

Guideline

MOBOTIX Color Recognition App

© 2024 MOBOTIX AG



Table of Contents

Table of Contents	2
Before You Start	3
Support	4
MOBOTIX Support	4
MOBOTIX eCampus	4
MOBOTIX Community	4
Safety Notes	5
Legal Notes	5
About MOBOTIX Color Recognition App	7
Smart Data Interface to MxManagementCenter	7
Technical Specifications	8
Licensing Certified Apps	10
Activation of the Certified App Interface	11
Configuration of MOBOTIX Color Recognition App	13
Detection Settings	14
Debug settings	15
MxMessageSystem	17
What is MxMessageSystem?	17
Facts about MxMessages	17
MxMessageSystem: Processing the automatically generated app event	18
Checking automatically generated app events	18
Action handling - Configuration of an Action Group	19
Action settings - Configuration of the camera recordings	22
MxMessageSystem: Processing the meta data transmitted by apps	24
Meta data transferred within the MxMessageSystem	24
Creating a Custom Message Event	25
Examples for message names and filter values of the MOBOTIX Color Recognition App	26

Before You Start

Support	4
Safety Notes	5
Legal Notes	5

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 camera must be installed by qualified personnel and the installation should conform to all local codes.
- 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!
- Do not replace batteries of the camera. If a battery is replaced by an incorrect type, the battery can explode.
- External power supplies must comply with the Limited Power Source (LPS) requirements and share the same power specifications with the camera.
- When using a power 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.

It is the User's responsibility to comply with all applicable local, state, national and foreign laws, rules, treaties and regulations in connection with the use of the Software and Product, including those related to data privacy, the Health Insurance Portability and Accountability Act of 1996 (HIPPA), international communications and the transmission of technical or personal data.

About MOBOTIX Color Recognition App

Intelligent Color Recognition

The app's artificial intelligence-based algorithms simply detects colors in various scenes and environments.

- Detection of user-specified color values within customized detection areas.
- Definition of up to 20 detection areas within the camera's field of view.
- Supports the recognition of all RGB color values.
- Set sensitivity, required percentage within the defined detection area and duration of the associated condition.
- 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.

Technical Specifications

Product Information

Product Name	MOBOTIX Color Recognition App
Order Code	Mx-APP-MX-COR
Supported MOBOTIX Cameras	M73, S74, D71
Minimum Camera Firmware	v7.3.1.x
MxManagementCenter compatibility	<ul style="list-style-type: none">min. MxMC v2.5Configuration: Advanced Config license requiredEvent Search: Smart Data Interface license included

Product Features

App Features	<ul style="list-style-type: none">Detection of user-specified color values within customized detection areasDefinition of up to 20 detection areas within the camera's field of viewSupports the recognition of all RGB color valuesSet sensitivity, required percentage within the defined detection area and duration of the associated conditionMOBOTIX events via MxMessageSystem
Maximum number of recognition areas	20
Supported image sensor types	Day, Night, Day/Night
Dual / Multi Sensor usage	Yes
MxMessageSystem supported	Yes
MOBOTIX Events	Yes
ONVIF Events	Yes (Generic Message event)

Hardware / Scene Requirements

the color recognition is detecting any color value in the field of view of the camera or a customized detection area and thus it is not depending on installation or hardware requirements

Minimum area percentage 1% of the image resolution

Technical App Specifications

Synchronous / Asynchronous App asynchronous

Processed frame rate typ. 10 fps

Licensing Certified Apps

The usage period begins with activation of the app interface (see [Activation of the Certified App Interface](#), p. 11)

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.

Activation of the Certified App Interface

CAUTION! The MOBOTIX Color 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)).

