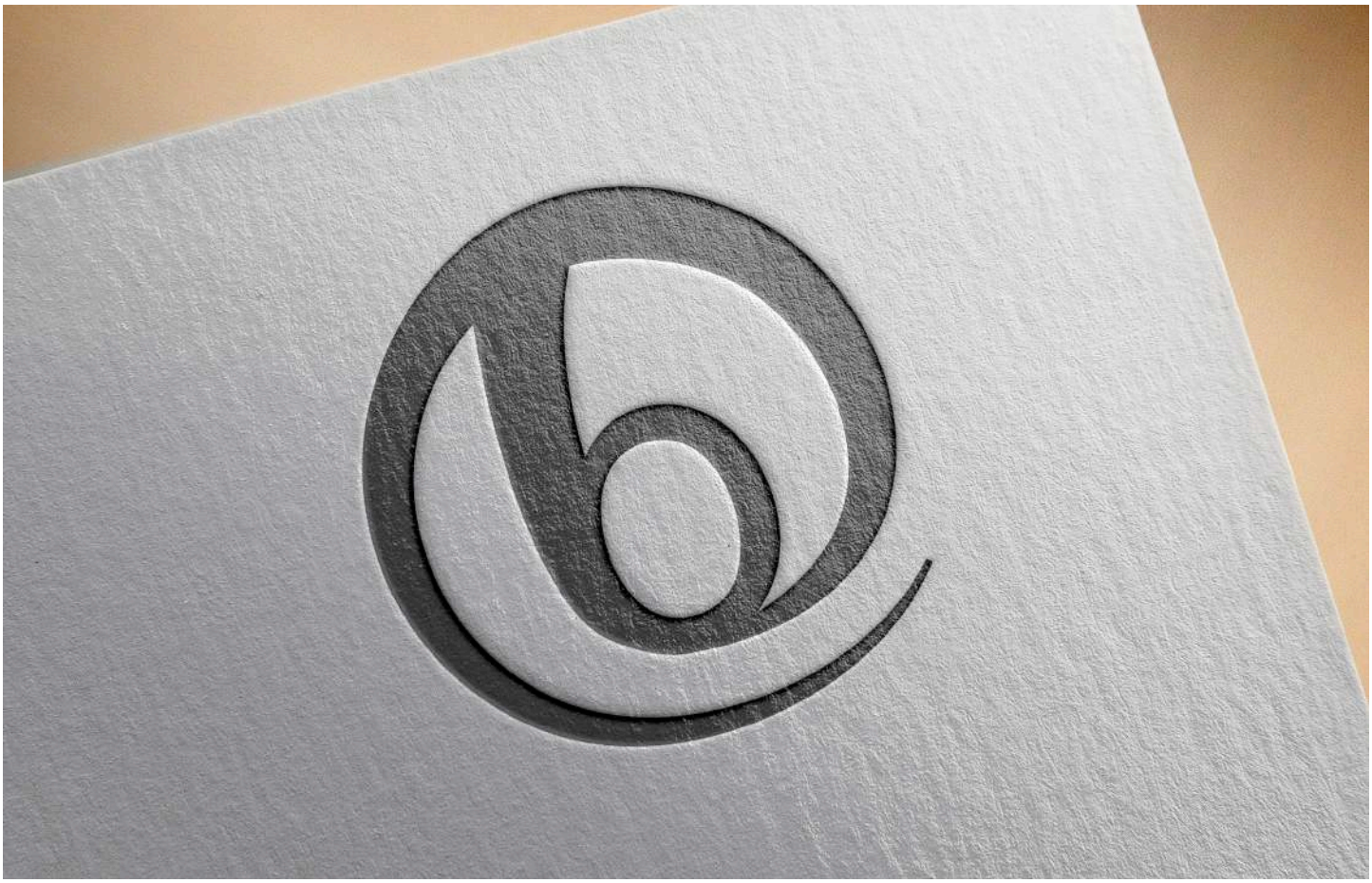
MOBOTIX Trainings

MxBroadcast

Tutorial



MOBOTIX

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Characteristics of MxBroadcast

What is MxBroadcast?

- **A revolutionary communication system based on name- oriented messages.**
- **MxMessages are encrypted messages sent via MxBus or IP networks (Broadcast/ UDP-Multicast).**
- **Every MxBroadcast participant can send and receive messages.**
- **The following entities can be MxBroadcast participants:**
    - MOBOTIX cameras
    - MxBus modules
    - 3rd party IP end devices
    - Software, into which MxBroadcast has been integrated by SDK

Advantages of MxBroadcast

- **Less configuration steps**
    - No need to re-configure anything sender-wise when the system has to be expanded.
    - Adding participants to the MxMessage-System is easy.
- **Multiple MxBus modules of the same class on one MxBus system**
    - e.g. multiple KeypadRFIDs, BellRFIDs, I/O boxes etc.
- **First system with encrypted broadcast/ multicast messages**
    - Unlimited amount of participants (Broadcast Mode).
    - Confidentiality and security are guaranteed by 128bit encryption.

The MxMessage

- **An MxMessage is a message which is transmitted in the framework of the MxBroadcast system.**
- **In the camera‘s configuration menus, the term „MxMessageSystem“ is used as a synonym for MxBroadcast.**
- **MxMessages are no pre-defined commands (cf. HTTP API) but solely simple text messages.**
- **The max. length of an MxMessage is 32 characters.**
- **MxMessages (depending on their reach) are sent simultaneously to all participants in the IP network.**
- **The MOBOTIX camera serves as a distributor of MxMessages (it can be a participant and an MxMessage gateway at the same time)**
- **Each MxMessage can have its individual reach (cf. pages 6 & 7)**
    - Internal: MxMessages are sent to all modules within the MxBus system (the camera itself cannot react to these messages).
    - Local: MxMessages are sent to all participants within the camera system (the camera itself can also react to these messages).
    - Global: MxMessages are sent to all participants in the local IP network (LAN). The camera manages the distribution of the MxMessages (MxMessage gateway).
- **The actions which the recipients of MxMessages have to execute can be defined individually for each MxBroadcast participant.**

