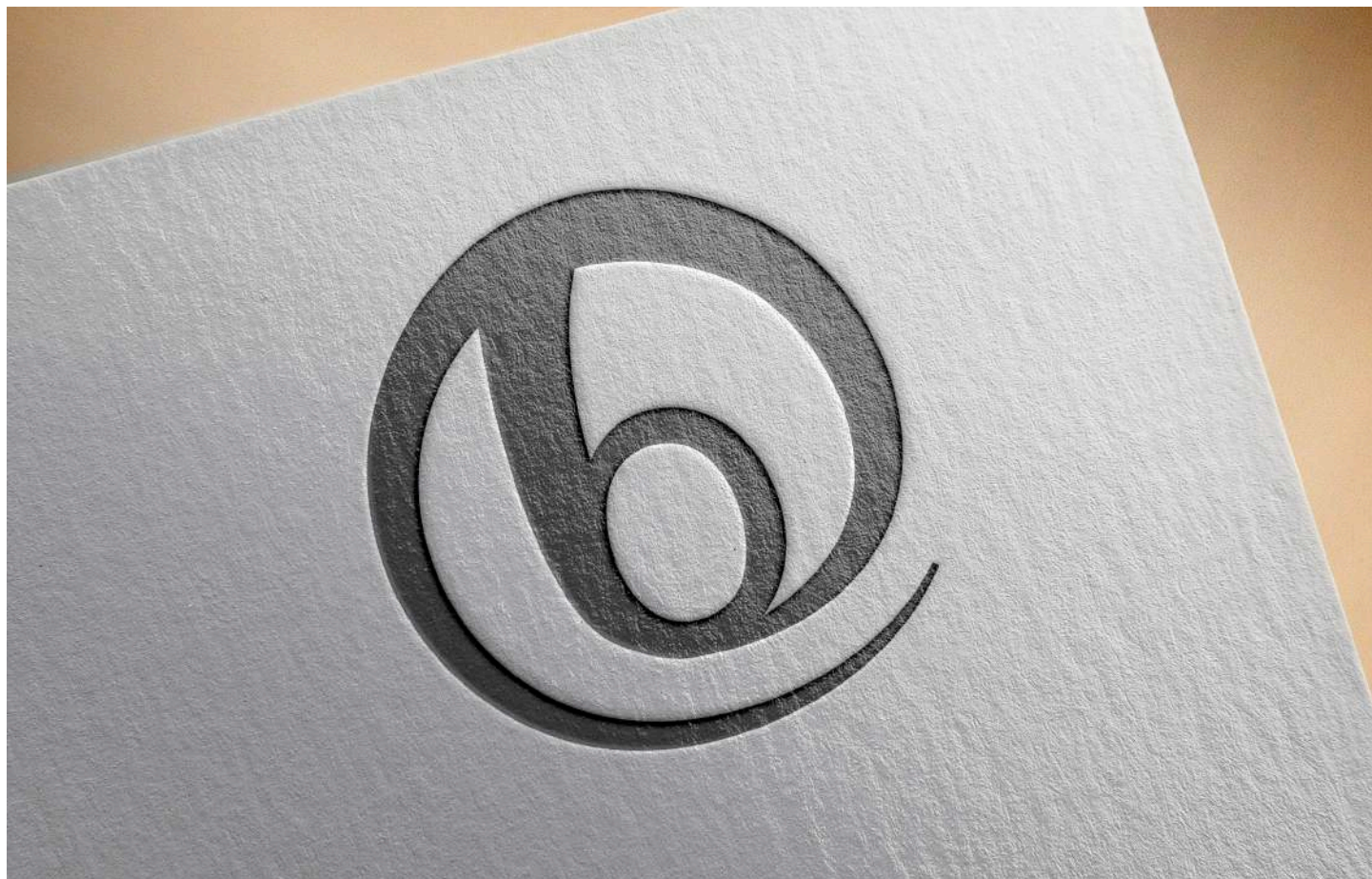


MxBroadcast

Tutorial





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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.



