



# Management Software **Control Center**

## **User's Manual**

(EN Rev 2.8)

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# **Control Center**

## **Installation and Operation Manual**

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This user guide is explaining usage of Control Center.

Please be informed of this user guide before use of the product.

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**Contents of this manual could be different based on software upgrade and product design along with specification can be subject to be changed without any pre-notice to users.**

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# Product Overview

## Basic Information

Control Center is managing software that can control max 1,024 units installed in remote area.

It provides functions such as real-time monitoring, search and backup of recorded image and setting. It also supports dual monitor with 64 split screen and can monitor max 128 channels simultaneously. It can be done with designated motion area, and text search is also possible.

Multichannel video can be optimally monitored using multi-streaming. It can automatically select a stream to fit on the partitioned screen.

This feature is to show HD Stream (1080p, 720p) in single screen mode and SD Stream (D1, Half, CIF) in 16 split or more smaller split screen mode to reduce unnecessary consumption of network resources and to help efficient use of CPU resources. This feature works automatically so no need to set user to transfer images directly or wait.

Through this technology is applied in the distributed connection management, and it uses less CPU and network load, real-time management of many units.

With more than 8channels of 1080p/30fps video can be smoothly monitored using a high-performance display engine newly mounted, and other programs lack the performance of the PC by momentarily, it turns channel monitoring only minimal frame rate to reduces to guarantee the stability of the system, and when the performance restored, the system always returned to the monitoring of the original frame rate automatically.

There are several way to notified and able to cope the situation that occurs in the registered units in real time, it also provides the ability to store and retrieve the events that occurred and when an event occurs, it pops-up the related video.

The Control Centervides Viewset and Map grouping function to efficiently and conveniently managing the number of units.

Viewset function is to let user wish to select the channels with a new name from several units.

And the Map feature is to placing the camera, sensor, MIC and relay in the map to managing the units and you can operate each device icon to view the image and control.

In addition, since it supports dual monitor, so you can monitor and control units at the same time, and also you can check the units status in real-time such as event, alarm log.

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# Main Features

## Support FULL HD Video

This product supports normal image of SD CIF/HALF/D1 along with live monitoring and playback/backup for high quality picture of HD 1080p(1920x1080), 720p(1280x720), nHD(640x360). Also it supports live monitoring on the camera supporting RTSP protocol.

- ✓ **Support up to 8ch at 1080p with 30fps each channel in live real-time monitoring**
- ✓ **Support up to 32ch at nHD with 30fps each channel in live real-time monitoring**

## Live Monitoring

Support various monitoring screen and high quality image display without delay for each channel.

- ✓ **2 Monitors connection support**
- ✓ **Supports various screen split for monitoring "1/4/6/9/16/25/36/49/64"**
- ✓ **Full Screen Mode**
- ✓ **Can add the image to the desired position by drag-and-drop operation with mouse**
- ✓ **Function for management of group viewset**
- ✓ **Layered map function**
- ✓ **Auto Sequence, Event Pop-up**
- ✓ **Real-time audio output**
- ✓ **Support Mic**

## Playback

Support convenient function for search and playback.

- ✓ **Support 16 split screen playback simultaneously**
- ✓ **Full Screen Mode**
- ✓ **Search by Calendar/time line/text/smart/thumbnail/bookmark**
- ✓ **Playback by time, date, channel**
- ✓ **Playback by event image separately**
- ✓ **Support various speed playback (Max. 64x)**
- ✓ **Support watermark check**
- ✓ **Support image adjustment by channel**
- ✓ **Digital Zoom In/Out**
- ✓ **Playback/Search/Backup by direct connect DVR's HDD to PC**

## Recording and Back-up

Support the function to store the image recording or real-time video monitoring, schedule and real-time backup unit's recorded data.

- ✓ **Support Quick Recording and Image saving of monitoring's video**
- ✓ **Real-time backup of unit's recorded image**
- ✓ **Auto backup via schedule backup**
- ✓ **Event log record/search/backup**

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## Others

- ✓ Support manufacturer's all IP Camera, SD DVR, HD DVR, NVR, WinDVRs, WinRDS
- ✓ Support Remote DVR
- ✓ RTSP streaming support
- ✓ Max. 1024 units can be connected
- ✓ Support user rights, user operating limitation and user log-in
- ✓ Support saving of unit's setting information
- ✓ Import/Export setting information
- ✓ Support Keyboard hotkey and joystick
- ✓ Support Jog/Shuttle device for playback
- ✓ Max 128 channels simultaneous monitoring

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# Installation

## System Requirements

Recommended system requirements for running Control Center.

Items	Recommended
CPU	Core i5 3.0GHz
Main Memory	8GB
Video Memory	512MB or higher
Display	1024MB PCI-E Graphic Card Support AGP Accelerate (AMD Radeon HD 7000 Series or Higher)
BUS	Support PCI-E 16X or higher
Network	100/1000 Ethernet NIC
OS	Windows 7(x64) / Windows 8(x64) / Windows 10(x64)
Browser	Internet Explorer 8 or higher
Others	DirectX 9.0 or higher

## Notice before installation

Control Center is optimized for Microsoft Windows 7(x64) / Windows 8(x64) / Windows 10(x64) operating system. It is highly recommended to install Windows Update and virus detection program so that you can protect a virus and serious security code.

The PC's resource will be decreased due to a large amount of event occurred by registered device in Control Center. In order to improve the PC's performance, you need to change the unit's setting to prevent unwanted event occurs.

In case of using the basic video driver which is provided from Microsoft, the display in user's screen could be seriously flickering and the graphic performance can be decreased. So, do not use DirectX (Toolbar – Setting – Display – DirectX Draw – Off), or update the driver to the most recent version which is provided from the video card manufacturing company.

### <Note>

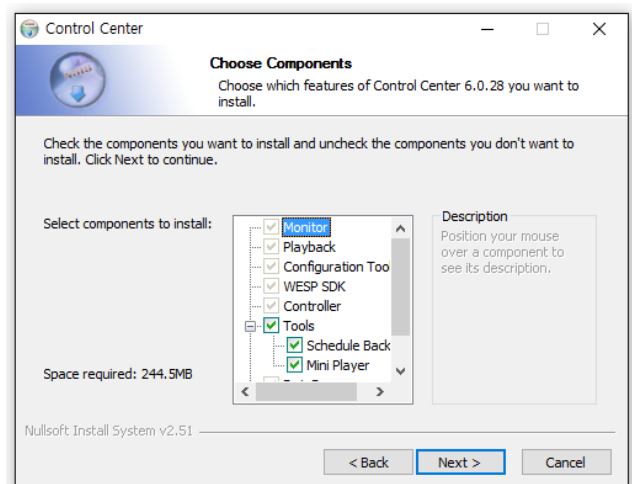
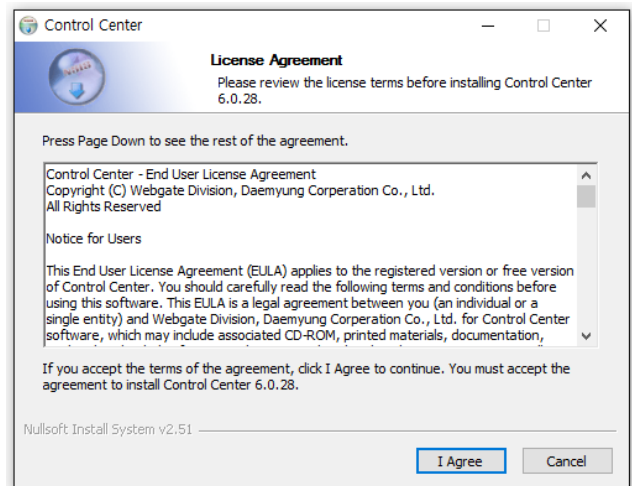
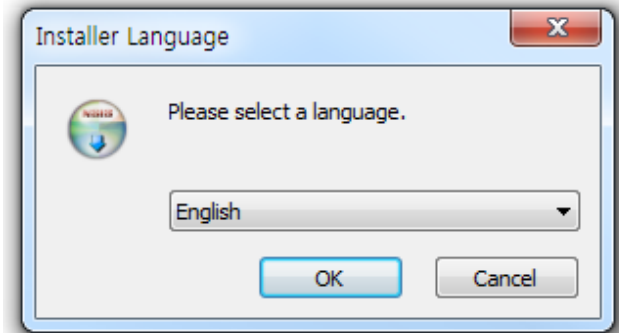
1. The PC user who has no permission to set the path to the folder that cannot write.
2. May not work properly if two or more users through the transition from one system to run the program from the account. It is recommended that only one account to use to install the program.
3. When you upgrade from version v3.x or below, the sub log storage method is changed. And when you first log after the upgrade, the search time will take longer time.
4. In order to avoid a conflict with the program that is used in the PC, close all programs that are running and encouraged to proceed with the installation.
5. Exit all program or web viewer provided by manufacturer before installation.

# Installation Program

## Installation

Execute the install program to installing Control Center in PC.

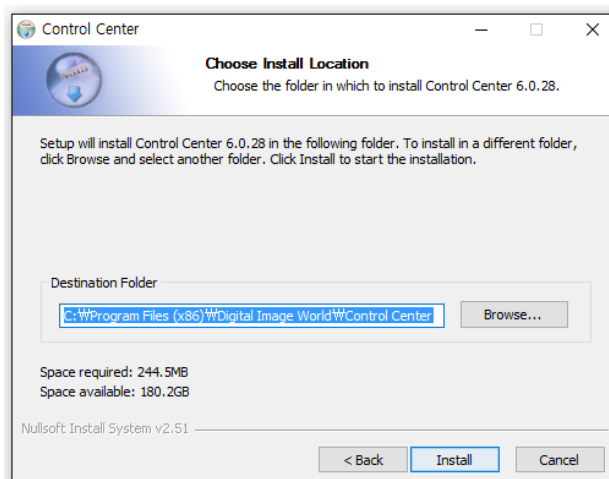
- 1) Run "Control Center x.x.x.x Setup.exe" file from the Control Center Setup CD or PC.
- 2) Select the language that you wish to install and click [OK] button.
- 3) Click [I Agree] button to continue to do installation.
- 4) Select the additional program that you wish to install with default program and click [Next>] button.



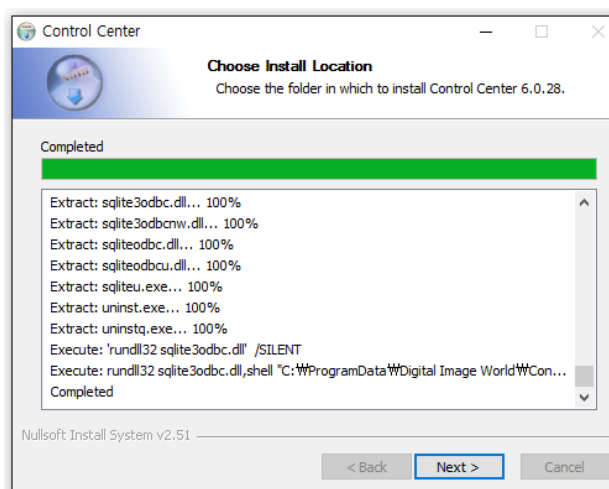
- 5) Select folder and click [Install] button.

<Note>

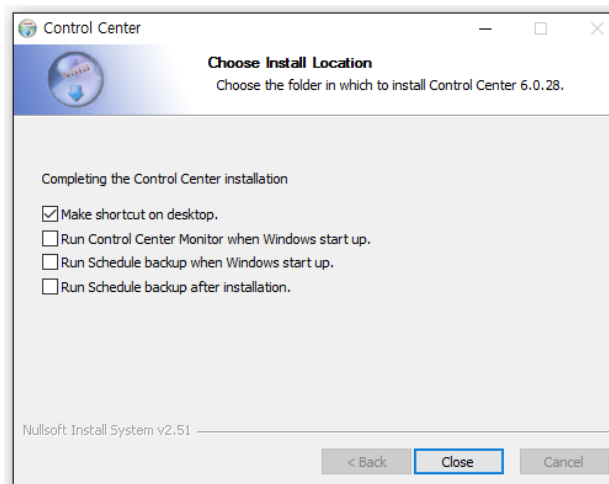
Installation at the default folder is recommended.



- 6) Click [Next>] button once installation completed.



- 7) Select additional options and click [Close] button to complete the installation.



## Upgrading

In case the Control Center already installed on your PC, upgrade directly without going through the process of deleting the program file to run the program, the upgrade is possible.

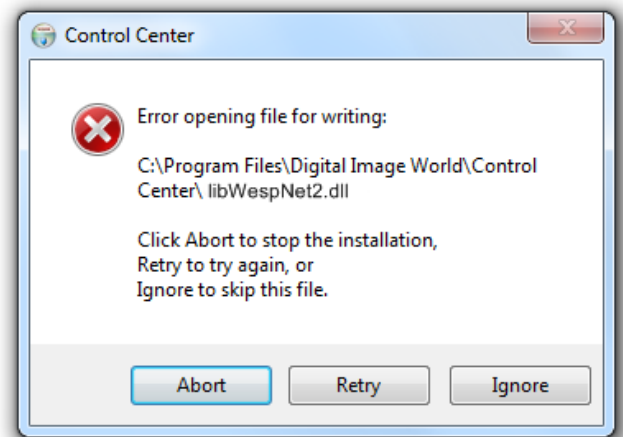
The installation process is same as "new install" and it will keep exist setting during the program upgrading.

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## How to solve the problems that has occurred during installation

Other programs are being used in PC, the installation will be stopped and an error occurs in the process of installing the Control Center. Process and conflict management in the Windows system can be generated, at this time follows the progress of the installation process terminates and normally you can proceed with the installation.

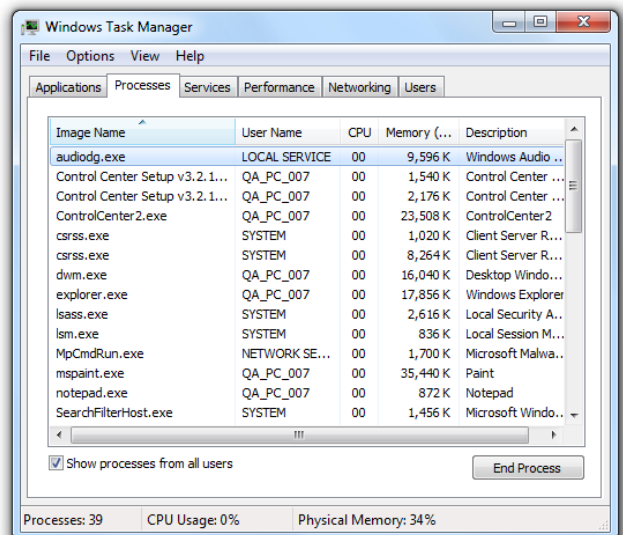
- 1) Do not click **[Abort]** or **[Ignore]** when you get the error as shown in the picture and open the "Windows Task manager".



- 2) Select "display all users' process" option from bottom of the Windows Task Manager.
- 3) Select "ControllerService.exe" and "Controller.exe" and click **[End Process]** to close process.
- 4) Click **[Retry]** to continue to do installation.

<Note>

If Control Center cannot be installed after closing processes, please reboot the PC and try installation again.



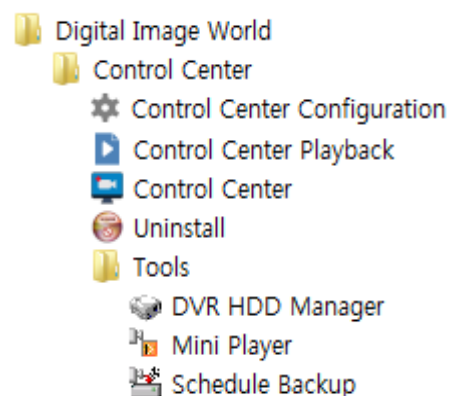
## To verify the results of the installation

To check whether Control Center installed in properly after completed the installation.

- 1) Go to Start → All program.
- 2) If the Control Center installed in proper way, you will notice the "Digital Image World" folder with "Control Center" and other related programs.
- 3) The programs under the Tools folder which you selected during the installation.

<Note>

It can be shown differently according to the version of Windows.



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# Getting Started

## Running Program/Log-in


Please double click on "Control Center" icon installed on main screen of PC.

## Unit Registration

All products of manufacturer, such as SD DVR, IP cameras, NVR, WinRDS and so on, can be added in Control Center Monitor. Monitoring, searching (playback) and configuration can be achieved in this program.

### Add Unit

There are 4 methods to add units to Control Center Monitor program. Monitoring, Playback, Configuration can be achieved after unit registration is done.

1. Click on add unit icon  located in tool bar at the top
2. Click right button of mouse on the unit to be registered then click [add unit]
3. Select unit in "unregistered unit" list. Drag this to "registration unit"
4. Select unit in "unregistered unit" list. Click right button of mouse then select [add unit]

#### <Warning>

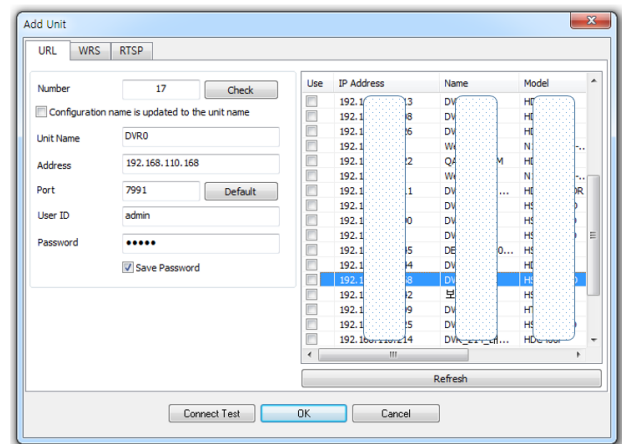
1. Default account for user's name and password.
  - 1) User's name : **V3 – Administrator / V4 or more – admin**
  - 2) Password : **admin**
2. Please DO NOT USE "don't ask login information" option if any other user except Administrator can access the PC.
3. If "don't ask login information" in [setting-option-display] menu is not selected, login window will run whenever program starts.
4. Since default password is very weak for security, it is highly recommended that user has to change the password at the first time and change the password periodically. The problems caused by using default password are the responsibility of the user.
5. It is highly recommended to install Windows Update and virus detection program so that you can protect a virus and serious security code.

## URL Address Add Unit

- 1) Select URL once add unit window runs.
- 2) Click [OK] button after unit address, port, ID and password of unit are entered.  
(Address format "192.168.0.100" or "aaa.mycam.to")
- 3) Registered unit is shown in "Registration unit" list.

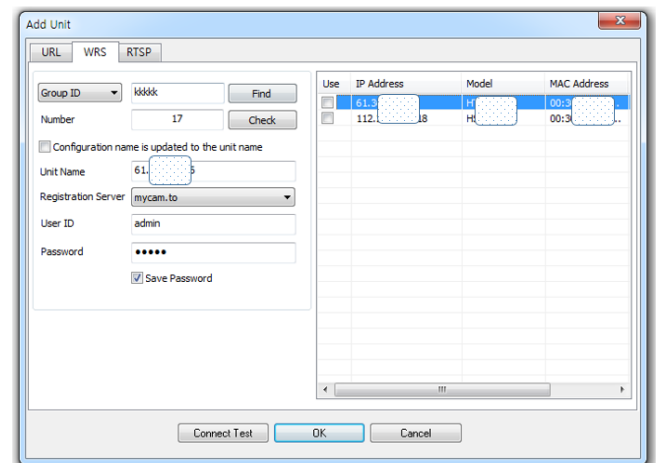
<Note>

1. In case of units in local area, click [auto detect] button to find out unit with ease.



## Server(WRS) Add Unit

- 1) Select WRS once add unit window runs.
- 2) Select "Group ID" then enter WRS group ID set in unit or select "serial number" then enter unit's serial number.
- 3) Click [find] button.
- 4) When unit is found and listed, select unit to register.
- 5) Check unit information shown.
- 6) Enter ID and Password then click [OK].
- 7) Registered unit will be shown in "registration unit" list.

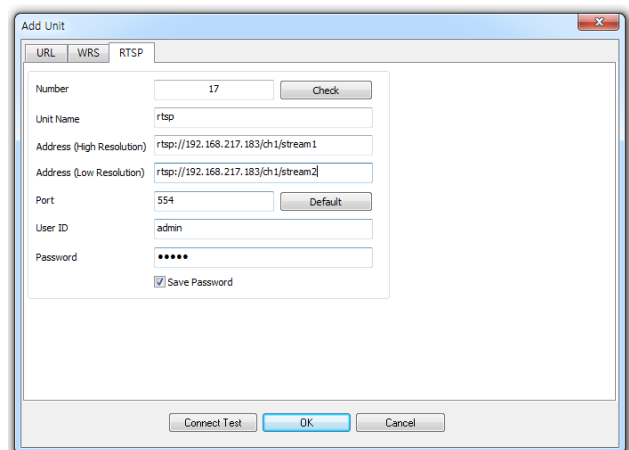


### <Remarks>

1. You can use DDNS server, [www.mycam.to](http://www.mycam.to).

## RTSP Add Unit

- 1) Select RTSP once add unit window runs.
- 2) Enter high/low resolution address of RTSP unit.
- 3) Enter user's ID and Password then click [OK] button.
- 4) Registered unit will be shown in "registration unit" list.



## Unit Monitoring

There are 4 methods for unit monitoring, Unit's live images are shown in image window located at right side.

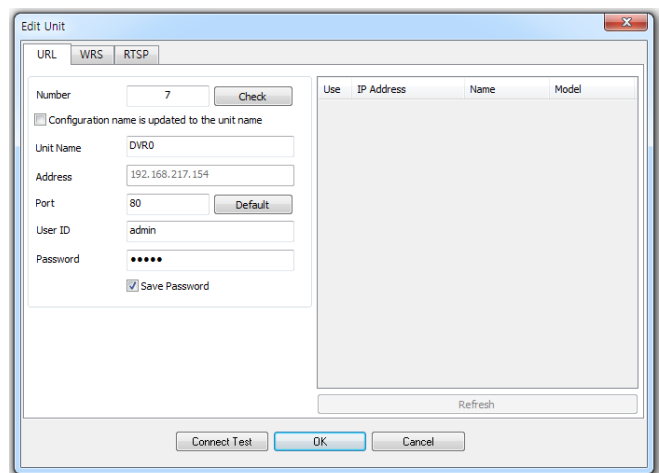
1. Click on "unit icon" of "registration unit" list.
2. Double click on "unit name".
3. Click on unit's name then drag it to image window.
4. Drag and drop camera icon which is shown under registration unit when list is in unfold status.



## Edit Unit

You can edit the number, unit name, IP address, port number, user ID & password, and RADIUS key of the unit that is registered in the "Registered Units". If you click the [Edit] icon or [Action] item from the tool bar, or if you place the mouse cursor on the name of unit on the "Registered Units" and select [Edit unit] menu after clicking the right button of mouse, then "Edit Unit" window will be shown.

- 1) Edit the information that you wish to change and click [OK] button.
- 2) The edited information will be saved to the unit.



## Delete Unit

You can delete the unit in the "Registered Units" list. And you can re-add deleted unit again without any limitation. To delete the unit, click the [Delete] icon, or place the mouse cursor on the name of unit in "Registered Units" and select [Delete Unit] from menu after clicking the right button of mouse. Click [Yes] to confirm delete or click [No] to cancel.

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## RADIUS Key

In case you wish you use RADIUS Key then you need to have separate server that has installed RADIUS software. And after that you need to log-in by entering the ID & PW, Shared Key that has registered on the RADIUS server grants received from the administrator of the RADIUS Key and check the items you wish to log-in using a RADIUS authentication server. But in that case the unit must support RADIUS function and it should be turned to be ON.

### <Remarks>

1. RADIUS (Remote Authentication Dial-In User Service) is client/server protocol software that the RAS (Remote Access Server) connect through a dial-up modem to authenticate users and to grant access to the requested system or service to them to be able to communicate with central server.

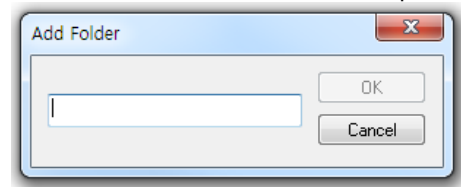
## Update Unit Information

You can use  icon from tool bar or place the mouse on the unit item window and click right button of mouse and select **[Refresh]** option to update unit information. You can use it for edit information or checking the network status.

## Add Folder

Place the mouse on the "Registered Units" and click right button of mouse and select **[Add Folder]** option.

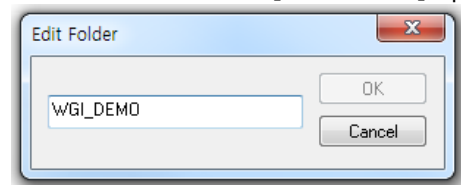
- 1) Type in folder name and click OK button to add the folder.
- 2) The folder will be shown in the "Registered Units".



## Edit Folder

You can edit the folder name by select the folder and click right button of mouse and select **[Edit Folder]** option.

- 1) Edit the name of folder and click OK button.
- 2) The folder name changed shown in the "Registered Units".



