This document describes the features and usage of CMS 2.1.

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Chapter#1.#Overview

This chapter contains the introduction to CMS and describes how to register products.

Introduction

CMS is the central monitoring system that manages a variety of network DVR servers and IP camera on the local network and global Internet connection.

Features

The key features of CMS follows:

• Monitor live camera video / audio simultaneously up to 32x32(1024) in a window : Multiple windows can be used concurrently

• Remote Control(Remocon) : PTZ(Pan / Tilt / Zoom) control, relay control, camera properties(brightness / contrast / hue / colorness) control, etc.

• Search, Replay and Backup the remote DVR / NVR recording data

• Save live video / audio streams to the local disks and Search and Replay the local recording data

• Configure multiple remote DVRs and IP camera in one step

• Various jobs which can be linked with the events, SNMP and scheduled : recording, relay control, auto−relay control, PTZ preset, event live, still−image save, quick view, flash effect, sound broadcast, sound play, remote backup, warning message, etc.

• Monitor the status of hosts (DVR / IP camera)

• Bi−directional audio communication

• Grouping of hosts, cameras and sensors

• Multilingual User Interface: English, Korean, Japanese

• Time Zone for each hosts

• Support various database backend for message and event logging

Installation Requirements

To install and run CMS following hardware and OS are required:

• Minimum: Windows XP SP3 / CPU 1.0G / RAM 512M / Intel Graphic Chipset / Disk 100M

• Recommendation: Windows 7 / CPU 3.0G / RAM 2G / NVidia / Disk 1G
Product Models & Registration

Product Models

CMS 2.1 has following models:

• Basic: 8 Hosts / Free
• Standard: 16 Hosts / Registration Required
• Professional: 64 Hosts / Registration Required
• Enterprise: Unlimited Hosts / Registration Required

The models except ‘Basic’ requires product key registration at the start of the program. Therefore, you must contact the retailer to purchase a product key in order to use CMS.
Chapter 2. Tools

This chapter describes the tools of CMS.

Windows

Overview

CMS supports multiple windows for various tools and operations. Every window has the same user interface. This section explains the common functions for all windows.

Design

A window is composed of the following elements:

Title

Every window has the title. If the title of a window numeric suffix, several windows can be created with the same functionality.

![Figure 2.1. Window title](image)

Minimize / Maximize / Close Buttons

Most windows have minimize, maximize and close buttons, but fixed-size windows like Remocon and Quick Connect have no maximize button.

![Figure 2.2. Window control buttons](image)
Tools

Toolbar

Some windows have buttons for the major actions in the toolbar.

![Figure 2.3. Window toolbar](image)

Popup Menu

Every window has the popup menu by clicking the right button on the empty area of the window. The menu list is composed of common menu and window-specific menu.
Figure 2.4. Window popup menu

Common Actions

Following actions can be executed by selecting the menu in the popup menu, clicking the toolbar button or press keyboard shortcuts in all windows.

- Show toolbar: Toggle the visibility of the toolbar.

Figure 2.5. "Show toolbar" menu item

- Window: Show the menu list for the window actions.
Figure 2.6. "Window" sub menu

- Close other windows: Close all windows except the window on which the action is executed.
- Above window: Make the window above other windows.
- Maximize window: Maximize the size of the window.
- Fullscreen: Switch the window to fullscreen mode.
- Keep single window: Don't allow creation of another windows like this type of window.
- Tools: Show the menu list to launch functional windows.
Figure 2.7. "Tools" sub menu

• Stop playing sound: The sound being played by the job stops.

Figure 2.8. "Stop playing sound" menu item
• About... : Show the information about CMS

Figure 2.9. "About..." menu item

• Help Contents : Show the contents of CMS manual.

Figure 2.10. "Help Contents" menu item

• Quit : Close all CMS windows and quit the program. The position and size of all windows are saved and restored on next time.

Figure 2.11. "Quit" menu item

• Close Window : Close the window.
Move the window

Windows can be moved by pressing not also titlebar or but the empty area of windows with mouse left button and moving the mouse.

Window Opacity

The opacity of windows can be adjusted by using CTRL + Mouse Wheel Scroll up to 10 levels. But windows which have video display area like Live Monitor, Search and Replay, can not be adjusted.
Figure 2.14. Transparent window

Window Properties

The new window utilizes some properties of the last window which is the same functionality:

- The size of a window
- Whether a window is maximized
- Whether a window is above other windows
- The opacity of a window

Toolbox

Overview

It provides a collection of icons that you can execute the tools of CMS.

Execute Tools

When you run CMS first, a Toolbox window (Figure 2.15) appears. You can select the icon of the desired tool with double-click or press Enter key in order to launch the window.
Figure 2.15. A Toolbox window

If you click the right mouse button in the Toolbox window, popup menu (Figure 2.16) appears.

Figure 2.16. Pop-up menu in the Toolbox window

If you click Execute selected items on the popup menu, selected items will be executed. If multiple items are selected at once, they are executed at once.

Note that in order to execute tools without Toolbox, you can choose the tools on the 'Tools' sub menu. (see Figure 2.17)
Figure 2.17. "Tools" in popup menu

Edit items

Multiple Toolbox windows can be used, therefore, you can hold only necessary function items of CMS in the Toolbox.

Selecting Add items on the popup menu shows all function items of CMS. (Figure 2.18) If you choose the item which is not yet added, it will be inserted into the Toolbox.
Figure 2.18. Tools menu items

If you choose Remove selected items on the popup menu, selected items are removed from the Toolbox.

You can use mouse drag & drop to change the icon order in the Toolbox.

Figure 2.19. Change the icon order

If you disable Use small icons in Toolbox in Display Preference, the icons of the Toolbox become bigger.
Figure 2.20. Bigger icons in the Toolbox

Quick Connect

Overview

It provides quick connection to the host which is not yet managed by Host Manager, for users to input minimum required information to connect to the host and see live streaming. Connected host information is added to the list of network host automatically.

Usage

If you click Quick Connect on the popup menu or Toolbox, the screen appears, on which the required information for the host connection to be entered.
After you enter the required information to connect and click Connect button, it will attempt to connect to the host. If it connects to the host successfully, Live Monitor for the host is executed.

The host which were connected quickly is automatically added to the list of network hosts in Host Manager. Generally, the address is used for the name of the host. If the address form is domain name, the word preceding the first dot(.) is used for the name. For example, 'demo' is used for the name in case of 'demo.emstone.com'.

The duplicate host which is already registered in the list of network host in Host Manager is not added, and if there is Host Manager window, the host is selected automatically.
Host Manager

Overview

The host stands for the network DVR server and network IP camera. Host Manager manages hosts and provides easy user interface to add, delete or modify the hosts. Additionally, it has basic actions that the user can connect to the host, disconnect from the host or remote control, etc.

