



Installer's handbook

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After the physical installation of the recorder is done, it is time to configure the Ksenos software. This handbook offers helpful points and examples on how to get Ksenos to work seamlessly with cameras, video servers, controllers, and other devices. Ksenos supports a wide range of hardware by default, so the installation procedure should be easy. Have a pleasant time studying this handbook!

After the computer has started, you have a readily installed Ksenos video recorder in front of you. The system contains the software and the necessary drivers by default. Ksenos can also be installed on most computers with sufficient power for remote usage.

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# Chapter 1

## Configuring devices and servers

### 1.1 Recording space and database

Normally recorder is pre-configured with atleast 3 partitions. First partition is for operating system, second for database and third for recordings. Recording space settings can be changed from Settings (Figure 1.1).

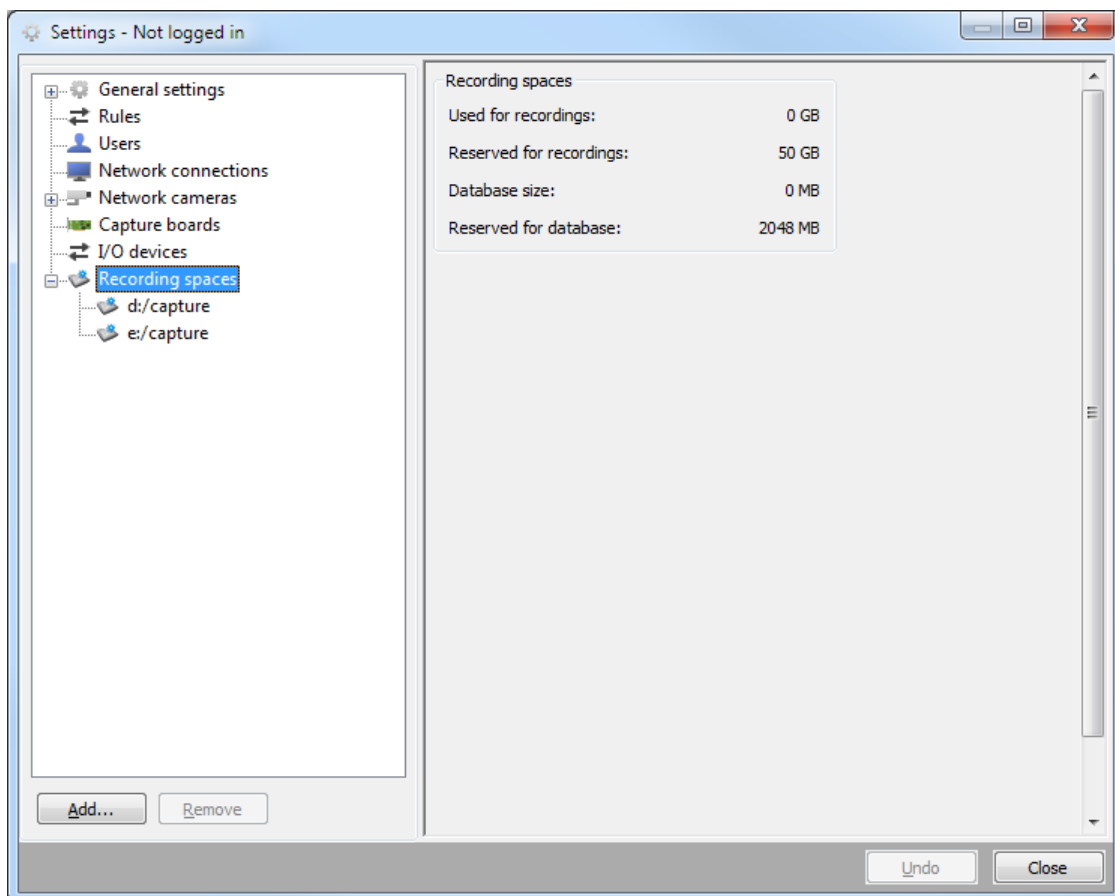


Figure 1.1: Recording spaces

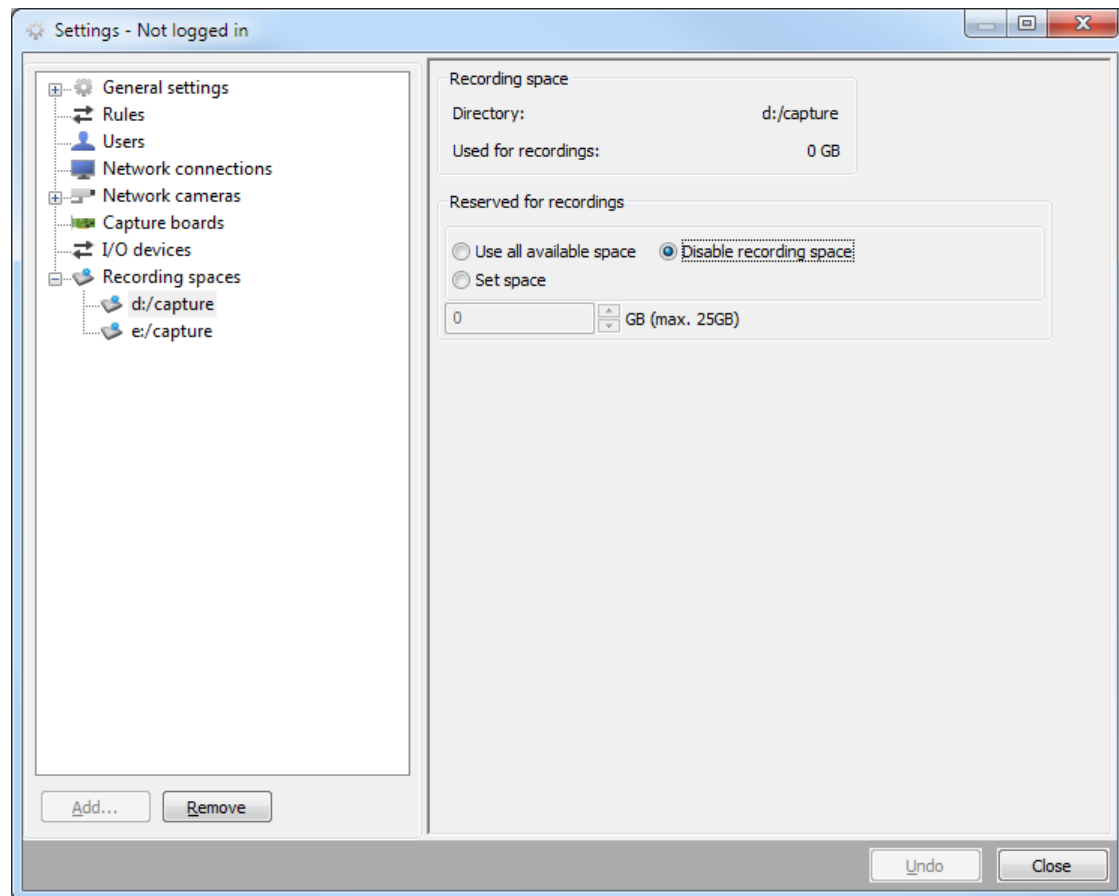


Figure 1.2: Recording space settings for one partition

Recording spaces settings will guide you in allocating partitions and inform you, if a configuration is not recommended. Database will be created to first added partition by default. If everything is in order with the recording space and database, you can move on to add cameras.

There is no way to calculate with certainty how long time of recordings will fit onto a hard drive of certain size. This depends on, for example, the quality of the images being recorded, frame rates and the amount of motion. Similarly, the size of the database is hard to estimate, but normally it's enough to have five percent of the total recording space reserved to the database. The size of the database depends mostly on the amount of the recorded frames, approximately 150 bytes / frame. Running out of space for the database will prevent recording!

## Chapter 2

# Settings overview

The settings are divided into eight categories (Figure 2.1):

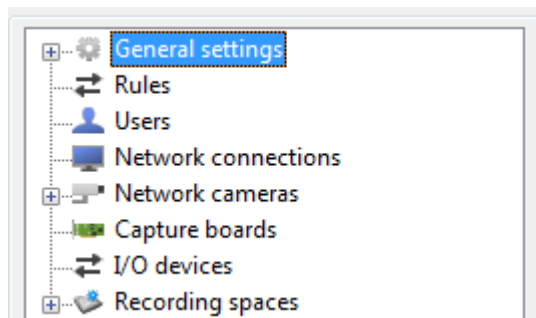


Figure 2.1: Settings.

### **General settings**

The general settings of the program

### **Rules**

Scheduling recordings, controlling digital outputs and so on.

### **Users**

Users and user permissions.

### **Network connections**

Server settings and remote connections.

### **Network cameras**

The connected network cameras.

### **Capture boards**

The installed analog capture boards and cameras.

### **I/O devices**

PTZ joystick and digital I/O devices.

### **Recording spaces**

Recording space settings.

## 2.1 General settings

The general settings are divided into ten sections: Visual settings, Multiplexer settings, Program settings, Viewer settings, Shared UI Control, Notifications, Map View, Performance, Email and Communications. All the sections are explained here:

### 2.1.1 Visual settings

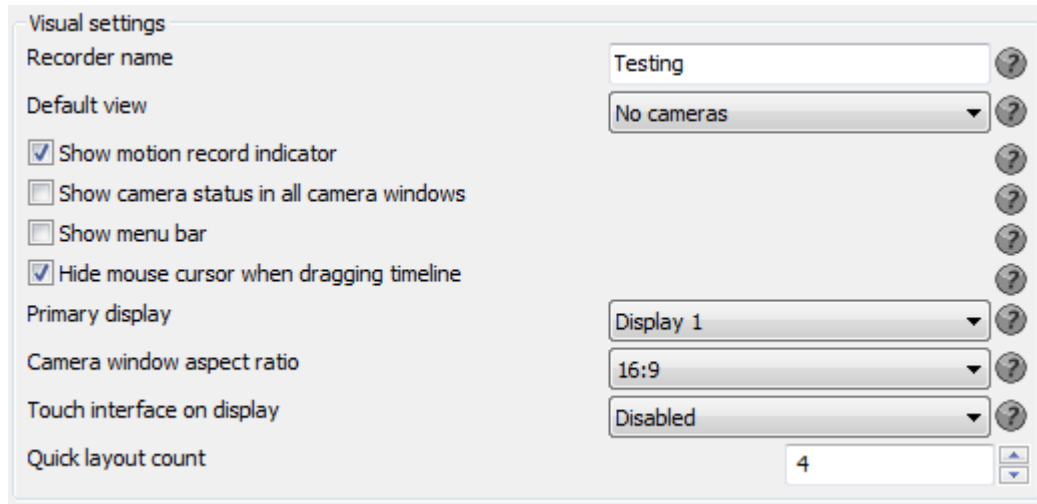


Figure 2.2: Visual settings.

#### Recorder name

Enter the name of the recorder. This can be useful for identification purposes, for example, when multiple recorders are connected to a KVM switch or remote clients are connected to several remote servers.

#### Default view

Defines how the camera windows open at startup. User settings may override this.

#### Show motion record indicator

When this option is selected, a red dot is shown over a camera image whenever there is enough motion on the image to trigger recording.

#### Show camera status in all camera windows

Should the information such as image size, compression method and framerate be shown on top of the image?

#### Show menu bar

Setting enables the menu bar over the timeline as an alternative to the menu button.

#### Hide mouse cursor when dragging timeline

When this option is selected, the mouse cursor will disappear when dragging timeline. This way the screen doesn't limit the dragging.

