

Guideline

Vaxtor Aircraft Identification Number Recognition App

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Support

MOBOTIX Support

If you need technical support, please contact your MOBOTIX dealer. If your dealer cannot help you, he will contact the support channel to get an answer for you as quickly as possible.

If you have internet access, you can open the MOBOTIX help desk to find additional information and software updates.

Please visit www.mobotix.com > **Support** > **Help Desk**.



MOBOTIX eCampus

The MOBOTIX eCampus is a complete e-learning platform. It lets you decide when and where you want to view and process your training seminar content. Simply open the site in your browser and select the desired training seminar.

Please visit www.mobotix.com/ecampus-mobotix.



MOBOTIX Community

The MOBOTIX community is another valuable source of information. MOBOTIX staff and other users are sharing their information, and so can you.

Please visit community.mobotix.com.



Safety Notes

- This product must not be used in locations exposed to the dangers of explosion.
- Do not use this product in a dusty environment.
- Protect this product from moisture or water entering the housing.
- Install this product as outlined in this document. A faulty installation can damage the product!
- This equipment is not suitable for use in locations where children are likely to be present.
- When using a Class I adapter, the power cord shall be connected to a socket-outlet with proper ground connection.
- To comply with the requirements of EN 50130-4 regarding the power supply of alarm systems for 24/7 operation, it is highly recommended to use an uninterruptible power supply (UPS) for backing up the power supply of this product.

Legal Notes

Legal Aspects of Video and Sound Recording

You must comply with all data protection regulations for video and sound monitoring when using MOBOTIX AG products. Depending on national laws and the installation location of the cameras, the recording of video and sound data may be subject to special documentation or it may be prohibited. All users of MOBOTIX products are therefore required to familiarize themselves with all applicable regulations and to comply with these laws. MOBOTIX AG is not liable for any illegal use of its products.

Declaration of Conformity

The products of MOBOTIX AG are certified according to the applicable regulations of the EC and other countries. You can find the declarations of conformity for the products of MOBOTIX AG on www.mobotix.com under **Support > Download Center > Marketing & Documentation > Certificates & Declarations of Conformity**.

RoHS Declaration

The products of MOBOTIX AG are in full compliance with European Unions Restrictions of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS Directive 2011/65/EC) as far as they are subject to these regulations (for the RoHS Declaration of MOBOTIX, please see www.mobotix.com, **Support > Download Center > Marketing & Documentation > Brochures & Guides > Certificates**).

Disposal

Electrical and electronic products contain many valuable materials. For this reason, we recommend that you dispose of MOBOTIX products at the end of their service life in accordance with all legal requirements and regulations (or deposit these products at a municipal collection center). MOBOTIX products must not be disposed of in household waste! If the product contains a battery, please dispose of the battery separately (the corresponding product manuals contain specific directions if the product contains a battery).

Disclaimer

MOBOTIX AG does not assume any responsibility for damages, which are the result of improper use or failure to comply to the manuals or the applicable rules and regulations. Our General Terms and Conditions apply. You can download the current version of the **General Terms and Conditions** from our website at www.mobotix.com by clicking on the corresponding link at the bottom of every page.

About Vaxtor Aircraft Identification Number Recognition App

Recognition of ICAO- and FAA-issued identification numbers (AIN)

The certified Vaxtor Aircraft Identification Number Recognition App recognizes, based on deep learning processes AIN codes (Aircraft Identification Number) which adhere to the International standard. The OCR engine takes advantage of many current integrations and publishing capabilities that have been developed over many years.

- Recognition of ICAO- and FAA-issued identification numbers
- Identification and tracking in real-time during parking, take-off and landing
- Infrastructure expansion possible without having to interfere with existing air traffic processes and operations
- MOBOTIX events via MxMessageSystem
- Consolidated event search via MxManagementCenter Smart Data Interface and / or MOBOTIX HUB
- meta data transfer through generic transmission protocols and / or pre-defined 3rd party interfaces
- Two lists for individual actions (e.g. access granted/denied, alarm, etc.)

CAUTION! Thermal sensors are not supported by this app.

Smart Data Interface to MxManagementCenter

This app has a Smart Data interface to MxManagementCenter.

With the MOBOTIX Smart Data System, transaction data can be linked to the video recordings made at the time of the transactions. Smart Data source can be e.g. MOBOTIX Certified Apps (no license required) or general Smart Data sources (license required) like POS systems or license plate recognition systems.

The Smart Data System in MxManagementCenter enables you to quickly find and review any suspicious activities. The Smart Data Bar and the Smart Data View are available for searching and analyzing transactions. The Smart Data Bar provides a direct overview of the most recent transactions (from the last 24 hours) and for this reason it is convenient to use it for reviews and searches.

NOTE! For information on how to use the Smart Data System, see the corresponding online help of the camera software and MxManagementCenter.

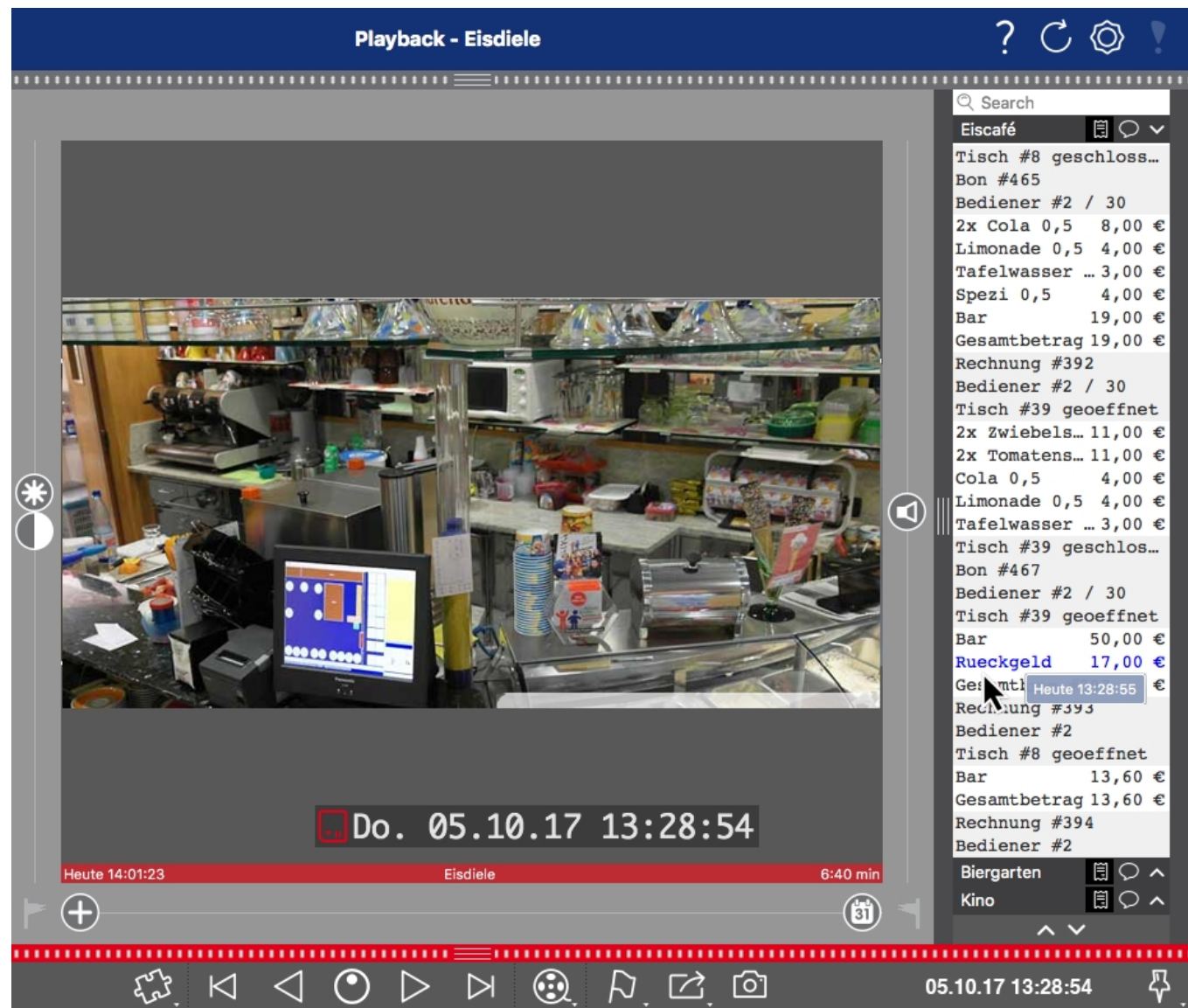


Fig. 1: : Smart Data Bar in MxManagementCenter (Example: POS System)

Technical Specifications

Product Information

Product Name	Vaxtor Aircraft Identification Number Recognition App
Order Code	Mx-APP-VX-AIN
Supported MOBOTIX Cameras	Mx-M73A, Mx-S74A
Minimum Camera Firmware	v7.3.0.x
MxManagementCenter compatibility	<ul style="list-style-type: none">■ min. MxMC v2.5.3■ Configuration: Advanced Config license required■ Event Search: Smart Data Interface license included
MOBOTIX HUB compatibility.	<ul style="list-style-type: none">■ min. MOBOTIX HUB version: 2021 R1■ min. MOBOTIX HUB license level (Analytics Events): L2■ min. MOBOTIX HUB license level for Event Search Plug-In : L4

Product Features

App Features	<ul style="list-style-type: none">■ Recognition of ICAO- and FAA-issued identification numbers■ Operations up to a speed of 50 km/h■ Recognition log (Smart Data / Event Search via MxManagementCenter)■ MOBOTIX events via MxMessageSystem■ Two lists for individual actions (e.g. access granted/denied, alarm, etc.)■ Free flow and Signaled mode
Maximum number of recognition areas	1
Maximum number of enrolled AIN codes	5000 per list
Meta Data / Statistic formats	JSON, XML
Trial License	30-day trial license pre-installed

Technical Specifications

Smart Data Interface to MxManagementCenter

MxMessageSystem supported	Yes
Integration Interfaces	<ul style="list-style-type: none">■ MxMC Smart Data■ IP Notification■ Milestone X-Protect (Analytics Events, Transmission Plug-In)■ Network Optix NxWitness■ MOBOTIX SYNC■ Genetec Security Center (Custom Events, Bookmarks)■ generic 3rd party integration through FTP and / or XML / JSON via HTTP(S)■ compare supported camera's interfaces
MOBOTIX Events	Yes
ONVIF Events	Yes (Generic Message event)

Supported Aircraft Identification Numbers

Supported Aircraft Identification Numbers	ICAO- and FAA-issued identification numbers
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Scene Requirements

Character Height	20px - 50px
Maximum Vertical Angle	30°
Maximum Horizontal Angle	< 25°
Maximum Tilt Angle	< 25°

Technical App Specifications

Synchronous / Asynchronous App	asynchronous
Simultaneous execution of other apps	No
Accuracy	min. 99% (considering scene requirements)

Processed frame rate	typ. 10 fps
Detection time	typ. 300 ms per number

Licensing Certified Apps

The following licenses are available for the Vaxtor Aircraft Identification Number Recognition App:

- **30-day test license** pre-installed
- **permanent commercial license**

The usage period begins with activation of the app interface (see)

NOTE! For buying or renewing a license, contact your MOBOTIX Partner.

NOTE! Apps are usually pre-installed with the firmware. In rare cases, apps must be downloaded from the website and installed. In this case see www.mobotix.com > **Support** > **Download Center** > **Marketing & Documentation**, download and install the app.

License Activation of Certified Apps in MxManagementCenter

After a test period commercial licenses must be activated for use with a valid license key.

Online-Activation

After receiving the activation IDs, activate them in MxMC as follows:

1. Select from the menu **Window > Camera App Licenses**.
2. Select the camera on which you want to license apps and click **Select**.

