Guideline

MOBOTIX Barcode Reader App

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MOBOTIX

Table of Contents

Table of Contents	2
Before You Start	3
Support	4
Safety Notes	4
Legal Notes	5
About MOBOTIX Barcode Reader App	6
Smart Data Interface to MxManagementCenter	6
Technical Specifications	8
Licensing Certified Apps	10
License Activation of Certified Apps in MxManagementCenter	10
Managing Licenses in MxManagementCenter	14
Activation of the Certified App Interface	17
Configuration of MOBOTIX Barcode Reader App	18
General Settings	18
Visualization Settings	19
Detection Area Settings	20
Drawing a rectangular Area in the Live View	21
Information Report Settings	21
Data Export Settings	22
MxMessageSystem	23
What is MxMessageSystem?	23
Facts about MxMessages	23
Basic configuration: Processing the automatically generated app events	24
Checking automatically generated app events	24
Action handling - Configuration of an action group	25
Action settings - Configuration of the camera recordings	27
Advanced Configuration: Processing the meta data transmitted by apps	
Meta data transferred within the MxMessageSystem	
Creating a Custom Message Event	
Examples for message names and filter values of the MOBOTIX Barcode Reader App	31

1

Before You Start

Support	4
Safety Notes	4
Legal Notes	5

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



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.
- This equipment is to be connected only to PoE networks without routing to other networks.

NOTE! Observe the MOBOTIX MOVE Installation Hints document to ensure optimum performance of the camera features.

Legal Notes

Legal Aspects of Video and Sound Recording

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

Declaration of Conformity

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

RoHS Declaration

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

Disposal

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

Disclaimer

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

About MOBOTIX Barcode Reader App

MOBOTIX Barcode Reader App

For high-performance capture of almost all commercially available barcode types in video streams. Codes can be read reliably even under difficult conditions. Perspective distortions are compensated, low contrast and faded imprints are compensated. Thus, the app is suitable for industrial use.

- Reader supports more than 40 common 1D, 2D and Stacked barcode types (e.g. QR Code, Data Matrix Code, Dot Code, etc.)
- Optimized for difficult barcode reads (e.g. damaged, faded or distorted barcodes, barcodes on difficult surfaces, DPM codes)
- Quick reading of one or multiple barcodes in motion
- Definition of up to 20 detection areas within the camera's field of view
- MOBOTIX events via MxMessageSystem
- Supports the reporting of barcode reads via generic XML, JSON and MODBUS/TCP

CAUTION! Thermal sensors are not supported by this app.

Smart Data Interface to MxManagementCenter

This app has a Smart Data interface to MxManagementCenter.

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

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

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

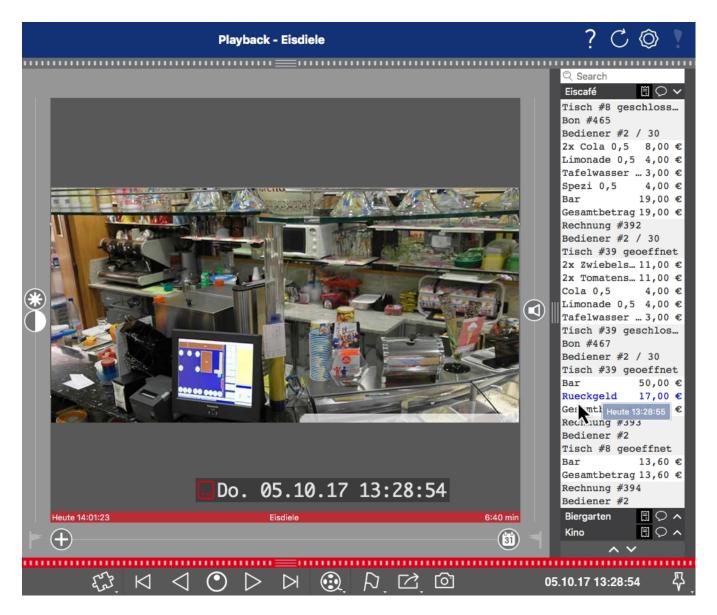


Fig. 1: : Smart Data Bar in MxManagementCenter (Example: POS System)

