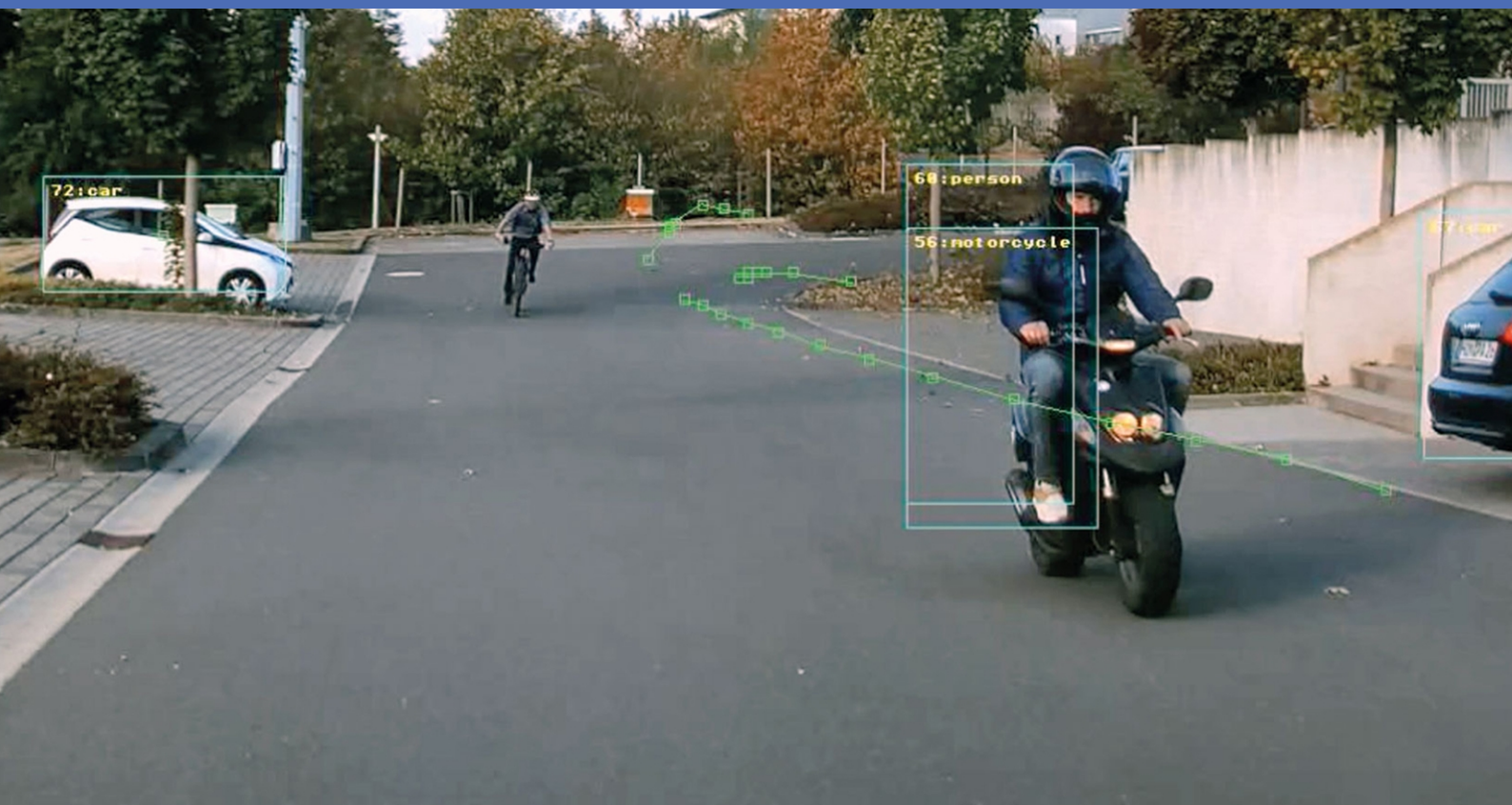


# Guideline

## MxAnalytics App

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# Table of Contents

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<b>Table of Contents</b>	<b>2</b>
<b>Before You Start</b>	<b>5</b>
Support	6
Safety Notes	6
Legal Notes	7
<b>About MxAnalytics App</b>	<b>8</b>
Smart Data Interface to MxManagementCenter	8
<b>Technical Specifications</b>	<b>10</b>
<b>Licensing Certified Apps</b>	<b>12</b>
License Activation of Certified Apps in MxManagementCenter	12
Managing Licenses in MxManagementCenter	17
<b>Activation of the Certified App Interface</b>	<b>19</b>
<b>Configuration of MxAnalytics App</b>	<b>20</b>
Basic settings	20
Detection Area	22
Drawing a Polygon Area in the Live View	23
Installation Settings	24
Setting the Minimum Object Size	25
Visualization Setting	25
Event Setting	26
Drawing a Counting Corridor in the Live View	27
Drawing a Restricted Area in the Live View	27

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Heatmap Setting .....	29
Storage Setting .....	29
Storing the Configuration .....	30
<b>MxMessageSystem .....</b>	<b>31</b>
What is MxMessageSystem? .....	31
Facts about MxMessages .....	31
<b>Basic configuration: Processing the automatically generated app events .....</b>	<b>32</b>
Checking automatically generated app events .....	32
Action handling - Configuration of an action group .....	33
Action settings - Configuration of the camera recording .....	37
<b>Advanced Configuration: Processing the meta data transmitted by apps .....</b>	<b>38</b>
Meta data transferred within the MxMessageSystem .....	38
Creating a Custom Message Event .....	39
Examples for message names and filter values of the MxAnalytics App .....	41



## Before You Start

<b>Support .....</b>	<b>6</b>
<b>Safety Notes .....</b>	<b>6</b>
<b>Legal Notes .....</b>	<b>7</b>

## 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](http://www.mobotix.com) > [Support](#) > [Help Desk](#)



## 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](http://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](http://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](http://www.mobotix.com) by clicking on the corresponding link at the bottom of every page.

# About MxAnalytics App

## Object Recognition Based on Artificial Intelligence

The app's artificial intelligence-based algorithms collect behavioral data on individuals and objects. In a heat map, the most frequented locations in the detection are color-coded. Furthermore movements in defined restricted areas can be detected.

- Free of charge and license-free.
- Motion detection in (defined) restricted areas.
- Person/object counting based on motion detection (optional: accumulated).
- Creates Heatmaps.
- Auto-generated counting and heat map reports.
- Can be used with all cameras of the MOBOTIX 7 system platform.

## Best suited for the requirements of the following industries:

Utilities, Energy & Mining; Industry & Production, Government, Traffic & Transportation, Retail, Healthcare, Education & Science

**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.



Playback - Eisdiele

Search

Eiscafé

Tisch #8 geschloss...  
Bon #465  
Bediener #2 / 30  
2x Cola 0,5 8,00 €  
Limonade 0,5 4,00 €  
Tafelwasser ... 3,00 €  
Spezi 0,5 4,00 €  
Bar 19,00 €  
Gesamtbetrag 19,00 €  
Rechnung #392  
Bediener #2 / 30  
Tisch #39 geoeffnet  
2x Zwiebels... 11,00 €  
2x Tomatens... 11,00 €  
Cola 0,5 4,00 €  
Limonade 0,5 4,00 €  
Tafelwasser ... 3,00 €  
Tisch #39 geschlos...  
Bon #467  
Bediener #2 / 30  
Tisch #39 geoeffnet  
Bar 50,00 €  
Rueckgeld 17,00 €  
Gesamt... Heute 13:28:55 €  
Rechnung #393  
Bediener #2  
Tisch #8 geoeffnet  
Bar 13,60 €  
Gesamtbetrag 13,60 €  
Rechnung #394  
Bediener #2