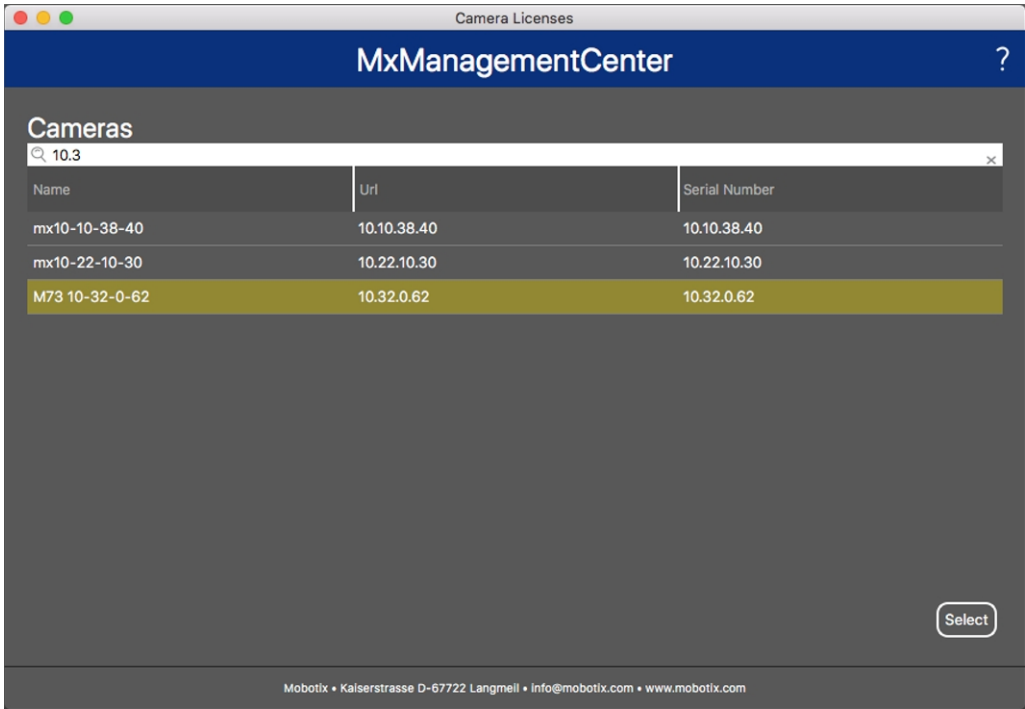


Fig. 2: Overview of Camera App Licenses in MxManagementCenter

NOTE! If necessary, correct the time set on the camera.

1. An overview of the licenses installed on the camera may be displayed. Click **Activate License**.

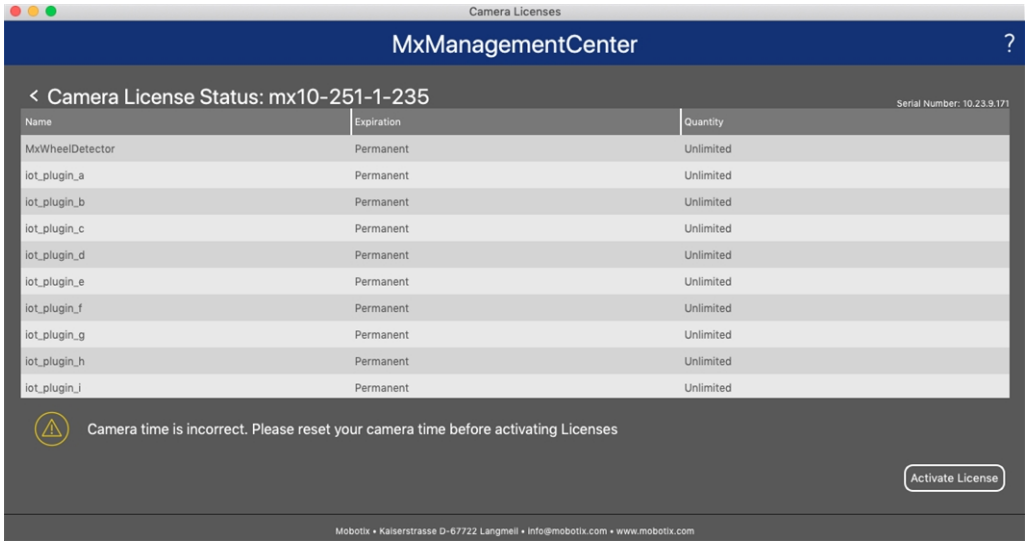



Fig. 3: Overview of the licenses installed on the camera

NOTE! If necessary, correct the time set on the camera.

2. Enter a valid Activation ID and specify the number of licenses to install on this computer.
3. If you want to license another product, click on . In the new row, enter the appropriate Activation ID and the number of licenses you want.

4. To remove a line click .
5. When you have entered all Activation IDs, click **Activate License Online**. During activation, **MxMC** connects to the license server. This requires an Internet connection.

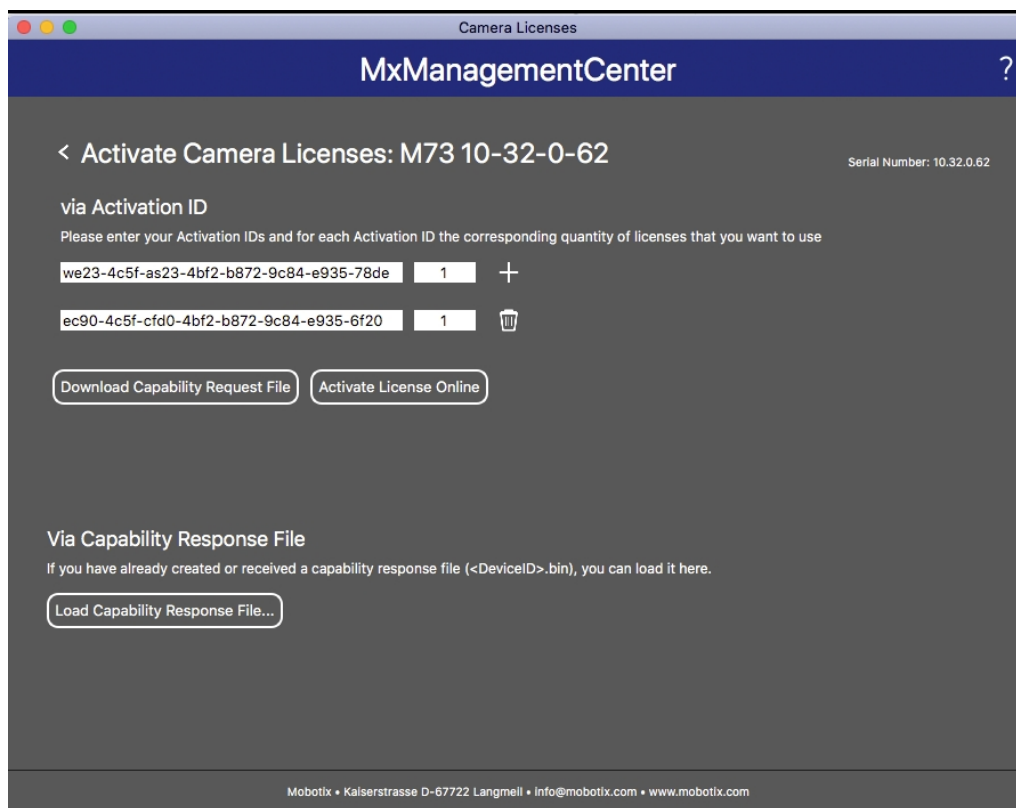


Fig. 4: Adding licenses

Successful activation

After successful activation, a new log in is required to apply the changes. Alternatively, you can return to license management.

Failed activation (missing internet connection)

If the license server cannot be reached, e.g. due to a missing internet connection, apps can also be activated offline. (see [Offline Activation](#), p. 16).

Offline Activation

For offline activation, the partner/installer from whom you purchased the licenses can generate a capability response (.bin file) on the license server to activate their licenses.

1. Select from the menu **Window > Camera App Licenses**.
2. Select the camera on which you want to license apps and click **Select**.

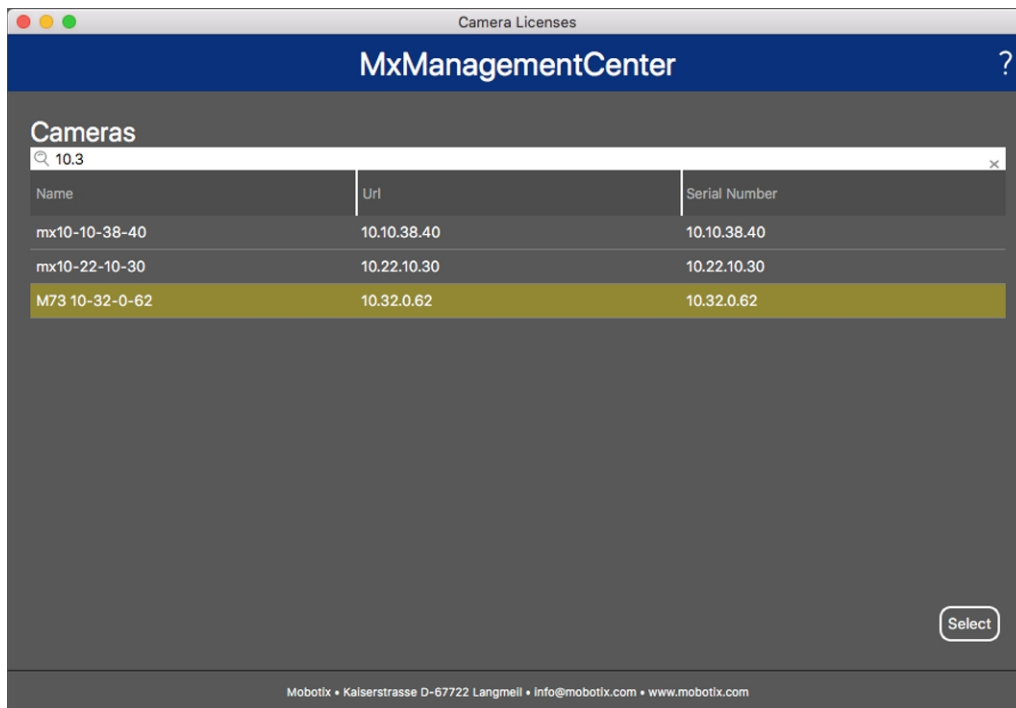


Fig. 5: Overview of Camera App Licenses in MxManagementCenter

NOTE! If necessary, correct the time set on the camera.

3. An overview of the licenses installed on the camera may be displayed. Click **Activate License**.





Fig. 6: Overview of the licenses installed on the camera

NOTE! If necessary, correct the time set on the camera.

Licensing Certified Apps

License Activation of Certified Apps in MxManagementCenter

4. Enter a valid Activation ID and specify the number of licenses to install on this computer.
5. If you want to license another product, click on . In the new row, enter the appropriate **Activation ID** and the number of licenses you want.
6. If necessary, click  to remove a line.
7. When you have entered all Activation IDs, click **Download Capability Request File (.lic)** and send it to your partner/installer.

NOTE! This file allows the partner / installer from whom you purchased the licenses to generate a capability response file (.bin) on the license server.

