

Quick Installation Guideline

MOBOTIX Visage Technologies Face Recognition App

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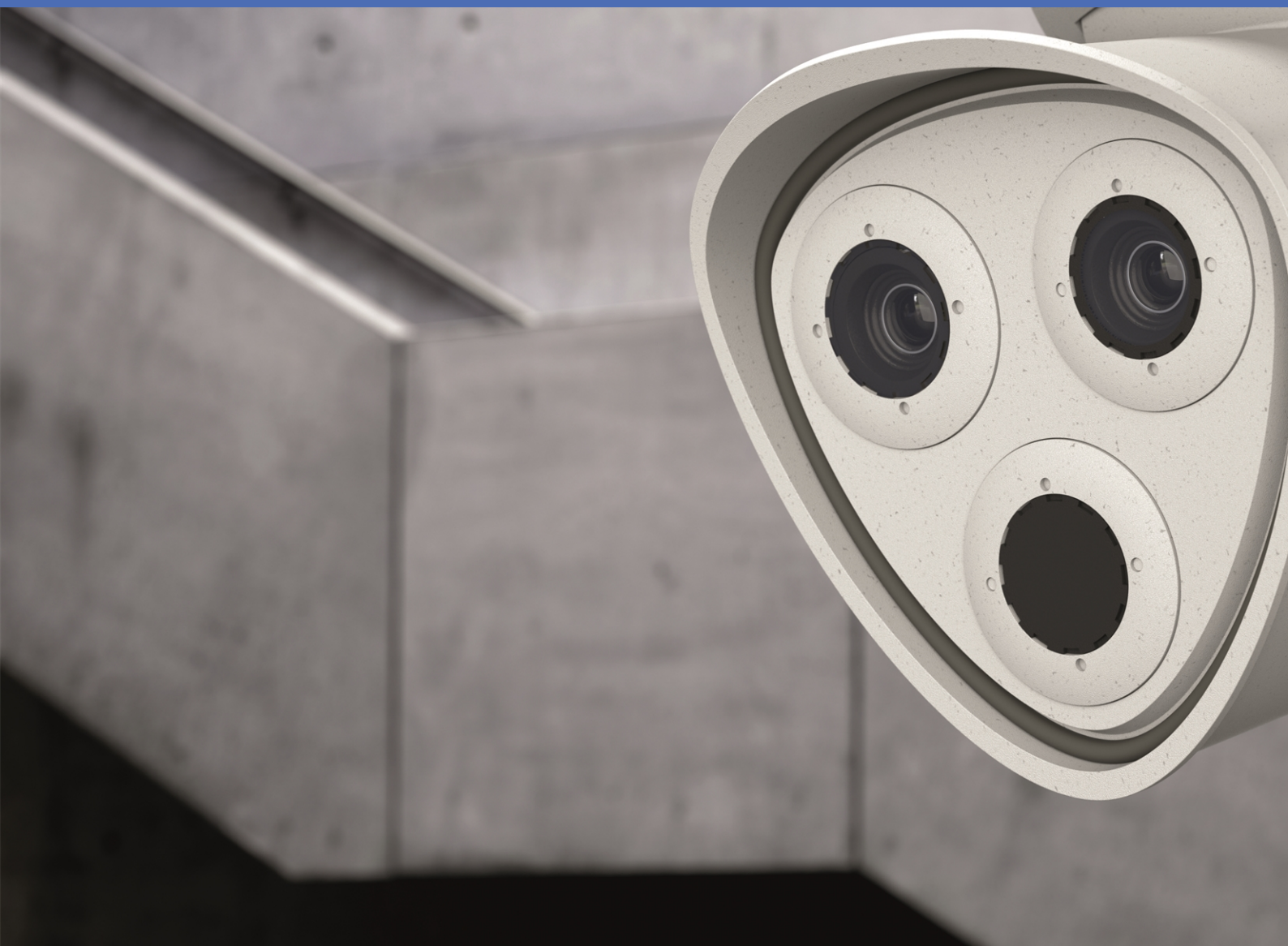


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Support

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



Imprint

This document is part of the camera manufactured by MOBOTIX AG (called manufacturer in the following); the document describes how to use and to configure the camera and its components.

Subject to change without notice.

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Support

See [Support, S. 3](#).

Legal Notes

Special Export Regulations!

Cameras with thermal image sensors ("thermal cameras") are subject to the special export regulations of the U.S.A. and including the ITAR (International Traffic in Arms Regulation):

- According to the currently applicable export regulations of the U.S.A. and the ITAR, cameras with thermal image sensors or parts thereof must not be exported to countries embargoed by the U.S.A., except if a special permit can be presented. At present, this applies to the following countries: Syria, Iran, Cuba, North Korea, Sudan and Krim. The same export ban applies to all persons and institutions listed in "The Denied Persons List" (see www.bis.doc.gov, "Policy Guidance > Lists of Parties of Concern"; <https://www.treasury.gov/resource-center/sanctions/sdn-list/pages/default.aspx>).
- Under no circumstances must the camera itself or its thermal image sensors be used in the design, the development or in the production of nuclear, biological or chemical weapons or in the weapons themselves.

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 Visage Technologies Face Recognition App, 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 > 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 > 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 COS link at the bottom of every page.

