



**DS-9000/9100/9600 Series DVR**

**USER MANUAL**

**Version 1.3.1**

## Hikvision® Network Digital Video Recorder User's Manual

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## Regulatory Information

### FCC Information

**FCC compliance:** This equipment has been tested and found to comply with the limits for 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 the user will be required to correct the interference at his own expense.

### FCC Conditions

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

### EU Conformity Statement



This product and - if applicable - the supplied accessories too are marked with "CE" and comply therefore with the applicable harmonized European standards listed under the Low Voltage Directive 2006/95/EC, the EMC Directive 2004/108/EC.



2002/96/EC (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: [www.recyclethis.info](http://www.recyclethis.info).



2006/66/EC (battery directive): This product contains a battery that cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The battery is marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg). For proper recycling, return the battery to your supplier or to a designated collection point. For more information see: [www.recyclethis.info](http://www.recyclethis.info).

### Description on Laser Specification

The optical disc drive such as DVD Super Multi (Double Layer) Drive 22X that is used in this computer is equipped with laser. The classification label with the following sentence is affixed to the surface of the drive.

**CLASS 1 LASER**

**PRODUCT TO IEC60825-1**

**LASER KLASSE 1**

The drive with the above label is certified by the manufacturer that the drive complies with the requirement for laser product on the date of manufacturing pursuant to article 21 of Code of Federal Regulations by the United States of America, Department of Health & Human Services, Food and Drug Administration.

In other countries, the drive is certified to comply with the requirement pursuant to IEC 60825-1 and EN 60825-1 on class 1 laser product.

This computer is equipped with the optical disc drive in the following list according to the model.

## Safety Warnings and Cautions

Please pay attention to the following warnings and cautions:

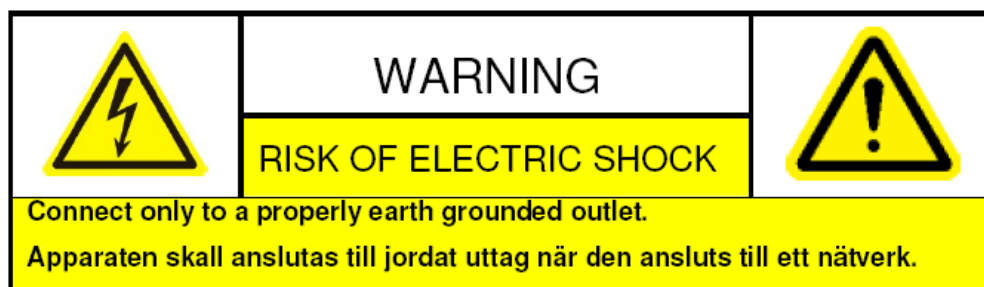


circuits.

**Hazardous Voltage may be present:** Special measures and precautions must be taken when using this device. Some potentials (voltages) on the device may present a hazard to the user. This device should only be used by the Employees from our company with knowledge and training in working with these types of devices that contain live



**Power Supply Hazardous Voltage:** AC mains voltages are present within the power supply assembly. This device must be connected to a UL approved, completely enclosed power supply, of the proper rated voltage and current. **No user serviceable parts inside the power supply.**

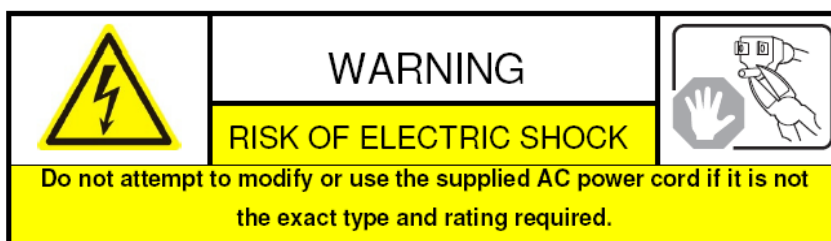


**System Grounding (Earthing):** To avoid shock, ensure that all AC wiring is not exposed and that the earth grounding is maintained. Ensure that any equipment to which this device will be attached is also connected to properly wired grounded receptacles and are approved medical devices.



**Power Connect and Disconnect:** The AC power supply cord is the main disconnect device to mains (AC power). The socket outlet shall be installed near the equipment and shall be readily accessible.

**Installation and Maintenance:** Do not connect/disconnect any cables to or perform installation/maintenance on this device during an electrical storm.



**Power Cord Requirements:** The connector that plugs into the wall outlet must be a grounding-type male plug designed for use in your region. It must have certification marks showing certification by an agency in your region. The connector that plugs into the AC receptacle on the power supply must be an IEC 320, sheet C13,

female connector. See the following website for more information <http://kropla.com/electric2.htm>.



**Lithium Battery:** This device contains a Lithium Battery. There is a risk of explosion if the battery is replaced by an incorrect type. Dispose of used batteries according to the vendor's instructions and in accordance with local environmental regulations.

**Perchlorate Material:** Special handling may apply. See [www.dtsc.ca.gov/hazardouswaste/perchlorate](http://www.dtsc.ca.gov/hazardouswaste/perchlorate). This notice is required by California Code of Regulations, Title 22, Division 4.5, Chapter 33: Best Management Practices for Perchlorate Materials. This device includes a battery which contains perchlorate material.

**Taiwan battery recycling:**



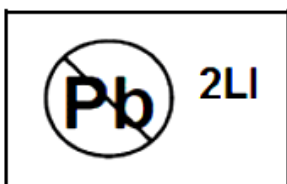
Please recycle batteries.



**Thermal and Mechanical Injury:** Some components such as heat sinks, power regulators, and processors may be hot; care should be taken to avoid contact with these components.

**Electro Magnetic Interference:** This equipment has not been tested for compliance with emissions limits of FCC and similar international regulations. This device is not, and may not be, offered for sale or lease, or sold, or leased until authorization from the United States FCC or its equivalent in other countries has been obtained. Use of this equipment in a residential location is prohibited. This equipment generates, uses and can radiate radio frequency energy which may result in harmful interference to radio communications. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is required to take measures to eliminate the interference or discontinue the use of this equipment.

**Lead Content:**



Please recycle this device in a responsible manner. Refer to local environmental regulations for proper recycling; do not dispose of device in unsorted municipal waste.

Thank you for purchasing our product. If there is any question or request, please do not hesitate to contact dealer.

This manual is applicable to DS-9004/9008/9016HDI-S, DS-9004/9008/9016HFI-S, DS-9004/9008/9016HFI-SH, DS-9004/9008/9016HFI-RH; DS-9104/9108/9116HFI-S, DS-9104/9108/9116HFI-SH, DS-9104/9108/9116HFI-RH; DS-9604/9608/9612/9616NI-SH, DS-9604/9608/9612/9616NI-RH.

This manual may contain several technically incorrect places or printing errors, and the content is subject to change without notice. The updates will be added into the new version of this manual. We will readily improve or update the products or procedures described in the manual.

## Preventive and Cautionary Tips

Before connecting and operating your DVR, please be advised of the following tips:

- Ensure unit is installed in a well-ventilated, dust-free environment.
- Unit is designed for indoor use only.
- Keep all liquids away from the DVR.
- Ensure environmental conditions meet factory specifications.
- Ensure unit is properly secured to a rack or shelf. Major shocks or jolts to the unit as a result of dropping it may cause damage to the sensitive electronics within the unit.
- Use the DVR in conjunction with an UPS if possible.
- Power down the unit before connecting and disconnecting accessories and peripherals.
- A factory recommended HDD should be used for this device.
- Improper use or replacement of the battery may result in hazard of explosion. Replace with the same or equivalent type only. Dispose of used batteries according to the instructions provided by the battery manufacturer.

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# **C H A P T E R 1**

## **Introduction**

## Overview

The DS-9000/9100/9600 series DVR is a new generation of video surveillance product with powerful functionalities in video encoding and decoding, video data storage, intelligent video analytics and network management.

The DS-9000/9100/9600HFI-RH models support RAID disk array and virtual disk configuration to enhance data reliability and storage capability, as video data can be divided and replicated among 8 hard disk drives.

DS-9000 series can be connected with both analog and network cameras, and is capable of working as a standalone DVR, hybrid DVR or NVR; The DS-9600 series only supports the IP cameras while the DS-9100 series DVR can be connected with analog cameras only. The DS-9000/9100/9600 series DVR can be widely applied in the fields of finance, public security, forces, telecom, transportation, electricity, education, water conservancy, etc.



Figure 1. DS-9000-S Series DVR

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Figure 2. DS-9100-S Series DVR

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Figure 3. DS-9000/9100/9600HFI-SH & DS-9000/9100/9600HFI-RH Series DVR

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Figure 4. DS-9000/9100/9600HFI-SH & DS-9000/9100/9600HFI-RH Series DVR

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## Product Key Features

- H.264 video compression standard.
- PAL/NTSC video input.
- DS-9000 can be connected analog camera, network camera/dome and network video server.
- DS-9600 can be connected with network camera/dome and network video server.
- DS-9000/9600 can be connected with third-party network cameras (AXIS, Bosch, Panasonic, SANYO, SONY, ZAVIO, PROVIDEO, ARECONT, ACTI, PELCO, VIVOTEK, INFINOVA, PSIA, ONVIF).
- DS-9100 can be connected with analog cameras only.
- Each analog channel supports dual stream. Main stream supports up to 4CIF resolution and sub stream supports up to CIF resolution.
- Each IP camera of DS-9000/9600 supports HDMI video output at up to 1920×1080P resolution.
- VGA video output at up to 1280×1024 resolution.
- DS-9000/9100/9600-RH supports RAID storage, with the following capabilities: disk array and virtual disk configurable, manual disk array rebuilding, hot swap/spare rebuilding, RAID level migration and one-button configuration.
- Video encoding parameters of each channel can be set separately, including resolution, frame rate, bit rate, image quality.
- Each channel supports normal continuous and event compression parameters.
- Support both composite stream and video only stream. Audio and video streams are strictly simultaneous.
- Watermark technology.
- Email notification.
- Local Monitoring:**
- DS-9000/9100/9600-SH and DS-9000/9100/9600-RH series support three independent local outputs, including HDMI, VGA, main and AUX composite video output.
- DS-9000/9100-S series support VGA, Main and AUX composite video output simultaneously.
- HDMI output at up to 1920×1080 resolution.
- VGA output at up to 1280×1024 resolution.
- 1/4/6/8/9/16-division live view, with camera order adjustable.
- Group switch, manual switch and automatic cycle modes selectable for video live view, with the auto cycle dwell time configurable.
- Digital zoom in live view mode.
- Shield of assigned channel for live view.
- Motion detection, view tampering alert, video exception alert and video loss alert.
- Privacy mask.
- Various PTZ protocols, PTZ preset, patrol and pattern.
- Video image zoom-in by clicking the mouse and tracing by dragging mouse in PTZ control mode.

### • HDD Management:

- Up to 8 SATA hard disks can be connected for RAID storage.
- Up to 8 SATA hard disks, 8 network hard disks (8 NAS disks or 7 NAS disks + 1 iSCSI disk) and 1 eSATA can be connected; each HDD with up to 2TB storage capacity.
- Up to 8 virtual disks are supported.
- S.M.A.R.T. technology.
- HDD group management.
- HDD property can be set to redundancy, read-only and R/W.
- HDD file system is compatible with Windows. Use pre-allocating hard disk management technology, and no disk fragments.

### • Recording and Playback:

- Cycle and non-cycle recording mode.
- Normal and event video encoding parameters.
- Multiple recording types, including manual, normal, alarm, motion, motion | alarm and motion & alarm recording, etc.
- 8 recording time periods with separate recording types.
- Pre-record and Post-record time for alarm and motion detection, and pre-record time for scheduled and manual recording.
- Lock and unlock of video files.
- Local redundant recording.
- Video data search and playback by channel number, recording type, time etc.
- Digital zoom function in playback mode.
- Pause, play fast, play slow, skip forward, and skip backward when playback, locating in progress bar by dragging the mouse.
- Up to 16-channel synchronous playback for DS-9000/9100 series DVR, and 4-channel synchronous playback for DS-9600 series NVR.

### • Intelligent Features :

- DS-9000/9100/9600-SH and DS-9000/9100/9600-RH series support intelligent features (configured with the expanded intelligent board) as an option.
- Each channel Supports up to 8 rules for intelligent detecting, including traverse plane, enter region, exit region, invasion, loiter, left take, parking, run and high density.
- Notification of intelligent alarm by uploading information and JPEG picture to client software to CMS.
- Support intelligent module reboot partly when setting intelligent detection system.

**Note:** Intelligent features are optional for DS-9000/9100/9600-SH and DS-9000/9100/9600-RH models, and not supported in the default unit.

**Note:** The device must be configured with the intelligent board so as to realize the intelligent functions. The following options are provided: B-B, B-A and B-F

Levels	Traverse plane	Enter/Exit Area	Object Left/Taken	Intrusion	Loitering	High Density	Illegal Parking	Fast Movement
B_F	√	√	√	√	√	√	√	√
B_A	√	√	√	√	√	√		
B_B	√	√						

### • Backup:

- Record files backed up via USB, SATA CD/DVD-R/Wdevice.
- Bunch backup by file or by time.
- Record files edited for backup in playback.
- Management and maintenance for backup devices.

### • Alarm & Exception:

- Unified management of DVR and IP camera alarm in/out of DS-9000/DS-9600.
- Unified management of DVR alarm in/out of DS-9100.
- Configurable arming time for alarm in/out.
- Unified management of intelligent detection, motion detection, view tampering and video loss alarm.
- Various exception alarm types supported: alarms for video loss, motion detection, video tempering, video in/out format unmatched, illegal access, network disconnection, IP conflict, hard disk error and hard disk full.

- Various exception alarm handling methods: pop-up alarm image on monitor, audible warning, notify surveillance center, trigger alarm output, send Email, etc.
- Auto recovery from exceptions.
- **Network:**
  - 10/100/1000M adaptive network interface.
  - TCP/IP protocol suites, PPPoE, DHCP, DNS, DDNS, NTP, SADP protocols, etc.
  - Unicast and multicast, support TCP, UDP, and RTP for unicast.
  - Remote search, playback and download, lock/unlock of video files.
  - Support breakpoint resume.
  - Remote access and configuration of parameters; remote import/export of device configuration parameters.
  - Remote access of device running status, system log and alarm status.
  - Remote control of DVR via button operation.
  - Remote lock/unlock of panel buttons and mouse.
  - Remote formatting of hard disk, upgrade, reboot/shutdown and other system maintenance operations.
  - RS-232 and RS-485 transparent channel transmission.
  - Event alarm and exceptions upload to remote management host.
  - Remote manual recording.
  - Remote video image capture in JPEG format.
  - Remote PTZ control.
  - Voice talk and broadcast.
  - Built-in WEB Server.
- **Other:**
  - Control of DVR via front panel keys, mouse, IR remote control and special keyboard.
  - Three-level user management, each user with individual operating permission for DVR and camera.
  - Powerful record and search for log of operation, alarm and exceptions.
  - Import/export of device configuration files.