## Delete Folder

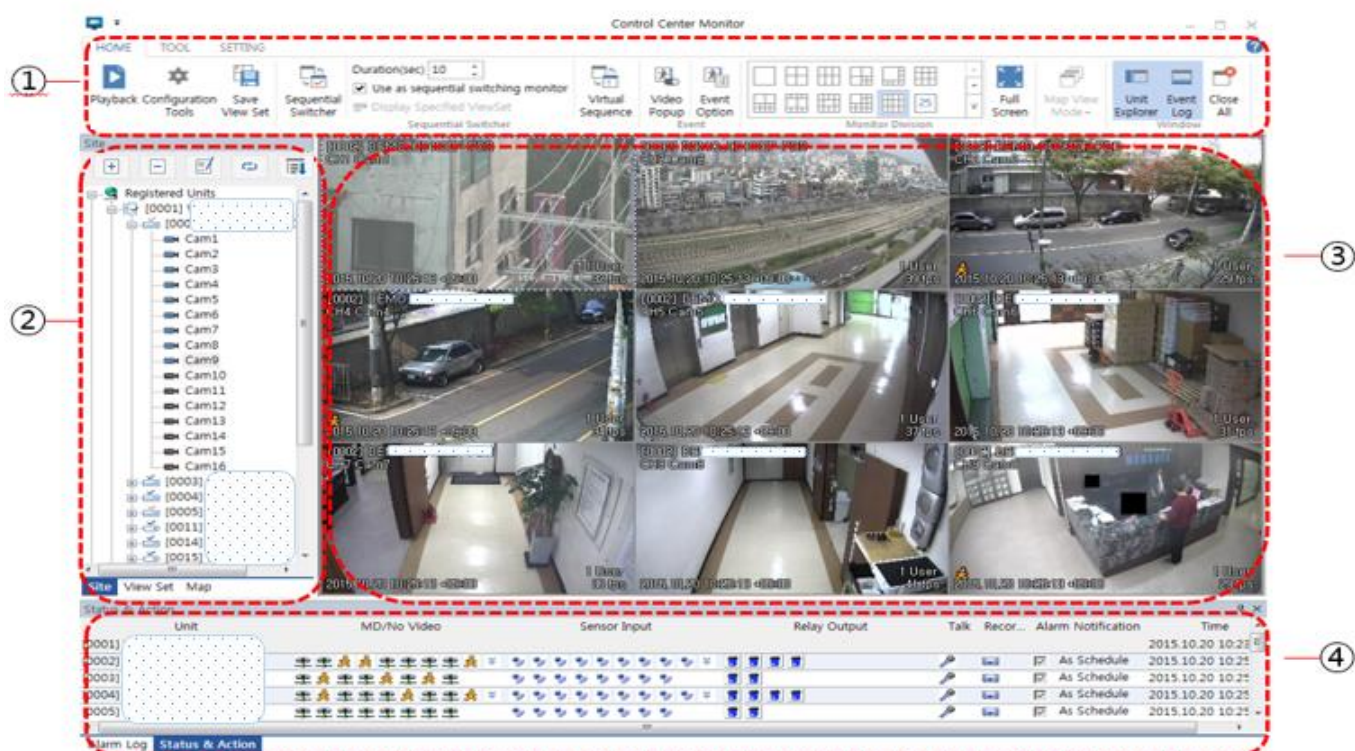
User can delete folder registered in "Registered Units". Please be noted that if folder is deleted, units registered in sub folder will be deleted together. Deleted folder will be removed from list and it can be registered with no limit later on at any time. Choose folder with mouse then click on right button to select **[Delete Folder]** to run confirmation window of folder delete. Click **[Yes]** to delete folder and to cancel delete, please click **[No]**.

# Live Viewer (Monitor)

Monitor program of Control Center can enable user to monitor real time image of connected unit and manage site or user. Also it is possible to check real time event information and system log along with supporting convenient and easy operation with external device such as keyboard joystick and other external device.

## Screen structure and name of functions

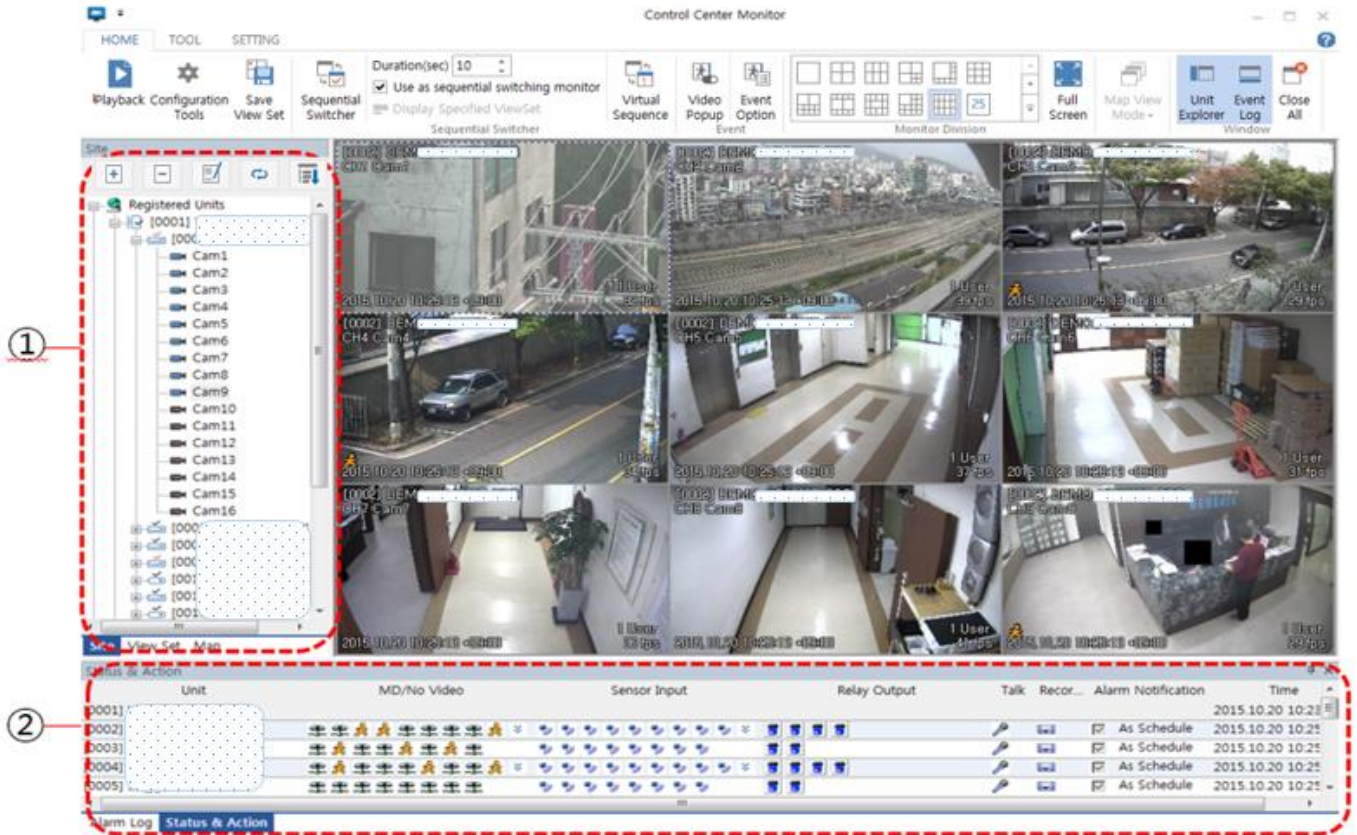
### Screen structure



Item		Description
1	Menu/Toolbar	This is menu and function button used in program
2	Unit list window	1. Unit can be added/deleted/modified, unit lists can be refreshed. 2. This indicates unit/viewset/map registered in program. User can click on the list to show image
3	Image window	This indicates live monitoring image
4	Status & Action window	This indicates status of unit, event information and alarm log

## Move control panel location

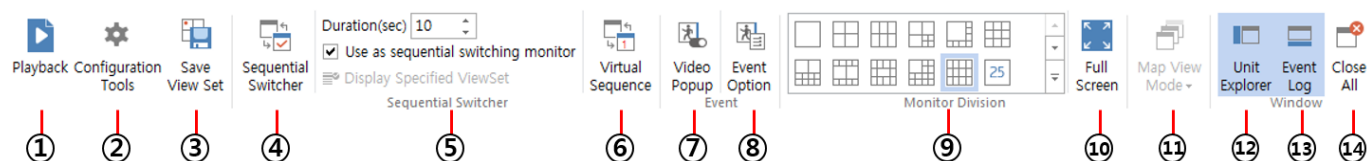
Control Center supports dynamic UI for each control which can free to move and dock using mouse. So user can composite the most optimized screen by changing internal structure of live viewer.



- 1) If user drag control title bar of ①, ②, there will be docking guide icon comes up and drop title bar on the icon to move and locate control.
- 2) The moving position in live viewer program will be up/down/left/right and it can be separated out of viewer program to be positioned individually.

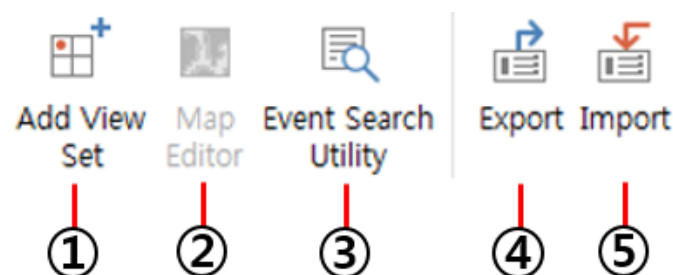
# Icon function explanation

## Tool bar - HOME



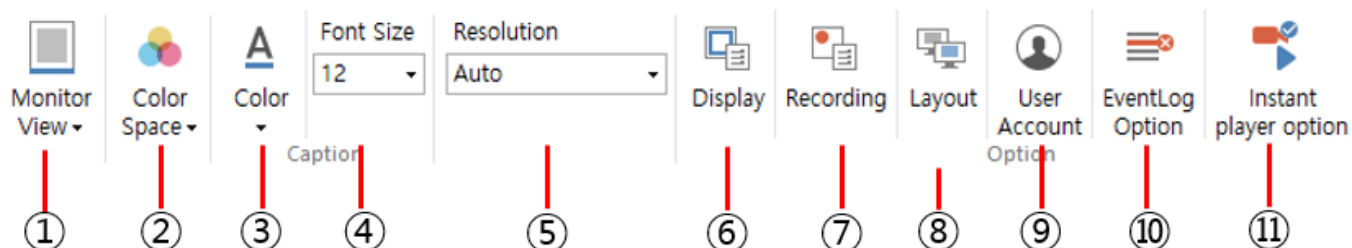
Item	Description
1	Playback Run Control Center Playback
2	Configuration Tools Run Control Center Configuration Tool
3	Save View Set Save current monitoring status in viewset
4	Sequential Switcher Turn on and off auto sequential feature
5	Sequential Option 1. Duration (sec): To setup duration (sec) on auto sequential feature. 2. Use switching : To set if monitor will be used for auto sequential feature or not in case multi Monitors are in use. 3. Display specified viewset: To setup auto sequential under viewset mode.
6	Virtual Sequence Sequentially display all channels in selected viewset at the selected channel. If user clicks this icon, popup will be displayed to select the viewset for virtual sequence.
7	Video Popup Turn on / turn off the video popup function.
8	Event Option Set video popup options and event options such as alarm sources, event log preservation duration, buzzer, disconnected sensing time, etc.
9	Monitor Division Monitor screen division control 1, 4, 9, 13, 16, 25, 36, 49, 64 division
10	Full Screen Full screen of PC monitor.
11	Map View Mode It is activated in map mode, map can be shown in vertical, horizontal angle.
12	Unit Explorer Hides unit list window.
13	Event Log Hides event viewer window.
14	Close All Closes monitoring connection or map, windows.

## Toolbar - Tool



Item	Description
1	Add View Set Viewset add window runs. Images of registered units are free to be configured and this configured status can be saved in viewset.
2	Map Editor Runs in map mode. Supports map add, editing, deletion.
3	Event Search Utility Saved events are searched in date, unit, and category.
4	Export Export setting of Control Center Monitor.
5	Import Import setting of Control Center Monitor.

## Toolbar - Setting



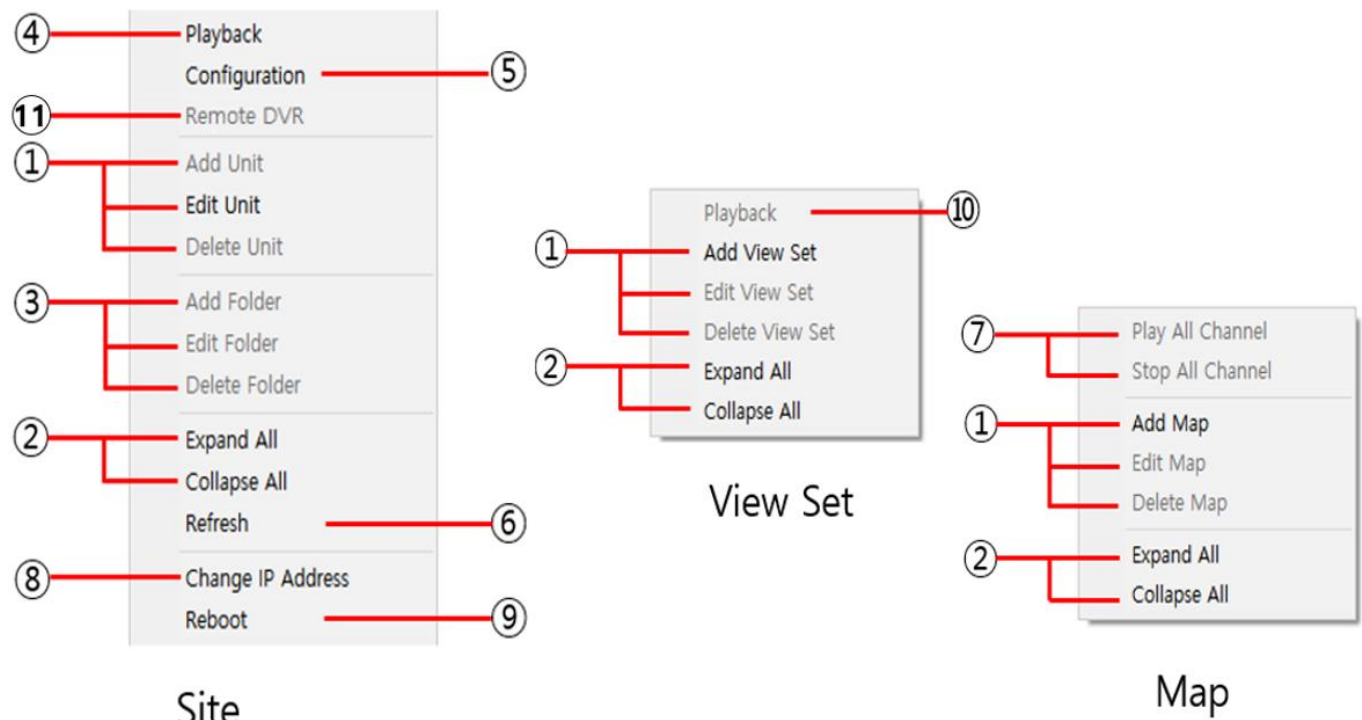
Item		Description
1	Monitor View	1. Full: Image shown in full size. 2. Ratio: Image shown fit in image's ratio. 3. Caption area: Watch mode including caption area.
2	Color Space	Select color expression between YUV/RGB. (YUV is recommended).
3	Color	Color of letter shown in image window can be changed.
4	Font Size	Size of letter shown in image window can be adjusted.
5	Resolution	1. Auto: The best optimized resolution will be shown automatically analyzing size of image, network status, FPS and so on. 2. High resolution: Image shown fixed in high resolution. 3. Low resolution: Image shown fixed in low resolution.
6	Display	Setup for DirectX Draw, De-interlace, Radius share key, Caption, Watchdog, Restart periodically, Auto Shut Down and so on.
7	Recording	File saved path setup when record and image save features are achieved and other various setup.
8	Layout	Can setup for Control Center Monitor's monitor configuration.
9	User Account	Add, edit and delete for Control Center Monitor's user.
10	Event Log Option	Setup for preservation period on event log.
11	Instant player option	Set the start and end play time of video for instant player.

## Unit list window

Icon	Description
	It is registration unit folder managing unit.
	Shows units not registered in "Registered Units" even though they are found on local network.
	Registered unit can be managed in sub-folder.
	Connection fail status with unit (connection fail).
	Communication with unit is possible but login fails. (login fail)
	Success in login.
	Blinks during 5 seconds once alarm comes in.
	All video channels of unit are under monitoring.
	WinDVRs, WinRDS unit.
	Video channel.
	Sensor
	Relay out
	Audio out (talk)
	View Set
	Map
	Sub folder of map (channel, relay, sensor, audio out)

## Description of unit list window popup

Click right button of mouse on each unit list window of site / viewset / map mode to popup menu. It is possible to register, edit, delete unit and folder management, open unit list functions can be used.



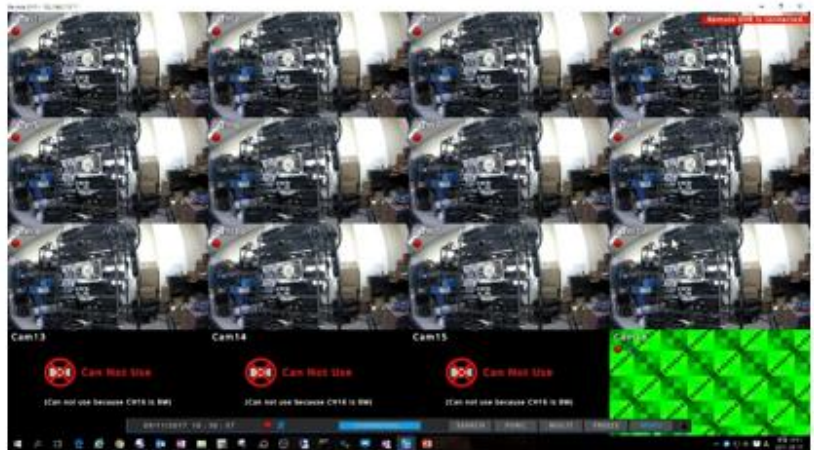
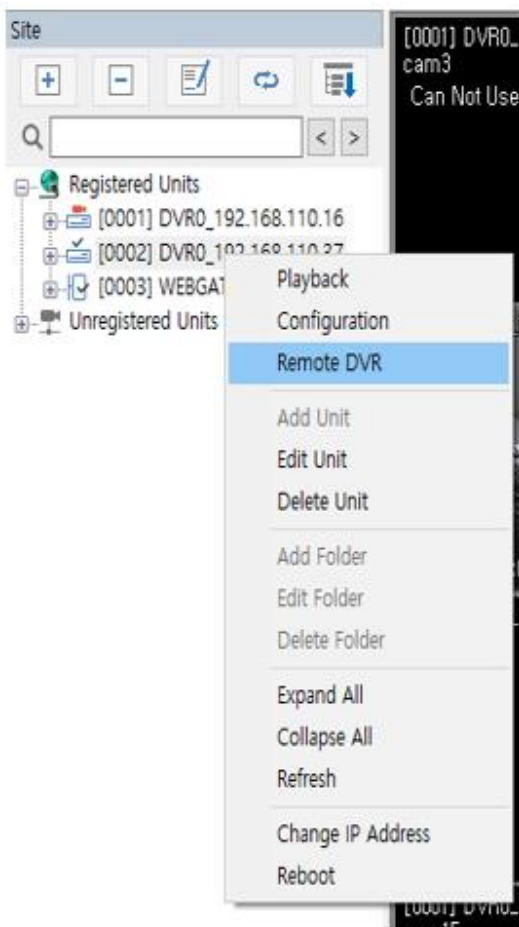
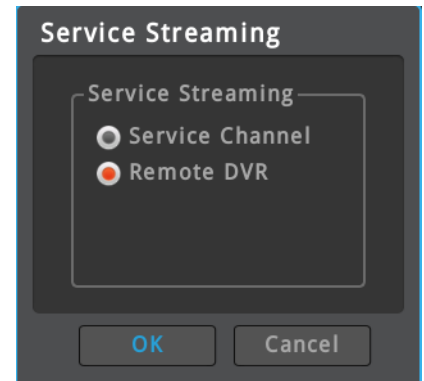
Item		Description
1	Add Unit/View set/Map	Registration status of each device used in site / viewset / map mode can be managed
	Edit Unit/View set/Map	
	Delete Unit/View set/Map	
2	Expand All	Open tree of all devices registered in unit list window
	Collapse All	Close tree of all devices registered in unit list window
3	Add Folder	Create folder to manage unit in group in site mode for management
	Edit Folder	
	Delete Folder	
4	Playback	Run Control Center Playback program
5	Configuration	Run Control Center Configuration Tools program
6	Refresh	Refresh on unit list window
7	Play All channel	Images of all channels registered in map are shown through live viewer
	Stop All channel	Close all images registered in map and shown in live viewer
8	Change IP Address	Change the IP address of the selected unit.
9	Reboot	Reboot the selected unit.
10	Playback	Play the selected viewset.
11	Remote DVR	Remote DVR will be activated when the DVR's service streaming is selected as 'Remote DVR'

## Remote DVR

User can control the DVR from remote location by using Remote DVR function which is similar to remote desktop of PC. Control Center SW is required. User can see DVR's main monitor output on PC (Control Center) and mouse control is possible.

Please follow below steps to use Remote DVR function.

1. Go to [Menu – Network – Service Streaming] and select 'Remote DVR'.
2. Register the DVR on Control Center.
3. Click the right mouse button on the registered unit and select [Remote DVR] menu.
4. Popup window for Remote DVR will be shown and user can see the DVR's main monitor output and control the DVR.



### <Caution>

1. To use 'Remote DVR', please use Control Center 6.6 or above.
2. DVR must support 'Remote DVR'.
3. The DVR's service streaming must be set as 'Remote DVR'.

# Site mode

## Site connection


If you click a "Unit Icon" in the "Registered Unit's" list, or double-click a "Unit Name", you can get the live video from the unit. By default, split-screen will be shown so as to show all channels of the DVR.

You can select channels individually, and also you may use drag-and-drop of "Unit Icon" or "Camera Icon". Such an operation, it may be same with viewset and map mode



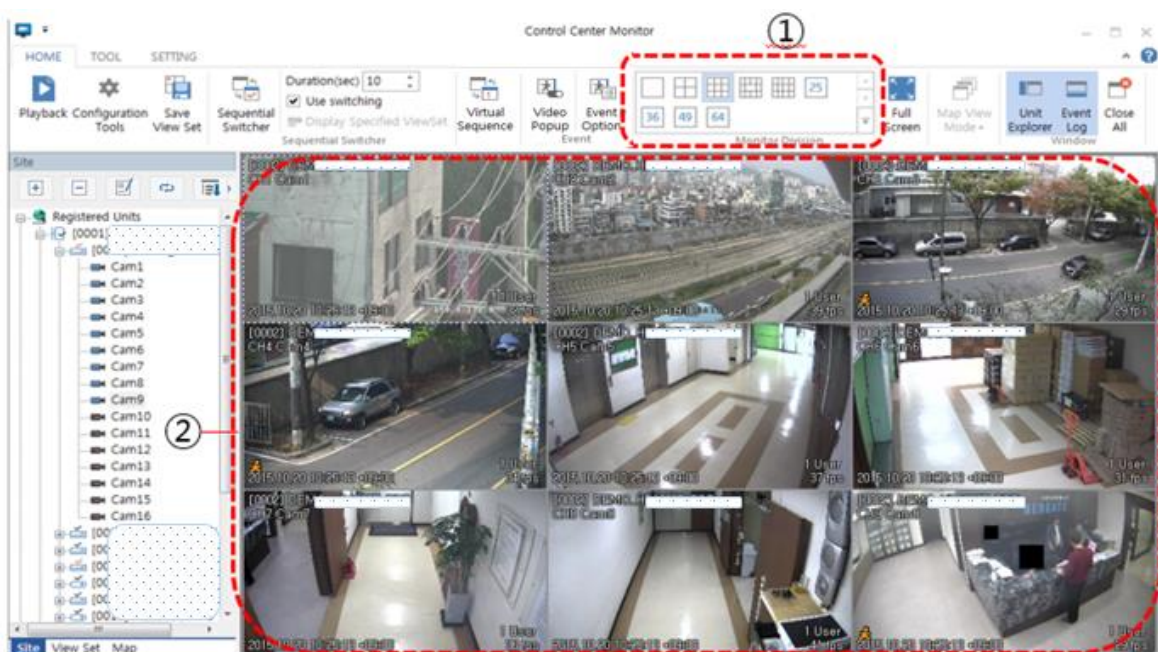
Like above, click or dragging ① unit to the ② area, video are shown in the video window.

## Video connection end

Click  icon to end connection.


## Video split mode change

Split mode is 1~64 split and switch the channel by clicking the split mode icon or double clicking the video window.



Like above, click to ① split mode icon or double click to ② video window to switch single or multi channels.