About Visage Technologies Face Recognition App

Face Recognition for Access Control

The app compares and recognizes faces based on encrypted image data stored in the camera (face descriptors, not real image files). The application has a 97 % hit probability for access applications. The app can be tested free of charge for 30 days and can be activated for a period of either 12 or 24 months. The app is ideally suited for the following industries: Utilities, Energy & Mining; Industry & Production; Government; Traffic & Transportation; Retail; Healthcare; Education & Education.

- App works as an extended security level for access controls, login terminals, transactions, etc.
- Works with camera online and offline
- Delivers quick and reliable results
- Configuration of the app also via MxManagementCenter (free Advanced Config license required)
- Can be used with all cameras of the MOBOTIX 7 system platform

Technical Specifications

Product Information

Product Name	Visage Technologies Face Recognition App
Order Code	- Mx-APP-VIS-FR-1 (one-year license) - Mx-APP-VIS-FR-2 (two-year license)
Supported MOBOTIX Cameras	Mx-M73A, Mx-S74A
Minimum Camera Firmware	V7.0.4.x
MxManagementCenter Integration	- min. MxMC v2.2 - Advanced Config license required - Smart Data Interface (Recognition Log)

Product Features

App Features	- Completely edge processed - Face Detection & Recognition optimized for access control scenarios - MOBOTIX events via MxMessageSystem - White- and blacklisting* - Recognition log*
Maximum number of simultaneously detected / recognized faces	4
Maximum number of enrolled faces	1000
Meta Data / Statistic formats	JSON
Trial License	30-day trial license pre-installed
MxMessageSystem supported	Yes
Interfaces	compare supported camera's interfaces
MOBOTIX Events	Yes
ONVIF Events	available after camera firmware update

Scene Requirements

Minimum face height	1/10 of live image resolution (e.g. 30px @ VGA)
Recommended installation height (camera)	165 – 210 cm
Maximum Horizontal Angle	10°
Maximum Tilt Angle	5°

Technical App Specifications

Synchronous / Asynchronous App	Asynchronous
Accuracy	Typ. 97% (considering scene & technical requirements)
Processed number of frames per second	Typ. 2 fps
Recognition time	< 1 s
Detection time	Typ. 80 ms
Size of individual face data set	1 kB

* available with updates in future

Licensing Certified Apps

The following licenses are available for the Visage Technologies Face Recognition App:

- **30-day test license** pre-installed
- **1 year commercial license**
- **2 year commercial license**

The usage period begins with activation of the app (see [Activation of the Certified App Interface, S. 18](#)).

Note

For buying or renewing a license please 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.

Managing Licenses in MxManagementCenter

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

Activation of Certified Apps and events

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**.

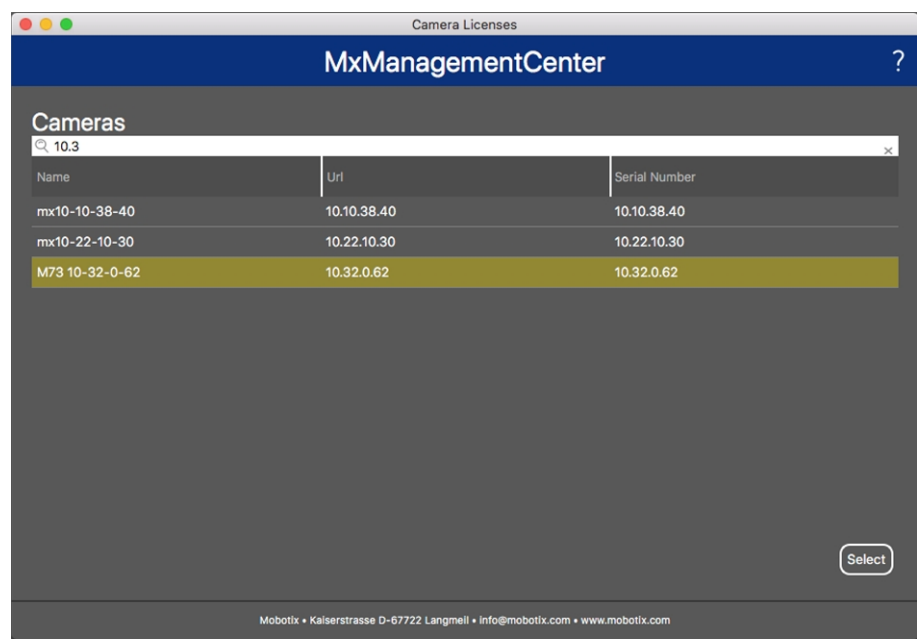


Fig. 1: Overview of Camera App Licenses in MxManagementCenter

Note

If necessary, correct the time set on the camera.