Technical Specifications

Product Information

Product Name	MOBOTIX Barcode Reader App
Supported MOBOTIX Cameras	D71, M73, S74, v71, p71
Minimum Camera Firmware	V7.3.1.x
MxManagementCenter Integration	 min. MxMC v2.7 Advanced Config license required Event Search: Smart Data Interface license included
MOBOTIX HUB compatibility	 min. MOBOTIX HUB version: 2021 R1 min. MOBOTIX HUB license level for Analytics Events: L2 min. MOBOTIX HUB license level for MOBOTIX Event Search Plug-In: L4

Product Features

App Features	 Reader supports more than 40 common 1D, 2D and Stacked barcode types (e.g. QR Code, Data Matrix Code, Dot Code, etc.) Optimized for difficult barcode reads (e.g. damaged, faded or distorted barcodes, barcodes on difficult surfaces, DPM codes) Quick reading of one or multiple barcodes in motion Definition of up to 20 detection areas within the camera's field of view MOBOTIX events via MxMessageSystem supports the reporting of barcode reads via generic XML, JSON and MODBUS/TCP
Supported Barcode Types	https://community.mobotix.com/t/mobotix-barcode-reader-sup-ported-barcode-types/5675
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 events)

Scene Requirements

Recommended code height	20 - 50px (depending on barcode type)
Maximum Vertical Angle	30°
Maximum Horizontal Angle	< 25°
Maximum Tilt Angle	< 25°

Technical App Specifications

Synchronous / Asynchronous App	Synchronous
Simultaneous execution of other apps	Yes (depending on performance expectations)
Accuracy	> 99% (considering scene requirements)
Processed number of frames per second	typ. 15 fps
Detection time	typ. 200 ms

Licensing Certified Apps

The following licenses are available for the MOBOTIX Barcode Reader App:

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

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

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

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

License Activation of Certified Apps in MxManagementCenter

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

Online-Activation

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

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

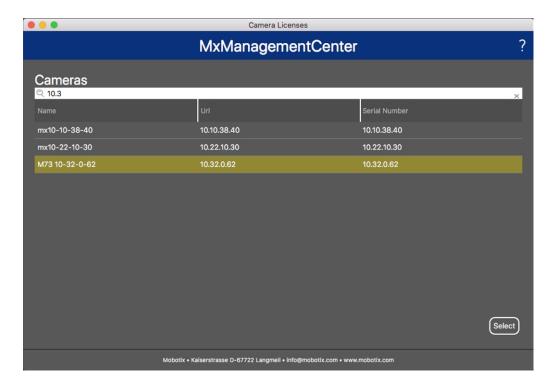


Fig. 2: Overview of Camera App Licenses in MxManagementCenter

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

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

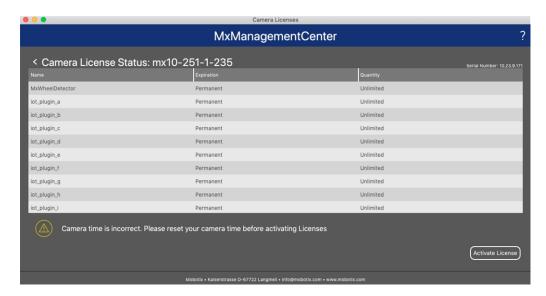


Fig. 3: Overview of the licenses installed on the camera

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

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

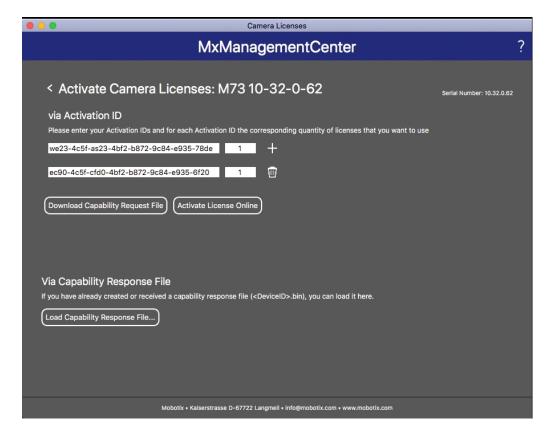


Fig. 4: Adding licenses

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. 12).

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**.

