记 MxControlCenter Setup



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MxControlCenter Manual

Notes

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Typographic Conventions

We use the following formatting to indicate special elements in this manual:

User Interface Elements: This formatting is used for all user interface elements of MxControlCenter: Click on the PTZ Views button.

- Values in Selection Boxes: If you are expected to select values in selection boxes, these values are formatted as in this example: ... and highlight Unlimited in the selection box.
- User Input: Input in text entry boxes is formatted as in this example: Double-click the camera name and enter the desired name (for example, Back Entrance).
- Keys on the Computer Keyboard: The following format is used if you are expected to press any keys on the keyboard: Press the HASH KEY (#) to reset the zoom settings.
- File Names: If the text refers to file and folder (directory) names, they are formatted as in this example: Double-click the MxControlCenter.msi file to install it.
- Cross References: The following formatting is used when referring to other sections in this manual: For more information on this topic, see Section 3.2 Backing Up And Restoring Settings.
- Web Links: Hyperlinks in the text are formatted as follows: For additional information, see OUT www.mobotix.com website.
- Explanations: They are presented as follows:

An *image series* includes all the images (or the entire video sequence) that have been saved for an event (alarm). In addition, ...

Examples: They are presented as follows:

```
http://192.168.1.182:8001/?fullscreen=1
(minimizes MxControlCenter to the taskbar)
```

Manuals For MOBOTIX Products

All MOBOTIX products have corresponding manuals that you can download as *.pdf files at www.mobotix.com Under Support > Manuals:

- Camera Manual Part 1: This camera manual is different for each camera model and describes the specific features for mounting and operating the camera model in question.
- Camera Software Manual Part 2: This software manual describes the software features of the browser-based user interface for all MOBOTIX cameras.

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1 CONCEPT

1.1 What Is MxControlCenter?

MOBOTIX MxControlCenter is a free application that provides the ideal multifunctional solution for all your security needs. MxControlCenter allows you to easily connect MOBOTIX cameras and third-party cameras to a video security system. It provides a very simple method for adding new cameras to a system and viewing the live images they capture. A wide variety of viewing options is also available for displaying images from one or more cameras.

As a professional video management system, MxControlCenter also acts as a tool for handling video and audio data in IP networks. It not only lets you view the images from a connected camera in real time, you can also *edit* them. Note that *editing* in this context means that both the camera and MxControlCenter are capable of manipulating displayed images using a number of functions. For example, you can zoom in on one of the images supplied by the camera to get a closer look at an area of possible interest or adjust the brightness of an image without changing the image settings of the camera.



Furthermore MxControlCenter provides you with the ability to subsequently view and search alarm images that have been recorded externally on a file server or internally in the cameras. A camera alarm, for example, triggered by the camera's motion detection, can initiate a specific action at the control center. Such actions may include bringing the

current live images from the alarm-triggering camera to the foreground and having an acoustic signal emitted over the viewer's computer.

In addition to these features, MxControlCenter also allows you to independently display and store the alarms of all monitoring cameras. The program can therefore be used to perform a subsequent analysis of events that have been recorded within the visual range of multiple cameras. Sequencing these image recordings can help you trace the events surrounding a burglary, for example. Using the integrated export list, you can then combine the video and audio data recorded by one or more cameras into a clip that can be exported as an *.avi file for further analysis.

This is just one of the many MxControlCenter features that are explained in this manual in a clear and concise manner. The following section contains examples of how to use MOBOTIX cameras in conjunction with MxControlCenter.

1.2 Application Examples

Examples of how to use MxControlCenter are provided in the following sections.

1.2.1 Example: Installing And Starting Up A Small Video Monitoring System

The director of a small automobile museum asks an in-house technician to install a surveillance camera to monitor an area of valuable exhibits during opening hours. The in-house technician has very little experience with configuring computers and networks. Yet once the technician connects the camera to the existing Ethernet network, and installs and runs MxControlCenter on the director's computer, they are able to carry out the necessary configurations without any difficulty. The camera is detected automatically on the network under its own name and is quickly configured in a few easy steps. Even the director's wish for after-hours surveillance of the exhibit rooms and notification of the night watchman in the event of any irregularities now appears as a manageable task to the technician.

1.2.2 Example: Live Monitoring Of A Parking Garage

MOBOTIX cameras are used to monitor a three-level parking garage. During opening hours, a security guard in the parking garage's control room uses MxControlCenter to monitor the parking levels in real time. The live monitoring feature is set up to include a predefined view (a *layout*) of each parking level based on all the camera images of that parking level. MxControlCenter automatically cycles through the parking level views at preset intervals (the layout sequencer feature).

1.2.3 Example: Live Monitoring Of Spectators In A Soccer Stadium

To obtain the best images from the MOBOTIX cameras installed at the various ticket counters, entrances, and exits of the soccer stadium, the system administrator creates a layout beforehand that is specifically adapted to the situation at hand. To that end the system administrator positions the individual cameras on a layout of the stadium according to their location. Before a game begins, MxControlCenter is launched by security personnel in the control center and it automatically displays the right layout for each workstation. The head of security can watch live images of the ticket counters and entrances before the game, switch to the cameras inside the stadium during the game, and then monitor the exits after the game. In critical situations, the security personnel can open an alarm plan specifically set up for each camera, which lists the radio call frequencies for the responsible guard in the area of the camera.



1.2.4 Example: Live Monitoring Inside A Train Station

The platforms of a train station are to be monitored with MOBOTIX cameras. Four cameras are installed on each platform for that purpose. Life monitoring is carried out using MxControlCenter. A grid layout for each platform is created in the program based on the live camera images of that platform (see *Section 3.2.1, Grid Layouts*). The program interface is configured so that security personnel can only access the buttons for switching layout views (see *Section 2.9.2, Customizing The User Interface*). It is also configured to provide visual notification in the image when a connection error occurs or the maximum permitted latency time between image creation and display is exceeded (see *Section 5.4, The "Remote Control" Tab*).



1.2.5 Example: Monitoring An Isolated Parking Lot With An Alarm System Linked To The Main Office Of A Security Company

An auto dealership installs MOBOTIX cameras in isolated parking lots where vehicles have been damaged repeatedly in the past. A technician defines a display layout for each parking lot with the cameras that are installed there. Each camera is configured to detect any movement near the fence surrounding the parking lots.

The infrared sensors of the night cameras also trigger an alarm when heat is detected. If a camera detects a movement, a network message sent from the camera to MxControlCenter automatically opens the layout of the relevant parking lot in the main office of the employed security company. An alarm sound is simultaneously emitted until it is acknowledged by a staff member. After acknowledging the alarm, the staff member can initiate the necessary measures.



1.2.6 Example: Review Of Images And Alarms After A Burglary Occurred In An Office Building

In addition to live monitoring of the main entrance by the receptionist during regular office hours, the MOBOTIX cameras installed on the floors, the staircases, and the parking lots in front of and behind the building are configured to detect and alert of any movement or changes in brightness at night. Furthermore, the manager will receive an e-mail every time a camera triggers an alarm.



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Once notified, the manager can search through the video recordings of the cameras in the morning without exposing himself or herself to any danger. The route taken by the burglar from the parking lot to the actual break-in in the server room can be plotted. A "video" can be compiled using these recordings and show the entire burglary up to the point when, for example, a stolen computer and printer are loaded into the trunk, including the license plate number of that vehicle. It can thus provide valuable evidence for further criminal investigation.













2 GETTING STARTED

This chapter describes the main tasks of MxControlCenter and how to perform them. *Chapter 3, Advanced Features* offers a more detailed description of the individual features while also discussing advanced features that go beyond "normal" installations.

2.1 Installation

If you have an MxControlCenter installation CD, insert it into the DVD drive of your computer.

If you do not have the installation CD or would just like to install an update, you can download the latest Windows installer from the MOBOTIX website as an *.msi file and install it manually. The latest versions are available at www.mobotix.com under Support > Software Downloads > MxControlCenter.

If you insert the installation CD, the installation process will start automatically and you will be guided through the necessary steps. If you have downloaded the latest Windows installer, double-click the *.msi file to initiate the installation process.



The Installer (currently only available in English) copies the application files to your computer and then creates the designated shortcuts (Desktop, Start Menu, etc.) during the installation process. If you have any older program versions installed, the Installer will automatically update them without changing your existing configurations.

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Caution

MxControlCenter will attempt to find all MOBOTIX cameras in the physically connected network (i.e., every MOBOTIX cameras with a factory IP address of **10.x.x.x**). Make sure that the firewall settings on your computer do not block network traffic with MxControlCenter. If MOBOTIX cameras are found, MxControlCenter. can *automatically reconfigure* them so that they are available on your computer.

If you do not have permission to modify these settings on your computer, contact your system administrator for assistance.

For detailed information on the automatic camera search feature and manual configuration, refer to *Section 2.2.2, Finding MOBOTIX Cameras*.

2.2 Finding And Configuring Video Sources

Video sources not only refer to MOBOTIX cameras, but also to third-party IP cameras, file server paths, MxPEG clips and analog cameras connected via MxServer (for example, analog dome cameras). Video sources unrelated to MOBOTIX cameras are not found automatically and need to be added manually.

2.2.1 Connecting MOBOTIX Cameras

MxControlCenter provides you with a convenient tool for starting up and configuring new MOBOTIX cameras. You do not need extensive *network knowledge* to properly connect your camera. Simply connect the camera to either the *PoE switch* or the *Network Power Adapter* as shown in the figures below.



A PoE switch or the MOBOTIX Network Power Adapter provides the power supply and network connection to your MOBOTIX camera over an Ethernet cable:



Installation with MOBOTIX Network Power Adapter

Now make sure that your computer is connected to the same PoE switch or the Network Power Adapter (the **computer/power** connection). When the camera is ready for use, the *top LED glows and the two red LEDs blink for the M12* and *D12* models and the *green LED glows and the red LED blinks for the M22M* and *D22M* models.

More information on starting up your camera can be found in the respective *camera manual*.

2.2.2 Finding MOBOTIX Cameras

Launch MxControlCenter after successful installation (see *Section 2.1, Installation*) by doubleclicking the shortcut that was created by the Installer on your Desktop or the executable MxCC.exe file in the installation directory.

When MxControlCenter is launched for the first time, the **Add Cameras - Search and Select** dialog box opens and the application automatically searches for MOBOTIX cameras in the local network. To perform a camera search at a later stage, select **Camera > Add** from the menu.

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(i)

If your MOBOTIX camera is properly connected, it should appear together with the existing video sources in the following list:

Name	Video source	Type	Version	Bonjour		Automatic search
O mix 10-8-24-7	10.8.24.7	Q24M-Secure	MX-V4.0.1.15	Detected		Insert manually
Omx10-8-32-82	10.8.32.82	Q24M-Secure	MX-V4.0.1.15	Detected.		
O mx 10-8-32-92	10.8.32.92	Q24M-Secure	MX-V4.0.1.15	Detected		Cane a
m22-steve	192.168.32.142	M22M-Secur	MX-V3.5.2.6	Detected		MuPEG dp
C dka-cftest	192.168.38.189	M22M-Secur	MX-V3.5.2.6	Detected		
BWI-M22R8-10-2-97-71	10.2.97.71	M22M-Secur	MX-V3.4.5.18	Detected		Recording path
BWI-M12DN-10-3-7-199	10.3.7.199	M12D-Sec-D	MX-V3.4.5.18	Detected		
WI-Q24-Wal-10-8-0	10.8.0.71	Q24M-Secure	MX-V4.0.1.15	Detected		
BWI-M22-10-2-1-8	10.2.1.8	M22M-Secure	MX-V3.4.5.18	Detected		BMI-Q24-WMI-10-0-0-7
BWI-Q22-Wall-10-3-1	10.3.172.252	Q22M-Secure	MX-V3.4.5.18	Detected.	- 10	
BWI-M12DN-10-3-11-55	10.3.11.55	M12D-Sec-0	MX-V3.4.5.10	Detected.	- 11	
5WI-M12DD-10-2-12	10.2.12.124	M12D-Secure	MX-V3.4.5.18	Detected.		COLUMN TO A DESCRIPTION OF A DESCRIPTION
BWI-M22-10-3-0-31	10.3.0.31	M22M-Secure	MX-V3.4.5.18	Detected		10.10
BWI-024-10-8-6-70	10.8.6.70	D244-Secure	MX-V4.0.1.15	Detected		And a state of the
O d24-steve	192.168.32.152	M2444-Secure	MX-V4.0.1.15	Detected		
BWI-Q22-Cel-10-3-1	10.3.171.68	Q22M-Secure	MX-V3.4.5.18	Detected		
BWI-M22-10-2-1-93	10.2.1.93	M22M-Secure	MX-V3.4.5.18	Detected		
O BWI-M12DN-10-2-12	10.2.12.168	M12D-Night	MX-V3.4.5.18	Detected		D Heinerer status
QA-Cam-im-Test-mx1	192.168.38.103	D22H-Secure	MX-V3.4.5.18	Detected		O OK
m12-steve	192.168.32.123	M12D-Sec-D	MX-V3.5.2.6	Detected	- 131	CB access derived
C mx 10-3-11-45	192.168.38.132	M12D-Sec-D	MX-V2009.09.07	Detected.		
@ mx 10-8-0-7	192.168.32.139	D24M-Secure	MX-V2009.09.11	Detected		Different a hoat
m 10-steve	192.168.32.141	M10D-DevKit	M10-V2.3.0.3	SCOULSES A		Chinerent soonet
•		10				

Detected Cameras Are Located In A Different Subnet



The symbols in the first column and the legend in the dialog box indicate whether you can access a particular camera directly from MxControlCenter. Note that you can access any camera designated by the green **OK** symbol. Cameras designated by the yellow **Different Subnet** symbol are located in a different subnet. This usually applies to *new cameras or cameras that have been reset to their factory settings*.

Note

MxControlCenter finds all MOBOTIX cameras provided that both your computer and the cameras are located in the same *physical network*.

A *physical network* includes all devices that access a shared Ethernet network (for example, using switches) without having routers that segment the individual portions of the network. The actual transmission method (cable, wi-fi, etc.) is irrelevant in this regard.

Select the cameras that you would like to display in a *Layout* (a view with cameras) and click **Add selected cameras**.

The **Add cameras** dialog box now appears. You can choose to either create a new layout with the cameras that have been found or simply add those cameras to MxControlCenter.

You have chosen to a	dd 1 cameras.
Generate new orid law	out for selected cameras
Layout Name:	New Layout
Add cameras to system	n only (do not create layout)
	OK Abbrechen

If some of the selected cameras are in different subnets, MxControlCenter displays the following dialog box:

wcc					13
0	One or mo you like to	re of the selecti reconfigure the	ed cameras are in Em now?	a different su	bnet. Would

Click Yes to reconfigure the cameras for the subnet of your computer.

Reconfiguring Cameras In A Different Subnet

In most networks, a *DHCP server* will *automatically* assign the IP addresses for network devices so that you can apply the default settings in the **Configure camera** dialog box (**Get IP address automatically**). If you would like all cameras to obtain IP addresses automatically, select the **Apply to all selected cameras** checkbox.

If the IP addresses for devices on the	Cor
network are permanently assigned,	Th
ask your network administrator	11 We
for the appropriate IP addresses	Th
for the cameras. Once you have	
that information, enter the correct	
IP address and subnet mask for	
each camera in the Use this IP	
address group.	

Make sure that the **Save configuration** permanently on camera checkbox is selected so that the cameras can be found at the designated IP address when you restart your computer. Then click **OK**.

This computer accesses th	ne followi	ng	sub	net	(s):	10.0	0.0.0	; 192. 168	3.32.0	
Get IP address autor Apply to all select	matically	era	s							
OUse the following IP	address									
IP address	10	e.	0	2	0	•	0			
Subn <mark>et mas</mark> k	255		0		0		0			
Standard gateway	0	6	0		0	0	0			

Now wait until MxControlCenter has modified the network settings of the cameras and restarted the computer. The status of the reconfigured cameras changes from **Different**



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subnet (blue symbol) to OK. Close the Add Cameras- Search and Select dialog box by clicking OK.

Note

You can open the **Configure Camera** dialog box for any video source by right-clicking the specific video source you want to configure in the **Add Cameras - Search and Select** dialog box and selecting **Configure Network** from the pop-up menu.

2.2.3 Adding Video Sources Manually

In addition to MOBOTIX cameras that are found automatically, you can also manually add video sources to the list of video sources in MxControlCenter.

- Camera: Here, you can enter the known IP address or DNS name of a MOBOTIX camera or a third-party IP camera if it was not found by the automatic search feature.
- MxPEG Clip: Adds an MxPEG video clip previously recorded by a MOBOTIX camera as a video source.
- Recording Path: Adds the path of an external file server where a MOBOTIX camera
 has recorded audio/video data. The videos or snapshots recorded at that location
 can now be played back using the Player or Video Search in MxControlCenter.

2.2.4 Using Video Sources In MxControlCenter

You can now use the list to select the video sources that you would like to display and manage in MxControlCenter..

Camera Preview

If you select one camera with the status OK, MxControlCenter automatically displays the **live images from that camera in the preview window**. If you are using CTRL-click to select several cameras, the image from the camera selected last is shown in the preview window. This feature makes it easier for you to identify the cameras that you would like to use.



Automate Search	_
Cancel Search	
Insert manually	
Camera	
MxPEG clip	
Recording path	

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Editing The Video Source List

Right-click this list to open a pop-up menu from which you can select all video sources or cancel the selection. You can also use this method to remove from the list some or all of the video sources that you would not like to display or manage in MxControlCenter.

If you have cancelled the camera configuration process or need a password that differs from the camera's factory

default password, you can also configure the camera from the pop-up menu at a later date and enter the user name and password required for reconfiguration at that time.

Adding Selected Video Sources In A New Layout

Click **OK** to add the selected cameras in MxControlCenter. If you select the **Generate new grid for selected cameras** option in the **Add Cameras** dialog box, MxControlCenter will automatically create a grid layout that displays all selected video sources in equal-sized windows.

Otherwise the selected video sources will only be added to MxControlCenter and can later be used to create layouts.

A *layout* can show multiple video sources (cameras, file server paths, MxPEG clips, etc.) either in a *grid* or in front of a *background*. A video source can be displayed in a background layout as a video window or a symbol. Layouts can be saved, renamed and arranged hierarchically.





2.3 User Interface And Operation

The main window of MxControlCenter appears after you select the first video sources (MOBOTIX cameras, recording paths, MxPEG clips, etc.). This section introduces you to the basic elements of the application.

2.3.1 Elements Of The Main Window

After the video sources have been automatically defined during initial installation, MxControlCenter opens the main window, which is divided into the following sections:



The standard view of MxControlCenter is primarily intended for users who work with the features set up for camera viewing and alarms.

Sections Of The Main Window

- Menu Bar: From the menu bar you can switch between views, open additional dialog boxes and even execute all the features assigned to the various toolbar buttons described below.
- Alarm List: This panel shows the alarm images of the cameras that the user normally needs to acknowledge by clicking the appropriate title bar (red). Double-clicking an

alarm image opens the Video Search dialog box where you can view the alarms and then compile them for later analysis (also for a camera-wide analysis).

- Toolbar: The toolbar contains buttons for important features. To see what a particular button does, simply place your mouse pointer over it and read the tooltip that appears. The toolbar can be configured to quickly switch between layouts (the Layout buttons in toolbar checkbox) or appear at the bottom of the main window (the Show toolbar at bottom checkbox) in Tools > Settings > General.
- Display Panel: This panel shows the cameras of the currently selected layout. The
 current camera appears with a yellow frame and is the "active camera" whose time
 and date are indicated in the status bar in the bottom right-hand corner. Besides the
 standard camera windows, which contain the live images of a specific camera, you
 can also define player and focus windows in a layout for displaying the recorded
 images of one or more cameras.
- Status Bar: MxControlCenter uses the status bar to display specific runtime information.
- Sidebar: The sidebar contains different information depending on the context. Normally
 it displays the information relating to available layouts or the controls for the active
 camera in the current layout. If the Layout Manager is active, only the panels you
 need to use will be shown (see Section 2.3.2, Layout Manager).

Sidebar Panels

• Layouts: This sidebar panel contains a hierarchical list of all the existing layouts of an MxControlCenter installation. With the Layout Sequencer (see Section 2.4.5, Using The Sequencer Features), you can set MxControlCenter to automatically cycle through the displayed layouts at a defined interval. For each layout you can define separate video sources that can be displayed in either a grid or background layout:





Grid layout

Background layout with camera icons

- Player: This sidebar panel controls the playback of recorded video sequences or images. Synchronized playback based on the time of the recording is available for either the current camera only or all the cameras of a grid layout.
- PTZ Control: This panel is used to control the pan/tilt features (PTZ = Pan/Tilt/Zoom) of a camera and is visible at all times. It may also contain other features depending on which camera and lens you are using. If the current camera can use vPTZ features

(the virtual pan, tilt and zoom features of a MOBOTIX Q22M, for example), then this panel will be expanded accordingly

(i)

For more information on the various elements of the main window, see *Section 3.1, MxControlCenter Controls.*

2.3.2 Layout Manager



The **Layout Manager** provides features for creating and managing layouts in the sidebar. These features, however, are typically only used to set up an MxControlCenter installation. To activate or deactivate the **Layout Manager**, click the adjacent button in the toolbar.

Caution

Activating the Layout Manager does not open an extra window. Instead, the main window of MxControlCenter switches to a special view that contains all the features necessary for creating and editing layouts.

A *layout* can show multiple video sources (cameras, file server paths, MxPEG clips, etc.) either in a *grid* or in front of a *background*. A video source can be displayed in a background layout as a video window or a symbol. Layouts can be saved, renamed and arranged hierarchically.

When activated, the **Layout Manager** offers three other panels for creating and editing layouts:

- Layouts: Here, you can create, rename and move new layouts to form hierarchical structures. This panel shows grid and background layouts with different symbols.
- **Cameras and Devices:** This panel displays the video sources that have already been added to MxControlCenter. You can drag and drop the video sources into a grid box or onto a background image.
- Grid/Background Images: In this panel you can select or add grid or background images for the current layout, depending on the layout type. These images will then be used to display the video sources. You can also create your own grids (the Edit grid button) in addition to the predefined grids and the *Auto grid* (see below).

Auto grid is a special grid where the display panel is automatically split into smaller sections to show the various video sources.

More information on editing layouts is available in Section 2.4.3, Creating Layouts.

2.3.3 Alarm List

The **alarm list** contains the alarms of the MOBOTIX cameras defined in a layout, provided that alarm recording has been enabled on those cameras and the alarm list has been activated in MxControlCenter (**Tools > Options > Alarm List**).

If new alarms are detected, MxControlCenter adds the alarm image of the triggering camera to the top of the alarm list and changes the title bar to red. This alarm can now be acknowledged by clicking the title bar of the alarm window (title bar changes to blue).



window	(title bar changes to blue).	
-00:02	Unacknowledged alarm	







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If the alarm list contains unacknowledged alarms, the alarm box in the upper right-hand corner will remain red. If all the alarms are acknowledged, the alarm box changes to green as depicted in the figure.



Besides the cameras in the current layout, other cameras can also send alarm messages to MxControlCenter by transmitting a network message to the computer running MxControlCenter.



More information on this and other alarm list features can be found in *Section 2.5, Alarm Management*.

2.3.4 Camera Configuration



To change the configuration of the connected cameras, open the **Camera Configuration** dialog box in MxControlCenter by clicking **Change the camera settings from MxCC** or choosing **Video Source > Properties > Configure** from the menu.

Name	*	Arming	Recording	后	Events	H	Mode	뛈	Server	
	1 .01		.01	-		1	petitionen (R.	#5 (NE 1-1-187)	
mx10-2-97-71										
B BID-M120H-10-2	0.0		⊖ o#	BV	IN, 1M2,	H	vents (MoP.	O N	at configured	
BULW72-10-2-14	200		400	E A	MICT.	H	contract of		int configured	
BUE-M1200-10-2	Roff		2 01	10	INL INZ	H	antrups (Haz	IPS (18.1.1.102)	
3 192.168.2.173	3070		A	m		1.1	0.112000.00			
192.168.2.238										
			Campon							
			Bernelma		enarara	-1-75				
			Fuerier 1	6						
			Hode:	1.0	ninus N	NPEG-0	(meet)			

The Camera Configuration dialog box contains the following sections:

- Overview: This section of the dialog box lists all MOBOTIX cameras along with their
 most important settings and also includes an additional preview window for the currently selected camera. If login data that differs from the default login data (admin
 user, meinsm password) is required, you can use the pop-up menu (right-click) to
 authenticate yourself for the selected camera. From the same pop-up menu you can
 also open a dialog box with additional information on this camera.
- **Image Settings:** You can view and modify the main image settings for the selected camera in this section.

