

## New functions and addendum

- This document contains descriptions of how to set the new functions and their restrictions. Refer also to the Operating Instructions of this product.
- Depending on the model used, the screens shown in the explanations may differ to the actual camera screens.
- This document is for the following models.  
WV-S1572L, WV-S2572L, WV-S2272L, WV-S1552L, WV-S2552L, WV-S2252L

### •Firmware Ver.1.50

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## **1. Add a notify to the [SNMP trap setting]** **(Operating Instructions Configure the network settings [Network] - Configure advanced network settings [Advanced])**

Add the notifications to [SNMP trap settings].

### **Note**

- In order to activate SNMP trap notifications for when alarms occur, alarm operation settings are required.  
For information on settings related alarm operations, refer to Configure the alarm settings [Alarm] in Operating Instructions.

## 2. Add to the system log when recording stream fails to write

### (Operating Instructions “Others” – “Maintenance” - Check the status [Status])

A system log has been added for errors in the write process of the recording stream to the log related to SD memory cards.

Category	Indication	Description
SD memory card	<SD>Format	Successfully formatted the SD memory card.
	<SD>Format error	Error occurred when formatting the SD memory card.
	<SD> Write-protect ON (Locked card)	A write-protected SD memory card is inserted.
	<SD> Detection error	The SD memory card could not be correctly recognized.
	<SD> Write error	An error occurred when writing to the SD memory card.
	<SD> Read error	An error occurred when reading from the SD memory card.
	<SD> Delete error	An error occurred when deleting data from the SD memory card.
	<SD> File system error	An error occurred in File system of the SD memory card.
	<SD> Undefined error	An error other than the ones above has occurred for the SD memory card.
	<SD> An abnormality occurs in continuity of the SD memory recording. Check the recording bit rate setting of the SD memory recording.	An error occurred when writing to the SD memory card.
<SD> An error occurs in the SD memory card. Check the status of the SD memory card.	The SD memory card write process still generates data loss. Make sure that the SD memory card is properly recognized. If the card is not recognized, reboot the unit, or remove and reinsert the SD memory card to check.	

### 3. Add a function to notify the user of writing failures in the recording stream with a unique alarm

(Operating Instructions “Others” – “Maintenance” - Configure the alarm settings [Alarm])

– Configuration of the settings relating to alarm notification [Notification] –

#### Configure the settings relating to Panasonic alarm protocol)

Add the write processing error of the recording stream to the occurrence condition of the Panasonic alarm protocol notification of “Diag.”

#### Panasonic alarm protocol

##### • [Panasonic alarm protocol]

Select “On” or “Off” to determine whether or not to provide notification by Panasonic alarm protocol according to the settings for the “Alarm” and “Diag.” checkboxes of “Destination of notification” below.

- When an alarm is detected (“Alarm”)
- When a notification of the remaining capacity of the SD memory card has been provided (“Diag.”)
- When the SD memory card has become full (“Diag.”)
- When the SD memory card cannot be recognized (“Diag.”)
- When there is a write error on the SD memory card (“Diag.”)

**Default:** Off

#### Destination of notification

##### • [Address 1] - [Address 8]

Enter the destination IP address or host name of the Panasonic alarm protocol from the following.

Up to 8 destination server addresses can be registered.

**[Alarm] checkbox:** When the checkbox is checked, the Panasonic alarm notification will be provided upon an alarm occurrence.

**[Diag.] checkbox:** When the checkbox is checked, notification using Panasonic alarm protocol will be provided in the following cases.

- When notification of the remaining capacity of the SD memory card has been provided
- When the SD memory card has become full
- When the SD memory card cannot be recognized
- When the SD memory card cannot be written

**[Destination server address]:** Enter the destination server address or host name.

**Available characters:** Alphanumeric characters, the colon (:), the period (.), the underscore (\_), and the hyphen (-).

To delete the registered destination server address, click the [Delete] button respective to the desired destination server address.

## 4. Add a note when the bit rate of the recording stream is set to a value exceeding recommended value

### (Operating Instructions “Image/Audio” - Configure the settings relating to Stream [Image])

Add the statement that it is possible that an error may occur in the continuity of SD memory card recording, if you set a bit rate that exceeds the recommended value in “Note” of “Max bit rate (per client) \*”.

#### [Max bit rate (per client)\*]:

#### **Note**

- The bit rate for “Stream” is restricted by “Bandwidth control (bit rate)” on the [Network] tab on the “Network” page. When a value with “\*” attached is set, images may not be streamed.
- It is recommend that the bit rate setting of the stream to be 8192 kbps or lower. Setting a value higher than 8192 kbps may cause abnormalities in the continuity of the recorded video.
- When the refresh interval is too short, the actual bit rate may exceed the set bit rate depending on the subject.
- Depending on the number users connecting at the same time or the combination of features used, the bit rate may be lower than the configured value. Check the transmission of images after changing settings.

## **5. Extend authentication password for the destination of notification (Operating Instructions – Configure the network settings [Network] – Configure advanced network settings [Advanced] - Configure the settings related to sending E-mails)**

The number of characters that can be entered for the authentication password of the destination of notification has been expanded to 128 characters.

- **[Authentication – Password]**

Enter the password to access the server.

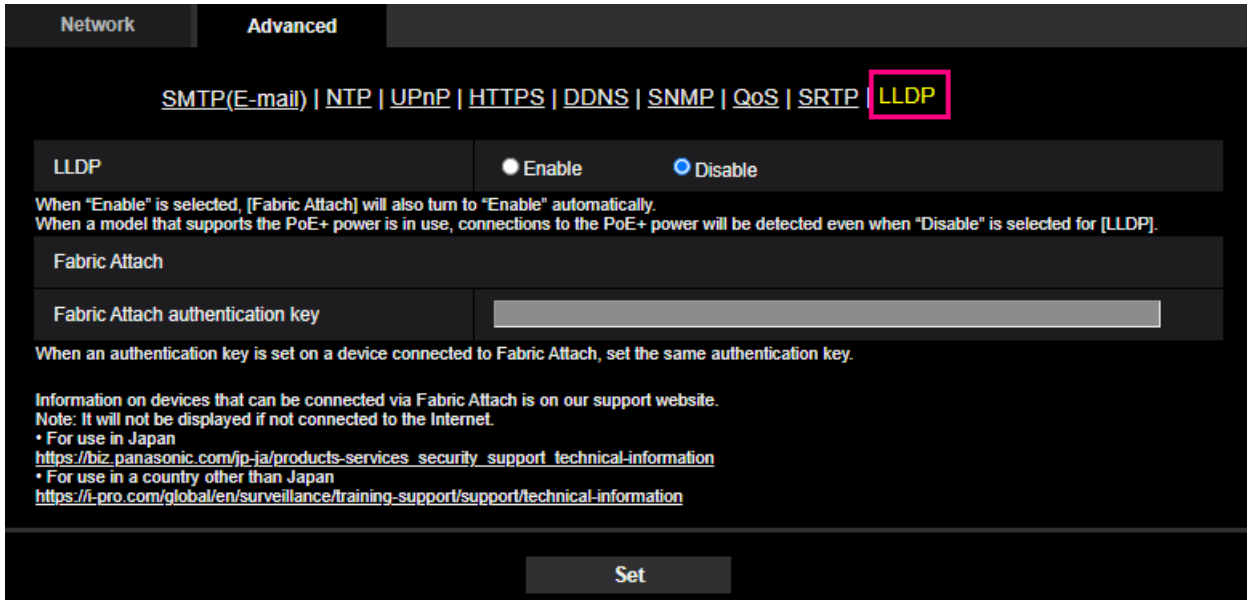
**Available number of characters:** 0 - 128 characters

**Unavailable characters:** " &

## 6. Add LLDP function

### (Operating Instructions – Configuring the network settings [Network] – Configure advanced network settings [Advanced])

LLDP (Link Layer Discovery Protocol) has been added to [Advanced] of [Network]. Interoperability can be achieved by sending and receiving camera's device information to and from LLDP-compatible devices.



#### [LLDP]

Enable/Disable whether to enable the LLDP function and Fabric Attach.

**Default:** Disable

When set to “Enable”, LLDP including TLVs with the checks in the table below will be sent.