## Product Application Diagram

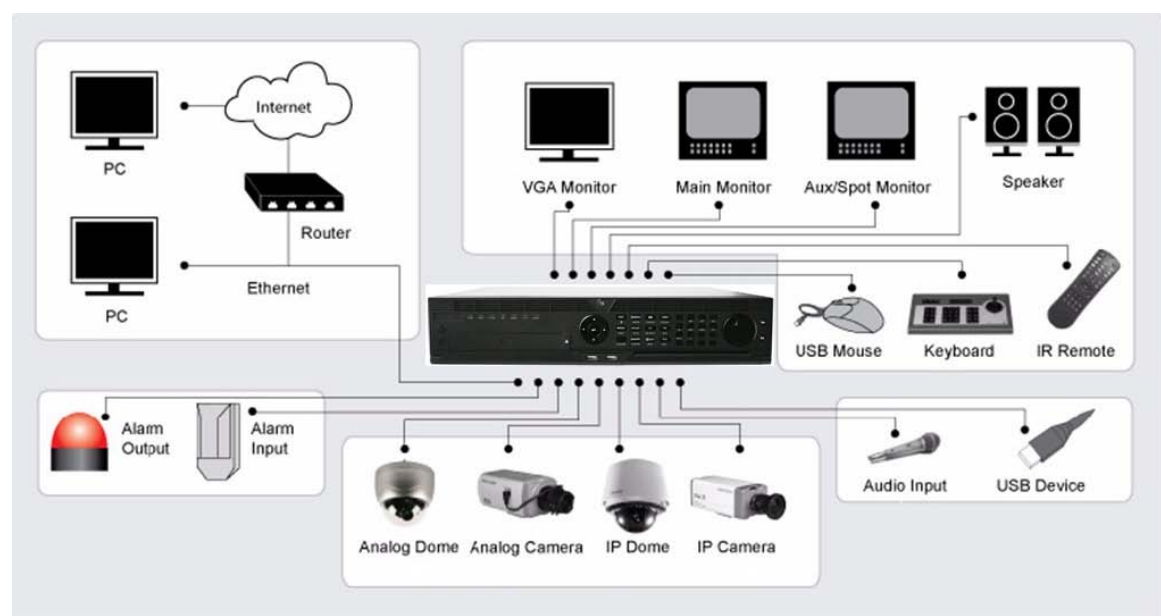


Figure 5. Product Application Diagram

**Note:** For DS-9600 series NVR, it does not support analog cameras, and for DS-9100 series DVR, it does not support network cameras.

## Operating Your DVR

There are numerous ways to navigate and operate your DVR. You may use the **Front Panel Controls**, the included **IR Remote**, a **Mouse** and the **Soft Keyboard**.

### Using the Front Panel Controls

#### Front Panel of DS-9000/9100-S DVR:



Figure 6. DS-9000/9100-S DVR Front Panel Controls

The controls on the front panel include:

1. **Power Button:** Powers DVR on/off.
2. **IR Receiver:** Receiver for IR remote.
3. **USB Ports:** Universal Serial Bus (USB) ports for additional devices such as USB mouse and USB Hard Disk Drive (HDD).
4. **Status Indicators:** Status indicators for different features of the DVR.
  - **Alarm:** Alarm indicator turns red when a sensor alarm is detected.
  - **Ready:** Ready indicator turns blue when DVR is functioning properly.
  - **Status:** Status indicator turns blue when DVR is controlled by an remote. Indicator turns red when controlled by a keyboard and purple when IR remote and keyboard is used at the same time.
  - **HDD:** HDD indicator blinks red when data is being read from or written to HDD.
  - **Modem:** Reserved.
  - **TX/RX:** TX/RX indicator blinks blue when network connection is functioning properly.
  - **Guard:** Guard indicator turns blue when the device is armed, off when the device is unarmed. The arm/disarm state can be initiated by pressing and holding on the ESC button for more than 3 seconds in Preview mode.
5. **Alphanumeric Buttons:** Alphanumeric buttons used in various menus of the DVR. Some uses include:
  - Switching to the corresponding channel in Preview or PTZ Control mode.
  - Inputting numbers and characters in Edit mode.
  - Switching between different channels in Playback mode.
6. **Control Buttons:**
  - **ESC Button:** The ESC button is used to escape to the previous menu and to arm/disarm the DVR in Preview mode.



- **REC/SHOT Button:** The REC/SHOT button is used to enter the Manual Record interface. If used when controlling a PTZ, pressing the REC/SHOT button and then a Numeric button will call a PTZ preset.
  - **PLAY/AUTO Button:** The PLAY/AUTO button is used to enter the Playback menu. It is also used to turn audio on/off in the Playback menu and auto scan in the PTZ Control menu.
  - **ZOOM+ Button:** The ZOOM+ button is used to zoom the PTZ camera in when in the PTZ Control menu.
  - **A/FOCUS+ Button:** The A/FOCUS+ button is used to adjust focus in the PTZ Control menu. It is also used to switch between input methods (upper and lowercase alphabet, symbols and numeric input). It can also be used to clear entire masked areas, such as in the Motion Detection and Privacy Mask menus.
  - **EDIT/IRIS+ Button:** The EDIT/IRIS+ button is used to edit text fields. When editing text fields, it will also function as a Backspace button to delete the character in front of the cursor. On checkbox fields, pressing the EDIT/IRIS+ button will *tick* the checkbox. In PTZ Control mode, the EDIT/IRIS+ button opens up the iris of the camera. In Playback mode, it can be used to generate video clips for backup.
  - **MENU/WIPER Button:** Pressing the MENU/WIPER button will return the user to the Main menu (after successful login). Pressing and holding the button for 5 seconds will turn off audible key beep. The MENU/WIPER button will also bring up Sensitivity Interface settings. In PTZ Control mode, the MENU/WIPER button will start wiper (if applicable).
  - **F1/LIGHT Button:** The F1/LIGHT button when used in a list field will select all items on the list. In PTZ Control mode, it will turn on/off PTZ light.
  - **F2/AUX Button:** The F2/AUX button is used to cycle through tab pages. It will also bring up the Channel & OSD Position settings.
  - **MAIN/SPOT/ZOOM- Button:** The MAIN/SPOT/ZOOM- button is used to switch between main and spot output. In PTZ Control mode, it can be used to zoom the camera out.
  - **PREV/FOCUS- Button:** The PREV/FOCUS- button is used to switch between single screen and multi-screen mode. In PTZ Control mode, it is used to adjust the focus in conjunction with the A/FOCUS+ button. It can also be used to select entire masked areas, such as in Motion Detection and Privacy Mask menus.
  - **PTZ/IRIS- Button:** The PTZ/IRIS- button is used to enter the PTZ Control mode. When in the PTZ Control mode, it is used to close the iris of the PTZ camera.
7. **DIRECTION/ENTER Buttons:**
- **DIRECTION Buttons:** The DIRECTION buttons are used to navigate between different fields and items in menus. In Playback mode, the Up and Down button is used to speed up and slow down recorded video. The Left and Right button will select the next and previous day of recordings. In Preview mode, these buttons can be used to cycle through channels.
  - **ENTER Button:** The ENTER button is used to confirm selection in any of the menu modes. It can also be used to *tick* checkbox fields. In Playback mode, it can be used to play or pause the video. In Single Play mode, pressing the ENTER button will advance the video by a single frame.
8. **JOG SHUTTLE Control:** The JOG SHUTTLE control can be used to move the active selection in a menu. The inner ring will move the selection up and down; the outer ring will move it left and right. In the Playback mode, the inner ring is used to jump 30 seconds forward/backward in a video. The outer ring can be used to speed up/slow down the video. In Preview mode, it can be used to cycle through different channels.

## Front Panel of DS-9000/9100/9600-SH and DS-9000/9100/9600-RH DVR:



Figure 7. DS-9000/9100/9600-SH & DS-9000/9100/9600-RH DVR Front Panel

The controls on the front panel include:

1. **Status Indicators:** Status indicators for different features of the DVR.
  - **Alarm:** Alarm indicator turns red when a sensor alarm is detected.
  - **Ready:** Ready indicator turns blue when DVR is functioning properly.
  - **Status:** Status indicator turns blue when DVR is controlled by an IR remote. Indicator turns red when controlled by a keyboard and purple when IR remote and keyboard is used at the same time.
  - **HDD:** HDD indicator blinks red when data is being read from or written to HDD.
  - **Modem:** Reserved.
  - **TX/RX:** TX/RX indicator blinks blue when network connection is functioning properly.
  - **Guard:** Guard indicator turns blue when the device is armed, off when the device is unarmed. The arm/disarm state can be initiated by pressing and holding on the ESC button for more than 3 seconds in Live View mode.
2. **Power Button:** Powers DVR on/off.
3. **IR Receiver:** Receiver for IR remote.
4. **DVD-ROM:** This space is for DVD-ROM. (Optional)
5. **DIRECTION/ENTER Buttons:**
  - **DIRECTION Buttons:** The DIRECTION buttons are used to navigate between different fields and items in menus. In Playback mode, the Up and Down button is used to speed up and slow down recorded video. The Left and Right button will select the next and previous file of recordings. In Live View mode, these buttons can be used to cycle through channels.
  - **ENTER Button:** The ENTER button is used to confirm selection in any of the menu modes. It can also be used to tick checkbox fields. In Playback mode, it can be used to play or pause the video. In Single Play mode, pressing the ENTER button will advance the video by a single frame.
6. **USB Ports:** Universal Serial Bus (USB) ports for additional devices such as USB mouse and USB Hard Disk Drive (HDD).
7. **Control Buttons:**
  - **ESC Button:** The ESC button is used to escape to the previous menu and to arm/disarm the DVR in Live View mode.
  - **REC/SHOT Button:** The REC/SHOT button is used to enter the Manual Record interface. If used when controlling a PTZ, pressing the REC/SHOT button and then a Numeric button will call a PTZ preset.
  - **ZOOM+ Button:** The ZOOM+ button is used to zoom the PTZ camera in when in the PTZ Control menu.
  - **MENU/WIPER Button:** Pressing the MENU/WIPER button will return the user to the Main menu (after successful login). Pressing and holding the button for 5 seconds will turn off audible key beep. The MENU/WIPER button will also bring up Sensitivity Interface settings. In PTZ Control mode, the MENU/WIPER button will start wiper (if applicable).
  - **PLAY/AUTO Button:** The PLAY/AUTO button is used to enter the Playback menu. It is also used to turn audio on/off in the Playback menu and auto scan in the PTZ Control menu.
  - **MAIN/SPOT/ZOOM- Button:** The MAIN/SPOT/ZOOM- button is used to switch between main and spot output. In PTZ Control mode, it can be used to zoom the camera out.
  - **A/FOCUS+ Button:** The A/FOCUS+ button is used to adjust focus in the PTZ Control menu. It is also used to switch between input methods (upper and lowercase alphabet, symbols and numeric input). It can also be used to clear entire masked areas, such as in the Motion Detection and Privacy Mask menus.
  - **F1/LIGHT Button:** The F1/LIGHT button when used in a list field will select all items on the list. In PTZ

Control mode, it will turn on/off PTZ light.

- **EDIT/IRIS+ Button:** The EDIT/IRIS+ button is used to edit text fields. When editing text fields, it will also function as a Backspace button to delete the character in front of the cursor. On checkbox fields, pressing the EDIT/IRIS+ button will *tick* the checkbox. In PTZ Control mode, the EDIT/IRIS+ button opens up the iris of the camera. In Playback mode, it can be used to generate video clips for backup.
  - **PREV/FOCUS- Button:** The PREV/FOCUS- button is used to switch between single screen and multi-screen mode. In PTZ Control mode, it is used to adjust the focus in conjunction with the A/FOCUS+ button. It can also be used to select entire masked areas, such as in Motion Detection and Privacy Mask menus.
  - **F2/AUX Button:** The F2/AUX button is used to cycle through tab pages. It will also bring up the Channel & OSD Position settings.
  - **PTZ/IRIS- Button:** The PTZ/IRIS- button is used to enter the PTZ Control mode. When in the PTZ Control mode, it is used to close the iris of the PTZ camera.
8. **Alphanumeric Buttons:** Alphanumeric buttons used in various menus of the DVR. Some uses include:
    - Switching to the corresponding channel in Live View or PTZ Control mode.
    - Inputting numbers and characters in Edit mode.
    - Switching between different channels in Playback mode.
  9. **JOG SHUTTLE Control:** The JOG SHUTTLE control can be used to move the active selection in a menu. It will move the selection up and down. In the Playback mode, the ring is used to jump 30s forward/backward in video files. In Live View mode, it can be used to cycle through different channels.
  10. **Left and Right Button:** The left and right button can be used to move the active selection in a menu. It will move the selection left and right. In the Playback mode, the buttons can be used to speed up/slow down the video. In live view mode, it can be used to cycle through different channels.

**Note:** If GUARD indicator is blue (default), all alarm event and exception settings are valid. Otherwise, alarm event and exception settings will be invalid, but normal recording will still be available.

**Note:** It is important to note that you must click the EDIT button on either the remote or front panel on a text field before you're able to edit its content. After you're done entering text, you must hit the ENTER button to be able to move on to the next field.

## Using the IR Remote Control

Your DVR may also be controlled with the included IR remote control, shown in Figure 8. Batteries (2×AAA) must be installed before operating.



Figure 8. IR Remote Control

The keys on the remote control closely resemble the ones found on the front panel, including:

1. **POWER Button:** Same as POWER button on front panel.
2. **DEV Button:** Enables/Disables Remote Control.
3. **Alphanumeric Buttons:** Same as Alphanumeric buttons on front panel.
4. **EDIT Button:** Same as EDIT/IRIS+ button on front panel.
5. **A Button:** Same as A/FOCUS+ button on front panel.
6. **REC Button:** Same as REC/SHOT button on front panel.
7. **PLAY Button:** Same as PLAY/AUTO button on front panel.
8. **INFO Button:** Same as ZOOM+ button on front panel.
9. **VOIP Button:** Same as MAIN/SPOT/ZOOM- button on front panel.
10. **MENU Button:** Same as MENU/WIPER button on front panel.
11. **PREV Button:** Same as PREV/FOCUS- button on front panel.
12. **DIRECTION/ENTER Buttons:** Same as DIRECTION/ENTER buttons on front panel.
13. **PTZ Button:** Same as PTZ/IRIS- button on front panel.
14. **ESC Button:** Same as ESC button on front panel.
15. **RESERVED:** Reserved.
16. **F1 Button:** Same as F1/LIGHT button on front panel.
17. **PTZ CONTROL Buttons:** Buttons to adjust the iris, focus and zoom of a PTZ camera.
18. **F2 Button:** Same as F2/AUX button on front panel.

Aim the remote control at the IR receiver located at the front of the unit to test operation. If there is no response:

1. Using the front control panel or the mouse, go into Menu > Settings > General > More Settings.
2. Check and remember DVR ID#. The default ID# is 255. This ID# is valid for all IR controls.
3. Press the DEV button on the remote.
4. Enter the DVR ID# from step 2.
5. Press the ENTER button on the remote.

