

SMARTVIEWER 4.8.1

User Manual

CONTENTS

OVERVIEW

2

- 2 Contents
- 4 What is SmartViewer?
- 5 Key Features of SmartViewer
- 5 Terminology

INSTALLATION

6

- 6 Installation
- 8 To check the Installation Status

SMARTVIEWER

9

- 9 Log in/out
- 11 SmartViewer at a Glance

LIVE VIEWER

12

- 12 Name and function of each item in Live Viewer
- 14 Name and function of each item in the Video Window
- 15 Connecting to or Disconnecting from the Device
- 16 Camera List
- 17 Alarm Out List & Control
- 18 Event List
- 20 List of Device Status Information
- 21 Favorite List
- 22 Digital Zoom
- 24 PTZ Control
- 28 Video Setup
- 30 To control the video of the Live Viewer

SEARCH VIEWER

36

- 36 Name and function of each item in Search Viewer
- 37 Device List
- 37 Date Search
- 38 POS Search
- 39 Heatmap search
- 40 Advanced Search
- 40 Digital Zoom
- 41 PTZ
- 41 Searching for Playable Data
- 43 Playback Control
- 44 Backup

SEARCH LOG

46

- 46 Search Log

SETUP

47

- 47 Option Tab
- 51 Hide Camera Tab
- 52 User Tab
- 53 Viewer-Update Tab
- 55 Device Registration Tab
- 59 Device-Update Tab

APPENDIX

62

- 62 Use Joystick
- 63 Open Source License Notification On The Product

overview

WHAT IS SMARTVIEWER?

SmartViewer is an access control tool that enables you to connect to and control a remote Samsung product on your PC via the network.

With this tool, you can access Samsung products anywhere around the world via the network, and check the video data from the connected cameras.

You can also search for and play recording data in the product on a remote site, which will be an effective and convenient monitoring system.

Not Supported

SVR-440, SVR-450, SVR-470, SVR-940, SHR-3040, SRD-480D, SVR-480, SVR-945, SVR-960, SVR-960C, SVR-1645, SVR-1660, SVR-1660C, SVR-1680, SVR-1680C, SVR-3200


System Requirements

Item	Minimum PC Specification	Recommended PC Specification
CPU	CPU Intel i3 or faster	CPU Intel i7 (Sandy bridge) or faster
RAM	3GB or higher	4GB or higher
HDD	200GB or higher	200GB or higher
VGA Adapter	512MB or higher	1GB or higher
Display resolution	1024 x 768 or higher	
OS	Windows 7 Professional/Ultimate/Enterprise, Windows 8, Windows 8.1, Windows 10	
NIC CARD	100 MB Ethernet NIC (Gigabit Ethernet recommended)	



- You may run SmartViewer regardless of OS login account.
 - For versions prior to v3.13, only Administrator's account can run it.
 - Installation, uninstallation and updating requires administrator's privilege of your operating system.
- Pay attention to below cautions when updating from v3.12 or earlier.
 - File paths for logs, recordings, backups and captured images will be changed.(existing files remain in the previous file location.)
 - If selected a file path having insufficient permission, setting is applied but will not write files.
 - Running two or more CMS instances on one PC using different user accounts is not guaranteed with proper operation.

KEY FEATURES OF SMARTVIEWER

- Live Viewer
 - Monitor a maximum of 36 videos from the connected cameras
 - Save up to 2 hours of video as one monitoring file
 - Support full screen mode
 - Add video to a desired position with the drag & drop method
 - Add video to the video screen by double-clicking
 - Support Sequence (automatic screen transition)
 - Favorite View & Sequence of Favorites
- Search Viewer
 - Play up to 16 videos simultaneously
 - Support range backup (integrated viewer)
 - Search for and play recording data in the device, which are sorted by the event type
- Setup
 - User login & access privilege setup
 - Support for 16 DVRs or simultaneous access to network cameras on 36 channels
 - Create one group of multiple devices
 - Save device configuration as a file
 - Save SmartViewer configuration as a file
 - Log Search (search by the system, user, record or backup log, etc)
- Update
 - Remote update using the update server
-  ■ SmartViewer is a dedicated viewer for small systems, which supports selective connection by group regardless of the number of registered devices (up to 1,000).
 - Maximum concurrent connections for each group : 16 DVRs, 36 network camera channels, and 16 NVR 4-channel products/2 64-channel products
 - Samsung Security Manager is recommended if more than the specified number of concurrent connections are needed.

TERMINOLOGY

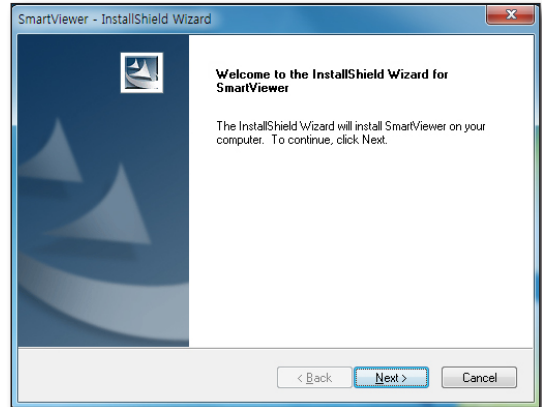
- Device : Network camera/DVR/NVR that tries to access the network via SmartViewer.
- Tree : An area to show the information of devices, cameras, alarm events and users (groups) and their correlations.
- fps (frames per second) : UOM of informing how many frames will be displayed per second.
- Resolution : Size of an original video from a connected camera.
 - The following resolutions are predefined:
 - 4CIF : 704X480(NTSC), 704X576(PAL)
 - VGA : 640X480(NTSC), 640X576(PAL)
 - CIF : 352X240(NTSC), 352X288(PAL)

installation

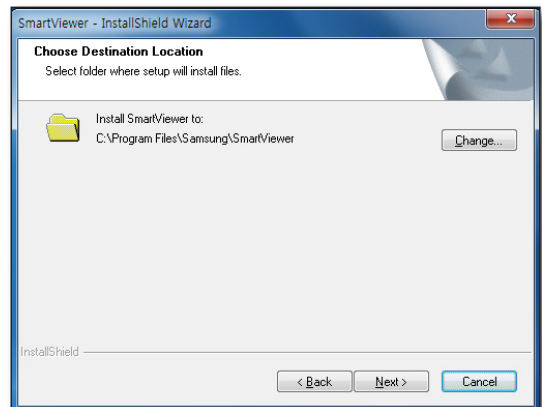
INSTALLATION

Install SmartViewer on a local PC and launch it.

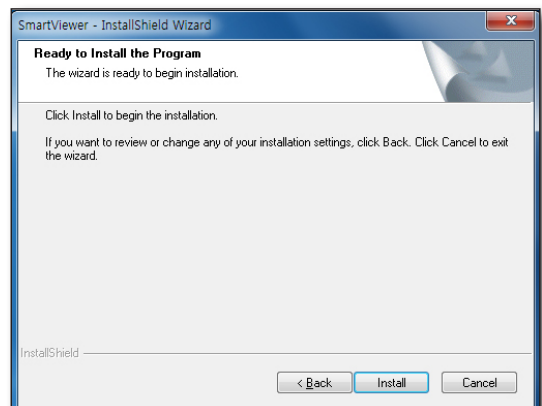
1. Run the executable of SmartViewer (Setup Launcher) that is included in the installation CD or stored in your PC.
2. When you see the installation guide screen, click [**N**ext >].



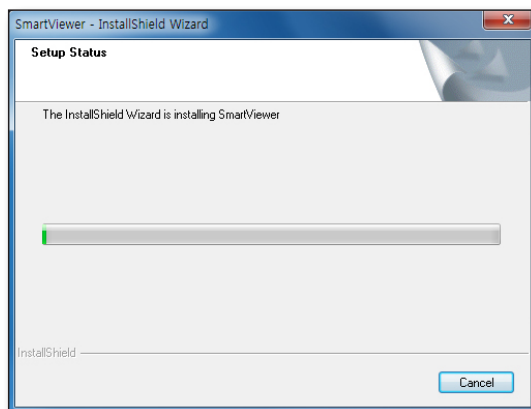
3. Specify the destination folder in which the installation files are copied.
The default path is "C:\Program Files\Samsung\SmartViewer\".
 - To change the path, click [**C**hange...] and specify a desired path or select a folder.
4. To proceed with the next step, click [**N**ext >].



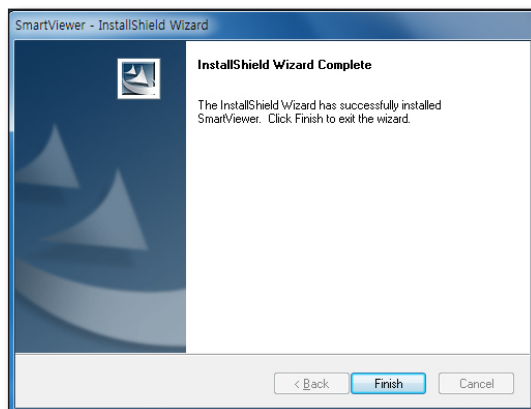
5. Click [**I**nstall] to start the installation.



6. Installing SmartViewer will proceed.



7. When the installation is completed, click [**Finish**] to exit the installation screen.




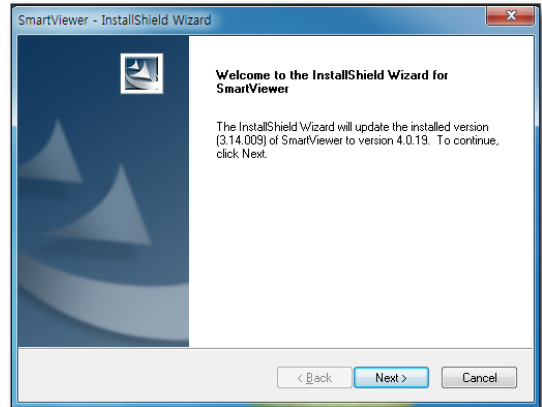
installation

Upgrade

If you have SmartViewer installed on your PC, click the updater program to proceed with the upgrade.

1. Run the updater program, "**Setup Launcher**".
The confirmation dialog pops up.
2. Click [**Next >**].

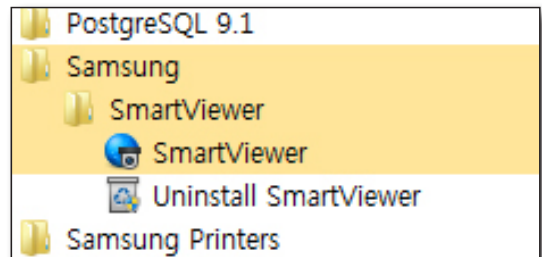
-  Malfunction may occur when SmartViewer is executed immediately after program upgrade. Execute SmartViewer after rebooting PC.



TO CHECK THE INSTALLATION STATUS

When the installation is done, check if SmartViewer is installed properly.

1. Move to the <**Start**> menu.
2. If SmartViewer is installed properly, you will see two sub menus under SmartViewer: <**SmartViewer**> and <**Uninstall SmartViewer**>.



SmartViewer

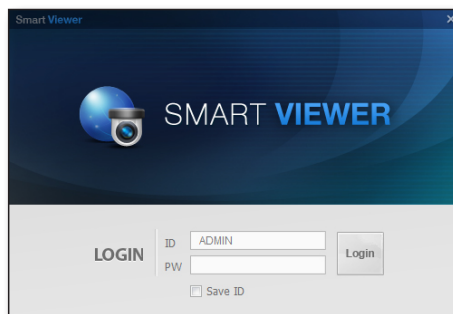
On your desktop, click the program icon that has been created automatically.
SmartViewer gets started.

LOG IN/OUT

Login

To access SmartViewer, you must log in with a registered account at first.

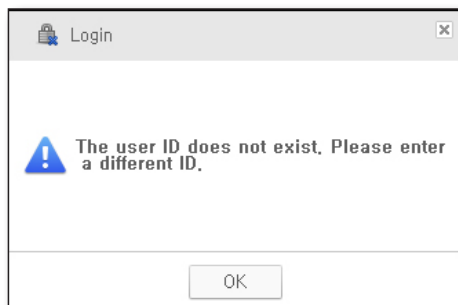
1. On your desktop, click the SmartViewer icon.
The login dialog should appear.
 2. Provide the user ID and password.
Default ID : ADMIN
- You must set the password of basic ID for the first login.
Password must consist of 8 – 32 digits with a combination of English characters and numbers.
If the same password is used for 30 days and longer, a message recommending password change is displayed.
 - If you have set <Auto Login(admin)> in the Setup menu, you will be logged in automatically when the program starts.



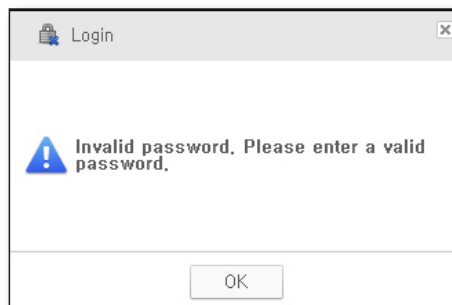
SmartViewer



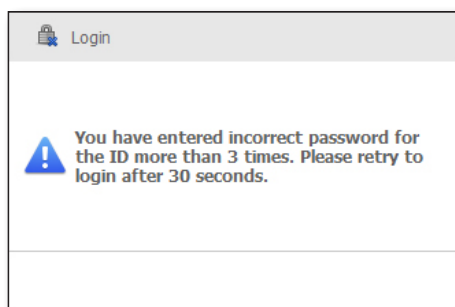
- The following is an example of login failure, where you will see the error message.
- Login is disabled for 30 seconds if incorrect password is entered three times in a row.



<If an unregistered account is entered>



<If you enter an incorrect password>



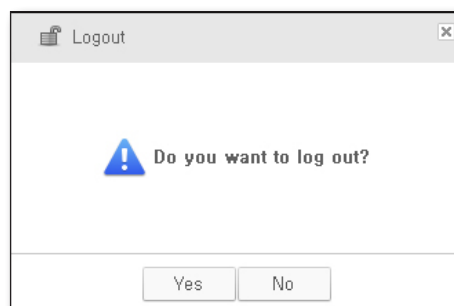
<If incorrect password is entered three times in a row>

Logout

When you have done with SmartViewer, log out to exit it.

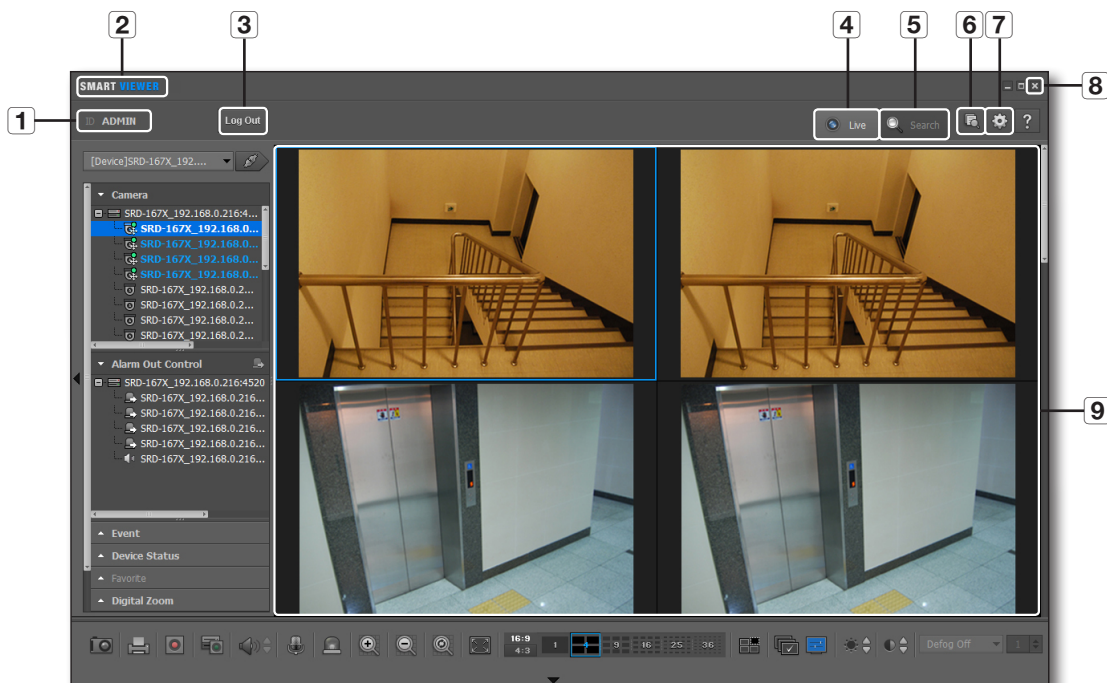
When you log out, the current screen configuration will be saved with all program windows closed, and you will return to the login dialog.