End Of LLDAPDU TLV	Chassis ID TLV	Port ID TLV	Time To Live TLV	Port Description on TLV	System Name TLV	System Description on TLV	System Capability TLV	Management Address TLV	IEEE802.3 Power via MDI TLV	Fabric Attach Element TLV
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

\* Models that support PoE+ power supply will send LLDP including TLVs with the checks in the table below for PoE+ power supply even if set to “Disable”.

End Of LLDAPDU TLV	Chassis ID TLV	Port ID TLV	Time To Live TLV	Port Description on TLV	System Name TLV	System Description on TLV	System Capability TLV	Management Address TLV	IEEE802.3 Power via MDI TLV	Fabric Attach Element TLV
✓	✓	✓	✓						✓	

#### Fabric Attach

##### [Fabric Attach authentication key]

Enter the key to be used for Fabric Attach authentication. Note that this is valid only when “LLDP” is “Enable”.

**Available number of characters:** 0 - 32 characters (If Fabric attach authentication is not performed, leave it blank.)



**Available characters:** Alphanumeric characters

**Default:** None (blank)

**Note**

- Click the [Set] button to restart the product. After restarting, the product cannot be operated for about 2 minutes, just like when the power is turned on.
- For information about devices that can be connected using Fabric Attach, refer to our support website.  
<https://i-pro.com/global/en/surveillance/training-support/support/technical-information>

## 7. Add SFTP periodic image transmission to “Event operation” of Easy Setup

(Operating Instructions – Use Easy Setup [Easy Setup] – Configure an event action [Event action])

With the addition of the SFTP function, SFTP periodic image transmission has been added to the “Event action” of Easy Setup.

The screenshot shows a configuration screen for 'Event action'. At the top, there are two tabs: 'Internet' and 'Event action', with 'Event action' selected. Below the tabs, there is a header section with the text: 'Configure the event action setting. Specify the action to be taken when an alarm is detected and register the action in the schedule in order.' Below this is a section labeled '[Current settings]'. It contains two tables. The first table, titled 'Alarm', has five rows: 'Alarm condition' (Off), 'Alarm' (Off), 'Output terminal' (Off), and 'E-mail notification' (Off). The second table, titled 'Schedule', has one row: 'Schedule' (Off). At the bottom of the screen, there is a 'Next' button.

Alarm	
Alarm condition	Off
Alarm	Off
Output terminal	Off
E-mail notification	Off

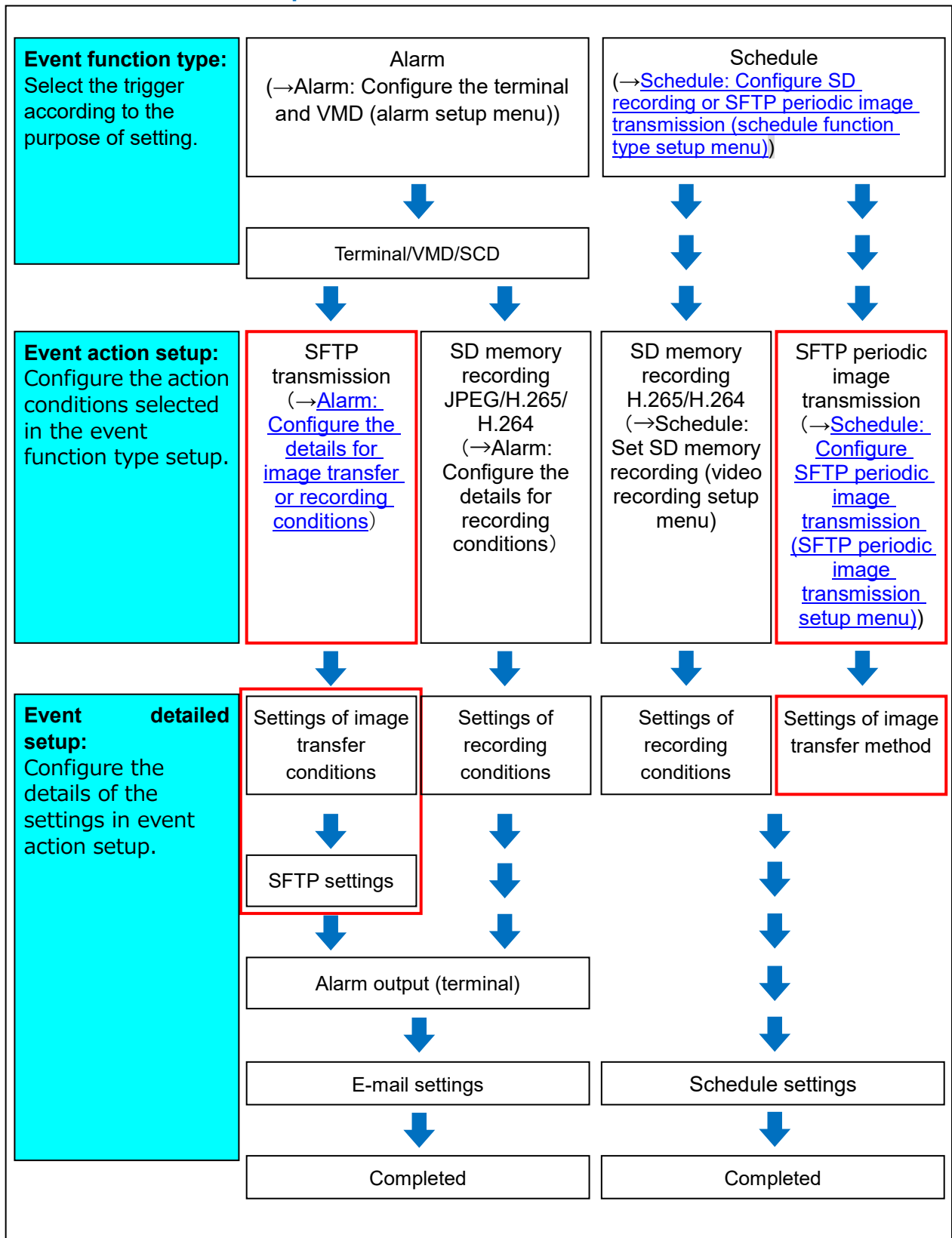
Schedule	
Schedule	Off

You can set event actions for SD schedule recording/SFTP periodic image transmission/alarm detection. Once the settings are completed in each setup menu, click the [Next] button to proceed. The setup flow is as follows.

### **Note**

- If you click the [Next] button, the settings in the screen will be saved.

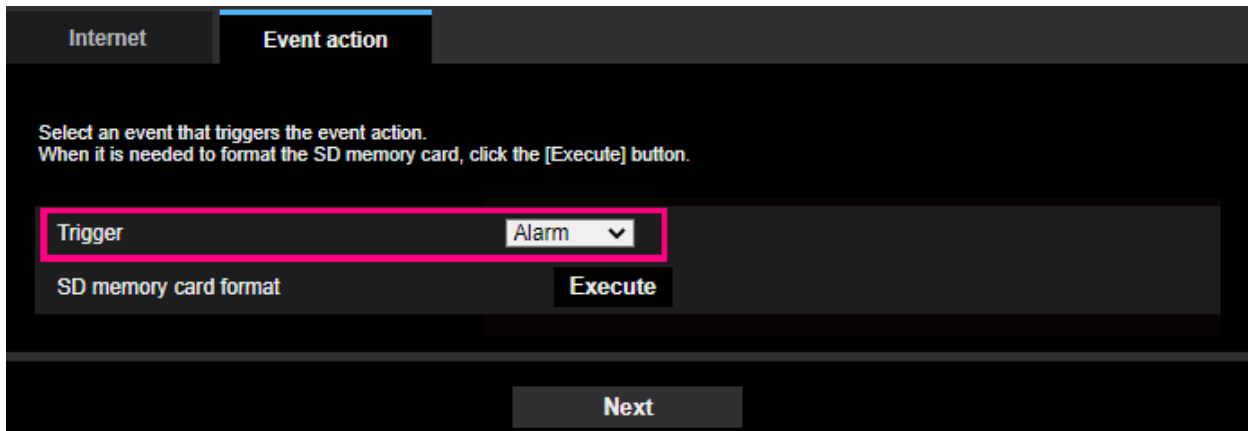
## Flow of event action setup



## Configure the schedule/alarm (event function type setup menu)

(Operating Instructions – Use Easy Setup [Easy Setup] – Configure an event action [Event action] – Configure the schedule/alarm (event function type setup menu))

Here, select the function type of the event.