Heute 14:01:23 Eisdiele 6:40 min

Do. 05.10.17 13:28:54

5.10.17 13:28:54

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

# Technical Specifications

## Product Information

Product Name	MxAnalytics App
Supported MOBOTIX Cameras	Mx-M73A, Mx-S74A
Minimum Camera Firmware	V7.0.6.x
MxManagementCenter Integration	<div><div>■ min. MxMC v2.4</div><div>■ Advanced Config license required</div></div>

## Product Features

App Features	<div>Analytics features:</div> <div><div>■ People / Object Counting</div><div>■ Heatmap</div><div>■ Restricted Area (Motion Detection)</div></div> <div>Other features:</div> <div><div>■ time table to enable MxAnalytics only within defined schedules (e.g. opening hours)</div><div>■ auto-generated people / object counting reports</div><div>■ auto-generated heatmap reports</div><div>■ MOBOTIX events via MxMessageSystem</div></div>
Maximum number of count- ing corridors	16
Maximum number of restric- ted areas	20
Supported image sensor types	Day, Night, Day/Night
Dual / Multi Sensor usage	No
MxMessageSystem sup- ported	Yes

Report export formats	Counting reports: CSV and HTML (table view) Heatmap reports: JPEG
MOBOTIX events	Yes
ONVIF Events	Yes (Generic Message events)

## Hardware Requirements

Camera Sensor Connector	Connector 1 (Only one image sensor usable)
-------------------------	--

## Scene Requirements for Object Counting / Heatmapping

Recommended camera position	ceiling mounted (90°), wall mounted (0°)
Recommended installation height (camera)	2,5 - 10 m (depending on lens variant)
Minimum object size	250px

## Technical App Specifications

Synchronous / Asynchronous App	Asynchronous
Detection accuracy	Person: > 90% Vehicle: > 80%
Counting accuracy	> 90%
Processed number of frames per second	typ. 5 fps

# Licensing Certified Apps

The following licenses are available for the MxAnalytics App:

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

The usage period begins with activation of the app interface (see [Activation of the Certified App Interface](#), p. 19)

