. The main menu on the left includes 'sales2', 'Live', 'Settings', and 'Monitoring'. The 'Settings' menu is expanded to show 'System & network', 'Central server', 'Camera', 'Regions of Interest', 'iCar5-AverageSpeed', and 'Certified modules'. The 'System & network' page is active, showing a 'System' tab with sub-tabs for 'Ethernet', 'Wi-Fi', and 'WWAN'. The 'System' page contains the following settings:

- Camera name: sales2
- Serial number: 15-9484-113M-150-000283
- Date / Time: Europe/Brussels
- Time zone: Europe/Brussels
- Synchronization type: GPS NTP
- NTP server address: 10.2.40.251
- NTP peers: (empty text area)

At the bottom of the page, there are 'Cancel' and 'Save' buttons. A 'Logout' button is visible in the bottom left corner of the interface.

OVERVIEW

Menu presentation

Settings menu

1	Network settings : network & date/time synchronisation settings
2	Central server : connect camera to M³ or other server(s)
3	Camera : image settings & camera orientation
4	Region of interest : define important zones in the image
5	iCar5-AverageSpeed : average speed certified application
6	Certified modules : modules required for official certification

The screenshot displays the QCAM web interface. On the left, a sidebar contains the 'sales2' user name, a clock showing '12:01 11/05/2021', and location information 'Europe/Brussels (CEST, +0200)'. Below this are navigation links for 'Live', 'Settings', and 'Monitoring'. The 'Settings' link is highlighted with a red box and the number '2'. The main content area is titled 'Central servers' and features a '+ Add a server' button. A table lists the configuration for a server named 'M3sales':

Parameter	Value
Address	77.77.77.1
Port	443
Type	M3
Token	30bf32d1-37d9-472d-b412-e164093ade0c
Content to be sent	Everything

OVERVIEW

Menu presentation

Settings menu

1	Network settings : network & date/time synchronisation settings
2	Central server : connect camera to M ³ or other server(s)
3	Camera : image settings & camera orientation
4	Region of interest : define important zones in the image
5	iCar5-AverageSpeed : average speed certified application
6	Certified modules : modules required for official certification

The screenshot displays the QCAM web interface. The top navigation bar includes 'Black & White Sensor', 'Color sensor', 'Field of view', and 'Pipeline'. The main content area is titled 'Black & White sensor' and lists various settings with adjustable values and up/down arrows:

- Minimum exposure (µs): 15
- Maximum exposure (µs): 4000
- Minimum gain (cb): 50
- Maximum gain (cb): 350
- Illumination duration (µs): 100
- Illuminator power (%): 20
- Target brightness: 130
- Streaming protocol: hls
- JPEG quality (%): 85
- Image size (%): 100

The left sidebar shows a menu with 'Camera' highlighted, and a '3' in a yellow box next to it. Other sidebar items include 'System & network', 'Central server', 'Regions of Interest', 'iCar5-AverageSpeed', 'Certified modules', 'Live', 'Settings', and 'Monitoring'. The top left of the interface shows 'sales2', a calendar icon with '12:01 11/05/2021', and an information icon with 'Europe/Brussels (CEST, +0200)'.

OVERVIEW

Menu presentation

Settings menu

1	Network settings : network & date/time synchronisation settings
2	Central server : connect camera to M ³ or other server(s)
3	Camera : image settings & camera orientation
4	Region of interest : define important zones in the image
5	iCar5-AverageSpeed : average speed certified application
6	Certified modules : modules required for official certification

The screenshot displays the QCAM web interface. On the left, a sidebar contains 'Live', 'Settings' (selected), and 'Monitoring'. The main content area shows a menu with 'Regions of Interest' highlighted. To the right, there's a 'Lanes' section with a '+ Create lane' button and a camera feed showing a road with lane markings. The top navigation bar includes 'Manual Calibration', 'Counting Loops', and 'Other'.

OVERVIEW

Menu presentation

Settings menu

1	Network settings : network & date/time synchronisation settings
2	Central server : connect camera to M ³ or other server(s)
3	Camera : image settings & camera orientation
4	Region of interest : define important zones in the image
5	iCar5-AverageSpeed : average speed certified application
6	Certified modules : modules required for official certification

The screenshot displays the QCAM web interface. The top left shows the 'QCAM' logo and a 'sales2' user indicator. The main navigation sidebar on the left includes 'Live', 'Settings' (highlighted with a red bar), and 'Monitoring'. The 'Settings' menu is open, showing a list of options: 'System & network', 'Central server', 'Camera', 'Regions of Interest', 'iCar5-AverageSpeed' (highlighted with a red box and the number 5), and 'Certified modules'. The 'iCar5-AverageSpeed' option is selected, leading to a page titled 'Average speed certification'. This page shows a 'Model approval' section with 'iCar5-AverageSpeed-BE (Belgiu)' and a green checkmark. Below this is a 'References' section with 'Status' set to 'Signed' (green text and checkmark), and buttons for 'View' and 'Hash code'. There are also 'Reconfigure' and 'Remove' buttons. At the bottom left of the interface is a 'Logout' button.

OVERVIEW

Menu presentation

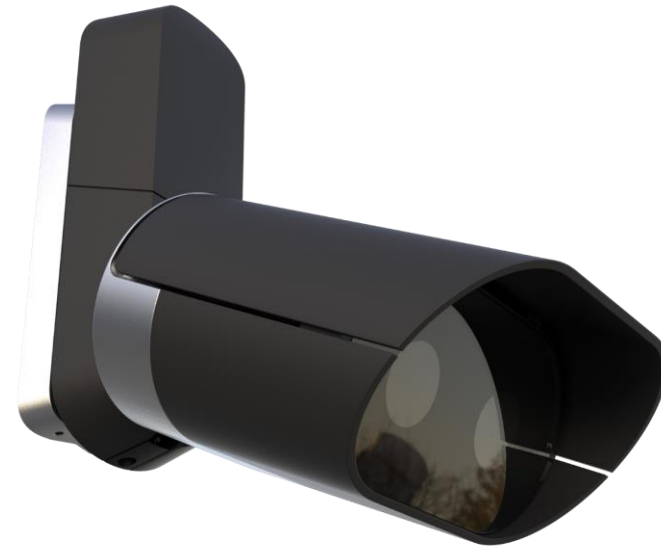
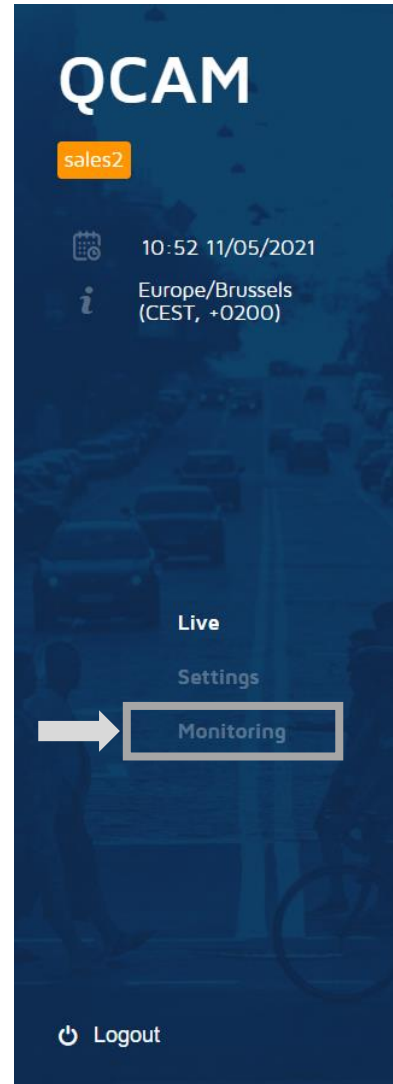
Settings menu

1	Network settings : network & date/time synchronisation settings
2	Central server : connect camera to M ³ or other server(s)
3	Camera : image settings & camera orientation
4	Region of interest : define important zones in the image
5	iCar5-AverageSpeed : average speed certified application
6	Certified modules : modules required for official certification

The screenshot shows the QCAM web interface. The left sidebar contains a menu with items: sales2, 12:03 11/05/2021, Europe/Brussels (CEST, +0200), Live, Settings, and Monitoring. The main content area shows a navigation menu with items: System & network, Central server, Camera, Regions of Interest, iCar5-AverageSpeed, and Certified Modules (highlighted with a '6' in a box). The Certified Modules section displays a table of modules.

