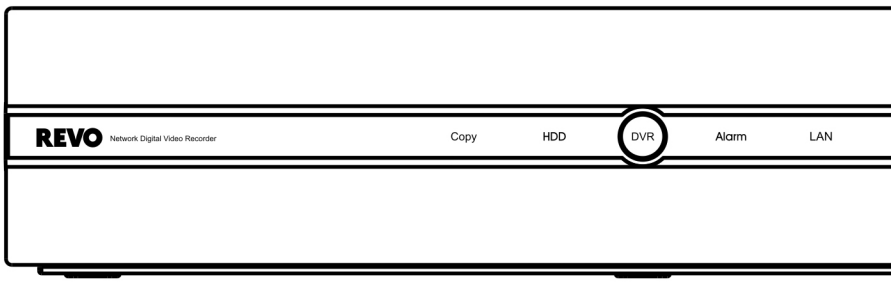
DIGITAL VIDEO RECORDER

Netcon
Remote Administration System

USER'S MANUAL

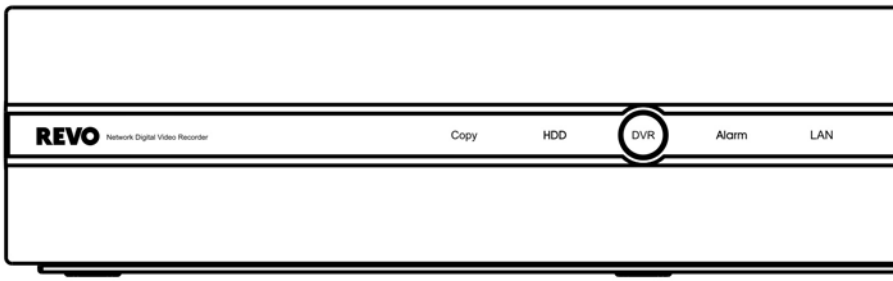


REVO

www.revoamerica.com
1-866-625-REVO (7386)

DIGITAL VIDEO RECORDER

USER'S MANUAL



REVO

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WARNING

RISK OF ELECTRIC SHOCK
DO NOT OPEN

WARNING: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED
SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

COMPLIANCE NOTICE OF FCC:

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS A DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES. THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS. OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE, IN WHICH CASE USERS WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT THEIR OWN EXPENSE.

WARNING: CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

THIS CLASS OF DIGITAL APPARATUS MEETS ALL REQUIREMENTS OF THE CANADIAN INTERFERENCE-CAUSING EQUIPMENT REGULATIONS.

The information in this manual is believed to be accurate as of the date of publication. We are not responsible for any problems resulting from the use thereof. The information contained herein is subject to change without notice. Revisions or new editions to this publication may be issued to incorporate such changes.

Important Safeguards

1. Read Instructions
All the safety and operating instructions should be read before the appliance is operated.

2. Retain Instructions
The safety and operating instructions should be retained for future reference.

3. Cleaning
Unplug this equipment from the wall outlet before cleaning it. Do not use liquid aerosol cleaners. Use a damp soft cloth for cleaning.

4. Attachments
Never add any attachments and/or equipment without the approval of the manufacturer as such additions may result in the risk of fire, electric shock or other personal injury.

5. Water and/or Moisture
Do not use this equipment near water or in contact with water.

6. Ventilation
Place this equipment only in an upright position. This equipment has an open-frame Switching Mode Power Supply (SMPS), which can cause a fire or electric shock if anything is inserted through the ventilation holes on the side of the equipment.

7. Placing and Accessories
Do not place this equipment on an unstable cart, stand or table. The equipment may fall, causing serious injury to a child or adult, and serious damage to the equipment.

This equipment and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the equipment and cart combination to overturn.

8. Power Sources
This equipment should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power, please consult your equipment dealer or local power company.

9. Power Cords
Operator or installer must remove power and TNT connections before handling the equipment.

10. Lightning
For added protection for this equipment during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the equipment due to lightning and power-line surges.

11. Overloading
Do not overload wall outlets and extension cords as this can result in the risk of fire or electric shock.

12. Objects and Liquids
Never push objects of any kind through openings of this equipment as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the equipment.

13. Servicing
Do not attempt to service this equipment yourself. Refer all servicing to qualified service personnel.

14. Damage requiring Service
Unplug this equipment from the wall outlet and refer servicing to qualified service personnel under the following conditions:

A. When the power-supply cord or the plug has been damaged.
B. If liquid is spilled, or objects have fallen into the equipment.
C. If the equipment has been exposed to rain or water.
D. If the equipment does not operate normally by following the operating instructions, adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the equipment to its normal operation.
E. If the equipment has been dropped, or the cabinet damaged.
F. When the equipment exhibits a distinct change in performance – this indicates a need for service.

15. Replacement Parts
When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

16. Safety Check
Upon completion of any service or repairs to this equipment, ask the service technician to perform safety checks to determine that the equipment is in proper operating condition.

17. Field Installation
This installation should be made by a qualified service person and should conform to all local codes.

18. Correct Batteries
Warning: Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

19. Tmra
A manufacturer's maximum recommended ambient temperature (Tmra) for the equipment must be specified so that the customer and installer may determine a suitable maximum operating environment for the equipment.

20. Elevated Operating Ambient Temperature
If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (Tmra).

21. Reduced Air Flow
Installation of the equipment in the rack should be such that the amount of airflow required for safe operation of the equipment is not compromised.

22. Mechanical Loading
Mounting of the equipment in the rack should be such that a hazardous condition is not caused by uneven mechanical loading.

23. Circuit Overloading
Consideration should be given to connection of the equipment to supply circuit and the effect that overloading of circuits might have on over current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

24. Reliable Earthing (Grounding)
Reliable grounding of rack mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).

WEEE (*Waste Electrical & Electronic Equipment*)

Correct Disposal of This Product
(Applicable in the European Union and other European countries with separate collection systems)

This marking shown on the product or its literature, indicates that it should not be disposed with other household wastes at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.

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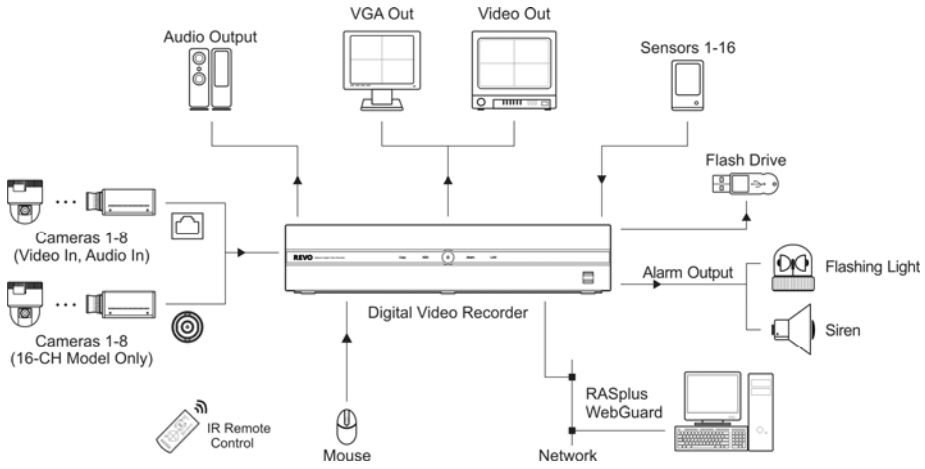
Chapter 1 — Introduction

FEATURES

Your color digital video recorder (DVR) provides recording capabilities for four, eight or 16 camera inputs. It provides exceptional picture quality in both live and playback modes, and offers the following features:

- 4, 8 or 16 Composite Input Connectors
- Compatible with Color (NTSC) and B&W (CCIR and EIA-170) Video Sources
- Auto Detection for VGA Monitor
- Dual Codec (MPEG4 and H.264)
- Records up to 120 NTSC Images per Second
- Continuous Recording in Disk Recycle Mode
- Records while Playing Back and Transmitting to Remote Site
- Full Function Infrared Remote Control
- User-friendly Graphical User Interface (GUI) Menu System
- Multiple Recording Modes (Time-lapse, Pre-event, Motion and Alarm)
- Multiple Search Engines (Date/Time, Event, Record Table)
- Two-way Audio Communication
- 4-Channel Audio Recording and 1-Channel Audio Playback
- Alarm Connections Include: Input, Output and Reset Input
- 2 USB 2.0 Ports
- Built-in Buzzer
- Live or Recorded Video Access via Ethernet
- Self-diagnostics with Automatic Notification including Hard Disk Drive S.M.A.R.T. Protocol

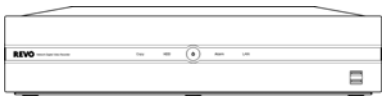


Typical DVR installation

PACKAGE CONTENTS

The package contains the following:

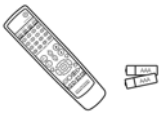
- Digital Video Recorder
- Power Cord
- USB Mouse
- Infrared Remote Control and Batteries
- Rack-mount Kit
- Netcon Software CD and User's Manual (This document)



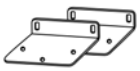
Digital Video Recorder

Power Cord

USB Mouse



IR Remote Control and Batteries (AAA Type)



Rack-mount Kit

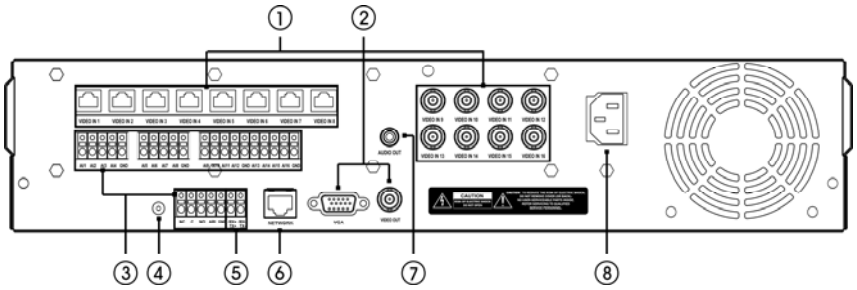
Netcon Software CD and User's Manual

Chapter 2 — Installation & Configuration

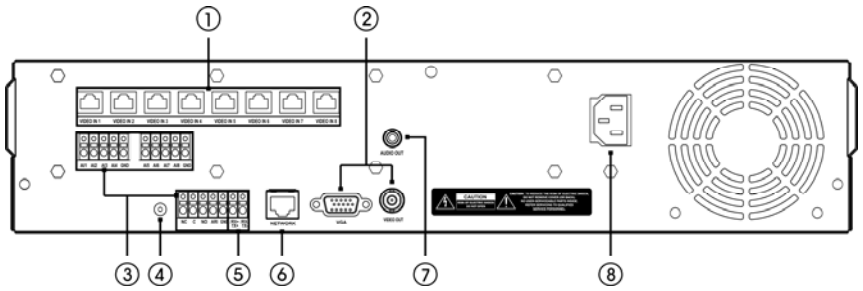
REAR PANEL CONNECTORS

No special tools are required to install the DVR. Refer to the installation manuals for the other components that make up part of your system. Your DVR should be completely installed before proceeding.

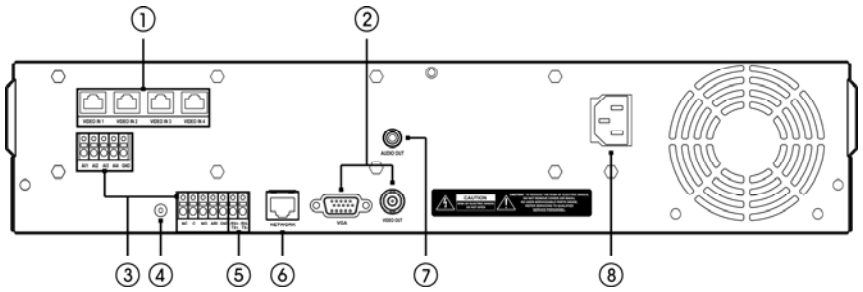
16-Channel Model



8-Channel Model



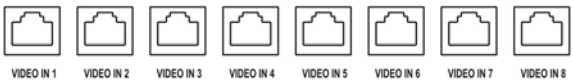
4-Channel Model



① Video In	② Video Out	③ Alarm Input/Output	④ Factory Reset Switch
⑤ RS-485 Port	⑥ Network Port	⑦ Audio Out	⑧ Power Connector

NOTE: The illustrations and descriptions in the following section refer to the 16-channel model.

Connecting the Video Input



Connect the RJ-12 cables from the modular cameras to the modular RJ-12 connectors.

Connect the coaxial cables from the video sources to the BNC Video In connectors. (16-Channel Model Only)

Connecting the Monitor

A VGA connector is provided so that you can use a standard, multi-sync computer monitor as your main monitor. Use the cable supplied with your monitor to connect it to the DVR. The VGA monitor is automatically detected when you connect it.

NOTE: It is possible that the DVR will not automatically detect a VGA monitor if the monitor does not support the auto detect function. In this case, press and hold the *DISPLAY* button on the remote control for 5 seconds or longer to switch the video output to VGA out. Pressing and holding the button for 5 seconds or longer again returns to the composite video output mode.

If you prefer to use a standard CCTV monitor, connect it to the Video Out connector.

NOTE: The DVR does not support simultaneous operation of a CCTV and a VGA monitor.

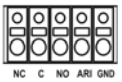
Connecting Alarms

NOTE: To make connections on the Alarm Connector Strip, press and hold the button and insert the wire in the hole below the button. After releasing the button, tug gently on the wire to make certain it is connected. To disconnect a wire, press and hold the button above the wire and pull out the wire.

AI 1 to 16 (Alarm-In): You can use external devices to signal the DVR to react to events. Mechanical or electrical switches can be wired to the AI (Alarm-In) and GND (Ground) connectors. The threshold voltage for NC (Normally Closed) is above 4.3V and for NO (Normally Open) is below 0.3V, and it should be stable at least 0.5 seconds to be detected.

GND (Ground): Connect the ground side of the alarm input and/or alarm output to a GND connector.

NOTE: All the connectors marked GND are common.



NC/NO (Normally Closed/Normally Open): Connect the device to the C (Common) and NC (Normally Closed) connectors or C and NO (Normally Open) connectors. NC/NO is a relay output which sinks 0.5A@125VAC (NC) and 1A@30VDC (NO).

ARI (Alarm Reset In): An external signal to the Alarm Reset In can be used to reset both the Alarm Out signal and the DVR's internal buzzer. Mechanical or electrical switches can be wired to the ARI (Alarm Reset In) and GND (Ground) connectors. The threshold voltage is below 0.3V and should be stable at least 0.5 seconds to be detected. Connect the wires to the ARI (Alarm Reset In) and GND (Ground) connectors.

Connector Pin Outs:

AI (1 to 16)	Alarm Inputs 1 to 16
GND	Chassis Ground
ARI	Alarm Reset In
NC	Alarm Out (Normally Closed)
C	Common
NO	Alarm Out (Normally Open)

Network Port

The DVR can be networked using the 10/100Mb Ethernet connector. Connect a Cat5 cable with an RJ-45 jack to the DVR connector. The DVR can be networked with a computer for remote monitoring, searching, configuration and software upgrades. See the *Network Setup* section in this chapter for configuring the Ethernet connections.

CAUTION: The network connector is not designed to be connected directly with cable or wire intended for outdoor use.

Factory Reset

The DVR has a Factory Reset switch to the left of the Alarm Output connector on the rear panel. This switch will only be used on the rare occasions that you want to return all the settings to the original factory settings.

CAUTION: When using the *Factory Reset*, you will lose any settings you have saved.

To reset the unit, you will need a straightened paperclip:

Turn the DVR off. → Poke the straightened paperclip in the unlabeled hole to the left of the Alarm Output connector, and turn the DVR on. → Hold the switch until the DVR turns on and the live monitoring screen appears. → Release the reset switch. All of the DVR's settings are now at the original settings it had when it left the factory.

Connecting to the RS-485 Port

The RS-485 connector can be used to control PTZ (pan, tilt, zoom) cameras. Connect TX+/RX+ or TX-/RX- of the control system to the RX+/TX+ or RX-/TX- (respectively) of the DVR. See the *Camera Setup* section in this chapter of this manual and the PTZ camera manufacture's manual for configuring the RS-485 connection.

Connector Pin Outs:

Master Unit			Slave Unit
RX+/TX+	→ To	→	TX+/RX+
RX-/TX-	→ To	→	TX-/RX-

Connecting Audio

NOTE: It is the user's responsibility to determine if local laws and regulations permit recording audio.

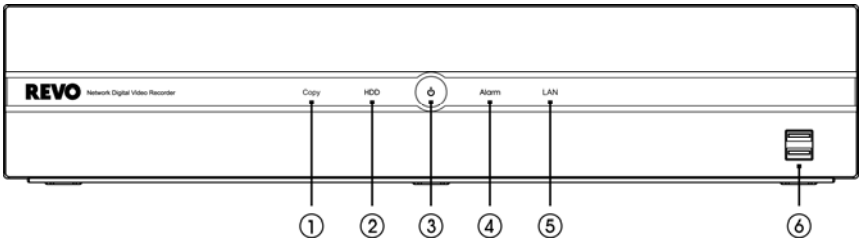
Connect Audio Out to your amplifier using the RCA jack. Connect the audio sources to the audio input connector of the observation cameras that are connected to the modular RJ-12 connectors of the DVR. Refer to the observation camera manual for configuring the Audio In connection. Your DVR can record audio from up to four sources. When installing more than four observation cameras, only audio sources from cameras connected to the RJ-12 Video In 1, Video In 2, Video In 3 and Video In 4 connectors will be recorded.

Connecting the Power Cord

Connect the AC power cord to the DVR and then to a wall outlet.

WARNING: ROUTE POWER CORDS SO THAT THEY ARE NOT A TRIPPING HAZARD. MAKE CERTAIN THE POWER CORD WILL NOT BE PINCHED OR ABRADED BY FURNITURE. DO NOT INSTALL POWER CORDS UNDER RUGS OR CARPET.
THE POWER CORD HAS A GROUNDING PIN. IF YOUR POWER OUTLET DOES NOT HAVE A GROUNDING PIN RECEPTACLE, DO NOT MODIFY THE PLUG. DO NOT OVERLOAD THE CIRCUIT BY PLUGGING TOO MANY DEVICES IN TO ONE CIRCUIT.

FRONT PANEL CONTROLS



① Copy LED ② HDD LED ③ Power LED ④ Alarm LED ⑤ LAN LED ⑥ USB Port

Copy LED

The Copy LED is lit when the DVR making a clip copy.

HDD LED

The HDD LED flickers when the DVR is recording or searching video on the hard disk drive.

Power LED

The power LED is lit when the unit is On.

Alarm LED

The Alarm LED is lit when alarm output or internal buzzer is activated.

LAN LED

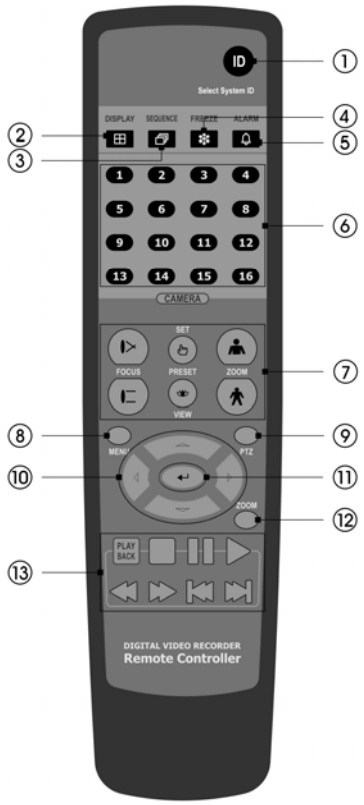
The LAN LED is lit when the unit is connected to a network via Ethernet.

USB Port

Connect the supplied USB mouse to one of the ports. The USB mouse will be used to access many of the DVR's functions. A USB flash drive can be connected to make video clip copies or for system upgrades.

NOTE: The infrared sensor on the DVR is just to the right of the LAN LED. Make certain that nothing blocks the sensor, or the remote control will not function properly.

INFRARED REMOTE CONTROL



① ID
② DISPLAY
③ SEQUENCE
④ FREEZE
⑤ ALARM
⑥ CAMERA
⑦ PTZ Control (FOCUS, PRESET, ZOOM)
⑧ MENU
⑨ PTZ Mode
⑩ Arrows
⑪ Enter
⑫ ZOOM Mode
⑬ PLAYBACK
(Stop, Pause, Play, RW, FF, Next, Previous)

ID Button

If a DVR System ID is set to 0, the infrared remote control will control that DVR without any additional entries. (Refer to the *Main Setup* section in this chapter for further information on setting the System ID.) If the DVR system ID is 1 to 16, you must to press the ID button on the remote control followed by the number button (1 to 16) in order to control that DVR. If two or more DVRs have the same ID, those DVRs will react to the infrared remote control at the same time.

DISPLAY Button

Pressing the DISPLAY button toggles between different display formats. The available formats are: full, 4x4, 3x3, 2x2 and PIP.

When the DVR does not detect a VGA monitor automatically, pressing and holding the button for 5 seconds or longer will toggle the video output between the composite video output and VGA out. During clip copy, you cannot switch the video output mode.

SEQUENCE Button

When in the Live Monitoring mode, pressing the SEQUENCE button displays live channels sequentially.

FREEZE Button

Pressing the FREEZE button freezes the current live screen.

ALARM Button

Pressing the ALARM button resets the DVR's outputs including the internal buzzer during an alarm.

CAMERA Buttons (1 to 16)

Pressing the individual camera buttons will cause the selected camera to display full screen. Buttons 1 to 9 are also used to enter passwords.

PTZ Control Buttons

While in the PTZ mode, the FOCUS buttons are used for Near Focus and Far Focus, the PRESET buttons are used to save Presets and load a Preset View, and the ZOOM buttons are used to Zoom In and Zoom Out.

MENU Button

In the Live Monitoring mode and Search mode, pressing the MENU button displays the menu icons at the top of the screen. Pressing the button also hides the menu icons. During menu setup, pressing the button closes the current menu or setup dialog box.

PTZ Mode Button

Pressing the PTZ button enters the PTZ (Pan/Tilt/Zoom) mode which allows you to control properly configured cameras.

Up, Down, Left, Right Arrow Buttons

These buttons are used to navigate through menus and items displayed in the Live Monitoring or Search screens. They are also used to navigate through menus and GUI during the system setup. You also can use them to change numbers by highlighting a number in a menu and using the Up and Down arrow buttons to increase or decrease the number's value.

The arrow buttons are also used to control Pan and Tilt when in the PTZ mode.

When in the PIP display format, pressing the Up and Down arrow buttons moves the position of the small screen counter-clockwise and clockwise.

Pressing the Left and Right buttons moves through screen pages in the Live Monitoring mode and Search mode.

Enter Button

The ⏎ (Enter) button selects a highlighted item or completes an entry that you have made during system setup. This button is also used to enter the Cameo mode in the Live Monitoring mode or Search mode.

ZOOM Mode Button

Pressing the ZOOM button zooms the current image on the screen. A PIP with a rectangle temporarily displays showing what area of the screen has been enlarged. You can use the arrow buttons to move the rectangle to another area.

PLAYBACK Buttons

- Stop: Stops playback and enters the Live Monitoring mode.
- Pause: Pauses the video. ❙❙ displays on the screen when in the Pause mode.
- Play: Plays back images at regular speed. The screen displays ▶ when the DVR is playing back video.
- RW (Rewind): Plays video backward at high speed. Pressing the button again toggles the playback speed from ◀◀, ◀◀◀ and ◀◀◀◀. ◀◀, ◀◀◀ and ◀◀◀◀ displays on the screen respectively.
- FF (Fast Forward): Plays video forward at high speed. Pressing the button again toggles the playback speed from ▶▶, ▶▶▶ and ▶▶▶▶. ▶▶, ▶▶▶ and ▶▶▶▶ displays on the screen respectively.
- Next: Goes to the next image.

- Previous: Goes to the previous image.

In the Live Monitoring mode, pressing any playback button enters to the Search mode.

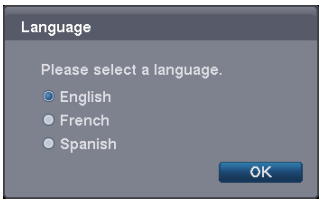
TURNING ON THE POWER

Connecting the power cord to the DVR turns on the unit. The unit will take approximately 30 seconds to initialize.

As soon as the DVR's initialization process completes, you might have the DVR's internal buzzer sound if not all cameras (16, 8 and 4 cameras for 16-, 8- and 4-channel DVR respectively) are installed to the DVR because the DVR is set to use all camera channels by default. To turn the internal buzzer off, press the ALARM button on the remote control, or move the mouse pointer to the top of the screen and click the (*Alarm Off*) icon.

When you turn the system on for the first time, you will be asked to select the startup language. Select the desired language and then click the OK button.

NOTE: You can change the language during System setup. Refer to the *Main Setup* section of this chapter.



Before using your DVR for the first time, you will want to establish the initial settings. The following describes how to use the remote control and mouse in the setup screen. Take a minute to review the descriptions.

	Remote Control	Mouse
To enter the setup screen…	In Live Monitoring mode, press the MENU button to display the menu icons at the top of the screen. Select the (*Setup*) icon by pressing the button.	In the Live Monitoring mode, move the mouse pointer to the top of the screen to display hidden menu icons. Click the (*Setup*) icon with the left button.
To select items…	Move to the desired item by pressing the arrow buttons (, , ,) and select it by pressing the button.	Click the desired item with the left button.
To change values…	Select the desired item and press the Up and Down arrow buttons (,) to increase or decrease the values and then press the button to complete the entry.	Select the desired item with the left button and roll the mouse wheel up and down to increase or decrease the values.
To enter characters…	Select the desired item and press the button to displays a virtual keyboard. Move to the desired character by pressing the arrow buttons, and press the button.	Select the desired item with the left button to displays a virtual keyboard. Click the desired character with the left button.

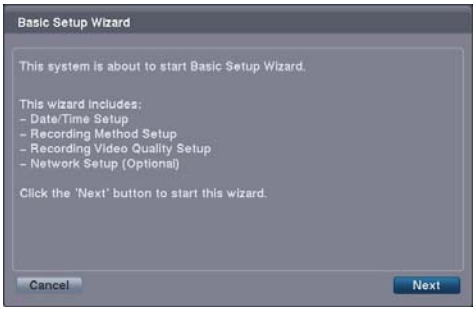
NOTE: For simplicity, most of the operation explanations in this manual are based on using the Remote Control.

While setting up the DVR, there will be many opportunities to enter names and titles. When making these entries, a Virtual Keyboard will appear.

Use the arrow buttons on the remote control to highlight the character you want in the name or title and press the button. That character appears in the title bar and the cursor moves to the next position. Selecting toggles between the upper and lower case keyboards, backspaces, and deletes entered characters. You can use up to 31 characters including spaces in your title.

BASIC SETUP WIZARD

When you turn the system on for the first time, the Basic Setup Wizard will run. The Basic Setup Wizard guides you to configure the system for basic operation. The wizard also can be accessed by selecting the icon in the Setup screen. Refer to the following *Main Setup* section.