If the Status indicator on the front panel turns blue, the remote control is operating properly. If the Status indicator does not turn blue and there is still no response from the remote, please check the following:

1. Batteries are installed correctly and the polarities of the batteries are not reversed.
2. Batteries are fresh and not out of charge.
3. IR receiver is not obstructed.

## Using a USB Mouse

A regular 3-button (Left/Right/Scroll-wheel) USB mouse can also be used with this DVR. To use a USB mouse:

1. Plug USB mouse into one of the USB ports on the front panel of the DVR.
2. The mouse should automatically be detected. If in a rare case that the mouse is not detected, please refer to the recommended device list from your provider.

The buttons on the mouse corresponds to:

1. **Left Button:**
  - **Single-Click:** Select a component of a menu, such as a button or an input field. This is similar to pressing the ENTER button on the remote/front panel controls.
  - **Double-Click:** Switch between single screen and multi-screen mode in Live View/ Playback mode.
  - **Click and Drag:** Clicking and dragging the Left mouse button can be used to control the pan/tilt of a PTZ camera as well as to vary the position of digital zoom area and camera OSD. It can also be used to setup the alarm areas.
2. **Right Button:**
  - **Single-Click:** Shows pop-up menu.
3. **Scroll-Wheel:**
  - **Scroll Up:** In Live View mode, scrolling up will switch to the previous screen. In Menu mode, it will move the selection to the previous item.
  - **Scroll Down:** In Live View mode, scrolling down will switch to the next screen. In Menu mode, it will move the selection to the next item.

## Using the Soft Keyboard

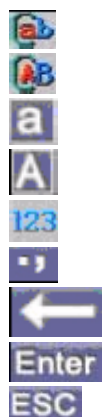
When a mouse is used to perform task on the DVR, clicking on a text input field will bring up the Soft Keyboard, shown in Figure 9.



Figure 9. Soft Keyboard

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The buttons on the soft keyboard represents:



**Lowercase:** Designates lowercase input is being used.

**Uppercase:** Designates uppercase input is being used.

**Switch to Lowercase:** Switch to lowercase input.

**Switch to Uppercase:** Switch to uppercase input.

**Number:** Designates number input is being used.

**Symbols:** Switch to symbols input.

**Backspace:** Delete the character in front of the cursor.

**Enter:** Confirm selection.

**ESC:** Exit out of Soft Keyboard.

Figure 10. Soft Keyboard Buttons

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## Rear Panel Diagram

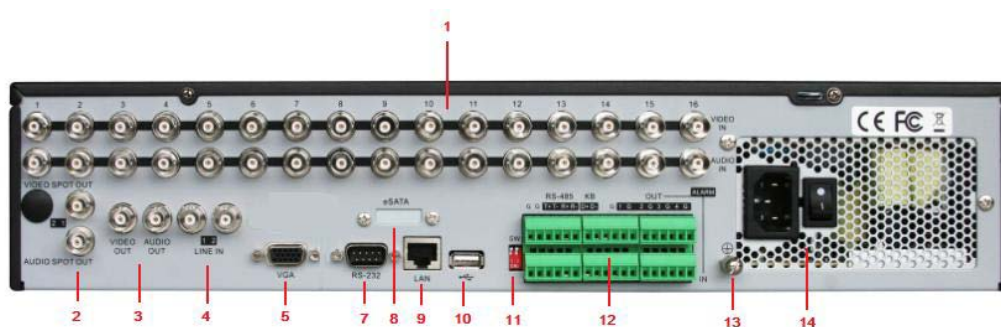


Figure 11. DS-9000/9100-S DVR Rear Panel

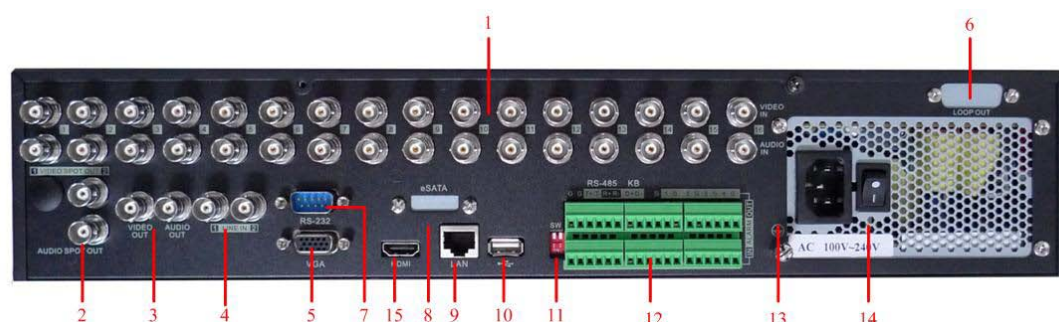


Figure 12. DS-9000/9100-SH & DS-9000/9100-RH Rear Panel

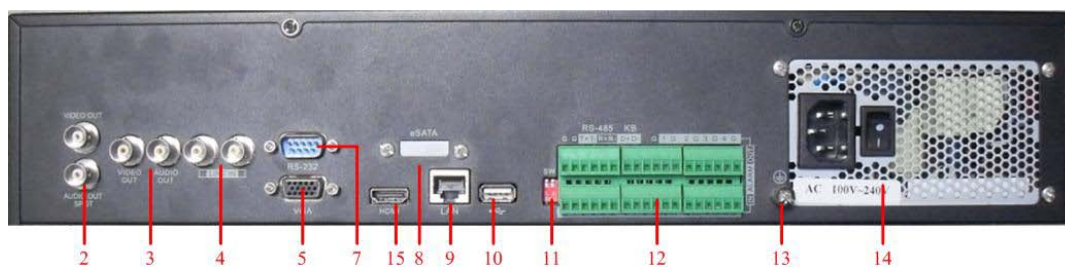


Figure 13. DS-9600NI-SH & DS-9600NI-RH Rear Panel

No.	Item	Description
1	VIDEO IN	BNC connectors for analog video input.
	AUDIO IN	BNC connectors for analog audio input.
2	VIDEO SPOT OUT	BNC connector for monitor. If HDMI is connected, interface is deactivated; If VGA is connected, the interface is for video output only. If VGA is not connected, interface is for video output, playback and showing PTZ controls.
	AUDIO SPOT OUT	BNC connector for audio output. If HDMI/VGA is connected, audio is synchronized with HDMI/VGA. If HDMI/VGA is not connected, audio is

		synchronized with VIDEO SPOT OUT.
3	VIDEO OUT	BNC connector for video output. 1. When both HDMI and VGA are connected, it is used for live view only; 2. When either HDMI or VGA is connected, it is used as the auxiliary video output for live view, playback, recording and PTZ controls; 3. When neither HDMI nor VGA is connected, it is used as the main video output for live view and menu operations.
	AUDIO OUT	BNC connector for audio output. This connector is synchronized with VIDEO OUT.
4	LINE IN	BNC connector for audio input.
5	VGA	DB9 connector for VGA output. Display local video output and menu.
6	Loop Out (Optional)	DB15 interface for connection video matrix and monitor.
7	RS-232 Interface	Connector for RS-232 devices.
8	eSATA (Optional)	Connects external SATA HDD, CD/DVD-RM or disk array.
9	LAN Interface	Connector for LAN (Local Area Network).
10	USB Interface	Connector for USB devices.
11	Termination Switch	RS-485 termination switch. Up position is not terminated. Down is 120Ω termination.
12	RS-485 Interface	Connector for RS-485 devices. T+, T- pin connects to PTZ.
	Controller Port	D+, D- pin connects to Ta, Tb pin of controller. For cascading devices, the first DVR's D+, D- pin should be connected with the D+, D- pin of the next DVR.
	ALARM IN	Connector for alarm input (up to 16 channels).
	ALARM OUT	Connector for alarm output (4 channels).
13	GROUND	Ground(needs to be connected when DVR startup)
14	POWER	AC 110V ~ 220V
15	HDMI	HDMI video output connector

**Note:** The DS-9000-S and DS-9100-S models do not provide HDMI interfaces on the rear panel.

## **C H A P T E R 2**

### **Getting Started**



## Starting and Shutting Down Your DVR

Proper startup and shutdown procedures are crucial to expanding the life of your DVR.

To start your DVR:

1. Ensure the power supply is plugged into an electrical outlet. It is **HIGHLY** recommended that an Uninterruptible Power Supply (UPS) be used in conjunction with the unit. The Power indicator LED on the front panel should turn red, indicating the unit is receiving power.
2. Press the POWER button on the front panel. The Power indicator LED should turn blue. The unit will begin to start.
3. After startup, the Power indicator LED will remain blue. A splash screen with the status of the DSP and HDD will be shown. The first row of icons at the bottom of the screen shows the DSP status. If an 'X' is shown on top of an icon, it means that the DSP initialization has failed. The second row of icons at the bottom of the screen will show the HDD status. If an 'X' is shown, it means that the HDD is not installed or cannot be detected.

There are two proper ways to shutdown the DVR. To shutdown the DVR:

### • OPTION 1: Standard Shutdown

1. Enter the Shutdown menu, shown in Figure 1 by clicking on Menu > Shutdown.



Figure 1. Shutdown Menu

2. Select the ShutDown button.
3. Click the Yes button.

### • OPTION 2: Manual Shutdown

1. Press and hold the POWER button for 3 seconds.
2. Enter the administrator's username and password in the dialog box for authentication.
3. Click the Yes button.

**Note:** Do not press the POWER button again when the system is shutting down.

## Rebooting and Locking Your DVR

While in the Shutdown menu (Figure 1), you may also reboot or lock your DVR. Locking your DVR will return you to the Live View mode, which will require an user name and password to exit out of it. The Reboot button will reboot your DVR.

To reboot or lock your DVR:

1. Enter the Shutdown menu by clicking Menu > Shutdown.
2. Select the Lock button to lock the DVR or the Reboot button to reboot the DVR.

## Using the Setup Wizard

By default, the Setup Wizard will start once the DVR has loaded, as shown in Figure 2. The Setup Wizard will walk you through some of the more important settings of your DVR. If you do not wish to use the Setup Wizard at this time, click the Cancel button. You may also choose to use the Setup Wizard at a later time by leaving the “**Start Wizard when DVR starts?**” checkbox checked.



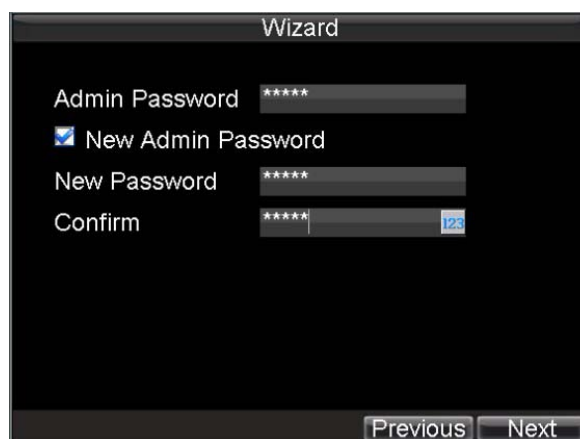
**Figure 2. Setup Wizard**

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To start using the Setup Wizard:

### 1. Configure User Permission

- 1) Click the Next button on the Wizard window. This will take you to the **User Permission** window, shown in Figure 3.



**Figure 3. User Permission**

---

- 2) Navigate to the **Admin Password** input field.
  - 3) Enter the admin password into the **Admin Password** input field. By default, the password is 12345.
  - 4) To change the admin password, check the **New Admin Password** checkbox. Enter the new password and confirm the password in the given fields.
  - 5) Click the Next button to enter the time settings Setup Wizard window.
- ### 2. Configure Time Settings



Figure 4. System Time Settings

- 1) In the time settings Setup Wizard window, set the time zone, date format and system time.
- 2) After the time settings, click the Next button to back to the Setup Wizard window.

**Note:** For the DS-9000/9100/9600-RH model, please refer to Step 3 for RAID configuration. For other models, go to Step 4 directly.

### 3. Configure RAID Settings

- 1) In the RAID Setup Wizard window, select the RAID configuration type to **One-touch Configuration** or **Specified Configuration**, shown in Figure 5.  
If it does not need to configure the HDD management, click Next to continue the Setup Wizard.

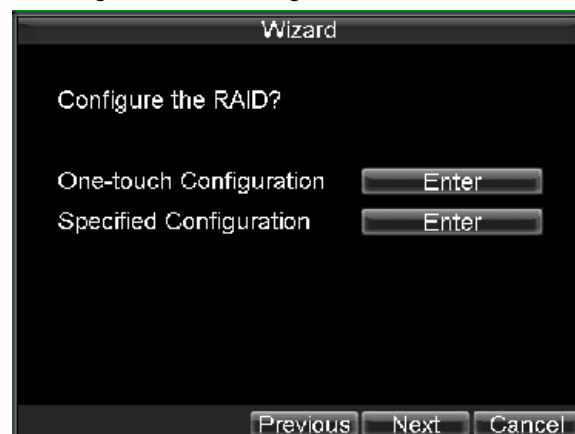


Figure 5. RAID Configuration

#### One-touch Array Configuration:

- a) Click the Enter button next to One-touch Configuration to enter the One-touch Array Configuration window, shown in Figure 6.

**Note:**

- When the One-touch Array Configuration is selected, the device can automatically enable the installed HDDs for array creation. As the default array type is RAID 5, thus at least 3 hard disks must be installed on the device.
  - After completion of One-touch Array Configuration, the device will create 1 array and 8 virtual disks. And the array volume will be equally allocated to each virtual disk.
- b) Edit the Array Name and then click the OK button to finish the one-touch array configuration.



Figure 6. One-touch Array Configuration

**Specified Array Configuration:**

- a) Click the Enter button next to Specified Configuration in Wizard to enter the Array Configuration interface, as shown in Figure 7.
  - b) Follow the operating steps of array configuration shown on the window and click **Enter** to enter RAID settings interface.
- 2) After having finished the array configuration, click the OK button to back to the Setup Wizard window.

**Note:** Please refer to *Chapter 11* for specific instructions of array configuration.

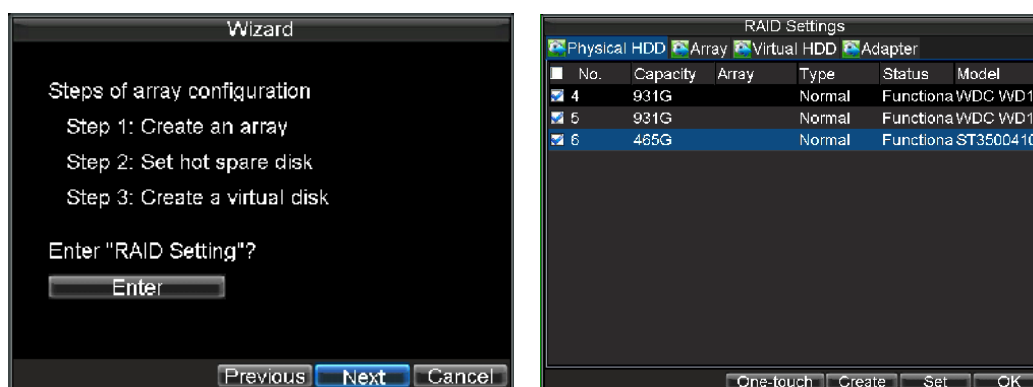


Figure 7. Enter RAID Configuration

#### 4. Configure HDD Management

- 1) In the Setup Wizard window, click Next button to enter the HDD Management Setup Wizard window.
- 2) Click the Enter button to enter the **HDD Management** window, shown in Figure 8. If it does not need to configure the HDD management, click Next to continue the Setup Wizard.