#### Main display

On a multi-head configuration, this setting sets the display on which the main window opens.

#### Camera window aspect ratio

This setting defines the aspect ratios on automatically ordered views.



### Touch interface on display

If the license allows the use of touch interface, this setting is used to set on which display the touch interface is wanted.

### Quick layout count

Choose how many quick layouts you wish to use.

## 2.1.2 Multiplexer window on Display X



Figure 2.3: Multiplexer window settings.

### Enabled

When this option is checked, multiplexer window is visible. Cameras for the multiplexer should be selected before enabling.

### Select multiplexer cameras

Opens editor (image 2.4) on which you can select and organize cameras to the multiplexer.

Multiplexer camera selector is divided in two parts. On the left side is shown cameras that can be added to multiplexer view. On the right side are listed those selected cameras that are shown in the multiplexer

Several cameras can be selected from both lists by pushing and holding down "Ctrl" -button and selecting cameras with mouse. Cameras can be added on the right side list by selecting cameras on the left side list and by pushing "Add selected" -button. Same camera can be selected several times. Respectively cameras can be removed from the right side list by selecting them and pushing "Remove selected" -button.

In addition to cameras there is a "(Empty)" -selection on left side list. Adding these to the right side list leaves empty space in multiplexer view and for example moves cameraviews to the next multiplexer view.

Camera positions can be changed on the right side list by choosing selected cameras and pushing the arrow keys in the window. The list is grouped into pages between of which multiplexer view is changing.

All changes made in editor come into effect immediately and need no separate approval.

### Multiplexer settings

Multiplexer works like traditional one camera switch or camera matrix (2x2, 3x3, 4x4, 5x5).

### Multiplexer switch timeout

Switch the multiplexer cameras at the chosen intervals.

### Multiplexer camera outlines

You can choose if showing the outlines in cameraviews.

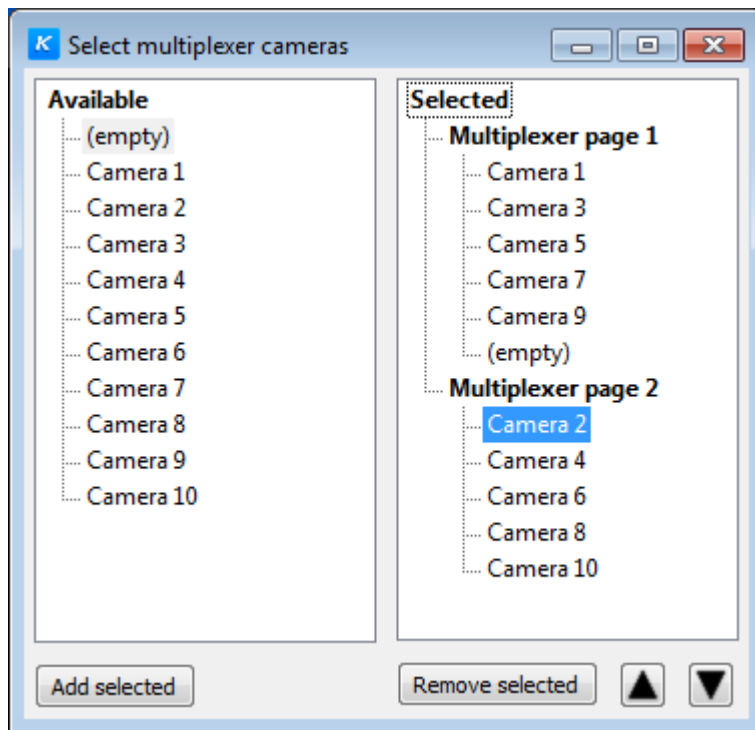


Figure 2.4: Select multiplexer camera

### 2.1.3 Program settings



Figure 2.5: Program settings.

#### Show advanced options

Show advanced options related to program settings.

#### Record storage time restriction (days)

Advanced setting defining for how many days recordings are stored ( recording space will affect to the maximum recording time)

#### Start automatically at system startup

Ksenos starts up automatically together with Windows.

#### Global recording rule

This selection affects the recording of all cameras. Create a suitable rule (eg. a schedule) in rule settings if necessary.

#### Show deleted cameras

As default deleted cameras are hidden with this one they can be taken back visible.

## 2.1.4 Visual settings



Figure 2.6: Visual settings.

### Week begins on

Set the first day of a week. This setting will affect calendar view.

### Open new cameras automatically

When a camera is added, for example by opening a remote connection or backup, camera window will open automatically. If this option is not selected the new cameras have to be opened from the Display menu.

## 2.1.5 Shared user interface (UI) control

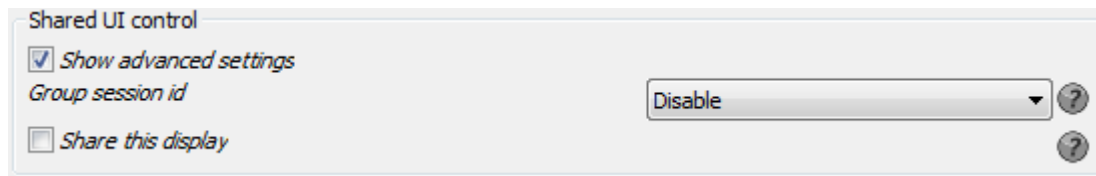


Figure 2.7: Shared user interface (UI) control.

Shared UI control is an advanced feature mainly to be used with workstations that are connected to a shared video wall. The shared video wall consists of the displays that are connected to this server.

### Group session ID

ID number of the shared session.

### Share this display

Share the user interface of this Ksenos server.

## 2.1.6 Notifications

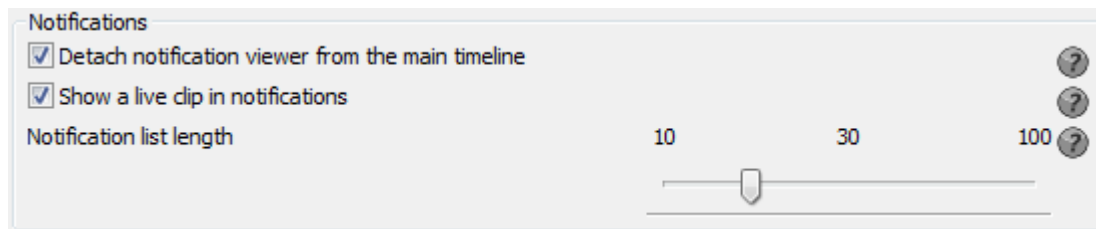


Figure 2.8: Notifications.

### Detach notification viewer from the main timeline

When selected the viewer window will jump to the related recordings of the notification on its

own independent time line. When this is deselected main time line will jump to the notification's time. All cameras will synchronized to the time of the notification.

#### Show a live clip in notifications

Show a short clip of live image on the notification list when notification show up.

#### Notification list length

The maximum number of notifications on the notification window.

### 2.1.7 Map view

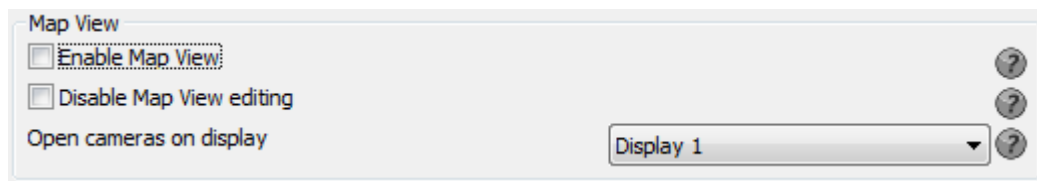


Figure 2.9: Map view.

#### Enable Map View

Enable Map view and show the button on the right side of the timeline.

#### Disable Map view editing

Disable editing mode and enable only use of the function.

#### Open cameras on display

On a multi-head configuration, choose the display on which camera windows are opened from the Map view

### 2.1.8 Performance

#### Direct decoding

Decode compressed video directly to image buffers, which improves performance especially with large images.

### 2.1.9 Email

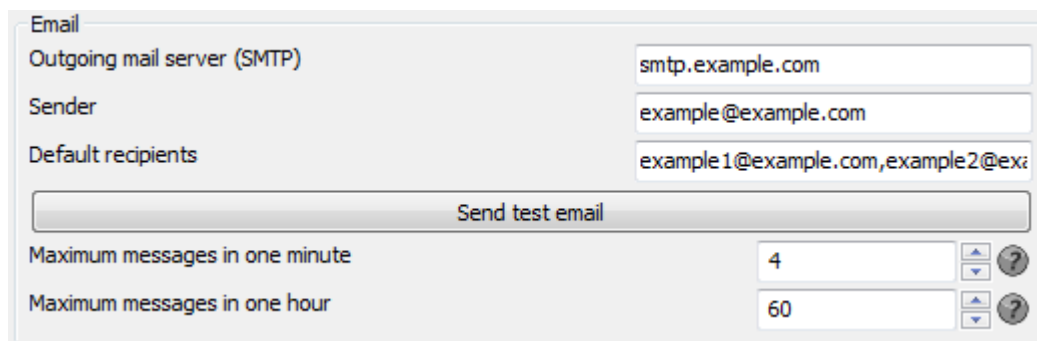


Figure 2.10: Outgoing mail server (SMTP)

#### Outgoing mail server (SMTP)

The address of the SMTP-server, through which the emails are send from this server.

**Sender**

Sender, who is marked in the outgoing mail data.

**Default recipients**

If no recipient is defined in outgoing mail, then will here defined email addresses be used.

**Send SMS**

By pressing here the system sends test email to default recipients. With this you can test that settings are in order.

**Maximum messages in one minute**

Maximum number of messages to be send within a time interval. The purpose of this limit is to avoid filling the recipients' mailboxes by accident.

**maximum messages in one hour**

Like above, but this limits the amount of messages sent in one hour.

## 2.1.10 Communications



Figure 2.11: Communications.

Communications ports can be used for PTZ control. The PTZ control through a communications port requires an RS-485 adapter in order to work with PTZ cameras.

Select the communication speed for the PTZ control from the drop down menu.

## 2.2 Rules

The rule settings cover the programming of recording schedules, communication with external devices and the software behavior in defined conditions (Image 2.12).

A rule consist of conditions, an operator and an action. An action will be triggered when a condition or multiple conditions simultaneously change their state from false to true.

**Motion detection**

**Conditions**

☐ Motion detection in camera Front yard, hold for 30 seconds Remove  
☐ Schedule Remove  
Add condition

☒ All conditions are met  
☐ Some of the conditions are met

**Actions**

Action to perform if the rule is true:

☐ Control a digital output ☒ Release action Remove  
 XeCap\_1 XeCap\_1  
 Output 1 Output 1  
 On Off

Figure 2.12: Rules.

## 2.2.1 Rule conditions

Rule condition list can be opened from drop-down menu (Image 2.13).

**Conditions**

☐ Select condition Remove  
Add condition  
☒ All  
☐ Some of the conditions are met  
Action  
Add action

Figure 2.13: Rule conditions.

Conditions are presented in the following:

Name	True if...
Schedule	The present hour in schedule is true.
Digital input	An input of a connected I/O device is active.
Loss of video signal	Selected analog video signal is lost.
Second rule	Another rule is true
Motion detection	Motion detected in selected camera.

Area motion detection	Motion has been detected in the selected area in camera view.
Wait for another rule	Another rule has been true for x seconds
Timer pulse	The on/off timer's present state is on
Rule	Selected rule is true
Connection lost	A connections is lost to a camera.

The state is indicated with the image of a light bulb next to the condition. When the light is on, the state is true.