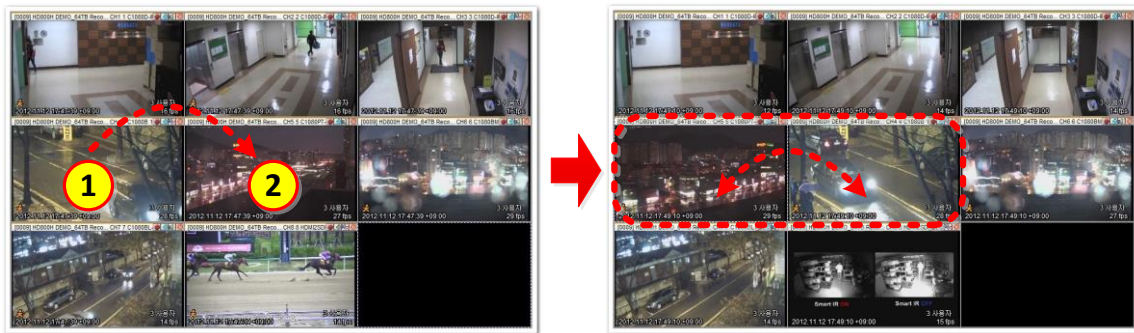
## Full screen mode

it supports full split screen that hides Control Center's control,  
Click  **[Full Screen]** to execute full screen mode and finish full screen mode by **[ESC]** key.



## Move image position

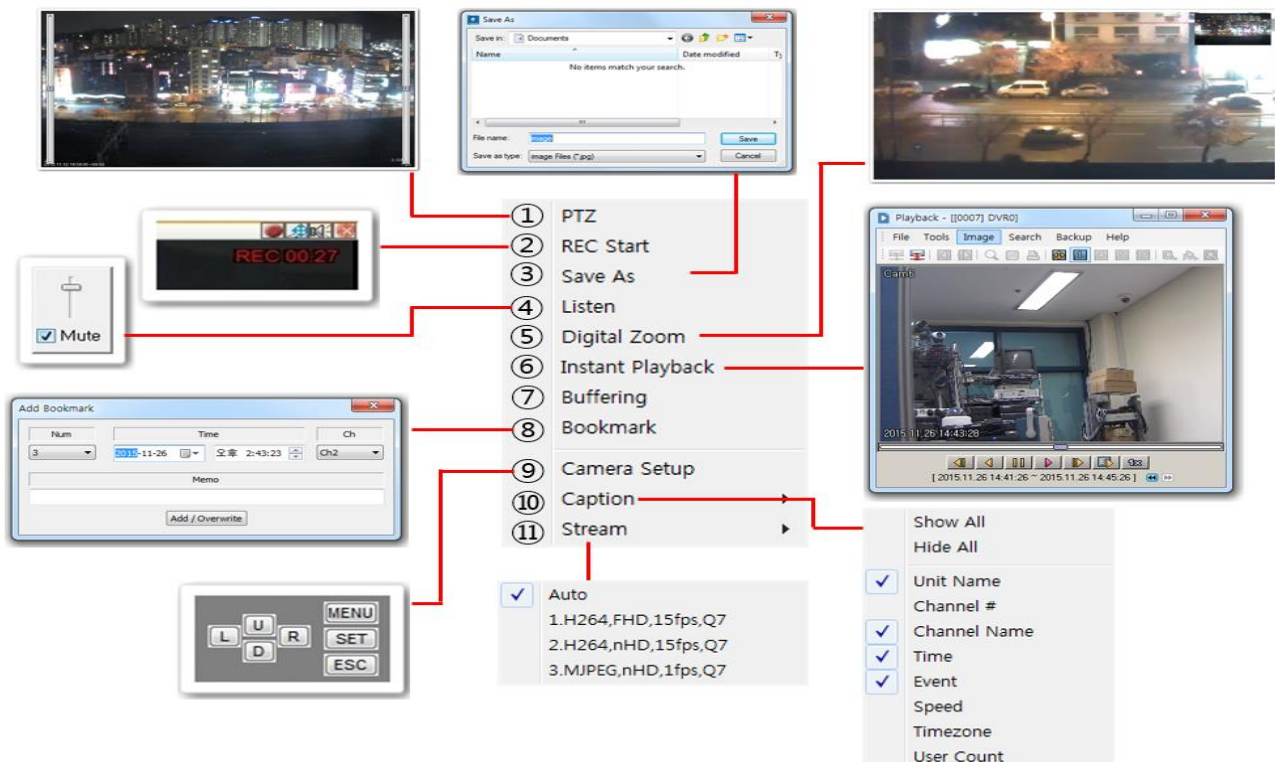
To move image position, it drags the image and drop it where you want on mouse and it can move it freely at different monitor image. .



Like above, drag ① to ② position, ① and ② picture position is shown interchangeably.

## Video window pop-up menu

The mouse on the image and click right to see pop-up menu and it can use main function quickly on the video, this function applies to the channel only.



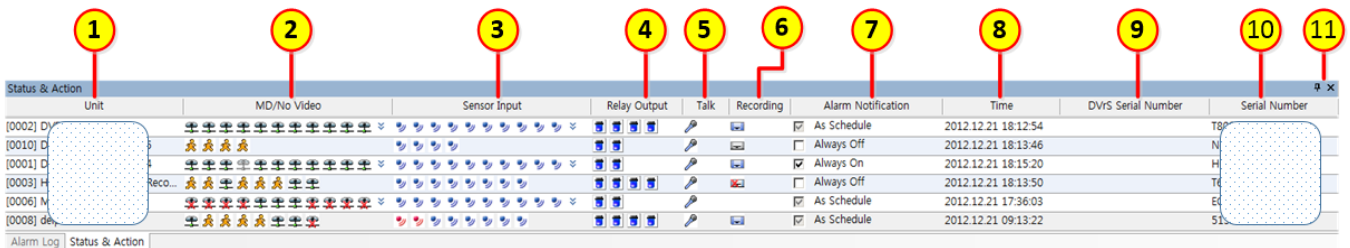
Item		Description
1	PTZ	Entering to PTZ control mode where PTZ can be controlled with mouse.
2	Record start	Real-time video is recorded in RE4 format and stored in C:\WCCQuickRecording folder
3	Save image	Real-time image can be saved in JPEG, BMP format.
4	Listen audio	Audio output On/Off and control volume.
5	Digital zoom	Image can be digitally enlarged in single mode using mouse control. And overall image can be viewed on mini map view. Click on mini map to move zoom area.
6	Instant playback	Instant player window will be opened and user can playback the selected channel's video according to the setting of 'Instant player option'.
7	Buffering	If monitoring video is unnatural due to slow network, buffering can help that the video can be shown naturally.
8	Bookmark	Save Bookmark on time, channel and menu. (Enabled only in DVR supporting bookmark feature).
9	Camera setup	Popup control menu to configure camera menu.
10	Caption	Configure the caption items which is shown on image. When the video is re-connected, caption configuration is cleared to default setting.
11	Stream	Change stream of image. When the video is re-connected, stream is automatically selected based on size of image window.

#### <caution>

1. Transmission frame rate can be reduced at low system requirements. Uncheck caption Options or the image of the pop-up menu, in this case, uncheck caption of the popup menu, you can see better transmission frame rate.

## Status & Action

It can check the status and action of units that are registered on the "Registered Units". In addition, it can schedule using the microphone and alarm notification.



Item		Icon status	Description
1	Unit		It displays unit name in the unit list window.
2	MD/No Video		It displays video channels that supports at unit It displays all the units that are supported by the video channel and channel to display the connection status, and motion detection. (camera connect, video loss, camera inactivated, motion detected)
3	Sensor Input		It displays units that are supported by the sensor and sensor operating status. (sensor OFF / sensor ON) If flame detection camera is connected, icon will be changed to flame icon. (flame OFF / flame ON)
4	Relay Output		It displays units that are supported by the relay and relay operating status, it can control the relay clicking the icon. (relay inactivated, relay off, relay on)

5	Talk		It can send audio on audio output by pressing microphone icon. (Microphone OFF , microphone ON)
6	Recording		It displays unit HDD status. (Not Recording / No Error, Recording / No Error, Not Recording / Error, Recording / Error)
7	Alarm notification	<input checked="" type="checkbox"/> As Schedule <input type="checkbox"/> Always Off <input checked="" type="checkbox"/> Always On	It can set alarm notification action status and depending on setting, it works audio alarm and monitor display
8	Time		It displays current date and time.
9	DVRs Serial Number		It displays series number of DVRs / WinRDS
10	Serial Number		It displays serial number of unit.
11	Auto Hide / Close		It can set or close auto hide mode of window.

## Video view

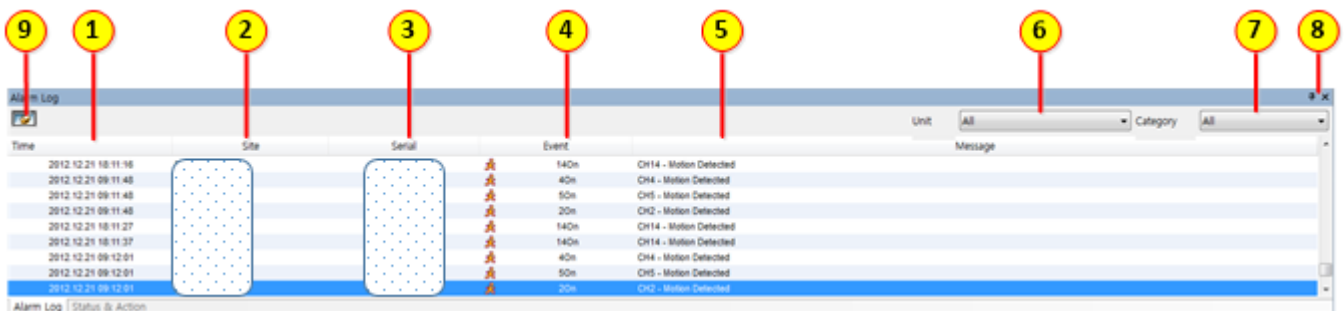
Double click to the Status & Action list, then all channels of the unit are monitored. According to the number of channels of the unit, screen mode is automatically selected. When map mode, monitoring window will be popped-up.

## Alarm notification setup



Alarm notification method can be set by clicking the right-most "alarm notification" column. "Schedule Applies," "Always On" and "Always Off" can be selected. Set the alarm notification and schedule at [Toolbar > Home > Alarm Popup Option > Alarm Notification Schedule].

## Alarm log

"Registered Units" are registered on the list can check alarm log of the unit... it displays real time log and can set to see only the information that users may want.



	Item	Icon Status	Description
1	Time		It displays alarm occurred date and time
2	Site		It displays alarm occurred unit name.
3	Serial		It displays serial number of alarm occurred unit.
4	Event		It displays icon and number on alarm occurred information. (motion detected, sensor off, sensor on, flame off, flame on, alarm on, video connect, video disconnect, text input, login fail, setup changed)
5	Message		It displays message on alarm occurred information
6	Unit		Alarm log can be sorted by unit, Select only one unit can be selected, and all are registered in all units of the alarm log can be shown.
7	Category		Alarm log can be viewed by selecting the event, error, status, text. Select only one unit can be selected, and all are registered in all units of the

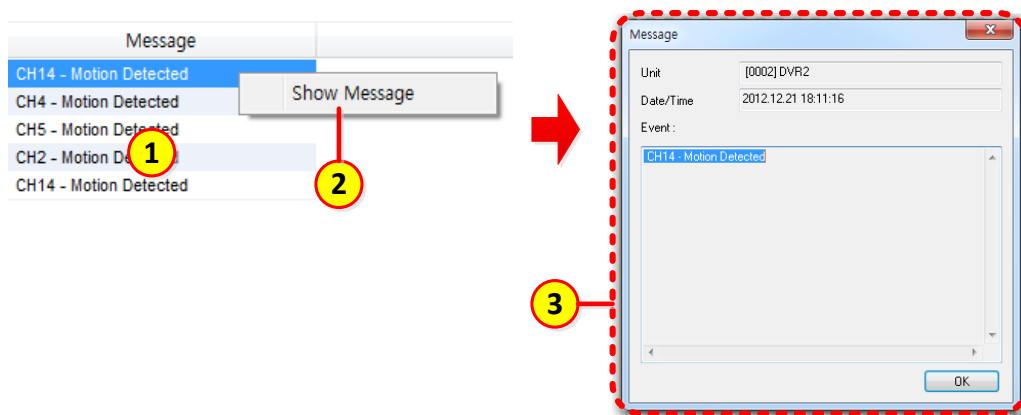
			alarm log can be shown.
8	Auto Hide / Close		It can setup or close auto hide mode of window
9	List fix		It can fix updated alarm log list and keeps the fixed list even the new alarm information comes.

## Video view

Double click the list, it'll be monitoring the channel of unit which occurred event. In case of motion detection, it is monitoring the channel that detected motion only. In case of sensor or relay, is playback whole channel of the unit, will change split channels belongings. The selected channel is already being monitored, this unit will change monitor focus. In case of map mode, will pop up the monitor window

## Message view in detail

In case of long message, only printed a part of the message, if want to get whole message, you can get from "message view"



In the ① list, click right mouse for ② [Show Message], it will be shown ③ message window.

## PTZ control

### Normal PTZ mode

Select the channel supporting PTZ and select "PTZ" in the popup menu after clicking right button of mouse. User can control pan, tilt by clicking the mouse during cross mark is displayed. Pan is controlled by clicking left/right direction at the center, and tilt can be controlled by clicking up/down. Pan / tilt will be faster if you click more away position from the center.



### Zoom In mode

Under normal PTZ mode, click the right button of mouse and select "Zoom In mode" in the popup menu. If the camera does not support zoom in mode, "Zoom In mode" menu is not be shown in the popup menu.

If "Zoom In mode" is selected, a dotted box will be displayed at the center. When user clicks and drags the mouse on the video region which user wants to see with zoom-in, zoom operation will be done.

The mode will temporally be changed to normal PTZ mode during pressing the shift key. Choose "Normal PTZ mode" at popup menu to change the control mode.



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### Zoom, Focus control

Move mouse cursor to the left or right edge of the view window. Control bar for zoom, focus will be shown.

Z – Zoom in, zoom out control

F – Focus control

Z0 - Immediate moving to maximum zoom out state.

### Goto Preset

If you select a preset list, camera angle will move to the selected preset position.

### Preset Setup

Set – Preset will be stored in selected preset list.

Clear – Clear the selected preset list.

### Auxiliary


When preset is set, "Auxiliary" menu is displayed on the pop-up menu. Select the appropriate action and the action will be performed.

## Auido listening

If the audio is associated in the video channel, "listen" is activated at popup menu. Choose "Listen" to listen the audio. You can get mixed multiple channel audio.

## Auto switch


Live monitoring of video conversion cycle for each monitor by setting the time auto switching can be operated... Site / viewset / map mode and can be used both in the corresponding mode has been registered by using the channel, viewset, map auto-switching action

To run monitor in auto switch mode, please select [use switching] located in toolbar. Once selection is canceled, monitor will not be working in auto switch mode even though auto switch mode is on. Click  icon to activate auto switch feature. It works according to "duration time" set in option. Default is 10sec.

## Alarm popup


It may see a pop-up video of each monitor channel alarm occurred.

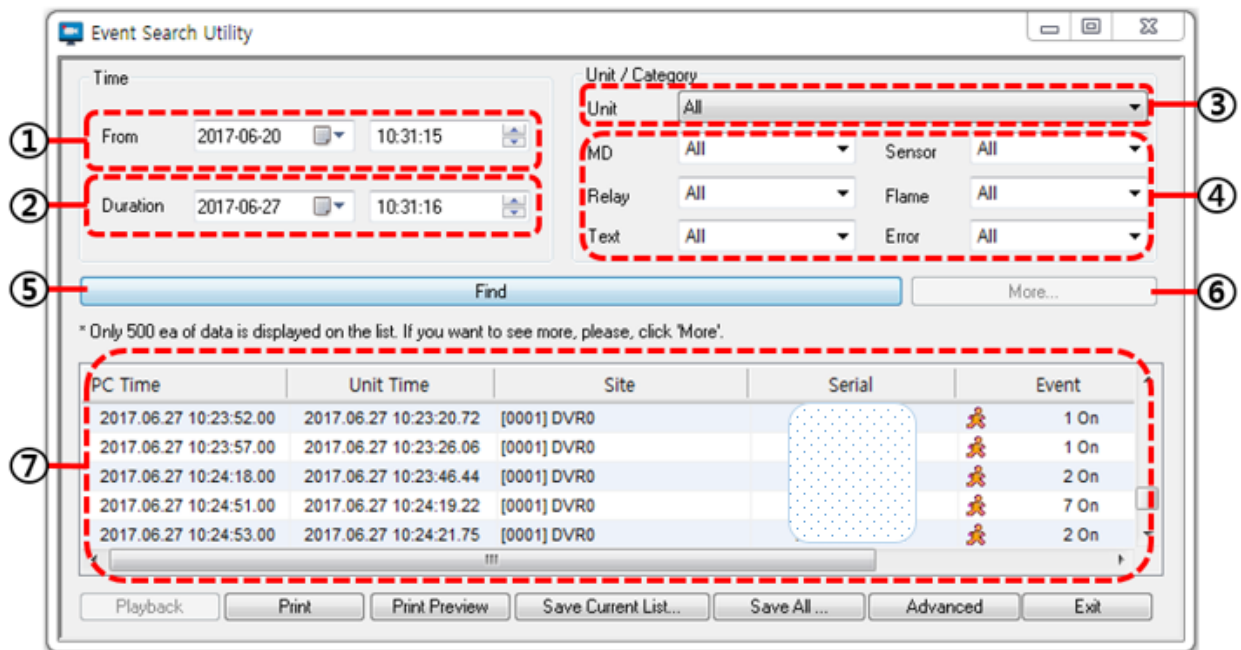
Site / viewset / map mode and can be used both in the pop-up when an event occurs in the channel has been registered by the appropriate mode operation.

- 1) Select [Alarm Popup On/off] for the monitor to be used in auto switching mode. Without this selection, the monitor will not be working in alarm popup option. (Being used as alarm popup monitor will be activated in case total number of monitors in use are 2)
- 2) Click  [Alarm Popup On/Off] icon, alarm popup will start, is shown the channel that event occurred. When the event occurred at event list of alarm popup option, the alarm popup will be operated by "duration time"
- 3) If the alarm of other channel has occurred during alarm popup operation, that video channel will be added in screen it'll be shown added video with legacy video, the duration time is fitted by the last alarm time.

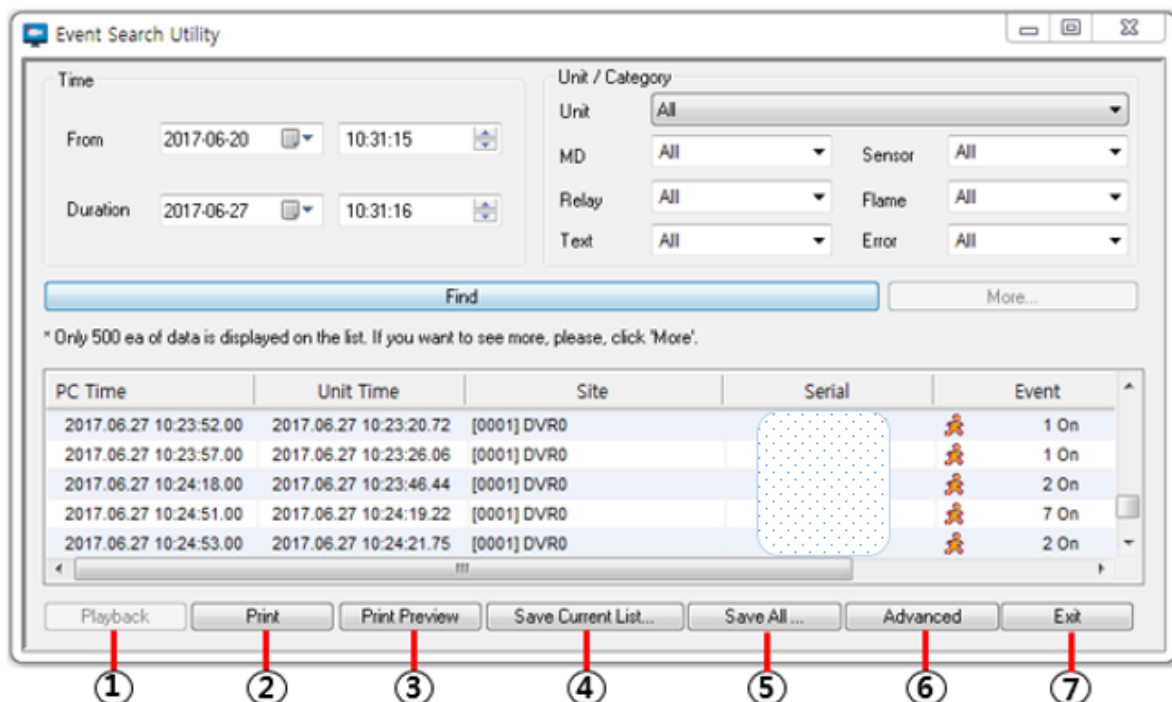
## Event search

Event logs can be searched using the event search utility... Search by selecting a specific unit or classification and search results can be printed or saved.

Click  **[Event Search Utility]** or choose **[Event Search Utility]** at tool tap.



- 1) In the "Event Search Utility", select ① start time, ② duration, ③ unit and ④ event category.
- 2) All the information is set to search, click ⑤ **[Find]** to start the search. Search cancel while the search is in progress, showing the search progress window appears
- 3) After search is completed, you can see the ⑦ search results. The search result is listed 40 each and click ⑥ **[More]** to check another results.



Item	Description	
1	Playback	Playback will be executed for the selected video.
2	Print	Print out the results.

3	Print Preview	Preview the results.
4	Save Current List	Save current searched list (max. 500ea) to CSV file.
5	Save All	Save all searched list to CSV file.
6	Advanced	Log delete (all / section / MD delete only) and print set is available.
7	Exit	Finish event search utility

## Config information export/import

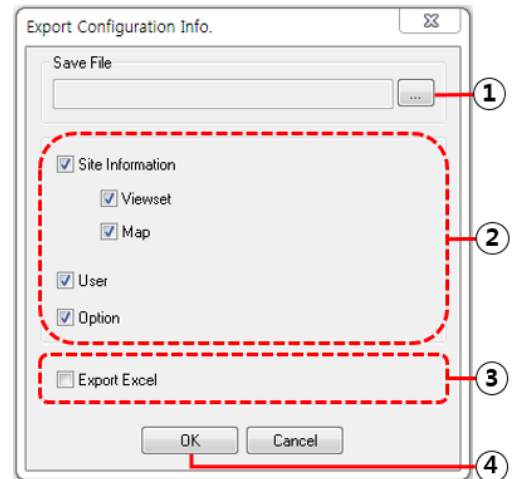
It can export/import the configuration information of Control Center.

### export

- 1) Select [Toolbar – Tool – Export]. Set ① save file path, name, and choose ② options.
- 2) ③ Save configuration information to CSV file when [Export Excel] option is checked.
- 3) Click ④ **[OK]** to save it on zip file.

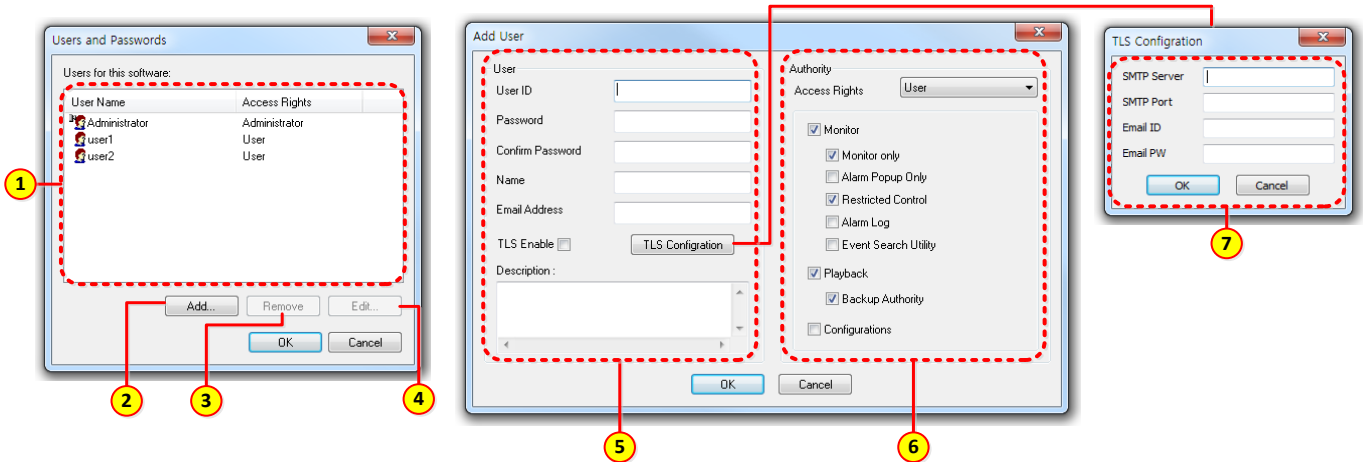
### import

Select [Toolbar – Tool – Import]. The window is executed, choose the saved zip file and click **[Open]** then confirmation window will appear to restart the program. Click **[OK]** to complete the import.



## User set

Registered users can use the program to change the administrator or management information can be used. Select [Toolbar – Setting – User Account], then below window will be appeared.