Compatible Components

Component	Type	Function	Information
x14, x24, x15, x25	Camera	Gateway/ Participant	from SW V4.3.4.50 on
KeypadRFID	MxBus Module	Participant	
BellRFID	MxBus Module	Participant	
MX-232-IO-Box	MxBus Module	Participant	
MX-Input-Box	MxBus Module	Participant	
MX-Output-Box	MxBus Module	Participant	
MX-GPS-Box	MxBus Module	Participant	
MX-Proximity-Box	MxBus Module	Participant	
Other IP end devices	Win/ Mac/ Linux	Gateway/ Participant	SDK 1.0.3 available

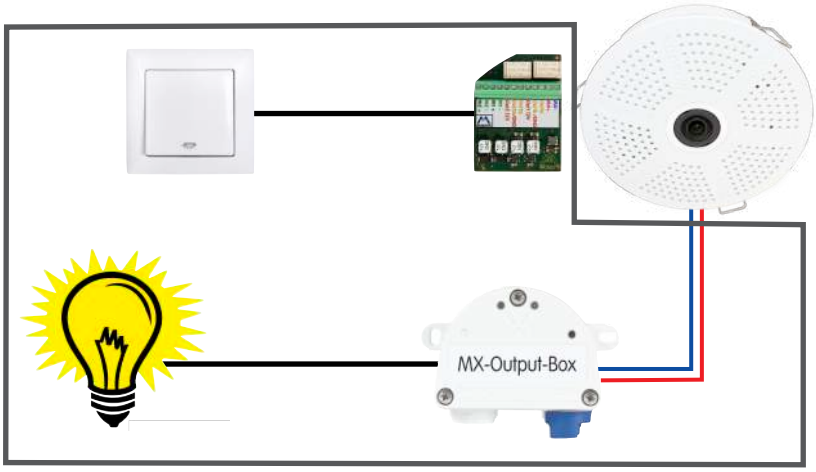
Requirement:

Participants have to be syncronized with a max. delay of 10 seconds.

Each MxMessage can have its individual reach. The following 3 types of reach exist:

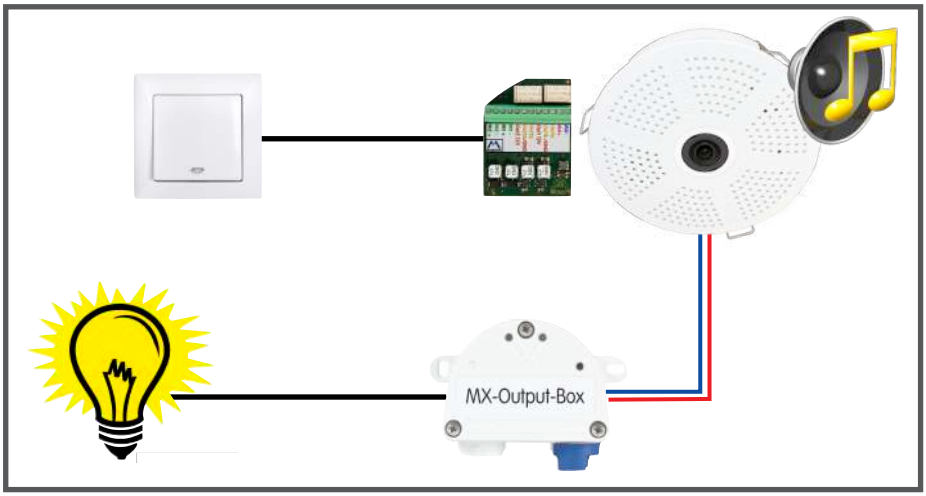
Option 1: Internal

- MxMessages are sent to all modules within the MxBus system (the camera itself cannot react to these messages).