- Exposure: The exposure windows are one of the most important camera tools for creating properly exposed images. In this section you can select different exposure windows or customize them based on your requirements (move, change size, etc.).
- Recording: You can control the camera's recording features in this section of the dialog box by activating the recording feature and the camera sensors that are set to trigger an alarm. You can also use this panel to define which files the camera will save (full or live image) and where the alarms will be saved (internally, on an SD/ CF card, or on a file server).

Note

All changes made in the **Camera Configuration** dialog box will take effect immediately and can be checked in the preview image. When leaving this section, this dialog box will prompt you to save any unsaved changes to the permanent flash memory of the camera.

For more information on working with the **Camera Configuration** dialog box, see *Section 4, Configuring MOBOTIX Cameras.*

2.3.5 Update Assistant

MOBOTIX offers software updates that contain new features and enhancements for its cameras on a regular basis. You can easily transfer new software to all selected cameras with the **Update Assistant**.





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Besides automatically updating the camera software, the **Update Assistant** also saves the current configuration of the cameras so that it can be restored on some or all of the cameras.

Furthermore the automatic search feature for new cameras and the way detected cameras are organized into various camera lists also provide a number of additional options for managing large-scale installations.

To launch the **Update Assistant**, open the **Tools > Assistants > Update camera software** menu.

For more information on the update assistant, see *Section 4.6, Updating The Camera Software.*

2.3.6 Program Settings

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You can edit the program options of MxControlCenter and the options of the cameras connected to MxControlCenter in the **Tools > Options** dialog box.

General [Alarm List	Remote (Control	BWi	-M22-10-	3-0-31 (1	0.3.0.31)	BWi-M	12DN-10-3-11-55 (10.3	8.11.55)	3Wi-M12i
	Admin p	bassword:	1			1		1	On startup	Mouse	over
User password: Auto logout:							_	Start Layout 👻	Off Off		
		Auto logout: 600		sec. (max. 3600)				On Dr M. Million			
		000					O By I		viuiti view		
Global	camera u	ser name:								(<u></u>	
Globa	al camera p	bassword:							Show toolbar at bo	ttom	4
		Proxy	192.	168.	2.254	Port:	8080		Show Softhe Hoos	Manuar	-
File server path:		over nath:	C:\Daten und Progr					Full screen mode	VIEWEI	viewer of Califera	
During minimize (task bar):		0. 1001	.en_a	na_riogr				Use white grid			
		pause 💌					Synchronize clips on start				
	Sequer	ncer time:	1		sec.				Demo mode		
	On	top after:	-		sec.				MxStatus IP:		Port:
	1.200	~ =	-				- 11D		Sequential mode		0 - se
	L	.og tile	-				TMB	*	On double click	Open L	ive Windo
Return to Start Layout after		yout after	sec.					Always on top			
Sound	in error	~	-								
Off Sound of	Beep () Hie	ļ								
Off Read File		-					Reduce frame rate (CPU usage)		off •		
O	O neeb (O THE					(P)		Use camera layout set	ttings	ask
Error dis	play on los	st camera		in i	1			i la come de	100 10 10		
OH CH	Error m	essage () Graph	nic				covers	s 100 % of image in	r direction	<u>0</u>
Chor dis	play on lat	ency timed	Grank	nic (-				100 * of impaction	Videoction	
0	Citor III	course (y cirapi		2			Covers	a roo % or image in	T GIRBOLIOT	
Maximu	m latency t	ime: 200	ms			Max	imum oven	due time	: 1000 ms		
	Set alaba	folder 🔽	CIDa	ten i	nd Progr	//amme	IX-Softwar		2 1\Confin		
	Set globa	i tolder 🔽	C:\Da	ten_u	und_Progr	amme\/	1X-Softwar	e (MxCC	.2.1\Config\		

The dialog box contains the following tabs:

General: You can define the various program options that affect the display and
operation of MxControlCenter on this tab. In addition to the security settings for
MxControlCenter (administrator and user passwords), you can also define a global
camera user and corresponding password to simplify access to the cameras.

- Alarm List: Here, you can define the alarm list options that affect the alarm list itself (size, save as a separate file, auto acknowledge). You can also use this tab to specify the sounds that can be used to signal new alarms.
- Remote Control: The options on this tab determine whether and how MxControlCenter responds to network messages that are sent to the designated port of the MxControlCenter computer.
- <Camera Tabs>: Each of these tabs shows the name and IP address of a specific camera and allows you to define options of that camera. Besides a special user name and password, you can also define how MxControlCenter can access the images recorded by the camera, which instruction file is linked to this camera, and which preferred layout the camera will use.

For more information on this dialog box and the various program options, refer to *Chapter 5, MxControlCenter Options.*

2.4 Live Monitoring With Numerous Cameras

2.4.1 Monitoring In Predefined Layouts

Your monitoring requirements can be met using only a few cameras in a single layout. However for more *complex monitoring tasks*, a single layout will not suffice.



If you are using a *large number of cameras*, you would ideally have a *customized view* of the currently displayed camera images in different sizes (CIF, VGA, etc.) and an option to toggle between various views so that the numerous cameras can be assigned to *various views* depending on their location.

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Predefined grid layouts are available for this purpose and can be generated and edited provided you have enabled the **Layout Manager** (see *Section 2.4.3, Creating Layouts* and the following sections).

Display Windows For Layouts

For live monitoring, different types of display windows that can be used in a grid or background layout are available. The size of all windows used to display a live stream is limited to 2560 x 960 pixels (double MEGA) for grid layouts and 640 x 480 pixels (VGA) for background layouts.

 Live: These "standard windows" show the current live video stream of a camera,- normally at the full frame rate. In



grid layouts, these windows can have a maximum size of 2560 x 960 pixels (double MEGA resolution). For display purposes, the single images from the live stream are scaled to match the size of the display window.

Note

A high camera resolution increases both the bandwidth required to retrieve the live stream as well as the load imposed on the MxControlCenter computer for decoding and displaying the data.

The live windows are typically used in monitoring scenarios such as the ones described in *Example: Live Monitoring of a Parking Garage* given in *Section 1.2.2, Example: Live Monitoring Of A Parking Garage*.

- Preview: A "reduced" live stream with low resolution and frame rate can be retrieved from the camera with this display window. This is particularly well-suited for remote applications with low network bandwidth.
- Sequencer Window: This window is not assigned to one specific camera, but rather switches between the cameras at preset time intervals. The sequencer window is very effective when used in conjunction with status icons, particularly in background layouts. For example, you can create an overview layout using the building floor plan and status icons as "placeholders" for the individual cameras together with a sequencer window in the middle of the layout.
- Focus Window: This window is not tied to a specific camera and only displays the live video stream of the camera whose status icon is selected using the mouse.

The layouts and display windows that are best suited for live monitoring depend on a variety of factors such as the:

• Number of monitoring cameras

- Bandwidth of the monitoring network
- Number and workflow of the security personnel

2.4.2 Monitoring The Camera Connection

While running, MxControlCenter automatically checks whether the cameras integrated into the system are accessible. If the connection to a camera is lost, MxControlCenter will display an error message in the relevant camera window.

The options for this feature can be found in both sections of the **General** tab in the **Tools** > **Options** dialog box:

- Sound for Errors/Connection Errors: MxControlCenter can play back either a standard sound or an audio file of your choosing (*.wav) if a connection error occurs.
- Error Display for Connection Errors: This option displays an error message or a graphics file you specify in the image of the missing video source.
- Error Display on Latency Timeout: If the latency between image capture and the camera display exceeds the value specified here, MxControlCenter can display an appropriate error message or a graphics file you choose in the image of the video source in question.

More information on this topic can be found in Section 5.2, The "General" Tab.

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2.4.3 Creating Layouts

You can proceed as described in *Section 2.2, Finding And Configuring Video Sources* to automatically create layouts for different video sources (MOBOTIX cameras, file server paths, MxPEG clips and third-party network cameras). If you want more customized layouts, you will need to use the **Layout Manager**.

Click the **Layout Manager** button on the MxControlCenter control panel. The sidebar now contains the three panels, **Layouts**, **Video sources** and **Grid** or **Background images**, that were described in *Section 2.3.2, Layout Manager*.

2.4.4 Procedure

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- Right-click the empty space in the Layout panel and select New Layout from the pop-up menu.
- Choose whether you would like to create a background layout (for site plans, floor plans, etc.) or a grid layout (display window only).



 Select an image (*.jpg, *.bmp or *.gif) for a background layout or a grid for a grid layout:



Auto grid is a special grid where the display panel is automatically split into smaller sections to show the various video sources.

The auto grid has a square or rectangular structure: Display windows are automatically added until the next larger square or rectangle of windows appears when adding cameras. In the case of rectangles, the rows always contain more display windows than the columns.

- Click OK to close the dialog box. MxControlCenter creates the new layout and labels it with the appropriate symbol.
- You can now rename the new layout by double-clicking the name or right-clicking the relevant command from the pop-up menu.

 If you would like to create a hierarchical layout structure, move and reorder the layouts based on your requirements.

Additional Editing Options For Grid Layouts

- Moving Display Windows: You can switch display window locations by simply moving one window to another one.
- Adding Video Sources: These video sources are moved from the Video Sources panel of the sidebar to the display field you choose. They will replace any video sources that may already exist in that field.
- Right-Clicking a Display Window: Opens a pop-up menu with additional commands for editing or deleting video sources, for example.

Additional Editing Options For Background Layouts



OK, No connection to cted camera

- Moving Display Windows: Display windows can be arranged any way you want. If you want to switch display window locations, simply move one window to another one. Note that the windows will automatically be resized if they are near the window frame or other display windows.
- Adding Video Sources: These video sources are moved from the Cameras and
 Devices panel of the sidebar to any location you choose.
- Displaying as Icons: Video sources can be displayed for overview plans as icons that indicate the viewing direction, number of objects, their bandwidth and the status of the cameras:

Double-clicking an icon shows the corresponding camera in a separate display window.

- **Right-Clicking a Display Window or Icon**: Opens a pop-up menu with additional commands for, among other things, editing or deleting video sources.
- Right-Clicking an Empty Space: Opens a pop-up menu that allows you to insert an additional element.

For more information on working with layouts, see Section 3.2, Editing Layouts.

2.4.5 Using The Sequencer Features

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Since MOBOTIX cameras are also able to use low-bandwidth connections to transfer low-quality preview images, MxControlCenter offers the ideal means for establishing a remote control center.

Rs.



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Sequencer Of MxControlCenter

The functions of the integrated *sequencers* for automatically cycling through the defined cameras or layouts and the hierarchically structured layouts support these features since they allow for the effective display of connected video sources.

Some network connections do not have sufficient bandwidth to display the live stream from multiple cameras at the same time. Nevertheless, you would still like to see, at least sequentially, the images of all cameras. The *sequencer features* are provided for this purpose and work on two levels:

- The **layout sequencer** switches between the layouts of the current configuration at specified intervals.
- The camera sequencer switches between the specified cameras within a grid layout
 and displays the images they capture at their maximum size in the display panel.
- You can define a sequencer window inside a layout that cycles through the individual cameras of the layout.

2.4.6 Using The vPTZ Features

The M12D, D12, V12, M22M, D22M and Q22M models of MOBOTIX cameras and software versions 3.4.5 or higher now include **enhanced virtual PTZ features**. These features allow you to use a mouse or joystick to zoom in on images from the selected video source and "virtually" move the enlarged image section within the entire image sensor area.

PTZ Controls			۵
Mod Camera Live In	e hage:		•
Area Correcte	d 👻 🖉	$\langle \bigcirc$	>0
MxCC Display:		Y	
Unchanged	•	V	-
	PTZ Vi	ews	
1x Zoom	Center Pan	123	4
Auto	Move	567	8
Pan Left	Pan Right	9 10 11	12
Views 1-15	Jump NESW	13 14 15	16

The Q22M camera merits special attention in this regard: A spherical image of the environment is captured by the 180° lens of the camera. By selecting the appropriate live image mode of the camera (see below), this image can be corrected for distortion by the camera itself and then saved and displayed in MxControlCenter in its corrected form. Alternatively, the camera can simply save the complete distorted image and send it to MxControlCenter. In this case MxControlCenter can subsequently correct the images for distortion. For more information on this topic, see Section 3.1.4, The "PTZ Controls" Sidebar Panel.

Note that the views and features available for use will vary depending on where the Q22M is installed (on the wall or the ceiling). If this particular camera model is selected in the layout, the PTZ Controls panel O Wall mounted Ceiling mounted will be expanded so that you can specify the installation type and set the North direction of Q22M.

Using The Virtual PTZ Features

To control the vPTZ features, the sidebar contains a number of control elements that you can operate with a mouse and that function just like a joystick:

- Turning the Joystick or Using the Slider Bar +/-: Adjusts the zoom setting of the selected video source.
- Tilting the Joystick: Rotates or pans the image in the direction you choose until you return the joystick to its home position.

Make sure that the lock icon in the PTZ features sidebar panel is unlocked or else the features of the virtual joystick will be blocked.

You can use the mouse the execute certain vPTZ features by simply clicking the position you would like in the image and scrolling the mouse wheel to zoom in and out.

The numeric field at the bottom of the sidebar is used to save frequently used positions

1x Zoom

-Auto Move-Pan Left Pan Right

(a longer click saves a position, while a shorter click opens it). The **1x Zoom** and Center pan buttons are used to reset the image position while the buttons in the Auto mode panel control the automatic camera movements as if you were controlling a PTZ camera mechanically.

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PTZ Views

Center

Views 1-15 Jump NESW 13 14 15 16

1 2 3

O22M Instaliatio

Set North



Correct Distortion In MxControlCenter Or The MOBOTIX Camera?

These two drop-down lists define how work is allocated between the camera and MxControlCenter when processing images:

- Camera Live Image: Controls image generation on the camera itself (the display modes offered by this camera model are always available for selection).
- MxCC Display: Allows you to set MxControlCenter to either accept the images in their original form or apply distortion correction to the images.



These two settings are all you need to have the camera deliver and save full images while MxControlCenter displays the distortion-corrected area and adds the zoom feature in the live image. This feature can be set separately for each camera in the layout.

2.5 Alarm Management

2.5.1 Preparing MxControlCenter

If an *event* occurs (a MOBOTIX camera detects movement or any changes), the camera can notify you by triggering an *alarm*. The type of *event detection* and the method of the resulting alarm can be configured in a number of different ways. For example, you can configure a MOBOTIX camera to send an e-mail if the ambient temperature falls below a specific value. A detailed description of all the alarm methods can be found in the MOBOTIX *Software Manual*.



Once *armed*, a MOBOTIX camera in its default configuration will detect any motion within a defined area of the displayed image and highlight such motion by adding a red border around the image.

This alarm can be sent to MxControlCenter in multiple ways:

- Camera Alarm Messages: Alarms are "streamed" together with the relevant live images to MxControlCenter, which can then use this image data to obtain the necessary information about the triggering event.
- Remote Control by Cameras: A MOBOTIX camera can also send this alarm to MxControlCenter as a network message (notification in the network based on the IP protocol).

The first type of alarm can only be transferred if the live image in the current view or layout is also displayed. A network message, however, can be received at any time, even if the sending IP camera is defined in a layout that is not currently being displayed.

Configuring How Network Messages Are Received

To be able to receive these messages, the **Camera IP Notify only port** needs to be enabled in the **Remote Control** tab of the **Options** dialog box and needs to match the port when configured for the MxCC Alarm transfer profile on the camera (**Admin Menu > Transfer Profiles > IP Notify Profiles** in the browser interface of the camera).

Camera IP Notir	y only port		
Port activat	ed (to listen for TCP/IP messages)	Accept only valid commands	
Port:	Allowed IPs: *	Examples: "", '10.1.1.42, 10.2.1.43'	

Now a specific view will be activated whenever this camera sends an alarm that needs to be defined. To do so, open the **Layout Editor** and specify the last defined preferred layout. Alternatively, you can specify the preferred layout in the camera tab of the **Options** dialog box.

The *preferred layout* of a camera determines which layout will be used to display this camera when a network message is sent to the MxControlCenter computer. You can thus have cameras displayed immediately ("connected") if they are not currently being displayed.

Activating The Alarm List

First activate the alarm list in the **Options** dialog box (the **Alarm list** tab). MxControlCenter will now archive all incoming alarms in a list in chronological order. When an IP camera sends a network message, MxControlCenter can now switch to the preferred layout defined for this specific camera, if necessary.

General	Alam List	Remote Control	10-10-3-11-4	\$ (169
Activ	ated			
Genera	4			
		Size:	16 MB	~
		Alam list file:		_
	Open list o	n new alarm. 🗹		
Auto a	cknowledge	e alarris after: 🛄	Transfer	.4
Sound	on new alar	-		
	ctivated			

More visualization options are offered by the Alarm window

(described in the previous section as a special grid element of a layout) and Player window.

Ultimately, however, having an alarm visualized by a computer program like MxControlCenter is not enough. There is usually a human being present at the end of the alarm chain and



they should respond appropriately when an alarm goes off. Once proper measures have been initiated, the user can then *acknowledge* the alarm so that the "alarm" visualization can be cancelled.

2.5.2 Preparing The Cameras

A MOBOTIX camera needs to be properly configured before it is able to detect an event, trigger an alarm and then send that alarm to MxControlCenter where it is visualized.



Launch your browser and enter the IP address of the camera, or select the camera you would like to configure in the current view of MxControlCenter and then click the **Open browser** button. Follow the paths through the menu structure of the page for the individual items.

Showing An Alarm Message In The Data Stream Of A Displayed Live Image

- General Activation (Setup Menu > Event Control > General Event Settings): Check whether camera activation is *enabled*.
- Video Motion Window (Setup Menu > Event Control > Event Settings > Events): The video motion window (VM) needs to be activated and its coordinates defined.

Proceed as follows to send an alarm to MxControlCenter as a network message:

- Transfer Profile (Admin Menu > Transfer Profiles > IP Notify Profiles): Use a profile called MxCC Alarm: simple. The target address of this profile needs to contain the IP address of your local computer and the port number used by MxControlCenter to receive network messages (see Section 3.5, Remote Control Using Network Messages).
- Activate Messages (Setup Menu > Event Control > Messaging > General Settings): The message profile should be activated.
- IP Notify (Setup Menu > Event Control > Messaging > Actions): The selection for a network message (IP) needs to be set to MxCC Alarm.

To grant the required permissions for MxControlCenter:

 Assign Permissions (Admin Menu > Group Access Control Lists and Admin Menu > Users and Passwords): The MxCC permission should be enabled for the group who are authenticated by MxControlCenter as their members.
2.5.3 Alarm Display

As previously mentioned, there are a number of ways to respond to an alarm message. The easiest form of visualization is provided by the camera itself when it displays the current live image with a red border. This "momentary" visualization does not last very long, which is why MxControlCenter can save all alarms in the alarm list for subsequent viewing.

Choose **Tools > Options** from the menu and then activate the list in the **Alarm List** tab to activate the alarm list. If you have configured everything properly, any motion in front of the camera in the current view should cause the first alarm image to appear in the alarm list. Additional options for sending visual or audio alarms can be found in *Section 3.3, Alarm Processing*.

In addition to the alarm list, special window elements in a view can be defined to display alarms:

- An *alarm window* within a view displays the live image from the camera that actually reported the last alarm (graphic).
- A *player window* is not tied to one specific camera. It shows the saved alarms from any camera that you select from the alarm list. The saved alarms are not displayed in a list, but rather as a video from a video recorder. You therefore have the option to fast forward or rewind through the alarms and the recorded image sequences of each alarm (graphic). For more information on these search options, see *Section 2.6, Video Searches And Export Features*.

To define an alarm or player window in a view, you first need to activate the **Layout Manager** and then define the element you want to use in the **Define Grid Element** dialog box (for more information, see *Section 3.2.1, Grid Layouts*).

If the alarm-triggering camera is not shown in the current view, note that we have already configured the camera to send a network message to MxControlCenter (see *Section 2.5.2, Preparing The Cameras*).







2.5.4 Alarm Acknowledgement

MxControlCenter is able to record and display alarms from an IP camera, the next step is to determine how these alarms can be acknowledged by security personnel or, in other words, human beings who are actually sitting in front of the computer and are required to respond appropriately.

The easiest way to acknowledge an alarm is to just click the red bar above the alarm image. This also stops the acoustic signals, which can be configured, if necessary. For example, you can set the alarms to be acknowledged automatically if displaying them is no longer relevant after a preset time elapses.



In critical situations, you can use an instruction file to give security personnel instructions on how to respond to an alarm. This instruction file, which can be a text message, an image or a video clip, can be defined in the relevant camera tab of the **Options** dialog box. You can open this file by selecting the **Show alarm instructions of selected camera** icon.





2.6 Video Searches And Export Features

As you have already seen, there are a number of ways to archive live images from an IP camera. You can use these recordings in a comprehensive video search whether this occurs as a continuous recording or as an event-controlled recording - with MxControlCenter.

Image Recording, Event Recording, Continuous Recording

MOBOTIX cameras provide three modes for recording video data. These modes can be set for each camera on the **Recording** tab of the **Camera Configuration** dialog box:

- Snapshot Recording: Saves the individual *.jpg images without audio as an image series based on pre-alarm images, the alarm image itself and post-alarm images.
- Event Recording: Saves an alarm as an MxPEG clip with the audio channel of the camera (optional).
- Continuous Recording: Saves continuous video and audio data as MxPEG clips where the recording frame rate is reduced and can be increased automatically when an event occurs. This continuous recording mode is only available if you have a sufficient amount of storage capacity (on an SD/CF card or file server).

More information on the recording modes offered by MOBOTIX cameras can be found in Chapter 8 *Recording* of the *Software Manual*.

2.6.1 Switching Display Windows In Player Mode

Displaying the event images recorded by a camera in **Player mode** offers the easiest way to search through video data. To do so, first click the live image of a specific camera and then select the **Toggle Player mode** button or right-click the relevant command from the pop-up menu.

If any alarms from this camera are present, the buttons in the **Player** panel of the sidebar become available and you can view the recorded video sequences using the playback, fast forward and rewind buttons.

In addition to these controls, you can also access the buttons that appear at the bottom edge of the display window when you place your mouse pointer over this sidebar panel.

An *image series* includes all the images (or the entire video sequence) that have been saved for an event (alarm). This normally includes the video data including any audio data that has been recorded before, during (the "event image") and after the event occurs.

You can play back either the entire image series or only the event images:

- Play Back Entire Image Series: These Player buttons allow you to play back all
 recorded images either individually or consecutively.
- **Play Back Event Images Only:** These Player buttons are used to show the event image only and are indicated by a red lightning bolt.

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Simultaneous Playback Of All Cameras



The **All** button in the **Player** sidebar panel switches all display windows to Player mode and activates the Player buttons. Playback starts simultaneously for all video sources regardless of when the recording was made.

Time Synchronized Playback Of All Cameras

Synchronous Player	
0 01/01/1970 V	01:00:00
 Realtime Reduce on overload 	Goto Close

You can access the options offered by the **Synch. Mode** list in the **Player** sidebar panel for the time-synchronized playback of recorded sequences from all displayed video sources. Playback can be started at the specified time if this list is compiled in *Real Time* or at *Reduced Speed*.

Enter the date and time and then click the **Goto** button to set all cameras to the correct time. Now click the **Playback** button and all the images will be played back according to the setting in the **Synch. Mode** drop-down list:

- **Real Time:** All video sequences are played back in real time. If the images cannot be transferred fast enough, MxControlCenter will skip individual images.
- Reduced Speed: Playback is performed at a slightly reduced speed, if necessary, and even image synchronization is somewhat more flexible. This method also allows for smooth playback of all recorded images if the data for a real-time display cannot be read fast enough (for example, due to low network bandwidth).

Quick Event Search

Select a display window in Player mode. The slider bar in the **Player** sidebar panel provides a quick and intuitive way to search through events.

You can specify any date within the recorded video sequences to find sequences as quickly as possible. Click **Search** to jump to the next event based on the specified time.

Player		9
	🤦 🙀 🚺 🕨	
AI PO	Synch. Mode: Off	~
9/14/09	0/14/00 14:36:50	9/14/09
07:05:20	3/14/03 14:50:53	14:37:31
		0
0/14/00	00:00:00 * Fearth	Event
3174/03	Search	Export

Alarm Management

Exporting Video Sequences

Right-click the **Player** sidebar panel and enter the start and end positions to define an export range. The range you selected now appears in green.

If you click the Export button, the export

list will open and the selected time range will be added as a new entry at the end of the list. This procedure can be repeated as often as needed to add other interesting video sequences to the export list.

More information on this topic can be found in Section 2.6.4, Export List And Data Export.