### [Trigger]


- **Alarm:** Select when setting the alarm detection settings.
- **Schedule:** Select during “SD memory recording” or “SFTP periodic image transmission”.
- **Default:** Alarm

### [SD memory card format]

To format the SD memory card, click the [Execute] button.

Once you click the [Execute] button, the “Format” confirmation screen will be displayed.

If you click the [OK] button, the formatting will start.

Once the “Format” completion screen is displayed, press the  button.

### **IMPORTANT**

- All data saved on the SD memory card will be deleted when the SD memory card is formatted.
- Do not turn off the power of the camera during formatting.

### [Next] button

If you select “Alarm”, and click the [Next] button, the alarm setup menu will be displayed.

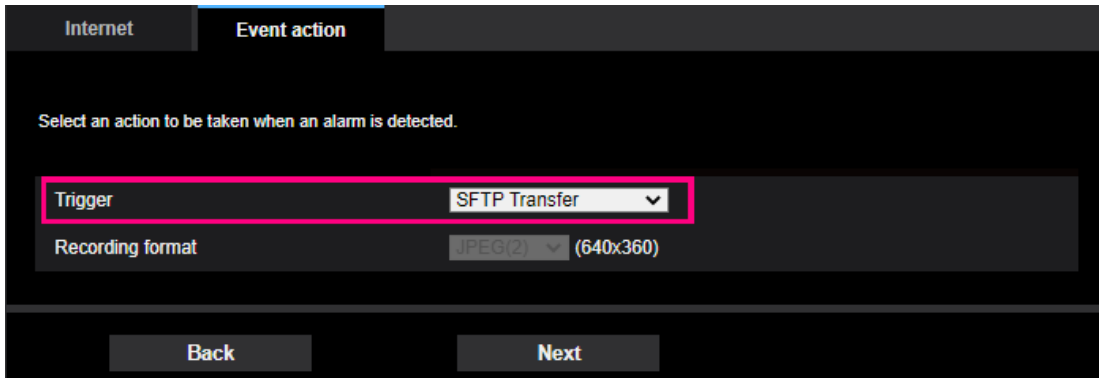
(→ Alarm: Configure the terminal and VMD (alarm setup menu))

If you select “Schedule”, and click the [Next] button, the schedule function type setup menu will be displayed. (→ [Schedule: Configure SD recording or “SFTP periodic image transmission \(schedule function type setup menu\)”](#))

**Alarm: Configure the alarm function type (Alarm function type setup menu)**  
**(Operating Instructions – Use Easy Setup [Easy Setup] – Configure an event action [Event action] – Alarm: Configure the alarm function type (Alarm function type setup menu))**

Select the alarm function type as “SFTP transfer” or “SD memory recording”.

Configure “Recording format” of SD memory recording triggered by an alarm occurrence.



**[Trigger]**

- **SFTP transfer:** When an alarm occurs, performs SFTP Transfer of the JPEG image.
- **SD memory recording:** When an alarm occurs, records the image to the SD memory card.

**Note**

- “SFTP Transfer” for when an alarm occurs and “SFTP periodic image transmission” can both be performed simultaneously.
- If both “SFTP Transfer” for when an alarm occurs and “SFTP periodic image transmission” are set, “SFTP Transfer” will be given priority when an alarm occurs.

**[Recording format]**

Select the recording format by selecting from “JPEG(1)”, “JPEG(2)”, “Stream(1)”, “Stream(2)”, “Stream(3)” and “Stream(4)”.

**[Next] button**

If you select “SFTP Transfer” for “Trigger” and click the [Next] button, the SFTP transfer setup menu will be displayed. (→“[Set SFTP transfer \(SFTP transfer setup menu\)](#)”)

If you select “SD memory recording” for “Trigger”, select “JPEG(1)” or “JPEG(2)” for “Recording format”, and then click the [Next] button, the JPEG recording setup menu will be displayed. (→Configure SD memory recording (JPEG) (JPEG recording setup menu))

If you select “SD memory recording” for “Trigger”, select “Stream(1)”, “Stream(2)”, “Stream(3)”, or “Stream(4)” for “Recording format”, and then click the [Next] button, the video recording setup menu will be displayed. (→“Configure SD memory recording (H.265 or H.264) (video recording setup menu)”)

**Note**

- If you click the [Next] button, the setting items in the screen are saved.

**[Back] button**

If you click the [Back] button the alarm setup menu will be displayed. (→Alarm: “Configure the terminal and VMD (alarm setup menu)”)

**Alarm: Configure the details for image transfer or recording conditions**  
 (Operating Instructions – Use Easy Setup [Easy Setup] – Configure an event action [Event action] – Alarm: Configure the details for recording conditions)

[Set SFTP transfer \(SFTP transfer setup menu\)](#)

SFTP transfer when an alarm is detected is set in this section.

Internet | **Event action**

Set the method of image transmission to the SFTP server when an alarm is detected.

**SFTP alarm setting**

Alarm image SFTP transmission:  On  Off

Directory name: [Text Field]

File name:  Terminal 1  Terminal 2  Terminal 3  
 VMD  SCD  
\* For alarms by the "Ext. software", alarm images will be transmitted only by configuring the alarm image SFTP transmission.

Pre alarm: Transmission interval [0 pics] Maximum number of images [0 pics] Recording duration [0s]

Post alarm: Transmission interval [1ps] Number of images [100 pics] Recording duration [100s]

Image capture size: JPEG(2) (640x360)

**SFTP server setting**

SFTP server address: [Text Field] Example of entry: 192.168.0.10

Port number: [22] (1-65535)

Host key hash: SHA256: [Text Field] Example of entry: dqVcdVZ/2ySO5tz/R6YR+rpbW6dnap6P743uiMV0cf0

User name: [Text Field]

Password: [Text Field]

[Back] [Next]

Refer to ["10. Add SFTP periodic image transmission"](#) for information about how to set the above screen.

**[Next] button**

If you select "Alarm output" in the alarm setup menu and click the [Next] button, the alarm output setup menu will be displayed. (→"Alarm: Configure the output terminal")

If you click the [Next] button in the alarm setup menu without selecting "Alarm output", the mail setup menu will be displayed. (→"Alarm: configure the mail notifications and mail server")

**Note**

- If you click the [Next] button, the setting items in the screen are saved.

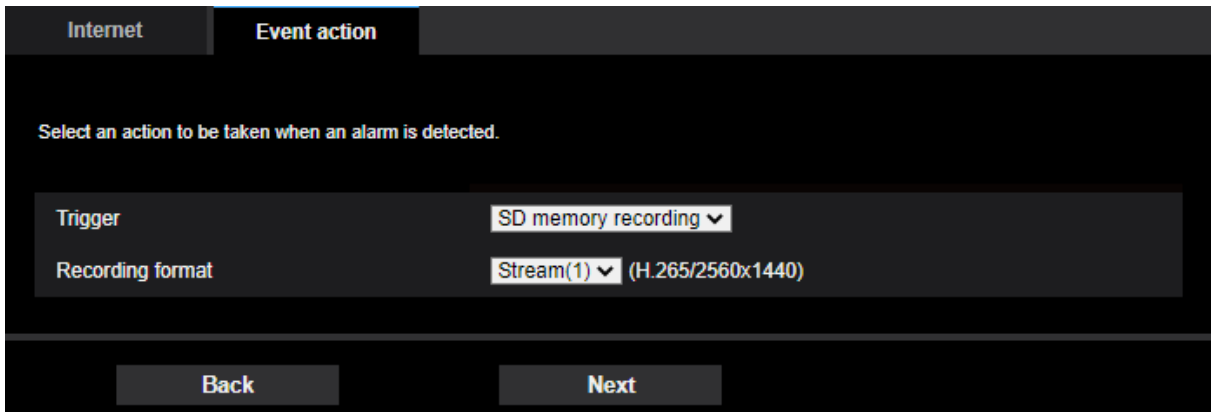
**[Back] button**

If you click the [Back] button, the alarm function type setup menu will be displayed. (→"[Alarm: Configure the alarm function type \(Alarm function type setup menu\)](#)")

## Schedule: Configure SD recording or SFTP periodic image transmission (schedule function type setup menu)

(Operating Instructions – Use Easy Setup [Easy Setup] – Configure an event action [Event action] – Schedule: Configure SD recording or SFTP periodic image transmission (schedule function type setup menu) )

Here, the schedule type is selected as “SD memory recording” or “SFTP periodic image transmission”.