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

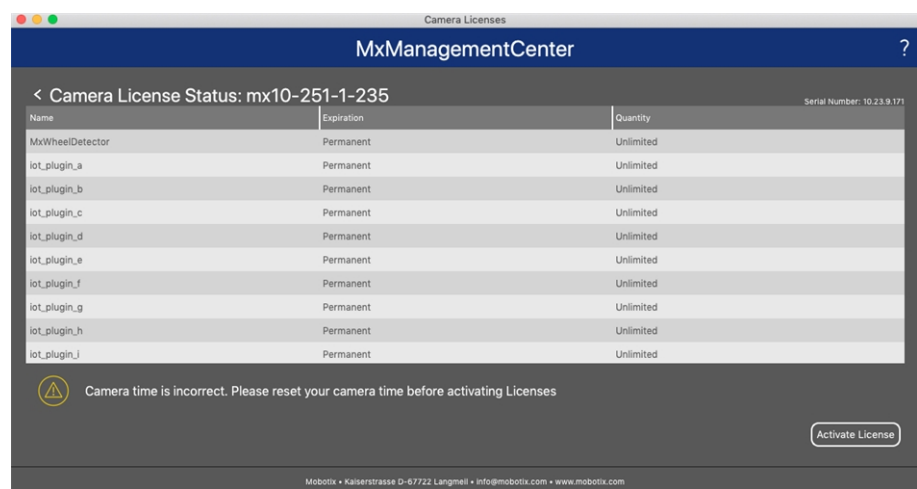


Fig. 2: Overview of the licenses installed on the camera

Note

If necessary, correct the time set on the camera.

5. Enter a valid Activation ID and specify the number of licenses to install on this computer.
6. 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.
7. To remove a line click .

- When you have entered all Activation IDs, click **Activate License Online**. During activation, **MxMC** connects to the license server. This requires an Internet connection.

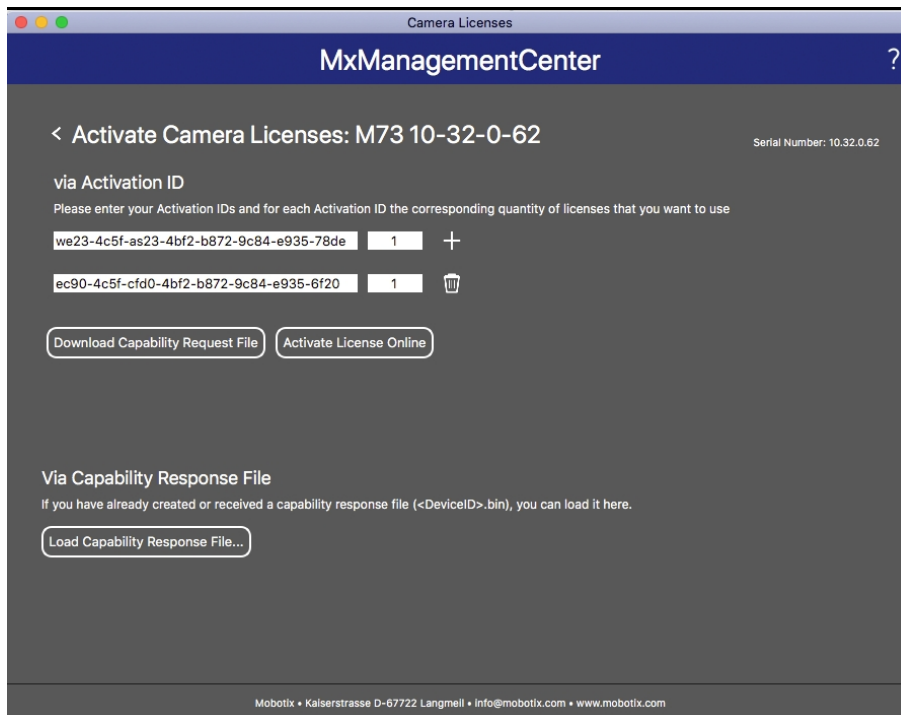


Fig. 3: Adding licenses

Successful activation

After successful activation, a new login 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](#), S. 13).

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.

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

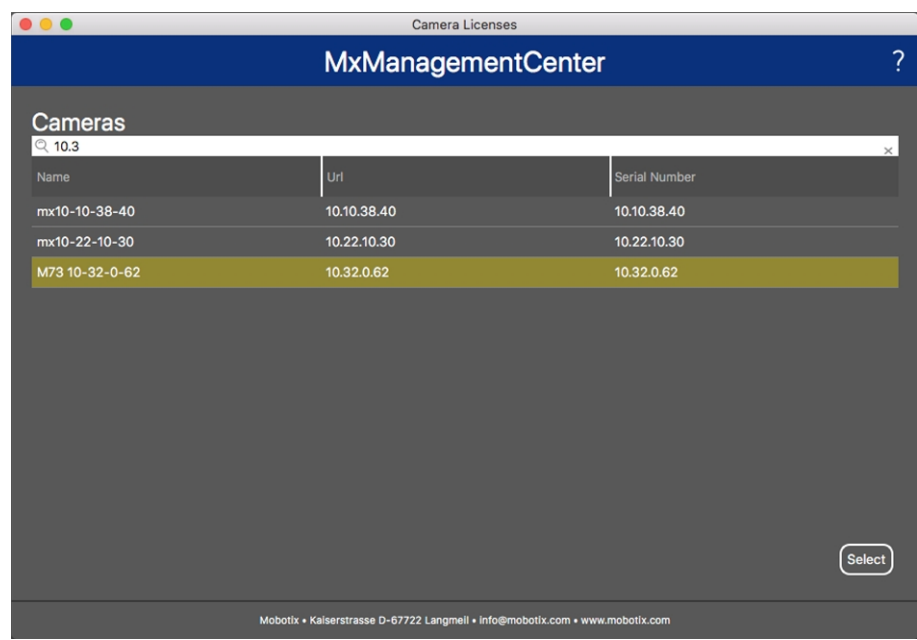


Fig. 4: Overview of Camera App Licenses in MxManagementCenter

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**.