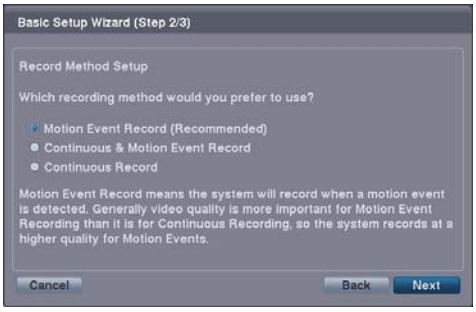
Select the Next button to start the Basic Setup Wizard.

NOTE: Selecting the *Cancel* button throughout the screens exits the Basic Setup Wizard without saving your changes and return to the Live Monitoring mode.

Date/Time Setup

- Date: Set the system date and select the date format.
- Time: Set the system time and select the time format.
- Time Zone: Select your time zone.
- Enable Daylight Saving Time: Selecting the box sets the system to use daylight saving time.

NOTE: The Date/Time will be set, and the clock will start when you click the *Next* button.



Record Method Setup

- Select the desired recording mode from:
  - Motion Event Record (Recommended)
  - Continuous & Motion Event Record
  - Continuous Record

NOTE: You should understand each recording mode before selecting the DVR's recording method.

Record Video Quality Setup

- Select the desired video quality profile from:
  - Higher Video Quality Priority Profile
  - Standard Recording Profile
  - Longer Recording Time Priority Profile

NOTE: The higher quality setting requires more storage space.

Select the Finish button to finish the Basic Setup Wizard.

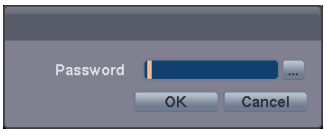
NOTE: Selecting the *Go to Network Setup* button moves to the Network Setup directly after finishing this wizard.

MAIN SETUP

The Main Setup screen gives you to access to all the DVR's setup screens. Your DVR can be set up using various screens and dialog boxes.

Throughout the screens you will see . Selecting the and pressing the button on the remote control gives you the opportunity to reset that screen to its default settings. You can save your changes by selecting the Save button and pressing the button. Selecting the Cancel button exits the screen without saving the changes.

To enter the Main Setup screen, press the MENU button on the remote control. Select the (*Setup*) icon at the top of the screen by pressing the button. The password screen appears.



Enter the password by pressing the appropriate combination of Camera number buttons on the remote control and select the OK button. The following Main Setup screen appears. There is no default password when logging in for the first time.

NOTE: Setting up a password is strongly recommended to ensure secure management of the system.

NOTE: To enter a password by using the mouse, click the button, and a virtual keyboard displays. See instructions above for using the virtual keyboard.

NOTE: Selecting the icon in the top-right corner allows you to access the Basic Setup wizard.

NOTE: When the installed hard disk drive is not formatted, a message box appears asking you to format the hard disk drive. If you want to record video, you must format the hard disk drive.

SYSTEM SETUP

System Settings (SYSTEM ➔ System Tab)

- System ID: Set the system ID. Use the Up and Down arrow buttons or scroll the mouse wheel to increase or decrease the number.

  NOTE: It is possible to have multiple DVRs with the same System ID in the same area. In this case, all DVRs with the same System ID will be controlled at the same time when using the infrared remote control for that ID number.

- Language: Select the desired language.

- Version: Displays the software version of the DVR. To upgrade the software, connect a USB flash drive containing the upgrade package file (.rui) to the DVR. Selecting Upgrade… displays the Upgrade screen. Select the desired upgrade file and press the ↵ button. The system restarts automatically after completing the upgrade.

- Setup: Imports saved DVR settings or exports the current DVR settings.

  Import... – To import saved DVR settings, connect a USB flash drive containing the setup file to the DVR and select the desired setup file. Checking the Include Network Setup box changes the network settings.

  Export... – To save the current DVR settings in .dat file format, connect a USB flash drive to the DVR and enter a file name for the settings.

NOTE: Even after changing the DVR settings by importing saved settings, the time-related settings (Date/Time, Time Zone and Daylight Saving Time) will NOT be changed.

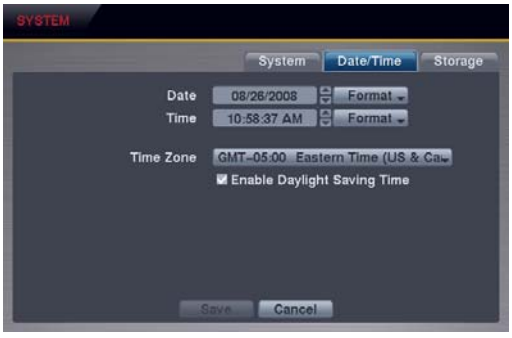
CAUTION: The USB device must be FAT16 or FAT32 format.

- Show System Log…: Displays the system logs (up to 5,000 from the latest). The icon will be displayed in the last column for system activities of remote sites. Refer to *Appendix – System Log* for the details of system log information.

Log Message	Log Message	Log Message
Boot Up	Setup Export Cancel	Clip-Copy End (Local/Remote)
Upgrade (Local)	Schedule On	Clip-Copy Cancel (Local/Remote)
Upgrade Failure (Local)	Schedule Off	Clip-Copy Failure (Local/Remote)
Setup Begin	Clear All Data (Local)	Time Change (Local)
Setup End	Format Disk	Time Zone Change (Local)
Setup Imported	Auto Deletion	DISK FULL
Setup Import Fail	Search Begin (Local/Remote)	Shutdown
Setup Exported	Search End (Local/Remote)	Restart
Setup Export Fail	Clip-Copy Begin (Local/Remote)	DISK# BAD

- Change Password…: Changes the password.
- System Shutdown: Shuts the system down.

Date/Time Settings (SYSTEM → Date/Time Tab)



- Date: Set the system date, and select the date format.
- Time: Set the system time, and select the time format.
- Time Zone: Select your time zone.
- Enable Daylight Saving Time: Selecting the box sets the system to enable daylight saving time.

NOTE: The clock will not start running until you have selecting the Save button.

Storage Settings (SYSTEM → Storage Tab)

- Capacity: Displays the capacity of the storage drive.
- Disk Bad: Displays the damage status of the storage drive.

  Not Formatted – The device is not formatted.
  Good (%) – The device is working properly though some portion (%) of the storage is damaged.
  Bad – More than 90% of the storage is damaged.

- Temperature: Displays the temperature of the storage drive.

  N/A – The DVR cannot read the temperature.
  Good – The temperature is normal.
  Bad – The temperature is 70°C (158°F) or higher.

- S.M.A.R.T.: Displays S.M.A.R.T. information of the storage.

  Good – The storage condition is normal.
  Bad – Data cannot be written on or read from the storage drive.
  N/A – The S.M.A.R.T. monitoring is not working or supported.

  NOTE: When the S.M.A.R.T. displays *Bad*, the screen displays a message box. Once the message box appears, replacing the hard disk drive is recommended, usually within 24 hours.

- Recorded Data: Displays the time information about recorded data on the drive. Selecting Clear All Data… will clear all video data except the system log. When the hard disk drive has not been formatted, the Clear All Data… button changes to the Format… button which is used to format the hard disk drive.

NETWORK SETUP

General Settings (NETWORK → General Tab)

- Transfer Speed: Set the transfer speed, and select the unit of measure for the transfer speed between bps (bit per second) and ips (image per second).
- Quality: Select the quality of the transferred image.

  NOTE: The local recording speed might be affected by various network bandwidth (Transfer Speed) conditions.

  NOTE: The higher Quality settings require higher Transfer Speed settings. The transfer speed you set is the maximum speed. Depending on the network environment, this speed may not be achieved.

- Remote Audio Channel: The DVR supports two-way audio communication between a local system and a PC running Netcon or WebGuard. Select the audio channel that sends audio to the remote site. Selecting Select From Netcon will send audio of the channel selected from Netcon.

  NOTE: Depending on network conditions, audio might be interrupted or out of synchronization during transmission.

- Enable WebGuard Service: Selecting the box turns the WebGuard service On. Select the port number used when accessing WebGuard. See *Appendix – WebGuard* for details.

Network Settings (NETWORK → Network Tab)

- Type: Select the type of network configuration from: Manual, DHCP and ADSL (with PPPoE).

  Manual – You can select Manual when using a static IP address for network connection. Set up LAN parameters manually. Set the numbers of the IP Address, Gateway and Subnet Mask.

  DHCP – You can select DHCP when the DVR is networked through DHCP (Dynamic Host Configuration Protocol). The DVR reads the IP address from DHCP network when selecting the Save button.

  ADSL – You can select ADSL (with PPPoE) when the DVR is networked through ADSL. Enter the ID and password for ADSL connection, and the DVR receives the IP address when selecting the Save button.

NOTE: Ask your network provider for your network connection type and connection information.

NOTE: If the DVR is configured for DHCP or ADSL, the IP address of the DVR might change whenever the unit is turned on. If you want to use the DVRNS function, you will need to get the IP Address of the DNS Server from the Internet service provider.

- DNS Server: Set the DNS server IP address obtained from your network administrator. If you set up the DNS Server, the domain name of the DVRNS server or SMTP server instead of the IP address can be used during DVRNS Server or Mail setup.
- Port Number Setup…: Set the port number of each remote software related program.

  NOTE: You will need to get the appropriate Port Numbers for each remote software related program from your network administrator. Do NOT use the same port number for two different programs, otherwise, the DVR cannot be connected with the PC running Netcon or WebGuard.

CAUTION: When changing the port settings, you must change the port settings on the PC running Netcon or WebGuard.

DVRNS Settings (NETWORK → DVRNS Tab)

NOTE: The DVRNS (DVR Name Service) allows you to connect to the DVR remotely with the dynamic IP address or the domain name. When using this feature, you can access your DVR remotely by using the DVR name instead of IP address. To use the DVRNS feature, the DVR should be registered on the DVRNS server, and the DVRNS server settings on your DVR must match the settings on the registered DVRNS server. Any changes to the DVRNS server might cause improper operation.

NOTE: When Network settings have been changed, set up the DVRNS after saving your Network changes by selecting the *Save* button.

- Enable DVR Name Service: Checking the box enables the DVR Name Service function. You will only be able to change the settings if Enable DVR Name Service is enabled.
- DVRNS Server: Enter the IP address or domain name of the DVRNS server.

  NOTE: You will need to get the IP address or domain name of the DVRNS server from your network administrator. You can use the domain name instead of IP address if you set up the DNS server during Network setup.

- Port: Set the port number of the DVRNS server.
- Enable NAT: Check the box when using NAT. When using a NAT (Network Address Translation) device, refer to the NAT manufacturer's instructions for the proper network settings.
- DVR Name: Enter the DVR name to be registered on the DVRNS server. Check whether or not the name you entered is available by selecting the Check button.

  NOTE: The DVR name you entered should be checked by selecting the *Check* button, otherwise the DVRNS changes will not be saved. When no name is entered or a name is already registered on the DVRNS server, an error message displays.

- Help Desk: Selecting the Save button registers the DVR on the DVRNS server. Proper DVRNS settings will cause the help desk information of the DVRNS server to display.

Mail Settings (NETWORK → Mail Tab)

- Enable: The DVR can be set up to send an e-mail when an event occurs. Selecting the box enables the Mail function. You will only be able to change the settings if Mail is enabled.
- SMTP Server: Set the SMTP server IP address or domain name obtained from your system administrator.

  NOTE: You will need to get the IP address or domain name of the SMTP server from your network administrator. You can use the domain name instead of IP address if you set up the DNS server during Network setup.

- Port: Set the SMTP server port number obtained from your system administrator.

- Enable: The DVR can be set up to send an e-mail when an event occurs. Selecting the box enables the Mail function. You will only be able to change the settings if Mail is enabled.
- SMTP Server: Set the SMTP server IP address or domain name obtained from your system administrator.

  NOTE: You will need to get the IP address or domain name of the SMTP server from your network administrator. You can use the domain name instead of IP address if you set up the DNS server during Network setup.

- Port: Set the SMTP server port number obtained from your system administrator.

- Enable SSL/TLS: Check the box when sending an e-mail via an SMTP server requiring SSL (Secure Sockets Layer) authentication.
- Authentication: Select the button if the SMTP server needs authentication, and set up the Authentication by selecting the Use box and entering the user ID and password.

- Sender/Recipient: Enter the sender's/recipient's e-mail address. The e-mail address must include the "@" character to be a valid address.

CAMERA SETUP

Camera Settings

- No.: Selecting the box toggles all or each camera On and Off.
- Title: Change the name of all or each camera.
- PTZ Model: Select the PTZ device you wish to configure from the list.
- ID: Set the PTZ ID of each camera.

- PTZ Port Setup…: Select the button and set up the PTZ device you are connecting to the DVR. Check the Enable RS485 box and set the port's setting according to the PTZ device manufacturer's instructions.

RECORD SETUP

General Settings (RECORD → General Tab)

- Recycle When Disk Full: Selecting this box records over the oldest video data once all available storage space has been used. When the box is not checked, the DVR stops recording once all available storage has been used.
- Codec: Select the codec between H.264 and MPEG-4. Selecting the new codec displays a message asking you to confirm whether or not you want to restart the system because the system must be restarted before applying the new codec and you will lose all recording data.

CAUTION: When changing the codec all recording data is deleted before applying the new codec. If you don't want to delete the recording data, back up it using the clip-copy function.

NOTE: Selecting the H.264 codec and enabling the VGA Enhancement function will cause the recording speed to be decreased by half. Refer to the Display Setup, Main Monitor Settings section in this chapter for setting up the VGA Enhancement function.

NOTE: The maximum recording and playback speed when using the H.264 codec is as follows.

When the DVR is in the Recording Mode only	
Disable VGA Enhancement	Enable VGA Enhancement
120 ips (100 ips PAL)	60 ips (50 ips PAL)

When the DVR is in the Recording mode and Playback mode at the same time	
Recording Speed	Playback Speed
60 ips (50 ips PAL)	120 ips (100 ips PAL)

- Resolution: Select the recording resolution.

NOTE: The total ips of all camera channels will be limited to 60 ips when set to *High* resolution and 30 ips when set to *Very High* resolution.

NOTE: When set to *High* or *Very High* resolution, the maximum recording speed of each camera channel decreases by half. However the maximum recording speed of 30 ips will be maintained if the number of cameras that are turned On is two or less.

No. of cameras set to *On* and *High* or *Very High* resolution			
0	1	2	3 to 16
–	30 ips	30 ips	15 ips

- Record Audio: Selecting the box records audio from up to four inputs when video is recording.

NOTE: When installing more than four observation cameras, only audio sources from cameras connected to the RJ-12 Video In 1, Video In 2, Video In 3 and Video In 4 connectors will be recorded.

- Auto Deletion: Adjust the length of time recorded data will be kept by using the slide bar. Selecting Never will disable the Auto Deletion function. The DVR automatically deletes video recorded earlier than the user-defined period under three conditions: at midnight, whenever the system reboots or whenever the user changes the Auto Deletion settings.

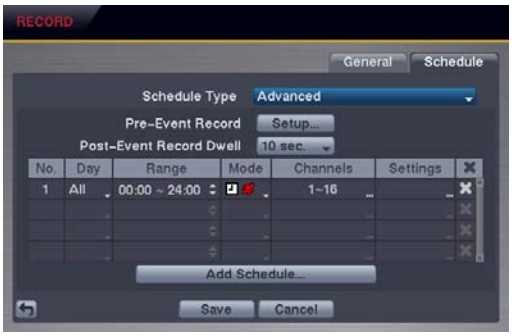
Schedule Settings (RECORD → Schedule Tab)

The DVR provides two recording schedule modes: Basic and Advanced. The Basic schedule mode allows you to set recording settings for all camera channels at one time. The Advanced schedule mode allows you to set recording settings for each camera channel.

Setting up the Basic Schedule Mode…

- Schedule Type: Select the Basic schedule mode.
- Record Mode: Select the desired recording mode. (: Time (Time-lapse) recording, : Event recording, : Time & Event recording)
- Record Schedule: Set the recording schedule.
- Time Record ips: Set the images per second for Time recording.
- Time Record Quality: Set the recorded image quality for Time recording.
- Pre-/Post-Event Record ips: Set the images per second for Pre-Event and Post-Event recording.
- Pre-/Post-Event Record Quality: Set the recorded image quality for Pre-Event and Post-Event recording.
- Pre-/Post-Event Record Dwell: Set the length of time you would like to record for the associated event.

Setting up the Advanced Schedule Mode…



- Schedule Type: Select the Advanced schedule mode.

- Pre-Event Record: Selecting Setup… allows you to set up the pre-event recording by setting the ips, Quality and Dwell for each selected camera channel.

- Post-Event Record Dwell: Set the length of time you would like to record for the associated event.
- Add Schedule…: Adds a schedule item. Up to 20 schedules can be registered.

  No. – Indicates a schedule number. The higher the number, the higher its priority.
  Day – Select the days that the recording will take place.
  Range – Set the time range that the recording will take place.
  Mode – Select the recording mode. (: Time (Time-lapse) recording, : Event recording, : Time & Event recording)
  Channels – Select which cameras will be recorded.
  Settings – Set the ips, Quality and Dwell of the recording for the selected recording mode in the Mode column. If you do not set the Settings column, the DVR will follow the default settings. See below for details.
  ✖ – Deletes the recording settings.

- Default: Set the default settings of ips, Quality and Dwell for Time and Event recording.

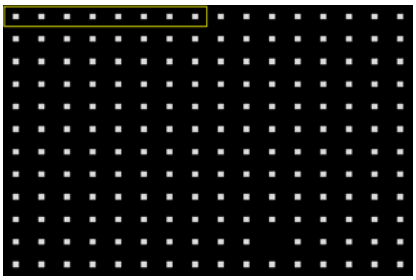
EVENT SETUP

Motion Event Settings (EVENT → Motion Tab)

- No.: Your DVR has built-in motion detection. Selecting the box turns the motion detection On and Off for each camera.

- Sensitivity: Set the DVR's sensitivity to motion for Daytime and Nighttime independently from 1 (the least sensitive) to 5 (the most sensitive).

- Zone: Define the area of the image where you want to detect motion; e.g., a doorway. The Motion Detection Zone screen is laid over the video from the selected camera. You can set up motion zones one block at a time in groups of eight individual block groups. A block group is positioned within the image area using the arrow buttons on the remote control, and individual blocks within the block groups are selected or cleared using the camera buttons. You can set up motion detection zones by selecting or clearing blocks. You can select or clear eight individual blocks in a group at a time, and individual blocks within the group are selected or cleared by using the camera buttons on the remote control. Pressing the ↵ button on the remote control or clicking the right mouse button displays the menu screen. Each item in the menu has the following functions;



Select/*Select All* – Activates highlighted blocks or all blocks to detect motion.
Clear/*Clear All* – Deactivates highlighted blocks so that they will not detect motion.
Reverse/*Reverse All* – Activates inactive highlighted blocks or all inactive blocks and deactivates active highlighted blocks or all active blocks.
Zone View – Displays any detected motion within the zone in red.
OK – Accepts changes and closes Zone setup.
Cancel – Exits Zone setup without saving changes.

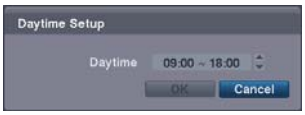
NOTE: You can select the block groups to be selected or cleared by using the mouse. Place the mouse pointer where you want to start the line. Hold down the left mouse button and drag the pointer to where you want to end of the line. Release the mouse button and a group of blocks appears along the line you drew. You can draw lines around shapes by repeating this process.

- Min. Blocks: Set the minimum number of detection blocks that must be activated to trigger a motion alarm for Daytime and Nighttime independently.

- Alarm-Out…: Select the alarm-out signals (Alarm-Out and Beep) to be associated with the camera. The DVR will alert you of the event by activating an external alarm or internal buzzer if motion is detected on the selected camera.
- Notify…: Select Mail if you want to send an e-mail to the address set during *NETWORK – Mail* setup when the DVR detects motion on the selected camera.

  NOTE: For the Notify action to work, the Mail should be enabled in the NETWORK – Mail setup.

- Motion Ignoring Interval: Set the motion ignoring dwell time. You can control excessive event logging and remote notification of motion detected after the motion dwell time by adjusting the motion ignoring dwell intervals. The DVR will not log and notify motion events occurred during the preset interval range. The recording for motion events will not be affected by the Motion Ignoring function.
- Daytime Setup…: Select the button and set the Daytime range. The DVR will consider the remaining time range as the nighttime.



Alarm-In Event Settings (EVENT → Alarm-In Tab)

- No.: Selecting the box toggles each alarm input On and Off.
- Type: Set each alarm input as NO (Normally open) or NC (Normally closed).
- Alarm-Out…: Select the alarm-out signals (Alarm-Out and Beep) to be associated with the alarm input. The DVR will alert you of the event by activating an external alarm or internal buzzer when an input is detected on the selected alarm input.
- Notify…: Select Mail if you want to send an e-mail to the address set during *NETWORK – Mail* setup when the DVR detects an input on the selected alarm input.

  NOTE: For the Notify action to work, the Mail should be enabled in the NETWORK – Mail setup.

System Event Settings (EVENT ➔ System Tab)

- Settings: Set up the DVR to run self-diagnostics.

  System – Select the interval that you want the DVR to run self-diagnostics on the system.

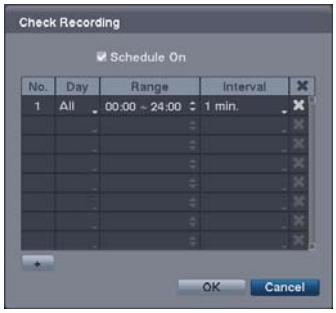
  Check Recording – Selecting the column allows you to set up the check recording schedule by selecting Schedule On. Selecting [+] allows you to add a check recording schedule by setting the day, time range and interval that you want the DVR to run self-diagnostics on the recorder. Selecting ✖ allows you to delete a check recording schedule.

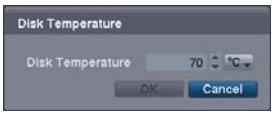
  Check Alarm-In – Selecting the column allow you to change interval the DVR to run self-diagnostics on alarm inputs.

  Disk Almost Full – Select the percentage level of disk usage at which you want the DVR to trigger an alert.

Disk Bad – Select percentage level of bad disk sectors at which you want the DVR to trigger an alert.

Disk Temperature – Set the temperature threshold and (ºC (Celsius) or ºF (Fahrenheit)). If the temperature of hard disk drive exceeds the defined threshold, the system triggers an alert.





- Actions: Set up actions the DVR will take whenever it detects system events. System events can sound the DVR's internal buzzer and/or notify a number of different devices.

  NOTE: The Beep action cannot be set to *System* event.

  NOTE: For the Notify action to work, the Mail should be enabled in the NETWORK – Mail setup.

DISPLAY SETUP

OSD Settings (DISPLAY → OSD Tab)

- Status/Camera: Check each OSD item box to turn it On or Off.

Remote Control – The icon displays when the DVR can be controlled using the infrared remote control.
Zoom – The icon displays on the enlarged video.
Network – The icon displays when the unit is connected to a network via Ethernet.
Freeze & Sequence – The icon displays while in the Freeze mode, and the icon displays while in the Sequence mode.
Screen Group – The screen group number displays when the DVR is in other than the 4x4 display mode for the 16-channel DVR, 3x3 mode for the 8-channel DVR, and 2x2 mode for the 4-channel DVR.
Free Space – The icon displays when the DVR is in the Recycle mode. The percentage of available storage space displays when the DVR is not in the Recycle mode.
Date/Time – The current date and time information displays.
Camera No. – The camera number displays in the top-left corner of each camera screen.
Camera Title – The camera title displays in the top-left corner of each camera screen.
Record – The record related icons display on each camera screen.
Audio – The icon displays on the camera screen for which the DVR can play live audio on the local system, and the icon displays on the camera screen for which the DVR is sending audio to a PC running Netcon or WebGuard.
PTZ – The icon displays on each PTZ camera screen with PTZ capabilities.

- Transparency: Adjust the transparency of the setup screens by using the slide bar.
- OSD Margin…: Set the Horizontal and Vertical margins so that text and icons will display within the edges of the monitor.

Main Monitor Settings (DISPLAY → Main Monitor Tab)

- Sequence – Mode: Select the sequence mode between Full Sequence and Cameo Sequence. (8- and 16-channel Model Only) Selecting the *Sequence* menu icon at the top of the screen or pressing the SEQUENCE button on the remote control causes the DVR to sequence cameras. The DVR can sequence cameras in two modes: "Full" and "Cameo." In the Full mode, the DVR sequences through the cameras with predefined screen layouts. In the Cameo mode, the bottom right window of a multi-screen format sequences through the cameras. See *Chapter 3 – Operation, Live Monitoring* for details.

NOTE: You can define the screen layout in a variety of formats and set the DVR to sequence through the different screen layouts (pages) so that all the cameras will be displayed. You also can set up the DVR to display one camera or a group of cameras all the time while cycling through the remaining cameras in a "cameo" window. This can be done with one camera displayed full screen while displaying the cameo window as a PIP (picture-in-picture), or displaying the cameras in a grid pattern with the bottom right window as the cameo.

NOTE: Sequence cannot be used in the 4x4 display mode of the 16-channel DVR, 3x3 mode of the 8-channel DVR, or 2x2 mode of the 4-channel DVR.

- Sequence – Interval: Select the display dwell time of sequence monitoring.
- Event Monitoring On: Selecting the box turns the Event Monitoring On. When it is On, the DVR will display the camera associated with the event when an event occurs. See *Chapter 3 – Operation, Live Monitoring* for details.

- Enable VGA Enhancement: Selecting the box enables the VGA Enhancement function. When it is On, the DVR provides clearer live video by reducing visual defects called interlace artifacts.

  NOTE: When enabling the VGA Enhancement function, the recording speed will decrease by half.

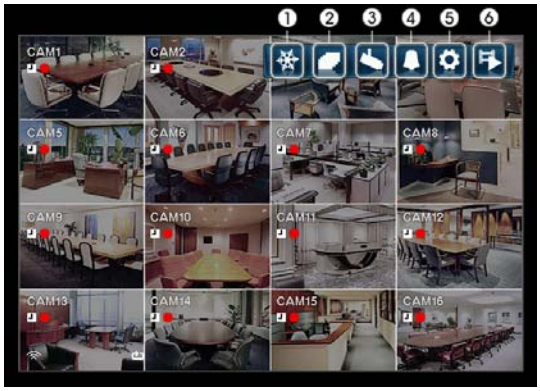
Chapter 3 — Operation

NOTE: This chapter assumes your DVR has been installed and configured. If it has not, please refer to *Chapter 2*.

LIVE MONITORING

As soon as the DVR completes its initialization process, it will begin displaying live video on the attached monitor and playing live audio through the attached speaker. The default mode is to display all cameras at once. Pressing any camera button on the remote control will cause that camera to display full screen. The DVR continues displaying live video and playing live audio until the user enters another mode.

Press the MENU button on the remote control, and the following menu icons display at the top of the screen. Pressing the MENU button again hides the menu icons. You can navigate through menus and items by pressing the arrow buttons on the remote control.



