



Genetec Integration Guide – MOBOTIX 7 Platform

Integrating MOBOTIX 7 Cameras in Genetec Security Center 5.6 and higher



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1 Introduction

The technical partnership between Genetec and MOBOTIX offers new possibilities and advantages for application scenarios that combine the Genetec Security Center video management software with MOBOTIX cameras. From Security Center Version 5.6, Genetec supports and certifies MOBOTIX cameras that support the Genetec protocol.

This document describes the features provided by the Genetec Integration API of MOBOTIX 7 series camera, as well as the steps necessary for enrolling MOBOTIX 7 cameras running firmware MX-V7.0.4.18 or higher into Genetec Security Center.

For instructions how to integrate cameras of other MOBOTIX camera series, such as x14/24, x15/25 (running firmware MX-V4.4.2.x or higher), and x16/26 camera series, please refer to the document “Genetec Integration Guide V4” (for x14/x24 cameras) or “Genetec Integration Guide V5” (for x16/x26 cameras), respectively.

To begin with, the Genetec Integration API of MOBOTIX cameras provide the following features for use in Genetec Security Center:

- Support of multiple codecs, i.e. MxPEG, M-JPEG, and H.264 (x16/x26 camera model or higher is required for H.264 streaming)
- Virtual PTZ
- PTZ Pattern Support
- HTTPS encryption for API communication
- RTP Uni- and Multicast Streaming
- RTSP-over-HTTP(S) Tunneling for all RTP streams
- Event Notification (Analytics, Monitoring, Alarms)
- Digital Signal Inputs/Outputs (additional interface boxes, e.g., ExtIO, required for x14/x24, x15/x25, and x16/x26 camera models)
- Audio IN/OUT
- Basic Image Settings (sharpness, backlight compensation, white balance)
- Firmware Upgrade
- Genetec Stratocast Cloud Support

In addition, MOBOTIX 7 series cameras offer the following features:

- Increased modularity with flexible usage of a combination of multiple sensors or functional modules.
- 4K UHD Image resolutions of up to 3840 x 2160 @ 30fps.
- Wide dynamic range (WDR) with up to 120dB
- H.265 codec support

- Integrated Digital Signal Input/Output ports, which are expandable by using additional MOBOTIX interface boxes.

The following section describes the steps required to prepare MOBOTIX cameras for integration into **Genetec Security Center**.

2 Preparing the Camera for Integration into Security Center

Before you can add the camera to **Genetec Security Center** using **Config Tool**, you need to adjust some of its basic settings. Use the following steps to prepare the camera for enrollment into Genetec Security Center.

Note

The camera's basic configuration settings **should not be changed from outside Genetec Security Center**, once the camera has been enrolled using Genetec Config Tool.

If you need to change basic settings, (e.g. image parameters or integration protocol settings) please make sure to make sure to always execute a **Reconnect** for this camera (right-click on camera in Config Tool, choose Unit → Reconnect). This will prompt Security Center to use the new configuration.

If you change the camera's **stream sources** (from, e.g., *Full* to *Raw*) or if you reconfigure any stream codec you have to **remove the camera in Config Tool** and then **re-enroll it again**.

This allows Security Center to use the changed stream layout.

2.1 Update and Reset the Camera

If the camera has been in use before, we recommend updating the firmware to the newest version and resetting the camera to factory defaults.

2.2 Update the Camera Software to the Latest Release

Admin Menu → System Update → Update System Software

You can find the most recent camera software versions on our Website. Please visit