## 2.2.2 Rule operators

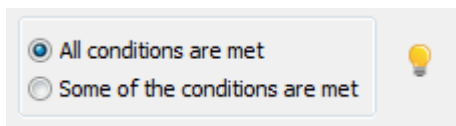


Figure 2.14: Rule operators.

The operator selection (All conditions are met, some of the conditions are met) determines specific occasion when the action is triggered. For example "All conditions are met" requires all conditions to be true simultaneously before the action is triggered. When the light bulb is on next to the operators, the action is to triggered.

## 2.2.3 Rule actions

Rule actions can be selected from drop down menu (Image 2.15).

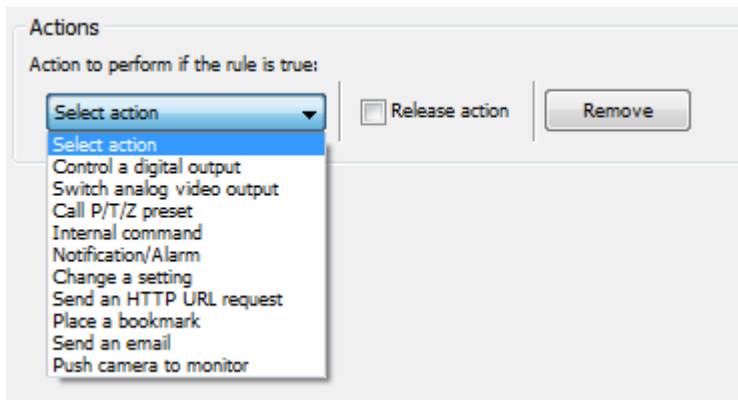


Figure 2.15: Rule actions.

Rule action descriptions are presented in following:

Name:	Description:
Control a digital output	Trigger a digital output of a connected I/O device.
Switch analog video output	Switch the analog output of the analog capture board to show the image of a certain analog camera.
Call P/T/Z preset	Call a preset of a certain P/T/Z camera
Internal command	Perform an internal command (Only for advanced use)
Notification/Alarm	Pop-up notification to event and make an alarm log entry.
Change a setting	Change a certain setting of the program.

Place a bookmark	Place a bookmark in the recordings at the same time of trigger.
Send an HTTP URL request	Control an external web service by requesting an HTTP URL
Send an email	Send email including optional text and possibly kamera images.
Select camera to monitor	Choose specific monitor-windows to show specific camera image.

### Examplerule 1 - Control digital output on video signal loss

Creating a new rule:

- Click "Rules" and click button "Add..." (Figure 2.16).

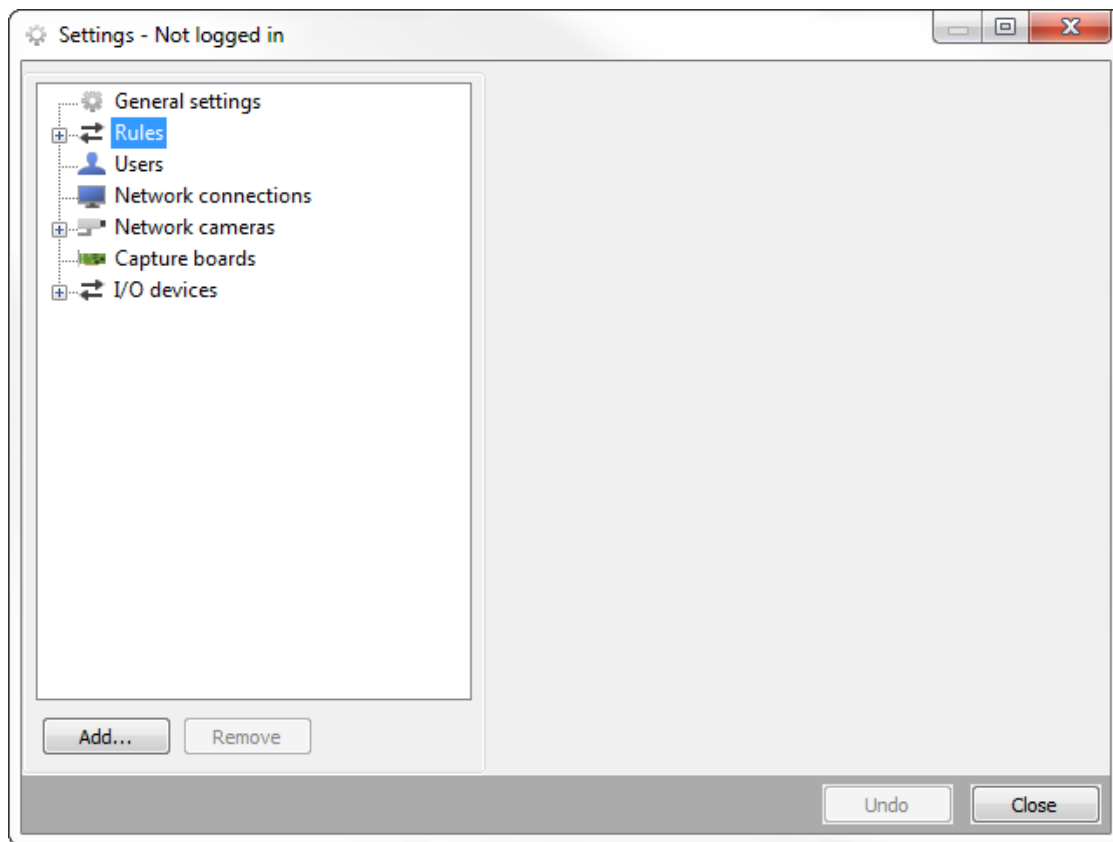


Figure 2.16: Rules.

- Modify the rule (Figure 2.17):
  1. Select a rule to modify.
  2. The rule can be renamed in the text field.



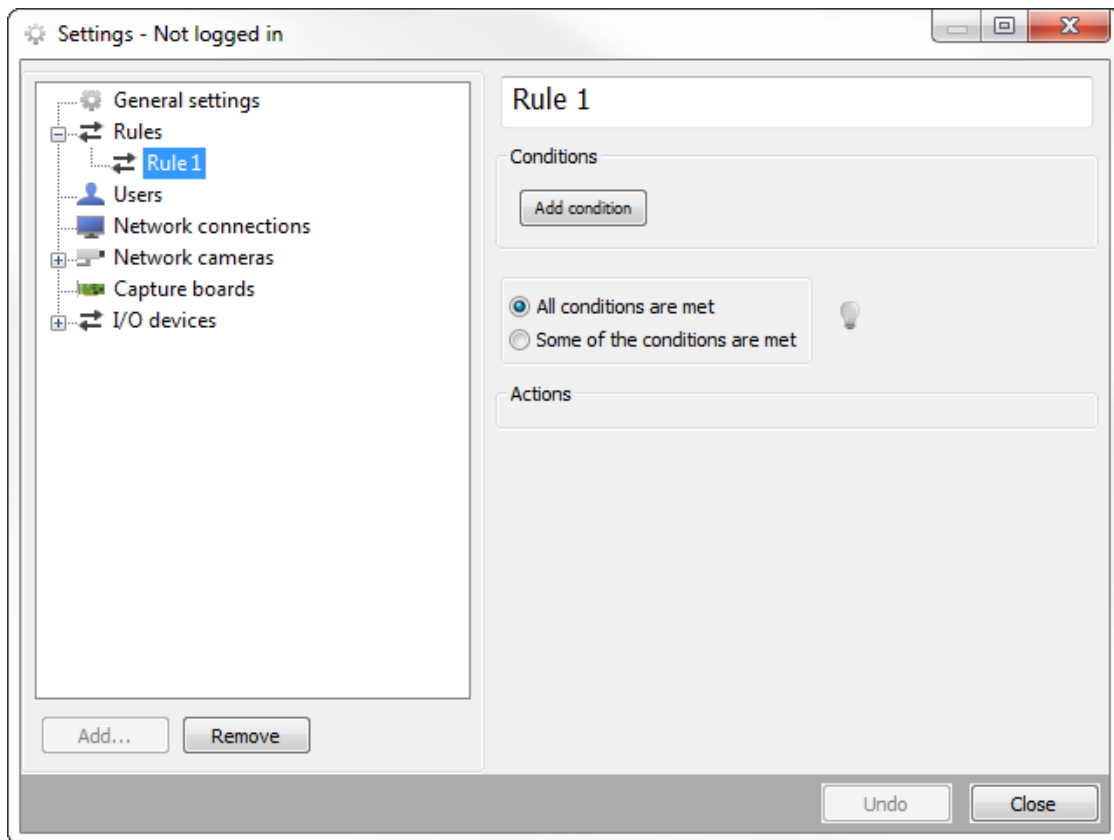


Figure 2.17: Edit rule.

- Add a condition to the rule (Figure 2.18).

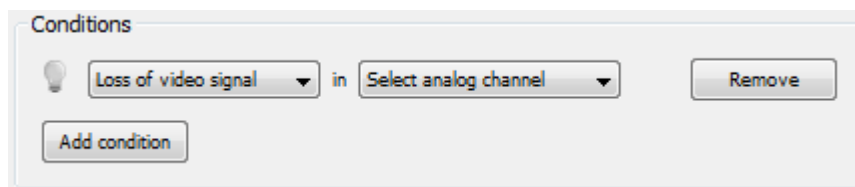


Figure 2.18: Add condition.

1. Click "Add condition".
  2. Choose "Loss of video signal".
  3. Choose analog camera.
- Instead of choosing just one camera, it is possible to choose all the cameras from the device by choosing a capture board "Any channel on a device".

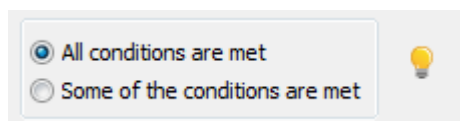


Figure 2.19: Operators.

- Both of the operators (Figure 2.19) return true to this rule. There is only one condition.
- Choose a action "Control a digital output" (Figure 2.20). Choose a device and wanted output. Choose behavior when the rule is true.

Actions

Action to perform if the rule is true:

Control a digital output	<input checked="" type="checkbox"/> Release action	Remove
Comart_1	Comart_1	
Output 1	Output 1	
On	Off	

Figure 2.20: Choose actions.

### Examplerule 2 - Scheduled area motion detection notification

Create a new rule:

- Click "Rules" and click "Add" button (Figure 2.21).