① Freeze
② Sequence
③ Camera Menu
④ Alarm Off
⑤ Setup
⑥ Search Mode

NOTE: The menu icons also can be displayed by moving the mouse pointer to the top of the screen.

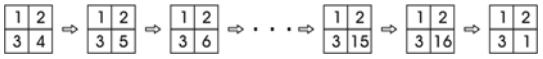
Freeze

Selecting the (*Freeze*) icon will freeze the current image on the screen until you select Freeze again. It is the same as pressing the FREEZE button on the remote control. Selecting the icon again exits the Freeze mode. While in the Freeze mode, the icon displays in bottom-left corner if Freeze is selected in the Display setup screen (OSD tab).

Sequence

Selecting the (*Sequence*) icon causes the cameras to display sequentially. It is the same as pressing the SEQUENCE button on the remote control. When in one of the multiview formats, selecting *Sequence* will cause the DVR to go through predefined screen layouts (Full Sequence). Or, the bottom, right screen will display live cameras sequentially (Cameo Sequence). For example, if you select the icon in the 2x2 format, the 16-channel DVR changes pages as follows:

Full Sequence



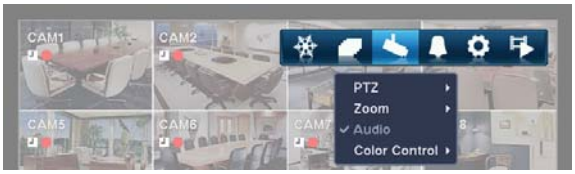
Cameo Sequence

Selecting another display mode or selecting the icon again exits the Sequence mode. While in the Sequence mode, the icon displays in bottom-left corner if Sequence is selected in the Display setup screen (OSD tab).

NOTE: *Full Sequence* for the full sequence monitoring and the *Cameo Sequence* for the cameo sequence monitoring should be selected in the Display setup screen (Main Monitor tab).

Camera Menu

Selecting the (*Camera Menu*) icon displays the following Camera Menu.

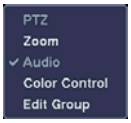


- **PTZ:** Selecting *PTZ* and choosing the camera number allows you to control the selected camera as long as it has Pan, Tilt and Zoom capabilities. Selecting *PTZ* is the same as pressing the PTZ button on the remote control. See the following *PTZ Mode* section for details.
- **Zoom:** Selecting *Zoom* and choosing the camera number zooms the current image of the selected camera on the screen. Selecting *Zoom* is the same as pressing the ZOOM button on the remote control. For a few seconds after selecting *Zoom*, a PIP displays. Inside the PIP, a rectangle shows the area that is enlarged. You can move the rectangle around using the arrow buttons on the remote control. Pressing the button on the remote control enlarges the area. Selecting the (*Exit*) icon at the top of the screen by pressing the MENU button on the remote control exits the Zoom mode. You also can exit the Zoom mode by pressing the ZOOM button on the remote control. While in the Zoom mode, the icon displays in bottom-left corner if Zoom is selected in the Display setup screen (OSD tab).
- **Audio:** Selecting *Audio* while in the full-screen mode toggles playing live audio On and Off. While playing live audio, the icon displays on the camera screen if Audio is selected in the Display setup screen (OSD tab).
- **Color Control:** Selecting *Color Control* and choosing the camera number displays an image adjustment dialog. Selecting *Color Control* and choosing the camera number is the same as pressing and holding a camera button on the remote control for a few seconds. You can control brightness, contrast, hue and saturation for each camera.

NOTE: It is important that cameras and monitors are correctly installed and adjusted prior to making any image adjustments using the DVR's controls.

NOTE: Any image adjustments you make will be applied to both the live video on the monitors and the recorded video.

NOTE: The Camera Menu also can be displayed by clicking the right mouse button on each camera screen.



- **Edit Group:** Supports the active cameo function. Select *Edit Group* and choose a camera that you want to change display position (e.g., Camera A). Then, click the right mouse button to display the menu. If you choose another camera in the menu (e.g., Camera B), the screen displays Camera B instead of Camera A. Clicking the right mouse button and selecting *Exit Group Edit* in the menu exits the Active Cameo mode. See the following *Active Cameo Mode* section for details.

Alarm Off

Selecting the (*Alarm Off*) icon resets the DVR's outputs including the internal buzzer during an alarm. Selecting the icon is the same as pressing the ALARM button on the remote control.

Setup

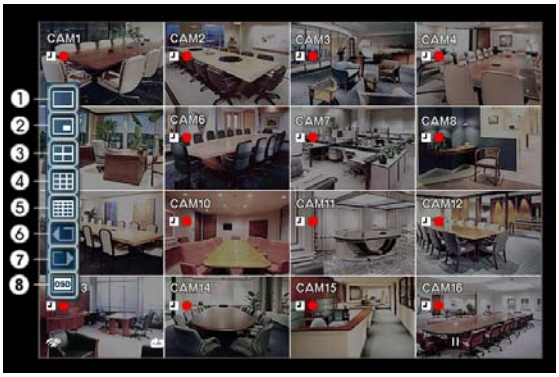
Selecting the (*Setup*) icon enters the Main Setup screen.

Search Mode

Selecting the (*Search Mode*) icon exits the Live Monitoring mode and enters the Search mode.

DISPLAY MENU

In the Live Monitoring mode or Search mode, moving the mouse pointer to the left edge of the screen displays the following Display menu icons.



① Full Screen
② PIP
③ 2x2
④ 3x3
⑤ 4x4
⑥ Previous Group
⑦ Next Group
⑧ OSD

Full Screen

Selecting the (*Full Screen*) icon displays the selected camera full screen. Selecting the icon and choosing the camera number is the same as pressing the individual camera buttons on the remote control or clicking the left mouse button on a camera image when in one of the multiview formats (i.e., 2x2, 3x3 or 4x4). Clicking the left mouse button on the screen again returns to the previous display mode.

PIP, 2x2, 3x3, 4x4

Selecting the , , or (*PIP*, *2x2*, *3x3* or *4x4*) icon displays the cameras in the selected multiview screen mode (PIP, 2x2, 3x3 or 4x4). Selecting each display mode is the same as pressing the DISPLAY button on the remote control or scrolling the mouse wheel up and down when in one of the multiview formats (i.e., 2x2, 3x3 or 4x4).

NOTE: The PIP display mode will not be supported in the Search mode.

You can change the location of the PIP (Picture-in-Picture) counterclockwise or clockwise by pressing the Up and Down arrow buttons on the remote control. To change its location and size by using the mouse, select the PIP and then click the right mouse button to display the following menu. Select the options you want.

Previous Group, Next Group

Selecting the or (*Previous Group* or *Next Group*) icon moves to the previous or next page. Selecting the or icon is the same as pressing the Left or Right buttons on the remote control.

OSD

Selecting the (*OSD*) icon toggles OSD On and Off.

EVENT MONITORING

When an event occurs, the DVR will display the camera associated with that event if Event Monitoring On is selected in the Display setup screen (OSD tab).

How the cameras are displayed depends on the number of cameras associated with the event. If one camera is associated with the event, the DVR will display that camera full screen. If two to four cameras are associated with the event, the DVR will display the cameras on a 2x2 screen. If five to nine cameras are associated with the event, the DVR will display the cameras on a 3x3 screen. If 10 or more cameras are associated with the event, the DVR will display the cameras on a 4x4 screen.

Event monitoring lasts for the dwell time set for event recording. After the dwell time has elapsed, the monitor returns to the previous screen unless another event has occurred. If you want to return to the live monitoring mode before the dwell time has elapsed, press the DISPLAY button or one of the camera buttons on the remote control.

ACTIVE CAMEO MODE

You can enter the Active Cameo mode by pressing the button on the remote control while in any multiview format. A yellow outline surrounding the video indicates the active cameo, and pressing the arrow buttons moves the active cameo. Pressing the button while in the Active Cameo mode exits the Active Cameo mode. You also can exit the Active Cameo mode by selecting the (*Exit*) icon at the top of the screen displayed by moving the mouse pointer to the top of the screen. The active cameo mode will remains in effect for 15 seconds if there is no further operation.

In active cameo mode, press the camera button on the remote control for the camera you want displayed as active cameo. After setting the camera number to active cameo, the DVR moves the active cameo to the next cameo. You can use this method to change the screen layout in this way.

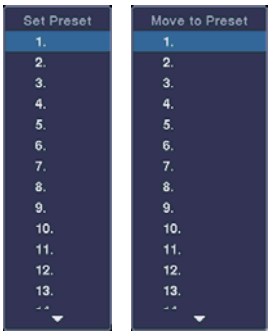
PTZ MODE

In the Live Monitoring mode, press the MENU button on the remote control or move the mouse pointer to the top of the screen to display the (*Camera Menu*) icon on the screen. Selecting *PTZ* and choosing the camera number from the Camera Menu enters the PTZ mode. Only camera numbers that are set up for PTZ control during Camera setup can be selected in the list. To exit the PTZ mode, select the (*Exit*) icon at the top of the screen displayed by pressing the MENU button while in the PTZ mode. You also can enter the PTZ mode by pressing the PTZ button and selecting the camera button on the remote control and exit the PTZ mode by pressing the button again. While in the PTZ mode, the PTZ icon flickers on the PTZ camera screen if PTZ is selected in the Display setup screen (OSD tab).

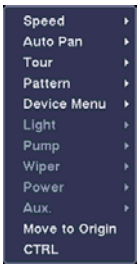
Press the Left and Right arrow buttons on the remote control to pan left and right, and press the Up and Down arrow buttons to tilt the camera up and down. Press the button to zoom in, and the button to zoom out. You can use the and buttons to focus the image.

You can establish preset positions for PTZ cameras. Press the button on the remote control to create or change Presets. You can quickly move PTZ cameras to Preset positions. Press the button to view an established camera Preset position or click the right mouse button on the PTZ camera screen.

You can save camera position settings as "presets" so that you can go directly to desired views. Once you have the camera at the desired settings, press the button, and the *Set Preset* dialog box will appear. Select the number you want to assign to the preset and press the button on the remote control. Use the virtual keyboard to enter the preset name. Press the button to load the PTZ preset and the *Move to Preset* dialog box will appear. Select the desired preset and press the button on the remote control to load the preset. You also can load the preset using the mouse. Click the right mouse button on the PTZ camera screen and select the desired preset.



While in the PTZ mode, pressing the MENU button on the remote control displays the menu icons at the top of the screen. Selecting the (*Advanced PTZ*) icon displays the following the PTZ menu. Set the feature you wish to control by selecting it from the menu. Refer to the camera's instructions for the proper settings. Depending on the camera specifications, some features may not be supported.



You also can use the mouse for convenient PTZ control. Position the mouse pointer at the bottom of the screen, and the following PTZ toolbar displays.

Clicking ✖ on the left side exits the toolbar. If you want to display the toolbar again, position the mouse pointer at the bottom of the screen. Change the toolbar location by clicking the empty space on the left side of the toolbar and dragging it to where you want it located on the screen. Use the arrow buttons on the toolbar to pan or tilt the camera in the direction you want. The other controls on the toolbar perform as described below:

Zoom In or Out Focus Near or Far
Iris Open or Close Set or Load Preset

RECORDING VIDEO

Once you have installed the DVR following the instructions in *Chapter 2 — Installation and Configuration*, it is ready to record. The DVR will start recording based on the settings you made in the Record setup screen.

Recycle On or Recycle Off. The factory default is Recycle On (Recycle When Disk Full). It does this by recording over the oldest video once the hard disk is full. Setting the DVR to Recycle Off causes it to stop recording once the hard disk is full.

H.264 or MPEG-4. The factory default codec is H.264. When set to H.264, the DVR can record more images by compressing more effectively than using MPEG-4. However, the recording speed might decrease depending on the display option and DVR's operation mode. Refer to the *Chapter 3 — Installation and Configuration, Record Setup* and *Display Setup* for details.

Standard (CIF), High (Half D1) or Very High (D1). The factory default resolution is High. When set to High, the DVR has a maximum recording speed of 60 ips. When set to Standard, the DVR has a maximum recording speed of 120 ips. When set to Very High, the DVR has a maximum recording speed of 30 ips.

Although you will be able to record without changing the unit from its original factory settings, you will want to take advantages of the DVR's many tools. See *Chapter 2 — Installation and Configuration, Record Setup* for detailed descriptions of the recording mode options.

If the DVR was set up to record audio, it will record audio from up to four inputs when video is recording.

NOTE: Make certain you comply with all local and federal laws and regulations when recording audio.

PLAYING RECORDED VIDEO

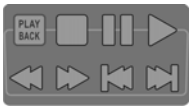
While in the Live Monitoring, pressing the MENU button on the remote control displays the menu icons on the screen. Selecting the (*Search Mode*) icon at the top of the screen exits the Live Monitoring mode and enters the Search mode.

Once video has been recorded, you can view it by pressing the ▶ (*Play*) button on the remote control in the Search mode. When playing video for the first time, the DVR will display the most recent image. When playing video subsequent times, the DVR will start playing video from the last recalled image. Recorded audio will be played when the DVR displays a camera with recorded audio in full screen mode.

Playback Related Buttons on the Remote Control

- CAMERA Buttons (1 to 16): Pressing the individual camera buttons will cause the selected camera to display full screen.

- PLAYBACK Buttons



(Stop): Stops playback.
(Pause): Pauses the video. The screen displays ❙❙ when in the Pause mode.
(Play): Plays back images at regular speed. The screen displays ▶ when the DVR is playing back video.

(Rewind): Plays video backward at high speed. Pressing the button again toggles the playback speed between ◀◀, ◀◀◀ and ◀◀◀◀. The screen displays ◀◀, ◀◀◀ and ◀◀◀◀ respectively.
(Fast Forward): Plays video forward at high speed. Pressing the button again toggles the playback speed between ▶▶, ▶▶▶ and ▶▶▶▶. The screen displays ▶▶, ▶▶▶ and ▶▶▶▶ respectively.
(Next): Goes to the next image.
(Previous): Goes to the previous image.

- ZOOM Button: Pressing the ZOOM button and selecting the camera button on the remote control zooms the current playback image of the selected camera. Pressing the ZOOM button again exits the Zoom mode. While in the Zoom mode, the 🔍 icon displays on the camera screen if Zoom is selected in the Display setup screen (OSD tab).
- DISPLAY Button: Pressing the button toggles between different display formats. The available formats are: full, 4x4, 3x3, 2x2 and PIP.

You also can use the mouse for convenient playback control. Position the mouse pointer on the playback screen, and the following Record Table Search screen (Compact View mode) will display. Refer to the following *Searching Video – Search Filter* section for information regarding the Record Table Search. The individual controls on the toolbar perform the following functions:

Go to the previous image
Fast backward play
Play/Pause
Fast forward play
Go to the next image

SEARCHING VIDEO

While in the Search mode, pressing the MENU button on the remote control displays the following menu icons at the top of the screen. Pressing the MENU button again hides the menu icons.

① Search Filter
② Go To
③ Clip-Copy
④ Camera Menu
⑤ Alarm Off
⑥ Exit

NOTE: The menu icons also can be displayed by moving the mouse pointer to the top of the screen.

Search Filter: Selects video from the event log, searches using a recording table or searches motion events (see below for more details).

Go To: Displays the first or last recorded image, or searches by date and time (see below for more details).

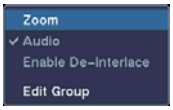
Clip-Copy: Copies a video segment and saves it (see below for more details).

Camera Menu

- **Zoom:** Selecting *Zoom* and choosing the camera number zooms the current playback image of the selected camera on the screen. Selecting the (*Exit*) icon at the top of the screen by pressing the MENU button on the remote control or moving the mouse pointer to the top of the screen exits the Zoom mode. While in the Zoom mode, the icon displays on the camera screen if Zoom is selected in the Display setup screen (OSD tab).
- **Audio:** Selecting *Audio* while in the full-screen mode toggles playing recorded audio On and Off. While playing recorded audio, the icon displays on the camera screen if Audio is selected in the Display setup screen (OSD tab).
- **Use De-Interlace:** Selecting *Use De-Interlace* while in the full-screen mode turns the de-interlace filter on.

NOTE: The video signal has a time difference of 1/60 second between odd and even fields because it is composed of 60 interlaced fields per second. When recording video with Very High (D1) resolution, video is made up of frame units combining two fields – one odd field and one even field. This can cause horizontal scan lines or flashes in areas with motion because of the time difference between the two fields. Turning on the de-interlace filter provides clearer video by eliminating these horizontal scan lines and flashes.

NOTE: The Camera Menu also can be displayed by clicking the right mouse button on each camera screen.

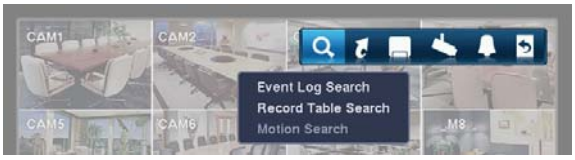


- **Edit Group:** Selecting *Edit Group* supports the active cameo function. Select *Edit Group* and choose a camera that you want to change the display position (e.g., Camera A). Then, click the right mouse button to display the menu. If you choose another camera in the menu (e.g., Camera B), the screen displays Camera B instead of Camera A. Clicking the right mouse button and selecting *Exit Group Edit* in the menu exits the Active Cameo mode.

Alarm Off: Resets the DVR's outputs including the internal buzzer during an alarm. Selecting the icon is the same as pressing the ALARM button on the remote control.

Exit: Exits the Search mode and enters the Live Monitoring mode.

SEARCH FILTER



Event Log Search

The DVR maintains a log of each time the Alarm Input port is activated. The Event Log Search screen displays this list. Use the arrow buttons to highlight the event for which you would like to see video.

Pressing the button will select the event video and display the first image of the event. Pressing the (*Play*) button on the remote control button will start playing the "event" video segment. If you want to return to live monitoring, press the MENU button on the remote control and select the (*Exit*) icon at the top of the screen.

NOTE: It is possible no recorded image displays on the current screen. Press the *DISPLAY* button on the remote control and change the screen mode to 4x4 for the 16-channel DVR, 3x3 for the 8-channel DVR and 2x2 for the 4-channel DVR. You will be able to easily see which cameras have recorded video for target time.

You also can narrow your event search by selecting Option… and setting up the new search condition.

- From: Pressing the ↵ button toggles between On and Off. When set to Off, you can enter a specific Date and Time. When set to On, the search will be from the first recorded image.
- To: Pressing the ↵ button toggles between On and Off. When set to Off, you can enter a specific Date and Time. When set to On, the search will be to the last recorded image.
- Check Time Overlap: Selecting the box and pressing the ↵ button toggles between On and Off. You will be able to turn the Check Time Overlap on or off only if user-defined date and time have been set in the From and To boxes. If the DVR's date and time have been reset, it is possible for the DVR to have overlapping start and stop times. When set to On, you will be asked to select one of the overlapping start and stop times. When set to Off, the DVR will display search results from all start times to all stop times.
- Alarm-In: Select the alarm inputs that you want to include in your search.
- Motion: Select the cameras for which you want any reports of motion detection.
- Video Loss: Select the cameras for which you want any reports of lost video.
- Record Channels: Select the cameras that you want to search for any reports of event recorded data. The DVR will display the events (not the camera channels) that occurred and that also are recorded on the camera channel that you selected. If you do not select a camera channel in this field, the DVR will search events that are not associated with cameras.
- Check Recording, Check Alarm-In, Disk Almost Full, Disk Bad, Disk Temperature, Disk S.M.A.R.T., Fan Error: Pressing the ↵ button toggles between On and Off to include or exclude self-diagnostic events as part of your search.

Once you set your desired search conditions, select Search and press the ↵ button to display the search results in the Event Log Search screen. Selecting Cancel exits the screen without saving the changes.

Record Table Search

Standard View

Compact View

Expanded View

Recording information about video images currently displayed on the screen displays in the recording status bar. A grey vertical line indicates the current search position. To search for specific video, move the vertical line by pressing the Left or Right arrow buttons on the remote control, scrolling the mouse wheel or clicking the mouse on the desired segment.

If the DVR's time and date have been reset to a time that is earlier than some recorded video, it is possible for the DVR to have more than one video stream in the same time range. In this case, the overlapping time range in the record table will be separated by a yellow vertical line.

NOTE: The recorded data in the time range located to the right of the yellow vertical line is the latest.

There are three view modes; Standard view, Expanded view and Compact view. Standard view (default) displays combined recording information of all camera channels currently displayed on the screen. In the Standard view mode, selecting the ▲ icon located at the bottom switches to the Expanded view mode. The Expanded view displays the recording information of each camera channel currently displayed on the screen. Selecting the ▼ icon switches to the Compact view mode which displays only the toolbar. Selecting the ▲ icon in the Compact view mode switches to the Standard view mode, and selecting the ▼ icon in the Expanded view mode switches to the Standard view mode.

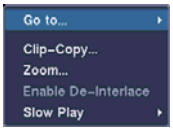
Selecting 🔍+ or 🔍- located at the bottom zooms the record table. Selecting 🔍+ displays eight hours (1-minute based), and selecting 🔍- displays 24 hours (3-minute based) at once. To move to earlier or later times that are not shown in the current record table screen, select the arrows located at the end of the times by using the arrow buttons on the remote control.

NOTE: If the DVR has images recorded in more than one recording mode in the same time range, the recording status bar displays recording information in the following priority order: Pre-Event → Event → Time. The color of the bar indicates different recording modes: Yellow for Pre-Event, Purple for Event, and Blue for Time.

Selecting 📅 located at the bottom displays the Calendar Search screen.

Days with recorded video display on the calendar with white numbers. You can select the days with recorded video by using the arrow buttons on the remote control. Once you have selected a day, pressing the ↵ button displays the first recorded image of the selected date on the screen. Once you have selected the date you want to search, review the surrounding video by using the playback controls located at the bottom. Refer to the *Recording Video – Playing Recorded Video* section of this chapter for information regarding playback controls.

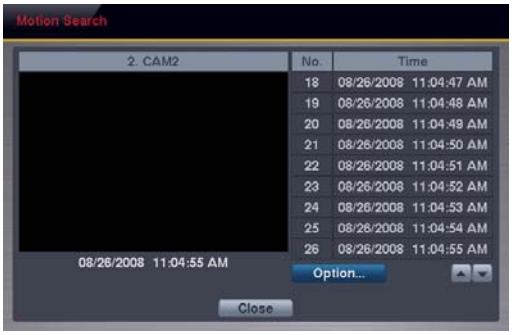
Selecting 🔍 located at the bottom displays the Search menu.



- Go To: Displays the first or last recorded image, or searches by date and time (see below for more details).
- Clip-Copy: Copies a video segment and saves it (see below for more details).
- Zoom: Zooms the current playback image.
- Use De-Interlace: Turns the de-interlace filter on (see below for more details).
- Slow Play: Plays video at low speed (x1/2, x1/3, x1/4, x1/6 and x1/8).

Selecting ✖ in the top-left corner exits the Record Table Search screen.

Motion Search



Motion Search can be selected from the Search Filter menu while the DVR displays the camera full screen. The Motion Search screen displays a list of motion events. Use the arrow buttons to highlight the event for which you would like to see video and press the ↵ button to display the video associated with the selected event in the small search screen.

Selecting Close and pressing the ↵ button will extract the video associated with the Motion event and display the first image of the event. Pressing the ▶ (*Play*) button on the remote control button will start playing the "event" video segment. If you want to return to live monitoring, press the MENU button on the remote control and select the (*Exit*) icon at the top of the screen.

You also can narrow your event search by selecting Option… and setting up new search conditions.

- From: Pressing the ↵ button toggles between On and Off. When set to Off, you can enter a specific Date and Time. When set to On, the search will be from the first recorded image.
- To: Pressing the ↵ button to toggles between On and Off. When set to Off, you can enter a specific Date and Time. When set to On, the search will be to the last recorded image.
- Type: Select between Motion Search and Museum Search. Motion Search detects motion in the defined area. Museum Search detects if a defined object has moved.
- Zone: Press the ↵ button, and an image from the video appears with a grid overlay. You can turn sensor blocks On and Off to define the area of the picture in which you want to search for motion. The zone should be placed or focused on the centre or, at least, within the outline of targeted object.

  NOTE: Defining the area of the image in which you want to search for motion is nearly identical to setting up the DVR for Motion Detection. Please refer to the *Motion Event Settings* section in *Chapter 2 — Installation & Configuration – Main Setup, Event Setup* for more detailed instructions on setting up the detection blocks.

  NOTE: When setting the Museum Search Zone, the zone should be placed inside of the border line of the target object. If the selected block is placed on the boarder line, the sensitivity of the Museum Search may decrease.

- Sensitivity: Select the sensitivity from 1 (low sensitivity) to 5 (high sensitivity).
- Min. Blocks: Set the number of sensor blocks that must be activated. Setting the Min Blocks will only be available if Motion Search is selected in the Type field.

Once you set your desired search conditions, select Search and press the ↵ button to display the search results in the Motion Search screen. Selecting Cancel exits the screen without saving the changes.

When you search for motion events for another camera, you will be asked whether or not you want to delete the previous search results from the list.

GO TO

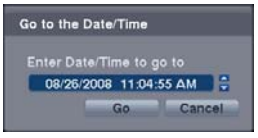
Go to the First

Selecting *Go to the First* displays the first recorded image.

Go to the Last

Selecting *Go to the Last* displays the last recorded image.

Go to the Date/Time



You can use the Left and Right arrow buttons on the remote control to select the year, month, day, hours, minutes and seconds. Use the Up and Down arrow buttons to change to the date and time you want to search for video. Once you have set the date and time, press the ↵ button. Then select Go and press the ↵ button to display the image recorded at the selected time. The Playback buttons on the remote control can now be used to review the surrounding video. (If no video was recorded during the selected time, a message appears alerting you that no image was recorded at that time.)

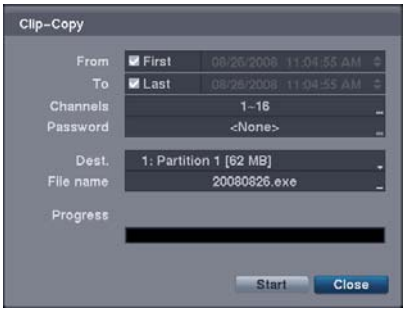
CLIP-COPY

A–B Clip-Copy

Selecting A–B Clip-Copy will set the starting point of the video to be clip copied, and the icon displays at the bottom-left corner of the screen. Selecting A–B Clip-Copy again will set the ending point of the video to be clip copied and displays the Clip-Copy screen.

Clip-Copy

Select Clip-Copy, and the Clip-Copy screen appears to allow clip copy setup.



- From: Pressing the ↵ button toggles between On and Off. When set to Off, you can enter a specific Date and Time. When set to On, the copy will be from the first recorded image.
- To: Pressing the ↵ button toggles between On and Off. When set to Off, you can enter a specific Date and Time. When set to On, the copy will be to the last recorded image.
- Channels: Select the cameras that you would like to include in your video clip.
- Password: Pressing the ↵ button displays a virtual keyboard allowing you to enter a password for reviewing the video clips.
- Dest.: Select the storage device on which you would like to record the video clip.

CAUTION: The USB device for clip copy must be FAT 16 or FAT32 format.