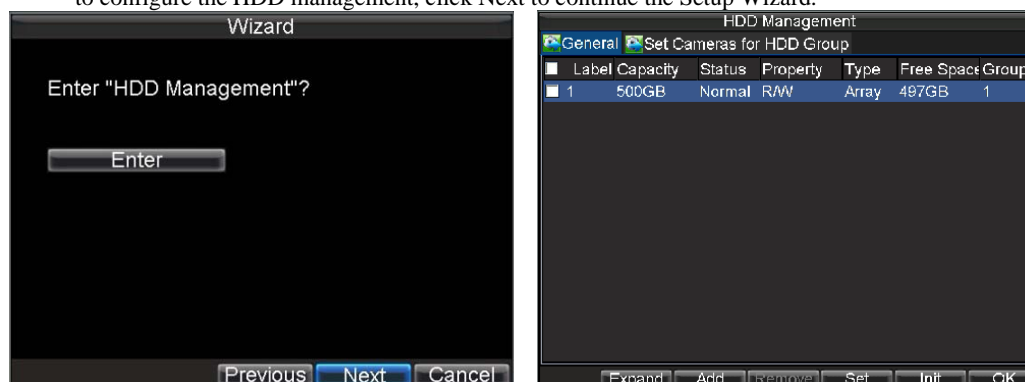


Figure 8. Enter HDD Management

- 3) If a new HDD was recently installed, select the HDD from the list to initialize it. Initializing the HDD will format and remove all data from it.
- 4) After the HDD has been initialized, click the OK button to back to the Setup Wizard window.

## 5. Configure Record Settings

- 1) In the Setup Wizard window, click Next button to enter the Record Settings Setup Wizard window.
- 2) Click the Enter button to enter the **Record Settings** window, shown in Figure 9. If it does not need to configure the record settings, click Next to continue the Setup Wizard.

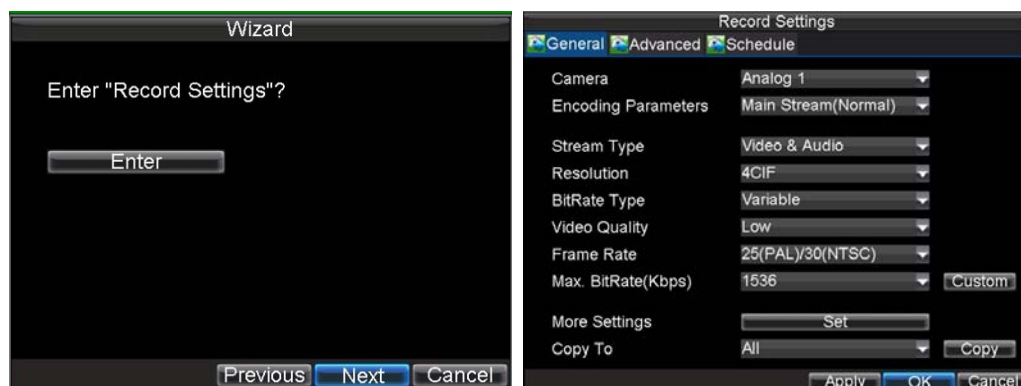


Figure 9. Record Settings

- 3) Select the **Schedule** tab, shown in Figure 10.

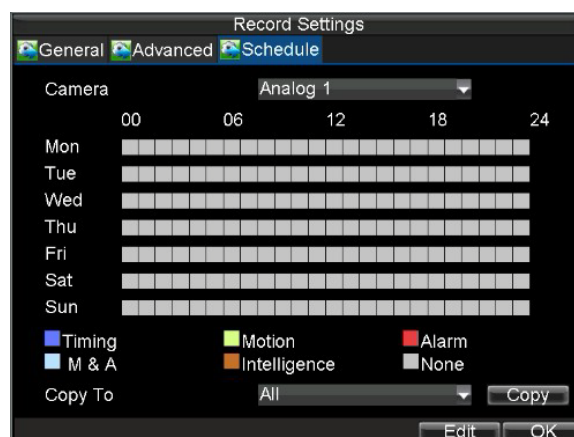


Figure 10. Schedule Settings

- 4) Click the Edit button. This will open up a new recording schedule, shown in Figure 11.
- 5) Check both the **Enable Schedule** and **All Day** checkbox. This will enable the recording schedule and have it record continuously all day.

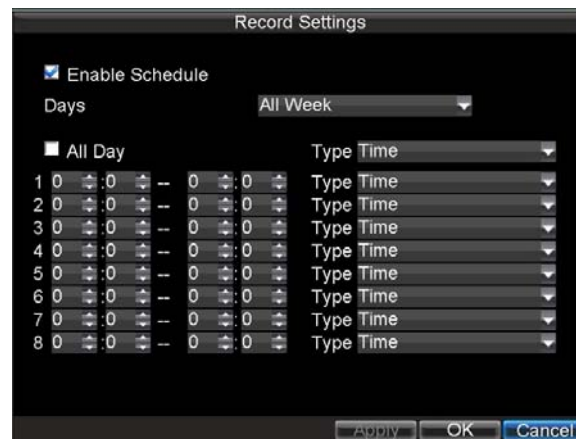


Figure 11. Edit Schedule Settings

- 6) Click the OK button. This will take you back to the **Schedule** tab. To copy the schedule to a different channel, select the channel or all under Copy To and click the Copy button.
- 7) Click the OK button to back to the Setup Wizard window.

## 6. Configure Network Settings

- 1) In the Setup Wizard window, click Next button to enter the Network Settings Setup Wizard window.
- 2) Click the Enter button to enter the **Network Settings** window, shown in Figure 12. If it does not need to configure the network settings, click Next to continue the Setup Wizard.

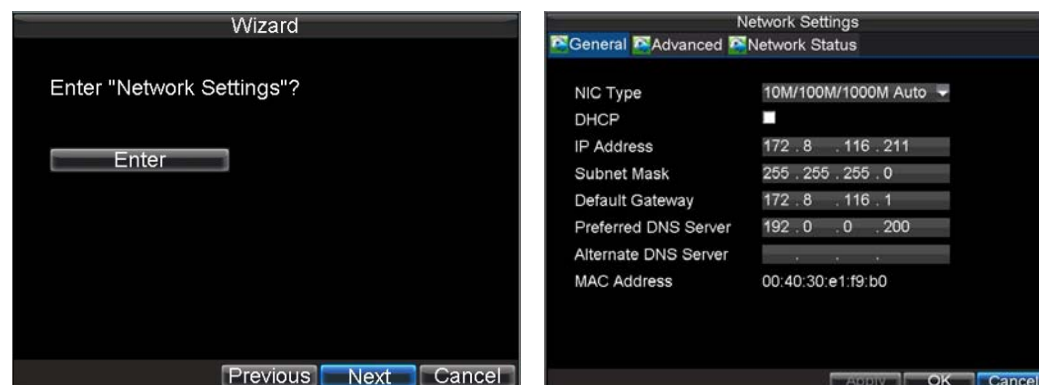


Figure 12. Network Settings

- 3) Enter the IP Address, Subnet Mask and Default Gateway. Click the OK button to return to the Setup Wizard.

## 7. Configure Camera Management

- 1) In the Setup Wizard window, click Next button to enter the Camera Management Setup Wizard window.
- 2) Click the Enter button to enter the **Camera Management** window, shown in Figure 13. if does not need to configure IP cameras, click the Done button to finish the settings; if it needs to configure the IP cameras, click Enter button to enter the **Camera Management** window, shown in Figure 13.

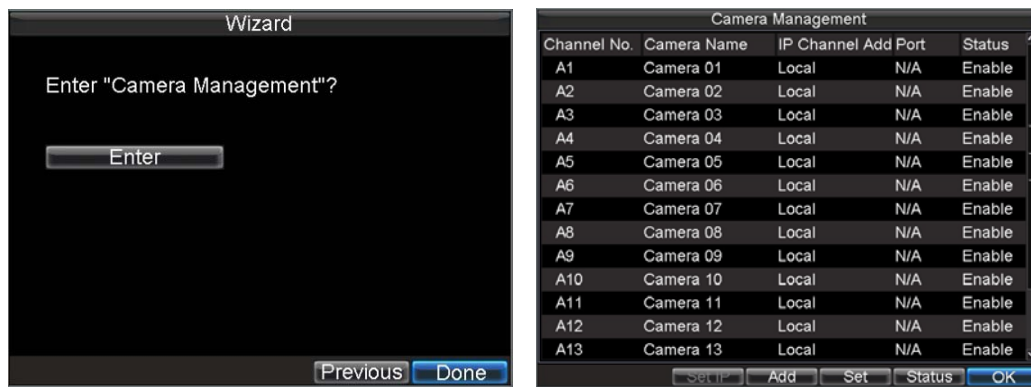


Figure 13. Camera Management

- 3) Click Add button to add IP camera, and click OK to back to Setup Wizard.
- 4) If all the settings are entered as desired, click the Done button to finish settings and exit the Setup Wizard.

**Note:** DS- 9100 series DVR does not support IP channels connection and thus no IP camera configuration is required.

Congratulations! You've completed the Setup Wizard. The next step in the initial setup process is to setup the system date and time.

## **C H A P T E R 3**

### **Live View**



## Viewing Live Video

The Live View mode is automatically started after the DVR boots up. It is also at the very top of the menu hierarchy, thus hitting the ESC multiple times (depending on which menu you're on) will bring you to the Live View mode.

### Understanding Live View Icons

There are multiple icons on each display in Live View mode to indicate different camera status. These icons include:



**Event Icon:** Indicates video loss or tampering, motion detection and/or sensor alarm.



**Record Icon:** Indicates the current channel is recording. The recording may have been started manually, from a schedule, and/or triggered from motion or alarm.



**Main Icon:** Indicates the current channel is in the main output mode.



**Aux Icon:** Indicates the current channel is in the aux output mode.



**Spot Icon:** Indicates the current channel is in the spot output mode.



**Alarm Icon:** Indicates there is an alarm or exception.

Figure 1. Live View Icons

---

**Note:** Status for video loss is only valid with analog cameras. Event icons will only be displayed when armed, except for the video loss alarm. Output icon is only valid when enable output hint in **General** menu.

## Operating the LiveView

In Live View mode, you can:

1. **Display Single Camera:**
  - **Using Front Panel/Remote:** Use Alphanumeric buttons.
  - **Using Mouse:** Select Single Camera in right-click menu.
2. **Live View Layout Switch:**
  - **Using Front Panel/Remote:** Click PREV button.
  - **Using Mouse:** Select Multi-Camera in right-click menu.
3. **Manual Switch:**
  - **Using Front Panel/ Remote:** To move to the previous screen, click the Left direction button.  
To move to the next screen, click the Right direction button.
  - **Using Mouse:** Select Next screen in right-click menu.
4. **Auto Switch:**
  - **Using Front Panel/Remote:** Click ENTER button.
  - **Using Mouse:** Select Start Sequence in right-click menu.
5. **Digital Zoom:**

- **Using Mouse:** Select Digital Zoom in right-click menu.
- 6. **Switch between Main and Aux Output:**
  - **Using Front Panel/Remote:** Click MAIN/AUX button.
  - **Using Mouse:** Select Aux Monitor/Main Monitor in right-click menu.

## Using the Mouse in Live View

Many features of the Live View can be quickly accessed by clicking the right-button of the mouse (shown in Figure 2). These features include:

- **Single Camera:** Switch to a full screen display of the selected camera. Camera can be selected from a drop down list.
- **Multi-Camera:** Switch between different display layout options. Layout options can be selected from a drop down list.
- **Next Screen:** When displaying less than the maximum number of cameras in Live View, clicking this feature will switch to the next set of displays.
- **Playback:** Enter into Playback mode.
- **PTZ:** Enter PTZ Control mode.
- **Digital Zoom:** Enter Digital Zoom interface.
- **Reboot Intelligent:** if the monitoring field changed, you may need to select this option to reboot intelligent library in order to activate the settings.
- **Menu:** Enter Main menu.
- **Start Auto-switch:** Enable sequencing in Live View mode.
- **Aux Monitor:** Enter Aux operation mode.

**Note:** The *dwell time* of the live view configuration should be set before using **Start Auto-switch**.

**Note:** If you enter Aux monitor mode and the Aux monitor is not connected, switch back to the Main output with the MAIN/AUX button on the front panel or remote.

**Note:** If the corresponding camera support intelligent function, the Reboot Intelligence option will be included when right-click mouse on this camera.



Figure 2. Live View Mouse Menu

---

## Using Digital Zoom

To use digital Zoom in Live View mode:

1. Right-click using the mouse in Live View mode.

2. Select Digital Zoom from Mouse menu.
3. Left-click and drag the red box to the desired area for zoom. The zoomed image will be magnified by 4X. A sample of this can be seen in Figure 3.



Figure 3. Digital Zoom

---

## Using an Aux Monitor

Certain features of the Live View are also available while using an Aux monitor. These features include:

- **Single Camera:** Switch to a full screen display of the selected camera. Camera can be selected from a drop down list.
- **Multi-Camera:** Switch between different display layout options. Layout options can be selected from a drop down list.
- **Next Screen:** When displaying less than the maximum number of cameras in Live View, clicking this feature will switch to the next set of displays.
- **Playback:** Enter into Playback mode.
- **PTZ:** Enter PTZ Control mode.
- **Main Monitor:** Enter Main operation mode.



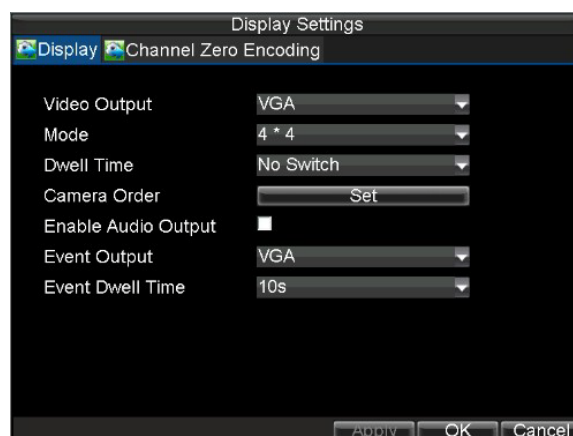
Figure 4. Aux Monitor Mouse Menu

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**Note:** Main menu operation's not available while in Aux monitor mode.