Name	Verified	Version	Hash
ntp	✓	1:4.2.8p15+dfsg-1	9e882a5f2e60428cba4b2e15e94ab862
nmead	✓	1.5.0-3.macq	15abf8ab432281bb674c70b59ce3ee58
macq-cryptic5	✓	1.0.1-0	c8f39de3005c613e09c857eb95ae25f7
macq-cam5-winner-selection	✓	1.0.0-0	3a4cb673c51a509e072123136fb92dd1

MONITORING MENU



OVERVIEW

Menu presentation

Monitoring
menu

General System Information

- CPU usage
- Disk usage
- GPS
- Hardware components (e.g. illuminator)
- Macq Packages

NTP Monitoring

remote	refid	st	t	when	poll	reach	delay	offset	jitter
*10.2.40.251	193.190.198.10	3	u	304	1024	377	0.255	-3.218	2.167

Test Campaigns

Network Information

```
eth0    Link encap:Ethernet  HWaddr 00:04:4b:8c:ea:75
        inet addr:10.2.41.66  Bcast:10.2.255.255  Mask:255.255.0.0
        inet6 addr: fe80::204:4bfff:fe8c:aa75/64 Scope:Link
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
        RX packets:2166367045  errors:0  dropped:0  overruns:0  frame:0
        TX packets:2708999973  errors:0  dropped:0  overruns:0  carrier:0
        collisions:0  txqueuelen:1000
        RX bytes:222731552204 (222.7 GB)  TX bytes:67029555358785 (67.0 TB)
        Interrupt:42

eth0:0  Link encap:Ethernet  HWaddr 00:04:4b:8c:ea:75
        inet addr:172.23.23.23  Bcast:0.0.0.0  Mask:255.255.255.0
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
        Interrupt:42

lo      Link encap:Local Loopback
        inet addr:127.0.0.1  Mask:255.0.0.0
        inet6 addr: ::1/128 Scope:Host
        UP LOOPBACK RUNNING  MTU:65536  Metric:1
        RX packets:545914652  errors:0  dropped:0  overruns:0  frame:0
        TX packets:545914652  errors:0  dropped:0  overruns:0  carrier:0
        collisions:0  txqueuelen:1
        RX bytes:623783567660 (623.7 GB)  TX bytes:623783567660 (623.7 GB)

tun0    Link encap:UNSPEC  HWaddr 00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00
        inet addr:77.77.77.2  P-t-P:77.77.77.2  Mask:255.255.255.0
        UP POINTOPOINT RUNNING NOARP MULTICAST  MTU:1500  Metric:1
        RX packets:587098079  errors:0  dropped:0  overruns:0  frame:0
        TX packets:984467705  errors:0  dropped:2003159  overruns:0  carrier:0
        collisions:0  txqueuelen:100
        RX bytes:32179626263 (32.1 GB)  TX bytes:1298298633873 (1.2 TB)

wlan0   Link encap:Ethernet  HWaddr 00:04:4b:8c:ea:73
        inet addr:192.168.5.1  Bcast:192.168.5.255  Mask:255.255.255.0
        inet6 addr: fe80::204:4bfff:fe8c:aa73/64 Scope:Link
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
        RX packets:64470  errors:0  dropped:0  overruns:0  frame:0
        TX packets:143  errors:0  dropped:0  overruns:0  carrier:0
        collisions:0  txqueuelen:1000
        RX bytes:5438444 (5.4 MB)  TX bytes:21914 (21.9 KB)
```



Configuration

Configuration

1. **System & network**
2. M³ server connection
3. Camera settings
4. Region of interest
5. Icar5 Average speed

CONFIGURATION

Camera & NTP configuration

Settings menu

1. Camera name : local naming of the equipment
2. Serial Number : customised with
 - Lens type
 - Serial number
 - Usage type

→ **Not editable**
3. Time zone
4. Synchronisation type
 - GPS : clock from GPS module
 - NTP : clock through NTP
5. NTP server address (only appears if NTP radio button is active)

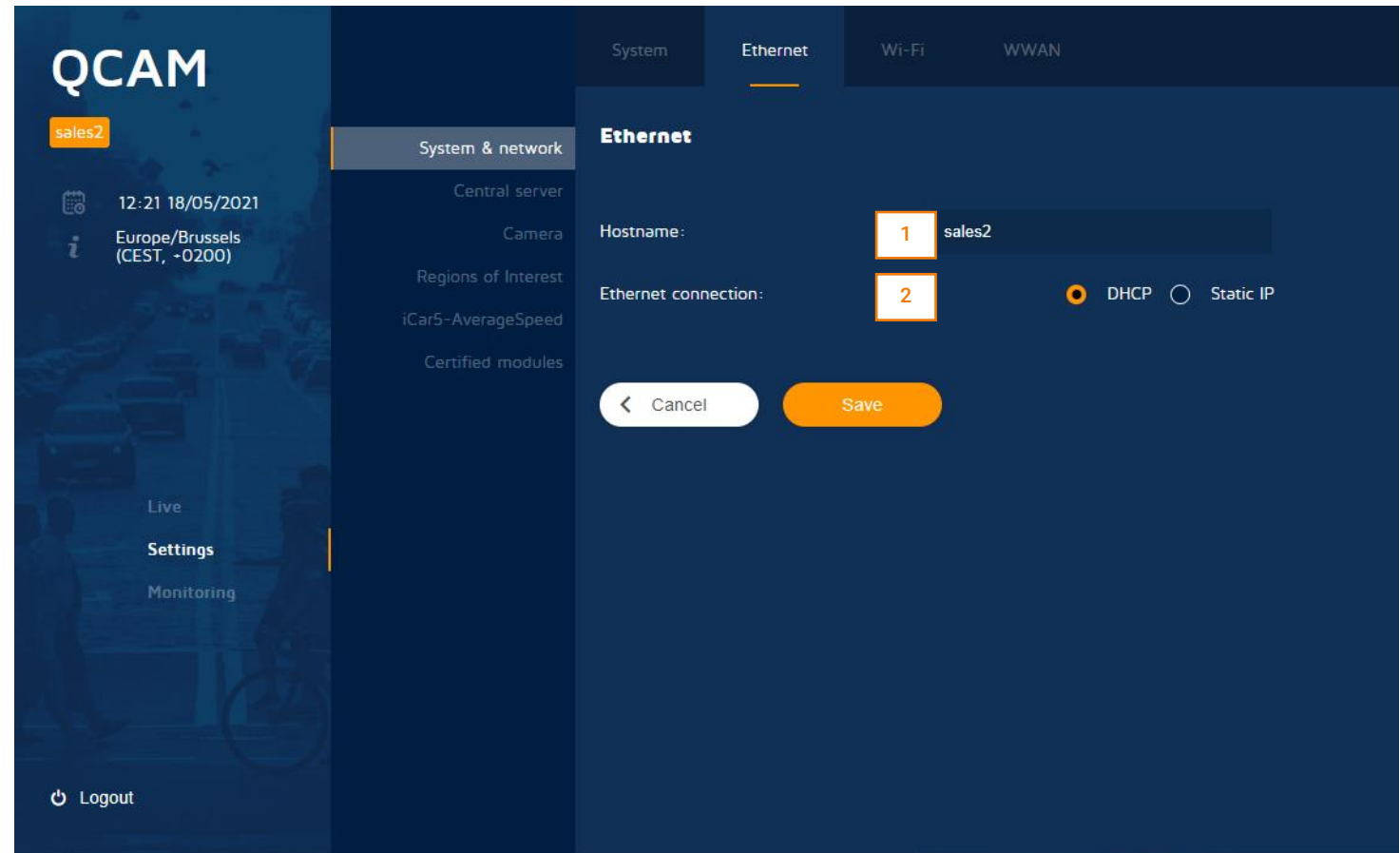
The screenshot displays the QCAM configuration interface. The main menu on the left includes 'sales2', '11:59 11/05/2021', 'Europe/Brussels (CEST, -0200)', 'Live', 'Settings', and 'Monitoring'. The 'System & network' menu is selected, showing options for 'Central server', 'Camera', 'Regions of Interest', 'iCar5-AverageSpeed', and 'Certified modules'. The 'System' settings page is shown, with tabs for 'System', 'Ethernet', 'Wi-Fi', and 'WWAN'. The 'System' settings include: 'Camera name' (1) set to 'sales2', 'Serial number' (2) set to '15-9484-113M-150-000283', 'Date / Time' section with 'Time zone' (3) set to 'Europe/Brussels', 'Synchronization type' (4) set to 'NTP' (selected over 'GPS'), and 'NTP server address' (5) set to '10.2.40.251'. There are 'Cancel' and 'Save' buttons at the bottom.

CONFIGURATION

Ethernet configuration

Settings menu

1. Camera hostname
2. Connection configuration
(DHCP selected)



CONFIGURATION

Ethernet configuration

Settings menu

1. Camera hostname
2. Connection configuration
(Static selected)
3. Static IP configuration

The screenshot displays the QCAM web interface. The main header shows 'QCAM' and 'sales2'. The left sidebar contains 'Live', 'Settings', and 'Monitoring'. The 'Settings' menu is open, showing 'System & network' selected. The 'Ethernet' tab is active, showing configuration for 'Central server'. The 'Ethernet connection' is set to 'Static IP'. The configuration fields are: Hostname: sales2, IP address: 10.2.40.66, Netmask: 255.255.0.0, and Gateway: 10.2.40.251. The 'Save' button is highlighted in orange.