<https://www.mobotix.com/software-downloads>

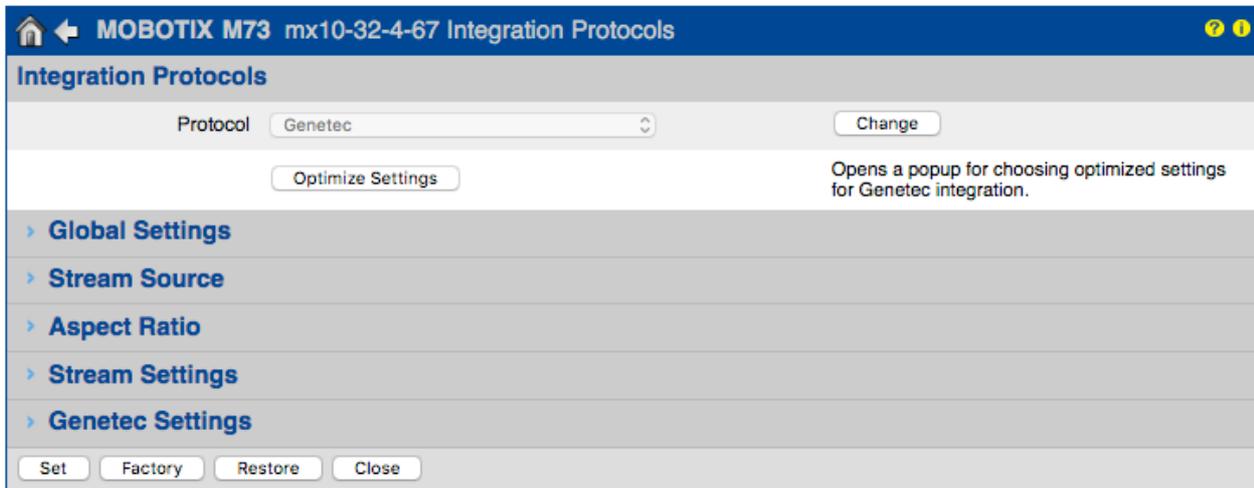
2.3 Reset the Camera to Factory Defaults

After the firmware update is complete, please reset the camera to its factory default configuration using the following menu:

Admin Menu → Configuration → Reset configuration to factory defaults

2.4 Activate Genetec Integration Mode and Optimize Settings

By default, the camera's Genetec Integration API is disabled.



Use the following steps to activate the camera's Genetec Integration API:

- Open the camera's *Admin Menu*,
- Scroll the page until you see the configuration section "*Camera Administration*". Click on the link "*Integration Protocols*".
- Click on the button "Change".
- Select either **Genetec** or **Genetec + ONVIF** as integration protocol
- Click on "Apply & Store".
- Wait for the camera to apply the changes.