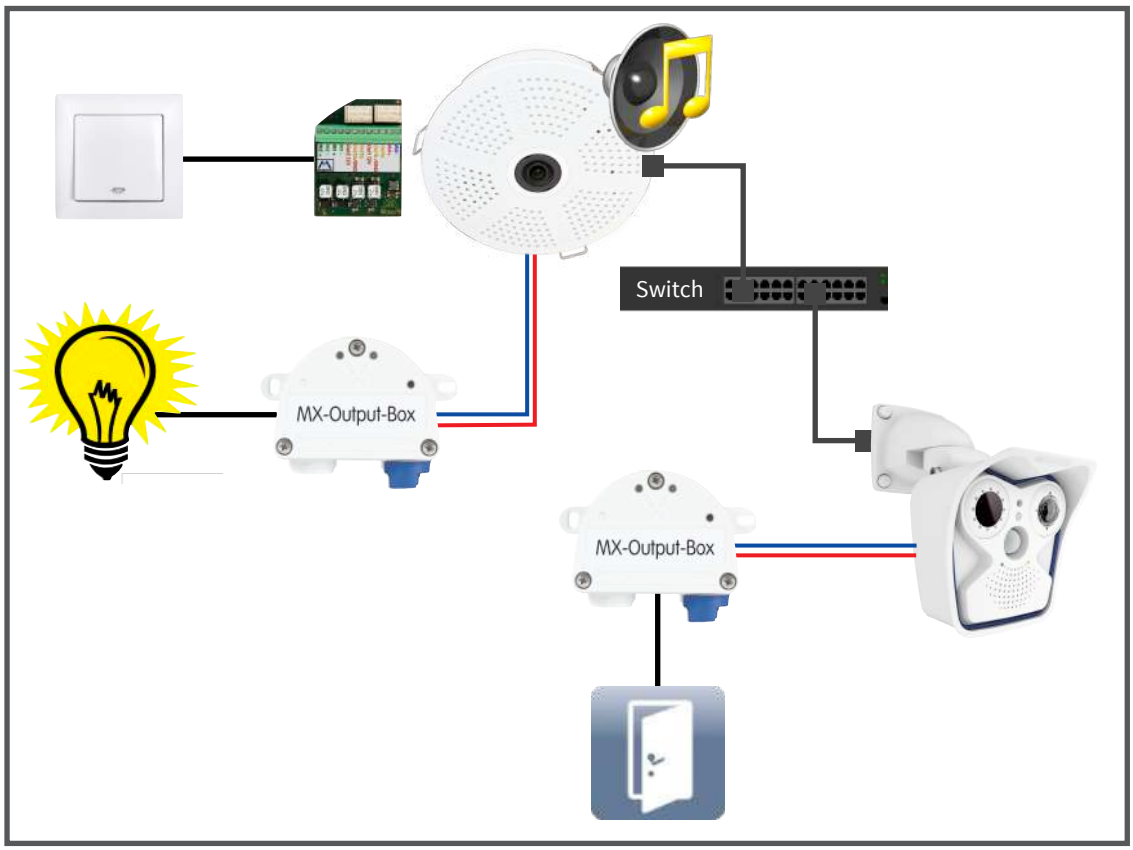
Option 2: Local

- MxMessages are sent to all participants within the camera system (the camera itself can also react to these messages).



Option 3: Global

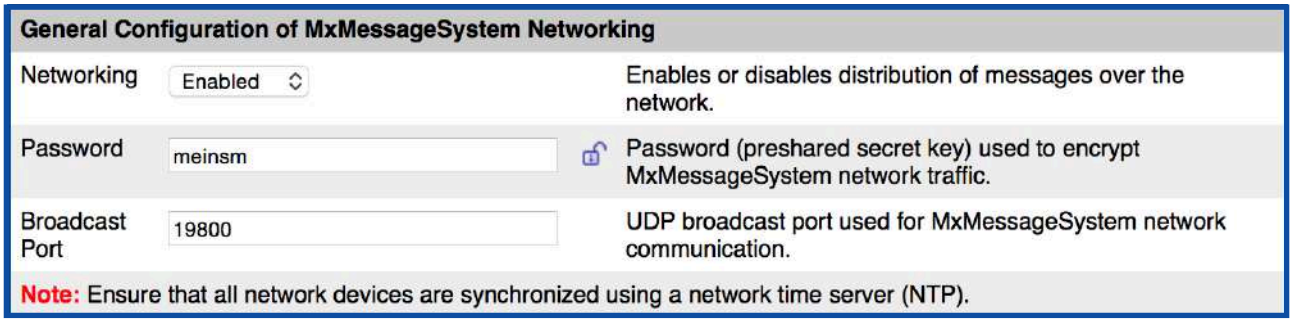
- MxMessages are sent to all participants in the local IP network (LAN). The camera manages the distribution of the MxMessages (MxMessage gateway).



Each MxMessage can have its individual reach.

“Admin Menu/ MxMessageSystem/ Network Distribution of Messages“

- Enable the distribution of messages over the network.
- In case you are not going to send MxMessages over the network, this function does not have to be enabled (cf. page 7).

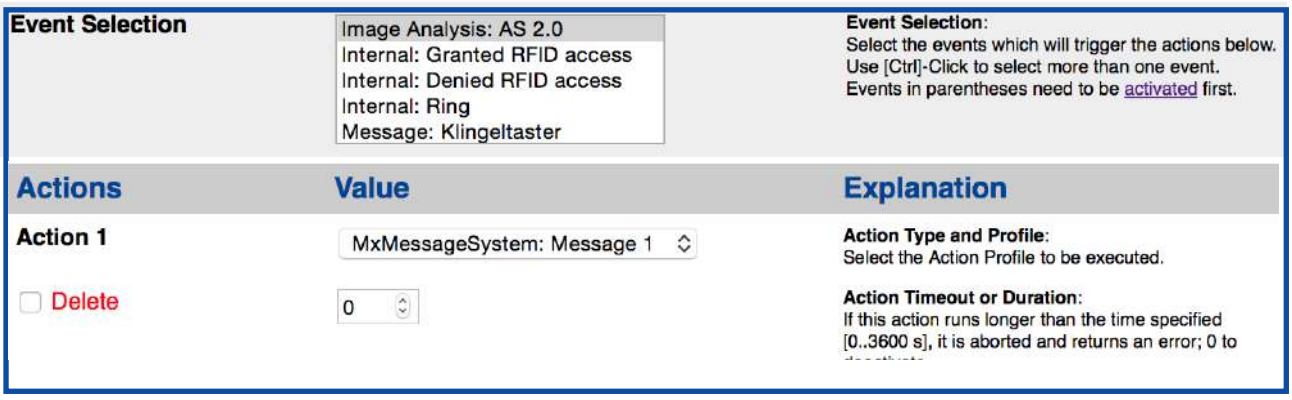


“Admin Menu/ MxMessageSystem/ Message Profiles for Action Groups“

- Add a new message profile (e.g. MxMessage “Alarm“).
- The camera itself can only send local and global MxMessages (cf. pages 6 & 7).

“Setup Menu/ Event Control/ Action Group Overview“

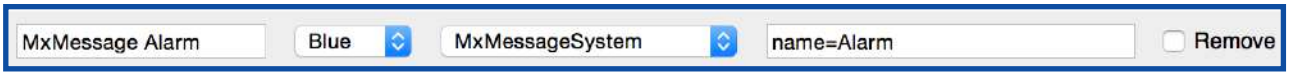
- Create an action group and select the event (e.g. MxActivitySensor 2.0) which is to trigger the sending of the MxMessage you have just created as an action.



Softbutton

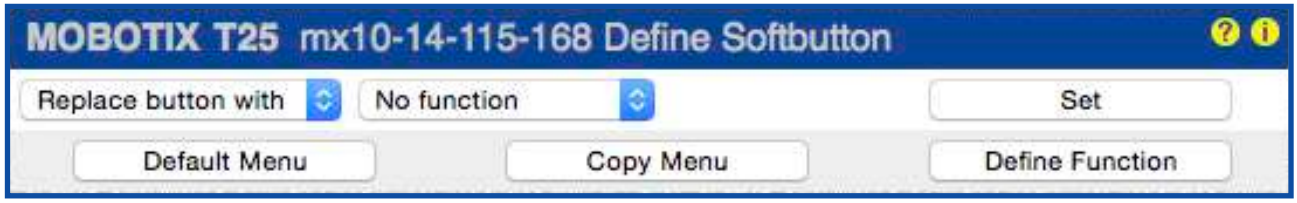
“Admin Menu/ Page Administration/ Softbuttons“

- Add a new Softbutton (e.g. MxMessage: “Alarm“).