**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](http://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**.

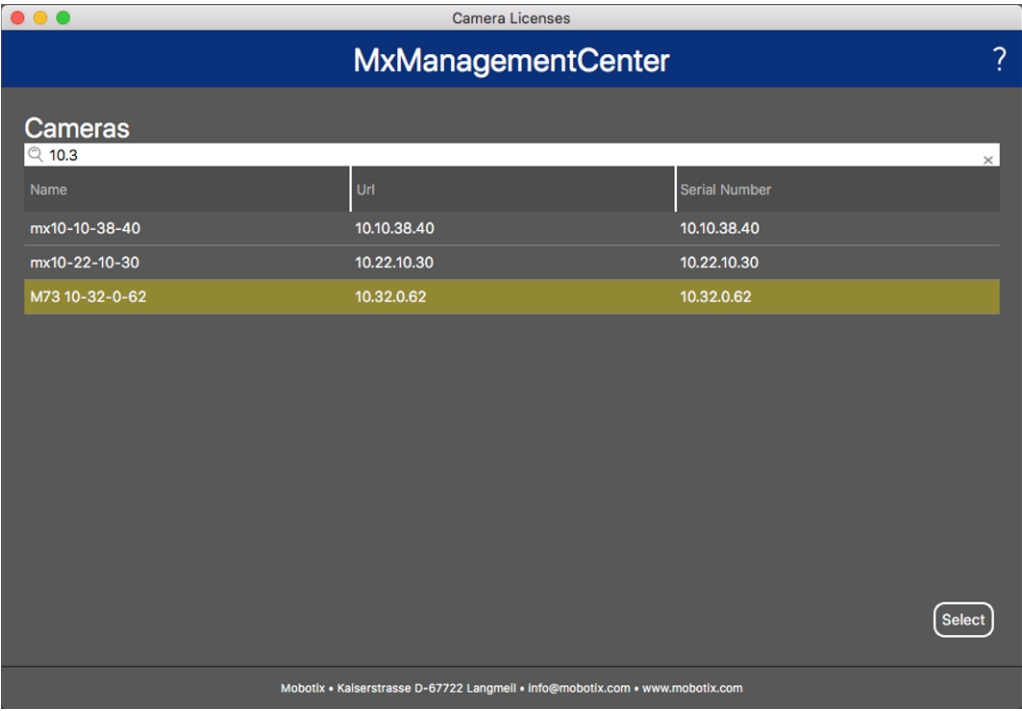


Fig. 2: Overview of Camera App Licenses in MxManagementCenter

**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.

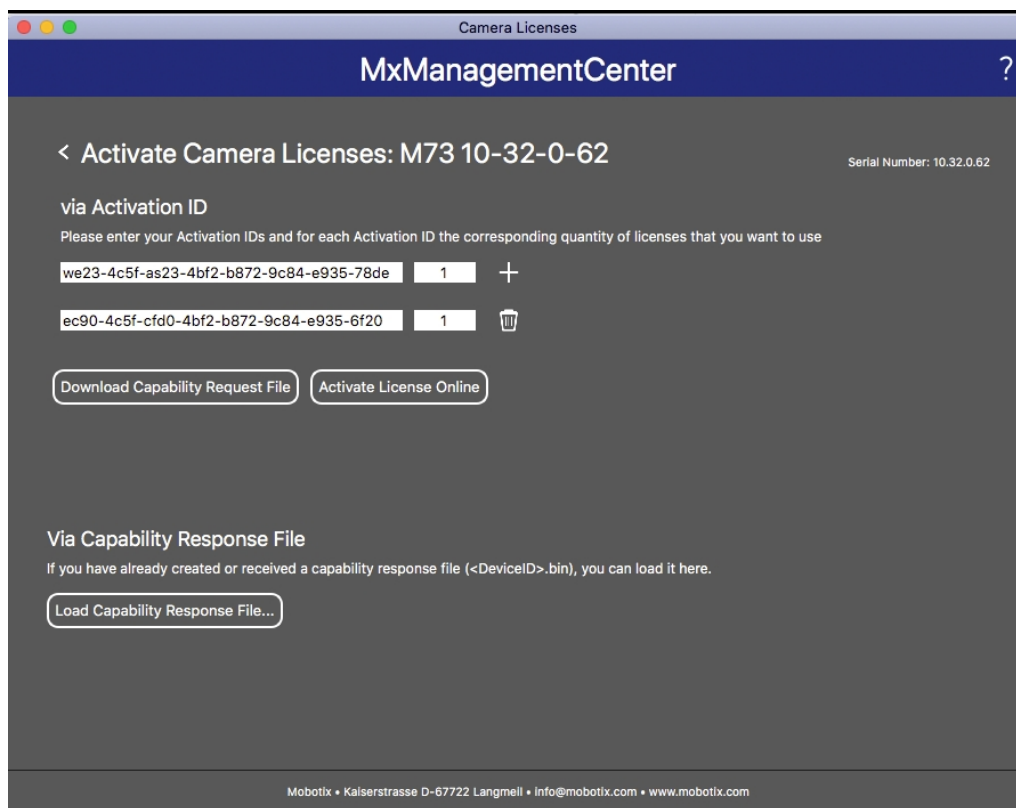


Fig. 4: Adding licenses

#### 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. 14).

## 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**.

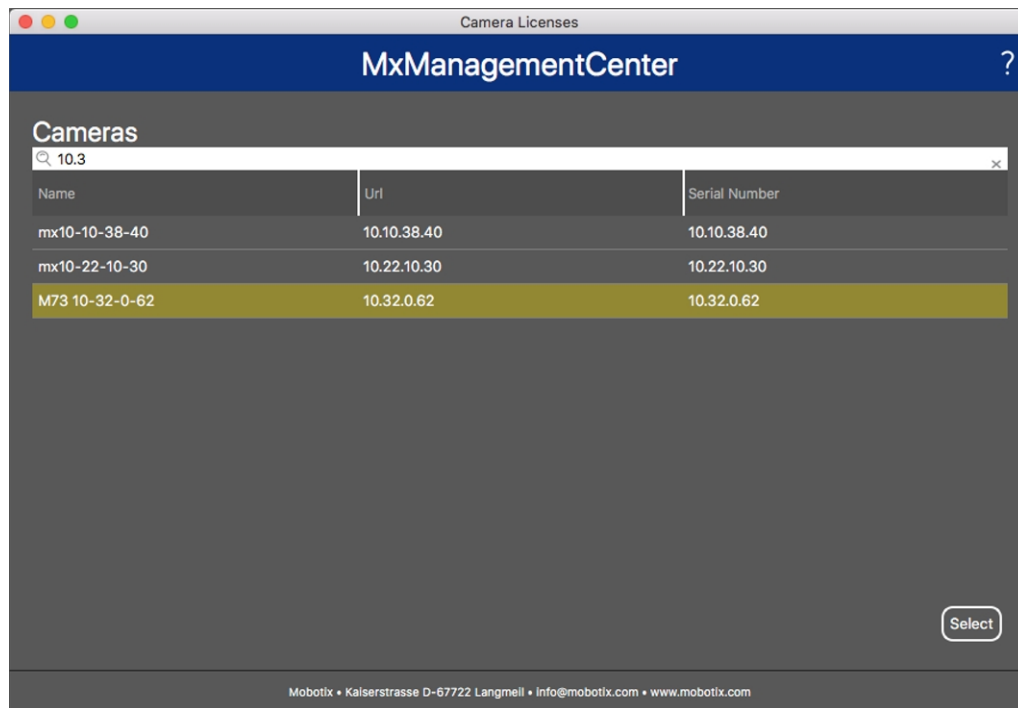


Fig. 5: Overview of Camera App Licenses in MxManagementCenter

**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.

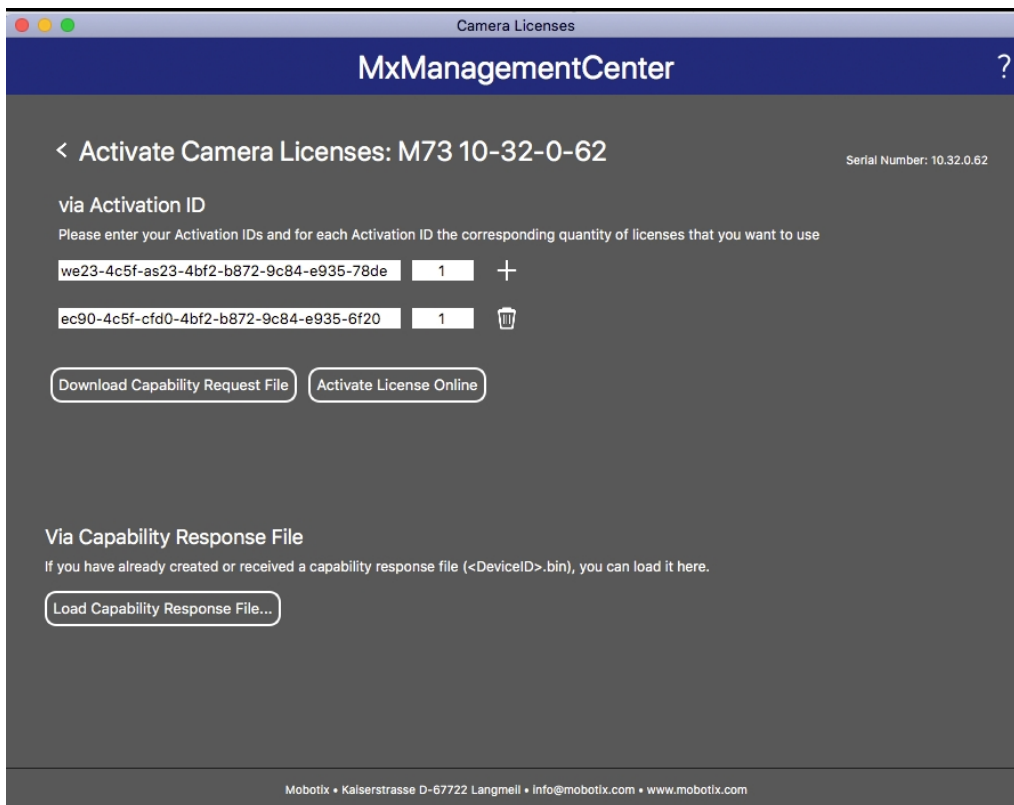


Fig. 7: Adding licenses

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

### Successful activation

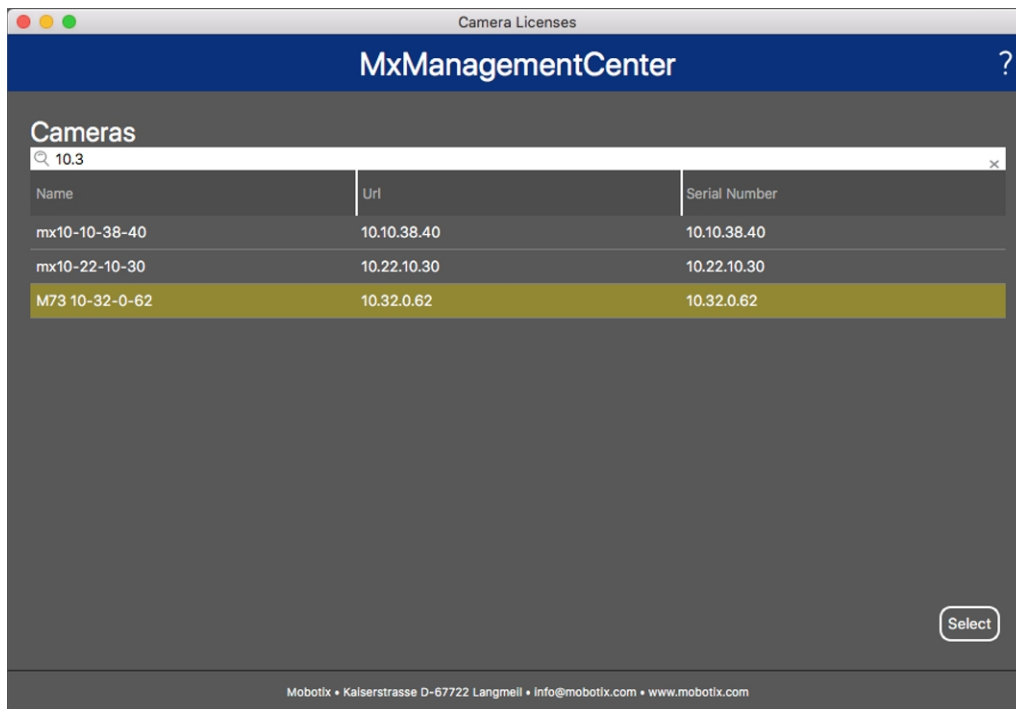
After successful activation, a new log in is required to apply the changes. Alternatively, you can return to license management.