1. From the main window, click **[Logout]**.
The logout dialog should appear.
2. Select **[Yes]** in the dialog.
You will be logged out.
If you exit SmartViewer, You will be logged out automatically.



SMARTVIEWER AT A GLANCE

SmartViewer Screen Configuration.

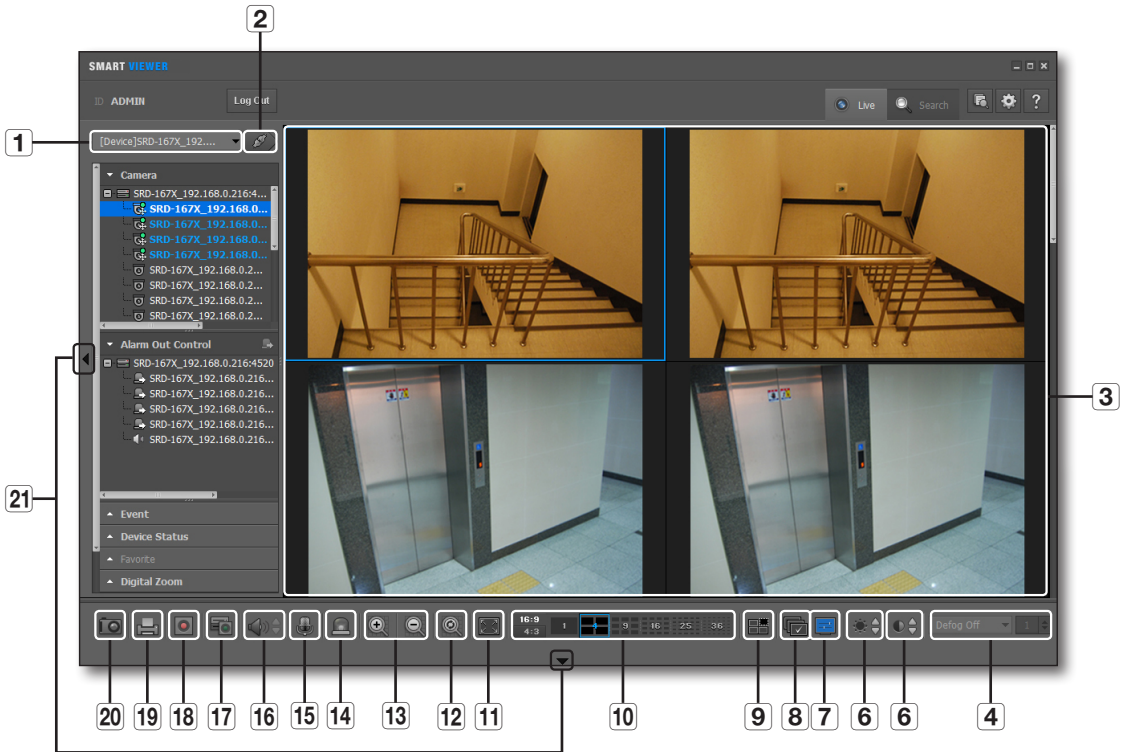



Item	Description	
1	ID	Shows the user ID.
2	S/W title bar	Displays the name of the software.
3	Log Out	Click to log out.
4	Live	Launches the Live Viewer.
5	Search	Launches the Search Viewer.
6	Search Log	Run the log viewer.
7	Setup	Open the setup screen.
8	Exit	Terminates the application.
9	Video Screen	Displays the Live Viewer or Search Viewer.

live viewer

From the top right corner of the SmartViewer main screen, click the [Live] tab.

NAME AND FUNCTION OF EACH ITEM IN LIVE VIEWER







	Item	Description
1	Device List	Displays the list of registered devices. It will show you only the connected devices when you have logged in. You can search a device to connect.
2	Connect/Disconnect	Connects to or disconnects from the device.
3	Video Screen	Displays the Live Viewer screen.
4	Defog	Set Defog function of camera and adjust the level.  Defog is an anti-fogging and demister function. This function lets you obtain clear videos in foggy environment or when your lens is misted.
5	Contrast	You can adjust the contrast for the current screen.
6	Brightness	You can adjust the brightness for the current screen.

Item		Description
7	OSD	Shows/hides the screen tip.
8	Sequence	Performs automatic transition of the selected split screens.
9	Delete all files	Delete all video files in the tile.
10	Switch Aspect Ratio	Select an aspect ratio for display in the Live screen.
11	Full Screen	Displays the current video in full screen.
12	Factory Default	Returns the zoomed-in or –out screen to the default size (100%).
13	Zoom In/Out	Enlarges or collapses the image.
14	Initialize the events	This function removes event displayed at event occurrence.
15	Talk	You can use the microphone if the connected device supports the voice signal.
16	Volume Control	Use this to adjust the audio volume level.
	Speaker	Turns on or mutes the speakers.
17	Device Recording	Recording Performs or stops recording on the connected device.
18	Record	Performs or stops recording in the selected video window.
19	Print	Prints out the current video screen.
20	Save	Saves the current image on the selected video screen as a picture format.
21	Adjust Window Button	Displays or hides the menu window or the adjustment button.


Indications of the Video Input Status

You can check the input status of the camera video signal as follows:

1.  : Video Loss
2.  : Disconnected
3.  : Excessive concurrent users
4.  : Camera is turned off or in Covert mode

NAME AND FUNCTION OF EACH ITEM IN THE VIDEO WINDOW




Item		Description
1	Camera Name	Shows the name of the device.
2	Date & Time	Displays the creation time and date of the video.
3	Device Recording	Display the state of manual recording in progress/ recording stopped in the connected device.  In some devices, both schedule/ manual recording states are displayed.
4	Record	SmartViewer displays the recording status of the current PC: recording/stop.
5	Intelligent Video Analysis	When a selected video analysis event for the corresponding camera is detected, indicator's color changes accordingly.
6	Audio Detection	When an audio event for the corresponding camera is detected, indicator's color changes accordingly.
7	Motion	The motion indicator is displayed if an event occurs from the connected camera.
8	Alarm	The alarm indicator changes the color if an event occurs.
9	Speaker	The speaker indicator displays the sound output status.
10	PTZ	The PTZ indicator shows the availability of PTZ of the connected device.

Item	Description
11 Microphone	Display the status of using the microphone.
12 Video Encryption	It shows whether the video is encrypted or not. Only available for devices that support encryption.

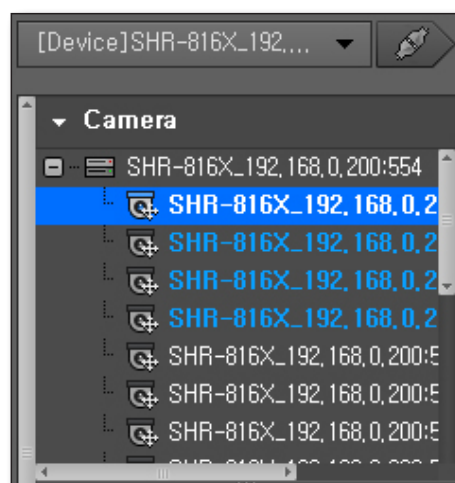
CONNECTING TO OR DISCONNECTING FROM THE DEVICE

To connect to the device


1. Select a device to connect to.
Only those devices or groups that are registered in the Setup menu will be listed.
2. Click the **[Connect ()]** button to the right of the device selection checkbox.
SmartViewer will try to connect to the selected device, and when connected, it will display a list of cameras that are connected to the device.

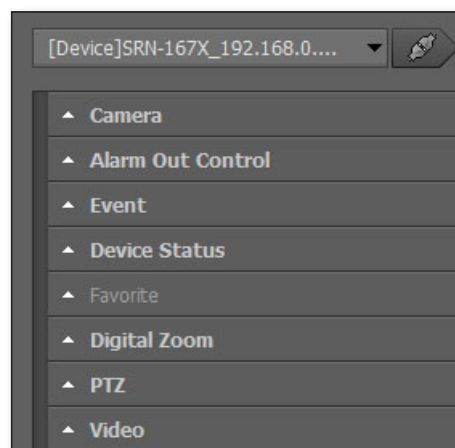


- To add a device to the list, see “**Setup > Device > Registration**” (page 55)
- To connect to multiple devices simultaneously, try that with “**Group**”.
- If you log in again after you logged out, you will be connected to the last device or group automatically.
- If you select a list and enter text (keyword), only those groups and devices that contain the text will be displayed in the search result. This is useful if you do the search for a long list of devices or groups.



To disconnect from the device

1. Press the **[Disconnect ()]** button.
2. The device will be disconnected and a list of all registered devices will be displayed.
3. When disconnecting a device, “**Enter device name to search**” is shown in the search field, type in a name to search from registered devices.








CAMERA LIST

When the device is connected successfully, you will see a list of cameras that are connected to the device.

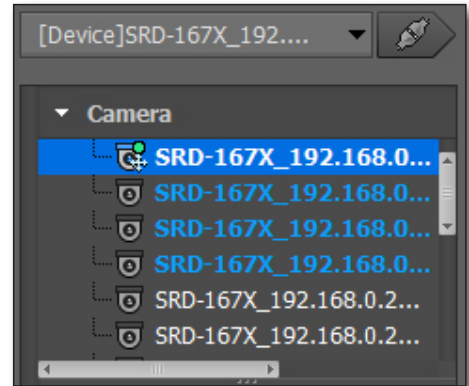
Camera icons & description

In the camera list, the icon to the left of the each camera name will show you the information of the specific camera.

1.  : General camera
2.  : PTZ compliant camera
3.  : Camera in recording
4.  : Disconnected
5.  : Camera in listening
6.  : Camera where talking is in process

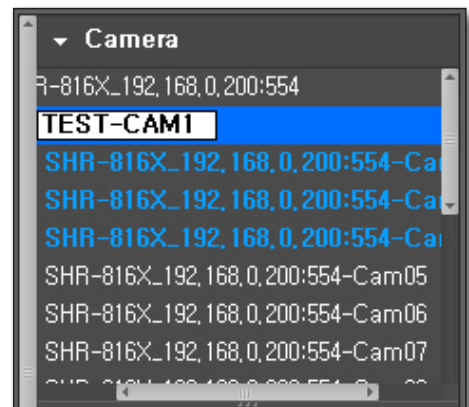


- More than one icon can be displayed next to one specific camera.



To rename a camera

1. Press the [F2] key to enable the name item for the selected camera.
2. Provide a desired name for the camera.
3. When renaming a connected device/group, it prompts whether to disconnect it to continue renaming.

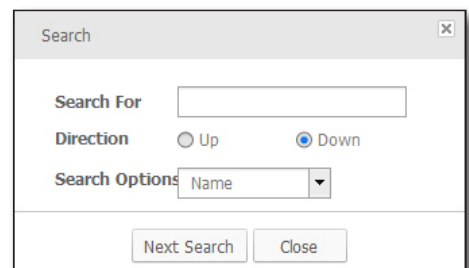


To find a camera

1. With the camera list active, press the key combination of [Ctrl+F].
2. When the Search dialog pops up, enter the camera name in <Search For>.
3. Click [Next Search].



- In addition to name, you can search by registered IP address, URL and product ID.



To select a tile

HowTo 1 : Select a tile and double-click a Desired camera.

The video from the selected camera will be displayed in the highlighted screen.

HowTo 2 : Select a camera and drag and drop it to a desired tile.

HowTo 3 : Drag and drop the selected camera video tile to a desired tile.

The screen will switch to display the video from the selected camera.

ALARM OUT LIST & CONTROL

When the device is connected successfully, you will see a list of Alarm Out events.

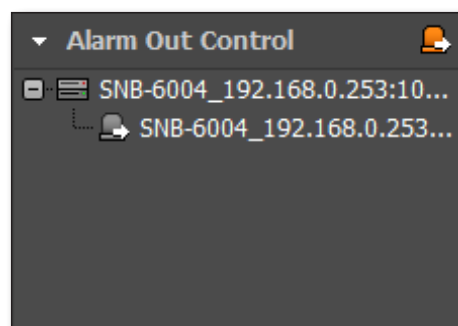
To control the Alarm Out

You can control the Alarm Out events of a device.

1. Select a list of Alarm Out events.
2. Click the Control button in the title bar of the Alarm Out event.
This is a toggle button that can be switched according to the Alarm Out status.

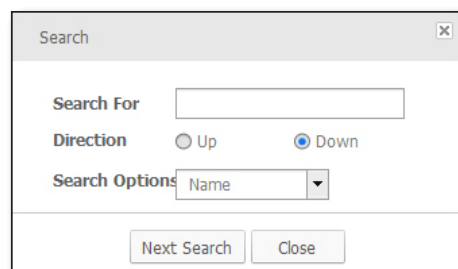


- Depending on the device, control of the Alarm Out may not be available.



To find an alarm

1. Press the [Ctrl+F] key combination while the alarm list window is selected.
2. When the Search dialog appears, provide an alarm name for <Search For>.
3. Click [Next Search].








EVENT LIST

You can check the events that occurred from the device.

If an event occurs, the event video will be displayed automatically, of which you can change the settings in the <Setup> menu.

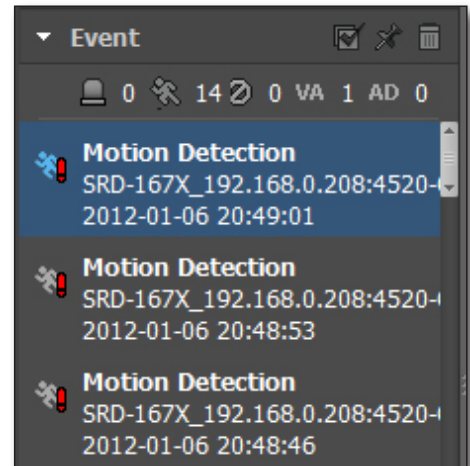
Event icons & description

In the event list, the icon to the left of each event will show the event information.

1.  : Displays the occurrence of the Motion event.
2.  : Displays the occurrence of the video loss.
3.  : Displays the occurrence of the alarm.
4.  : Displays occurrences of intelligent video analysis events.
5.  : Displays occurrences of audio detection events.



- When an event occurs for the first time, the red exclamation mark symbol will be displayed.
- The occurrence count of each event will be shown in the top area of the event list.

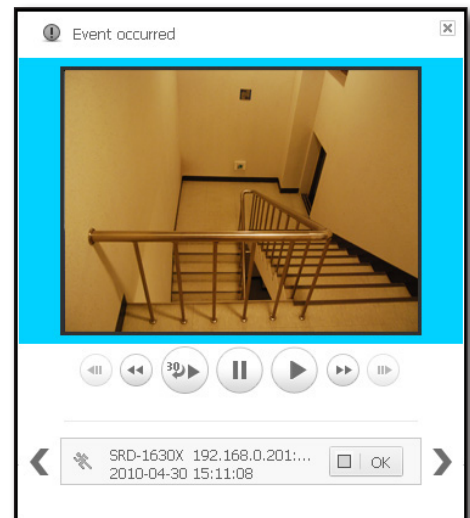


To check the event

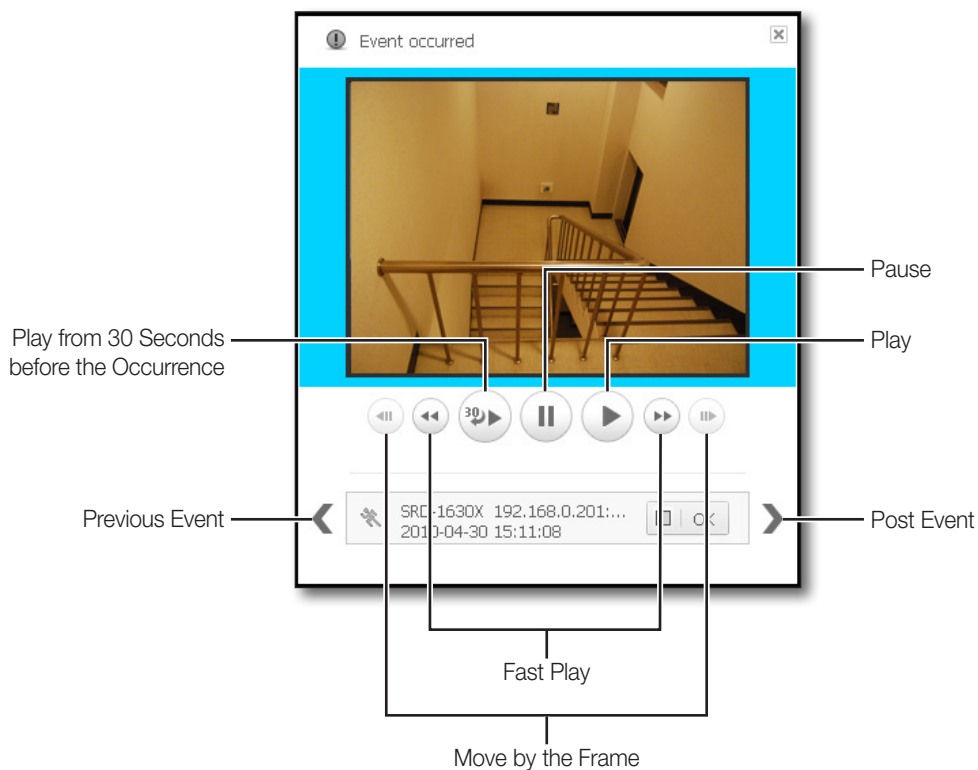
1. The event list separates user-checked events from those that you didn't check.
2. Double-click the event list.
You can check the video at the event occurrence time on a popup window.
3. From the event popup, click [OK].
The event status will be switched to Confirmed.