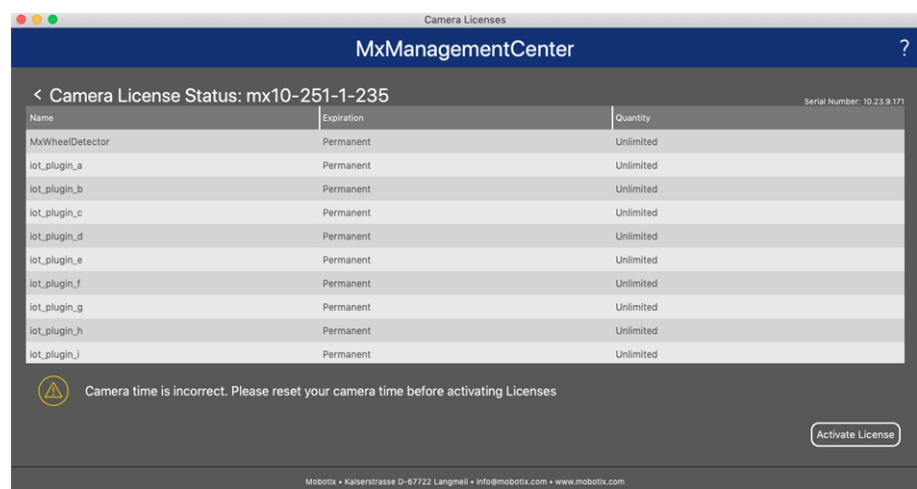


Fig. 5: Overview of the licenses installed on the camera

Note

If necessary, correct the time set on the camera.

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.

- 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.

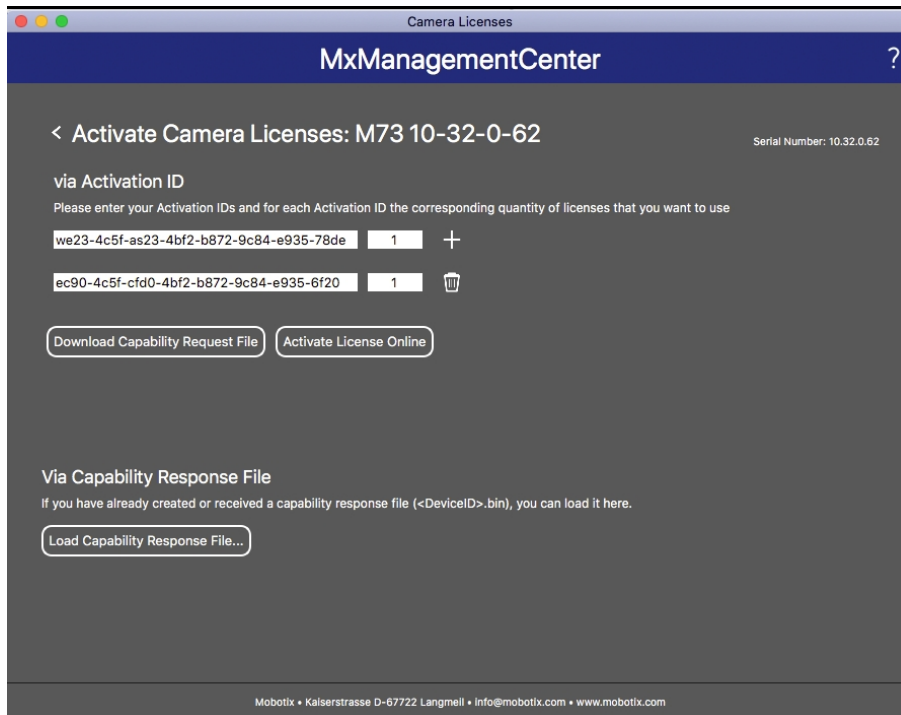


Fig. 6: Adding licenses

- Click Load Capability Response File and follow the instructions.

Successful activation

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

Manage licenses

In the license management screen, you get a tabular overview of all licenses that have been activated for a camera.