- **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.**

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



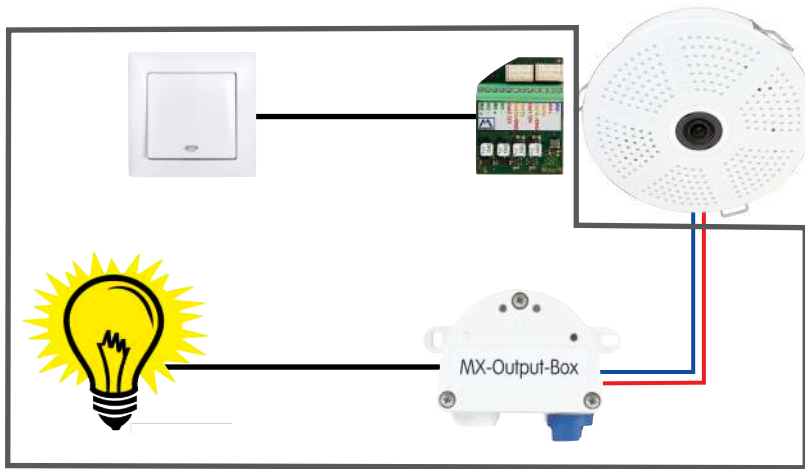
Requirement:

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

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

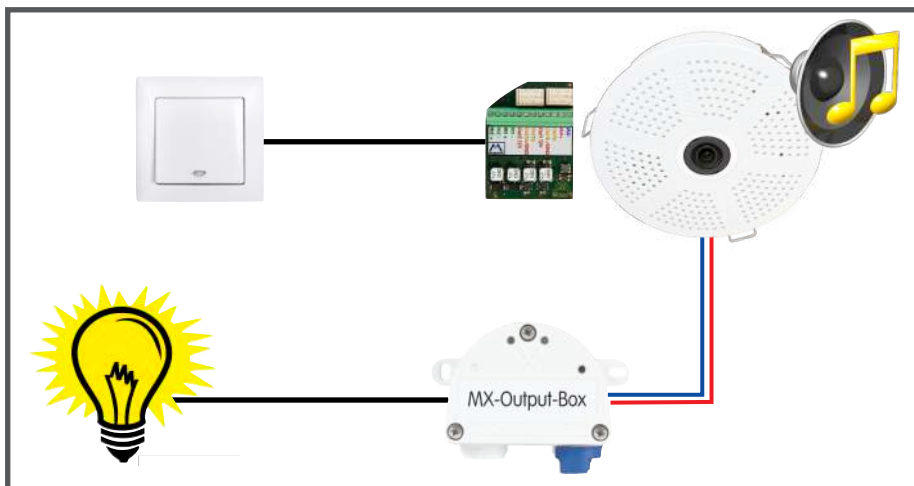
Option 1: Internal

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



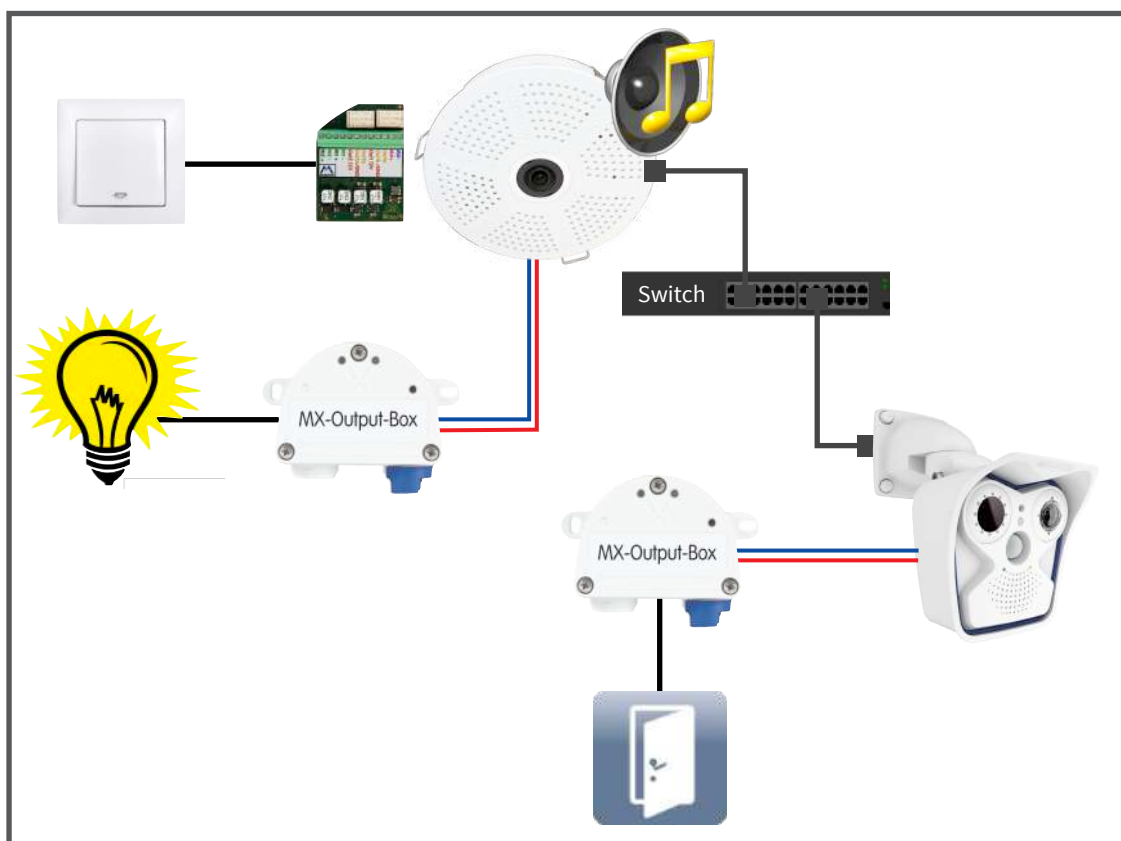
Option 2: Local

- 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).

General Configuration of MxMessageSystem Networking		
Networking	<input type="text" value="Enabled"/>	Enables or disables distribution of messages over the network.
Password	<input type="text" value="meinsm"/>	Password (preshared secret key) used to encrypt MxMessageSystem network traffic.
Broadcast Port	<input type="text" value="19800"/>	UDP broadcast port used for MxMessageSystem network communication.
Note: Ensure that all network devices are synchronized using a network time server (NTP).		

“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).

Profile 1 <input type="text" value="Message 1"/>		<input type="checkbox"/> Delete