Host Manager consists of three parts: List, Property and Group. List shows all registered hosts. Property shows the detailed information about the selected host in the list and allow users to edit the information. Group manages hosts in a tree structure.

Only one Host Manager window can be executed in CMS. If you execute another Host Manager when there is already one, that window is activated.
Figure 2.24. Host manager

**List**

You can add a new host, delete hosts or edit host on the list. If you press Ctrl+A on the list, all hosts are selected. If you select the hosts with the mouse click while pressing Shift or Ctrl, multiple hosts can be selected. Of course, most actions are applied to selected multiple hosts at once.

If you click column headers of the list, hosts are sorted by that column. By clicking it repeatedly, you can choose ascending / descending order. Pressing Ctrl+F allows you to search the host by the name.

**Property**

It shows the detailed information about the selected host in the list.

The property entries of the host is following:

- **Name**: the name of the host
- **Model**: the type of the host. If the model doesn't match, the connection will be failed.
- **Address**: the address to connect
- **Port**: the port number to connect
- **User**: the user name for the authentication
- **Password**: the password for the authentication
• Resolution: the camera resolution for the connection. This is enabled only if camera model provides it.

• Time Zone: the time zone in which the host is located. This is enabled when Time Zone is valid in General Preference. If the host is same to CMS choose N/A.

**Add a Host to the List**

If you click Add new host on the popup menu, the property box is changed to the editable state. (Figure 2.25)

![Host Manager](image)

**Figure#2.25. Adding a new host**

You must fill all entries and click Apply button to add a host to the list and be saved in configuration file. If you click Revert button, inputs are ignored and it returns to the previous state.

**Modify the Host**

If you click Modify selected host on the popup menu, the property box is changed to the editable state. After modifying the entries, you must click Apply button to apply changes. If you click Revert button, inputs are ignored and it returns to the previous state.

The host which is connected currently can not be modified.

**Remove Hosts from the List**

After choosing hosts from the list, if you execute Delete selected host on the popup menu, the confirmation dialog appears. (Figure 2.26)
Figure 2.26. Confirm removing the hosts

If you click Yes button, selected hosts will be removed from the list. This operation can not be recovered.

The host which is connected currently can not be removed.

Group

The hosts can be managed by the group in a tree structure. The same group configuration is used in tools like Host Monitor, Audio and Map Monitor.

If you click Group button on the toolbar or popup menu, the group box will be shown or hidden.

The host group tree contains hosts, sensors, relays and groups that can have child items. If you modify them in the group, it's applied to other windows immediately. Top-level group All Groups is the root and can not be removed.
Add a Sub-group to the Group

If you click Add new group on the popup menu, a new group is added under the currently selected group. The group name can be edited if you click Rename selected node on the popup menu after selecting the group.

![Image of Host Manager interface showing addition of a new group](image)

Figure 2.27. Adding a new group

Add a Node to the Group

If you click Add new node on the popup menu, 'Add a new node' dialog box appears.
Figure 2.28. 'Add new node' dialog

You must select hosts in the list and click OK to add them the group. Selecting multiple hosts is allowed. In case of camera, sensors and relays, you must select the host first and select wanted items and click OK button.

New items are added under the currently selected item. If the selected item is not a group, they are added to the same level.

You can add the host by mouse drag & drop from the list to the group.
Figure 2.29. Adding a host by drag & drop

Remove a Node from the Group

If you select the item and click Delete selected node on the popup menu, the selected item will be removed. If you delete the group with the descendants, a dialog will appear to confirm it. (Figure 2.30)
Figure 2.30. Confirm dialog to delete

If you click OK button, the group with all sub items will be removed.

Edit the Group by Drag & Drop

You can change the order of items, move or copy items by mouse drag & drop.
Figure 2.31. Moving the item by drag & drop

If you press Ctrl key while the item is being dragged, the shape of mouse pointer is changed (Figure 2.32), the item is copied to the position where the item is dropped. If Ctrl key is not pressed, the item is just moved.
Figure 2.32. Moving the item by drag & drop

Live Monitor

If you click Live Monitor on the toolbar or popup menu, it executes Live Monitor to watch all cameras at once that belong to the selected host or group.

Local Search

If you click Local Search on the toolbar or popup menu, it executes the local search (Search and Replay) for the selected host or camera.

Remote Search

If you click Remote Search on the toolbar or popup menu, it executes the remote search (Search and Replay) for the selected host or camera.

Remote Configuration

If you click Remote Configuration on the toolbar or popup menu, it executes Remote Configuration for the selected host or the host to which the camera belongs to.
**Event Search**

If you click Event Search on the toolbar or popup menu, it executes Event Search for the selected host or camera.

**Speak**

If you click Speak on the toolbar or popup menu, it turns on the Speak in the Audio for the selected host or the host to which the camera belongs to.

**Remote DVR / NVR Control**

If you click Remote DVR Control on the toolbar or popup menu, it makes the user control the remote DVR / NVR watching the screen in the remote dvr control windows).

![Remote DVR / NVR Control](image)

**Figure#2.33.** Control the remote DVR / NVR

**Connect**

If you click Connect on the toolbar or popup menu, it tries to connect to the selected host or group at once. Host connection status can be checked with the icon prepending the host name. It shows simple animation effect while trying to connect hosts if you checked Use animation effect in trying to connect hosts in Display Preference.
Figure 2.34. Host status icons in List

Disconnect

If you click Disconnect on the toolbar or popup menu, it disconnects from the selected host or group at once.

Host Monitor

Overview

It provides the ability to monitor the status of all hosts in the host group at once. You can monitor multiple groups in multiple windows at the same time.

Host Monitor consists of three parts: the host group tree at the left side, the host status area at the top of right side and the event / log history at the bottom of right side.
**Figure 2.35. Host Monitor**

**Host Group**

If you select the group from the host group tree, all descendant hosts will be showed at the host status area. If you select the host, the only selected host will be showed.

**Host Status**

It shows all hosts which are selected from the host group tree concurrently.

A box stands for a host. If events occur, the color of the box become changed or flash effect applied to the box. Colors and flash effects for events can be configured in Host Monitor Preference.
Figure 2.36. Host status change

You can choose the host by clicking the corresponding box, and double clicking it executes Live Monitor for the host.

After choose the host, clicking Clear host will reset the status and color of the host. If you click Clear all hosts, all hosts in the host status area will be reset.

Event / Log History

It shows the history of events and log message for the host selected from the host status area in descending order. If you double-click the event from the list, it executes Remote Search, and the recorded file with the same time is selected automatically.