- File name: The DVR automatically assigns a file name to the video clip. However, you can give the video clip file a different name. Pressing the ↵ button displays a virtual keyboard. Enter a file name for the video you are copying and select Close. The DVR will automatically add ".exe" to the file name.

NOTE: When naming a file, you cannot use the following characters: \, /, :, *, ?, ", <, >, |.

Once you have given the video clip a file name, select Start and press the ↵ button. A confirmation screen displaying data size will appear. When the storage device does not have enough space, the DVR will ask if you want to copy as much of the video clip as possible in the available space. Select Continue and press the ↵ button to continue clip copy.

Once the clip copy starts, you can cancel it by selecting Stop or hide the screen by selecting Close. When selecting Close, Clip Copy continues and a confirmation screen displays when complete.

NOTE: The file size for clip copy is limited to 2GB.

You can use other functions on the DVR while video is being copied. To do this, select Close and press the ↵ button. You can return to the Clip-Copy screen at any time to check the progress.

You do not need to install any special software on your personal computer to review the video clips. Refer to the Netcon manual for instructions on how to review video clips you have copied.

NOTE: During Clip Copy, you cannot shut the system down, clear data on the storage device, or format the storage device.

CAUTION: Do NOT disconnect the USB flash drive from the DVR while copying video clips.

WEBGUARD

WebGuard allows you to access a remote DVR, monitor live video images and search recorded video using Internet Explorer web browser anytime from virtually anywhere.

Computer system requirements for using the WebGuard program are:

- Operating System: Microsoft Windows® 2000, Microsoft Windows® XP or Microsoft Windows® Vista
- CPU: Intel Pentium III (Celeron) 600MHz or faster
- RAM: 128MB or higher
- VGA: 8MB or higher (1024x768, 24bpp or higher)
- Internet Explorer: Version 6.0 or later

Start Internet Explorer on your local PC. You can run the WebGuard program by entering the following information in the address field.

– "http://IP address:port number" (The DVR IP address and the WebGuard port number (default: 12088) set in the Network setup screen (WebGuard tab))
– Or, "http://DVRNS server address/DVR name" (The DVRNS server address and the DVR name registered on the DVRNS server)
– Or, "http://www.revodvr.com" (Entering the DVR IP address or the DVR name will be required when logging in)

NOTE: You will need to get the appropriate IP address for the DVR you want to connect to and the WebGuard port number from your network administrator.

NOTE: WebGuard only works with Microsoft Internet Explorer and will NOT work with other browsers.

Select between the WEBWATCH (Web monitoring) and WEBSEARCH (Web search) modes and enter the appropriate port number of the program. Entering PASSWORD and clicking the [LOGIN] button logs in using the selected mode.

You will need to enter the DVR IP address in the DVR ADDRESS field when running the WebGuard program by entering http://www.revodvr.com. Selecting the Use DVRNS option allows you to enter the DVR name registered on the DVRNS server instead of the IP address. You must enter the DVRNS server address and port number in the SETUP setting when selecting the Use DVRNS option.

NOTE: The port numbers for *WEBWATCH*, *WEBSEARCH* and *Audio* should be the same port numbers used for *Remote Watch*, *Remote Search* and *Remote Audio* set during Network setup.

NOTE: When running the updated WebGuard for the first time, Internet Explorer might occasionally load the information of the previous version. In this case, delete the temporary internet files by selecting Tools → Internet Options → General tab, and then run WebGuard again.

NOTE: There might be a problem that the bottom of WebGuard page is cropped due to the address or status bars in Microsoft Internet Explorer 7.0. In this situation, it is recommended that websites open windows without address or status bars by changing the internet setting. (Go to the Tools → Internet Options → Security tab → Click the Custom level… button → Select *Enable* for the *Allow websites to open windows without address or status bars* option)

NOTE: When running WebGuard in the Microsoft Windows Vista operating system, it is recommended to start Internet Explorer with elevated administrator permissions. Click the right mouse button on the Internet Explorer icon and select the *Run as administrator* option from the context menu. Otherwise, some functions of the WebGuard might be limited.

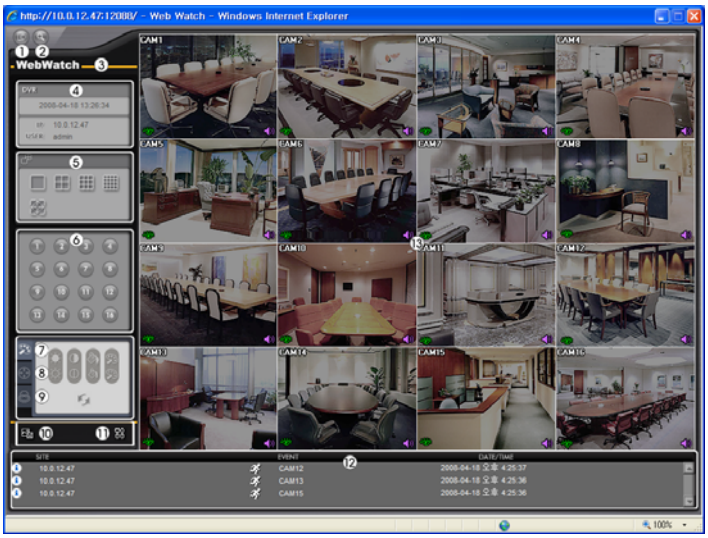
NOTE: There might be a problem with screen display or screen update due to low image transmission speed when using the Microsoft Windows Vista operating system. In this situation, it is recommended that you disable the Auto Tuning capability of your computer.

Run the *Command Prompt* with elevated administrator permissions (Go to the Start Menu → Accessories → Command Prompt → Click the right mouse button and select the *Run as administrator* option). Then enter "netsh int tcp set global autotuninglevel=disable" and press the enter key. Restart your computer to apply the changes.

If you want to enable the Auto Tuning capability again, enter "netsh int tcp set global autotuninglevel=normal" after running the Command Prompt with elevated administrator permissions. Restart your computer to apply the changes.

WEB MONITORING

WebWatch is a remote web monitoring program that allows you to monitor live video transmitted in real-time from the remote DVR.



① Click the icon to log out of the WebGuard program

② Click the icon to access the web search mode.

③ Position the mouse pointer on the WebWatch logo to see the version number of the WebGuard program.

④ The DVR information window displays the login information of WebGuard.

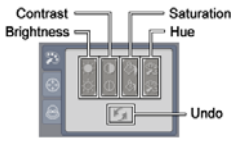
⑤ Click the screen format to select the desired display mode. When changing the screen format, the selected camera on the current screen will be located in the first cell of the new layout.

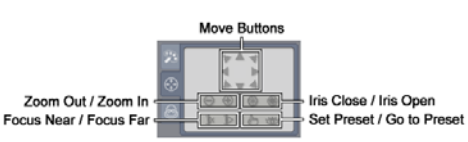
⑥ Click the camera button to select the camera to be viewed.

⑦ Click the icon to adjust the brightness, contrast, saturation and hue of the monitored image.

⑧ Click the icon to pan, tilt and zoom the remote site camera.

⑨ Click the icon to control alarm out devices at the remote site.



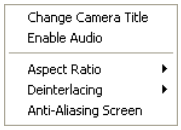


⑩ Click the icon to save the current image in a bitmap or JPEG file format.

⑪ Click the icon to set up the image drawing mode and OSD. You can adjust the display speed by changing the image drawing mode, and select OSD.

⑫ The event status window at the bottom displays a list of events that were detected at the remote site.

⑬ Selecting a camera on the screen and clicking the right mouse button displays the text menu screen.



- Change Camera Title: Changes the camera name.
- Enable Audio: Enables audio communication with the remote site. When the audio control panel displays, click the icon to send audio to the connected remote site and click the button again to stop sending audio. Click the icon to monitor live audio from the connected remote site through the attached speaker and click the button again stop monitoring live audio. Clicking both the and buttons allows two-way communication. Clicking the button disables audio communication.
- Aspect Ratio: Changes the image aspect ratio.
- Deinterlacing: Using a deinterlace filter for interlaced video enhances image display quality by eliminating horizontal scan lines and noise in areas with motion.
- Anti-Aliasing Screen: Enhances image display quality by eliminating stair stepping (aliasing) effects in the enlarged image.

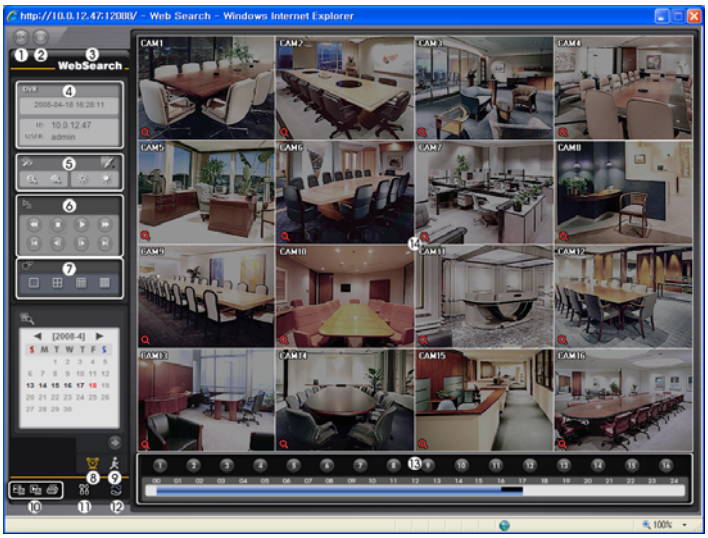
NOTE: A camera name change in the Web Watch mode does not affect the camera name set up on the remote site. Leaving the Camera Title blank causes the camera name set up on the remote site to display.

NOTE: The icon will display on each camera screen when audio communication is available between the WebGuard system and a DVR.

WEB SEARCH

WebSearch is a remote web search program that allows you to search recorded video on the remote DVR.

NOTE: The remote site connection in the Web Search mode will automatically be disconnected if there is no activity for 30 minutes.



① Click the icon to log out of the WebGuard program.

② Click the icon to access the web monitoring mode.

③ Position the mouse pointer on the WebSearch logo to see the version of the WebGuard program.

④ The DVR information window displays the time information of recorded data on the remote DVR and login information of WebGuard.

⑤ Click the icon to blur, sharpen, equalize and interpolate playback images. Click the icons to zoom out or zoom in the recorded image. Click the icons to adjust the brightness of the recorded images.

NOTE: Image processing works only in the pause mode.

⑥ The playback function buttons include fast backward, pause, play, fast forward, go to the first image, go to the previous image, go to the next image, and got to the last image.

⑦ Click the screen format to select the desired display mode.

⑧ Click the icon to enter the time-lapse search mode which allows you to search for recorded data by time and then play back images found within the time parameters. The Timetable window located at the bottom displays the time information for the image of the date selected on the calendar. If there is more than one video stream in the same time range, you can select the video stream you want to search. Clicking a specific time displays the image recorded at that time on the screen. Selecting the icon allows you to display an image from a specific time.

⑨ Click the icon to enter the event search mode which allows you to search for event log entries using specific conditions and play back the images associated with those event entries.

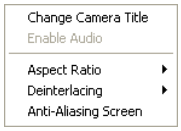
⑩ Click the icon to save the current image in a bitmap or JPEG file format, or click the icon to save any video clip of recorded data as an executable file. Click the icon to print the current image on a printer connected to your computer.

⑪ Click the icon to set up the image drawing mode and OSD display. You can adjust the display speed by changing the image drawing mode, and select OSD information to be displayed on the screen.

⑫ Click the icon to reload the recording data.

⑬ The Timetable displays recorded data of the selected camera by time (in hour segments).

⑭ Selecting a camera on the screen and clicking the right mouse button displays the text menu screen.



- Change Camera Title: Changes the camera name.
- Aspect Ratio: Changes the image aspect ratio.
- Deinterlacing: Using a deinterlace filter for interlaced video enhances image display quality by eliminating horizontal scan lines and noise in areas with motion.
- Anti-Aliasing Screen: Enhances image display quality by eliminating stair stepping (aliasing) effects in the enlarged image.

NOTE: A camera name change in the Web Search mode does not affect the camera name set up on the remote site. Leaving the Camera Title blank causes the camera name set up on the remote site to display.

Appendix

FACTORY DEFAULT SETTINGS

MENU	ITEM	PARAMETER	DEFAULT SETTING
SYSTEM	System	System ID	0
		Language	English
	Date/Time	Date Format	MM/DD/YYYY
		Time Format	HH:MM:SS AM/PM
		Time Zone	GMT-05:00 Eastern Time (US & Canada)
		Enable Daylight Saving Time	On
NETWORK	General	Transfer Speed	10.00 ips
		Quality	High
		Remote Audio Channel	Select From Netcon
		Enable WebGuard Service	On
		Port	12088
	Network	Type	Manual
		IP Address	192.168.1.129
		Gateway	192.168.1.254
		Subnet Mask	255.255.255.0
		DNS Server	0.0.0.0
		Port Number Setup…	
		Remote Admin	8200
		Remote Watch	8016
		Remote Search	10019
		Remote Audio	8116
	DVRNS	Enable DVR Name Service	Off
		DVRNS Server	revodvr.com
		Port	10088
		Enable NAT	Off
		DVR Name / Check	Blank
		Help Desk	Blank
NETWORK	Mail	Enable	Off
		SMTP Server	Blank
		Port	25
		Enable SSL/TLS	Off
		Authentication	None
		Sender	Blank
		Recipient	Blank
CAMERA		No.	On
		Title	CAM1 to CAM16
		PTZ Model	None
		ID	0
		PTZ Port Setup…	
		Enable RS485	Off
		Baud Rate	9600
		Data Bit	8
		Stop Bit	1
		Parity	None

RECORD	General	Recycle When Disk Full	On
		Codec	H.264
		Resolution	High
		Record Audio	Off
		Auto Deletion	Never
	Schedule	Schedule Type	Basic
		Basic Schedule Mode	
		Record Mode	Time & Event
		Record Schedule	00:00 to 24:00
		Time Record ips	2.50
		Time Record Quality	Standard
		Pre-/Post-Event Record ips	5.00 / 5.00
		Pre-/Post-Event Record Quality	High / High
		Pre-/Post-Event Record Dwell	00 min. 05 sec. / 10 sec.
		Advanced Schedule Mode	
		Pre-Event Record / Setup…	Off
		Post-Event Record Dwell	10 sec.
		No.	1 on
		Day	All
		Range	00:00 to 24:00
		Mode	Time & Event
		Channels	1 to 16
		Settings: Time (ips / Quality) Event (ips / Quality)	Settings:
EVENT	Motion	No.	On
		Sensitivity…(Daytime/Nighttime)	3 / 3
		Zone	192
		Min. Blocks (Daytime/Nighttime)	1 / 1
		Alarm-Out…	None
		Notify…	None
		Motion Ignoring Interval	2 sec.
		Daytime Setup…	09:00 ~ 18:00
	Alarm-In	No.	Off
		Type	NC
		Alarm-Out…	None
		Notify…	None
	System	Settings	
		System	Never
		Check Recording	Off
		Check Alarm-In	Off
		Disk Almost Full	90%
		Disk Bad	50%
		Disk Temperature	70
		Actions	
		System	Mail
		Check Recording	Beep
		Check Alarm-In	Beep
		Disk Almost Full	Beep
		Disk Full	Beep
		Disk Bad	Beep, Mail
		Disk Temperature	Beep, Mail
		Disk S.M.A.R.T.	Beep, Mail
		Fan Error	Beep, Mail

DISPLAY	OSD	Status	
		Remote Control	On
		Zoom	On
		Network	On
		Freeze & Sequence	On
		Screen Group	On
		Free Space	On
		Date	On
		Time	On
		Camera	
		No.	Off
		Title	On
		Record	On
		Audio	On
		PTZ	On
		Transparency	0 (Left)
		OSD Margin…	
		Horizontal	10
		Vertical	10
	Main Monitor	Sequence	
		Mode	Full Sequence
		Interval	3 sec.
		Event Monitoring On	Off
		Enable VGA Enhancement	Off
		VGA Screen Position…	

ERROR CODE NOTICES

SYSTEM UPGRADE RELATED		CLIP COPY RELATED	
No.	Description	No.	Description
0	Unknown error.	0	Unknown error.
1	File version error.	1	Device error.
2	Operating system version error.	2	Mounting failed.
3	Software version error.	5	File already existed.
4	Kernel version error.	6	Not enough space.
100	Upgrade device mounting failed.	7	Creating temporary file failed.
101	Package is not found.	8	Opening disk failed.
102	Extracting package failed.	9	Formatting disk failed.
103	LILO failed.	10	Database has been changed.
104	Rebooting failed.	11	Appending failed.
105	Invalid package.	12	Bad sector.
300	Remote connection failed.	13	No executable file.
301	Remote network error.	14	Opening executable file failed.
302	Remote upgrade is not authorized.	15	Writing executable file failed.
303	Saving remote package failed.	16	Creating image failed.
304	Remote upgrade is cancelled by the user.		
400	USB device mounting failed.		
401	Reading upgrade package on the USB device failed.		
402	Copying upgrade package on the USB device failed.		
500	System is busy clip copying.		

TROUBLESHOOTING

PROBLEM	POSSIBLE SOLUTION
No Power	• Check power cord connections. • Confirm that there is power at the outlet.
No Live Video	• Check camera video cable and connections. • Check monitor video cable and connections. • Confirm that the camera has power. • Check camera lens settings.
No Live Video on the VGA Monitor	If the DVR does not detect a VGA monitor automatically, press and hold the DISPLAY button on the remote control for 5 seconds or longer to switch the video output from Video out to VGA out.
DVR has stopped recording.	If hard disk drive is full, you will either need to delete video or set the DVR to the Recycle On (Recycle When Disk Full) Mode. See *Chapter 2 – Installation & Configuration, Main Setup – Record Setup* for details.
The ● icon displays, however, the DVR is not recording.	When the DVR is in the Pre-Event recording mode, the yellow and ● icons display when there is no event, and the DVR is not recording. The red and ● icons display when any event occurs and the DVR starts recording.
IR remote control does not work properly.	• Check the batteries in the remote control. • Check that nothing blocks the infrared sensor on the DVR. • Check the system ID setting for the remote control. See *Chapter 2 – Installation & Configuration, Main Setup – System Setup* for details.

SPECIFICATIONS

VIDEO	
Signal Format	NTSC
Video Input	Composite: 4, 8 or 16 inputs, 1 Vp-p, auto-terminating, 75 Ohms
Monitor Outputs	Composite: One (BNC), 1 Vp-p, 75 Ohms VGA: One (Auto detect)
Video Resolution	Composite: 720x480 VGA: 720x480@60Hz
Playback/Record Speed (images per second)	120/120ips (NTSC)

INPUTS/OUTPUTS	
Alarm Input	4, 8 or 16 TTL, NC/NO programmable, 4.3V threshold
Alarm Output	1 relay out, terminal block, NC or NO, 0.5A @ 125VAC, 1A @ 30VDC
Alarm Reset In	1 TTL, terminal block
Internal Buzzer	80dB at 10cm
Network Connectivity	10/100 Base Ethernet
Audio Input	RJ-12 Input: 4 Line In
Audio Output	RCA Output: 1, Line Out
IR Port	1 Remote Control

CONNECTORS	
Video Input	Composite: 4 or 8 RJ-12 (12V ⎓, Max. 250mA) 8 BNC (16-Channel Model Only)
Monitor Output	Composite: 1 BNC VGA: 1 DB15
Audio In	RJ-12 connector
Audio Out	1 RCA connector
Alarms	Terminal block
Ethernet Port	RJ-45
RS-485 Serial Port	Terminal block, telemetry control
USB Port	2 on front panel (2.0) (Max. 500mA)

STORAGE	
Primary Storage	SATA hard disk drive
Backup Storage	USB flash drive

GENERAL	
Dimensions (W x H x D)	16.9" x 3.5" x 15.7" (430mm x 88mm x 400mm)
Unit Weight	6.67 lbs. (3.03kg)
Shipping Weight	9.88 lbs. (4.49kg)
Shipping Dimensions (W x H x D)	21.3" x 11.4" x 23.2" (540mm x 290mm x 590mm)
Operating Temperature	41°F to 104°F (5°C to 40°C)
Operating Humidity	0% to 90%
Power	100-240 VAC, 50/60Hz, 1.2-0.6A
Approval	FCC, UL

Specifications are subject to change without notice.

DIGITAL VIDEO RECORDER Netcon

Remote Administration System

USER'S MANUAL

REVO

www.revoamerica.com
1-866-625-REVO (7386)

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Chapter 1 — Overview

1.1 IN THIS MANUAL

This manual describes installation and operation of Netcon (Remote Administration System) software, which is designed to be used with remote digital video recorders (DVRs).

1.2 NETCON FEATURES

Netcon program is an integrated software program that controls system management, video monitoring, video recording and image playback of multiple remote sites. Netcon offers the following features:

- Checks and reports status of remote DVRs
- Remote monitoring of live camera images
- Panic recording of monitored images
- Time-lapse and event search of recorded images
- Remote software upgrades and system programming
- View system and event log information of remote DVRs
- Remote monitoring of multiple remote sites using 3D maps
- Connect up to 64 remote sites (up to 16 remote sites for remote search) at a time

NOTE: This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (*http://www.openssl.org/*).

1.3 PRODUCT INFORMATION

Package Components

- User's Manual (this document)
- Installation CD

System Requirements

- Operating System: Microsoft® Windows® XP x86 (32 Bit) or Microsoft® Windows® Vista x86 (32 Bit)
- CPU: Intel Pentium IV (Celeron) 2.4GHz or faster
- RAM: 512MB or higher
- VGA: AGP, Video RAM 8MB or higher (1024x768, 24bpp or higher)

Chapter 2 — Installation

CAUTION: If an older version of Netcon software is installed in your computer, you should uninstall the older version first.

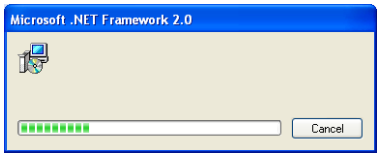
NOTE: In the Start menu in Windows, go to Control Panel. Double click the *Power Options* to evoke the Management Properties dialog box. Under the *Power Schemes* tab, set both *Turn off monitor* and *Turn off hard disks* to *Never*.

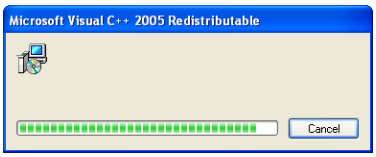
1. Insert the installation CD.

2. Run the Setup.exe file.

NOTE: The *User Account Control* window might appear when using the Microsoft Windows Vista operating system. Click *Allow* and install Netcon software following the instructions.

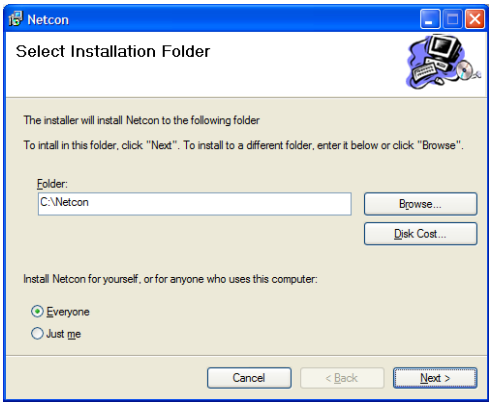
3. The .NET Framework and the Visual C++ Runtime Libraries are installed automatically.



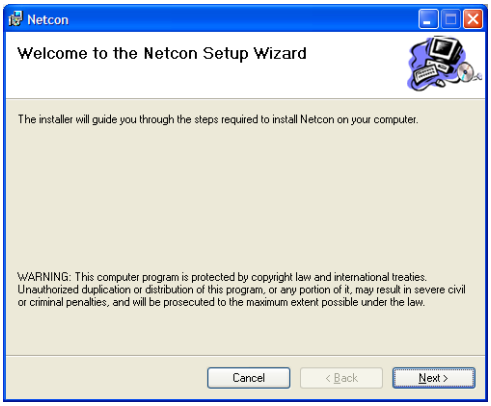


NOTE: Installing the *.NET Framework* and the *Visual C++ Runtime Libraries* is required for Netcon to operate properly. This installation step will be skipped if they are already installed on your computer.

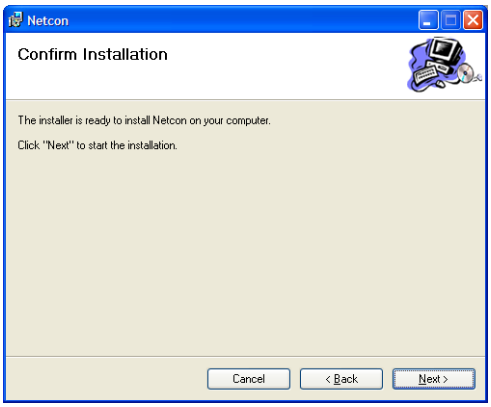
4. Designate the folder path to install Netcon and select the user(s) who can use Netcon. Then click Next.



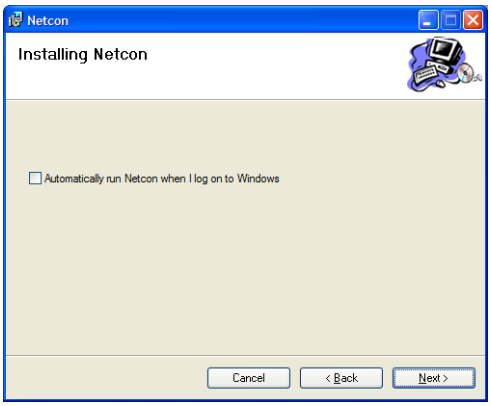
5. When the following dialog box appears, click Next.



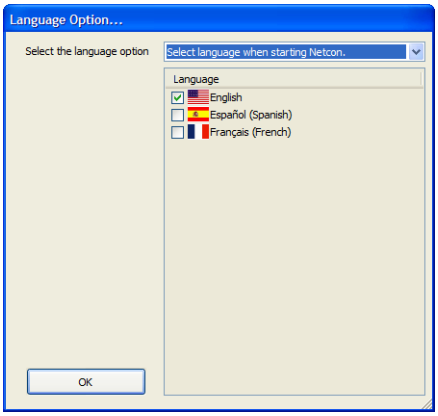
6. Click Next.



7. Select whether or not to run Netcon automatically when logging onto Windows, and then click Next.

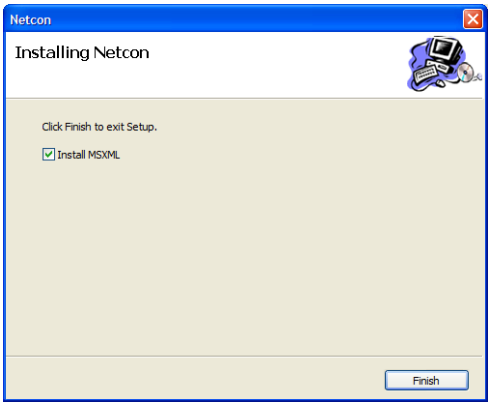


8. Set the language option by selecting either Select language when starting Netcon or Always start Netcon using the language below. If you select Always start Netcon using the language below, select the desired startup language from the list of available languages and then click OK.