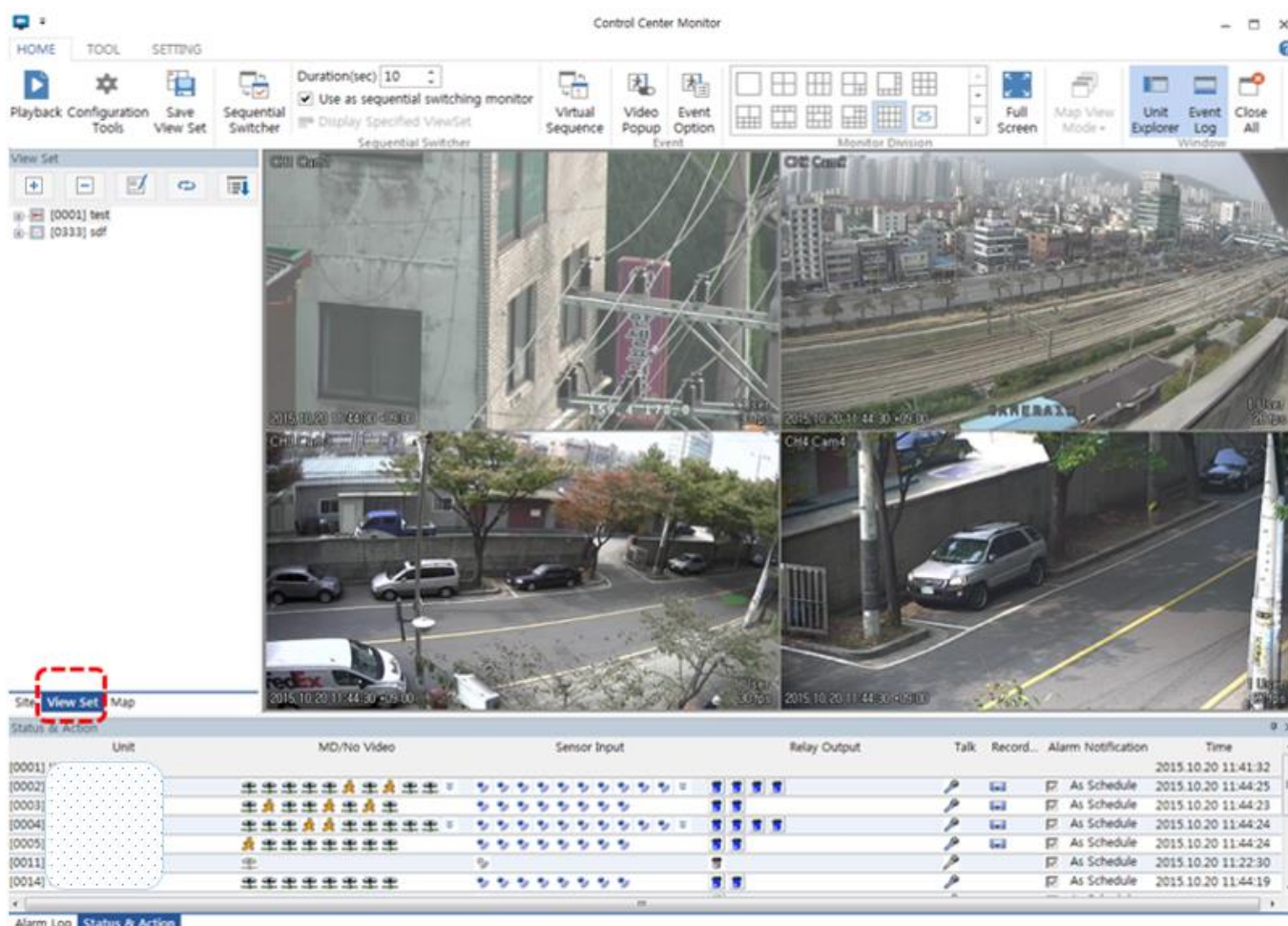


Item		Description
1	Users for this software	It displays user list registered at program, the default admin can't delete and change the user account information
2	Add	User added window is appeared, input user information to add account of the user and it's up to 100 account available...
3	Remove	Choose user list and click button to delete the user.
4	Edit	Choose user list and click button to show edit window, edit user information and save it to get updated one
5	User	It sets user's account information, the confirmation of user ID, PW, PW confirmed should be required, if not, you can't register account.


6	Authority	Access rights	It can choose User and Administrator, if choose Administrator, it would be registered admin account with all right
		Monitor	It can execute Control Center monitor program.
		Monitor only	It can't change layout badge, using admin's site' view set/ map list
		Alarm Popup Only	It can use alarm popup function only.
		Restricted Control	It can use a same unit information with administrator.
		Alarm log	It displays alarm log information at alarm log window.
		Event Search Utility	It can execute to use event search utility
		Playback	It can execute Control Center Playback program.
		Backup Authority	It can backup recorded data.
		Configurations	Control Center Configuration Tools program can be run.
7	TLS Configuration		TLS security server and account security server information

# Viewset mode


You can switch to the Viewset mode by clicking 'viewset tap' shown in below figure. You can add and manage any channels of registered units on the viewset group. Also, you can monitor and playback by unit of viewset group.



## Viewset registration

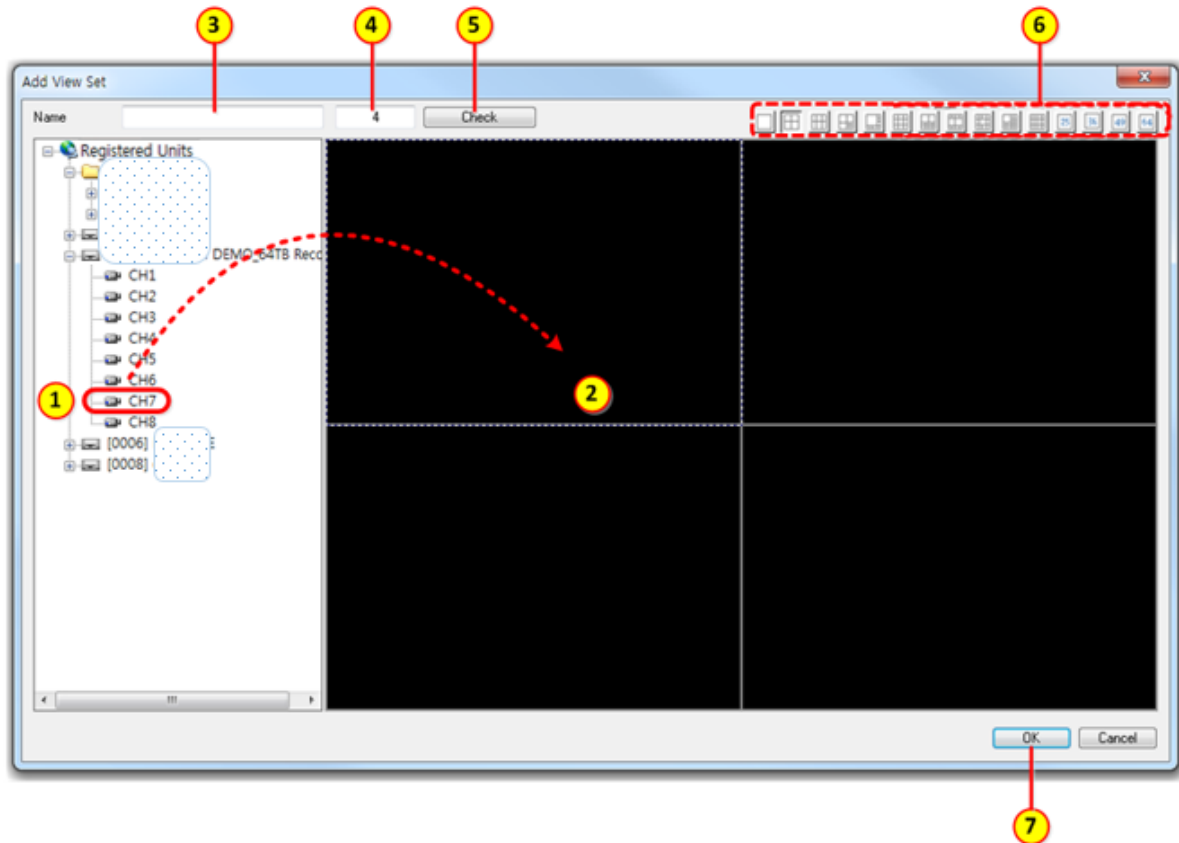
In the viewset mode, click  [add] icon or click right button of mouse then select [add viewset] for viewset registration.

### Viewset registration at site mode

At site mode, select "Monitor Division" and click the channels you want. Click  icon for registering as a viewset.


## Register at viewset mode

In the viewset mode, click the  icon or click the **[Add Viewset]** at the popup menu (mouse right click).

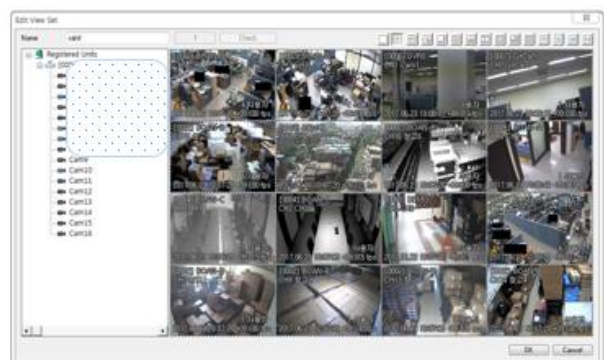


- 1) In the "Add View Set" window, click ⑥ icon to determine monitor division mode. Click the video window (②) and choose the camera (①) to be displayed in the video window. Also, you can drag the ① camera and drop to the ② window.
- 2) After registration of camera, write the viewset name to ③ and click ⑤ **[Check]** to check the availability of name of ③ and number of ④.
- 3) Click ⑦ **[OK]** to save at viewset list window. To cancel the registration, click **[cancel]**.


## Viewset edit

Choose viewset list. Click  icon or choose the [viewset edit] in the popup menu after clicking mouse right button. Then, you can edit the viewset.

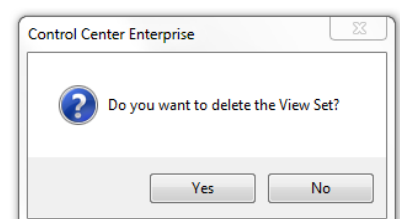
In the "Edit View Set" window, you can change the name of viewset, monitor division mode, and allocation of video channel for each position. This edit operation is the same way with viewset registration.



## Viewset delete

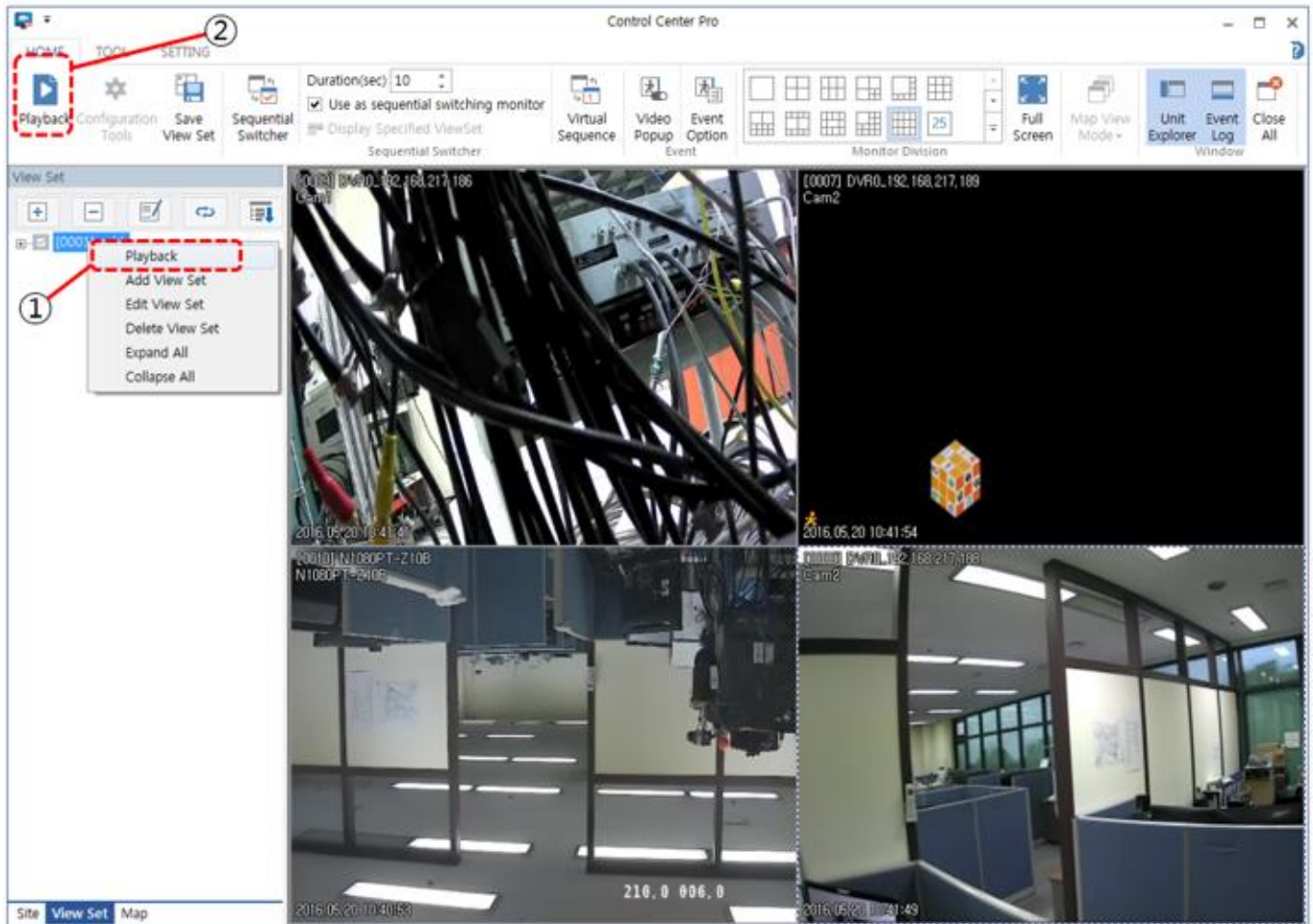
Choose viewset list to delete. Click  **[delete]** icon or choose [viewset delete] after clicking the mouse right button. Then you can delete the viewset.

In the viewset delete confirm window, click **[Yes]** to delete viewset in the list, click **[No]** to cancel the delete.



## Viewset Playback

User can register the various DVR's channels on a single viewset. Since viewset playback can play and search the channels on a viewset, user can play and search the various DVR's channels at once. This is a powerful function increasing user's experience.



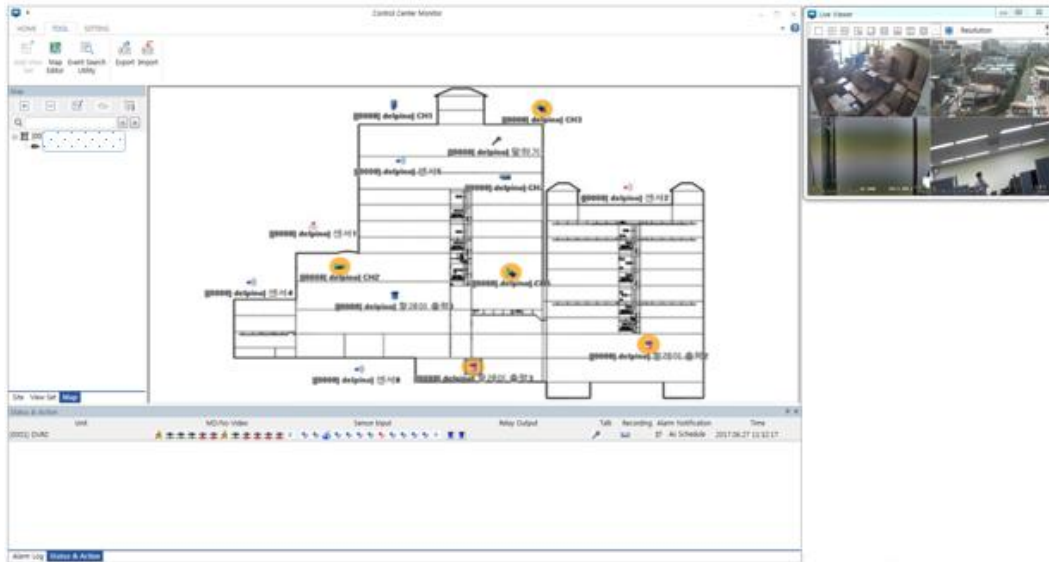
To do viewset playback, ① mouse right-click on viewset list and choose 'playback'. Or select viewset list and click ② 'Playback' icon.

### <Cautions>

1. If the channel on viewset is not recorded (DVR's channel and/or IP camera channel), that channel cannot be played.
2. In case of viewset playback, Control Center performs 'preloading' to download the each channel's video before playback.
3. Viewset playback does not support more than 17 channels. To play the viewset, please make sure that the number of channels of viewset is 16 or less.
4. If the number of connected users of DVR exceeds the maximum allowed users, the channels which is contained in that DVR cannot be played.

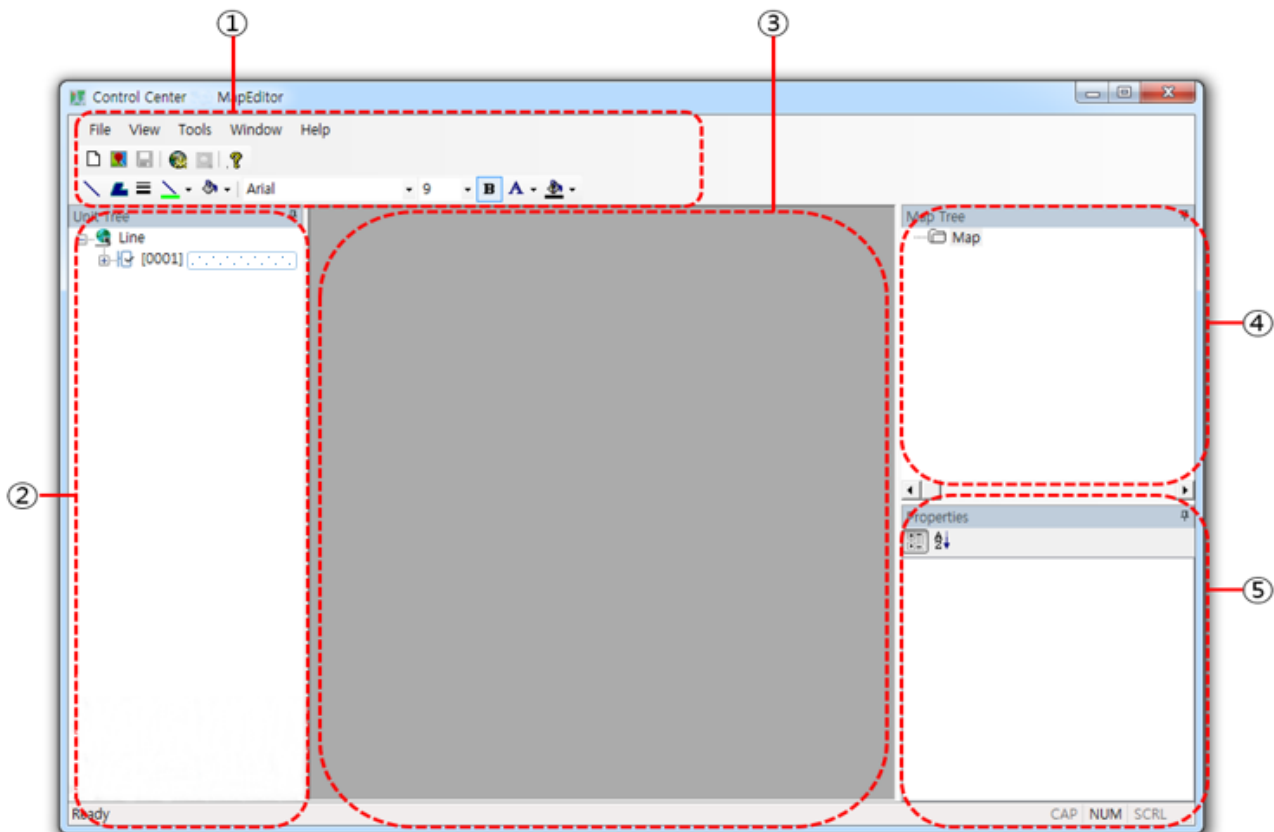
# Map mode

You can change into the MAP MODE by click the "MAP" tap on the bottom of the unit list window. In the MAP MODE, you can register and control the camera, audio out, relay out, sensor, and microphone on the map, and it offers the convenience by registering the smaller map and extending it to the layer type. The operation status and the occurrences of event are displayed on the map. Thus, the administrator can check the status of the registered units in real time.




## Map editor

Select the toolbar of Tools > **[Map Editor]** in the MAP MODE, and it is possible to add, edit or delete the map through "Map Editor".



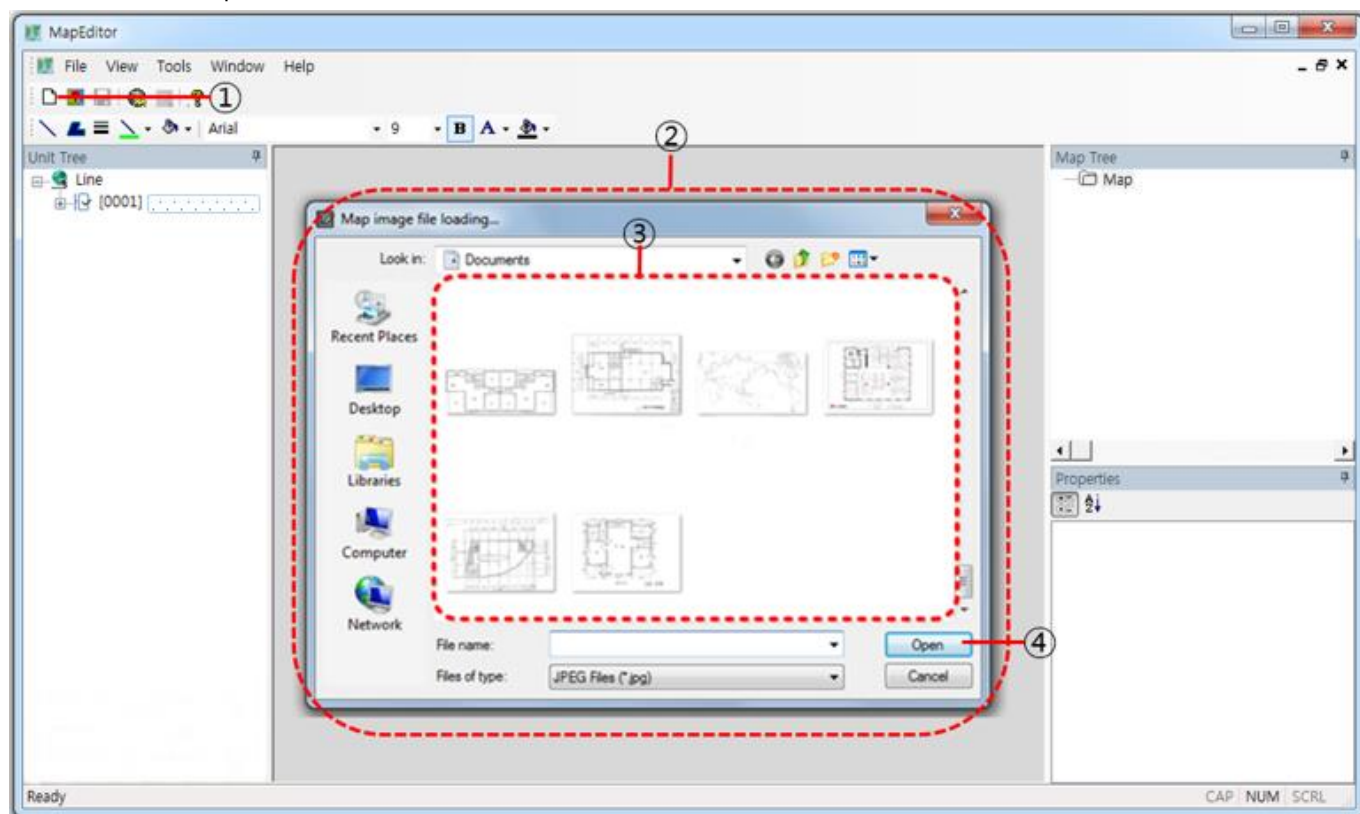
Item		Description
1	Menu/tool bar	It displays menu and function button at program and can use them to click
2	Unit list window	It displays all installation registered in Registered Units and you can drag and add the icon to the map.
3	Map window	It displays the selected or new map from the Map list window.
4	Map Tree window	It displays the registered map list
5	Properties window	It displays the registration information of registered map, you can edit it.

## MAP ADDITION

In the Map mode, when you click  **[Add]** icon or select the **[Add Map]** on menu by clicking with the right mouse button, the map editor runs. You can add the new map through map editor.

### Add new map on Map Editor

To add new map please open map file saved on the PC. Please locate and register camera, sensor, relay, and mike over the map.