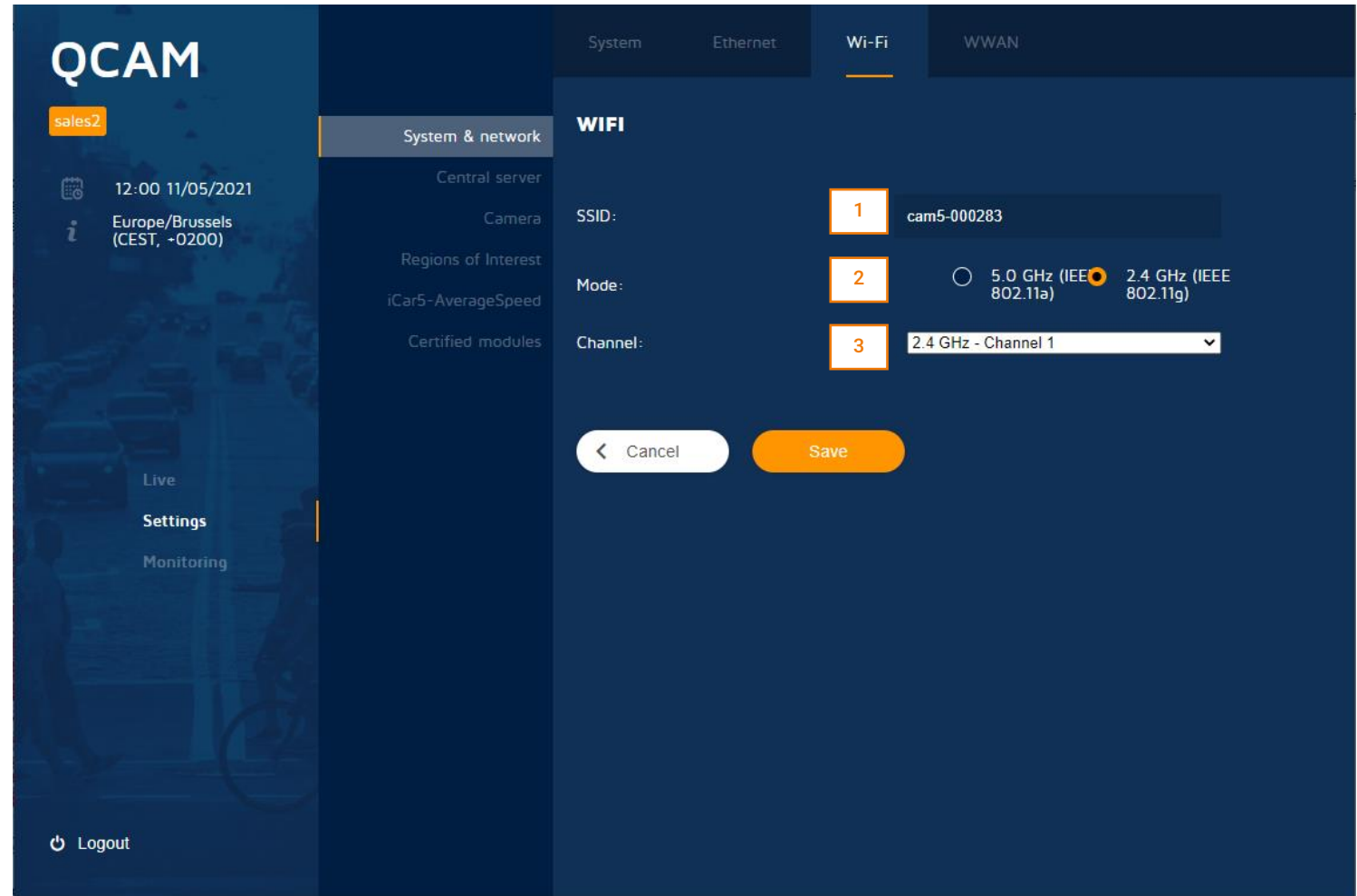
Field	Value
Hostname	sales2
Ethernet connection	Static IP
IP address	10.2.40.66
Netmask	255.255.0.0
Gateway	10.2.40.251

CONFIGURATION

Wi-Fi configuration

Settings menu

1. Wi-Fi network name (SSID)
2. Wi-Fi frequency
3. Wi-Fi channel

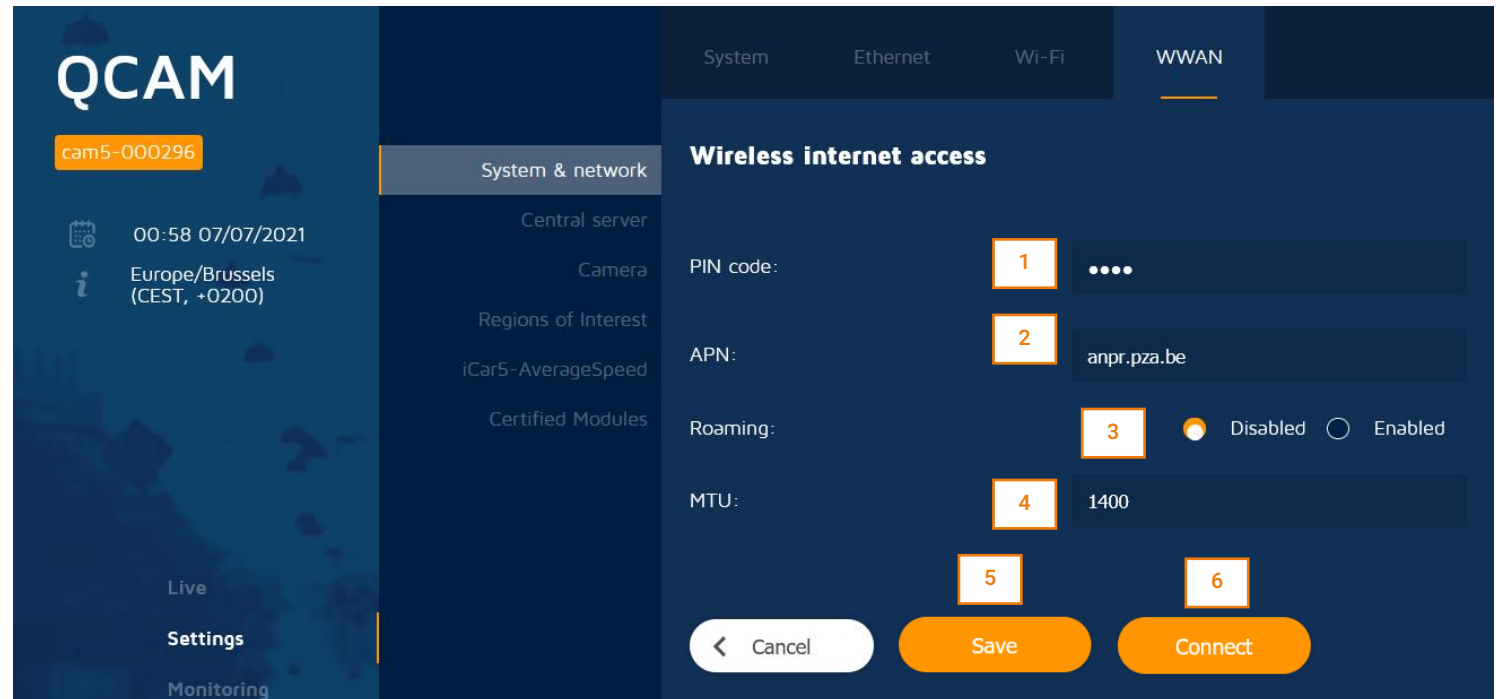


CONFIGURATION

4G configuration

Settings menu

1. PIN code
2. APN name
3. Roaming
4. MTU (use 1400 by default)
5. **Save** : allows the user to save the parameters without relaunching the connection
6. **Connect** : once parameters saved, click on connect to launch the connection



CONFIGURATION

4G configuration

Settings menu

1. Informations regarding the 4G modem and the 4G interface (WWAN)
2. Information of the SIM card

Modem

wwan module	up
Service status	connected
Pin code	Ok
Manufacturer	SIMCOM INCORPORATED
Model	SIMCOM_SIM7600G-H
Revision	SIM7600M22_V2.0
IMEI	868822040627273

SIM

IMSI	206710000000042
Home network	206 71

CONFIGURATION

4G configuration

Settings menu

1. Radio information (signal quality, SNR, service type,...)
2. IP of the WWAN interface
3. Automatic connection : this option should be enable when the camera is totally configured (with the SIM). It allows the camera to reconnect to the 4G network if the connection is lost

→ **Deactivate this option before changing a SIM card**, otherwise the camera will try to connect with the credentials of the old SIM card

Network	
Cell ID	2304
MCC	206
MNC	71
Service type	LTE
Tracking Area Code	1
RSSI	-58 dBm
RSRQ	-7 dB
RSRP	-81 dBm
SNR	12.8 dB
IP	192.168.35.12

