S-64 E v2 / EVE

Firmware version 1.5.0

H.264 Video encoder series

User Manual

Note: To ensure proper operation, please read this manual thoroughly before using the product and retain the information for future reference.

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S-64 E v2 / EVE 1.5.0
User Manual v4 (141909-4)
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Although considerable care has been taken to ensure a correct and suitably comprehensive description of all relevant product components, this manual may nonetheless contain errors and inaccuracies. We invite you to offer your suggestions and comments by email via t.writing@tkhsecurity.com. Your feedback will help us to further improve our documentation.

How to contact us

If you have any comments or queries concerning any aspect related to the product, do not hesitate to contact:

Siqura B.V.
Zuidelijk Halfrond 4
2801 DD Gouda
The Netherlands

General : +31 182 592 333
Fax : +31 182 592 123
E-mail : sales.nl@tkhsecurity.com
WWW : www.siqura.com

Contents

1 S-64 E v2 / EVE Help

What this manual covers

This manual applies to Siqura's S-64 E v2 and EVE video encoder series. It provides the context-sensitive Help that can be opened from the built-in webpages. The Help topics explain:

- How to operate the unit
- How to adjust device settings
- How to manage user accounts
- How to resolve occurred issues

Note: When describing shared features, this manual uses the generic term "unit" to refer to the S-64 E v2 and EVE encoders. In descriptions of distinguishing features, the individual product names are used.

For installation and connection instructions, see the Quick Start Guide supplied with your unit.

Who should read this manual

This manual is written for engineers, administrators, operators and other users who are involved in installing, operating or maintaining this unit.

What you should already know

When working with this unit, basic understanding and skills in the following fields are recommended:

- Ethernet network technologies and Internet Protocol (IP)
- Windows environments
- Web browsers
- Video, audio, data, and contact closure transmissions
- Video compression methods

Why specifications may change

At Siqura, we are committed to delivering high-quality products and services. The information given in this manual was current when published. As we continuously seek to improve our products and user experience, all features and specifications are subject to change without notice.

We like to hear from you!

Customer satisfaction is our first priority. We welcome and value your opinion about our products and services. Should you detect errors or inaccuracies in this manual, we would be grateful if you would inform us. We invite you to offer your suggestions and comments via t.writing@tkhsecurity.com. Your feedback helps us to further improve our documentation.

2 S-64 E v2 at a glance

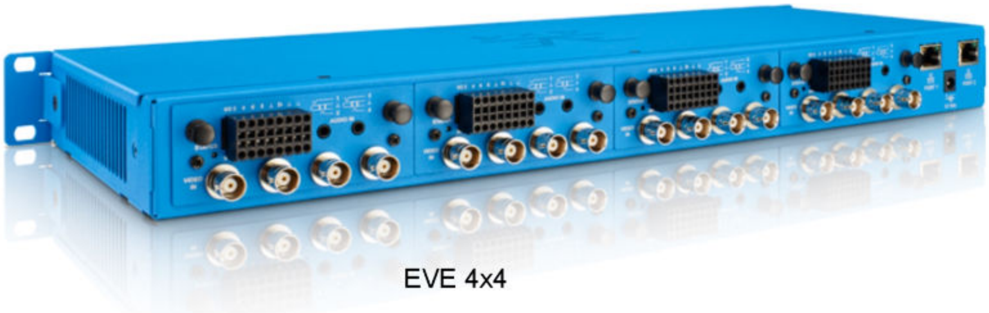
S-64 E v2

- Four-channel H.264 video encoder
- ONVIF Profile S
- Edge recording
- Picture enhancement
- Image quality monitor
- Advanced tamper detection
- 960H Support
- Duplex serial data
- Open Streaming Architecture (OSA)
- Available with SFP interface

3 Meet the EVE family

EVE ONE

EVE FOUR



EVE 4x4

EVE ONE

- One-channel H.264 video encoder
- Click & Go – compact DIN rail mounting
- 2x Digital I/O
- Edge storage on µSDHC card
- Available with Power over Ethernet (PoE)

EVE FOUR

- Four-channel H.264 video encoder
- Click & go: compact DIN rail mounting
- 8x Digital I/O
- 4x Audio in, 1x audio out
- Edge storage on µSDHC card
- Available with Power over Ethernet (PoE)

EVE 4x4

- Modular 4x four-channel H.264 encoder
- Edge storage on µSDHC card (4x)
- 4x 4 Audio in; 4x 1 audio out
- 4x 8 Digital I/O

EVE family shared features

- High resolution: 960 H support (960x576 pixels)
- Advanced picture enhancement
- Image quality monitoring
- Tamper detection
- ONVIF Profile S

4 Webpage features

Siqura video encoders provide a built-in web server which makes it easy to access and operate these products over the network.

Browser-based access

Using a standard web browser on a PC with an IP connection to the unit, you can open the Live Stream page and view live video from one or more connected cameras. Users with appropriate permissions can also open the configuration pages to manage the unit's device and user settings. Siqura encoders support the latest two versions of Chrome, Internet Explorer, Firefox, and Safari.

Menu

Use the vertical menu on the left to navigate the webpages of the unit. Clicking an entry opens the associated page or a submenu.

Tip: To find a specific webpage quickly, type its name in the search-as-you-type box above the menu.

Page layout

Webpage layout is single-page or content is organised across multiple tabs located at the top of the page. When clicked, each tab shows related commands and settings. The active tab is identified by its highlighted and underlined title.

Camera preview

Pages such as *Live Stream*, *Overlays*, *Motion Detection*, and *Tampering* include a camera preview. You use it to view live video or determine the effect of your settings when making changes for specific functions. Click the *Play/Pause* buttons in the centre of the preview to control video streaming. To display these buttons when hidden, move the mouse pointer over the preview pane.

▶	Play live video stream
⏸	Pause live video stream

Switch camera (multichannel units)

The *Live Stream* page on multichannel units is opened in matrix mode, displaying a two-by-two grid with images from all connected cameras. An individual camera view can be selected and brought to the foreground by clicking the buttons that appear when you move the mouse pointer over the previews.

< >	Show the previous/next camera view.
○ ● ○ ○ ○	Show the camera view associated with this option button.

Revert button

The *Revert* button appears when you adjust specific settings. You can use it to undo your changes. The button is available until you leave the webpage.

⟲	Restore the setting to its original state (at the time of opening the webpage).

5 Live Stream

On the Live Stream page, you can view live video from one or more connected sources. If the source is a PTZ camera, you can operate this camera if it supports the driver selected on the PTZ page (see "PTZ" on page 21).

Preview layout

On successful connection to the unit, the Live Stream page is opened, showing:

- A single-camera preview (one-channel units)
- A 2x2 video matrix (multichannel units)

View live video

Video is paused when you open the Live Stream page.

1 Move your mouse pointer over the preview pane.

2 In the centre of the preview pane, click **Play**.

Streaming video from the connected source(s) is displayed.

Video streaming can be stopped with *Pause*.

Maximised mode (multichannel units)

You can enter maximised mode to bring a preview to the foreground.

1 Move your mouse pointer over the preview pane.

2 Click the Next/Previous buttons (see "Webpage features" on page 9) to select the preview you want to maximise.

For direct access, you can click the appropriate camera button at the bottom of the preview pane.

This enlarges the preview and hides the other images.

Full-screen mode

For better observation, you can enter full-screen mode.

1 In the upper-right corner of the preview pane, click **Full-screen**.

The preview pane now fills your entire screen.

2 To return to the previous mode, click **Close full-screen** or press **Esc** on your keyboard.

Use your browser for PTZ control

A PTZ camera connected to the unit can be controlled from your web browser.

> **Note:** First go to the PTZ page (see "PTZ" on page 21) to activate a PTZ driver which is supported by the camera.

With the driver activated, you can operate the camera from the Live Stream page.

1 On multichannel units, click the **Next/Previous** buttons to select the camera you wish to control.

2 In the upper-right corner, click **Show PTZ controls**.

A yellow circle appears in the centre of the preview.

3 To position the camera, drag the highlighted dot across the circle in the direction you need.

It is also possible to move the camera by clicking in the circle.