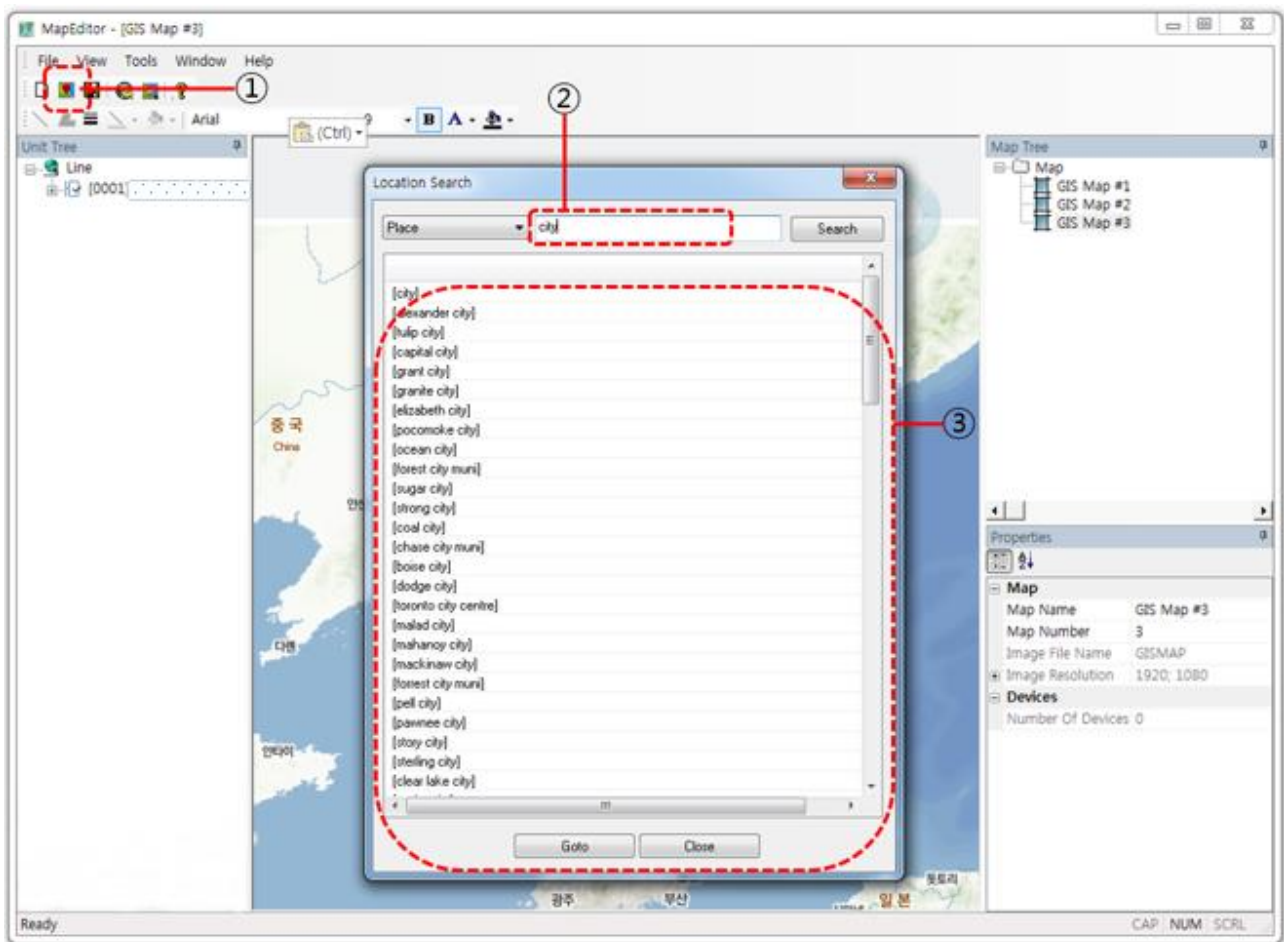
- 1) In the map editor, when you click the icon ①, it displays "Map image file loading" window, you select the route that has a map, ③ select the map file, ④ click **[Open]** button and make it display the map you want to use on the map window.

### Adding new GIS map

To add GIS map please connect to GIS server and read map file then locate and register camera, sensor, relay, mike and so on over the map.

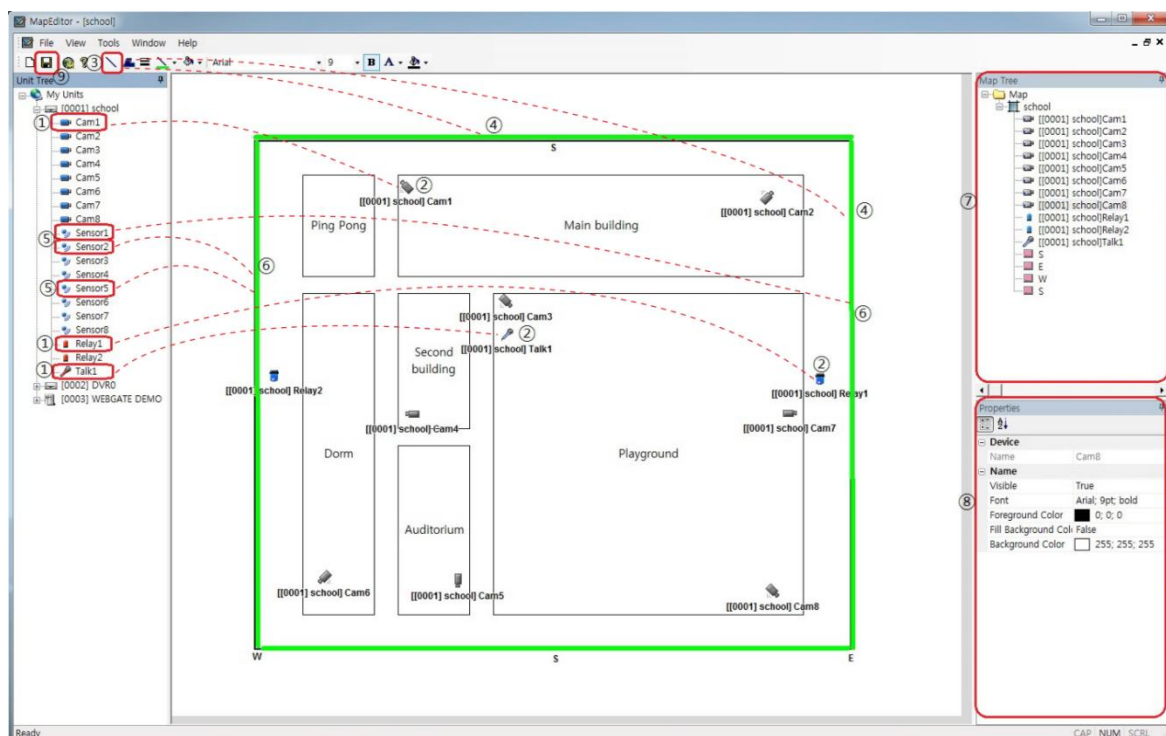
<Note>

GIS map supports only Korean map.



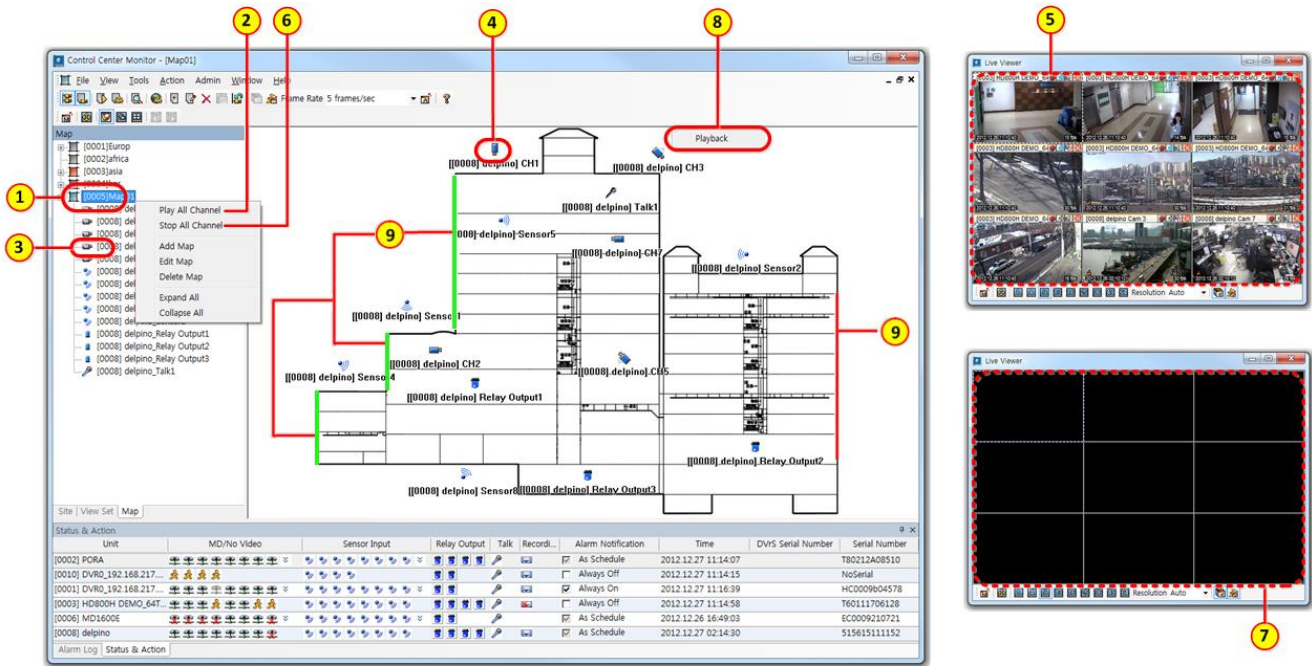
- ① Click GIS map icon.
- ② Enter location and address to search in location search window.
- ③ Select location in search result screen then click Goto button.

## Add device at new map



- ① Drag-and-drop icons (Camera, Relay, Mic) to the Map window.
- ② Camera, Relay and Mic will be registered.
- ③ Click Zone icon on the toolbar.
- ④ Add a zone (Green rectangle) on the Map window.
- ⑤ Drag-and-drop a sensor icon inside the Zone(Green rectangle)
- ⑥ The sensor will be added, and you can add several sensors in the same way.
- ⑦ Registered devices will be shown on the "Map tree".
- ⑧ You can change zone name and its color, color when an event occurred, background color, etc.
- ⑨ If all devices are registered, please click [Save] icon to save a map.

## See the Map Image



- ① Select a map
- ② Click right-button of mouse on the map, and select [Play All channel]
- ⑤ Video from all channels will be shown at Live Viewer
- ③ ~④ If you click camera or camera icon on the map, you can see video from the camera.
- ⑥ Click right-button of mouse on the map, and select [Stop All channel]
- ⑦ All video at Live Viewer will be disconnected.
- ⑧ Select a camera icon, and execute [Search] by clicking right-button of mouse. Control Center Playback will be executed and it will connect the selected unit automatically to play the recorded video.
- ⑨ If sensor works, zone's color will be changed from green to red.

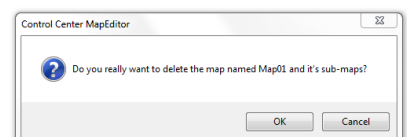
## Map editor

In the popup of map list window, choose **[Map editor]** or click **[Editor]** icon, it executes "Map editor", how to edit is same operation with map addition.

## Map delete

To delete map, it should execute map editor. In the map editor map list, click right mouse to popup menu and click **[delete]**.

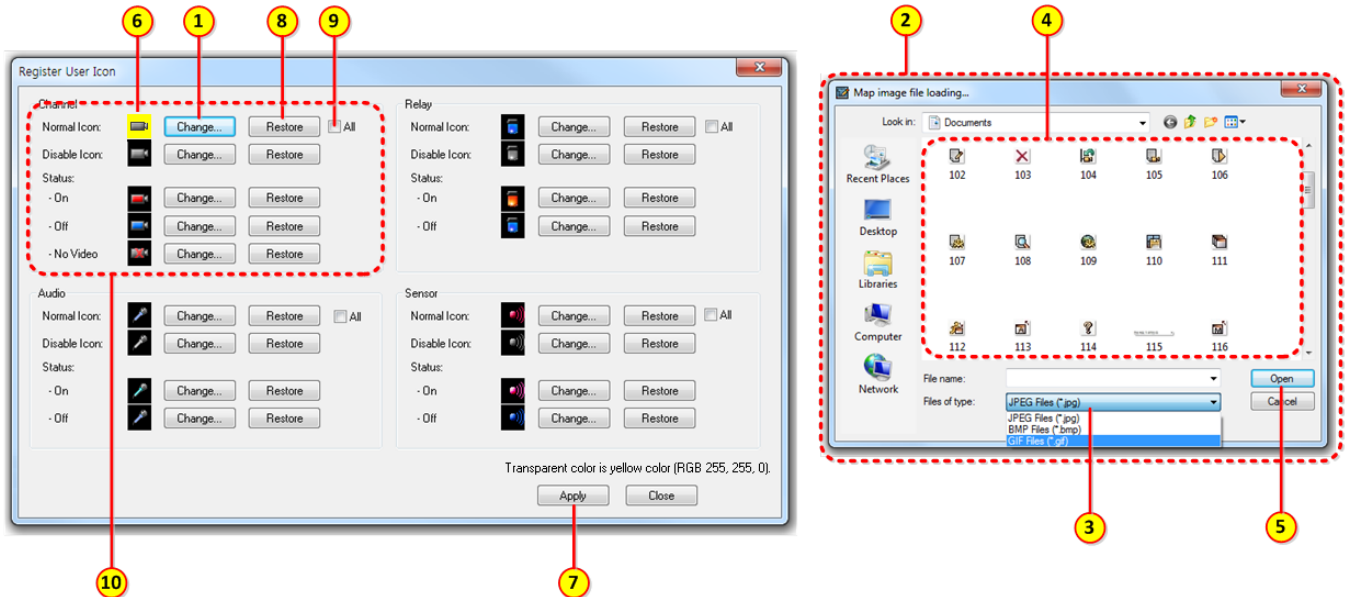
In the map delete confirmation window, click **[Yes]** to delete the map at the list, click **[No]** to cancel the delete.



## USER ICON REGISTRATION

You can register and use the installation icon that is registered on the map as you want.

Select the **[Register User Icon]** on the menu toolbar, and "Register User Icon" window pop-ups.



- 1) In User icon registration, ① click the **[Change]** button, ② It pop-ups "Map image file loading" window, ③ select the type of file
- 2) Among the file of designated type ④ Select the file, ⑤ click the **[Open]** button, ⑥ icon is set up to new one. ⑦ When you click the **[Apply]** button below, it is applied to these items.
- 3) ⑧ When you click the **[Restore]** button, it returns to the default icon, ⑨ when you select **[All]**, ⑩ all icons in a group are set up to new ones.

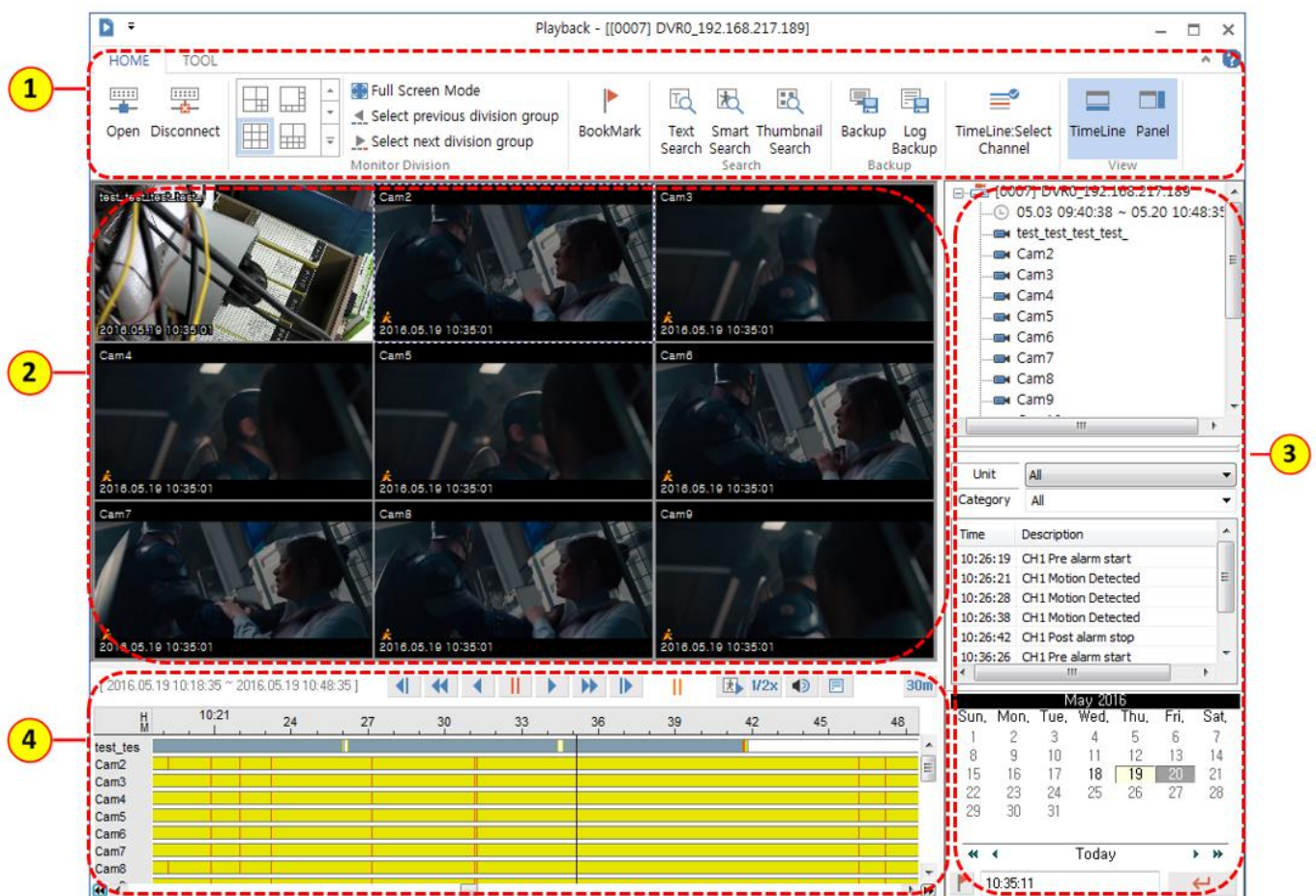
<Note>


If you assign Yellow (RGB 255.255.0) to an icon, the icon will be treated as transparent. That is, if you assign grey to a camera icon and assign Yellow (RGB 255.255.0) to the background, camera icon will be shown on the transparent background.

# Playback Viewer

## Screen Composition and Function name

### Screen structure



Item		Description
1	Menu/Toolbar	Display menu and function button.
2	Video window	Display playback video
3	Log viewer	Display log related to the loaded timeline section.
	Disk info	Display disk use information and whole recording section
	Channel selection	Select channel for playback
	BookMark (  )	Display the Bookmark (channel, time, memo) saved on DVR
4	Calendar / Time search	Select the date from calendar and search the data.
	Playback control button	Control playback function using button.
	Timeline	Display saved information of unit and search time line.

## Video window display information

Configure display information on playback video via caption configuration



Item		Description
1	Channel number	Show the channel number
2	Channel name	Show channel name
3	Time	Show the time of unit
4	Event	Show the event information of the channel
5	Time Zone	Show time zone configuration value
6	Speed	Show video playback frame information of the channel

## Icon function

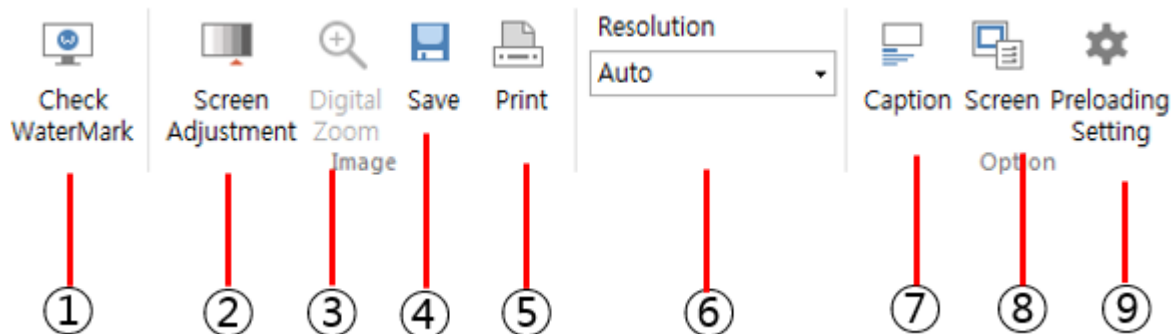
### Toolbar – HOME



Item		Description
1	Open	Connect to the site or open the saved file.
2	Disconnect	Terminate the connection.
3	Division	Select the one of various display division mode. Support the max 16 channel video searching and playback at the same time.
4	Full Screen	Display the view area on full monitor without any toolbar.
5	Select previous division Group Select next division Group	Select previous or next division group if there are more channels than current screen division mode. For example, if 16 channel DVR is selected and user choose 4 division and ch5~ch8 are displayed, 'next division group' means ch9~ch12 and 'previous division group' means ch1~ch4.
6	Bookmark	Display the Bookmark (channel, time, memo) saved on DVR
7	Text Search	Search the text within searching period or by channel.
8	Smart Search	User can set the interested region to find motion and user can search the motion detected video on interested region.
9	Thumbnail Search	After user sets the interval and time period for specific channel, user can search the video by using thumbnail images.

10	Backup	Backup the video by connecting the registered unit.
11	Log Backup	Backup the event log by connecting the registered unit.
12	Timeline: Select Channel	When this icon is ON, the channels which are not selected as playback channels are not displayed on the log and timeline window. When OFF, all channels which are not selected as playback channels are displayed on the log and timeline window.
13	Timeline	Display the timeline or not.
14	Panel	Display the channel selection, the log and the calendar window or not.


## Toolbar - TOOL



Item		Description
1	Check Watermark	Check the watermark to find out the forgery compared with original image.
2	Screen Adjustment	Adjust the brightness, contrast and deinterlace of screen.
3	Digital Zoom	Digital zoom can be enabled when the display mode is single channel. Click and drag the mouse to zoom the selected area. You can move the zoom area by clicking the mini-map video.
4	Save	Save the current image as JPEG or BMP file. You can select and save the caption, name, and date/time and event information in that image file.
5	Print	Print the current image. Basically, caption memo inserted by user, channel name, saved date and event information are printed together.
6	Resolution	You can choose the resolution of video. High quality original resolution can be selected in normal case, lower quality resolution can be selected under slow network environment. This feature can be supported at the model which supports only two or more resolutions.
7	Caption	<ul style="list-style-type: none"> <li>- Caption: Channel number, channel name, time, event, time zone, transmission speed can be displayed or not by selecting.</li> <li>- Select all: All captions are selected.</li> <li>- Unselect all: All captions are unselected.</li> <li>- Font color: User can change the color of font.</li> </ul>
8	Screen	<ul style="list-style-type: none"> <li>- Automatically adjust split screen mode for number of channels: Whenever user selects channels, screen mode automatically adjust split division up to 16 channels.</li> <li>- Color Space: YUV and RGB are supported.</li> <li>- Viewer Mode: Select the aspect ratio of video, full or original aspect ratio.</li> </ul>
9	Preloading Setting	<ul style="list-style-type: none"> <li>- Drive: Set the HDD to store preloading data. It is inactivated during playback. To activate this setting, please set Home &gt; Disconnect.</li> <li>- File Path: File Path for preloading data.</li> <li>- Remaining Disk Size: Set the remaining disk size. For example, if user set 10GB, preloading data will be stored on HDD until the remaining disk size is 10GB.</li> </ul>

# Unit connection and File Open

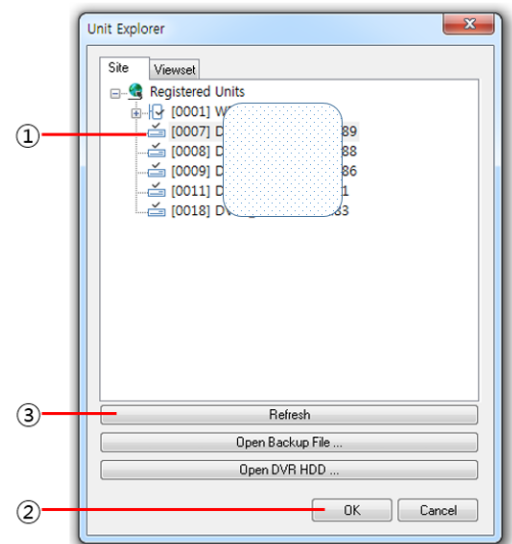
Using search playback viewer, user can access to the registered unit and playback the recording video. Also, user can open backup file and recording video in DVR HDD directly connecting to PC.

To execute "Unit Explorer", click [Toolbar – Home – Open] or  icon shown in tool bar.