Automatic connection: enable disable

Configuration

1. System & network
2. **M³ server connection**
3. Camera settings
4. Region of interest
5. Icar5 Average speed

CONFIGURATION

M³ Server connection

Settings menu

This menu allows you to connect the camera to different M³ servers
→ Multiple servers are possible, depending on your needs

Central server

Name:	m3acceptance	1
Address:	10.1.253.157	2
Port:	443	3
Token:	7617177b-2fdc-4825-9d21-9844bd6639ee	4
Server type:	M3	5
Content to be sent:	Everything	6

< Cancel Save

Once completed, click the **Save** button to load the connection

1. Name of the M³ server
2. IP address of M³ server
3. Port number of M³ (HTTPS : 443)
4. Token generated on the M³ server by the administrator (token generation is explained in our M³ documentation)
5. Type of server
 - Icar Manager – old version of M³
 - M³
 - Custom – if the images needs to be sent on another client's server
6. Choose the type of content that needs to be sent
 - Everything – Images + metadata (aka. detections)
 - Metadata – No images, only detections
 - B&W images + metadata
 - Color images + metadata

Configuration

1. System & network
2. M³ server connection
3. **Camera settings**
4. Region of interest
5. Icar5 Average speed

CONFIGURATION

Camera settings – access the menu

Settings menu

The screenshot displays the QCAM web interface. On the left sidebar, the 'Settings' menu item is highlighted with an orange box and a '1' in a box, with an arrow pointing to it. The 'Camera' menu item is also highlighted with an orange box and a '2' in a box, with an arrow pointing to it. The main content area shows the 'Black & White sensor' configuration page with the following settings:

Parameter	Value
Minimum exposure (µs)	15
Maximum exposure (µs)	2000
Minimum gain (cb)	50
Maximum gain (cb)	350
Illumination duration (µs)	40
Illuminator power (%)	10
Target brightness	140
JPEG quality (%)	60
Image size (%)	100
Winner image	<input checked="" type="radio"/> full <input type="radio"/> crop

At the bottom of the configuration page, there are 'Cancel' and 'Save' buttons.

CONFIGURATION

Camera Settings

Settings menu

4 tabs in this menu

- Black & white sensor
 - configure the B&W sensor (exposure times, gain values, brightness, compression and image size, etc.) and illuminator
- Color sensor
 - configure the color sensor (exposure times, gain values, brightness, compression and image size, etc.)
- Field of view
 - rotate the camera by changing tilt and pan angles
- Pipeline
 - enable a software image enhancer that will modify the image received from the sensor to make it more pleasant for a human eye
 - Select appropriate license plate detection module
 - Restart/Stop the QCAM5 processing pipeline

CONFIGURATION

Camera Settings

Settings menu



	Parameter	Description	Recommended values
1	Minimum exposure	Time span during which the sensor of the camera is exposed to light when taking a picture (microseconds)	15
2	Maximum exposure		Highway (high speed vehicles): 2000 Urban: 5000
3	Minimum gain	Controls amplification of the image coming from the sensor (centibel)	10
4	Maximum gain		350
5	Illumination duration	Duration of the infrared light pulse (microseconds)	100
6	Illuminator power	Adjust the power of infrared illuminator (%)	Gantry on highway (no public lighting): 30-40 Urban pole: 10-30
7	Target brightness	Adjust average brightness of the picture (0-255)	140 (the higher this value the brighter the image)
8	Streaming protocol	hls / webrtc / no stream webrtc currently not supported (future development)	hls
9	JPEQ quality	Adjust the compression level of the picture	60
10	Image Size	Resize of the image	100



CONFIGURATION

Camera Settings

Settings menu

Black & White sensor

Minimum exposure (μs):	20	⌵
Maximum exposure (μs):	4000	⌵
Minimum gain (cb):	50	⌵
Maximum gain (cb):	350	⌵
Illumination duration (μs):	100	⌵
Illuminator power (%):	20	⌵
Target brightness:	120	⌵
Streaming protocol:	no stream	⌵
JPEG quality (%):	80	⌵
Image size (%):	100	⌵

Winner image: full crop

Winner image configuration

Full



Crop



Disclaimer: while the interface is ready to accept this functionality, the development is still planned. Release date: **tbd**

CONFIGURATION

Camera Settings – color sensor

Settings menu

Color sensor

Minimum exposure (μ s): 15 1

Maximum exposure (μ s): 4000 2

Minimum gain (cb): 10 3

Maximum gain (cb): 350 4

Target brightness: 130 5

Streaming protocol: hls 6

JPEG quality (%): 80 7

Image size (%): 100 8

	Parameter	Description	Recommended values
1	Minimum exposure	Time span during which the sensor of the camera is exposed to light when taking a picture (microseconds)	60
2	Maximum exposure		4000
3	Minimum gain	Controls amplification of the image coming from the sensor (centibel)	100
4	Maximum gain		350
5	Target brightness	Adjust average brightness of the picture (0-255)	140
6	Streaming protocol	hls / webrtc / no stream webrtc currently not supported (future development)	hls
7	JPEQ quality	Adjust the compression level of the picture	60
8	Image Size	Resize of the image	100

CONFIGURATION

Camera Settings – field of view

Settings menu

Switch between B&W and color streams

Warning

Due to the delay caused by the HLS streaming protocol, you won't see the camera move instantly. Adjust angles gradually when changing the position of the camera.

There is no stopping limit on the motors. If you reach the end of the maximum motion, the gears may disengage from the lead screw.

The screenshot displays a configuration interface with a dark blue background. At the top, there are four tabs: 'Black & White Sensor', 'Color sensor', 'Field of view' (which is selected), and 'Pipeline'. On the left, a sidebar lists menu items: 'System & network', 'Central server', 'Camera' (highlighted), 'Regions of Interest', 'iCar5-AverageSpeed', and 'Certified modules'. The main content area is titled 'Field of view' and contains two control panels. The 'Tilt' panel shows a vertical double-headed arrow and a slider. The 'Pan' panel shows a horizontal double-headed arrow and a slider. Below these panels is a live video feed of a street scene with a white van in the foreground and a dark car in the background. A small square icon with a double-headed arrow is located in the top right corner of the video feed. An orange callout box points to this icon with the text 'Switch between B&W and color streams'. Another orange callout box points to the 'Tilt' and 'Pan' control panels with the text 'Set the tilt and the pan angles of the camera'.