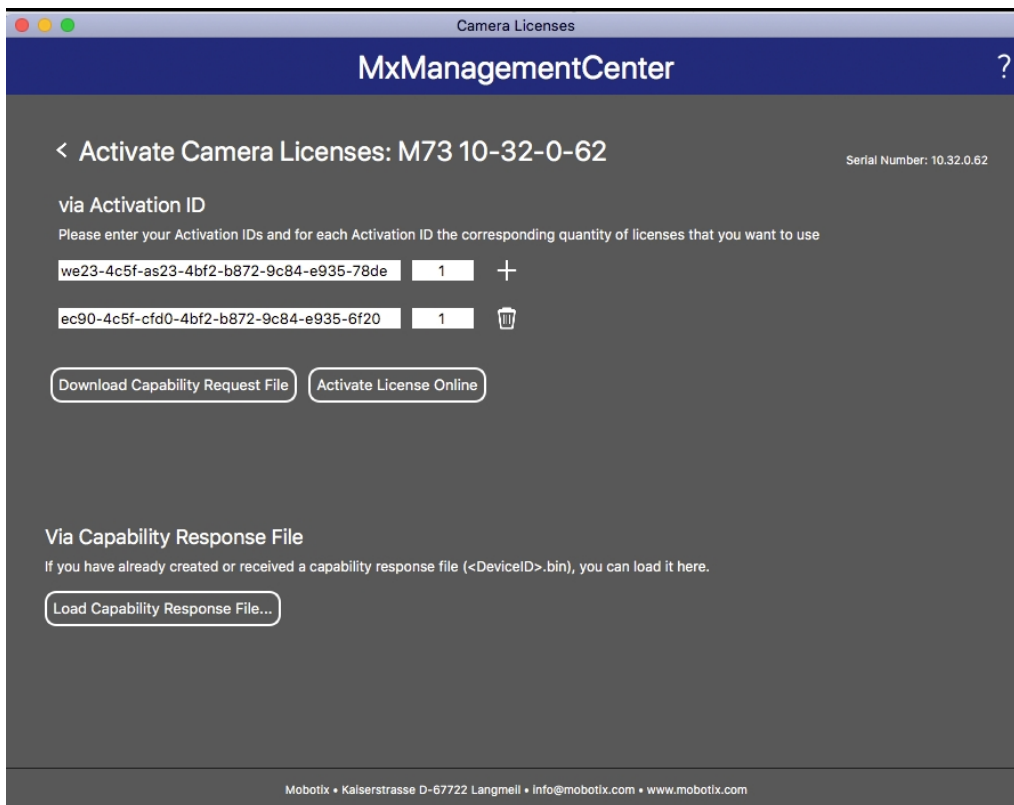


Fig. 7: Adding licenses

8. Click Load Capability Response File and follow the instructions.

Successful activation

After successful activation, a new log in is required to apply the changes. Alternatively, you can return to license management.

Managing Licenses in MxManagementCenter

In MxManagementCenter you can comfortably manage all licenses that have been activated for a camera.

1. Select from the menu **Window > Camera App Licenses**.
2. Select the camera on which you want to license apps and click **Select**.

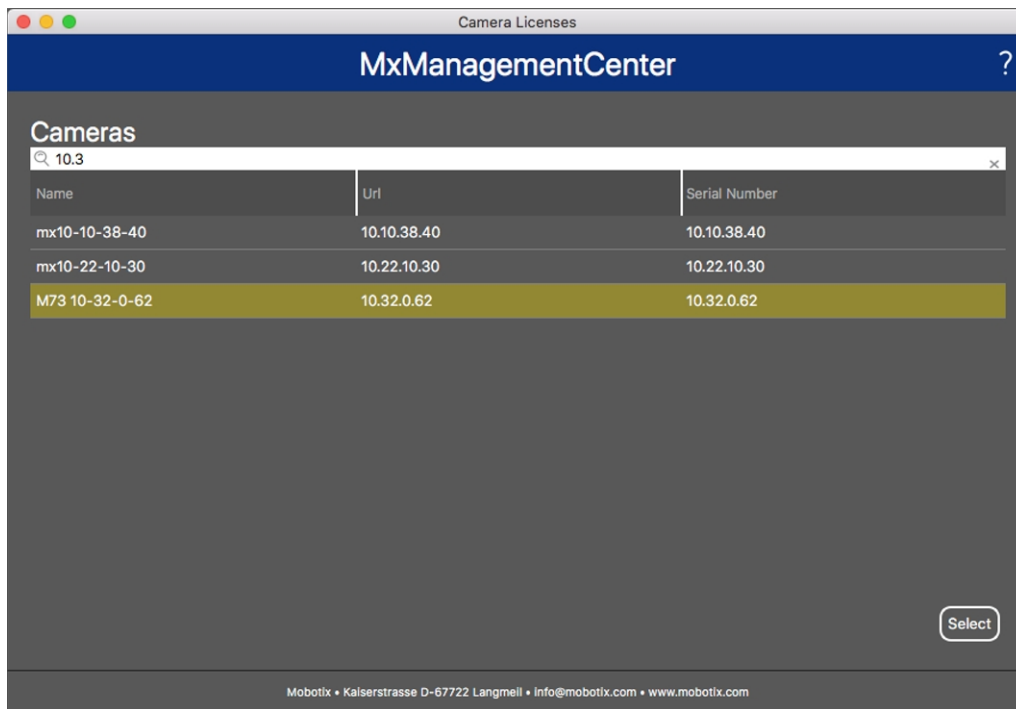


Fig. 8: Overview of Camera App Licenses in MxManagementCenter

An overview of the licenses installed on the camera may be displayed.

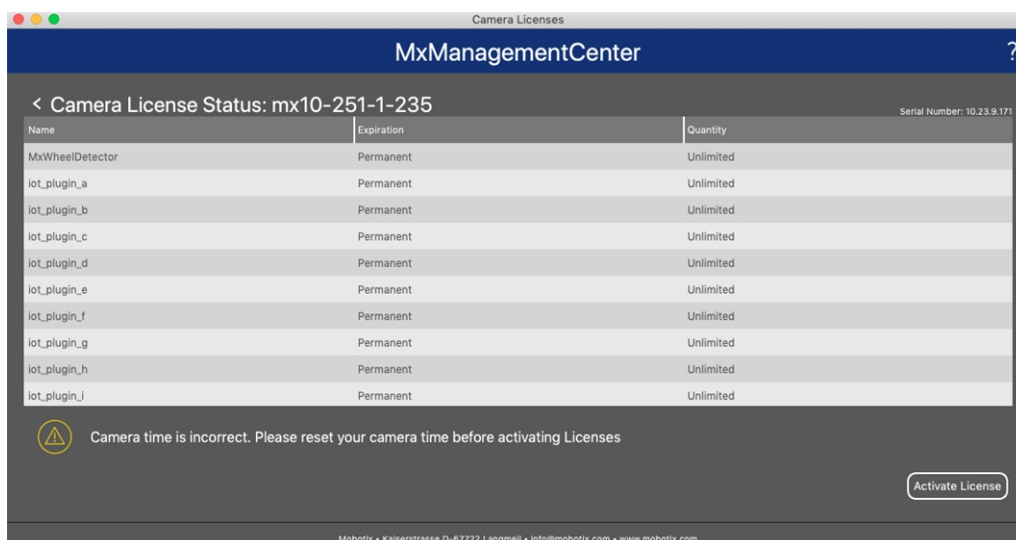


Fig. 9: Overview of the licenses installed on the camera

NOTE! If necessary, correct the time set on the camera.

Column	Explanation
Name	Name of the licensed app
Expiration	the time limit of the license
Quantity	Number of licenses purchased for a product.
Serial Number	Unique identification determined by MxMC for the device used. If problems occur during licensing, please have the device ID ready.

Synchronize licenses with server

When the program starts, there is no automatic comparison of the licenses between the computer and the license server. Therefore, click **Update** to reload the licenses from the server.

Update licenses

To update temporary licenses, click **Activate Licenses**. The dialog for updating/activating licenses opens.

NOTE! You need administrator rights to synchronize and update licenses.

Camera, image and scene requirements

The camera should be setup so that the combination of the distance, the lens's focal length and the camera's resolution provide an image that can be accurately analyzed by the OCR engine. Therefore the following pre-requisites must be fulfilled for the scene:

Quality of the AIN code to be captured in the image

- The AIN code must be high-contrast and clearly legible, i.e. as clean as possible, without dents or holes and well illuminated.
- The code must comply with the AIN standard
- Character height
 - To reliably recognize the code in the best possible quality, the height of the characters in the image must be between 20 px and 50 px.

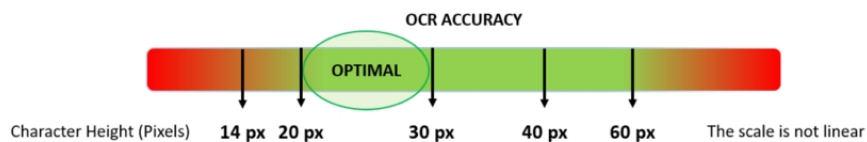


Fig. 10: Minimum character height

- Maximum rotation angle:
 - Vertical: $< 25^\circ$
 - Slope: $< 15^\circ$
 - Horizontal: $< 25^\circ$

Example of clearly recognizable AIN code



Fig. 11: Correct angle minimizes the risk of false recognition

Frame rate

The selection of the correct frame rate influences the recognition quality significantly.

Recommended frame rate: 10 fps

Shutter Speed (Exposure time)

Shutter speed, also known as the “exposure time”, is the length of time a camera shutter is open for in order to expose light onto the camera sensor. The shutter speed is measured in seconds, or fractions of a second. The bigger the denominator, the faster the speed. For example, 1/250th means one two-hundred-and-fiftieth of a second or four milliseconds.

(1 second = 1000 milliseconds)

Examples for recommended exposure times

Airplane speed	minimum exposure time (sec)
Stationary	1/125 th (8 milliseconds)
Very slow	1/500 th (2 milliseconds)
Slow	1/1000 th (1 milliseconds)

NOTE! AIN codes are always read perpendicular to the camera and across the field of view, so that higher shutter speeds are required than, for example, for vehicles moving towards the camera. Fast-moving air-planes can therefore not be read.

Resolution

The resolution of the camera determines the amount of detail that can be captured. The smaller the object detail, the higher the resolution that is required. There are several factors that determine the detail captured:

- The resolution (pixel size) of the camera sensor. This sensor (normally CMOS) where the light eventually falls and a typical IP camera has a sensor resolution of 2 or 4 Megapixels.
- The resolution of the camera's electronics. Most CCTV cameras can support a minimum of 1920 x 1080 – but may be set to a lower resolution if not needed.
- The quality and focal length of the lens. The quality of the optics can play a part in challenging circumstances. The focal length (zoom factor) determines the field of view that can be seen.
- The quality of the images can be influenced by factors such as the type of lighting used.

Recommended resolution: max. 1920 x 1080 px

Focal length

The focal length of the lens determines how “zoomed in” the image is. It is usually expressed in millimeters (e.g., 6 mm, 25 mm, or 50 mm).

The focal length defines the angle of view (how much of the scene will be captured) and the magnification (how large individual elements will be). The longer the focal length, the narrower the angle of view and the higher the magnification. The shorter the focal length, the wider the angle of view and the lower the magnification.

In the case of zoom lenses, both the minimum and maximum focal lengths are stated, for example 10–40 mm.

NOTE! The lens should be **IR corrected** to avoid out of focus images. IR Corrected lenses should be used on both day/night and monochrome cameras in all lighting conditions in order to achieve a crisp sharp image.

Illumination

AIN Codes are normally painted on to the wagons and are not reflective. Therefore sufficient ambient lighting must be used to adequately illuminate the text so that it can be read at a reasonably fast shutter speed without the camera adding too much gain to brighten the image. (a maximum gain of about 12 is advised).

NOTE! Adding gain effectively amplifies the video signal, including any noise which can result in a very grainy image which is prone to OCR errors.