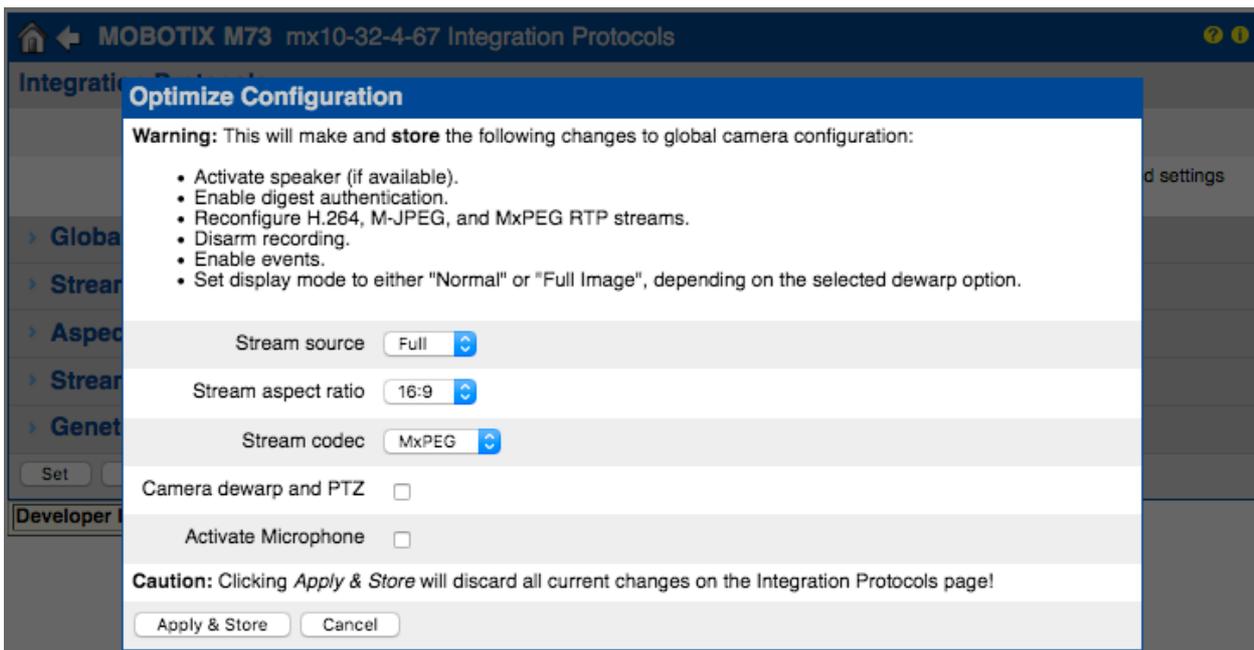
Note

If you are using **Genetec + ONVIF** integration mode, it is recommended that ONVIF clients access the camera in read-only mode.

Next, click on "**Optimize Settings**". This opens a dialog which applies the recommended configuration settings for integrating the camera into Genetec Security Center. In addition to applying the recommended configuration, the "Optimize Settings" dialog allows the user to configure the most important integration protocol settings, such as the stream aspect ratio.

If necessary, change the integration protocol settings within the dialog to your requirements. After clicking **Apply & Store**, your camera is ready to be integrated in Genetec Security Center.

2.5 Recommended Configuration



This section describes in detail the changes applied by the "Optimize settings" wizard.

2.5.1 Activate Speaker

If available, activate any speaker in the camera to support Audio-Out in Security Center.

2.5.2 Enable Digest Authentication

Enables HTTP Digest authentication within the camera's HTTP server.

2.5.3 Reconfigure RTP Server

Activates all RTP streams and sets the codec of all available streams to the selected value. Additionally the streams are configured to use FullHD resolution with 15 frames per second.

Note

While the Genetec integration mode is active, the RTP server will **automatically reconfigure** the camera's global video settings as needed by the active RTP sessions.

In addition, the features **RTSP-over-HTTP(S) tunnel** and **RTSP Client Setup** will be activated.

Note

Security Center manages its own multicast settings for the camera and configures them on the fly during stream setup. To allow Genetec Security Center to configure multicast sessions on-the-fly, please make sure to enable the **RTSP Client Setup** feature.

Beyond that, there are no additional steps required to use multicast streaming within Genetec Security Center.

2.5.4 Disarm Recording

Disables camera side recording. Since access to the recordings through Security Center is not yet supported, recording will be disabled. If required, you can manually re-enable and configure recording as needed.

2.5.5 Enable Events

Activates event notification support for Security Center. See Section 3.1 for a list of supported events.

2.5.6 Set Display Mode, Dewarping and PTZ

If camera side dewarping is selected, the display mode will be set to "Normal" (if available). Additionally, virtual PTZ will be available to Security Center.

If camera side dewarping is not selected the display mode of the camera will be set to "Full Image". This allows full image recording in Security Center, but virtual PTZ will not be available. However, without camera side dewarping, the camera may provide higher frame rates.

Note

- On cameras with multiple image sensors the display mode will be set to the same value for all sensors. Mixing display modes on such cameras is not supported and might cause distortions in the video streams.
- When activating Genetec Integration Mode camera selection will be restricted to single camera modes (Auto, Right, Left).

2.5.7 Microphone

If selected, this will activate the camera's microphone (if available) and ensure that audio support is activated for all RTP streams.

2.5.8 Stream Source

The camera supports multiple stream source modes: Full and Raw.