## Unit Connection

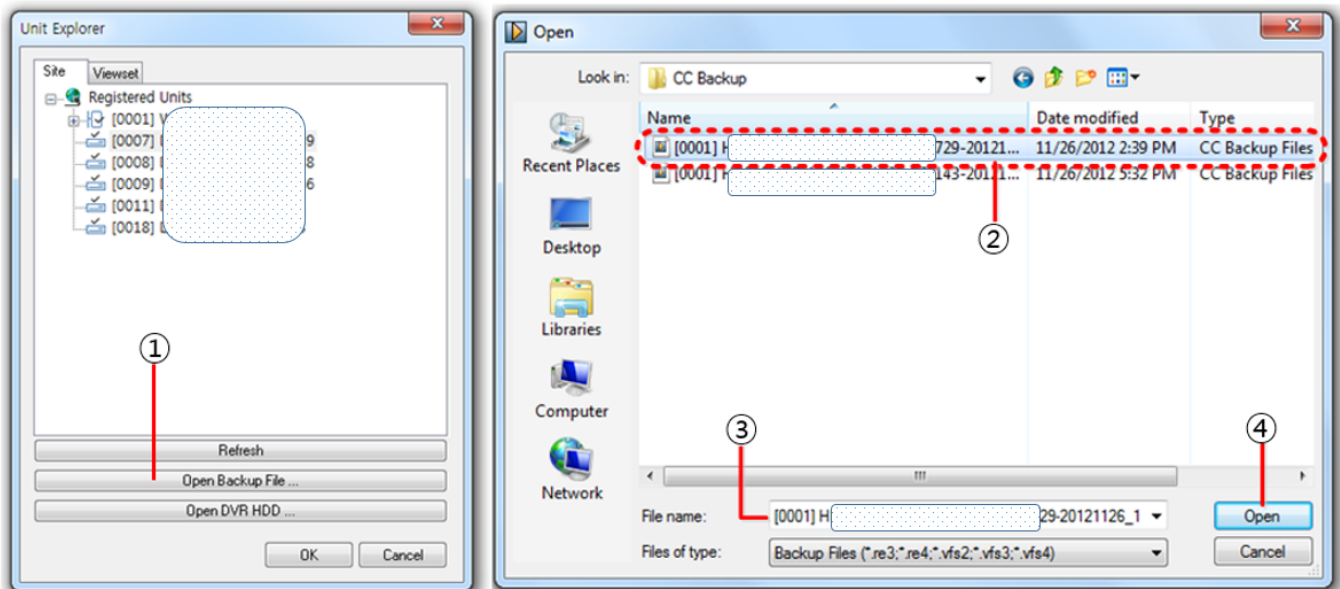
User can playback after accessing to the unit registered in 'Registered Units'.

- 1) Select Unit ① and click ② **[OK]** or double clicking ① unit in 'Registered Units'. If then, saved recording information and log information will be shown and user can playback the recorded video on that unit.
- 2) click ③ **[Refresh]** button for unit list refreshing.



## File Open

User can playback recorded video with opening backup file. Available backup file are "re3, RE4/EXE, vsf2, vsf3, vsf4" and other format is not supported. User can see all the same information like direct unit connection.



- 1) if clicking ① **[Open Backup File]** in Unit explorer, search window will be shown. In the selected folder, if selecting ② file and ③ file name will be shown.
- 2) If clicking ④ **[Open]** button, recording information and log information will be shown and user can playback the backup file. Or drag the backup file and drop the file on the playback window, then you can playback the backup file.

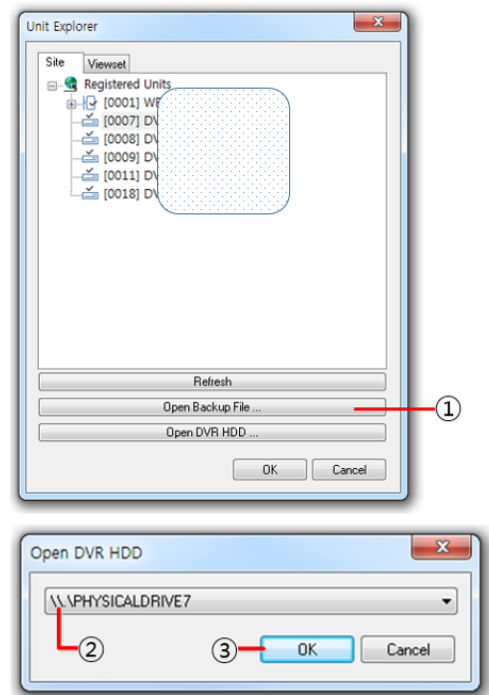
## DVR HDD Open

DVR HDD can be connected directly to PC and user can playback the recorded video in DVR HDD. You can play the recorded data and check DVR logs like you connect a DVR directly.

- 1) In Unit explorer, if clicking ① **[Open DVR HDD]**, user can select DVR HDD.
- 2) In DVR HDD list, if selecting ② HDD and clicking ③ **[OK]** button, recording and log information will be seen.

<Note>


You must execute Control Center Playback as administrator's authority to open DVR HDD.



### <Caution>

1. DVR HDD open can be available over H.264 SD DVR v2.14.10 and all HD DVR. But MPEG SD DVR is not supported.
2. Do not format or edit DVR HDD partition or factory default. After DVR HDD connection, run search playback viewer program and 'DVR HDD open'.
3. HDD which is set as Raid cannot be opened.

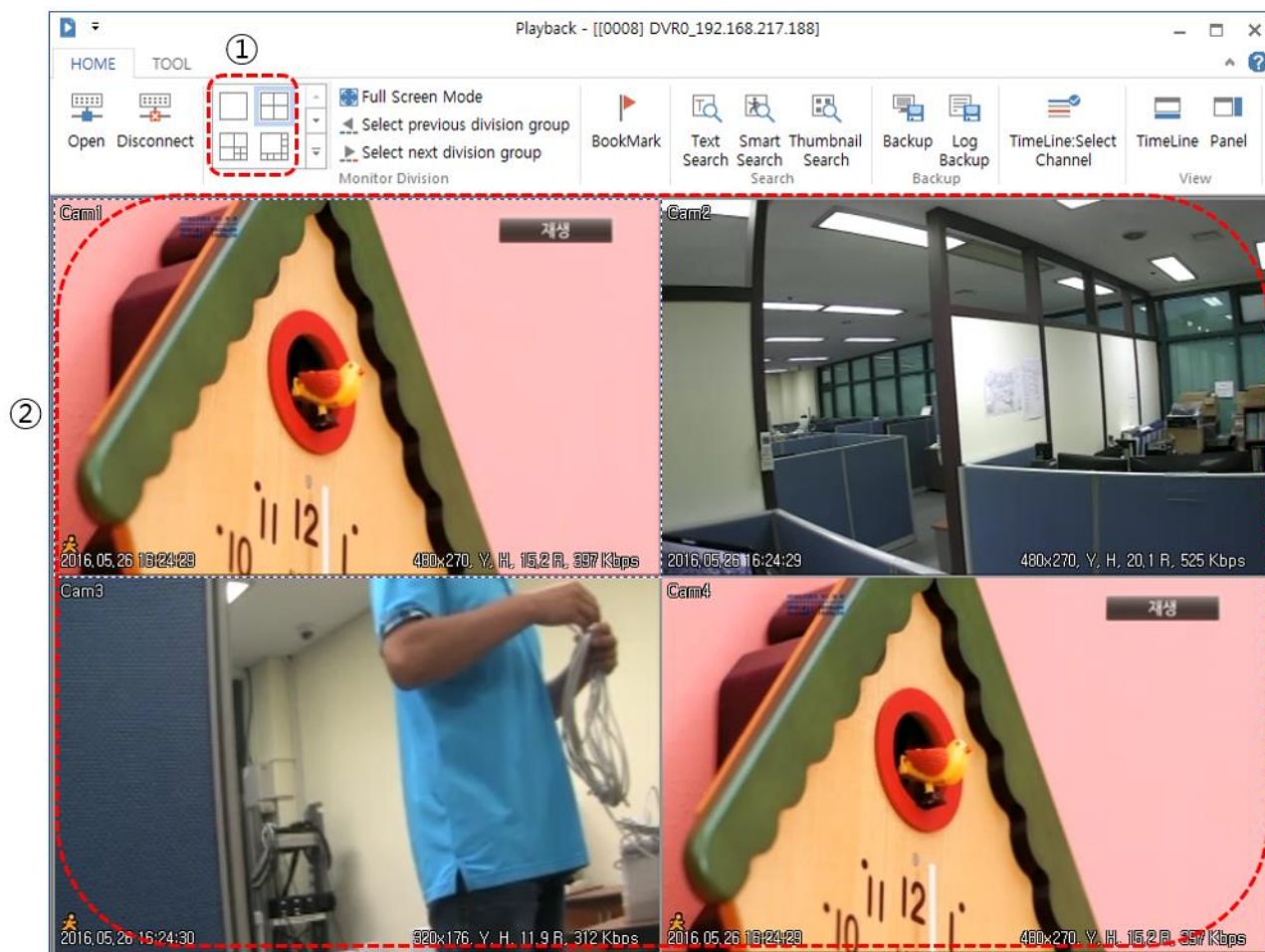
## Connection termination (Disconnect)

If clicking  **[Disconnect]** icon in top toolbar, user can close DVR HDD connection or unit or backup file.

# Basic control

## Screen division mode change

It supports 1~16 split screen division and user can change the screen division mode by clicking ① icon or by double clicking the specific channel.

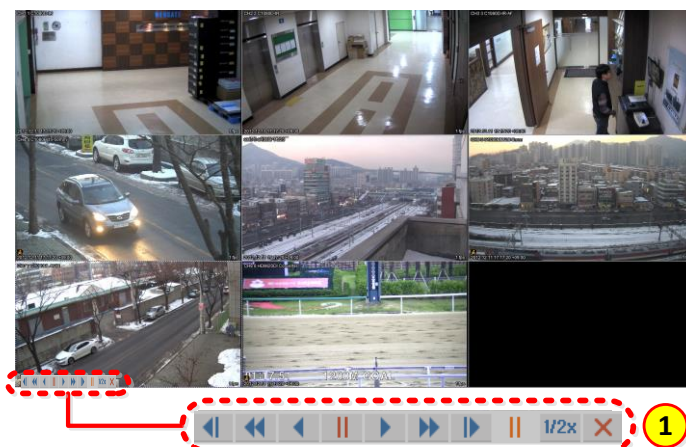


If clicking ① division icon, multi division mode will be shown. If ② double clicking the specific channel, single mode will be shown. When you double click again, the division mode will be changed to previous mode.

## Full screen mode

If clicking [Full Screen Mode] icon, user can run full screen mode and close it with [ESC] button.

Using ① playback control button displayed on left button of full screen mode, user can control playback speed. If clicking [X] button, Full screen mode will be closed.



## Video position change

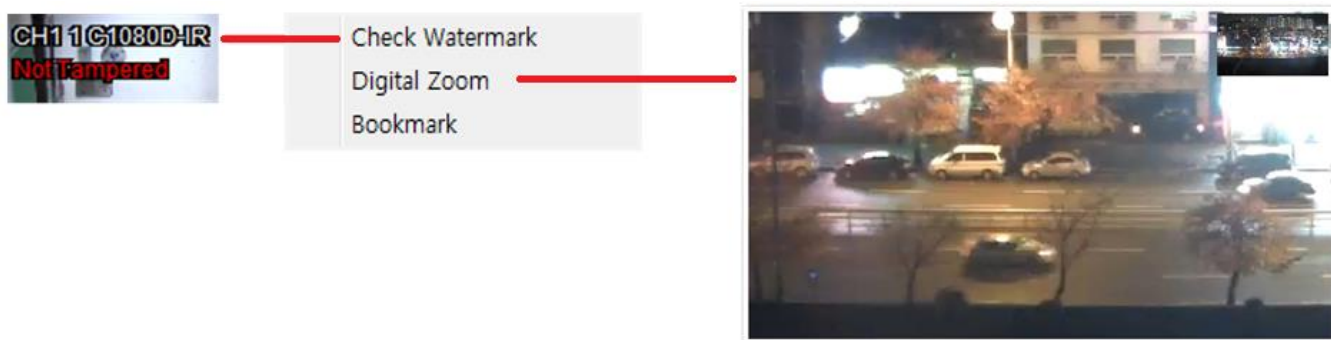
To move video position, select video with mouse and drag it to the position user wants. Position change in between different monitor is also possible.



- 1) Do mouse dragging ① video to ② position, ① and ② will be changed each other.

## Video window popup menu

If pushing mouse right button on the video, menu will be shown and user can use major function. This action is only applied to the selected video only.




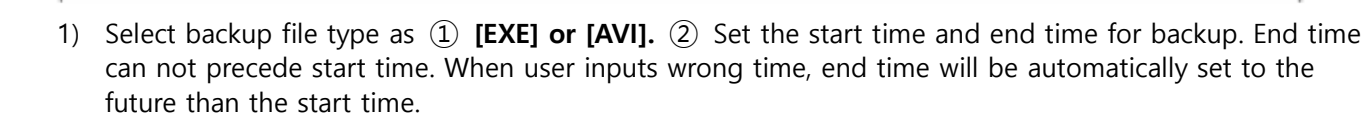
Item		Description
1	Check Watermark	Display if original data is damaged or not.
2	Digital Zoom	In single mode, using mouse dragging, user can zoom in video and if clicking minimap, user can change zoom area.
3	Bookmark	Bookmark saving time, channel, and memo can be checked. (Bookmark will be inactivated during viewset playback.)

## Backup

Access to registered unit in search, playback viewer then back up recorded data or log information. Also open backup file or file of DVR's HDD then select specific section for back up.


### Image backup

There are 2 types of backup, EXE(RE4) and AVI type. EXE(RE4) type support multi channels backup along with backup for event information and other information. AVI backup support playback in widely used player, only single channel using XVID compression method. Click on  **[Backup]** icon in control panel on the left side of program to execute "Backup utility".



- 2) ③ Select the channels to backup. If backup file type is AVI, only one channel can be selected.
- 3) ④ Select the file size to split. If backup file size comes larger than split file size, backup file will be splitted.

<Note>

Bookmark list will be shown by clicking  icon and user can select one of bookmark time.

Backup Utility

From: 2017-06-26 오전 10:01:31

To: 2017-06-26 오전 10:05:32

Channel: \*Select channel to backup  
Cam1

☒ exe (re4 type) ☐ avi (compressed in XVID)

Split File: Not Split 0 Mbytes

File Path: D:\다운로드\WDVR0-20170626\_100131-20170626\_...

Password:

Re-type:

☐ With Audio, Caption (It takes time to backup.)

Buttons: Add, Edit, Remove, Reset

NUM	Server - Channel	From Time	To Time	Split Size	Type	File Path
00	DVR0- Ch1 Ch2 C	2017.06.27 11:31:31	2017.06.27 11:41:31	Not Split	exe(re4)	C:\Users\juy0117\Documents\WDVR0-
01	DVR0- Ch1 Ch2 C	2017.06.26 10:01:31	2017.06.26 10:05:32	Not Split	exe(re4)	D:\다운로드\WDVR0-20170626_10013

Start

Item	Description	
1	Add	Add currently set backup to backup list.
2	Edit	Select backup list and modify the backup configuration. After click [Edit] button, modified backup configuration will be applied.
3	Remove	Select backup list to remove and click [Remove] button to remove.
4	Reset	Click [Reset] button to initialize backup configuration for selected backuplist. All configuration except 'from time' and 'to time' will be initialized.
5	Start / Stop	Click [Start] button to start backup. During backup, this button is changed to [Stop]. Click [Stop] button to stop backup.

## Log Backup

Log backup can be done per channel preferred and selected by user in CSV file. Run "backup utility" by click on [Log Backup] icon in control panel located on the left side of program.

- Set ① start and end time for backup section in log backup window. Start time must not be set later than end time. If wrong time setting by user, program will automatically adjust time in order end time is later than start time.
- Select ② backup channel and item (all, event, status & control, text) in ③ classification menu.
- If click on ④ [...], "save in other name" window come up then enter location and file name and click on [Save] button to close window and confirm file save location and name.
- Log file is saved in CSV format. Click on ⑤ [Start] button to start backup. ⑥ Backup process is shown as %.

Log Backup

From: 2012-03-13 13:40:13

To: 2012-12-26 14:02:10

Channel: \*Select channel for backup  
☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8  
☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15 ☐ 16  
☐ 17 ☐ 18 ☐ 19 ☐ 20 ☐ 21 ☐ 22 ☐ 23 ☐ 24  
☐ 25 ☐ 26 ☐ 27 ☐ 28 ☐ 29 ☐ 30 ☐ 31 ☐ 32

Category: All

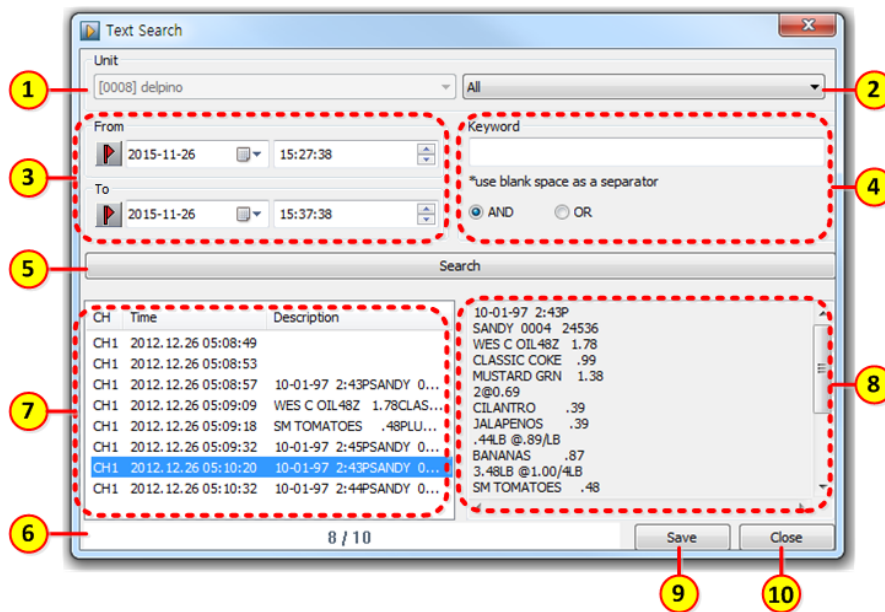
File Name: ...

0% Start

# Search

Various search modes are supported in search and playback viewer for user to search quickly and with ease. Text search can search test recorded in specific time, Smart search can detect image of motion detected and Thumbnail search can be made on specific search section set by user.

## Text Search



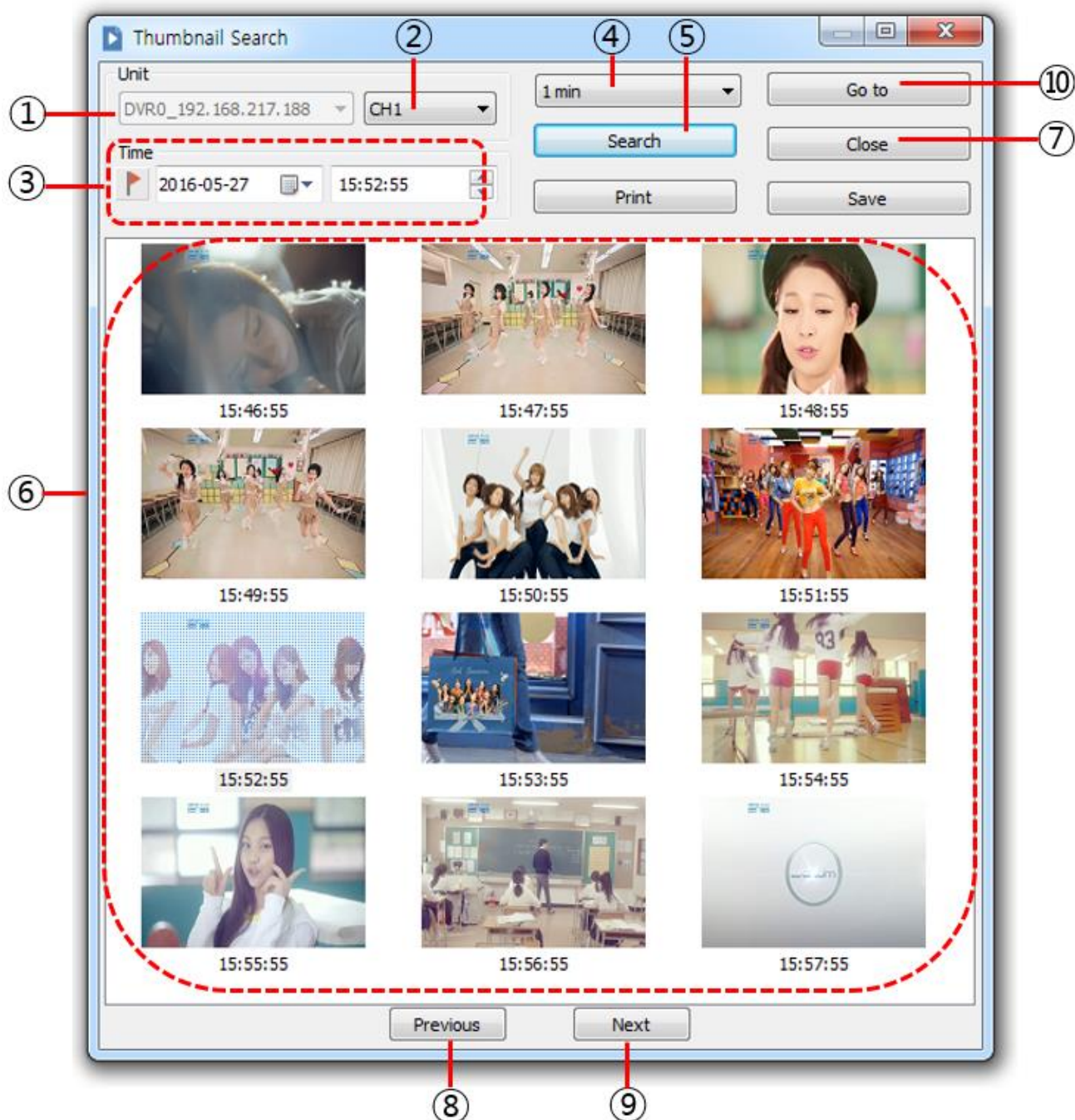
- 1) Shows ① connected unit name in text search window.
- 2) Select ② search channel then set ③ start and end time for search section. At this time, Start time must not be set later than end time. If wrong time setting by user, program will automatically adjust time in order end time is later than start time.
- 3) ④ Keyword search is possible, if user doesn't want keyword search, just leave this space empty then click on ⑤ **[Search]** button. There will be ⑥ status bar showing search status and ⑦ searched text lists will be shown once search is done.
- 4) Select text list to see ⑧ text description. Double click on the lists to move to the timeline and show image related with text.
- 5) Click on ⑨ **[Save]** button to save searched text in TXT file format then click on ⑩ **[Close]** button to complete text search and close window.

## Smart Search



- 1) ① indicates connected unit name.
- 2) Select ② search channel and set ③ start and end time for searching. At this time, start time must be set earlier than end time. If user sets wrong time, program will automatically adjust time in order that the end time is later than start time.
- 3) ④ Search interval can be set. If select "The 1st of consecutive images", it will search motions for all images (frames) and show the 1st image among consecutive images. If select "1st image for every second(s) selected", it will search motions at every configured second(s) and show the 1st motion detected image.
- 4) Select ⑤ the area to detect motion. Only the images having motions at that area will be detected. It is very helpful feature to increase the searching speed.
- 5) Click ⑥ **[Clear]** button to clear all area or click ⑦ **[Set All]** button to select all area as motion detection area.
- 6) Start search by clicking ⑧ **[Search]** button and ⑨ search status will be shown in progress bar. Number of searched image frames will be shown in progress bar after the search is done.
- 7) Searched images will be shown in ⑪ as thumbnail images. If click a specific thumbnail image, it will be shown in ⑩ window. If double click ⑪ thumbnail image, the time of playback window goes to the time of that thumbnail image.
- 8) Click on ⑫ **[Close]** button to complete smart search and close search window.

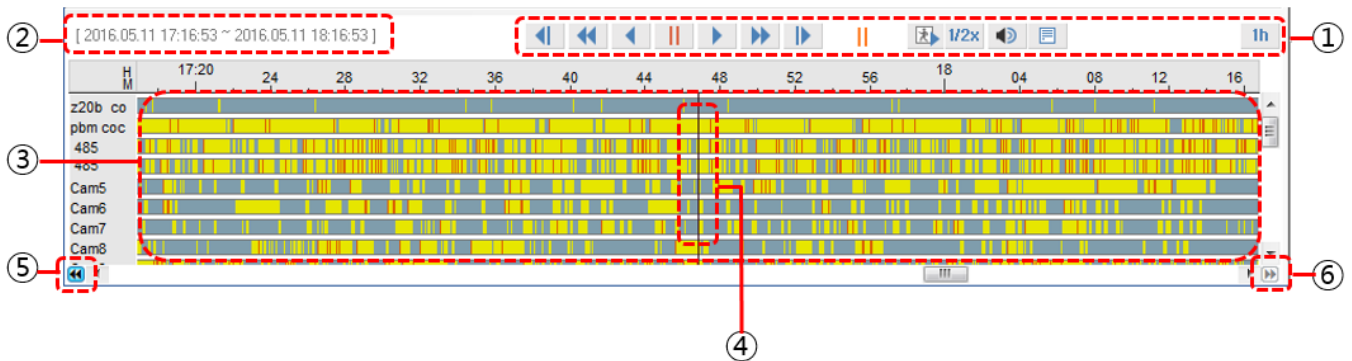
## Thumbnail Search



- 1) It shows ① connected unit name in thumbnail search window.
- 2) Select ② the channel to search, then set ③ start time for searching.
- 3) Set ④ interval time between thumbnails, then click on ⑤ **[Search]** button to start search. Once search is done, ⑥ thumbnail images will be displayed according to the setting.
- 4) Search results (thumbnail images) are displayed on ⑥ the search result window as much as it can be shown. Click ⑧ **[Previous]** and ⑨ **[Next]** button to continue searching.
- 5) If user double clicks the thumbnail image or clicks the thumbnail image and click ⑩ **[Go to]** button, the time of playback window goes to the time of that thumbnail image.
- 6) Click on ⑦ **[Close]** button to complete thumbnail search and close search window.