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

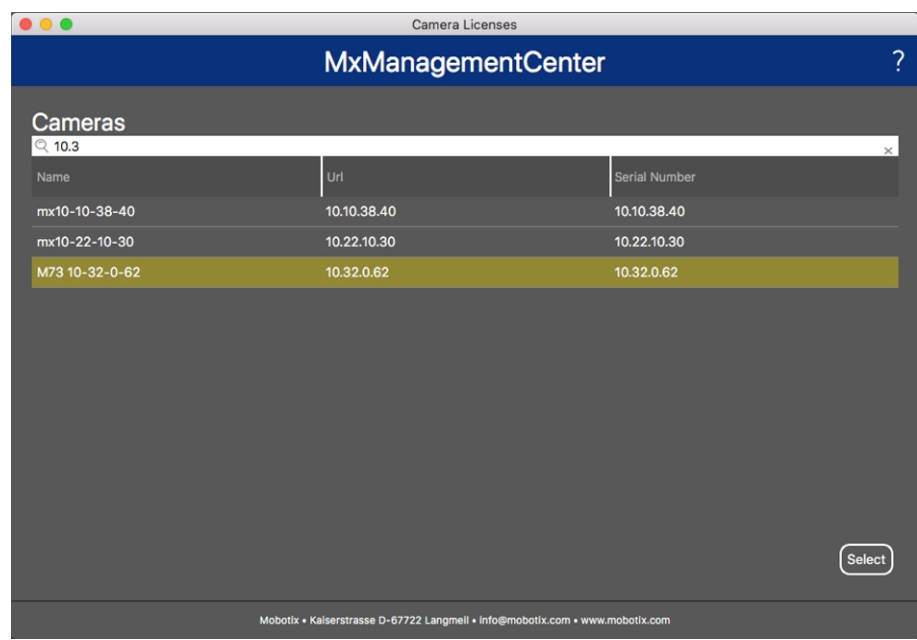


Fig. 7: Overview of Camera App Licenses in MxManagementCenter

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

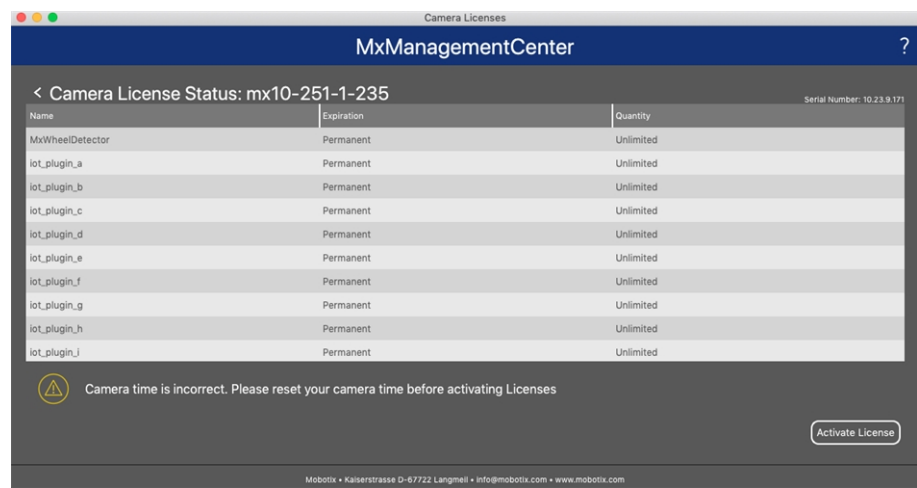


Fig. 8: Overview of the licenses installed on the camera

Note

If necessary, correct the time set on the camera.

Column	Explanation
Name	Name of the licensed app
Expiration	the time limit of the licence
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.

Activation of the Certified App Interface

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.

Activation of Certified Apps and events

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)).

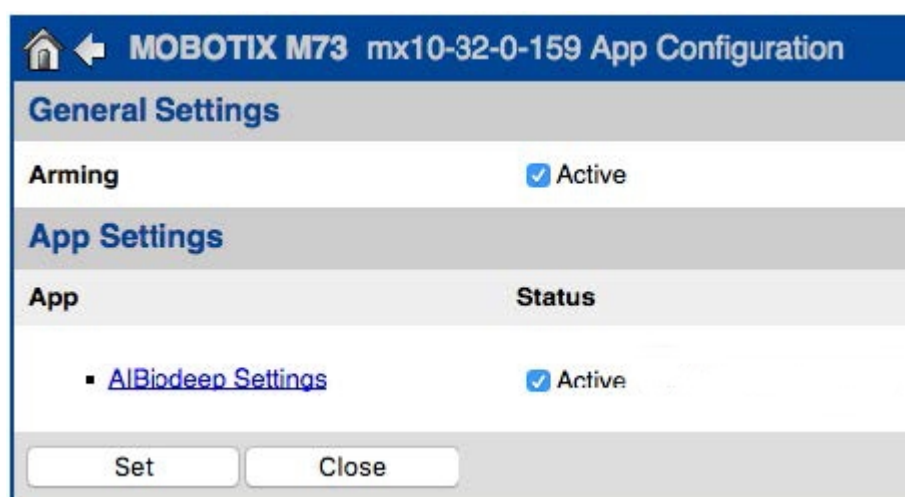


Fig. 9: Certified App: Settings

2. Under **General Settings** activate the **Arming** of the MOBOTIX interface (see screenshot).
3. Under **App Settings** check the **Active** option
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 Visage Technologies Face Recognition App](#), S. 19.

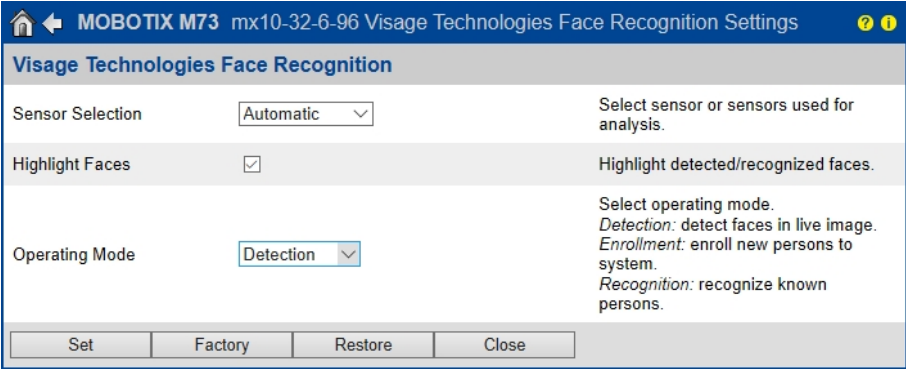
Configuration of Visage Technologies Face Recognition App

Attention

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 **Visage Technologies Face Recognition App**.