## Configuring Live View Displays

Live View displays can be customized to your own needs. These settings can be accessed by entering the Display Settings menu.



**Figure 5. Display Settings**

To access the Display Settings menu:

1. Click the MENU button.
2. Click the Setting icon.
3. Click the Display icon.
4. Select Display tab

The settings available in this menu include:

- **Video Output:** Designates the output to configure the settings for. Outputs include HDMI(depends on the model), VGA, Main and Aux composite video (CVBS).
- **Mode:** Designates the display mode to be use for Live View.
- **Dwell Time:** The time in seconds to *dwell* between switching of channels when **Start Sequence** is selected in Live View.
- **Camera Order:** The order of the cameras to be used in the selected display mode (See *Setting Camera Order*).
- **Enable Audio Output:** Enables/disable audio output for the selected video output.
- **Event Output:** Designates the output to show event video on.
- **Event Dwell Time:** The time in seconds to show event screen.

**Note:** DS-9000/9100-SH/RH and DS-9600 series DVR will automatically detect if a HDMI monitor or VGA monitor is connected. Only HDMI monitor can be activated if both HDMI and VGA ports are connected.

**Note:** When a HDMI display is connected to the DVR, the HDMI monitor will become the main output. All the Live View operations will be available. Main video (VIDEO OUT) is set as Aux control output, which supports PTZ Control, Playback, and Live View mode on it. The main audio (AUDIO OUT) is tied to the main video (VIDEO OUT), while Aux audio (AUDIO SPOT OUT) is tied to the HDMI video output.

**Note:** When a VGA display is connected to the DVR, the VGA monitor will become the main output. All the Live View operations will be available. Main video (VIDEO OUT) is set as Aux control output, which supports PTZ Control, Playback, and Live View mode on it. Aux video (VIDEO SPOT OUT) only allows Live View depending on configuration. The main audio (AUDIO OUT) is tied to the main video (VIDEO OUT), while Aux audio (AUDIO SPOT OUT) is tied to the VGA video output.

**Note:** When both HDMI and VGA display are not connected to the DVR, all the Live View operations will then become available to the main video output. The VIDEO SPOT OUT will be the Aux control output. Main audio will still be tied to main video while Aux audio will be tied to Aux CVBS video (VIDEO SPOT OUT).

**Note:** When the resolution of video output is set as the highest one, the intelligent and zero channel encoding features will be not available anymore.

## Setting Camera Order

Setting the camera order allows you to logically position cameras for more efficient monitoring of your own individual location.



**Figure 6. Camera Order Setting**

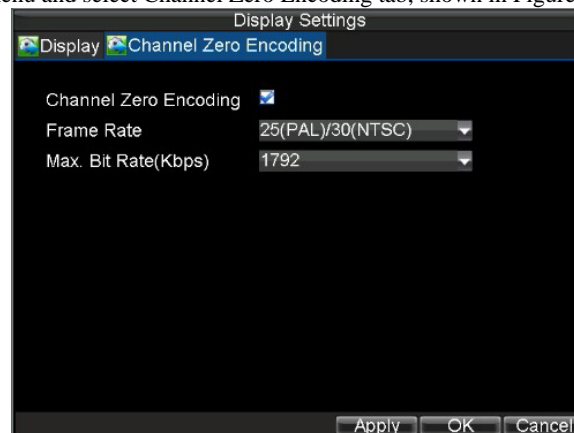
To set the camera order:

1. Enter the Display Settings menu, shown in Figure 6 (Menu > Settings > Display).
2. Click the Set button.
3. Select the display mode you would like to set the camera order for under **Mode**.
4. Using the up and down button at each display, select the camera you would like to set. Setting an 'X' will mean the camera will not be displayed.
5. Click the OK button.

## Channel Zero Encoding

Sometimes the user needs to remote view a lot of cameras simultaneously from web browser or CMS software, in order to decrease the bandwidth requirement in case that the image quality is not strictly required, zero channel encoding feature is supported as an option for users.

Enter the Display Settings menu and select Channel Zero Encoding tab, shown in Figure 7.



**Figure 7. Channel Zero Encoding**

The video source of channel zero is from video Aux output, the users are allowed to configure the video divisions, camera order and dwell time for channel zero.

**Note:** The channel zero does not support sub stream, only main stream is available.

# **C H A P T E R 4**

## **Record Settings**

# Configuring Settings for Recording

There are multiple ways to setup your DVR for recording. They include setting up a recording schedule, triggering a recording by motion detection and/or a sensor alarm, and manually starting the recording.

## Initializing Record Settings

Before setting your DVR up for recording, certain settings should be configured first. The steps to configuring these settings are:

1. If you have not initialized a HDD either through the Setup Wizard or through HDD management, you must do so before proceeding.
2. Navigate to Menu > Settings > Record. You will be taken to the Record Settings menu, shown in Figure 1.



Figure 1. General Record Settings

3. Select the camera you would to configure the settings for.
4. Configure settings for:
  - **Encoding Parameters:** Select the encoding parameters, Normal, Event or Sub stream.
  - **Stream Type:** Type of stream to record, either video or video and audio.
  - **Resolution:** Select the resolution of the recording. The options include 4CIF, DCIF, 2CIF, CIF, and QCIF.
  - **Bit Rate Type:** Select either Variable or Constant bit rate.
  - **Video Quality:** Select the quality to record cameras at.
  - **Frame Rate:** Select recordings frame rate.
  - **Max Bit Rate:** Select or define custom maximum bit rate for recordings.
5. Click the Set button under **More Settings**. This will bring up another menu with more advance recording options, as shown in Figure 2.



Figure 2. Additional Record Settings

6. Set additional record settings:
  - **Pre-record:** Sets the time in seconds to pre-record before the actual recording begins.
  - **Post-record:** Sets the time in seconds to post-record after the actual recording has ended.
  - **Recording Expired Time:** Sets the expiration time in days for recorded video. Recordings after expiration time would be deleted. If it's set to '0,' the option would be disabled.
  - **Redundantly Record:** Select to enable or disable redundant recording on the particular channel.
  - **Record Audio:** Select to record audio of the camera or not.
7. Click the OK button to finish and return to the previous menu.
8. Select the **Advanced** tab, this will open the Advanced settings menu, shown in Figure 3.
9. Enable or disable the **Overwrite** setting. Enabling the **Overwrite** setting will cause recorded files to be overwritten once the HDD is full.
10. Click Apply and then the OK button.

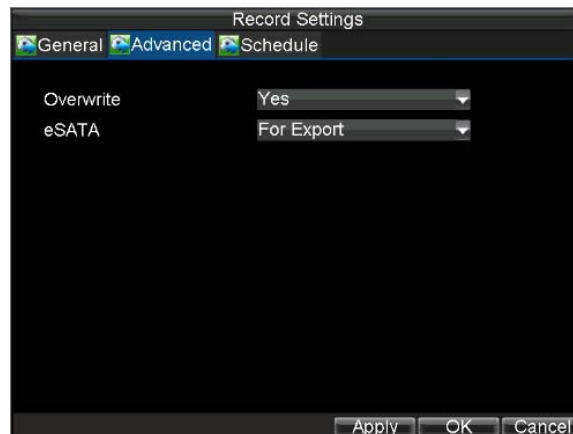


Figure 3. Advanced Record Settings

## Scheduling a Recording

Scheduling a recording allows you to setup the DVR to only record when you want it to. To setup a recording schedule:

1. Enter the Record Settings menu (Menu > Setting > Record).
2. Select the **Schedule** tab to open the Schedule menu, shown in Figure 4.





Figure 4. Schedule Settings

3. Select Camera to edit schedule for.
4. Click the Edit button.
5. Click and check **Enable Schedule**.
6. Select the day you would like to setup the schedule for or select All Week to record the entire week.
7. Select to record the entire day by clicking **All Day** or at different time periods. Up to 8 time periods can be scheduled. It is important to note that time periods cannot be overlapped.
8. Select recording **Type**. Recording type can be based on time and triggered by motion detection and/or alarm. Motion detected and alarm triggered recordings are further explained in *Configuring Alarms*.
9. Click the OK button to finish configuration.
10. Repeat steps 3-9 for other cameras or copy settings from one schedule to the next under the **Copy To** section.
11. Click OK to finish and save the schedule settings.

**Note:** **Event** encoding parameters will take effect when motion detection or alarm happens. **Normal** encoding parameters will take effect when there are no events happening.

## Starting a Manual Recording

A manual recording can be started at any time. To start a manual recording:

1. Press the REC/SHOT button on the front panel or in the Main menu to bring up the Manual Record menu (shown in Figure 5).

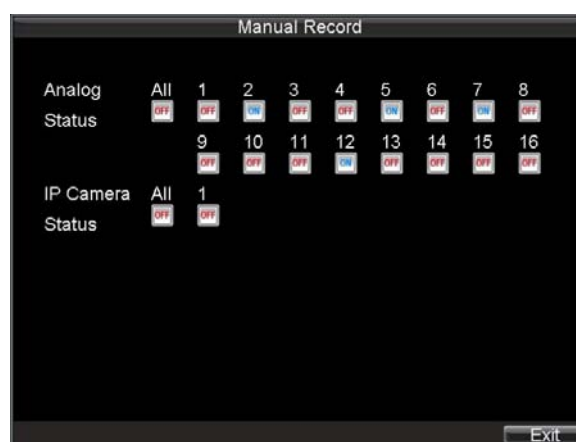


Figure 5. Manual Record Menu

2. Start manual recording by selecting On or Off for the cameras desired.

## Protecting Recorded Files

There are two methods to prevent recorded files from being deleted off the HDD. It's highly recommended that important recorded events be protected from deletion. Recorded files can either be *locked* or the HDD that the files reside on can be set to *read only*.

## Locking and Unlocking Recorded Files

To lock or unlock a recorded file:

1. Enter the Video Search menu by navigating to Menu > Video Search. The Video Search menu is shown in Figure 6.

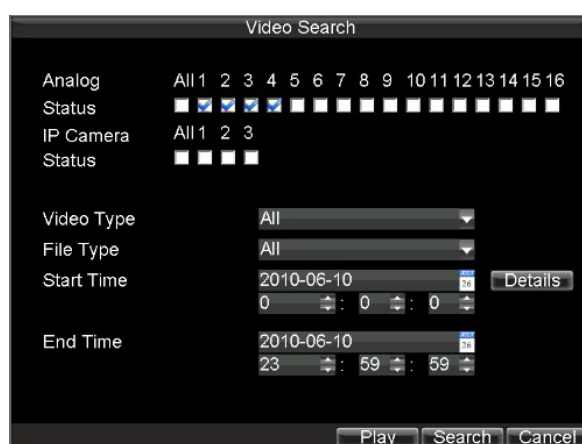


Figure 6. Video Search Menu

2. Search for desired recording by entering search parameters. Search parameters include Camera #, Video/File Type, and Start/End Time.
3. Click the Search button. A list of recordings (similar to Figure 7), matching the search parameters will be displayed.
4. Select the file you would like to lock/unlock.
5. Click on the lock icon to lock file. If the file is already locked, click on the lock icon again to unlock file. Locked files will be shown with a closed lock while unlocked files, opened lock.
6. Click Cancel to exit out of the Video Search menu.

<input checked="" type="checkbox"/>	Cam	HDC	Start Time	Stop Time	Size	Play	Loc
<input checked="" type="checkbox"/>	A1	5	2010-06-10 11:12:08	12:24:47	228,032KB		
<input checked="" type="checkbox"/>	A1	5	2010-06-10 12:24:47	13:08:43	137,584KB		
<input checked="" type="checkbox"/>	A1	5	2010-06-10 13:10:14	13:49:34	121,920KB		
<input checked="" type="checkbox"/>	A1	5	2010-06-10 13:49:34	15:13:32	259,345KB		
<input checked="" type="checkbox"/>	A1	5	2010-06-10 15:13:32	16:37:32	259,502KB		
<input checked="" type="checkbox"/>	A1	5	2010-06-10 16:37:32	16:43:29	18,388KB		
<input checked="" type="checkbox"/>	A2	5	2010-06-10 11:12:10	11:12:26	3,655KB		
<input checked="" type="checkbox"/>	A2	5	2010-06-10 11:12:41	11:13:25	9,887KB		
<input checked="" type="checkbox"/>	A2	5	2010-06-10 11:13:44	11:13:56	3,922KB		
<input checked="" type="checkbox"/>	A2	5	2010-06-10 11:14:06	11:14:18	4,031KB		
<input checked="" type="checkbox"/>	A2	5	2010-06-10 11:14:27	11:15:19	11,254KB		
<input checked="" type="checkbox"/>	A2	5	2010-06-10 11:15:28	11:15:40	3,826KB		
<input checked="" type="checkbox"/>	A2	5	2010-06-10 11:15:50	11:16:02	3,859KB		

Total Size: 5.84GB

Figure 7. Video Search Result List

## Setting HDD to Read-Only

To set a HDD to read-only:

1. Navigate to the HDD Management menu by going to Menu > HDD Management. The HDD Management menu is shown in Figure 8.

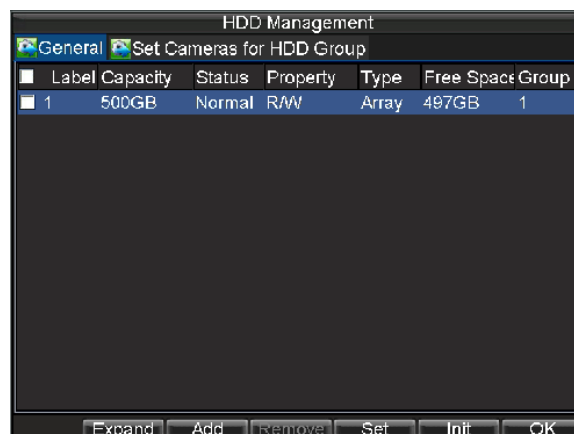


Figure 8. HDD Management Menu

2. Select the **General** tab.
3. Select the HDD to set to read-only.
4. Click the Set button. This will take you to the HDD Settings menu, shown in Figure 9.

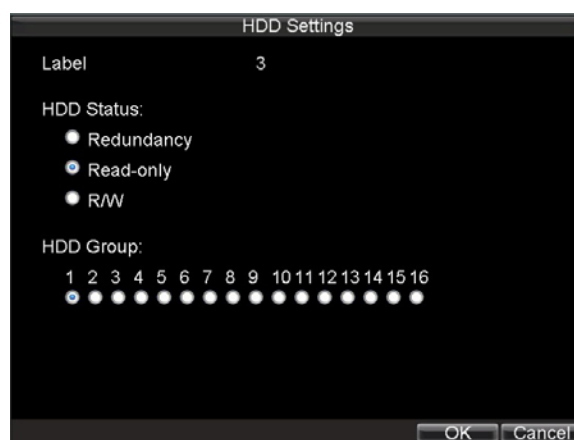


Figure 9. HDD Settings Menu

5. Set HDD to Read-Only.
6. Click the OK button. The HDD is now read-only.

**Note:** When a HDD is set to *read-only*, no more recordings can be written to the disk. In order to enable recordings on that particular disk again, you must set the HDD to R/W (Read/ Write) in the HDD Settings menu. If multiple HDDs are used, the DVR will automatically record to the next HDD that is not set to *read-only*.