MxMessageSystem Name	<input type="text" value="Alarm"/>	Name of the message in the MxMessageSystem. Please see the online help for valid message names.
	<input checked="" type="checkbox"/> Global <input type="checkbox"/> 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.

“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.

Event Selection		Event Selection:
	Image Analysis: AS 2.0 Internal: Granted RFID access Internal: Denied RFID access Internal: Ring Message: Klingeltaster	Select the events which will trigger the actions below. Use [Ctrl]-Click to select more than one event. Events in parentheses need to be <u>activated</u> first.
Actions	Value	Explanation
Action 1	MxMessageSystem: Message 1	Action Type and Profile: Select the Action Profile to be executed.
<input type="checkbox"/> Delete	0	Action Timeout or Duration: If this action runs longer than the time specified [0..3600 s], it is aborted and returns an error; 0 to



Softbutton

“Admin Menu/ Page Administration/ Softbuttons“

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

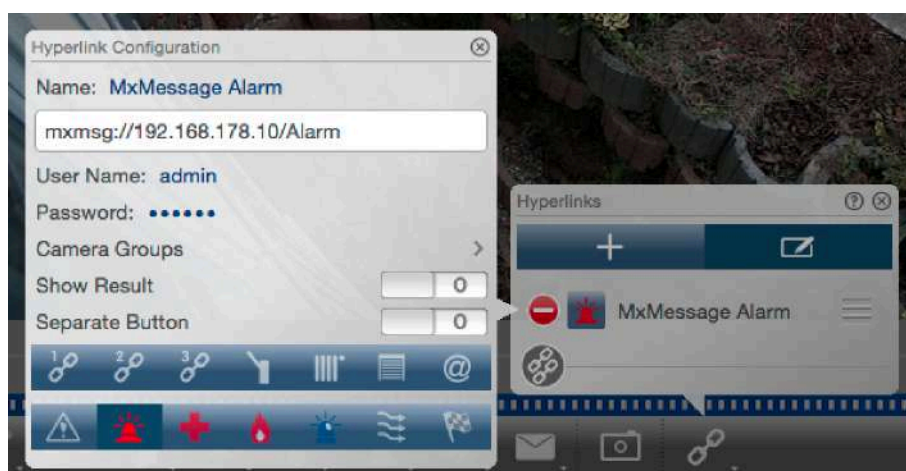
➔ Modify the softbuttons in the live view of the camera web interface

