

# **Smart Viewer User's Manual**

Version 1.01

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## 1. About Smart Viewer

### 1.1. Introduction

Smart Viewer is an ActiveX program for Internet Explorer web browser, which enable users to control video and audio functionalities of network video devices over the TCP/IP network. Smart Viewer works with SmartNVR network video software, IP CAMERA Network Video Servers, Network Video Recorders, and Network Cameras to show real-time live video images and enables users to control audio, Relay Output, and PTZ functions.

### 1.2. Key Features

- Displays live video streams transmitted from IP CAMERA
- Plays audio transmitted from IP CAMERA
- Transmits audio from PC with Smart Viewer to IP CAMERA
- Stores live video screen as image files
- Stores live video streams as video files
- Controls Relay Output of IP CAMERA
- Controls the PTZ function of supported cameras
- Supports the group mode to see specific channels (for Network Video Recorders only)
- Displays live videos in full screen mode
- Supports Flexible Extra System

### 1.3. System Requirement for PC

For best quality and performance, your computer needs to meet the minimum requirement as below.

- OS: Microsoft Windows XP Pro, Windows 7 Pro
- CPU: Intel Pentium 4, 2 GHz (Dual-Core or faster is recommended)
- System RAM: 2GB
- Video Card: 256MB Ram, 1024x768 Resolution
- 100 Mbps Network Adaptor

## 2. Installing and Uninstalling

### 2.1. Installing Smart Viewer

Connect to the IP CAMERA on Internet Explorer, and click Live View on the main page. Then Smart Viewer will be automatically downloaded and installed. If the Internet connection is not available, it's possible to manually install the program file in advance and connect to the IP CAMERA later.

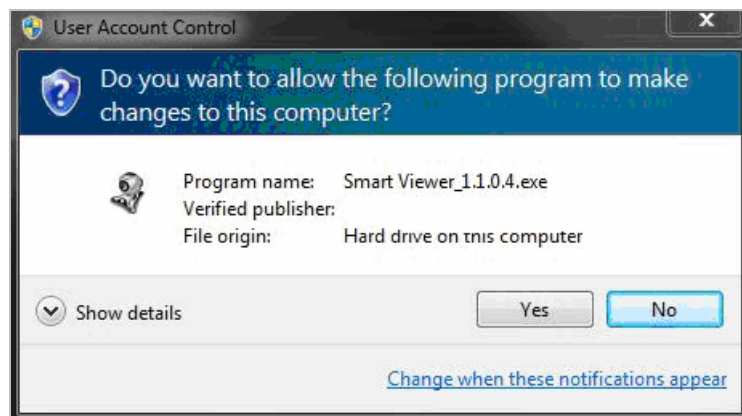
#### 2.1.1. Installing on Web Browser

Click 'Live View' after access to IP CAMERA on Internet Explorer.

If the Information message doesn't come out due to the problems like network failure, you can start the manual installation as shown in the next section.



Click the **Install ActiveX Control**, and the pop-up window will be displayed as blow. Click the **Install** button.



After the installation is successfully completed, Smart Viewer window will be displayed.

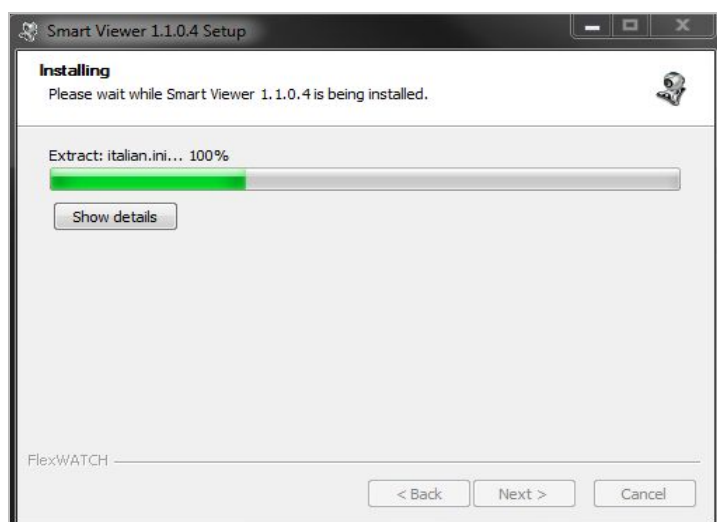
#### 2.1.2. Manual Installation

When the Internet connection is not available or having some difficulties, you can manually download and install the Smart Viewer program file. Execute the downloaded file, and you will see the Smart Viewer Setup Wizard

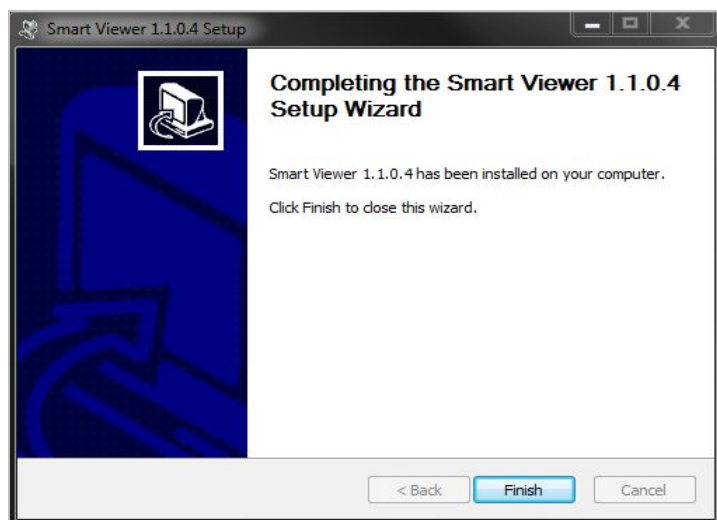
window as shown above. Click the **Install** button to start installing.