- If you click the Close button in the top right corner of the event popup, the video window will be closed without confirmation of the event.



Name and function of each item in the Event window




To check the entire events

1. From the top of the event list, click **[Clear Event (🗑️)]**.
2. Check all the events that are not confirmed.
For the event that is confirmed, the Unconfirmed icon in the right side will disappear.

To lock scrolling of the event list

1. From the top of the event list, click **[Scroll Lock (🔒)]**.
With the scrolling locked, the scroll bar will not move even if an event occurs.
2. To release the scroll lock, click the button again.
The background color of the list window will disappear.

To remove the event list

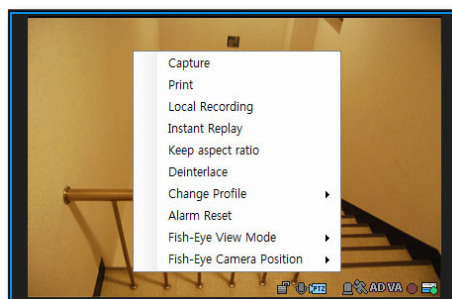
1. Select an event to remove from the event list.
2. From the title bar of the event list, click **[Remove ()]** to remove the selected list.



- Unconfirmed events will not be deleted.
- You can check the list of events in the log area.

To play the latest event video manually

1. From the tile, select a channel to search for.
2. Right-click the channel to display the context menu where you select **[Instant Replay]**.
The Receive Events window will appear.





LIST OF DEVICE STATUS INFORMATION

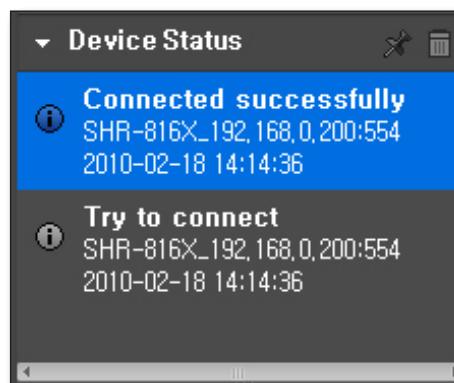
You can check the status of the device.

To check the status information

1. Select a device status list.
2. Check the status of the selected device.
Information including device status, name and occurrence time will be shown.

Device Icons & Description


1.  : Start HDD recording
2.  : HDD failure/HDD Full/No HDD
3.  : Stop HDD recording
4.  : Disconnected from the device
5.  : Connection success/failure



FAVORITE LIST

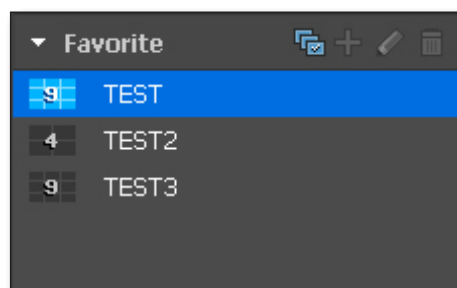
Favorite is to save the current split mode setting and the videos from the cameras on the current screen. The Favorite feature is available only if you access the group.

To add a favorite item


1. From the favorite item, click **Add** ().
You can add up to 10 favorite items.
2. Select a site in the tree and press the **[Enter]** key.
The current split mode and the videos from the camera on the screen will be saved in the name you entered.



- Press the **[F2]** key to rename the item.
- You can add up to 10 favorite lists.
- If the camera is not activated, videos are not displayed even if added to Favorite.



To edit the favorite

1. Select the Favorite and click on the **[Modify]** () button.
2. Edit the name of the selected Favorite item.


To import a favorite item

1. From the favorite list, double-click an item to import.
2. The favorite contents of the selected item will be applied on the screen.

To delete a favorite item

1. From the favorite list, select an item to delete.
2. Click the **[Recycle Bin]** () button.

To switch the favorite item

1. From the Favorite title bar, click **[Sequence]** ().
2. The items of the selected favorite will be displayed one by one on the screen at a specified interval.
After the last item is displayed, the screen will display back to the first item.



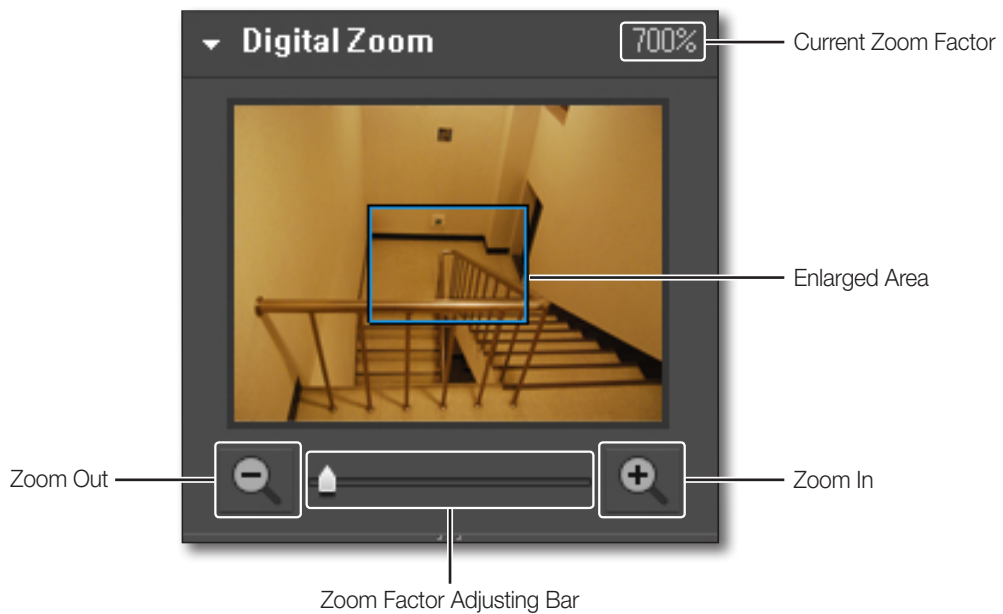
- In sequence mode of the favorite items, the following menus or functions will be disabled: disconnect, listen to sound, zoom in/out, screen sequence, favorite sequence, digital zoom, save favorites, delete favorites.

DIGITAL ZOOM



Digital Zoom is to enlarge the screen image using the magnifier function. This is an enlarged image on the screen; however, it is different from the optical zooming. The maximum factor of the digital zooming is x100 (10000%).

Name and function of each item in Digital Zoom

For the zooming purpose, you can use the buttons in the Digital Zoom list window as well as those in the bottom of the video window.





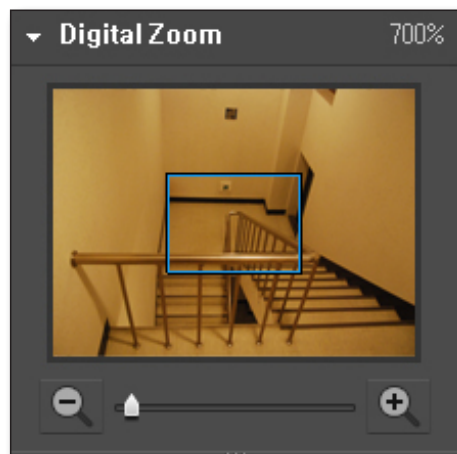
To select a digital zoom area

1. Click the [Zoom In ()] button on the bottom.
The shape of the mouse pointer will switch to .
2. Click an image to zoom in or select an area to enlarge.
The selected image will be enlarged 100% per click.
For a selected area, it will fit the screen.
3. Click the Zoom In button again.
The shape of the mouse pointer will switch to normal and the zoom mode will be released.




Digital zoom out

1. Click the [Zoom Out ()] button on the bottom.
The shape of the mouse pointer will switch to .
2. Select an image.
The selected image will be collapsed 100% per click.
3. Click the Zoom Out button again.
The shape of the mouse pointer will switch to normal and the zoom mode will be released.



To exit the digital zoom

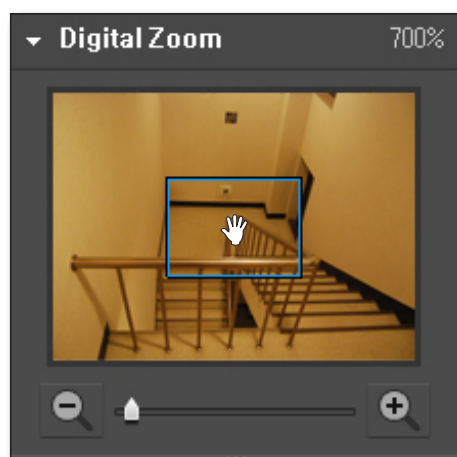
1. Click the [Restore the default ()] button on the bottom.
2. The selected area will return to the default size and the digital zoom mode will be released.

To navigate through the screen area using the Pan cursor

1. In zoom-in mode, move the cursor to the area box on the enlarged screen.
The cursor will switch to the Pan cursor.
2. With the Pan cursor active, click the mouse left button.
The Pan cursor switches its shape.
3. While pressing and holding the mouse button, move the cursor to the area box.



- If you access your Fish eye camera, the digital zoom will only work in OverView.



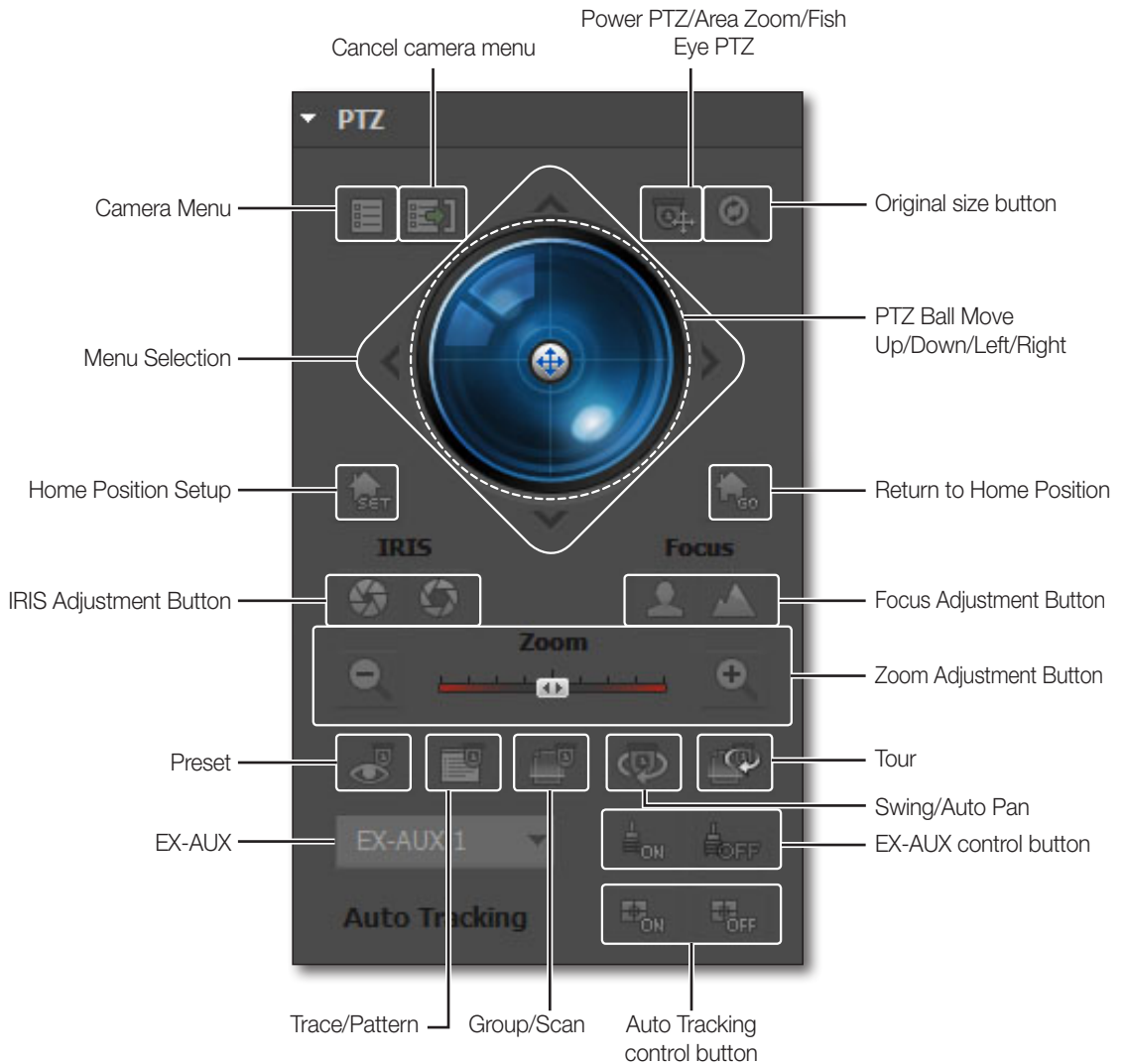
PTZ CONTROL

If the connected device supports the PTZ functions, you can control the PTZ camera remotely.



- Some connected cameras may not support PTZ function. For more information, refer to camera's user manual.
- Some PTZ functions can be controlled by the joystick.

Name and function of each item in the PTZ Control window



To configure the Camera Menu

Click the Camera Menu button to toggle the display of the camera menu on the screen.

1. Use the direction buttons around the PTZ ball to move to a desired item.
2. To select an item, simply click the PTZ ball.

Control Power PTZ

Power PTZ is controlled with toggle. When Power PTZ is selected, the position clicked in video screen move to the center of the video.

Control Area Zoom

1. Area Zoom is controlled with toggle. When Area Zoom is selected, the position clicked in video screen moves to the center of the video.
2. When an area to enlarge is selected using a mouse, the zoom-in function is activated for the selected area.

Controlling the Fish Eye PTZ

1. Fish eye PTZ is controlled with toggle. When Fish eye PTZ is selected, the PTZ will be moved in the direction of dragging in the video screen.



- Depending on the angle of the cursor movement, the speed of movement in the direction will be adjusted accordingly.

2. Using your mouse, you can perform zoom in and out.

Controlling PTZ on the video screen

1. On the video screen, click the mouse wheel button and drag the PTZ to move it in the dragging direction.



- The moving speed in the corresponding direction is dependent on the degree of dragging motion.

2. You can also zoom the screen in and out using the scroll button of the mouse.

To control the direction

If you click a nearer position from the center, the focus moves in that direction slowly; if clicking a farther position, the focus does that fast.



- Keep clicking on a left-side area to turn the lens clockwise; keep clicking on a right-side area will turn the lens counter clockwise.

Set Home Position

This is to designate the center of the camera's view (home position).

Go to Home Position

This is to return to home position.

To adjust the IRIS

This is to adjust the level of the exposure to the light.

- Close IRIS : As the iris exposure is greater with a lesser light intensity, the scene gets dark.
- Open IRIS : As the iris exposure is lower with a greater light intensity, the scene gets bright.

To adjust the focus

This is to adjust the focus manually.

- Focus Near : Shifts the focus nearer.
- Focus Far : Shifts the focus farther.

To control the zoom

1. Select the PTZ button in the left.

2. Click the zoom slide bar.

You can control the zooming of the image.

- Clicking on a right-side area from the center will zoom in the area; the farther area you click, the faster the zoom-in focus moves.
- Clicking on a left-side area from the center will zoom out the area; the farther area you click, the faster the zoom-out focus moves.