- 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

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

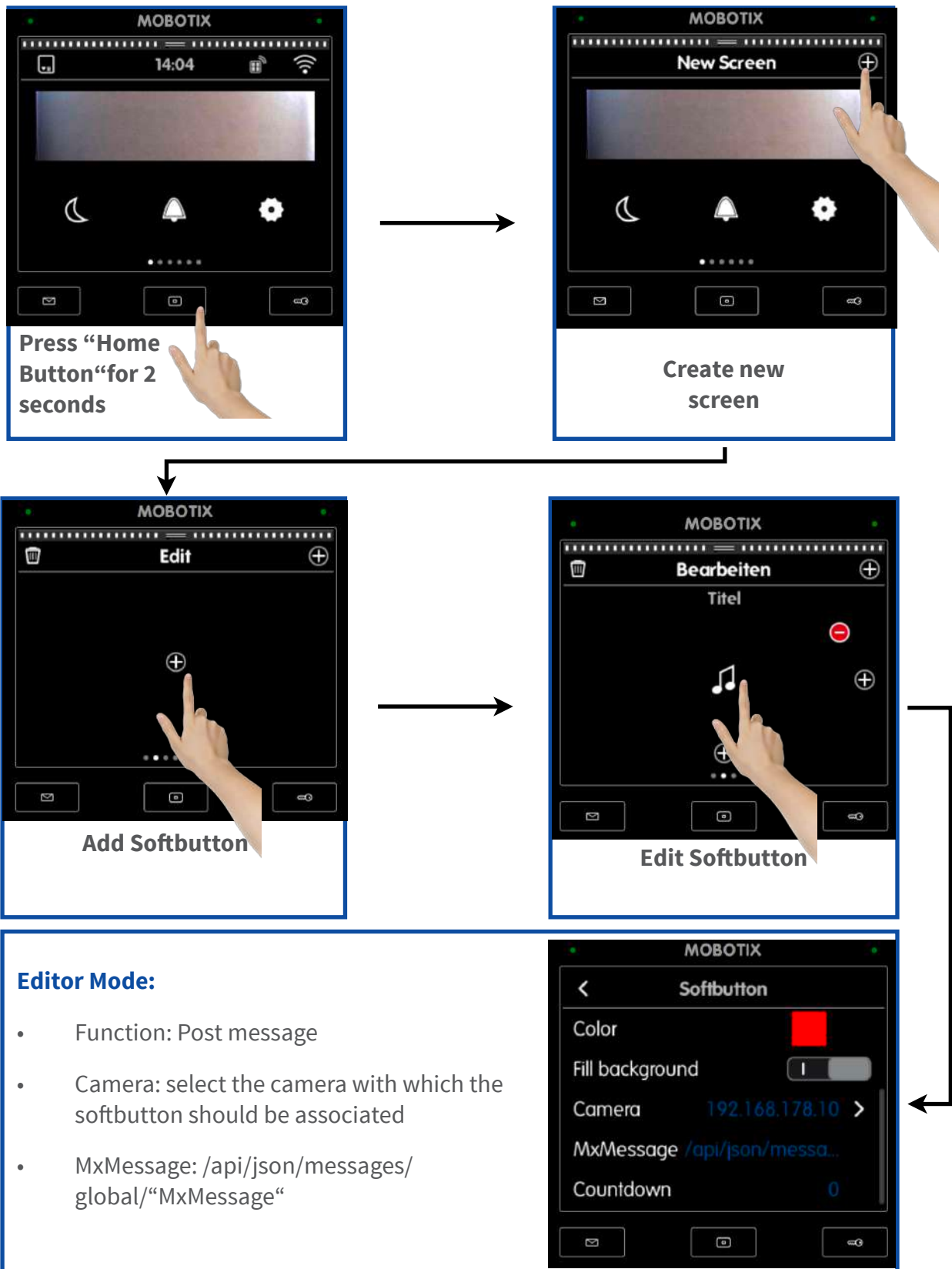


➔ Make sure that the Network Distribution of Messages is enabled on the specified camera (cf. page 8).

➔ 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





“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)

Edit messages

New message

Alarm Global Remove

- 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.

MX-Input-Box: 7023203

Input 1

Add

Falling edge Alarm Remove

➔ **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).

Edit messages

New message

Alarm Global Remove

- 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.

MX-Output-Box: 7009603

Output 1

Add

Alarm Timer 5 On Lock Remove

➔ **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.