4 To adjust **Zoom**, **Focus**, and **Iris** as needed, drag the corresponding sliders.

5 To save a camera position as a preset, click the Favourites button, **Store current position as preset**.

6 To recall a preset camera position, click **Select**, and then click the required preset.

7 To delete a selected preset, click the Recycle button, **Delete preset**.

Note that a deleted preset is irretrievably lost! You are therefore asked to confirm the deletion.

More preset management functions are available on the PTZ page (see "PTZ" on page 21). There, you can rename presets, add reserved presets, and delete multiple presets in one go.

Take a snapshot

It is possible to take a snapshot of the camera preview(s) on the Live Stream page.

- In the upper-right corner, click **Take snapshot**.

  The picture is saved in JPG format to your *Downloads* folder.

  The file name includes the camera name and date/time information.

Record a live stream

You can record the video on the Live Stream page to your PC. The names of the AVI format files include date and time information to identify the recordings.

1 In the upper-right corner, click **Start recording**.

The record button flashes red to show that you started a recording.

2 To stop the recording, click **Stop recording**.

Your browser can now download the recording.

6 Camera

Per channel, the unit can take an input signal from an analogue camera and convert it to two digital video streams. On the webpages grouped under *Camera*, you can adjust video streaming, image quality, and camera management settings.

In This Chapter

6.1 Camera Management

On the Camera Management page, you can assign a camera name and select the aspect ratio. On S-64 E v2 encoders, you can also enable/disable the video input, set the input impedance, and select a video standard.

Name

Type a descriptive name in the *Name* box. This makes the camera easily identifiable on the network. Preferably, use a unique name, one that includes the physical location, for example. The name you give here can be displayed as an overlay (see "Overlays" on page 15) over the camera images. When the overlay is enabled, the camera name is visible in the webpage previews in your browser and in the video streams transmitted by the unit.

Input

A video input is enabled by default. You can choose to set this input to *Disabled*. This is typically done when no video signal is connected to an input.

If you disable the input:

- No “Video loss”, “Image quality” and “Tamper detect” alarms will be raised.
- The blue screen with “No Video” will not be shown when no input signal is connected.
- A black image with reduced frame rate with only the OSD-texts will be streamed.

Aspect ratio

The aspect ratio determines the proportional relationship between the width and height of the video images. As different cameras may stream differing video standards, you may want to adjust the aspect ratio for optimal image display.

1 Click the **Aspect ratio** list.

2 Select **4:3** (standard aspect ratio) or **16:9** (wide-screen).

Input impedance (S-64 E v2)

Impedance is the measure of resistance to signal current flow. With one video source on one video input, select *75 Ohm*. With a number of video inputs in parallel using one video source, use *High-Z* on all inputs except the last.

Video standard (S-64 E v2)

This video display standard you select here - *PAL*, *NTSC*, or *Auto* - determines the available frame rates on the Streaming Profiles page - that is 25 fps for PAL and 30 fps for NTSC.

6.2 Image Quality

On the Image Quality page, image quality settings are overlaid over the video shown in the camera preview. Use these settings to enhance the image quality for optimal display in your web browser or in an application you are using to extract the video stream. Any changes you make are immediately effective and visible in the preview.

Note: On multichannel units, the settings on this page can be adjusted per individual camera. Select the intended camera by clicking the *Next/Previous* buttons as needed, and then make the required changes.

Noise filter

It is possible to (partially) remove noise from the video signal.

1 Click the **Noise filter** list.

2 Select **Weak**, **Average**, or **Strong** as required.
Selecting *Off* disables the filter.

Auto-enhancement

When set to *On*, this function continuously analyses the images and dynamically adjusts the image quality to compensate for changing conditions.

Manual enhancement

Image quality can be controlled manually.

1 Set **Auto-enhancement** to **Off**.

2 While observing the changes in the preview, move the **Brightness**, **Colour saturation**, **Contrast**, **Hue**, and **Sharpness** sliders until you achieve optimal viewing quality.

Note: With manual enhancement, the settings are not dynamically adjusted when conditions change.

Brightness

Use this function to adjust the brightness level of the video images to your viewing conditions.

Colour saturation

Use this function to adjust the intensity (purity) of the colours in the video images.

Contrast

Use this function to adjust the contrast level of the video images to your viewing conditions.

Hue

Use this function to enhance the colours in the video images if they do not look natural.

Sharpness

Use this function to adjust image sharpness to your viewing conditions.

6.3 Overlays

It is possible to add independently configurable text lines to the video signal for on-screen display (OSD) purposes. On S-64 E v2 units, you can also add a graphical image.

> **Note:** On multichannel units, the settings on this page can be adjusted per individual camera. Select the intended camera by clicking the *Next/Previous* buttons as needed, and then make the required changes.

Product	Text lines	Graphic
EVE ONE, EVE FOUR, EVE 4x4	2x	N/A
S-64 E v2	3x	1x

Overview

The Overlays page has the following tabs:

- *Overlay management*

  Use this tab to add and delete text lines and a graphical image (S-64 E v2). You can position the objects over the video image and determine their appearance.
- *Font management*

  Use this tab to select, add, and delete fonts.
- *Image management (S-64 E v2)*

  Use this tab to select, add, and delete a graphical image.

Overlay management buttons

Overlays are created on the *Overlay management* tab. The **Add text overlay** and **Add image overlay** (S-64 E v2) buttons open a dialogue box with overlay settings.

Button	Name	Button	Available settings
T	Add text overlay	T	Insert text and set the render mode
		✥	Position the text overlay over the video image
		🪣	Set font colour, border colour, and transparency
		Aa	Select font and set font size
		🗑	Delete overlay
🖼	Add image overlay (S-64 E v2)	🖼	Select a picture for the overlay
		✥	Position the overlay picture over the video image
		⚙	Set transparency, scaling, and animation speed
		🗑	Delete overlay

Add a text overlay

Overlays are created independently of each other.

1 Click **Add text overlay**.

A dialogue box pops up. It has a toolbar with four buttons. The active button is highlighted in green.

2 In the **Text** box, type the text that is to be displayed on-screen.

- or -

Click the button next to the **Text** box, and then select the entry to be inserted.

It is possible to reopen the list and click a different entry to append to the selection already in the *Text* box.

3 In the **Render mode** list, select **Outline** or **Border** as needed.

Your settings are immediately effective. See the preview for visual feedback.

4 Click the **Position** button.

5 In the **Position** list, select a preset position.

- or -

Click **Free positioning**, and then use the **X position** and **Y position** sliders or boxes to freely position the object over the video image. Using the **Anchor point** setting, you can shift the object relative to the anchor point.

6 Use **Rotation angle** to rotate the text.

7 Click the **Colour** button, select the font colour and border colour, and then set the transparency of the text overlay.

8 Click the **Font** button, select the font to be used, and then enter the font size.

Fonts can be uploaded via the *Font management* tab.

Add an image overlay (S-64 E v2)

You can create one image overlay.

1 Click **Add image overlay**.

A dialogue box pops up. It has a toolbar with three buttons. The active button is highlighted in green.

2 Click the **Image** list.

3 Select the image for the overlay.

You can add images to the list via *Image management*. The S-64 E v2 / EVE supports .GIF and .JPG images.

4 Click the **Position** button.

5 In the **Position** list, select one of the preset positions.

- or -

Click **Free positioning**, and then use the **X position** and **Y position** sliders or boxes to freely position the object over the video image. Using the **Anchor point** setting, you can shift the object relative to the anchor point.

6 Click the **Advanced** button.

7 Set the transparency and scaling of the image overlay with the appropriate sliders or text boxes.

8 If your overlay is an animated GIF graphic, define its speed in the **Animation speed** text box.

Delete an overlay

1 On the **Overlay management** tab, click on the overlay.

2 In the dialogue box, click the recycle button, **Delete overlay**.

Font management

Fonts for text overlays can be uploaded to the unit. This is done on the *Font management* tab where you can also delete fonts that are no longer needed.

Upload a font

1 Click **Upload font**.

2 Drag the font file onto the dashed rectangle.

3 Click **Upload**.

Delete a font

1 Click **Select font to delete**.

2 In the **Font** list, select the font to delete.

3 Click **Delete**.

Image management (S-64 E v2)

Images that you want to use for graphical overlays can be uploaded to the unit. This is done on the *Image management* tab where you can also delete images which are no longer needed.

Upload an image

1 Click **Upload image**.

2 Drag the image file onto the dashed rectangle.

The unit supports .GIF and .JPG files.