- If you access your Fish eye camera, you can only use the zoom control function in a Single View.

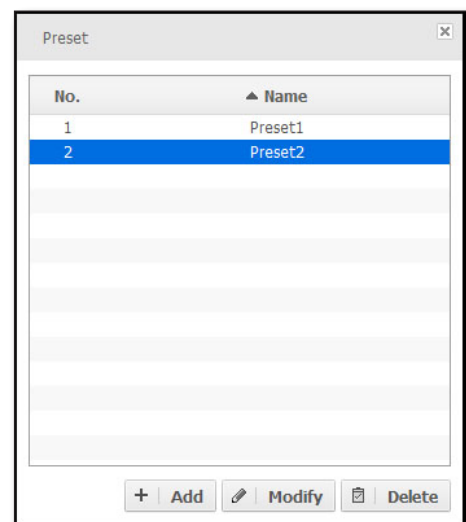
To control the preset

You can save a specific position of the camera in advance or move to a predefined position.

If you click the Preset button, the preset list in the camera will be displayed.



- You can add up to 255 presets. (However, the maximum count of presets provided may differ by device.)
- If you select a preset item in the list, the camera focus will move to the predefined position of the preset.
- Provide a name for the list and click **[Add]** to save the current position as a preset.
- Click **[Modify]** button after entering the name to edit selected item.
- If you select a specific item in the list and click **[Delete]**, the selected item will be removed from the list.



To control the group/scan

Scan enables you to navigate through the preset list one item by one.
You have only two options: activate/deactivate the [**Scan**] function.

To control the swing/auto pan

Auto Pan will repeat moving the focus between two different points.
You can set to rotate or repeat moving a specific range.
You have only two options: activate/deactivate the [**Auto Pan**] function.

To control the trace/pattern

Pattern will perform the predefined movement and zooming of the camera.
You have only two options: activate/deactivate the [**Pattern**] function.

To control the tour


This function is to call a group and to call and monitor presets designated to the group in order.
You can only select to activate or deactivate the [**Tour**] function that is set in the camera.

Auto Tracking

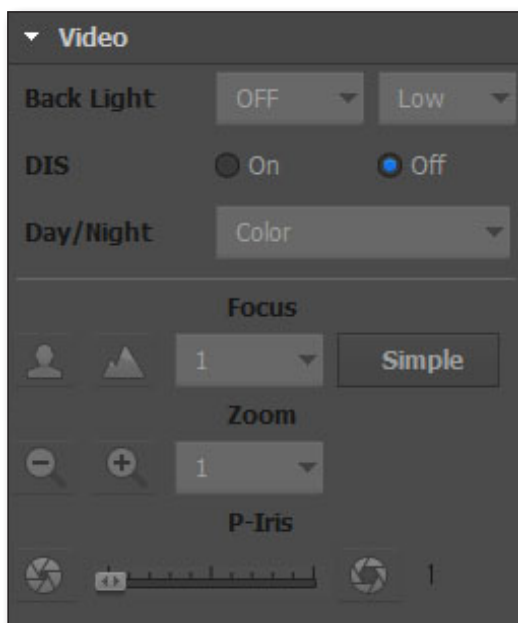
This is to trace the target automatically.
You can turn On or Off the Auto Tracking function. To use Auto Tracking, select a target by Ctrl + right-clicking.

VIDEO SETUP

You can change video settings if the connected device supports this function.

-  ■ Some camera models may not support the video setup function.

Functions and names of Video Setup



Set Back Light

This is to let the user see the target easily in bright light. This function includes OFF, BLC, HLC and WDR options.

- BLC - This option let the user select an area on the screen to see the objects more clearly in that area.
- HLC - This option blocks street lighting or vehicle headlights so that they do not affect the monitor outputs.
- WDR - Where both bright and dark areas coexist, this option let the user see both areas. You can select one from Low, Medium and High levels.

-  ■ Some camera models may not support the Back Light function. For more information, refer to the User's Manual.
- To set up the Back Light function, go to the Setup Page.

Set the DIS function

This is to calibrate the system to minimize the appearance of flicker in the image.

Set Day/Night mode

This is to set Day/Night mode. You can select from Color, B/W, Auto, External B/W and Schedule.

- Color - Images appear in color.
- B/W - Images appear in black and white.
- Auto - Images appear in color in normal light, but turn to black and white at night or in low-light conditions.
- External B/W - When the alarm input terminal is connected to an external device, external images appear in black and white.
- Schedule - Images appear in color during the scheduled time.

Adjust Focus

This is to manually adjust the focus of the camera.

- Focus Near : shortens the focal distance.
- Focus Far : extends the focal distance.
- Simple Focus : adjusts the focal distance automatically.



- The Simple Focus function may not work when the following occurs:
 - Abrupt changes in the target (rapid motion, appearance or disappearance)
 - Abrupt changes in the brightness of the target
 - Images with low contrast
 - Bright light in front or around the target
- To solve the focal point problems in the cases other than the above-mentioned, use the Focus Near or Focus Far button to adjust manually.
Manual adjustment of focal point works for situations where automatic adjustment is difficult.

Adjust Zoom

This is to manually adjust the Zoom of the camera.

- Zoom Out : makes the targets appear smaller.
- Zoom In : makes the targets appear larger.



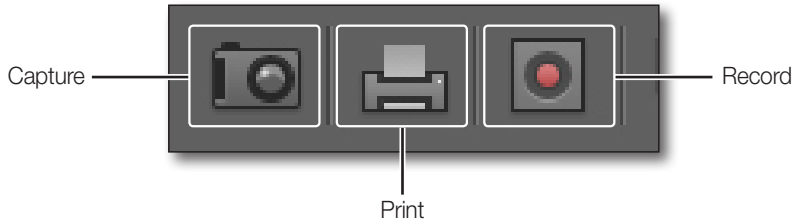
- When adjusting focus/zoom, you can select a level from 1,10 and 100.

Set P-Iris

This is to set the P-Iris value when you use stepper motor lenses.
You can select from 1 to 100.

TO CONTROL THE VIDEO OF THE LIVE VIEWER

You can save, print or record the video on the video screen of the selected camera.




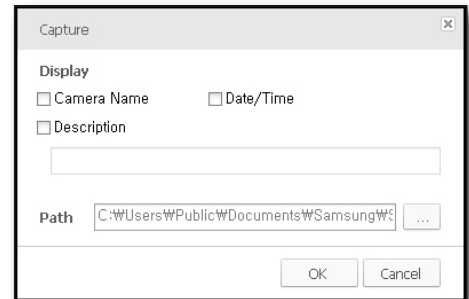
To capture the screen

This is to capture the video on the video screen in the picture format.

You can choose to display the camera title, recording date/time and description on the video and specify the saving path.

1. Click **[Capture (📷)]** on the bottom of the video screen.
2. Select a desired item(s) to display on the screen.
3. Click **[Set Path (...)]** to specify the saving path.
4. Click **[OK]**.
The screen will be saved in the specified path.

 ■ You can use the tile context menu to save the screen.



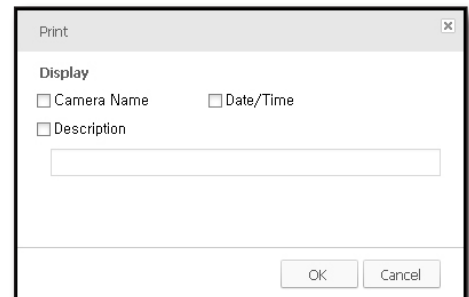
To print the screen

This is to print out the video on the video screen using the connected printer.

You can choose to display the camera title, recording date/time and description on the printout screen.

1. Click **[Print (🖨️)]** on the bottom of the video screen.
2. The "Print" dialog will appear where you select an item(s) to display on the screen.
3. Click **[OK]**.
The selected screen will be printed out using the printer specified in your PC.
 - The user with no printing permission will not be allowed to make a printout after logged in.


 ■ You can use the tile context menu to print out the screen.



Record

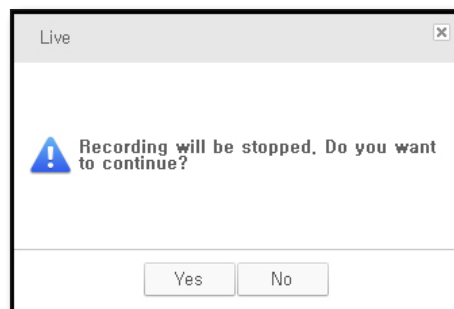
This is to record the video on the selected video screen in a video format.

The video will be saved in the proprietary format with the dedicated viewer included.



1. Click **[Record ()]** on the bottom of the video screen.
2. When the recording starts on the selected video screen, the record icon will be active.
3. To stop recording, click the record button again.

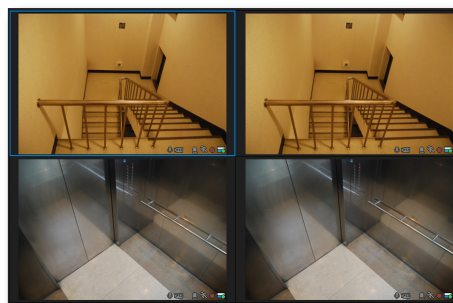


- You can record a maximum of 2 hours of video at once; however, you can change the maximum recording time in the Setup menu.
- Recording will automatically stop at the end of the specified recording time.
- In sequence mode, the record function will be disabled.
- You will encounter a warning message if you try to move to a different screen from the current recording screen, change the viewer or close the application.



To fit the screen

1. Click **[Full Screen ()]** on the bottom of the video screen.
The current video will be enlarged to the full screen.
2. To exit the full screen, press the **[Esc]** key on the keyboard or press the **[Full Screen ()]** button at the bottom of the video window.



To select a split mode

You can select a split mode on the video screen.


- 16:9 aspect ratio : 1/4/9/16/25/36
- 4:3 aspect ratio : 1/6/12/20/30



Video Sequence

This is to transit the camera video screen automatically.

This is useful especially if the number of connected cameras is greater than the split screens, as many cameras as the split screens will be displayed in the first sequence and the remaining cameras in the next sequence, and so on.

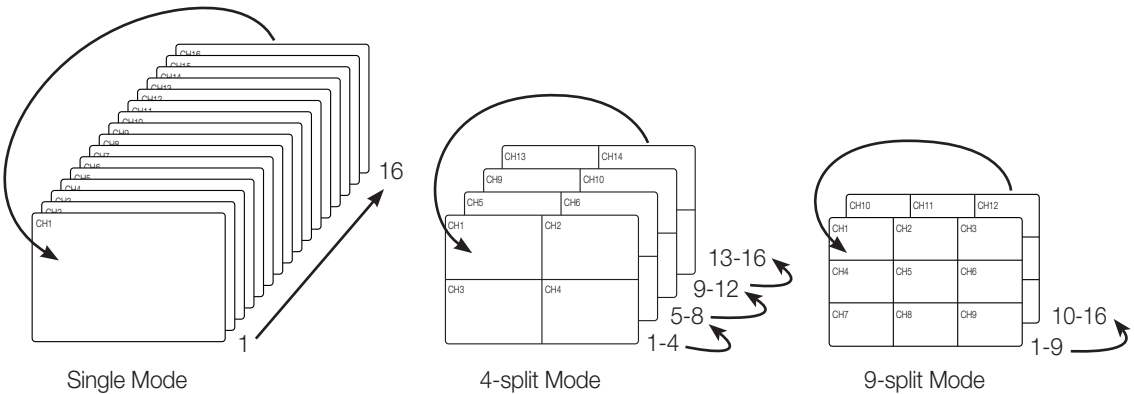
1. Click **[Sequence ()]** on the bottom of the video screen.
Auto sequence will be performed to fit the current split mode.
2. To exit the auto sequence mode, click Sequence again.



- You can change the sequence interval in **"Setup > Viewer > Option > Sequence"**. (page 47)
- In auto sequence mode, the following menus or functions will be disabled: disconnect, listen to sound, zoom in/out, screen sequence, favorite sequence, digital zoom, save favorites, delete favorites.
- In case of automatic switching, the Fish eye camera will operates as overview.

Ex) If two devices are connected, device 1 has 16 cameras connected and device 2 has 8 cameras connected in a 9-split screen mode, the monitor screen will be displayed as follows:

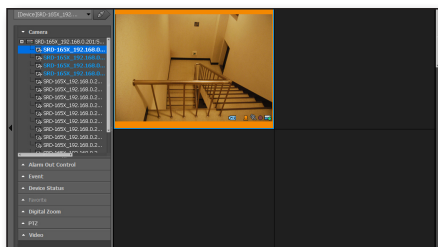
#1 ~ #9 cameras of device 1 → #10 ~ #16 cameras of device 1 + #1 ~ #2 cameras of device 2 → #3 ~ #8 cameras of device 2



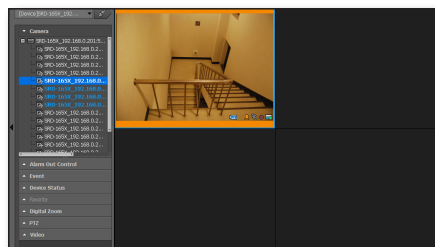
Scroll View

If the number of cameras that are currently connected is greater than the number of the selected tile pattern, use the scroll bar to move to the next or previous video.

Ex) If two 4CH devices sets are connected in a 2x2 tile, you will have a total of 8 videos. You can scroll up or down the list and monitor 4 videos at once.



< 1 CH ~ 4 CH >



< 5 CH ~ 8 CH >

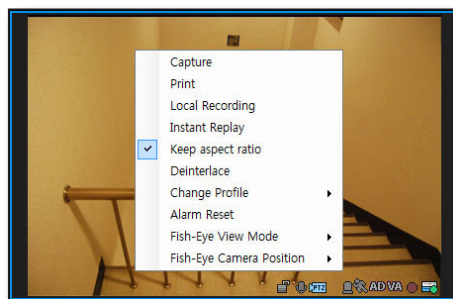


- Move the scroll bar up or down to move to the next or previous video in the list.

How to apply a function to maintain the aspect ratio

It is possible to set each channel to maintain the aspect ratio.

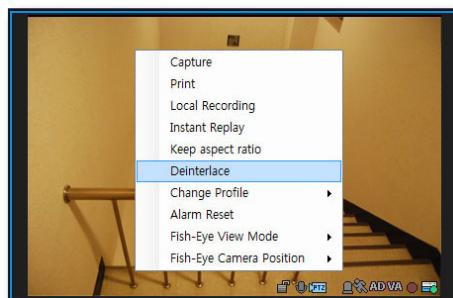
1. Select a camera video you want to view.
2. Right-click and select **[Keep aspect ratio]** from the contextual menu that appears.
If the function to maintain the aspect ratio of a channel was already set or is set, the function will be disabled.



To apply the video de-interlacing

You can set to apply de-interlacing to each channel or to your preference.

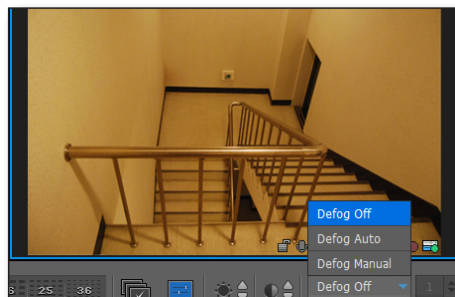
1. Select a desired camera video.
2. Right-click the channel to display the context menu where you select **[Deinterlace]**.
Deinterlacing will be applied to the selected channel or released if the channel has deinterlacing already applied.



Apply Defog to Video

Defog function can be set in the supporting devices.

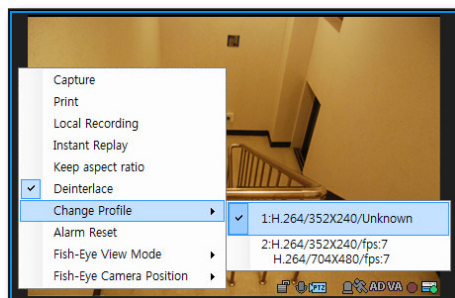
1. Select a video from camera.
2. Click **[Defog]** menu at the bottom of video window.
One from **<Off/Auto/Manual>** can be selected.
Defog level can be selected when the mode is set as **<Auto>** or **<Manual>**.



Changing the Profile

The profile can be changed if the device supports multiple profiles.