2.6.2 Defining Player Windows

In contrast to a *display window in Player mode*, a *player window* is a special layout element that displays the *last event image of any video source* that was selected from the *alarm list*.

You first need to activate the Layout Manager to define a player window.

Defining Player Windows In A Grid Layout

- If there is no empty display field available, select a different **grid** that can display more fields on the existing display area.
- Right-click an empty field and select Edit from the pop-up menu.
- Select the *Player window* item from the **Element type** list and click **OK**.

Defining Player Windows In A Background Layout

- Right-click an empty area and select **Insert** from the pop-up menu.
- Select the *Player window* item from the **Element type** list and specify the particular size you would like to use.
- Click OK to close the dialog box.
- Move the new window to a suitable position.

9/14/09 07:06:40	9/14/09 11:28	9/14/09 14:39:41
9/14/09	v 00:00:00 ♥	Set start position Set end position Reset start/end position





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Right-click the element in question while the Layout Manager is enabled and select **Edit** from the pop-up menu to modify the properties of a player window at a later time.

	Player window			*	
	Empty				
	Live Preview				Add
	Videoclip				
	Player				Searc
	Player window				
	Alarm window				
	Sequencer window				
	T OCUS WINDOW				
Lens:	Auto	Size:	Medium	~	
Lens: Fps:	Auto	Size: Symbol:	Medium None	~	



Deactivate the Layout Manager to save the settings of the current layout.



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2.6.3 Using Video Search

If you have defined an external recording target (file server) for the relevant video source or the MOBOTIX camera has an SD/CF card, large amounts of data will be saved for an extended period depending on the memory storage capacity.

A more comprehensive search option that is not limited to a single camera like the basic player window is provided by the **Video Search** dialog box, which appears when you click **Open Event Search**.



The Search dialog box can be used to browse through the recordings from *all the cameras defined in the current view*. In the **Cameras** tab, select the camera whose recordings you would like to browse through. MxControlCenter now shows you all recorded events in chronological order in the **Events** tab.

The vertical slider bar next to the events list provides a visual indication of the time range during the entire recording period in which events are displayed in the list. By selecting an event in the list, the image associated with that event is displayed in the area of the player window that was described in the previous section.

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X

If you have identified an event as relevant, the time of the event can be defined as the **Reference time**, which is used to automatically display the time difference from the other events during the search.

Filtering Events

If you would like to search for special event types (for example, motion detection only), you can define an **event filter**. To do so, click **Set event filter** and activate the events you would like to filter.

This button is only relevant for searching and playing back *continuous recordings*:

- If the button is enabled (yellow), the event list will only show "real events" (VM, UC, IR, etc.).
- If the button is disabled (crossed out), the events list will also include the "pseudo



elect Events	
Passive Infrared Detector	(RB) Recording Begin
VM Video Motion Window	[] (RE) Recording End
VM2 Video Motion Window	(RH) Recording History
[M] Microphone	[] [RT] Recording Terminale
[SI] Signal Input	(BT)Buttons
I SI2 Second Signal Input	[IR] IR Remote Control
[SI3] Third Signal Input	RC] IP Receive
[] (SI4) Fouth Signal Input	CI (CI) COM In
(PE) Periodic Event	Temperature
(TT) Time Tack	(IL) Illumination
UC) User Click	EL) Event Logic
[RD]Random Event	EL2 Event Logic 2

events" of the continuous recording, which means the images that are generated every minute at the beginning of a new recording sequence will be displayed.

More information on the video search options can be found in *Section 3.4, Video Searches And Export Features.*

Printing Event Images

A

Click **Print current and post-processed image** to print the currently displayed event image. MxControlCenter now shows a print preview of the currently displayed image. If this image has been corrected by post-processing, the original, non-processed image will be added as well.

You can also print event images as *.pdf files using the integrated PDF export feature for easy sending and archiving of printouts.

2.6.4 Export List And Data Export

Click **Export** or **Add to export list** to open the **Export** dialog box or add previously selected events or time ranges to the export list. Select an event from the events list and click **Add to export list** to add the individual event. To define a time range, set the Player to the exact time you would like and then specify the start time by selecting **Set start position** from the pop-up menu for the **Player** panel. After searching for the last scene to be exported, select **Set end position** from the pop-up menu to define the end time.

Note

The time range defined in this manner can include any number of events. If an explicit time range for the export has not been defined, the entire time range is automatically added to the **Export list** dialog box here as well.

Export List

You can compile all the video sequences that you would like to export in the **Export list**. These particular sequences are added by defining a time range (right-click > **Set start position/end position**) and then incorporating this range into the export list.

Adding Video Sequences To The Export List

The following options are available for this purpose:

- The "Player" Sidebar Panel: Define an export range (right-click > Set start position/ end position) and then click Export.
- The "Video Search" Dialog Box: Define an export range (right-click the slider bar > Set start position/end position) and then click Add to export list.

Video sequences can be added multiple times and even if the export list is closed. Click **Export** in the **Video Search** dialog box or select **Recording > Export** from the menu to display the list.

17.02.09 07:44:41	17.02.09 16:59	:46	18.02.09 13:15:28
17.02.09	0:00:00	Start Endp	position setzen
		Shart	/Endnocition trajickostten



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1	1.0	-	-	
13	- 11			
5-	21			
-	•1			

Editing The Export List

If the **export list** is open, you can select items individually or in groups (SHIFT-CLICK) and then move them with the mouse or delete them with the DELETE key

Source	Sequence	Start	Stop
nx10-3-11-46	<u>.</u>	01.01.1970 01:00:00	01.01.1970 01:00:00
	1	īme Range	
01.01.1970 01:00:00		ime Range	01.01.1970 01:00:0
01.01.1970 01:00:00	1	Time Range Export as: Mud	01.01.1970 01:00:: FEG Clip(s) 💌 Settings

Data Export

MxControlCenter provides a number of different formats for exporting recorded video and audio data. Choose a format from the **Export as** selection box in the **Export list**:

- AVI File: This format can be displayed on all standard video players and not only contains the video data, but also the audio data of the video source (if included in the recording).
- **MxPEG Clip:** This format can be integrated and played back in MxControlCenter as a video source. This format also includes the audio data of the video sources in the export (if included in the recording).
- File Server Structure: This format can also be integrated and played back in MxControlCenter as a video source. It also contains the audio channel of the video sources (if it was included in the recording).

Exporting as an *.avi file or an MxPEG clip activates the **Settings** button, which can be used to open the **Export Format Options** dialog box. From this dialog you can define the options for the export (for example, maximum file size).

File Size Limitation	Auto AVI		
🗍 tio kettateri			
O DVD (1 08)			
O CD-ROM (650	M0)		
O 128 MB			
Custom size:	0	10	

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2.7 Video Processing

2.7.1 Image Post-Processing

MxControlCenter normally displays all live video images and the images of an archived recording in their original unedited form. This also applies to live images from integrated third-party cameras and analog cameras in particular (see *Section 2.8.2, Controlling PTZ Cameras And Mechanical Pan/Tilt Heads*).

You are certainly familiar with the term "post-processing" in digital photography, which in this case refers to the softwarebased methods offered by MxControlCenter for the subsequent "improvement" of images. In the standard camera view, select the camera whose image display you would like to optimize and then click the arrow to the right of the **Switch image postprocessing on/off > Options** button.

You can adjust the settings for saturation, brightness, backlight and sharpness in the **Post-processing** panel of the **Image Processing** dialog box. By clicking the **Switch image post-processing on/off** button in the main view, you can quickly switch back and forth between viewing the original image from the camera and the improved, post-processed image.

Camera mount: Celling Camera Mode Camera Mode Camera C	-	ng	Image Process
Lens type: Auto detect lens Camera mount: Caling Linchation: 90 Automatic Rotation Mode Rotation Speed Reset PTZ			PTZ
Cemera mount: Caling Indination: 90 Automatic Rotation Mode Rotation Speed Reset PTZ	•	Auto detect lens	Lens type:
Indination: 90 Automatic Rotation Mode Rotation Speed Reset PTZ		Ceiling	Camera mount:
Automatic Rotation Mode		90	Inclination:
Rotation Speed Reset PTZ		Rotation Mode	Automatio
Rotation Speed			• (******
Reset PTZ			
		eset PTZ	F
Post-Processing		sing	Post-Proce
0 0 0		0 0	00
		1 1	
		0 0	0 0



This type of post-processing also offers a useful tool for viewing low-quality archived images at a later date for search purposes,

for example. This is why you will find the same controls for adjusting saturation, brightness, backlight and sharpness in the **Video Search** dialog box (see *Section 2.6, Video Searches And Export Features*).

More information on this topic can be found in *Section 3.9, Image Post-Processing*.

2.7.2 Image Distortion Correction

In addition to the options described in *Section 2.4.6, Using The vPTZ Features* for correcting the distortion of currently displayed images in the **PTZ Control** sidebar panel, the **Image Processing** dialog box can also be used to control how image distortion is corrected. To open this dialog box, click **Switch image processing on/off**.

The automatic distortion correction features of MxControlCenter are used to fix the distorted view caused by the wide-angle lenses of the cameras. Although the lens is specified for

some camera models (Q22M, for example), for older camera models you need to clearly indicate which lens is being used and how the camera is installed in the **Image Processing** dialog box. The results of distortion correction are immediately visible as it straightens any vanishing lines that were crooked due to distortion.

✓ PTZ		
Lens type:	L11 (180 deg.)	~
C	a	
Camera mount:	Ceiling	~
Inclination:	90	
Automatic	Rotation Mode	
·		+
Rot	ation Speed	

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A perfect example of where this distortion correction feature can be used is in a ceilingmounted Q22M camera whose 180° lens captures "spherical" images.



2.8 Control Center And Management Features

2.8.1 Integrating Third-Party Digital/Analog Cameras

MxControlCenter is the ideal solution when used in conjunction with MOBOTIX cameras. Note, however, that you can easily connect the network cameras or even analog cameras of third-party manufacturers to a MxControlCenter video management system also.

Displaying Live Images

Adding third-party IP cameras to the system is extremely easy and is done using the previously described **Add Cameras: Search and Select** dialog box. Select the manufacturer type and enter the IP address and access data as usual.



Integrating *analog cameras* requires an intermediary step in which the analog video data is converted to a digital format that is compatible with MxControlCenter (MxPEG or M-JPEG).



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This task is performed by MOBOTIX **MxServer**, a dedicated Windows computer that has a frame grabber card connected to the analog cameras and provides the digitalized analog signals as an *M-JPEG* data stream just like an IP camera in an IP network. This means the analog camera is integrated in MxControlCenter via the IP address of MOBOTIX MxServer. The cameras connected to the frame grabber card, which accepts up to four cameras, are normally accessed via port numbers 81 to 84. Analog cameras are integrated accordingly using the **Add Camera** dialog box (see *Section 3.10.5, Using Analog Cameras In*).



MOBOTIX MxServer 1.0.30 Configuration

Archiving Live Images

Section 2.3.4, Camera Configuration explained how MOBOTIX cameras can archive your image data not only in their internal memory, but also on a computer (file server). The task of archiving image data in the same format as MOBOTIX IP cameras is performed by MOBOTIX **MxServer** on its local hard drive. **MxServer** does this for both the image data of third-party digital IP cameras and the digitalized image data of analog cameras.

You now need to open the **Options** dialog box (Camera tab, Camera access) of MxControlCenter and select the file server path where MOBOTIX MxServer will save the digitized data of analog cameras. This integrated system of third-party digital/analog cameras and MOBOTIX cameras can now access the same archiving system for subsequent video analysis. The result is the seamless integration of older analog technology into the IP-based digital system.

More information on how to start up and configure MOBOTIX MxServer can be found in the documentation at www.mobotix.com (*Support > Manuals*).

2.8.2 Controlling PTZ Cameras And Mechanical Pan/Tilt Heads

The fixed lenses of MOBOTIX cameras are unrivaled in situations where robustness and weather resistance are essential due to the intentional elimination of mechanical parts. If camera mobility is required, a mechanical pan/tilt head can be used in conjunction with a suitable MOBOTIX outdoor camera. This camera is mounted on the pan/tilt head and controls it via the serial interface. The type of pan/tilt head for this particular camera needs to be selected in MxControlCenter so that you can control the camera using your mouse or joystick (**Tools > Options > <Camera tab>**).

Videotronic SN-15AH Provitek VPT42 Provitek PT2 Provitek PT3 Provitek PT4			
	No parvit had Videotronic SN-15,4H Povtek VPT42 Provtek PT2 Provtek PT3 Provtek PT3 Provtek PT4	AD grank M mod Monetone, 33 in 5544 VPT4.4 Provesk PT2 Provesk PT2 Provesk PT4	Algentik lindd Moderinne Sto 1204 VPT42 Provetk PT2 Provetk PT3 Provetk PT3

If a third-party IP camera with a mechanical PTZ feature is integrated into the system, the pan, tilt and zoom features are automatically enabled. No further settings are necessary.

Even analog cameras with pan/tilt heads can be controlled through integration with MOBOTIX MxServer. To do so, the camera needs to be connected to the frame grabber card and its control cable needs to be connected to the serial interface of MOBOTIX MxServer. MOBOTIX MxServer translates the control commands for the analog camera type you are using.

The mechanical PTZ actions for both pan/tilt heads, as well as connected PTZ dome cameras, are controlled in the same manner as the virtual (digital) PTZ actions of MOBOTIX cameras are controlled. For the control features, you can use either a Megatron joystick

or the control elements located in the **PTZ Control** sidebar panel (see *Section 2.4.6, Using The vPTZ Features*).

2.9 Configuring MxControlCenter

The issue of software support is critical if you are using MxControlCenter in an environment with a large number of cameras. This section shows how you can run MxControlCenter on different computers using the same configuration, for example. It also explains how to unify the configuration of the cameras and how the camera software is updated automatically.

2.9.1 Modifying, Saving And Loading Program Options

The program options can be set in the **Tools > Options** dialog box as described in *Section 2.3.6, Program Settings.* You can save MxControlCenter settings, save them under a different name and reload them with the **Tools > Program Settings** command.

The **Tools > Program Settings > Export environment** command allows you to save a complete work environment and all included program files (the **Complete** ... option) for transfer to another computer.

2.9.2 Customizing The User Interface

Since the requirements of an MxControlCenter installation can vary widely, there are many options available for customizing the user interface. They will be briefly described in this section.

Caution

These settings are selected from the **View** menu. Note that if one of these options removes all the menu and toolbars in the application, you can always return to the "normal" view by disabling the **View > Display area only** command from the pop-up menu (right-click).

Hiding Program Bars

The commands provided in the **View** menu allow you to selectively hide the **menu bar**, **toolbar**, **status bar**, **alarm list** and **sidebar** and hence increase the size of the display area.

Hiding Controls In The Display Area

If you would like to hide all the controls of MxControlCenter, select **View > Display area only**. This maximizes the display area of the video sources within the application window.

Press the Esc key or disable View > Display area only from the pop-up menu (right-click) to leave this view mode.

Switching Layouts In The Toolbar



Perform the following steps to create this view:

- Tools > Options > General: Set Layout buttons in toolbar to 7.
- View: Select Display area only.
- Pop-up menu: Enable View > Alarm List.
- Pop-up menu: Enable View > Toolbar.

You can now switch the layouts using the buttons at the top of the application while the alarm list shows the triggered alarms.

If you prefer to have the toolbar appear at the bottom of the display area, select the **Show** toolbar at bottom option in the Tools > **Options** > **General** dialog box.

2.9.3 Managing MxControlCenter Configurations

Carrying out the same configuration on all systems represents a significant time and cost factor for any administrator who is responsible for installing software on numerous workstation systems. Usually this task requires performing a large number of identical and recurring steps for each workstation. This task is now handled by MxControlCenter, which is able to save the complete configuration along with all executable files to a single folder, without having the default settings and activation keys hidden in some system folder. The entire environment can now be "transported" without any installation or configuration hassles.

You no longer even have to copy this folder if a *global folder* is specified for MxControlCenter. If this configuration folder is saved on a file server and linked to the individual MxControlCenter installations, it will define all settings (available views, alarm list settings, etc.) on each workstation.

To create the configuration folder, the administrator simply needs to configure MxControlCenter based on his or her wishes and then save the configuration to a *shared folder on the server*. All you need to do is link to the global folder (**Tools > Options > General > Set**

global order) on the workstation where MxControlCenter is launched. Additional configuration steps such as searching and connecting video sources or creating layouts are no longer necessary. Now restart the application and MxControlCenter will automatically apply the settings that the administrator defined on his or her personal workstation.

Set global folder 🗹 C:\Programme\Mobotix

However the global settings may not be modified on the individual workstations for this particular feature of the global folder to be effective. This is done by setting up the user and rights management (see *Section 3.7, Users And Passwords*) so that only the administrator is allowed to modify password-protected settings such creating and editing layouts while the user is only allowed to access the various views.

2.9.4 Editing Camera Configurations

The **Camera Configuration** dialog box in MxControlCenter is used to configure MOBOTIX cameras and other IP cameras, it allows you to adjust the most common camera settings in just a few steps. This includes, for example, enabling general arming, configuring video recording, changing image settings, etc. *Chapter 4, Configuring MOBOTIX Cameras* provides a detailed description of the various options for configuring cameras.

2.9.5 Managing Camera Configurations

MxControlCenter provides the **Update Assistant** to help you manage camera configurations and firmware updates. To access the Assistant, click **Tools > Assistants > Update camera software**.

As you may have noticed, MOBOTIX cameras offer a variety of features that, in some cases, require a significant amount of configuration work. For example, setting up a detailed time schedule to activate a camera outside of regular business hours may not be very difficult. However, if you have to do this for many different cameras, it becomes a very time-consuming task.

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Such tasks are greatly simplified by the Update Assistant since it can save camera configurations and then distribute them to other cameras.





To do so, select your "pre-configured" camera from the camera list and click **Save Settings**. The saved configuration file now contains all the information you need to configure one or more cameras with the same settings.

لا Upload Settings Select the cameras you want to configure and then click **Upload Settings**. In the following dialog box you can select a previously saved configuration file and then specify which settings you want to upload to the first camera.

Configuring MxControlCenter

In our example, you would save all configuration sections with the exception of network settings. These settings were selected, which means they are protected and not replaced.

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Prease select the sections of the comparation that	should be updated.	
Sections		
update Security	Update Network	
update Transfer Profiles	update IP address and host name	
Update Time Tasks	update File Server	
Update Time Tables	update Logos	
update Audio	update Page (language, softbuttons)	
update Image Control	update Event Control	
update Camera (time server, LEDs)	🕑 update Video Motion windows	
select all		
Narning		
Caution: you are updating the network	settings for this camera.	
Back up Configuration Files		
	nme/Mobotix/MxCC/mx10-3-11-46-2009-09-02.cfg Choose	

If you replace a camera with a different model or add one or more new cameras to the installation, then these cameras can be configured just as easily.

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MxControlCenter Controls

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3 ADVANCED FEATURES

3.1 MxControlCenter Controls

3.1.1 Buttons On The Toolbar

 Toggle Layout Manager: The Layout Manager allows you to create new grid layouts and background layouts or modify and expand your existing layouts.

If the Layout Manager is active, video sources can be selected from the sidebar and added to a layout. The grid of a layout or the background image can also be modified.

For more information on the Layout Manager, see Section 3.1.2, The "Layouts" Sidebar Panel.

• Activate layout or camera sequencer: The drop-marker menu button here allows you to activate either the Layout sequencer or the Camera sequencer.

If the **Layout sequencer** is activated, MxControlCenter will automatically switch to the next layout in the **Layouts** list in the sidebar of MxControlCenter after a specified time interval.

If the **Camera sequencer** is activated, MxControlCenter will automatically switch to the next camera in the active grid layout after a specified time interval. The Camera sequencer is only available for grid layouts.

Notes

- You can preset the global sequencer time for all cameras by clicking Tools
 > Options > General > Sequencer time.
- You can specify the sequencer time for each individual camera by clicking Tools > Options > <Camera tab> > Camera time.
- **Toggle Player Mode:** Click this button to switch the active display window of a camera (shown by a yellow frame) from live image mode to Player mode. The Player mode allows you to view and play back the recorded image and event sequences of a specific camera. When the sidebar is visible, the **Player** panel is displayed.

For more information on the Player panel, see Section 3.1.3, The "Player" Sidebar Panel.

 Open Event Search: This button opens the Video Search dialog box, which allows you to view event sequences from all of the cameras. In addition, this allows you to visually edit the images and to correct any distortion (Post-processing).

For more information on the event search, see *Section 3.4, Video Searches And Export Features.* For more information on image post-processing (for live or recorded images), see *Section 3.9, Image Post-Processing.*

 Show/Hide Alarm List: Click this button to show or hide the alarm list that contains the event images of all of the cameras in a particular layout and the cameras that

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are switched on by network messages. To activate the alarm list feature, click **Tools** > **Options** > **Alarm List**. For more information, see *Section 3.3, Alarm Processing*.

- Create a Grid Layout from all Cameras in the Layout: Click this button and all the window areas contained in a background layout will automatically be displayed in a grid layout. It will not cause the background layout to change.
- Open Extra Window: This button shows the live image of the active camera in a separate window. This is useful in instances where, for example, the active window is in Player mode, yet you would like to view the camera simultaneously in real time.
- Change the Scaling of the Camera Windows: The drop-marker menu button here
 allows you to specify the scaling of a layout window. The following options are avail able:
 - Layout decides
 - Full screen: Maximizes the current camera image
 - Fit display area: Increases the size of current camera image
 - All windows half size
 - All windows double size

Note

The *All windows half size* and *All windows double size* options are not available for background layouts.

- **Toggle Full Live Image Mode:** The Full live image mode makes the entire sensor image of a camera visible at all times. This applies in particular to MOBOTIX hemispherical Q cameras, which usually show a portion of the entire sensor image with distortion correction enabled. You can view the entire image without distortion correction with this button. In other camera models, the **Full live image mode** button is always active unless you zoom in on the image.
- Switch Image Post-Processing On/Off: Image post-processing can be used to subsequently enhance how live images or event sequences are displayed. You can adjust the settings for saturation, brightness, backlight and sharpness. Click this button to activate or deactivate the post-processing features. With the drop-marker menu button here, you can open the dialog box that contains the settings for image processing.
- **Copy Current Image to the Desktop:** Click this button to immediately save the image that is currently displayed in the active window of a layout (yellow frame) to the Desktop (as a *.bmp file).
- Copy Current Image to Alarm List: Click this button to save the image that is currently
 displayed in the active window of a layout to the alarm list. If the Open list on new
 alarm option in Tools > Options > Alarm List is active, the alarm list will be displayed
 automatically.

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- Print Current Image: This button displays a print preview of the image that is currently visible (the original image is also printed if the image has been changed using the post-processing functions). You can print the image or save it as a *.pdf file from this dialog box.
- Show Alarm Instructions of Selected Camera: Use this button to show the alarm
 instructions for the selected camera in a separate window. You can assign the alarm
 instruction file in Tools > Options > <Camera tab> > Layout and display options.
- Activate the Preferred Layout of the Selected Camera: Use this button to show the preferred layout for the selected camera. You can assign the preferred layout in Tools
 > Options > <Camera tab> > Layout and display options.
- Show/Hide a Reference Image of the Selected Camera: Select this button to view the reference image assigned to a camera. You can also do this by clicking the M icon (memory) in the title bar of the image window. A background layout needs to be active for the Reference image button to work.
- Enable Audio for the Selected Camera: This button activates the selected camera's audio that is transmitted from its microphone to the computer. Note that the camera microphone needs to be activated in Admin Menu > Loudspeaker and Microphone.
- Activate Announcement to Camera: Click this button to activate the announcement feature of the active camera. You can now make an announcement over the camera loudspeaker using the microphone that is connected to the MxControlCenter computer. Note that the camera loudspeaker needs to be activated in Admin Menu > Loudspeaker and Microphone.
- Turn Light On/Off via Camera: Click this button to permanently activate switching output 1 of the selected camera. Click this button to switch the light on or off (using MOBOTIX ExtIO, CamIO or a relay).
- Open the Door via the Selected Camera: This button also activates switching output 1 of the selected camera, but only for a preset time. A door opener can be activated in this manner, for example.
- Cancel/Restart the Connection to the Selected Camera: You can either cancel or restart the connection to the active camera with this button. This is useful when, for example, a camera occasionally causes a lot of network traffic but is not needed at the moment. The message Offline appears in the display window of the active camera.
- Change the Camera Settings from MxCC: Click this button to open the Camera Configuration dialog box where you can change the selected settings of one or more MOBOTIX cameras or synchronize them with each other. This applies, for example, to enabling features ranging from arming and recording, to image and exposure settings, and recording, recording path (external server, SD/CF card, etc.) and events.
- Open the Camera in a Web Browser: This button opens the active camera in a window of your default web browser.
- Show Camera Information in the Web Browser: This button opens the information (Admin Menu > Camera Status) of the active camera in your default web browser.