# Timeline

Timeline viewer support graphical indication for normal recorded and event recorded section. User can select preferred section using mouse and user can select various function and control related to playback in this timeline window.



- 1) Image playback control can be done using ① playback control buttons in timeline viewer. Please refer to below table to know description of playback control buttons.
- 2) It indicates date/time information for searching section shown in ② timeline.
- 3) Timeline is shown in ③ graph and playback is enabled by selecting search section using ④ slide bar. The log properties of timeline are classified in different color (Grey: normal record, Yellow: motion detection, Red: sensor input, Orange: event pre/post, Wine: text).
- 4) Click on ⑤ button to maintain search time with one day back, ⑥ button with one day forward.
- 5) Timeline will re load and show information about time of moved date.

## Description on playback control button

Button	Description
	Shows one step back image
	Playback image in reverse
	Stop playback.
	Playback image in forward.
	Shows one step forward image
/	Set the playback mode, 'event only' or 'all video'. Click this icon to toggle the playback mode.
/	Set the speed of playback, 1x, 2x, 4x, 8x, 16x, 24x, 32x, 64x.
	- ALL: Play all frames of video at the maximum speed. The speed of playback depends on the performance of PC and the speed of network.
	- 1/2: Play the video at 1/2 speed.
	- 1/4: Play the video at 1/4 speed.
~	Section (10min, 30min, 1hour, 3hour, 6hour, 12hour, 24hour) to be shown in timeline can be selected. There will be popup window marking record section of selected time on the timeline and showing loading status of log. User can cancel this while timeline log is loading.

## Use of Jog & Shuttle and Shortcut Key

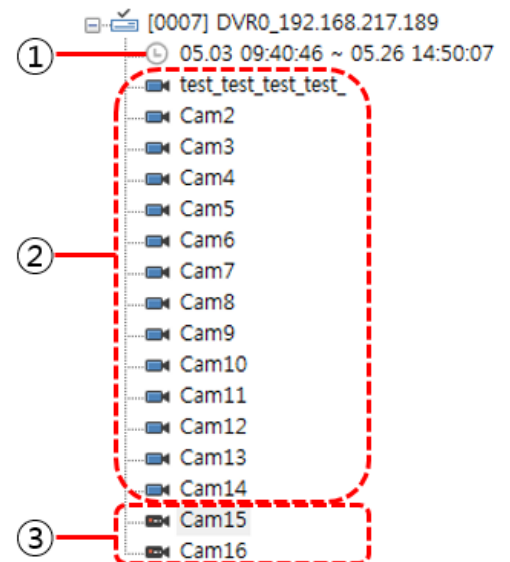
Control Center Playback supports external controller such as Jog & Shuttle keyboard and supports shortcut key. Thus, user can easily control the playback function. Also, external controller which supports shortcut key can be used for easy playback control by mapping the shortcut key.

Key map			
Input	Value	Action	Key Value
Jog	Clockwise	Forward Frame Play	Alt+Shift+Right
	Counter-clockwise	Backward Frame Play	Ctrl+Shift+Left
Shuttle	Move and center	1x Backward Play	Ctrl+Shift+`
	Left1	2x Backward Play	Ctrl+Shift+1
	Left2	4x Backward Play	Ctrl+Shift+2
	Left3	8x Backward Play	Ctrl+Shift+3
	Left4	16x Backward Play	Ctrl+Shift+4
	Left5	32x Backward Play	Ctrl+Shift+5
	Left6 or over	64x Backward Play	Ctrl+Shift+6
	Move and center	1x Forward Play	Alt+Shift+`
	Right1	2x Forward Play	Alt+Shift+1
	Right2	4x Forward Play	Alt+Shift+2
	Right3	8x Forward Play	Alt+Shift+3
	Right4	16x Forward Play	Alt+Shift+4
	Right5	32x Forward Play	Alt+Shift+5
	Right6 or over	64x Forward Play	Alt+Shift+6
	Leftmost	Backward Frame Play	Alt+Shift+Left
	Left	Backward Play	Alt+Shift+<
Buttons	Center	Pause	Alt+Shift+?
	Right	Forward Play	Alt+Shift+>
	Rightmost	Forward Frame Play	Alt+Shift+Right

## Recording interval and channel display

Shows the recording interval and activated channels for currently connected disk. Only selected channels will be played.

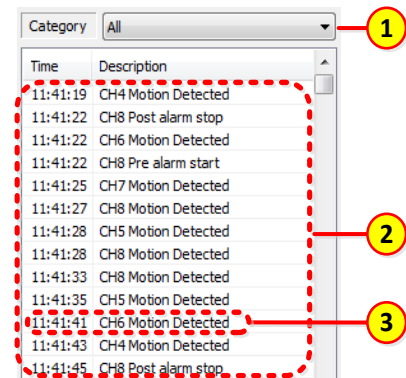
- ① Shows the start and end time of recorded video.
- ② Shows selected channels to play.
- ③ Shows unselected channels to play.



## Log Viewer

There are log lists for searching section loaded on time line in the log viewer. Log information for selected channel will be shown and user can select classification to classify them. Double click on log in the log list to move to recorded data of the log to check its recorded image.

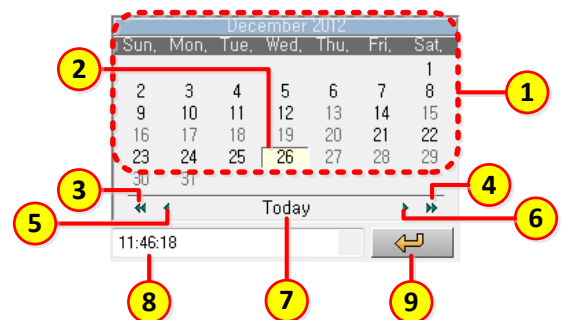
- 1) There are log lists ② for loaded section on timeline in log viewer window.
- 2) Select All/Status & Control/Text/Motion/Alarm in classification ① to classify and see preferred log data.
- 3) Double click on log list ③ to move to playback section of the log to see recorded image for the log.



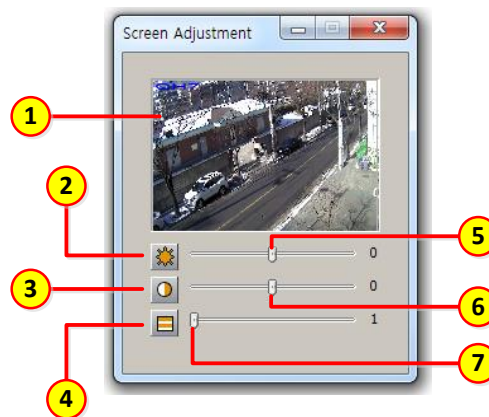
## Calendar Search

It indicates recorded date. Selecting date or enter time to search recorded data directly.

- 1) Calendar is shown and ① recorded date will be marked in block letter in connected disk so user can select date. Selected date is shown by ② marking.
- 2) Move to ③ previous year. Move to ④ next year. Move to ⑤ previous month. Move to ⑥ next month. Move to ⑦ today's calendar. ⑧ Enter the time in selected date for search.
- 3) Click on ⑨ the button to search based on entered time then show it on timeline.



## Image Control

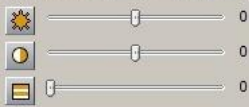


Item		Description
1	Video View	It displays the selected video channel.
2	Default Brightness	Brightness turns to the default value. Default value is 0.
3	Default Contrast	Contrast turns to the default value. Default value is 0.
4	Default Deinterlace	Deinterlace turns to the default value. Default value is 1. (This feature is activated only when the input video is the interlaced video.)
5	Brightness Control Bar	It controls the brightness of video. Available range is -100 to 100.
6	Contrast Control Bar	It controls the contrast of video. Available range is -1000 to 1000.
7	Deinterlace Control Bar	It controls the use of deinterlace function. 0 means de-interlace off, and available range is 0 to 100.

Example of Image control

Item		Description
Default	  <input type="range" value="0"/> 0  <input type="range" value="0"/> 0  <input type="range" value="1"/> 1	 CH7/010101-IR43 2012.11.04.15:37:52-09:00
	  <input type="range" value="100"/> 100  <input type="range" value="0"/> 0  <input type="range" value="1"/> 1	 CH7/010101-IR43 2012.11.04.15:37:52-09:00
Brightness	  <input type="range" value="-100"/> -100  <input type="range" value="0"/> 0  <input type="range" value="1"/> 1	 CH7/010101-IR43 2012.11.04.15:37:52-09:00
	  <input type="range" value="0"/> 0  <input type="range" value="1000"/> 1000  <input type="range" value="1"/> 1	 CH7/010101-IR43 2012.11.04.15:37:52-09:00
Contrast	  <input type="range" value="0"/> 0  <input type="range" value="-1000"/> -1000  <input type="range" value="1"/> 1	 CH7/010101-IR43 2012.11.04.15:37:52-09:00

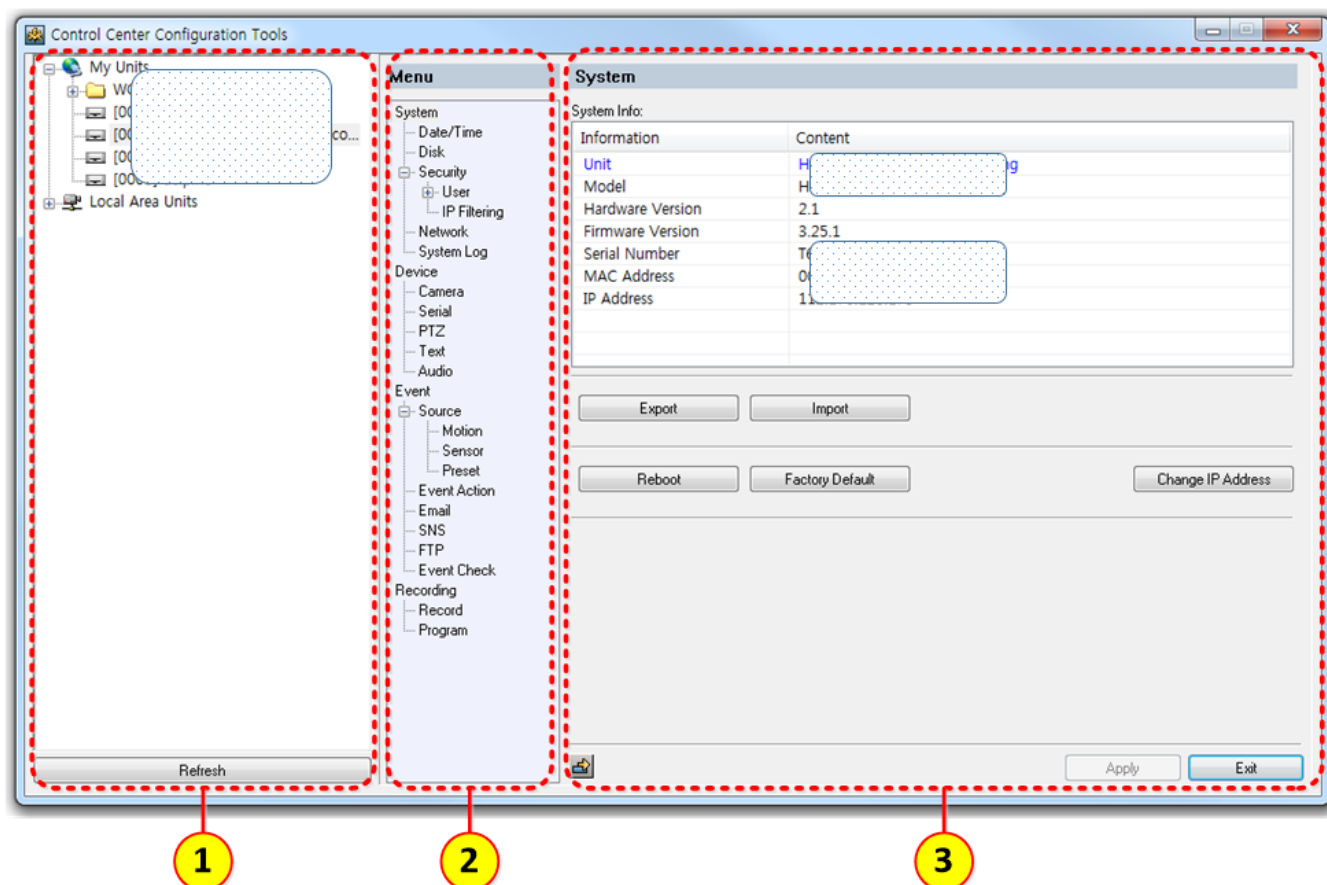
De-Interlace



# Configuration Tools

Registration on Control Center or configuration on unit connected via local network is possible. It can be used for all units having WESP protocol supporting effective and integrated management.

## Screen Composition

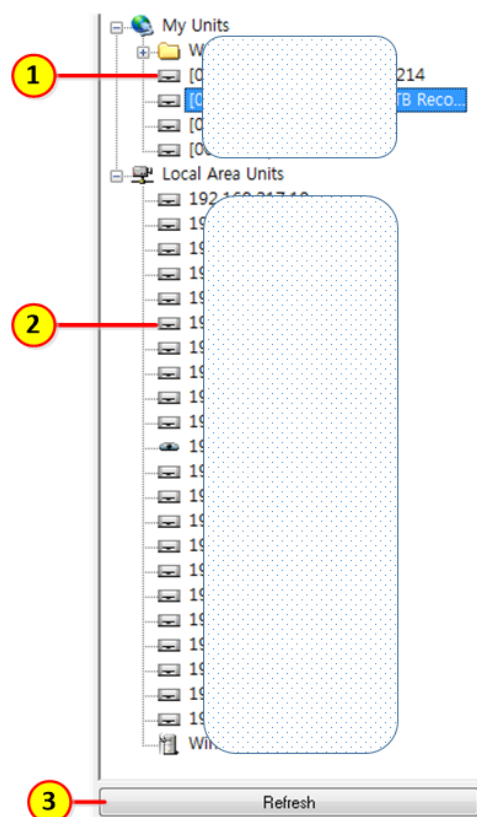


Item		Description
1	Unit list window	It shows units registered in user's account. Click on unit to access to it.
2	Menu window	It shows list of menu. Click on it to connect to the menu. Menu will be shown differently based on connected model.
3	System window	It shows configuration information of selected menu and user can change configuration value. For configuration details on each item, please refer to user guide of each model.

# Unit Connection

It shares unit list registered in "Registered Units" of live viewer. When connect to the unit not registered in "Registered Units", authorization process is required for use.

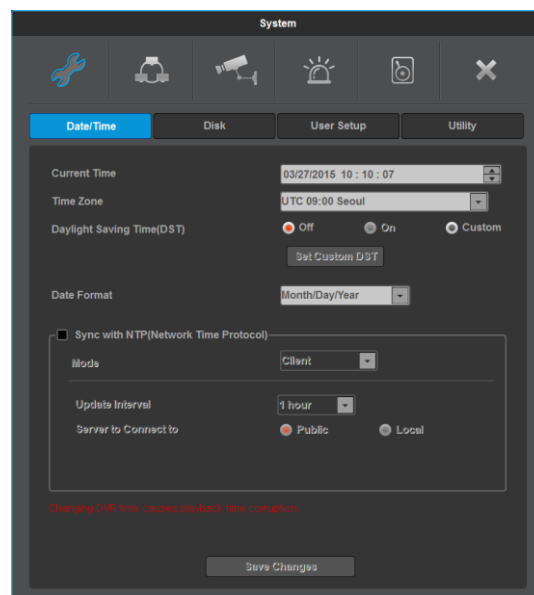
- 1) If user select unit already registered in "Registered Units" in unit list window, user can access to unit. If user select unit registered in "Unregistered Units", the window asking manager password will pops up and user can access to the unit once entered password is authorized.
- 2) Once user access to the unit, the menu of the unit will be shown in menu window.
- 3) Click on ③ **[Refresh]** button to update unit list.



## UI use

If connected to unit of FW version over V4.x, it will supply same UI of unit's menu OSD. To use this UI, additional plugin is required but it will be downloaded and installed automatically once connected to unit.

For more information about configuration method, please refer to user's guide of each product.

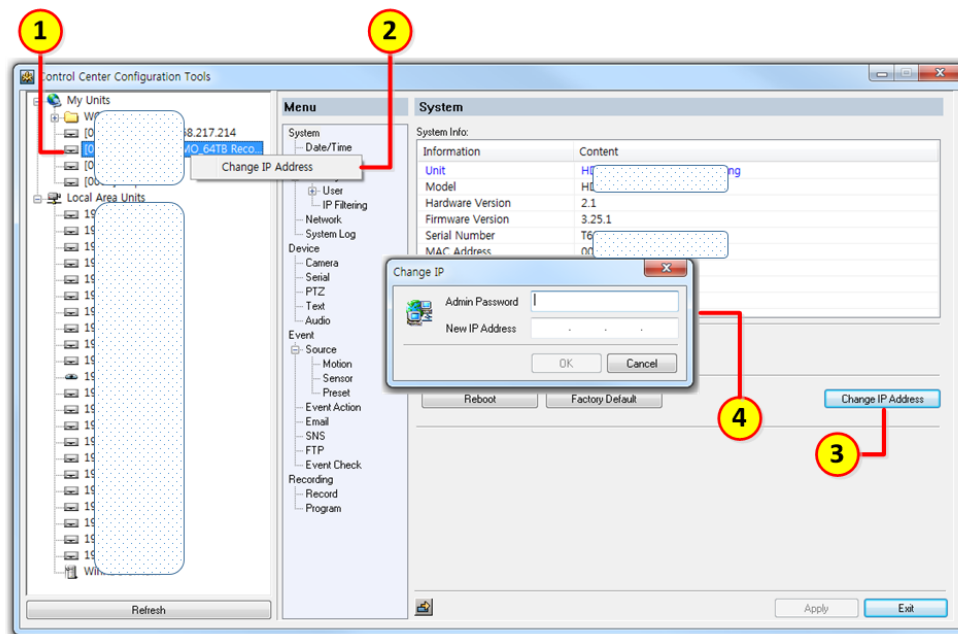


### <note>

1. UI is supportable only in products of FW version over v4.x.
2. If UI cannot be executed, remove files and folders under "C:\ProgramData\Digital Image World\Control Center\config" and try again.

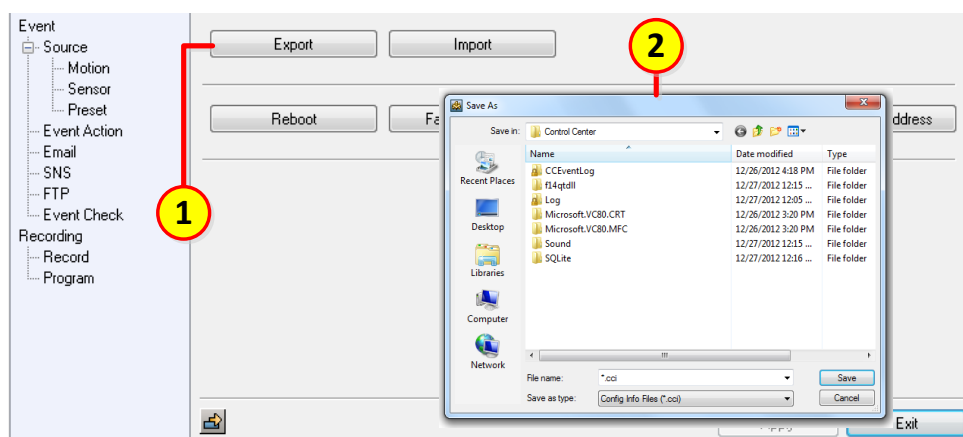
# Basic Function

## IP address change



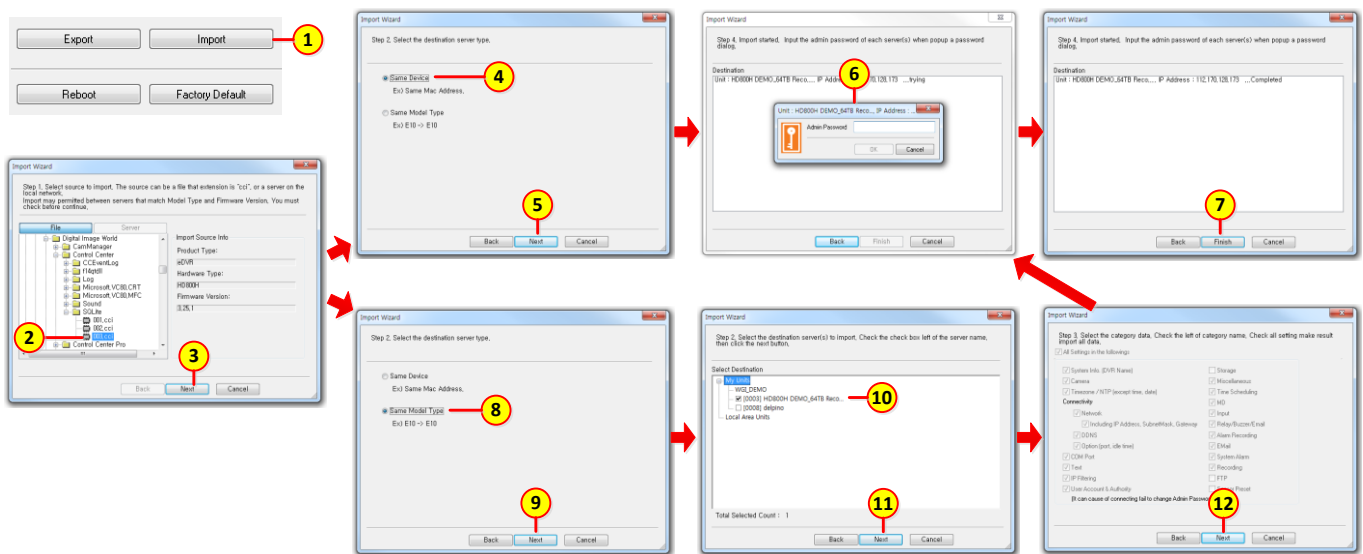
Select ① unit in unit list window and click on ② **[Change IP Address]** in popup menu or ③ **[Change IP Address]** in system information menu of configuration window by right mouse click then ④ Change IP window will pop up. Enter administrator's password and IP address to change then click on **[OK]** button to change IP address.

## Export Unit Configuration



Click on ① **[Export]** button in configuration window and there will be window of ② "save in other name". Select save location, enter file name then click on **[Save]** button to save file in the location.

## Import unit configuration



### Import configuration of same device

- 1) Click on ① **[Import]** button in configuration window to activate import wizard. Select file saved as ② "export" then click on ③ **[Next]** button.
- 2) Select ④ **[Same Device]** in step 2 then click on ⑤ **[Next]** button.
- 3) Turn into step 4, there will be popup window asking ⑥ "admin password". Enter password and click on **[OK]** button to proceed with configuration import.
- 4) Click on ⑦ **[Finish]** button to complete configuration import and the window is closed.

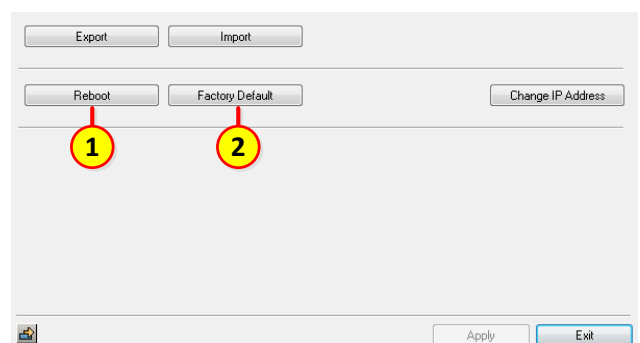
### Import configuration of same product family

- 1) Click on ① **[Import]** button in configuration window to activate import wizard window. Select file saved as ② "export" then click on ③ **[Next]** button.
- 2) Select ⑧ **[Same Model Type]** in step 2 then click on ⑨ **[Next]** button. Select ⑩ unit to adopt configuration then click on ⑪ **[Next]** button.
- 3) Turn into step 3, there will be items adopting configuration shown. Click on ⑫ **[Next]** to move to step 4.
- 4) There will be ⑥ "admin password" window pops up. Enter password and click on **[OK]** button to activate configuration import.
- 5) Click on ⑦ **[Finish]** button to complete configuration import and window will be closed.