# Managing Licenses in MxManagementCenter

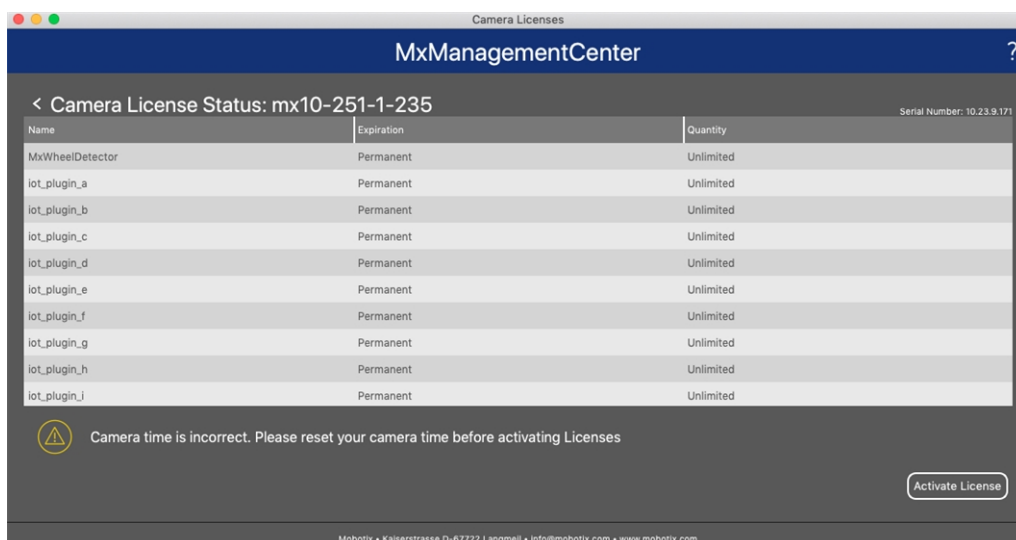
In MxManagementCenter you can comfortably manage all licenses that have been activated for a camera.

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.

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**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

**CAUTION!** The MxAnalytics 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)).

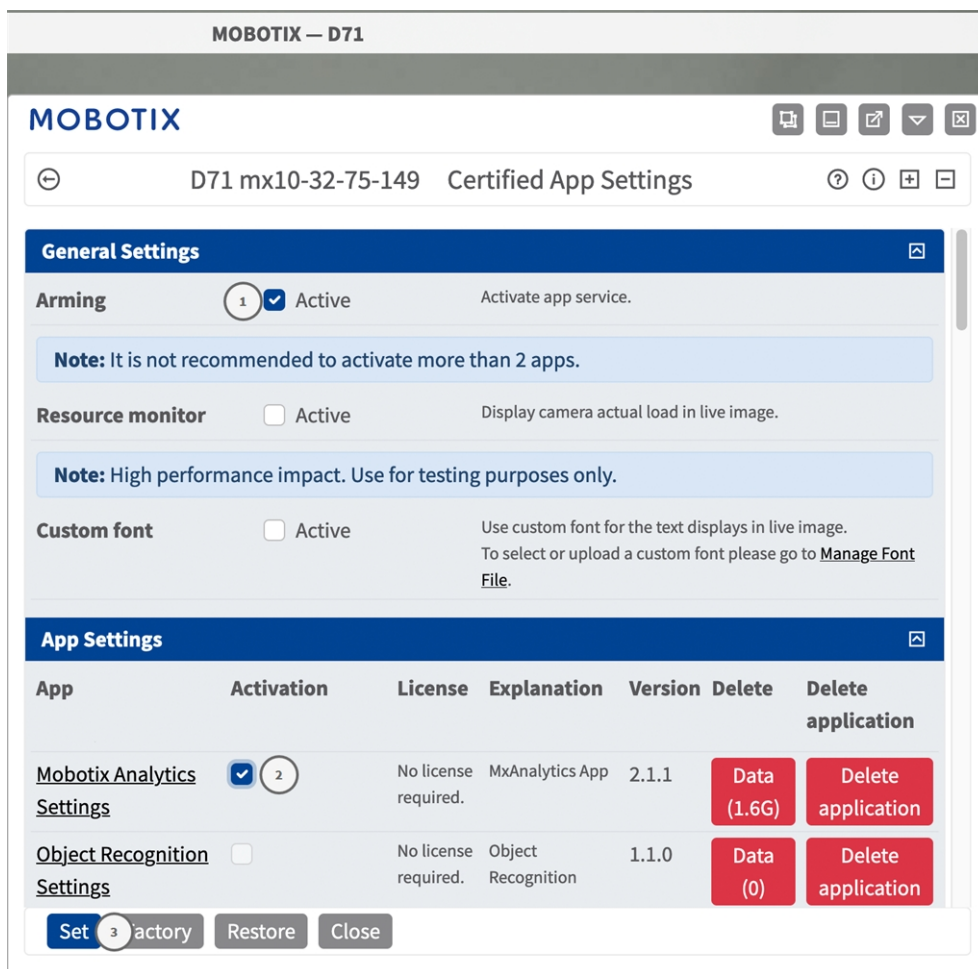


Fig. 10: Certified App: Settings

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 MxAnalytics App, p. 20](#).

# Configuration of MxAnalytics App

**CAUTION!** 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 **MxAnalytics App**.

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

## Basic settings

The following configurations should be taken into account:

MOBOTIX

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M73 mx10-32-6-96

Mobotix Analytics Settings

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MOBOTIX Analytics

Use AI component

☐

The Object Recognition app needs to be available and running for this feature to work. When activated, the results of the object recognition will be used for tracking. Otherwise, the classical MxAnalytics object tracking will be used.

Active

Automatic

⌵

Set for which sensors MxAnalytics is supposed to be executed.

Low-Light-Suppression

10 Lux

⌵

The minimum Lux-value for Analytics to execute

Detection Area

Sensor Selection

Right Sensor

⌵

Polygon points

91

x

135

84

x

920

919

x

917

922

x

121

Edit Polygon

Excluded Area

☐

+

Define multiple detection zones as a polygon. To do this, press the "Edit Polygon" button. You can draw a polygon in the camera image with the mouse. The corners are moved using the large handles. New corners can be inserted by dragging on the smaller handles.

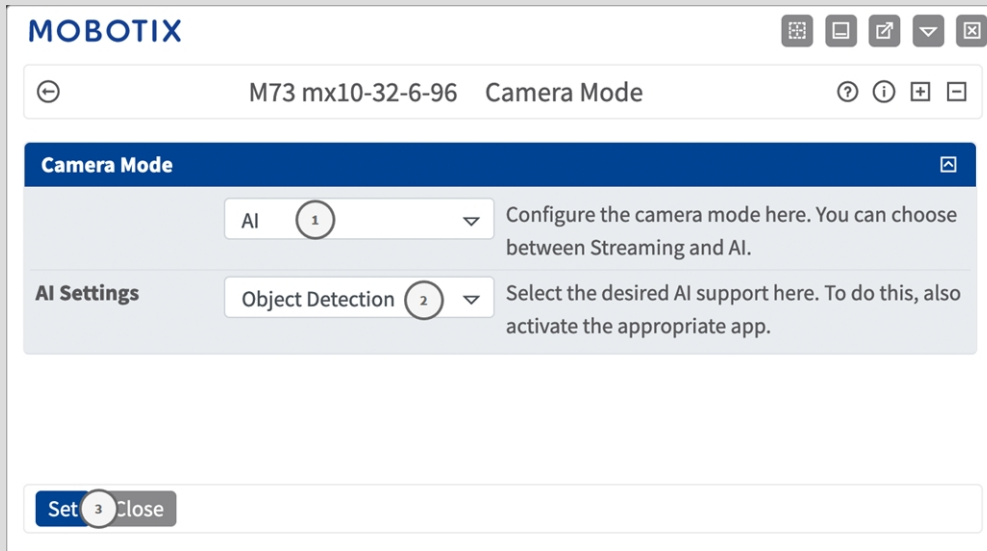
Fig. 11: Basic settings

**Use AI component:** Check, if the AI based video analytics should be used to recognize and classify Persons, Vehicles (Car, Truck, Bus, Motorcycle, Bicycle, Boat, Airplane, Train) and Animals: Bird, Cat, Dog, Horse, Sheep, Cow, Elephant, Bear, Zebra, Giraffe

21 / 43

**NOTE!** The AI component requires the Object Recognition App to run properly. To do so:

In the camera web interface, open **Admin Menu / Hardware Configuration / Camera Mode**



Set the Camera Mode to "**AI**" ① .