With **raw stream sources**, the camera's internal image stream is encoded *directly* without further image processing. Although raw streaming mode does not offer advanced imaging features, such as image dewarping / PTZ, or text / image overlays, it allows for real multi-streaming of single camera sensors in different RTP streams. In addition, due to the reduced image processing overhead, raw streaming mode may offer a significantly higher frame rate.

With **full stream sources**, the camera image is encoded after all post-processing steps have been applied. This way, all camera features such as text / image overlays are supported.

The camera's **default setting** is to use **Full stream sources**.

2.5.9 Stream Aspect Ratio

All resolutions available to Security Center will adhere to the selected aspect ratio. The recommended default aspect ratio is 16:9.

2.5.10 Stream Settings

The “Optimize Settings” wizard sets all stream codecs to the selected value. If your setup requires different codecs for individual streams, you can configure the stream codecs after selecting the integration mode within the *Stream Settings* section:

The screenshot displays the configuration page for a MOBOTIX M73 camera. The page title is "MOBOTIX M73 mx10-32-4-67 Integration Protocols". Under the "Integration Protocols" section, the "Protocol" is set to "Genetec", with a "Change" button next to it. Below this is an "Optimize Settings" button and a tooltip that reads: "Opens a popup for choosing optimized settings for Genetec integration." The "Stream Settings" section is expanded, showing four streams. Each stream has a "Codec" dropdown menu currently set to "H264" and a corresponding instruction: "Select the codec for this stream." At the bottom of the configuration page, there are buttons for "Set", "Factory", "Restore", and "Close".

Note

After reconfiguring the stream codecs, you'll need to have Genetec Security Center **reconnect** to the camera: Right-click on the camera in Config Tool, choose Unit → Reconnect) to have Security Center recognize the changed settings.

2.6 Custom Settings

The optimization wizard will only make one-time configuration changes to ease the integration process. Feel free to make further configuration changes as needed before starting the enrollment process in Security Center.

Keep in mind that some configuration changes may have an impact on performance or available functionality in Security Center.

3 Additional Configuration Options

3.1.1 Receiving camera events in Genetec Security Center

The camera supports sending camera events via the Genetec Integration API to its current Genetec Security Center instance. The following section describes additional configuration steps to receive different camera event types.

3.1.1.1 General Event Profiles

In general, all event profiles supported by the camera will be reported as custom events to Genetec Security Center.

A custom event is an event added to Genetec Security Center after the initial system installation. Unlike system events, custom events can be user-defined and, renamed and deleted. Upon camera enrollment, Genetec Security Center retrieves a list of custom events from the camera and automatically adds them to its configuration.

To create new and/or configure existing event profiles on the camera, open the camera's web interface, then go to

Setup Menu → Event Overview

For more information regarding camera events and their configuration, please refer to the camera's online help and documentation.