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



Visage Technologies Face Recognition	
Sensor Selection	<input type="text" value="Automatic"/> Select sensor or sensors used for analysis.
Highlight Faces	<input checked="" type="checkbox"/> Highlight detected/recognized faces.
Operating Mode	<input type="text" value="Detection"/> Select operating mode. <i>Detection</i> : detect faces in live image. <i>Enrollment</i> : enroll new persons to system. <i>Recognition</i> : recognize known persons.
<div>Set Factory Restore Close</div>	

Fig. 10: Default operating mode: Detection

Sensor Selection: Select the sensors to be used for image analysis

Highlight Faces: Check to highlight detected or recognized faces with a bounding box

Operating Mode: Select one of the operating modes:

Detection (default)

In operation mode **Detection** faces in the live image are detected. There are no further configuration options available.

Enrollment

In the operation mode **Enrollment** persons currently visible in the camera image can be added. Known persons can be edited as well.

In the enrollment mode, the camera extracts a single face from the camera image. If the recognition quality is higher than that of the previously saved face, the app updates this face data. Faces are only extracted if the minimum recognition quality is reached.

MOBOTIX M73 mx10-32-6-96 Visage Technologies Face Recognition Settings

Visage Technologies Face Recognition

Sensor Selection

Automatic

Select sensor or sensors used for analysis.

Highlight Faces

☒

Highlight detected/recognized faces.

Operating Mode

Enrollment

Select operating mode.
Detection: detect faces in live image.
Enrollment: enroll new persons to system.
Recognition: recognize known persons.

Known Persons

Name

Diego Maradona

List of known persons

Add Person

Add Person

Add currently visible person to data base with the given name.

Set

Factory

Restore

Close

Fig. 11: Operating mode: Enrollment

Known Persons: Persons added to the list of known persons, their names can be edited or deleted.

Add Person: If a new person is detected they are highlighted in the camera image with a recognition quality level. Then you can give them an unique name and add them to the list of known persons.

Recognition

Known persons are recognized and highlighted in the camera image.

MOBOTIX M73 mx10-32-6-96 Visage Technologies Face Recognition Settings

Visage Technologies Face Recognition

Sensor Selection

Automatic

Select sensor or sensors used for analysis.

Highlight Faces

☒

Highlight detected/recognized faces.

Operating Mode

Recognition

Select operating mode.
Detection: detect faces in live image.
Enrollment: enroll new persons to system.
Recognition: recognize known persons.

Confidence Threshold

High

Set confidence threshold for face recognition.

Show Name

☒

Show name of successfully recognized person in live image.

Set

Factory

Restore

Close

Fig. 12: Operating mode: Recognition

Confidence Threshold: The **Confidence Threshold** represents a similarity threshold used for the face recognition. The higher the threshold is set, the more difficult it is to be recognized. On the other hand, a lower threshold reduces the reliability of the recognition.

Show Name: Show the name of successfully reconized persons in the live image.

Storing the Configuration

To store the configuration you have the following options:

- 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 metadata are automatically sent to the camera in case of an event.

About 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 an 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 an MxMessage within its own camera system (e.g. through a Certified App).
 - **Global:** the camera expects an 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.

Basic configuration: Processing the automatically generated app events

Checking automatically generated app events

After successfully activating the app (see [Activation of the Certified App Interface, S. 18](#)), a generic message event for this specific app is automatically generated in the camera.

- To check the event go to **Setup-Menu / Event Control / Event Overview**.
- The automatically generated message event profile is named after the application (e. g. VT_Face).

The screenshot shows the 'mx10-32-6-96 Message Events' configuration page in a web browser. The page has a blue header with the MOBOTIX M73 logo and a navigation bar. Below the header, there are two main sections: 'Attribute' and 'Events'.

The 'Attribute' section has a table with the following data:

Attribute	Value	Explanation
IP Receive	8000	Port: TCP port to listen on.

The 'Events' section has a table with the following data:

Events	Value	Explanation
AIPeople		<input type="checkbox"/> Inactive <input type="checkbox"/> Delete
VT_Face		<input type="checkbox"/> Inactive <input type="checkbox"/> Delete

Below the 'Events' table, the configuration for the 'VT_Face' event is shown. It includes a dropdown menu for 'Event Sensor Type' with 'MxMessageSystem' selected. The 'Event Dead Time' is set to 5 seconds. The 'Event on receiving a message from the MxMessageSystem' section contains a text input field for 'Message Name' (VT_Face), a dropdown menu for 'Message Range' (Local), and a dropdown menu for 'Filter Message Content' (No Filter). The 'Filter Message Content' section has a text input field for 'Filter Value'.

At the bottom of the page, there are four buttons: 'Set', 'Factory', 'Restore', and 'Close'.

Fig. 13: Example: Generic message event from Visage Technologies Face Recognition App

Action handling - Configuration of an action group

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 Visage Technologies Face 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)).