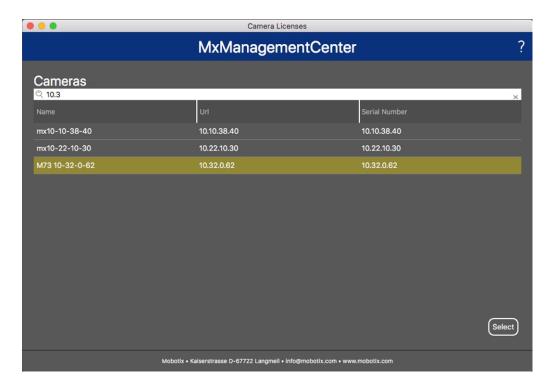


Fig. 5: Overview of Camera App Licenses in MxManagementCenter

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**.

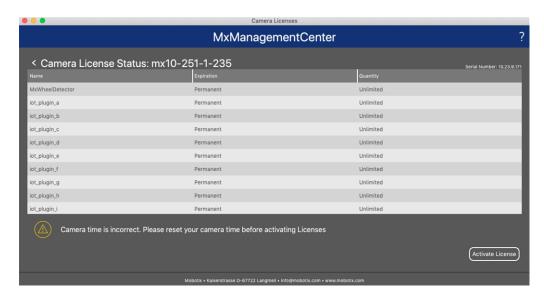


Fig. 6: Overview of the licenses installed on the camera

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

- 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 and the number of licenses you want.

- 6. If necessary, click to remove a line.
- 7. When you have entered all Activation IDs, click **Download Capability Request File (.lic)**. and send it to your partner/installer.

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

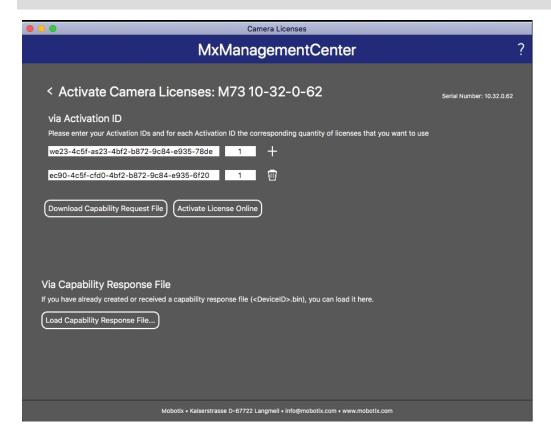


Fig. 7: Adding licenses

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

Successful activation

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

Managing Licenses in MxManagementCenter

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

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

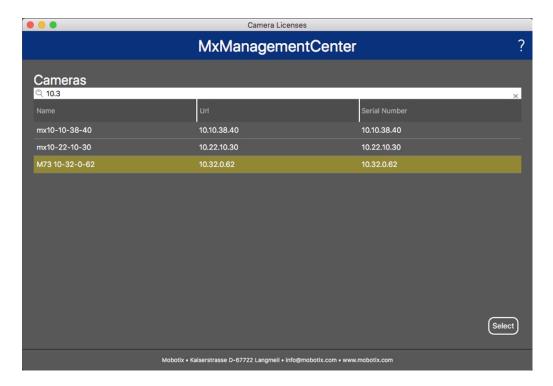


Fig. 8: Overview of Camera App Licenses in MxManagementCenter

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

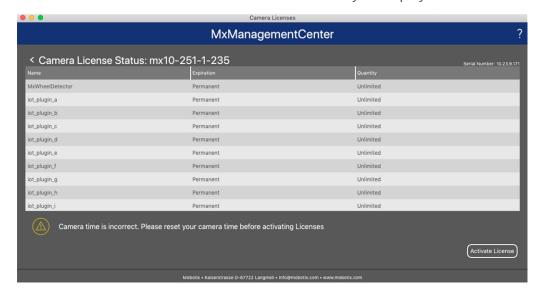


Fig. 9: Overview of the licenses installed on the camera

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

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

Synchronize licenses with server

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

Update licenses

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

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

Activation of the Certified App Interface

CAUTION! The MOBOTIX Barcode Reader 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). 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).