Recommendations on mounting and adjusting

- Depth of focus is a very important parameter. If you are using a camera with a CS-mount lens, use a fixed lens. Fixed lens are better for container code recognition due to greater depth of focus. Megapixel lens is also strongly recommended.
- Respect changing light conditions (e. g. due to sunrises and sunset) when choosing the place of mounting. Direct sunlight beams can distort a picture. If the code is facing a direct sunlight consider using a lens with auto iris mode.
- If mounting a camera on a roadside or trackside pole check how the pole reacts to heavy cars or a convoy of cars. Some poles have tangible tremor, this could make container code recognition almost impossible.
- It is recommended to turn down WDR and BLC. In most cases, they will make the picture more pretty, but at the cost of smudging details like an edges of letters in the container code. For the same reason keep digital noise reduction as low as possible.
- On certain rare conditions there may be a cases of false detections e. g. because of recognizing image parts that structurally or semantically look similar to a container code(e. g. fences or ads). To minimize this:
 - Adjust the region of interest accordingly. It may be a good idea to make it smaller, or change it's shape, omitting the parts, which potentially may be false detected.
 - There may be cases, when the best performance will occur by changing angle of lens or moving the camera. In some cases, shooting a front container code is better.

Troubleshooting

Correct OCR-based reading of codes printed on rail wagons is difficult or impossible if the captured images have any of the following characteristics:

- Over- or under exposed
- Blurred or distorted
- Unevenly lit
- Acute camera angle
- Low contrast
- Damaged or badly painted text
- Bad weather conditions like fog, snow or heavy rain

Activation of the Certified App Interface

CAUTION! The Vaxtor Aircraft Identification Number Recognition App does not consider obscure areas defined for the live image. Therefore there is no pixelation in obscure areas while configuring the app and during image analysis by the app.

NOTE! The user must have access to the setup menu ([http\(s\)://<camera IP address>/control](http(s)://<camera IP address>/control)). Therefore check the user rights of the camera.

1. In the camera web interface, open: **Setup Menu / Certified App Settings** ([http\(s\)://<camera IP address>/control/app_config](http(s)://<camera IP address>/control/app_config)).

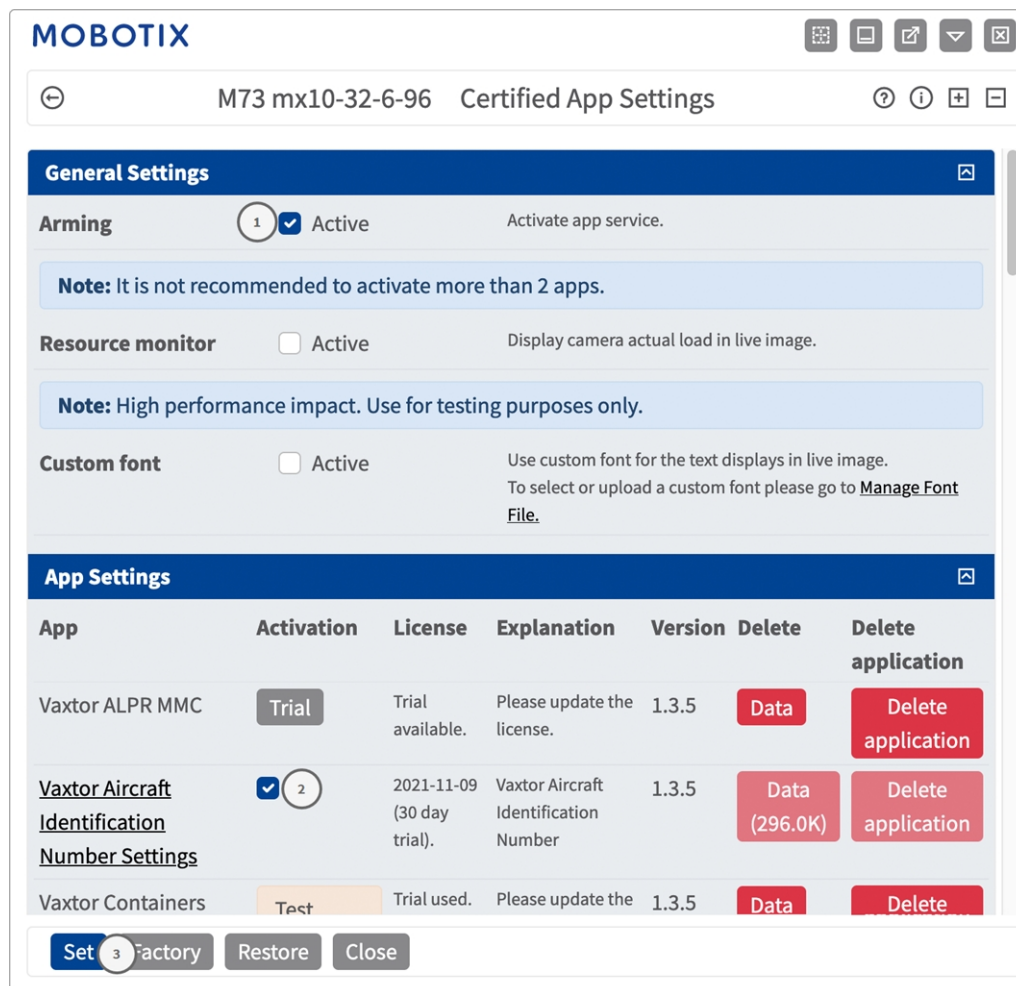


Fig. 12: Activation of Certified Apps

2. Under **General Settings** activate the **Arming**① of the app service.
3. Under **App Settings** check the **Active** option ② and click **Set**③.
4. Click on the name of the App to be configured to open the Apps user interface.

5. For configuration of the App see [Configuration of Vaxtor Aircraft Identification Number Recognition App](#), S. 1.

Configuration of Vaxtor Aircraft Identification Number Recognition App

NOTE! For best performance and results in AIN code processing make sure to have scene set up to meet the [Camera, image and scene requirements](#).

NOTE! The user must have access to the setup menu ([http\(s\)://<camera IP address>/control](http(s)://<camera IP address>/control)). Therefore check the user rights of the camera.

1. In the camera web interface, open: **Setup Menu / Certified App Settings** ([http\(s\)://<camera IP address>/control/app_config](http(s)://<camera IP address>/control/app_config)).
2. Click on the name of the **Vaxtor Aircraft Identification Number Recognition App**.

The configuration window of the app appears with the following options:

Basic Settings

The following configurations should be taken into account:

The screenshot shows the 'Vaxtor Aircraft Identification Number Settings' window. At the top, the MOBOTIX logo is on the left, and several icons (grid, camera, share, dropdown, close) are on the right. Below the logo, the camera ID 'M73 mx10-32-6-96' is displayed. The main title of the window is 'Vaxtor Aircraft Identification Number Settings'. The settings are organized into a table-like structure with two columns: the setting name and its description. The 'Working Mode' is set to 'Freeflow'. 'Enable MxMessage' and 'Enable Overlay' are both checked. There is a 'Recognition Areas' section with a checkbox that is checked. At the bottom, there are four buttons: 'Set', 'Factory', 'Restore', and 'Close'.

Vaxtor Aircraft Identification Number	
Working Mode	Freeflow
Enable MxMessage	<input checked="" type="checkbox"/>
Enable Overlay	<input checked="" type="checkbox"/>
Recognition Areas	<input checked="" type="checkbox"/>

Buttons: Set, Factory, Restore, Close

Working mode: The following modes are available:

Free flow: The application continuously captures AIN codes.

Signaled: The application will only attempt to read an AIN code when a signal is triggered accordingly.

NOTE! In signaled mode an signal ID will be sent with the signal event.

Enable MxMessage: Check to enable the processing of AIN code events in the MxMessageSystem..

Enable Overlay: Check to enable the display of the AIN code recognition result in the live view.

Recognition Areas

A Recognition Area is an area within the video frame where the OCR analytics takes place. You can draw a polygon and choose whether the area to look for plates in Inside or Outside this region. You can set multiple areas to respect complex situations.

NOTE! Using Recognition Areas can decrease OCR processing time and also reduce false positives. The whole AIN code must be in or out the Recognition Area to pass the test.

M73 mx10-32-6-96

Vaxtor USDOT Settings

Recognition Areas

Recognition Area Type

inclusion

Recognition Area Type. Inclusion: only the usdots inside the recognition area will be detected. Exclusion: only the usdots outside the recognition area will be detected

Show Recognition Area

☐

Show the recognition area on the USDOT sensor

Edit Recognition Area

Position

599 x 275

Size

265 x 388

Edit Rectangle

2

1

Define multiple detection zones as a rectangle. To do this, press the "Edit Rectangle" button. You can draw a rectangle in the camera image with the mouse. The corners are moved using the large handles.

Recognition Area Type: Check to activate the sending of events according to the following configuration

Inclusion: only the plates inside the recognition area will be detected.

Exclusion: only the plates outside the recognition area will be detected.

Show Recognition Area: Check to display the recognition area in the camera image.

Edit Recognition Area: Click the **plus** icon ① to define a new recognition area. The following options are available:

ID: Enter or select a unique value to identify the recognition area

Position: The coordinates of the upper right corner point of the rectangular recognition area.

Size: The size in pixels of the rectangular recognition area.

Edit Rectangle: Click to switch into the Live View, where you can draw a recognition area.

Delete: Click the **bin** icon ② to delete the recognition area.

Drawing a Recognition Area in the Live View

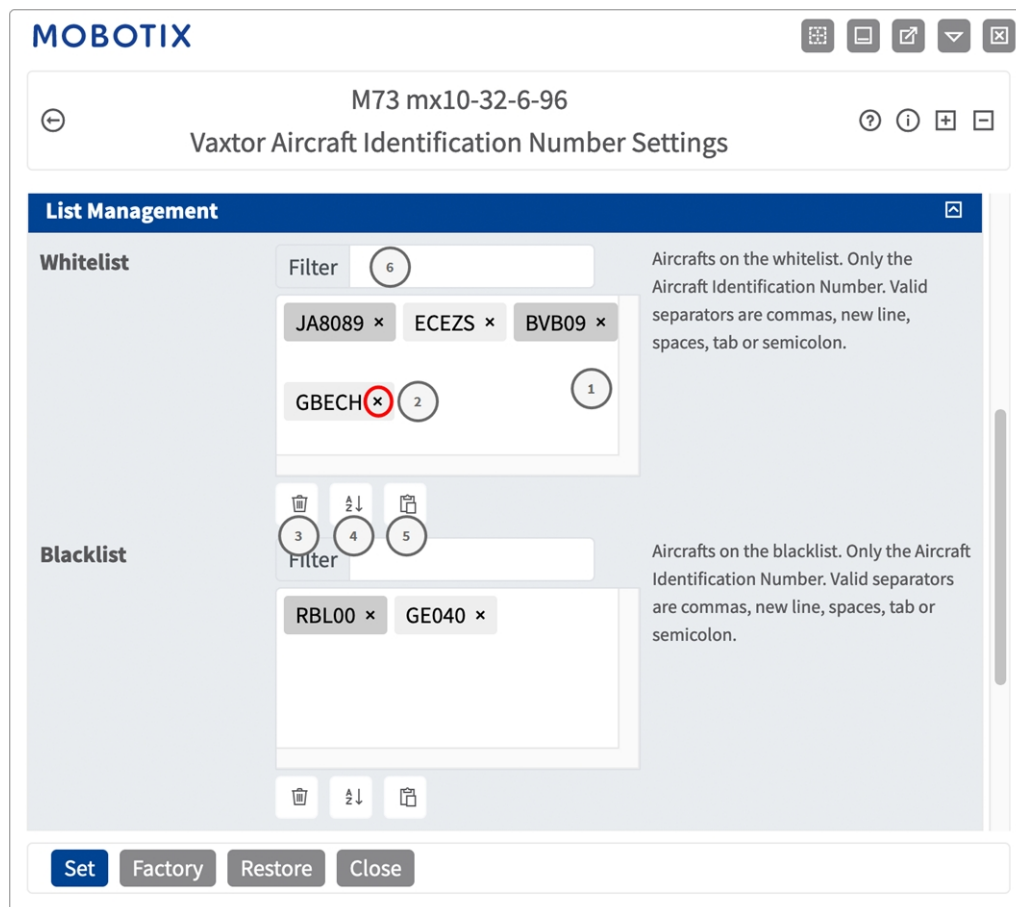
In the live view simply click and drag a rectangular recognition area.