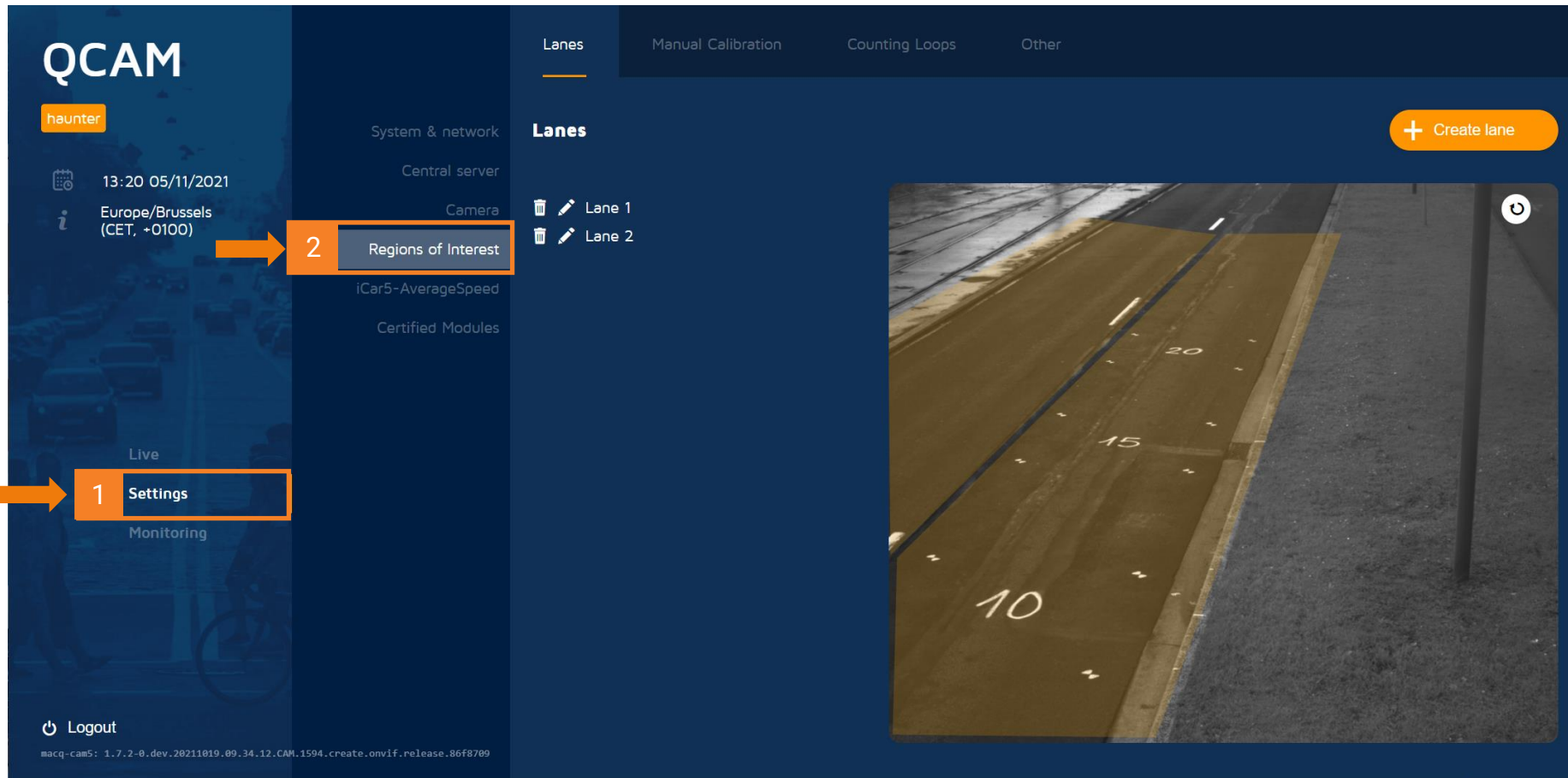
Configuration

1. System & network
2. M³ server connection
3. Camera settings
- 4. Region of interest**
5. Icar5 Average speed

CONFIGURATION

Region of interest – access the menu

Settings menu



CONFIGURATION

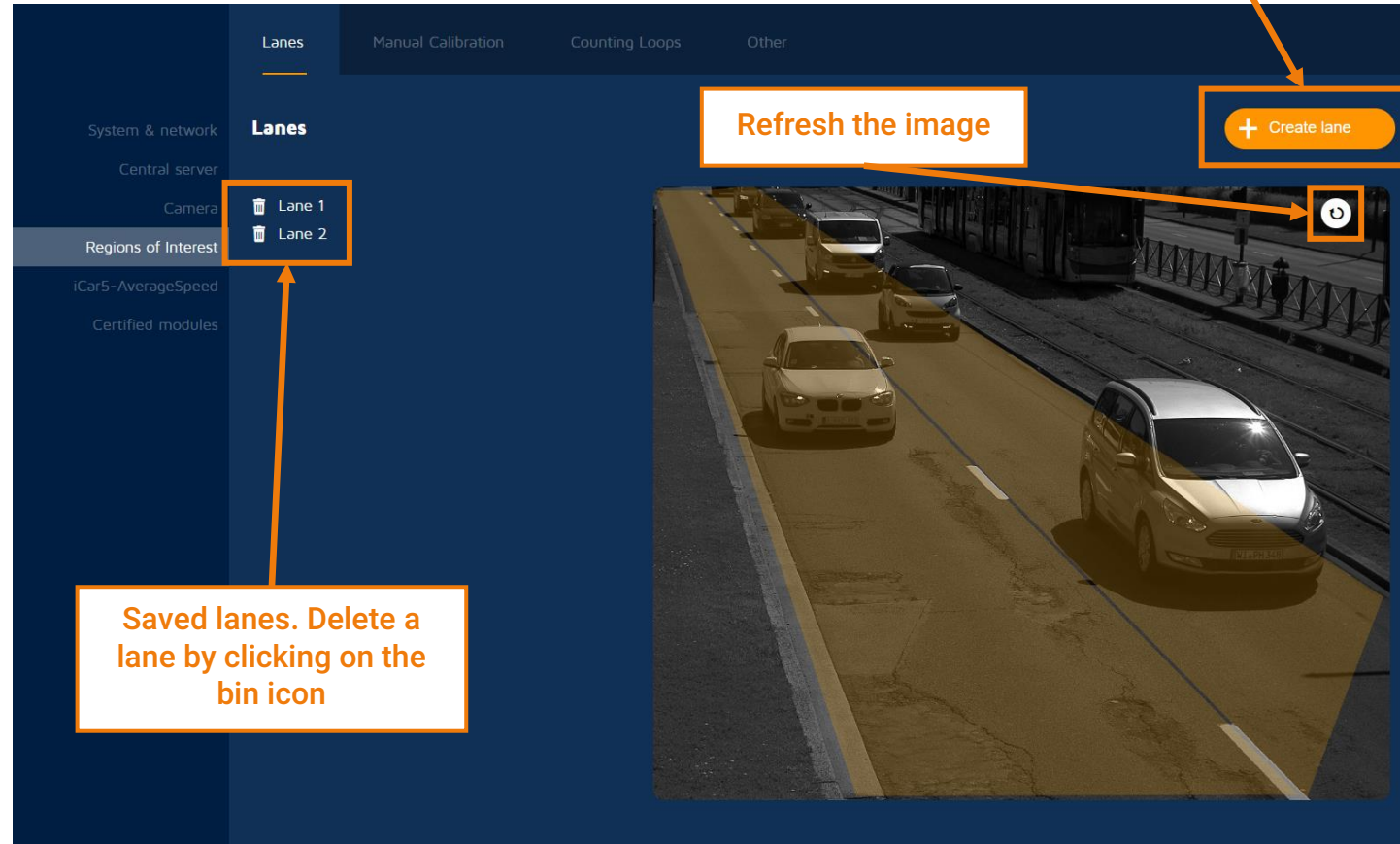
Region of interest – Lanes

Lane definition (max 4)

1. Click on the **Create lane** button
2. Shape the lane directly on the preview image
3. Save your configuration

Defining Lanes

Lanes are used to identify the traffic lane in which the license plate of a vehicle spends most of its time (optional metadata field)



Settings menu

Create a new lane polygon

Refresh the image

+ Create lane

Saved lanes. Delete a lane by clicking on the bin icon

CONFIGURATION

Region of interest – Speed estimation

Settings menu

The screenshot displays the QCAM interface with the following details:

- QCAM haunter**
- 13:26 05/11/2021
- Europe/Brussels (CET, +0100)
- Navigation menu: Live, Settings, Monitoring
- Logout button
- macq-cam5: 1.7.2-0.dev.20211019.09.34.12.CAM
- Bottom status bar: 555453, 8438, 4250

Detection details

- Plate: 1UFM817
- Country: BE
- Type: CAR
- Make: Fiat
- Model: 500
- Color: WHITE
- Speed (km/h): 0** (highlighted with a red box and arrow)
- Direction: Going away
- Lane: Lane 2
- Regulation: (partially visible)

Detections

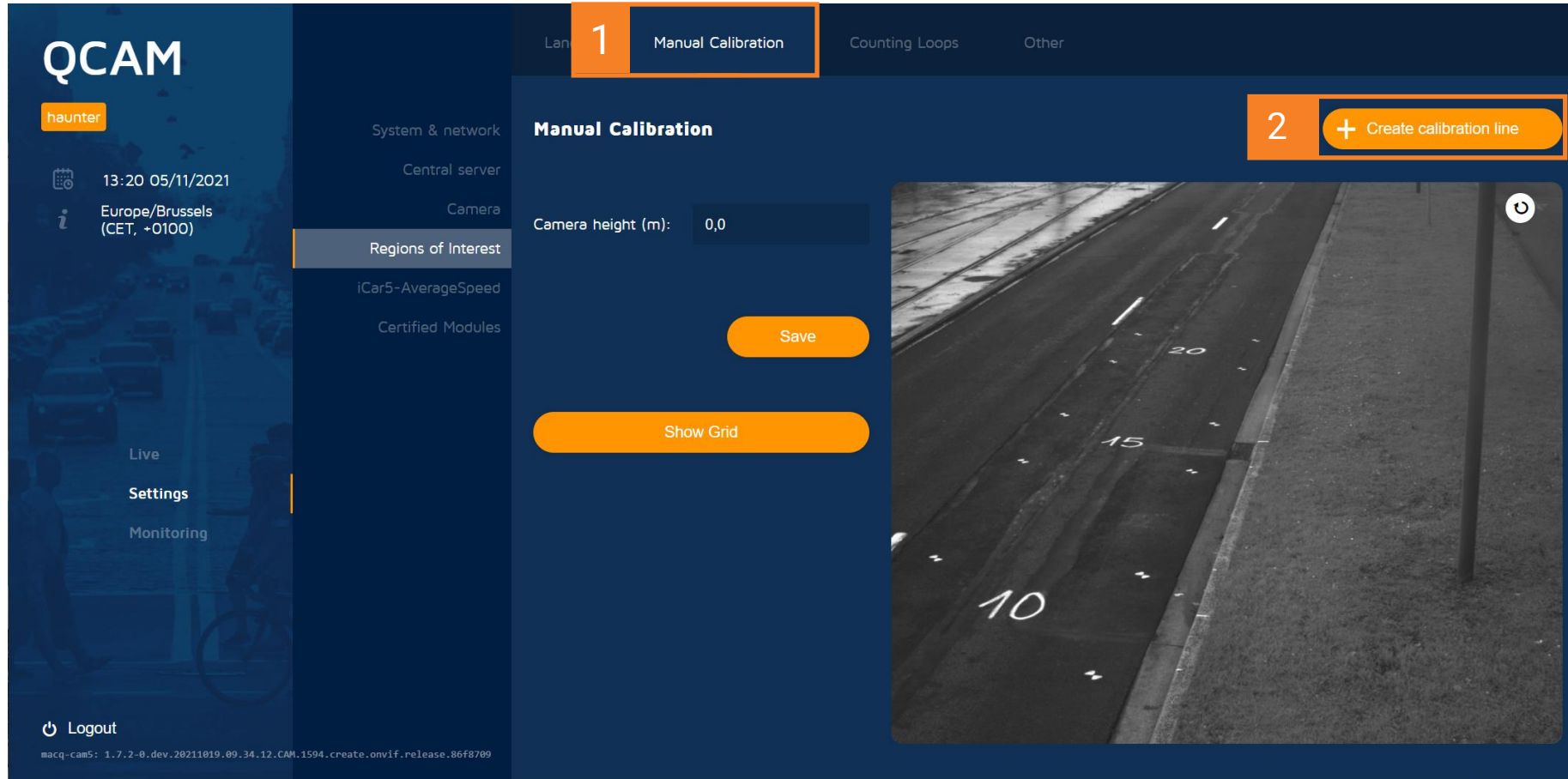
- 6 seconds: 1UFM817
- 13 seconds: 1FEL691
- 15 seconds: KKT330
- 16 seconds: 1KKT307
- 22 seconds: 1FPP852
- 25 seconds: 1PNY053
- 34 seconds: (partially visible)