Messages System Configuration		
Bell Messages	<input type="text" value="new_message_3"/>	Listen to this bell's messages. Note: Open the MxMessageSystem of MxBus Modules dialog to assign bell messages to MxBus modules. Bell messages should use a parameter of type boolean (signature: b).
<div>Add Message Delete Message</div>		
Name	<input type="text" value="RemoteStation1"/>	Edit the name of the message.
<input checked="" type="checkbox"/> Enable	<input type="text" value="Local"/>	Enable message reception and select distribution level of message.



- 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).

Assign Bell Button/Contact Number		
Bell Buttons	<div>- None - MainBell</div>	Select the bell button that will be used to ring for the addressee. Bell buttons already assigned to other addressees are not available. Note: Open the Assign Wires dialog to assign signal inputs to bell buttons.
Bell Messages	<div>- None - BellButton BellRFID1 RemoteStation1</div>	

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).

Device Type	Serial Number	SW Version	HW Version	Use in Classic Mode	Status Details
▼ Keypad	4487553	1.0.7.22	1.3	<input type="checkbox"/>	Addressable Activate
	Termination			Off	
	Backlighting			Controlled by	
	RFID Encryption Method			3K3DES	
	RFID Reader			On	
▼ BellRFID	3479951	1.0.2.18	2.3	<input checked="" type="checkbox"/>	Running
	Termination			Off	
	Backlighting			Off	
	RFID Encryption Method			3K3DES	