➡ Modify the softbuttons in the live view of the camera web interface

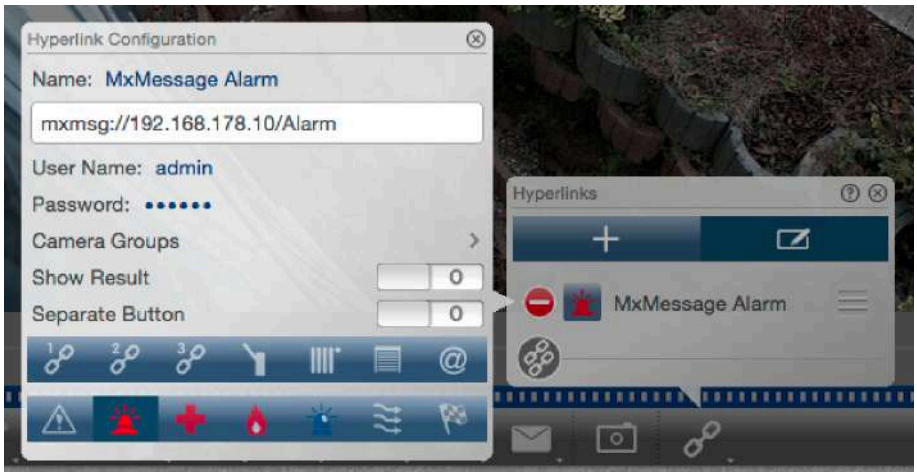
- Keep the Shift button pressed and click on one of the existing softbuttons.
- Replace the existing softbutton by the MxMessage softbutton you have just added.



Hyperlink in MxMC

➡ Create a Hyperlink in MxManagementCenter

- Adressing format for the sending of an MxMessage:
  “mxmsg://CameraIPAddress/Message



➡ Make sure that the Network Distribution of Messages is enabled on the specified camera (cf. page 8).

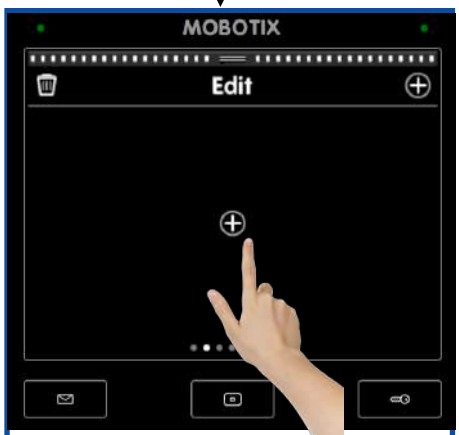
➡ The specified camera is the sender of this MxMessage, not MxMC!

Sending an MxMessage via the MxDisplay

➡ **Create an MxBroadcast Softbutton on a new screen on the MxDisplay**

Press “Home Button“for 2 seconds

Create new screen



Add Softbutton

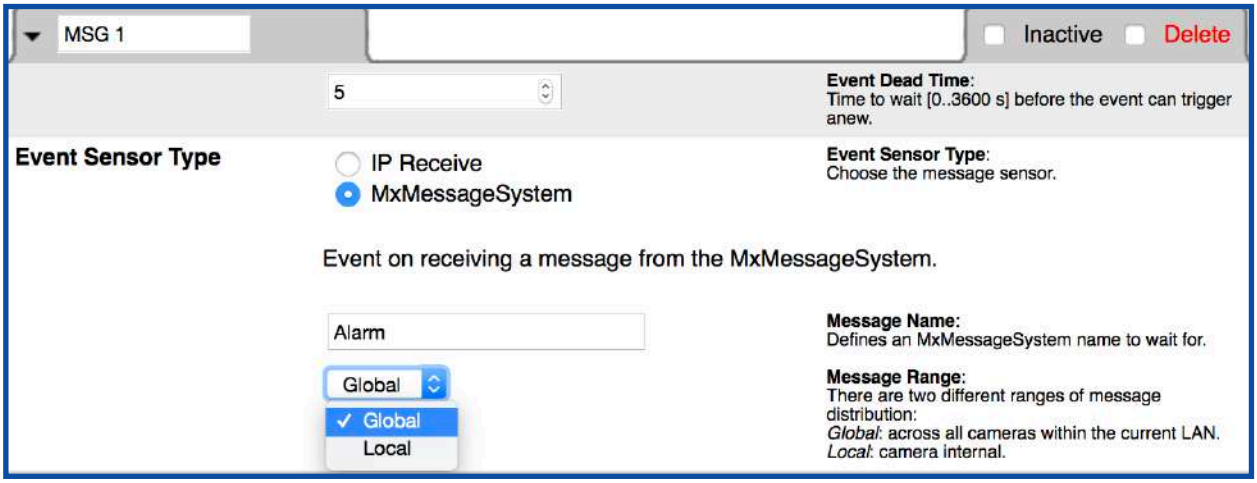
Edit Softbutton

Editor Mode:

- Function: Post message
- Camera: select the camera with which the softbutton should be associated
- MxMessage: /api/json/messages/global/“MxMessage“

“Setup Menu/ Event Control/ Event Overview/ Message Events

- Create a new Message Event Profile (e.g. MxMessage Name “Alarm“)
- Event Sensor Type: MxMessageSystem