Speed estimates of 0 km/h

CONFIGURATION

Settings menu

Region of interest – Speed estimation



1 Create line by clicking on the right image

CONFIGURATION

Region of interest – Speed estimation

The screenshot displays the 'Manual Calibration' configuration page. On the left, a sidebar lists navigation options: System & network, Central server, Camera, Regions of Interest (highlighted), iCar5-AverageSpeed, and Certified Modules. The main content area shows the 'Manual Calibration' section with the instruction 'Select at least 2 points' and a 'Camera height (m): 0,0' input field. Below this are 'Save' and 'Show Grid' buttons. A video feed of a road with speed markings (10, 15, 20) is shown. A yellow dot is placed on the road surface, and an orange arrow points to it from a text box that says 'Create line by clicking on the right image'. The video feed has zoom controls in the top right corner.

Settings menu

Tip
Use the zoom function for additional precision. When hovering with your mouse over the image to the right, it is possible to zoom in and out by scrolling up (zoom in) or down (zoom out).

CONFIGURATION

Region of interest – Speed estimation

Settings menu

Manual Calibration

Select at least 2 points

Type

Select a type

Cancel Save

Camera height (m): 0,0

Save

Show Grid

Once the line is drawn, select a line type and save it

For a good calibration

- Two *vertical* and two *horizontal* lines must be created
- Vertical lines should be parallel to the road and road markings
- Horizontal lines are perpendicular to the vertical lines

CONFIGURATION

Region of interest – Speed estimation

Settings menu

The screenshot displays the 'Manual Calibration' configuration screen. The 'Type' dropdown is set to 'Horizontal Line 1'. The 'Camera height (m)' is set to '0,0'. There are 'Cancel' and 'Save' buttons. A 'Show Grid' button is at the bottom. The video feed shows a road with lane markings and a yellow horizontal line drawn across it. An orange arrow points from a text box to the line.

Then draw the horizontal lines

CONFIGURATION

Region of interest – Speed estimation

Settings menu

The screenshot shows the 'Manual Calibration' tab in a configuration application. On the left, a sidebar lists menu items: System & network, Central server, Camera, Regions of Interest (highlighted), iCar5-AverageSpeed, and Certified Modules. The main panel has a top navigation bar with 'Manual Calibration' selected. Below it, there are four calibration options: Vertical Line 1, Vertical Line 2, Horizontal Line 1, and Horizontal Line 2, each with a trash icon and an edit icon. A 'Camera height (m):' field is set to '4.7'. Below this are 'Save' and 'Show Grid' buttons. A '+ Create calibration line' button is in the top right. The central part of the screen shows a camera view of a road with yellow calibration lines and white markings '10' and '20'. A callout box with an orange border points to the 'Camera height' field and contains the text: 'Once all lines drawn, define the camera height (in meters)'. A small circular refresh icon is in the top right of the camera view.

CONFIGURATION

Region of interest – Speed estimation

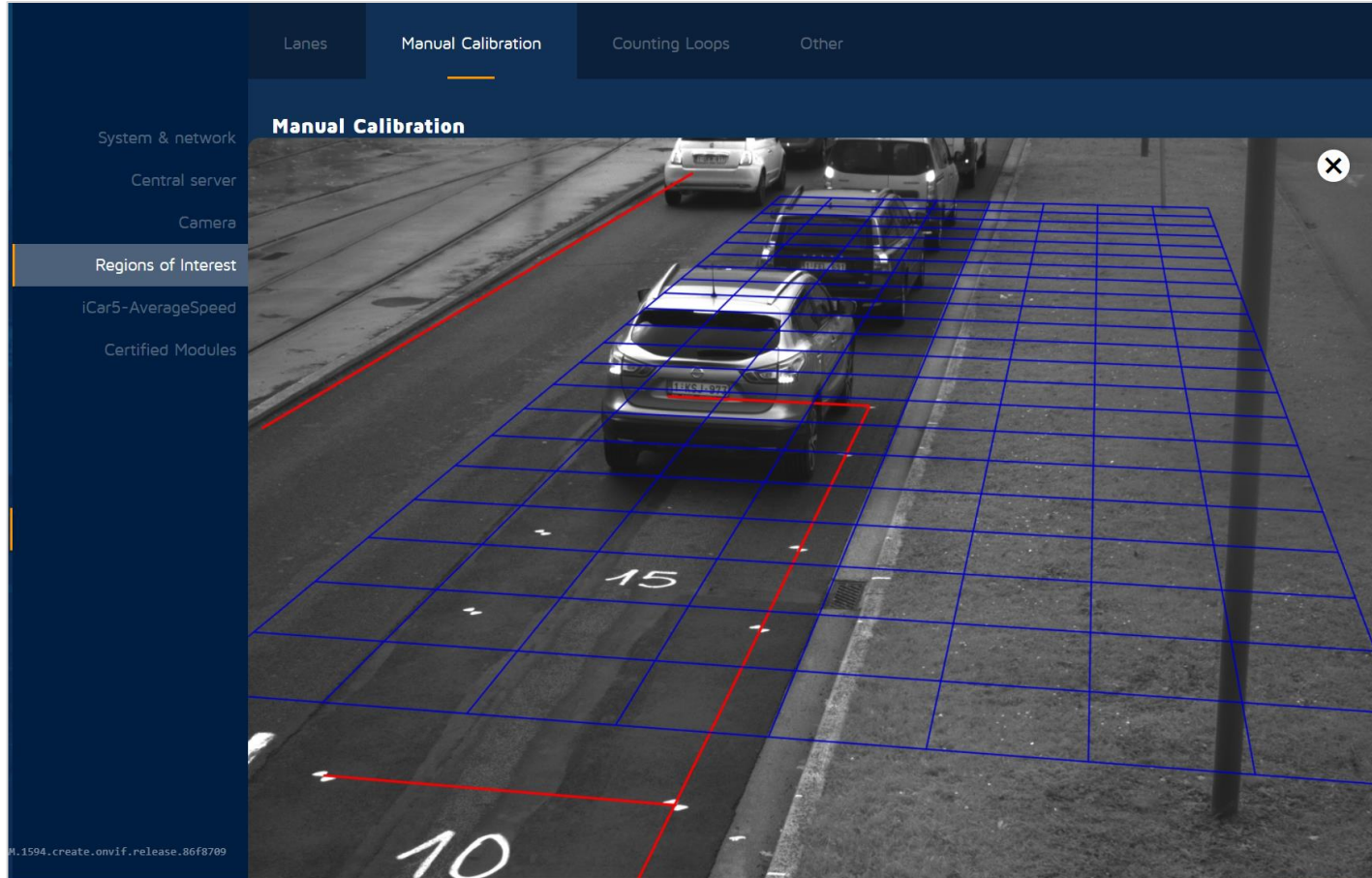
The screenshot shows the 'Manual Calibration' tab in the configuration interface. On the left, a sidebar lists menu items: System & network, Central server, Camera, Regions of Interest (highlighted), iCar5-AverageSpeed, and Certified Modules. The main area is titled 'Manual Calibration' and includes a '+ Create calibration line' button. Below this, there are four options: Vertical Line 1, Vertical Line 2, Horizontal Line 1, and Horizontal Line 2, each with a trash icon and a pencil icon. A 'Camera height (m):' field is set to 4.7. A 'Save' button is located below the height field. At the bottom, a 'Show Grid' button is highlighted with an orange box. To the right, a camera view shows a road with yellow calibration lines and a white grid overlay. A callout box with an arrow pointing to the 'Show Grid' button contains the text: 'Finally verify your installation and click on show grid'. The bottom left corner of the interface shows the text '1.1594.create.onvif.release.86f8709'.