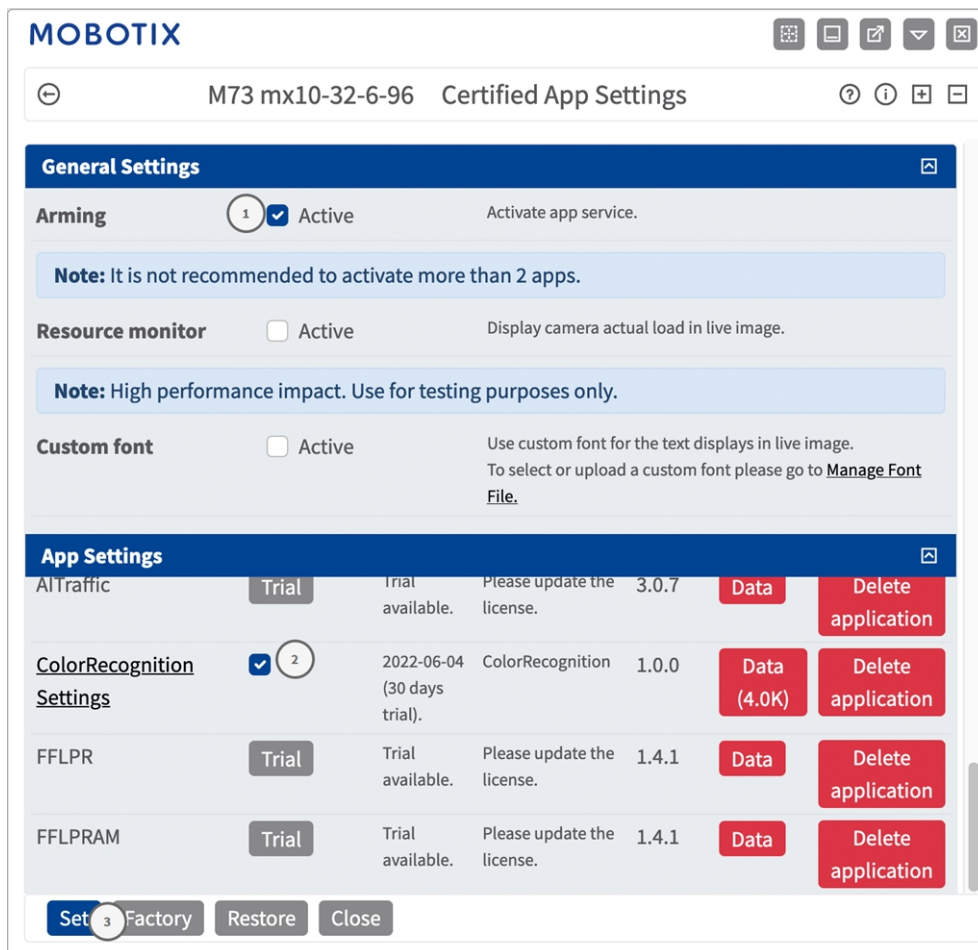


Fig. 1: Activation of Certified Apps

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 MOBOTIX Color Recognition App, p. 13](#).

Activation of the Certified App Interface

Smart Data Interface to MxManagementCenter

6. Under **General Settings** activate the **Arming**① of the app service.
7. Under **App Settings** check the **Active** option ② and click **Set**③ .
8. Click on the name of the App to be configured to open the Apps user interface.
9. For configuration of the App see [Configuration of MOBOTIX Color Recognition App, p. 13.](#)

Configuration of MOBOTIX Color Recognition 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)).
2. Click on the name of the **MOBOTIX Color Recognition App**.

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

Detection Settings

The following configurations should be taken into account:

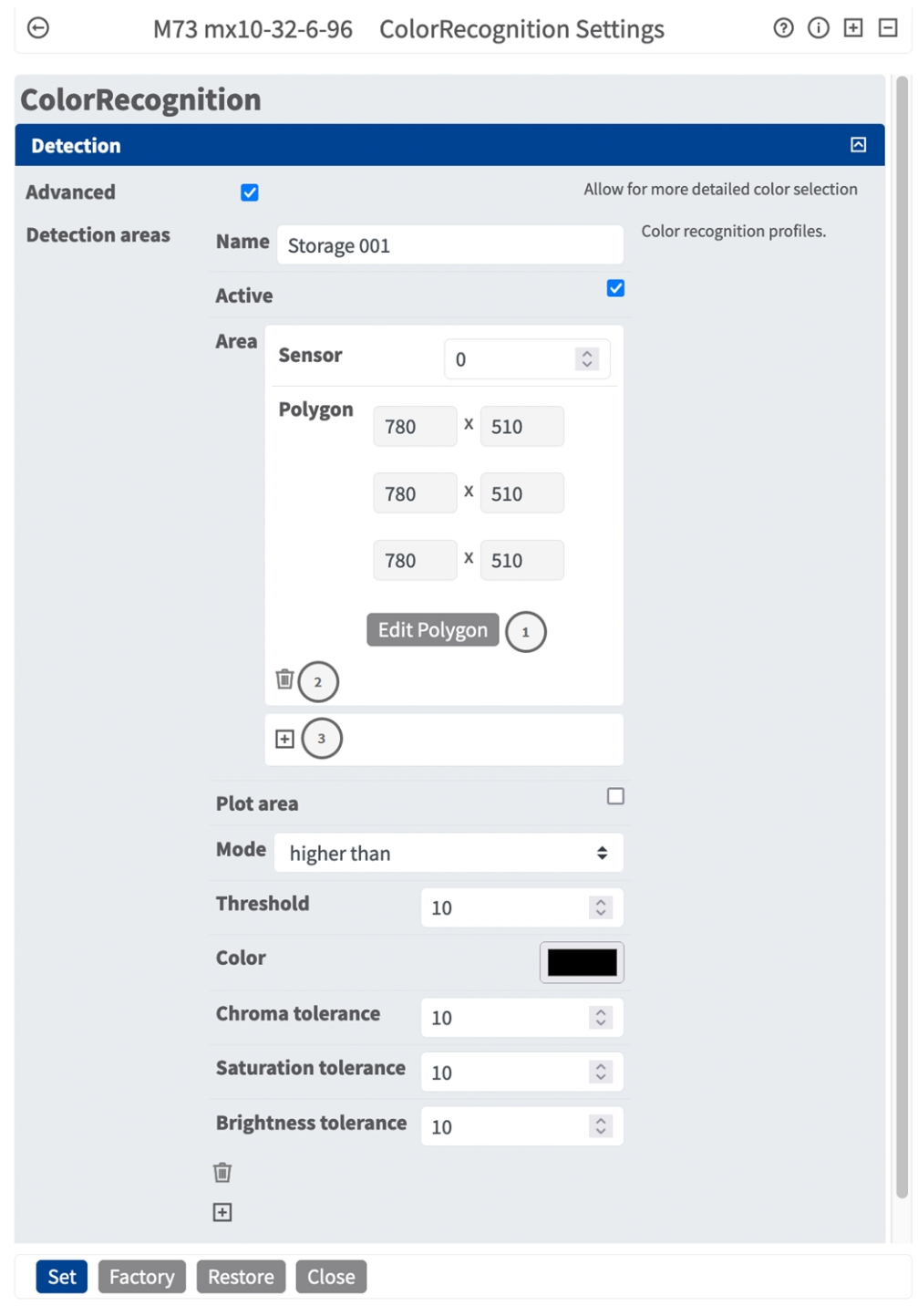


Fig. 2: Detection settings

Advanced: Check to allow more detailed color selection.

Detection Areas: The following modes are available:

Name: Provide a meaningful name for the Detection Area.

Active: Check to activate the configured detection areas.

Area Sensor: If the camera has multiple image sensors, select the appropriate

Drawing a Detection Area:

1. Click **Edit Polygon** ① to switch into the live image.
2. In the live image click and drag a rectangular recognition area.
3. Drag the corner points to refine the recognition area.
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 the recognition area.
6. Optionally click the **plus** icon ② to define another Detection Area.

Plot Area: Check to plot detection areas of this profile

Mode: Select the trigger mode according to the threshold:

higher than: Select to trigger an event if the color value is higher than the specified threshold.

lower than: Select to trigger an event if the color value is lower than the specified threshold.

Threshold: Percentage of detection area that contains the defined color.

Color: Select the color to be detected. You can define maximum allowed deviations from the selected color in the next steps.

Chroma tolerance: Define in percent how far the chroma value of the detected color may deviate from that of the defined color.

Saturation tolerance: Define in percentage terms how far the saturation value of the detected color may deviate from that of the defined color.

Brightness tolerance: Define in percent how far the brightness value of the detected color may deviate from that of the defined color.

Adding a color definition

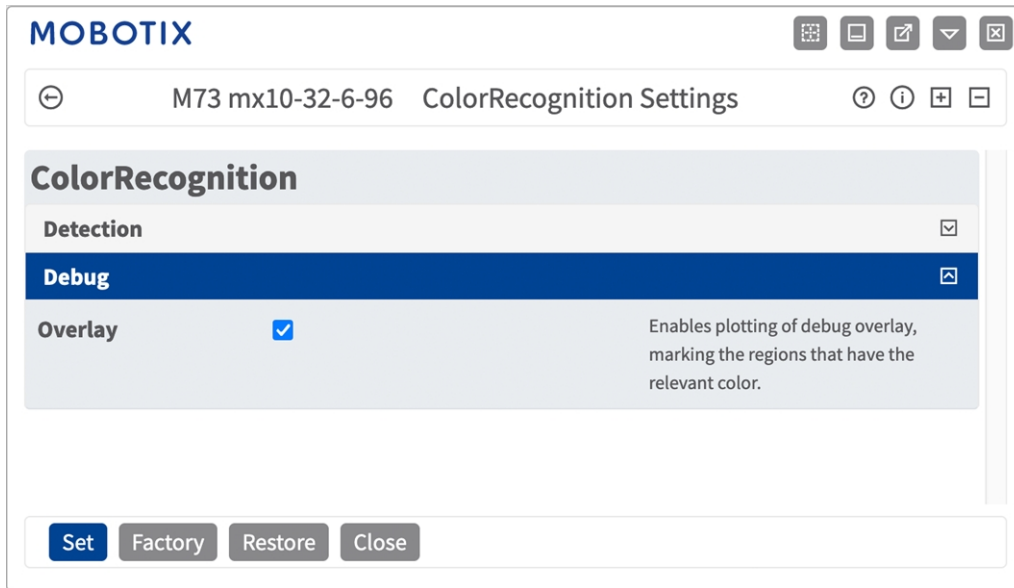
Click on plus icon.