3.1.1.2 Analytics Events / Certified App Events

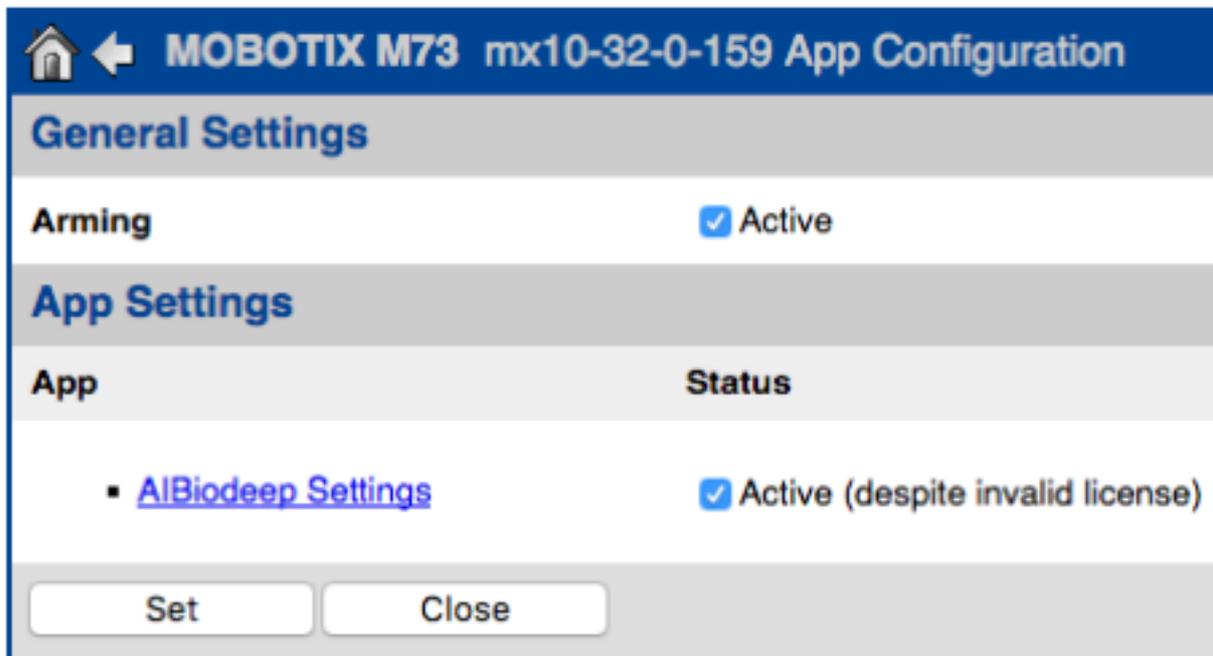
MOBOTIX 7 series cameras offer professional, deep learning based apps and solutions from renowned partners that are explicitly verified and certified by MOBOTIX. Currently, apps certified by MOBOTIX are pre-installed on MOBOTIX 7 cameras and can be can be trialed free of charge for 30 days.

Furthermore, it will be possible for partners, customers or users to develop and program their own solutions for special requirements, based on the MOBOTIX Software Development Kit (SDK).

The following paragraph describes how to configure app events using the example of apps from A.I. Tech.

To activate the certified app interface and access the configuration pages of each app, please use the following steps:

- In the camera web interface, open: *Setup Menu* → *Certified App Settings*



Note: For, e.g., A.I. Tech apps, the default configuration password corresponds to the name of the app (e.g. AlBiodeep). MOBOTIX strongly recommends changing all default configuration passwords.

- Under "*General Settings*" activate the Arming of the MOBOTIX interface.
- Under "*App Settings*" activate the certified app you want to use.
- Click on the name of the App to be configured to open the App's user interface.
- Go to the configuration interface and configure / calibrate the app as described in the app documentation.
For A.I. Tech apps, e.g. you can find additional documentation at www.mobotix.com > Support > Download Center > Documentation.
- Save the configuration within the App's user interface.

After successfully saving the configuration, the app sends events and metadata to the camera as Messages via the MxMessageSystem. After successfully activating the app, a generic message event for this specific app is automatically generated in the camera.

Note

Like all camera events, message events created by apps will be sent to Genetec Security Center as custom events.

To check the event, go to *Setup Menu* → *Event Control* → *Event Overview*. The automatically generated message event profile is named after the application.

The screenshot shows a configuration window for an event sensor. At the top, there is a dropdown menu with 'AlBiodeep' selected, and two buttons: 'Inactive' and 'Delete'. Below this is a numeric input field containing '5'. To the right of this field is a text label: 'Event Dead Time: Time to wait [0..3600 s] before the event can trigger anew.' Below the numeric field is the 'Event Sensor Type' section, which has two radio buttons: 'IP Receive' (unselected) and 'MxMessageSystem' (selected). To the right of these radio buttons is a text label: 'Event Sensor Type: Choose the message sensor.' Below the radio buttons is a text label: 'Event on receiving a message from the MxMessageSystem.' Below this label are three input fields: a text field containing 'AlBiodeep', a dropdown menu with 'Local' selected, and another dropdown menu with 'No Filter' selected. To the right of these fields are three text labels: 'Message Name: Defines an MxMessageSystem name to wait for.', 'Message Range: There are two different ranges of message distribution: Global: across all cameras within the current LAN. Local: camera internal.', and 'Filter Message Content: Optionally choose how to ignore messages containing Filter Value. Select No Filter to trigger on any message with defined Message Name.'