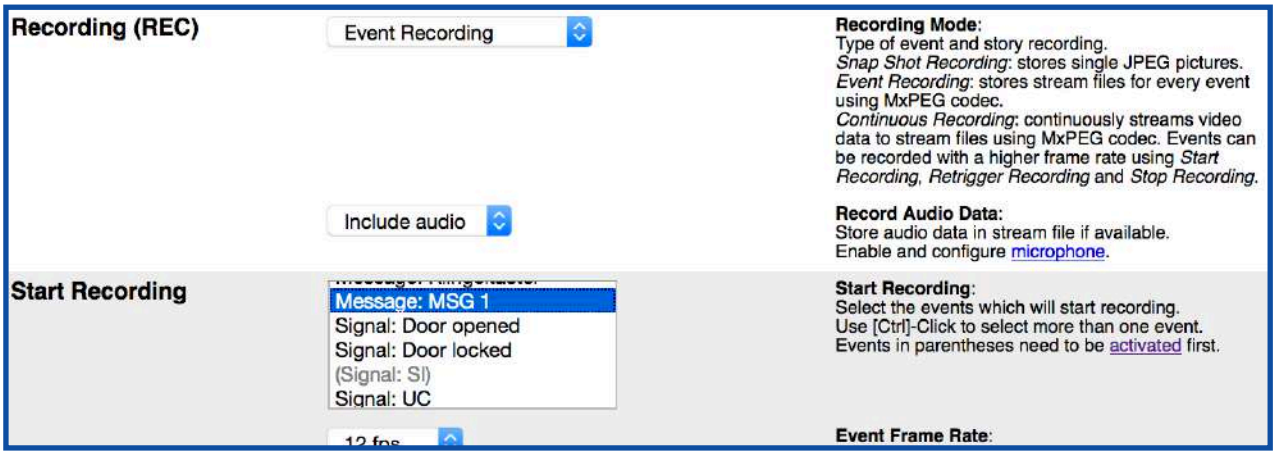
Another example of how to use a Message Event Profile

➡ Use in an Action Group

- The reception of an MxMessage triggers an action (cf. page 8)

➡ Use as an event which triggers a recording

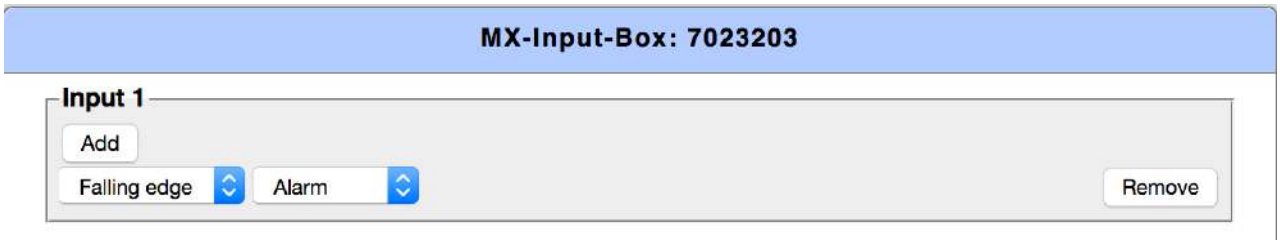
- This has to be configured in „Setup Menu/ Event Control/ Recording“



“Admin Menu/ MxMessageSystem/ Message Configuration for MxBus Modules“

- Load the configuration of the connected devices and create a new MxMessage.
- Make sure you select the correct reach (cf. pages 7 & 8)

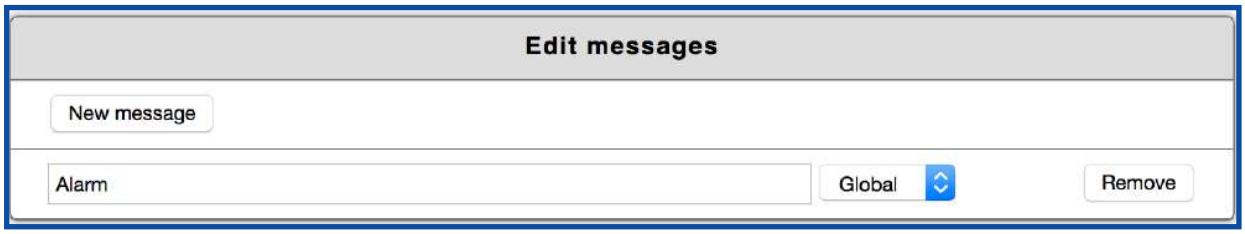
- Open the dialog of the MxInputBox and assign the MxMessage you have just created to one of its inputs.
- The **switching of a signal input** of an MxInterfaceBox can trigger the **sending** of an MxMessage.



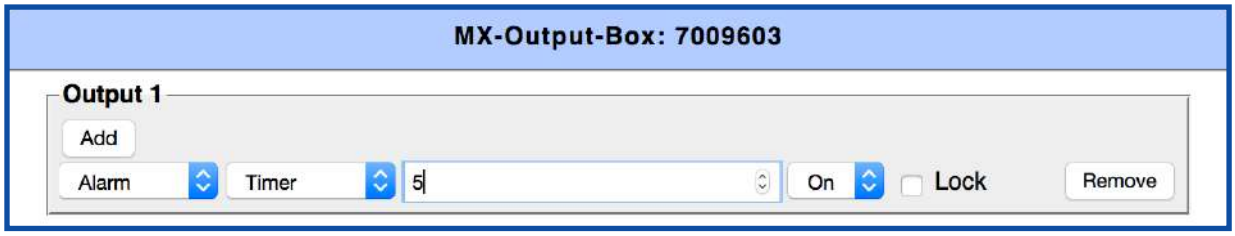
➡ **Example: Closing the contact on „Input 1“ triggers the sending of the MxMessage „Alarm“.**

“Admin Menu/ MxMessageSystem/ Message Configuration for MxBus Modules“

- Load the configuration of the connected devices and create a new MxMessage.
- Make sure you select the correct reach (cf. pages 7 & 8).



- Open the dialog of the MxOutputBox and assign the MxMessage you have just created to one of its outputs.
- The **reception of an MxMessage** can trigger the **switching of a signal output** of an MxInterfaceBox.



➡ **Example: The reception of the MxMessage „Alarm“ triggers the closing of the „Output 1“ for 5 seconds ⇒ e.g. to trigger a door opener.**

An MxMessage can trigger the signaling of an MxDoorStation.