The following window will be displayed during the installation.



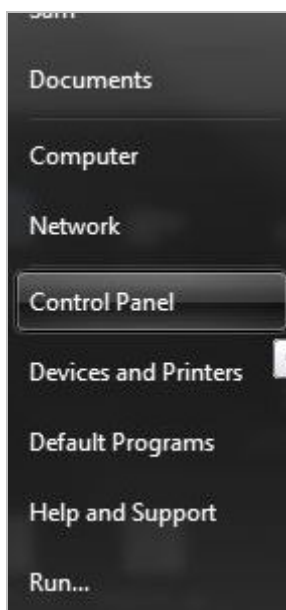
After installation is successfully completed, the following window will be displayed. Click the **Finish** button.



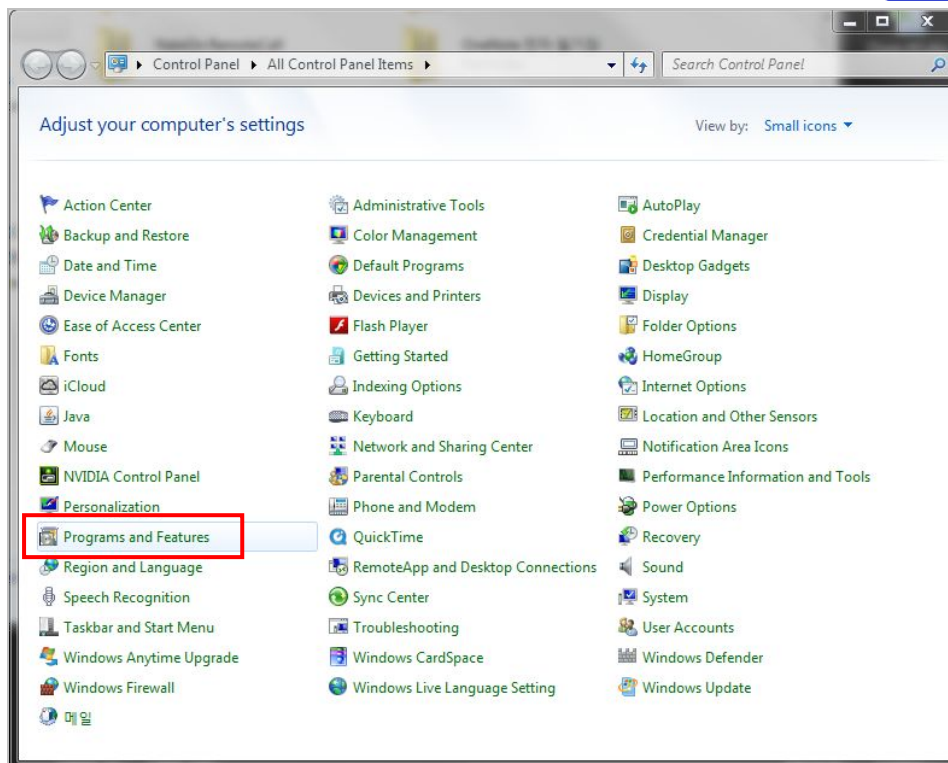
## 2.2. Uninstalling Smart Viewer

There are two ways to uninstall Smart Viewer program from your computer. Before uninstalling, close all the Internet Explorer windows.

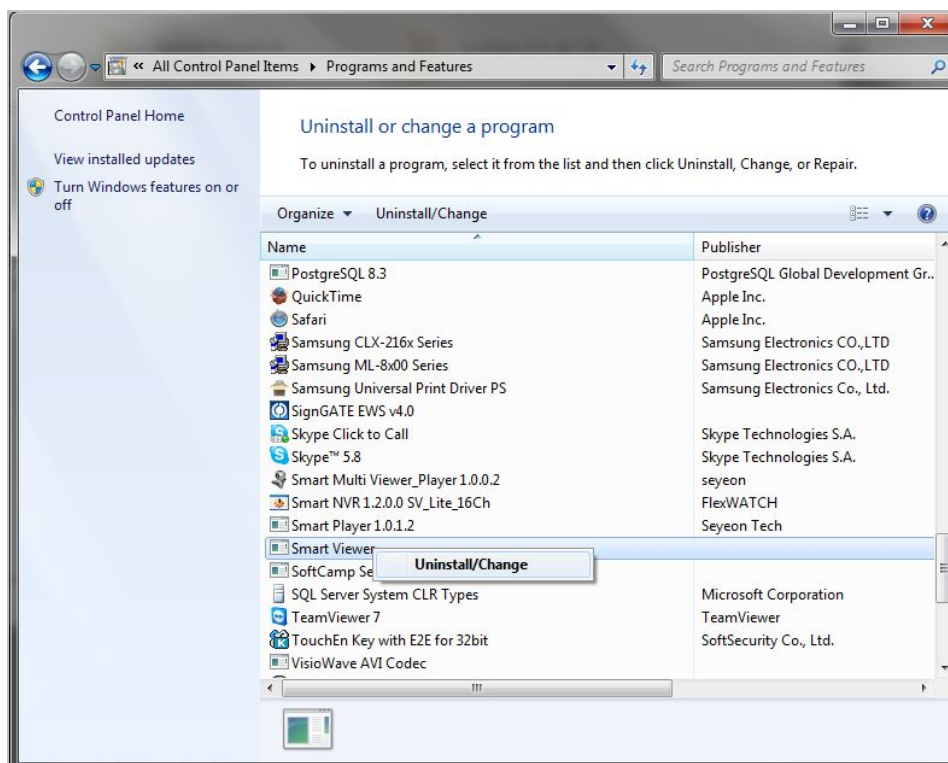
### 2.2.1. Uninstalling on Control Panel



Click **Start** button on the screen, then select the **Control Panel**.