Host Actions

If you click right mouse button on either the host in the host status area or events in the event / log history, popup menu appears. You can execute host actions by selecting the popup menu item. Following actions are provided:

- Live Monitor
- Remote Search (Search and Replay)
- Local Search (Search and Replay)
- the section called "Remote DVR / NVR Control"
- the section called "Event Search"
- the section called "Speak"
On-Line / Off-Line

On-Line and Off-Line events are raised only by Host Monitor. It tries to connect to all selected hosts from the host group periodically in order to check whether communication between CMS and the host is available, except already connected hosts in other windows. Non-connected hosts become off-line state if it can not received feedback in time.

You can configure that it should check whether hosts are online, check interval, and connecting time-out in Host Monitor Preference.

Live Monitor

Overview

It displays the camera’s live video image from multiple hosts at the same time. You can manage camera up to 1024(32x32) in the Live Monitor window and manage multiple windows simultaneously.

Execute the Live Monitor

Live Monitor can be executed from other tools including Toolbox, Quick Connect, Host Manager and Host Monitor.

If you execute Live Monitor from Toolbox, it will create a new Live Monitor window with default size, which has no camera mapping. (Figure 2.38) It displays background images in case of no camera mapping, connection closed or signal loss. When the camera is connected, information is displayed in the camera OSD area.
Figure 2.38. Live Monitor with no camera mapping

In case that you execute Quick Connect or Live Monitor, all camera of the host will be mapped automatically.

Multiple Live Monitor windows can be launched without limitation as the memory and CPU of the system where CMS is running. When the host connection is broken, the camera image of that host of all windows is initialized with the background. When the host connection is established again, the camera image is restored automatically.

If you click the camera area or move arrow keys, it marks the camera as selected by drawing blue border. Selected camera is used for Remocon as a target.

Map the Camera

Live Monitor can display the camera image of the multiple host at the same time. There are two ways for users to map the camera into the area. The first is choosing the camera directly using popup menu, the other is mouse drag & drop from Host Manager to the Live Monitor window.

When you select Map selected camera on the popup menu, the menu list of hosts and cameras will appear. If you choose the camera in this menu, selected camera will be mapped into the area and image will be displayed. If you choose the camera which is not connected to the host yet, it will try to connect automatically.
If you drag the host, the group or the camera from Host Manager and drop it to the camera area of Live Monitor, selected camera will be mapped. If there are already mapped camera, they will be moved forward.

**Figure 2.39.** "Map selected camera" menu item

The page means the group of camera which can be displayed on one screen. It manages camera in the form of matrix by specifying 'columns x rows'.
If the page size is less than the number of cameras, they are separated by using multiple pages. You can move to pages by pressing PgUP / PgDn keys, or clicking Page Up / Page Down on the toolbar or popup menu. You can use size buttons in the toolbar in order to adjust the size of the current page.

For example, following figures describe two pages for 12 camera of the host with ’3x3’ page size.

Figure#2.40.#The first page of Live Monitor
Figure 2.41. The second page of Live Monitor

There are predefined list of favorite page sizes (1x1, 2x2, 3x3, 4x4) in the toolbar and popup menu. If you want to add custom page size to the favorite list, adjust page sizes by using size buttons in the toolbar and click Add current page size on the toolbar or popup menu. Conversely, if you want to remove from the favorite list, select the favorite one and click Remove current page size on the toolbar or popup menu.

Double-clicking the camera area switches page size to 1x1 displaying only one camera. Double-clicking it again goes back to previous page size.

Automatic Page Switching

It switches the page to the next one in the specific interval automatically. You can start or stop automatic page switching by clicking Start automatic page switching from the toolbar or popup menu. By clicking Increase page switching interval / Decrease page switching interval, you can adjust page switching interval.
Figure 2.42. ‘Start/Stop automatic page switching’ in the toolbar
Figure 2.43. `Start/Stop automatic page switching' menu item

**Display Ratio**

You can choose one of the ratio types from the followings in the toolbar and popup menu:

- **Normal Ratio**: The image which is displayed fills the camera area.
- **4:3 Ratio**: The image which is displayed fills the camera area in 4:3 ratio.
- **Original Ratio**: The original image is displayed in the camera area.
**Audio**

Live Monitor not also displays the camera image but play audio sound together. Because it plays sound only when the camera which has audio is displayed, it stops playing when the page is moved or Live Monitor window is closed. Playing audio sound in CMS works by each audio channel, it may be influenced by other tools.

If the camera has the audio channel, audio volume level is displayed in the camera OSD area.

![Figure 2.44. Audio volume level of Live Monitor](image)

If you click the audio volume level, volume control slidebar appears. Adjusting volume applied to the audio channel which is unique in CMS, so it is applied to the camera with the same audio channel. In other way, you can adjust audio volume by controlling mouse scroll wheel.

You can mute the audio of each camera or all camera of Live Monitor window at once. If you enable Listen to only selected camera’s audio in live monitor option in Audio Preference, the mute for each camera can’t used.

You can click Mute selected camera on the popup menu to mute the selected camera.
Figure 2.45. #Mute the camera

You must click Mute all cameras on the toolbar or popup menu to mute all camera of the Live Monitor window.
Figure 2.46. Mute all camera

In order to speak to the audio output devices of camera, you should click Speak on the toolbar or popup menu. For more information about bidirectional audio communication, refer to Audio.

Recording

Live Monitor supports recording live video and audio streams to the system where CMS is running. You can click Record selected camera on the popup menu to record the selected camera. You should click Record all cameras on the toolbar or popup menu to record all camera in the Live Monitor window. If you click the menu items again, recording will be stopped. When Live Monitor window is closed, all recording will be stopped.
Figure 2.47. Recording menu item

The icon for camera recording status in the camera OSD area becomes red in recording. Recorded files are saved to the directories which are configured in Disk Preference.

PTZ Available

If the camera supports PTZ(Pan/Tilt/Zoom) control, the icon for PTZ in the camera OSD area becomes light.
Save Still Images

You can save still images for all camera displayed by clicking Save image(s) on the toolbar or popup menu. The setting about still image saving can be configured in Save Image Preference.

Remote DVR Control

By clicking Remote DVR Control on the popup menu the section called "Remote DVR / NVR Control" for the selected camera will be launched.

Search

By clicking Search on the toolbar or popup menu, the remote search (Search and Replay) for the selected camera will be launched.

Remocon

By clicking Remocon on the toolbar or popup menu, Remocon will be launched to control PTZ or relays.

Connect / Disconnect

If you click Connect to all hosts on the toolbar or popup menu, it will try to connect to all hosts which the Live Monitor window contains. Conversely, if you click Disconnect from all hosts, it disconnects from all hosts.
Tools

Camera OSD

By clicking Show camera OSD on the popup menu, you can show or hide the camera OSD in the camera area.