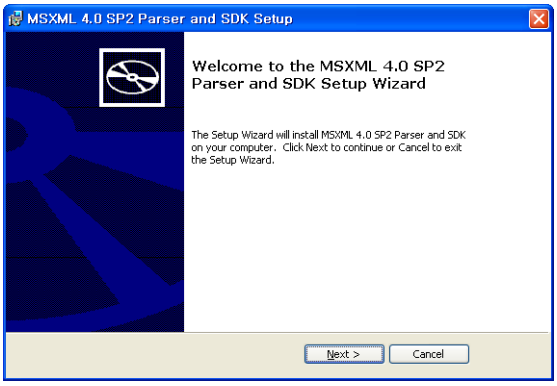


NOTE: To properly display the selected language, your PC's operating system should be set to support the selected language.

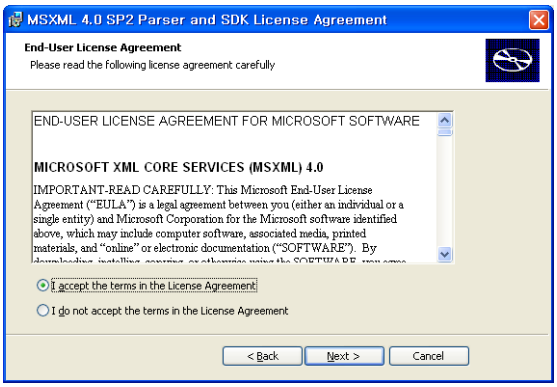
9. When the following dialog box appears after finishing the Netcon installation, select Install MSXML application and click Finish. Installing the MSXML is required for Netcon to initiate.



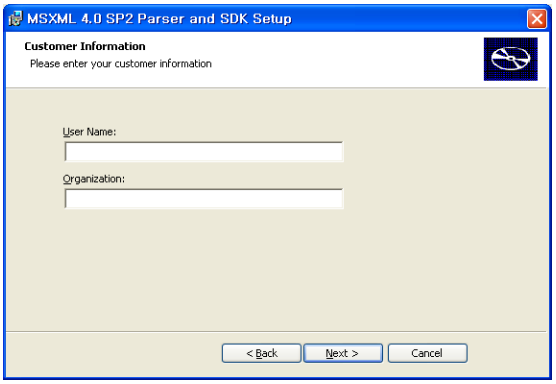
10. Click Next.



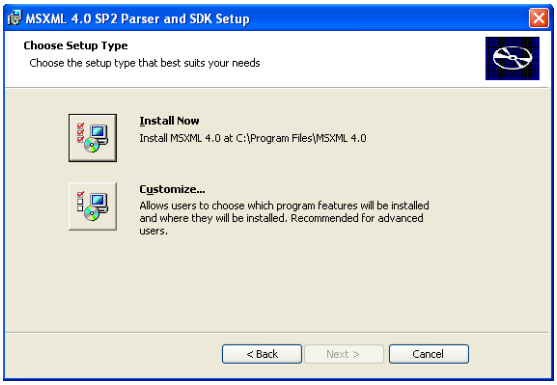
11. Select I accept the terms in the License Agreement, and click Next.



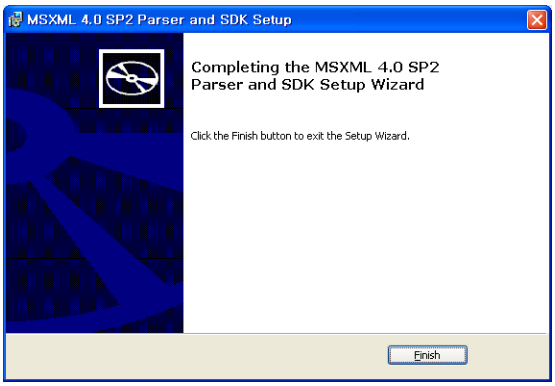
12. Enter User Name and Organization, and click Next.



13. Select Install Now.



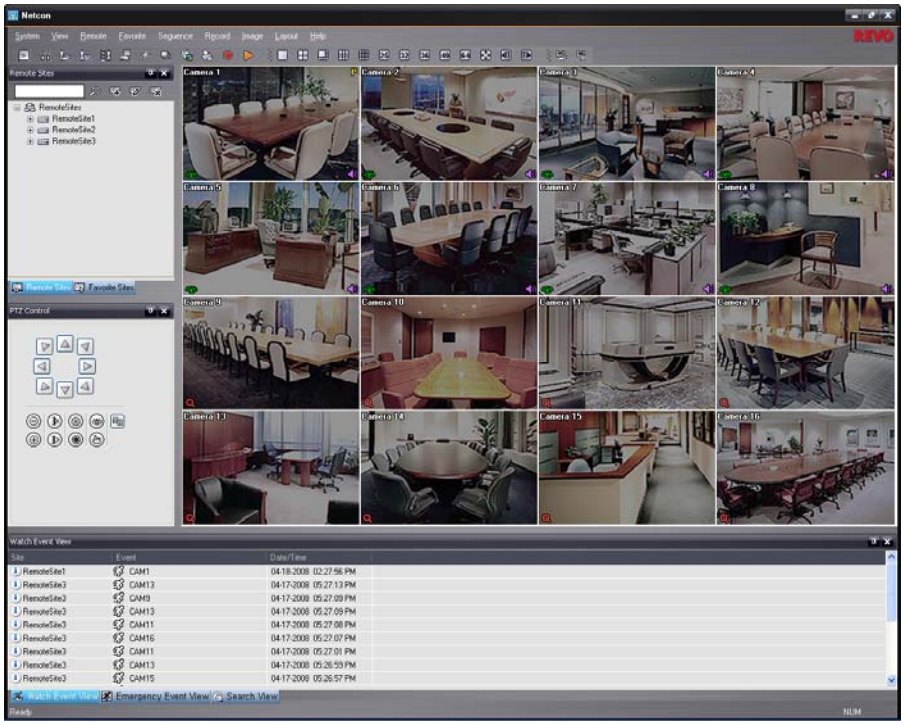
14. Click Finish to complete the MSXML installation.



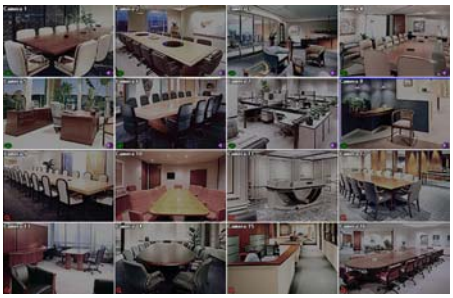
Chapter 3 — Configuration

After installing the Netcon software, you will find the Netcon shortcut icon on the desktop. Run the Netcon program by double clicking the icon. The Netcon program consists of the screen, 12 docking panels, menu and toolbar.

NOTE: Some panels will not be displayed on the screen in the default frame layout. To display those panels, move to the *View* menu at the top of the screen and select each panel from the menu



3.1 SCREEN



The Screen displays images from selected cameras in the live monitoring or playback modes. Netcon provides various multi-screen layouts; single-screen, quad, 1+7, 3x3, 4x4, 5x5, 1+32, 6x6, 7x7, 8x8 and full-screen.

NOTE: There might be a problem with screen display or screen update due to low image transmission speed when using the Microsoft Windows Vista operating system. In this situation, it is recommended that you disable the Auto Tuning capability of your computer.

Run the *Command Prompt* with elevated administrator permissions (Go to the Start Menu → Accessories → Command Prompt → Click the right mouse button and select the *Run as administrator* option). Then enter "netsh int tcp set global autotuninglevel=disable" and click the OK button. Restart your computer to apply the changes.

If you want to enable the Auto Tuning capability again, enter "netsh int tcp set global autotuninglevel=normal" after running the Command Prompt with elevated administrator permissions. Restart your computer to apply the changes.

3.2 PANEL

Netcon has many powerful tools that can be used to streamline your work. Most of the tools are located on 12 docking panels that can be placed on the screen where they are most convenient. You can keep your screen free of clutter by displaying only the panels you use most frequently.

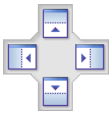
Clicking the icon at the upper right corner of a panel enables the auto-hide feature. Tabs for auto-hidden panels are displayed on the side of the screen. Scrolling over an auto-hidden panel tab will cause the panel to "fly" out. You can cause the panel to lock back into its original display position by clicking the icon. Clicking the icon hides the panel without a tab. Hidden panels can be displayed by selecting them from the drop-down menus.

Panels can be resized, moved and combined with other panels creating a workspace that fits your needs. To resize a panel, scroll the cursor over the edge of the panel until the cursor changes to ↔ or ↕. Then click the left mouse button and drag the panel border to enlarge or reduce its size.

To move a panel to a different position on the screen, scroll the cursor over the title bar of a panel that has not been auto-hidden until it changes to ✣. Once you click and drag, position arrows will display on the screen.

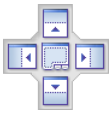
The four position arrows along the outer edges allow you to place the panel along the given edge independent of the other panels. When you drag the panel over a position arrow, a transparent blue box will display showing the new panel position. If you are satisfied with the position, release the left mouse button and the panel will move to its new position.

You can also move a panel so that it is associated with another panel. To do this, drag the panel over the panel you want it associated with, and the icon with four position arrows will center over that panel. Scrolling the cursor over the icon arrows will cause a transparent blue box to display where the panel will be located. If you are satisfied with the position, release the left mouse button and the panel moves to its new position.



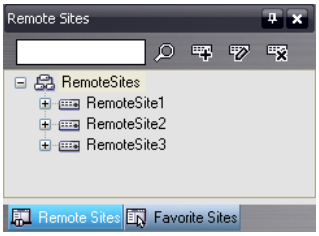
It is possible to combine panels so that they take up less space on the screen. Combined panels have a row of tabs across the bottom. Clicking a tab brings that panel to the foreground.

To combine panels, move the cursor to the title bar of the panel you want to move. Click and drag the panel onto the panel you want to combine it with. If the panels can be combined, the four-position arrow icon will have a tab symbol in the center. Drag the cursor over the tab symbol , and a new tab appears on the panel. Release the mouse button and the panels will now be combined.



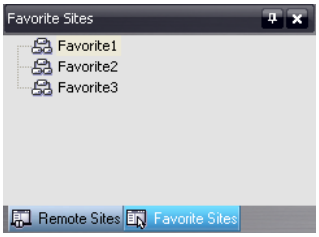
The layout possibilities are virtually unlimited. With a little experimentation you will be able to lay out the screen so that it best meets your workflow.

Remote Sites Panel



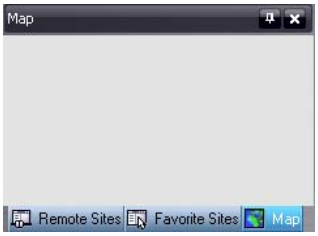
The Remote Sites Panel displays a list of remote sites registered during Netcon System setup and a list of installed cameras at the remote sites. Entering the site name in the query box and clicking the icon allows you to find the remote site easily in the Remote Sites list. Clicking the icon allows you to register the remote site, clicking the icon removes the selected remote site from the list, and clicking the icon allows you to edit the site information of the selected remote site from the list. To connect to a remote site, select the site or camera you want to connect to from the list and then drag and drop it in the desired position on the screen or the Status View panel. The screen displays images from selected cameras, and the Status View panel displays the system status information of the connected remote site. Connecting to the Status View panel can also be done by selecting Connect Status View from the popup menu displayed by clicking the right mouse button after selecting the site from the list. This popup menu initiates the remote menu including Remote Setup, Remote System Log, and Remote Event Log. Refer to *3.3 Menu – Remote Menu* for more details.

Favorite Sites Panel



The Favorite Sites panel displays the list of Favorite sites registered during Netcon System setup. Selecting the Favorite site you want to connect to from the list and then dragging and dropping it in the desired position on the screen connects all remote sites registered in the Favorite site automatically.

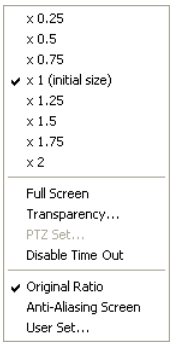
Map Panel



The Map panel allows efficient monitoring of the remote sites by displaying a three-dimensional map of the selectable site. Click the right mouse button on the map panel to select the map image file (.rmp) you want to monitor from the list. The selected map image displays in the Map panel and the sites registered on the map image file will be connected. When the selected map is linked with sub-maps, clicking the linked image moves to the sub-map.

NOTE: Refer to *Appendix – Map Editor* for details on editing maps.

The Map panel pops up another screen when alarm-in, motion or video loss events are detected or when you click the device icon according to the Map Editor settings. Change the popup screen location by clicking the left mouse button on the screen and dragging it to where you want it located. Clicking the right mouse button on the popup screen displays the following popup menu.



- x0.25 to x2: Sets the desired size of the Map popup screen.
- Full Screen: Enters the full-screen mode of the Map popup screen.
- Transparency…: Adjusts the transparency of the popup screen.
- PTZ Set…: Controls pan, tilt and zoom of the selected PTZ camera.
- Disable Time Out: Continues displaying the popup screen when events are detected by disabling the dwell time out.
- Original Ratio: Displays the Map popup screen by matching its original aspect ratio.
- Anti-Aliasing Screen: Enhances image display quality on the popup screen by smoothing stair stepping (aliasing) effects in the enlarged image.
- User Set…: Sets the msde of the current popup screens displayed on the monitor. For example, the monitor displays the current popup screen with enough frames for 16 cameras when you select 4x4.

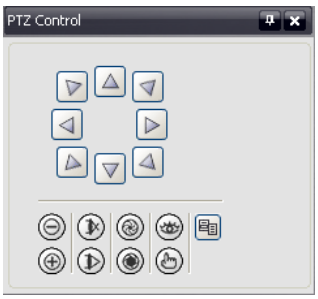
NOTE: Refer to *Appendix – Map Editor, Device Setting* section for more details about the popup function.

To connect to the remote site, select the device you want to connect to from the Map panel and then drag and drop it in the desired position on the screen or the Status View panel. Also, placing the mouse cursor on the device on the map displays the device status. When the device detects any event or the device is not working properly, the following status icons appear (maximum of 4).

NOTE: The device status is displayed as *Irregular* based on to the system check settings and as *Video Loss*, *Motion*, *Alarm In* and/or *Alarm Out* according to the event detection settings on the remote DVR.

Clicking the right mouse button on the Map panel causes a text menu screen to display. Selecting Watch Event View from the menu displays the event information of the connected remote sites. Selecting Close disconnects the current connection on the Map panel.

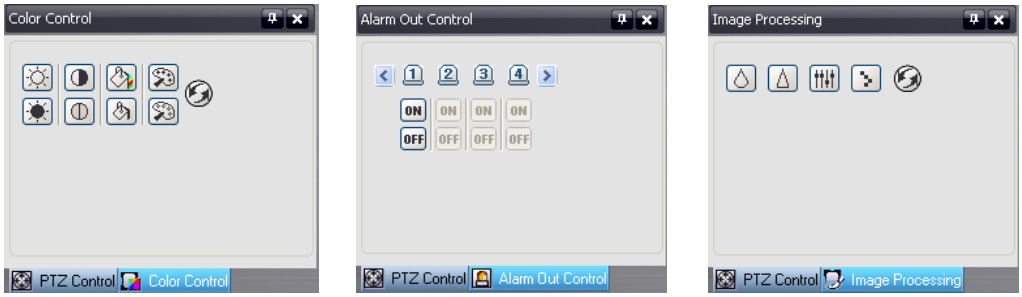
PTZ Control Panel



Three panels allow PTZ control while live monitoring a remote site.

NOTE: Refer to *4.1 Live Monitoring* for more details.

Color Control, Alarm Out Control and Image Processing Panels



Three panels allow you to control color and alarm out while live monitoring a remote site, or to enhance images while playing back video.

NOTE: Refer to *4.1 Live Monitoring* and *4.2 Playback and Search* for more details.

Watch Event View Panel

The Watch Event View panel displays events detected at individual remote sites while Netcon is in the live monitoring mode. The description of event icons is as follows:

Alarm In On	Alarm In Off	Motion Detection
Object Detection	Video Loss	Video Blind
Text In	Alarm In Bad	Recorder Bad
Disk S.M.A.R.T.	Disk Bad	Disk Full
Disk Temperature	Panic Recording On	Panic Recording Off
Fan Error On	Fan Error Off	

NOTE: Some event icons will be supported for the REVO PRO model only.

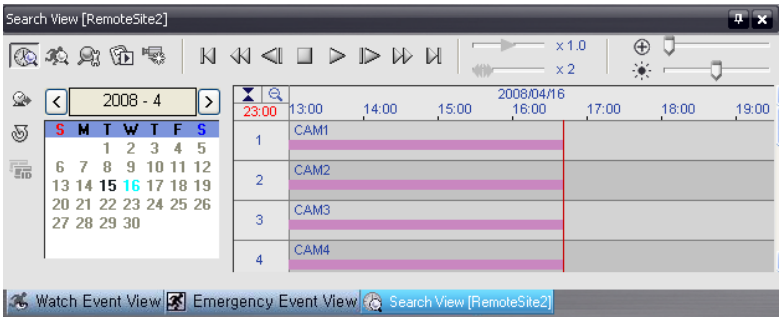
Emergency Event View Panel

NOTE: The Emergency Event View panel will be supported for the REVO PRO model only.

The Emergency Event View panel displays a list of events (preset for notification at the remote site) that were called from individual remote sites (LAN connection only). Selecting an event from the list and then dragging and dropping it in the desired position on the Watch or Search screen connects to the remote site, and a checkmark is placed in the box at the left. Selecting an event or site from the list and then clicking the right mouse button causes a tooltip to appear, which contains the emergency event instruction from the remote site.

NOTE: The Emergency Event View function is available only for the remote sites that were set to notify the Netcon system when configuring each event setup.

Search View Panel



The Search View panel allows time-lapse or event searching of recoded data on the remote DVR.

NOTE: Refer to *4.2 Playback and Search* for more details.

Report View Panel

The Report View panel displays the system status information of remote sites. Netcon checks the remote site and reports system status. Clicking the icon on the panel reloads the data and clicking the icon prints the report out. Report Setup must be configured during Netcon System setup for this feature to function. Refer to *3.3 Menu – System Menu* for more details.

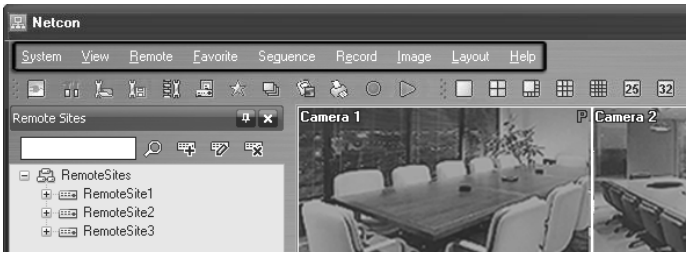
NOTE: Some report options may not be supported, depending on the specifications of the remote DVR.

Status View Panel

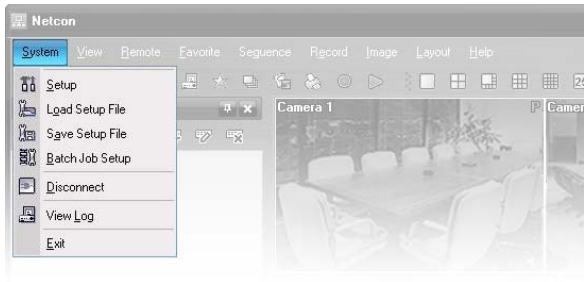
The Status View panel displays the event, alarm out, system check and recording status information of the connected remote site in real-time. To connect to the remote site, select the site or camera you want to connect to from the Remote Site or Map panel and then drag and drop it in the Status View panel.

NOTE: Refer to *4.5 Status View* for more details.

3.3 MENU

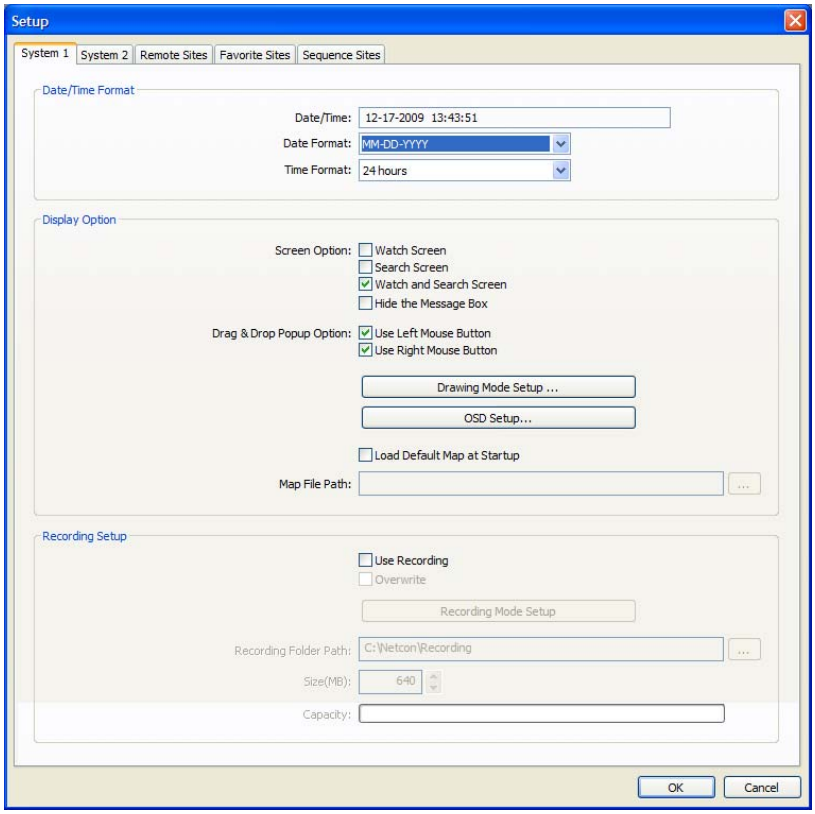


System Menu



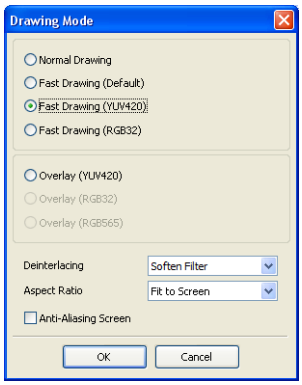
Setup

The Setup screen allows setting up the system operation and remote site configuration.



System 1: Set up the date/time format for Netcon, display option, and panic recording function.

- Date/Time Format: Set the date/time format.
- Display Option: Set up the screen display, drag & drop popup option, display acceleration and OSD.
  - Screen Option: Select Watch Screen to use the screen for live monitoring only, Search Screen to use the screen for search only, or Watch and Search Screen to use the screen for both live monitoring and searching. Selecting Hide the Message Box hides the message box that displays the status information about Netcon and remote site connections.
  - Drag & Drop Popup Option: Select which mouse button will be used when displaying popup menu screens from Use Left Mouse Button, Use Right Mouse Button or both (Watch and Search Screen mode only).
  - Drawing Mode Setup…: Set up the display options for the screen.



- Normal Drawing: Depends on your PC's CPU performance and displays images in low speed (DIB Draw Mode).
- Fast Drawing (Default): Displays image in normal speed (Direct Draw Mode).
- Fast Drawing (YUV420/RGB32): Depends on your PC's video card performance and displays images in high speed (Direct Draw Mode).
- Overlay (YUV420/RGB32/RGB565): Displays image in high speed (Direct Draw Overlay Mode).
- Deinterlacing: Set up the deinterlace filter. Using a deinterlace filter for interlaced video enhances image display quality by eliminating horizontal scan lines and noise in areas with motion.
- Aspect Ratio: Set up the image aspect ratio displayed on the screen. Selecting Fit to Screen displays images by fitting them to the screen size, and selecting Original Ratio displays images by fitting them within the screen size while maintaining their original ratio.
- Anti-Aliasing Screen: Set up the Anti-Aliasing Screen option. When using the Anti-Aliasing Screen option, the image display quality on the screen will be enhanced by eliminating stair-stepping (aliasing) effects in the enlarged image.

NOTE: If the image cannot be displayed properly because of your PC's specifications, lower the drawing mode level.

NOTE: While in the *Fast Drawing* mode, the drawing speed might decrease when the Netcon screen is not located on the primary monitor.

NOTE: *Overlay* drawing mode may not be supported, depending on the type of video card installed in your PC. Video cards with an ATI chipset are recommended.

NOTE: When using dual monitors, selecting *Overlay* drawing will display the image only on the primary monitor.

NOTE: When using a low-end computer, image drawing speed might decrease while using a deinterlace filter depending on the type of deinterlace filter.

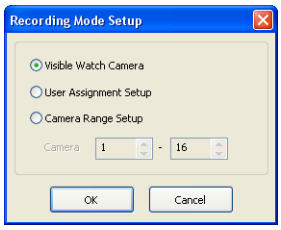
NOTE: When using a low-end computer, image drawing speed might decrease when the *Anti-Aliasing Screen* option is selected.

  – OSD Setup…: Select options to display on the screen.
  – Load Default Map at Startup: Select whether or not the user-defined map file is loaded automatically when Netcon starts, and designate the path of the map file (.rmp) to load.

- Recording Setup: Set up the Use (On or Off) of the panic recording function and overwriting option of the recording folder (On or Off). When using the panic recording function and overwriting option, Netcon continues recording when the hard disk drive is full by overwriting the oldest video. Designate a recording folder path and set the recording folder size from 640MB to 2,048MB. Capacity shows the remaining space of the recording folder.

NOTE: The recording folder size cannot be changed once it has been set. Designate another recording folder path if you want to expand the recording space.

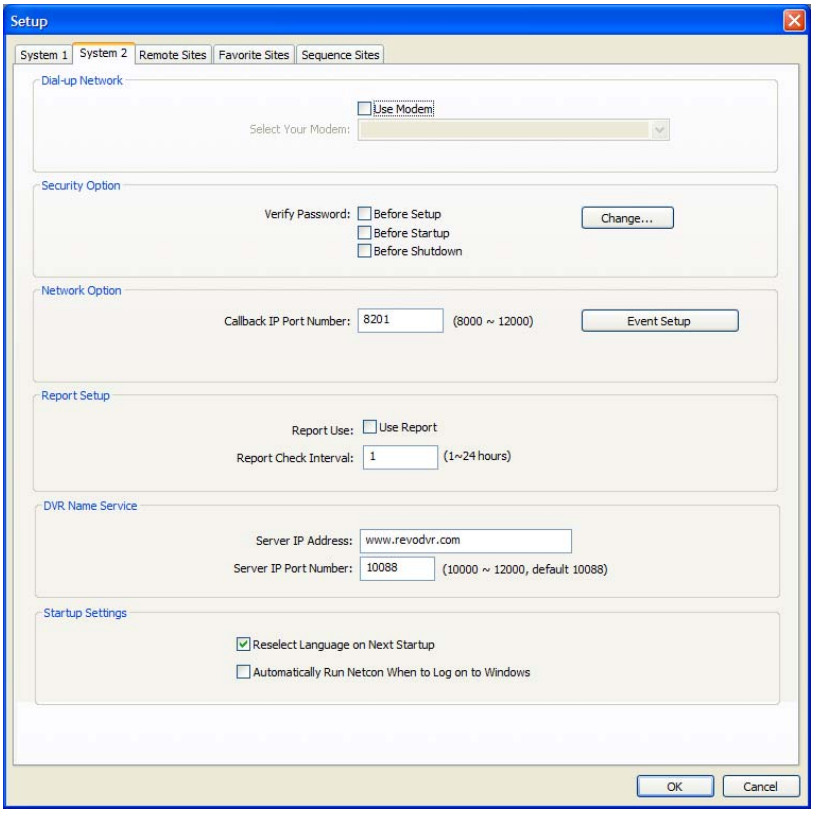
  – Recording Mode Setup…: Set up the panic recording mode.