Settings menu

Note
Functionality available since V1.8.0 of the camera

CONFIGURATION

Region of interest – Speed estimation



Settings menu

Note

Every grid cell corresponds to a 1 x 1 meter square on the road

CONFIGURATION

Region of interest – Speed estimation

Settings menu

QCAM
haunter

14:22 05/11/2021
Europe/Brussels (CET, +0100)

Live
Settings
Monitoring

Logout
macq-cam5: 1.7.2-0_dev.20211019_09_34_12.CAM

Back to live
Download

Detection details

Plate
1YQS403

Country
BE

Type
CAR

Make
BMW

Model
3

Color
GRAY

Speed (km/h)
48

Direction
Going away

Lane
Lane 1

Regulation
Exposure: 1500 µs
Gain: 80 cb
Power: 70 %

Time
14:22:32 05/11/2021 CET

Detections

Search x Q

- + 8 seconds
1YQS403
- + 15 seconds
CDAY503
- + 1 minutes
1UKX087
- + 1 minutes
RB167G
- + 1 minutes
2BDP726
- + 1 minutes
2BES169
- + 1 minutes
TJ157B
- + 1 minutes
1YQS666

556119 8448 4253

The camera will now estimate the speed of each car

CONFIGURATION

Region of Interest – counting loop

Settings menu

Create a loop

1. Click on the **Create counting loop** button
2. Create the loop directly on the preview image
3. Save you configuration

What are counting loops?

- Counting loops are lines drawn on the screen
- The purpose of counting loops is to count the number of vehicles that cross the line

Create a new counting loop

Refresh the image

+ Create counting loop

Loop 1

Loop 2

Saved lane visualisation. Delete a loop by clicking on the bin

Counting loop

Disclaimer: while the interface is ready to accept this functionality, the development is still planned. Release date: **tbd**

CONFIGURATION

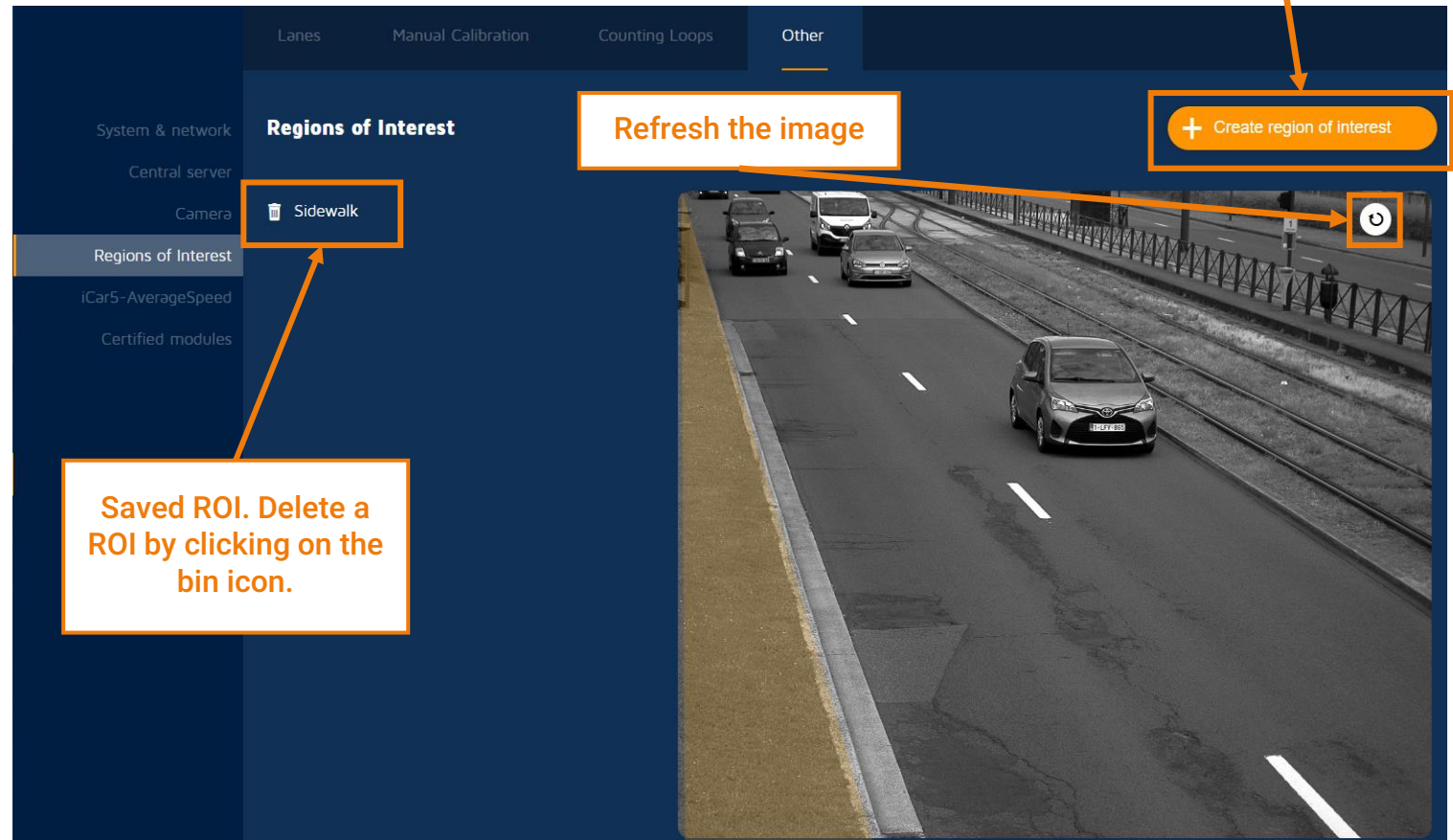
Region of interest - other

Create other type of regions

1. Click on the **Create region of interest** button
2. Shape the region directly on the preview image
3. Save your configuration

The ROI module allows you to create different types of region of interest, such as:

- Sidewalk
- Intersection
- Bicycle lane
- Safety lane
- Traffic light



Configuration

1. System & network
2. M³ server connection
3. Camera settings
4. Region of interest
5. **Icar5 Average speed**

CONFIGURATION

Average speed certification module

Settings menu

iCar5-AverageSpeed

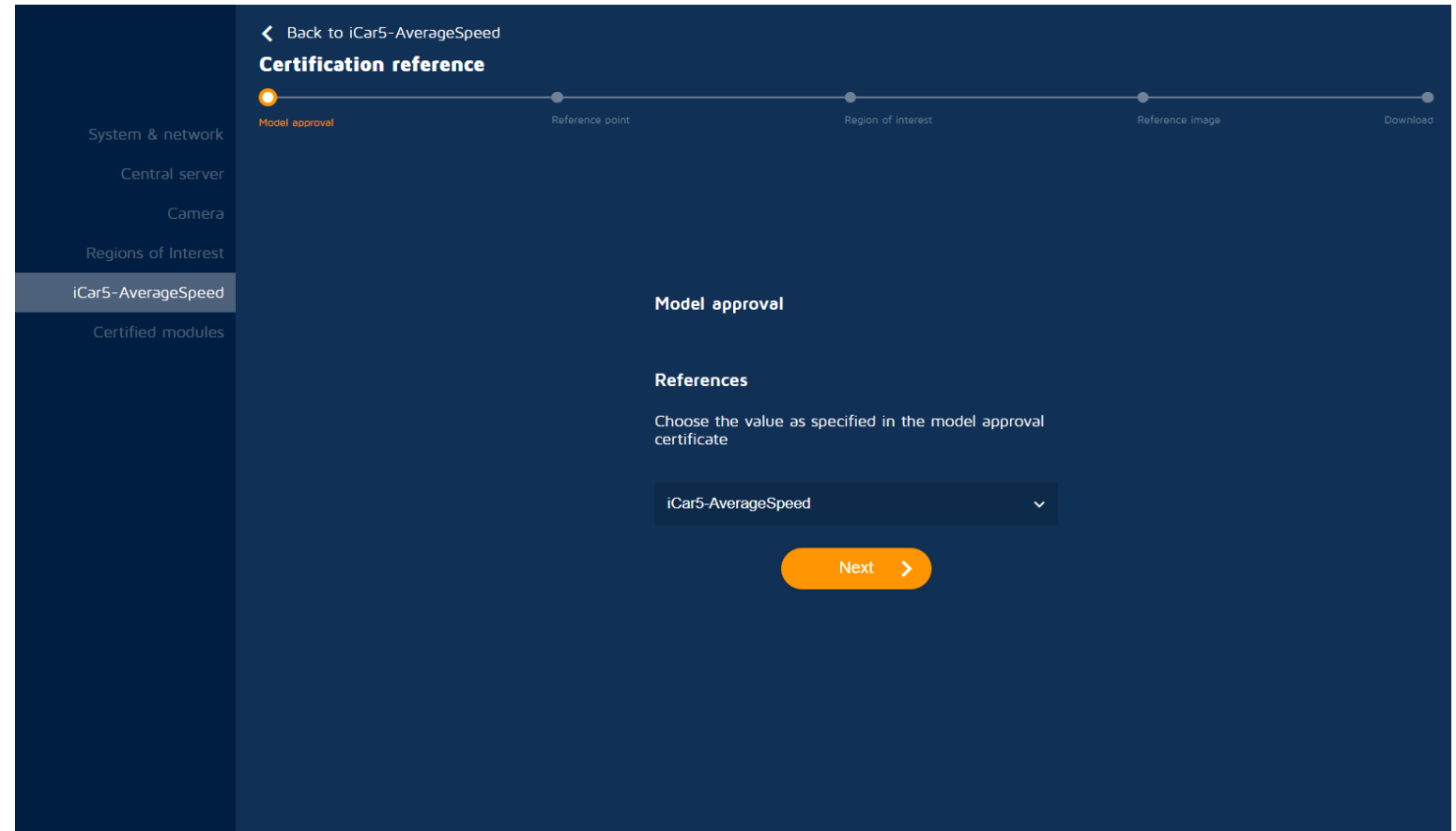
This module is used for the certified average speed application (i.e. speed control on a trajectory).