3 Click **Upload**.

Delete an image

1 Click **Select image to delete**.

2 In the **Image** list, select the image that you want to delete.

3 Click **Delete**.

6.4 Streaming Profiles

Dual streaming

The unit can take the analogue video signal from a connected camera and convert it into two independent digital video streams with different video encoding settings.

Streaming profile types

A straightforward method of configuring the encoding settings for a video stream is to use a *factory-set* streaming profile - that is, a predefined combination of settings for a specific application. The unit offers profiles optimised for video storage, PTZ, or high-quality live viewing, for example. If none of the factory profiles meets your requirements you can create and save *user-defined* streaming profiles.

Use a factory-set profile

A factory-set streaming profile defines the settings that the unit will use for the specific application.

1 Click the camera name at the top of the webpage.

2 Click **Stream 1** or **Stream 2** to select the stream to assign the streaming profile to.

3 In the **Profile** list below the camera name, select the factory profile which is appropriate for the intended purpose.

4 Repeat steps 1 through 3 for the other stream, if necessary.

Factory profile settings

After you select a factory profile, the video stream is encoded using the associated settings shown below the profile list. For several settings, the webpage also shows the *actual* value to the right of the defined value.

Create a custom profile

If the supplied factory-set profiles do not meet your requirements you can create a custom streaming profile.

1 Click the camera name at the top of the webpage.

2 Click **Stream 1** or **Stream 2**, to select the stream to assign the streaming profile to.

3 In the **Profile** list, select the factory profile to be used as a basis for the custom profile.

4 Adapt the profile settings to your requirements.

The custom profile is added to the Profile list (User section) as: `Factory profile-Copy-yymmdd`.

5 To rename the profile, type a descriptive name into the **Name** box.

Delete a custom profile

Custom streaming profiles can be deleted (unlike factory-set profiles).

1 In the **Profile** list, select the profile to be deleted.

2 Click **Delete**.

3 In the information bar, click **Yes, delete** to confirm this action.

Name

Indicates the currently selected streaming profile. You can name and rename custom streaming profiles. The names of the factory-set profiles cannot be changed.

Encoder type

Depending on the application, select the video encoding method that is to be used to compress the analogue video signal.

Frame rate

Here you can set the number of video frames per second for the video transmission. Range: 1-25 fps (PAL); 1-30 fps (NTSC).

GOP size

Determines the distance in frames between two I-frames.

Maximum bit rate

Here you can set the maximum bit rate allowed for the video transmission. You can use this setting to control the network load. The *actual* bit rate is shown to the right of the text box. This value is dynamically updated with the current bit rate to provide feedback on the bit rate that is used on average with the current *Maximum quality* setting. This setting corresponds with Constant Quality Mode or Variable Bit Rate.

Maximise long term bit rate

The default setting is not very suited for recording and storage, the total amount of data needed is unpredictable. This mode defines the average bit rate for a period of time. This mode corresponds with a type of Constant Bit Rate.

Select *Enable* to display and activate the *Max. long term bit rate* parameter. Clear the check box to deactivate and hide that parameter.

Max. long term bit rate

With this setting you can optimise the bit rate by specifying an average value allowed for a longer period.

Maximum quality

Generally speaking: the higher the Maximum quality setting, the lower the compression ratio and the more bits are consumed. This means a trade-off has to be found between the desired quality level and available bandwidth. When configuring these settings it is good to keep the following in mind.

- If the configured Maximum quality cannot be achieved with the currently set Maximum bit rate, the actual quality will be lower. The actual quality percentage is shown real-time to the right of the configured Maximum quality.
- The actual quality level will never exceed the configured Maximum quality, even if the Maximum bit rate should allow it.

Resolution

Indicates the number of pixels that can be displayed in each dimension (width x height). See the table below for supported resolutions.

	PAL	NTSC
960H	960x576	960x480
D1	720x576	720x480
2/3 D1	480x576	480x480
1/2 D1	352x576	352x480
4CIF	704x576	704x480
2CIF	720x288	720x240
CIF	352x288	352x240
QCIF	176x144	176x120
VGA	640x480	640x480
QVGA	320x240	320x240

Traffic shaping (S-64 E v2)

Traffic shaping sets the maximum network bit rate per encoder. Traffic shaping will spread network traffic bursts which helps the network infrastructure handle the traffic. In its turn, however, traffic shaping will increase the latency.

- With traffic shaping set to *Off*, the stream is transmitted with minimum latency but with bursty network traffic.
- With traffic shaping set to *High*, the network traffic is evenly spread out in time, but the latency will increase.

Parameter value combinations

When you create a custom streaming profile, set sensible combinations of *Frame rate*, *GOP size*, *Maximum bit rate*, *Maximum long term bit rate*, *Maximum quality*, and *Resolution*. If in doubt about the effects of specific encoder settings, you are advised to select the factory-set profile offering the closest match to your required application.

Use Quad view (S-64 E v2)

To see live video from the S-64 E v2, you can use a web browser or video viewing software. In a browser, the Live Stream page presents the four camera views arranged in quad layout. For closer viewing, you can select an individual camera. Likewise, if you use viewing software to extract video, you can request a quad view RTSP stream or open a separate RTSP stream per channel. Note that the unit's Quad view function is disabled by default.

1. On the *Quad view* tab, click **Enable**.
2. Configure the encoding settings as needed.
3. In your viewing application, specify the URL containing the IP address of the S-64 E v2.
4. Add "/quad" after the IP address.

   For example: `rtsp://10.50.3.72/quad`

   On successful connection, the S-64 E v2 quad view is streamed to your application.

Tip: Depending on the chosen settings, the overall performance will be reduced when the quad view stream is enabled. To prevent reduced frame rate or increased latency, it is recommended to set any unused streams to low resolution and low frame rate.

6.5 PTZ

Overview

The PTZ page has the following tabs:

- *Driver management*

  Use this tab to activate PTZ control, upload and delete PTZ drivers, and configure data settings.
- *Camera-#*

  Use this tab to assign an ID to the camera and manage the PTZ presets you have created on the Live Stream page.

Enable PTZ control

You can use the Live Stream page to control a connected PTZ camera from your web browser. Before you can do so, PTZ control must be enabled. This is done by activating a driver that is supported by the camera.

1 On the **Driver management** tab, click **Select driver to activate**.

2 In the list of available drivers, select the driver that is needed for the camera.

PTZ control is now available on the Live Stream page.

Upload a PTZ driver

PTZ drivers not included in the factory-default driver list can be uploaded to the unit.

1 On the **Driver management** tab, click **Upload driver**.

2 Drag the driver file (with .js file extension) onto the dashed rectangle.

3 Click **Upload**.

The driver is added to the *User* section of the driver list.

Delete a PTZ driver

Uploaded drivers that you no longer need can be deleted. It is not possible to delete the factory-installed drivers.

1 On the **Driver management** tab, click the list of available drivers.

2 Click the driver you wish to delete.

3 Click **Delete**.

PTZ commands over TCP

The unit supports the streaming of PTZ data over TCP using a client/server connection. The TCP connection is bidirectional.

1 In the **Listening on port** box, specify the port on which the server listens for incoming TCP connections.

Range: [0 ... 65535]. Default: 1024.

2 To activate this function, select **Enable**.

Bit rate

Determines the speed of the digital transmission - that is, the amount of information transferred/processed per unit of time.

Word length

Determines the number of bits that is transferred in a single operation.

Stop bits

Indicates the end of a data character to enable the receiver to resynchronise with the stream.

Parity mode

Enables the sending of an extra bit with each data character for error detection purposes.

Wire mode (S-64 E v2)

The RX-4xx interface type on the data connector is set in software. Select the required type in the *Wire mode* list.

Biasing (S-64 E v2)

If biasing is needed, it should be enabled on at least one module on the bus.

Termination (S-64 E v2)

Normally, the devices at the two extremes of a bus are terminated, while intermediate devices are not. Therefore: RS-422, always enable (being point-to-point); RS-485, enable only for the first and last module connected to the bus configuration.

Camera ID

In order to address multiple cameras on the same RS-485 bus, each camera needs to be assigned a unique ID. Make sure to set all connected cameras to a different ID on the camera itself, and then set the camera IDs for all cameras accordingly on this page.