Set the AI Settings to "**Object Detection**" ② .

Click **Set**.

**Reboot** the camera.

**Setup Menu / Certified App Settings** activate "**Object Recognition Settings**".

Click **Set**.

**NOTE!** For further information about the MOBOTIX Object Recognition App see the Apps Guideline:  
[www.mobotix.com](http://www.mobotix.com) > **Support** > **Download Center** > **Marketing & Documentation** > **Manuals**.

**Active:** Select the sensors to be used by the MxAnalytics App.

**Low-Light -Supression:** Select the minimum lux value for MxAnalytics App to execute.

**Detection Area:** You can define the detection area as polygon by defining the coordinates of corner points (see [Detection Area, p. 22](#)).

## Detection Area

You can define multiple detection area as polygons by defining the coordinates of corner points.

**MOBOTIX** M73 mx10-32-6-96 Mobotix Analytics Settings

### Mobotix Analytics

**Use AI component** ☐ The Object Recognition app needs to be available and running for this feature to work. When activated, the results of the object recognition will be used for tracking. Otherwise, the classical MxAnalytics object tracking will be used.

**Active** Automatic Set for which sensors MxAnalytics is supposed to be executed.

**Low-Light-Suppression** 10 Lux The minimum Lux-value for Analytics to execute

**Detection Area**

**Sensor Selection** Right Sensor

Polygon points	
91	x 135
84	x 920
919	x 917
922	x 121

Edit Polygon

**Excluded Area** ☐

+

Define multiple detection zones as a polygon. To do this, press the "Edit Polygon" button. You can draw a polygon in the camera image with the mouse. The corners are moved using the large handles. New corners can be inserted by dragging on the smaller handles.

Fig. 12: Detection Area

**Sensor Selection:** If the camera has multiple image sensors, select the one that provides the video stream to be analyzed for the current Detection Area.

**Polygon Points:** The defined corner points of the Detection Area. Click **Edit Polygon** to draw the Detection Area in the Live View (see [Drawing a Polygon Area in the Live View, p. 23](#)).

**Excluded Area:** Check it if the defined area should be excluded from the analysis.

Click the **Plus** icon to define another Detection Area.

## Drawing a Polygon Area in the Live View

In Live View, there you can draw areas based on polygons depending on the App. These areas are e.g. Detection Areas, Excluded Areas, Reference Areas etc.

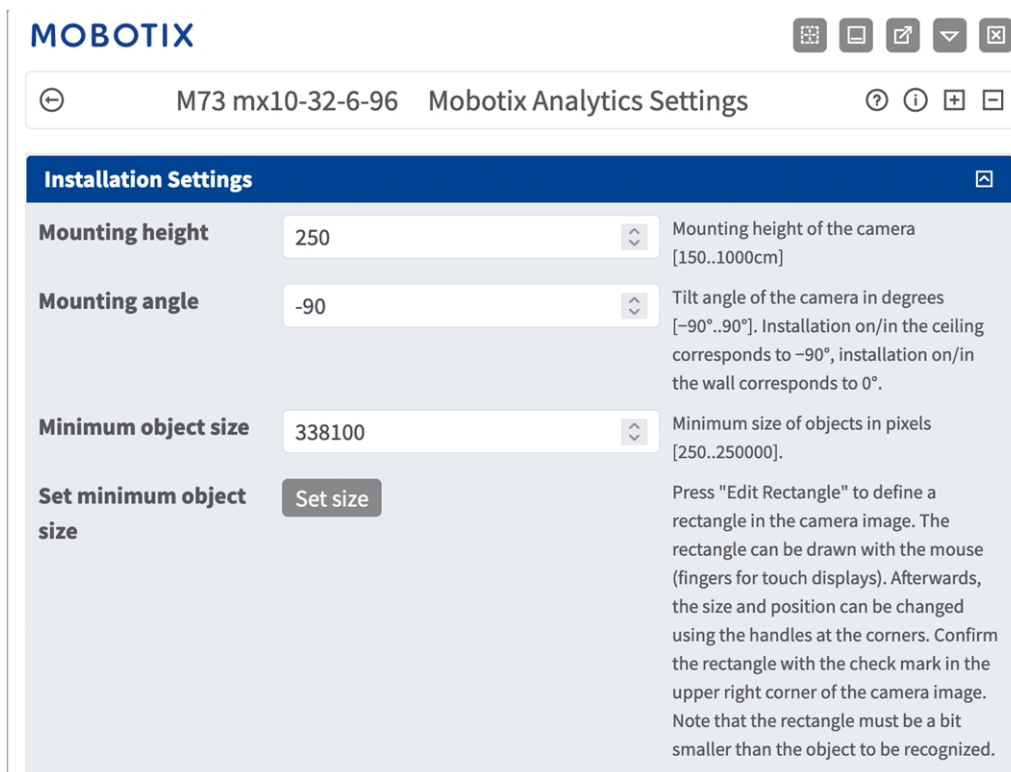
1. In the Live View simply click and drag a rectangular area.
2. Drag the corner points to the desired position.



3. To add another corner point, drag a smaller point between two corner points on the contour of the area.
4. In the top right corner of the live view click **Submit** to adopt the coordinates of the polygon.
5. Optionally click the **bin** icon to delete the recognition area.

# Installation Settings

For best analytics results camera position as well as the object size need to be specified as accurate as possible.



The screenshot shows the 'MOBOTIX' window titled 'M73 mx10-32-6-96 Mobotix Analytics Settings'. The 'Installation Settings' tab is active, displaying four configuration options:

- Mounting height:** A numeric input field set to '250'. The description states: 'Mounting height of the camera [150..1000cm]'.
- Mounting angle:** A numeric input field set to '-90'. The description states: 'Tilt angle of the camera in degrees [-90°..90°]. Installation on/in the ceiling corresponds to -90°, installation on/in the wall corresponds to 0°'.
- Minimum object size:** A numeric input field set to '338100'. The description states: 'Minimum size of objects in pixels [250..250000]'.
- Set minimum object size:** A button labeled 'Set size'. The description states: 'Press "Edit Rectangle" to define a rectangle in the camera image. The rectangle can be drawn with the mouse (fingers for touch displays). Afterwards, the size and position can be changed using the handles at the corners. Confirm the rectangle with the check mark in the upper right corner of the camera image. Note that the rectangle must be a bit smaller than the object to be recognized.'

Fig. 13: Installation settings

**Mounting height:** Mounting height of the camera (150- 1000cm)

**Mounting angle:** Tilt angle of the camera in degrees [-90°- 90°]. Installation on/in the ceiling corresponds to -90°, installation on/in the wall corresponds to 0°.

**Minimum object size:** Minimum size of objects in pixels (250 - 250000)

**Set minimum object size:** In the live image define a rectangle with the minimum object size (see [Setting the Minimum Object Size, p. 25](#)).

**NOTE!** the rectangle must be a bit smaller than the object to be recognized.



## Setting the Minimum Object Size

1. Click the **plus** icon ① to switch into the Live View.
2. In the Live View click and drag a rectangle defining the minimum object size.
3. Drag the corner points to refine rectangle.
4. In the top right corner of the live view click **Submit** to adopt the coordinates of the rectangle.
5. Optionally click the **bin** icon ② to delete rectangle.