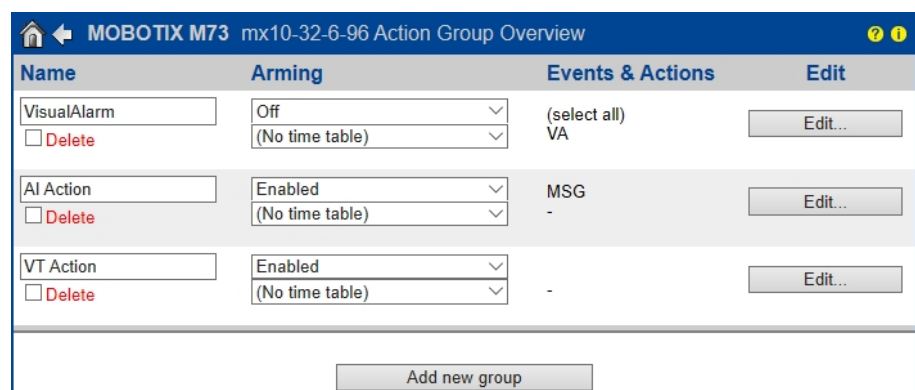


Fig. 14: Defining Action Groups

- Click **Add new group** and give a meaningful name.
- Click **Edit**, to configure the group.

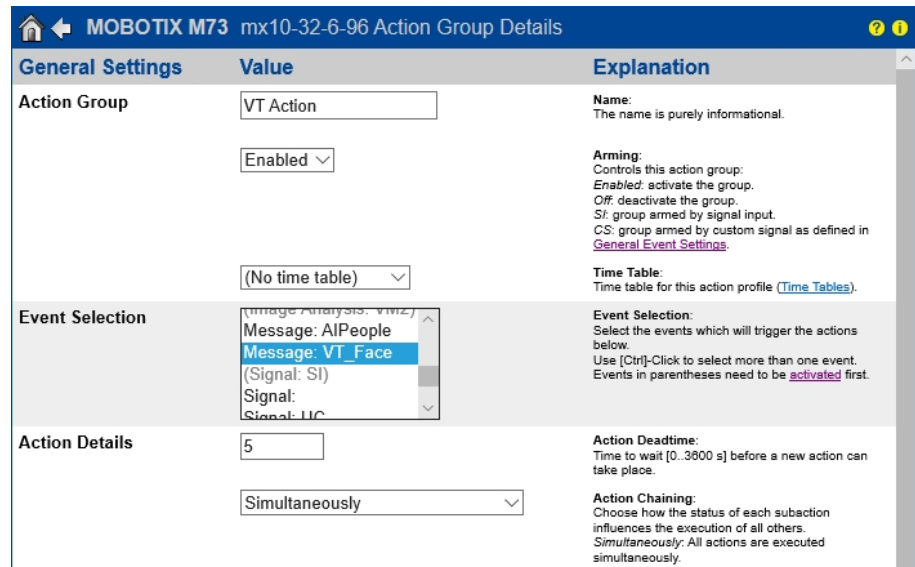


Fig. 15: Configuring an Action Group

1. Activate **Arming** of the Action Group.
2. Select your message event in the **Event selection** list. To select multiple events, press the shift key.

- Click **Add new Action**
- Select a proper action from list **Action Type and Profile**.

Actions	Explanation
Action 1 <input type="checkbox"/> Delete <div> <div> IP Notify: HttpRequest ✓ Play Sound: StandardSounds Visual Alarm: Red Frame Image Profile: Ultra HD Image Profile: QXGA Image Profile: FullHD Image Profile: MEGA </div> <div> Play Sound: StandardSounds </div> </div> <div>0</div> <div>Add new action</div>	<p>specified order. <i>Consecutively until first success:</i> Consecutive execution, but as soon as one action <i>succeeds</i>, the following actions are not executed. <i>Consecutively until first failure:</i> Consecutive execution, but as soon as one action <i>fails</i>, the following actions are not executed.</p> <p>Action Type and Profile: Select the Action Profile to be executed.</p> <p>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 <i>Image Profile</i> action, this is the duration and no error returns.</p>

Fig. 16: Select Action Type- and Profile

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".

Note

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).

Storage Settings	Value	Explanation
Recording (REC)	<div> Event Recording Snap Shot Recording ✓ Event Recording Continuous Recording </div>	<p>Recording Mode: Type of event and story recording. <i>Snap Shot Recording:</i> stores single JPEG pictures. <i>Event Recording:</i> stores stream files for every event using MxPEG codec. <i>Continuous Recording:</i> continuously streams video data to stream files using MxPEG codec. Events can be recorded with a higher frame rate using <i>Start Recording</i>, <i>Retrigger Recording</i> and <i>Stop Recording</i>.</p>
Start Recording	<div> Image Analysis: AS (Image Analysis: VM) (Image Analysis: VM2) Message: AlBiDeep (Signal: SI) Signal: LIC </div> <div>Max fps</div> <div>0</div> <div>30 s</div>	<p>Start Recording: Select the events which will start recording. Use [Ctrl]-Click to select more than one event. Events in parentheses need to be <u>activated</u> first.</p> <p>Event Frame Rate: Recording speed if an event is detected, in frames per second.</p> <p>Recording Time Before Event: Additional recording time before an event in seconds.</p> <p>Recording Time: Time to include in recorded stream after an event has occurred.</p>

Fig. 17: Configuration of camera recording settings

2. Activate **Arm Recording**.
3. Under **Storage Settings / Recording (REC)** select a **Recording mode**. The following modes are available:
 - Snap Shot Recording
 - Event Recording
 - Continuous Recording
4. In list **Start recording** select the message event just created.
5. Click on the **Set** button at the end of the dialog box to confirm the settings.
6. Click on **Close** to save your settings permanently.