Deleting a color definition

Click on the bin icon.

Debug settings

Here you can activate some debug features.



Overlay: Check to highlight the regions in the image that have the relevant color.

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. 11](#)), 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 ① (e.g. ColorRecognition).

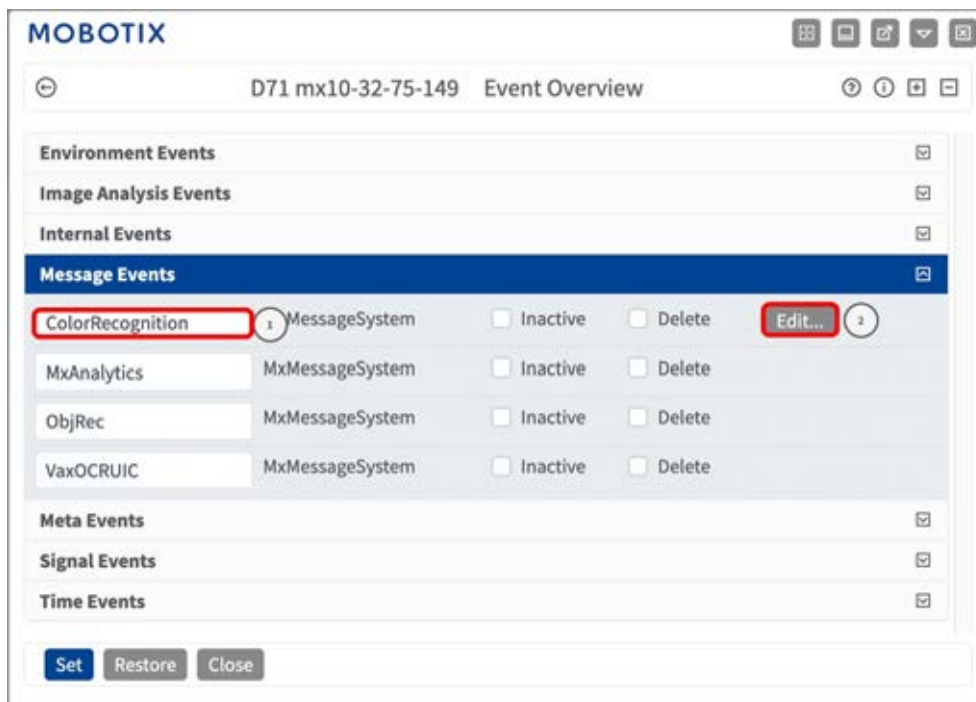


Fig. 3: Example: Generic message event from MOBOTIX Color Recognition App

2. Click **Edit** to display and configure the event properties in detail.

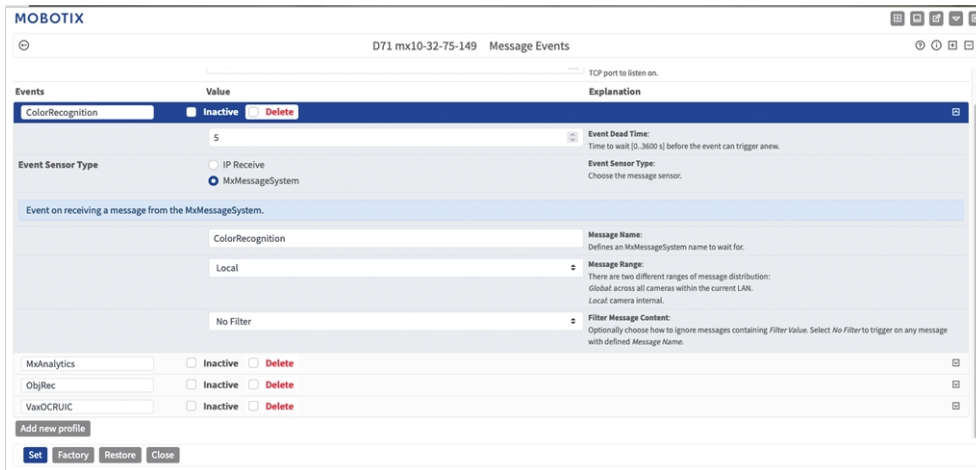


Fig. 4: Example: Generic message event details - no filter

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 MOBOTIX Color Recognition App event.