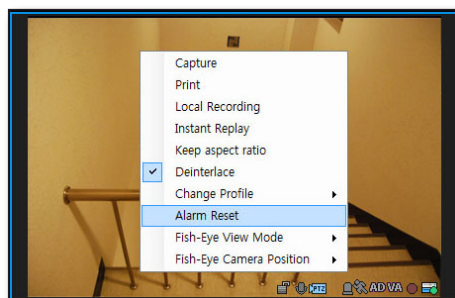
1. Select a video from camera.
2. Right-click the mouse to display Context menu. Select **[Change Profile]** from the menu.
3. You can view the profile video selected from profile list displayed on the right.



Alarm Reset

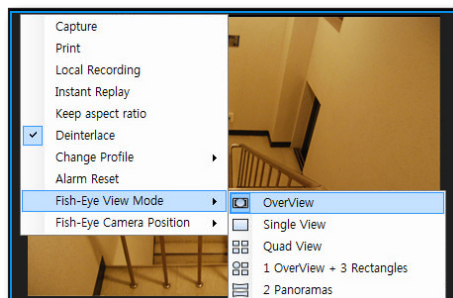
Event state of device is initialized and alarm is cleared.

Right-click the mouse in video window to display Context menu. Select **[Alarm Reset]** from the menu.



Selecting a Fish Eye View Mode

If your registered device is a Fish eye camera, you can change the fish eye view mode.

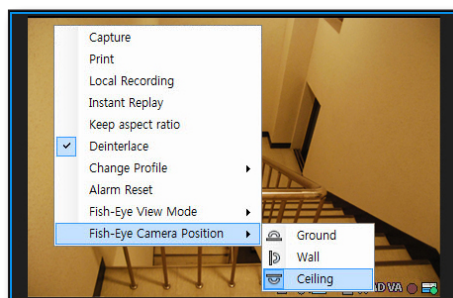


Changing the Fish Eye Installation Type

You can change the Fish eye installation type. The following view modes correspond to the installation locations.

Ceiling/Ground : OverView, Single View, Quad View,
1 OverView + 3 Rectangles, 2 Panoramas

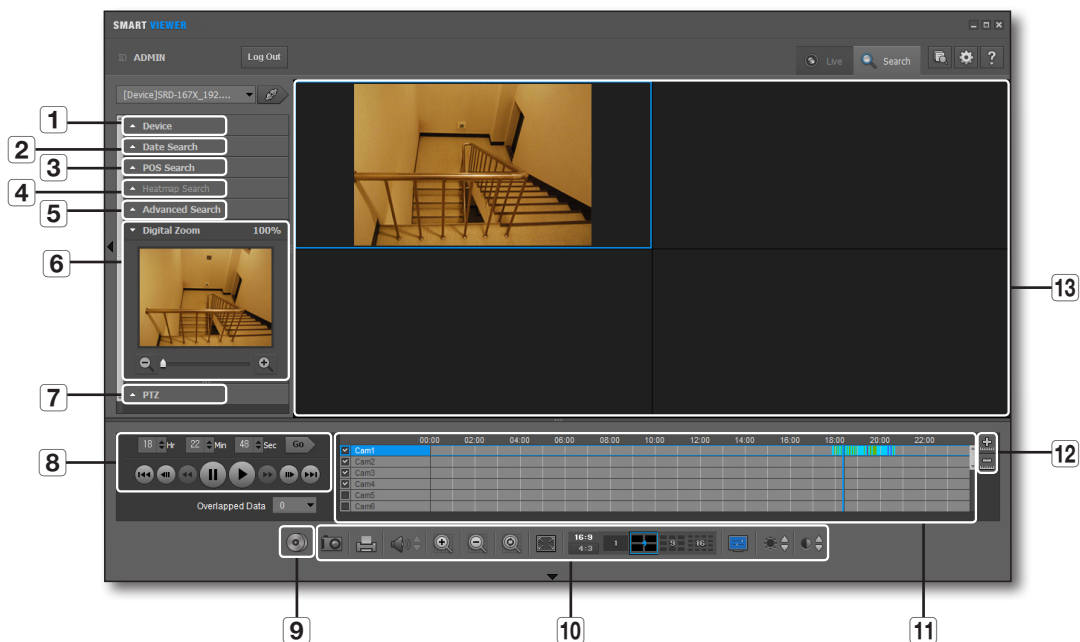
Wall : OverView, Single View, 1 Panorama, 1 Panorama +
2 Rectangles



search viewer

From the top right corner of the SmartViewer main screen, click the [Search] tab.

NAME AND FUNCTION OF EACH ITEM IN SEARCH VIEWER






Item		Description
1	Device List	Displays a list of devices available.
2	Date Search	Displays the recording history.
3	POS Search	Search for the POS use history using the time information and keyword.
4	Heatmap search	Search for the Heatmap record by dates. <ul style="list-style-type: none">You can only use it with equipment that supports the Heatmap function.
5	Advanced Search	Displays the search options available.
6	Digital Zoom	Displays a digital-zoomed image.
7	PTZ Control	Controls the PTZ. <ul style="list-style-type: none">You can use it in your Fish eye camera only.
8	Time Search/Play Bar	You can specify the search time and play the data found.
9	Backup	You can backup a desired time range of the data.

Item	Description
10 Video Screen Control Bar	Use the buttons to control the video screen. For more information, see "Name and function of each item in Live Viewer" . (page 12)
11 Timeline	Displays the data range to save using the color bars.
12 Zoom In/Out	Zooms in or out the time range of the data found.
13 Video Screen	Displays the data of video found.

Indications of the Video Input Status

You can check the input status of the camera video signal as follows:

1.  : No data
2.  : Disconnected
3.  : Excessive concurrent users

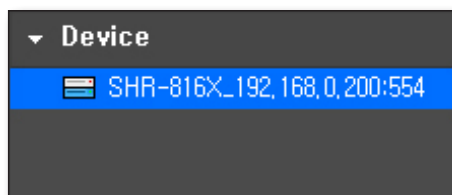
DEVICE LIST

From the device list, you can select a device to search for.

1. Check the list of registered devices.
2. Select a group or device to search for and connect to it.



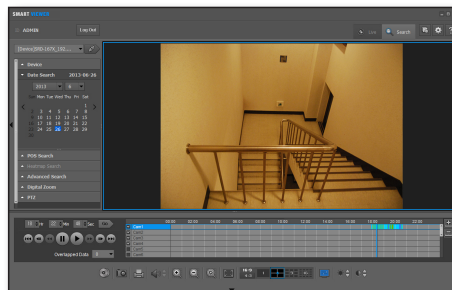
- If you access the search mode, the first listed device will be selected automatically.



DATE SEARCH

The calendar will display the date history of recording data.

1. Click the date search menu.
The calendar should appear.
2. Select a desired year and month.
The dates of recording data will be highlighted.
3. Select a date to search for.
The recording details on the selected date will be displayed in the result pane.



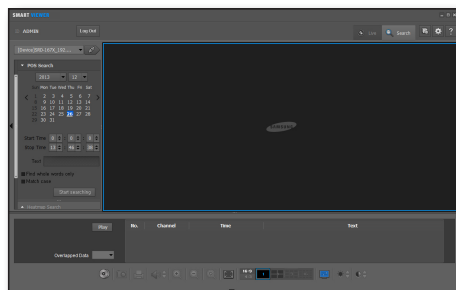
search viewer

POS SEARCH

You can search for the POS use history using the time information and keyword.

To perform the search

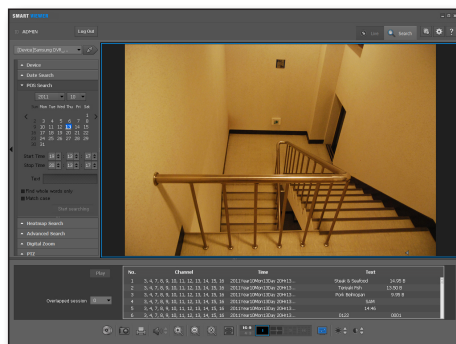
1. Specify the time information including year, month, day and time.
2. Enter a keyword for your search.
 - Find whole words only: If this option is not selected, the space between characters will be considered as AND.
Ex) If you enter "2500WON cash", the search will find only data items including both "2500WON" and "cash".
 - Match case: If selected, the search will be performed case sensitively.
3. Click <Search>.



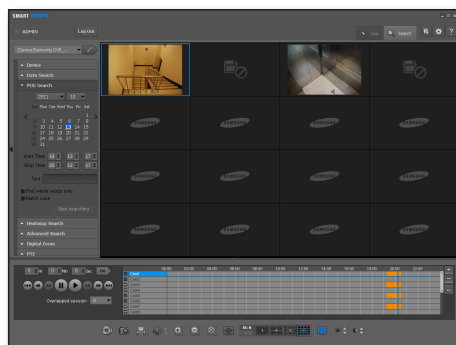
To view the search results


Select an item in the bottom list to check the thumbnail and play the video if available.

1. In the search pane, select a video item that you want to play.
If there occurs a duplicate section due to a time change from the device, an index of such duplicates will be created accordingly.
2. If there exists a duplicate section, select the number of the duplicate section.
If there exists multiple duplicate sections, the first recording data item will be displayed "0" with a list of up to 16 items.



3. Double-click an item to search for.
If any one result of your POS search involves multiple connected cameras, only the thumbnail of the first-listed camera will be displayed.
4. If multiple cameras are connected, check the checkbox of the camera of your choice and click Play.
If one result of your POS search involves multiple connected cameras, you can play the videos from all the connected cameras simultaneously.
Ex) If 3 cameras are connected, you can play 3 videos on the 2x2 split screen.



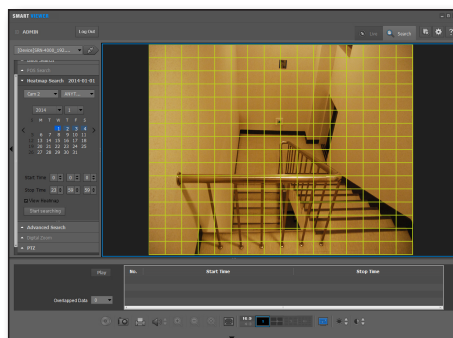
 ■ In POS search mode, data backup will be disabled.

HEATMAP SEARCH

In the video, you can check the frequency of appearance of objects (e.g.- human, car) in each area.

Search

1. Select the camera/search target/year/month/date and time for your search.
2. Click or drag the video to select the area for your search.
3. Click on the <Start searching> button.



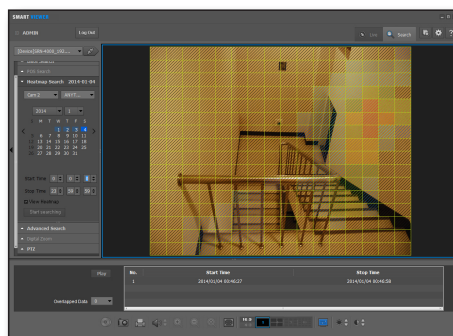
View search results

1. The Heatmap search results are displayed in the list at the bottom.
2. If you select a search item in the list, then the frequency of appearance of an object set in the video will be displayed in different colors depending on the level.



- The following colors are used for levels.

Level 1	Level 2	Level 3	Level 4
Level 5	Level 6	Level 7	Level 8



3. Select a search item and click on the <Play> button to the left of the list to move to the play screen.
4. You can start playing the video at the start time selected in the list.



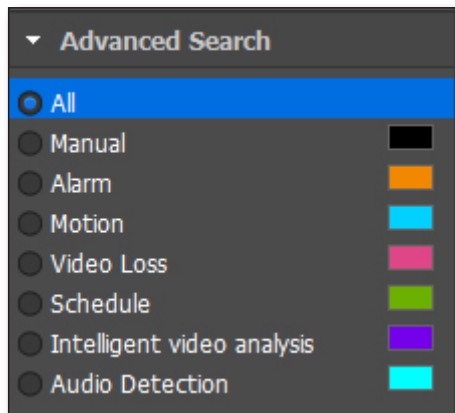
- Repeat section
 - If the device time is changed and there are some duplicate recordings, you can select each timeline.
 - The first recording data is set at "no. 0" and a max of sixteen data sets can be displayed at any one time.
- Heatmap search does not support backup function.

search viewer

ADVANCED SEARCH

You can refine your search according to the record type.

1. Click the advanced search menu.
The Advanced Search window appears.
2. Select a desired item to search for.
 - All : You can search for all camera videos from the selected device.
 - Manual, Alarm, Motion, Video Loss, Schedule, Intelligent Video Analysis, Audio Detection : The search will be performed on the current screen, whose mode will switch to one-channel (full) screen.



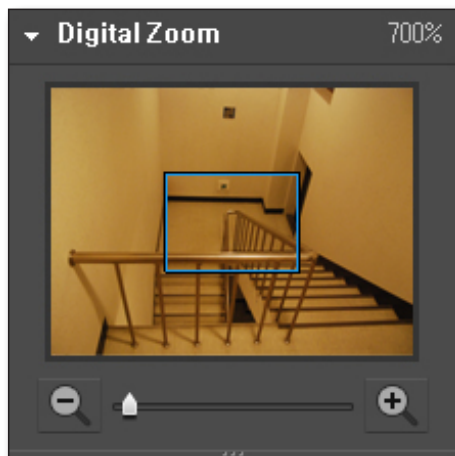
DIGITAL ZOOM

Digital Zoom is to enlarge the screen image using the magnifier function.

1. Click the digital zoom selection bar.
2. Double-click a desired camera video.
The selected camera video will be displayed on the digital zoom screen.



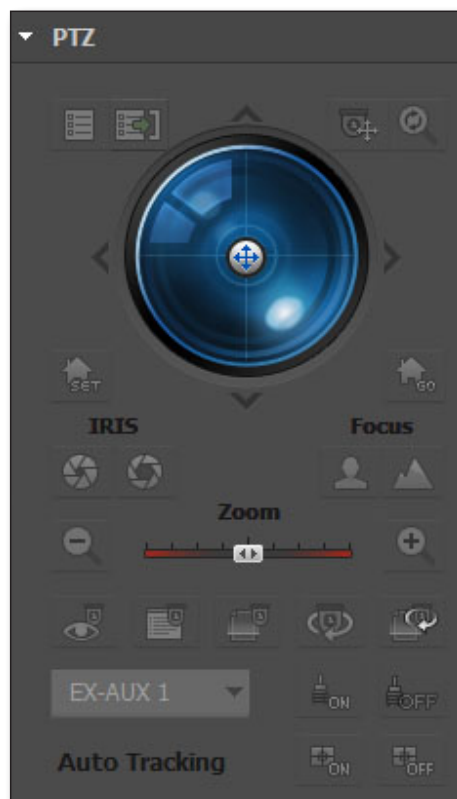
- For using the digital zoom function, see “**Digital Zoom**” (page 22)



PTZ

If you use a Fish eye camera, you can control the PTZ.

- Refer to "Live Viewer > PTZ Control > Controlling the Fish Eye PTZ" for details of Fish Eye PTZ. (page 25)



SEARCHING FOR PLAYABLE DATA

To specify the play time

The blue vertical line in the result pane indicates the play time of the video.

1. Specify the time to search for.
2. Click the [Go] button to the right.
The play time will switch to the specified time.



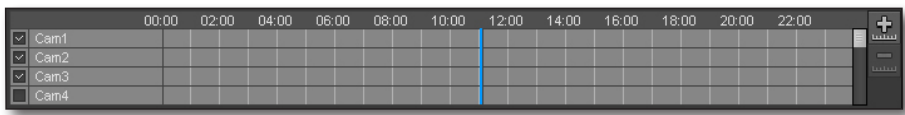
- You can drag the blue vertical line to change the play time.
- The time information on the bottom left corner indicates the current play time.

search viewer

To select a camera to play

If you double-click a camera in the result pane, the video of the selected camera will be added.

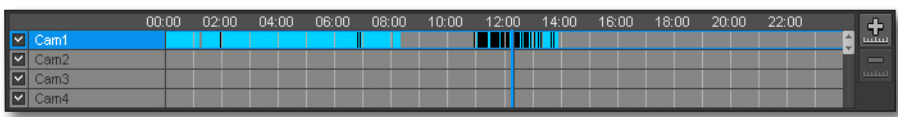
The default of the timeline is 4 channels, where you can expand the area or use the scroll bar to add up to 16 channels for your search.



1. Double-click a camera in the result pane, or check the checkbox of a desired camera to select it.
2. From the first empty screen on, the video of the selected camera will be displayed.

 If you drag and drop a camera in the result pane, the camera video will be added to the selected video window.