In the Control Panel window, double-click the **Add or Remove Programs** icon.



You will see the **Currently installed programs** list. Click **Smart Viewer** button, and then click **Change/Remove** button. It will start uninstalling process then.

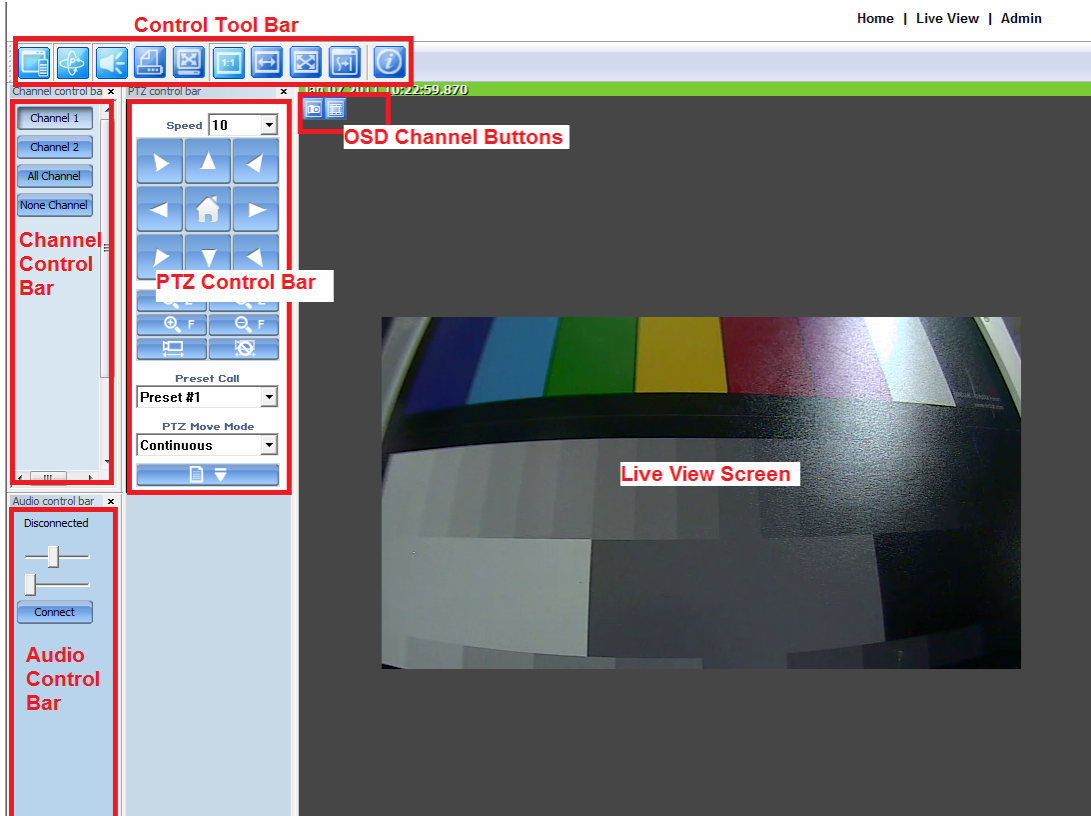


### 3. Starting Smart Viewer

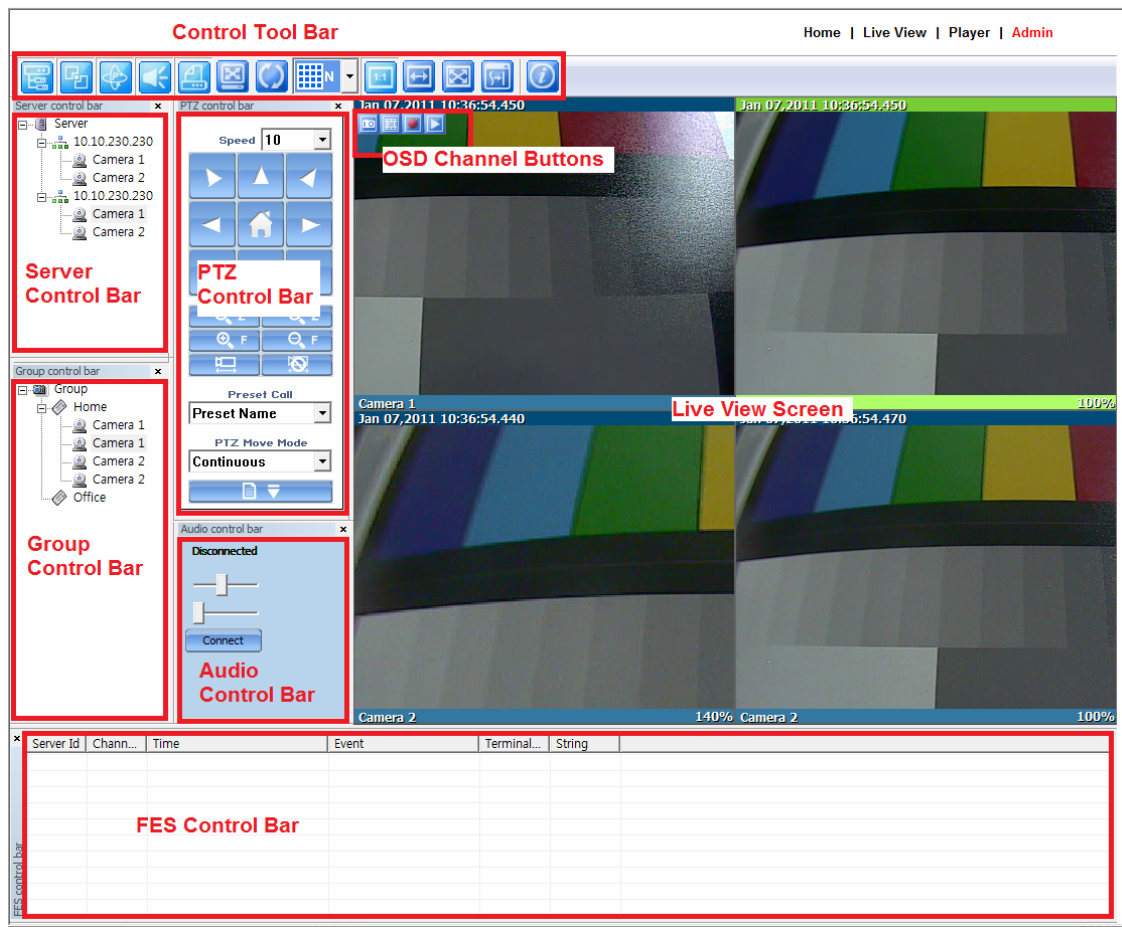
Once Smart Viewer is installed in your computer, you can start it by connecting to the IP CAMERA on Internet Explorer and select **Live View** on the main menu.