# Configuring Advanced HDD Settings

## Setting up HDD Redundancy

To insure unexpected failures of hard disk drives, it's recommended to set up HDD redundancy. It is important to note that in order to set up HDD redundancy, you'll need more than one HDD in your DVR.

To set up HDD redundancy:

1. Navigate to the HDD Management menu by clicking Menu > HDD management.
2. Click on the **General** tab.
3. Select the HDD to be used for redundancy, as shown in Figure 10.



Figure 10. HDD Management Menu

4. Click the Set button. This will take you to the HDD Settings menu.
5. Set **HDD Status** to Redundancy, shown in Figure 11. Verify at least one other HDD is set to R/W (read/write).
6. Click the OK button to save settings and return to the previous menu.

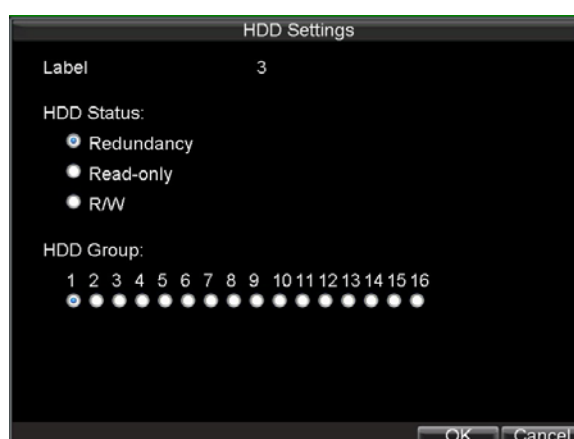


Figure 11. HDD Settings

7. Navigate to the Record Settings menu by clicking Menu > Settings > Record Setting.
8. Click on the **General** tab.
9. Select the **Camera** to be used for redundancy.
10. Next to **More Settings**, click on the Set button. This will bring up additional settings for the

selected camera (shown in Figure 12).



**Figure 12. Additional Record Settings**

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- 11.** Set **Redundantly Record** to Yes.
- 12.** Click the OK button to save settings.
- 13.** Repeat steps 8-12 for other cameras you would like to redundantly record.

# **C H A P T E R 5**

## **Playback**

## Playing Back a Recording

You must first search for recordings to play them back. There are multiple ways to search for recordings, including searching for them by time, by channel, by file type and by log.

### Understanding the Playback Interface

There are various controls on the Playback interface that makes viewing recordings more efficient. A screenshot of the Playback interface is shown below in Figure 1.



Figure 1. Playback Interface

The Playback Control Panel, shown in Figure 2 contains the various controls on the Playback interface.

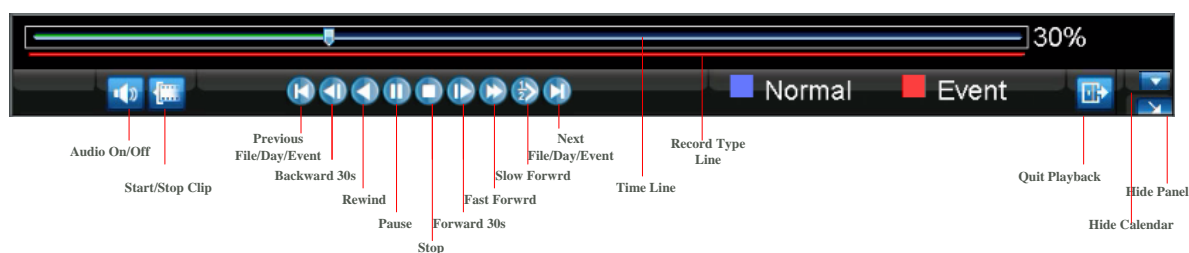


Figure 2. Playback Control Panel

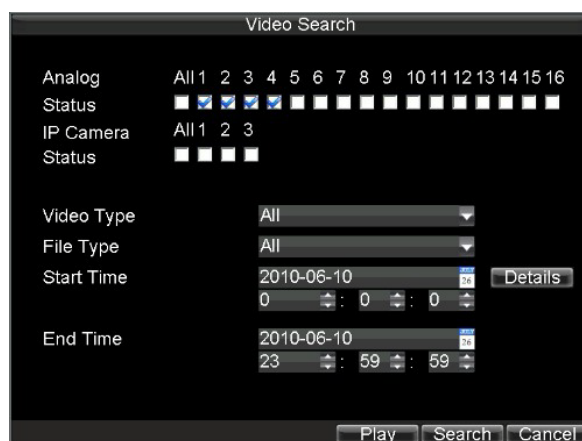
**Note:** A blue Record Time Line designates schedule/manual recording while a red one shows event recordings.

### Playing Back from General Video Search

To playback files from a general video search:

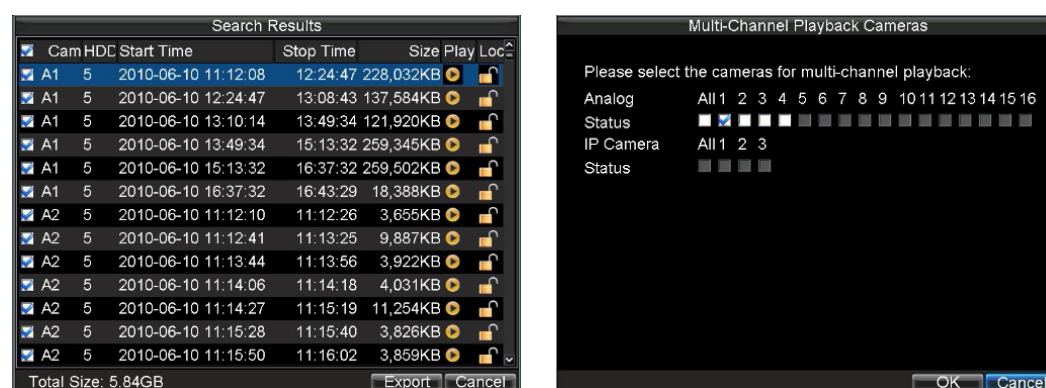
1. Enter into the Video Search menu by clicking Menu > Video Search.
2. Set the search parameters by selecting cameras to search, video/file type and the start/end time

(as shown in Figure 3).



**Figure 3. Video General Search Menu**

3. Click the Play button to start playback of all the files found with the specified search criteria or click the Search button to bring up the list of search results. After search results are presented, you can press play icon to enter multi-channel playback cameras selection, show in Figure 4.



**Figure 4. File and Channel Selection Menu**

4. When press OK, recordings will automatically be play backed in the Playback interface, shown in Figure 5.



**Figure 5. Playback Interface**



## Playing Back from Event Search

To playback files from a video event search:

1. Enter into the Video Search menu by clicking Menu > Event Search
2. Set the search parameters by selecting event type to search, alarm input/ channel and the start/end time (as shown in Figure 6).

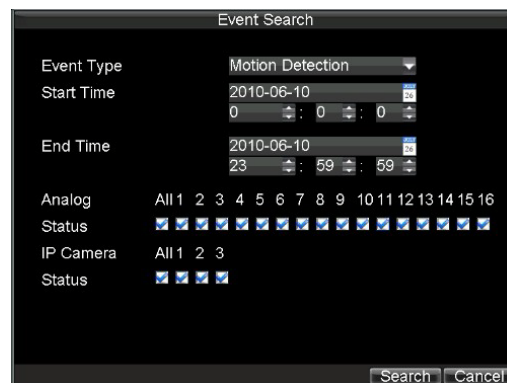


Figure 6. Video Event Search Menu

3. Click the Search button to start bring up the list of search results. After search results are presented, you can press play icon to playback the selected event, show in figure 7.



Figure 7. File Selection Menu

4. Recordings will automatically be play backed in the Playback interface, shown in Figure 8.



Figure 8. Playback Interface

## Playing Back from Live View

You may also instantly playback from a channel while watching a Live View. The playback will be of recordings from the past 5 minutes.

To playback from a channel instantly in Live View:

- **Using a Mouse:**

1. Right-click the mouse on desired channel and select the Playback button.
2. Recordings from the selected channel will start playing back in the Playback interface. An *Attention* message will appear if there are no recordings found from the previous 5 minutes. You may also press the Play button to view the day's recording for the selected channel.
3. You may also select additional channels for playback from the channel list on the right hand side of the Playback interface, as shown in Figure 9.



Figure 9. Playback Interface

- **Using the Front Panel/Remote:**

1. Press the PLAY button. This will take you into the Playback interface.
2. Enter the channel you would like to watch recordings for on the front panel or remote (i.e. press '11' for channel 11).
3. Recordings will begin for the selected channel.

## Playing Back from System Log

You may also playback recordings from the System Log.

To playback video from the System Log:

1. Enter the Log Search menu by clicking Menu > Maintenance > Log Search (shown in Figure 10).
2. Set **Start time** and **End Time**.
3. Click **Search** button, after search results are presented, select a log item and click **Play** button to playback the associated video directly. *Attention* message will appear if there is no video associated with the log.

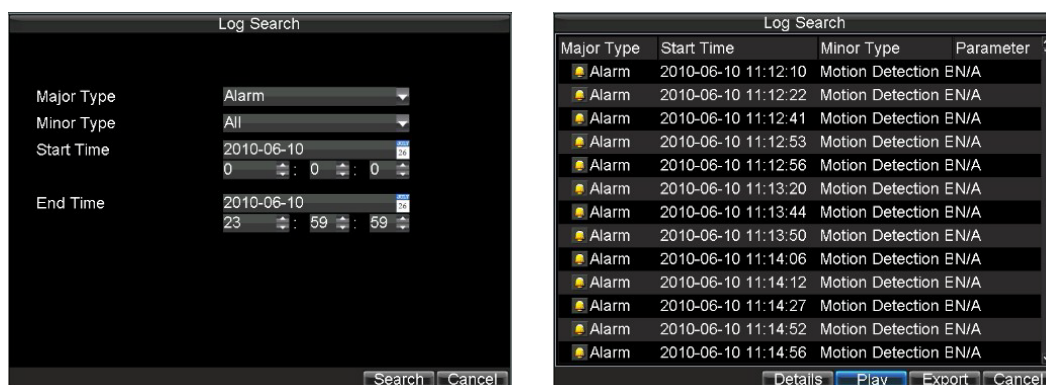


Figure 10. Log Search Menu

## Playing Back Frame-by-Frame

To playback frame-by-frame in the Playback interface:

- **Using a Mouse:**
  1. Click the Slow Forward button on the Playback Control Panel until the speed changes to *Single* frame.
  2. Click the Pause button to advance the video frame by frame.
- **Using the Front Panel/Remote:**
  1. Rotate the inner control on Jog Shuttle counterclockwise or press the Down button to set the play to *Single* frame.
  2. Press the OK button.
  3. Press the Enter button to advance the video frame by frame.

**Note:** For DS-9000/9100-SH/RH series and DS-9600 series DVR, the way to control play speed is a little different with DS-9000/9100-S series DVR, please refer to the front panel explanation in this manual for details.

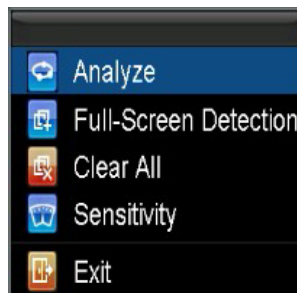
## Smart Search

In order to locate motion detection event easily and accurately in the playback progress line, the users are allowed to analyze a certain area (scene) dynamically, and to get all of the related motion detection events that occurred in this area.

**Note:** The smart search function is only available for analog channels.

To use dynamic analysis function:

1. Go to playback interface and play the video
2. Right-click mouse and select Dynamic Analysis to go to analysis area selection interface
3. You can left-click the mouse and drag an area for motion detection analysis, then right-click mouse you will get popped up menu.



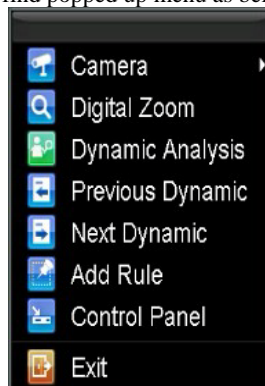
**Figure 11. Right-click menu when dynamic analysis**

4. Before selecting Analyze to start analysis, you also can select full-screen detection, configure the sensitivity level, etc.
5. You will go to playback interface with the result of smart search which is indicated by green line clips in the recording type line



**Figure 12. Playback time line after dynamic analysis**

6. Right-click mouse you will find popped up menu as below



**Figure 13. Right-click menu when playback**

You can select Dynamic Analysis to re-drag the analysis area and to re-analyze it, on the other hand, you can select Previous Dynamic to go to the previous event clip or Next Dynamic to go to the next event clip.

## Using Digital Zoom

To use digital zoom in Playback mode:

1. Enter Digital Zoom mode by right-clicking with the mouse in Playback and selecting Zoom.
2. Left-Click and drag red box for desired magnification area, as shown in Figure 14. The selected area will be zoomed to full screen.



**Figure 14. Digital Zoom Area Selection**

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## **C H A P T E R 6**

### **Backup**

# Backing up Recorded Files

Recorded files can be backed up to various devices, such as USB flash drives, USB HDDs, e-SATA or a DVD writer, and you may backup recorded files via normal Video Search or Event Search.

## Exporting Files

To export recorded files via Video Search:

1. Enter the Video Search menu (shown in Figure 1) by clicking Menu > Video Search.

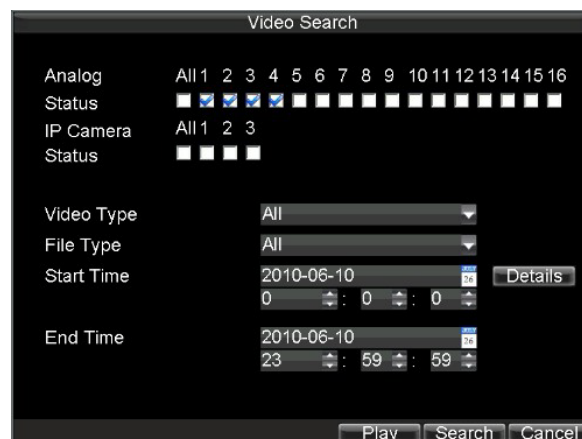


Figure 1. Video Search Menu

2. Select desired parameters to search for files to export.
3. Press the Search button. This will take you to the Search Results menu.
4. Select the files to export, as shown in Figure 2. You may also click the Play icon to verify that these files are indeed the ones you would like to export.