To expand the play time




< 24-hour format >

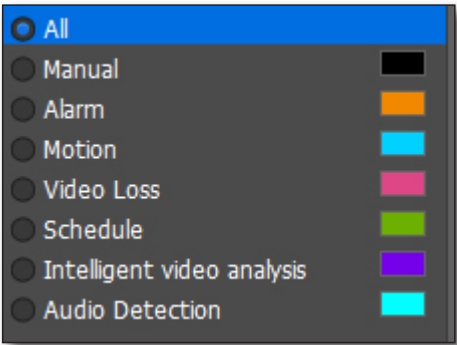


< 1-hour format >

1. Click [Expand ()] in the right corner of the result pane.
2. Based on the play timeline, the play time will be expanded: 24 hrs→12 hrs→6 hrs→2 hrs→1 hr.
When the play time is expanded to 1 hour, the Expand button will be inactive while the Collapse button will be active.

To collapse the play time

1. Click [Collapse ()] in the right corner of the result pane.
2. Based on the play timeline, the play time will be expanded: 1 hr→2 hrs→6 hrs→12 hrs→24 hrs.
When the play time is collapsed to 24 hours, the Collapse button will be inactive while the Expand button will be active.

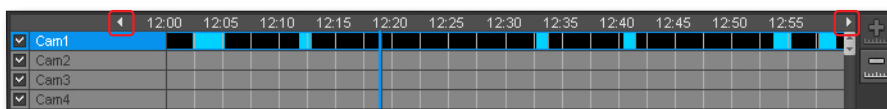


- The recoding ranges will be highlighted in different colors, depending on the recording reason.
 - Black : Manual recording
 - Orange : Recording due to an event
 - Blue : Recording due to a motion
 - Pink : Video Loss
 - Yellowish Green : Scheduled recording
 - Purple : Intelligent Video Analysis
 - Sky blue : Audio Detection

To move the play timeline

When a recording data item is found, the current time point will be marked as the play timeline.

1. Select a data item to search for.
The current time point will be marked as the play timeline.
2. Click the play timeline and drag and drop it to a desired start time.
When the play time table is expanded, use the **[Move (◀ , ▶)]** buttons to move the play time earlier or later.

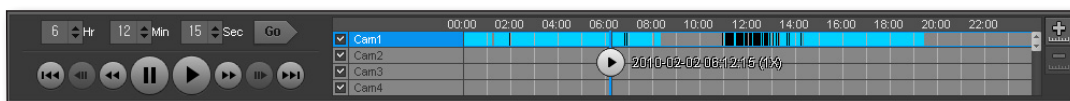


- With the play time table expanded, if you use the arrow button to move to an earlier time and move back to a later time at the end of the earlier time, the timeline will be positioned at the very start point.

PLAYBACK CONTROL

You can stop playing a searched video temporarily or control the play speed.

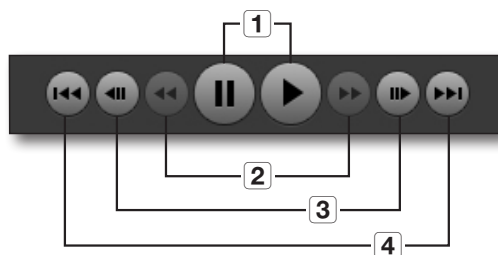
Play



1. Select an item to play and click **[Play (▶)]**.
The current play speed will be shown in the play time status bar.
2. You can use the play bar to play the video fast or slowly.

search viewer

Name and function of each item in play bar



1. Play & Pause
2. Fast forward/backward (inactive in pause mode)
Each time the button is clicked, videos are played at speeds of x2, x4, x8, x16, x32 and x64 in forward or reverse order.
3. Frame advance/reverse-frame advance
The video will be played by the frame. The buttons will be inactive during the playback.
4. Skip/Skip backward
Skips playing between events.



■ Some equipments are not supported.

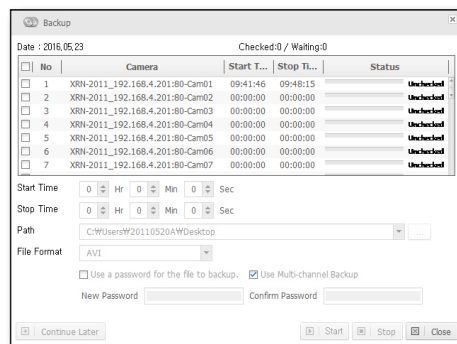
BACKUP

You can backup video data to the PC where the program is currently running.

To back up the searched video

You can back up multiple videos from the scanned channels at once.

1. Click **[Backup (📁)]**.
You will see a dialog for your backup.
2. In the Backup dialog, select a channel(s) to back up.
Then, the time setting option will be activated.
3. Specify the start and stop times as necessary.
4. Click **[Start]** to start backup.
5. To stop backing up, click **[Stop]**.
6. To exit the backup, click **[Close]**.
The backed up data till then will be saved before the window is closed.



■ It supports the backup formats such as **sec** or **avi**. The backup viewer to play the backup data is integrated by default. You can view the backup data by launching the viewer.

To resume the backup

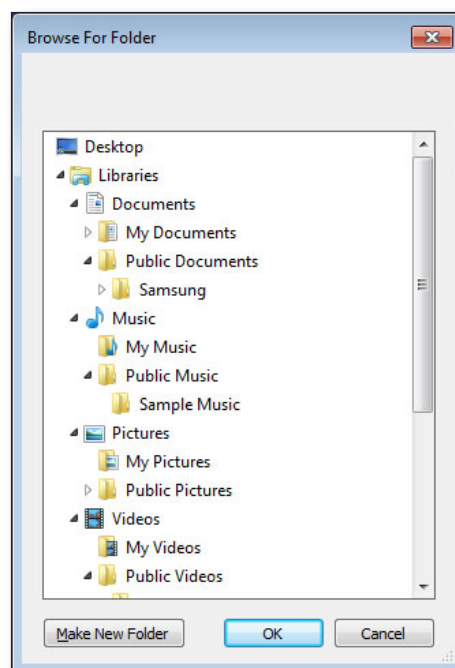
If backup is stopped, you can resume the backup later, starting from the stopped point.

1. To exit the backup screen, simply click **[Continuous Later]**.
The current backup will be stopped with the backup screen closed.
2. Click **[Backup (🔄)]**.
The backup screen for your last operation will appear again.
3. Click **[Start]**.
Your last backup operation will be resumed.


To change the file path

You can backup video data to the PC where the program is currently running.

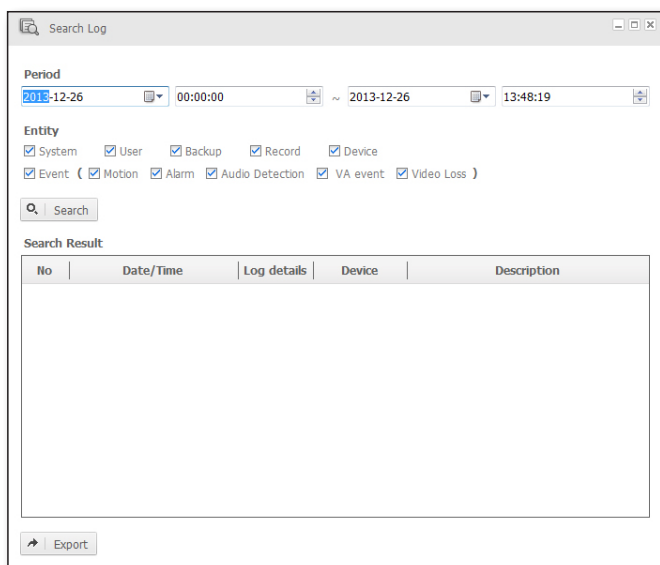
1. Click **[Set Path (...)]**.
The “Browse For Folder” window should appear.
2. Specify a desired backup path.



search log

Press the [**Search Log** ()] button in the top right corner of the program.
You can search for the system/event related logs by time or item.

SEARCH LOG



The screenshot shows a window titled "Search Log". It contains a "Period" section with date and time pickers. Below that is an "Entity" section with checkboxes for System, User, Backup, Record, Device, Event, Motion, Alarm, Audio Detection, VA event, and Video Loss. A "Search" button is located below the entity checkboxes. The "Search Result" section contains a table with columns: No, Date/Time, Log details, Device, and Description. The table is currently empty. At the bottom of the window is an "Export" button.

Period
2013-12-26 00:00:00 ~ 2013-12-26 13:48:19

Entity
☒ System ☒ User ☒ Backup ☒ Record ☒ Device
☒ Event (☒ Motion ☒ Alarm ☒ Audio Detection ☒ VA event ☒ Video Loss)

Search

Search Result

No	Date/Time	Log details	Device	Description
----	-----------	-------------	--------	-------------

Export

1. Set the start and finish time of log searching.
2. Click the checkbox for the desired log box.
3. Click the [**Search**] button.
The searched log information will be displayed in the list.
4. Click on [**Export**] to save the search results.

setup

Click [**Setup** ()] in the top right corner of the program screen.

Click viewer and device to display setup screen configured with tabs according to each function.

Various viewer-related settings can be made using viewer items.

A device to connect to SmartViewer can be set or updated using device items.

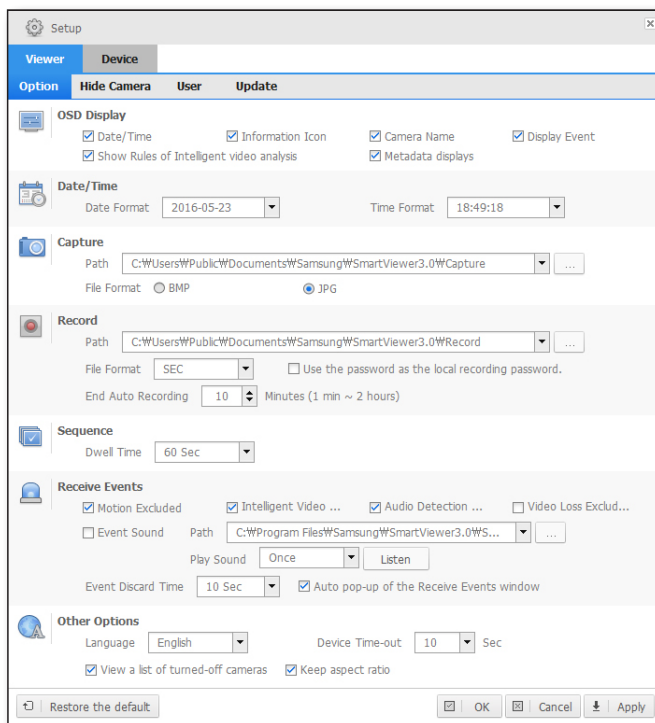
When you complete your settings, click [**OK**] or [**Apply**] to apply your settings.



- When you access the setting page, all devices will be disconnected.

OPTION TAB

You can configure the Live Viewer or Search Viewer settings.



OSD Display

You can display/hide the on-screen information.

Date/Time

If checked, the time and date information will be displayed in the upper area of the video screen.

Information Icon

If checked, the information of PTZ, speaker settings and recording status will be displayed in the lower area of the video screen.

Camera Name

If checked, the camera name will be displayed in the upper area of the video screen.

Display Event

If checked, the event will be displayed in the lower area of the video screen when it occurs.

Show Rules of Intelligent video analysis

Click the check box to display video analysis rules set in camera video screen.

Metadata displays

When the selection box is checked, the configured metadata are displayed on the camera screen.

Date/Time

Specify the date/time format that will be displayed on the video screen.

Date Format

Select one from YYYY-MM-DD, MM-DD-YYYY and DD-MM-YYYY.

Time Format

Choose between hh:mm:ss and hh:mm.

Capture

Specify the picture format and saving location of the captured screen.

Record

Specify the file path and time of recording videos.

You can specify the recording time from 1 minute to 2 hours (120 min).

Sequence

Selecting this will display the camera videos one by one according to the split mode. This can be used also for sequencing favorites if you access the group.

Select a sequence interval from 10, 15, 20, 30, 40, 50 and 60 seconds.

Receive Events

Auto pop-up of the Receive Events window

You can select to create a popup window if there is an incoming event.
If checked, the Receive Events window will pop up when an event occur as shown in the figure to the right.

Motion Excluded

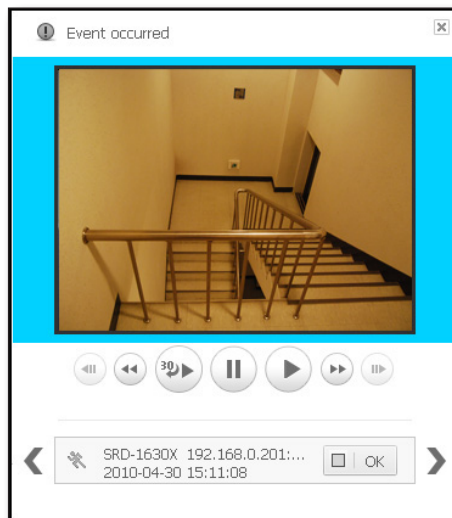
You can select to receive a motion event, one of the event types.

Intelligent Video Analysis Excluded.

You can enable or disable notification on intelligent video analysis events.

Audio Detection Excluded.

You can enable or disable notification on audio detection events.



Excluding video loss

Selects whether to receive a video loss event among the kinds of events.

Event Sound

You can select an event sound to output if there is an incoming event.

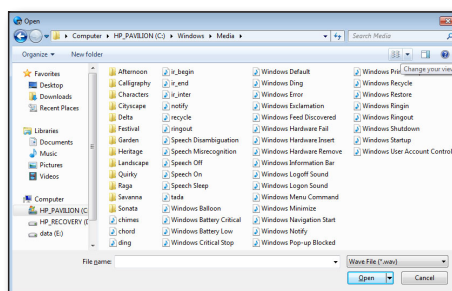
To change the sound, click [Set Path (...)].

The Open dialog appears when you can specify the path.

Play Sound

You can select to repeat the sound if an event is received.

If set to Continuous, the event sound will not be stopped until you confirm the event.



Event Discard Time

This is a time of disregarding an event if the same event occurs. If the same type of event occurs from the same camera within the specified time, the later event will be discarded.

Others Options

Language

You can select a preferred OSD language for the viewer.

Languages supported: Korean, English, Chinese, French, German, Italian, Russian, Spanish, Japanese, Turkish, Czech, Polish, Serbian, Rumanian, Portuguese, Dutch, Croatian, Hungarian, Greek, Taiwanese, Swedish, Danish, Norwegian and Finnish.



- Your change will be applied right away, but the exiting log information will remain in the previous language.

Device Time-out

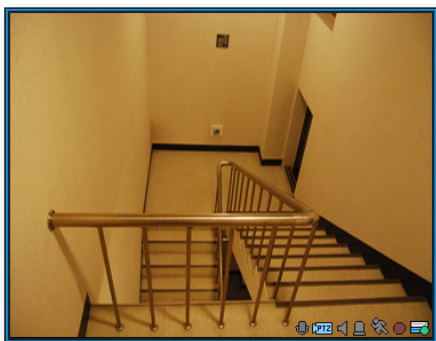
You can set the response time of registered devices. If the network environment is in poor condition, adjust the response time.

View a list of turned-off camera

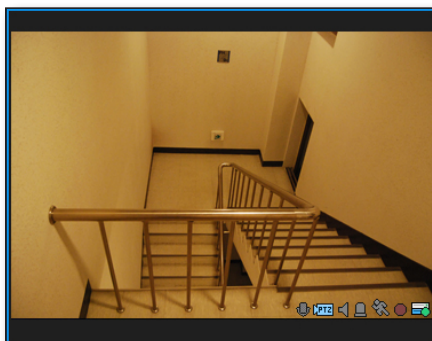
If checked, you will see a list of turned-off cameras.

Keep aspect ratio

If checked, the video will be displayed in its original size.



<Release the aspect ratio>



<Keep the aspect ratio>

Others

Restore the default

This will restore the default settings of the viewer.

OK

The Setup window will be closed with your settings applied to the viewer.

Cancel

The Setup window will be closed without applying your settings to the viewer.