Log Monitor

Overview

It shows log messages of CMS and provides live search function.

Logs

It shows log messages by line in the form of 'Timestamp LogLevelSymbol Message'.

![Log Monitor Image]

Figure 2.49. Log Monitor

The symbols and colors of the log message levels are following:

- Debug (0) : [.] in gray
- Information (1) : [I] in yellow
- Warning (2) : [W] in green
- Error (3) : [E] in red

It shows the last 1000 rows of log messages, scrolling down automatically.
If you click Lock scroll, scroll is locked.

![Log Monitor](image)

**Figure 2.50. Scroll lock**

**Live Search**

You can search log messages for the text in the Log Monitor window.

- Search Text Entry: Fill it with the text to search for.
- Clear search text: Clear search text entry.
- Log Search: Start to search.

Matching text is emphasized with red background.

You may execute Log Search to search all log messages.

**Log Search**

**Overview**

Log messages of CMS are saved to the database. You can search log database quickly for the condition by using Log Search.

Log Search is composed of the result and the condition which acts like filters.
Search Condition

The condition is composed of the host, the log level, text to search and the time range. If some value is not shown in the condition, it means that there is no value in the database. Whenever the condition is changed, it is reflected to the search result immediately.

The background color of search text input box containing invalid characters is red.

Figure 2.51. Log Search

Figure 2.52. Invalid text in search input box
Search Result

It shows the log messages which matches the condition. It fetches 100 results at a time from the database, and when the scroll bar reaches the end of the list, it fetches next 100 results automatically.

You can sort the result in order by the item specified by Sort by combobox.

If you want to save current log messages to the file, click Save button and click Save in a dialog window with appropriate file name.

Figure 2.53. Save log search result

Log information is stored into the text file in the form of `timestamp|host|level|message` for each log.

Event Monitor

Overview

The events from hosts can be monitored by Event Monitor, which consists of three parts: the condition, the list of events and the warning message.
Figure 2.54. Event Monitor

Arrangement

You can change the arrangement of the events and the warning message by clicking Change the disposition to Event / Warning horizontally) on the toolbar or popup menu repeatedly.

Figure 2.55. Warning / Event vertically
Figure 2.56. Event / Warning vertically

Figure 2.57. Warning / Event horizontally
Figure 2.58. Event / Warning horizontally

**Condition**

It shows the events which are filtered by the condition in Event Monitor window. You can specify the host, the event and the device number. Each Event Monitor window can have its own filter condition.

Figure 2.59. Condition

Clicking Show filter on the toolbar or popup menu make the condition box visible or invisible.
Events

It shows the events from the host in chronological order. When events occur, the flashing effect represents an event has occurred, clicking it to turn off the effect. You can execute Event Search for the event by double-clicking the event.

You can change the appearance of event information in 1, 2, or 3 lines by clicking Change event arrangement to triple lines on the toolbar or popup menu repeatedly.

Figure 2.61. Event information in two lines

To clear the list of events, click Clear all events on the toolbar or popup menu.
You can decide whether a new event would be attached to the top or bottom of the list by clicking Show the last event on top on the toolbar or popup menu. You can also decide whether auto scrolling to the new event is locked or unlocked by clicking Lock scroll on the toolbar or popup menu.

Figure 2.62. The last event on the bottom

Warning

It shows the warning message about the last event. You can customize the color, font and the message in Warning Message Preference.

Event Actions

You must click the action on the toolbar or popup menu after selecting the event in order to execute the action for the selected one. Following actions are provided:

- Event Search
- Live Monitor
- Remote Search
- Local Search (Search and Replay)
- Speak: It executes audio speaking for the host which the event belongs to.

Event Live Monitor

Overview

The live video for the event can be viewed by Event Live Monitor, which is used with Event Live Job.
Figure 2.63. Event Live Monitor

Condition

It shows the cameras which are filtered by the condition in Event Live Monitor window. You can specify the host, the event and the device number. Each Event Live Monitor window can have its own filter condition.

Figure 2.64. Condition

Clicking Show filter on the toolbar or popup menu make the condition box visible or invisible.
Figure 2.65. Condition invisible

Live Video

It shows the camera's live video for the event in chronological order. When events occur, the border flashing effect represents an event has occurred, clicking the camera to turn off the effect. You can execute Remote Search (Search and Replay) for the camera by double-clicking the camera.

Figure 2.66. Live Video

To clear all live videos, click Clear all lives on the toolbar or popup menu.
You can decide whether a new camera would be attached to the head or tail of the list by clicking Show the last event on top on the popup menu. You can also decide whether auto scrolling to the new camera is locked or unlocked by clicking Lock scroll on the popup menu.

**Camera Actions**

You must click the action on the toolbar or popup menu after selecting the camera in order to execute the action for the selected one. Following actions are provided:

- Remote Search (Search and Replay)
- Local Search (Search and Replay)
- Live Monitor
- Event Search

**Event Search**

**Overview**

All events of CMS are saved to the database. You can search event database quickly for the condition by using Event Search.

Event Search is composed of the result and the condition which acts like filters.

**Figure 2.67. Event Search**

**Search Condition**

The condition is composed of the host, the event type, the device number, and the time range. If some value is not shown in the condition, it means that there is no value in the database. Whenever the condition is changed, it is reflected to the search result immediately.
Search Result

It shows the events which matches the condition. It fetches 100 results at a time from the database, and when the scroll bar reaches the end of the list, it fetches next 100 results automatically.

You can sort the result in order by the item specified by Sort by combobox.

Remote Event Search

Overview

Some remote hosts save the event information into their own repositories. You can search such information with Remote Event Search.

Remote Event Search Supported Hosts

The list of host models and versions which provide remote event search feature is following:

- DVR 2.4-22 later
- NT 2.0-11 later

It consists of the condition and the result.

Figure 2.68. Remote Event Search
Search Condition

The condition consists of the host, the day and the hour. You must select the host which is already connected. The day is one of the days at which events have occurred in the host. The hour is one of the hours at which events have occurred in the day. In other words, you must select the host, the day and the hour in order. But, if you select the host, the last day and hour will be selected automatically.

Search Result

Firstly, it shows the search result on the time-event table with color filling. The column of the table means a minute. That is, the first column means 0 minute of the hour, the last column means 59 minute of the hour. The row of the table means a event type. A darker color means that there is more events occurred. Event colors can be customized in Warning Message Preference.

If you move the mouse over the location at which events have occurred, the tooltip about detailed information appears. If you click it, all events at the location are listed below.