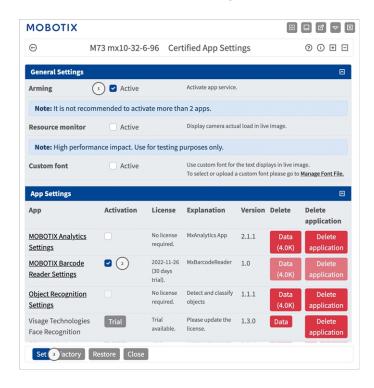


Fig. 10: Certified App: Settings

- 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 Barcode Reader App, p. 18.

Configuration of MOBOTIX Barcode Reader App

NOTE! The user must have access to the setup menu (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).
- 2. Click on the name of the MOBOTIX Barcode Reader App.

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

General Settings

The following configurations should be taken into account:

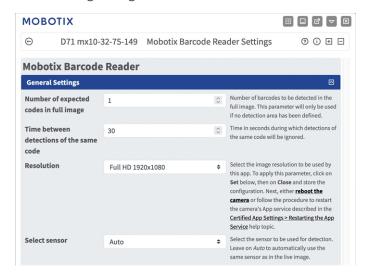


Fig. 11: General Settings

Number of expected codes in full image: Enter the of barcodes to be detected in the full image. This parameter will only be used if no Detection Area Settings, p. 20 has been defined.

Time between detections of the same code: Enter the time in seconds during which detections of the same code will be ignored.

NOTE! To apply this parameter, click on **Set** below, then on **Close** and store the configuration. Next, either **reboot** the camera or follow the procedure to restart the camera's App service described in the Certified App Settings > Restarting the App Service help topic

Resolution: Select the image resolution to be used by this app. To apply this parameter, click on Set below, then on Close and store the configuration..

Select sensor: Select the sensor to be used for detection. Leave on Auto to automatically use the same sensor as in the live image.

Visualization Settings

The following configurations should be taken into account:



Fig. 12: Visualization Settings

Display barcode detections: Check to display global barcode detections.

Display calibration grid:Check to display the calibration grid. This grid is useful to focus the camera at the correct distance for the codes you want to detect. The line spacing is the minimum size at which a barcode can be detected successfully.

Detection Area Settings

You can define one or more detection areas where barcodes are expected will facilitate detection. The following configurations should be taken into account:

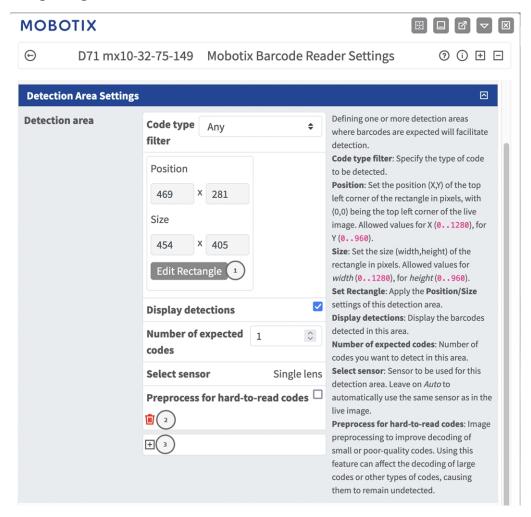


Fig. 13: Detection settings

Code type filter: Specify the type of code to be detected.

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

Position: Click **Edit Rectangle** ① draw an rectangle representing the position of the barcode in the live image (see Drawing a rectangular Area in the Live View, p. 21).

Display detections: Check to display the barcodes detected in this Detection Area.

Number of expected codes: Set the number of codes you want to detect in this Detection Area.

Select sensor: Select the sensor to be used for this Detection Area. Leave on Auto to automatically use the same sensor as in the live image.

Preprocess for hard-to-read codes: Check to activate image preprocessing to improve decoding of small or poor-quality codes.

NOTE! Using this feature can affect the decoding of large codes or other types of codes, causing them to remain undetected.

Recycle Bin icon ②: Click the to delete the recognition area.

Plus icon ③: Click the to define another Detection Area.

Drawing a rectangular Area in the Live View

In Live View, there you can draw rectangular area. 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. In the top right corner of the live view click **Submit** to adopt the coordinates of the polygon.
- 4. Optionally click the **bin** icon to delete the recognition area.