The appearance of Smart Viewer window varies depending on what type of IP CAMERA is connected to Network Video Server, Network Camera Server, or Network Video Recorder. Each Smart Viewer window is shown below respectively.

- Smart Viewer window for Network Video Server or Network Camera



- Smart Viewer window for Network Video recorder



Control Tool Bar	Displays or hide each control bar. Shows Group circulation and version information.
Channel Control Bar	Displays or hide channels. Set up the frame rate, video pause, storing images or video, Relay Output control, audio mute, FES data indication.
Audio Control Bar	Adjust audio control of IP CAMERA and volume of MIC and Speaker.
PTZ Control Bar	Control PTZ function.
Live View screen	Display live view video of IP CAMERA
Server Control Bar	Display the hierarchy of the network video servers and network camera servers registered in the IP CAMERA
Group Control Bar	Perform grouping, deleting, and editing of the cameras.
FES Control Bar	Shows FES data if Flexible Extra System is installed.
OSD Channel Buttons	Snapshot, AVI saving, force recording(NVR only), instant playback

## 4. Smart Viewer Configuration

### 4.1. Channel Control Bar



When the Smart Viewer window is displayed for Network Video Server or Network Cameras, a channel control Bar will be shown on the left of the window.

Channel 1	Display or hide the live view video from Channel 1
Channel 2	Display or hide the live view video from Channel 2
All Channel	Display the live view videos from all the channels
None Channel	Hide the live view videos from all the channels
Pause	Pause the live view video from the chosen channel

## 5. Video Control

### 5.1. Display method

There are 3 ways to control size of live video screen.



The video will be displayed as the original resolution. Use the scroll wheel of mouse for zooming in and out. If the video becomes larger than the window size, a small screen is displayed to show location of the window in the video. Pressing the middle button of the mouse (scroll wheel) will display the video in actual size. You can also use +, -, / keys for zoom-in, zoom-out, and original size.



If video is smaller than the screen, it is displayed in the original size. If video is larger than the screen, it is adjusted to fit to the screen with the same aspect ratio. Zooming is not supported in this mode.



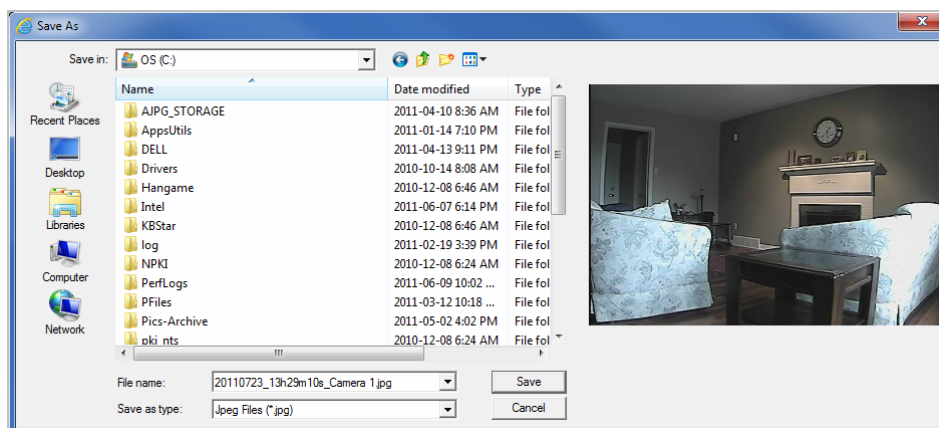
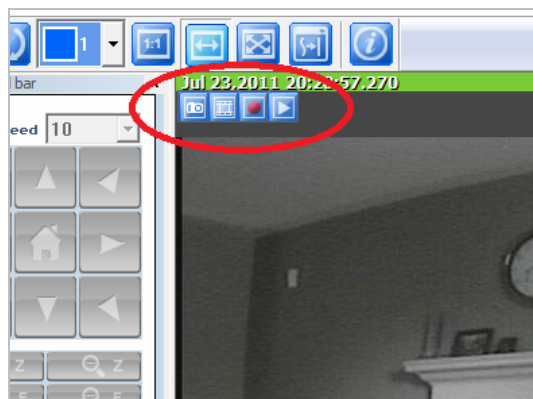
Video will be resized to fill the entire screen. Zooming is not supported in this mode.