Apply

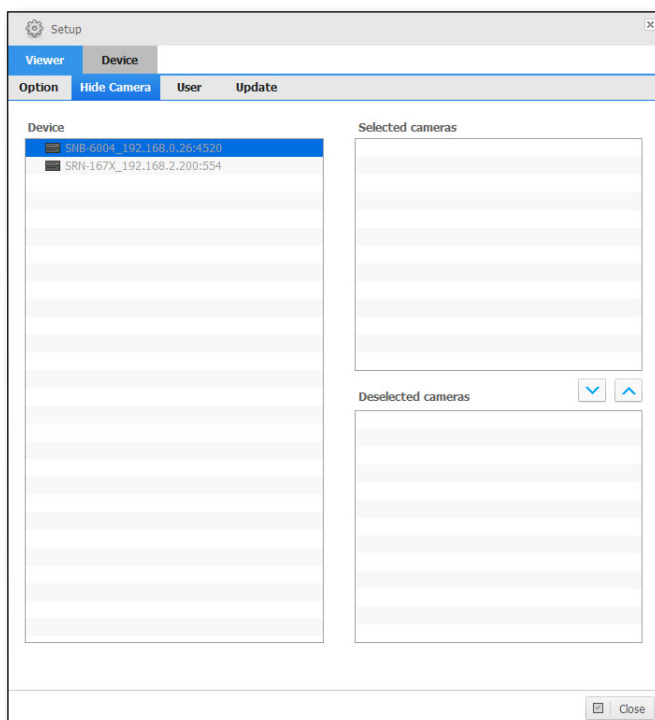
Your changes are applied to the viewer.

HIDE CAMERA TAB

Setup to display or not to display camera or alarm out objects below the device in a tree.



- Objects cannot be found from the tree using Find Object function if the camera is inactivated.
- Event information of an inactivated camera is not displayed.



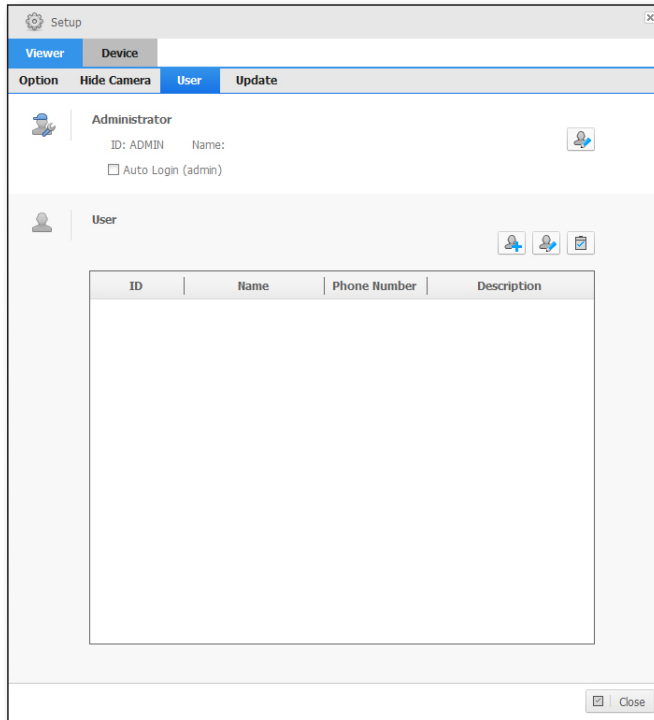
setup

USER TAB

You can add or delete a user, or change the ID or password.



- If Auto Login (admin) is set, you can launch SmartViewer directly without providing the ID and password.



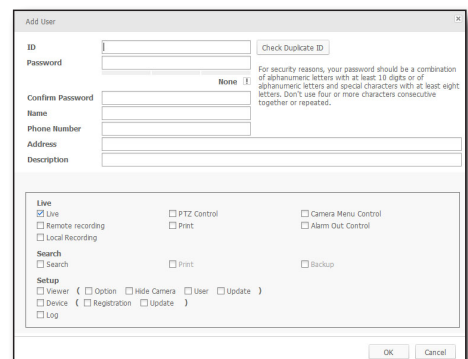
User List

To add a user

1. Click **[Add User]**.
2. Enter your login ID.
You can enter up to 32 characters for the ID including alphabets, numeric and '—'.
3. Enter the password.
Password can be made up of 8 – 32 digits excluding spaces with a combination of English characters and numbers.
4. Provide additional information such as the telephone number or the address, according to the user.
5. To refine the user permissions, check the **[Permission Setup]** checkbox and select desired options.
6. Click **[OK]**.
The user will be added with the provided ID.



- The “**ADMIN**” ID is the default ID that is created when the program is installed. This ID cannot be removed. However, you can change the password.



To change the user information

1. Select a user whose information you want to change.
2. Click **[Modify]**.
You can change the user information.

To delete a user

1. Select a user to delete.
2. Click **[Delete]**.
The selected user information will be deleted.



- You cannot delete an account in use now.

VIEWER-UPDATE TAB

Support SmartViewer update through a remote update server and export or import setup.

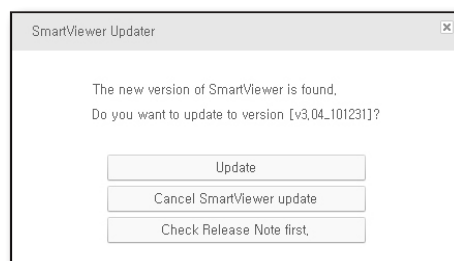
Auto Update

If Auto Update is checked, check if a new software file is available in the server.

To specify the interval of checking the update server

You can specify the interval of checking the update server.

1. Specify the interval and the date.
Select one from once/everyday/every week/every month, and you can specify the date/time according to your selection.
2. If a new software file is found in checking the update server, the fact will be notified to the user who can select to perform the update.
3. Click **[Update]**.
Regardless of the Auto Update setting, the program will check if there is a new software file available in the update server.



Manage SmartViewer Configuration

You can export the SmartViewer configuration file.

Export SmartViewer configuration

You can save the SmartViewer configuration as a file.

1. Check the checkbox and select configuration items.
2. Specify the path of saving the items.
3. Click **[Export Configuration]**.
The configuration items will be saved as a file and the result will be displayed in a message popup.

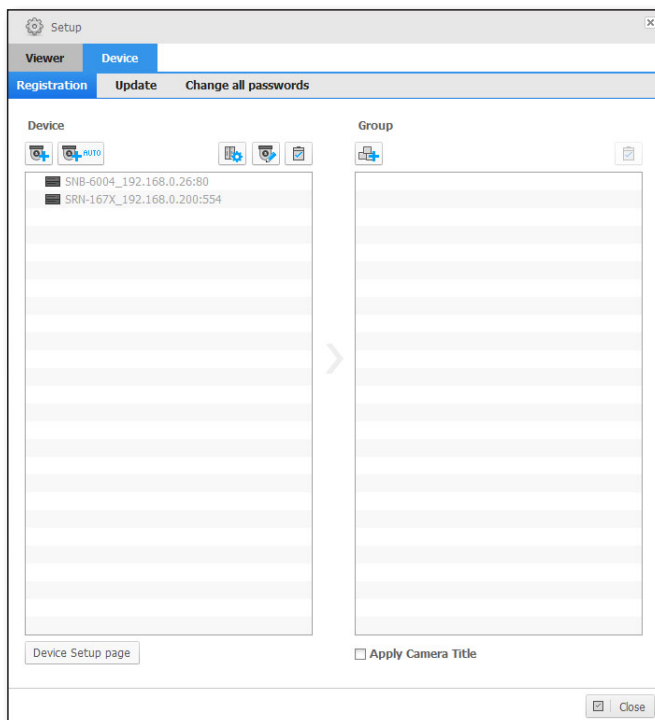
Import SmartViewer configuration

You can import and read the SmartViewer configuration items as a file.

1. Select a configuration item to import.
2. Select the file that is saved.
3. Click **[Import Configuration]**.
The configuration items will be read from the file.

DEVICE REGISTRATION TAB

You can add a device, check a list of registered devices, or change the device settings.



- If **<Apply Camera Title>** is checked, logging in and accessing the device or a group that contains the device, the device name registered to the corresponding DVR is shown in the device/camera name list.

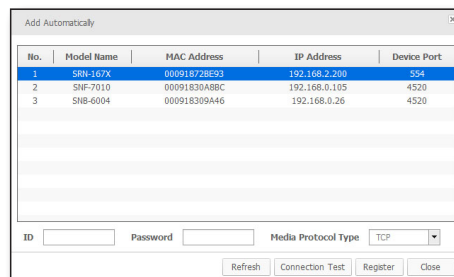
Device List

Displays a list of devices that are registered by the user.

To add a device automatically

You can scan for a device in the local network before registering it.

1. Click **[Add Automatically]**.
A list of all devices connected in the local network will be shown in the “Add Automatically” window.
Any registered device will be displayed grey.
2. Select a device to register from the list.
3. Provide the user ID and password, and press the **[Register]** button.
The user ID and password are the information saved in the device to register.



setup

- This program does not check at registration if the user information is correct.
- If you want to check if the user information is correct, click **[Connection Test]**.
- If you encounter an error during the connection test, an error message will appear.
- With the NVR, you can set the media protocol.

To add a device manually

You can provide information for the device manually that you want to connect to.

1. Click **[Add Manually]**.

The “Add Manually” should appear.

2. Select the model name of the device that you want to connect to.

In case of a product of which the model is not in the list, registration is enabled by selecting integrated Samsung model name (Samsung DVR, Samsung Network Camera_Encoder, Samsung NVR).

- For more information, refer to the user manual of the applicable device.

3. Select an address type.

The address format available is one of: IP Address, URL, websamsung.net, ddns.s1.co.kr, samsungipolis.com

4. Specify setting values necessary for connecting the device.

The information differs depending on the address type.

5. Provide the user ID and password.

The user ID and password are the information that is set in the device to register.

6. Click **[Connection Test]**.

Use the user-provided information to perform the connection test.

If you encounter an error during the connection test, an error message will appear.

7. Click **[Register]**.

- With the NVR, you can set the media protocol.

Add Manually

Model Name: Samsung NVR

Address Type: IP Address

IP Address:

Device Port: 0

HTTP Port: 0

Media Protocol Type: TCP

ID:

Password:

! If you select a wrong model name, the program may not work properly. Refer to the device manual and register the model that you want to select.

Connection Test Register Close

Add Manually

Model Name: Samsung NVR

Address Type: IP Address

IP Address:

Device Port: URL

HTTP Port: samsungipolis.com

Media Protocol Type: TCP

ID:

Password:

! If you select a wrong model name, the program may not work properly. Refer to the device manual and register the model that you want to select.

Connection Test Register Close

Connection Error Type

- Parameter Error: The parameter is wrong. Check the connection information again.
- Device Connection Error: The device is not connected.
Check if the device is connected to the network properly.
- Network Error: Not connected to the network.
Check if the device is connected to the network properly.
- Redundant Address Error: The same address already exists. (If the IP and the port number are the same)
- Login ID Error: The login ID is not valid. Verify the login ID that you provided.
- Login Password Error: The login password is not valid.
Check the login password again.

To change the device information

You can change the device information.

1. Select a device of which the information you want to change and click [**Modify**].
You can change all information except for the model name. If you register a device in <Samsung DVR>, you must complete the device registration and connect to the device before it can be listed in the current window.

To delete a device

1. Select a device to delete.
2. Click [**Delete**].
3. Click [**Yes**].
The selected device will be deleted.

To create a device group

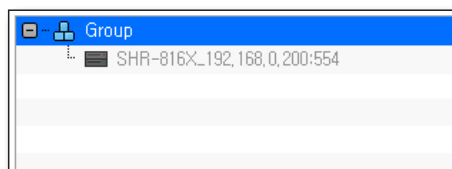
You can create/manage a group of registered devices so that you can access them simultaneously.

1. Click [**Add Group**].
2. Enter the name of the group to create.
The group will be created with the provided name.

To add a device to the device group

You can create/manage a group of registered devices so that you can access them simultaneously.

1. Select a device to add.
2. Select a group to add device to.
3. Click [**Add to the selected group**].
Device is added to the group. You can add up to 36 devices.



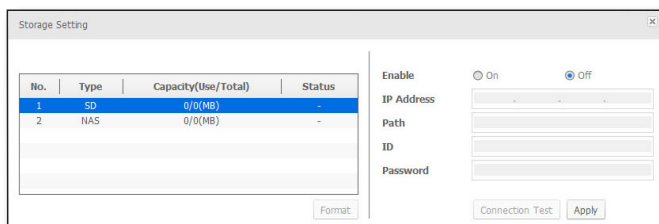
To delete a device group

1. Select a group to delete.
2. Click [**Delete**].
3. Click [**Yes**].
The selected group will be deleted.

Save to Device

1. Select a device.
2. Press **[Storage Setting]**.

This is to select a device to store the images. You can select SD memory card or NAS (Network-Attached Storage).



To store images to SD memory card

1. Check **[Capacity in use]** and **[Total Capacity]** of SD card.
2. If the storage space is running out, you can press the **[Format]** button to begin a format on the card.

To save to NAS

1. Check **[Capacity in use]** and **[Total Capacity]** of NAS.
2. Enter the information registered to NAS.
 - IP Address: means an IP Address assigned to NAS.
 - Path: designates the folder where the data is to be saved.
 - ID: means an ID registered to NAS.
 - Password: means a password registered to NAS.
3. Press **[Connection Test]** and check if you are connected to NAS.



- If a success message appears, you can safely store the data to NAS.
- If a failure message appears, check the following:
 - Check the NAS's IP address to see if it is correct.
 - Check the NAS's ID/Password to see if they are correct.
 - Check if you can access the folder that you designated as the default folder for your NAS ID.

Device Setup

1. Select a device.

2. Click **[Device Setup page]**.

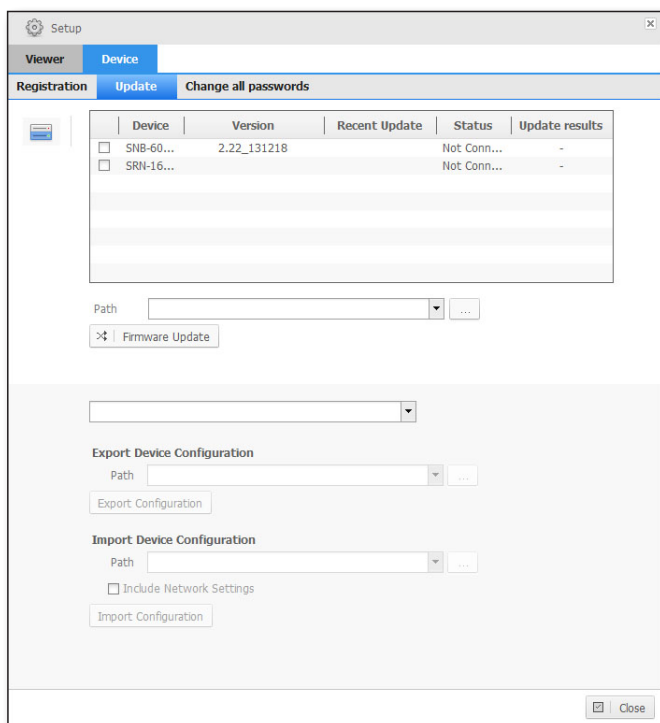
The Device Setup window appears where you can configure the device settings in details.



- The Setup window may differ depending on the connected device; for more information, see the user manual of the appropriate device.
- Logging on as a general user account of OS and running the **[Device Setup page]** may not operate properly. To run **[Device Setup page]** properly, log on as the administrator account of your OS.

DEVICE-UPDATE TAB

Update device firmware and export or import setup.



To update the device

To update the software of the device, you should save the new software file to your PC in advance.

1. Select a device to update.
2. Select the new software for the update.
3. Specify the path of the update file.
4. Click **[Firmware Update]**.
The program will start being updated with the update status displayed.



- You can update multiple devices simultaneously, which will be updated in the order of registration.
- Update function is not available in some devices.

Manage Device Configuration

Export Device Configuration

You can save the device configuration as a file.

1. Select a device to save the configuration.
2. Specify the path of saving the file.
3. Click **[Export Configuration]**.
The configuration will be saved as a file and the result will be displayed in a message popup.

Import Device Configuration

You can read the device configuration from the configuration file.

1. Select a configuration item to import.
2. Select the file that is saved.
3. Select the **[Include Network Settings]** checkbox.
If it is selected, the network information will be imported.
4. Click **[Import Configuration]**.
The configuration items will be read from the file.

- Export and import configuration function is not available in some devices.

Change all passwords

This is to change passwords for all your devices.