**NOTE!** the rectangle must be a bit smaller than the object to be recognized.

## Visualization Setting

Define how the MxAnalytics App objects look in the live image:

**MOBOTIX**

M73 mx10-32-6-96 Mobotix Analytics Settings

### Visualization Settings

<b>Display detection areas</b>	<input checked="" type="checkbox"/>	Whether to show the detection areas in the live-image
<b>Display counting corridors</b>	<input checked="" type="checkbox"/>	Whether to show the counting corridors in the live-image
<b>Display restricted areas</b>	<input checked="" type="checkbox"/>	Whether to show the restricted areas in the live-image
<b>Bounding box color</b>	blue	Choose the color of the bounding boxes
<b>Object track color</b>	green	Choose the color of the object tracks
<b>Object halo color</b>	off	Choose the color of the object halos

Set Factory Restore Close

Fig. 14: Visualization settings

**Display detection areas:** Check to show the detection areas in the live image.

**Display counting corridors:** Check to show counting corridors in the live image.

**Display restricted areas:** Check to show restricted areas in the live image.

**Bounding box color:** Select a bounding box color for detected objects.

**Object track color:** Select a color for the tracking path of detected objects.

**Object halo color:** Select a color for the object halos.

**Object halo transparency:** Enter a transparency value in percent for the object halos.

# Event Setting

In the Event Settings section you can define counting corridors and restricted areas.

MOBOTIX

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Mobotix Analytics Settings

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Event Settings

Counting Corridors

Sensor Selection

not available

First Entrance

880

x

400

First Exit

871

x

645

Second Entrance

400

x

400

Second Exit

421

x

780

Edit Corridor

Corridor ID

1

Corridor name

Main Entrance

✖

+

Restricted Area

Sensor Selection

not available

Polygon points

400

x

300

400

x

660

880

x

660

880

x

300

✖

List of counting corridors.

Define multiple detection zones as a polygon.

To do this, press the "Edit Polygon" button. You can draw a polygon in the camera image with the mouse. The corners are moved using the large handles. New corners can be inserted by dragging on the smaller handles. Confirm the polygon with the check mark in the upper right corner of the camera image.

Fig. 15: Event settings

26 / 43

## Drawing a Counting Corridor in the Live View

Fig. 16: Adding a counting corridor

1. If applicable, **select the sensor** ① that provides the image in which the corridor is to be drawn.
2. Click **Edit Corridor** ② to switch into the Live View

**NOTE!** In Live View, there is a rectangular counting corridor given with four corner points by default. Within the corridor there is an arrow that indicates the direction of movement of the objects to be counted.

3. In the Live View click and drag the corner points to the desired position.
4. In the top right corner of the live view click **Submit** to adopt the coordinates of the polygon.
5. Set the **Corridor ID** ③ .
6. Enter a meaningful Corridor Name ④ .
7. Optionally click the **Plus Icon** ⑤ to draw another Counting Corridor.
8. Optionally click the **Bin Icon** ③ to delete a Counting Corridor.

## Drawing a Restricted Area in the Live View

In Live View, there is a rectangular counting corridor given with four corner points by default. Within the corridor there is an arrow that indicates the direction of movement of the objects to be counted.

Restricted Area

Sensor Selection ① not available

Polygon points

400

x

300

400

x

660

647

x

726

880

x

660

880

x

300

649

x

165

Edit Polygon ②

Area ID

1

③

④

⑤

Define multiple detection zones as a polygon.

To do this, press the "Edit Polygon" button. You can draw a polygon in the camera image with the mouse. The corners are moved using the large handles. New corners can be inserted by dragging on the smaller handles. Confirm the polygon with the check mark in the upper right corner of the camera image.

Fig. 17: Adding a restricted area

1. If applicable, **select the sensor** ① that provides the image in which the Restricted Area is to be drawn.
  2. Click **Edit Polygon** ② to switch into the Live View
- NOTE!** In Live View, there is a rectangular polygon representing a Restricted Area given with four corner points by default.
3. In the Live View click and drag the corner points to the desired position.
  4. To add another corner point click on the desired position on the contour of the detection area.
  5. In the top right corner of the live view click **Submit** to adopt the coordinates of the polygon.
  6. Set the **Area ID** ③ .
  7. Optionally click the **Plus Icon** ④ to draw another Restricted Area.
  8. Optionally click the **Bin Icon** ⑤ to delete a Restricted Area.

# Heatmap Setting

In this section you can define heatmap settings e. g. for crowd analytics.

Heatmap Settings	
<b>Display heatmap preview</b>	<input checked="" type="checkbox"/> Shows a low resolution preview of the heatmap in the live-image. High performance impact and interfering with other visualizations. Use for testing purposes only.
<b>Display heatmap legend</b>	<input type="checkbox"/> Shows the heatmap legend to the right of the live-image
<b>Heatmap minimum percentage</b>	<input type="text" value="0"/> Set minimum value to visualize in percent. The current minimum value will be used, if 0 is selected.
<b>Heatmap maximum percentage</b>	<input type="text" value="100"/> Set maximum value to visualize in percent. The current maximum value will be used, if 100 is selected.

Fig. 18: Heatmap settings

**Heatmap Label:** Select a heatmap label to make sure only select objects will be used to generate a heatmap.

**Display heatmap preview:** Check for testing purposes only. Shows a low resolution preview of the heatmap in the live-image. High performance impact and interfering with other visualizations. Use for testing purposes only.

**Display heatmap legend:** Check to show the heatmap legend to the right of the live-image.

**Heatmap minimum percentage:** Set the minimum value to visualize in percent. The current minimum value will be used, if 0 is selected.

**Heatmap maximum percentage:** Set the maximum value to visualize in percent. The current maximum value will be used, if 100 is selected.

## Storage Setting

Edit how long heatmap and corridor data should be stored:

Storage Settings	
<b>Maximum stored data age</b>	<input type="text" value="90"/> Heatmap and corridor data older than this number of days is being deleted from the local storage.
<b>Clear Data</b>	<input type="button" value="Clear Data"/> Deletes all heatmap and corridor data
<b>Store Data</b>	<input type="button" value="Store Data"/> Writes the current heatmap and corridor data to the local storage

Fig. 19: Storage settings

**Maximum storage data age:** Enter the number of days after heatmap and corridor data are being deleted from the local storage.

**Clear data:** Click to delete all heatmap and corridor data.

**Store data:** Click to write the current heatmap and corridor data to the local storage.

## 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 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.



# Basic configuration: Processing the automatically generated app events

## Checking automatically generated app events

**NOTE!** After successfully activating the app (see [Activation of the Certified App Interface, p. 19](#)), 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. MxAnalytics).