Note

- After creating new events, make sure to re-enroll the camera into Genetec Security Center to update the list of custom events known to the program.
- Currently, native analytics events provided by Genetec are not supported by MOBOTIX 7 series cameras.

3.1.1.3 Create custom App Message Events

An app might also send additional JSON metadata within the MxMessageSystem Message payload. To view the metadata structure of the last app event, enter the following URL in the address bar of your browser: <http://<Camera IP>/api/json/messages>.



```
{
  "local" :
  {
    "AIBiodeep" :
    {
      "description" : "Bio",
      "event_id" : 90,
      "event_type" : "Bio",
      "face" :
      {
        "age" : "adult",
        "expression" : "smile",
        "gender" : "female",
        "persistence_time" : 2,
        "race" : "european",
        "roi_height" : 50.0,
        "roi_width" : 50.0,
        "roi_x" : 348.0,
        "roi_y" : 303.0,
        "years" : 47
      },
      "frame_timestamp" : 1574763222695686,
      "gmtoff" : 3600,
      "id_source" : "local",
      "message" : "Bio",
      "object" :
      {
        "height" : 0.10416666666666667,
        "top_left_x" : 0.54375,
        "top_left_y" : 0.63125,
        "width" : 0.078125
      },
      "sensor_id" : 1,
      "sensor_name" : "Bio sensor",
      "timestamp" : "1574763223",
      "timezone" : "CET"
    }
  }
}
```

To process the metadata transmitted by apps, you can create custom message events on the camera. The following paragraph will explain how to create a custom message event.

AI Biodeep Inactive Delete

5

Event Dead Time:
Time to wait [0..3600 s] before the event can trigger anew.

Event Sensor Type:
Choose the message sensor.

Event Sensor Type

IP Receive

MxMessageSystem

Event on receiving a message from the MxMessageSystem.

AI Biodeep.face.age

Local

JSON Equal Compare

"adult"

Message Name:
Defines an MxMessageSystem name to wait for.

Message Range:
There are two different ranges of message distribution:
Global: across all cameras within the current LAN.
Local: camera internal.

Filter Message Content:
Optionally choose how to ignore messages containing Filter Value. Select No Filter to trigger on any message with defined Message Name.

Filter Value:
Define either a valid reference value as a string (in JSON format) without line breaks, or an extended regular expression. Open help for examples.
This parameter allows using [variables](#).

1. Go to *Setup* → *Event Overview* → *Message Events* → *Edit...*
2. Click on “Add new profile” to create a new message event profile
3. Set the type of the new message profile to “MxMessageSystem”
4. Configure the parameters of the event profile as follows:
 1. **Profile Name:** Enter an event related / application related profile name that illustrates the purpose of the profile.
 2. **Message Name:** Enter the "Message Name" according to the event documentation of the corresponding app. Please refer to the AI-Tech Video Analytics App Guideline¹ for a table of MxMessage Names & Filter Values for A.I. Tech App Bundles. For apps from other vendors, please refer to the corresponding app documentation.
 3. **Message Range:**
 1. Local: The MxMessage is created on the camera itself (Default settings for A.I. Tech Apps)
 2. Global: MxMessage is forwarded from another MOBOTIX camera in the local network.
 4. **Filter Message Content:**
 1. **Generic Event:** “No Filter”
 2. **Filtered Event:** “JSON Equal Compare”
 5. **Filter value:** Used to match MxMessage event metadata sent by the corresponding app / bundle. Use this entry to benefit from individual event types of certain apps (if available).
For A.I. Tech Apps, please refer to the AI-Tech Video Analytics App Guideline¹.
5. Click on the Set button at the end of the dialog box to confirm the settings.