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G Back Forward New Layout... Edit... Add Cameras... Define as start layout

Side bar

3.1.2 The "Layouts" Sidebar Panel

In the Layouts sidebar panel you can select, create, modify, delete or rename grid layouts and background layouts. To access these features, you first need to activate the Layout Manager by clicking the Togale Layout Manager button in the toolbar or the Layout > Edit... command from the pop-up menu). Use the mouse to click on the desired layout or use the ARROW KEYS on the keyboard. To view the Layout panel, the sidebar needs to be visible (Right-click > View > Side bar > Show).

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	cke-m22m-background	
-U	cke-m22m-grid	
-	cke-m22m-l135	

- Back/Forward: These buttons and the corresponding lists work like Internet browser buttons, enabling you to navigate through established layouts.
- New Layout: The New Layout command opens the Create New Layout dialog box. In this dialog box you can select the type of layout you would like to create (background or grid layout). You can also select the background image for a background layout or the grid type for a grid layout. For additional information on this topic, see Section 3.2 Editing Layouts.
- Quit Layout Manager: You can deactivate the Layout Manager by selecting this command or the Togale Layout Manager button in the toolbar. MxControlCenter will then return to its normal display mode.
- Add Cameras: This command opens the Add Cameras dialog box in which all available MOBOTIX cameras and other video sources can be viewed, added to the camera list in the sidebar and used in MxControlCenter layouts. For additional information on this topic, see Section 3.2, Editing Layouts.
- **Define as Start Layout:** You can define any layout as the start layout with this command. A start layout is represented by green text in the layout list. MxControlCenter always displays this layout when you launch the program. Note that the Start Layout option in Tools > Options > General > On startup needs to be activated for this to occur.

If the Return to Start Layout after ... sec. option is activated (Tools > Options > General), this start layout will also be activated automatically after the specified time period. For additional information on this topic, see Section 3.2.3 Additional Options for Editing Layouts.

Cut, copy, paste, duplicate, delete or rename layout: You can use the the associated copy and paste features with layouts using these commands.

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Hierarchical Features

Layouts can be grouped hierarchically in the layout list. This can be done by moving an item in the list with your mouse or using the commands from the pop-up menu.

Layouts 🔾 - 🔾 -		Θ
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LH	cke-m22m-grid	
- 98	cke-m22m-l135	www.www.wak

- Up, Down: These menu commands move the selected layout up or down. You can
 also perform these functions directly by moving the items in the list with your mouse.
- Up One Folder: This menu command moves the selected layout up one folder in the hierarchy (to the left in the list display).

Section 3.2 describes how to edit a layout and the content it displays.

3.1.3 The "Player" Sidebar Panel

You can view and play back the recorded image and event sequences of a camera in Player mode. To activate the Player mode, either click the **Toggle Player mode** button from the toolbar, right-click the **Player mode** command from the popup menu of an image window or click the **Player** title bar in the sidebar panel.

Player		9
	Synch. Mode: Off	~
9/14/09 07:05:20	9/14/09 14:36:59	9/14/09 14:37:31
		0
9/14/09	✓ 00:00:00	Export

Note

To view the **Player** panel, the sidebar needs to be visible (**Right-click > View > Sidebar > Show**). The **Player** panel will be disabled if no camera window is active, i.e., the active camera window is not in Player mode.

Buttons for Playing Back Event Sequences

- Play Events Only Backwards: Plays back the images of all event sequences quickly and in reverse order. Click the button again to stop playback.
- Previous Frame: Click this button to show the previous image of an event sequence.
- Play: Plays back the event sequences including all images. Click the button again to stop playback.
- Next Frame: Click this button to show the next image of an event sequence.

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• Fast Forward: Fast-forwards through the images of all event sequences. Click the button again to stop playback.

Buttons for Playing Back Event Images



- Jump to Beginning: Click this button to display the first saved image.
- Rewind: Plays back the event images in reverse order. Click the button again to stop playback.
- Previous Event: Click this button to display the previous event image.
- Next Event: Click this button to show the next event image.
- **Play Events Only Forwards:** Plays back the event images in chronological order. Click the button again to stop playback.
- Jump to End: Click this button to display the last saved image.

Time-Synchronized Playback

The **Player** panel in the sidebar also allows you to play back synchronized video from several cameras in a layout simultaneously. Synchronous playback applies to all the display windows of a layout that are currently in Player mode. You can switch the display windows to Player mode by clicking

Synchronous Player	
01/01/1970 ♥ (Playback speed Reatime Reduce on overload	0.00.00 🔹 . 0

the **Toggle Player mode** button in the toolbar for individual windows or the **All** button in the **Player** panel for all the windows of a layout at once.

Making a selection from the **Synch. Mode** drop-down list opens a dialog box for setting the start time. Enter a start time and click **Goto** to set all Player windows to that time.

Note

If one of the selected cameras did not make any recordings at that time, the time of the closest available recording will appear in the image.



Now use the buttons in the Player panel to control playback.

The two selectable synchronization modes work as follows:

 Real time: Click this option to enable real-time synchronized playback in all display windows selected for this purpose. Note that MxControlCenter needs to be able to load all necessary data fast enough to allow real-time synchronized playback. If, for example, a large number of recordings are loaded from the same file server or via the individual cameras and played back synchronously, this option may not function properly.

Caution

If the data cannot be read fast enough to ensure real-time playback, some of the images will be ignored in the display. This may cause "jumps" in scenes involving motion. In this case, selecting the option *Reduced Speed* will dramatically improve performance (see next point).

Reduced speed: In this mode, synchronized playback is performed at a slightly
reduced speed for instances where - data cannot be read fast enough - to allow
real-time playback. Moreover, instead of forcing synchronicity, this mode allows a lag
time of up to 600 milliseconds between the cameras. Thanks to these two features,
you can perform "near-synchronized" playback of substantially more cameras with
zero image loss. Given a standard system configuration, for example, you are now
able to synchronously play back the data recorded by 16 cameras in a layout over
a period of ten minutes and with a lag time of less than two seconds.

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Display, Time Selection and Search Elements

 The Date and Time of the First, Last and Currently Displayed Image: This section displays the time of the first and last recorded images and the time of the currently displayed image.

9/14/09 07:05:20	9/14/09 14:36:59	9/14/09 14:37:31
		0
9/14/09	00:00:00 💲 Search	Export

- Slider Bar: The slider bar allows you to quickly navigate to a specific time in the recorded video sequence.
- Search Fields for Date and Time and the Search Button: Enter a date and time and click the Search button to display the next available video sequence.

Export Feature

 Export Button: You can set the current time as the start or end position from the pop-up menu of the slider bar. Clicking the Export button opens the "Export" dia-



log box and adds the selected time range to the export list automatically.

More information on the export features is available in Section 2.6.4 *Export List and Data Export.*



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3.1.4 The "PTZ Controls" Sidebar Panel

PTZ Controls allow you to zoom and select an area from a camera live image or recorded event sequences. They only include features used either directly by the camera in the live image or subsequently by MxControlCenter. The subsequent use of these features by MxControlCenter can also apply to both the live image as well as the recorded images or video sequences.

The existing features are especially relevant for Q24M camera models that have a 180° lens. These cameras produce extremely distorted spherical "full images" that are capable of depicting the entire interior of a room, for example.





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A number of options are now available for processing these kinds of images:

 Full - Camera provides full image for live streaming and recording: The camera sends the full image to MxControlCenter in a video stream. Here, it is saved in its original unedited form.

In MxControlCenter you also have the option to correct the spherical image for display purposes, which involves removing all distortion and applying vPTZ actions (virtual pan/tilt/zoom actions). *This can be done for both the live display and recorded data.*

Since all image information is available in the recorded full image itself, you can subsequently access any specific area of the image when performing a search.



Full image of the camera(live streaming and recording)

Area of the live image subsequently corrected by MxControlCenter



"Surround" view with north/east/south/west

recording)

views as generated by the

camera(live streaming and

 Area Corrected - In-Camera Distortion Correction for Live Streaming and Recording: The camera is also capable of correcting the full image for distortion on its own and sending the corrected image to MxControlCenter in a video stream. Either a zoomed-in area or a specific summary view (*Surround, Panorama, Double Panorama, Panorama/ Focus*) generated from the full image can be sent to MxControlCenter from here. The corrected image of the live view will also be saved accordingly.



In this case MxControlCenter displays both the live stream and the recorded data

without changes.

The *Surround* view displays the full image of the entire image sensor of Q24M as a quad view with four virtual cameras (*North, East, South, West*-abbreviated **NESW**). You must set the North direction. The directions of the other virtual cameras (*East, South* and *West*) are set automatically (they are determined by rotating an additional 90° clockwise for each direction).

 In-Camera Distortion Correction for Live Streaming and Recording as a Full Image: In this case, MxControlCenter displays the live stream without changes, but automatically performs distortion correction when displaying the recorded data.

Here, you can also subsequently access any specific area of the image when performing a search.



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Important

- The underlying full image needs to at least have a MEGA resolution (1280 x 960) or, better yet, a QXGA resolution (2048 x 1536) for subsequent image distortion correction by MxControlCenter. Otherwise subsequent distortion correction will not result in satisfactory image quality. This applies both to the live display and the recorded data.
- The same views are supported as with in-camera distortion correction if subsequent distortion correction is performed by MxControlCenter:
 - Area corrected
 - Surround view
 - Panorama view
 - Double Panorama view
 - Panorama/Focus view

Advantages and Disadvantages of Each Method

1. Camera Provides Full Image and Distortion Correction in MxControlCenter

Advantages:

- Higher frame rate since no additional load is imposed on the camera's processor by complex image distortion correction.
- All image information is included in the recording and then available for subsequent searches

Disadvantages:

- High data rate is required for live streaming since the camera needs to send at least MEGA images to MxControlCenter
- High data rate when reading recorded videos in MEGA/QXGA resolution.
- Higher load on the MxControlCenter computer due to image distortion correction
- 2. In-Camera Distortion Correction (Live Streaming and Recording)

Advantages:

- Lower data rate for live streaming and reading the recordings since they can be saved in smaller formats (VGA, SVGA).
- Subsequent distortion correction means no additional load on the MxControlCenter computer

Disadvantages:

- Image distortion correction imposes additional load on the camera's processor and leads to a lower frame rate.
- Important segments of the recording where an event occurs may be missing in the case of live PTZ actions.
- The complete set of image information is no longer available for the Video Search feature.
- 3. In-Camera Distortion Correction for Live Streaming and Recording as a Full Image

Advantages:

- Subsequent distortion correction means no additional load on the computer running MxControlCenter for the live display
- All image information is included in the recording and then available for subsequent searches.
- High data rate not required to run the live display.

Disadvantages:

- Image distortion correction and full image storage impose an additional load on the camera's processor and lead to a lower frame rate
- High data rate when reading recorded videos in MEGA/QXGA resolution.

The best method for you depends on your specific needs and circumstances.

You can activate the virtual pan/tilt function controller by right-clicking the **PTZ Controls** command from the pop-up menu or clicking the **PTZ Controls** title bar in the sidebar.





Note

To view the PTZ Controls panel, the sidebar needs to be visible (**Right-click** > **View** > **Sidebar** > **Show**). Whether the camera window is set to live image display or Player mode determines which sections of PTZ Controls are active. Whether or not a particular section is activated also depends on which MOBOTIX camera is being used. For example, the **Left**, **Right** and **NESW** Auto Move features are only available for the MOBOTIX Q models.

- Camera Live Image: You can use this drop-down list to choose the display mode of a MOBOTIX camera in the selected display window. The display modes you can choose from are the same as the display mode options provided in the quick control of the camera live view in a browser window (for more information, refer to the MOBOTIX software manual and the MOBOTIX Q24M camera manual).
- MxCC Display: The PTZ features of MxControlCenter can be selected from this dropdown list. They have the same appearance as the display modes of the camera live image, but differ from the PTZ features applied directly to the camera insofar that MxControlCenter PTZ features can always be applied to a complete camera full image (with all the information of the 180° hemispheric image) after being recorded.

Note

You should set the camera to its maximum resolution (a QXGA resolution of 2048 x 1536 pixels in the case of a MOBOTIX Q camera, for example) to obtain the best image quality when using MxControlCenter PTZ features. Note, however, that this will reduce the frame rate.

- Virtual Joystick, Zoom: This control simulates the behavior of a real joystick. Moving
 the virtual joystick to the left or right pans the image horizontally in the display window, while moving it up or down tilts the image. You can either turn the ring or drag
 the slider bar to zoom in or out of the image in the display window.
- **1x Zoom:** This button resets the zoom factor of PTZ Controls to **a factor of 1**, which returns the display to its normal setting.
- **Center Pan:** This button centers an image area that has been modified using PTZ features. This will not affect any zoom factor that may have been set.
- Auto Move: The Auto Move buttons can be used to move a MOBOTIX camera to the next saved position/zoom level (the Views 1-15 and Jump NESW buttons) or automatically pan the image area to the left or right (the Pan Left and Pan Right buttons). Only Q24M models support this feature.



Live image modes for Q24M models



PTZ features of MxControlCenter





Center Pan

Pan Left	Pan Right
Views 1-15	Jump NESW

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Positions: Each of the 16 position buttons can be used to save and open a specific
position, image area and zoom level of a camera view. Click the corresponding
button for three seconds to save a specified camera view. Click the corresponding
button briefly to access a saved position.

Positions can be defined and then accessed in the following cases:

- Live PTZ in MOBOTIX cameras
- Pan/tilt heads that can be controlled via MOBOTIX cameras
- Lock icon: MOBOTIX Q24M cameras support special "MultiViews" such as Surround, Panorama, Double Panorama, and Panorama/Focus. These views are automatically defined after camera installation based on the "North direction" setting and can no longer be modified by vPTZ actions. The "vPTZ lock" on these views is indicated by the lock icon. However, you can also unlock these views by clicking the icon and then adjusting them according to the current scene using vPTZ commands. Click the icon again to re-lock the views to prevent any inadvertent changes by vPTZ commands.

Note

The lock status applies separately for the individual multi-views mentioned above.
MxControlCenter Controls

3.2 Editing Layouts

This section describes the advanced features for creating and managing grid and background layouts. The basic procedure for creating a layout has already been described in Section 2.4.3 *Creating Layouts*.

3.2.1 Grid Layouts

Display windows are shown without a background for *grid layouts*. This layout type is specifically suited to display systems in which the the display of the video sources is located in the foreground.

Positioning Video Sources

- Activate the Layout Manager by clicking its icon in the toolbar.
- Select the layout that you would like to edit (for example, *Main entrance*) or create a new grid layout (see Section 2.4.3 *Creating Layouts*).
- Select a grid type in the bottom section of the Layout Manager (for example, *CIF/CIF/CIF/CIF* as listed in the panel).
- 4. Confirm the system prompt. The display panel of MxControlCenter displays the selected grid.
- 5. Drag a camera or video source from the sidebar to a grid display window in the display panel. Cameras or video sources already placed in the layout can be moved to another display window using the drag and drop feature. The two fields will switch their positions as soon as you release the mouse button.
- Double-click the name of the layout in the sidebar and enter a name for the layout.
- 7. Quit the Layout Manager by clicking **Toggle Layout Manager** in the toolbar

or the **Quit Layout Manager** command from the pop-up menu. The layout will be saved automatically.

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Removing Grid Elements

The content of a grid display window can be removed by clicking **Empty** from the pop-up menu (right-click the display window). You can assign a video source (or a different element type) to the now empty display window. If you click **Delete**, the entire display window will be deleted and the next grid elements will move up.

	Insert
	Append
	Edit
	Display/Connection options
_	biblio meedon op donom
	Empty
	Delete
	Define preferred layout for camera
	Define reference image for camera

Configuring The Display Window In A Grid Layout

You can configure the element type of a display window in the **Configure element** dialog box (**Right-click > Edit** or **Configure**). Additional configuration options are provided depending on which element type you select. The maximum size of a display window is 2560 x 960 pixels (see the section *Creating New Grids* below).

	Live		~	
	Empty		_	
Video source:	Live			A
	Videoclip			
	Player			Sea
	File server path Player window			
	Alarm window			
	Sequencer window			
	T OCUS WINDOW			
	Auto	Madium		
	Auto			
	unlimited	None	~	
Fps:	animited			

• **Empty:** Select this option to delete an element that has already been assigned to the display window. The window itself will remain in the layout and will not be deleted permanently. The element type you would like to use can now be assigned at a later date.

This option is also useful if a window's position is already defined in a layout even if the MOBOTIX camera (or other video source) to be displayed will only be available in the network at a later time.

Display Window - Elements With Permanently Assigned Video Sources

- Live: Choose this element type and the live image of the camera or video source selected from the drop-down list will appear in the display window. In addition, you can select the size of the display window.
- Preview: Choose this element type and the preview image of the camera or video source selected from the drop-down list will appear in the display window. In addition, you can select the size of the display window.

A preview window requires significantly fewer resources and causes less network traffic compared to a live window. This element type is particularly effective when your network has limited bandwidth and you are displaying many different video sources in the layout.

You also have the option to select the **image sensor**, the **maximum frame rate** and the **resolution** of the preview image of the MOBOTIX camera.

 Video Clip: This element type can be used to load a previously recorded MxPEG video clip in the display window where it is automatically set to continuous playback. It can also be used for alarm list files. In addition, you can select the size of the display window.



- Player: Select this element type to display the camera or video source of the display window selected from the drop-down list in Player mode. You can now play back the recorded image and event sequences of the selected camera or video source in the Player sidebar panel. In addition, you can select the size of the display window.
- File Server Path: This element type can be used to display video sequences that have been recorded on an external file server by a camera. You can also play back the sequences in the **Player**sidebar panel. In addition, you can select the size of the display window.

Display Windows - Elements With Variable Video Sources

- Player Window: Select this element type and the event sequences of the camera
 or video source for which an alarm was triggered most recently will be displayed
 automatically. Only one player window can be defined for each layout. A player
 window will show the relevant event by clicking an image from the alarm list. Player
 windows in background layouts are indicated by a gray title bar.
- Alarm Window: Select this element type and the live image of the camera or video source for which an alarm was triggered most recently will be displayed automatically. By clicking the display window (or acknowledging the alarm if the alarm list is active), the alarm window will be cleared until a new alarm occurs. Note that you also need to activate the Alarm List feature under Tools > Options > Alarm List. Only

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Blasting of bank in Hagen, Germany

one alarm window can be defined for each layout. Alarm windows in background layouts are indicated by a gray title bar.

 Sequencer Window: This element type is used to display the content of all the display windows contained in the layout in alternating order. For example, you can create a layout in which the display of a camera's live image alternates in a large window.

You can define a global time interval for the sequencer window under **Tools > Options > General > Sequencer time**. You can also define a custom interval for each camera in the **Sequencer time** field located on the respective camera's tab in the same dialog box.

Click **Configuration** to open the **Sequencer Configuration** dialog box in which you can manage the order of display and the sequencer times for all cameras or video sources contained in the layout. Sequencer windows in background layouts are indicated by a gray title bar.

Show	Camera IP/Name	
Ø Default	10.2.12.168	
Default	10.2.97.71	
Default	10.1.21.124	
Default	10.2.1.8	
Default	10.2.1.93	
/ Default	10.2.97.71	
Ø Default	10.2.12.168	
Select a	al Deselect all	Up



Creating New Grids

To create a new grid, make sure the Layout Manager is activated, then click **Edit Grids...** in the sidebar of the **Grids** panel. The available space will be divided up according to the width of the display panel (the maximum width is 2560 x 960 pixels).

dilleni	ente		Gride	
	tiny element	80x60 = 1/2 column	e d	CIF CIF
•	small (PDA) element	160x120 = 1 column		
	medium sized (CIF) element	320x240 = 2 columns	dbl CIF	dbl CIF
1	large (VGA) element	640x480 = 4 columns	dbl VG	dbl VGA
h	huge (MEGA) element	1280x960 = 8 columns	usi tu	dbl VGA
du d	e dan dil dh	panorama views (double width)		CIF
wider	mition 3 Columns	(160 pixels) = 480 pixel	Preview	
4 m				

Grid Single Elements

- u 80 x 60 pixels tiny element
- s 160 x 120 pixels small element
- m 320 x 240 pixels medium-sized element (CIF)
- 1 640 x 480 pixels large element (VGA)
- h 1280 x 960 pixels huge element (MEGA)

Grid Double Elements

- du 160 x 60 pixels tiny double element
- ds 320 x 120 pixels small double element
- dm 640 x 240 pixels medium-sized double element (CIF)
- d1 1280 x 480 pixels large double element (VGA)
- dh 2560 x 960 pixels huge double element (MEGA)

Procedure

- Select a layout that you would like to modify, duplicate an existing layout (the Duplicate button), or create a new layout (the New button).
- Define the width of the layout. Layout width can be based on the available screen resolution, for example (1920, 2560, ... pixel width). The total width of the layout in pixels is determined and displayed according to the specified number of columns (layout width in pixels = x columns times 160 pixels). It is always a whole number and a multiple of 160 pixels.
- Create the layout by entering the abbreviation of the grid element you would like to use in the text box. The preview window shows the resulting layout.

Note that MxControlCenter will initially place an element in the row to the right whenever possible, provided that enough space is available in the layout. If this is not the case, the element will be placed in the next row with sufficient space. This means that large elements may be placed in a new row at times, while small elements are added to any unused areas at the top of the layout.

Note

The grid element abbreviations can be separated from each other by a space, comma or line break.

4. Make sure the resulting layout meets your specifications and save it by clicking **Save**. The new layout is now available in the **Grids** sidebar panel.

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saved automatically.

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3.2.2 Background Layouts

Unlike grid layouts (see Section 3.2.1), **background layouts** allow you to freely arrange the video sources on top of a background image. You also have the option of displaying individual MOBOTIX cameras as symbols on top of the background image. These symbols display the viewing direction and lenses of the cameras as well as the camera's status: *Detected, Not detected,* and *Connection error*. Double-click the symbol to display the live image of the camera in a separate window.

Positioning Video Sources

- 1. Activate the **Layout Manager** by clicking the symbol in the toolbar.
- Select the layout that you would like to edit (for example, *Overview*) or create a new background layout (see Section 2.4.3 *Creating Layouts*).
- Select a background image (*.jpg, *.bmp, *.gif) in the bottom panel of the Layout Manager (for example, *Parking lot view*). Click Add Image to add additional image files to the Background images panel.
- Confirm the system prompt. The display panel of MxControlCenter displays the selected background image.
- 5. Using drag and drop, move a camera or video source from the sidebar to any position you like in the display window. Cameras or video sources already placed in the layout can be moved to any other position in the display area. If a display window is moved onto another display window, both windows will switch their positions as soon as you release the mouse button.
 - button.
- 7. Quit the Layout Manager by clicking **Toggle Layout Manager** in the toolbar or the **Quit Layout Manager** command from the pop-up menu. The layout will be

6. Double-click the name of the layout in the sidebar and enter a name for the layout.





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Configuring The Display Window In A Background Layout

You can configure the element type of a display window in the **Configure element** dialog box (**Right-click > Edit** or **Add**). Additional configuration options are available depending on which element type you select.

Element type:	Live			*	
	Empty				
video source.	Preview Videoclip Player File server path Player window Alarm window Sequencer window Focus window				Add
Lens:	Auto	Size:	Medium	~	
Lens: Fps:	Auto	Size: Symbol:	Medium	~	

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Besides the elements described above in Section 3.2.1 *Grid Layouts*, a number of additional elements are available for background layouts:

 Status Icon: You can use this element type to create an icon that visually represents the viewing directions and image angles of one or two image sensors and also indicates the surveillance status of the camera using different colors, i.e. whether an MxControlCenter computer is displaying the live image of the camera or video source in question.

🗸 Image sensor 1			Image sensor 2		
Viewing direction:	161]0	Viewing direction:	0] 0
Focal length:	15]	Focal length:	30	j
Apex angle:	90]0	Apex angle:	90]
		Name:	Main Camera		
		Tooltip:	10.2.1.8	-	
B		Diameter:	10 0		
¢	Þ	¢	3	¢]
Carr OK.de	era tected	Camer det	a OK,not No co ected c	nnect amer	ion to a

Now when you click a status icon in the layout, the live image of a camera or video source will automatically be displayed in the assigned focus window (see the **Focus window** element type below in this section). Status icons are only available for background layouts.