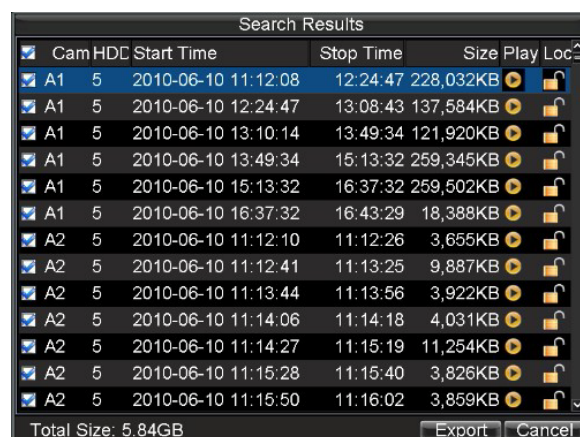


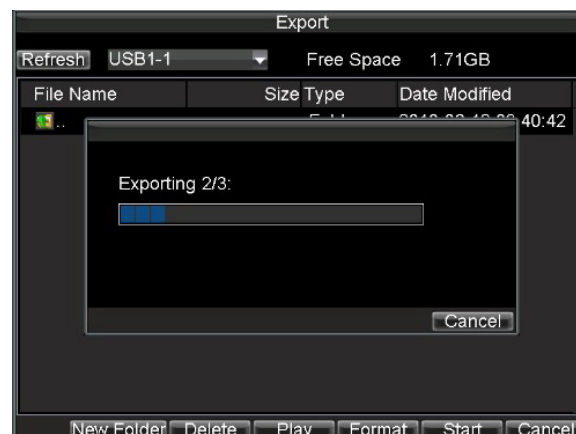
Figure 2. Video Search Results

5. The size of the currently selected files is displayed in the lower-left corner of the window. Select the Export button to enter the Export menu, shown in Figure 3.



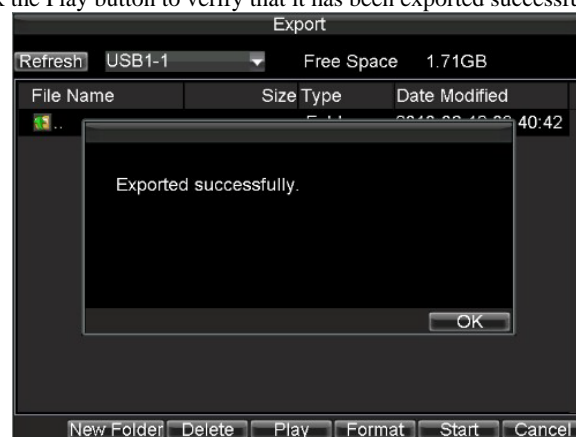
**Figure 3. Export Menu**

6. Select device to export to from drop-down list (USB Flash Drive, USB HDD, DVD Writer). If backup device is not recognized:
  - Click the Refresh button.
  - Reconnect device.
  - Check for compatibility from vendor.
7. Click Start to begin backup process, shown in Figure 4.



**Figure 4. Backup Progress**

8. After the backup process has completed (Figure 5), you may select the files from your device and click the Play button to verify that it has been exported successfully.



**Figure 5. Export Successful Screen**



**Note:** Video Player software will automatically be copied on to the device that the recorded files were exported on.

To export recorded files via Event Search:

1. Enter the Event Search menu (shown in Figure 6) by clicking Menu > Event Search

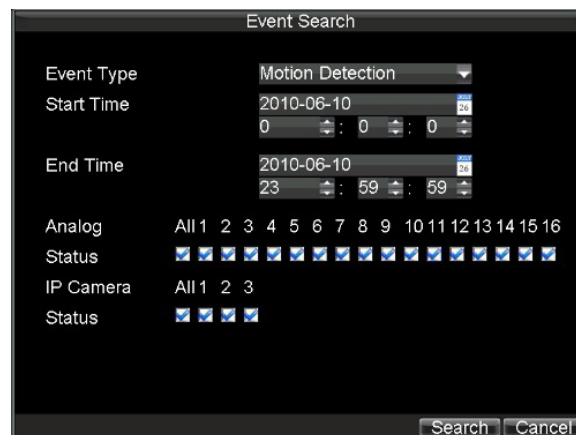


Figure 6. Event Search Menu

2. Set the search parameters by selecting event type to search, alarm input/ channel and the start/end time, then click Search button, this will take you to search results interface.



Figure 7. Event Search Results

3. Select the files to export, you may also click the Play icon to verify that these files are indeed the ones you would like to export.
4. Press Export button to enter Export menu, then you can export the files following the step 6 to step 8 as above explanation in this chapter.

## Exporting Video Clips

You may also select video clips to export directly during Playback. A maximum of 30 clips can be selected for each channel.

To export video clips during Playback:

- **Using the Mouse:**

1. Enter into the Playback interface (See *Playing Back a Recording*).
2. Using the Clip Start/Stop button in the Playback Control Panel, select the start and end of the

- video clip during playback.
3. Repeat for additional clips.
4. Click the Quit Playback button to exit from the Playback interface. You'll then be prompted to save the clips, as shown in Figure 8.



**Figure 8. Video Clips Save Prompt**

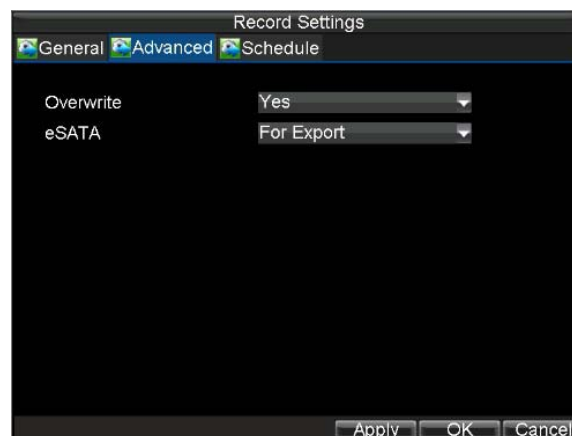
5. Click the Yes button to enter Backup interface or select No to exit to Playback interface.
6. At the Backup interface, select the Start button to begin the Backup process.
- **Using the Front Panel / Remote:**
  1. Enter into the Playback interface (See *Playing Back a Recording*).
  2. During playback, press the EDIT button to mark start of clip.
  3. Press the EDIT button again to mark end of clip.
  4. Repeat for additional clips.
  5. Press the ESC button to exit from the Playback interface. You'll then be prompted to save the clips, as shown in Figure 8.
  6. Click the Yes button to enter Backup interface or select No to exit to Playback interface.
  7. At the Backup interface, select the Start button to begin the Backup process.

## Exporting Files via e-SATA

DVR provides the e-SATA port on the rear panel as an option, you can back up the recorded files via e-SATA port by using external SATA disk.

To export recorded files via e-SATA:

1. Enter the Record Settings menu by clicking Menu > Settings > Record
2. Click Advanced tab, it will take you to the e-SATA property configuration, as shown in Figure 9, select For Export option in the drop-down list, the DVR will ask for reboot to take effect.



**Figure 9. E-SATA Property Settings**

3. You may go to recorded files export interface following the above explanation in section Exporting Files or Exporting Video Clips. The Export menu appears as shown in Figure 10.

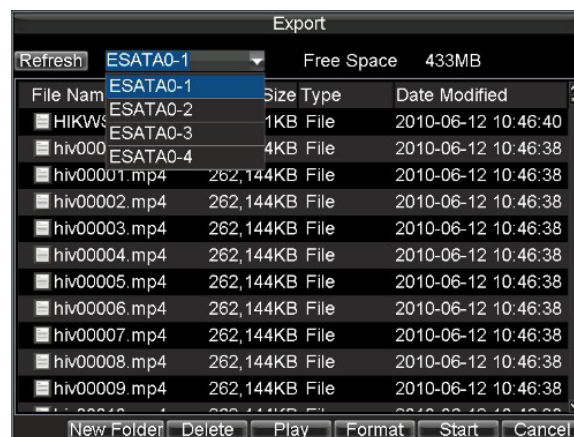


Figure 10. Files Export Interface

4. Select a partition in the drop-down list, then you may click Start to start exporting. Wait until the backup process complete.

## Managing Backup Devices

To manage backup devices, you must first be in the Export menu, shown in Figure 11. The Export menu can be accessed by following the steps shown in the previous section (See *Exporting Files*).



Figure 11. Export Menu

Once in the Export menu, you may:

- **New Folder:** Creates a new folder on the export device.
- **Delete:** Delete a file or folder from the export device.
- **Play:** Play the selected video file from the export device.
- **Format:** Format the export device.
- **Erase:** Erase files from a re-writable CD/DVD.

# **C H A P T E R 7**

## **Alarm Settings**

# Configuring Alarms

## Setting up Motion Detection

Set up properly, using motion detected recording will increase the number of days your DVR is able to record. It will only record relevant events rather than recording everything, making searching for an event easier.

To set up motion detection:

1. **Enter Camera Management/Setting:**

- **DS-9000/9600 Series DVR:** Enter the Camera Management interface, shown in Figure 1 by navigating to Menu > Setting > Camera. Select the channel to configure motion detection on and click Set.



Figure 1. Camera Management Interface

- **DS-9100 Series DVR:** Enter the Camera Settings interface by navigating to Menu > Setting > Camera. Select channel to configure motion detection on.

2. Select the **Advanced** tab to open up the Advanced Camera Settings menu, shown in Figure 2.

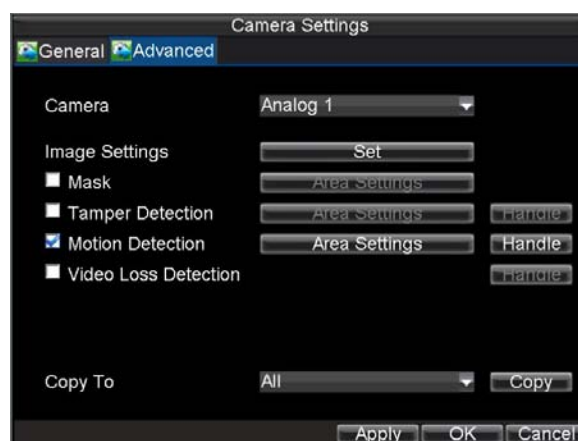


Figure 2. Advanced Camera Settings

3. Check the checkbox next to Video Motion Detection.
4. Click the Area Settings button to enter the Motion Detection area and Sensitivity configuration interface.
5. The Motion Detection area, shown in Figure 3, allows you to mask out areas where you would

like motion to be detected in. The maximum area is the whole screen. You can left click mouse, hold and drag it to mask the Motion Detection area. Using **EDIT** button and direction buttons can also help you to select Motion Detection area.



Figure 3. Motion Detection Area

6. Right click mouse or press **MENU** button on the front panel to set the Motion Detection Sensitivity, shown in Figure 4. The higher the sensitivity value, the higher the sensitivity. In order to configure a proper sensitivity for the surveillance field, you may select Highlight On in the right-click menu, and then all detected motion area in the camera will be marked with red highlight color.

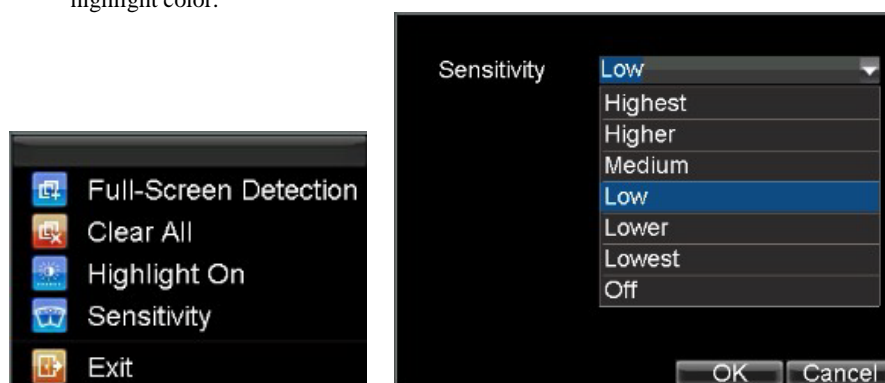


Figure 4. Motion Sensitivity Setting

7. Click OK to return to the Camera Settings menu.
8. Click the Handle button to open the Exception Handle menu, shown in Figure 5. Select the Triggered Camera tab.

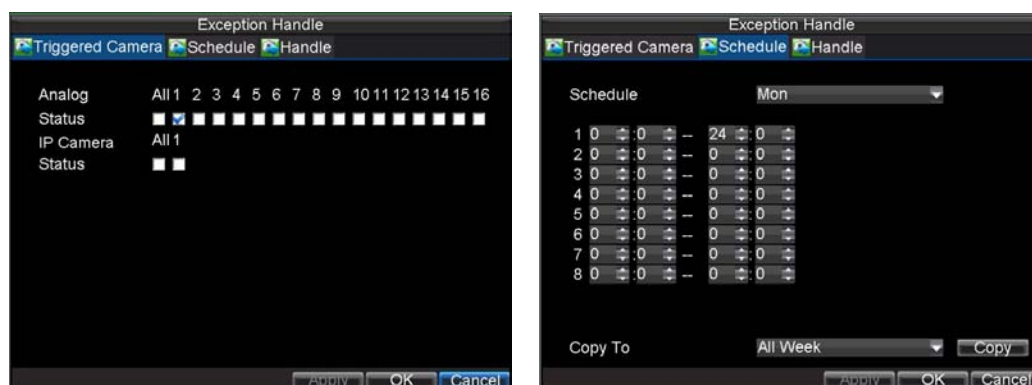


Figure 5. Exception Handle Menu

9. Select cameras to trigger for recording when motion is detected by checking the checkboxes under the desired cameras.
10. Select Schedule tab to set arm time, 8 periods can be set.
11. Click OK to complete motion settings for the selected camera.

You may now add a schedule to start recording when motion is detected (See *Scheduling a Recording*).

## Setting up Sensor Alarms

Recordings can also be triggered from an external sensor alarm device. To setup sensor alarms:

1. Enter into the Alarm Management menu, shown in Figure 6.

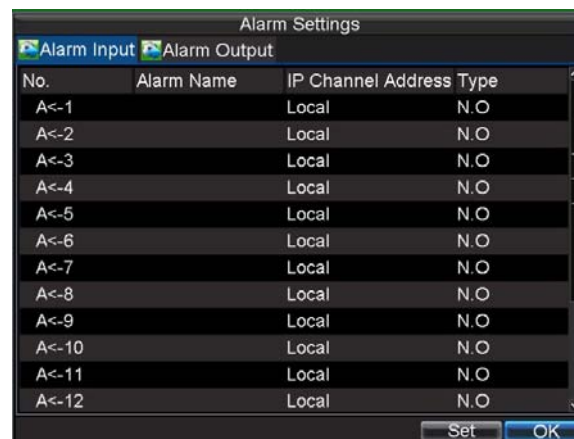


Figure 6. Alarm Management Menu

2. Select the **Alarm Input #** and click the Set button. This will open the Alarm Input Setting menu, shown in Figure 7.