3.1.1.4 Health Monitoring Events

The camera supports the following health monitoring events. All health monitoring events are activated automatically without further configuration steps needed.

Robotix Event	Genetec Event	Genetec Event Type
Camera Temperature Warning: The temperature of the camera is high.	TemperatureAlarm	Native
Camera Temperature Alert: The temperature of the camera is too high.	TemperatureAlarm	Native
External Device Temperature Warning: The temperature of an external device (e.g., ExtIO or MX-GPS-Box) is high.	TemperatureAlarm	Native
External Device Temperature Alert: The temperature of an external device (e.g., ExtIO or MX-GPS-Box) is too high.	TemperatureAlarm	Native
Service Restart Warning: An internal service was restarted too often. Automated reboot cycle will follow soon if the problem persists.	ServiceRestartWarning	Custom
Service Restart Error: An internal service was restarted too often. Automated reboot cycle will follow soon if the problem persists.	ServiceRestartError	Custom
System Messages Alert: System messages contain (critical) errors.	SystemMessagesError	Custom
System Messages Warning: System messages contain warnings.	SystemMessagesWarning	Custom
Admin Password Alert: The camera's admin password is the default password.	PasswordError	Custom
Image Generation Subsystem Warning: Severe image generation subsystem malfunction.	ImageSubsystemWarning	Custom
Image Generation Subsystem Alert: Severe image generation subsystem malfunction. The image generation observed a malfunction for more than one minute.	ImageSubsystemError	Custom
Image Sensor Warning: An image sensor error occurred.	ImagesensorWarning	Custom
Image Sensor Alert: Severe image sensor malfunction.	ImagesensorError	Custom
Flash Storage Warning: Flash-based event storage medium is almost worn out.	StorageStatus (error)	Native
Flash Storage Alert: Flash-based event storage medium is worn out.	StorageStatus (error)	Native
Archive Status Warning: Buffer is almost full.	StorageStatus (full)	Native
Archive Status Alert: Buffer is full, and camera is going to lose video recordings.	StorageStatus (full)	Native

3.2 PTZ Patterns

PTZ patterns can be created using the camera's "Auto Move Tour" feature. You can define up to three tours as a list of views which will be loaded one after the other in a loop.

To specify the sequence of **views** which will be visited in an **Auto Move Tour**, open *Setup Menu* → *vPTZ Settings* → *Auto Move* → *Auto Move Tour*.

The screenshot shows the 'vPTZ Settings' for a MOBOTIX M73 camera. The settings are as follows:

- vPTZ Actions:** Allow
- Mouse Wheel Zoom:** Off
- Zoom Quality:** 2.0x
- PTZ Control:** On
- Auto Move:** 10 (Pause Time)
- Auto Move Tour 1:** 1,2,3
- Auto Move Tour 2:** 1,2,3
- Auto Move Tour 3:** 1,2,3

Buttons at the bottom: Set, Factory, Restore, Close, Less.

For each Auto Move Tour, you can specify a comma separated list of up to 15 views.

The **Views** can be defined using the **Save** function in the **Presets** section on the **PTZ panel** of Security Center. You can also save the view positions using the camera's browser interface (drop-down list entry „Save View“).

The **Auto Move Tours 1-3** will be available as **Pattern 1-3** in Security Center.

https://www.mobotix.com/sites/default/files/2020-02/mx_GL_AITech_MxMessageEvents_en_20200211.pdf

4 Adding the Camera to Security Center

After completing the basic camera setup you can enroll the camera into Genetec Security Center using the following steps:

4.1 Manually Adding the Camera

- Select "Add Video Unit" in Config Tool
- Select "MOBOTIX" as manufacturer
- Select "MxPEG Integration" as product type
- Enter the camera's current IP address into the corresponding input field
- Select "Specific" authentication
- Enter username and password

4.2 Adding the Camera Using Discovery

The camera supports the Genetec Discovery Protocol.