- Visible Watch Camera: Records camera channels currently displayed on the Watch screen.
- User Assignment Setup: Records camera channels assigned by the user on the Watch screen.
- Camera Range Setup: Records camera channels within preset channel range. Select the boxes beside Camera and adjust camera range up to 16 channels.

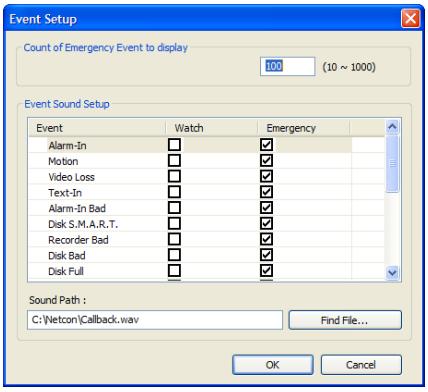
NOTE: Panic recoding will NOT be made for the cameras currently not displayed on the Watch screen even though they are set up to be recorded.

NOTE: When selecting the User Assignment Setup mode, the user can assign camera channels to record manually on the Watch screen. Select a camera on the Watch screen and click the right mouse button then select *Set Record Camera* in the text menu screen. The gray R icon displays on the selected camera screen.



System 2: Set up the modem connection information for remote access, system password, network option, report function and DVRNS server.

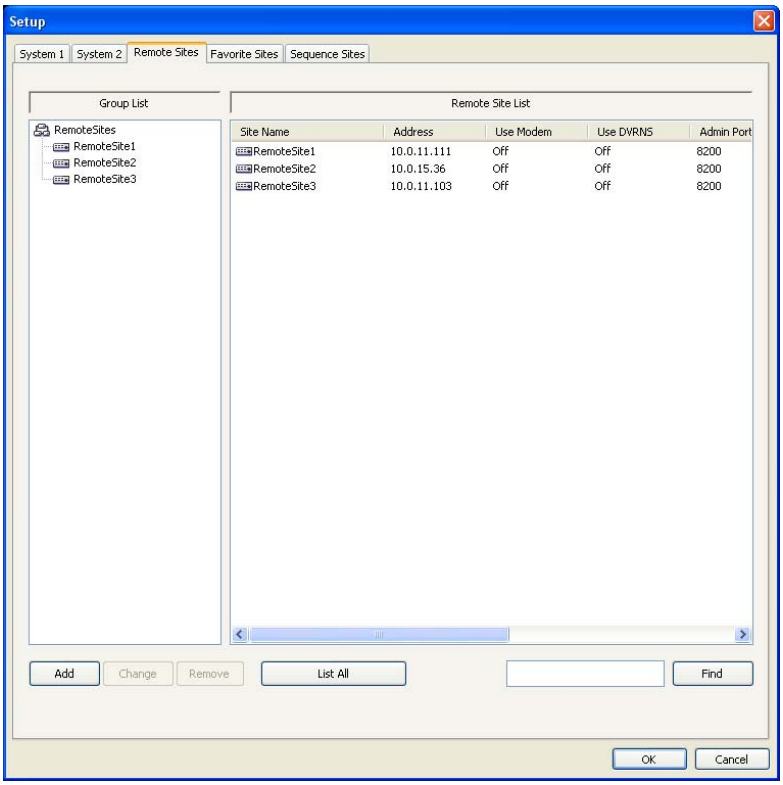
- Dial-up Network: Select Use modem if you want to use a modem for remote access.
- Security Options: Designate whether password confirmation is required Before setup, Before startup, or Before shutdown of Netcon. Click the Change button to change the password.
- Network Option: Set up the IP port number (from 8000 to 12000) that is used for network connection when receiving a callback message from a remote site. (REVO PRO Model only)
  - Event Setup…: Enter the number of emergency events displayed in the Emergency Event panel (REVO PRO Model Only). Set up Netcon to sound when events are detected by selecting events from the list and designating the sound file (.wave) path. You can set up a different sound for each type of event.



- Report Setup: Set up the Use (On or Off) and check intervals (from 1 to 24 hours) of the report function. When using the report function, Netcon checks on the remote site based on the user-defined interval and reports system status.
- DVR Name Service: Set up the IP address and port number (from 10000 to 12000) of the DVRNS (DVR Name Service) server. The IP address and port number you enter should match the values set during the DVRNS setup of the remote DVR you want to connect to.

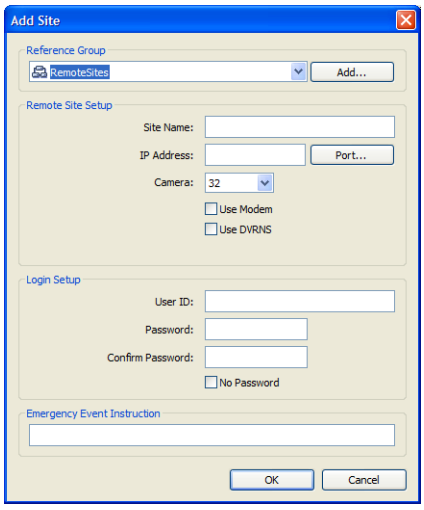
NOTE: The DVRNS server cannot be configured when using modem connections. Refer to *Appendix – DVR Name Service (DVRNS)* for more details on DVR Name Service.

- Startup Settings: Select whether or not to reselect a language when Netcon starts or select whether or not to run Netcon automatically when logging onto Windows.



Remote Site: Configures the connection list for remote access.

- Add: Click the Add button and enter the information about the remote site you want to add.



– Reference Group: The site should be assigned to a Reference Group for effective management of multiple remote sites. Click the Add button to create a new reference group.
– Device Setup: Select the system of the remote site to register. When registering an IP camera, select IP Camera.
– Remote Site Setup: Select PC Based DVR when registering a DVR at the remote site that is PC based. Enter a site name and the IP address of the remote site (modem telephone number for dial-up connections), acquired from your network administrator. Click the Port… button to set up the IP port number of each program. The IP port number should match the value set during the network setup of the remote DVR. If the remote system version does not allow you to set the IP port numbers, use the following values: "8200" for Admin, "8016" for Watch, "10019" for Search, and "8116" for Audio. Select the number of cameras at the remote site. For example, selecting "8" from the list when registering a 16-channel DVR displays video of the first 8 channels on the screen.

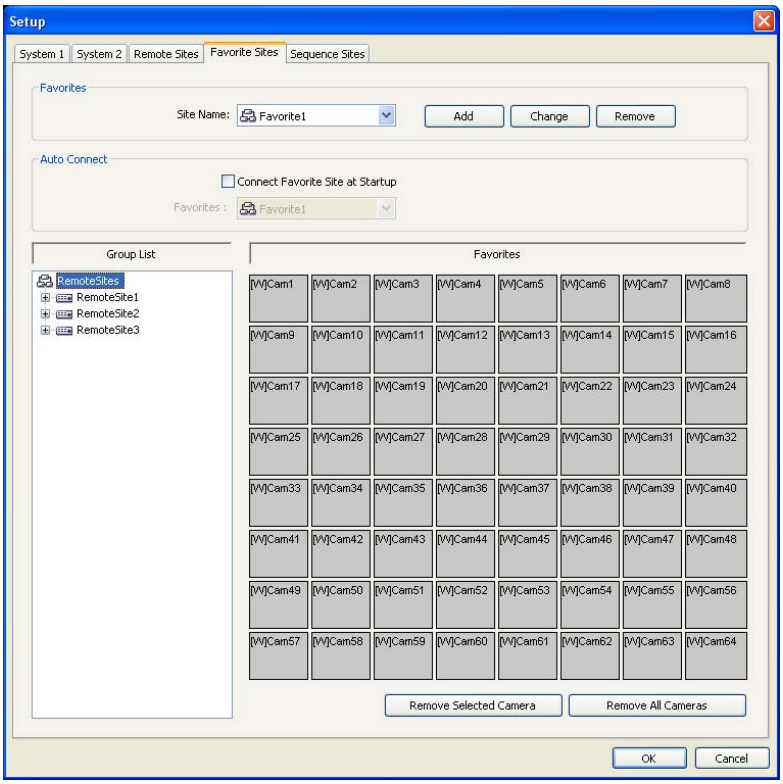
NOTE: When using DVRNS server, place a checkmark in the *Use DVRNS* box. The *IP Address* field will be changed to *DVR Name*, and you can enter the name of remote site registered on the DVRNS server. The DVR name you enter should match the name set during the DVRNS setup on the remote DVR.

– Login Setup: Enter the user ID and password of the remote site to be accessed. If you have entered a user ID and a password, the site will be connected automatically without a dialog box requesting a password. Select No Password for remote systems that do not require a password (e.g., guest login).

NOTE: Up to 32 characters may be used for the site names, telephone numbers and user IDs, and up to 8 characters may be used for passwords.

– Emergency Event Instruction: Enter the message to display when emergency events are called in from the remote site. The Emergency Event Instruction can be checked by clicking the right mouse button after selecting the event or the site from the list in the Emergency Event panel. (REVO PRO Model Only)

- Change: Select the group or site you want to change and click the Change button, or double click the group or the site to change. Then, edit the site information.
- Remove: Select the group or site you want to remove and click the Remove button.
- List All: Displays all registered remote sites.
- Find: Enter the group name or site name to search for and click the Find button to display the matching groups or sites in the list.



Favorite Site: The Favorite Site is a user-defined connection list that combines more than one remote site, so multiple sites can be monitored at the same time with a single connection. Add a new Favorite Site and define it by dragging and dropping sites and/or cameras to the Favorites map. Up to 64 cameras can be monitored at a time when each camera is assigned to its own position on the Favorites map.

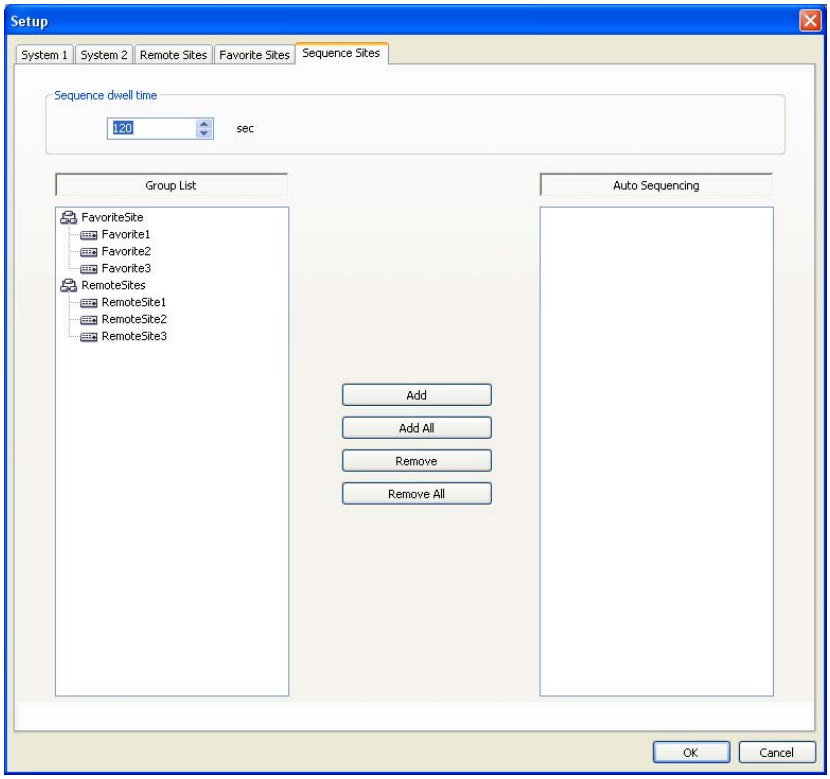
- Favorites
  - Site Name: Select a registered Favorite site from the drop-down list.
  - ADD: Adds a new Favorite site. Clicking the button displays the Favorites dialog box. Enter the name of the Favorite site to add, and Select the desired screen layout used when the Favorite site is connected.
  - Change: Select the Favorite site to change from the Site Name list and click the Change button. Then change the site name or screen layout.
  - Remove: Select the Favorite site to remove from the Site Name list and click the Remove button.
- Connect Favorite Site at startup: Select whether or not your favorite site is automatically connected when Netcon starts.
- Remove Selected Camera: Removes selected cameras from the Favorites map. Cameras can also be removed by clicking the right mouse button after selecting the camera.
- Remove All Cameras: Removes all cameras from the Favorites map.

NOTE: Cameras can be selected by clicking the left mouse button on the camera in the Favorites map. Selected cameras will be outlined in red. Clicking the left mouse button on the camera while holding the Ctrl key toggles camera selection On and Off. Multiple cameras can be selected by clicking the left mouse button while holding the Shift key.

NOTE: "[W]" (Watch Screen) and "[S]" (Search Screen) displayed to the left of the camera number indicates the display option of each camera. The display option can be selected when registering a Favorite site. Selecting the remote site from the Group List and dragging and dropping it to the Favorites map using the right or left mouse buttons (This is user-defined and must be set during System setup) displays the text menu screen. Select the desired display option between *Watch Screen* and *Search screen*. If you do not select the display option, Watch Screen display will be assigned to all cameras of the registered Favorite site by default.

NOTE: Clicking the ☆ button on the toolbar will save the current screen layout of the Watch screen or Search screen directly to the Favorite site.

NOTE: The Favorite Site list does not work with modem connections.



Sequence Site: Configure the sequence site. Netcon connects to the registered sites sequentially allowing connection to more than one remote site.

- Sequence dwell time: Adjust sequence intervals (from 5 seconds to 1 hour) for each connection.
- Add: Select the site to add from the Group List and click the Add button.
- Add All: Adds all sites in the Group List to the Auto Sequencing list.
- Remove: Select the site to remove from the Auto Sequencing list and click the Remove button.
- Remove All: Removes all sites in the Auto Sequencing list.

NOTE: The Auto Sequencing list is not valid with modem connections.

Load Setup File

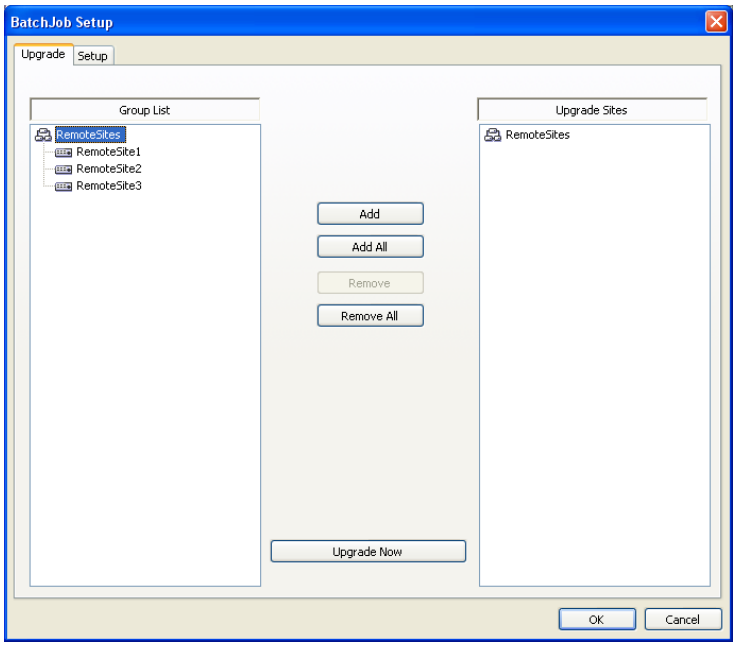
Allows applying the settings of the System – Setup menu saved as a .xml file format to the Netcon system. Loading the setup file can also be performed by clicking the button on the toolbar.

Save Setup File

Allows saving the current settings of the System – Setup menu as a .xml file format. Saving the setup file can also be performed by clicking the button on the toolbar.

Batch Job Setup

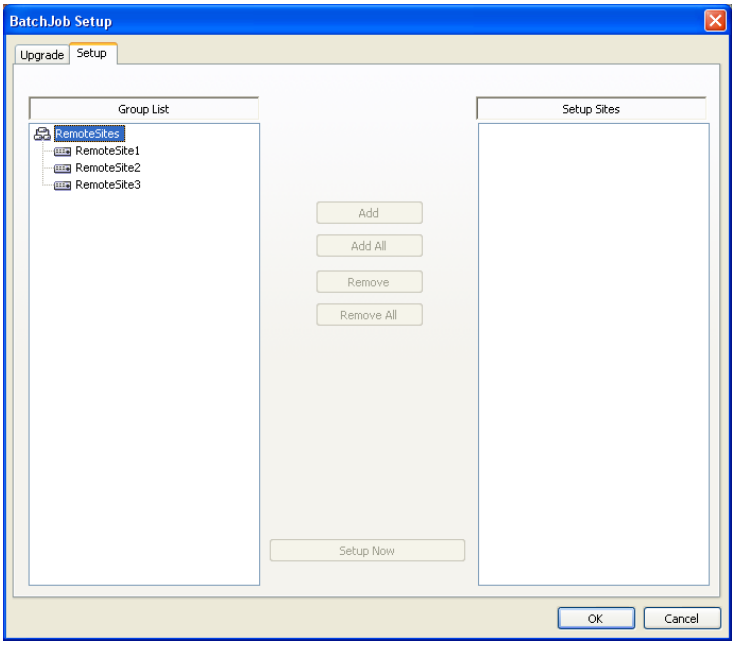
Multiple remote sites can be upgraded or set up using the Batch Job Setup screen.



Upgrade: Sets up the remote upgrade job for remote sites. First, select the remote sites to upgrade from the Group List, and add them to the Upgrade Sites list by clicking the Add button. Then, click the Upgrade Now button to initiate the remote upgrade job for registered Upgrade Sites.

- Add: Select the site to add from the Group List and click the Add button.
- Add All: Adds all sites in the Group List to the Upgrade Sites list.

- Remove: Select the site to remove from the Upgrade Sites list and click the Remove button.
- Remove All: Removes all sites in the Upgrade Sites list.
- Upgrade Now: Upgrades the software on the Upgrade Sites.



Setup: Sets up the remote setup job for remote sites. First, select the remote sites to set up from the Group List, and add them to the Setup Sites list by clicking the Add button. Then, click the Setup Now button to initiate the remote setup job for Setup Sites.

- Add: Select the site to add from the Group List and click the Add button.
- Remove All: Removes all the sites in the Setup Sites list.
- Setup Now: Performs the setup on the Setup Sites.

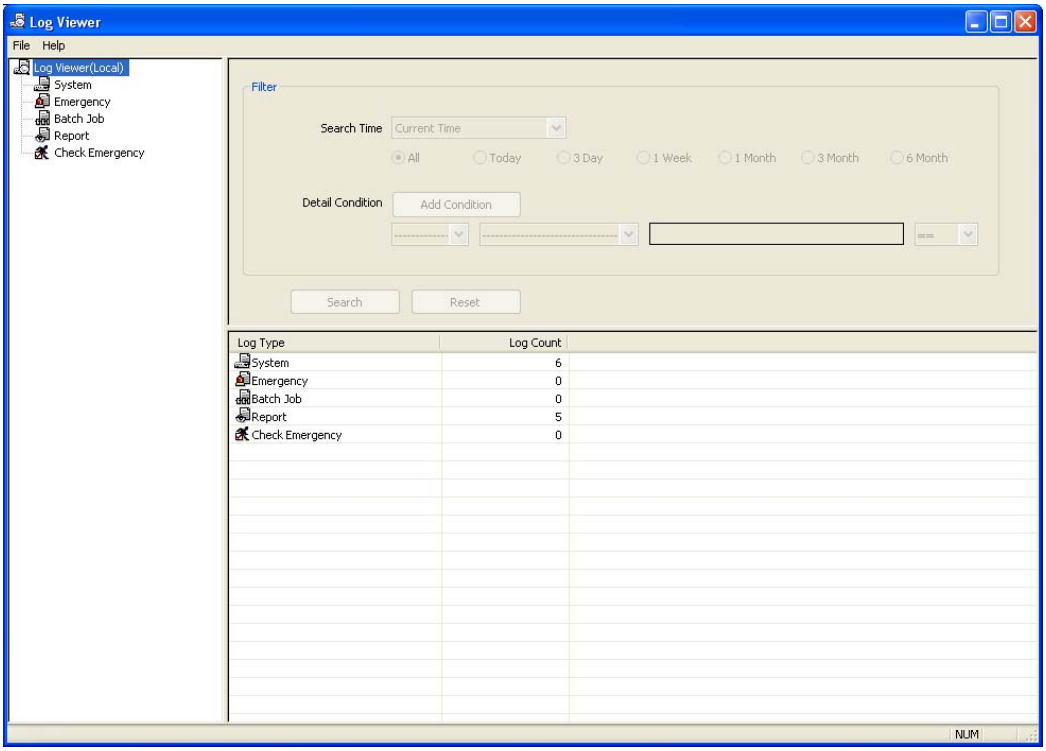
Disconnect

Disconnects all current connections. Disconnection can also be performed by clicking the button on the toolbar.

Log Viewer

Displays log information saved in the Netcon system.

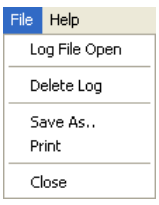
NOTE: You can also display the Log Viewer screen by selecting *Log Viewer* from the Netcon options under the *Start* menu in Windows.



View Log: Displays the type of log and the number of log entries. Selecting a log type from the list displays all entries of the selected log type, and you can search for the desired log by setting up a search filter.

- Filter: Set up the search condition.
  - Search Time: Set up the time range to search within. Selecting Current Time and the desired period searches for logs from the current time and as far back as the selected time span. Selecting Detail Time allows you to set up a specific starting and ending time to search within.
  - Detail Condition: Set up the desired search parameters. Select a filter target from the second list, and select a filter from the third list (enter a filter in the text box). Then select a comparison operator from the last list; Equal to search for logs that satisfy the condition (case sensitive), Not Equal to search for logs excluding logs that satisfy the condition, Like to search for logs that include the entered keyword or Not Like to search for logs that do not include the entered keyword. Clicking the Add Condition button allows you to add more search conditions. Selecting AND searches for logs satisfying all conditions. Selecting OR searches for logs satisfying at least one of the conditions.
- Search: Displays log entries satisfying the preset search filter.
- Reset: Resets the search filter.

File

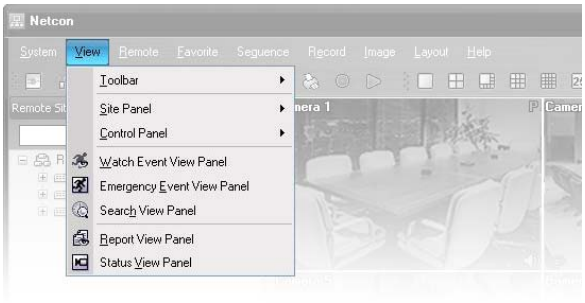


- Log File Open: Opens a log file (.db).
- Delete Log: Deletes logs older than a certain age.
- Save As…: Saves the log information in the list as a text or CSV file.
- Print: Prints the log information.
- Close: Closes the Log Viewer screen.

Exit

Disconnects all current connections and exits Netcon program.

View Menu



Displays or closes the toolbar and panels.

NOTE: The Emergency Event View panel will be supported for the REVO PRO model only.

Remote Menu

NOTE: The Remote menu can also be activated by clicking the right mouse button after selecting the remote site on the Remote Sites panel.

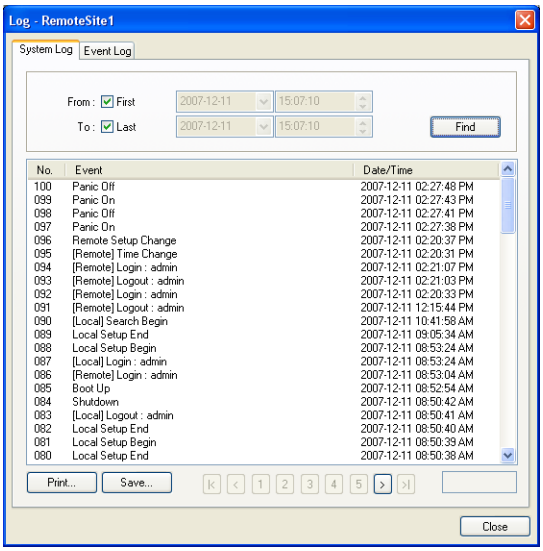
Remote Setup

Remote Setup can be used to change the setup of a remote DVR. Select the remote site on the Remote Sites panel, initiate the Remote Setup menu, and the setup screen displays.

NOTE: Refer to the user manual for the remote DVR for more details on system setup.

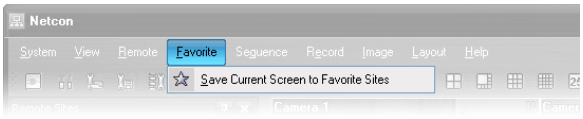
Remote System Log/Remote Event Log

These selections display the system log and event log information of a remote DVR. Set the time range of interest and click the Find button. The log entries within the time range displays in the list. 100 results can be displayed in a single page. Click the Move buttons to display additional results.



- From: Adjust the search starting date and time. When First is selected, it will search from the first logged item.
- To: Adjust the search ending date and time. When Last is selected, it will search to the last log.
- Find: Displays remote log entries within the selected period.
- Print...: Prints the log information.
- Save...: Saves the log information as a text or CSV file (UTF-8 encoded).
- Move Buttons: Moves to the first page (|<), previous page (<), next page (>) or last page (>|). You can go directly to a log page by clicking the page number button.
- Close: Closes the Log dialog box.

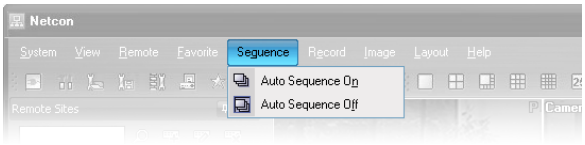
Favorite Menu



NOTE: The Favorite menu can also be accessed using the toolbar controls.

Saves the current screen layout directly to the Favorite site.

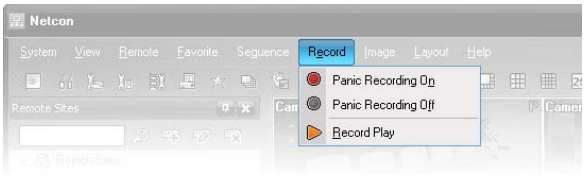
Sequence Menu



NOTE: The Sequence menu can also be accessed using the toolbar controls.

Starts or ends auto sequencing. (Watch Screen Only)

Record Menu



NOTE: The Record menu can also be accessed using the toolbar controls.