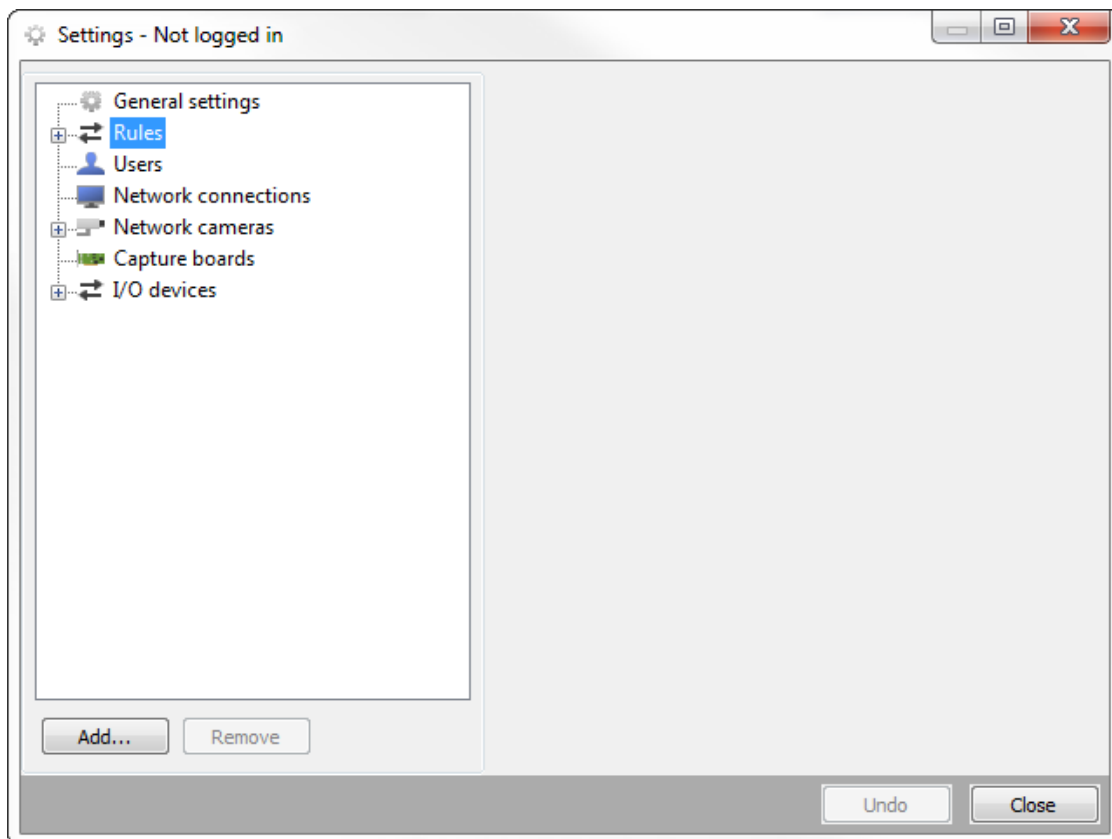


Figure 2.21: Rules.

- Modify the rule (Figure 2.22):

1. Choose the created rule to be modified.
2. The rule can be renamed in the text field.

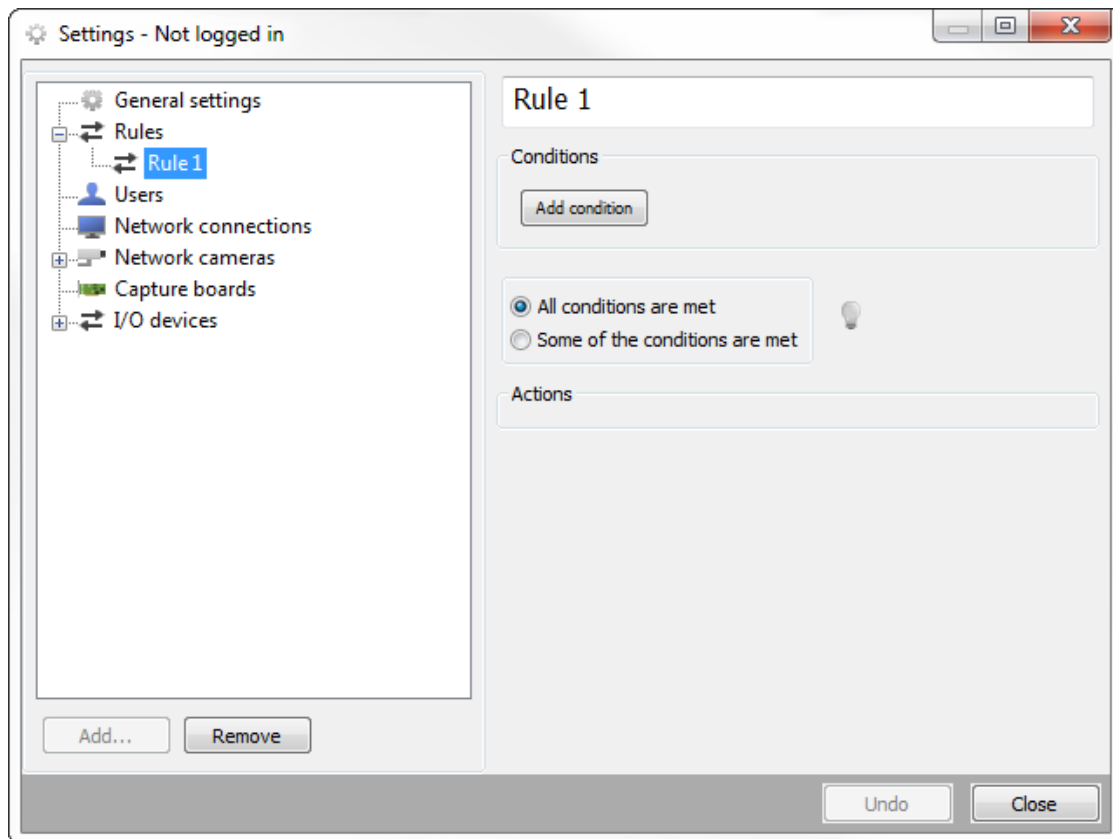


Figure 2.22: Edit rule.

- Adding conditions (Figure 2.23):
  1. Add two conditions by clicking "Add condition" button.
  2. Choose "Schedule" from first drop-down menu.
  3. Choose "Area motion detection" from the second drop-down menu.

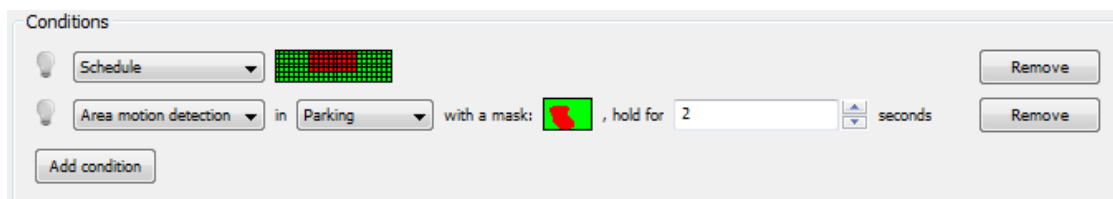


Figure 2.23: Add a Schedule-condition.

- Choose condition "Schedule" and click the green grid next to the drop-down menu - Weekly schedule-window opens up (Figure 2.24).
- Remove the wanted times (for example working hours) and click OK. In this case the rule does not trigger any actions from monday to friday between 0800 and 1600.

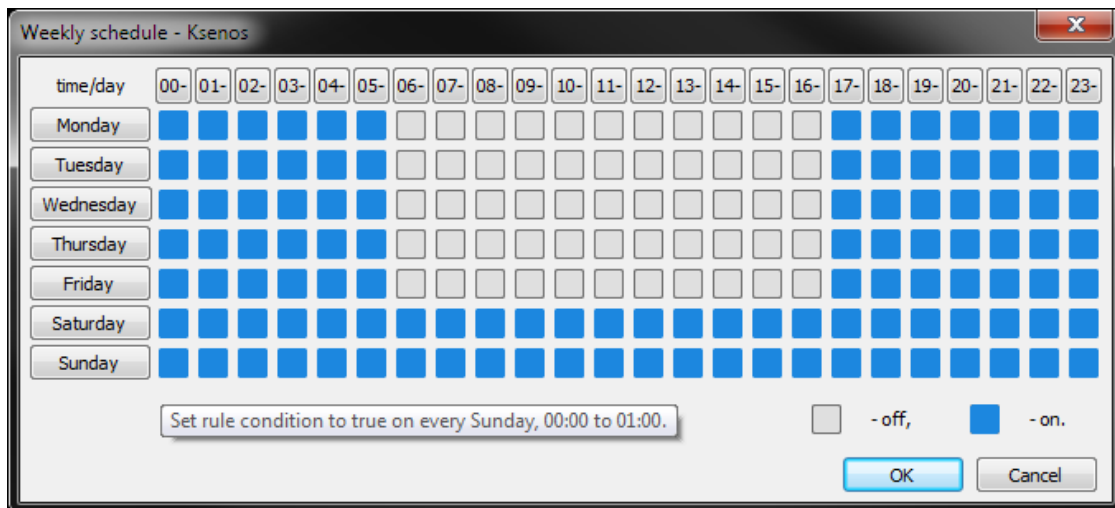


Figure 2.24: Weekly schedule-window

- Open "Select motion area" window by clicking the green square next to "Area motion detection" condition.
- Click and hold left mouse button on the camera image and draw a mask for motion detection. The orange area drawn triggers the action, other parts will be ignored. (Figure 2.25). Click OK to accept.

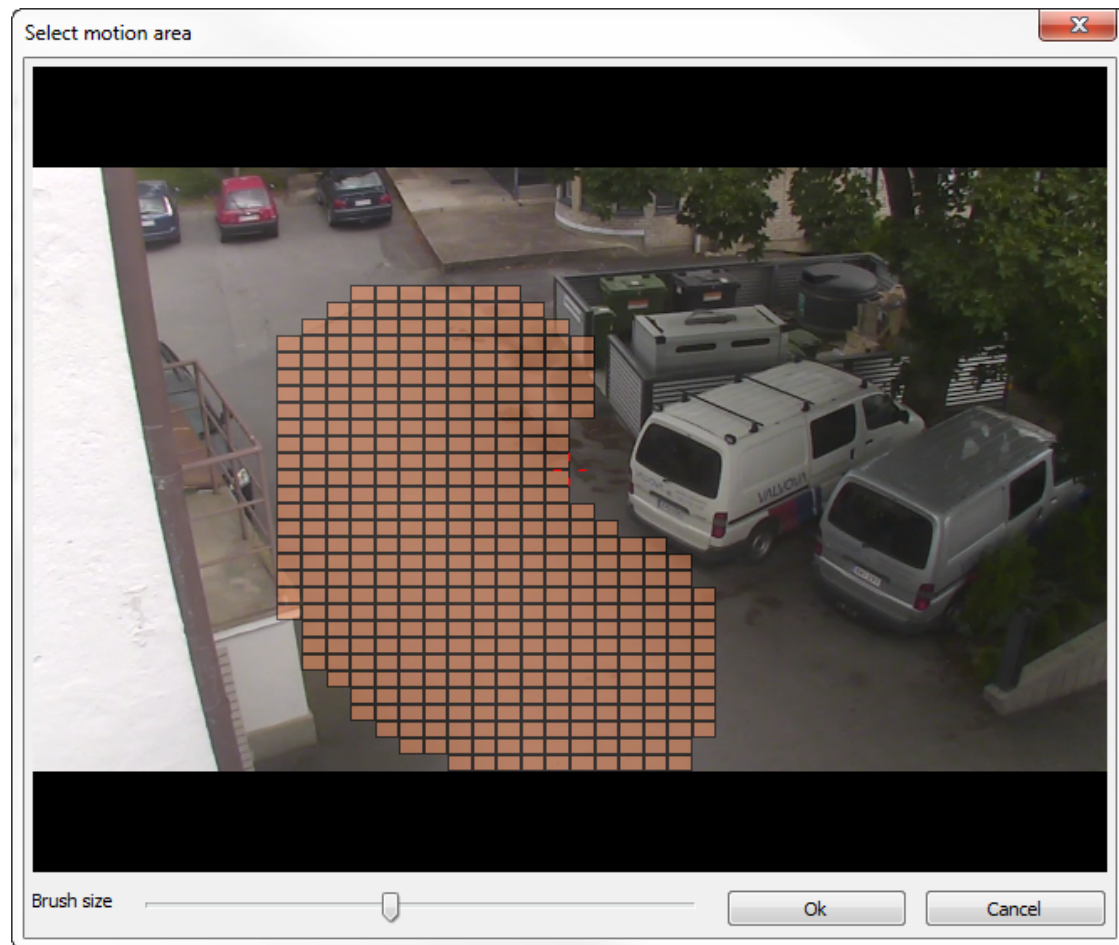


Figure 2.25: Adding the Area motion detection-condition.