1 Click the **Camera-#** tab.

2 In the **Camera ID** box, type the ID .

Rename a preset

Presets are automatically saved as "`PTZ preset #`" followed by the preset number. On the Camera # tab, you can rename a preset to give it a more descriptive name.

1 In the **Preset name** column, click the current name of the preset.

2 Type the new preset name.

The preset can now be found under the new name in the Preset list on the Live Stream page.

Add a reserved preset

Certain functions of a connected camera (such as a wiper/washer system, for example) can be activated by working with reserved presets, if the camera supports these.

1 Click **Add Reserved Preset**.

A new row is added to the preset table.

2 Click the appropriate cell under *Preset number* and type the number that will activate the camera function.

3 Click the corresponding cell under *Preset name* and type a descriptive name.

The preset is added to the preset list on the Live Stream page.

Delete PTZ presets

Note that it is not possible to undo the deletion of a preset!

1 Click to select the check box of the preset you wish to delete.

2 Click **Delete preset**.

You are asked to confirm the deletion.

6.6 Privacy Mask (S-64 E v2)

To avoid intrusive monitoring, privacy masks can be used to conceal sensitive areas within the field of view of a camera.

Add a privacy mask

You can create up to ten privacy masks.

1 In the upper-right corner, click **Add privacy mask**.

The mask appears as an overlay.

2 Drag the mask to the area that you want to conceal.

3 Drag the sides of the mask to resize it.

It is recommended to set the mask to twice the size of the sensitive area.

4 In the **Colour** list (lower-left corner), select a colour for the mask.

Delete a privacy mask

1 Click on the mask to select it.

2 In the upper-right corner, **Delete privacy mask**.

7 Events

On the Event Management page, you can define how the unit is to handle incoming events. This is done by linking actions to specific events. Once the event occurs, it triggers the selected action automatically.

Add an event

The Event Management page is blank when you open it for the first time. You can add events by selecting a trigger and linking an action to it.

1. Click **Add event**.
2. In the **Trigger** column, click **Select trigger**.
3. In the **Trigger** list, select the event that will set off the trigger action.
4. In the **Action** column, click the corresponding cell.
5. In the **Action** list, select the action to be taken when the event occurs.

   The event is effective as soon as you have defined the trigger and the action.

Note: Make sure that the FTP server settings (see "FTP" on page 43) are configured correctly when you select "FTP image ..." as a trigger action.

Delete an event

1. Select the check box of the event you wish to delete.
2. Click **Delete event**.

8 Recording

Edge recording makes it possible to record and store video locally - that is, at the video encoder. To prevent loss of video when the connection to a central network video recorder or VMS system is lost, recorded video clips can be stored on the Micro SD card inside the video encoder. From the Edge Recording page, the clips can then be downloaded for further processing.

Monitoring

Unlike 24-hour recording by an NVR, edge recordings are typically short recordings. Start and stop times for the recordings are triggered by external events, such as a lost or restored connection to an NVR or VMS. To detect these events, the video encoder monitors the network connection to the device specified by its IP address. This is done by pinging it at regular intervals to test its reachability over the network.

1 In the **IP address** box, type the IP address to be monitored.

2 Select **Enable**.

The device is now pinged periodically.

The connectivity status is given as "`Connection present`" or "`Connection lost`".

Recording

Detecting a loss of connection to a device at a monitored IP address triggers the following:

- Edge recording starts.

> **Important:** Recording for the associated video input does not start if the device at the specified IP address has not been detected previously. In other words, recording is only possible for devices which have acknowledged their presence on the network at least once by responding to ping messages. This is to prevent unintended recording to the SD card.

- The connection loss is reported in the webpage ("Connection lost").
- The associated video clip appears in the *Available clips* section with clip status shown as 'Recording'.
- Edge recording continues until the device becomes responsive to ping messages again.

Available clips

Details about clips can be found in the *Available clips* section.

- Clips with recording status 'Recording' or 'Ready' are available for download in .avi format.
- Clips include 30 seconds of prerecorded video and five seconds of postrecorded video. The prerecording mechanism is active at all times.
- Clip file size will not exceed 500 MB. If a recording requires more storage capacity, multiple clips are created.

Download a clip

1 In the *Available clips* section, click the clip's **Ready** or **Recording** status indication.

The file is saved to the Download folder on your PC.

2 In the information bar, click **Open** or **Show in folder**.

Clip names are created automatically using UTC date/time information.

Delete a clip

1 In the *Available clips* section, select the clip by clicking the check box.

2 Click **Delete selected clip**.

SD card

The unit supports µSDHC cards with a maximum capacity of 32 GB. You can check the card storage capacity and available space through the *SD card* tab on the Edge Recording page. When the SD card is full, recording stops and a message is sent to the syslog (see "Logging" on page 36).

Warning: Powering down or rebooting the unit, or insertion into an operational unit erases all content on the SD card! Clips will be irretrievably lost.

9 Device

Users with an Administrator or Operator account can access the Device pages to configure the device, network, date and time, security, and SNMP settings. Administrators can also manage user accounts.

In This Chapter

9.1 Device Management

On the Device Management page, you can restart the unit, reset it to the factory-default settings, create and restore backup files, and upgrade the firmware.

Name

Type a descriptive name in the *Name* box. This will make identification of the unit easier when you scan the network in Siqura Device Manager, for example. The unit must be restarted for the change to take effect.

Description

Defines the device type.

Article code

Administrative information for article identification.

Serial number

Uniquely identifies the unit. You may be asked to provide this number when you contact Siqura technical support.

Firmware version

Indicates the currently active firmware version.

Firmware upgrade

The unit has two firmware storage areas: a *fixed image* area and an *upgrade image* area. The fixed image area contains the original factory version of the firmware. This cannot be erased. The upgrade image area is usually empty upon factory release.

Using the Firmware upgrade section you can write a new firmware version to the upgrade image area. An upgrade image can replace an existing upgrade image written to the unit at an earlier upgrade.

Important: It is essential that the upgrade image is compatible with the unit.

1 To open the upgrade section, click **Firmware upgrade**.

2 Click **Click to select file**.

3 Browse to the folder which holds the upgrade file.

4 Select the upgrade file (`.sqrfw` extension), and then drag it onto the dashed rectangle.

5 Click **Upgrade**.

The firmware is upgraded. The unit is unresponsive for 30 seconds.

Restart the unit

The *Restart* button restarts the unit without resetting variables. During the restart the unit is unresponsive for 30 seconds.

Reset to factory defaults

With the options accessed via the *Reset to factory default* button, you can reset all variables that can be set by the user. After clicking either of the options the unit restarts and is unresponsive for 30 seconds.

- If you need to keep the current network configuration, click **Keep network settings**.
- If you want a complete reset which will restore all device settings, including the IP address and subnet mask, to their original, default values, click **Discard network settings**.

> Warning: The latter option restores the unit to the factory-set IP address as indicated on a sticker on the unit. This could make the unit unreachable for in-band communications, in which case the webpages are accessible only by moving a PC to the same subnet as the unit.

Create a backup file

It is possible to back up the settings of the unit, so that you can restore them if a problem should occur.

1 Click **Create backup file**.

The backup file is saved to the *Download* folder on your PC.

File name convention: `yymmdd-backup.tar`

2 Store the file in a safe location designated for backups, for example.

Restore a backup

You can restore a backed-up configuration.

1 Click **Restore previously created backup**.

2 Select **Keep network settings** if you want to preserve the current network settings.

3 Select **Keep SSL certificates** if you want to preserve the currently installed SSL certificates.

4 Drag the backup file (with `.tar` extension) onto the dashed rectangle.

5 Click **Restore**.

The unit becomes unresponsive for some 30 seconds while the backup is restored.

9.2 Network

For correct functioning of the unit, its network settings must be compatible with the network to which it is added. On the *Network* page, you can set a static IP address or enable DHCP to have an IP address assigned dynamically.

> **Important:** On the S-64 E v2, DHCP is disabled by default. The unit is initially accessible through the factory-set IP address which can be found on a sticker on the unit. This is also the IP address to which the unit reverts when you reset it to the factory-defaults discarding the network settings. On EVE encoders, DHCP is enabled by default.

After you make changes on this page, the unit must be restarted for the changes to take effect. While restarting, the unit is unresponsive for 30 seconds.