### 5.2. OSD Channels Buttons

#### 5.2.1. Saving as Image File



In Smart Viewer, Live video currently displayed can be captured and saved as image file either in JPEG or BMP format. Select the live view video you want save, and click **Snapshot** button on **OSD Channel Buttons**. The following window will be displayed.



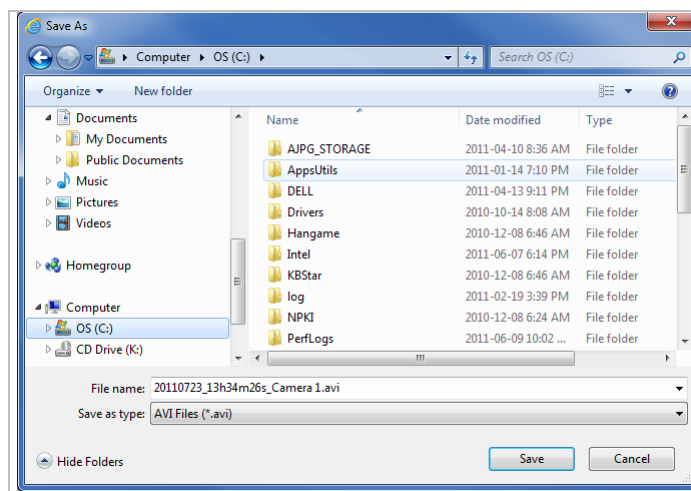
In this dialog box, you see the captured image to be saved. Enter the folder and file name, and click the **Save** button, then the image will be saved with the name you entered.

*Note: If live view video is in MJPEG format, the image will be saved as a JPEG file. If the video is in MPEG-4 or H.264 format, it will be saved in BMP format.*

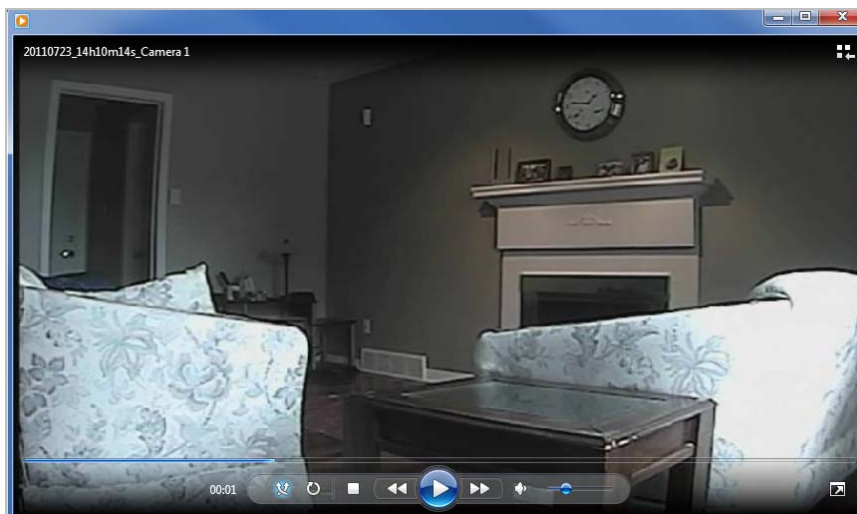
### 5.2.2. Saving as Video File



In Smart Viewer, Live video currently displayed can be captured and recorded as a video file in AVI format. Select a live view you want to save, and click **Rec Avi** button on **OSD Channel Buttons**. Clicking it again will finish recording. Max duration is 10 minutes and recording will be stopped after 10 min.



In video files recorded from M-JPEG format video, the time information file will be generated in SMI subtitle format, which puts time stamp every second. When you play back the recorded video, the time stamp will be displayed as a subtitle on the video screen as shown the picture below.



*Note: When you play back videos recorded from MPEG-4 or H.264, proper CODEC's may be required.*

### 5.2.3. Manual Recording



Under NVR or network video server and network camera with built-in local storage (micro SD), live video can

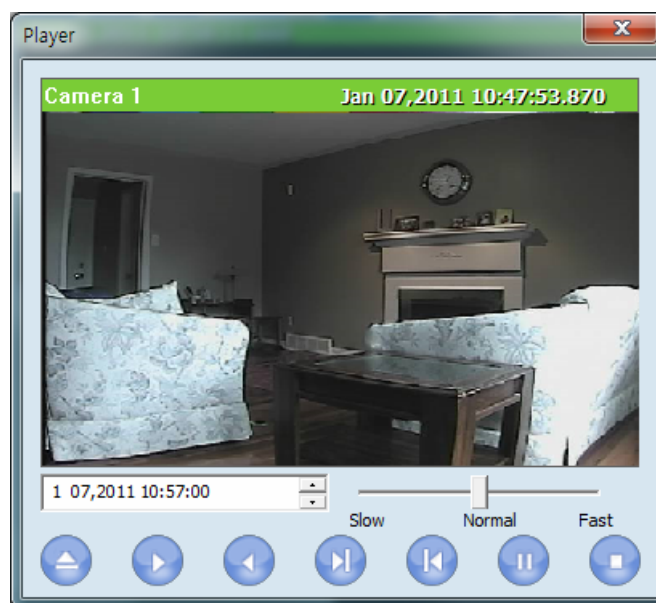
be recorded in the HDD or micro SD card. The recorded video can be viewed by **Instant Playback** feature of OSD Channel Buttons or by running Smart Player program. To finish, push the button again. Max duration is 1 minute and recording will be stopped after 1 minute.