If you double-click the event on the list or click Search on the popup menu after selecting the event, Remote Replay (Search and Replay) will be executed for the event.
Remote Replay provides the search and replay and backup for recorded data from the remote hosts. Local Replay provides the search and replay for recorded data from the local system on which CMS is running. The usage of two tools is equal, and multiple windows could be executed for the search and replay for different hosts and cameras.

Remote / Local Replay consists of two parts: the search to select the target to replay and the replay to control video and audio.
Search

The search consists of following 4 parts:

Host
You can select and search the hosts which are already connected to in Remote Search and which have recorded data in Local Search.

Date
You can select the date to search. It shows only dates that have recorded data.

Recorded Data Tree
You can select the recorded file. It shows detailed information about recorded file in groups by hosts, cameras and the time. Double-clicking the recorded file starts to play it.

Timeline
It shows recorded information in the timeline graph. Using two bar graphs, left one shows the 1 day and right one shows the 1 hour. Red rectangles represent the existence of recorded data. Selected file is displayed in green or yellow, current played file is displayed in yellow. You can select the file by clicking the graph, and double-clicking it starts to play it.
**Replay**

It replays video and audio of the file selected in the search. When it reaches the end of the file, it continues to play the next file automatically. You can hide or show the right search box by clicking Show search box button. All button actions can be executed by clicking the menu item in the popup menu.
Figure 2.72. #Replay

To start to play the file, you must click Play button, which is turned to Pause button. You can click Change play speed to x2 button repeatedly to adjust play speed in x1, x2, x4 or 1/2 speed. If you want to go forward in 10 seconds from current position, click Forward 10 seconds button, and click Backward 10 seconds button to got backward in 10 seconds. To jump to the next file click Skip to next file button and click Skip to previous file button to jump to the previous file.
Figure 2.73. Adjust play speed

Seek bar under the buttons indicates the current position of playing. You can go random position in the file by moving the seek button.

Figure 2.74. Seek bar

To change the display ratio, click Change display ratio to original button. Whenever it is clicked the display ratio is changed to one of the three ratios: normal, 4:3 and original.

If you click Mute on the popup menu, audio sound is muted, clicking it again restores the sound. Audio volume can be adjusted by clicking Volume button and selecting the level in the volume meter. You can also use the menu item on the popup menu.
Figure 2.75. Adjust volume

To save the image for the video which is currently displayed, click Save image button. Image file format and directory can be customized in Save Image Preference.

Backup

If you click Backup button after selecting the file in the recorded data tree, the remote file is transferred to the selected local disk. This file could be replayed in Local Search later.
Figure 2.76. Backup progress

**Image Monitor**

**Overview**

It monitors images which are saved in Live Monitor, Search and Replay and Save Image Job. It consists of the condition, the image view and the list of images.
Figure 2.77. Image Monitor

**Condition**

It shows the images matched to specified host and camera in the condition. Multiple windows can have their own condition to monitor.

Figure 2.78. Condition

**Image View**

It displays the original image of the selected one in the list.
Figure 2.79. Image view

Image List

It shows the list of images saved in chronological order. If you select the image, it is displayed in the image view.
Figure 2.80. Image list

If you double-click the image or click Show image's folder on the toolbar or popup menu, it launches Window's Explore to open the folder into which the image is saved.

You can click Clear all images to clear all images in the list.

Map Monitor

Overview

It monitors the events of the hosts, cameras, sensors and relays which located on the image like a map. Map Monitor consists of the location, host group and map image area.
Figure 2.81. Map monitor

Location

It shows the hierarchical position of the selected group or host in button shapes. You can click buttons to move to the location directly.

Host Group

It shows the host group associated with the map image area. If you select the group, sub-item icons are displayed in the map image area. If you select the host, its camera, sensor and relay icons is displayed in the map image area.

Map Image Area

It displays the icon of sub-items for the selected item in the host group with the background map image. You can show or hide sub-items by clicking Show cameras / Show sensors / Show relays buttons on the toolbar or pop menu.

It basically fits the image to the area, but if you want to scale the image, click Zoom fit button in order to switch the mode. In scale mode, you can click Zoom original / Zoom in / Zoom out buttons and the slider to scale.
the background image. In this mode, double-clicking some position on the background image move the image position to the position as the center. If you move the pointer while pressing the mouse middle button, background image is moved along the pointer. If you click Zoom fit button again, it shows the image in fit mode.

You can change the position of icons on the background map image by drag & drop. Double-clicking the group or host icon jump to the item. If you double-click the camera icon, it executes Live Monitor for the camera. You can double-click the relay icon to activate the relay.

When the events occur for items or their sub-items, the color of icon title becomes red and animation effect starts. To restore icons to normal state you must click the icon. You can customize the animation effect in Display Preference.

### Background Map Image

You can change the background map image for the host group item by selecting Background... on the popup menu. If you click Default, it use default image for the background. If you click Custom, you can specify the image file for the background of the selected host group item.

---

**Figure 2.82. Select background image**
Audio

Overview

It provides bidirectional audio communication for the host by transmitting audio data to the audio output device and receiving audio data from the audio input device. You can control multiple audio channels at once, and multiple windows control their own group or host.

Audio consists of the host group and the list of audio channels.

![Audio 1](Figure2.83Audio)

Host Group

You can specify the group or the host to control audio in the left host group area. The audio channels of connected hosts which are belong to the specified item is listed in the audio channel list area. You must execute Host Manager to edit host group entries.

Audio Channel List

It shows the host, the audio channel name and the status of listening and speaking for the channel. You can change the status of the channel by clicking Listen or Speak checkboxes. In other words, when Listen is checked, you can hear the audio channel, and when Speak is checked, you can speak to the audio channel.

You can select multiple audio channels and click Listen or Speak on the toolbar or popup menu to control audio channels at once.

To transmit the audio sound, you must connect the microphone to the audio device of the system on which CMS is running. If the audio channel has no output device, Speak checkbox is disabled.

If you change the status of the audio channel in the Audio window, changes applied to other tool windows immediately, because all tools of CMS share the audio channels.
Broadcast Sound

It provides broadcasting the sound file to specific audio channels without microphone.

If you click Broadcast sound on the toolbar or popup menu after selecting the channels, the menu list of predefined sound files is appeared, and you can select the sound file in order to broadcast to the audio channels.

![Figure#2.84.#Sound files menu list](image)

Sound files must be defined in Audio Preference in advance.

You can stop the broadcasting by turning off the speaking.

Remocon

Overview

It provides features such PTZ(Pan/Tilt/Zoom) control for the camera, preset move, relay device trigger and camera property adjustment.

You can launch a new Remocon window by clicking Remocon icon in Toolbox or clicking Remocon in Live Monitor. Multiple Remote windows controlling its own camera can exist.