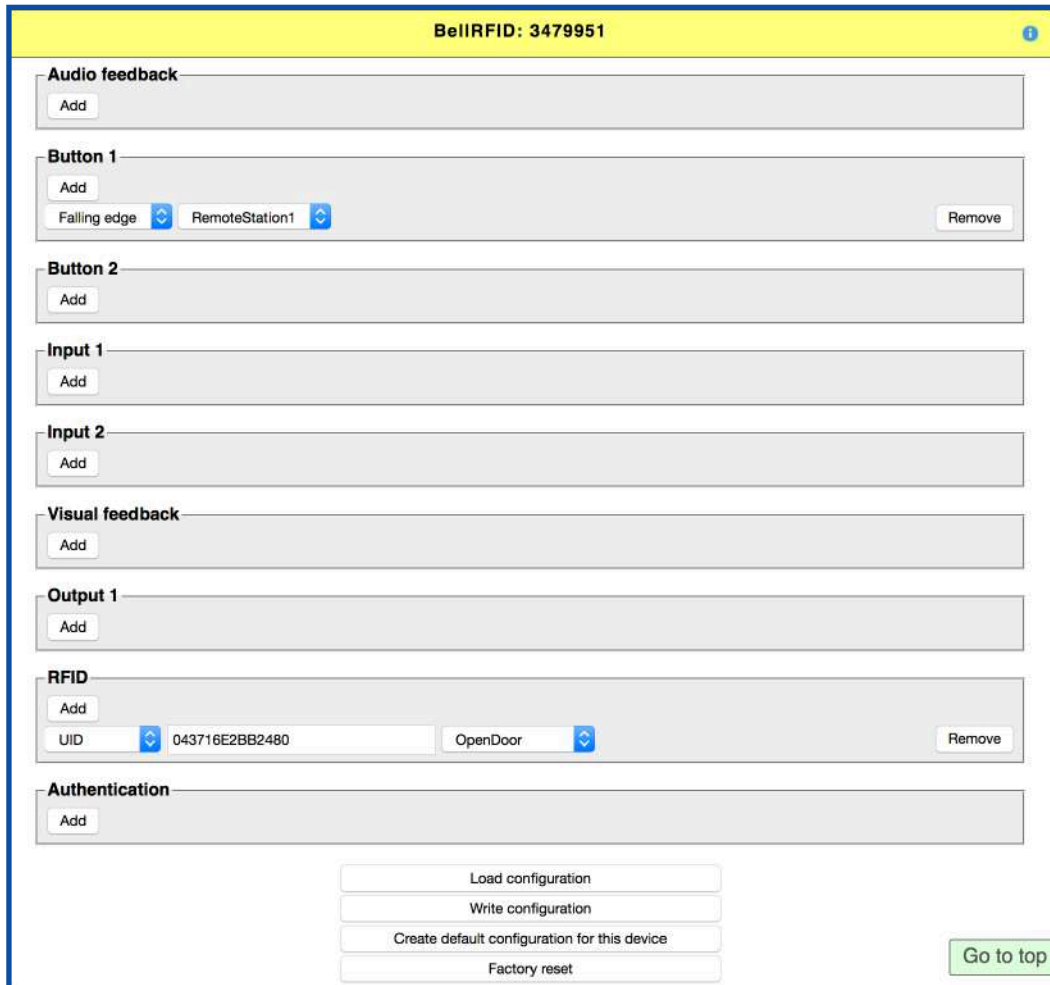
Sending MxMessages using BellRFID

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

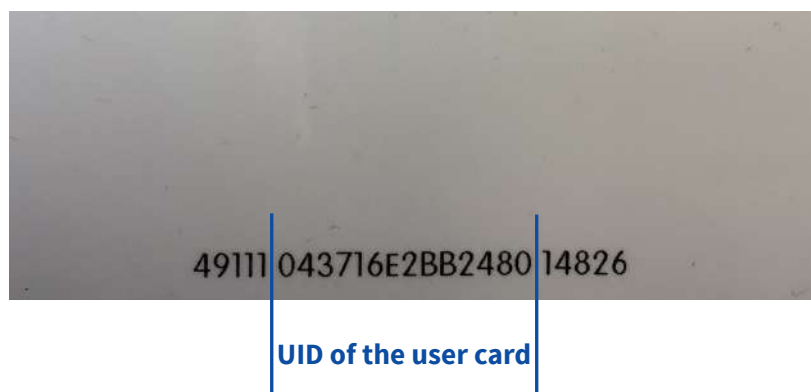
- Create the necessary MxMessages (e.g. „RemoteStation1“ and „OpenDoor“)

Edit messages			
New message			
RemoteStation1	Local	★	Remove
OpenDoor	Local	★	Remove

- 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).



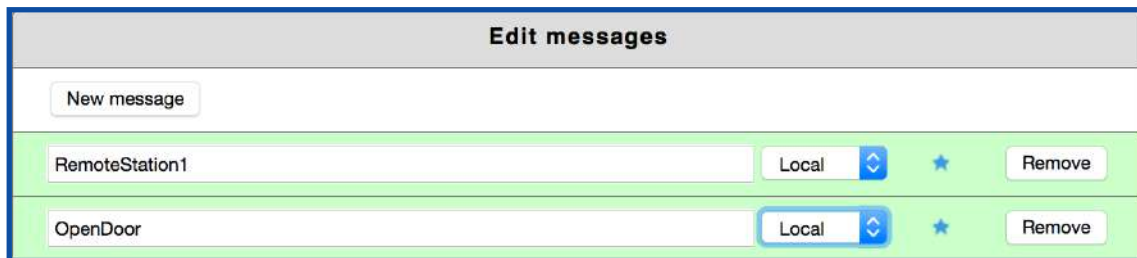
- In MxBroadcast Mode, an RFID user-card can be trained software-wise by entering the UID of the card in the section „RFID“ (cf. figure above).
- The UID used for RFID authentication corresponds with the center character block you can find on the back side of the user card (cf. figure below).
- The MxMessage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



Edit messages			
New message			
RemoteStation1	Local	★	Remove
OpenDoor	Local	★	Remove

- 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)



Keypad: 4487553

Audio feedback
Add

Input 1
Add

Input 2
Add

Keypad
Add
Number 1234 RemoteStation1 Remove

Visual feedback
Add

Output 1
Add

RFID
Add
UID 043716E29B2480 OpenDoor Remove

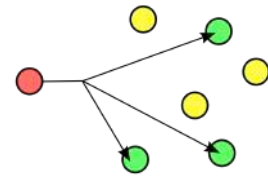
Authentication
Add

Load configuration
Write configuration
Create default configuration for this device
Factory reset

- 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

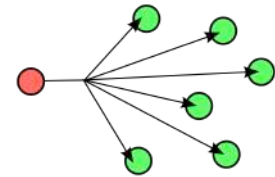
In order to call an additional taxi to a pick-up, a taxi driver (i.e. sender) transmits a radio voice signal (i.e. MxMessage) via radio (i.e. network). This message is forwarded via the taxi dispatch (i.e. switch) on a specified channel (i.e. group ID) to other taxi drivers (i.e. recipients).

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.