### 5.2.4. Instant Playback



For the Products with local storage such as Micro SD, the Instant Playback is supported. Clicking the Instant Playback button from OSD menu will open below window.

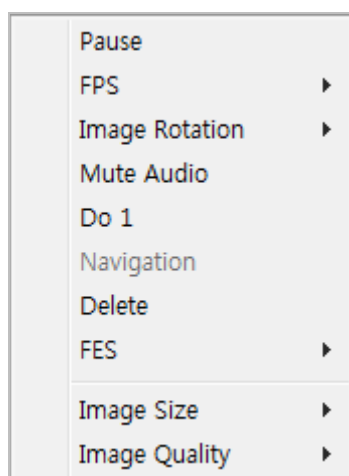


Instant playback will scan the video data up to 1 min before it was executed. And scanned data will be played automatically

	Set the beginning of video data. Instant playback will scan 1 min after this.
	Se the playback speed.
	Begin searching data
	Playback
	Reverse playback.
	1 frame playback
	1 frame reverse playback
	Pause
	Stop

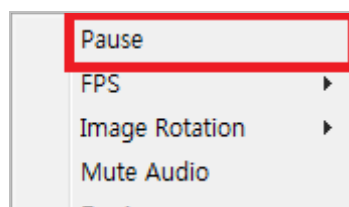
### 5.3. Extended Features

When you click the right mouse button on the Live View Window, a pop-up menu will appear for extended features as shown below.



#### 5.3.1. Pausing Live Video

Click the **Pause** button to stop and resume live view video.

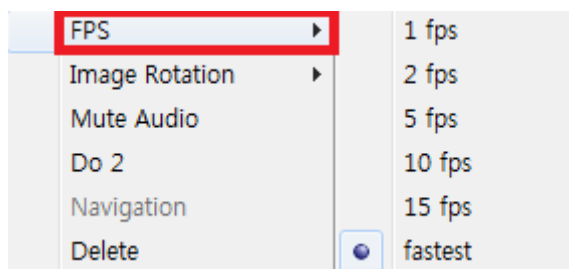


#### 5.3.2. FPS Control

FPS (Frame per Second) can be controlled only in MJPEG mode. In MPEG4 and H.264 video mode, FPS control is

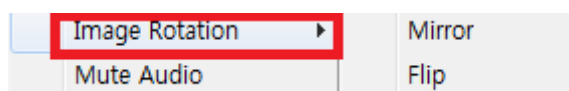


not supported.



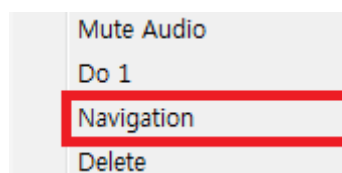
### 5.3.3. Image Rotation

By using this feature, you can make mirrored (horizontal) or flipped (vertical) image from the original.



### 5.3.4. Navigate on Mini Window

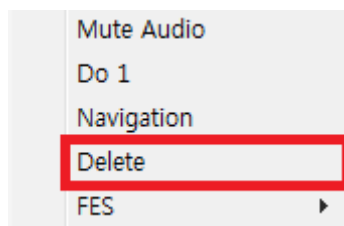
Mini window helps users to find which portion of entire live view is being displayed. Mini window can be displayed or hidden. Click the right mouse button on the Live View Screen and select the **Navigation**.



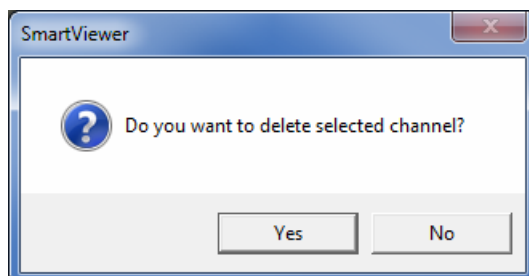
### 5.3.5. Deleting a Channel

When you want to delete a channel, click the right mouse button on a Live View Screen to be deleted. Then select **Delete**.





A confirmation window will be shown. Click **Yes** button to delete and return to the previous window.



## 6. I/O control

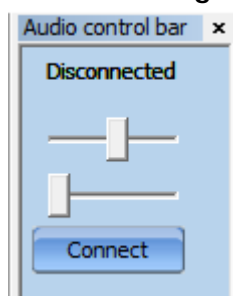
### 6.1. Audio Control

#### 6.1.1. Getting Audio from Server

To receive an audio transmitted from IP CAMERA, a microphone or audio output should be connected to the Audio-In port. Select a proper channel on Smart Viewer and you will be able to hear the audio on the computer.

*Note: It is necessary to set up the audio function on the admin page in order to receive audio from IP CAMERA.*

#### 6.1.2. Sending Audio to Server



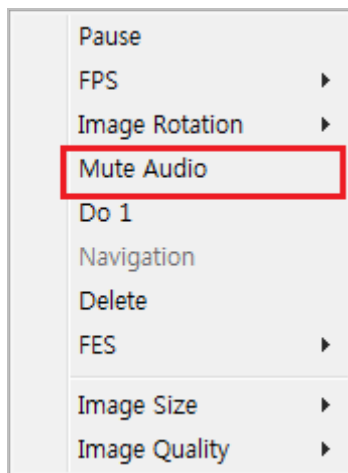
To send an audio to IP CAMERA, first connect a microphone or other audio source to Audio Input port of your computer. Then select a proper channel on Smart Viewer and click **Connect** button on Audio Control bar.