Information Report Settings

The following configurations should be taken into account:

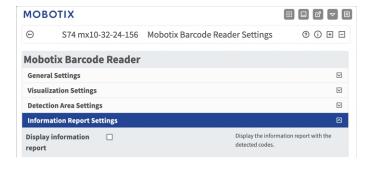


Fig. 14: Display Information Report

Display information report: Check to display the information report with the detected codes.

Data Export Settings

The following configurations should be taken into account:

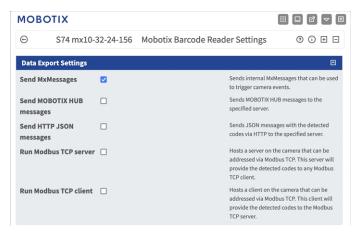


Fig. 15: Data Export Settings

Send MxMessages: Check to send internal MxMessages that can be used to trigger camera events.

Send MOBOTIX HUB messages: Check to send MOBOTIX HUB messages to the specified server.

Send HTTP JSON messages: Check to send JSON messages with the detected codes via HTTP to the specified server.

Run Modbus TCP server: Check to hosts a server on the camera that can be addressed via Modbus TCP. This server will provide the detected codes to any Modbus TCP client.

Run Modbus TCP client: Check to host a client on the camera that can be addressed via Modbus TCP. This client will provide the detected codes to the Modbus TCP server.

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. 17), 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. MxBarcodeReader).

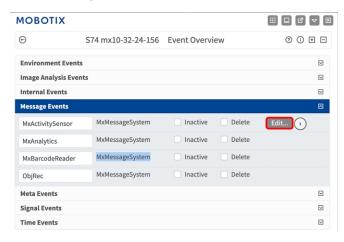
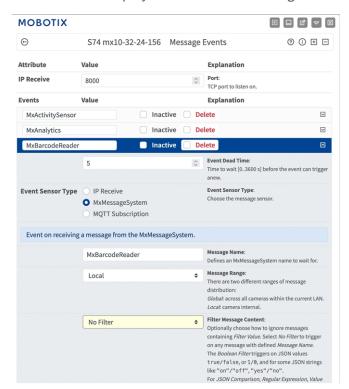


Fig. 16: Example: Generic message event from MOBOTIX Barcode Reader App



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

Fig. 17: 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)

An action group defines which action(s) is (are) triggered by the MOBOTIX Barcode Reader App event.

1. Go to **Setup-Menu / Event Control / Event Overview / Action Group Overview** (http(s)://<Camera IP address>/control/actions).

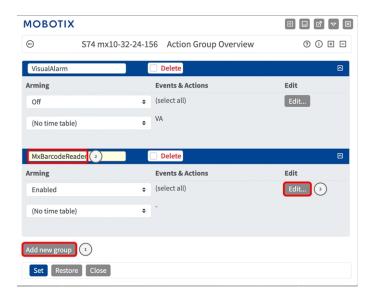


Fig. 18: Defining Action Groups

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

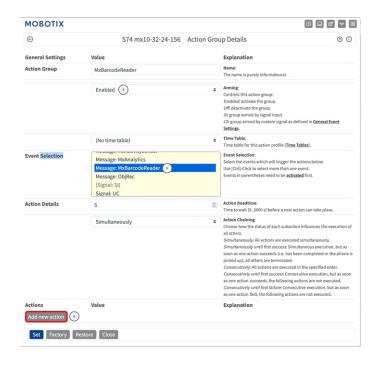


Fig. 19: Configuring an Action Group

- 4. Enable **Arming** ④ of the Action Group.
- 5. Select your message event in the **Event selection** list ⑤ . To select multiple events, hold the shift key.
- 6. Click Add new Action 6.
- 7. Select a proper action from list **Action Type and Profile** ①.