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

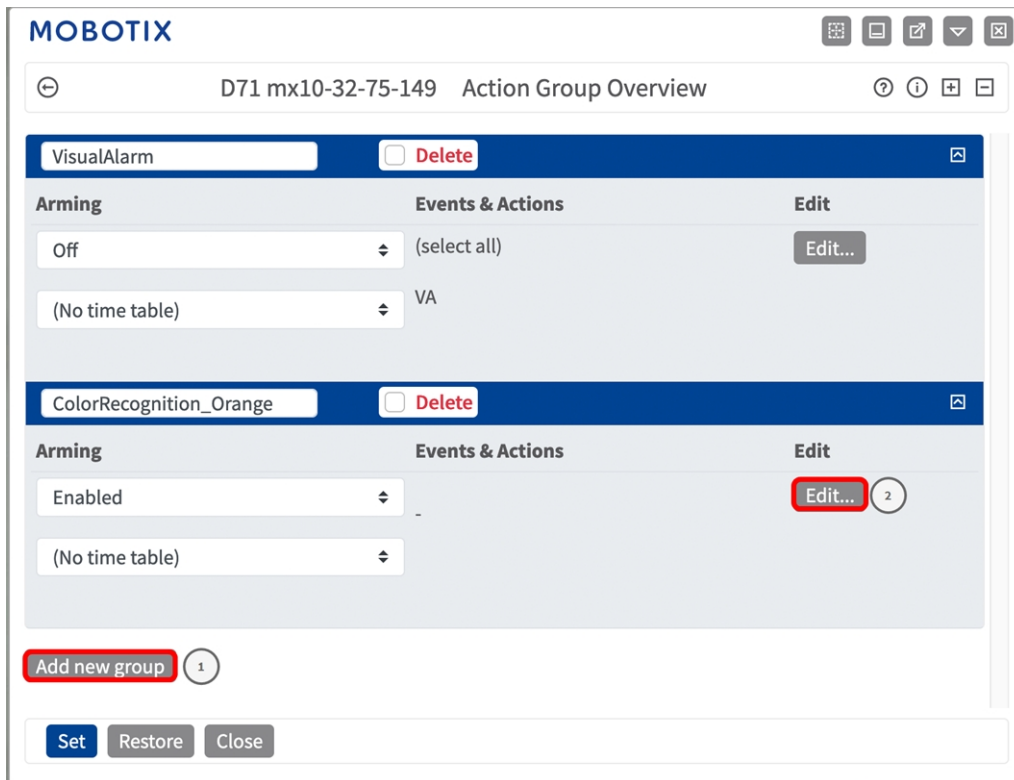


Fig. 5: Defining Action Groups

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

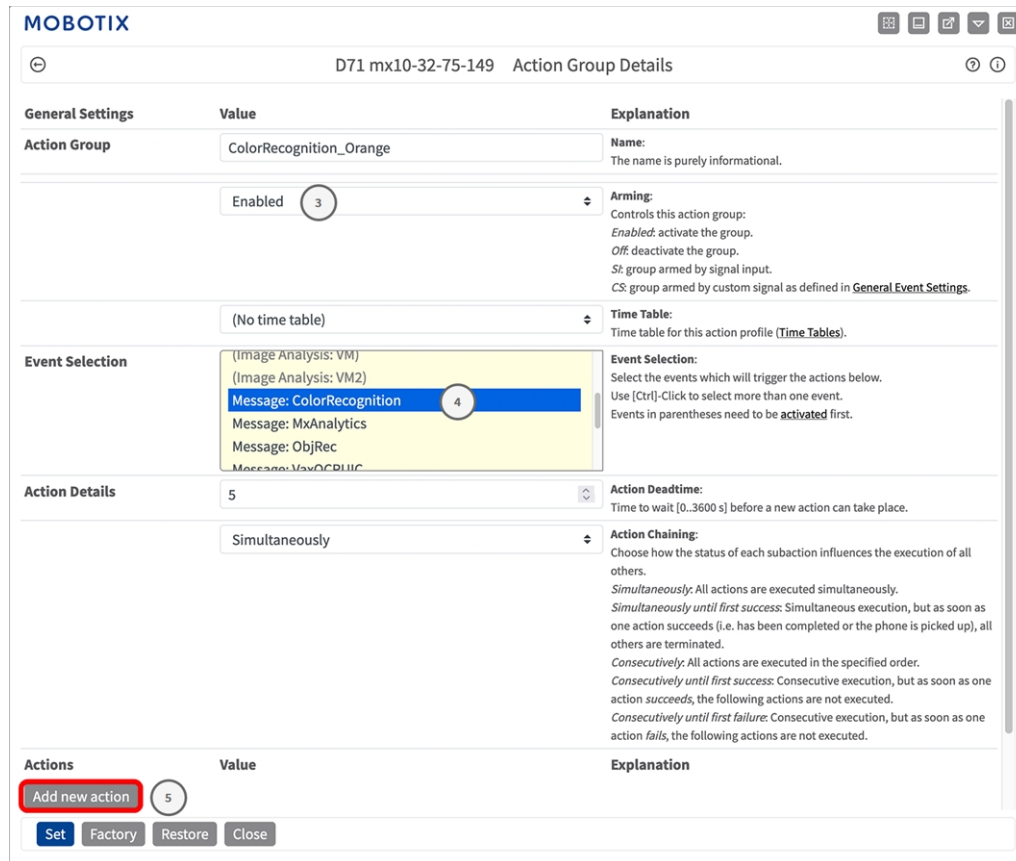


Fig. 6: Configuring an Action Group