Host name

Identifies the unit on the network. You can set the host name on the Device Management page (see "Device Management" on page 27).

HTTP port

The port used for connections over HTTP. Default: port 80.

HTTPS port

The port used for secure communication over the network. Default: port 443.

Use DHCP

With DHCP enabled, the unit requests an IP address and other networking parameters from a DHCP server on the network. There are two possible outcomes.

- A DHCP server is found and an IP address is assigned from its pool of addresses. The unit can then be found with Siqura Device Manager (supplied on the Siqura Product CD) and you can access the webpages.
- No DHCP server is found. The unit then reverts to its factory-set IP address which is printed on a sticker on the unit. To access the unit, take the following steps:

1. Set the network adapter of a browsing PC to the factory-default subnet of the unit.
2. Connect the unit to the PC.
3. From a browser on the PC, access the unit, and then open the *Network* page.
4. Configure the network settings as needed.

It is also possible to request a time server address via DHCP. You can activate this function on the Date & Time page (see "Date & Time" on page 30).

MTU size (S-64 E v2)

This value is set to *1500 (Ethernet)* by default. Maximum Transmission Unit (MTU) is the maximum size (in bytes) of an IP packet that can be transmitted over the network without dividing it into pieces. You can use the (default) values on the list or type a custom value. An MTU size that you specify here must be supported on the other side of the link.

Use a static IP address

Instead of using an IP address assigned by DHCP you can set a static IP address.

1. Clear the **DHCP** check box.
2. Type the new network settings in the appropriate boxes.

IP address

The factory-set IP address of the unit is in the 10.x.x.x range with a 255.0.0.0 subnet mask. Achieving initial communication with the unit requires that the network adapter of the browsing PC is set to the factory-default subnet of the unit. Having made the webpages accessible in this way, you can use the *Network* page to change the default network settings to the desired settings.

For IP address input to be valid, the IP address of the unit:

- must be within the 1.0.0.1 ~ 223.255.255.254 range.
- cannot start with 127 (reserved for loopback on local host).

Subnet mask

Used to subdivide the IP network for security or performance purposes.

Default gateway

The IP address of the network node (router) which serves as the entry point and exit point to the network.

Preferred DNS

The IP address of the DNS server that will be used first for DNS name resolution.

Alternate DNS

The IP address of the server which will be used as the secondary DNS server.

Services (S-64 E v2)

On the Services tab of the Network page, you can enable or disable the unit's RTSP, ONVIF, MX, and UPnP services as needed. For more information, see the service descriptions below.

RTSP

The unit implements an RTSP server. A hardware or software decoder (the latter within a viewing application, for example) is the RTSP client. Media sessions between client and server are established and controlled with RTSP. Media stream delivery itself is handled by the Real-Time Transport Protocol (RTP). Select the RTSP check box to enable RTSP streaming.

RTSP port

The port number used for RTSP media sessions. Default port: 554.

ONVIF

Enables the ONVIF service on the unit. The ONVIF specification ensures interoperability between products regardless of manufacturer. It defines a common protocol for the exchange of information between network video devices including automatic device discovery and video streaming. The unit fully supports the ONVIF standard. It has been tested to support ONVIF Profile S.

ONVIF discovery

Makes the unit discoverable for ONVIF clients. Clear this check box if you prefer to disable discovery. In that case, the unit can still be controlled from ONVIF clients that "know" of its existence.

MX

Select this check box if you need to establish MX connections. MX/IP is a proprietary UDP protocol used to communicate with Siqura equipment over a network connection.

UPnP

If enabled, UPnP (Universal Plug and Play) allows the unit to advertise its presence and services to control points on the network. A control point can be a network device with embedded UPnP, a VMS application or a spy software tool, such as Device Spy. With the UPnP service enabled in Windows, you can connect to the unit from Windows Explorer.

9.3 Date & Time

The date and time on S-64 E v2 units can be set manually or you can use a time server. The S-64 E v2 has a battery-supported real-time clock. When you reboot this unit, the correct date and time information is retained. EVE encoders do not include a battery. They need to be connected to a time server.

Manual date and time setting (S-64 E v2)

1. Clear the **Use time server** check box, if necessary.
2. Click the **Date & Time** button.
3. Make your adjustments in the *Date* and *Time* boxes.

Date

The date is displayed in fixed format in the webpages: `yyyy-mm-dd`. On the Overlays page (see "Overlays" on page 15), you can select an alternative format for display over a video stream.

Time

The time is displayed in fixed format in the webpages: `hh:mm:ss`. On the Overlays page (see "Overlays" on page 15), you can select an alternative format for overlay display over a video stream.

Time zone

Set the local zone depending on the physical location of the unit.

Adjust automatically for DST

The unit can adjust the time automatically for daylight saving time (DST).

1. Select **Adjust automatically for DST**.
2. Use the **To daylight saving time** and **To standard time** lists to set the appropriate start and end details.

   The unit will automatically adjust at the given dates and times.

   See the table below for DST change information. Note that these dates and times are subject to change. If required, refer to http://www.timeanddate.com/time/dst or similar websites for current information.

	DST begins	DST ends
Australia	2:00 AM local time, first Sunday in October	3:00 AM local time, first Sunday in April
China	N/A	N/A
Europe	2:00 AM local time, last Sunday in March	3:00 AM local time, last Sunday in October
Russia	N/A	N/A
USA	2:00 AM local time, second Sunday in March	2:00 AM local time, first Sunday in November

Use a time server

There are two options for specifying which time server is to be used.

- The time server IP address can be obtained via DHCP.
- The time server IP address can be set manually. This can be the address of an NTP server or that of a Video Management System (VMS) with time server functionality, such as VDG Sense

Obtain time server from DHCP

It is possible to have the IP address of a time server included in the settings received through DHCP. Using this function requires that DHCP is enabled on the Network page (see "Network" on page 28).

> **Note:** Since DHCP is disabled by default on the S-64 E v2, the *Obtain time server from DHCP* function is also disabled by default.

Time server address

Here you can set the address of a time server.

1. To activate this function, clear the **Obtain time server from DHCP** check box.
2. In the **Time server address** box, type the IP address or the name of the time server.

   Identifying the time server through its name requires the presence of a DNS server to translate the name into an IP address. The DNS server IP address can be included in the DHCP settings or you can set it on the Network page (see "Network" on page 28).

9.4 Security

Via the Security page, Administrators can install security certificates to enable secure connections between the unit and web browsers. It is also possible to activate authentication for users who want to start an RTSP video stream or extract JPEG snapshot images.

Authentication for camera viewing

This function is disabled by default. Users can freely connect to the unit over RTSP and extract a video stream that it is generating. This may be undesirable from a security perspective. Therefore, it is possible to restrict access to the unit to users with a valid account. Administrators can create and delete user accounts via User Management (on page 34).

- Select **Enable**.

  On attempting to open an RTSP connection, users are now asked to provide a user name and password.

Secure connections

With HTTPS implemented and activated, a safe exchange of data between the unit and a web browser is ensured. Information transported over the network - for example, device settings and user credentials - is encrypted to protect it against intrusions and infections that can compromise the security and privacy of the information.

Certificates

To implement HTTPS on the unit, you need to install an HTTPS certificate. You can use a self-signed certificate or one created by a Certificate Authority (CA). CA-issued certificates provide a higher level of security and inspire more trust than self-signed certificates. Self-signed certificates are often installed for test purposes or as a temporary solution until a CA-issued certificate has been obtained.

Certificate information

The following information must be provided to create a certificate.

Item	Description
Country	The country where the certificate is to be used
Country code	Two-letter country code
Days until expiration	The valid period (in days) of the certificate. Default: 365
State/Province	The administrative region in which the organisation is located
Common name	The name of the entity to be certified by the certificate
City	City where the organisation is based
Email	The contact email address
Organisation	The name of the organisation which owns the entity specified in the "Common name" box
Organisation unit	The name of the organisational unit which owns the entity specified in the "Common name" box

Important: Make sure that the *Common name* that you specify matches the URL that is used to access the webpages of the unit. Generally, this is its IP address.

Install a self-signed certificate

1 Enter the required information as described above.

2 Click **Create self-signed certificate**.

The certificate is created and installed.