The screenshot shows a configuration interface with a dark background. At the top, there are two tabs: 'Internet' and 'Event action', with 'Event action' being the active tab. Below the tabs, there is a text prompt: 'Select an action to be taken when an alarm is detected.' Underneath this, there are two rows of configuration options. The first row is labeled 'Trigger' and has a dropdown menu currently showing 'SD memory recording'. The second row is labeled 'Recording format' and has a dropdown menu showing 'Stream(1)' with '(H.265/2560x1440)' written next to it. At the bottom of the screen, there are two buttons: 'Back' on the left and 'Next' on the right.

### [Trigger]

- **SD memory recording:** Records the H.265 (or H.264) image in the SD memory card at the scheduled time.
- **SFTP periodic image transmission:** Transmits the JPEG image to the SFTP server at the scheduled time.

### [Recording format]

When “SD memory recording” is selected for “Trigger”, “Stream(1)”, “Stream(2)”, “Stream(3)”, or “Stream(4)” can be selected for the recorded image.

### [Next] button

If you select “SD memory recording” and click the [Next] button, the video recording setup menu will be displayed. (→“Schedule: Set SD memory recording (video recording setup menu)”)

If you select “SFTP periodic image transmission” and click the [Next] button, the SFTP periodic image transmission setup menu will be displayed. (→“[Schedule: Configure SFTP periodic image transmission \(SFTP periodic image transmission setup menu\)](#)”)

### Note

- If you click the [Next] button, the setting items in the screen are saved.

### [Back] button

If you click the [Back] button, the event function type setup menu will be displayed. (→“[Configure the schedule/alarm \(event function type setup menu\)](#)”)

### Note

- “SFTP periodic image transmission” and “SFTP img. trans.” for when an alarm occurs can both be performed simultaneously.
- If you select “SD memory recording”, the “SFTP periodic image transmission” setting will be canceled.

## Schedule: Configure SFTP periodic image transmission (SFTP periodic image transmission setup menu)

(Operating Instructions – Use Easy Setup [Easy Setup] – Configure an event action [Event action])

The SFTP periodic image transmission is configured in this section.

- To configure SFTP periodic image transmission settings:

SFTP periodic image transmission	
SFTP periodic image transmission	<input type="radio"/> On <input checked="" type="radio"/> Off
Directory name	<input type="text"/>
File name	<input type="text"/>
	<input checked="" type="radio"/> Name w/time&date <input type="radio"/> Name w/o time&date
Transmission interval	15
Image capture size	JPEG(2) (640x360)

SFTP server setting	
SFTP server address	<input type="text"/> Example of entry: 192.168.0.10
Port number	22 (1-65535)
Host key hash	SHA256: <input type="text"/> Example of entry: dqVcdVZ/2ySO5tz/R6YR+rbW6dnap6P743uiMV0cf0
User name	<input type="text"/>
Password	<input type="text"/>

Back Set

Refer to [“10. Add SFTP image transmission function”](#) for information about how to configure the above screen.

### **[Set] button**

“SFTP periodic image transmission” is displayed as “Off”.

Click the “Set” button to save the settings.

### **[Next] button**

“SFTP periodic image transmission” is displayed as “On”.

If you click the [Next] button, the setup menu to set the SFTP periodic image transmission schedule will be displayed. (→[“To configure SFTP periodic image transmission schedule settings”](#))

### **Note**

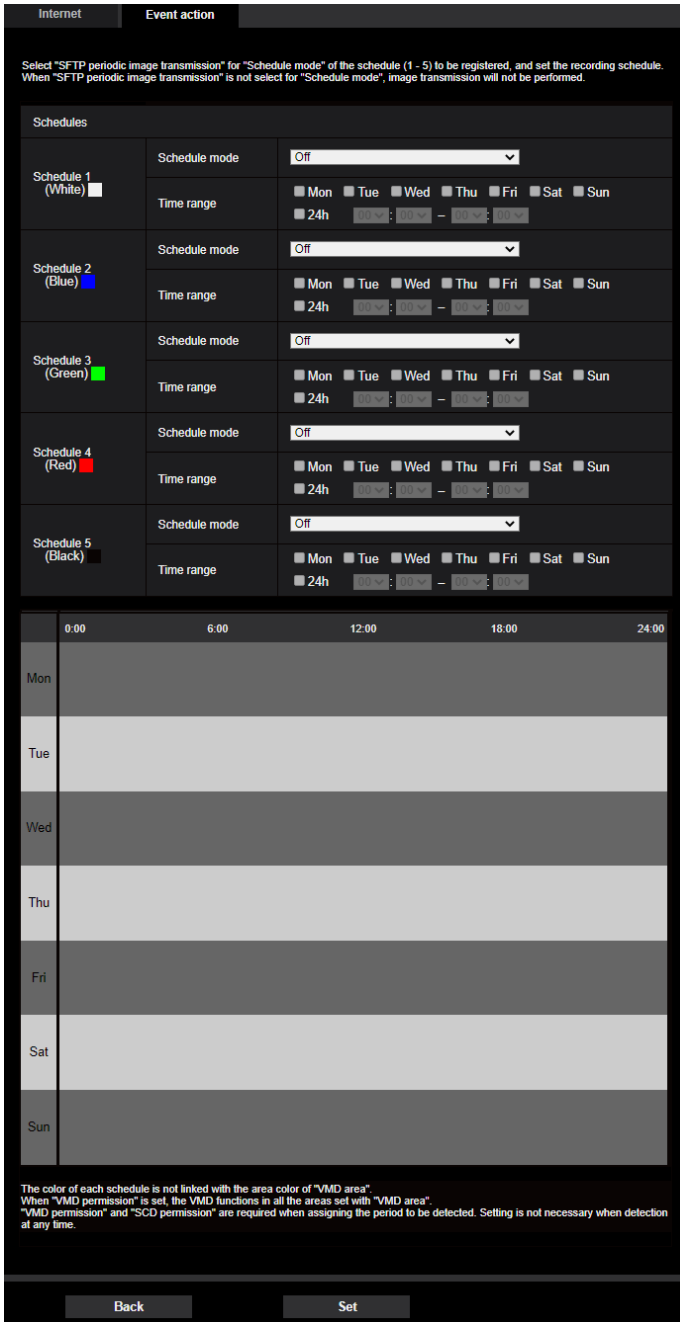
- If you click the [Next] button, the setting items in the screen are saved.

### **[Back] button**

If you click the [Back] button, the schedule function type setup menu will be displayed. (→[“Schedule: Configure SD recording or SFTP periodic image transmission \(schedule function type setup menu\)”](#))



•To configure SFTP periodic image transmission schedule settings:



Refer to “Configure the settings relating to the schedules [Schedule]” for information about how to set the above screen.

**[Set] button**

If you click the [Set] button, setup will be completed.

**[Back] button**

If you click the [Back] button, the SFTP periodic image transmission setup menu will be displayed. (→“[Schedule: Configure SFTP periodic image transmission \(SFTP periodic image transmission setup menu\)](#)”)

**Note**

•SFTP periodic image transmission will not be performed when “SFTP periodic image transmission” is not selected in “Schedule mode”.

## 8. Add “SFTP periodic image transmission error” to “Save trigger” of SD memory card

(Operating Instructions – Configure the basic settings of the camera [Basic] – Configure the settings relating to the SD memory card [SD memory card])

With the addition of the SFTP function, “SFTP periodic image transmission error” has been added to the “Save trigger” of the Recording stream.