- Choose "All conditions are met" from operators (Figure 2.26). In this case the rule requires that the schedule is true when any motion is detected.

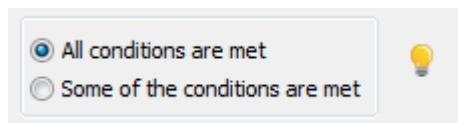


Figure 2.26: Operators.

- Choose "Notification/Alarm" from the drop-down menu (Figure 2.27). Choose a camera for the notification event, camera name will be visible in the alarm log. Choose a background color for the notification and type a text to show in the notification, the text will also be visible in the alarm log.

Figure 2.27: Choose actions.

- When the notification event window is open, all the triggered notifications will be opened in it (Figure 2.28). Notification pop-up as motion is detected on “Frontyard” camera. These notifications also open up over remote connection. Each notification is logged to Alarm log.

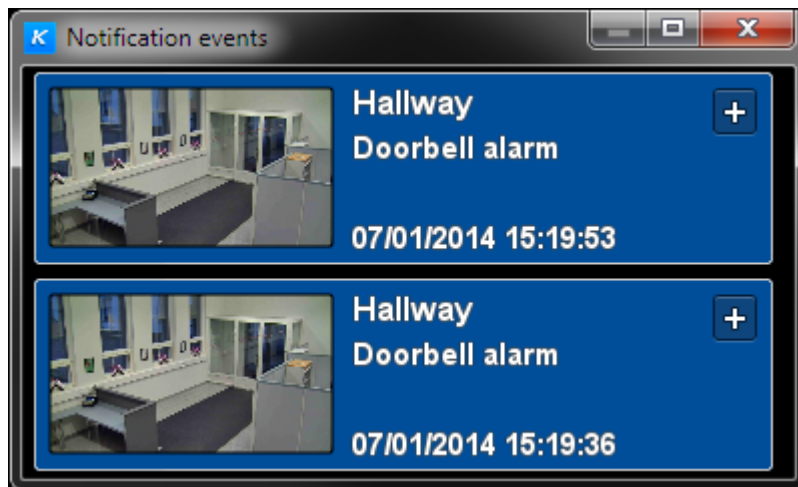


Figure 2.28: Notification event window.

### Examplerule 3 - Wait for another rule and place a bookmark

Create 3 rules:

- Click “Rules” and click “Add...” button three times (Figure 2.29).

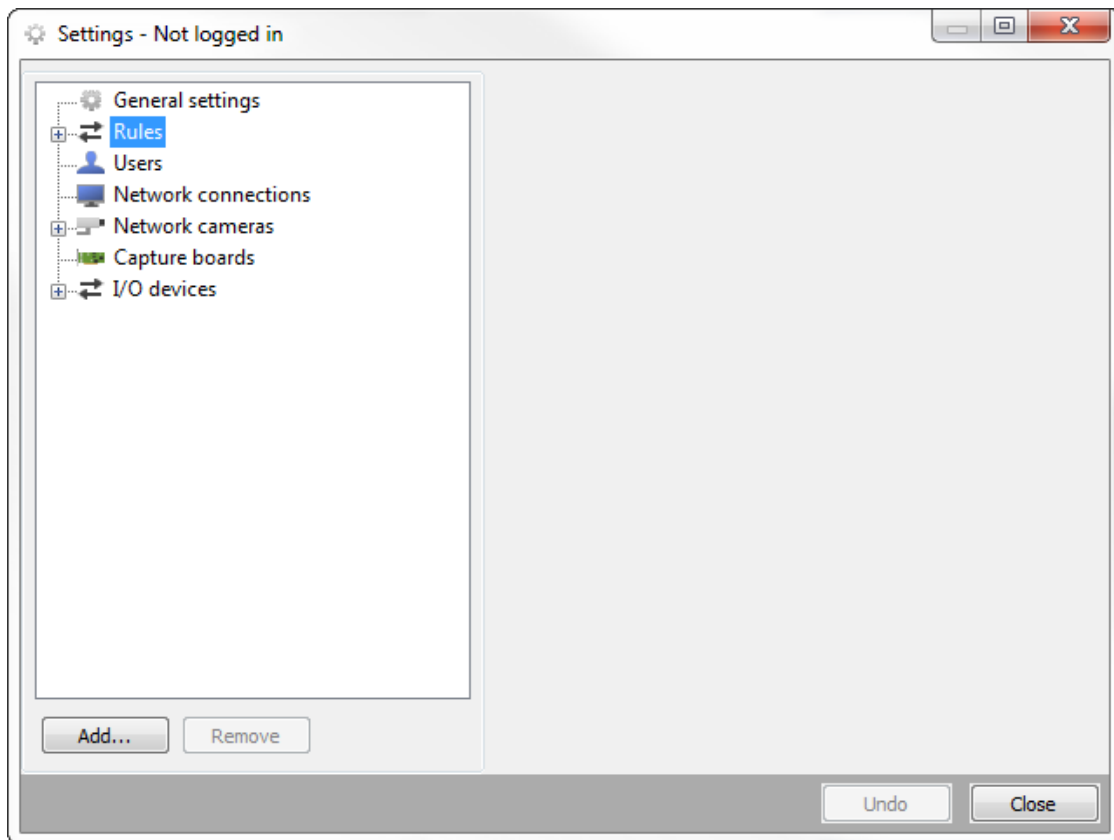


Figure 2.29: Rules.

- See examples 1 and 2 on creating the rules. This rule explains one use for “Wait for another rule” condition. This rule triggers an action if another rule is true.
- Choose first rule (Rule 1), rename it and change the values to match the image 2.30. This rule is used much like condition. It is true outside working hours (Schedule condition) and when I/O-input is triggered but external alarm (Digital input condition).

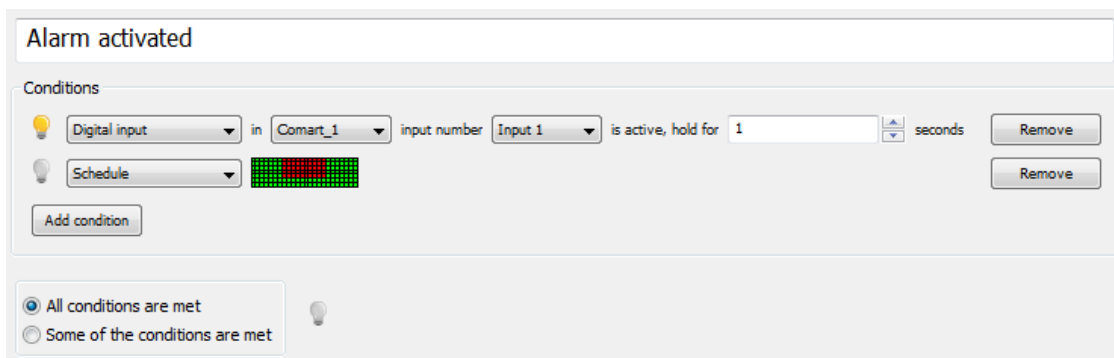


Figure 2.30: Schedule condition.

- Choose another rule (Rule 2) and add motion detection condition to wanted cameras (Figure 2.31). Rename the rule “Motion detection” for later recognition.

**Motion detection**

Conditions

- Motion detection in camera Testcam, hold for 2 seconds [Remove]
- Motion detection in camera Parking, hold for 2 seconds [Remove]

[Add condition]

☐ All conditions are met  
☒ Some of the conditions are met

Actions

[Add action]

Figure 2.31: Motion detection condition.

- Choose the third rule (Rule 3) and add two conditions. "Another rule" for "Alarm set" rule and "Wait for another rule" for "Motion detection" rule (Figure 2.32).
- "Another rule" condition is based on chosen rule status. In this case, when "Alarm set" is true.
- "Wait for another rule" requires that the rule is true or false for defined amount of seconds. In this case it works just like "time threshold" for motion.
- Choose "All conditions are met". This option requires that alarm is set when the motion is detected.

**Wrapper rule**

Conditions

- Another rule Alarm activated is True, hold for 0 seconds [Remove]
- Wait for another rule Motion detection is True for 1 seconds [Remove]

[Add condition]

☒ All conditions are met  
☐ Some of the conditions are met

Actions

[Add action]

Figure 2.32: Another rule.

- Choose fourth rule (Rule 4) and add one condition and one action.
- Choose "Another rule" and choose "Wrapper rule" and "True" and set hold time to 10 seconds or more, so that rule does not place more than one bookmark for each motion detection event.
- Choose "Place a bookmark" and type in the wanted text (Figure 2.33).



Figure 2.33: Place a bookmark.

- This results as a bookmark on the timeline (Figure 2.34). Bookmarks are listed in Bookmarks-window, if “Sijoita kirjanmerkki” rule has been true.



Figure 2.34: Bookmarks on the timeline.

## 2.3 User control

### 2.3.1 Operating system login details

- On Linux systems, default username is “ksenos”, with password “sonesk”.
- On Windows systems, default username is “ksenos”, with password “KSENOS” or “sonesk”.

These usernames and passwords are only for the operating system. All usernames and passwords are case sensitive. By default, there is no users created for Ksenos.

OPERATING SYSTEM MUST LOGIN AUTOMATICALLY, OTHERWISE THE RECORDING WILL NOT START! RESTRICT THE USE OF THE RECORDER FROM KSENOS USER CONTROL (See chapter 2.3.2)!

### 2.3.2 Users

Users and access groups can be added when needed. First user created is always the administrator. This user can create new users and set their permissions (Figure 2.35). Administrator has all the permissions.