Install a CA-issued certificate

1 Enter the required information as described above.

2 Click **CA created certificate**.

3 Click **Create and download certificate request**.

4 Go to your download folder, copy the `certificate_request.csr` file, and then send it to a CA.

Once you have received the signed certificate from the CA:

5 Click **CA created certificate**.

6 Click **Upload certificate**.

7 Drag the certificate file onto the dashed rectangle.

8 Click **Upload**.

Open a secure connection

With a security certificate installed, you can establish a secure connection.

1 Click **Self-signed certificate** or **CA created certificate** (depending on the type you want to use).

2 At the top of the page, activate HTTPS by selecting **Certificate required**.

3 Refresh the page.

4 Log on to the unit.

Your browser is now using a secure connection to communicate with the unit.

9.5 User Management

Initial setup

Out of the box, the video encoder has no user accounts defined. The unit is freely accessible - that is, when you connect to the web server you are not prompted to log on. To prevent unauthorised access, Siqura recommends that you implement user authentication. This is done by creating user accounts and activating user login. The number of user accounts you can create is virtually unlimited.

Roles

The unit supports three account types with associated access levels.

Account	Page access	Permissions
Viewer	Live Stream only	View live video, PTZ control
Operator	All pages except User Management	Configure, manage and operate the unit. User management not allowed.
Admin	Full access	Full control

Add a user

Before you can add users and activate user login you must create an Admin account.

1 Click **Add user**.

2 Click **Enter user name**, and then type the user name.
User names and passwords are case sensitive.

3 Click **Enter password**, and then type the password.

4 Click the **Role** box, and then click **Admin**.

5 To create additional user accounts, repeat steps 1-4 as needed.
In step 4, select the role which is applicable.

6 To sort the user list by name, refresh the page.

Activate user authentication

Once you have an Admin account, you can activate user authentication for the unit.

- On the **User Management** page, click **Activate user login**.
  Users will now be prompted to supply their user name and password when they connect to the unit.

Edit a user

Admins can change user passwords and assign new roles.

1 Click the **Password** box, and then type a new password.

2 Click the **Role** box, and then select a new role.
Note that the user name cannot be modified.

Delete a user

Admins can delete user accounts.

1 Click the check box of the user you wish to delete.

2 Click **Delete user**.

3 In the information bar, click **Yes, delete** to confirm the deletion.

9.6 SNMP (S-64 E v2)

The Simple Network Management Protocol (SNMP) can be used to monitor the S-64 E v2 for conditions or events which require administrative attention. Via SNMP, several status variables can be read and traps can be generated on events.

The SNMP Agent is MIB-2 compliant and supports versions 1 and 2c of the SNMP protocol.

> **Note:** The S-64 E v2 includes SNMP support for its image quality monitor and tamper detect functions. A trap is sent when bad image quality or camera tampering is detected and another one when the situation returns to normal.

Required MIB files can be downloaded at the Siqura website (see - http://www.siqura.com).

System information

This section shows the network/device data specifically made available to the SNMP manager for making the device, its location and service manager(s) traceable.

1 In the **Contact** box, type the name of the service manager.

2 In the **Node name** box, type the host name of the S-64 E v2.

3 In the **Location** box, type the name of the physical location of the S-64 E v2.

Communities

The community strings (names which can be regarded as passwords) in the Communities section must conform to those configured in the SNMP manager. Often, these are 'public', mainly used for the read and trap communities, and 'private' or 'netman', for read-write operations. The manager program may offer additional choices.

Traps

An S-64 E v2 alarm status change generates a trap which can be caught by any SNMP manager. The S-64 E v2 can, for example, send traps on the occurrence of Image Quality and Camera Tampering events. Variables, which can be read from the S-64 E v2 's MIB through an SNMP manager, indicate why the alarm occurred. The OPTC-VCA-MIB required for this can be downloaded, together with the other S-64 E v2 MIBs, at the Siqura website (see - http://www.siqura.com).

1 In the **Version** list, click the SNMP version used.

2 In the **IP Address** box, type the IP address associated with the manager program.

3 In the **Port** box, type the destination port number.

Default: 162.

> **Note:** *Version*, *IP Address*, and *Port* are required fields.

4 In the **Alternative IP Address** box, if desired, type an alternative destination IP address.

5 In the **Alternative Port** box, if desired, type an alternative destination port number.

6 If desired, select **Enable** to activate **Authentication trap**.

This adds an authentication trap to catch attempts at access using the wrong community string.

Agent

The S-64 E v2 has an SNMP agent running which listens for information requests from the SNMP manager on port 161 by default.

10 Diagnostics

The *Logging* and *LED* pages can assist you when you need to troubleshoot encountered issues.

In This Chapter

10.1 Logging

The unit includes logging functionality which can be used for diagnostic purposes.

Download a log file

To view the unit's logfile you can download it to your computer.

1 Click **Download log file**.

2 In your download folder, click `system.log`.

The file is opened in Notepad.

Use a syslog server

Syslog is a standard which allows devices to send event notification messages over IP networks to event message collectors, also known as syslog servers.

1 In the **Syslog server IP address** box, type the IP address of the syslog server you will be using.

2 To activate **Send log to syslog server**, select **Enable**.

10.2 LED

To identify the video encoder among other units you can make the status LED blink for a selectable time span.

Start blinking

1 Click to open the **Start blinking LED** list.

2 Click a time span.

Stop blinking

1 Click to open the **Start blinking LED** list.

2 Click **Stop blinking LED**.

11 Analytics

Siqura video encoders include video analytics which can monitor the video images and raise an alert when the following events occur:

- The image quality becomes too poor.
- The camera's position or field of view has changed.
- Movement is detected in a predefined area of the image.

In This Chapter

11.1 Motion Detection

Motion detection enables the user to define a portion of the screen and to detect picture changes there. These changes could be caused by motion or varying lighting, for example.

Set up motion detection

The Motion Detection function enables the unit to trigger an alarm when motion in a specified area of the field of view - that is, the Region of Interest (ROI), reaches or exceeds a configured sensitivity threshold value.

1. In the upper-right corner, click **Activate Motion Detection**.

   The button turns green and the *Draw ROI* button appears.

   Drawing a ROI is optional. If you do not need a ROI, proceed to step 4. In that case, the entire field of view becomes the ROI.
2. Click **Draw ROI**.
3. Drag the mouse pointer across the preview to draw the Region of Interest (ROI).

   If the ROI is not the correct size or in the wrong place you can repeat steps 2 and 3.
4. Drag the **Alarm level** slider to set the sensitivity of the detection.

   Local change is only detected if its level exceeds the defined value (indicated by the red horizontal line). The *Alarm level* setting can be used to eliminate unwanted ('false') triggering (for example, caused by background noise or constant local movement). You may need to try out several alarm levels to achieve the best detection.
5. If required, go to the Event Management page (see "Events" on page 24) and add an event with motion detection as an event trigger.

Deactivate motion detection

You can (temporarily) deactivate motion detection.

- Click **Deactivate Motion Detection**.

  The Motion Detection button turns red and the ROI is hidden. Clicking the button once again reactivates motion detection using the same ROI.

11.2 Tampering

As a result of tampering, or more accidentally, after cleaning, a camera may no longer cover the area designated for monitoring. The Tampering function can detect camera position changes and scene changes such as a blocked camera view. It does so by comparing the current image to one or more reference images that were captured and stored earlier.

Set up tamper detection (EVE encoders)

Tamper detection needs a reference image for comparison with the current image.

1 Click **Activate Tamper Detection**.

The button turns green and reference image learning starts. Progress is indicated by a progress bar.

Once created, the reference image is displayed as an overlay over the current image.

Detection starts immediately.

When the camera scene or position is changed, a warning is displayed: "`Camera has been tampered with!!!`".

2 If required, go to the Events Management page (see "Events" on page 24), add an event with a "Camera # tampering detected" trigger, and then define the subsequent action.

3 To delete the current reference image, click **Deactivate Tamper Detection**.

Clicking **Activate Tamper Detection** once more will create a new reference image.

Set up tamper detection (S-64 E v2)

The Tamper Detection function enables the unit to trigger an alarm when camera position changes or scene changes are detected in a specified area of the field of view, that is, the Region of Interest ROI). Tamper detection needs a reference image for comparison with the current image.

1 Click **Activate Tamper Detection**.

The button turns green and additional buttons appear.