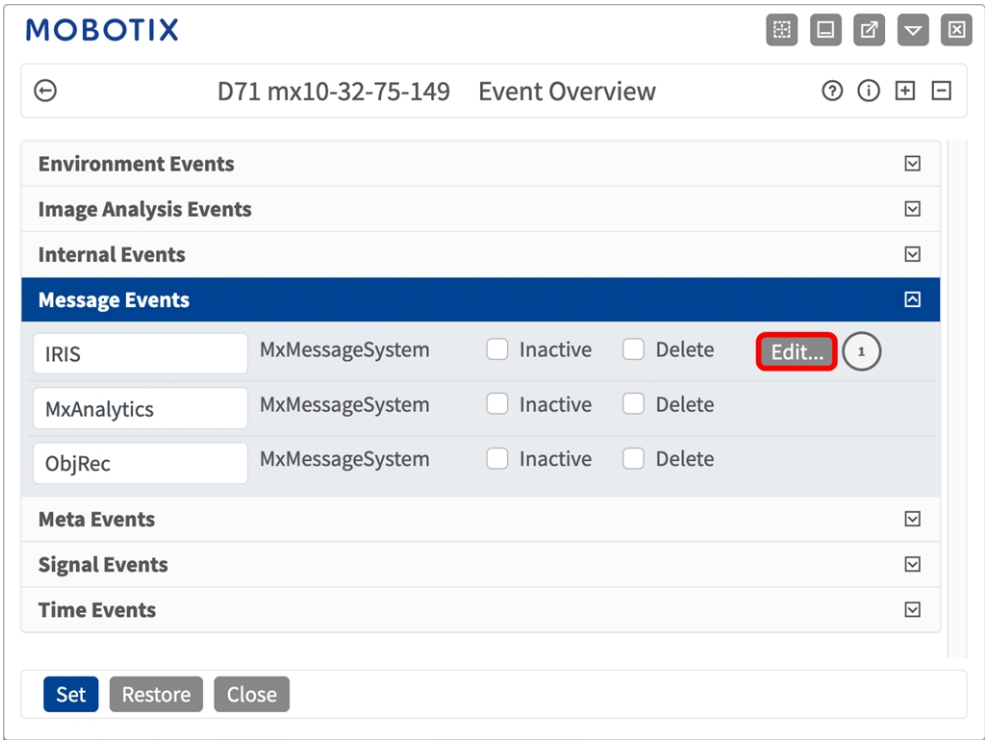


Fig. 20: Example: Generic message event from MxAnalytics App



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

**MOBOTIX**

D71 mx10-32-75-149 Message Events

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

Events	Value	Explanation
MxAnalytics	<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	<input type="radio"/> IP Receive <input checked="" type="radio"/> MxMessageSystem	Event Sensor Type: Choose the message sensor.
Event on receiving a message from the MxMessageSystem.		
	MxAnalytics	Message Name: Defines an MxMessageSystem name to wait for.
	Local	Message Range: There are two different ranges of message distribution: <i>Global</i> : across all cameras within the current LAN. <i>Local</i> : camera internal.
	No Filter	Filter Message Content: Optionally choose how to ignore messages containing <i>Filter Value</i> . Select <i>No Filter</i> to trigger on any message with defined <i>Message Name</i> .

Set Factory Restore Close

Fig. 21: Example: Generic message event details - no filter

## 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 MxAnalytics 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)).

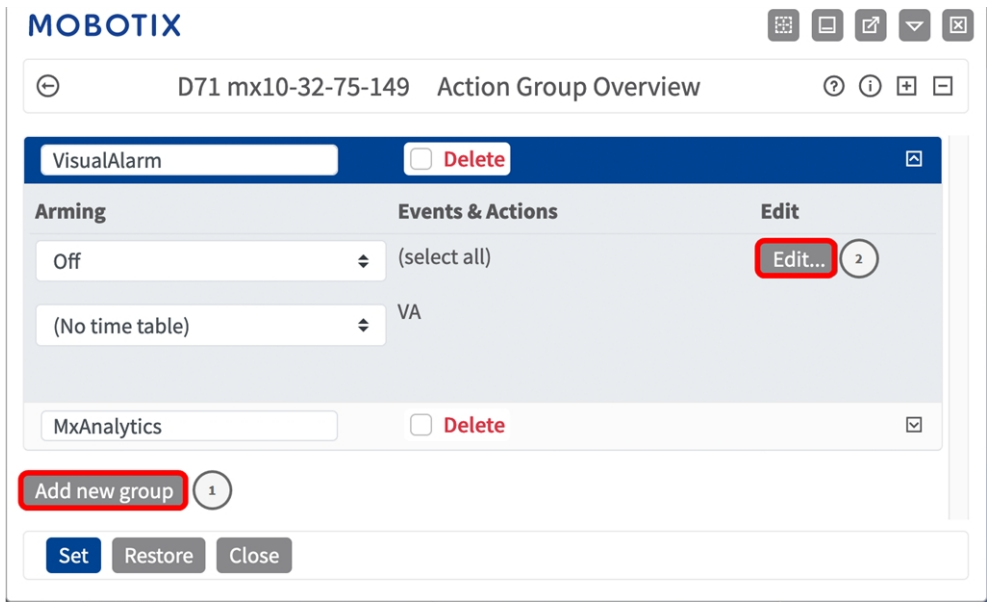


Fig. 22: Defining Action Groups

2. Click **Add new group**<sup>①</sup> and give a meaningful name.

3. Click **Edit** ② , to configure the group.

**MOBOTIX** M73 mx10-32-6-96 Action Group Details

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

Set Factory Restore Close

**Fig. 23: Configuring an Action Group**

4. Activate **Arming** ③ of the Action Group.
5. Select your message event in the **Event selection** ④ list. To select multiple events, press the shift key.
6. Click **Add new Action** ⑤ .

7. Select a proper action from list **Action Type and Profile** ⑥ .

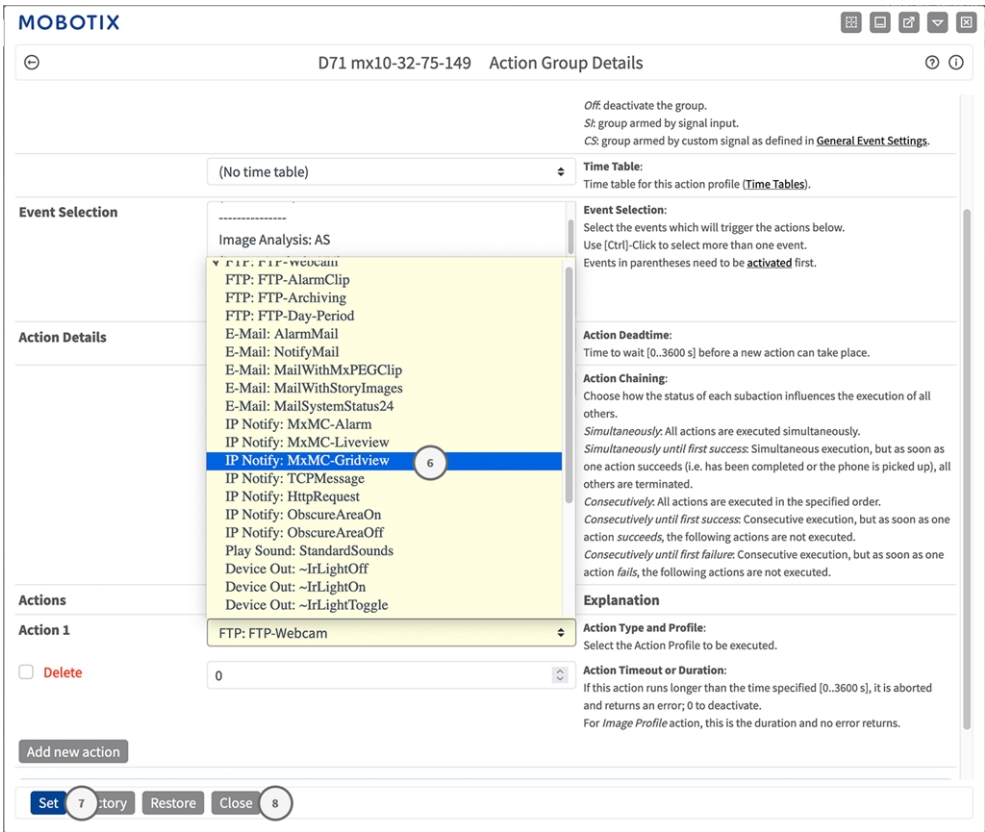


Fig. 24: Select Action Type- and Profile

**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".

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).

- 8. Click on the **Set** ⑦ button at the end of the dialog box to confirm the settings.
- 9. Click on **Close** ⑧ to save your settings permanently.