Note

Additional functions are also available with MxStatus, a stand-alone application that monitors the status of all cameras connected to MxControlCenter. MxStatus is included in the MxControlCenter installation and can be loaded on any computer by double-clicking the MxStatus.exe file in the MxControlCenter application directory. If multiple instances of MxControlCenter are running in the network and registered in MxStatus, MxStatus can also provide information on whether a camera is accessible and whether it is being monitored by an instance of MxControlCenter. This information is displayed using different colors. The IP address and port of the MxStatus computer must be specified in the General tab on the Tools > Options dialog box for all relevant instances of MxControlCenter. For more information, see Section 5.2 *The "General" Tab*, Error Display for Connection Errors and Error Display on Latency Timeout.

- Focus Window: By clicking a status icon created in the layout, the live image from the
 camera or video source that was specifically assigned to that icon will be displayed in
 the defined focus window. More than one focus window can be created per layout.
 Select the focus window you would like to define. Now click a status icon and it will
 be assigned to that focus window. Focus windows are identified by a pink title bar.
- "Close Windows" Button: With this option you can add a button to the layout that, when clicked, closes all free-movable live image windows. Movable live image windows are automatically opened when you double-click any display window that has an assigned camera or video source.

Right-click the button to display the pop-up menu. Here, you can select the background color of the button.

"Configure Sequencer" Button: With this option you can add a button to the layout that, when clicked, opens the Sequencer configurationdialog box. This dialog box
 Sequencer Configuration
 Sequencer Configuration

provides a convenient way to configure the order of display and the sequencer times for all the cameras or video sources contained in the layout.

Right-click the button to display the pop-up menu. Here, you can select the background color of the button.

 "Layout" Button: With this option you can add a button to the layout that, when clicked, opens the layout that was last selected and defined in the drop-down list. The name of the layout is automatically written on the button.

010011	Camera IP/Name	
Default	10.2.12.168	
J Delault	10.2.97.71	
Default	10.1.21.124	
2 Delault	10.2.1.8	
Delault	10.2.1.93	
Delauit	10.2.97.71	
J Delault	10.2.12.168	
Select a	al Deselect al	Up
Select a	a Deselect al for 3 [1.60] tec.	Up

Camera Window Options in the Background View

Various features are available in the title bar as icons in the display windows of the background view (for example, the *Live* element type):



- Show Alarm Instructions of Selected Camera: An instruction file can be created for each camera. Click this button in the toolbar or the icon in the title bar to open up this file in a separate display window. The instruction file can contain floor plans or essential information for alarm procedures.
- Activate the Preferred Layout of the Selected Camera: A preferred layout can be defined for each camera. Click this button in the toolbar or the icon in the title bar to activate a display window. MxControlCenter switches to this layout when the following events occur:
 - An alarm is detected in the live video stream of a camera, which means a camera has detected an event. The alarm list feature needs to be enabled in Tools > Options > Alarm List for this to work. For more information, see Section 2.5 Alarm Management.
 - A network message from the camera or a video source is received. For more information, see Section 2.5 *Alarm Management*.
 - Click Activate the preferred layout of the selected camera in the toolbar or the appropriate icon in the title bar of any display window.
- Show/Hide a Reference Image of the Selected Camera: You can save the current live image for each camera as a reference image. Click this button in the toolbar or the icon in the title bar of a display window to display the reference image in a separate window. This allows you to compare it with the current camera image. This provides an easy way for you to determine changes in the positions of objects, vehicles, containers, etc.

3.2.3 Additional Options For Editing Layouts

Defining A Start Layout

You can define the layout that is selected in the list as the **start layout** in the pop-up menu of the **Layouts** sidebar panel (**Right-click > Define as start layout**). MxControlCenter will now display this layout automatically when the program is launched. An activated start layout can be identified by the green text. You can also define a time interval at which MxControlCenter automatically switches to the defined start layout under **Tools > Options > General > Return to Start Layout after**. This helps to ensure that the scene you would like to monitor is displayed automatically, even if a different layout was selected in the meantime.

Defining An Instruction File

In order to define an instruction file for a camera, open the **Camera tab** for the particular camera under **Tools > Options** and select the desired **Instruction file**.



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Defining A Preferred Layout

In order to define a preferred layout for a camera, open the **Camera tab** for the particular camera under **Tools > Options** and select the desired **Preferred/alarm layout**.



Defining A Reference Image

In order to save the current live image as a reference image, make sure that the **Layout Manager** is activated, right-click the desired camera and select **Define reference image for camera** from the pop-up menu.

3.3 Alarm Processing

MOBOTIX Cameras and MxControlCenter Working Together

True to the decentralized approach of MOBOTIX systems, MxControlCenter cannot trigger any primary alarms (events) on its own. This is the job of the MOBOTIX cameras. The cameras record the event internally (on an integrated SD/CF card) and, if desired, to an external file server. MxControlCenter captures the alerts, displays them, and, if necessary, calls attention to the situation using appropriate audiovisual means.



The full range of MxControlCenter features can only be used if the MOBOTIX cameras are properly configured and the alarm list in MxControlCenter is enabled in the **Options** dialog box (see Section 2.5 *Alarm Management*).

The alarm processing features of MxControlCenter, in turn, provide various ways for displaying the alarms and alarm notifications.

MxControlCenter Alarm Detection

If a camera triggers an alarm (event), MxControlCenter has two methods for detecting it:

- Alarm Notification via Live Stream of Camera: The camera is armed and records the alarms on its own, either in its internal or external video storage (on a file server). MxControlCenter only detects the alarms if the camera is displayed in the current layout in a live or preview window and is supplying images.
- Camera Network Message: The camera communicates with MxControlCenter via a
 network message. MxControlCenter detects the alarms from all cameras that send
 network messages to the computer running MxControlCenter. This method ensures
 that alarms are detected from cameras, even if the corresponding camera is not



For more information on configuring the remote control features for MOBOTIX cameras and MxControlCenter, see Section 3.5 *Remote Control Using Network Messages*.

Refer to the table below for a summary of the options available for both alarm methods:

Response	Live Stream Alarm	Network Message Alarm
Display alarm image in alarm list	Х	x
Play back audio file on the MxControlCenter com- puter	x	х
Fill alarm window with live images of last alarm triggering camera	Х	X
Activate preferred/alarm layout	-	x
Maximize a minimized MxControlCenter (from the taskbar) and display on the screen	-	Х
Bring all offline cameras in the preferred/alarm layout online and restore MxControlCenter to the top, if necessary	-	x

Caution

For installations with high security requirements, you should definitely set up remote control using network messages as this provides the most reliable method of alerting.

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3.3.1 Alarm List

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Activating the Alarm List

The alarm list is not activated when you launch MxControlCenter for the first time. To activate the alarm list, click **Tools > Options > Alarm List** (tab) and then click the **Activated** checkbox. After activating the alarm list, alarms from the recording cameras in the current layout and alarms from cameras that send network messages to the MxControlCenter computer are displayed in the alarm list. These alarms will also be saved in the alarm list, even if it is no longer visible after clicking **Show/Hide Alarm List**.



All alarm methods use the **acknowledgement feature** of the alarm list, i.e. the audiovisual alarm features described below are repeated until all alarms have been acknowledged by clicking the title bars of the alarm images.

Visual Alarm Methods

The visual alarm methods are displayed as soon as the alarm list is activated (**Options** > **Alarm List** > **Activated**). Make sure that the displayed cameras are configured to trigger alarms.

- Camera Windows: Flash on alarm
- Live and Preview Windows in Grid Layout: The frame of the camera window flashes red.
- Live and Preview Window in Background Layout: The camera title bar flashes red.
- Alarm Window (If Defined in the Layout): Shows live images from the alarm camera inside a flashing red frame
- Mouse-Over Images: The title bar flashes red.
- Alarm List Icon: Flashes red
- Status Bar of the Alarm List: Red if an alarm is unacknowledged, otherwise green
- Title Bars of the Alarm Images or Alarm Entries: Unacknowledged alarms are shown in red, acknowledged alarms in blue.



Acoustic Signal Features

If the alarm list has been activated, you can also choose sounds in the **Options > Alarm List** dialog box. These sounds will be played by MxControlCenter over the audio system of the computer in the event of an alarm. You can choose between using a standard sound (beep) or a custom audio file (*.wav). Likewise, you can define the frequency with which the acoustic signal is repeated and when the sound will stop after acknowledging an alarm.

Display Options for the Alarm List

The following display options are provided for the alarm list:

- Hides the images in the alarm list
- Shows the images in the alarm list (pre-set)
- Enlarges the alarm list images
- · Enables the filter features of the alarm list (see next point)

Alarm list filter features

The buttons of the filter feature show the following states:

- No Filter: Incoming alarms are displayed from all cameras in the layout as well as those alarms from the cameras that control MxControlCenter remotely using network messages (see Section 3.5 *Remote Control Using Network Messages*).
- Camera Filter: Shows only alarms from cameras selected in the display panel (yellow frame); all other incoming camera alarms are stored in the alarm list, but are not displayed.
- Temporary Camera Filter: Shows only images from the selected camera (yellow border). New incoming alarms from other cameras will disable the filter feature.

3.3.2 Displaying Stored Alarms

MxControlCenter displays the alarms either in the alarm list (in chronological order) or inside a player window.

The Alarm List Display

The alarm list always receives all alarms triggered by all live cameras in the current layout. Furthermore, the camera alarms that the MxControlCenter computer receives via network messages are also displayed. The alarm list images are recorded in a ring buffer in the computer. The maximum size of of the ring buffer can be set in the **Options** dialog box (see Section 5.3 *The "Alarm List" Tab*).

Every image in the alarm list is shown with the alarm time, camera name and the elapsed time since the alarm in the title bar in the colors listed below:

11:12:32 (mx10-3-11-47) E -00:02	Unacknowledged alarm
11:12:32 (mx10-3-11-47) E -00:11	Unacknowledged alarm from selected camera
●11:12:32 (mx10-3-11-47) E -00:29 ●	Acknowledged alarm
•11:12:32 (mx10-3-11-47) E -00:23 •	Acknowledged alarm from selected camera

For additional information on this topic, see Section 2.5.4 Acknowledging Alarms.



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Acknowledging Alarms

MxControlCenter provides an **Acknowledgement Feature** that can be used to ensure that all alarms are checked and processed.

You can acknowledge an alarm by clicking the red title bar, which then switches to blue (yellow if it is the selected camera in the display area).



Unacknowledged alarm



Acknowledged alarm

Once all alarms have been acknowledged, the status field of the alarm list changes from red to green. If an alarm window is defined for this layout, the window is cleared and will only be activated again when a camera triggers a new alarm.



Timed Automatic Acknowledgements

In the **Options > Alarm List** dialog box, you can define a time period after which the alarms will be automatically acknowledged.

(i)

For more information on the alarm list options (for example, alarm list size, alarm list file, sounds, etc.), see Section 5.3 *The "Alarm List" Tab*.

Alarm Processing

3.4 Video Searches And Export Features

MxControlCenter offers a convenient way of finding specific events to help you determine, for example, what the camera located at the rear entrance recorded last Saturday afternoon (the **Open Event Search** button in the toolbar).

The Video Search User Interface

The user interface of the Video Search dialog box is divided into the following sections:

- Storyboard: Visual display for searching for events visually
- "Camera" and "Events" Tabs: Quickly browse and find events during a given time period
- Event Display:Shows an event in the Player and includes the option to perform subsequent image processing (virtual PTZ and distortion correction)
- Image Improvement: Subsequent adjustment of saturation, brightness, backlight and sharpness of the currently displayed image
- Reference Time: Determines the time difference to a specific event
- Search time: Search for events beginning at a specific time







Storyboard

The storyboard shows the recorded events in chronological order from left to right, similar to the individual frames of a movie. Use the arrow keys to quickly scroll backwards or forwards. The currently selected event has a yellow frame. The current event is shown with the date, time, and the event type (yellow highlighting).



The "Camera" And "Events" Tabs

Use the **Cameras** tab to select the camera containing the event list you would like to review. The **Events** tab contains all stored events from this camera listed by time, date, and event type.

The slider bar lets you quickly find the desired time period between the start and end times of the recording. The arrow keys allow to you scroll from event to event in one-event steps. The alarm image of the event selected here is automatically shown in the storyboard and also end area endergoed in the output view.

ime & Date	Sequence	Event	Events	
1:21:13 Mo 23.02.2009	639	0	PE	
1:23:13 Mo 23.02.2009	640	0	PE	
1:25:13 Mo 23.02.2009	641	0	PE	
1:27:13 Mo 23.02.2009	642	0	PE	
1:29:13 Mo 23.02.2009	643	0	PE	
1:31:13 Mo 23.02.2009	644	0	PE	
1:33:13 Mo 23.02.2009	645	ō	PE	
1:35:13 Mo 23.02.2009	646	0	PE	
1:37:13 Mo 23.02.2009	647	Ō	PE	
1:39:12 Mo 23.02.2009	648	0	PE	
1:41:13 Mo 23.02.2009	649	0	PE	
1:43:13 Mo 23.02.2009	650	0	PE	
1:45:13 Mo 23.02.2009	651	0	PE	
1:47:13 Mo 23.02.2009	652	0	PE	
1:49:13 Mo 23 02 2009	653	0	PE	

and also enlarged in the event view window.

Event View

The event view window displays the individual alarm images of the event selected from the storyboard or the **Events** tab. Use the Player buttons to

(0			_					
12:44:53			E	12:4	44:53	Ĩ			12:44:57
	KN	-	N	Þ	4	N	DD	KK	

scan or play back the event images (see Section 2.6.2 *Defining Player Windows* for more information on Player controls). Besides being able to search for a position within an alarm clip, you can also use the slider bar to view the time for the currently displayed image within the recording.

Image Improvement

If the quality of the alarm image is not adequate due to noise or other factors, you can use the **image improvement** slider bars to adjust the saturation, brightness, backlight and sharpness of images.

Besides general image improvement, you can also apply the **PTZ features** (pan, tilt, zoom) to the camera image (see Section 2.7.1 *Image Post-Processing*). You need to enter the type of lens for the camera and the mounting position of the camera (ceiling or wall) for the PTZ features to work properly. These settings can be defined in the corresponding camera tab.

Alarm Processing

Reference Time

An important factor to take into account when switching between cameras is the time difference between a reference event and another event. A *reference time* needs to be defined for this pur-

10.24:16 Ft 27.02.2009	Time difference:	00:07:45	
* * ×		×	

pose by clicking **Set reference time to time of the current image**. A reference time can be set at a specific event in the event list or even at a single frame of an alarm clip for greater precision. If you select another event now, its time difference to the reference time will be automatically calculated and displayed. In the process, you can switch to any of the events listed for the different cameras. The event that is closest in time to the reference time is automatically highlighted.

You can define a new reference time with the same button. If you select **Set reference time automatically to current image time**, the reference time will be synchronized with the current time of the image in the Player window. Click **Unlock reference time** to delete the reference time.

If the reference time is no longer visible in Events, click **Jump to reference event** to go back to the reference event. When viewing individual alarm images in Player mode, you can adjust the reference time to match the Player time by clicking **Set reference time automatically to current image time** as often as you need.

Search Area

To search for a certain event (or all events) that occurred on or after a specific time, enter a date and time

28.08.2009	✓ 14:05:11	Search
28.08.2009	14:05:11 😴	Searc

in the **Search time** field and click **Search**. MxControlCenter selects the event in Events that comes closest to the specified time.

Exporting Recorded Data

The options for exporting recorded data have already been described in Section 2.6.4 *Export List and Data Export.*

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3.5 Remote Control Using Network Messages

With the remote control features (**Tools > Options > Remote Control**), MOBOTIX cameras (and other network devices) can cause MxControlCenter and other MOBOTIX cameras to perform certain functions. This is done using network messages (TCP/IP messages), which a MOBOTIX camera (or another network device) sends to a predefined port of the computer running MxControlCenter.

Network messages enable an alarm to be triggered if certain events occur on a camera without displaying the live video stream from that camera in MxControlCenter.

This way, a MOBOTIX camera can, for example, activate the appropriate preferred layout assigned to it in MxControlCenter (*Activation with Preferred Layout*) and restore minimized MxControlCenter application windows (Windows toolbar). You can continue to record alarm and live images, activate cameras in a layout, open new windows with the camera live image, and even define complete layouts in a camera network message and then set them up in MxControlCenter. For this to work properly, the camera that sends the network messages may not be included in the currently displayed layout in MxControlCenter.

• Camera IP Notify Only Port: If this option is enabled, the preferred/alarm layout selected in the camera's tab will be activated in MxControlCenter once the relevant network message has been received. In this case, this activates the IP notify profile MxCC Alarm: simple for a MOBOTIX camera (see the section on *Creating a Network Profile on the MOBOTIX Camera* below).

Camera IP Notify onl	y port			
Port activated (o listen for TCP/IF	messages)	 Accept only valid commands 	
Port: 31666	Allowed IPs:	192.168.17.235	Examples: "", '10.1.1.42, 10.2.1.43'	

 General Remote Control and Camera IP Notify: If this option is enabled, advanced remote control commands can be sent to the computer or MxControlCenter. You can furthermore define a sound or audio file that will be emitted when a network message is received.

Port activated (to	listen for TCP/I	P messages)	
Port: 31687	Allowed IPs:	192.168.17.235	Examples: **, '10.1.1.42, 10.2.1.43'
Sound: 🔘 Off 💿 Be	eep 🔘 File:		



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Section 5.4 *The "Remote Control" Tab* contains information on the available parameters of a network message for remote control of MxControlCenter.



Notes

- Ports 31666 and 31667 are used in the following examples. Make sure the
 ports you are using are not also in use by other services in the network and
 that these ports can be accessed by your computer and, in particular, are not
 blocked by a firewall. Makes sure that you always use ports with numbers
 greater than 1023 and lower than 65535. For more information, refer to the
 article on "TCP and UDP port numbers" aten.wikipedia.org.
- After setting up the ports, the Windows Firewall normally asks whether it should continue to block the MxControlCenter application. Click **Do not block** so that the necessary remote control ports can be opened. This usually requires you to have administrator privileges on the computer. If you are using a different firewall program, you may have to manually release the ports or configure the firewall accordingly.

Configuration Example

The following example shows you how to set up MxControlCenter and a camera so that the camera sends a network message to the MxControlCenter computer when a particular event occurs. When the computer receives this network message, it automatically loads the preferred layout assigned to the camera. This layout contains the view assigned to the camera that has triggered the alarm and sent the message.

Activating The Remote Control In MxControlCenter

 Activate the Camera IP Notify only port option (Tools > Options > Remote Control). Enter the desired port (for example, 31667) and the IP address of the remote controlling MOBOTIX camera (for example, 172.168.0.100).

Camera IP Notify only port			
Port activated (to listen for TCP/IF	messages)	Accept only valid commands	
Port: 31667 Allowed IPs:	172.168.0.100	Examples: ***, '10.1.1.42, 10.2.1.43'	

Defining The Preferred Layout For Cameras

 Define the preferred layout for the remote controlling camera (Tools > Options > Camera tab; for more information, see Section 3.2.3 Additional Options for Editing Layouts).

Creating A Network Profile On The MOBOTIX Camera

- Enter the IP address of the computer on which MxControlCenter is activated (Windows: Start > Run > cmd, ipconfig command).
- Open the remote controlling MOBOTIX camera in a browser window.
- In this case, this activates the IP notify profile MxCC Alarm: simple with the settings described below (Admin Menu > IP Notify Profiles).

IP Notify Profile 1 Mx	CC-Alarm		Delote
IP Notify Type	MxCC Alarm: simple	×	Productional Configuration: Mod CAlamintance and followed natives message to the MACC allow Tails. Adversariage Regulare promote the MACC allow Tails adversariage resulting the allow to MACC and boother the message. The allow to MACC and boother the message cannes togget a boothermic and and the allowed configuration to see the antender configuration.
Destination Address	172.168.17.259:31687		Destination Addresses Receiver IP address and cost Secarate IP address and cost using a color. Enter one access or line.

• Save this configuration (click Set and then Close).

Activating Camera Events And Configuring Messages

- Open the remote controlling MOBOTIX camera in a browser window.
- Create a message (Setup Menu > Messages) with the settings shown below for the desired event, for example, VM - Video Motion Detection.
- In order to be able to test the message later, activate the event UC- User Click.

General Settings	Value	Explanation
Message Profile	Enable 💌	Example Searces Profile Control into message profile Searce activities the profile Of idealisate the profile Statistical and program input. CO profile armed by support input is a calined in Rom Mader cookers the message profile's arming state from the message content arming state from the message content arming state for the message content arming
	(no time table)	Time Table Profile Time table for this message profile. (<u>Time Tables</u>
	60	Messaging Dead Time Messaging action simeout (0, 3600 s) before a ne action can take place
	(PE - Periodic Event) (TT - Time Tack) User Hand Cacks (BT - Button) (BR - Button Right)	Event Selection Select the events which will tropper a message. Use [CH]CRS to select more than one event. Events in seases near to be <u>withouted</u> from <u>EC</u> or [], for filtered events.
Actions	Value	Explanation
Sound on Event (SD)	Off M	Sound Enable: Play one or more sounds on the loudspeaker if an event is detested: (<u>Manage Audio Memopol</u>)
IP Notify (IP)	MxCC-Alarm	IP Notify Profile Notification by nation massage using the TOP/IP

- Save this configuration (click Set and then Close).
- Also make sure to enable Arming for the camera (Setup Menu > General Event Settings) and the User Click event (Setup Menu > Event Settings).

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Testing The Remote Control

- Minimize MxControlCenter to an icon in the Windows taskbar.
- Open the live view of the MOBOTIX camera in a browser window.
- Click the UC Event button on the user interface of the camera.

The network message will now be sent to the MxControlCenter computer and the application window should appear on the screen on top and display the alarm-triggering camera in your preferred/alarm layout.

3.6 Saving The Configuration Of MxControlCenter Cameras

Changes to the configuration can generally only be made by MxControlCenter users with admin access rights (provided an admin password is assigned; see Section 3.7.1 Access Levels of MxControlCenter).

The storage location of the current settings is displayed at the bottom of the **Options** dialog box.

3.6.1 Global And Local Folders

Both **global** and **local folders** are used to store the configuration data of MxControlCenter. The global folder is intended to store a shared configuration for multiple users (only administrators can change this configuration). The global folder needs to first be specified in the **General** tab on the **Options** dialog box.

Local folders can be created by the administrator to store special settings. This configuration data is not stored in a central location, but in the folder of the currently running MxCC.exe application. This approach allows you to create special configurations by copying MxControlCenter to different folders (user-defined folders, for example) and then launching the application from one of these folders. After setup is complete, you can store the configuration in a **local folder** when quitting MxControlCenter.

3.6.2 Storing The Program Settings

You can store the current configuration settings by selecting one of the following menu items:

- Tools > Program settings > Save (overwrites the current configuration file)
- Tools > Program settings > Save as...
- Tools > Program settings > Export environment...

Both of these menu items open the Save Configuration dialog box.

 Configuration only [INI file] 	
O Configuration and resources (instruction files, clips	s, images, sounds)
Complete package (configuration, resources, Mal	ControlCenter program files)
Set as picket	
Save configuration in:	
Save configuration in: c:Vhogramm/M080TD//M+ControCenter/M+CC.ini	
Save configuration in:	

- The Configuration only (INI file) option allows you to store the current configuration in any existing or new *.ini file.
- The Configuration und resources (...) option is used to save both the configuration file (MxCC.ini) and all the resources used in the configuration (background images, instruction files, audio files, MxPEG clips, etc.) to a selected target directory. In this target directory, a new *.ini file in which all the resources are linked using relative file paths and thus available in the individual layouts for display will be created.

You can use this option to export the configuration and all necessary data to a new directory for later use there.

 The Complete package (configuration, ...) option performs the same actions as the Configuration and resources (...) option, but adds all necessary MxControlCenter program files to the data that is copied to the target directory.

With this option, for example, you can perform a complete export of MxPEG clips, including those in the program itself, to a CD or USB storage device. Because an*. ini file is also created in the target directory, you can now launch MxControlCenter directly from that location to play back the MxPEG clips.

Demo installations can also be copied to other computers in this manner without any problem.

Caution

If you have defined a **global folder**, MxControlCenter only uses the configuration stored in that folder if there is no configuration (*.ini file) stored in the installation directory of MxControlCenter (the directory in which the MxCC.exe file is located.



3.7 Users And Passwords

3.7.1 Access Levels Of MxControlCenter

The three access levels of MxControlCenter (no login for *guests, admin* for administrators, *user* for normal users) will be activated once the appropriate passwords are set in MxControlCenter. *If no passwords are specified, the administrator privileges will be applied automatically*.