Remocon consists of the following components:

- Target
- Pan/Tilt/Zoom
- Preset
- Relay
- Camera Properties
Figure 2.85. Remocon

Target

It shows the host and the camera to be controlled by Remocon. If the camera doesn't offer the function or you don't have permission, the interface for the function will be disabled.

Figure 2.86. Target host and camera in Remocon

You can select the target by clicking Target... on the toolbar or popup menu.
Select the target

There are 3 ways to select the target as following:

Auto-focus
It controls the host and camera selected in Live Monitor window which is currently used (focused or activated).

Live Monitor
It controls the host and camera selected in Live Monitor window which is specified by the user.

Host / Camera
It controls the host and camera which are specified by the user.

Pan / Tilt / Zoom
By clicking buttons, you can control Pan / Tilt / Zoom for the camera.

Move
It moves the camera in 8 directions.
Tools

Autopan
It turn on or off the autopan.

Figure 2.89. Autopan on / off buttons

Zoom
It enlarges or shrinks the camera image.

Figure 2.90. Zoom in / Zoom out buttons

Focus
It sets focus to the near or far object.

Figure 2.91. Focus far / near buttons

Light
Turn on or off the light.

Figure 2.92. Light on / off buttons

Move Speed
It adjusts the speed of camera moving.

Figure 2.93. PTZ speed

Preset
It moves the camera to the preset positions.
Figure 2.94. Preset buttons

Relay

It activates the relay device of the host. The number of buttons is the same to the number of relays which is attached to the host.

Figure 2.95. Relay buttons

Camera Properties

It adjusts brightness, contrast, colorness and hue of the camera.

Customize Remocon

If you check or uncheck the items for components in the toolbar or popup menu, corresponding components will be hidden or shown.

Figure 2.96. Customize a Remocon
Remote Configuration

Overview

You can configure the camera properties and recording parameters of remote hosts by using Remote Configuration, which shows configuration values of multiple cameras in the form of a table, and modified values will be applied at once.

It is executed with the host or the group selected in Host Manager. If some hosts are not connected yet, it tries to connect to hosts automatically.

![Remote Configuration Interface]

**Figure 2.97. Execute Remote Configuration from Host Manager**

You can select only one item in Host Group. But, all hosts and cameras which belong to the item are listed in Remote Configuration.
Figure 2.98. Execute Remote Configuration from Host Group

Configure Remotely

It shows the configuration items of cameras in the form of a table. The column lists the configuration items, and the row stands for each camera.
Figure 2.99. Remote Configuration

When the connection to a host is broken, corresponding rows are disabled, and unsupported or insufficient privilege items are hidden.

Figure 2.100. Unsupported or insufficient privilege items
If you click the configuration value, the cell becomes edit mode, in which you can enter new value or select new value of the list. Currently supported configuration items are following:

**Name**
- It shows the name of a camera. Each host model supports different languages and maximum length.

**Brightness**
- It shows the brightness of a camera in the number between 0 to 100.

**Contrast**
- It shows the contrast of a camera in the number between 0 to 100.

**Colorness**
- It shows the colorness of a camera in the number between 0 to 100.

**Hue**
- It shows the colorness of a camera in the number between 0 to 100.

**Frame Rate**
- It shows the frames per second of video stream or recording data.

**Bitrate**
- It shows the bitrate per second of video stream or recording data.

**GOP Size**
- It shows the key frame interval of video stream or recording data.

**Quality**
- It shows the quality of video stream or recording data. Quality is described with the number started from 1, which means the highest quality.

To apply modified configuration to the remote host, you must click Apply button. Sometimes, the value returned from the remote host may be displayed again.
### Figure 2.101. Apply remote configuration

<table>
<thead>
<tr>
<th>Camera</th>
<th>Name</th>
<th>Brightness</th>
<th>Contrast</th>
<th>Colorness</th>
<th>Hue</th>
<th>Frame Rate</th>
<th>Bitrate</th>
<th>GOP Size</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>artlde</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Camera 1</td>
<td>cam1</td>
<td>60</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>1</td>
<td>10</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Camera 2</td>
<td>cam2</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>8</td>
<td>140</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Camera 3</td>
<td>cam3</td>
<td>60</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>7</td>
<td>140</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Camera 4</td>
<td>cam4</td>
<td>60</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>8</td>
<td>140</td>
<td>35</td>
<td></td>
</tr>
</tbody>
</table>

**stw-101**

- Camera 1
- STW-101

```
20
1 (High)
```

**smigol-guest**

- Camera 2
- Camera 4
- Camera 6

---

**Tools**

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Chapter 3. Preference

This chapter describes the preferences of CMS.

To launch Preference window, click Preference on Toolbox or popup menu.

General Preference

Overview

You can configure general preferences like language, time zone and debug message output.

![General Preference Window]

Figure 3.1. General preference

Preferences

Language

You can select the language to be used. English, Korean and Japanese are supported currently. When you run CMS firstly, operating system's default language is used automatically, and if it is not listed in the supported languages, English is chosen.

Time Zone

You can select the time zone of the system on which CMS is running. Time zone for each host can be configured in Host Manager. If you select N/A, time zone feature is disabled wholly.

Display the event time according to host time zone

It decides whether it displays the event time information in local time adjusted with hosts' time zone. This is enabled only when Time Zone is used.

Show debug message

It decides whether it shows debug messages in Log Monitor and save them to the database.
Use auto-focus as a default target in Remocon
   It decides whether Auto-focus target is always used when a new Remocon window is executed.

Place new windows on empty workspace as possible
   It decides whether a new window will be placed on empty workspace.

Stop and restart host recording before remote search
   It decodes whether it stops and restarts the remote host’s recording before executing Remote Search (Search and Replay) to search latest recorded data.

Always overwrite existing files on backup
   It decides whether it always overwrites existing backup files without user confirmation.

Reconnect hosts which didn’t transmit frames in specified seconds
   It decides whether it automatically tries to reconnect to the host when live video frames are not arrived for last specified seconds.

**Display Preference**

**Overview**

You can configure display and graphic user interface preferences.

![Preference](image)

**Figure 3.2. Display preference**

**Preferences**

**Theme**
   You can select the GUI theme for CMS, and it will be applied after restarting the program.

**Use small icons in Toolbox**
   It decides whether icons are displayed with small images in Toolbox.

**Make the toolbar aligned left**
   It decides whether the toolbar of the window should be put on the left side or right side.
Preference

Use hardware video accelerator for display
It decides whether hardware accelerator is used for video display, which is enabled only when the system has the hardware.

Apply deinterlaced filter to high resolution display
It decodes whether deinterlaced filter is applied to display high resolution video images.