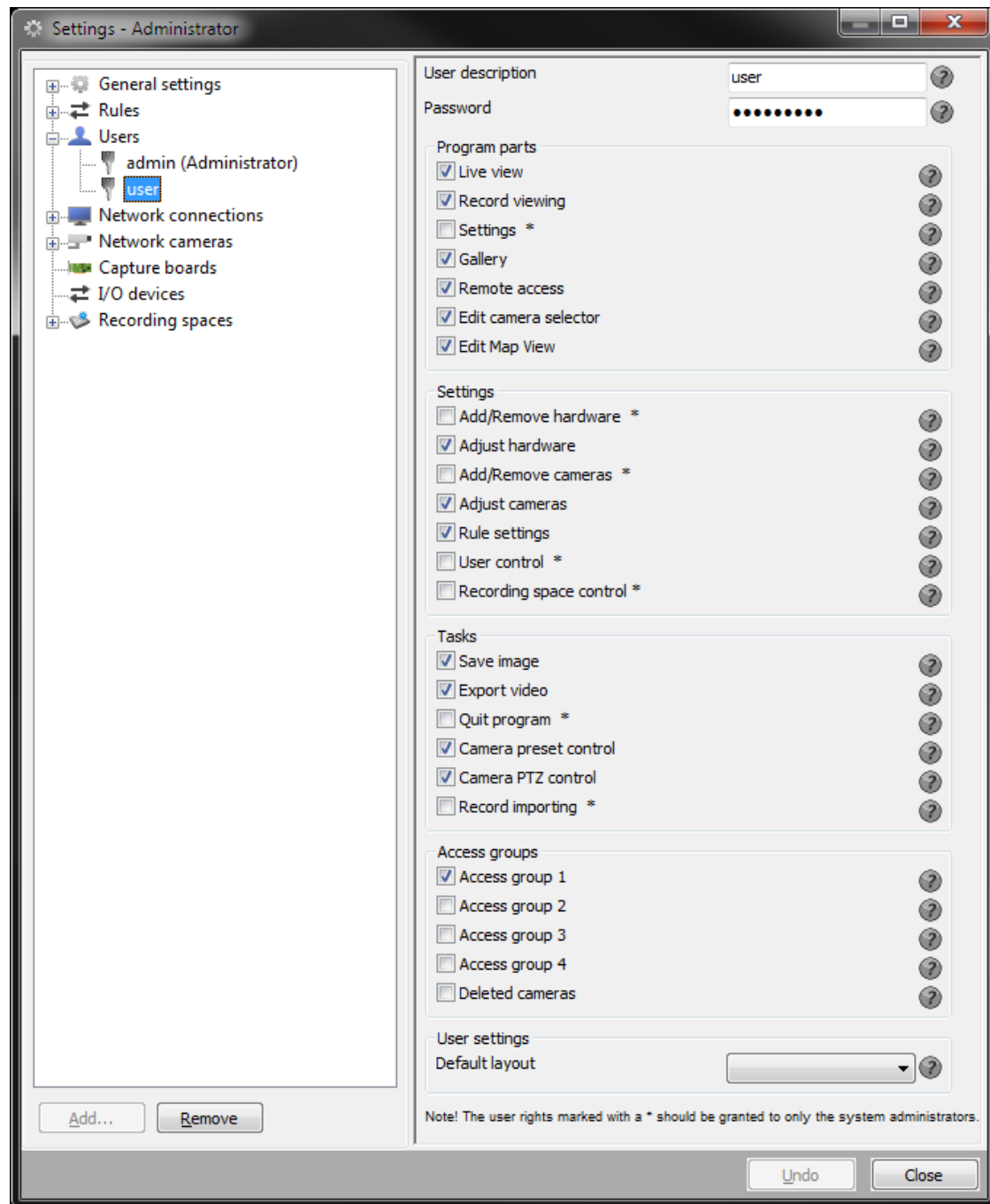


Figure 2.35: Changing user permissions.

User permissions can be set to the following:

#### Program parts:

##### Live view

The user may view live image and organize the camera windows.

##### Record viewing

The user may view recordings and use the search functions.

**Settings**

Users rights to Settings-windows (Ksenos asks for another user on entry if current user does not have the required rights - Account stays logged in until user is logged out)

**Gallery**

The user may browse the gallery.

**Remote access**

The user may connect to this recorder through network

**Edit camera selector**

The user may modify groups and cameras in the camera selector.

**Edit Map View**

The user may add or remove maps, or modify existing ones.

**Settings:****Add/Remove hardware**

The user may add and remove devices

**Adjust hardware**

The user may adjust hardware settings

**Add/Remove cameras**

The user may add and remove cameras

**Adjust cameras**

The user may adjust camera live view and recording settings

**Rule settings**

The user may add, remove or alter rules

**User control**

The user may modify user settings

**Recording space control**

The user may modify recording spaces

**Tasks:****Save image**

The user may save still images from the live view, or the recordings.

**Export video**

The user may save video clips to an external file.

**Quit program**

The user may quit the program (Not recommended to others than administrators)

**Camera preset control**

The user may control PTZ cameras by calling presets

**Camera PTZ control**

The user has full control on PTZ cameras by joystick or mouse.

**Record importing**

The user may import recordings, possibly causing old recordings to be overwritten.

**Access groups:****Access group 1-4**

User can be set to access group 1-4

**Deleted cameras**

The user can view old recordings from cameras that are currently deleted.

**User settings:****Default layout**

Define default layout for user

**Examples on creating users:****Example 1:**

Guard on a gate requires permissions to control PTZ cameras. There is no need for the guard to have all the permissions, so create a user "guard" with password "Gu4rd5". Required permissions for the user are chosen from settings. Lets leave the following permissions unchecked: "Remote access", "User control" ja "Quit program". Now the guard has almost same permissions as the admin, but no permission to modify user settings or quit the program.

**Example 2:**

Local store is using Ksenos Web server to stream live images to the cashier. Cashier is not supposed to see images from the loading bay. In this case the following user can be made: "cashier" user with password "l0c4l5t0r3". Choose permissions: "Live view" and "Remote access". Next add this user to access group number 2. Now the cameras can be configured to certain access groups so this user does not see all the cameras from the store.

Now the browser from cashiers computer can be opened and recorder IP (for example 192.168.38.5:8080) can be entered to the address bar. All the allowed cameras are now visible from the browser after the authentication is passed.

It is important to keep usernames and passwords safe. Username "user" with password "1234" is NOT safe.

## 2.4 Network connections

Discover recorders from the network, enable or disable Ksenos Server and Ksenos Web server from "Network connections" (Figure 2.36).

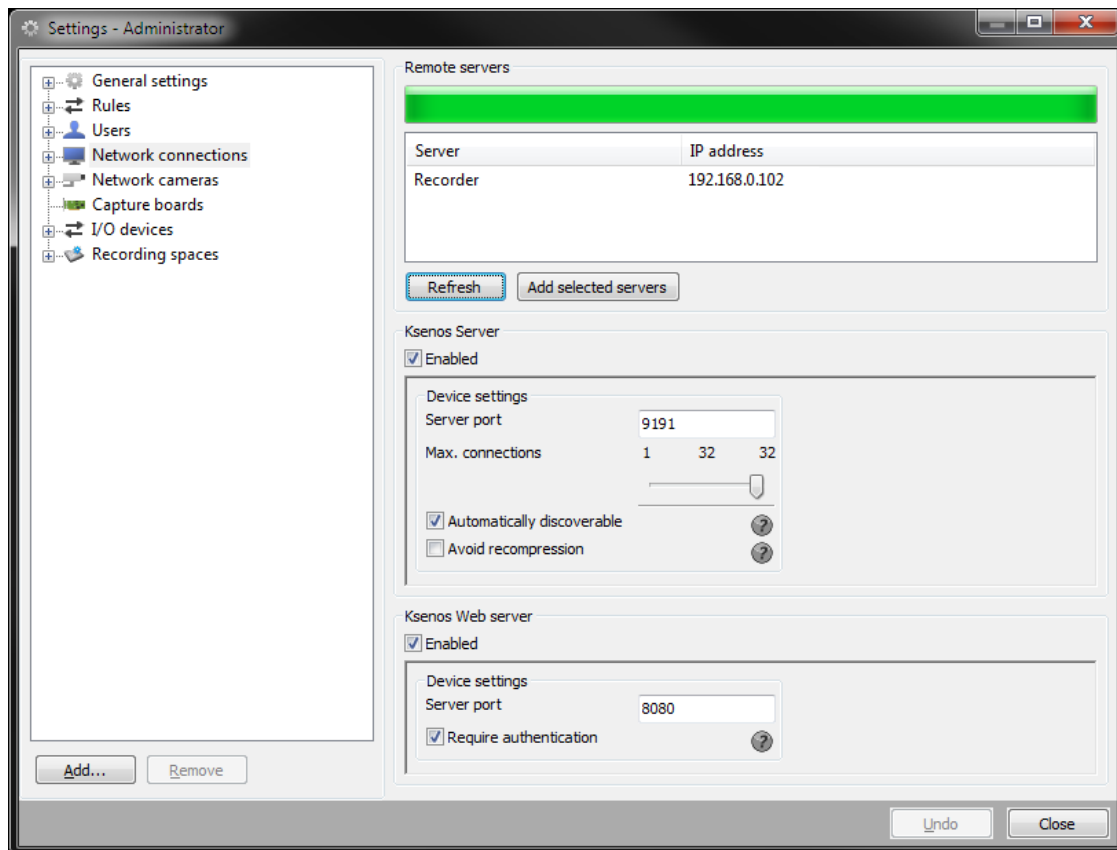


Figure 2.36: Network connections.

### 2.4.1 Automatic server search

Ksenos tries to discover all recorders from the local network when you open up "Network connections".

Discovered servers will be shown in the list. List tells the recorder name and IP address. If the recorder is to be added to Ksenos for remote access, choose the recorder from the list and click "Add selected servers" button and recorder will be added under the "Network connections". Multiple servers can be chosen at once by holding Ctrl-key while choosing recorders from list.

Ksenos tries to discover servers when ever the "Network connections" is opened. For manual refresh, click "Refresh".

Usernames and passwords for added recorders must be set manually.

### 2.4.2 Ksenos Server

It is possible to access the recorder from any computer in the same network that has Ksenos installed (free client), by enabling Ksenos Server. Make sure there is atleast one user created for remote login.

By default, recorder uses TCP port 9191 for remote connections. It is necessary to leave this port open on firewall and have a proper port-forwarding if needed.

#### Max. connections

limits the simultaneous connections to the recorder.

#### Automatically discoverable

broadcasts to local network so it can be discovered automatically by Ksenos-clients.

**Avoid recompression**

sends the cameras' live streams unchanged to remote viewers, if such streams are available.

**2.4.3 Ksenos Web server**

It is possible to watch live stream on web-browser from this recorder if the connection is properly configured. Direct the browser to this recorder's IP address and chosen port (8080 by default). For example address 192.168.38.5:8080 allows you to watch live stream from the recorder in that IP address.

There are multiple possible configurations for the endusers computer to view different views from Ksenos Web server. For example by directing web-browser to address:

`http://ip_address:8080/index.html?view=3&width=1024&height=768`

This results as a 3x3 grid at 1024x768 resolution.

`http://ip_address:8080/index.html?view=4`

This results as 4x4 grid. It is also possible to use 5x5 grid by simply modifying the "view" option value to 5.

Height and width can be modified to make the grid fit the computer screen on browser properly. For example 5x5 grid for 1280x1024 resolution.

`http://ip_address:8080/index.html?view=5&width=1280&height=1024`

Ksenos Web server can be made available to all the network users. This is not recommended for big networks. As mentioned before, this requires opening ports on firewall.

**2.4.4 Remote settings**

New remote connection is made by choosing "Network connections" and clicking "Add..." button.