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 .

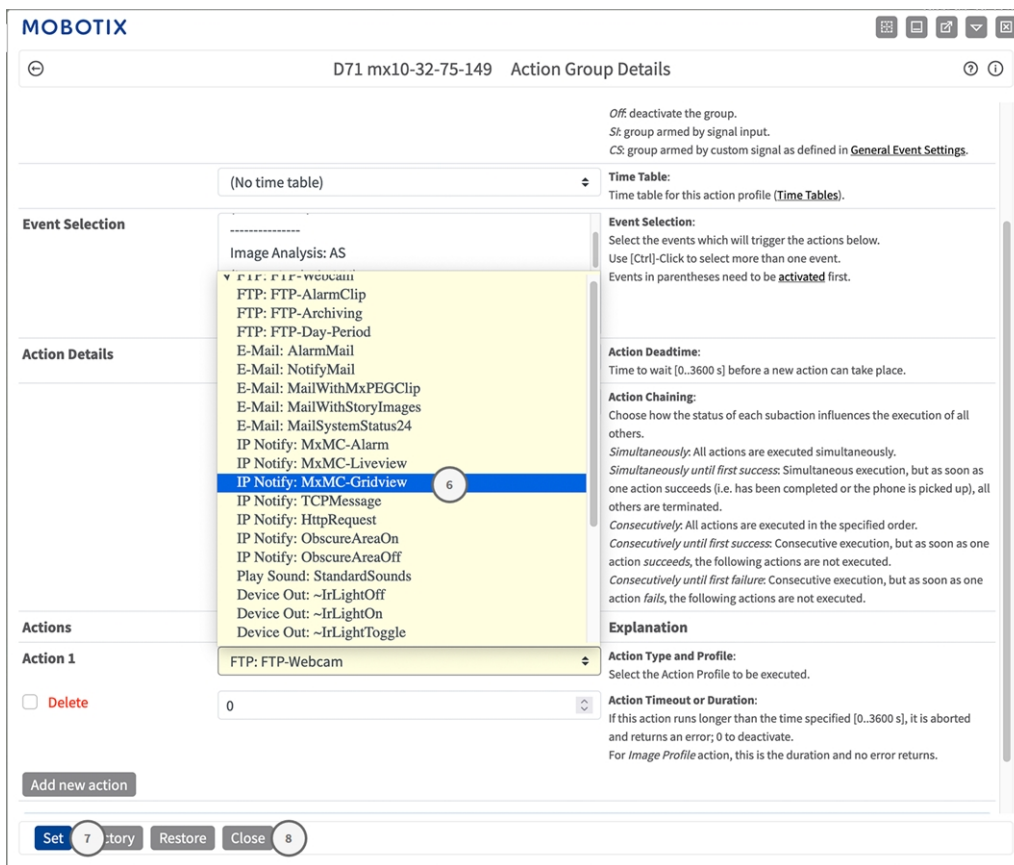


Fig. 7: Select Action Type- and Profile

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 recordings

1. 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)).