### Recording stream

#### [Save trigger]

Select a trigger to save images on the SD memory card from the following.

- **SFTP periodic image transmission error:** Saves images when images have failed to transmit to the SFTP server by the SFTP periodic image transmission function. Available only for the “JPEG (1)” or “JPEG(2)” images.
- **Alarm input:** Saves images at an alarm occurrence.
- **Manual:** Saves images manually.
- **Schedule:** Saves images in accordance with the settings for “Schedule” (→“Configure the settings relating to the schedules [Schedule]”). Available only for the “Stream (1)”, “Stream(2)”, “Stream(3)”, or “Stream (4)” images.
- **Default:** Manual

If you have selected “Alarm input” in the [Save trigger], you can select the alarm type from the following:

- **Terminal 1:** Save the image when an alarm occurs in Terminal 1.
- **Terminal 2:** Save the image when an alarm occurs in Terminal 2.
- **Terminal 3:** Save the image when an alarm occurs in Terminal 3.
- **VMD:** Save the image when motion detection occurs.
- **SCD:** Save the image when SCD occurs.
- **Command alarm:** Save the image when a command alarm is entered.

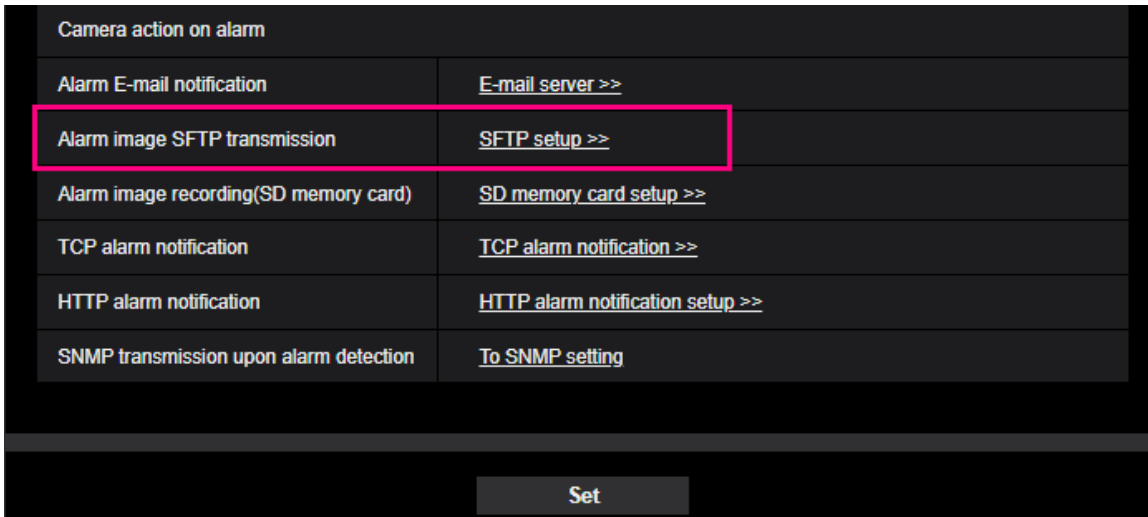
#### **Note**

- When “Stream (1)”, “Stream(2)”, “Stream(3)”, or “Stream(4)” is selected for “Recording format”, “SFTP periodic image transmission error” is unavailable.
- To enable alarms to occur, alarm settings must be configured in advance on the [Alarm] tab.
- When “JPEG (1)” or “JPEG(2)” is selected for “Recording format”, “Schedule” is unavailable.
- When connected with our network disk recorder, “Save trigger” may be displayed in a gray-out state as “Network failure”. To change the setting of “Save trigger” after disconnecting the recorder, set “Not use” for “SD memory card” once and then set “Use” again.

## 9. Add link to SFTP settings in Camera action on alarm

(Operating Instructions – Configure the alarm settings [Alarm] – Configure the settings relating to the camera action on alarm occurrence [Alarm])

Click the [Alarm] tab on the “Alarm” page. (→“How to display the setup menu”, “How to operate the setup menu”) The settings related to the camera action on alarm can be configured in this section.



### [Alarm E-mail notification]

Click “E-mail server >>” to display the setup menu that can configure the settings relating to E-mail notification when an alarm occurs. The setup menu will be displayed in a newly opened window. (→“Configure settings relating to alarm E-mail notifications”)

### [Alarm image SFTP transmission]

Click “SFTP setup >>” to display the setup menu that can configure the settings relating to SFTP transmission when an alarm occurs. The setup menu will be displayed in a newly opened window. (→“Configure settings relating to SFTP transmissions of alarm images”)

### [Alarm image recording (SD memory card)]

Click “SD memory card setup >>” to display the setup menu that can configure the settings relating to recording images on an SD memory card when an alarm occurs. The setup menu will be displayed in a newly opened window. (→“Configure settings relating to recording to an SD memory card when an alarm occurs”)

### [TCP alarm notification]

Click “TCP alarm notification >>” to display the setup menu that can configure the settings relating to transmitting TCP alarm notifications when an alarm occurs. The setup menu will be displayed in a newly opened window. (→“Configure settings relating to TCP alarm protocol notification when an alarm occurs”)

### [HTTP alarm notification]

Click “HTTP alarm notification setup >>” to display the setup menu that can configure the settings relating to transmitting HTTP alarm notifications when an alarm occurs. The setup menu will be displayed in a newly opened window. (→“Configure settings relating to HTTP alarm notification when an alarm occurs”)

**[SNMP transmission upon alarm detection]**

Click “To SNMP setting” to display the setup menu that can configure the settings relating to SNMP transmission when an alarm occurs. The setup menu will be displayed in a newly opened window.  
(→“Configure settings relating to SNMP transmissions of alarm images”)

## Configure settings relating to SFTP transmissions of alarm Images

(Operating Instructions – Configure the alarm settings [Alarm])

– Configure the settings relating to the camera action on alarm occurrence [Alarm])

Click “SFTP setup >>” of “Camera action on alarm” on the [Alarm] tab of the “Alarm” page. (→“Configure the settings relating to the camera action on alarm occurrence [Alarm]”)

Refer to [“10. Add SFTP image transmission function”](#) for information on configuration for these settings.

SFTP alarm setting			
Alarm image SFTP transmission	<input type="radio"/> On <input checked="" type="radio"/> Off		
Directory name	<input type="text"/>		
File name	<input type="text"/> <input checked="" type="checkbox"/> Terminal 1 <input checked="" type="checkbox"/> Terminal 2 <input checked="" type="checkbox"/> Terminal 3 <input checked="" type="checkbox"/> VMD <input checked="" type="checkbox"/> SCD <input checked="" type="checkbox"/> Command alarm <small>* For alarms by the "Ext. software", alarm images will be transmitted only by configuring the alarm image SFTP transmission.</small>		
Pre alarm	Transmission interval <input type="text"/> fps	Maximum number of images <input type="text"/> pics	Recording duration 0s
Post alarm	Transmission interval <input type="text"/> fps	Number of images <input type="text"/> pics	Recording duration 100s
Image capture size	<input type="text"/> (640x360)		
SFTP server setting			
SFTP server address	<input type="text"/> Example of entry: 192.168.0.10		
Port number	<input type="text"/> (1-65535)		
Host key hash	SHA256: <input type="text"/> Example of entry: dqVcdVZ/2ySO5lz/R6YR+rpbW6dnap6P743uiMV0cf0		
User name	<input type="text"/>		
Password	<input type="text"/>		
<input type="button" value="Set"/>		<input type="button" value="Close"/>	

## 10. Add SFTP image transmission function

(Operating Instructions – Configuring the network settings [Network] – Configure advanced network settings [Advanced])

SFTP (SSH File Transfer Protocol) function has been added to securely send images to the server by using SSH (Secure Shell) encrypted data stream.

It has the following two transmission functions.