Starts or ends panic recording. Selecting Record Play initiates the RecordPlayer program and plays recorded video. Refer to *4.4 Panic Recording* for more details.

Image Menu

NOTE: The Image menu can also be accessed using the toolbar controls.

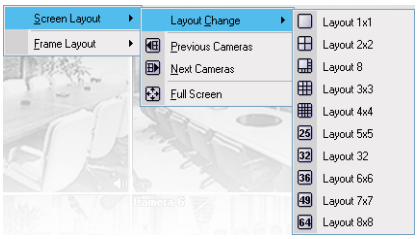
- Save: Saves the current image as a bitmap or JPEG file.
- Print: Prints the current image.

NOTE: Refer to *4.1 Live Monitoring* and *4.2 Playback and Search* for more details.

Layout Menu

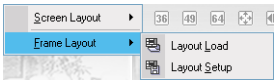
NOTE: The Layout menu can also be accessed using the toolbar controls.

Screen Layout



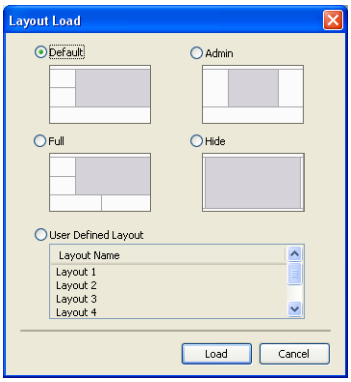
Select the desired screen layout using the layout toolbar. When changing the screen layout, the selected camera on the current screen will be located in the first cell of the new layout. When in one of the multi-view formats, selecting Previous Cameras or Next Cameras will move to the previous or next page. In other words, when viewing Cameras 1 to 4 in the quad format, selecting Previous Cameras will display Cameras 61 to 64 and selecting Next Cameras will display Cameras 5 to 8. Selecting Full Screen enters the full-screen mode, and returns to the previous screen mode by pressing the Esc key on the keyboard or selecting FullScreen Close (x) from the popup menu displayed by clicking the right mouse button.

Frame Layout



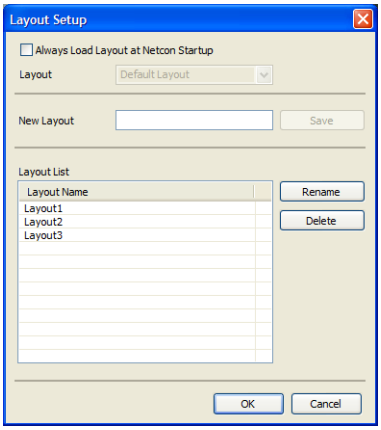
- Layout Load: Select the desired frame layout and click the Load button to apply the selected frame layout to Netcon.
- Layout Setup: The user can configure the frame layout by displaying panels on the screen where they are most convenient. Set up the user-defined frame layout.

Layout Load



- Default Layout: Displays the panels that are used most frequently in the Watch and Search screen modes.
- Admin Layout: Displays only the panels that are used most frequently in the Admin screen mode.
- Full Layout: Displays all the panels.
- Hide Layout: Hides all panels and displays only the screen.
- User Defined Layout: Displays the user-defined layout.

Layout Setup



- Always Load Layout at Netcon Startup: Select whether or not the selected frame layout loads automatically when Netcon starts.
- Save: Enter a layout name and click the Save button to save the current frame layout as a new user-defined layout.
- Rename: Select the layout to change from the Layout List and click the Rename button. Then change the layout name.
- Delete: Select the layout to delete from the Layout List and click the Delete button.

NOTE: Up to 10 user-defined layouts can be saved.

Help Menu

Displays Netcon version information.

3.4 TOOLBAR

The Toolbar allows convenient access to desired functions.

The controls on the toolbar perform functions as described below:

Disconnect
Batch Job Setup
Save
Netcon Setup
Log
Print
Load Setup File
Save Favorite Sites
Panic Recording
Save Setup File
Auto Sequence
Play

Select the desired screen layout using the layout toolbar. When changing the screen layout, the selected camera on the current screen will be located in the first cell of the new layout. When in one of the multi-view formats, clicking the or button will move to the previous or next page.

Clicking (Layout Load) will apply the selected frame layout to Netcon, and clicking (Layout Setup) allows you to set up the user-defined frame layout.

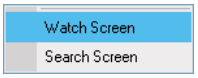
Chapter 4 — Operation

4.1 LIVE MONITORING

Netcon provides remote monitoring functions for viewing video images in real time from either a single site or multiple sites. In addition, when events are detected at a remote site while in the live monitoring mode, Netcon displays the event information on the Watch Event View panel. In order to perform live monitoring, the display option must be set to Watch Screen or Watch and Search Screen during System setup.

To connect a remote site on the Watch screen, select the site or camera you want to connect to in the Remote Site, Favorite Sites or Map panel and then drag and drop it in the desired position on the screen. The icon will be displayed on each Watch screen. To disconnect the current connection, select the site or camera you want to disconnect to in the Remote Sites, Favorite Sites or Map panel or on the screen and then click the button on the toolbar or select Disconnect from the System drop-down menu.

NOTE: When selecting the display option of *Watch and Search Screen* during System setup, the remote site can also be set to connect using the right or left mouse buttons (This is user-defined and must be set during System setup). Select *Watch Screen* to connect to the selected site on the Watch screen when the text menu screen appears.



Screen Layout and Frame Layout

Netcon provides multiple screen layout options. The formats available are single-screen, quad, 1+7, 3x3, 4x4, 5x5, 1+32, 6x6, 7x7, 8x8 and full-screen. When in one of the multi-view formats, clicking the or button will move to the previous or next page. To view a specific image in the single-screen mode, move the cursor to that image and double click the left mouse button. To return to the previous screen mode from the single-screen mode, double click the left mouse button in the monitoring window.

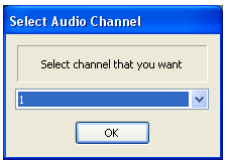
Clicking (Layout Load) will apply the selected frame layout to Netcon, and clicking (Layout Setup) allows you to set up the user-defined frame layout.

Audio Communication

Netcon supports audio communication between the Netcon system and a DVR location equipped with two-way audio. The icon will be displayed on each camera screen. If you want to enable audio communication with the remote site, select any camera of the remote site on the screen and click the right mouse button. Selecting Enable Audio from the menu displays the following audio control panel.

If you want to send audio to the selected remote site, click the button and talk into the microphone. If you want to monitor live audio from the selected remote site through the attached speaker, click the button. Clicking both button and button allows two-way communication. Clicking the button disables audio communication.

If the remote DVR allows you to select an audio channel to monitor from the Netcon system, clicking the button displays the Select Audio Channel dialog box. Select an audio channel to monitor and click the OK button.

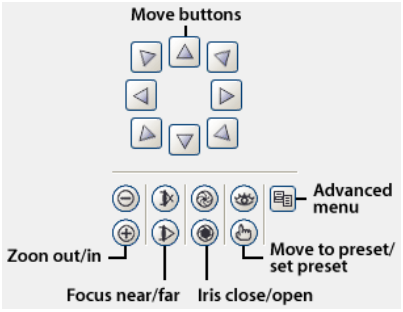


Sequence Monitoring

Clicking the button on the toolbar connects to the registered sites sequentially allowing connection to more than one remote site and displays images from selected cameras. Clicking the button during sequence monitoring releases sequence monitoring and maintains the current connection. For sequence monitoring to function, the sequence sites should be registered during System setup. Refer to *3.3 Menu – System Menu* for details on configuring the sequence site.

NOTE: While in the sequence monitoring mode, you cannot manually connect to sites by dragging and dropping with the mouse.

PTZ Control



Select a PTZ camera at the remote site, and control pan, tilt and zoom. Only the administrator can control PTZ at Netcon. The P icon will display on each camera screen when PTZ can be controlled remotely.

NOTE: Control features of the Advanced menu will be enabled when a camera connected to a DVR supports PTZ features such as Speed, Auto Pan, Tour, etc. and the DVR supports remote PTZ control. Depending on the specifications of the PTZ camera, some features of the Advanced menu may not be active.

NOTE: Using the mouse for PTZ control is supported. Click the left mouse button on the image and move that image in the direction you want to by dragging the mouse. Use the mouse wheel to zoom in and out.

Color Control

Adjust the brightness, contrast, saturation and hue of live video for each camera by clicking the target icons on the Color Control panel. Clicking the icon cancels the image processing operation and reloads the original image. Only the administrator can adjust the image at Netcon.

NOTE: It is important that cameras are properly adjusted. These adjustments cannot make up for improperly adjusted cameras when the images are recorded.

Alarm Out Control

Control alarm out devices on the remote DVRs by clicking the ON or OFF buttons. Only the administrator can control an alarm out at Netcon.

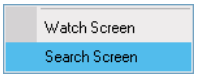
4.2 PLAYBACK AND SEARCH

Netcon allows you to play back and search recorded images on remote DVRs. It also provides additional functions including zoom, various image enhancements, image saving and image printing. To use remote playback and search functions, the display option must be set to of Search Screen or Watch and Search Screen during System setup.

To connect a remote site on the Search screen, select the site or camera you want to connect to in the Remote Site or Favorite Sites panel and then drag and drop it in the desired position on the screen. The icon will be displayed on each Search screen. The remote site connection on the Search screen will automatically be disconnected if there is no activity for a specified amount of time. Click the button on the toolbar or select Disconnect from the System drop-down menu to disconnect the current connection manually.

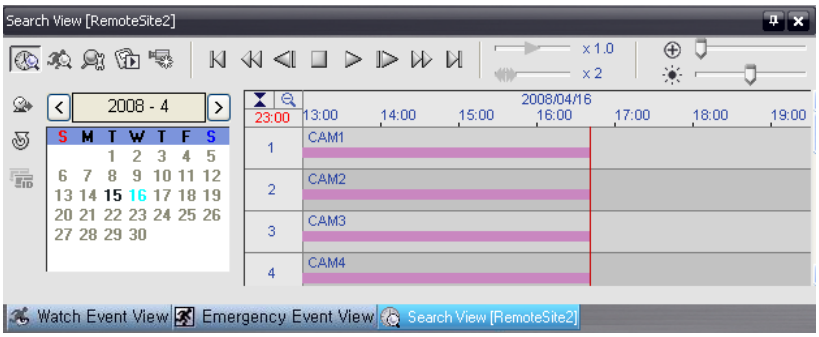
NOTE: Connecting to a Favorite site will be available if the *Search Screen* display option was set up to connect to selected Favorite sites. Refer to *3.3 Menu – System Menu* for more details on Favorite Site setup.

NOTE: When selecting the display option of *Watch and Search Screen* during System setup, the remote site can be also be set to connect using the right or left mouse buttons (This is user-defined and must be set during System setup). Select *Search Screen* to connect to the selected site on the Search screen when the text menu screen appears.



It is possible to display cameras in both the Watch Screen mode (live view) and Search Screen mode at the same time. For example, you can connect to a remote DVR site with nine cameras. Drag and drop the site into the first frame on the viewing screen and select Watch Screen. Live video will display in the first nine frames on the screen. Then, drag and drop the site into the 10th frame on the viewing screen and select Search Screen. You will be able to view any video recorded on the remote DVR in frames 10 through 18.

Search View Panel



The Search View panel consists of playback and search controls, time-lapse search table, and event search table. The playback buttons on the Search View panel perform the following functions as described below:

- Go to the First Image
- Stop
- Fast Forward Play
- Fast Backward Play
- Play
- Go to the Last Image
- Go to the Previous Image
- Go to the Next Image

NOTE: The speed of fast forward depends on network bandwidth and the number of images per second recorded.

You can control the playback speed of images that are currently being played back by using the x 1.0 control slider. You can control the fast forward or fast backward playback speed of images that are currently being played back fast forward or fast backward by using the x 2 control slider.

You can display the selected image on the screen in its original size by clicking the button. Clicking the button again displays the image in the preset aspect ratio. You can enlarge a specific part of the image up to five times using the control slider. The user can electronically pan and tilt within the enlarged image by dragging the image using the mouse. Click the left mouse button on the enlarged image and drag to move its position. Clicking the button cancels the enlargement and resets the image. You can change the brightness of the current image using the control slider. Clicking the button cancels the brightness changes and resets the image.

NOTE: Zoom in/out and brightness control work only while in the pause mode.

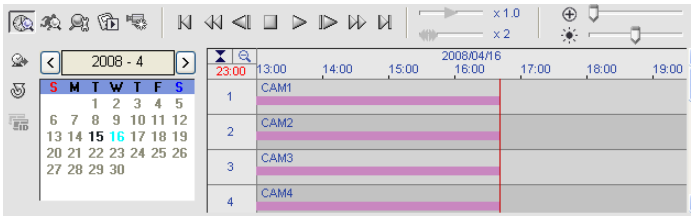
Search Mode

Netcon supports two search modes: time-lapse mode and event mode. The time-lapse search mode searches for recorded data by time and then plays back images found within the time parameters. The event search mode searches for event log entries using specific conditions and plays back the images associated with those event entries. These two modes have different panel configurations and search methods.

NOTE: Using both search modes at the same time is NOT possible.

Time-Lapse Search

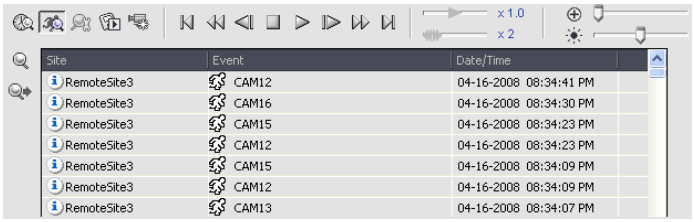
Click the button on the Search View panel to enter the time-lapse search mode. Selecting a date from the calendar initiates the time-lapse search. The dates for which recorded images are available are enabled. When first entering the time-lapse search, the latest date with recorded images will be selected (highlighted) in the calendar. Click the (Reload) button to reload the date information. Recorded information available from the selected date will be displayed on the timetable. The recorded data are displayed by time and bar-shaped segments indicate there are recorded data during that time. Select a specific hour by clicking the mouse on the desired hour segment.



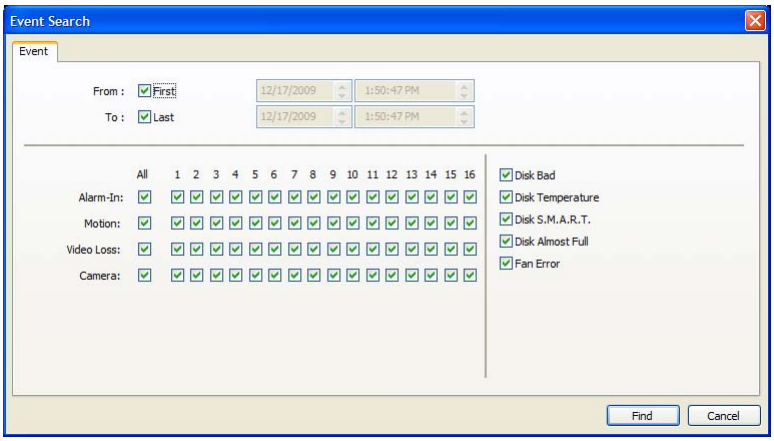
The recorded data of each camera channel are displayed by time in one-minute segments and a red vertical line indicates the selected time that will be played back. The color of the bar indicates different types of recording: Yellow for Pre-event, Purple for Event, and Blue for Time-lapse. If the DVR has more than one video segment in the same time range, each segment will be separated by a yellow vertical line.

To view an image from a specific time, click the (Go To) button and set up the date and time to search.

Event Search



Click the button on the Search View panel to enter the event search mode. First, click the button, and set up the search condition in the following Event Search dialog box.



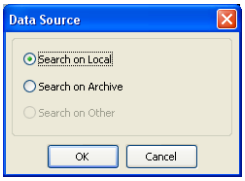
Set up the search criteria for the event search in the Event Search dialog box, and click the Find button. The results will be displayed in the event list. A total of 100 results can be displayed at a time. Click the (Query Next) button to display the next results. If you select an event in the list, the recorded data associated with that event will be displayed on the screen. The images may be played back using the playback buttons.

NOTE: When *First* is selected for the search starting time, the search will be from the first recorded data. When *Last* is selected for the search ending time, the search will be to the last recorded data.

Additional Functions

Searching Data Source

Click the button on the Search View panel to set up the data source to be searched.



- Search on Local: Searches recorded data on primary storage installed in the remote DVR.
- Search on Archive: Searches archived data on backup storage installed in the remote DVR. (REVO PRO Model Only)

Screen Layout and Frame Layout

Netcon provides multiple screen layout for playback. The available formats are single-screen, quad, 1+7, 3x3, 4x4, 5x5, 1+32, 6x6, 7x7 and 8x8 and full-screen. When in one of the multi-view formats, clicking the or button will move to the previous or next page. To view a specific image in the single-screen mode, move the cursor to that image and double click the left mouse button. To return to the previous screen mode from the single-screen mode, double click the left mouse button in the playback window.

Clicking (Layout Load) will apply the selected frame layout to Netcon, and clicking (Layout Setup) allows you to set up the user-defined frame layout.

Image Processing

The Image Processing panel allows enhancing played back images using processing controls.

Blurs the image. Sharpens the image. Equalizes the image.
Reduces the alias effect that occurs when using the zoom function.
Reloads the original image.

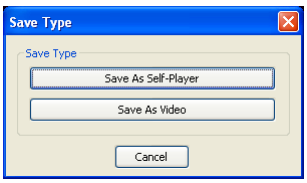
Playing Recorded Audio

Netcon will play audio when it is in the single-screen layout while playing back recorded video that has recorded audio. Audio playback can be On or Off by selecting Enable Audio from the menu displayed by clicking the right mouse button on the screen.

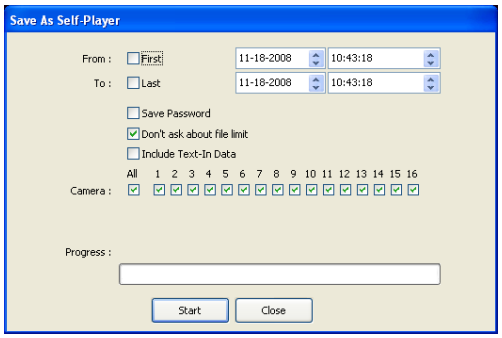
NOTE: Audio might be interrupted during playback because of network conditions and your PC's performance.

Save

Clicking the button on the Search View panel saves recorded video.



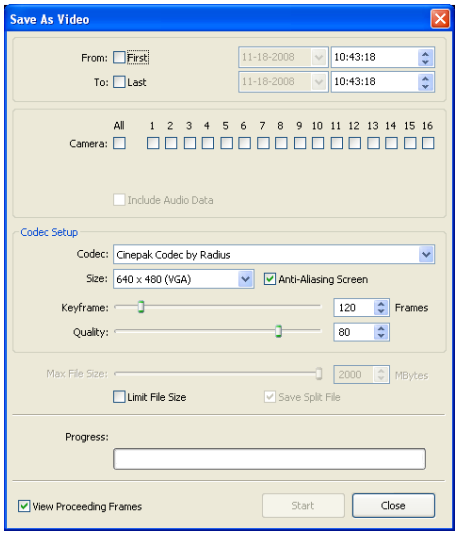
- Save As Self-Player…: Saves any video clip of recorded data as an executable file. Set up the save parameters in the following dialog box. Click the Start button, and select Save in. Enter a File name and then select Save as type (.exe) for the video you are saving. Then click the Save button.



NOTE: When the data file reaches 2GB, you will be asked to continue saving by creating multiple files in 2GB units. If you do not want to be asked, select *Don't ask about file limit*.

Save As Self-Player can be performed by using the button on the Search View panel. Selecting the desired time on the timetable and clicking the button sets the starting date (From), and selecting another time and clicking the button again sets the ending time (To).

- Save As Video…: Saves any video clip of recorded data in an AVI (Audio Video Interleaved) file format. Set up the save parameters in the following dialog box. Click the Start button and then set the file name. Clicking the Save button starts saving video.



NOTE: Selecting *Include Audio Data* includes audio data when saving video with recorded audio. This option is not available when more than one camera is selected.

NOTE: When the data file reaches 2GB, saving stops. Selecting *Limit File Size* and adjusting the maximum file size causes saving to stop once the data file reaches the maximum file size setting. Selecting *Save Split File* saves video by creating multiple files in 2GB units or in the *Max File Size* units.

NOTE: Selecting *View Proceeding Frames* displays a popup screen showing the video currently being saved.

4.3 ADDITIONAL FUNCTIONS

Save

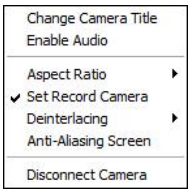
Clicking the button on the toolbar saves the image currently displayed on the screen as a bitmap or JPEG file. By placing a checkmark in the box beside Include Image Info., text information about the site will be included when saving the image.

Print

Clicking the button on the toolbar prints the image currently displayed on the screen on a printer connected to your computer. By placing a checkmark in the box beside Include Image Info., text information about the site will be included when printing the image.

Screen Menu

Selecting a camera on the Watch or Search screen and clicking the right mouse button display the popup menu.



- Change Camera Title: Changes the camera name displayed on the screen. Leaving the Camera Title blank causes the camera name set up on the remote site to display. Changing the camera title does not affect the camera name set up on the remote site.
- Enable Audio: Enables audio communication with the remote site on the Watch screen (Two-way audio equipped remote sites only). Plays audio while playing back recorded video that has recorded audio on the Search screen. Refer to *4.1 Live Monitoring* and *4.2 Playback and Search* for more details.
- Aspect Ratio: Changes the image aspect ratio displayed on each camera screen.
  - Fit to Screen: Displays images by fitting them to the screen size.
  - Original Ratio: Displays images by fitting them within the screen size while maintaining their original ratio.
  - Half Size (x0.5) to Quadruple Size (x4): Select the desired image size. Options are enabled when the selected camera screen can display images in that size.
- MultiStream: Allows to choose the desired stream if the remote DVR is in the multistream mode for live monitoring.
- Set Record Camera: Sets the selected camera channel to be recorded during panic recording. Refer to *3.3 Menu – System Menu* for details on configuring camera channels for panic recording.
- Deinterlacing: Enhances image display quality of interlaced video on the screen by eliminating horizontal scan lines or noise in areas with motion.
- Anti-Aliasing Screen: Enhances image display quality for all cameras on the screen by eliminating stair-stepping (aliasing) effects in the enlarged image.
- Disconnect Camera: Disconnects a camera on the screen

NOTE: When using a low-end computer, image drawing speed might decrease while using a deinterlace filter depending on the type of deinterlace filter.

NOTE: When using a low-end computer, image drawing speed might decrease when the *Anti-Aliasing Screen* option is selected.

4.4 PANIC RECORDING

Clicking the button on the toolbar starts panic recording of cameras currently displayed on the Watch screen. Clicking the button again stops panic recording. Up to 16 channels can be recorded at a time, and you can select which cameras are to be recorded during the System setup. Clicking the button on the toolbar initiates the Record Player program and plays video saved in the recording folder designated during the System setup. The Record Player GUI and its controls are almost identical to the Clip Player. Refer to *Appendix – Reviewing Video Clips*.

If you want to play back video saved in another recording folder, run the Record Player program first. Move to the Start menu in Windows. Then, select RecordPlayer from the Netcon options and select the recoding folder path you want.

Recorded video can be saved as a bitmap or as an executable file using the save function of the Record Player.

NOTE: Panic recording will be available only if you select *Use Recording* and it is set up in the recording options during the System setup.

NOTE: The date and time displayed on the Record Player indicates when the recording was made on Netcon.

NOTE: The R icon will display on each screen when panic recording starts.

NOTE: Audio recording is not supported.

4.5 STATUS VIEW

Netcon provides a display of event, alarm out, system check and recording status information from the connected remote site in real-time. To connect the remote site, select the site or camera you want to connect to from the Remote Site panel and then drag and drop it in the Status View panel. Or, you can select Connect Status from the popup menu displayed by clicking the right mouse button after selecting the site from the Remote Site list.

Function Buttons

Disconnect: Disconnects the current connection on the Status View panel.

NOTE: If you want to connect to another site, disconnect from the currently connected system on the Status View panel first by clicking the button.

Remote Setup: Allows changing the setup of the remote DVR connected to the Status View panel.

NOTE: Refer to the manual for each applicable remote DVR for more details on system setup.

Remote System Log: Displays the system log information of the remote DVR connected to the Status View panel.

Remote Event Log: Displays the event log information of the remote DVR connected to the Status panel.

NOTE: Refer to *3.3 Menu – Remote Menu* for more details on the Remote System Log and Remote Event Log.

NOTE: When the remote site is not connected to the Status View panel, Remote Setup, Remote System Log and Remote Event Log menus can be accessed by clicking the right mouse button after selecting the remote site on the Remote Sites panel.

Remote Panic Control: Controls the panic recording of the remote DVR connected to the Status View panel. The (On) button indicates that the remote DVR is not in the panic recording mode and you can start panic recording by clicking the button. The (Off) button indicates that the remote DVR is in the panic recording mode and you can stop panic recording by clicking the button.

NOTE: Remote Panic Control will be supported for the REVO PRO model only.

Status Display Window

The Status Display Window displays the event, alarm out, system check and recording status information of the remote system connected to the Status View panel in real-time.

NOTE: Status display may not be supported, depending on the specifications of the remote DVR.

- Event: Displays events detected by the internal motion detector or by an external sensor. The status display of event detection will continue during the preset dwell time of the event-driven recording.

Event Detection No Event Detection Event Off

- Alarm Out: Displays status of the alarm-out signals.

Alarm Out No Alarm Out Alarm Out Off

- System Check: Displays the function status of the camera, alarm, and recording.

Normal Irregular System Check Off

NOTE: Display of alarm and recording function status will be supported for the REVO PRO model only.

- Record From/To: Displays the record period.

- Status: Displays the recording, playback, archiving, clip-copy status.

On Off

NOTE: Display of archiving status will be supported for the REVO PRO model only.

- Version: Displays the system version information.

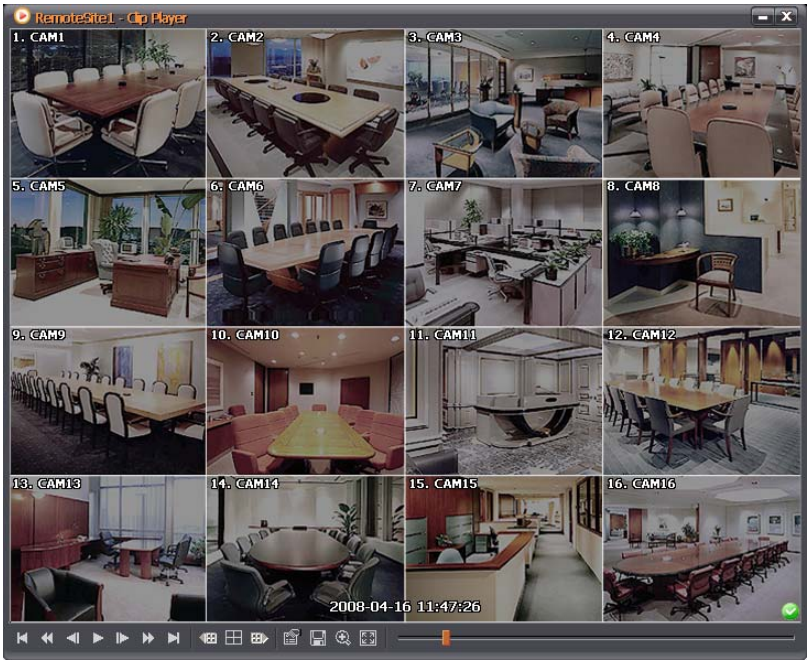
Appendix

REVIEWING VIDEO CLIPS

You do not need to install any special software on you personal computer to review video saved as Self-Player files. The file contains a Clip Player program. Double-clicking the target file starts the Clip Player program.