The following table lists the individual functions that can be performed by the three access groups:

Function	Guest	User	Admin
Switch layouts	х	х	х
View live videos	х	х	х
View instruction files	х	х	х
Print image	х	х	х
View reference image	х	х	х
Acknowledge alarm	х	х	х
Quit MxControlCenter	-	Х	Х
Play recordings	-	Х	Х
Event Search	-	х	х
Change camera settings	-	х	х
Edit layouts	-	-	Х
Change program settings	-	-	х
Show/hide program elements	-	-	х

3.7.2 Activating Password Protection In MxControlCenter

Follow the steps below if you would like to protect MxControlCenter and specific cameras from unauthorized access:

 Open the Options dialog box (Tools > Program settings in the menu) and enter the Admin password in the General tab in order to prevent unauthorized access to the Admin level (table in Section 3.7.1).

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 In the same tab, enter the user password in order to prevent unauthorized access to the User access level (table in Section 3.7.1).

There is no password assigned for users in the *Guest* user level. This user level is automatically activated when the program is launched. Guest users may only use the functions described in the table in Section 3.7.1 in the *Guest* column.

Note

In order to strictly limit access to the MxControlCenter installation, make sure to hide all menus, sidebars and toolbars that must be hidden via the **View** menu.

For these settings to be applied, you need to quit the program and the changes to the program settings need to be written to the *.ini file.

3.8 Security Considerations

You should follow the measures outlined below to avoid security problems.

3.8.1 General Thoughts On Network Security

- Certain MxControlCenter features (remote control, for example) require additional ports to be open on a Windows computer. Make sure the Windows computer running MxControlCenter is *behind a firewall*.
- Some anti-virus scanners check all data streams that enter the computer. As a result, an anti-virus scanner may identify the video/audio data received in the MxControlCenter camera as malicious code and block it accordingly. If the corresponding mechanisms of the anti-virus scanner are deactivated, the anti-virus protection of the computer is incomplete. For this reason, it should not be used to surf the Internet or to receive e-mails.

3.8.2 Restricting Public Access

You can improve the security of the entire system by **disabling public access** on all cameras and setting up a **dedicated user** for MxControlCenter on each camera.

3.8.3 Camera Settings (In The Browser)

- Always use MOBOTIX cameras with software version 2.2.2.x or higher.
- Make sure the cameras cannot be accessed by unauthorized users by blocking public access in Admin Menu > Users and Passwords (in the browser).
- Create a new group (for example, MxCC) with the MxControlCenter privilege in Admin Menu > Group Access Control Lists.

 Create a new user (for example, MxCC) for the MxCC group in Admin Menu > Users and Passwords. Enter this user and the appropriate password to access the cameras from MxControlCenter. 99/152

3.8.4 Settings In MxControlCenter

- After testing the ports, you should replace the * entry in the Allowed IPs field of the Options > Remote Control dialog box in MxControlCenter with the IP addresses of cameras that are allowed to send messages to MxControlCenter (use commas to separate multiple addresses). Network messages from unlisted IP addresses will now be rejected.
- In the same dialog box, make sure the Accept only valid commands option in the Camera IP Notify only port section is activated.
- Do not use the same ports, user names, passwords or other entries that appear in this manual as your settings.
- Create a dedicated user to access MOBOTIX cameras (see Section 3.8.3 Camera Settings (in the browser)).

Caution

A computer running MxControlCenter with open ports should never have a direct connection to the Internet. Make sure that the computer is adequately protected by an appropriate hardware firewall (normally in a router).

The Windows firewall on this computer does not provide effective protection and cannot replace a hardware firewall.

3.9 Image Post-Processing

3.9.1 Overview

The *Image Post-Processing* features can be used to improve and correct images from MxControlCenter. This includes correcting the **saturation**, **brightness**, **backlight** and **sharpness** of an image.

The post-processing features do not depend on the type (IP or analog) or model of the camera. Furthermore these features can be applied to any video source within an image window, which means not only live streams, but also previously recorded video data:

- Camera Live Images/Live Streams
- Saved MxPEG Clip Files
- Recorded Video Streams from a File Server
- Snapshots/Still Images

Enhanced images can be printed directly from MxControlCenter and/or saved as a file. The recorded image and video sequences themselves are not changed since the postprocessing features only affect how they are displayed in MxControlCenter.



-===+
Settings

The image post-processing is configured for the current display window (yellow frame). Select a MOBOTIX camera and click the *arrow* to the right next to the **Switch image postprocessing on/off** button and then click **Settings** (in the menu under **Camera >MxCC display mode > Settings**) in order to configure the image post-processing (see Section 3.9.2 *Configuring Image Post-Processing*).

Once you have configured the image post-processing, you can activate or deactivate this function using the **Switch image post-processing on/off** button (see Section 3.9.3 *Activating/Deactivating the Image Post-Processing*).

3.9.2 Configuring Image Post-Processing

Select a display window with a MOBOTIX camera (live or recorded) and click the *arrow* to the right next to the **Switch image postprocessing on/off** button and then click **Settings** (in the menu under **Camera > MxCC display mode > Settings**).

The **Image Processing** panel has two different areas: The upper area, **PTZ**, controls the settings of the virtual PTZ features of MxControlCenter (Section 2.7.2 *Distortion Correction*) and image post-processing is configured in the**Post-Processing** area. Select the desired camera and activate the **Post-Processing** checkbox (this panel can be used for multiple cameras one after another). When you move the slider bars, the changes will be made immediately in the active display window:

- Saturation: The slider bar changes the saturation (the intensity of the colors) in the active image window.
- Brightness: The slider bar changes the brightness in the active display window, making the image lighter or darker as desired.
- Backlight: The slider bar changes the backlight in the active display window, increasing or decreasing it.
- **Sharpness:** This slider bar sharpens the image in the active display window. This allows you to subsequently improve the appearance of dull image sequences, for example.
- Reset: This button resets all post-processing settings to their factory default values.

Note

Post-processing is prohibited on video or image sequences intended for use in legal proceedings. For this reason, the printouts made with active post-processing will include both the original image *and* the edited image.

3.9.3 Activating/Deactivating Image Post-Processing

Click **Switch image post-processing on/off** in the toolbar to activate or deactivate image post-processing for the active display window (yellow frame). In addition, this button shows the status of post-processing for the active display window (the post-processing is active when the button is clicked).

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Settings...



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3.10 Third-Party Cameras With PTZ Controls And Pan/Tilt Heads

3.10.1 Overview

Besides MOBOTIX cameras, you can also connect third-party IP or analog cameras (for example, Axis IP cameras, Bosch AutoDome, Siemens SpeedDome) to MxControlCenter. For more information, see Section 2.8.1 *Integrating Third-Party Digital/Analog Cameras*.

Some camera models feature motorized pan/tilt units and zoom lenses that can be controlled from within MxControlCenter using a joystick or the **PTZ Controls** sidebar panel. If a MOBOTIX camera is mounted on a pan/tilt head and configured accordingly, its pan and tilt features can also be controlled from an MxControlCenter computer.

3.10.2 Connecting Third-Party IP And Analog Cameras

To connect and display a camera in MxControlCenter, enter the IP address (or DNS name), port number and login data (user name and password).

Open the menu Camera > Add and click Camera to display the Add Video Source dialog box:

Please enter the type of	a video source to add it to the list o	r video souri	ces.
Type:	MxServer Channel	Channel:	•
Address:		Port:	80
User name:			SSL
Password:			
			Cancel

An additional computer is required to integrate *analog* cameras from third-party manufacturers on the MOBOTIX **MxServer** software. MxServer can digitalize up to four connected cameras using a frame grabber card and make them available for MxControlCenter (see Section 3.10.5 Using Analog Cameras with MxServer).

- IP cameras can be added by specifying the type (Axis, Merit LILIN, etc.) and IP address.
- Analog cameras (Bosch AutoDome, Siemens SpeedDome) can be integrated by selecting the type, the *MxServer channel* and entering the IP address of the MxServer computer. The port number shows which of the analog cameras connected to the MxServer are to be used.

For more information on connecting analog cameras, configuring MxServer and storing the video streams of IP and analog cameras from third-party manufacturers using MxServer,

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see the documentation regarding **MOBOTIX MxServer** at **www.mobotix.com**. For an overview of MxServer, see Section 3.10.5 Using Analog Cameras with MxServer.

3.10.3 Activating Integrated PTZ Units And Pan/Tilt Heads

The control options of the integrated mechanical pan, tilt and zoom features of the camera and the external pan/tilt heads can be activated and deactivated in the **MxControlCenter** dialog box (in the menu **Tools > Options**) on the tab of the individual camera in the **PTZ**/ **Rotor Control** area:

PTZ/Rotor Control		
Type:	No pan/tilt head 🐱	Sensitivity:
Pan/tilt head control:	No pan/tilt head Videotronic SN-15AH Provitek VPT42 Provitek PT2 Provitek PT3 Provitek PT4	

Defining A Type For The PTZ/Rotor Control

• No Pan/Tilt Head

Use this type under the following circumstances:

- vPTZ control of MOBOTIX cameras
- vPTZ control of Axis IP cameras with vPTZ features
- PTZ control of connected IP dome cameras (Axis, Sony, Panasonic, Toshiba, Merit LILIN)
- PTZ control of analog dome cameras connected to an MxServer computer
- All Other Selectable Protocols

These are specific protocols used to control the individual mechanical pan/tilt heads via the installed MOBOTIX camera (*Videotronic, Provitek, VPT 42*, etc.).

3.10.4 Using MOBOTIX Cameras With Pan/Tilt Heads

MOBOTIX cameras (currently M12 and D12 models only) can be connected to the motorized pan/tilt heads via the D-SUB 15HD connector. Now you can use the user interface (soft keys) of the camera to pan and tilt the camera.

An overview of the necessary steps for configuring a MOBOTIX camera in conjunction with a motorized pan/till head is provided below. More detailed information on the connection and control commands can be found in the documentation of the respective pan/tilt head.

Pan/Tilt Heads Currently Supported By MOBOTIX

- Provitek, Provitek PT2, Provitek PT3
- Videotronic SN-15AH (modified by MOBOTIX)
- VPT 42 (RS232/RS485 configuration with VT protocol)

Assembly And Activation Of Pan/Tilt Head

- Attach the MOBOTIX camera to the mounting bracket on the pan/tilt head.
- Connect the supplied control cable of the pan/tilt head to the D-SUB 15HD connector of the MOBOTIX camera.
- Connect the pan/tilt head and camera to the power supply.
- Configure the serial interface of the MOBOTIX camera (Admin Menu > Configure Serial Interface; see figure below).
- Save the configuration to the permanent flash memory of the MOBOTIX camera (Admin Menu > Save) and reboot the MOBOTIX camera.

Once you have completed these steps, the pan and tilt features of the pan/tilt head will be available for the camera in MxControlCenter .

🛉 мовотіх	M12 BWi-M12DN-10-2-12-168	Serial Interface and Modern Setup ? 0
erial Interface and	Modem Setup	
Serial Interface:	Data 🔹	Off: serial interface deactivated. Data: serial interface used as data terminal or for extended signaling. Modem: serial interface used by modem (phone or GSM). Weather: serial interface used to receive data from supported weather stations.
Mode:	Terminal and Logger Mode 👻	Terminal and Logger Mode: enables terminal, remote writing, and logging of input. I/O Mode: enables three additional in/out pins. Auto Mode: ((!)) automatically switches between modes.
Speed:	9600 - bps	Speed of serial interface
Bits:	8 🕶	Number of data bits per character.
Parity:	N -	Parity mode for error detection. N: None E: Even O: Odd
Stop Bits:	1 •	Number of stop bits.
Flow Control:	Off •	Flow control: Off: no flow control CRTSCTS: hardware flow control
Echo:	On 👻	Toggles echo in terminal on or off.
End of Line:	None -	Selects characters to send as End of Line in terminal. Valid selection depends on your device.
Buffer Size:	5 ★ kB	Size of buffer reserved for logging incoming signals on serial interface.
Timestamp:	On 👻	Insert timestamp in log buffer before every input line.
Relevant Links:	Serial Terminal Signal State on RS232	
Set	Factory Restore	Close

Creating And Configuring Camera Soft Keys For Controlling The Pan/Tilt Head

If you would like to control the pan/tilt head using the user interface of the MOBOTIX camera, we recommend configuring the soft keys and the associated soft key definitions (**Admin Menu > Soft Keys** in the browser interface of the MOBOTIX camera). The control commands are included in the documentation of your pan/tilt head.

Note

These settings are not necessary if you would like to control the pan and tilt features using only MxControlCenter with a joystick.

 Configure the soft key definitions for moving the pan/tilt head (Up, Down, Left, Right, Stop; Admin Menu > Soft Keys).

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down	Green 💌	PutR5232 Text	8	rs232outex=%A0%0%0E%00%10	Remove
leit	Yellow 🛩	Put RS232 Text	*	rs232outteot=%AD%D%0E%00%48	E Remove
leit	Yellow 🛩	Put RS232 Text	*	ns232outtext=%AD%D%0E%00%48	E Remove
stop	Red M	Put RS232 Text	¥	rs232outtext=%A0%0%0E%00%25	Bernove

Configure the soft key definitions for saving and moving to individual pan/tilt head
positions via soft keys (Preset X, Save Preset X; Admin Menu > Soft Keys). Because
the positions are saved in the pan/tilt head itself (see Section 3.10.4 Using MOBOTIX
Cameras with Pan/Tilt Heads), the maximum number of available positions depends
on the pan/tilt head model you are using (for example, 32 with a Provitek PT3).

Save Preset 1	Crey 💌	Pet R8232 Text	~	ra232outtext=%A0%0%0E%00%10	Temove
Preset 1	Green 💌	Put RS232 Text	*	rs232outtext+%A0%0%02%00%01	Remove

• Create the soft keys for moving the pan/tilt head and for saving and moving to the pan/tilt head positions. Information on creating soft keys is provided in Section 4.9 *Configuring Soft Keys* in the *software manual*.

Preset 1	High	Save Preset 1
Preset 2	Down	Save Preset 2
Preset 3	Stop	Save Preset 3
Preset 4	Left	Save Preset 4
Preset 5	Right	Save Preset 5
Preset 6	Stop	Save Preset 6

Configuring Time-Controlled Positioning Of The Pan/Tilt Head

With the time control feature of the MOBOTIX camera, you can move to the predefined pan/tilt head positions at specific times. For this purpose the time control feature of the camera is used in conjunction with network messages, which the camera uses to send HTTP requests to itself. The MOBOTIX camera assumes remote control of its pan/tilt head independently, so to speak.

The following steps are required to set up this functionality:

• Define the pan/tilt head positions you would like to use and then save them (Save Preset X buttons; see previous section).

n 🕈 MO	BOTIX M12 mx10.3	11-46 Users and	1-46 Users and Passwords				
User	Group	Password	Confirm Password	Remark/Action			
admin	admins 💉	•••	•••	Remove			
rotor	rotor 💌	•••	•••	Remove			

 Set up a user with permission to access HTTP API commands (for example, user name: rotor, password: rotor). This is necessary because the camera uses authentication to execute HTTP requests that are sent itself for security reasons, which means the login data of an authorized user is required (user name and password).

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 Create a network message profile for moving to each pan/tilt head position. The camera sends an HTTP request to itself. This executes the **rcontrol** program with the following instruction for controlling the pan/tilt head via RS232:

action=putrs232&rs232outtext=<Rotorkopf-Steuersequenz>

The necessary control commands are outlined in the documentation of your pan/tilt head. More information on MOBOTIX HTTP requests can be found in the camera's online help under *HTTP API* and in Section 11.5.4 Executing Camera Actions and Features (rcontrol) *in the* software manual.

 Now set up time-controlled tasks that execute the relevant network message profile at the specific times you enter and move the pan/tilt head to the desired position (for example, position 1 at even-numbered minutes and position 2 at odd-numbered minutes in the figure below):

Task		Minutes (0_59)		Hours (0_23)	Days of Month (1_31)		Months (1_12)	Week Days (0_7)	Options	
Rebootcamera	*	36	1	3	•		•		Delete	
Selecttask	~				•		•	•	I inactive	

 Parallel to this, images can now be recorded automatically along with the regular event (every ten seconds) or with the time control feature in combination with the time-controlled event (one image each minute, for example).



3.10.5 Using Analog Cameras In MxServer

MOBOTIX MxServer allows the integration of analog surveillance cameras into an IP network. MxServer consists of a Windows computer with a frame grabber card (IDS FalconQuattro PCI) and the MOBOTIX MxServer software.

Integration into an IP network means that the analog cameras connected to MxServer can be accessed the same way as network cameras (using an IP address). You can display an image from the analog camera in a browser, in MxControlCenter or in any other application that can access HTTP servers and display M-JPEG streams.

The video cable of the analog camera is connected to the port of the frame grabber card in the computer while the control cable of the camera is connected to the serial interface of the computer (RS232/RS485). MxServer ensures that the relevant channel of the frame grabber card is mapped to a network port (for example, 80, 81, ...).

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You can also control the motorized pan, tilt and zoom features integrated into the analog cameras of MxControlCenter using a joystick. Live streams of the cameras can be recorded on a file server.

Live video streaming is used as a bridge between the video stream supplied by the analog camera and Windows computers with MxControlCenter. MxServer reads the video frames digitalized by the frame grabber card and then converts the bitmap data into *.jpg images (or M-JPEG streams). These images are then transferred to the requesting clients over the network (computers with MxControlCenter). The resolution of the transferred images/ steams can be configured with MxServer (768 x 576, 640 x 480 VGA, 320 x 240 CIF).

The maximum number of simultaneously requesting clients depends on the performance of the Windows computers running MxServer and the available bandwidth of the network connection.

Regardless of that, the digitalized video frames can be recorded by MxServer on the file server (continuous recording) and then searched and played back in MxControlCenter. MxControlCenter directly accesses the data recorded on the server for that purpose.

Prerequisites For Use Of Analog Cameras With MxServer:

- Computer (minimum: Pentium IV with 512 MB RAM)
- Windows operating system: XP, 2000 or 2003 Server
- Installed and configured IDS FalconQuattro PCI frame grabber card
- MOBOTIX MxServer
- Installed Video for Windows driver (automatically installed with MxServer)
- Analog surveillance camera (Bosch AutoDome, Siemens SpeedDome) connected to the frame grabber card and a serial interface of the computer
- MxControlCenter on a client computer with proper configuration for the relevant analog camera for controlling the pan, tilt and zoom features
Notes

- The FalconQuattro frame grabber card has four inputs (channels), but only two
 analog cameras can be connected to it. When using two cameras with the
 same frame grabber card, the frame rate is limited to 12.5 frames per second
 for each camera.
- You can also install more than one frame grabber card in a computer. However we advise against this as only low frame rates would be possible.
- We recommend using multiple computers with a FalconQuattro card installed on each and two connected analog cameras at most for large installations. If a high frame rate is required (more than 12.5 fps), each analog camera should be connected to a separate computer.

Detailed information on connecting analog cameras and configuring MxServer can be found in the supplied documentation at www.mobotix.com.

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Notes

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4 CONFIGURING MOBOTIX CAMERAS

4.1 The "Camera Configuration" Dialog Box

The **Camera Configuration** (the **Change the camera settings from MxCC** button in the toolbar or **Camera > Properties > Configure...**) dialog box provides an overview of selected settings of all the MOBOTIX cameras that are connected to MxControlCenter. In addition, the settings for an individual camera or for several cameras can be changed all at once.

- Section 4.2, The "Overview" Tab: Displays information for all cameras defined in MxControlCenter in a table.
- Section 4.3, The "Image Settings" Tab: Allows you to adjust the values for saturation, brightness, backlight and sharpness of selected cameras.
- Section 4.4, The "Exposure" Tab: This tab allows you to adjust the exposure options of the selected cameras.
- Section 4.5, The "Recording" Tab:

The camera selection list is shared by all areas and includes a window for previewing the camera's live image. Further functions can be accessed using the following buttons under the live image window:

- Click to Reload the Current Configuration for the Selected Video Sources: Use this button to reload the configuration data of selected cameras. This function may be useful when, for example, the camera settings can also be changed by other users.
- Click to Force a Reboot of the Selected Video Source: Use this button to reboot selected cameras.
- Click to show/hide the preview image of the selected video source: Use this button to activate or deactivate the live image preview of the selected camera in the preview window. This function may be useful when, for example, displaying the live image takes up too much time due to a slow network connection.
- Click to See a Snapshot/Live Image of the Selected Video Source Only: Use this
 button to retrieve the current live image from the selected camera once and to
 display it in the preview window. This allows the camera to be identified, yet preventing the preview image from being constantly updated and, as a consequence, considerably reduces the network load.

The settings of the selected cameras are automatically loaded and displayed in the dialog box. This dialog box will notify you if the individual settings of several selected cameras are different. You can transfer the settings to a camera by clicking **OK** or **Apply**. However, this will only transfer data if the settings for the relevant camera have also changed.

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A Camera Configuration

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The settings on the **Image Settings** and **Recording** screens can be applied to several selected cameras all at once. This allows you, for example, to conveniently configure an event recording for all cameras on one computer in one step.

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4.2 The "Overview" Tab

This section contains a list of selected camera settings. They include the arming and recording statuses, the activated events, the type of event recording (snapshot, events or continuous recording), and the storage location (external file server, internal SD card, internal flash memory, etc.).

Name	*8	Arming	Recording	6	Events	H	Mode	陆	Server	
8W-H02-12-2-1-12	i On	4	01	-		B	Contractor (l ar	2 (10-1-1-1112)	
mx 10-2-97-71	-		0.00	-				-		
BWLM22.10-2.1.0	© 0ff		(ii) Uff		199, 1992,	H	Events (roop	C Not	configured	
BWI-M22-10-3-0-31	O off		2 On	E I	VM, UC, TT	H	Continuous (I Not	configured	
BWI-H1200-10-2	🕞 Off		y on	1	VM, VM2,	H		Ità car	5 (10.1.1.182)	
192.168.2.173										
192.168.2.238	-			-		_				
			Camera:		WI-H22-10-2	-1-93	3			
			Recording:	10	In					
			Events: 6	5						
			Mode:	10	iontnuous (M	ыяес	-Stream)			
			Server:	à	P 5 (10.1.1.	182)				

Many settings can be modified using the pop-up menu. The pop-up menu also offers you the option of switching to the appropriate area for more detailed settings (for example, **Recording**).

H	Mode	围	Server	P13	Arming	H	Recording
Eve	nts Anore C	hot (JPEG-Pict	s) Off>	😑 Off	~	Off On	
	Events	(MxPEG-Clip)	-Stream)			Signal Input O Signal Input C	pen (SI) losed (SI)
	Record	ding				Custom Signal Custom Signal	1 (CS1) 2 (CS2)
	Read Office Control of					Combined Sign	nal (CSL)
						From Master	

Clicking **OK** or **Apply** sends the modified settings to the camera, where they are stored permanently.

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For more information on the available camera settings (user interface in the browser), see the *software manual*.

- Arming: Setup Menu > General Event Settings > Arming: For more information, see Section 7.5 Arming in the software manual.
- Recording: Setup Menu > Recording > Arming: For more information, see Chapter 8 Recording in the software manual.
- Events: Setup Menu > Event Settings. For more information, see Section 7.6 Events in the software manual.
- Mode: Setup Menu > Recording > Recording (REC). For more information, see Section 8.2 Recording Modes in the software manual.
- Server: Admin Menu > Storage on External File Server / Flash Device. For more information, see Section 8.3 *Recording Modes* in the *software manual*.

4.3 The "Image Settings" Tab

This screen allows you to adjust the settings that determine the quality of the camera image (saturation, brightness, sharpness, backlight, resolution, JPEG quality, etc.). The image settings can be applied to several selected cameras all at once.



If the **Apply changes immediately** checkbox is activated, the changes are immediately stored in the camera, are immediately visible in the preview image of the dialog box and in the live image, and are also available after rebooting.

If this checkbox is not activated, the changes are first sent to the camera, where they are also stored once you have clicked the **Apply** button.

The "Image Settings" Tab

If the selected camera is a MOBOTIX Dual Model with two image sensors, you can configure the settings for each image sensor individually. The image sensor in question can be selected from the selection list.

Caution

Make sure that you have selected the desired image sensor again before closing the dialog box.

For more information on the available camera settings (user interface in the browser), see the *software manual*:

• S/B/B/S: Saturation, Brightness, Backlight, Sharpness.

Setup Menu > Color Settings, Setup Menu > Exposure Settings and Setup Menu > General Image Settings. For more information, see Section 5.5 *Image Controls* and Section 5.7 *Exposure Settings* in the *software manual*.

Camera Sensor: Sensor selection (only possible with dual lens models).

Setup Menu > General Image Settings. For more information, see Chapter 5 Basic Camera Configuration of the software manual.

 Format: Resolution, JPEG Quality, Transfer Rate (frames per second), Mode (image quality).