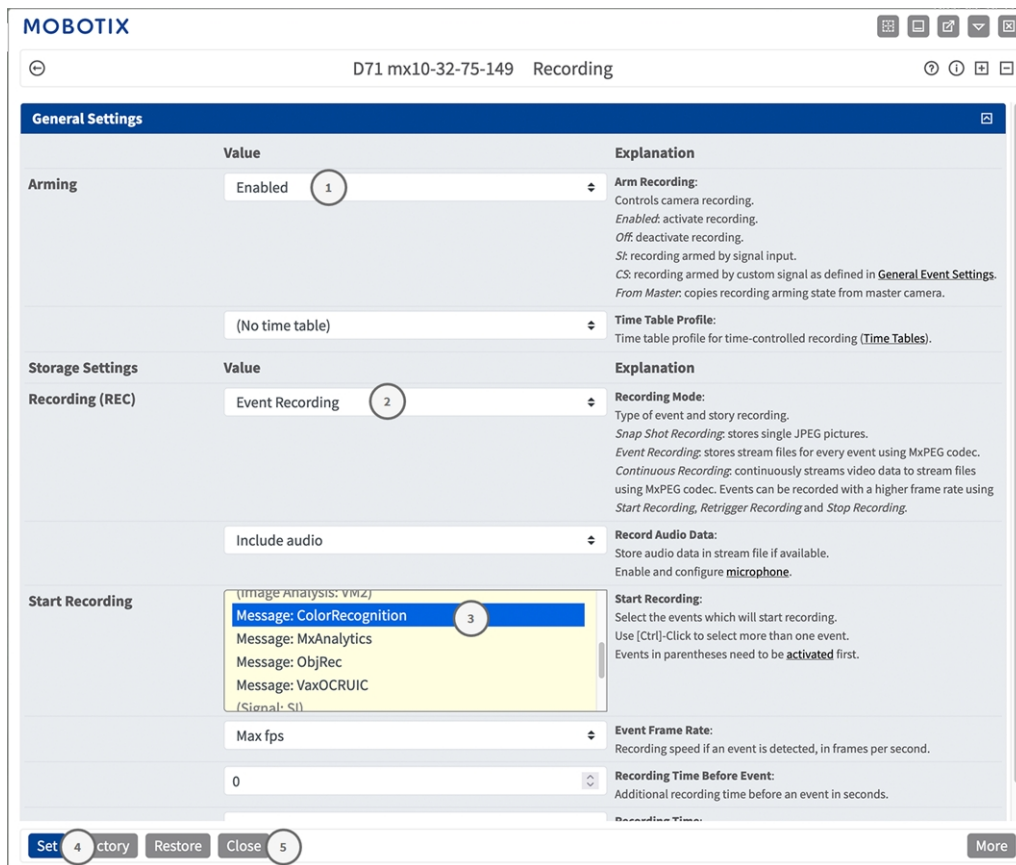


Fig. 8: Configuration of camera recording settings

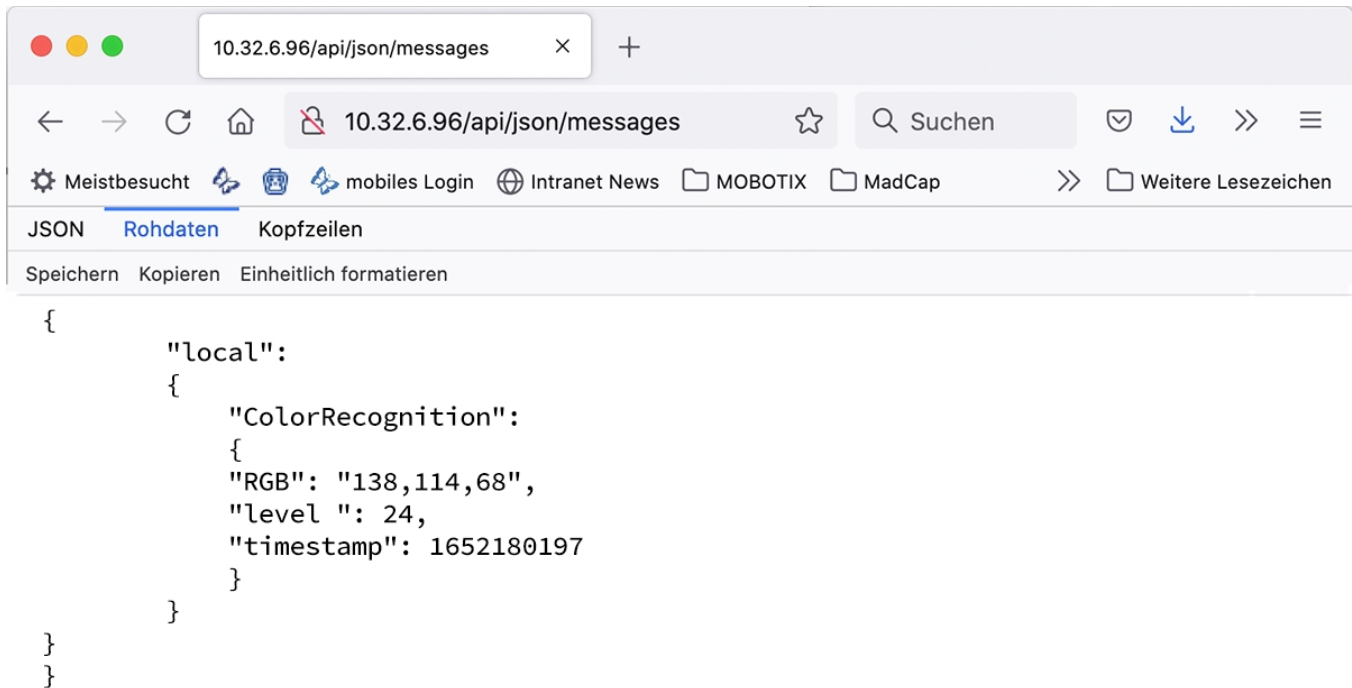
2. Activate **Arm Recording** ① .
3. Under **Storage Settings / Recording (REC)** select a **Recording mode** ② . The following modes are available:
 - Snap Shot Recording
 - Event Recording
 - Continuous Recording
4. In list **Start recording** ③ select the message event just created.
5. Click on the **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.