- Send images when an alarm occurs
- Send images periodically

The screenshot shows the 'Advanced' network settings page with the 'SFTP' option selected. The configuration is organized into three sections:

- SFTP alarm setting:** Includes a toggle for 'Alarm image SFTP transmission' (currently 'Off'), a 'Directory name' field, a 'File name' section with checkboxes for Terminal 1, Terminal 2, Terminal 3, VMD, SCD, and Command alarm, and 'Pre alarm' and 'Post alarm' settings for transmission interval, maximum number of images, and recording duration. The 'Image capture size' is set to JPEG (640x380).
- SFTP periodic image transmission:** Includes a toggle (currently 'Off'), a 'Directory name' field, a 'File name' section with radio buttons for 'Name w/time&date' and 'Name w/o time&date', a 'Transmission interval' dropdown set to 1s, and an 'Image capture size' dropdown set to JPEG (640x380).
- SFTP server setting:** Includes fields for 'SFTP server address' (with an example of 192.168.0.10), 'Port number' (set to 22), 'Host key hash' (SHA256, with an example of a long alphanumeric string), 'User name', and 'Password'.

A 'Set' button is located at the bottom of the configuration area.

### SFTP alarm

#### [Alarm image SFTP transmission]

Select “On” or “Off” to determine whether or not to transmit the alarm image to the SFTP server.

- **Default:** Off

#### [Directory name]

Enter the directory name where the alarm images are to be saved.

For example, enter “/ALARM” to designate the directory “ALARM” under the root directory of the SFTP server.

- **Available number of characters:** 1 - 256 characters
- **Unavailable characters:** " & ;

### [File name]

Enter the file name used for the alarm image to be transmitted to an SFTP server. The file name will be as follows.

File name: ["Entered file name" + "Time and date (year/ month/ day/ hour/ minute/ second)"] + "Serial number"

- **Available number of characters:** 1 - 32 characters
- **Unavailable characters:** " & \* / : ; < > ? ¥ |
- **Terminal 1:** Transmit the image to the SFTP server when an alarm occurs in Terminal 1.
- **Terminal 2:** Transmit the image to the SFTP server when an alarm occurs in Terminal 2.
- **Terminal 3:** Transmit the image to the SFTP server when an alarm occurs in Terminal 3.
- **VMD:** Transmit the image to the SFTP server when motion is detected.
- **SCD:** Transmit the image to the SFTP server when SCD (scene change detection) occurs.
- **Command alarm:** Transmit the image to the SFTP server when a command alarm is entered.

### [Pre alarm]

#### • **Transmission interval**

Select the update interval of images before an alarm occurs from the following.

When 30fps mode is selected for [Image capture mode]: 0.1fps/ 0.2fps/ 0.33fps/ 0.5fps/ 1fps

When 25fps mode is selected for [Image capture mode]: 0.08fps/ 0.17fps/ 0.28fps/ 0.42fps/ 1fps

- **Default:** 1fps

#### • **Maximum number of images**

Select the number of images to be transmitted from the following.

0pics/ 1pic/ 2pics/ 3pics/ 4pics/ 5pics/ 6pics\*/ 7pics\*/ 8pics\*/ 9pics\*/ 10pics\*/ 20pics\*/ 30pics\*/ 40pics\*/ 50pics\*

- **Default:** 0 pics

#### • **Recording duration**

The recording duration, which changes according to the configured "Transmission interval" and "Maximum number of images", of images recorded before an alarm occurs is displayed.

### **Note**

- When "JPEG(1)" is selected for the capture size of the image to be transmitted, pre alarm is unavailable if the image capture size of "JPEG(1)" is either "3840×2160", "3072x1728", "2560×1440", "1920x1080", "3072x2304" or "2560x1920".
- When "On" is selected for "Image compression rate upon alarm detection", only post alarm recorded images are compressed. Compression is not applied to pre alarm recorded images.
- When a selection with an asterisk (\*) on the right of it is selected for "Maximum number of images" of "Pre alarm", the specified number of images may not be able to be sent depending on the image capture size and image quality. The following table shows the maximum number of images that can be sent for pre alarm.

		Image quality									
		0	1	2	3	4	5	6	7	8	9
Image capture size	1280x960	5	6	7	8	10	10	10	20	30	40
	1280x720	7	8	10	10	10	20	20	30	40	50
	800x600	9	10	10	20	20	30	30	50	50	50
	VGA	10	20	20	30	30	40	50	50	50	50
	640x360	20	30	40	50	50	50	50	50	50	50
	400x300	30	30	40	50	50	50	50	50	50	50
	QVGA	40	50	50	50	50	50	50	50	50	50
	320x180	50	50	50	50	50	50	50	50	50	50

### [Post alarm]

#### • Transmission interval

Select the transmission interval for the alarm image transmission to the FTP server from the following.

When 30fps mode is selected for [Image capture mode]: 0.1fps/ 0.2fps/ 0.33fps/ 0.5fps/ 1fps

When 25fps mode is selected for [Image capture mode]: 0.08fps/ 0.17fps/ 0.28fps/ 0.42fps/ 1fps

• **Default:** 1fps

#### • Number of images

Select the number of images to be transmitted from the following.

1pic/ 2pics/ 3pics/ 4pics/ 5pics/ 6pics/ 7pics/ 8pics/ 9pics/ 10pics/ 20pics/ 30pics/ 50pics/ 100pics/ 200pics/300pics/ 500pics/ 1000pics/ 1500pics/ 2000pics/ 3000pics

• **Default:** 100pics

#### • Recording duration

Approximate time to be taken to save the set “Number of images” with the set “Transmission interval” will be displayed.

### [Image capture size]

Select the image capture size of images transmitted when an alarm occurs from the following.

JPEG(1)/JPEG(2)

• **Default:** JPEG(2)

## SFTP periodic image transmission

### [SFTP periodic image transmission]

Select “On” or “Off” to determine whether or not to transmit images using the SFTP periodic image transmission function.

When “On” is selected, it is necessary to configure the settings of the SFTP server.

• **Default:** Off

### **IMPORTANT**

• When using SFTP periodic image transmission, it is necessary to configure the schedule settings of SFTP periodic image transmission on the [Schedule] tab of the “Schedule” page. (→“Configure the settings relating to the schedules [Schedule]”)



### **[Directory name]**

Enter the directory name where the images are to be saved.

For example, enter “/img” to designate the directory “img” under the root directory of the SFTP server.

- **Available number of characters:** 1 - 256 characters
- **Unavailable characters:** " & ;
- **Default:** None (blank)

### **[File name]**

Enter the file name (name of the image file to be transmitted) and select the naming option from the following.

- **Name w/time&date:** File name will be [“Entered file name” + “Time and date (year/ month/ day/ hour/ minute/ second)” + “Serial number (starting from 00)”].
- **Name w/o time&date:** File name will be the characters entered for “File name” only. When “Name w/o time&date” is selected, the file will be overwritten each time a file is newly transmitted.
- **Available number of characters:** 1 - 32 characters
- **Unavailable characters:** " & ; : / \* < > ? ¥ |
- **Default:** None (blank)

### **Note**

- When “Name w/time&date” is selected, the file name will be [“Entered file name” + “Time and date (year/ month/ day/ hour/ minute/ second)” + “Serial number (starting from 00)” + “s” during summer time.

### **[Transmission interval]**

Select the interval for the FTP periodic image transmission from the following.

1s/ 2s/ 3s/ 4s/ 5s/ 6s/ 10s/ 15s/ 20s/ 30s/ 1min/ 2min/ 3min/ 4min/ 5min/ 6min/ 10min/ 15min/ 20min/ 30min/1h/ 1.5h/ 2h/ 3h/ 4h/ 6h/ 12h/ 24h

- **Default:** 1s

### **[Image capture size]**

Select the image capture size of images to be transmitted from the following.

JPEG(1)/JPEG(2)

- **Default:** JPEG(2)

## **SFTP server**

### **[SFTP server address]**

Enter the IP address or the host name of the SFTP server.

- **Available number of characters:** 1 - 128 characters
- **Available characters:** Alphanumeric characters, the colon (:), the period (.), the underscore (\_), and the hyphen (-).

### **IMPORTANT**

- When entering the host name for “SFTP server address”, it is necessary to configure the DNS settings on the [Network] tab of the “Network” page. (→“Configure the network settings [Network]”)

**[Port number]**

Enter a control port number to be used for the FTP server.

- **Available port number:** 1-65535
- **Default:** 22

The following port numbers are unavailable since they are already in use.