Setup Menu > General Image Settings and Setup Menu > Image Settings. For more information, see Section 5.5 *Image Controls* and Section 5.7 *Exposure Settings* in the *software manual*.

Image Settings: Night Improvement, White Balance, Noise Suppress, Automatic Contrast.

Setup Menu > Exposure Settings, Setup Menu > Color Settings and Setup Menu > General Image Settings. For more information, see Section 5.5 *Image Controls* and Section 5.7 *Exposure Settings* in the *software manual*.

Exposure Settings: Exposure Program.

Setup Menu > Exposure Settings. For more information, see Section 5.7 *Exposure* Settings in the software manual.

If you want to edit further settings beyond the configuration options that are available here, MOBOTIX cameras allow you to make advanced changes directly using your browser (Setup Menu > Image Control).

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4.4 The "Exposure" Tab

The **Exposure** screen of the camera configuration allows you to adjust the *exposure windows* of the selected MOBOTIX camera.



Exposure Window "Quarter" (Default)

Exposure windows enable MOBOTIX cameras to determine the optimal exposure for the images. You can use the camera's pre-defined exposure windows or you can define custom exposure windows.

Exclusion Windows define the sections that should be excluded when determining the correct exposure (for example, bright sources of light in the camera's image area).

Exposure Weighting defines how the exposure windows are assessed in relation to the area outside of the exposure windows (100% = use exposure windows only).

The exposure windows are normally displayed in a frame with a thin border. Clicking this frame causes the border to be displayed in bold ("activated") and the coordinates of the frame are displayed in the **Frame Details** group.

Editing Exposure And Exclusion Windows

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- Changing the Size of a Window: Move the mouse over the frame of the window, which can then be edited, as indicated by the cursor.
- Moving a Window: If you move the mouse over a window, the cursor will change and you will be able to move the window anywhere you like.
- Deleting a Window: Click the small "x" in the top right-hand corner of the frame to delete the window. Activated frames (bold) can be deleted by pressing the DELETE KEY.

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Adding Exposure And Exclusion Windows

- Adding an Exposure Window: Use the mouse to draw a green frame within the camera's image area.
- Adding an Exclusion Window: Use the mouse to draw a new green frame in the image area (the new frame is automatically active) and click the Exclude checkbox in the Frame Details group. The active frame is now displayed in red.

Other Options

• Show Frame: These options allow you to define if and when the exposure and exclusion window frames are shown in the camera's image area.

4.5 The "Recording" Tab

This tab allows you to configure the settings for **Recording**, which in turn determine how image data is archived.

Name * 8Wi-M12DN-10-2-12-168 10.2.92.71	Recording Switch Recording: On
6Wb/H10-20-1-21-124	Recording Mode
8Wi-M22-10-2-1-8	
B//JI-4422-10-2-1-93	Mode: (Continuous (NoFEG-Stream) + Prame Rate: (Maximum + [tps]
8V0 402 80 3 9 31	📝 Audo 📄 Pul Image Recording
BWI-M12DN-10-3-11-55	Recording Start and Duration
5WI-M12DN-10-3-7-199	
\$99441200-10-2-12-124 ***	and ruger: - related protection (rel) - related protection (rel) - related protection (rel) 2 vides indexed (rel) - related protection (rel) - related protection (rel) 2 mode indexed (rel) - related protection (rel) - related protection (rel) 3 part index 1 (SD) - related protection (rel) - related protection (rel) 3 part index 1 (SD) - related protection (rel) - related protection (rel) 1 protection (rel) - related protection (rel) - related protection (rel)
	Time Before: Off +
and the second second	Time After: 10 sec.

A recording can be activated with the recording switch and you can choose the recording mode. When particular events are detected by the camera, you can activate a recording with a particular frame rate and pre- and post-alarm times (Time Before and Time After). In addition to configuring the camera for internal recordings, the camera can also be configured to archive image data on a local PC or another computer of your choice.

Notes And Explanations On The Groups

• Recording: Arming status for recording.

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Г	×	

- Mode: Recording Mode, Snapshot/Events/Continuous.
- Frame Rate: Frames per second for continuous recording.
- Audio: You can record audio for event recording and continuous recording when recording in MxPEG format.
- Full Image Recording: The cameras always store the full image using this feature, regardless of the live image stream that is being displayed. This ensures that the recording always contains the full image, even though the operator may have used the vPTZ features to zoom into the image in order to examine a specific detail. This applies particularly to the Q24M models, which rely strongly on the vPTZ features in the live image. This means that you can use the vPTZ features to pan, tilt and zoom the live image while the camera is recording full images at 1 fps in MEGA or QXGA resolution. Thanks to the advanced distortion correction features of MxControlCenter and MxEasy, you can still play back and examine the recorded full images of Q22M cameras normally, that is, without distortion. To use this feature, activate the Full Image Recording option under Camera Configuration > Recording. This dialog box also allows you to set the desired resolution, in addition to other parameters.

Please pay attention to the following:

- You should use at least MEGA format (ideally QXGA) if you are using Full Image Recording on MOBOTIX cameras in the Q series. The applications need high resolution to deliver satisfactory image quality when viewing the recorded images in MxControlCenter or MxEasy.
- As the processing power of the camera is limited, full image recording reduces the attainable data rate of the live image stream, which may drop by about 10 to 30 percent. It is therefore recommended to reduce the frame rate for storage as much as possible, so as to minimize the effects on the live image stream.
- Snapshot Recording Mode: You can pack snapshots into one clip file to improve file server performance in Recording Mode. To do so, activate the Pack Story checkbox.
- Start Trigger: Cameras can be set up to start a recording if an event is detected. This event can increase the frame rate of the recording for a short period of time for snapshot or continuous recording.
- Frame Rate: Frames per second during the recording of the event.
- Time Before: Period of time for recording before the event takes place, including the specified frame rate.
- Time After: Period of time for recording after the event takes place, including the specified frame rate.
- External Recording: The camera can be configured to use an external storage device for recording image data. You can make detailed settings in the External Recording dialog box. Click Setup... to display this dialog box.

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External Recording

In order to configure a MOBOTIX camera to record data to an external server, you need to enter the IP address of the server, the share name of the folder, and the user name and password of an authorized user. If you want to record to a local PC, you can share the folder and create an authorized user with the **External Recording** dialog box. MxControlCenter configures your computer as required.

Once you have configured the external storage device for recordings and transferred the configuration data to the camera (by clicking OK or Apply), the program may ask you to restart the camera in order to apply the settings.

A External Recording			
Target Computer			
	Create a shared fold	er on this c	omputer
	Use a different serve	r or storag	e media
Storage	CF Flash Card		•
IP Address	10.0.0.254		
Shared Folder			
Shared Folder:	[data		
User Name:	munds		
Password	*****		
Quota			
	😨 Max. storage size:	\$120	н
	🕑 Max. age:	2	daye
	Max. sequences	0	
Details			
	"File sharing is set up of	acrectly.	
			QK Cancel

- Target Computer: In order to share a folder on your local computer, use your local IP
 address (it will be entered automatically). To use a different server, you need to enter
 the file system and IP address for this file server manually. If you want the camera
 to record to the expansion slot on the camera itself (USB stick, CF card), you do not
 have to enter an IP address or authorization information.
- Shared Folder: You need to enter the required information depending on the file server you choose. To record to a local computer, you can either select a pre-existing shared folder and user name or create a new shared folder and user name, if needed.
- Quota: The external recording can be limited according to three criteria: Maximum storage size in MB (Max. storage size), maximum number of days to keep (Max. age), and maximum number of events (Max. sequences).
- Details: When recording to a local computer, the Details area indicates any potential problems. For example, if you have entered an incorrect password for a user name, this is displayed in this area.

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MOBOTIX cameras offer advanced configuration options for external storage devices for recordings. These options can be accessed directly using the browser:

- Open your browser and enter the IP address of the camera.
- Arming (Setup Menu > Recording > General Settings).
- Storage on External File Server (Admin Menu > Storage on External File Server / Flash Device).

4.6 Updating The Camera Software

MOBOTIX cameras are always delivered with the latest version of the required software to guarantee that your camera runs stably and functions properly. Nevertheless, it may be necessary to update the camera software from time to time, as this not only corrects software bugs, but also adds new features to the camera.

4.6.1 Preparing The Software Update

As a MOBOTIX camera owner, you are entitled to free software updates for your camera. Go to www.mobotix.com Under **Support** > **Software Downloads** to download the latest software version. Download the correct *.mpl file for your camera to a specific location on your computer's hard drive.

The **Update Assistant (Tools > Assistants > Update camera software)** lists all cameras you defined in MxControlCenter. Note that you can only update cameras with the status **OK** in MxControlCenter.



Connect To Camera

If a camera is listed with the status *Access denied*, you first need to enter a valid user name with admin level access rights along with the corresponding password for proper authentication. To do this, click **Connect to Camera** and enter the user name and password for this camera in the next dialog box (**Connection Settings**).

Rebooting

Click **Reboot** at any time to restart the selected cameras for testing purposes, for example, for testing the configuration of the camera after a power failure.

4.6.2 Updating System Software

Select the cameras whose software you would like to update and click **Upload Software**. Now open the *.mpl file you downloaded earlier. This file contains the update image for the selected cameras. Then click **OK**.

The software update now starts automatically. MxControlCenter displays the update progress for each camera in the **Progress** column. After loading the update image file, each camera has to unpack the image to the permanent memory, after which each camera will automatically reboot.

Caution

Do not close MxControlCenter during the software update process. Avoid power failures or disruptions to the network connection to the cameras.

Connection Settings

€ Reboot

(Upload Software

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4.7 Saving And Importing Camera Configurations

The **Update Assistant** automatically saves the configuration files for each camera. You can also use the **Save Settings** button at any time to simultaneously save the configurations of several selected cameras. You can reload any valid configuration to the selected cameras using the **Upload Settings** button. On the one hand, you can use this feature to correct a faulty configuration file of a camera and to restore it to a defined and tested configuration. On the other hand, this feature provides an easy method for copying the configuration from one camera and applying it to another, making it convenient to manage several different cameras.

Log Window

While the camera software is being updated, the individual steps are displayed in the Update Log window, which may be helpful for MOBOTIX support in case of problems, for example. If the log is not shown at the bottom of the dialog box, it can be displayed using the **View > Update Log** menu command.

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5 MXCONTROLCENTER OPTIONS

5.1 Overview

You can access the **MxControlCenter** options **under Tools > Options...** Open this dialog box to edit the basic settings of MxControlCenter and configure all the MOBOTIX cameras or video sources in the selected layout.

 General: This tab provides the general settings for MxControlCenter such as the admin and user passwords for MxControlCenter, global user names and passwords for the MOBOTIX cameras, the default behavior when launching and minimizing the application, and the default behavior when detecting general errors and connection errors with cameras.

More information on this topic can be found in Section 5.2, The "General" Tab.

 Alarm List: This tab includes a checkbox for activating the alarm list and other settings for the alarm list features of MxControlCenter such as the size of the alarm list, alarm sound notification, etc.

More information on this topic can be found in Section 5.3, The "Alarm List" Tab.

 Remote Control: This tab includes a checkbox for activating the remote control and other settings for the remote control features of MxControlCenter by MOBOTIX cameras. This tab's options also controls MxControlCenter behavior when receiving network messages (TCP/IP messages) sent by MOBOTIX cameras to the MxControlCenter computer.

More information on this topic can be found in Section 5.4, The "Remote Control" Tab.

 <Camera Tabs>: These tabs (each assigned with the name and IP address of the camera) include specific settings for each MOBOTIX camera defined in MxControlCenter.
 For example, individual user data for the respective camera or the type of pan/tilt head connected to the camera can be entered here.

More information on this topic can be found in Section 5.5, Camera Tabs.

General Alarm List Remote	Control BWi-M22-10-	3-0-31 (10.3.0.31) BWi-	M12DN-10-3-11-55 (10.3.	11.55) BWi-M12I 4
Admin password:			On startup	Mouse-over
User password:		ii	Start Layout 💌	© Off
Auto locout:	600	sec (max 3600)		On Dy MultiAnus
], (Small area
Global camera user name:			Show toolbar at bott	000
Global camera password:			Layout buttons in to	olbar 4
Proxy	192.168.2.254	Port: 8080	Show Softbuttons	Viewer or camera
File server path:	C:\Daten und Progr		Full screen mode	vience of califeia +
and the second second second			Use white grid	
During minimize (task bar):	pause		Synchronize clips or	n start
Sequencer time:	1 sec.		Demo mode	
On top after:	sec.		MxStatus IP:	Port:
- M -			Sequential mode	0 - sec
Log file] [] [] [MB 🔺	On double click	Open Live Windo 🔻
Return to Start Layout after	sec.		Always on top	
Sound on error	[
Sound on lost camera	-			
Off C Been File	1		Reduce frame rate (CP	U usage) off 🔹
Con Cheep Chie	<i>b</i>		Use camera layout sett	ings ask 🔻
Error display on lost camera			100 8: (:	Z 10 - 10
Off Off Error message (Graphic	COV	ers 100 % of image in 3	r direction
Error display on latency times	Out Carabia		100 8100 1000	d descentes of
Cin Cin Error message (Graphic	cov	ers 100 % of image in	direction
Maximum latency time: 200) ms	Maximum overdue tin	me: 1000 ms	
Set global folder	C:\Daten und Prog	ramme\MX-Software\Mv	C2 1\Confin	
ust global folder	o. water_und_ring	Commo and Contracto and	ook. I tooring (

5.2 The "General" Tab

- Admin password: Enter the administrator password for MxControlCenter in this field. Once a password has been set, users are prompted to enter this password to access the *admin* level. Enter a time in the **Auto logout** field to determine the length of time after which the user will need to enter the password again to open a certain feature. More information on this topic can be found in *Section 3.7.1, Access Levels Of MxControlCenter.*
- User Password: Enter the user password for MxControlCenter in this field. Once a
 password has been set, users are prompted to enter this password to access the
 user level. More information on this topic can be found in Section 3.7.1, Access Levels
 Of MxControlCenter.
- Auto Logout: After the time set in this field has elapsed, MxControlCenter automatically logs out any user. When this occurs, users will need to enter the password again to access the corresponding features. You can set the auto logout time from 1 to 3,600 seconds (one hour).
- Global Camera User Name and Global Camera Password: MxControlCenter can
 only access a MOBOTIX camera once a user name and password have been set for
 the corresponding access level for that camera (for more information, see Section
 5.4.1 User, User Groups, Passwords, Supervisor Mode in the software manual). This
 field allows standard user data to be set in MxControlCenter that are automatically
 used for MOBOTIX cameras where the fields Camera user name and Camera
 password on the corresponding tab are empty. This option is very useful if, for

Overview



example, several cameras in one MxControlCenter installation or in one layout all have the same user name and password.

- **Proxy:** Make sure that this option is activated if a proxy server prevents direct access to the MOBOTIX camera. The IP address and the port of the proxy server need to be entered in the corresponding fields.
- File Server Path: MxControlCenter can access the stored image and video sequences either via the camera or directly from the file server on which the camera has stored the data. Enter the standard path to the file server in this field. This path is automatically used for all MOBOTIX cameras, provided the File server path field on the corresponding tab is empty. Use this option if several cameras of a MxControlCenter installation or layout have been configured to use the same file server path.

Note

Retrieving images from a file server offers additional advantages as it is faster than retrieving images via the MOBOTIX camera and is also independent of the camera itself. This approach thus significantly reduces the network load and does not put any strain on the camera, since it is not involved in providing any files. Therefore, the performance of the MOBOTIX camera's processor is not compromised and is always available for other tasks. However, if the images are retrieved using the camera, you only need to enter the camera user name and the corresponding password to access that camera when configuring MxControlCenter.

Caution

When retrieving the images and video sequences from a file server, make sure that the shared folders have been properly configured (read rights for the computer and the user running MxControlCenter). For more information, see Section 8.3.4 *Recording on a Windows Computer* in the *software manual*.

Make sure that the computer has access to the shared folders before MxControlCenter attempts to access the stored image and video sequences. MxControlCenter should not establish the connection itself. Note that MxControlCenter will not alert you if the connection fails for any reason.

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- During Minimize (Taskbar): This option allows you to set the behavior of MxControlCenter if the application has been minimized to the task bar:
 - Stop all: This option allows you to interrupt the retrieval of the image and video sequences when MxControlCenter is minimized. Once the MxControlCenter window has been restored from the taskbar, you need to click the respective button in the toolbar to manually restart each individual display window.
 - Pause: This option allows you to pause the retrieval of the image and video sequences when MxControlCenter is minimized. Once the MxControlCenter window has been restored from the taskbar, retrieval is automatically resumed.
 - Continue decoding: This option allows you to continue retrieving image and video sequences when MxControlCenter is minimized.

Note

Note that MxControlCenter will be restored automatically when the application receives a valid camnotify or ip command (for more information, see Section 5.4, The "Remote Control" Tab).

Caution

If MxControlCenter is minimized, the alarm list is only updated by the cameras that send network messages with the commands camnotify and ip to the MxControlCenter computer. While the application is minimized, incoming alarm images from cameras included in the current layout that **do contain network messages** are **not** included in the alarm list!

- Sequencer Time: This field allows setting a standard interval for the Sequencer mode. This interval is automatically used for MOBOTIX cameras unless a different interval has been set in the Sequencer time field on an individual camera tab in MxControlCenter. When in Sequencer Mode, each camera will stay visible for the duration entered in this field unless - a specific sequencer time has been defined for that camera. - If this is the case, the individual sequencer time will be used.
- On Top After: After the interval in this field has elapsed, MxControlCenter automatically restores itself on top of all other application windows.

This is a convenient option to use when other applications are running alongside MxControlCenter and may be covering the MxControlCenter window.

•

 Return to Start Layout after: The value entered in this field determines the duration before the layout manager automatically activates the specified start layout.

This is a convenient option whenever you need to switch frequently between different layouts and would like MxControlCenter to automatically return to a certain layout.

- Sound on Error: Use this option to play back an audio file over the computer speakers (or the default output device). When this option is activated, the selected device plays back either the standard system sound (*Beep*) or a selected audio file (*.wav) available on the computer (the File option) if an internal system error occurs.
- Sound on Lost Camera: Using this option, you can select whether an acoustic signal is played back over the computer speakers (or the standard playback device). When this option is activated, the selected device plays back either the standard system sound (Beep) or a selected audio file (*.wav) (File) on the computer if a connection error occurs in one of the MOBOTIX cameras in the layout.
- Error Display for Connection Errors: Using this option, you can select whether a
 connection error detected during the live display of a camera is visualized in the
 display window. You can select either a standard error message (Error message) or
 a graphics file (*.jpg) (Graphic). You can select the vertical percentage (in Y direction)
 of the display window to be covered by the graphic for graphics files.
- Error Display on Latency Timeout: Use this option to select either a standard error message (Error message) or a graphics file (*.jpg) (Graphic) to be shown in the display window if the latency time of a camera is too long. In this context, "latency time" means the time difference between the point at which an image is generated by the camera and the point at which it is displayed in MxControlCenter.
 - You can select the vertical percentage (in Y direction) of the display window to be covered by the graphic for graphics files.
 - In this area, you can also set the maximum latency time to use by changing the value for Maximum latency time (in ms).
 - In addition, you can set the value for Maximum overdue time (in ms).

This value is exceeded when the value for **Maximum latency time** is exceeded by the **Maximum overdue time**. This error is reset when the **Maximum latency time** returns to a value below the set parameter for the **Maximum overdue time**.

Caution

When using the latency time options, make sure that the system time of the camera and the system time of the MxControlCenter computer are precisely synchronized. You need to use a time server (and, if necessary, the corresponding Windows software) to ensure that they are synchronized.

Set Global Folder: Use this field to preset a global folder for storing the MxControlCenter configuration files. You can establish a standard configuration for multiple users of MxControlCenter on different computers when using this folder as a global folder for all MxControlCenter computers. You can also choose a shared folder on a file server on the network.

Note

For more information on which folder MxControlCenter accesses first when loading a configuration, see Section 3.6.1, Global And Local Folders.

- For example, MxControlCenter can automatically launch with the specified startup option), the Layout Sequencer, or minimized to the taskbar (the *Minimized* option).
- Mouse-Over: This option allows you to control the behavior of MxControlCenter when the mouse pointer is positioned over a camera image. For example, if you would like to show a full resolution live image from the MOBOTIX camera, select the On radio button. If you would like to see the standard MultiView layout, select the By MultiView radio button. At least one MultiView view needs to be configured on the camera in order to use this option. Activating the Small area checkbox will hide the mouse-over window if the mouse pointer leaves the small area in the middle of the camera window in the layout. Otherwise, the mouse-over window remains open until the mouse pointer leaves the area of the mouse-over window. Select the Off radio button to disable this feature.
- Show Toolbar at Bottom: Use this option to display the toolbar at the bottom of the display area instead of at the top.
- Layout Buttons in Toolbar: Instead of displaying the buttons for executing the various actions as described above, the toolbar contains only buttons with the names of the layouts in the configuration when this feature is activated.

In the next text field, you can specify how many of the layout buttons you want to be displayed in the toolbar. These buttons (a maximum of 10) are automatically assigned layouts from the layout list, with the layout names being displayed on the buttons. The position in the layout list corresponds to the position of the button in the toolbar from the left to right (so the first layout in the layout list can be activated via the button on the far left of the toolbar).

This setting can be used, for example, for pure live surveillance applications in which the users of the system are only required to switch between layouts with different live cameras without performing any additional functions.

Full Screen Mode: Enable this option to maximize MxControlCenter without displaying any title bars or window frames. Deactivate the View > Display area only option in the pop-up menu (right-click) or press Esc on the computer keyboard to return to the default view. Note that no soft key bars are shown in Full screen mode.

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On Startup: Use this option to change the startup behavior of MxControlCenter. layout, the layout opened at the time the program was last closed (the Last layout

- Use White Grid: Enable this option to display the camera windows with a thin white border in a grid layout. This provides a better overview of multiple cameras in small windows.
- Synchronize Clips on Start: Use this option to synchronize all MxPEG clips by time upon playback in MxControlCenter. This option corresponds to synchronized playback in local recorder mode.
- Demo Mode: This option activates the Demo mode of MxControlCenter. In Demo mode, MxControlCenter automatically displays typical actions for all cameras in the current layout.
- On Double Click: This option controls the behavior of MxControlCenter when you
 double-click a camera image. Double-clicking can switch between the right and the
 left lens of the MOBOTIX camera (*Change Lens*) or can open a live window (*Open
 Live Window*). Select *Do nothing* to disable this feature.
- Always on Top: Enable this option to always display the MxControlCenter window on top of all other applications. This option can be used to guarantee that MxControlCenter is never covered by other application windows.
- Reduce Frame Rate (CPU Usage): If you have set a percentage value for the CPU usage in this field, MxControlCenter automatically reduces the frame rate of the live cameras if this value is exceeded in order to adjust the CPU usage accordingly.
- Use Camera Layout Settings: The camera settings are saved along with the MxControlCenter settings. When MxControlCenter is launched again, the current settings of the cameras are compared to the settings stored in MxControlCenter. If the camera settings deviate from the stored settings, you can choose either the MxControlCenter settings (*Always*) or the camera settings (*Never*). The third option (*Ask*) displays a dialog box when the application is launched. Here, the user can select one of the two options.

5.3 The "Alarm List" Tab

otions		
General Alarm List	Remote Control	tul-10-3-11-46 (169.254.12.29)
Activated		
Open list o	Size: Alam list file: 🗌 In new alam: 🗹	16 MB
Sound on new alar Activated	m O File	
Source Repeat Sound Off Eveny 3	nd deadtime:	3 sec.

Enabled

 This checkbox activates the alarm list feature. When it is activated, MxControlCenter stores the alarm images and video sequences of the MOBOTIX cameras in the computer's RAM. In addition, MxControlCenter can store the alarm images in an alarm list file. This means that MxControlCenter can display the stored alarm images even after closing and restarting the application.

General

- Size: You can set the maximum amount of RAM reserved for the alarm list from the drop-down list here. If the value specified here is exceeded, the oldest alarms are automatically deleted to make room for new alarms.
- Alarm List File: Enter a file name for the alarm list in this field. After closing MxControlCenter, the alarm list will also be available the next time MxControlCenter is launched. If this field is empty, the alarm list is deleted when MxControlCenter is closed. The maximum file size for the alarm list file is also determined by the setting from Size.
- **Open List on New Alarm:** If this checkbox is enabled, MxControlCenter automatically shows the alarm list when detecting a new alarm.

This feature is very useful in cases where alarms are rare. In these cases, the entire display area of MxControlCenter can be used to display the live camera images. When MxControlCenter detects an alarm, it will show the alarm list shown with the new alarm highlighted in red.