Every certified application has certified modules, listed in the section « Certified modules »

Disclaimer:

More information on the certified average speed application and its configuration can be found in the appropriate documentation.

Contact your Macq representative.

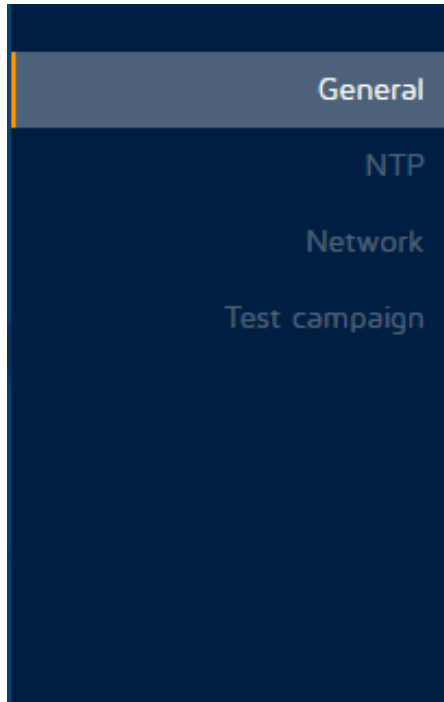




Monitoring

Monitoring Overview

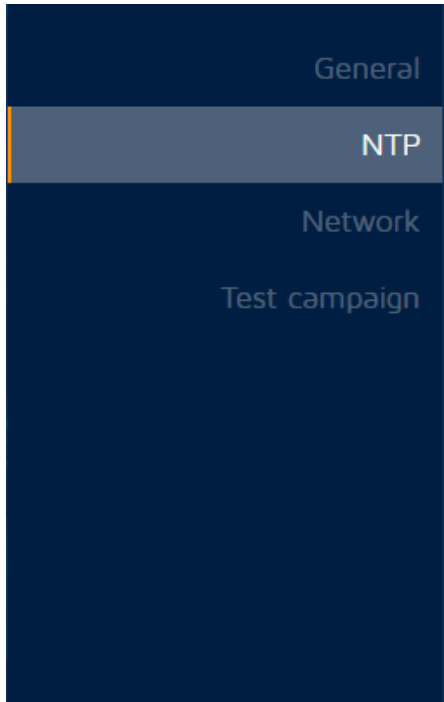
Monitoring
menu



<i>Sub menu</i>	<i>Content</i>
General monitoring → general information on the system, hardware and software packages	System <ul style="list-style-type: none">• CPU usage• Disk usage• Memory usage• GPS information Hardware <ul style="list-style-type: none">• Illuminator• FPGA• Sensors• Power consumption• Operating temperatures• External Memory Controller (EMC) information• GPU information• TX2 module information Software packages <ul style="list-style-type: none">• Processes uptime• Installed packages & version Reboot button

Monitoring Overview

Monitoring
menu



<i>Sub menu</i>	<i>Content</i>
NTP → information on the NTP synchronisation	<ul style="list-style-type: none">• NTP server address• delay• offset• jitter
Network → ip addresses configured on the camera (output of the ifconfig command)	<ul style="list-style-type: none">• eth0 : ethernet physical interface• lo : loopback interface, always 127.0.0.1• wlan0 : Wi-Fi interface
Test campaign → useful when you want to record a video to perform a test campaign on the camera	

Monitoring Test campaign page

Monitoring
menu

QCAM
sales2

15:35 11/05/2021
Europe/Brussels (CEST, +0200)

General
NTP
Network
Test campaign
Live
Settings
Monitoring

Test campaigns + Schedule a new test campaign

ReleaseTest-9AM Remove

Duration (seconds)	300
Status	completed
Start time (local)	26/04/2021 09:30:20
Size on disk	706.753 Mb
Video	See the video
Detections	See detections

ReleaseTest-6AM Remove

Duration (seconds)	300
Status	completed
Start time (local)	27/04/2021 06:01:10
Size on disk	620.17 Mb
Video	See the video
Detections	See detections

Logout
https://10.2.40.66/api/monitoring/general

Schedule a new
campaign

List of past and
scheduled campaigns

Monitoring

Creating a campaign

Monitoring
menu

Create test campaign

1. Provide a name for the campaign
2. Provide a duration (in seconds)
3. Put a start time
4. Click the **Save** button

Test campaign

General

NTP

Network

Test campaign

Name:

Duration (seconds):

Start time (local):

11/05/2021 15:40:50

< Cancel Save

Monitoring

Viewing test campaigns

Monitoring menu

The screenshot displays the QCAM monitoring interface. On the left, there is a sidebar with the QCAM logo, user information (sales2, 15:35 11/05/2021, Europe/Brussels), and navigation options (Live, Settings, Monitoring). The main content area is titled 'Test campaigns' and features a '+ Schedule a new test campaign' button. Two test campaigns are listed: 'ReleaseTest-9AM' and 'ReleaseTest-6AM'. Each campaign entry includes a 'Remove' button, 'Duration (seconds)', 'Status', 'Start time (local)', 'Size on disk', 'Video' (with 'See the video' link), and 'Detections' (with 'See detections' link). The 'ReleaseTest-9AM' campaign is highlighted with an orange box, and its 'Status' is 'completed'. The 'ReleaseTest-6AM' campaign is also shown with a 'completed' status.

Campaign Name	Duration (seconds)	Status	Start time (local)	Size on disk	Video	Detections
ReleaseTest-9AM	300	completed	26/04/2021 09:30:20	706.753 Mb	See the video	See detections
ReleaseTest-6AM	300	completed	27/04/2021 06:01:10	620.17 Mb	See the video	See detections

Campaign name

Remove the test campaign and associated data
! Its your responsibility to clean up the campaign data

Status
(initializing/recording/completed)

Watch recording of test campaign

View the detections

Monitoring

Test campaign results

Campaign name

Export detections (JSON format)

Monitoring menu

The screenshot displays a monitoring interface for a test campaign. On the left is a dark blue sidebar with a menu containing 'General', 'NTP', 'Network', and 'Test campaign'. The main area is titled 'Detections of the campaign "Test-7aM"' and includes buttons for 'Export detections' and 'Export video'. Below this is a grid of nine detection cards. Each card shows a timestamp, a date, a time zone, a camera icon, a license plate number, and a status icon. The third card in the first row is highlighted with an orange box, and its license plate '1AQ010' is highlighted with a blue box. Arrows from external labels point to these elements.

Timestamp	Date	Time Zone	License Plate	Status
07:13:51	02/05/2021	CEST	1VES817	Success
07:13:52	02/05/2021	CEST	1XDR034	Success
07:13:54	02/05/2021	CEST	1AQ010	Success
07:15:28	02/05/2021	CEST	1HET173	Success
07:17:30	02/05/2021	CEST	1DVF906	Success
07:18:13	02/05/2021	CEST	1KDZ166	Success
07:20:27	02/05/2021	CEST	1TUV849	Success
07:20:36	02/05/2021	CEST	TXAF869	Success
07:22:05	02/05/2021	CEST	1ULU390	Success

ANPR detection (clickable)

ANPR reading confidence

Vehicle type



THANK YOU