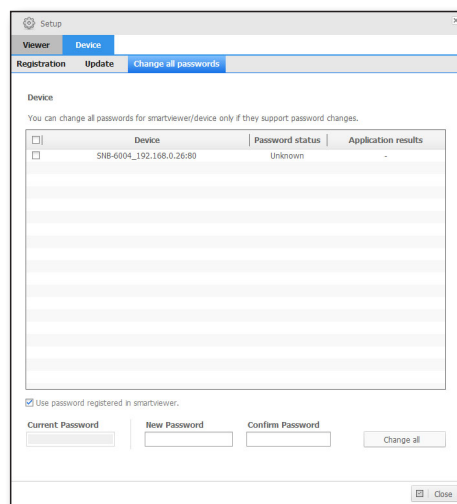
How to use

1. Select a device to change its password.
2. Enter the current password and the new password of the device.
 - If you want to change the password registered for SmartViewer, enter the current password to change it to a new one.

3. Press **[Change all]**.



- If a success message appears, your passwords have been successfully changed.
- If a failure message appears, check the following:
 - Check your device's current password to see if it is correct.
 - Check the network connection to your device.

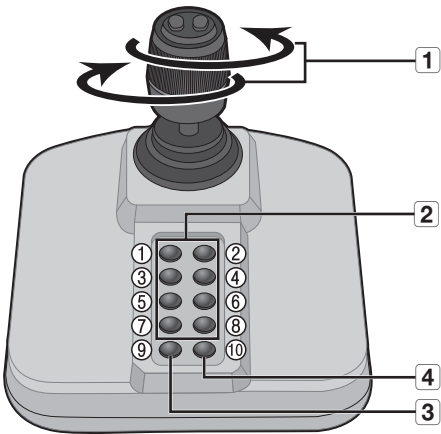


appendix


USE JOYSTICK

The SPC-2000 joystick is operated as follows:

- SPC-2000 will be recognized only when it is connected to the PC before SmartViewer is run.
- SPC-2000 is operating in PTZ mode.



Name		Function
1	Up/Down/Left/Right	In PTZ mode, the camera can be panned, tilted, and controlled in 8 directions.
	Rotation	In PTZ mode, the screen is zoomed in when it is rotated clockwise and zoomed out when it is rotated counterclockwise.
2	1 ~ 8	In PTZ mode, presets number 1~8 are run.
3	9	SPC-2000 is enabled.
4	10	SPC-2000 is disabled.

-  To set the correct image, the axis calibration is needed.
Select [Start] → [Set] → [Control Panel] → [Game Controller] → [Property] → [Set] via the PC, click the [Compensation] button to run the “System Compensation Wizard” and then follow the guide on the screen to complete axis compensation.

OPEN SOURCE LICENSE NOTIFICATION ON THE PRODUCT

The software included in this product contains copyrighted software that is licensed under the Boost Software License 1.0 / Stichting Mathematisch License/Code Project Open 1.02 License/LGPL 2.1/OpenSSL License/MITLicense.

You may obtain the Corresponding Source code from us for a period of three years after our last shipment of this product by sending email to help.cctv@hanwha.com

- **Boost Software License** : Boost C++ Libraries – boost
- **Stichting Mathematisch License** : Audio File Library
- **Code Project Open 1.02 License** : Code Project - A reusable, high performance, socket server class - Part 3, Code Project - AlphaBlendTextBox - A transparent/translucent textbox for .NET, Code Project - An animated progressbar control with many extras, Code Project - An animated progressbar control with many extras, Code Project - BarTender - Group your contents, Code Project - Inter-Process Communication with C#
- **LGPL 2.1** : Live555, FFmpeg
- **OpenSSL License** : OpenSSL 1.0.1g
- **MITLicense** : Rapidxml - 1.13

Boost Software License - Version 1.0

August 17th, 2003

Permission is hereby granted, free of charge, to any person or organization obtaining a copy of the software and accompanying documentation covered by this license (the "Software") to use, reproduce, display, distribute, execute, and transmit the Software, and to prepare derivative works of the Software, and to permit third-parties to whom the Software is furnished to do so, all subject to the following:

The copyright notices in the Software and this entire statement, including the above license grant, this restriction and the following disclaimer, must be included in all copies of the Software, in whole or in part, and all derivative works of the Software, unless such copies or derivative works are solely in the form of machine-executable object code generated by a source language processor.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE AND NON-INFRINGEMENT. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR ANYONE DISTRIBUTING THE SOFTWARE BE LIABLE FOR ANY DAMAGES OR OTHER LIABILITY, WHETHER IN CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Stichting Mathematisch License

Copyright 1991, 1992, 1993, 1994 by Stichting Mathematisch Centrum, Amsterdam, The Netherlands.

All Rights Reserved

Permission to use, copy, modify, and distribute this software and its documentation for any purpose and without fee is hereby granted, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation, and that the names of Stichting Mathematisch Centrum or CWI not be used in advertising or publicity pertaining to distribution of the software without specific, written prior permission.

STICHTING MATHEMATISCH CENTRUM DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN NO EVENT SHALL STICHTING MATHEMATISCH CENTRUM BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

The Code Project Open License (CPOL) 1.02

- Code Project - A reusable, high performance, socket server class - Part 3 (2002, Len Holgate)
- Code Project - AlphaBlendTextBox - A transparent/translucent textbox for .NET (2003, Bob Bradley)
- Code Project - An animated progressbar control with many extras (2006, Robert Rohde)
- Code Project - BarTender - Group your contents (2006, Robert Rohde)
- Code Project - Inter-Process Communication with C# (2007, tran manh tuan)

Preamble

This License governs Your use of the Work. This License is intended to allow developers to use the Source Code and Executable Files provided as part of the Work in any application in any form.

The main points subject to the terms of the License are:

- Source Code and Executable Files can be used in commercial applications;
- Source Code and Executable Files can be redistributed; and
- Source Code can be modified to create derivative works.
- No claim of suitability, guarantee, or any warranty whatsoever is provided. The software is provided "as-is".
- The Article accompanying the Work may not be distributed or republished without the Author's consent

This License is entered between You, the individual or other entity reading or otherwise making use of the Work licensed pursuant to this License and the individual or other entity which offers the Work under the terms of this License ("Author").

License

THE WORK (AS DEFINED BELOW) IS PROVIDED UNDER THE TERMS OF THIS CODE PROJECT OPEN LICENSE ("LICENSE"). THE WORK IS PROTECTED BY COPYRIGHT AND/OR OTHER APPLICABLE LAW. ANY USE OF THE WORK OTHER THAN AS AUTHORIZED UNDER THIS LICENSE OR COPYRIGHT LAW IS PROHIBITED.

BY EXERCISING ANY RIGHTS TO THE WORK PROVIDED HEREIN, YOU ACCEPT AND AGREE TO BE BOUND BY THE TERMS OF THIS LICENSE. THE AUTHOR GRANTS YOU THE RIGHTS CONTAINED HEREIN IN CONSIDERATION OF YOUR ACCEPTANCE OF SUCH TERMS AND CONDITIONS. IF YOU DO NOT AGREE TO ACCEPT AND BE BOUND BY THE TERMS OF THIS LICENSE, YOU CANNOT MAKE ANY USE OF THE WORK.

1. Definitions.

- a) "Articles" means, collectively, all articles written by Author which describes how the Source Code and Executable Files for the Work may be used by a user.
- b) "Author" means the individual or entity that offers the Work under the terms of this License.

- c) "Derivative Work" means a work based upon the Work or upon the Work and other pre-existing works.
- d) "Executable Files" refer to the executables, binary files, configuration and any required data files included in the Work.
- e) "Publisher" means the provider of the website, magazine, CD-ROM, DVD or other medium from or by which the Work is obtained by You.
- f) "Source Code" refers to the collection of source code and configuration files used to create the Executable Files.
- g) "Standard Version" refers to such a Work if it has not been modified, or has been modified in accordance with the consent of the Author, such consent being in the full discretion of the Author.
- h) "Work" refers to the collection of files distributed by the Publisher, including the Source Code, Executable Files, binaries, data files, documentation, whitepapers and the Articles.
- i) "You" is you, an individual or entity wishing to use the Work and exercise your rights under this License.

2. Fair Use/Fair Use Rights.

Nothing in this License is intended to reduce, limit, or restrict any rights arising from fair use, fair dealing, first sale or other limitations on the exclusive rights of the copyright owner under copyright law or other applicable laws.

3. License Grant.

Subject to the terms and conditions of this License, the Author hereby grants You a worldwide, royalty-free, non-exclusive, perpetual (for the duration of the applicable copyright) license to exercise the rights in the Work as stated below:

- a) You may use the standard version of the Source Code or Executable Files in Your own applications.
- b) You may apply bug fixes, portability fixes and other modifications obtained from the Public Domain or from the Author. A Work modified in such a way shall still be considered the standard version and will be subject to this License.
- c) You may otherwise modify Your copy of this Work (excluding the Articles) in any way to create a Derivative Work, provided that You insert a prominent notice in each changed file stating how, when and where You changed that file.
- d) You may distribute the standard version of the Executable Files and Source Code or Derivative Work in aggregate with other (possibly commercial) programs as part of a larger (possibly commercial) software distribution.
- e) The Articles discussing the Work published in any form by the author may not be distributed or republished without the Author's consent. The author retains copyright to any such Articles. You may use the Executable Files and Source Code pursuant to this License but you may not repost or republish or otherwise distribute or make available the Articles, without the prior written consent of the Author.

Any subroutines or modules supplied by You and linked into the Source Code or Executable Files this Work shall not be considered part of this Work and will not be subject to the terms of this License.

4. Patent License.

Subject to the terms and conditions of this License, each Author hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, import, and otherwise transfer the Work.

5. Restrictions. The license granted in Section 3 above is expressly made subject to and limited by the following restrictions:

- a) You agree not to remove any of the original copyright, patent, trademark, and attribution notices and associated disclaimers that may appear in the Source Code or Executable Files.
- b) You agree not to advertise or in any way imply that this Work is a product of Your own.
- c) The name of the Author may not be used to endorse or promote products derived from the Work without the prior written consent of the Author.
- d) You agree not to sell, lease, or rent any part of the Work. This does not restrict you from including the Work or any part of the Work inside a larger software distribution that itself is being sold. The Work by itself, though, cannot be sold, leased or rented.

- e) You may distribute the Executable Files and Source Code only under the terms of this License, and You must include a copy of, or the Uniform Resource Identifier for, this License with every copy of the Executable Files or Source Code You distribute and ensure that anyone receiving such Executable Files and Source Code agrees that the terms of this License apply to such Executable Files and/or Source Code. You may not offer or impose any terms on the Work that alter or restrict the terms of this License or the recipients' exercise of the rights granted hereunder. You may not sublicense the Work. You must keep intact all notices that refer to this License and to the disclaimer of warranties. You may not distribute the Executable Files or Source Code with any technological measures that control access or use of the Work in a manner inconsistent with the terms of this License.
- f) You agree not to use the Work for illegal, immoral or improper purposes, or on pages containing illegal, immoral or improper material. The Work is subject to applicable export laws. You agree to comply with all such laws and regulations that may apply to the Work after Your receipt of the Work.

6. Representations, Warranties and Disclaimer.

THIS WORK IS PROVIDED "AS IS", "WHERE IS" AND "AS AVAILABLE", WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES OR CONDITIONS OR GUARANTEES. YOU, THE USER, ASSUME ALL RISK IN ITS USE, INCLUDING COPYRIGHT INFRINGEMENT, PATENT INFRINGEMENT, SUITABILITY, ETC. AUTHOR EXPRESSLY DISCLAIMS ALL EXPRESS, IMPLIED OR STATUTORY WARRANTIES OR CONDITIONS, INCLUDING WITHOUT LIMITATION, WARRANTIES OR CONDITIONS OF MERCHANTABILITY, MERCHANTABLE QUALITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ANY WARRANTY OF TITLE OR NON-INFRINGEMENT, OR THAT THE WORK (OR ANY PORTION THEREOF) IS CORRECT, USEFUL, BUG-FREE OR FREE OF VIRUSES. YOU MUST PASS THIS DISCLAIMER ON WHENEVER YOU DISTRIBUTE THE WORK OR DERIVATIVE WORKS.

7. Indemnity.

You agree to defend, indemnify and hold harmless the Author and the Publisher from and against any claims, suits, losses, damages, liabilities, costs, and expenses (including reasonable legal or attorneys' fees) resulting from or relating to any use of the Work by You.

8. Limitation on Liability.

EXCEPT TO THE EXTENT REQUIRED BY APPLICABLE LAW, IN NO EVENT WILL THE AUTHOR OR THE PUBLISHER BE LIABLE TO YOU ON ANY LEGAL THEORY FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR EXEMPLARY DAMAGES ARISING OUT OF THIS LICENSE OR THE USE OF THE WORK OR OTHERWISE, EVEN IF THE AUTHOR OR THE PUBLISHER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

9. Termination.

- a) This License and the rights granted hereunder will terminate automatically upon any breach by You of any term of this License. Individuals or entities who have received Derivative Works from You under this License, however, will not have their licenses terminated provided such individuals or entities remain in full compliance with those licenses. Sections 1, 2, 6, 7, 8, 9, 10 and 11 will survive any termination of this License.
- b) If You bring a copyright, trademark, patent or any other infringement claim against any contributor over infringements You claim are made by the Work, your License from such contributor to the Work ends automatically.
- c) Subject to the above terms and conditions, this License is perpetual (for the duration of the applicable copyright in the Work). Notwithstanding the above, the Author reserves the right to release the Work under different license terms or to stop distributing the Work at any time; provided, however that any such election will not serve to withdraw this License (or any other license that has been, or is required to be, granted under the terms of this License), and this License will continue in full force and effect unless terminated as stated above.

10. Publisher.

The parties hereby confirm that the Publisher shall not, under any circumstances, be responsible for and shall not have any liability in respect of the subject matter of this License. The Publisher makes no warranty whatsoever in connection with the Work and shall not be liable to You or any party on any legal theory for any damages whatsoever, including without limitation any general, special, incidental or consequential damages arising in connection to this license. The Publisher reserves the right to cease making the Work available to You at any time without notice

11. Miscellaneous

- a) This License shall be governed by the laws of the location of the head office of the Author or if the Author is an individual, the laws of location of the principal place of residence of the Author.
- b) If any provision of this License is invalid or unenforceable under applicable law, it shall not affect the validity or enforceability of the remainder of the terms of this License, and without further action by the parties to this License, such provision shall be reformed to the minimum extent necessary to make such provision valid and enforceable.
- c) No term or provision of this License shall be deemed waived and no breach consented to unless such waiver or consent shall be in writing and signed by the party to be charged with such waiver or consent.
- d) This License constitutes the entire agreement between the parties with respect to the Work licensed herein. There are no understandings, agreements or representations with respect to the Work not specified herein. The Author shall not be bound by any additional provisions that may appear in any communication from You. This License may not be modified without the mutual written agreement of the Author and You.

GNU LESSER GENERAL PUBLIC LICENSE 2.1

We used the FFmpeg in our application and we did not modify the source code. We modified the Live555 in the source code and used it in our application.

Copyright(C)

- Live555 (1991, 1999 Free Software Foundation, Inc.)
- FFmpeg(1991, 1999 Free Software Foundation, Inc.)

Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.

51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

- a) The modified work must itself be a software library.
- b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.
- c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.
- d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

one line to give the library's name and an idea of what it does.

Copyright (C) year name of author

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the library 'Frob' (a library for tweaking knobs) written by James Random Hacker.

signature of Ty Coon, 1 April 1990

Ty Coon, President of Vice

That's all there is to it!

OpenSSL License

Copyright (c) 1998-2008 The OpenSSL Project. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software must display the following acknowledgment: "This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (<http://www.openssl.org/>)"
4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact openssl-core@openssl.org.
5. Products derived from this software may not be called "OpenSSL" nor may "OpenSSL" appear in their names without prior written permission of the OpenSSL Project.
6. Redistributions of any form whatsoever must retain the following acknowledgment: "This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (<http://www.openssl.org/>)"

THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT "AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OpenSSL PROJECT OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This product includes cryptographic software written by Eric Young (ey@cryptsoft.com). This product includes software written by Tim Hudson (tjh@cryptsoft.com).

MIT License

Copyright (c)

- Rapidxml-1.13 (2006-2009, Marcin Kalicinski)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Head Office

86 Cheonggyecheon-ro Jung-gu Seoul 04541 Korea
Tel +82.2.729.5277, 5254 Fax +82.2.729.5489
www.hanwha-security.com

Hanwha Techwin America

100 Challenger Rd. Suite 700 Ridgefield Park, NJ 07660
Toll Free +1.877.213.1222 Direct +1.201.325.6920
Fax +1.201.373.0124

Hanwha Techwin Europe

2nd Floor, No. 5 The Heights, Brooklands, Weybridge, Surrey,
KT13 0NY, UK
Tel +44.1932.82.6700 Fax +44.1932.82.6701