Drag the corner points to refine the recognition area.

In the top right corner of the live view click **Submit** to adopt the coordinates of the rectangle.

List Management

You can define a black list and a white list with up to 1000 AIN codes per list. If an AIN code from one of the lists is recognized, a corresponding event is sent within the MxMessageSystem of the camera.



Adding an AIN code to a list

1. Enter the AIN code text into the text field ① and click **Enter**.

Adding multiple AIN codes from a text file

1. Make sure that your text file contains one license plate per line.
2. Copy the relevant codes from the text file and paste them into the text field ① .

Deleting an AIN code from a list

1. Click on the small **x**② to the right of the AIN code.

Deleting all codes from a list

1. Click the trash icon ③ .

Sorting all AIN codes from a list alphabetically

1. Click the sort icon ④ .

Copy all codes from a list to the clip board

1. Click the copy to clipboard icon ⑤ .

Filtering AIN codes

1. Enter the AIN code or parts of it into the filter text field ⑥ . Only codes containing the filter text are displayed accordingly

Video

In the video tab you can specify video quality of the video to be analyzed.

MOBOTIX M73 mx10-32-6-96

Vaxtor Aircraft Identification Number Settings

Video

OCR Sensor Right sensor Sensor used to recognize aircraft identification numbers

Overview Sensor None Sensor used to capture overview images when an aircraft identification number is detected

Resolution 1920x1080 Working resolution. Adjust the resolution and the camera zoom to capture the aircraft identification numbers on the optimum range. Changing this option will require a camera reboot

Minimum Character Height 20 Minimum character height in pixels (14-70). Tip: optimal reading size is 25 pixels height

Maximum Character Height 42 Maximum character height in pixels (14-70). Tip: optimal reading size is 25 pixels height

Set Factory Restore Close

OCR sensor: Select the camera sensor to be used for AIN code recognition.

NOTE! Changing this option requires a camera reboot.

Overview Sensor: Optionally select a sensor used to capture overview images when an AIN code is detected.

Resolution: Set the working resolution (current maximum is 1080p). Adjust the resolution and the camera zoom to capture the codes on the optimum range.

NOTE! Changing this option requires a camera reboot.

Minimum Character Height: the minimum height that an AIN code's characters should be before being read. The characters should be about 20-30 pixels high.

Maximum Character Height: the maximum height is about 20-30 pixels.

NOTE! The recommended difference between the min and max heights is about 10 pixels.

Aircraft Identification Number

Here you can specify the length of the AIN codes to be captured

MOBOTIX

M73 mx10-32-6-96

Vaxtor Aircraft Identification Number Settings

Aircraft Identification Number

Minimum Aircraft Identification Number Characters

5

Minimum number of characters that the aircraft identification number have (4-12)

Maximum Aircraft Identification Number Characters

9

Maximum number of characters that the aircraft identification number have (4-12)

Set

Factory

Restore

Close

Minimum Aircraft Identification Number Characters: Minimum number of characters that the aircraft identification number has (2-16).

Maximum Aircraft Identification Number Characters: Maximum number of characters that the aircraft identification number has (2-16).

Environment

Here you can adjust the settings that are significantly influenced by the environmental conditions.

MOBOTIX

M73 mx10-32-6-96
Vaxtor Aircraft Identification Number Settings

Environment

Same Aircraft Identification Number Delay

60

Minimum elapsed time to report the same aircraft identification number twice (seconds)

Same Aircraft Identification Number Character Distance

2

Maximum difference between two aircraft identification numbers to be considered as the same (Levenshtein distance)

Maximum Slope Angle

20

Aircraft identification number maximum slope angle (0-30)

Maximum Recognition Period

500

Maximum time the OCR can spend reading one or more times the same aircraft identification number (multiple samples) until making its final decision (ms)

Minimum Aircraft Identification Number Occurrences

1

Minimum number of times the aircraft identification number should be read within the "Max Recognition Period"

Maximum Aircraft Identification Number Occurrences

5

Maximum number of times the aircraft identification number should be read within the "Max Recognition Period". If the OCR reaches this number before the maximum recognition period expires, it will force out the aircraft identification number result

Reported Image

First

Define which image from the pool is returned with the metadata

Set
Factory
Restore
Close

Same Aircraft Identification Number Delay: Minimum elapsed time in seconds to report the same AIN twice. This is to prevent multiple reporting of the same plate in situations when the traffic is slow or stationary.

Example: If an aircraft stops and the AIN is reported but the aircraft doesn't move for 30 seconds, then this delay should be set to say 60 seconds or more to prevent a duplicate read.

NOTE! When using triggered mode, it is recommended that you set the delay to 0 seconds.

Same Aircraft Identification Number Character Distance: Set the number of characters that two readings of the same AIN must differ by to be considered different. The camera is capable of reading a AIN several times as it passes through the field of view. If one character is misread on one of the reads, then by setting this value to 2 then both reads will contribute towards the reported AIN text.

Maximum Slope Angle: Set the angle of slope of an AIN that the engine should attempt to read up to (0-30°).

Maximum Recognition Period: Maximum time the OCR can spend reading one or more times the same AIN (multiple samples) until making its final decision (ms).

Minimum Aircraft Identification Number Occurrences: Minimum number of times the AIN should be read within the "Max Recognition Period" before being reported.

Maximum Aircraft Identification Number Occurrences: Set the maximum number of times that an AIN should be read before being reported (this may happen before the timeout).

Reported Image: Define which image from the pool is returned with the meta data. An AIN is normally read several times as it passes through the camera’s field of view. You may want to use the largest (last) image for oncoming aircrafts and the first image for aircrafts moving away from the camera.

OCR

In the OCR (Optical Character Recognition) tab you can set parameters to ensure the best possible recognition results.

OCR

Minimum Global Confidence

80

Minimum global confidence 1-100, plates under this confidence will be discarded

Minimum Character Confidence

70

Minimum character confidence 1-100, characters under this confidence will be discarded

Analytics Complexity

Medium

Tip: Set low if you’re losing plates because lack of performance, Medium: default/normal scenario conditions, High: low quality video

Plate Finder Extra

☒

Enhances plate finding algorithms for difficult scenarios

Minimum Global Confidence: Set the minimum confidence level that the whole AIN read must meet in order to be accepted. The global confidence is the average of all individual characters’ confidences. The recommended value is 70. Set lower if you see some plates in very bad condition but want to read them.

NOTE! Setting the Minimum Global Confidence too low will cause the OCR engine attempt to read other items such as vehicle signage etc.

Minimum character Confidence: Set the minimum confidence level that a single character must meet in order to be accepted. The recommended value is 50.

NOTE! Higher values mean a lower probability of false positives and a lower probability of missing AIN.

Analytics Complexity: This is the complexity of the analytics to be applied during the ALPR Engine's stage of plate reading. Set this according to the OCR mode and type of traffic expected. There are three options.

Low: Recommended for very fast moving aircrafts where the OCR needs to work faster and your preference is for AIN detection over perfect recognition.

Medium (Default) Recommended when the OCR mode is set to free-flow.

High: Recommended when the OCR mode is set to signal (triggered).

CAUTION! Higher complexities give more accurate reading but make the ALPR engine run slower.

Plate Finder Extra: This is the complexity of the analytics to be applied during the ALPR Engine's stage of AIN finding. Set this to one of the following three values:

Low: apply up to 3 levels

Medium: apply up to 8 levels


High: apply up to 12 levels

CAUTION! Higher complexities give more accurate reading but make the ALPR engine run slower.

Reporting

Vaxtor Aircraft Identification Number Recognition App is able to output all plate reads in real time using a variety of standard protocols so that the plate reads can be accepted remotely by a variety of programs including MOBOTIXSYNC, which can accept and store plate reads in real time from hundreds cameras.

By selecting one of the listed protocols, a sub-menu will appear with fields for setting up parameters such as remote IP addresses etc.

Reporting

Retry Notifications

☐

Retry failed notifications (MOBOTIX SYNC and JSON only)

Send Test

☐

Send a fake read (TEST) when settings are stored or when the camera is started

Text Overlay

MxMessage

MOBOTIX HUB Analytic Event

Enable

☐

Enable MOBOTIX HUB Analytic Event reporting

MOBOTIX HUB Transaction

Enable

☐

Enable MOBOTIX HUB Transaction reporting

MOBOTIX SYNC

Enable

☐

Send all results to the configured MOBOTIX SYNC server

JSON

Enable

☐

Enable JSON HTTP/HTTPS POST reporting

XML

Enable

☐

Enable XML HTTP/HTTPS POST reporting

Milestone Analytic Event

Enable

☐

Enable analytic event reporting

TCP Client

Enable

☐

Enable TCP client reporting

TCP Server

Enable

☐

Enable TCP server reporting

FTP

Enable

☐

Enable FTP reporting

Network Optix

Enable

☐

Enable Network Optix reporting

Genetec Security Center

Enable

☐

Enable Genetec reporting

Genetec LPR Plugin

Enable

☐

Enable Genetec LPR Plugin reporting

UTMC

Enable

☐

Enable UTMC reporting

Basic Settings

Reporting		
Retry Notifications	<input checked="" type="checkbox"/>	Retry failed notifications (MOBOTIX SYNC and JSON only)
Retry Period	1	Amount of seconds between notification retries
Send Test	<input type="checkbox"/>	Send a fake read (TEST) when settings are stored or when the camera is started

Retry notifications: Check to retry failed notifications (MOBOTIX SYNC and JSON only).

Retry period: Amount of seconds between notification retries.

Send test: Check to send a fake read (TEST) when settings are stored or when the camera is started.

Text Overlay

Text Overlay		
Overlay Template	\$date\$ - \$plateutf8\$	Template to use on the overlay, check the manual for available keywords
Fade out timer	0	Amount of seconds that the overlay will be visible or 0 to make it perpetual
Show plate image	<input type="checkbox"/>	Display a small image with the plate number detected
Image position (x)	5	Coordinate position for the image (x)
Image position (y)	50	Coordinate position for the image (y)

Text Overlay

Overlay Template: Define template to use on the overlay. Check the [Variables / Template fields](#) / [Template Fields](#), p. 45 for available keywords.

Fade out timer: Set the amount of seconds that the overlay will be visible or 0 to make it perpetual.

Show plate image: Check to display a small image with the container code detected.

Image position (x): x coordinate position for the image.

Image position (y): y coordinate position for the image.

MxMessage

MxMessage

MxMessage Template

Defines the template of customized part of the MxMessage. Check the manual for available keywords

Subpath

MxMessage

MxMessage Template: Define template of customized part of the MxMessage. [Check the Variables / Template fieldsVariables / Template Fields, p. 45](#) for available keywords.

Subpath: Define a subpath for the MxMessage. Check the [Variables / Template fieldsVariables / Template Fields, p. 45](#) for available keywords.

MOBOTIX HUB Analytic Event

MOBOTIX HUB Analytic Event

Enable

☒

Enable MOBOTIX HUB Analytic Event reporting

URL

Destination URL

Camera name

Camera name or IP address as defined in MOBOTIX HUB

MOBOTIX HUB Analytic Event: With the Analytics Events feature it is possible to send MAD (Milestone Alert Data) formatted alerts to the MOBOTIX HUB event server over TCP/IP.

Enable : Check to enable and configure MOBOTIX HUB Analytic Event reporting.

URL: Enter the corresponding MOBOTIX HUB Server URL (e.g. <http://mobotixhubserver.com:9090/>)

Camera name: Enter the camera name or IP address of this camera as defined in MOBOTIX HUB.

MOBOTIX HUB Transaction

MOBOTIX HUB Transaction

Enable

☒

Enable MOBOTIX HUB Transaction reporting

Port

MOBOTIX HUB Server TCP Port

Template

Template to use on the message, check the manual for available keywords

MOBOTIX HUB Transaction: With the Analytics Events feature it is possible to send transaction data to a MOBOTIX HUB server over TCP/IP port.