When an audio connection is made to IP CAMERA, **Disconnected** will change to **Connected**, and it will start sending the audio from PC's audio input port. To disconnect the audio connection, click the **Disconnected** button. You can use volume control slider to adjust the audio level.

*Note: Once a connection is made to IP CAMERA, audio from it is also transmitted through same network path. So you will get better audio quality if network traffic is not heavy.*

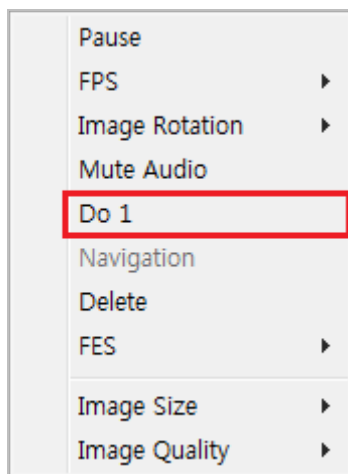
#### 6.1.3. Mute Audio

Select the **Mute Audio** from the pop-up menu on the Live View screen. Click it again will restore it to previous condition.



### 6.2. Relay Output Control

By using Relay Output control, you can control external devices connected to IP CAMERA. It can be turning lights on and off, starting alarms, and etc. To control Relay Output, click the right mouse button on the Live View screen. You will see the control on the pop-up menu. The port name is what you assigned at Admin menu in IP CAMERA.












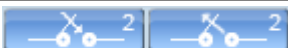
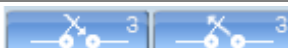


### 6.3. P/T/Z Control

If IP CAMERA have PTZ devices connected to it, you can control them on Smart Viewer. You will also be able to use a Joystick to control PTZ device if your computer has a Joystick connected to it.

Connect a PTZ-enabled camera to the IP CAMERA, go to the Admin menu of the Web page, and then set up the PTZ parameters as described in IP CAMERA User's manual.

On Smart Viewer, select a channel connected to a PTZ device, and use **PTZ Control bar** to control it.

Speed	Adjust the rate of camera motion. It can be between 1 and 16, and higher number is faster.
	Controls in 8 directions: Up, Down, Right, Left, 4 Diagonals, PTZ Home Position.
	Adjust zooming. '+' for zoom-in and '-' for zoom-out.
	Adjust focus. '+' for focus far, '-' focus near.
	Control Auto Pan for the model supporting Auto Pan feature.
Preset Call	Move the camera automatically to the preset position as it is configured in PTZ control on IP CAMERA.
PTZ Move Mode	Moving cameras in two different modes: Step and Continuous modes. Step mode: Camera moves as much as previously defined each time. This mode is effective for remote cameras with slow network condition. Continuous mode: Camera keeps moving while direction control buttons is pressed. This mode is effective for local camera with fast responsiveness.
	Provides an extended use of PTZ. Works only with registered Group(6), Tours(8), Scans(8), Pattern(4). It can be used for control of AUX1, AUX2 and AUX3(Wiper).
	Assign Group numbers at <b>Select No</b> 1 , and run Group.
	Assign Tour numbers at <b>Select No</b> 1 , and run Tour.
	Assign Scan numbers at <b>Select No</b> 1 , and run Scan.
	Assign Pattern numbers at <b>Select No</b> 1 , and run Pattern.
	IR LED Control Mode '+', '-' (Apply only PTZ models)
	Control AUX 1.
	Control AUX 2.
	Control AUX 3(Wiper, Apply only PTZ models)

*Note: To enable PTZ bar for use, it is required to make PTZ function active in admin page in advance.*

## 7. FES (Flexible Extra System)

A live view video can be integrated with additional data from external devices such as access control systems, POS terminals, intelligent video analyzer, GPS terminals, dust measuring devices, license plate readers, and etc. FES is a way to put IP CAMERA and the additional data together. When FES data is received by IP CAMERA, Smart Viewer can display the FES data on live view video or FES Control bar.

To use FES, install FES component in the IP CAMERA, and install FES for PC in your computer where Smart Viewer is running as well. Once FES is up and running, you will see FES menu from pop up window when you do right click from the live view channel.




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Fes on OSD	Turns On or Off the OSD of the FES display on Live Video of Smart Viewer, when FES data is received by IP CAMERA. FES data will be displayed only for 5 seconds.
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Fes on List	Turns On or Off the list display of FES data on FES Control bar of Smart Viewer, when FES data is received by IP CAMERA.
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Server Id	Chann...	Time	Event	term id	Emp id	mng id	Table id	Check id	Trans Type	Descripti...	Amount	Qty
0	0	Apr 08, 2009 11:52:18.	LOG_IN	1	0	0	0	0	LOG_IN	This is Al...	0.00	0
0	0	Apr 08, 2009 11:53:41.	CLOCK_IN	1	0	0	0	0	CLOCK_IN	This is Al...	0.00	0
0	0	Apr 08, 2009 11:53:46.	BREAK_START	1	0	0	0	0	BREAK_START	This is Al...	0.00	0
0	0	Apr 08, 2009 11:53:49.	BREAK_END	1	0	0	0	0	BREAK_END	This is Al...	0.00	0
0	0	Apr 08, 2009 11:53:55.	CLOCK_OUT	1	0	0	0	0	CLOCK_OUT	This is Al...	0.00	0
0	0	Apr 08, 2009 11:53:59.	LOG_OUT	1	0	0	0	0	LOG_OUT	This is Al...	0.00	0

## 8. Control Toolbar

You can use Control Toolbar to perform the functions such as displaying or hiding each control bar, displaying live video in full screen mode, alternate displaying between groups, showing the software information, and etc.