The use of MxBroadcast becomes obligatory if you add a second KeypadRFID or BellRFID (only possible in MxBroadcast Mode).

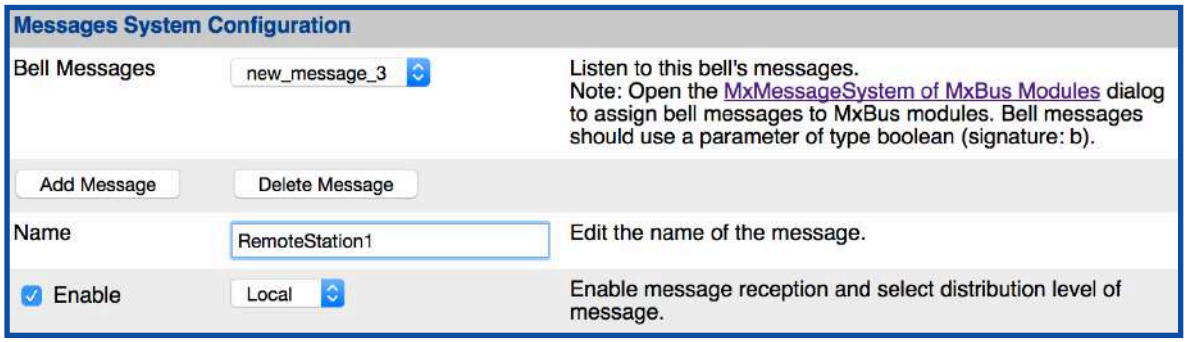
The following paragraph explains this by means of an example using the MxMessage „RemoteStation1“.

Configuration of the MxDoorStation‘s Bell Behavior

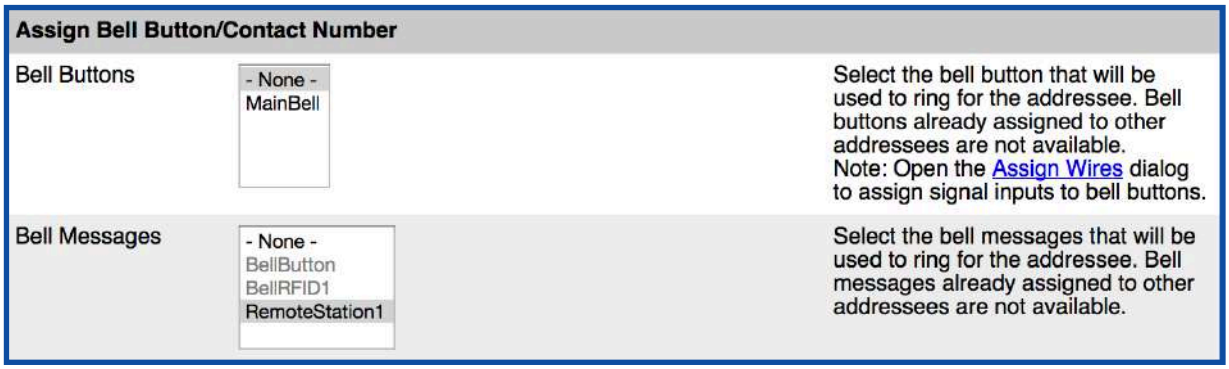
“Admin Menu/ Video Door Station/ Bell Behavior and Video Mailbox“

➡ Add a new Bell Message

- Add a new MxMessage under the section „Message System Configuration“.
- Rename the MxMessage you have just created as e.g. „RemoteStation1“.
- Activate the MxMessage reception and define which reach all your Bell Messages have to have so they can be used for the signaling of the MxDoorStation.



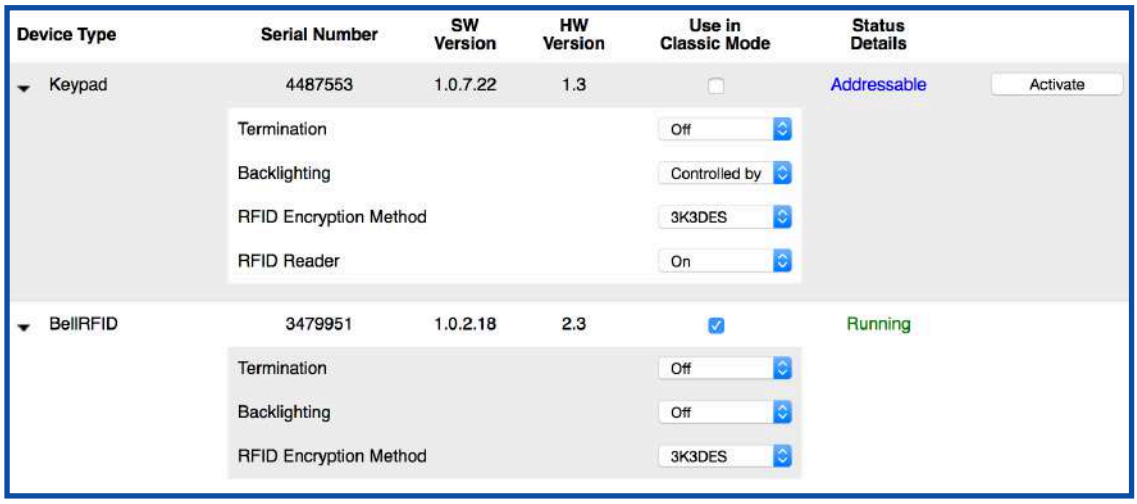
- In the next step, assign the Bell Message you have just created to an Addressee in the section „Per Addressee Settings“.
- The incoming Bell Message will be used to trigger the signaling of a remote station.
- Define the Bell Behavior as usual by configuring the Signaling Phase(s).