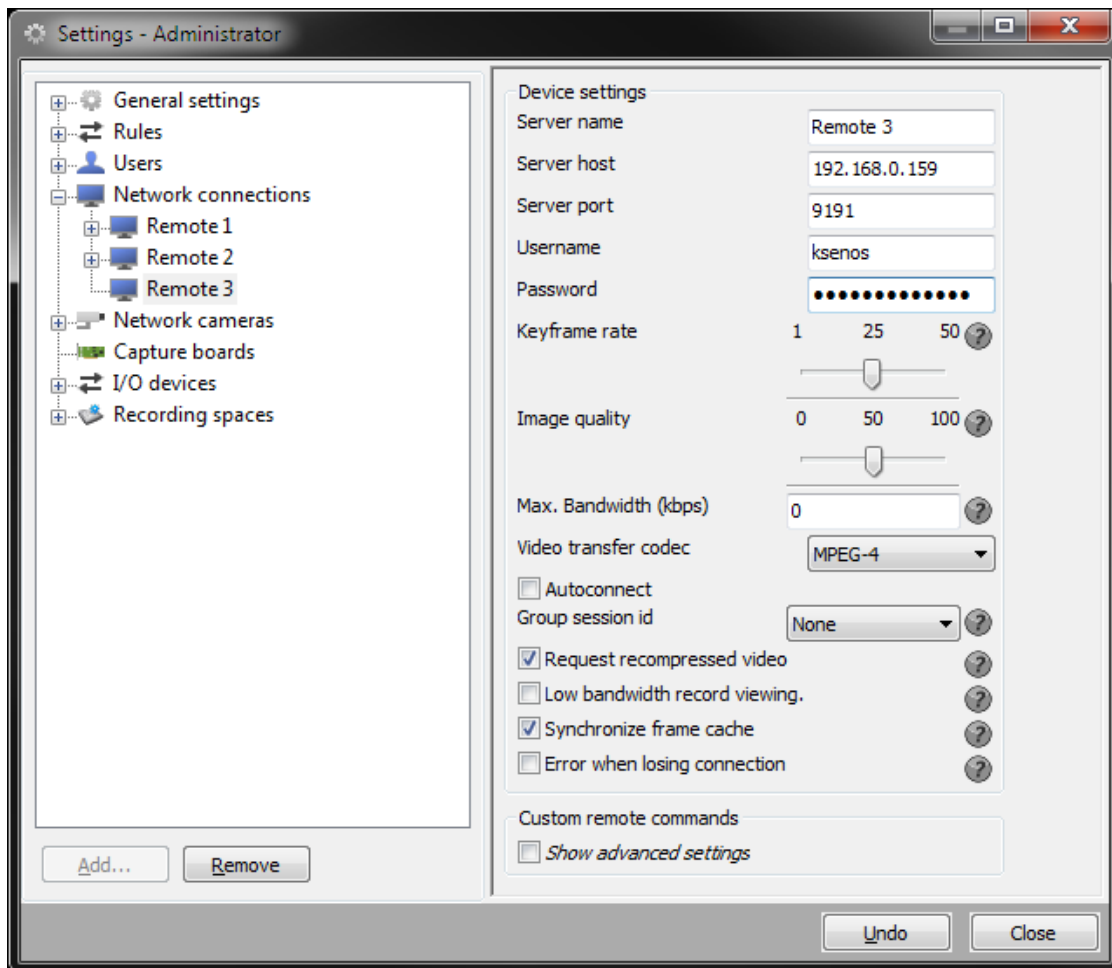


Figure 2.37: Remote settings.

Remote access requires username and password. The fields can be left empty, Ksenos will ask them when the connection is opened.

Connection can be set to automatically connect by choosing "Autoconnect".

If the "Error when losing connection" is checked, error message appears on the main window when the connection to this recorder is lost.

## 2.5 Network cameras

### 2.5.1 Automatic camera search

Ksenos starts searching IP cameras as soon as "Settings" window is opened. Choose "Network cameras" to open the search window. The indicator above shows if the search is still running. Found cameras will be shown in the list, each camera shows the information about manufacturer, model, IP address and type. If the type is not correct, it can be changed by right clicking the camera and choosing "Select camera type". List can be refreshed by clicking "Refresh".

To add cameras, choose a camera from the list and click "Add". To add multiple cameras at once, hold Ctrl-key while choosing the cameras.

Search settings lets you choose the used search protocol. By default it is set to "All" and cameras are being searched using both UPnP and ONVIF protocols

## 2.5.2 Other IP cameras and servers

Most modern cameras use the general RTSP protocol which works directly on Ksenos with "Generic RTSP" protocol. Some of the common RTSP paths are listen in chapter 2.5.4. Also most ONVIF cameras are supported by Ksenos. General settings for both of these camera types should be done directly from the camera by its web-configuration thru browser. Check camera manual for more detail.

Many videoservers use the same RTSP protocol to convert analog signals to digitals. These video servers either have separate IP address for each channel, or one IP address and separate RTSP paths for different channels. For more information, check device manual.

RTSP is abbreviation for "Real Time Streaming Protocol". Using RTSP gives the device extensive support.

## 2.5.3 Common default ports for IP cameras

RTSP - 554  
HTTP - 80

## 2.5.4 RTSP paths for common cameras.

4XEM	-	live.sdp
ACTi	-	track1 track2
Acumen	-	mpg4/rtsp.amp
Airlink101	-	mpeg4
Airlive	-	video.mp4
ALinking	-	cam1/mjpeg cam1/mpeg4 cam1/h264
Alliede	-	0/1:1/main
Aviosys	-	mpeg4
AVS Uriel	-	mpeg4
Axis	-	axis-media/media.amp mpeg4/media.amp
Basler	-	h264 mpeg4
BlueJay	-	mpeg4
Brickcom	-	channel1
CNB	-	mpeg4 h264
Dynacolor	-	mpeg4
Edimax	-	ipcam.sdp
Hunt Electr	-	video1+audio1
iCanTek	-	StdCh1
Infinova	-	1.AMP
IOimage	-	iolmage/1
IQinVision	-	now.mp4
Linksys	-	img/video.sav



Lorex	-	video.mp4
Lumenera	-	
Merit Li-Lin	-	rtsph264
Messoa	-	livestream/
Moxa	-	multicaststream
MultiPix	-	video1
Onix	-	cam0_0
Optelecom	-	mpeg4
Panasonic	-	nphMpeg4/g726-640x480
	-	MediaInput/mpeg4
	-	MediaInput/h264
Samsung	-	mpeg4unicast
Sanyo	-	VideoInput/1/h264/1
Sentry	-	mpeg4
Seyeon Tech	-	cam0_1
Shany	-	PSIA/Streaming/channels/2?videoCodecType=H.264
	-	h264
Sharx	-	live_mpeg4.sdp
Siemens	-	img/video.asf
	-	livestream
Sony	-	media/video1
Sparklan	-	mpeg4
Speco	-	
Swann	-	mpeg4
TCLink	-	live.sdp
TP-Link	-	video.mp4
TRENDnet	-	mpeg4
Truen	-	video1
Videolarm	-	mpeg4/1/media.amp
Vivotek	-	live.sdp
Y-cam	-	live_mpeg4.sdp
Zavio	-	video.mp4

Modify the settings for single cameras from the quick menu from camera windows. This is a good way to try a different setting fast. Single camera settings can be applied to all similar cameras by clicking "..." button.

Rename cameras with descriptive names for easier browsing.

## 2.6 Capture boards

### 2.6.1 Adding capture board and analog signals

Ksenos supports Comart XeCap and Xed capture boards on analog recording.

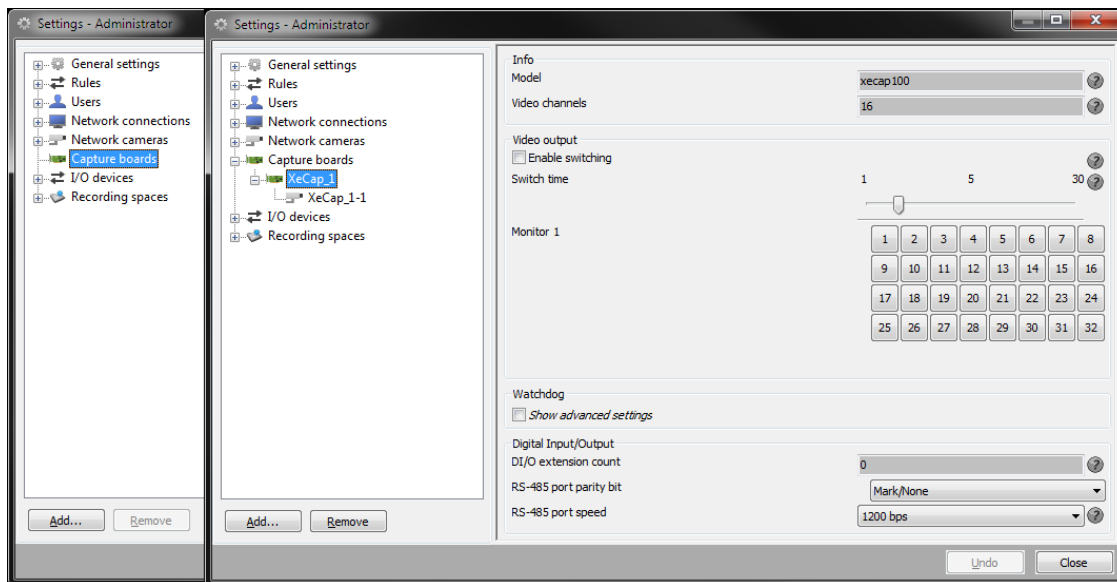


Figure 2.38: Capture boards.

Adding a capture board on Windows:

- Choose "Capture boards" from the menu tree.
- Click "Add..." to add a new capture card.
- Choose a capture card and click "Add..." to add analog signals.

Adding a capture board on Linux:

- Choose "Capture boards" from the menu tree.
- Click "Add..." to add new capture board.
- Choose "Comart-capturedevice".
- Choose a capture card and click "Add..." to add analog signals.

Choose the amount of signals to be added (Figure 2.39). Ksenos suggests the maximum amount the license or capture board supports by default.

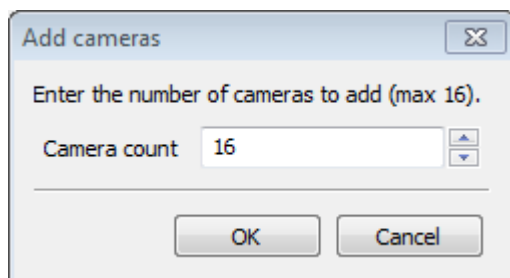


Figure 2.39: Add cameras.

## 2.7 I/O devices

### 2.7.1 PTZ control and joysticks

#### General settings

Ksenos supports Pelco-P, Pelco-D and Sony, Panasonic and Axis IP dome control protocols. PTZ control can be enabled from camera settings by setting "P/T/Z control" to wanted protocol. To control analog cameras, serial port info is required. After these settings are set correctly, it is possible to use mouse to control the pan, tilt and zoom functions by dragging image in camera window. In the settings, analog dome cameras must be identified by address. This address is the one set from the camera via DIP-switch. These addresses makes it possible to control different cameras or camera groups. Control speeds can be modified by the sliders in the settings.

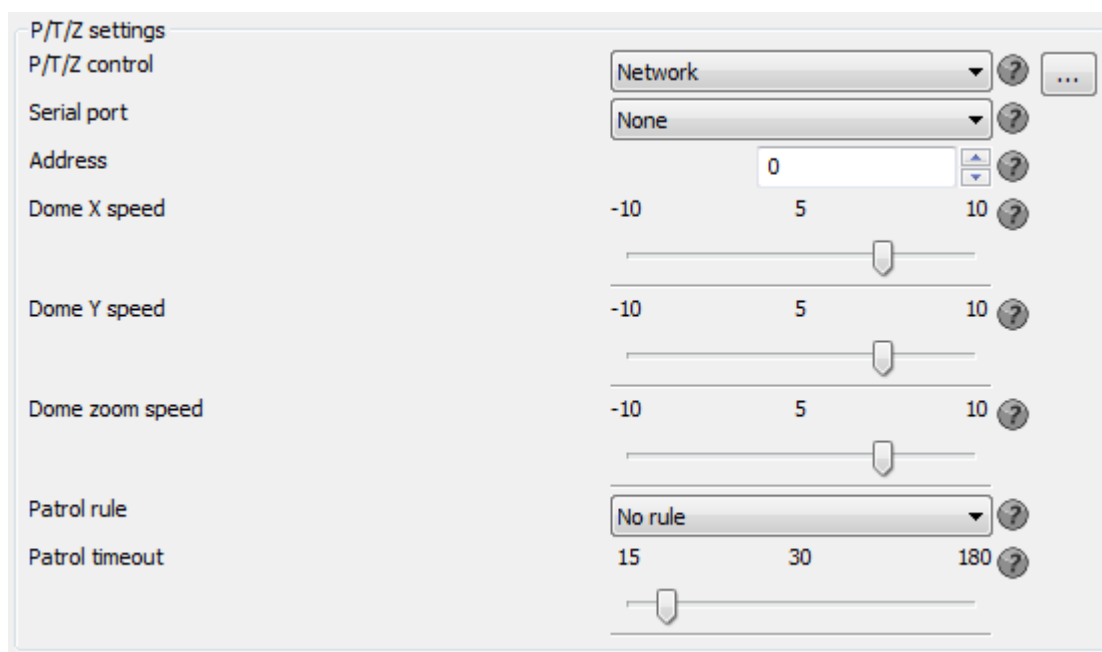


Figure 2.40: Default PTZ settings for analog dome camera.