Live Monitor OSD Location
You can select the location of the camera OSD in Live Monitor.

Display host’s name before camera’s title
It decides whether it expresses the host and the camera in the form of ‘host[camera]’ or ‘camera[host]’.

Use animation effect in trying to connect hosts
It decides whether icon animation effect is used while connecting to hosts in Host Manager. It also applied to event animation effect in Map Monitor. You must consider the system environment to use it because animation effect requires more CPU resource.

Disk Preference

Overview
You can configure disks used for recording live video and audio streams in Live Monitor and Record Job, which are also used for Remote Backup and Backup Job. You can search and replay the recording data on the disks by executing Local Search (Search and Replay).

Figure 3.3. Disk preference

Disks
It shows the list of disks used for recording and backup. You can check disks’ information simply such as recording order, name, connect state, total capacity, limited capacity, used capacity and enabling state.

By clicking Add new disk on the toolbar, you can add a new disk, and selected item will be removed if you click Delete selected disk button.

Recording disks are used in order. If the disk’s usage reaches the limitation capacity, the next disk is used. When all disks’ capacity is full, the disk which has oldest recording data is used while removing the data. If you want to
change the recording order, select the disk and click Up / Down buttons on the toolbar. You can decide whether the disk is enabled by toggling Connect checkbox.

Recording information for each disk is saved into the special file(dvr.db). You can rebuild the information with rescanning all recording data by clicking Rebuild database button on the toolbar while selecting the disk.

After customizing the disks, you must click Apply button to apply it to the system. Clicking Revert button cancels all changes.

Property

You can select save folder and limitation method for the selected disk. If you click Folder combobox, you can replace disk’s root folder with a new folder location. You can also select one of 3 methods for capacity limitation:

Percentage (%)
It utilizes the specified percentage of the disk total capacity. Note that it contains other files of the disk which are unrelated to CMS

Capacity (MB)
It utilizes the specified capacity of the disk.

Duration (Day)
It keeps recording data for specified duration. Note that it may cause the problem of an excess of capacity.

Disk Camera Mapping

You can allocate specified host or channels to the disk, which provides the feature that some channels is recorded to the specified disk always.

Job Preference

Overview

A job is a task that executes some predefined action. Most jobs can be linked to the event or scheduled in advance to be executed automatically.
Configure

You must define the job to define event job or schedule job with it. To add a new job, click Add new job button on the toolbar, and selected item will be removed if you click Delete selected job button. To change the name of the job, click the name directly or click Rename job button on the toolbar.

It shows registered jobs with name, model and linked state in Jobs. 'Linked' means that the job can't be deleted because it is used by some event jobs or schedule jobs.

You can select the model of job and model-specified parameters for the job in Property.

Job Models

CMS provides following job models:

Save Image

It saves the still images of the live video. You can configure parameters such as host, camera, pre-event time, pre-post time and frames per second. If the host is not connected yet, it automatically tries to connect and request live video. To save the pre-event time images you must connect to the host in advance. Save folder and format can be configured in Save Image Preference.

Record

It records the live video and audio streams. You can configure parameters such as host, camera and duration. Recording disks can be configured in Disk Preference.

Event Live

It adds the camera to Event Live Monitor window and shows live video. You can configure parameters such as host, camera and duration. If there is no Event Live Monitor window, it will create a new window automatically.
Warning Message
It shows warning messages via Event Monitor. If there is no Event Monitor window, it will create a new window automatically.

Flash
It activates flash effect of the camera border in Live Monitor. You can configure parameters like host, camera, duration, interval and color.

Broadcast Sound
It transmits the sound file to the audio channel of the host. You can configure parameters such as host, audio channel and sound file to be transmitted.

Auto Relay
It activates relay devices for some duration. You can configure parameters such host, relay device, action (start/stop) and interval. If the host is not connected yet, it automatically tries to connect.

Play Sound
It plays the sound file. You can configure parameters such as sound file and duration. If you set duration to 0, it plays the sound file for one time.

Backup
It backs up the remote recording data from the host automatically. You can configure parameters such as host, camera, disk and backup range. If the host is not connected yet, it automatically tries to connect.

Preset
It activates the preset of the host. You can configure parameters such as host, camera and preset number.

Quick View
It shows the live video by executing Live Monitor in 1x1 mode. You can configure parameters such as host, camera and duration. If the host is not connected yet, it automatically tries to connect.

Relay
It activates the relay of the host. You can configure parameters such as host and relay number.

Event Job
You can define the event job that make jobs be executed whenever some events occur. To add a new event job, click Add new event job button on the toolbar, and selected item will be removed if you click Delete selected event job button. To change the name of the event job, click the name directly or click Rename event job button on the toolbar. If Enable is checked, event job is enabled, otherwise it’s disabled.
Figure 3.6. Event job preference

Event job consists of the condition and jobs to be executed. When some events occur, if it matches the host, the event and the device in the Condition, registered jobs will be executed in order. Only predefined jobs can be added.

To add a job, select the job in the combobox and click Add button. Selected job will be removed if you click Remove button. You can change the order by clicking Up / Down buttons after selecting the job.

Schedule Job

You can define the schedule job that make jobs be executed on scheduled time periodically. To add a new schedule job, click Add new schedule job button on the toolbar, and selected item will be removed if you click Delete selected schedule job button. To change the name of the schedule job, click the name directly or click Rename schedule job button on the toolbar. If Enable is checked, schedule job is enabled, otherwise it’s disabled.

Figure 3.7. Schedule job preference

Schedule job consists of the condition and jobs to be executed. Registered jobs will be executed periodically if you specify the start time, the finish time and the repeat intervals. Only predefined jobs can be added.

To add a job, select the job in the combobox and click Add button. Selected job will be removed if you click Remove button. You can change the order by clicking Up / Down buttons after selecting the job.
SNMP Preference

Overview

DVR and NT provide SNMP trap event transmission for the internal events. CMS can handle these SNMP trap events, translating it into general event information or forwarding it to the other systems.

This feature is useful when it’s impossible to keep host connections always, to execute Live Monitor, Remote Search (Search and Replay) or Local Recording by connecting to the host in case of event occurrence. For example:

• Network rental fee depends on time rather than packet amount
• You must monitor multiple hosts more than 100 ones simultaneously, which requires network traffic overload.

SNMP forwarding plays an role in transmitting events which are received via SNMP trap event to other CMS or SNMP manager programs. For example, in case of 1000 DVR hosts, one gateway CMS can disperse the events to others with 100 DVR hosts for each CMS.

Configure

If you want to use SNMP trap server, you must check Enable SNMP trap server. To change the listen port, edit the content of Port entry.