Additional BellRFID / KeypadRFID in MxBroadcast Mode

“Admin Menu/ Hardware Configuration/ Manage MxBus Modules“

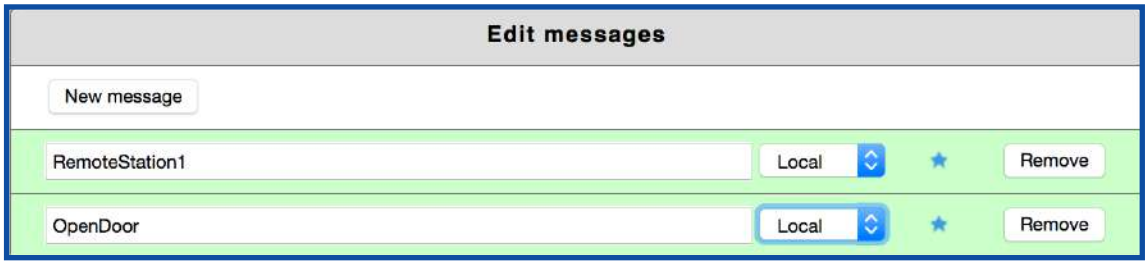
- A BellRFID or KeypadRFID module which has been activated by an Auto- Configuration is automatically running in „Classic Mode“.
- It is **not possible** to run an additional module of this class in **„Classic Mode“** as well.
  - ➡ Connect an additional BellRFID/ KeypadRFID to the MxDoorStation.
  - ➡ Make sure **NOT** to tick „Use in Classic Mode“ before you click on „Activate“.
  - ➡ Activate the module (cf. figure on page 16).



Sending MxMessages using BellRFID

"Admin Menu/ MxMessageSystem/ Message Configuration for MxBus Modules"

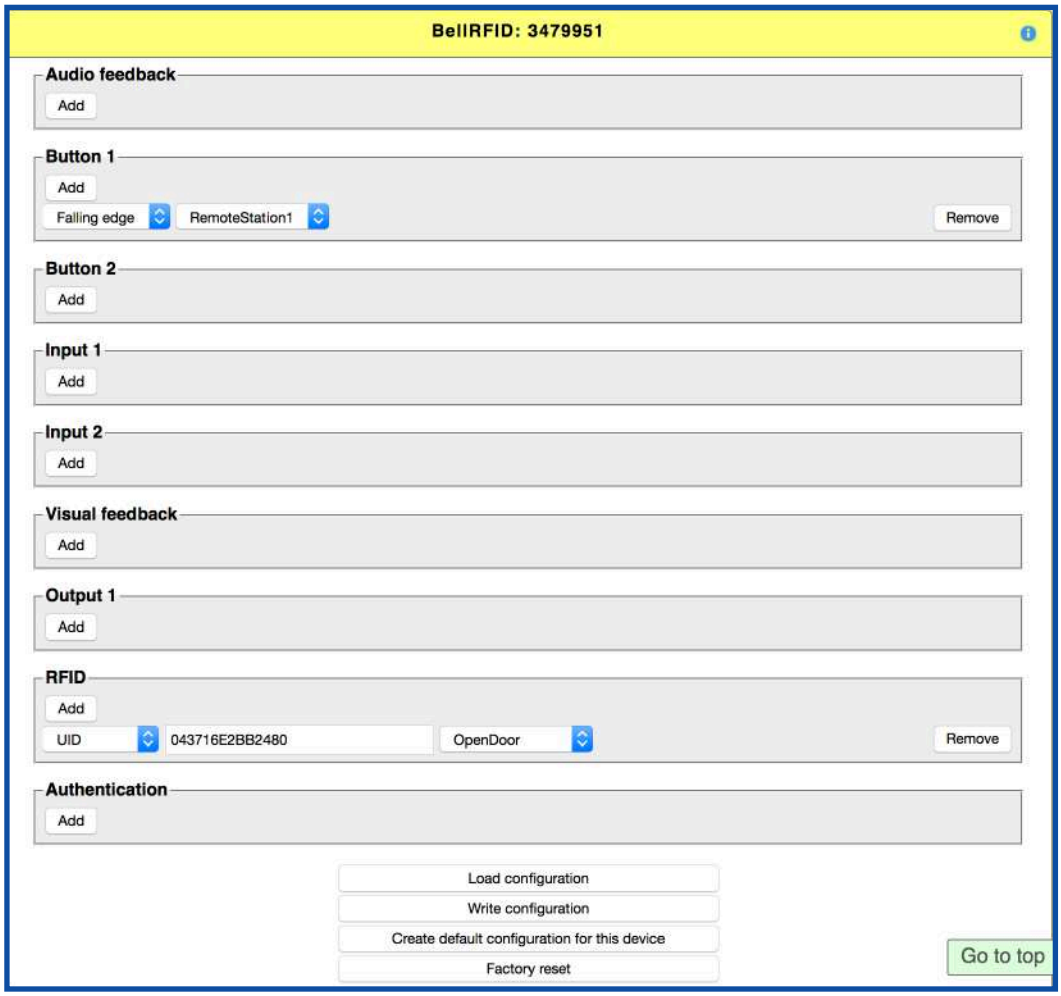
- Create the necessary MxMessages (e.g. „RemoteStation1" and „OpenDoor")



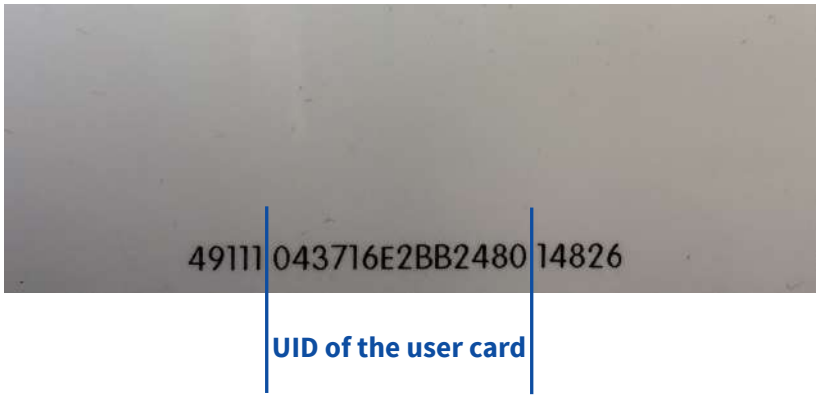
- As an MxDoorStation module, the BellRFID module disposes of additional possibilities regarding the sending and the reception of MxMessages.