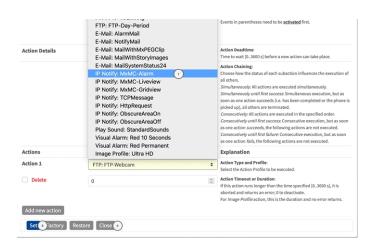


Fig. 20: Select Action Type- and Profile

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

Action settings - Configuration of the camera recordings

1. Go to **Setup Menu / Event Control / Recording** (http(s)/<Camera IP address>/control/recording).

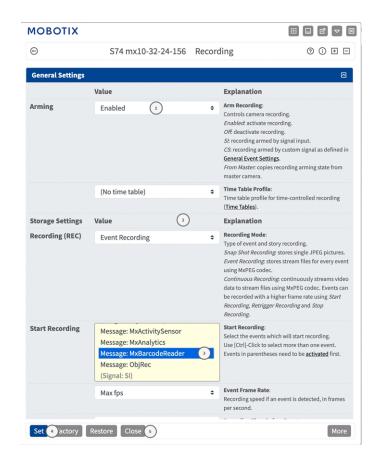


Fig. 21: Configuration of camera recording settings

- 2. Activate **Arm Recording** ①.
- 3. Under Storage Settings / Recording (REC) select a Recording mode②. 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.

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.

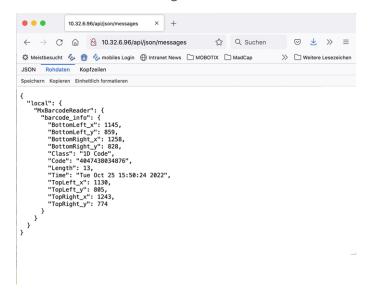


Fig. 22: Example: Meta data transmitted within a MxMessage of the MOBOTIX Barcode Reader App

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)/IPAddresseOfYourCamera/api/json/messages

Creating a Custom Message Event

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

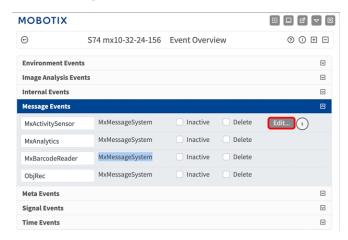


Fig. 23: Example: Generic message event from MOBOTIX Barcode Reader App

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

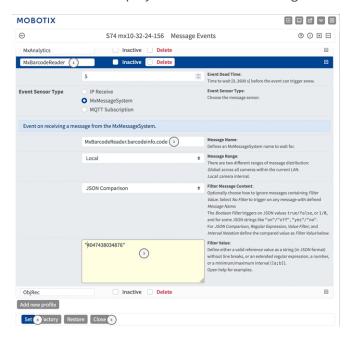


Fig. 24: Example: Unique license plate event

- 3. Click on the event (e. g. MxBarcodeReader) to open the event settings.
- 4. Configure the parameters of the event profile as follows:
 - **Message Name:** Enter the "Message Name" ② according to the event documentation of the corresponding app (see Examples for message names and filter values of the MOBOTIX Barcode Reader App, p. 31)

■ Message Range:

- Local: Default settings for the MOBOTIX Barcode Reader App
- Global: (MxMessage is forwarded from another MOBOTIX camera in the local network.

■ Filter Message Content:

- No Filter: Trigger on any message according to the defined Message Name.
- **JSON Comparison:** Select if filter values are to be defined in JSON format.
- **Regular Expression:** Select if filter values are to be defined as regular expression.
- **Filter Value:** ③ see Examples for message names and filter values of the MOBOTIX Barcode Reader App, p. 31.

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

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

- 2. Click on **Set** ④ at the end of the dialog box to confirm the settings.
- 3. Click on **Close** ⑤ to save your settings permanently.

Examples for message names and filter values of the MOBOTIX Barcode Reader App

	MxMessage-Name	Filter value (examples)
Generic Event	MxBarcode_info	
Code	MxBarcode_info.Code	"AD5460CC0705111811142816432000000"
Code Type	MxBarcode_info.CodeType	"2D Code"
Code Length	MxBarcode_info.CodeLength	"33"
Code coordinates	MxBarcode_info.TopLeft_x MxBarcode_info.TopLeft_y MxBarcode_info.TopRight_x MxBarcode_info.TopRight_y MxBarcode_info.BottomLeft_x MxBarcode_info.BottomLeft_y MxBarcode_info.BottomRight_x MxBarcode_info.BottomRight_x	Coordinates of the corner points in pixel measured from the top left of the live image e.g. "1055"
Timestamp Event	ColorRecognition.timestamp	"Fri Nov 4 12:12:12 2022"