NOTE: It is suggested that the computer used for the Clip Player program has at least an 800MHz Pentium III (Intel Pentium Dual Core 2.2GHz recommended). If your CPU is slower than this, video clips recorded at maximum speed with very high image quality will be played back slowly. Also DirectX 9.0 or higher is required to install, and the VGA card with 16MB or higher video RAM is recommended for proper operation.

NOTE: You will be asked to enter the password to initiate the Clip Player program if you select *Save Password* option when saving recorded video.



The ClipPlayer Screen displays the clip images.

NOTE: Proper image display depends on the display settings of your PC. If you are experiencing display problems, click the right mouse button on the background screen and select Properties → Settings then set the *Color quality* to "*32 bit*". Then select Advanced → Troubleshoot, and then set the *Hardware Acceleration* to "*Full*". Please make sure that DirectX version 9.0 or higher has been installed if the display problem continues. To check the version of DirectX, click Start → RUN and type "dxdiag" then hit the enter key which will display DirectX Diagnostic Tool dialog box. Then move to the Display tab and make sure *DirectDraw Acceleration* is set to "*Enabled*". Test DirectDraw by selecting the *DirectDraw Test* button. Please check the driver version of the video card and update it to the latest version available. If you still have display problems after changing all display settings as described above, try replacing the video card. Video cards with an ATI chipset are recommended.

Clicking exits the Player program.

Click to go to the beginning of the video clip.

Click to play the video clip in fast reverse.

Click to go back one frame of the video clip.

Click ▶ to play the video clip.

Click ▶| to go forward one frame of the video clip.

Click ▶▶ to play the video clip in fast forward.

Click ▶▶| to go to the end of the video clip.

Click ⊞ to show the previous camera group if there is recorded video in the previous camera group in the current screen mode.

Click ⊞ to cycle through the screen layouts. It cycles through 2x2, 1+7, 3x3, 4x4, 4x5, 5x5 and 1+32.

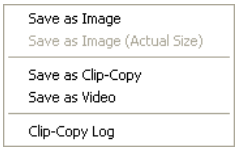
NOTE: 4x5, 5x5 and 1+32 screen modes might not be supported depending on the number of saved camera channels.

Click ⊞ to show the next camera group if there is recorded video in the next camera group in the current screen mode.

Click the icon to set up the Clip Player properties.

- Print: Prints the current image.
- Frame Info.: Displays Channel, Title, Time, Type, Size and Resolution information about the image.
- Image Processing: Controls brightness, blur and sharpness of playback images. (Single-Screen Layout and Pause Mode Only)
- Play Speed Control: Changes the playback speed (Play) or fast forward/backward playback speed (FF/RW).
- Drawing Mode: Selects the draw mode level. If you are not sure about the best draw mode level for your system, try each level until the image displays properly.
- Screen Size: Changes the Clip Player screen size.
- Aspect Ratio: Changes the image aspect ratio displayed on each camera screen.
- OSD Setup…: Selects options to display on the screen.
- Enable Audio: Plays audio while playing back recorded video that has recorded audio. (Single-Screen Layout Only)
- Anti-Aliasing Screen: Enhances image display quality on the screen by smoothing stair-stepping (aliasing) effects in the enlarged image. If video plays slow because of your CPU's slow speed, releasing the Anti-Aliasing Screen option might improve playback speed.
- Show Text-In: Displays video with text-in data if the video was recorded with text-in data. (Single-Screen Layout Only)

Click the icon to save clip images.



- Save as Image: Saves the current image as a bitmap or JPEG file.
- Save as Image (Actual Size): Saves the current video frame as a bitmap or JPEG file in its actual size. (Single-Screen Layout Only)
- Save as Clip-Copy: Saves video of desired time range as an executable file.
- Save as Video: Saves video of desired time range as an AVI file.
- Clip-Copy Log: Saves the clip copy log information as a text file. The user information about Save As Clip Copy will be logged as "Internal-Copy".

Click the icon to enlarge the image or display the image in its actual size (Single-Screen Layout Only). You can move the enlarged image by clicking the left mouse button and dragging.

Click the icon to display the image full screen.

Encryption icons display at the bottom-right corner. ✔ displays when the clip file has not been tampered with, and ✖ displays and playback stops when the system has detected tampering.

NOTE: If the VGA card or monitor does not support 800x600 video resolution, *Full Screen* might not display properly. If this happens, press the ESC key on your PC keyboard to return to the normal screen mode.

Click the slider bar and move it left or right to move through the video clip.

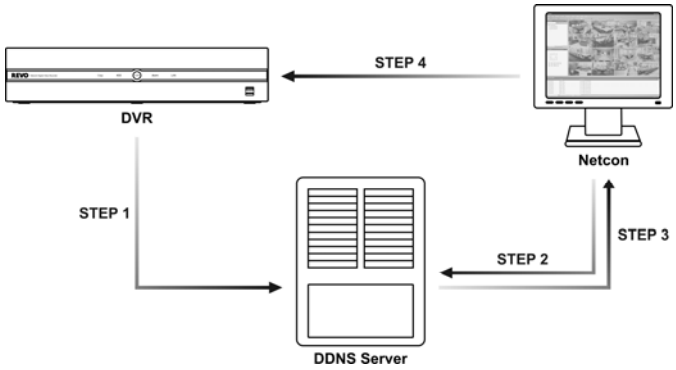
Placing the mouse cursor on an image and clicking will cause that image to display full frame.

DVR NAME SERVICE (DVRNS)

Overview

Using Static IP addresses in LAN/WAN networks requires high management overhead and increases the cost burden to users. Therefore, it has become essential for DVRs to support Dynamic IP addresses in ADSL/VDSL networks using DHCP (Dynamic Host Configuration Protocol). This reduces cost burdens and increases cost effectiveness for system users. Use the following steps to set up a system using DVRNS.

System Configuration



STEP 1 (DVR → DVRNS Server): Register the unit name and IP address of the DVR during the DVRNS setup on the Remote DVR. This unit name and IP address will be registered on the DVRNS server directly.

NOTE: Refer to the applicable manual for each remote DVR for more details on DVRNS setup.

STEP 2 (Netcon → DVRNS Server): Request the IP address of the remote DVR using the registered unit name of the DVR you want to connect to.

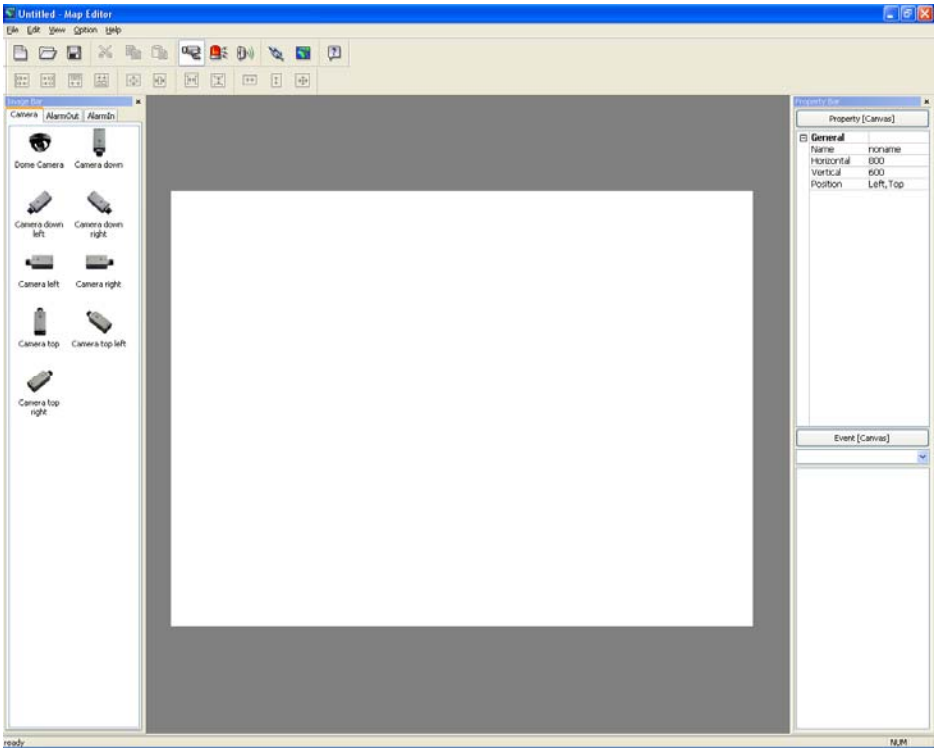
STEP 3 (DVRNS Server → Netcon): The DVRNS server notifies Netcon of the requested IP address.

STEP 4 (Netcon → DVR): Connect to the target DVR using the IP address returned from the DVRNS server.

NOTE: You should follow steps 2 to 4 whenever connecting to the remote site because the DVR name and IP address might change at anytime.

MAP EDITOR

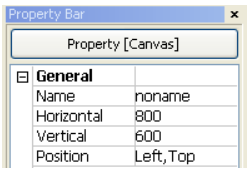
The Map Editor program allows you to create 3-D maps of remote sites. With the drag-and-drop and link function, you can create and edit the map easily and efficiently. Run the program by selecting MapEditor from the Netcon options under the Start menu in Windows.



Background Image Setting

First, prepare the image in a bitmap or JPEG file format. Click the (Background) button on the toolbar and select the background image of the map.

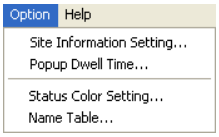
Go to the Property [Canvas] tab and set the background image information.



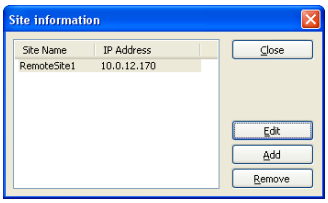
- Name: Enter a name of the background image.
- Horizontal/Vertical: Adjust the background image size by clicking each field and changing the numbers.
- Position: Adjust the position of the background image on the screen. Select Auto Fit to fit the map screen size to the background image.

Option Menu

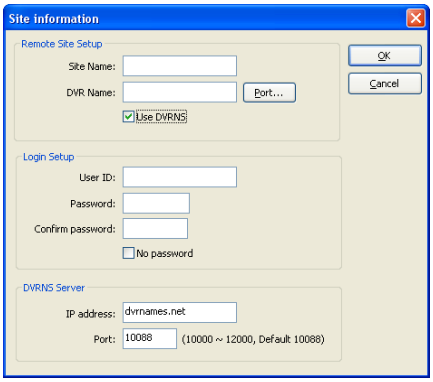
Click the Option menu to set up the remote site information, device status display and remote site name to display.



Site Information Setting: Select the Site Information Setting… in the Option menu to set the information about the remote site connections, and the following Site Information setup window appears.



Click the Add button, and the following Site Item box appears.



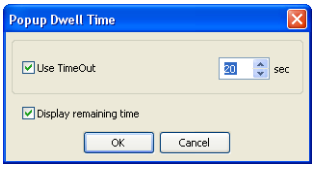
- Remote Site Setup: Enter the site name and IP address of the DVR connected to the devices you want to include on the map. Click the Port… button and enter the network IP port number (8000 to 12000) that matches the value set during the LAN setup on the DVR. Check the box beside Use DVRNS to use the DVR name service.

NOTE: If you use DVR Name Service, you can enter the name registered on the DVRNS server instead of the IP address of the DVR, and you do not need to enter the network IP port number.

- Login Setup: Enter the user ID and password for the DVR associated with devices.
- DVRNS Server: Enter the IP address and port number (10000 to 12000) of the DVRNS server, which matches the values set during the DVRNS setup on the DVR.

Clicking the OK button saves the setting.

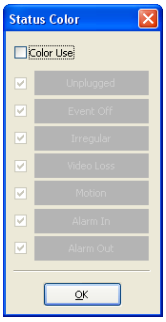
Popup Dwell Time: Select Popup Dwell Time… in the Option menu to set the duration of the Map popup screen displayed when events are detected, and the following Popup Dwell Time window appears.



Check the box beside Use Timeout and adjust the time out dwell from 1 second to 5 minutes. Selecting Display remaining time displays the remaining time out dwell on the Map popup screen.

NOTE: *Popup Dwell Time* will be applied to all maps displayed on the map panel.

Status Color Setting: Select the Status Color Setting… in the Option menu and the following Status Color window appears. You can set the device to display a unique color reflecting its status on the Map panel.



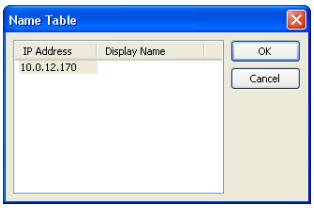
Check the box beside Color Use and select each status box to use. Click each selected status box and select the desired color. When done, click the OK button.

Unplugged: Either connection to the remote site has failed, or Device No. for the device is not supported by the remote site.
Event off: Event detection function is not set up.
Irregular: The device is not working properly.
Video Loss: Video loss is detected.
Motion: Motion is detected.
Alarm In: Alarm in is detected.
Alarm Out: Alarm out is detected.

NOTE: Devices are displayed as *Irregular* based on the system check settings and as *Video Loss*, *Motion*, *Alarm In*, *and Alarm Out* based on the event detection settings on the remote DVR.

NOTE: The device displays mixed color when detecting more than two statuses at the same time.

Name Table: Select Name Table… in the Option menu to display the name instead of the IP address of the DVR on the Map panel, and the following Name Table setup window appears.

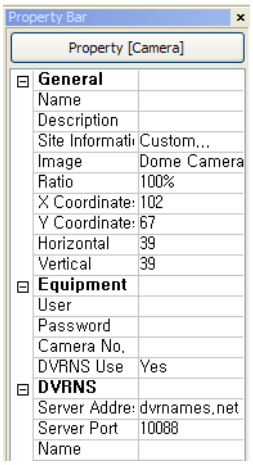


Click the Display Name field of each IP address and enter the name of the DVR to display on the popup screen.

Device Setting

Selecting the , , or buttons on the toolbar displays the Camera, AlarmOut and AlarmIn tabs under the Image Bar. Select the icons, and drag and drop them at the desired locations on the background image.

Go to the Property [Camera/AlarmOut/AlarmIn] tab and set the device information.



General

- Name: Enter a device name.
- Description: Enter description of the device.
- Site Information: Select a proper site for the device in the list, and the Equipment fields (User, Password, IP Address and Port) are filled automatically with the information set in Site Information Setting….
- Image: Select an image of a device.
- Ratio: Adjust the size of the device image.
- X Coordinates/Y Coordinates: Adjust the position of the device image by clicking each field and changing the numbers.
- Horizontal/Vertical: Adjust the size of the device image by clicking each field and changing the numbers.
- Popup camera: If the selected device is an alarm-in device, you can associate a camera with the sensor by entering the camera name. The camera name you enter should be the same as the camera name entered under the Property [Camera] tab. The Map panel pops up another screen and displays images of the camera associated with the sensor on the popup screen when an alarm-in event occurs.

Equipment

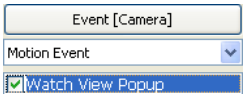
- IP Address/User/Password/Port: Each field is filled in automatically with the information (user ID, password, and port number) set in Site Information Setting…, or you can enter it manually.
- Device No.: Set the device number (1 ~ 16) for each device. If the selected device is a camera, Device No. changes to Camera No..
- DVRNS Use: Select Yes to use DVR Name Service, and the DVRNS field appears. Enter the IP address (or domain name) and the port number of the DVRNS server, and the name of the DVR registered on the DVRNS server.

NOTE: You should not select numbers that are not supported for devices on the remote DVR when selecting *Device No*. Otherwise, the map cannot detect the device and it displays the device status as *Unplugged*. For example, *Device No*. should be from 1 to 16 when the device is connected to a 16-channel DVR.

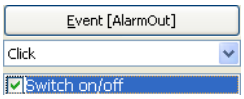
NOTE: If you set the IP address and port number of the DVRNS server in *Site Information Setting…*, the DVRNS fields are filled with the information automatically.

NOTE: The *DVRNS* function is supported only with the devices associated with a DVR providing the DVRNS (DVR Name Service) function.

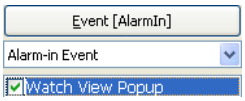
Go to the Event [Camera/AlarmOut/AlarmIn] tab and set the option for the devices.



- Event [Camera]: Selecting an event from a drop-down list and checking the Watch View Popup box set the Map panel to pop up another screen when an event occurs. Selecting Click from a drop-down list and checking the Watch View Popup box pops up another screen by clicking the mouse button on the camera icon on the Map panel regardless of event detection.



- Event [AlarmOut]: Checking the Switch on/off box controls the alarm-out remotely by clicking the alarm-out icon on Map panel.



- Event [AlarmIn]: Selecting Alarm-in Event from a drop-down list and checking the Watch View Popup box sets the Map panel to pop up another screen when an alarm-in event occurs. Selecting Click from a drop-down list and checking the Watch View Popup box pops up another screen by clicking the mouse button on the alarm-in icon on the Map panel regardless of event detection.

NOTE: The popup camera should be associated with the alarm in device to use the popup function. Refer to the *Device Setting – General*, *Popup camera* section for the popup camera association.

Link Setting

Click the (Link) button on the toolbar and place it on the screen linked with a sub-map. Then the Link Map box appears. Select the individual link boxes by using the Ctrl key on the keyboard, and then adjust the size and position of the link box using a mouse, a keyboard or the icons shown below.

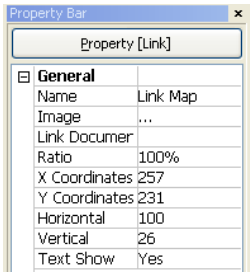
- Interval adjustment: Equalizes the distance between three or more selected boxes.

- Size adjustment: Equalizes the size of two or more selected boxes. Clicking the arrow keys while holding the Shift key on the keyboard changes the size of the selected boxes.

- Position adjustment: Arranges two or more selected boxes towards one direction or towards the center. Clicking the arrow keys while holding the Ctrl key on a keyboard changes the position of selected boxes.

- Cut, Copy, Paste: Cuts, copies or pastes the link box.

Go to the Property [Link] tab and set the properties of the selected link box.



- Name: Enter a name of the link box.
- Image: Double click the field and select an image to insert in the link box.
- Link Document: Double click the field and select a map to be linked with the link box.
- Ratio: Adjust the image size within the link box.
- X Coordinates/Y Coordinates: Adjust the position of the link box on the screen by clicking each field and changing the numbers.
- Horizontal/Vertical: Adjust the link box size by clicking each field and changing the numbers.
- Text Show: Select Yes to display the name of the link box on the selected image.

Clicking the (Save) button on the toolbar saves the map. You can monitor remote sites by using the map. Refer to *3.2 Panel – Map Panel* section for details.

REVO MOBILE

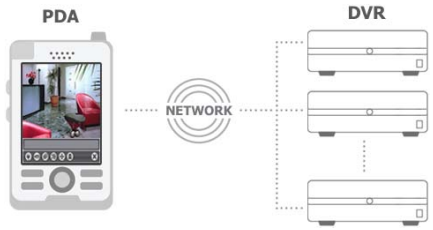
REVO Mobile for PDA

REVO Mobile allows you to access remote sites and monitor live video using the Windows Mobile based PDA anytime from virtually anywhere.

PDA system requirements for using the REVO Mobile program are:

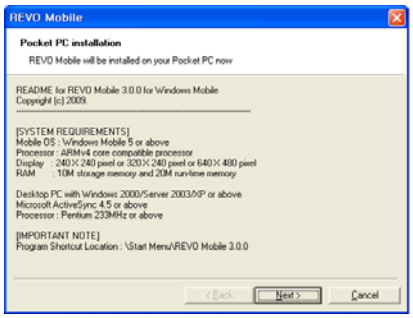
- Operating System: Microsoft® Windows® Mobile 5 or above
- Processor: ARMv4 core compatible processor
- Display: 240x240 pixel, 320x240 pixel or 640x480 pixel
- RAM: 10M storage memory and 20M run-time memory
- Wireless LAN: Support IEEE 802.11
- Desktop PC with Microsoft® Windows® 2000/Sever 2003/XP/Vista
- Microsoft ActiveSync 4.5 or above
- Processor: Pentium 233MHz or above
- Input Device: Touch screen

System Diagram

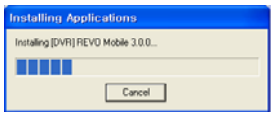


Installation

1. Install the Microsoft ActiveSync program on the PC, and connect the PDA to the PC.
2. Run the REVO_Mobile.exe file.
3. When the following dialog box appears, click Next.



4. The progress bar shows the installation progress.



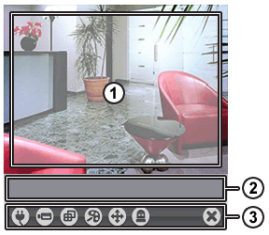
5. When the following dialog box appears, select OK to complete the installation.

6. After installing the REVO Mobile software, the program will be installed on the My Device\Program Files\REVO Mobile 3.0.0 folder, and you will find the REVO Mobile icon on the desktop. Double click the icon or run the My Device\Program Files\REVO Mobile 3.0.0\REVO_Mobile.exe file.

NOTE: To remove the program, select *Start* on the Task Bar on the PDA. Go to *Settings* → *System* → *Control panel* → *Add/Delete programs* → *[DVR] REVO Mobile 3.0.0* in order. Clicking the *Delete* button uninstalls the program.

Configuration and Operation

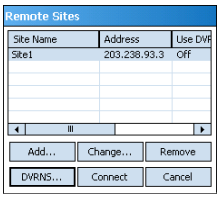
The Graphical User Interface (GUI) of the REVO Mobile is as shown below, and the description of each menu buttons follows.



① Monitoring Screen: Displays live video images from the cameras at the remote site.
② Status Information: Displays REVO Mobile version information and the status information about the remote site connection.
③ Menu Buttons: Performs REVO Mobile functions.

Connection	Camera	Screen Mode	Image Adjustment
PTZ Control	Alarm out Control	Disconnection	

Connection: Click the button to perform remote site management, DVRNS settings and remote connection.



- Change…: Select the site you want to change and click the Change… button, and then edit the site information.
- Remove: Select the site you want to remove and click the Remove button.
- DVRNS…: Click the DVRNS… button to set up the DVRNS function and the DVR Name Service screen is displayed. Enter the DVRNS server's IP address and port number. The IP address and port number you enter should match the values set during the DVRNS setup on the remote DVR you want to connect to.
- Connect: Select the site you want to connect to and click the Connect button. Once you connect to the remote site, the live video of camera 1 displays. If the connection fails, the error message will be displayed in the Status Information box.
- Add…: Click the button to add the remote site.

  - Site Name: Enter a site name. Up to 32 characters may be used for the site names.
  - IP Address: Enter the IP address of the remote site.
  - Watch Port: Set up the port number of the Watch program. The IP port number of Watch Port should match the value set during the network setup of the remote DVR.
  - Use DVRNS: Select whether or not to use the DVRNS function. When using the DVRNS function, you can enter the remote site's name registered on the DVRNS server instead of its IP address in the IP Address box. The name you enter should match the name set during the DVRNS setup on the remote DVR.
  - User ID / Password: Enter the user ID and password of the remote site to be accessed. If you have entered a user ID and a password, the site will be connected automatically. Up to 32 characters may be used for the user IDs, and up to 10 characters may be used for passwords.

Camera: Displays the camera buttons. Click the desired camera button to select the camera to be viewed. Live video Images from the selected camera and the OSD information including camera name and date/time will be displayed on the Monitoring Screen. No Video will be displayed when there is no video signal from the selected camera.

NOTE: The number of camera buttons depends on the specifications of the remote DVR.

Screen Mode: Allows you to select the desired screen layout. The formats available are single-screen, quad and full-screen.

Single Screen

Quad Screen

Full Screen

NOTE: The selected camera video in the quad screen mode will be outlined in green.

NOTE: PTZ control during the full-screen display will be performed using the arrow buttons of the PDA device. Clicking any place on the screen in the full-screen mode returns to the previous screen mode.

Image Adjustment: Allows you to adjust the brightness, contrast, hue and saturation of the image. Selecting (Undo) cancels the image processing operation and reloads the original image.

PTZ Control: Allows you to control pan, tilt, iris and zoom of the camera at the remote site, and set certain position as preset and go to desired views.

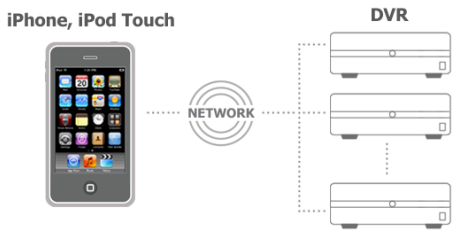
Alarm Out Control: Allows you to control alarm out devices at the remote site.

Disconnection: Disconnects the current connection and closes the REVO Mobile program.

REVO Mobile for iPod Touch or iPhone

REVO Mobile allows you to access remote sites and monitor live video via network connection using the Apple based iPod Touch or iPhone (iPhone OS 3.0 or later version) anytime from virtually anywhere.

System Diagram



Installation

1. Connect your iPod Touch or iPhone to your PC. Run the iTunes program on your PC and connect to iTunes Store.

2. Enter REVO Mobile in the search field at the top-right corner of the iTunes screen.

3. Install the REVO Mobile program on your iPod Touch or iPhone and run the program.

- Connect: Touch to connect to a site to monitor.
- Camera: Touch to select a camera to monitor.
- Settings: Touch to register sites.

Operation

1. Touch the Settings button to register DVRs. Select Site List, and then enter the DVR's information.

- General: Enter a site name.
- Connection: Enter the IP address and port number of the DVR. If the DVR uses the DVRNS function, enable the Use DVRNS option and enter the name registered on the DVRNS server instead of the IP address of the DVR.
- Login: Enter the user ID and password set on the DVR.

2. If the registered DVRs use the DVRNS function, select DVRNS and enter the IP address (or domain name) and port number of the DVRNS server. The IP address (or domain name) and port number of the DVRNS server should be the same as them registered on the DVRs.

3. You can add other DVRs or delete a registered DVR by touching the Edit button in the Site List screen, or edit a DVR's information by selecting the DVR in the list.

Monitoring

Touch the Connect button to connect to a DVR for monitoring. Selecting the DVR from the site list displays the video of the DVR on the screen.

- Disconnect: Touch to release the connection to the DVR.
- Camera: Touch to select the camera to monitor. The list of cameras supported in the DVR is displayed. Selecting a desired camera from the list and touching the Apply button displays video from the selected camera.