## Unit restart and factory default

Unit restart and unit factory default can be controlled in configuration tool. We recommend to save configuration setting value through configuration export feature since all configuration value will not be recovered once factory default is done.

- 1) Click on ① **[Reboot]** button in configuration window then click on **[Apply]** button to restart unit.
- 2) Click on ② **[Factory Default]** button then click on **[Apply]** button to make unit to achieve factory default.



## Hide tree

Click on  icon to hide unit list window and the icon will convert into  icon. Click again  icon to show unit list window again.

# Tools

## Schedule Backup

Recording data of DVR or WinDVRs can be backed up to a PC by Schedule Backup program. Only Administrator account can use the Schedule Backup.

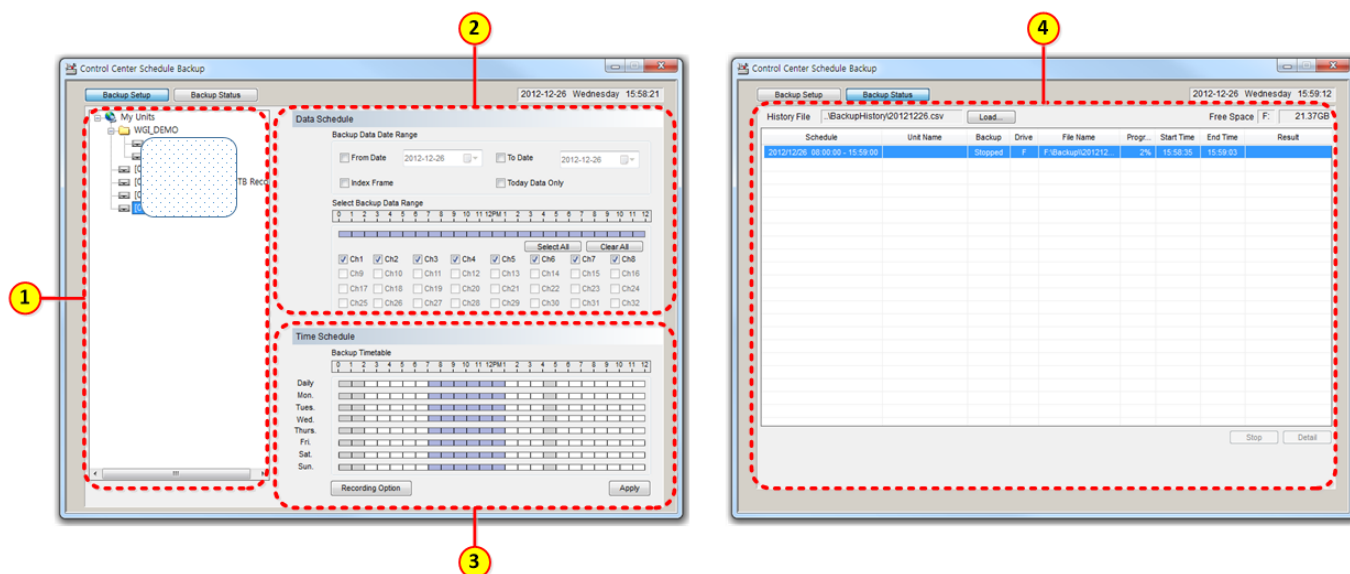
Reservation of Schedule Backup is available and it is automatically executed by reserved schedule. Schedule Backup program should be run at background to execute the backup. If Control Center was properly installed, Schedule Backup is automatically registered and it will be executed after PC booting.

Schedule Backup works at only 1 PC for only 1 unit at the same time, and regarding 1 unit, only 1 Administrator can reserve the backup. Created backup file can be played by Control Center Playback program.

### <Note>

Schedule backup PC and DVR must have same time zone

## Screen Configuration

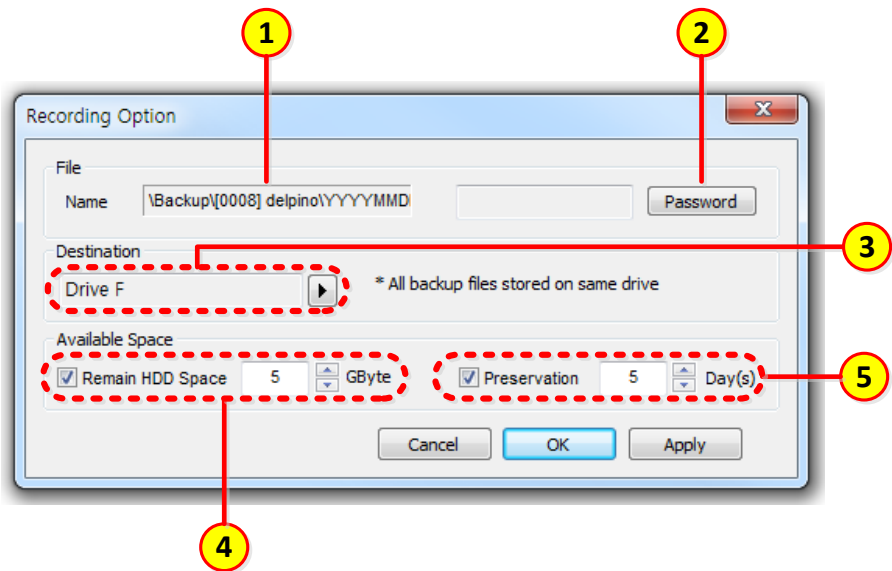


Function		Description
1	Unit List	It displays the unit list, and user can connect the unit by click.
2	Backup Data setting window	Channel to backup, Backup period can be configured.
3	Backup Schedule Setting window	Configures the time schedule. Only 1 unit can be configured at the same time.
4	Backup State Window	It shows Backup progress and completion state. User can open the history file and check the details by date.

# Backup Setting

## Recording Option

Drive to save the backup file, backup file password, conservation of minimum HDD space, retention period of backup file can be configured. Drive setting is applied to all units, but the other settings are applied to each unit separately. If **[Recording Option]** button is clicked, below Recording Option window appears.



Item		Description
1	File Path and Name	Backup file name and path is automatically decided and it cannot be altered by user. Recording path is /Backup/Unit name/ and file name is assigned as YYYYMMDD_HH_MM_SS. Be careful that if unit name is changed, it also changes the recording path.
2	Password	User can assign a password to the backup file. The default condition has no password, so if you want to make a password then you have to leave the current password as blank. Password protected file can be played after proper password input.
3	Recording Drive	User can assign the drive to save the backup file. Selected drive is displayed as "Drive C, D". User can assign more than 1 drive at the same time, and this drive setting is applied to all units.
4	Available HDD Space	If there is no enough space, old backup files are automatically overwritten. If user assigns the minimum disk space to keep as GB unit, Backup process will keep the space. Available range is 1~100GB.
5	Preservation	User can assign the period to keep the backup file. Period elapsed files will be automatically deleted, and the available range is 1~365 days. Retention period is calculated by first frame's recording time of backup file.

## Setting of Backup data

Diverse backup settings can be configured. User can decide the backup period, channels, date, time, and whether to use index frame backup per each unit.

- 1) The backup period is set based on the date which is recorded in the unit. If you check the "From Date" ①, date input box will be enabled, and you can assign the start data of backup.
- 2) If you check the "To Date" ②, date input box will be enabled and backup will executed to the assigned date. If you check the "Index Frame" ③, only index frames will be backed up. If you check the "Today Data Only" ④, only Today's recording data will be backed up.
- 3) Backup data range can be configured by hour unit. White block means no backup assigned, and if you click the white block, the color changes to blue. If you click **[Select All]** button, all 24 hours will be selected, and if you click **[Clear All]**, all assigned hours will be cleared.
- 4) ⑧ Only backup available channels will be enabled, and you can check the channels which you want to do backup.

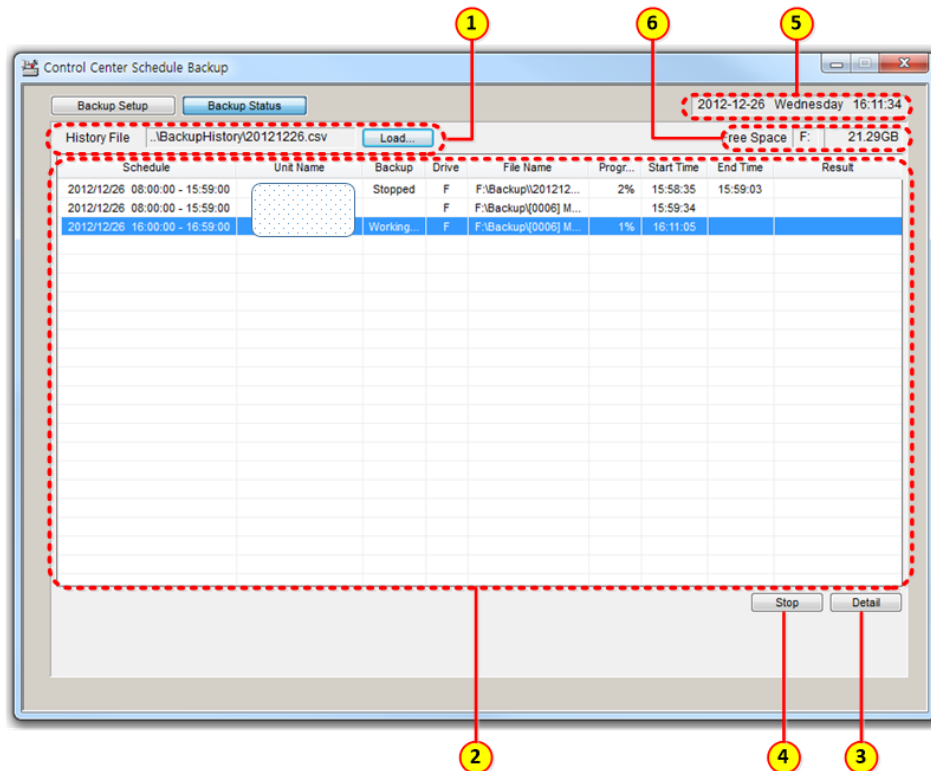
## Setting of Backup Schedule

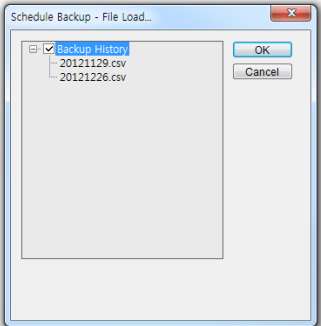
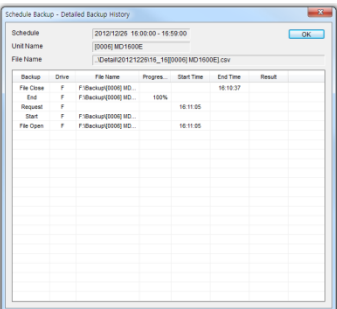
Backup schedule can be configured at PC. If a schedule is already occupied by a unit, the schedule cannot be shared by another unit.

- 1) At Backup time table, white block means no backup is not assigned yet, and blue block means it is assigned for another unit's backup. If you select the white blocks by mouse, they are changed to blue to show the assigned backup schedule.
- 2) If you select ① "Everyday", all days of the week changed at the same time. Instead of that method, you can select hours of each day ②. Already backup assigned blocks are displayed as blue, and if you move the mouse to the block, tooltip shows its unit's name.



## Backup Status

If you click **[Backup state]** button, you can see the backup details. All completed or ongoing backup process is shown, and you can get more details by opening the history file.



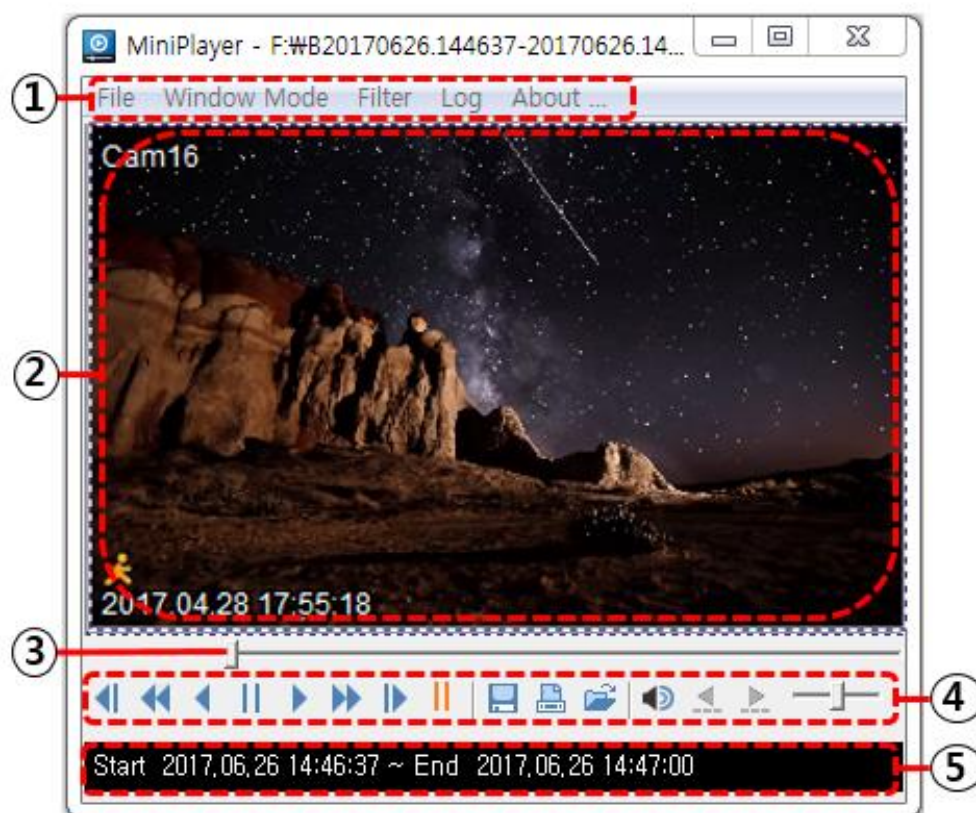
Item		Description	
1	History File	It shows the file path of history file and its name. By selecting the date, you can get the details.	
2	Backup List Window	It shows the backup state of already completed or ongoing backup.	
3	Detail	By selecting the backup list, you can check the details. It displays Backup schedule, Unit name, File name and you can see the backup progress step-by-step.	
4	Stop	It stops backup. If there are another schedules, the next backup will be started.	
5	Date/Time	It displays Date and time	
6	Backup Disk Information	It shows backup disk and its free disk space	


## Tray Icon







After PC booting, schedule backup program is automatically executed and  icon is displayed at tray window. During the backup progress,  icon shows Red marking. When this icon is in display, schedule backup is run as background program. You can open the popup menu by clicking the right mouse button and you can exit or configure the schedule backup program.

## MiniPlayer

MiniPlayer can play the Re4 file. It is useful when a user could not install the Control Center, so when you made a video backup, this MiniPlayer helps its easy play. After execution of the MiniPlayer, "Open" dialog box will be automatically executed, and you may select a Re4 file which you want to play.

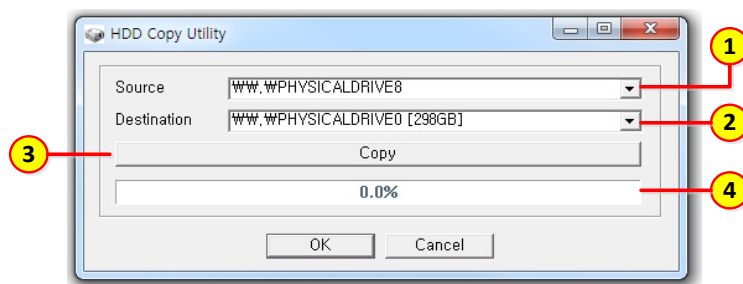


Item			Description
1	Menu	File	You can open a file or exit the program (Open / Exit)
		Window Mode	It changes the split display modes. (1 / 4 / 9 / 16 Channel)
		Filter	It can enable De-interlace mode. De-interlace mode only works for playback of D1 resolution video. (De-interlace / Screen Adjustment)
		Log	It opens log viewer. Log is recorded along with video image. (Log View)
		About...	It shows the software information like version, copyright.
2	Display window		It plays the video Click the right button of mouse on this window. User can use watermark and D-zoom functions.
3	Time line		You can move the playback position by slider bar.
4	Play, Image save, Print, Audio,		You can change the play method by clicking buttons. (Step Backward / Reverse fast playback / Play Backward / Pause / Play)

	Channel change buttons		Forward /Forward fast playback / Step Forward)
			It saves the current image as JPEG, BMP format. Caption, Name, Date/Time, Event information can be saved optionally.
			It prints the current image. Along with image, Channel name, Recording time, Event information is printed, and you can add memo into caption.
			It shows Open dialog box. You can select a file.
			It turns on or off the audio.
			If there are another channels, this buttons move to previous/next channel.
			It controls audio volume.
5	File recording interval		It shows start and end date/time information of the selected file.

# DVR HDD Manager

DVR's hard disk can be connected to a PC and its data can be copied. You may use this method when you want to do backup the entire disk. This is the fastest method to execute the backup.



Item		Description
1	Source	Select a disk where the original source data is saved.
2	Destination	Select a disk where the copied data to be saved. The selected disk should have larger free space than original disk.
3	Copy	If pressed Copy button, a popup window will appear which asks whether you proceed the copy. And, after you enter the Administrator's password, copy will be started.
4	Progressive bar	It shows the progress of copying.

---

# Appendix

## Introduction of WESP SDK

WESP SDK (WEBGATE Embedded System Protocol Software Development Kit) supports software programmer to easily develop a software application that interfaces with WEBGATE products.

Because WESP SDK includes all functions which Control Centervides, you can easily make your own application. Through this SDK, you can manage all configuration of products, can get live monitoring and playback video image.

Besides, WESP SDK is based on Microsoft COM technology, it supports diverse development languages like Visual Basic, Visual C++, Visual Basic Script, Java Script, .Net. WEBGATE's all products were designed under WESP protocol, so your designed application software can be used for all WEBGATE products.

### Main features

- ✓ Provides same instructions for all WEBGATE equipment
- ✓ Easy development environment and method
- ✓ Supports all functions of products

### SDK Composition

SDK consists of Monitor, Discovery, Event, Config, PTZ, and Playback components.

### SDK Examples

#### Example of live monitoring

When you want to get video from network camera or DVR, you can easily implement it by using Monitor component.

Following example shows that if you click the "Live monitoring!" button, application connect a product by entering IP address, port, ID, password. And after the connection, it displays channel 1 video with normal quality, 30frame/second speed.

— < visual basic 6.0> —

```
' If button clicked, try the connection
Private Sub Command_connect_Click()
    Call MonitorCtrl.Connect("192.168.63.1", 80, "guest", "guest_password")
End Sub
' After connection, request the video
Private Sub MonitorCtrl_AckReceived(ByVal ackCode As Long, ByVal param As Long)
    If ackCode = ACK_CONNECT Then
        Call MonitorCtrl.PlayVideo(1, RESOLUTION_NORMAL, 30)
    End If
End Sub
```

< Execution of sample code >



## Example of Recording

If you want to record current video during the live monitoring, following codes provide it.

< visual basic 6.0>

```
Private Sub start_recording_Click()  
    Call MonitorCtrl.StartRecording("c:\quickRec\", "testRecording.re3")  
End Sub  
  
Private Sub stop_recording_Click()    MonitorCtrl.StopRecording  
End Sub
```

## Example of PTZ control

If PTZ is connected, you can turn on/off the PTZ control function during live monitoring by following codes.

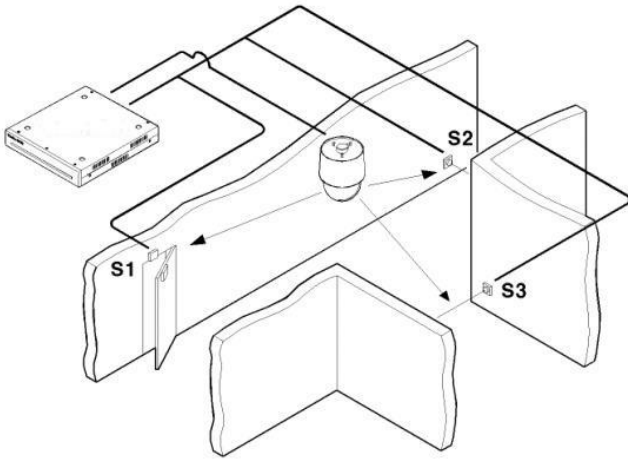
< visual basic 6.0>

```
Private Sub start_ptz_Click()  
    ' Input the PTZ channel number to parameter  
    Call MonitorCtrl.StartPTZ(1)  
End Sub  
  
Private Sub stop_ptz_Click()  
    MonitorCtrl.StopPTZ  
End Sub
```

<Execution of sample code>



## Example of Component interface



Following example is using Monitor, PTZ and Event component, and if a sensor alarm is occurred, PTZ moves to a pre-assigned preset position.

- 1) Above picture shows dome camera and sensor position.
- 2) Configures the preset position of dome camera. (Preset setting can be executed by Config component)
- 3) Following codes support that PTZ moves to the corresponding Preset position according to the alarm sensor input.

### < visual basic 6.0 >

' If start button is clicked, Event, Monitor, and PTZ ActiveX component connect to the equipment.

```
Private Sub Command_start_Click()
```

```
    Call Event1.Connect("192.168.63.1", 80, "guest", "guest_password", 0)
```

```
    Call Monitor1.Connect("192.168.63.1", 80, "guest", "guest_password")
```

```
    Call PTZ1.Connect("192.168.63.1", 80, "guest", "guest_password")
```

```
End Sub
```

' If stop button is clicked, close the connection.

```
Private Sub Command_stop_Click()
```

```
    Monitor1.Disconnect
```

```
    PTZ1.Disconnect
```

```
    Event1.Disconnect
```

```
End Sub
```

' When a event is occurred at server, below function will be executed.

' If Event category is 1 and Event ID is 16 then,

' Sever executes preset command 16 which is correspond to sensor input

```
Private Sub Event1_EventReceived(ByVal pIEvent As WESPEVENTLibCtl.IEvent)
```

```
    If pIEvent.EventCategory = 1 And pIEvent.EventID = 16 Then
```

```
        Call PTZ1.GotoPreset(pIEvent.NumberField)
```

```
    End If
```

```
    If pIEvent.EventCategory = 1 And pIEvent.EventID = 17 Then
```

```
        ' If Sensor input is Off, it will not work.
```

```
    End If
```

```
End Sub
```

' After Monitor component succeeded to the connection, it displays video.

```
Private Sub Monitor1_AckReceived(ByVal AckCode As Long, ByVal Param As Long)
```

```
    If AckCode = ACK_CONNECT Then
```

```
        Monitor1.PlayVideo 1, 3, 15
```

```
    End If
```

# Specifications

	Standard	Professional
GENERAL		
Max. Unit	1024	
Max. Monitor(View)	2	6
Max. Supported Division	1 / 4 / 9 / 13 / 25 / 36 / 49 / 64	
H/W Support	HD Series DVR, LH/EH/MH Series DVR, MD Series DVR, MPEG-4 WebEye Series, NVS04S, WinDVrS, WinRDS	
Video Format	H.264 / MPEG4 / JPG	
Audio Format	ADPCM / True speech / G.723	
User Management	YES	YES Manage Units, Monitor by user separately
Account Level	YES	
Max account	100	
WNS (DDNS)	YES	
WRS (Dynamic IP Registration Server)	YES	
MONITOR		
Performance	6 HD 1080p30	12 HD 1080p30
Real-Time Audio	YES	
Remote PTZ Control	YES	
Remote I/O Control	YES	
Save snapshot image	YES	
Quick Recording	YES	
Alarm Log Viewer, Save/Search Event List	YES	
Auto Action	YES Alarm Popup, Buzzer	YES Alarm Popup, Buzzer, Latch Window, Relay, e-Mail, Preset, Recording, Save image
Rule based auto action	NO	YES
Error Management (Latch Function)	NO	YES Item of errors to be managed are selectable freely
Action Log	NO	YES User action, auto action
Log Save	YES	
Status Viewer	YES	
Auto Connection (Lost & Recovery)	YES	
Watermark	YES	
Keyboard Shortcuts	NO	YES
Joystick (WKC-100)	NO	YES
View Set (group)	YES	
Map	YES	YES Sub Map, Map Link
PLAYBACK		
Playback	YES	
Backup (re4, avi)	YES	
Log Viewer	YES	
Timeline display(log) Timeline index search	YES	
Go to a certain time Calendar search	YES	
Playback event image	YES	
Speed playback(0.5~64x)	YES	
Smart Search	YES	

	Standard	Professional
Thumbnail Search	YES	
Text Search	YES	
Snapshot / Print	YES	
Zoom in/out image Brightness/Contrast	YES	
Audio play	YES	
Fix Layout	NO	YES
<b>UTILITY</b>		
Schedule Backup	YES	
DVR HDD Manager	YES	
File Converter (eye to bmp, rec to avi...)	YES	
<b>System Requirement</b>		
Recommended	Intel Core i5 3.0GHz, 8GB RAM, 1024MB PCI-E Graphic Card Support AGP Accelerate, Support PCI-E 16x of higher, 100/1000 Ethernet NIC, Sound Card	
OS	Windows 7(x64), Windows 8(x64), Windows 10(x64)	

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