Enable : Check to enable and configure MOBOTIX HUB Transaction reporting.

Port: MOBOTIX HUB Server TCP Port.

Template: Template used when reporting. Check the [Variables / Template fields](#) [Variables / Template Fields](#), p. 45 for available keywords.

MOBOTIX SYNC

NOTE! The options in this section also apply to Vaxtor Helix servers.

MOBOTIX SYNC		
Enable	<input checked="" type="checkbox"/>	Send all results to the configured MOBOTIX SYNC server
URL	<input type="text"/>	MOBOTIX SYNC full URL address (https://mysync.server.com/sync)
API Key	<input type="text"/>	MOBOTIX SYNC API Key
Heartbeat	<input type="text" value="300"/>	Heartbeat timer in seconds (10 - 300) or 0 if heartbeat is disabled
Camera ID	<input type="text" value="1"/>	MOBOTIX SYNC camera ID assigned to this camera
Overview Camera ID	<input type="text" value="0"/>	MOBOTIX SYNC overview camera ID assigned to this camera (0 if none)
Sync lists	<input type="text" value="0"/>	Synchronize lists with MOBOTIX SYNC server

MOBOTIX SYNC: MOBOTIX SYNC protocol is an encrypted version of the Vaxtor protocol.

Enable : Check to enable and configure the reporting to a MOBOTIX SYNC server.

URL: Enter the full URL of your configured MOBOTIX SYNC server using this syntax https://<ip_or_server_name>/sync). When reporting to a Vaxtor Helix server, enter https://<ip_or_server_name>/helix6.

API Key: Enter the MOBOTIX SYNC (or Helix) API key generated from your server application.

Heartbeat: Sends a heartbeat every x seconds to the specified server (enter 0 to disable).

Camera ID: Enter MOBOTIX SYNC (or Helix) camera ID assigned to this particular camera.

Overview Camera ID: Enter the MOBOTIX SYNC (or Helix) overview camera ID assigned to this particular camera (set to 0 if none).

Sync lists: Synchronizes the lists with the MOBOTIX SYNC (or Helix) server.

JSON

JSON

Enable	<input checked="" type="checkbox"/>	Enable JSON HTTP/HTTPS POST reporting
URL	<input type="text" value="https://myserver/"/>	Destination URL
Username	<input type="text"/>	Username to use on the authentication. Blank if none.
Password	<input type="password"/>	Password to use on the authentication. Blank if none.
JSON Template	<input "="" type="text" value='{"plate":"\$plate\$", "date":"\$date\$", "ir'/>	Template to use on the message, check the manual for available keywords

JSON : JSON is a compact data format in an easy-to-read text form for data exchange between applications.

Enable :Check to enable and configure JSON HTTP/HTTPS POST reporting.

URL: Enter the destination URL (e.g., 3rd party server) where the generated meta data should be sent to.

Username: Username to be used for authentication (leave blank if no authentication is used).

Password: Password to be used for authentication (leave blank if no authentication is used).

JSON Template: Defines the content / scheme of the transmitted JSON notification. Check the [Variables / Template fieldsVariables / Template Fields, p. 45](#) for available keywords.

XML

JSON

Enable	<input checked="" type="checkbox"/>	Enable JSON HTTP/HTTPS POST reporting
URL	<input type="text" value="https://myserver/"/>	Destination URL
Username	<input type="text"/>	Username to use on the authentication. Blank if none.
Password	<input type="password"/>	Password to use on the authentication. Blank if none.
JSON Template	<input "="" type="text" value='{"plate":"\$plate\$", "date":"\$date\$", "ir'/>	Template to use on the message, check the manual for available keywords

XML : XML is a compact data format in an easy-to-read text form for data exchange between applications.

Enable : Check to enable and configure XML HTTP/HTTPS POST reporting.

URL: Enter the destination URL (e.g., 3rd party server) where the generated meta data should be sent to.

Username: Username to be used for authentication (leave blank if no authentication is used).

Password: Password to be used for authentication (leave blank if no authentication is used).

XML Template: Defines the content / scheme of the transmitted XML notification. Check the [Variables / Template fieldsVariables / Template Fields, p. 45](#) for available keywords.

Milestone Analytic Event

Milestone Analytic Event		
Enable	<input checked="" type="checkbox"/>	Enable analytic event reporting
URL	<input type="text" value="http://milestoneserver.com:9090/"/>	Destination URL
Camera name	<input type="text" value="10.X.X.X"/>	Camera name or IP address as defined in Milestone

Milestone Analytic Event: With the Analytics Events feature it is possible to send MAD (Milestone Alert Data) formatted alerts to the Milestone event server over TCP/IP

Enable : Check to enable and configure MOBOTIX HUB Analytic Event reporting.

URL: Enter the corresponding Milestone Server URL (e.g. <http://milestoneserver.com:9090/>)

Camera name: Enter the camera name or IP address of this camera as defined in Milestone.

TCP Client

TCP Client		
Enable	<input checked="" type="checkbox"/>	Enable TCP client reporting
Server IP	<input type="text"/>	Server IP to which the messages are going to be sent
Port	<input type="text" value="30001"/>	Server TCP port to which the messages are going to be sent
Template	<input type="text" value="@\${plateutf8}\${@}"/>	Template to use on the message, check the manual for available keywords

TCP Client:

Enable : Check to enable and configure TCP client reporting

Server IP: Enter the URL of the server to which the MxMessages will be sent.

Port: Enter the TCP port of the server.

Template: Defines the content / scheme of the transmitted TCP message. Check the [Variables / Template fields](#)[Variables / Template Fields, p. 45](#) for available keywords.

TCP Server

TCP Server		
Enable	<input checked="" type="checkbox"/>	Enable TCP server reporting
Port	<input type="text" value="30000"/>	Server TCP port
Template	<input type="text" value="@\${plateutf8}\${@}"/>	Template to use on the message, check the manual for available keywords

TCP Server: You can send event data as text file and images files to a ftp server.

Enable :Check to enable and configure TCP server reporting.

Server IP: Enter the URL of the server to which the MxMessages will be sent.

Port: Enter the TCP port of the server.

Template: Defines the content / scheme of the transmitted TCP message. Check the [Variables / Template fieldsVariables / Template Fields](#), p. 45 for available keywords.

FTP

FTP

Enable	<input checked="" type="checkbox"/>	Enable FTP reporting
URL	<input type="text" value="ftp://myserver/"/>	Destination URL
Username	<input type="text"/>	Username to use on the authentication. Blank if none.
Password	<input type="password"/>	Password to use on the authentication. Blank if none.
Filename template	<input type="text" value="\$uuid\$.ftpfiletype\$"/>	Template to use for the filename.
Text file template	<input type="text" value="\$date\$, \$plateutf8\$"/>	Template to use for the content of the text file.
Upload image	<input type="checkbox"/>	Upload the OCR image
Upload overview image	<input type="checkbox"/>	Upload the overview image
Upload patch	<input type="checkbox"/>	Upload the plate patch
Upload text file	<input type="checkbox"/>	Upload the text file

FTP: You can send event data as text file and images files to a ftp server.

Enable : Check to enable and configure FTP server reporting.

URL: Destination URL for the FTP server.

Username: Username if required, blank if none.

Password: Password if required, blank if none.

Filename Template: Template to use for the filename.

Text file template: Template to use for the content of the text file.

Upload image: Enables the upload of an image.

Upload overview image: Enables the upload of an overview image.

Upload patch: Enables the upload of a plate patch image (crop of the recognized code).

Upload text file: Enables the upload of a text file.

Network Optix

Network Optix		
Enable	<input checked="" type="checkbox"/>	Enable Network Optix reporting
URL	<input type="text" value="https://nxserver:7001/"/>	Destination URL
Username	<input type="text"/>	Username to use on the authentication.
Password	<input type="text"/>	Password to use on the authentication.
Network Optix Camera Id	<input type="text"/>	Camera Id set in Network Optix Video Management Software
Source	<input type="text" value="LPR"/>	Source value sent with the generic event.
Caption	<input type="text" value="\$plateutf8\$"/>	Template to use for the caption.
Description	<input type="text" value="\$plateutf8\$ (\$country\$)"/>	Template to use for the description.

Network Optix: You can send event data to a Network Optix VMS server.

Enable : Check to enable and configure Network Optix server reporting.

URL: Destination URL for the Network Optix server.

Username: Username for authentication.

Password: Password for authentication.

Network Optix Camera ID: Camera ID as set in the Network Optix video management software.

Source: Source value sent with the generic event.

Caption: Template to use for the caption Check the [Variables / Template fields](#)[Variables / Template Fields](#), p. 45 for available keywords.

Description: Template to use for the description. Check the [Variables / Template fields](#)[Variables / Template Fields](#), p. 45 for available keywords.

Genetec Security Center

Genetec Security Center	
Enable	<input checked="" type="checkbox"/> Enable Genetec reporting
Installation type	<div>Production</div> Type of installation. Check with Genetec the correct type according with your license.
URL	<div></div> Destination URL
Username	<div></div> Username to use on the authentication.
Password	<div></div> Password to use on the authentication.
Camera Logical Id	<div>0</div> Camera Logical Id configured on Genetec Security Center
Template	<div>\$plateutf8\$</div> Template to use for bookmarks and custom events.
Create bookmarks	<input checked="" type="checkbox"/> Create a new bookmark with each plate read
Raise custom events	<input checked="" type="checkbox"/> Raise a new custom event with each plate read
Custom Event Id	<div>0</div> Custom Event Id

Genetec Security Center: You can send event data to a Genetec Security Center server.

Enable : Check to enable and configure Genetec Security Center server reporting.

Installation type: Select the installation type that corresponds to your license.

URL: Destination URL for the Genetec Security Center server.

Username: Username for authentication.

Password: Password for authentication.

Camera Logical ID: Camera ID as set in Genetec Security Center.

Template: Template to use for bookmarks and custom events. Check the [Variables / Template fields](#) for available keywords.

Create bookmarks: Creates a new bookmark with each plate read by the app.

Raise custom events: Raises a new custom event with each plate read by the app.

Custom Event ID: Set a custom event ID.

Variables / Template Fields

AIN only reserved variables

Template field	Description
\$confidencecode\$	Confidence value of the app
\$controldigit\$	Control digit for the code
\$countrycode\$	AIN Country code
\$direction\$	(0: unknown, 1: left, 2: right)
\$directionstr\$	(Unknown, Left, Right)
\$serialnumber\$	AIN Serial number
\$aincode\$	AIN code.
\$vehicletype\$	AIN vehicle type code.

Shared reserved variables

Variable	Description
\$absolutebottom\$	Plate bottom position based on the total image height (0-1).
\$absoluteleft\$	Plate left position based on the total image width (0-1).
\$absoluteright\$	Plate right position based on the total image width (0-1).
\$absolutetop\$	Plate top position based on the total image height (0-1).
\$blacklist\$	Description on the blacklist linked to the code/plate.
\$bottom\$	Bottom coordinate for the code/plate on the image (pixels).
\$category\$	Code/plate category for countries that support it.
\$charheight\$	Average character height (pixels).
\$confidence\$	Global confidence (0-100).
\$date\$	Timestamp in ISO8601 format.
\$epoch\$	Unix epoch (seconds).
\$etx\$	End of transmission character (HEX 03).
\$height\$	OCR image height.
\$id\$	Database ID for this read.
\$ifblacklist\$...\$ifblacklist\$	If the plate is on the blacklist, returns the text between these templates.
\$ifnolist\$...\$ifnolist\$	If the plate is not on any list, returns the text between these templates.