20, 23, 25, 42, 53, 67, 68, 69, 80, 110, 123, 161, 162, 443, 995, 10669, 10670

**[Host key hash]**

Enter the hash value of the public key of the SFTP server.

- **Available number of characters:** 43 - 44 characters
- **Available characters:** Alphanumeric characters, +, /, =

**[User name]**

Enter the user name (login name) to access the FTP server.

- **Available number of characters:** 1 - 32 characters
- **Unavailable characters:** " & ; ¥

**[Password]**

Enter the password to access the FTP server.

- **Available number of characters:** 0 - 32 characters
- **Unavailable characters:** " &

## 11. Add SFTP periodic image transmission to “Schedule mode” of Schedule

### (Operating Instructions – Configure the settings relating to the schedules [Schedule])

“SFTP periodic image transmission” was added to “Schedule mode” of the schedule setting.

#### [Schedule mode]

Select an action to be assigned to the schedule from “Schedule mode”.

“Off” is selected at the default.

- **Off:** No action will be taken for the respective schedule.
- **Alarm permission (Terminal alarm 1, 2, 3):** Alarm input (terminal alarm) will be allowed during the period of the schedule.
- **Alarm permission (Terminal alarm 1):** Terminal 1 alarm input will be allowed during the period of the schedule.
- **Alarm permission (Terminal alarm 2):** Terminal 2 alarm input will be allowed during the period of the schedule.
- **Alarm permission (Terminal alarm 3):** Terminal 3 alarm input will be allowed during the period of the schedule.
- **VMD permission:** The video motion detection (VMD) function will be active during the period of the schedule.
- **SCD permission:** The scene change detection (SCD) function will be active during the period of the schedule.
- **Access permission:** Users whose access level is set to “2. Camera control” and “3. Live only” on the [User auth.] tab (→“Configure the settings relating to the user authentication [User auth.]”) can access the camera only in the period of schedule.
- **Recording to SD (Recording stream):** The SD recording will be performed at the designated time in the schedule. Further, the “Recording format” is enabled only when there is a stream.
- **Image adjust 1: Scene 1:** Images are set to the image settings of “Scene file 1” at the designated time in the schedule. When the designated time for the schedule finishes, images are set to the image settings of “Scene file is not applied”.
- **Image adjust 2: Scene 2:** Images are set to the image settings of “Scene file 2” at the designated time in the schedule. When the designated time for the schedule finishes, images are set to the image settings of “Scene file is not applied”.
- **Image adjust 3: Scene 3:** Images are set to the image quality settings of “Scene file 3” at the designated time in the schedule. Once designated time in the schedule is over, the image quality setting is set to “Scene file is not applied”.
- **Image adjust 4: Scene 4:** Images are set to the image quality settings of “Scene file 4” at the designated time in the schedule. Once designated time in the schedule is over, the image quality setting is set to “Scene file is not applied”.
- **SFTP periodic image transmission:** SFTP periodic image transmission will be performed at the designated time in the schedule.
- **E-mail permission:** While the schedule is set, e-mail notification is sent when alarm is input.
- **Reboot:** The camera reboots at the scheduled time. Can only be selected with Schedule 5.

**Note**

- Select “On” for “User auth.” on the [User auth.] tab of “User mng.” page (→“Configure the settings relating to the user authentication [User auth.]”) and “Off” for “Host auth.” on the “Host auth.” page (→“Configure the settings relating to the host authentication [Host auth.]”) to validate “Access permission”.
- When selecting “Recording to SD (Recording stream)”, select “Stream(1)”, “Stream(2)”, “Stream(3)”, or “Stream(4)” for “Recording format” on the [SD memory card] tab and select “Schedule” for “Save trigger”. (→ [Save trigger] in “Configure the settings relating to the SD memory card [SD memory card]”)

## **12. Change the initial value of “Overwrite” of SD memory card to On** (Operating Instructions – Configure the basic settings of the camera [Basic]) – Configure the settings relating to the SD memory card [SD memory card])

### **[Overwrite]**

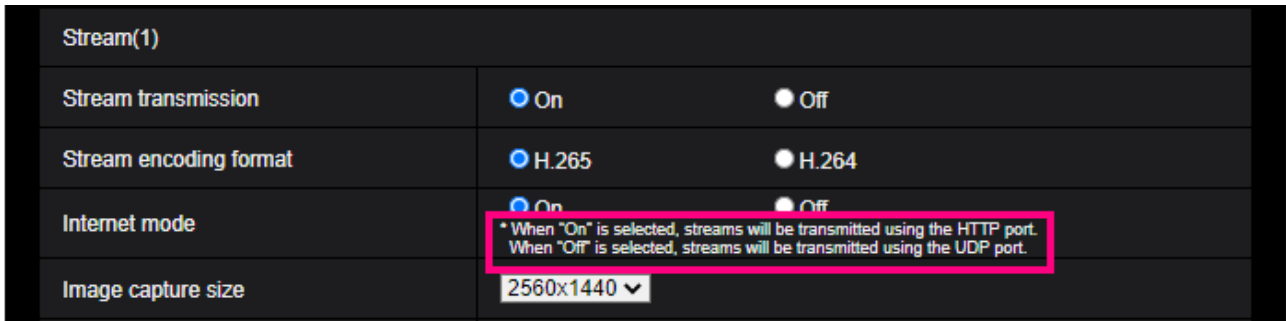
Determine whether or not to overwrite when the remaining capacity of the SD memory card becomes insufficient.

- **On:** Overwrites when the remaining capacity of the SD memory card becomes insufficient. (The oldest image is the first to be overwritten.)
- **Off:** Stops saving images on the SD memory card when the SD memory card becomes full.
- **Default:** On

### 13. Add the supplementary explanation of On/Off of Internet mode to the setting screen

(Operating Instructions – Configure the settings relating to images and audio [Image/Audio] – Configure the settings relating to Stream [Image])

Add the supplementary explanation of On/Off of Internet mode setting.



#### [Internet mode]

Select “On” when transmitting H.265 (or H.264) images via the Internet. It is possible to transmit stream without changing the broadband router settings configured for JPEG image transmission.

- **On:** H.265 (or H.264) images and audio will be transmitted using the HTTP port. Refer to [HTTP port] for further information about the HTTP port number settings
- **Off:** H.265 (or H.264) images and audio will be transmitted using the UDP port.
- **Default:** On

#### Note

- When “On” is selected, only “Unicast port (AUTO)” will be available for “Transmission type”.
- When “On” is selected, it may take time to start displaying stream images.
- When “On” is selected, stream images may not be displayed depending on the number of the concurrent access user and audio data availability, etc.
- When “On” is selected, only IPv4 access is available.

## 14. Add NTP test function

(Operating Instructions – Configuring the network settings [Network] – Configure advanced network settings [Advanced] – Configure the settings relating to the NTP server)

Add a test function for time synchronization to check if it can communicate with NTP server.

Network		Advanced	
SMTP(E-mail)   SFTP   <b>NTP</b>   UPnP   HTTPS   DDNS   SNMP   QoS   SRTP   MQTT   LLDP			
NTP			
Time adjustment	<input checked="" type="radio"/> Manual	<input type="radio"/> Synchronization with NTP server	
NTP server address setting	Manual		
NTP server address	Example of entry: 192.168.0.10		
NTP port	123	(1-65535)	
Time adjustment interval	10		
NTP test	Execute		
Set			

### [NTP test]

Select “Synchronization with NTP server” for “Time adjustment”, set the NTP server information, and then click the “Execute” button. You can communicate with the NTP server, synchronize the time, and check the NTP operation.

### Note

- If the NTP test succeeds, “NTP time correction has succeeded.” is displayed .
- If the NTP test fails, “NTP time correction has failed.” is displayed .
- When “Time adjustment” is set to “Manual”, the “Execute” button of NTP test is grayed out.
- When “Time adjustment” is set to “Synchronization with NTP server” and the “NTP server address” is not set, the “Execute” button for the NTP test will be grayed out.

## 15. Add TLS settings to HTTPS

(Operating Instructions – Configuring the network settings [Network] – Configure advanced network settings [Advanced] – Configure the HTTPS settings)

Add TLS1.1, TLS1.2 and TLS1.3 selection items to the HTTPS connection method.