 Auto Acknowledge Alarms after: Enabling this option prompts MxControlCenter to automatically acknowledge the alarms after one is detected and the specified time has elapsed. You can set this time from 1 minute to 24 hours. 131/152

Sound On New Alarm

- Activated: Enabling this option prompts MxControlCenter to play back an acoustic signal over the computer speakers (or the default output device) when an alarm is detected.
- Sound: Select either the standard system sound (the Beep radio button) or specify an
 audio file (*.wav) on the computer (the File radio button). MxControlCenter will play
 back this acoustic signal over the computer speakers (or the default output device)
 when an alarm is detected.
- Sound Deadtime: Enabling this option prevents further acoustic signals from being
 played back for this period of time after a sound for this alarm is emitted for the first time.

Repeat Sound

- Off / Every ... Sec.: Use this option to prompt MxControlCenter to repeat the selected acoustic signal at regular intervals according to the value entered in the sec. field until the alarm is acknowledged in the alarm list.
- ... Until Acknowledged by Clicking: Select one of the radio buttons (any alarm, last alarm or every alarm) to specify which alarm image(s) need to be clicked to acknowledge and end the repetition of the acoustic signal.
- Repeat Sound for Max.... Seconds without New Alarm: Use this option to set the
 maximum time during which MxControlCenter repeats the acoustic signal.

Example: When setting this option to twelve seconds and the sound repetition to three seconds, for example, MxControlCenter will repeat the sound every three seconds for a total of five times: once upon detecting the alarm and after that, every three seconds for the next twelve seconds.

5.4 The "Remote Control" Tab

Section 3.3, Alarm Processing described how a MOBOTIX camera can send network messages to MxControlCenter triggering certain alarm responses.

In addition to receiving network messages from a camera, MxControlCenter can also receive network messages from other programs. These programs can send defined commands as network messages, with which MxControlCenter can then be "remote controlled" to a certain extent. This allows you, for example, to change the current layout from another application while MxControlCenter is running or to switch a specific camera within the current layout into the full image view. Network messages can also play back audio files on the MxControlCenter computer or reactivate a minimized MxControlCenter.

The Remote Control tab includes three areas for setting the necessary parameters:

	10-3-11-46 (169.254.12.29)		
General remote control and Camera IP N	otify		
Port activated (to listen for TCP/IP r	nessages)		
Port: 8001 Allowed IPs:		Examples: ***, '10.1.1.42, 10.2.1.43'	
Sound: O Off O Beep O File:			
Camera IP Notify only port			
Port activated (to listen for TCP/IP n	nessages)	Accept only valid commands	
Port: Allowed IPs:		Examples: "", '10,1,1,42, 10,2,1,43'	
Camera IP Notify options			
Capture event image		Automatic replies to sender for	sec
Capture pre and post event images			
Capture live image		Open live window	

5.4.1 General Remote Control And Camera IP Notify

This area allows you to configure MxControlCenter to receive any network messages. Network messages can be received both from other applications to control MxControlCenter remotely and from specific cameras for alarms.

Elements Of The "General Remote Control And Camera IP Notify" Area

- Port Activated (To Listen for TCP/IP Messages): Enabling this option prompts MxControlCenter to monitor the specified port for incoming network messages. The sender may use all available commands.
- Port: You must enter the port to be monitored by MxControlCenter for network messages here. If this field is empty, the remote control feature will not work.
- Allowed IPs: Enter the IP addresses of the cameras (or other network devices) that are allowed to send network messages to MxControlCenter. If the field is empty (or contains the entry *), MxControlCenter accepts network messages from every IP address. Therefore, for security reasons, you should always enter the relevant IP addresses immediately after completing the test or setup phase.
- Sound: Use this option to select whether an acoustic signal is played back over the computer speakers. When this option is activated and MxControlCenter detects a network message, the selected device plays back either the standard system sound (Beep) or a selected audio file (*.wav) on the computer (File).

Syntax Of Network Messages Sent To MxControlCenter

http://<IP MxCC Computer>:<Port>/?<Parameter 1>=<Value 1>&<Pa
rameter 2>=<Value 2>...&<Parameter n>=<Value n>

Examples:

http://192.168.1.182:8001/?**fullscreen=1**(minimizes MxControlCenter to the taskbar)

http://192.168.1.182:8001/?fullscreen=0(restores the MxControlCenter application window and displays it on top of other applications)

Note

The following link in the address bar of a browser prompts the MxControlCenter computer to generate a list of the supported parameters and their functions:

http://<IP MxCC Computer>:<Port>/?

```
Example: http://192.168.1.182:8001/?
```

Caution

Make sure that in the **General remote control and Camera IP Notify** group you enter a **Port**, otherwise the remote control feature will not work.

If necessary, you can contact MOBOTIX support for more information on the supported remote control features.

5.4.2 Camera IP Notify Only Port

In this area, you can set MxControlCenter so that only certain network messages are processed:

- Network messages from an MxCC Alarm: simple or an MxCC Alarm: acknowledge required type of MOBOTIX camera
- Network messages from a MOBOTIX camera with the camnotify parameter (....?camnotify=<IP address>,?camnotify=ownip)

These Messages Lead To The Following Actions:

- Activation of MxControlCenter, if it was minimized
- Entry of the corresponding images in the alarm list (see below)
- · Loading of the preferred layout, if it was defined for the camera

Elements Of The "Camera IP Notify Only Port" Area

- Port Activated (To Listen for TCP/IP Messages): Enable this option to have MxControlCenter to monitor the specified port and the allowed IP addresses only for network messages containing the campotify command.
- Port: Enter the port to be monitored by MxControlCenter for network messages.
- Allowed IPs: Enter the IP addresses of the cameras (or other network devices) that are allowed to send network messages to MxControlCenter. If the field is empty (or contains the entry *), MxControlCenter accepts network messages from every IP address. Therefore, for security reasons, you should always enter the relevant IP addresses immediately after completing the test or setup phase.
- Accept Valid Commands Only: If this option is enabled,MxControlCenter only
 processes a network message if it contains the command camnotify=ownip,
 camnotify=<IP address> or is sent by MxCC Alarm. If this option is disabled,
 MxControlCenter interprets every network message as a camnotify command,
 regardless of its content.

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Notes

- If remote control has been activated, ,MxControlCenter will automatically display the preferred alarm layout selected on the **Camera tab** (after confirmation) as soon as it receives a network message with the camnotify command from the corresponding MOBOTIX camera.
- Makes sure that you always use ports that are greater than 1023 and lower than 65535. Avoid the use of registered ports between 1024 and 49151. For more information, refer to the article on "TCP and UDP port numbers" at en.wikipedia.org.

Caution

Make sure that in the **Camera IP Notify only port** group you enter a **Port**, otherwise the remote control feature will not work.

5.4.3 Camera IP Notify Options

The following options are available for the processing of network messages with the $\mathtt{camnotify}$ command:

Elements Of The "Camera IP Notify Options" Area

- Capture Event Image: MxControlCenter captures the last alarm image (event image) from the MOBOTIX camera and adds it to the alarm list. If none of the three options are checked (Capture event image, Capture pre and post event images, Capture live image) the alarm image (event image) will be used and automatically added to the alarm list (default setting).
- Capture Pre and Post Event Images: MxControlCenter captures the first pre-alarm image and the first post-alarm image from the camera and adds them to the alarm list.
- Capture Live Image: MxControlCenter captures the current live images from a MOBOTIX camera and adds them to the alarm list.
- Automatic Replies to Sender for ... Sec.: Enable this option to have MxControlCenter send regular network messages (one every second for the specified time period) back to the IP address of the camera that sent the message.

This is a convenient option for MOBOTIX cameras that are linked via a dial-out ISDN connection, for example. After sending a network message to MxControlCenter, the MOBOTIX camera usually closes the ISDN connection it has established for this purpose. It would not be possible for MxControlCenter to contact the camera to retrieve the last camera alarm image after having received the network message. Therefore, activating this option ensures that the ISDN connection remains open for the duration of the specified time period.

• **Open Live Window:** If this option is activated, MxControlCenter retrieves the current live image from a MOBOTIX camera and displays it in a new window.

Last Commands Received

This field lists the most recent network messages received by MxControlCenter. The list provides a mechanism for conveniently monitoring and analyzing the messages and for localizing the sources of errors.

5.5 Camera Tabs

eneral	Alarm List	Remot	e Control	BWi-M2	2-10-3-0-3	31 (10.3.0.	31) BV	Ni-M12DN	V-10-3-	11-55 (10.3.11.55	5) BW	A-M121
Came	a access	<u>.</u>	-				0.5				201	
	Camera use	rname:										
	Camera pas	ssword:										
	Get Player		@ \/m em									
	Get i layer i	mages.	Global	file serve	r oath (sul	bfolder wit	h camer	a factory	IP is ap	pended automati	ically)	
			Camer	a file serv	er path:			u lucioly l		porte o determent]	
Layou	and display	options										
	Instruct	ion file:										
Pref	erred/alarm	layout:	Not defin	ed			•		1	Banking Mode	e	<u> </u>
1	ocal record	er size:	4 MB		•							
	Sequenc	er time:										
	Dieplay	ratem	(a) Minimu	m delav				(m) 11	L			
	Dispidy a	lidicgy.	 Smooth 	n display				Use	only w	ith slow frame rat	es	
PTZ/	Rotor Contro	1			_		C1					
		Type:	No pan/t	ilt head	-	Sensitivity	Nom	al	*	E Fast patch		
P	n Ailt head	control:		X direction	n							
		control.	Invert.	V direction								
			I Invent	I direction								
Sa	ve change	d image :	settings pe	manently	in camer	a:						
			Save	Vever	Save	e Always	0	Ask User				

5.5.1 Camera Access

- Camera User Name and Camera Password: Before MxControlCenter can access a MOBOTIX camera, you need to set up a user on the camera with the corresponding access rights (Admin Menu > Users and Passwords / Access Control Lists)). These fields allow you to enter the specified user name and password.
- Get Player Images: MxControlCenter can retrieve the stored images and video sequences either from the MOBOTIX camera itself (the Via camera radio button) or directly from the file server on which the camera has stored the images (the File

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server path radio button). If the MOBOTIX cameras store their video data on the local computer, you can also enter the corresponding path here (Camera file server path).

When retrieving the images and video sequences from a file server, make sure that the shared folders have been properly configured (read rights for the computer and the user running MxControlCenter.

Caution

Make sure that *the computer has access to the shared folders before* MxControlCenter attempts to access the images and video sequences. MxControlCenter should not establish the connection itself. Note that MxControlCenter will not alert you if the connection fails for any reason.

5.5.2 Layout And Display Options



- Instruction File: The file entered here (*.txt, *.html, etc.) appears with the connected program and is displayed in a separate window by clicking the Activate the preferred layout of the selected camera button in the toolbar or the appropriate icon in the title bar of any display window.
- Preferred/Alarm Layout: The MxControlCenter layout in this list is automatically displayed whenever MxControlCenter receives a valid network message from the corresponding MOBOTIX camera and the camera remote control has been activated in MxControlCenter (the General remote control and Camera IP Notify group or Camera IP Notify only port group).

Note

The only requirement is that the camera is on the MxControlCenter camera list. It is not necessary that the camera is visible in the current MxControlCenter layout or included in the current layout at all.

 Local Recorder Size: Every MOBOTIX camera in the current layout automatically writes the live images it sends to MxControlCenter to a local buffer on the computer. The buffer works like an automatic live image recorder and is called "local recorder"



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in MxControlCenter. The buffer size (i.e., the size of the local recorder) can be preset in this list. As this feature is currently being redesigned, this setting has no effect.

- Sequencer Time: Enter an individual sequencer interval for the corresponding camera here. This interval has priority over a global sequencer time on the General tab. In Sequencer Mode, the camera image remains visible for the time interval entered here and cameras without an individual sequencer value are shown for the period specified in the global setting.
- Display Strategy: Use this option to change the latency time between the point at
 which the live image is captured by the MOBOTIX camera and the point at which it is
 displayed in the MxControlCenter. The Minimum delay option shows the live image
 stream from the cameras in MxControlCenter as quickly as possible. When using the
 Smooth display option, MxControlCenter. always places two live image frames from
 the MOBOTIX camera in a temporary buffer so that the live image stream displayed
 in MxControlCenter is as smooth as possible (this avoids jittering due to temporary
 increases in the network load).
- Use Better Rendering: MxControlCenter always scales the camera images as quickly
 as possible. Use this option if the computer's CPU has sufficient power to use optimized algorithms for scaling and displaying the images (*activated*). Note that this
 option approximately doubles the CPU load.

This feature can also be automatically deactivated at high frame rates. If the **only with low frame rates** option is activated, the images will only be optimized at low frame rates. At high frame rates, this feature is automatically deactivated.

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5.5.3 PTZ/Rotor Control

If the MOBOTIX camera is installed on a pan/tilt head, the camera can be panned and tilted using the mouse or a joystick connected to the computer.



- **Type:** The following pan/tilt heads are supported in MxControlCenter:
 - Videotronic SN-15AH
 - Provitek
 - Provitek PT 2
 - Provitek PT 3
 - VPT 42
 - *MxProtocol*: This proprietary MOBOTIX protocol is used for controlling analog pan/ tilt cameras that are connected to a computer running MxServer.
- Sensitivity: Use the settings of this list to change the behavior and the speed of a
 pan/tilt head in relation to the movement with a mouse or a joystick. This option is
 available for the Videotronic, Provitek and VPT 42 pan/tilt heads.

The joystick model and the skills of each individual user have an influence on the ideal sensitivity. Therefore, we recommend conducting a field test to determine the best setting.

- Invert X / Y Direction: The displayed image, or even the camera, can be moved to the right by moving the joystick to the right, depending on the operator. Use these options to invert horizontal (X direction) and vertical (Y direction) movements.
- Fast patch: Use this option to control the pan/tilt head faster and more precisely. This option is only available for the Videotronic, Provitek and VPT 42 pan/tilt heads.

Caution

The **Fast patch** option requires a camera software version that has been modified by a patch from MOBOTIX.

Do not activate the **Fast patch unless** this patch has been installed on the corresponding MOBOTIX camera. The MxControlCenter controls for a pan/tilt head do **not** work with the normal, unmodified camera software if the Fast patch option has been activated. Additional information on this feature is available from our technical support team (**www.mobotix.com** under **Support**).

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Save Changed Images Settings Permanently in Camera: If you change the camera's settings for the live image views in MxControlCenter, this option allows you to automatically save these changes in the MOBOTIX camera (Save Always), or they are not automatically saved (Save Never). This applies above all to virtual PTZ features, which allow you to zoom in to the live image and to pan/tilt it. The third option (Ask User) displays a dialog box that asks you whether the changes should be permanently saved in the camera.



A MOBOTIX GLOSSARY

ActiveX

Control element on Windows computers which may also be used in other programs (including Windows Internet Explorer) to run special tasks. The *MxPEG ActiveX* control element allows video and audio data from MOBOTIX cameras to be displayed in other applications (including Internet Explorer).

Arming

This refers to the process of activating an alarm system so that events trigger the appropriate alarms. Traditional alarm systems can be armed using a key switch or by entering a code on a keyboard. MOBOTIX cameras can be armed using a "software switch."

Auto Grid

Automatically generated grid used for displaying the live images from all cameras.

Bonjour

(French for "hello") is a technology developed by Apple based on the **Zeroconf** protocol, which is a method to automatically recognize network services on IP networks. For example, you can find a printer or a network camera on the local network without knowing the exact IP address of the device you are looking for.

CamlO

MOBOTIX signal module that the camera uses to directly operate lamps, sirens and access controls, as well as external audio components (speakers and microphones).

CCTV

Abbreviation for *Closed-Circuit Television*. A television system in which the analog video signal is transmitted to monitor within one particular environment only (for example, a building). The term CCTV is often used for video surveillance systems.

CF Card

Abbreviation for *Compact Flash Card*. An ultra-compact, digital (random-access) memory medium based on flash memory modules and well-known as an image storage medium for digital cameras.

CIF, 2CIF, 4CIF (in accordance with PAL TV standard)

Common Intermediate Format. Corresponds to 1/4 TV image with 288 rows and 352 pixels (0.1 megapixel). 2CIF (1/2 TV image) has the same small number of rows (288), but 704 pixels (0.2 megapixel). 4CIF corresponds to the image quality of a traditional TV image with 576 rows and 704 pixels (0.4 megapixel).

CMOS Sensor

Abbreviation for *Complementary Metal-Oxide Semiconductor Sensor*. Sensor for energyefficient digitalization of image information. CMOS sensors are used as image sensors in digital cameras.

DevKit

Camera installation kit with independent image sensors based on MOBOTIX M12 or M22 cameras, intended for concealed installation in other devices.

DHCP

Abbreviation for *Dynamic Host Configuration Protocol.* Allows a server to automatically assign devices in the network with the appropriate configuration (including the IP address, DNS server and gateway), as opposed to fixed IP addresses on the individual network devices.

DNS

Abbreviation for *Domain Name Service*. Allows the domain names of servers on the Internet (e.g. **www.mobotix.com**) to be linked ("resolved") to their corresponding IP addresses (e.g. **212.89.150.84**).

Dome Camera

Most often refers to cameras with a round and compact design. The lens can be freely positioned and is protected by a transparent dome-shaped plastic housing.

DSL

Abbreviation for *Digital Subscriber Line*. Denotes a fast Internet connection capable of providing bandwidth of up to 16 Mbps for a typical household.

DualDome

Dome camera with two lenses and image sensors such as the MOBOTIX D12D. These lenses can deliver wide-angle and telephoto images independently of one another.

DVR

Abbreviation for Digital Video Recorder.

DynDNS

Abbreviation for *Dynamic DNS* (or *DDNS*, Dynamic Domain Name Service). Similar to **DNS**, this links domain names (e.g. **mydomain.com**) with IP addresses, whereby the IP addresses may change at any time. This service provides a convenient method to access your MOBOTIX cameras from home or work if the camera internet connection is not through a *router* which assigns a fixed IP address, but instead over a *DSL* connection with a dynamically assigned IP address from the provider. A well-known provider of this (free) service is **www.dyndns.org**.

Ethernet

The most common technology for communication within a wired network. It facilitates data exchange between all devices (computers, printers, IP cameras, etc.) connected to a local area network (LAN).

Events

An event refers to a situation when something happens or changes. In terms of video surveillance, this means a change in the status of an area that is being monitored. This can be movement of a person, a change in brightness, a drop in ambient temperature, the detection of a noise via a microphone, an electrical signal at a signal input, the manual operation of a button, etc.



ExtIO

MOBOTIX signal module that the camera uses to directly operate lamps, sirens and door openers as well as external audio components (speakers and microphones).

Fixdome

Camera without moving parts in a dome-shaped housing.

Flash Memory

See CF Card.

fps

Abbreviation for frames per second. See Frame Rate.

Frame Rate

The frame rate specifies how many frames per second (*fps*) are generated and sent by the camera. The human eye perceives movement as a fluid video sequence when more than 12 images per second are produced.

HDTV

Abbreviation for High Definition TV.

HiRes

Abbreviation for High Resolution. Refers to high-resolution images (above 1 megapixel).

Image Compression

Image compression reduces the file size of an image. This is particularly important when transferring and saving files.

Image Processing

Digital image processing. The goal is to correct errors made during image generation (caused by overexposure, underexposure, blurring, weak contrast, image noise, etc.) in order to create a "better" image.

IP Network

Data network based on the Internet protocol (TCP/IP).

IP Telephone

See VolP.

JPEG

Abbreviation for *Joint Photographic Experts Group*, responsible for the development of the JPEG standard method for image compression. JPEG is the most common lossy image format for photos on the Internet. Loss in image quality is barely noticeable at compression rates between 99% and 60%.

Latency

Time interval elapsed between when an image is captured by a camera and when that same image is displayed on the monitor.

Layout

Describes the layout of video sources on a screen site of the MxControlCenter. When displaying the images from network cameras, the layout determines the positions and resolutions of the images displayed on the monitor. In addition to the actual video images, you can also incorporate graphic elements such as the location of the cameras, etc.

LED

Abbreviation for *Light Emitting Diode*. An electronic semiconductor component, built in to MOBOTIX cameras and add-on modules, which emits light when current flows through the component in the correct direction.

Linux

Free and open source operating system; serves as the operating system for all MOBOTIX cameras.

Megapixel

Images that are 1 million pixels. Larger formats of images can be displayed as a multiple of this, for example, 3 Megapixel is equal to 3 million pixels.

MonoDome

Dome camera with one lens.

Motion Detection

Action of sensing a movement within a particular area. MOBOTIX cameras use algorithmic methods to detect changes from image to image in predefined areas, while taking into account preset conditions. If a camera detects a movement, it signals an event and triggers an alarm.

Motion JPEG, or M-JPEG,

is a video compression method where each individual image is compressed separately as a JPEG image. Unlike MPEG, the quality of M-JPEG recordings is not dependent on movement within the image.

MPEG

Motion Pictures Expert Group. Standard for compressing and saving image and video data, resulting in quality loss. Originally created for playing entertainment content on PCs, MPEG concentrates on displaying still image material and compromises the quality of moving image material in order to increase the transmission speed.

MxControlCenter

MOBOTIX video management software for professional control of mid-sized and large camera networks.

MxEasy

MOBOTIX video management software for small and compact camera networks of up to 16 cameras.

MxPEG

MOBOTIX-developed protocol for compression and storage of image and video data with minimal network load and high image quality. The MxPEG *ActiveX* control com-
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ponent allows video and audio data from MOBOTIX cameras to be displayed in other applications (including Internet Explorer). To date, MxPEG remains the ONLY protocol specifically designed for security applications

NAS

Abbreviation for *Network Attached Storage*. A storage system connected via an Ethernet cable. All network devices (cameras) have access to this storage system.

Network

Group of computers that are connected via various cables and share access to data and devices such as printers and network cameras.

PIR

Passive Infrared Sensor for motion detection.

PoE

Power over Ethernet. A technology for supplying network-ready devices (such as network cameras) with power via the Ethernet data cable.

PTZ

Abbreviation for *Pan/Tilt/Zoom*. Refers to the movement of a video camera to the left and right, up and down, and to the camera's ability to enlarge an image.

Quad Display

Layout in which the images from four cameras are displayed in one window.

Resolution

Indicates the number of pixels used to produce an image. The more pixels an image has, the greater the detail when the image is enlarged. The resolution is expressed as either the number of pixel columns times pixel rows, or as a total number of pixels. A VGA image has 640 columns and 480 rows (640 x 480 pixels), which equals 307,200 pixels, or approximately 0.3 megapixel.

RoHS

This abbreviation stands for the *Restriction of Hazardous Substances Directive* and refers to EC Directive 2002/95/EC, which prohibits the use of certain hazardous substances when manufacturing products and components. The goal of this directive is to prevent these substances from harming the environment when the products are disposed of later.

Router

Network device that connects multiple networks with one another. The router creates the physical connection between the devices in different networks (like a hub), analyzes the relevant data packets and forwards ("routes") these packets to the correct target network.

SD Card / MicroSD card

SD Memory Card (*Secure Digital Memory Card*). A digital storage medium based on flash storage modules such as USB sticks.

Search

Monitoring of recordings, searching for a particular event.

Sequencer

Feature that automatically switches the camera displayed in the main window after a specific time delay.

SIP

Session Initiation Protocol. Network protocol for setting up, controlling and terminating a communication connection via a computer network. SIP is frequently used in conjunction with IP telephony.

Signal Input/Signal Output

Coupling an alarm triggering device (for example a fire alarm system or a network camera) to a control center or another type of transmitter (for example, a telephone or IP network). A typical signal input/output scenario in video surveillance progresses as follows: an event triggers an alarm that then displays, for example the video image from the network camera that triggered the alarm on the monitor at a control center.

Snapshot

Photograph of a situation created spontaneously and directly with a mouse click or other such event directed by the user.

Switch

Hardware used to connect multiple network devices (computers, cameras, printers, etc.) within a network. A *PoE switch* can also supply the cameras with power over an Ethernet cable.

UPS

Uninterruptible Power Supply. Refers to devices that continue to supply power in the event of a sudden power failure. These devices usually operate using a battery. UPS is installed on the power lines of devices and systems in order to protect them in the event of a power failure.

VoIP

Voice over Internet Protocol. Telephony using computer networks.

Wizard

Refers to a software component that helps the user install or set up a particular program and that guides the user through the configuration process by means of simple questions.

WLAN

Wireless Local Area Network. Used to provide Internet connections without the need for cables.

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MOBOTIX - The HiRes Video Company



To demonstrate our confidence in the quality of our products, MOBOTIX cameras were used to capture all the images that appear in this manual.

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