Configuration of Vaxtor Aircraft Identification Number Recognition App

Reporting

Variable	Description
\$ifwhitelist\$...\$ifwhitelist\$	If the plate is on the whitelist, returns the text between these templates.
\$image\$	JPEG encoded in base64.
\$imageid\$	Signal ID in case of a trigger read.
\$imagesize\$	Size of saved complete image.
\$left\$	Left coordinate for the code/plate on the image (pixels)
\$localdate\$	Date in format "%d/%m/%Y" in the camera time zone.
\$localtime\$	Time in format "%H:%M:%S" in the camera time zone.
\$overviewimage\$	Overview JPEG image encoded in base64.
\$overviewimagesize\$	Overview image size in bytes.
\$processingtime\$	Processing time in milliseconds.
\$right\$	Right coordinate for the code/plate on the image (pixels)
\$safedate\$	Time stamp in format "%Y%m%d_%H%M%S" in the camera time zone (useful for file names).
\$sensor\$	Sensor (0, 1).
\$signaled\$	True if the read had been triggered.
\$signalid\$	Signal ID of the trigger.
\$stx\$	Start of transmission character (HEX 02).
\$timestamp\$	Time stamp in format "yyyy-MM-ddTHH:mm:sszzz".
\$top\$	Top coordinate for the code/plate on the image (pixels).
\$utcdate\$	Time stamp in ISO8601 format but always in UTC (2020-12-31T16:11:30.000Z).
\$whitelist\$	Description on the whitelist linked to the code/plate.
\$width\$	OCR image width.

Advanced

In this section you find useful tools for calibration and trouble shooting.

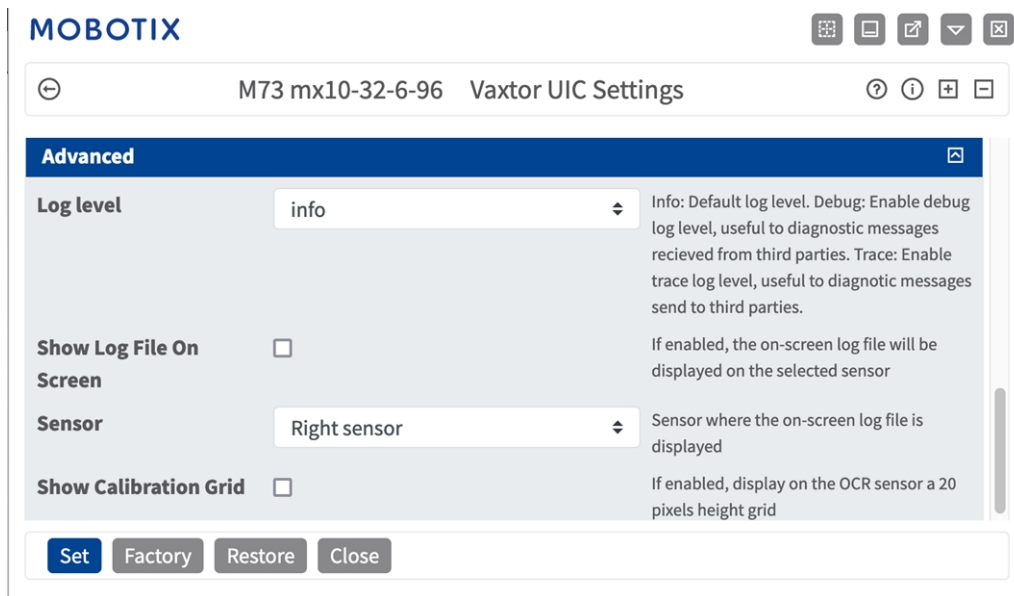


Fig. 13: Advanced

Log level: Select a debug level to generate a log file, which can be helpful e.g. for trouble shooting.

Info: Default log level

Trace: Select e. g. for diagnostic messages received from third parties

Debug: Select for complete log files for debug purposes

Show log file on screen: Check to display the on-screen log file on the selected sensor

Sensor: Select the sensor on which the on-screen log file is displayed

Show Calibration Grid: Check to display on the OCR sensor a 20 pixels height grid

Storing the Configuration

To store the configuration you have the following options:



Fig. 14: Storing the configuration

- Click on the **Set** button to activate your settings and to save them until the next reboot of the camera.
- Click on the **Factory** button to load the factory defaults for this dialog (this button may not be present in all dialogs).
- Click on the **Restore** button to undo your most recent changes that have not been stored in the camera permanently.
- Click on the **Close** button to close the dialog. While closing the dialog, the system checks the entire configuration for changes. If changes are detected, you will be asked if you would like to store the entire configuration permanently.

After successfully saving the configuration, the event and meta data are automatically sent to the camera in case of an event.

Advanced

In this section you find useful tools for calibration and trouble shooting.

Advanced

Log level

info

Info: Default log level. Debug: Enable debug log level, useful to diagnostic messages received from third parties. Trace: Enable trace log level, useful to diagnostic messages sent to third parties.

Show Log File On Screen

☐

If enabled, the on-screen log file will be displayed on the selected sensor

Sensor

Right sensor

Sensor where the on-screen log file is displayed

Show Calibration Grid

☐

If enabled, display on the OCR sensor a 20 pixels height grid

Log level: Select a debug level to generate a log file, which can be helpful e.g. for trouble shooting.

- Info:** Default loge level
- Trace:** Select e. g. for diagnostic messages received from third parties
- Debug:** Select for complete log files for debug purposes

Show log file on screen: Check to display the on-screen log file on the selected sensor

Sensor: Select the sensor on which the on-screen log file is displayed

Show Calibration Grid: Check to display on the OCR sensor a 20 pixels height grid

Storing the Configuration

To store the configuration you have the following options:

Set

Factory

Restore

Close

- Click **Set** to activate your settings and to save them until the next reboot of the camera.
- Click **Factory** to load the factory defaults for this dialog (this button may not be present in all dialogs).
- Click **Restore** to undo your most recent changes that have not been stored in the camera permanently.

- Click **Close** to close the dialog. While closing the dialog, the system checks the entire configuration for changes. If changes are detected, you will be asked if you would like to store the entire configuration permanently.

After successfully saving the configuration, the event and meta data are automatically sent to the camera in case of an event.

MxMessageSystem

What is MxMessageSystem?

MxMessageSystem is a communication system based on name oriented messages. This means that a message must have a unique name with a maximum length of 32 bytes.

Each participant can send and receive messages. MOBOTIX cameras can also forward messages within the local network. This way, MxMessages can be distributed over the entire local network (see Message Area: Global).

For example, a MOBOTIX 7 series camera can exchange a MxMessage generated by a camera app with an Mx6 camera that does not support certified MOBOTIX apps.

Facts about MxMessages

- 128-bit encryption ensures privacy and security of message content.
- MxMessages can be distributed from any camera of the Mx6 and 7 series.
- The message range can be defined individually for each MxMessage.
 - **Local:** Camera expects a MxMessage within its own camera system (e.g. through a Certified App).
 - **Global:** the camera expects a MxMessage that is distributed in the local network by another MxMessage device (e.g. another camera of the 7 series equipped with a certified MOBOTIX app).
- Actions that the recipients are to perform are configured individually for each participant of the MxMessageSystem.

MxMessageSystem: Processing the automatically generated app event

Checking automatically generated app events

NOTE! After successfully activating the app (see [Activation of the Certified App Interface, p. 25](#)), a generic message event for this specific app is automatically generated in the camera.

1. Go to **Setup-Menu / Event Control / Event Overview**. In section **Message Events** the automatically generated message event profile is named after the application (e. g. VaxOCRAircraft).

The screenshot displays the MOBOTIX Event Overview interface for camera M73 mx10-32-6-96. The interface is divided into several sections: Environment Events, Image Analysis Events, Internal Events, Message Events, Meta Events, Signal Events, and Time Events. The Message Events section is highlighted in blue and contains a list of events. The first event, DermalogFaceAttend, is selected and highlighted in yellow. The other events are IRIS, MxAnalytics, ObjRec, VaxOCRAircraft, and VaxOCRUIIC. Each event has a checkbox for 'Inactive' and 'Delete', and an 'Edit...' button. The VaxOCRAircraft event is the one mentioned in the text.

Event Name	System	Inactive	Delete	Action
DermalogFaceAttend	MxMessageSystem	<input type="checkbox"/>	<input type="checkbox"/>	Edit... 1
IRIS	MxMessageSystem	<input type="checkbox"/>	<input type="checkbox"/>	
MxAnalytics	MxMessageSystem	<input type="checkbox"/>	<input type="checkbox"/>	
ObjRec	MxMessageSystem	<input type="checkbox"/>	<input type="checkbox"/>	
VaxOCRAircraft	MxMessageSystem	<input type="checkbox"/>	<input type="checkbox"/>	
VaxOCRUIIC	MxMessageSystem	<input type="checkbox"/>	<input type="checkbox"/>	

At the bottom of the interface, there are three buttons: Set, Restore, and Close.

2. Click **Edit**① to display a selection of all configured message events.

MOBOTIX

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M73 mx10-32-6-96

Message Events

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Events	Value	Explanation
<input type="text" value="DermalogFaceAttendance"/>	<input type="checkbox"/> Inactive	<input type="checkbox"/> Delete
<input type="text" value="IRIS"/>	<input type="checkbox"/> Inactive	<input type="checkbox"/> Delete
<input type="text" value="MxAnalytics"/>	<input type="checkbox"/> Inactive	<input type="checkbox"/> Delete
<input type="text" value="ObjRec"/>	<input type="checkbox"/> Inactive	<input type="checkbox"/> Delete
<input type="text" value="VaxOCRAircraft"/>	<input type="checkbox"/> Inactive	<input type="checkbox"/> Delete

5

⬆

⬇

Event Dead Time:
Time to wait [0..3600 s] before the event can trigger anew.

Event Sensor Type

☐ IP Receive

☒ MxMessageSystem

Event on receiving a message from the MxMessageSystem.

Message Name:
Defines an MxMessageSystem name to wait for.

Local

⬇

Message Range:
There are two different ranges of message distribution:
Global: across all cameras within the current LAN.
Local: camera internal.

No Filter

⬇

Filter Message Content:
Optionally choose how to ignore messages containing *Filter Value*. Select *No Filter* to trigger on any message with defined *Message Name*.

Set

Factory

Restore

Close

Action handling - Configuration of an action group

CAUTION! To use events, trigger action groups or record images the general arming of the camera must be enabled ([http\(s\)://<camera IP address>/control/settings](http(s)://<camera IP address>/control/settings))

An action group defines which action(s) is (are) triggered by the Vaxtor Aircraft Identification Number Recognition App event.

1. In the camera web interface, open: **Setup Menu / Action Group Overview** ([http\(s\)://<camera IP address>/control/actions](http(s)://<camera IP address>/control/actions)).

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M73 mx10-32-6-96 Action Group Overview

VisualAlarm ☐ Delete

Arming **Events & Actions** **Edit**

Off (select all) Edit...

(No time table) VA

VXAircraftAction ☐ Delete

Arming **Events & Actions** **Edit**

Enabled - Edit... 2

(No time table)

Add new group 1

Set Restore Close

2. Click **Add new group**^① and give a meaningful name.
3. Click **Edit**^②, to configure the group.

MxMessageSystem: Processing the automatically generated app event

Action handling - Configuration of an action group

MOBOTIX

M73 mx10-32-6-96 Action Group Details

General Settings	Value	Explanation	
Action Group	VXAircraftAction	Name: The name is purely informational.	
	Enabled 3	Arming: Controls this action group: Enabled: activate the group. Off: deactivate the group. St: group armed by signal input. CS: group armed by custom signal as defined in General Event Settings.	
	(No time table)	Time Table: Time table for this action profile (Time Tables).	
Event Selection	<div>Message: MxAnalytics Message: ObjRec Message: VaxOCR\Aircraft 4 Message: VaxOCR\UC (Signal: SI) Signal: UC</div>	Event Selection: Select the events which will trigger the actions below. Use [Ctrl]-Click to select more than one event. Events in parentheses need to be activated first.	
Action Details	5	Action Deadtime: Time to wait [0..3600 s] before a new action can take place.	
	Simultaneously	Action Chaining: Choose how the status of each subaction influences the execution of all others. Simultaneously: All actions are executed simultaneously. Simultaneously until first success: Simultaneous execution, but as soon as one action succeeds (i.e. has been completed or the phone is picked up), all others are terminated. Consecutively: All actions are executed in the specified order. Consecutively until first success: Consecutive execution, but as soon as one action succeeds, the following actions are not executed. Consecutively until first failure: Consecutive execution, but as soon as one action fails, the following actions are not executed.	
Actions	Value	Explanation	
Add new action 6			
Set	Factory	Restore	Close

4. Enable **Arming**3 of the Action Group.
5. Select your message event in the **Event selection** list 4 . To select multiple events, hold the shift key.
6. Click **Add new Action**5 .
7. Select a proper action from list **Action Type and Profile**6 .