	Display / Hide Server control bar. (only for NVR)
	Display / Hide Group control bar. (only for NVR)
	Display / Hide Channel Control bar.
	Display / Hide PTZ Control bar.
	Display / Hide Audio Control bar.
	Display / Hide FES Control bar. (only for network video recorders with FES)
	Display live view in full screen mode. (Press ESC key to return to normal mode)
	Display live videos alternately between groups. (only for network video recorders)
	Configure the number of live view channels
	Display image size as it is. Zoom in/out through mouse scroll is available. Clicking wheel button will show original image size.(keys such as "+", "-", "/" can be used)
	Fit the live view size to window size. Zoom in/out will not be supported in this mode.
	Full screen mode. Zoom in/out will not be supported in this mode.
	Redraw the live video after median calculation if it's smaller than the original size. (Turning on this feature will increase CPU usage)
	Display the version information of Smart Viewer. (FES version and type will be also shown if installed)

## 9. Troubleshooting

### 9.1. Installation

Q) I can't start installation of Smart Viewer when I connect to IP CAMERA and click Live View.

A) The Internet connection is not available. Manual installation is required.

Q) It stopped during the installation showing the message 'Process is being used'.

A) Close all the Internet Explorer windows running, and try installing again.

Q) 'Reboot system' message is displayed after installation is finished.

A) Smart Viewer was being used in another Internet Explorer during installation. Reboot is required.

Q) After installation is finished, it requires me to install Smart Viewer again.

A) It is the case when Smart Viewer program was updated. Install Smart Viewer again.

Q) I still can't install Smart Viewer despite the Internet connection is available.

A) It is cause by deleting any part of Smart Viewer. Uninstall and reinstall Smart Viewer.

### 9.2. Server

Q) It shows a message saying that 'Failed to retrieve server information from Smart Viewer or unauthorized user access.'

A) Make sure the followings:

- The access to IP CAMERA is good on Internet Explorer.
- At least one camera is authorized for video viewing.
- At least one remote server is registered if you're running a network video record without a local camera.

### 9.3. Video

Q) I can't see live view on screen.

A) Make sure that at least one camera is registered in groups of network video recorder. Also check whether Channel Hide button is pressed. If so, select the channel to see.

Q) '**Connecting**' or '**Disconnected**' message is displayed during live view.

A) It may be caused by either the network is not available or IP CAMERA is turned off or rebooting. Check if the network is working properly and IP CAMERA is turned on. If you still see the same message while the network is good and the power is on, try rebooting the IP CAMERA.

Q) '**Extra users**' message is displayed in live view.

A) It is displayed when there are excessive numbers of users viewing the video. You will be able to see the video

when any of current users disconnects from the server.

Q) **'No Signal'** is displayed in live view.

A) Camera may be disconnected to IP CAMERA. Connect a camera to IP CAMERA.

Q) Frame rate of live view is getting low.

A) It is caused by slow network. Improve the network condition or cancel the real-time monitoring of vaccine program if installed.

Q) Only live view is displayed without Internet Explorer.

A) Click ESC key to escape from Full Screen mode in Smart Viewer.

Q) I can't save images.

A) Make sure you have the permission to the folder. And check if you have enough space in hard drive.

Q) I can't save videos.

A) Make sure you have the permission to the folder. And check if you have enough space in hard drive.

Q) Video recording stopped by itself.

A) Video can be saved up to 10 minutes. It automatically stops recording if it exceed the 10 minutes. It also stops recording when image size is modified, video codec is changed, or video input is removed. For network video recorders, video input is removed when it is moved to other group. For network video servers or cameras, video input is removed when the channel button is pressed.

### 9.4. Audio

Q) Audio is not played.

A) First check if Audio-In port is connected to an audio source, and then select the camera linked to the Audio-In port on Smart Viewer. Check if Mute is activated. Check if the computer has the sound card driver properly installed. Also check the level of speaker volume.

Q) I can't send audio to IP CAMERA.

A) Sending audio from Smart Viewer to IP CAMERA is only allowed to the user who used that feature for the first time. Any other user can only receive audio from the server. Check if the computer has the sound card driver properly installed. Also check the level of speaker volume

### 9.5. PTZ Function

Q) PTZ Control bar is not activated.

A) Connect to IP CAMERA, and make sure PTZ set up is properly done on Admin menu.

Q) Clicking PTZ buttons doesn't work.

A) When network condition is not good enough, there may be some latency time in camera movement. Try Step Mode if Move mode is currently set to Continuous.

Q) Advanced features for PTZ don't work.

A) Advanced features are only available for the supported cameras. Make sure the PTZ camera in use supports the advanced features.

### 9.6. Relay Output

Q) Relay Output button won't be activated.

A) The second channel of Dual Stream can be controlled only after Primary channel is set up for Relay Output control. Also make sure that IP CAMERA is connected to the network.

Q) Relay Output button won't work.

A) Make sure that IP CAMERA is connected to the network.

### 9.7. Others

Q) An error occurs if Internet Explorer is closed while Smart Viewer is working.

A) It can be caused if you're using Internet Explorer 6.0 together with Skype or Flash Get. You can work around the issue by uninstalling Skype or Flash Get, or disable them in Internet Explorer's menu Tools > Manage Add-ons. Also it can be resolved by upgrading to Internet Explorer 7.0 or later.