#### Patrol

Patrols can be programmed to dome cameras via the graphical tools on camera window quick menu. Each dome camera can have its own patrol. Patrol stops when camera is being controlled manually.

Time after controlling the camera manually before camera starts pre-configured patrol. This can be set from camera settings from the "Patrol timeout" slider.

#### Joystick

Joystick can be used to control PTZ cameras or joystick buttons can be used to control digital inputs and outputs, like choose cameras, open gates and electric locks.

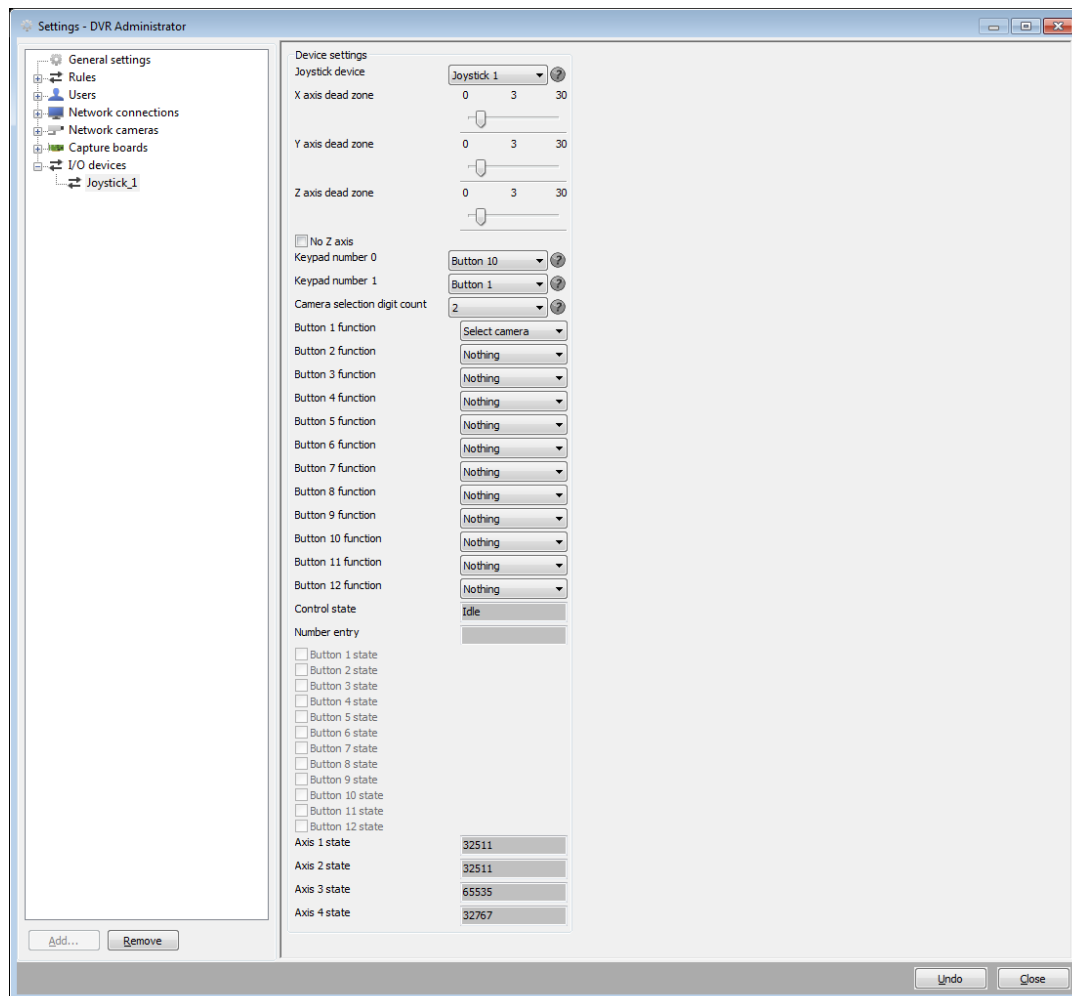


Figure 2.41: Joystick settings.

Joysticks can be added just as other devices. Choose "I/O devices" from settings tree in Settings window and click "Add..." and choose Joystick. After this, by choosing the added joystick from the settings tree, it is possible to change its settings. It is possible to add multiple joysticks on one recorder. First the physical address of the joystick must be set. If there is only one joystick, physical address can be "automatic". Joystick state and buttons can be configured from the settings window.

Some manufacturers do not use the standard keymapping. This can be overridden by settings the first keypad button manually.

### Joystick and rules

Joystick can be seen as digital input in settings. This means that any rule can be controlled from joystick keypad.

#### Example:

When a known vehicle is recognized in the camera, gate is supposed to open. A rule with digital

input as a condition can be created. When the input status is defined, digital output can be set as action. Digital output is then set to control DIO extension, which is connected to gate opening- and closingsystem. Closing the gate can be timed with another rule or another button can be used for closing.

## Chapter 3

# Camera settings

### 3.1 Analog camera settings

Settings for analog camera can be set by choosing a certain camera from the settings tree. Most important settings are:

**Framerate**

How many image has been captured in a second

**Compression**

Compression codek that is being used for analog signal recordings. MPEG-4 is recommended.

**Resolution**

Resolution (image size) of the analog signal recordings.

Note! When installing the signals, input connectors must be in numbered order. If there are any empty connectors inbetween, recorder might not work stable.

On a basic installation, these are possible example settings for 16 channel analog recorder with Comart XeCap 400 capture board.

Framerate: 25 fps (frames per second)  
Compression: MPEG-4  
Resolution: 2CIF (704x288 pixels)

Other settings should be adjusted depending on locations lighting and personal preferences. Single camera settings can be applied easily to other cameras by clicking "..." button from camera settings.

### 3.2 Camera viewing settings

Set the required details to camera windows. This setting can be set to single camera or for all the cameras. These details give important information about recorded images. Enable from image control window. Open image control window by right clicking the camera window and choosing "Image controls...".

**Show status**

shows the encoded size, frames per second, average size, amount of recorded images and resolution.

**Show motion**

shows small motion in camera image in transparent green color. Transparent red color in camera image indicates bigger changes. This function makes it easy to follow motion in image.

**Show mask**

Mask, which marks the area that is going to be ignored in motion detection, can be drawn on the picture. As an example, camera is facing area with bushes, and wind makes the bushes move most of the time. Mask can be drawn by choosing "Show mask" from camera settings, and drawing on the image by clicking and holding left mouse button.

## Chapter 4

# Troubleshooting

### 4.1 Error messages



Ksenos has its own problem diagnostics system that shows errors on timeline as a red triangle and flashing red timeline. This is for errors that might come up inside Ksenos. Operating system errors are shown in separate windows. Here are few error messages and solutions to them.

### 4.2 System errors

#### **“Another copy of program is already running, stopping”**

This error message tells that the program has not shut down completely. For runtime safety, Ksenos locks itself in one process on each session it is running. Locking releases itself after Ksenos shuts down normally. This error usually disappears when the whole computer is restarted.

### 4.3 Ksenos error messages

When on of the following errors appears,  button appears in the main window. At the same time timeline starts flashing red. If the problem resolves itself, for example lost connection to IP camera returns, timeline stops flashing and the button goes passive (  ).

Clicking the alert button opens up a dialog that shows errors that have not been acknowledged. Error can be acknowledged by checking the error and clicking “Acknowledge”. When all the errors are acknowledged, the error button disappears.

These errors are also transferred to remote clients, and should the error be acknowledged from a remote client, it also disappears from the recorder and all other remote clients.

#### **“Database missing! Nothing is being recorded!”**

This error message appears when Ksenos is started without database. Set the recording space from settings and Ksenos automatically creates a database. (See section 1.1).

#### **“Unable to write to database”**

This means there is a problem with the database. Check the permissions and status of the recording hard disks.

#### **“Recordingfile can not be opened”**

This error message appears if Ksenos is unable to write to recordings folder. Check read and write permissions. If permissions are correct, check the status of the hard disks.



**“Unable to write recordings to a file”**

Error tells that writing to file failed. Check hard disk status.

**“Filesystem config file is faulty”**

Recording system config file did not include what was expected. Check setting recording space from section 1.1.

**“Error on opening the database”**

This error message tells that database is faulty or system cannot write in to the database. If Ksenos is writing to the database when the computer loses power, it can produce a faulty data in database. If Ksenos is unable to fix the error in next restart, it is possible to remove the faulty database and let Ksenos create a new one. Note! This leads to losing all the recordings! In situations where recordings are important, it is possible to generate a new database from the existing recordings. In these situations, contact Ksenos Support by phone or email.

**“Recording space is not set! Nothing can be recorded!”**

This error message appears when cameras are connected but no recording space is set. See section 1.1.

**“Video signal from camera lost”**

This error tells that some camera windows has not received a new picture in a while. This setting can be modified from camera settings with “Video loss timeout” setting. Only cameras that have “Error on video loss” setting enabled can cause this error.

**“Compressed image was too big to be saved”**

Size of an image received from camera was abnormally large. This probably means that there was an error receiving the image and the size information is incorrect. Image is not recorded so the recording wont get stuck because of this. In case the error happens again, camera status should be checked.

**“Connection to server lost”**

This error is produced when connection to remote server is lost and the “Error when losing connection” is enabled from remote connection settings. Reasons for this error can be for example shutting down the recorder or unplugging the network cable.

## 4.4 Network

Usually Ksenos is installed with 2 networks. One network is for cameras, other for possible remote connections. Problems in these networks can be traced with “Ping” programs. In the network, each device has its own IP address to which connection tests can be made, from either Windows or Linux command line, to see if connection is possible. Command “ping 192.168.38.6” tells if the connection is OK, if Ping shows the time it required to transfer to given IP address and back, this IP address has a device connected and working.

It is good to remember that in a networks with multiple recorders two devices cant have the same hostname or IP address. Recorders should also be named individually. For example, in same network names such as “Ksenos1” and “Ksenos2” could be used.

Many of the common network problems are caused by local network settings. In these situations it is recommended to contact local system administrator for solution and more information.

## 4.5 Remote access

Local area network configuration requires the remote connection ports authorization. Firewall must be set so traffic to HTTP-server port 8080 and remote connection to TCP port 9191 is allowed.

It is recommended to be careful on opening firewall ports when remote connections is configured outside the local area network.

Intel graphics adapters old drivers are known for slow and faulty behavior. When Ksenos is run on an Intel GPU, it is recommended to update the driver to the newest version available.

## Chapter 5

# Technical specifications

Camera inputs	- 16 analog @ 400 fps* - 32 analog @ 200 fps* - 32 IP cameras*
Analoginen image size	- Max. 4CIF (704x576)
Image compression	- MPEG-4 - MJPEG - H.264
Video clip export	- MPEG1
Snapshot export	- JPEG - PNG
Remoteclient protocol	- TCP/IP with client - HTTP with browser
PTZ and Dome protocols	- Pelco-P - Pelco-D - Sony IP - Axis IP
* Riippuen lisenssistä	