Actions

Action 1

☐ Delete

Add new action

Note: You may need admin rights to add actions to the Profile, MxMessageSystem.

Set

Factory

Restore

Close

FTP: FTP-Webcam
FTP: FTP-AlarmClip
FTP: FTP-Archiving
FTP: FTP-Day-Period
E-Mail: AlarmMail
E-Mail: NotifyMail
E-Mail: MailWithMxPEGClip
E-Mail: MailWithStoryImages
E-Mail: MailSystemStatus24
✓ IP Notify: MxMC-Alarm 6
IP Notify: MxMC-Liveview
IP Notify: MxMC-Gridview
IP Notify: TCPMessage
IP Notify: HttpRequest
IP Notify: ObscureAreaOn
IP Notify: ObscureAreaOff
Play Sound: StandardSounds
Device Out: ~IrLightOff
Device Out: ~IrLightOn
Device Out: ~IrLightToggle

soon as one action succeeds (i.e. has been completed or the phone is picked up), all others are terminated.
Consecutively: All actions are executed in the specified order.
Consecutively until first success: Consecutive execution, but as soon as one action succeeds, the following actions are not executed.
Consecutively until first failure: Consecutive execution, but as soon as one action fails, the following actions are not executed.

Explanation

Action Type and Profile:
Select the Action Profile to be executed.

Action Timeout or Duration:
If this action runs longer than the time specified [0..3600 s], it is aborted and returns an error; 0 to deactivate.
For Image Profile action, this is the duration and no error returns.

Signal Out, Visual Alarm, Phone Call, IP Notify, Image

NOTE! If the required action profile is not yet available, you can create a new profile in the Admin Menu sections "MxMessageSystem", "Transfer Profiles" and "Audio and VoIP Telephony".

If necessary, you can+ add further actions by clicking the button again. In this case, please make sure that the "action chaining" is configured correctly (e.g. at the same time).

- Click on the **Set** button at the end of the dialog box to confirm the settings.

Action settings - Configuration of the camera recordings

- In the camera web interface, open: **Setup Menu / Event Control / Recording**([http\(s\)/<camera IP address>/control/recording](http(s)/<camera IP address>/control/recording)).

MOBOTIX M73 mx10-32-6-96 Recording

Section	Value	Explanation
General Settings	Arming: Enabled ¹	Arm Recording: Controls camera recording. Enabled: activate recording. Off: deactivate recording. St: recording armed by signal input. CS: recording armed by custom signal as defined in General Event Settings . From Master: copies recording arming state from master camera.
	(No time table)	Time Table Profile: Time table profile for time-controlled recording (Time Tables).
Storage Settings	Recording (REC): Event Recording ²	Recording Mode: Type of event and story recording. Snap Shot Recording: stores single JPEG pictures. Event Recording: stores stream files for every event using MxPEG codec. Continuous Recording: continuously streams video data to stream files using MxPEG codec. Events can be recorded with a higher frame rate using Start Recording, Retrigger Recording and Stop Recording.
	Include audio	Record Audio Data: Store audio data in stream file if available. Enable and configure microphone .
	Start Recording: Message: VaxOCRAircraft ³	Start Recording: Select the events which will start recording. Use [Ctrl]-Click to select more than one event. Events in parentheses need to be activated first.
	Max fps: 0	Event Frame Rate: Recording speed if an event is detected, in frames per second.
		Recording Time Before Event: Additional recording time before an event in seconds.

Buttons: Set ⁴ Factory Restore Close ⁵ More

- Activate **Arm Recording**^①.
- Under **Storage Settings / Recording (REC)** select a **Recording mode**^②. The following modes are available:

MxMessageSystem: Processing the automatically generated app event

Action settings - Configuration of the camera recordings

- Snap Shot Recording
- Event Recording
- Continuous Recording

4. In list **Start recording**^③ select the message event just created.
5. Click on the **Set**^④ button at the end of the dialog box to confirm the settings.
6. Click on **Close**^⑤ to save your settings permanently.

NOTE! Alternatively, you can save your settings in the Admin menu under Configuration / Save current configuration to permanent memory.

Advanced Configuration: Processing the meta data transmitted by apps

Meta data transferred within the MxMessageSystem

For each event, the app also transfers meta data to the camera. This data is sent in the form of a JSON schema within a MxMessage.



Fig. 15: Aircraft number (AIN) on a plane

Advanced Configuration: Processing the meta data transmitted by apps

Meta data transferred within the MxMessageSystem

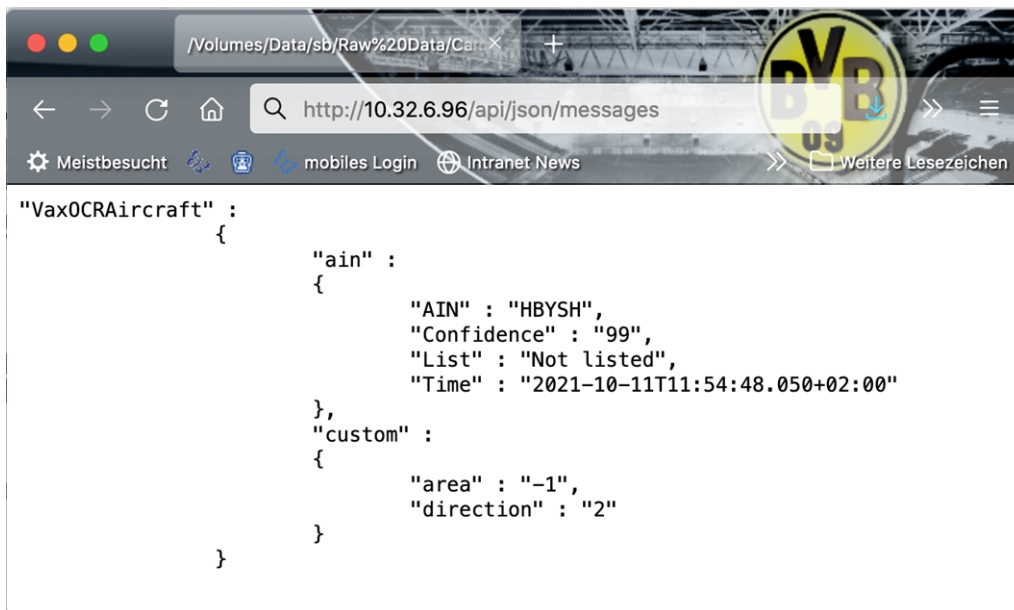


Fig. 16: Example: Meta data transmitted within a MxMessage of the Vaxtor Aircraft Identification Number Recognition App

NOTE! To view the meta data structure of the last App event, enter the following URL in the address bar of your browser: `http(s)/IPAdresseOfYourCamera/api/json/messages`

Creating a Custom Message Event

1. Go to **Setup-Menu / Event Control / Event Overview**. In section **Message Events** the automatically generated message event profile is named after the application (e. g. VaxOCRRAIN).

The screenshot shows the MOBOTIX Event Overview interface. The top bar displays 'MOBOTIX' and 'M73 mx10-32-6-96 Event Overview'. The main content area is divided into several sections: Environment Events, Image Analysis Events, Internal Events, Message Events, Meta Events, Signal Events, and Time Events. The Message Events section is highlighted with a blue header and contains a table of events. The first event, 'MxAnalytics', is selected, and its 'Edit...' button is highlighted with a red box. The Meta Events section shows 'No profiles defined.' and an 'Edit...' button. The Signal Events section shows two events: 'SI' (Signal Input) and 'UC' (UC Soft Button). The Time Events section shows two events: 'PE' (Periodic Event) and 'TT' (Time Task). At the bottom, there are buttons for 'Set', 'Restore', and 'Close'.

Event Name	System	Inactive	Delete	Edit...
MxAnalytics	MxMessageSystem	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ObjRec	MxMessageSystem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VaxOCRUC	MxMessageSystem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Fig. 17: Example: Generic message event from Vaxtor Aircraft Identification Number Recognition App

2. Click **Edit** ① to display a selection of all configured message events.

MOBOTIX

M73 mx10-32-6-96 Message Events

Attribute

Value

Explanation

IP Receive

8000

Port:
TCP port to listen on.

Events

Value

Explanation

MxAnalytics

☐ Inactive ☐ Delete

ObjRec

☐ Inactive ☐ Delete

VaxOCRUC ①

☐ Inactive ☐ Delete

5

Event Dead Time:
Time to wait [0..3600 s] before the event can trigger anew.

Event Sensor Type

☐ IP Receive

☒ MxMessageSystem

Event Sensor Type:
Choose the message sensor.

Event on receiving a message from the MxMessageSystem.

VaxOCRUC.uic.List ②

Message Name:
Defines an MxMessageSystem name to wait for.

Local

Message Range:
There are two different ranges of message distribution:
Global: across all cameras within the current LAN.
Local: camera internal.

JSON Comparison

Filter Message Content:
Optionally choose how to ignore messages containing *Filter Value*. Select *No Filter* to trigger on any message with defined *Message Name*.

"White List" ③

Filter Value:
Define either a valid reference value as a string (in JSON format) without line breaks, or an extended regular expression. Open help for examples.
This parameter allows using variables.

Add new profile

Set ④actory

Restore

Close

Fig. 18: Example: List message event

3. Click on the event (e. g. VaxOCRRAIN) ① to open the event settings.
4. Configure the parameters of the event profile as follows:
- **Message Name:** Enter the "Message Name" ② according to the event documentation of the corresponding app (see [Examples for message names and filter values of the \[%=CameraApps.ProductName\]](#))

- **Message Range:**
 - Local: Default settings for the Vaxtor Aircraft Identification Number Recognition App
 - Global: (MxMessage is forwarded from another MOBOTIX camera in the local network.
- **Filter Message Content:**
 - **No Filter:** Trigger on any message according to the defined **Message Name**.
 - **JSON Comparison:** Select if filter values are to be defined in JSON format.
 - **Regular Expression:** Select if filter values are to be defined as regular expression.
- **Filter Value:** ③ see [Examples for message names and filter values of the \[%=CameraApps.ProductName](#).

CAUTION! “Filter Value“ is used to differentiate the MxMessages of an app / bundle. Use this entry to benefit from individual event types of the apps (if available).

Choose “No Filter” if you want to use all incoming MxMessages as generic event of the related app.

2. Click on **Set** ④ at the end of the dialog box to confirm the settings.

Examples for message names and filter values of the Vaxtor Aircraft Identification Number Recognition App

	MxMessage-Name	Filter value
Generic Event	VaxOCRAIN	
White list Event	VaxOCRAIN.ain.List	“White list”
Black list Event	VaxOCRAIN.ain.List	“Black list”
Not listed Event	VaxOCRAIN.ain.List	“Not listed”
Unique identifaction num- ber event	VaxOCRAIN.ain.AINCode	AIN code as “STRING” e.g. “33 85 4956626-7 (compare Meta data transferred within the MxMes- sageSystem)



[EN_08/23](#)

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