2 If the selected camera is a PTZ camera, click **Select** to open the PTZ preset list in the lower-left corner, and then click the PTZ preset for which you want to create a reference image.

Drawing a ROI is optional. If you do not need a ROI, proceed to step 5. In that case, the entire field of view becomes the ROI.

3 Click **Draw ROI**.

4 Drag the mouse pointer across the preview to draw the Region of Interest (ROI).

This defines the area which will be monitored for changes.

5 Click **Add reference image**.

The reference image is created. Progress is indicated by a progress bar.

Once created, the reference image appears as an overlay with a green border.

6 Click **Show reference images**.

7 Click the new reference image, type a name in the **Name** box, and then close the dialogue box.

8 To create more reference images, repeat steps 2-7 as needed.

Detection starts immediately.

When the camera scene or position is changed, a warning is displayed: "`Camera has been tampered with!!!`" and the reference image border goes from green to red.

9 If required, go to the Events Management page (see "Events" on page 24), add an event with a "Camera # tampering detected" trigger, and then define the subsequent action.

10 To delete a reference image, click **Show reference images**, point to the image to be deleted, and then click the **Recycle** button.

11.3 Quality Monitor

The Quality Monitor can detect if images produced by the camera are still usable. Four coloured dials give an indication of the performance of the camera and show whether or not it needs attention. A quality check is made against what is normally a good picture.

Examples of detectable occurrences

- The camera is in focus during sunny days, but out of focus in low light situations.
- The initial daytime camera position seemed OK, but streetlights and spot lights affect the image during nighttime.
- The lens has got dirty.
- The iris control has got stuck.
- Camera failure occurs.

Measurements

The Quality Monitor can measure the contrast level, exposure, SNR (Signal-to-Noise Ratio) and picture detail. The four measurements are enabled by default. The camera health is being measured continuously.

State	Description
🟥	Error state
🟨	Hysteresis: the area where the alarm output is either "true" or "false" depending on the preceding alarm state
🟩	Correct performance

On the Event Management page, you can add events triggered by various image quality states, such as "... image too bright", "... contrast too low", or "... detail too low", and then define actions to be taken when a specific state occurs.

12 Advanced

The Advanced menu gives access to the Direct Streaming, Data, Digital I/O, Audio (if supported), and FTP Push pages.

> **Important:** We recommend that you have in-depth understanding of the Advanced settings and their values before you make any changes. If in doubt, do *not* change the default values.

In This Chapter

12.1 Direct Streaming

On the Direct Streaming page you can enter IP settings for direct streaming to a unicast or multicast IP address.

Multicast

The unit supports IP multicast. This is a method for 'one-to-many' real-time communication over an IP network. The technique can be used to send media streams from the encoder to a group of interested receivers in a single transmission. The intermediary network switches and routers replicate the data packets to reach the multiple receivers on the network. The switches and other network devices used must be carefully configured for, and capable of handling multicasting and its associated protocols (most notably IGMP).

SAP

The unit includes a SAP announcer. The Session Announcement Protocol (SAP) is used to advertise that a media stream generated by the encoder is available at a specific multicast address and port. SAP listening applications can listen to the announcements and use the information to construct a guide of all advertised sessions. This guide can be used to select and start a particular session. The SAP announcer is not aware of the presence or absence of SAP listeners.

1. In the **IP address** box, type the multicast destination IP address for the announcements and media streams.

   The address must be within the range of 224.2.128.0 ~ 224.2.255.255.

2. In the **Port** box, type the destination port number.

   Default: 1024. Use even numbers only.

3. Select **Enable**.

   Session announcements and media streams will now be sent to the given IP address.

   The media stream can be identified through the *Program name* which is made up of the camera name and stream number.

RTSP Multicast

The unit supports multicast media streaming via the Real-Time Streaming Protocol (RTSP). The RTSP transmitter does not require enabling.

1 In the **Multicast address** box, type the destination multicast IP address.

2 In the **Multicast port** box, type the destination port number.
Default: 50000. Use even numbers only.

Direct Streaming

The unit supports direct media streaming to a multicast or unicast IP address (a decoder or viewing application, for example).

1 In the **IP address** box, type the destination IP address.

2 In the **Port** box, type the destination port number.
Default: 50010. Use even numbers only.

3 Select **Enable**.

Quad view (S-64 E v2)

On the Quad view tab, you can configure settings for Quad view streaming using RTSP Multicast or Direct Streaming. Note that Audio, Data, and SAP settings are not available. For more information about Quad view streaming, see also Camera > Streaming Profiles > Quad view.

12.2 Data

PTZ commands over TCP

The unit supports the streaming of PTZ data over TCP using a client/server connection. The TCP connection is bidirectional.

1 In the **Listening on port** box, specify the port on which the server listens for incoming TCP connections.
Range: [0 ... 65535]. Default: 1024.

2 To activate this function, select **Enable**.

Bit rate

Determines the speed of the digital transmission - that is, the amount of information transferred/processed per unit of time.

Word length

Determines the number of bits that is transferred in a single operation.

Stop bits

Indicates the end of a data character to enable the receiver to resynchronise with the stream.

Parity mode

Enables the sending of an extra bit with each data character for error detection purposes.

Wire mode (S-64 E v2)

The RX-4xx interface type on the data connector is set in software. Select the required type in the *Wire mode* list.

Biasing (S-64 E v2)

If biasing is needed, it should be enabled on at least one module on the bus.

Termination (S-64 E v2)

Normally, the devices at the two extremes of a bus are terminated, while intermediate devices are not. Therefore: RS-422, always enable (being point-to-point); RS-485, enable only for the first and last module connected to the bus configuration.

12.3 Digital I/O

The number of digital I/O channels that is provided depends on the model of your encoder (see the table below). Each of the I/O pins can function as a digital input or a digital output (but not simultaneously).

Product	Digital I/O channels
EVE ONE	2
EVE FOUR	8
EVE 4x4	4x8
S-64 E v2	8

Set the pin mode

On the Digital I/O page, you can set the mode for each pin.

1. In the **Mode** column, click the required cell.
2. Select the desired mode.
3. If desired, go to the Event Management (see "Events" on page 24) page and add an event with I/O closed as an event trigger.

Mode	Description
Force closed	I/O contact is closed
Input	I/O pin is input pin
Output (inverted)	I/O pin is output pin (output inverted)
Output	I/O pin is output pin

12.4 Audio

The following audio channels are provided by the S-64 E v2, EVE FOUR, and EVE 4x4 (per blade) encoders:

- Audio in: 4 channels (line level), or two channels line level and two channels mic level (with bias).
- Audio out: 1 channel (line level)

Input select

Settings: *Line*, *Microphone*, *Microphone Bias*

Profile

Preset combinations of settings.

- G.711 A-law: mainly used in Europe and Australia
- G.711 µ-law: mainly used in USA and Japan

Input gain

Drag the slider to adjust the input gain. Range: 0 ~ 30 dB.

Input level

Graphic bar to indicate the audio input level in dBFS (decibels below full scale).

Output gain

Drag the slider to adjust the output gain. Range: -80 ~ 0 dB.

Output level

Graphic bar to indicate the audio output level in dBFS (decibels below full scale).

12.5 FTP

On the Event Management page (see "Events" on page 24), events can be set to trigger an FTP push. When such an event occurs, the unit will post a camera image on one or two FTP servers. A target server must hold a user account associated with the unit. If you assign two servers, images are posted simultaneously to FTP server 1 and FTP server 2.

Send to this server

To activate the connection with this server, select **Enable**.

IP address

In the IP address box, type the IP address of the FTP server you want to use.

Port

The FTP protocol typically uses port 21 on the FTP server to listen for clients initiating a connection. Port 21 is also where the server is listening for commands issued to it.

Name

The user name that is needed for authentication before you can access the server.

Password

The password that is needed for authentication before you can access the server.

Camera-# tabs

On the Camera-# tab(s), you can set the path to an FTP server and configure settings for continuous posting.

Server path

In the Server path box, type the name of the folder on the FTP server which is assigned to the FTP client. Example: `\Captures\Cam-1`. This can be used if the client is not allowed to access the server root folder.

Continuous posting

Image upload to an FTP server can be event-triggered but you can also set it to be continuous.