Linux Root Permission for listening port

You must have root permission to use SNMP trap server with default SNMP port 162 in Linux.

In order to forward received SNMP events to other SNMP trap servers, you must make the filters. By clicking Add new filter on the toolbar, you can add a new filter, and selected items will be removed if you click Delete selected filters button. Filters are applied in order until the condition matches the event. If you want to change the filter order, select the filter and click Up / Down buttons on the toolbar. You can decides whether the filter is enabled by toggling Enable checkbox.
A filter consists of Condition and Forwarding Servers, which transmit SNMP events to registered servers when it matches the condition.

**External Preference**

**Overview**

Events are received from the remote host only when the connection to the host is alive in principle. However, CMS can be received events via SNMP protocol (SNMP Preference) or simple message protocol using TCP from other external applications.

![External Preference](image)

**Figure 3.9. External Preference**

**Activate the Server**

If you check Enable external event server, it activates the external event server listening to events. TCP port number can be adjusted by using Port.

**Event Message Format**

External applications should connect to the CMS using TCP protocol. After connection is established, it can send text messages to transfer event information. The format of event message is following:

```
[event] [host address] [device] [messages] \r or \n
```

For example:

```
1 210.95.145.77 16 Camera signal was recovered.
1 192.168.0.110 1 Warning!!
```

The event and device numbers starts from natural number 1. You may refer to Warning Message Preference for event numbers. The message is ignored, whose host address is not listed in Host Manager.
Host Monitor Preference

Overview

You can configure the preference of Host Monitor.

Figure 3.10. Host monitor preference

Preferences

Size
It adjusts the size of a rectangle which shows the status of a host.

Color
You can customize the foreground and background color of rectangles for each status.

Check whether hosts are on-line
It decides whether it will check that hosts are on-line periodically with the specified time. It checks only hosts under the selected group in Host Monitor.

Connecting time-out
It decides whether it will regard the situation which a connection to the host is not established within specified time as off-line.

Event History Size
It adjusts the line size of event history for the selected host in Host Monitor.

Log History Size
It adjusts the line size of log history for the selected host in Host Monitor.
Event Effect

You can customize the status, the effect, the duration and the flash interval for events.

![Event Effect Preference](image)

**Figure 3.11. Event effect preference**

You can select one of the following 6 effects:

- Flash and reset by user
- Flash and retain status by user
- Flash and reset after duration
- Flash and retain status after duration
- Set status and reset by user
- Set status and reset after duration

Audio Preference

Overview

You can configure the preference of Audio.
Figure 3.12. Audio preference

Configure

To change the audio channel name of CMS which is seen by the remote host, you can edit Channel Name entry directly. If you check Listen to only selected camera’s audio in live monitor button, only selected camera’s audio in Live Monitor is played. If you doesn’t check the button, all visible camera’s audio are played simultaneously.

Broadcast Sound

It manages sound files used in Audio. You can add a new item by clicking Add button and remove the item by clicking Remove button. To change the order in the menu, you can move it by clicking Up / Down buttons. To specify the sound file, you must click File Selection button and select WAV format file. By clicking Play button, you can test the sound file. Clicking the name of a item makes it become editable state.

Save Image Preference

Overview

You can configure the preference of images which are saved from Live Monitor, Search and Replay and Save Image Job.
Preferences

Save Folder
You can specify the folder to save images, which will be saved to the sub folder `Save Folder\host\date\camera` really.

File Format
You can select the file format for saving images. JPEG, PNG, and BMP formats are supported currently.

Embed file name into the image
It decides whether file name is embedded into the image. The form of file name is basically `[host]-[camera]-[ymd]-[hms]-[msec].[ext]`. (For example, dvr-03-20070508-185532-21.jpg)
Database Preference

Overview

You can configure the database used for management of event and log information.

Preferences

Keep data for specified days

Event and log data is kept for specified days. The data exceeds the specified days will be removed automatically. If you want to keep all data permanently, don’t check the item.

Database

You can select the database for the management. Currently, SQLite and ODBC are provided. SQLite is embedded into CMS. ODBC is the driver configured in the Control Panel in Windows.

Data Source

You can select ODBC data source. It appears only when ODBC is selected.
Figure 3.16. Database ODBC data source

After you modify the database, you must click the Apply button to apply it to the system.

Warning Message Preference

Overview

You can configure the preference of warning messages in Event Monitor.

Figure 3.17. Warning message preference
Configure

It shows the properties of warning message for each event in the form of buttons by a row. Each button shows the current value of the property, and you can replace it with the new value by clicking the button. Configurable properties are following:

- Foreground Color
- Background Color
- Font
- Message

![Edit Warning Message](image)

Figure 3.18. Edit warning message format

There is small warning message preview area in the end of the row.

Relay Preference

Overview

You can configure the action properties of relays which are executed from Remocon or Relay Job.
Configure

All relays can be configured to have their own action properties basically. If you select Host and Relay in the Condition and change the action properties, it’s applied to only selected relay device. However, if you check Use the same setting for all relays button, all relays have the same properties.

Properties which define the way of relay action, consists of following items:

Type
You can select the relay action type from one of the ’N/C’ or ’N/O’. ’N/C’ is the state change from 0 to 1, and ’N/O’ is the contrary.

Duration
It adjusts the time during which the relay is activated.

Interval
It adjusts the time during between relay actions in case of ’Counts’ property is greater than 1.

Counts
It adjusts the count for the relay action.
Appendix A. Keyboard Shortcuts

Overview

You can use keyboard shortcuts to launch tools or to execute specific functions in the working windows. Some keyboard shortcuts can be customized with modifying scheme.cfg file or your configuration file.

Global Shortcuts

Following shortcuts has the same behavior in all windows, which can not be customized by the user.

- Fullscreen: F12
- Toggle toolbar visibility: F11
- Close other windows: Ctrl + O
- Close window: Ctrl + W
- Help Contents: F1
- Stop playing sound file: ESC
- Quit the system: Ctrl + Q

Following shortcuts has the same behavior in all windows, which can be customized by the user.

- Host Manager: F2
- Quick Connect: F3
- Remocon: F4
- Toolbox: F10

Window-specific Shortcuts

Every window have its own shortcuts to execute actions directly. You can see these shortcuts on the popup menu by clicking right button on the window.
Appendix B. License

Dependent Libraries

The list of Libraries used by CMS is following:

- GTK+ (GNU Lesser General Public License, Version 2.1)
- FFmpeg (GNU Lesser General Public License, Version 2.1)
- libsndfile (GNU Lesser General Public License, Version 2.1 & GNU Lesser General Public License, Version 3)
- GooCanvas (GNU Library General Public License, Version 2)
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98
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(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

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If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative
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