The screenshot shows the 'Advanced' network settings page for HTTPS. The 'Connection' dropdown is set to 'HTTP'. Below it, the TLS options are:  TLS1.1,  TLS1.2, and  TLS1.3. The 'HTTPS port' is set to 443. There are buttons for 'Execute' and 'Set'.

### [HTTPS - Connection]

Select the protocol used to connect the camera.

- **HTTP:** HTTP and HTTPS connections are available.
- **HTTPS:** Only the HTTPS connection is available.
- **Default:** HTTP

Select the TLS to use when HTTPS is selected.

- **TLS1.1:** Enable/Disable.
- **TLS1.2, TLS1.3:** Always enabled and cannot be disabled.
- **Default:** TLS1.1: Disable, TLS1.2: Enable, TLS1.3: Enable

### Note

- To change to an HTTPS connection when HTTP is selected, perform HTTPS connection settings first. The HTTPS connection will be available even if the setting is changed to HTTP afterwards.



## 16. Add MQTT function

(Operating Instructions – Configuring the network settings [Network] – Configure advanced network settings [Advanced])

MQTT (Message Queueing Telemetry Transport) has been added to “Advanced” of “Network”. When an alarm occurs, the MQTT server can be notified of the event action by the alarm.

The screenshot shows the 'MQTT settings' configuration page. At the top, there are navigation tabs for 'Network' and 'Advanced', with 'Advanced' selected. Below the tabs is a menu of services: SMTP(E-mail), SETP, NTP, UPnP, HTTPS, DDNS, SNMP, QoS, SRTP, MQTT (highlighted in red), and LLDP. The 'MQTT settings' section has a toggle switch for 'On' (selected) and 'Off'. Below this is the 'Server' section with fields for Address, Port number (1-65535), Protocol, User name, and Password. The 'Root CA certificate' section shows an 'Invalid' status with 'Confirm' and 'Delete' buttons, and a 'Server certificate verification' toggle set to 'Enable'. The 'Alarm' section is titled 'Notification setting' and has an 'Enable/Disable' toggle. It lists several alarm types with checkboxes: Terminal 1, Terminal 2, Terminal 3, VMD, Audio detection, and Command alarm. For each alarm type, there are fields for 'Topic', 'Payload', 'QoS', and a 'Retain' checkbox. A 'Set' button is at the bottom of the page.

### [MQTT settings]

Set On/Off whether to enable/disable the MQTT function.

When set to On, or it is On when the camera starts up, it will connect to the set server.

When the set alarm occurs, the settings will be notified to the server.

**Default:** Off

### Server

#### [Address]

Enter the IP address or host name of the MQTT server to be notified when an alarm occurs.

**Available number of characters:** 1 - 128 characters

**Available characters:** Alphanumeric characters, the colon (:), the period (.), the underscore (\_), and the hyphen (-)

**Default:** None (blank)

**[Port]**

Enter the port number of the MQTT server.

**Available port number:** 1 - 65535

**Default:** 8883

The following port numbers cannot be set because they are used by this product.

20, 21, 23, 25, 42, 53, 67, 68, 69, 80, 110, 123, 161, 162, 443, 554, 995, 10669, 10670

**[Protocol]**

Select the protocol to use when connecting to an MQTT server from MQTT over SSL/MQTT over TCP.

**Default:** MQTT over SSL

**[User name]**

Enter the user name to access the MQTT server.

**Available number of characters:** 0 - 32 characters

**Unavailable characters:** " & ; ¥

**[Password]**

Enter the password to access the MQTT server.

**Available number of characters:** 0 - 32 characters

**Unavailable characters:** " &

**Root CA certificate****[Install]**

Install the root CA certificate issued by the certification authority.

In the "Open File Dialog" that appears when you click the [Choose File] button, select the root CA certificate file issued by the certification authority, and then click the [Execute] button to install the root CA certificate.

The data format of the root CA certificate is PEM format or DER format.

**[Information]**

The root CA certificate information is displayed.

**Invalid :** The root CA certificate is not installed.

**Root CA certificate host name :** Indicates that the certificate is installed.

[Confirm] The details of CA certificate can be checked with the button.

[Delete] The CA certificate will be deleted with the button.

**[Server certificate verification]**

When [Protocol] is set to "MQTT over SSL" and [Server certificate verification] is set to "Enable", the server certificate is verified using the root CA certificate registered during the SSL connection.

**Default :** Enable

**Note**

- When [Server certificate verification] is set to "Enable", install the root CA certificate.

## Notification setting

### [Alarm]

Check the alarm events to be notified to the MQTT server.

**Terminal 1:** Notifies the MQTT server when an alarm occurs at terminal 1.

**Terminal 2:** Notifies the MQTT server when an alarm occurs at terminal 2.

**Terminal 3:** Notifies the MQTT server when an alarm occurs at terminal 3.

**VMD:** Notifies the MQTT server when motion detection occurs.

**Command alarm:** Notifies the MQTT server when a command alarm is entered.

### [Topic]

Set the MQTT topic name to be sent. Topics have a hierarchical structure separated by "/".

**Available number of characters:** 1 - 128 characters

**Available characters:** Alphanumeric characters, "/"

**Default:**

**Terminal 1:** i-PRO/NetworkCamera/Alarm/Terminal/1

**Terminal 2:** i-PRO/NetworkCamera/Alarm/Terminal/2

**Terminal 3:** i-PRO/NetworkCamera/Alarm/Terminal/3

**VMD:** i-PRO/NetworkCamera/Alarm/VideoMotionDetection

**Command alarm:** i-PRO/NetworkCamera/Alarm/Command

### [Payload]

Set the MQTT message payload.

**Available number of characters:** 1 - 128 characters

**Available characters:** Alphanumeric characters

**Default:**

**Terminal 1:** terminal alarm 1

**Terminal 2:** terminal alarm 2

**Terminal 3:** terminal alarm 3

**VMD:** VMD alarm

**Command alarm:** cmd

### [QoS]

Select the QoS level from 0, 1, 2. The communication quality improves in the order of  $0 < 1 < 2$ .

**0:** The message is delivered at most once with QoS0. There is no guarantee that the message will reach the server.

**1:** The message is delivered at least once with QoS1. The message is guaranteed to reach the destination, but may be duplicated.

**2:** The message is delivered exactly once with QoS2. It guarantees that the message arrives just once.

**Default:** 1

### [Retain]

Check this box if you want the MQTT server to save the last notified message.

**Default:** Unchecked

## 17. Add a system log when MQTT function fails

(Operating Instructions – Others – About the displayed system log)

Add a system log when an error occurs in the MQTT function.

### Error display related to MQTT

Category	Indication	Description
MQTT	<MQTT> Connection error	When the connection to the server fails, certification verification fails, or is disconnected (except for disconnections from the camera due to setting change)
	<MQTT> Notification error	When publishing to the server fails

## 18. Add i-VMD alarm area information on TCP alarm notification

(Operating Instructions - Configure the alarm settings [Alarm] - Configuration of the settings relating to alarm notification [Notification] - Configure the settings relating to TCP alarm protocol)

Add i-VMD alarm area information on TCP alarm notification.

The screenshot shows a configuration page for TCP alarm notification. At the top, there are tabs for 'Alarm', 'i-VMD', 'Audio detection', and 'Notification'. Below the tabs, there are two links: 'TCP alarm notification' (highlighted in yellow) and 'HTTP alarm notification'. The main content area contains several settings:

TCP alarm notification	<input checked="" type="radio"/> On	<input type="radio"/> Off
Additional alarm data	<input type="radio"/> On	<input checked="" type="radio"/> Off
i-VMD alarm area information	<input type="radio"/> On	<input checked="" type="radio"/> Off
Destination port	<input type="text" value="1818"/> (1-65535)	
Retry times	<input type="text" value="2"/> ▼	

### [i-VMD alarm area information]

Determine whether or not to send notifications for i-VMD alarm detection area numbers with the TCP alarm protocol by selecting On/Off.

- **Default:** On

### **Note**

- This setting is displayed if you have installed the extension software i-VMD.