1 In the **Interval** box, type a value to determine the frequency (in seconds) of the image posts.

2 In the **File name** box, type a descriptive name or accept the default name.

With the append button you can add extra information to the file name.

3 To activate continuous posting, select **Enable**.

13 Troubleshooting

If you experience problems with your video encoder the following sections may help you to identify and resolve underlying causes.

In This Chapter

13.1 Date & Time issues

No time server active!

Cause: Obtain Time server from DHCP is enabled, but on the Network page **DHCP** is disabled.

Solution: Open the Network page and enable **DHCP** or set the **Time server address** manually on the Date & Time page.

Cause: The Time server address is set manually but the address cannot be reached.

Solution: Verify the **Time server address**. If the address is specified as a name, a DNS server must be available. Open the Network page and check the **Preferred DNS** and **Alternate DNS** addresses.

13.2 FTP issues

Unable to upload to FTP server

Cause: The FTP server does not hold a user account associated with your encoder.

Solution: Request a user account from the FTP server.

13.3 Logon issues

Unable to log on

Cause: Incorrect user name or password. User name and password are case sensitive.

Solution: Supply correct user name and password.

Cause: Unknown user.

Solution: Request Administrator to create a user account.

Use the reset button

If you have forgotten your Admin password or are otherwise locked out of your video encoder you can regain access by using the reset button on the front panel of the unit.

1 Insert a straightened paper clip into the reset button hole which is located:
  - to the left of the VIDEO IN BNC connector (EVE ONE).
  - below the Digital I/O connector (EVE FOUR).
  - to the right of the Digital I/O connector (EVE 4x4).
  - to the left of the Digital I/O connector (S-64 E v2).

2 Keep the reset button depressed for at least three seconds.
  This erases the upgrade firmware (if present) in the upgrade image area.
  The unit will revert to its factory-set network settings.

3 Use the IP address found on the sticker on the unit to access the webpages.

13.4 Network issues

No network connection between the unit and the browsing PC

Cause: Physical network issue(s).

Solution: Verify that all network devices are properly connected and powered up. Follow the cables, make sure they are plugged into the correct connectors, and check every connector thoroughly.

Cause: Network configuration issue(s). To establish an IP connection, the unit and the browsing PC must be on the same subnet. EVE encoders request an IP address via DHCP by default. If no server is found, the unit reverts to its factory-set IP address in the 10.x.x.x range. On S-64 E v2 units, DHCP is disabled by default.

Solution: Install Siqura Device Manager (SDM) (supplied on the Siqura Product CD and at www.siqura.com) on the browsing PC. Scan the network with SDM. If the unit is not detected, set the network adapter of the PC to the factory-set subnet of the unit. The IP address is printed on a sticker on the unit. Use SDM or a browser to access the unit from the PC, and then modify its network configuration as needed.

Cause: Security issue(s). The connection is blocked by a firewall.

Solution: Check if there is a firewall on the PC or on the network which is blocking the connection. Contact your system or network administrator for assistance, if necessary.

13.5 PTZ issues

No PTZ control from Live Stream page

Cause: The connected camera has no PTZ functionality.

Solution: Connect a PTZ camera.

Cause: The active PTZ driver is not compatible with the connected camera.

Solution: On the PTZ page, select a driver which is supported by the camera. Required drivers can be uploaded to your video encoder if necessary.

13.6 Upgrade issues

Successful upgrades are reported as "Successfully upgraded to version ...". In the event of an unsuccessful upgrade, the following error messages may help you pinpoint the cause of the problem.

Upgrade procedure already in progress

Cause: The unit received multiple upgrade requests at approximately the same time. However, only one request can be handled at a time. The later request receives this error message.

Solution: Issue one upgrade request at a time and wait for the unit to respond.

Invalid firmware file

Cause: The unit performs a number of checks to determine the validity of the file. If it finds problems with the file, such as the file not being a firmware file with `.sqrfw` extension, it displays this error message.

Solution: Use a firmware file with `.sqrfw` extension.

Device hardware is incompatible

Cause: If the image identifier of the hardware does not match the image identifier of the firmware file, this error message indicates that the selected firmware file is not intended for the unit. In that case, the upgrade procedure is terminated. The fixed image and the upgrade image stay in the memory of the unit. After a reboot, the unit runs the **same image** as before the reboot.

Solution: Use a firmware file which is compatible with the unit.

Firmware file is corrupt

Cause: The firmware file contains a CRC error. When this error occurs, the unit reboots automatically and restarts with the **fixed image**.

Solution: Download and install usable firmware.

Rule validation failed

Cause: The firmware file is not suitable for this particular device.

Solution: Upgrade with firmware intended for this unit.

Failed to write firmware to flash

Cause: The firmware file is streamed directly into flash. Various errors may occur while writing the firmware to flash. There may be connection loss, for example, or a reboot during the upgrade procedure. If any such error occurs, the unit reboots automatically and restarts with the **fixed image**.

Solution: Prevent a loss of connection or a reboot during the upgrade procedure. Do not leave the Device Management page or close your browser.

13.7 Video issues

Frames are being dropped

Cause: On multichannel units, the four encoders can simultaneously handle video encoding at full frame rate at 960H resolution. It is not recommended, however, to generate eight video streams at 960H. This may overtax the hardware and lead to frames being dropped.

Solution: Set a lower resolution for one or more video streams and disable the quad view stream if not needed.

Frame rate drops

Cause: On multichannel units, the four encoders can simultaneously handle video encoding at full frame rate at 960H resolution. It is not recommended, however, to generate eight video streams at 960H. This may overtax the hardware and lead to drops in frame rate (see the actual frame rate measurement).

Solution: Set a lower resolution for one or more video streams and disable the quad view stream if not needed.

Corrupted video stream, visible smears or stuttering video

Cause: Not all data is received by the receiver due to network congestion.

Solution: Make sure there is enough bandwidth available in the network for the stream to be transported from the encoder to the receiver. You can also reduce any overload caused by peak traffic from the encoder. To do this, set the Traffic Shaping to a higher value. See Camera > Streaming Profiles > Stream > Traffic shaping.

13.8 Webpage issues

The built-in webpages are displayed incorrectly in your web browser

Cause: The unit supports only recent web browser versions.

Solution: Only use the latest two versions of Chrome, Firefox, Internet Explorer or Safari.

Cause: JavaScript is not enabled in your web browser.

Solution: Open the Privacy (or Security settings) of your web browser and enable JavaScript (Active scripting).

Acknowledgements

Siqura units use the following Open Source Components / Libraries:

Component/Library	URL
● Linux Kernel 2.6 - licensed under the GNU General Public License (GPL), version 2	https://www.kernel.org/
● alsa-lib - licensed under the GNU Lesser Public License (LGPL), version 2.1	https://www.kernel.org/
● alsa-utils – licensed under the GNU General Public License (GPL), version 2	http://alsa-project.org/
● boost - Boost Software License, Version 1.0	http://boost.org/
● BusyBox - licensed under the GNU General Public License (GPL), version 2	http://busybox.net/
● ethtool – licensed under the GNU General Public License (GPL), version 2	https://www.kernel.org/pub/software/network/ethtool/
● freetype - Copyright 1996-2002, 2006 David Turner, Robert Wilhelm, and Werner Lemberg	http://www.freetype.org/
● ftpd – (c) Copyright 1995-2000 Trolltech AS. Copyright 2001 Arnt Gulbrandsen	
● iproute - licensed under the GNU General Public License (GPL), version 2	http://www.linuxfoundation.org/collaborate/workgroups/networking/iproute2
● libupnp - Copyright (c) 2000-2003 Intel Corporation, Copyright (c) 2005-2006 Rémi Turboult, Copyright (c) 2006 Michel Pfeiffer and others	http://pupnp.sourceforge.net/
● logrotate - licensed under the GNU General Public License (GPL), version 2	https://fedorahosted.org/logrotate/
● msntp - (c) Copyright, N.M. Maclaren, (c) Copyright, University of Cambridge	http://www.hpcf.cam.ac.uk/export/
● newlib - Copyright (c) 1994-2009 Red Hat	https://sourceware.org/newlib/
● openssl - Copyright (C) 1995-1998 Eric Young, Copyright (c) 1998-2011 The OpenSSL Project	https://www.openssl.org/

Note: The URLs given above are subject to change and can become outdated.

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