# Action settings - Configuration of the camera recording

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

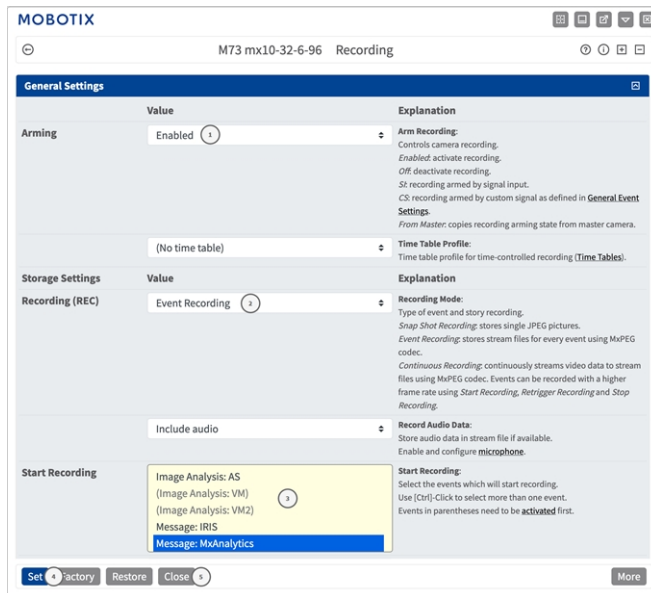


Fig. 25: Configuration of camera recording settings

1. Activate **Arm Recording**<sup>①</sup> .
2. Under **Storage Settings / Recording (REC)** select a **Recording mode**<sup>②</sup> . The following modes are available:
  - Snap Shot Recording
  - Event Recording
  - Continuous Recording
3. In list **Start recording**<sup>③</sup> select the message event just created.
4. Click on the **Set**<sup>④</sup> button at the end of the dialog box to confirm the settings.
5. Click on **Close**<sup>⑤</sup> 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.

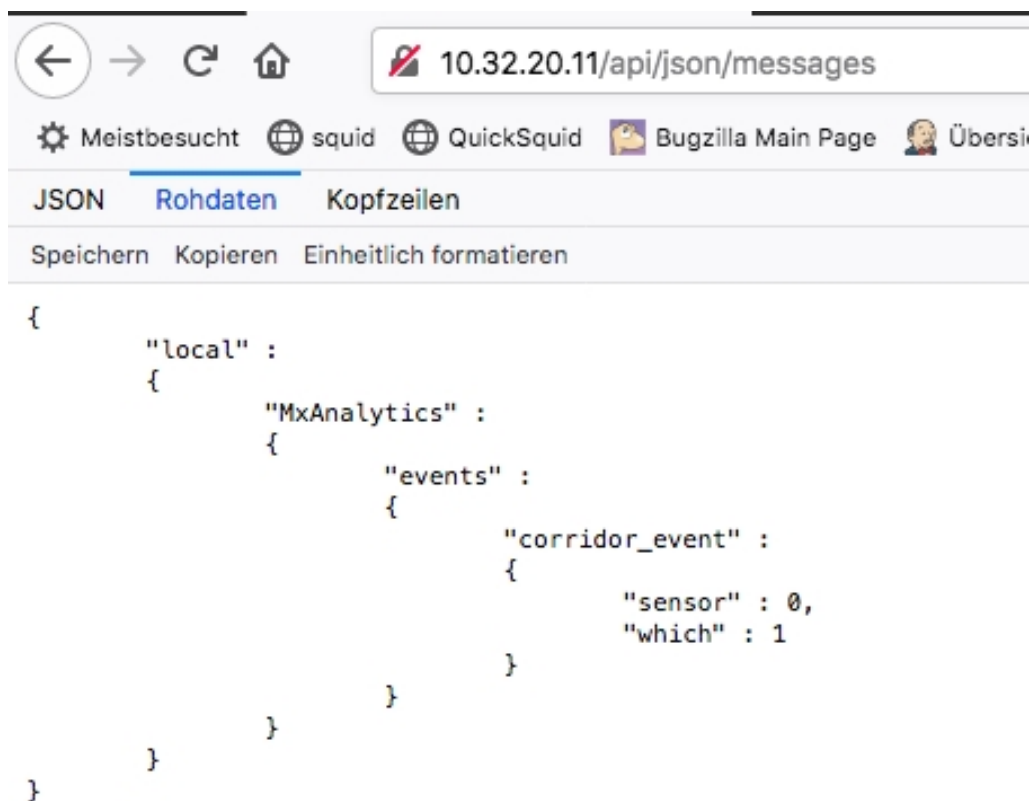


Fig. 26: Example: Meta data transmitted within a MxMessage of the MxAnalytics App

**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 ① (e. g. MxAnalytics).

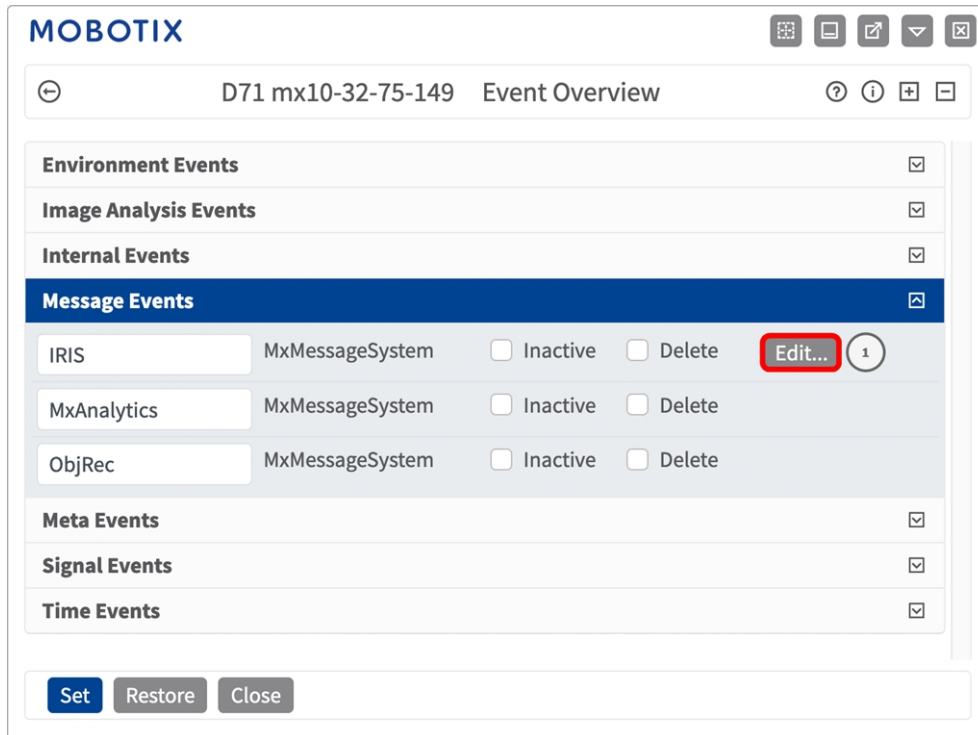


Fig. 27: Example: Generic message event from MxAnalytics App

2. Click **Edit** ② 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

IRIS

☐ Inactive ☐ Delete

MxAnalytics ③

☒ 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.

MxAnalyticsCorridorEvent ④

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*.

"events.corridor\_event" ⑤

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.

Set ⑥ Factory

Restore

Close

Fig. 28: Example: Corridor message event

3. Click on the event (e. g. MxAnalytics) ③ to open the event settings.



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

- **Message Name:** Enter the "Message Name" ④ according to the event documentation of the corresponding app (see [Examples for message names and filter values of the MxAnalytics App, p. 41](#))
- **Message Range:**
  - Local: Default settings for the MxAnalytics 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:** ⑤ see [Examples for message names and filter values of the MxAnalytics App, p. 41](#).

**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**⑥ at the end of the dialog box to confirm the settings.

## Examples for message names and filter values of the MxAnalytics App

MxMessage Name	Filter Value	Explanation
MxAnalytics.events.corridor_event		Message at each corridor increment
MxAnalytics.events.restricted_event		Message on each triggering of a Restricted Area
MxAnalytics	"sensor":0	Filter message by sensor (in this case sensor 0)
MxAnalytics	"which":5	Filter message by corridor or restricted area ID (in this case 5)

Advanced Configuration: Processing the meta data transmitted by apps

Examples for message names and filter values of the MxAnalytics App

MxMessage Name	Filter Value	Explanation
ObjRec	"numObjects":[^\0]	Message if any object is found in the image
ObjRec	"car"	Message when a car is detected in the image
ObjRec	"object3"	Message if at least 3 arbitrary objects were found in the image



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