- Config Tool → Unit Enrollment
- Enter username and password

Note

If you selected **Genetec+ONVIF** as protocol, cameras might be listed twice in the unit enrollment dialog. Once as ONVIF and once as MOBOTIX camera. In this case, we recommend to select the MOBOTIX camera and, thus, to use the camera's Genetec Integration API instead of the ONVIF API.

5 Stratocast Integration

The camera also supports Stratocast protocol extension. This allows you to connect the camera with the Genetec Stratocast cloud service.

Open the URL *http://<CAMERA_IP>/stratocast* and click on **Start Activation**. Then follow the instructions.



Device MAC: 00:03:C5:17:25:D7

[Troubleshooting or help](#)

Start Activation

Status: Waiting for Activation

The Stratocast activation wizard will automatically enable the Genetec protocol extension and apply integration protocol settings necessary for the Stratocast service.

If required, you can configure the camera's integration protocols settings manually as described in [Section 2 - Preparing the camera for Integration into Security Center](#), before starting the Stratocast activation wizard.

6 Special Notes on Configuration

6.1 Reconnecting the Camera

Many configuration changes made through the camera's native user interface (browser) require the camera to be reconnected in Security Center.

Examples are:

- Configuration changes to the RTP server

Admin Menu → Camera Administration → Integration Protocols

- Activating/deactivating microphone or speaker

Admin Menu → Audio → Speaker and Microphone

- Changing the Display Mode

Setup Menu → Image Control → General Image Settings

- Changing individual stream codecs

Admin Menu → Camera Administration → Integration Protocols → Stream Settings

7 Known Limitations and Workarounds

7.1 Device discovery

Currently, the camera's Genetec device discovery mechanism always returns the camera's factory default address (10.x.x.x), regardless of the camera's IP address settings. If the camera's default IP address is not reachable from Genetec Security center, please use manual device discovery.

7.2 PTZ

If the camera provides a stream with several views (e.g., in dual image or surround display mode), virtual PTZ applies to the active view window. By default, the active window on the top left is active. You can change that, by clicking into one of the other window areas in the web browser view. As a confirmation you will see yellow frame around the activated window for a short time.

7.2.1 PTZ Presets

The first seven PTZ presets can not be deleted using Genetec SC. As a workaround, instead of deleting one of the first seven presets, you could overwrite them with, e.g., a default position.

7.3 Raw stream sources

When using raw stream sources, the camera's image streams are encoded directly without further image processing. As a consequence, functions currently requiring extended image processing on the camera will not be available. Functions, which will not be available when using raw stream sources, include (among others)

- Camera PTZ
- Dewarping / Hemispheric image correction
- Logos / image overlays
- Text overlays

If one or more image processing steps not offered by raw streaming mode is required in your project setup, please set the camera's stream source to "full".

7.4 Video Motion Windows

Video motion windows, that are managed and configured in Security Center, will always be applied to the current live image. If image area, zoom level or distortion correction is changed, you need to check and correct the video motion windows as needed.

If the camera is configured to use raw streaming sources, only one set of video motion definitions is managed by the camera, despite video motion windows can be set for all camera entities offered by the camera unit.

7.5 Dual Cameras

When using full streaming sources, Genetec Security Center will manage only one set of configuration parameters per camera, despite a number of image parameters can be set differently for the two image sensors. If you want to apply different image parameters to each individual camera sensor, please use the camera's web interface instead of using Genetec Security Center's image configuration settings.

Currently, the camera applies image configuration settings (like brightness, saturation, ...) to both camera entities, if the camera is configured to use raw streaming sources. To apply individual image settings for each camera entity / camera sensor, please use the camera's web interface.

7.5.1 Color Saturation, White Balance

Currently, MOBOTIX P7 series cameras do not support changing color saturation or white balance gain correction. The camera adjusts the color saturation as well as white balance gains automatically.