MxMessageSystem: 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.



```
{
  "local":
  {
    "ColorRecognition":
    {
      "RGB": "138,114,68",
      "level ": 24,
      "timestamp": 1652180197
    }
  }
}
```

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](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. ColorRecognition).

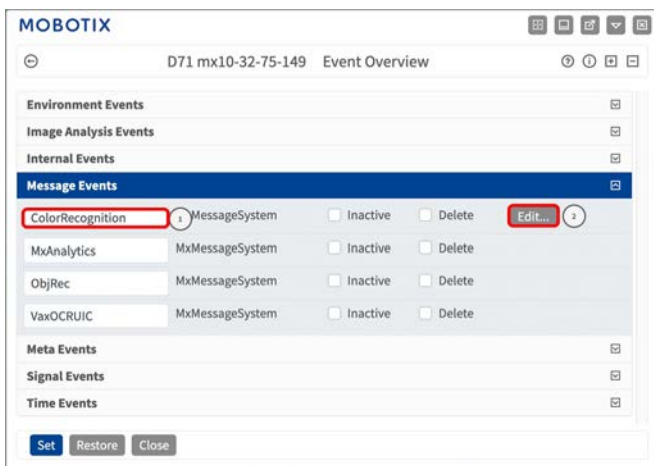


Fig. 9: Example: Generic message event from MOBOTIX Color Recognition App

2. Click **Edit** ② to display and configure the event properties in detail.

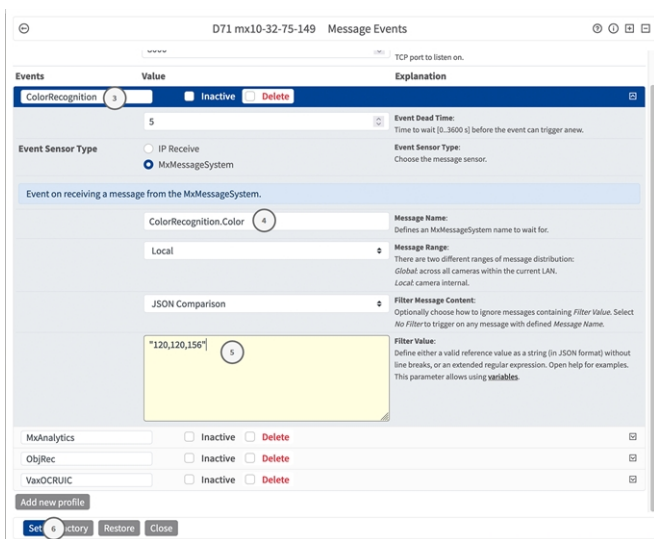


Fig. 10: Example: Black list message event

3. Click on the event (e.g. ColorRecognition) 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 MOBOTIX Color Recognition App](#), p. 26)

- **Message Range:**
 - Local: Default settings for the MOBOTIX Color 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:**⑤ see [Examples for message names and filter values of the MOBOTIX Color Recognition App](#), p. 26.
- **Filter Value:**⑤ see [Examples for message names and filter values of the MOBOTIX Color Recognition App](#), p. 26.

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 MOBOTIX Color Recognition App

	MxMessage-Name	Filter value
Generic Event	ColorRecognition	
Area Event	ColorRecognition.areaName.profile.m_profileName	"Area1"
Color Event	ColorRecognition.RGB	RGB color code e.g.: "120,155,99"
Level Event	ColorRecognition.level	"90"
Timestamp Event	ColorRecognition.timestamp	UNIX timestamp e.g.: "16521801970"

MOBOTIX

BeyondHumanVision

[EN_10/24](#)

MOBOTIX AG • Kaiserstrasse • D-67722 Langmeil • Tel.: +49 6302 9816-103 • sales@mobotix.com • www.mobotix.com

MOBOTIX is a trademark of MOBOTIX AG registered in the European Union, the U.S.A., and in other countries. Subject to change without notice. MOBOTIX do not assume any liability for technical or editorial errors or omissions contained herein. All rights reserved. © MOBOTIX AG 2019