  ➡ The bell buttons of the BellRFID module can be used to send an MxMessage (cf. figure on page 17).

  ➡ MxMessages can be sent upon RFID authentication using a specified user card (cf. figure on page 17).



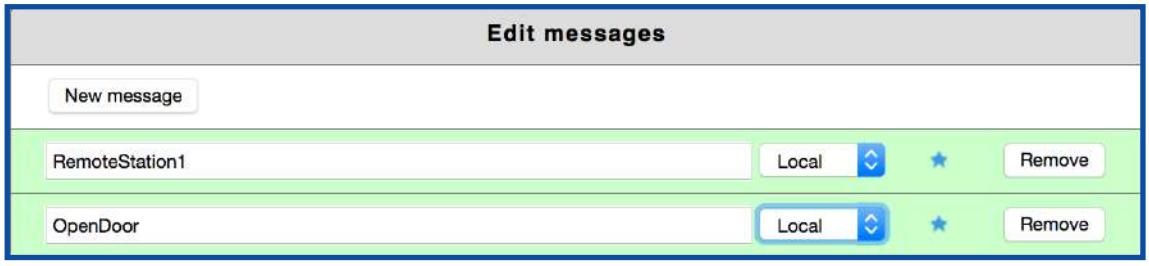
- In MxBroadcast Mode, an RFID user-card can be trained software-wise by entering the UID of the card in the section „RFID“ (cf. figure above).
- The UID used for RFID authentication corresponds with the center character block you can find on the back side of the user card (cf. figure below).
- The MxMessage „OpenDoor“ e.g. could trigger the opening of a door (cf. page 13).



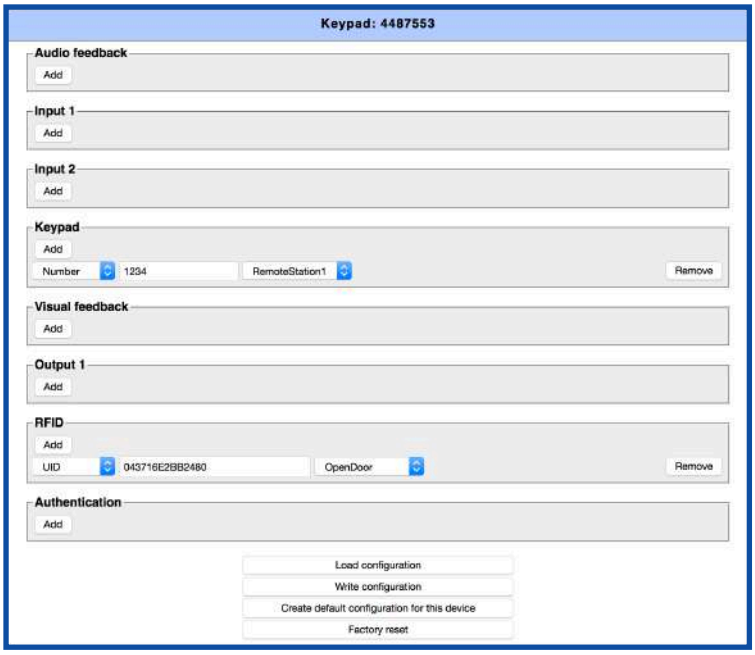
Sending MxMessages using KeypadRFID

"Admin Menu/ MxMessageSystem/ Message Configuration for MxBus Modules"

- Create the necessary MxMessages (e.g. „RemoteStation1" and „OpenDoor").

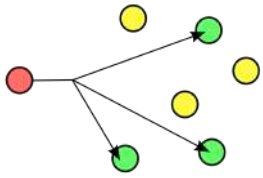


- As an MxDoorStation module, the KeypadRFID module disposes of additional possibilities regarding the sending and the reception of MxMessages.
  - ➡ The keypad of the KeypadRFID module can be used to send MxMessages (cf. figure below)
  - ➡ MxMessages can be sent upon RFID authentication using a specified user card (cf. figure on page 17)



- In MxBroadcast Mode, an RFID user-card can be trained software-wise by entering the UID of the card in the section „RFID" (cf. figure above).
- The UID used for RFID authentication corresponds with the center character block you can find on the back side of the user card (cf. figure on page 17).
- The MxMessage „OpenDoor" e.g. could trigger the opening of a door (cf. page 13).

Multicast



➡ **Message transfer from one point to a group within a message network**

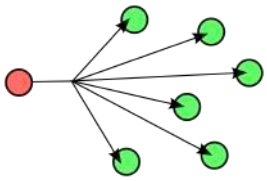
- Members of this group register at the sender.
- The data transmission rate at the sender side is not multiplied by the amount of recipients.
- The switch only transmits the data to the members of the corresponding group.
- The automatically assigned multicast IP address serves as a group ID and is thus used by all group members.
- Limitation to 32 members.

Practical comparison: Radio taxi

In order to call an additional taxi to a pick-up, a taxi driver (i.e. sender) transmits a radio voice signal (i.e. MxMessage) via radio (i.e. network). This message is forwarded via the taxi dispatch (i.e. switch) on a specified channel (i.e. group ID) to other taxi drivers (i.e. recipients).

Only those taxi drivers with free capacities will react to this radio message.

Broadcast



➡ **Message transfer from one point to all members within the entire message network**

- Messages are delivered to all members of the message network without the members having to register at the sender.
- The data transmission rate at the sender side is not multiplied by the number of recipients.
- The switch transmits the data via all ports and in the same way.
- It is irrelevant if the data arrive completely and in a certain order at the recipient side.
- Unlimited amount of members.

Practical comparison: Screaming out of the window

If you (i.e. sender) open a window (i.e. switch) at home e.g. and scream out loud a message, any person (i.e. recipient) nearby (i.e. message network) can theoretically hear it and react to it.