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 an MxMessage.

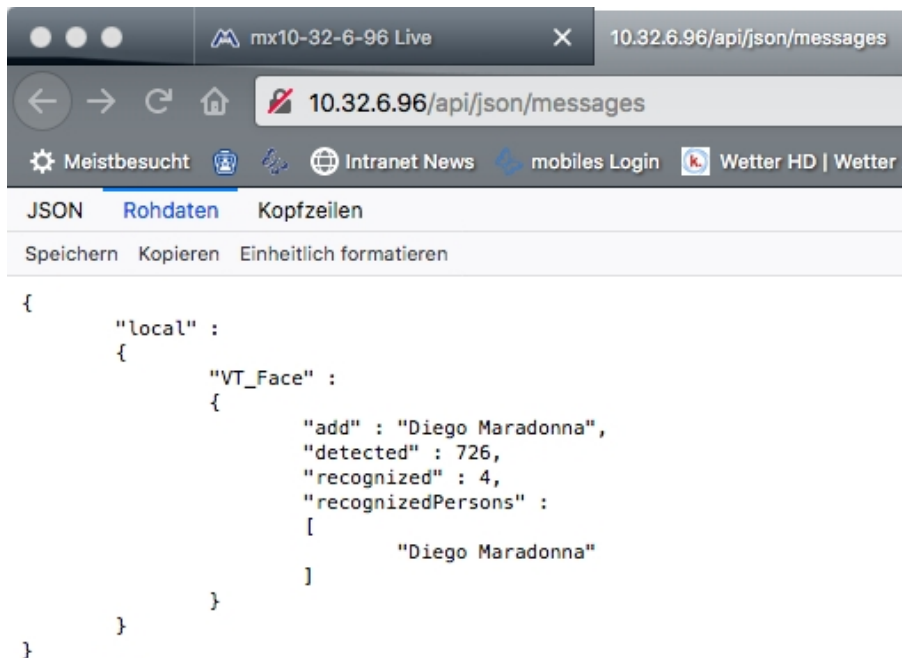
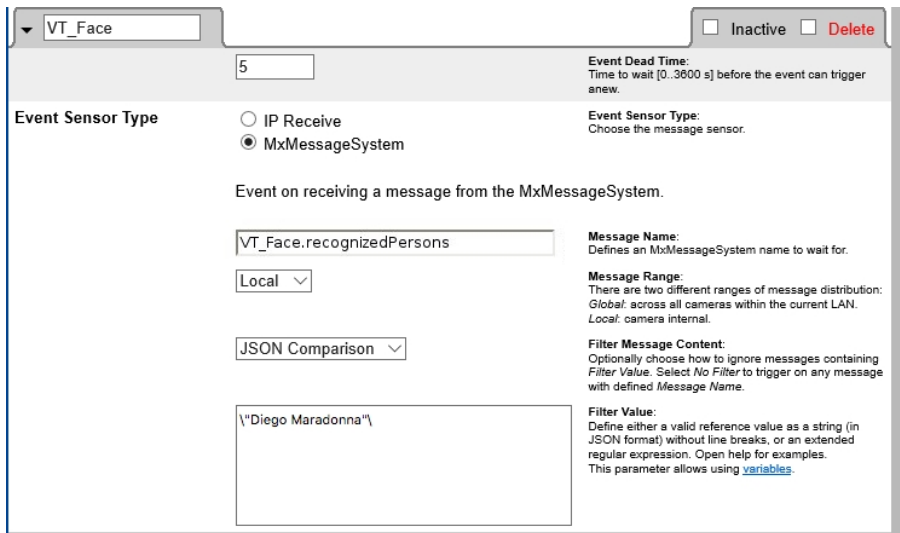


Fig. 18: Example: Meta data transmitted within an MxMessage of the Visage Technologies Face Recognition App

To view the metadata structure of the last App event, enter the following URL in the address bar of your browser: `http(s)://<Camera IP address>/control/event_msg`

Creating a Custom Message Event

1. In the camera web interface, open: **Setup Menu / Event Control / Event Overview**
(`http(s)://<Camera IP address>/control/event_msg`)



VT_Face

5

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

Event Sensor Type:
Choose the message sensor.

Event Sensor Type:
☐ IP Receive
☒ MxMessageSystem

Event on receiving a message from the MxMessageSystem.

Message Name:
Defines an MxMessageSystem name to wait for.

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

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

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](#).

VT_Face.recognizedPersons

Local

JSON Comparison

\\\"Diego Maradona\\\"

Fig. 19: Configuration of a user-defined event

2. Configure the parameters of the event profile as follows:

- **Profile Name:** Enter an event related / application related profile name that illustrates the purpose of the profile.
- **Message Name:** Enter the "Message Name" according to the event documentation of the corresponding app (see table [Advanced Configuration: Processing the meta data transmitted by apps, S. 27](#) below)
- **Message Range:**
 - Local: Default settings for theVisage Technologies Face Recognition App
 - Global: (MxMessage is forwarded from another MOBOTIX camera in the local network.
- **Filter Message Content:**
 - Generic Event: "No Filter"
 - Filtered Event: "JSON Equal Compare"

Filter Value: see table [Advanced Configuration: Processing the meta data transmitted by apps, S. 27](#).

"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 the **Set** button at the end of the dialog box to confirm the settings.