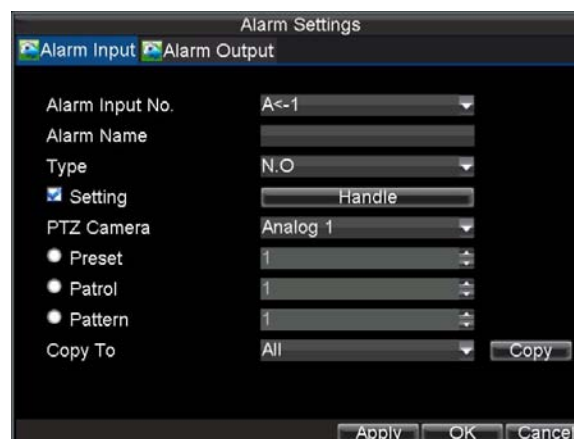


Figure 7. Alarm Management Settings

3. Set the alarm input type. The options available are Normally Opened (N.O.) and Normally Closed (N.C.).
4. Check the checkbox next to **Setting** and click the Handle button to enter the Alarm Input Handle menu.
5. Select the **Triggered Camera** tab.
6. Select cameras to trigger for recording when alarm occurs by checking the checkboxes under the desired cameras, as shown in Figure 8.

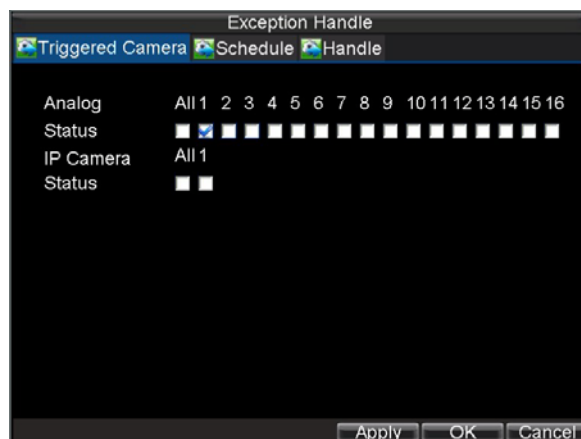


Figure 8. Triggered Cameras Menu

7. Click the OK button to complete setup.

You may now add a schedule to start recording when an alarm is triggered (See *Scheduling a Recording*). Alarm outputs may also be configured in the Alarm Management menu. To set up Alarm Output:

1. Select the **Alarm Output** tab. This will bring up the Alarm Output interface, shown in Figure 9.

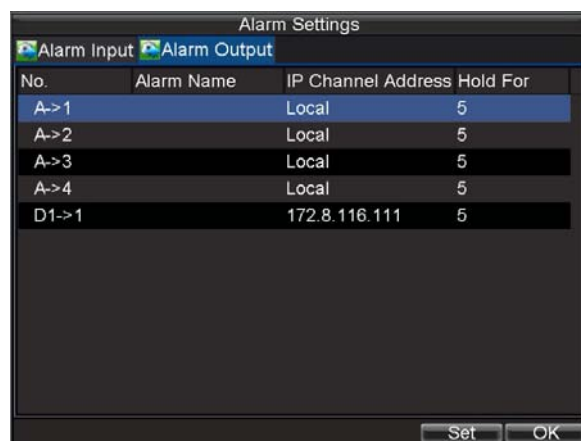


Figure 9. Alarm Output Interface

2. Select the output you would like to configure and click the Set button. This will bring up the settings page for the selected channel (Figure 10).

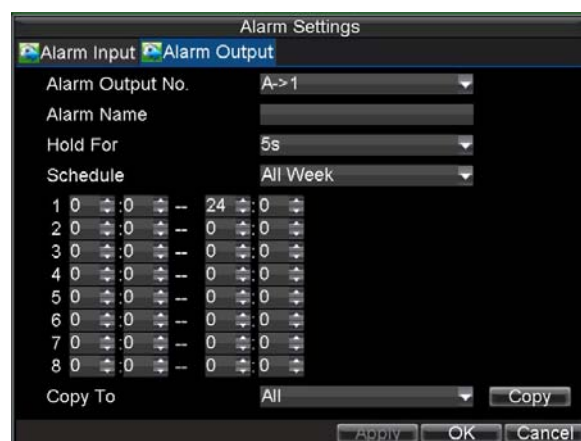


Figure 10. Alarm Output Settings



3. Configure the settings for selected output.
4. Select OK to save and exit.

**Note:** If the **Hold For** option is selected as *Manually Stop*, the alarm will only stop when you manually stop it (See *Triggering Alarm Outputs Manually*).

**Note:** Triggering an IP camera will require the necessary permissions from the camera.

## Triggering Alarm Outputs Manually

You may also trigger alarm outputs manually through the Manual Alarm menu.

To trigger alarm outputs manually:

1. Enter the Manual Alarm menu (Figure 11) by clicking Menu > Manual Alarm.

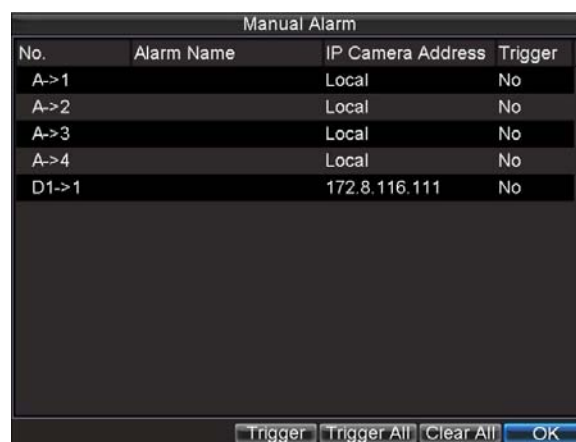


Figure 11. Manual Alarm Menu

2. In the Manual Alarm menu, you may:
  - **Trigger:** Select an alarm from the list and click Trigger to trigger its output.
  - **Trigger All:** Trigger all alarm outputs at once.
  - **Clear All:** Stop all alarm outputs at once.
3. Select OK to return to the previous menu.

## Detecting Video Loss

Your DVR can be setup to detect video loss and trigger an action. To setup video loss detection:

1. Enter Camera Management/Settings menu (Figure 12) by clicking Menu > Setting > Camera.



Figure 12. Camera Management Menu of DS-9000

2. Select camera under **Channel #** to configure video loss detection for and click the Set button. (DS- 9100 series DVR will directly enter Camera Settings menu when click Camera icon.)
3. Select the **Advanced** tab.
4. Check the **Video Loss Detection** checkbox to enable feature, as shown in Figure 13.

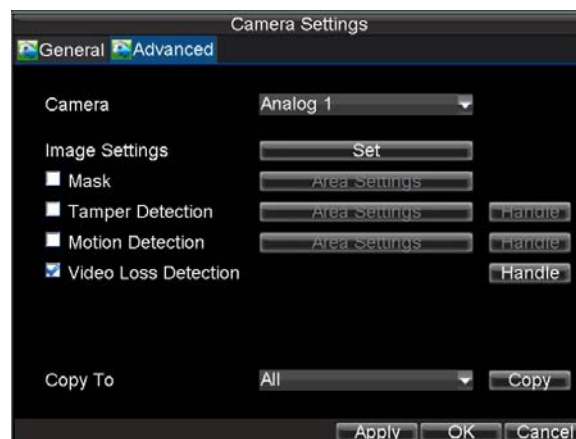


Figure 13. Camera Settings Menu

5. Click the Handle button to enter the Exception Handle menu, shown in Figure 14.
6. Select the **Handle** tab to configure exceptions handling. Exception trigger options are further explained in the next section (See *Understanding Exception Trigger Options*).



Figure 14. Exception Handle Menu

7. Select the **Schedule** tab. Set the schedule of when you want video loss detection to be enabled. Schedule can be set for all week or any day of the week with up to 8 time periods per day.
8. Click the Apply button to finish settings.
9. Repeat above for other channels.

## Detecting Video Tampering

Video tampering (i.e. moving camera to a different position) can also be detected and set to trigger an action on your DVR. To setup video tampering detection:

1. Enter Camera Management/Settings menu (Figure 15) by clicking Menu > Setting > Camera.

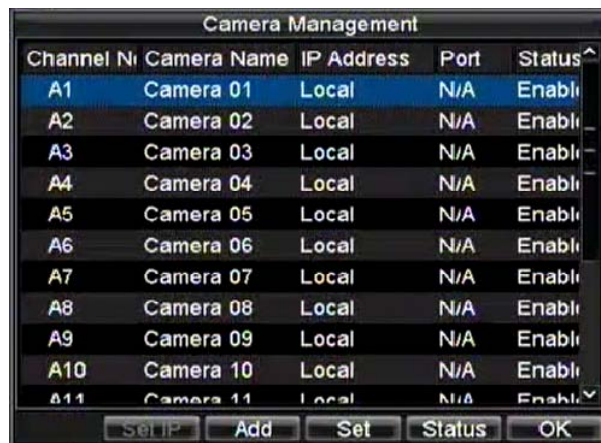


Figure 15. Camera Management Menu

2. Select camera under **Channel #** to configure video loss detection for and click the Set button.
3. Select the **Advanced** tab.
4. Check the **Tamper Detection** checkbox, as shown in Figure 16.

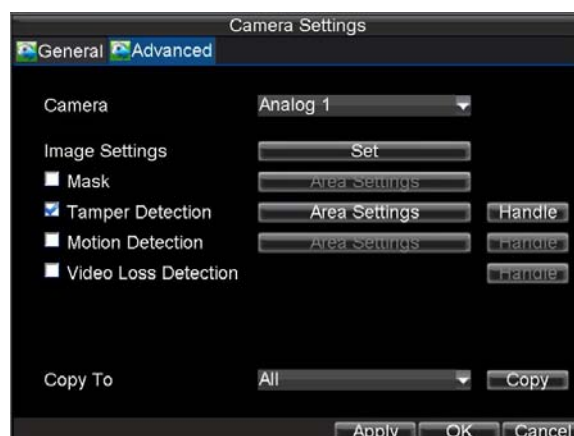


Figure 16. Camera Settings Menu

5. Click the Area Settings button to enter the area setup.
6. Setup tampering area, as shown in Figure 17. Only one tampering area can be set, with the full screen being the maximum area.



Figure 17. Tampering Area etup

7. Right click the mouse to set detection sensitivity. There are three options: Low, Medium and High.
8. Click OK to return to the Camera Settings menu.
9. Click the Handle button to enter the Exception Handle menu, shown in Figure 18.
10. Select the **Handle** tab to configure exceptions handling. Exception trigger options are further explained in the next section (See *Understanding Exception Trigger Options*).

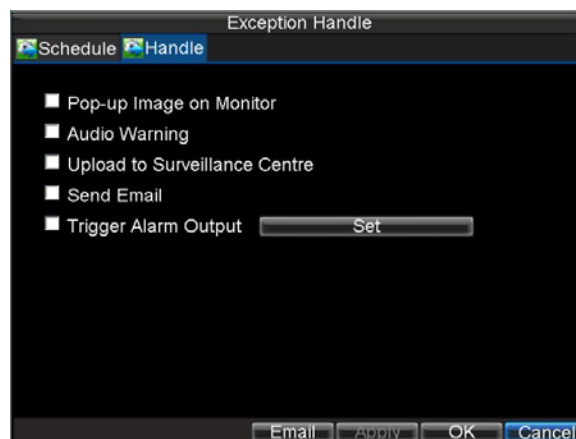


Figure 18. Exception Handle Menu

11. Select the **Schedule** tab. Set the schedule of when you want video loss detection to be enabled. Schedule can be set for all week or any day of the week with up to 8 time periods per day.
12. Click the Apply button to finish settings.
13. Repeat above for other channels.

## Setting Exception

Setting exceptions allow the DVR to alert you when irregular events occur. These events include:

- **HDD Full:** All installed HDD are full.
- **HDD Errors:** Errors occurred during writing of the HDD, no HDD installed or HDD had failed to initialize.
- **Network Disconnected:** Disconnected network cable.
- **IP Conflict:** Conflict in IP address setting.
- **Illegal Access:** Wrong user ID or password used.
- **Video Exception:** Instable video signal detected.
- **Video Output Standard Mismatch:** I/O video standards do not match.
- **Abnormal Recording:** No recording HDD.

To set exceptions:

1. Enter the Exception menu by clicking Menu > Settings>Exception.
2. Select the exception to configure under **Exception Type**.
3. Select triggering options, as shown in Figure 19. Trigger options are further explained in the next section (See *Understanding Exception Trigger Options*).



Figure 19. Exception Menu

4. Click OK to save and exit Exception menu.

## Understanding Exception Trigger Options

When setting up exception handlers for such features as motion detection and sensor alarms, you may select triggering options to alert you of these exceptions.

The triggering options that you may select include:

- **Pop-up Image on Monitor:** When an alarm is triggered, the local monitor (VGA or BNC monitor) will display an image under Live View mode. This alarm can be configured under the Popup Alarm Image handle method. For alarms that are triggered simultaneously, images will be displayed one at a time every 10 seconds (default dwell time). A different dwell time can be set by going to Menu > Settings > Display > Dwell Time. Once the alarm stops, cycling of the images will also stop and you'll be returned to the Live View screen.
- **Audio Warning:** Trigger an audible *beep* when exception is detected.
- **Notify Surveillance Center:** Sends a signal to remote alarm host when exception is detected (See *Configuring a Remote Alarm Host*).
- **Trigger Alarm Output:** Trigger an alarm output when exception is detected. Alarm output can be configured by following the steps listed in *Setting Up Sensor Alarms*.
- **Send Email:** Sending email when exception is detected. Sending email can be configured by following the steps listed in *Configuring E-mail Settings*.

## Intelligent Analysis

Intelligent analysis module is an option and available only for DS-9000/9100HFI-RH DVR. Before use, you may need to install the intelligent board(iDS-90xxE/B) to the slot of DVR's mainboard. The resolution of HDMI will decrease to 1024×768 automatically when the intelligent module is activated, the Intelligent menu will appear in Settings as well, Shown in Figure 20.



Figure 20. Intelligent Settings

**Note:** The intelligent analysis function is only available for analog cameras.

## Intelligent Settings

To set the intelligent functions:

1. Enter the Intelligent Settings interface by clicking Menu > Settings > Intelligent, shown in Figure 21.

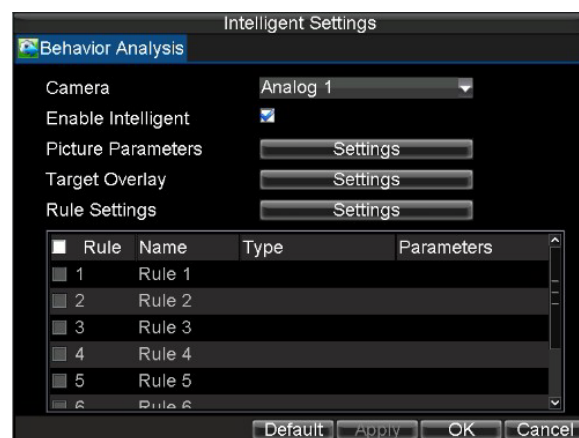
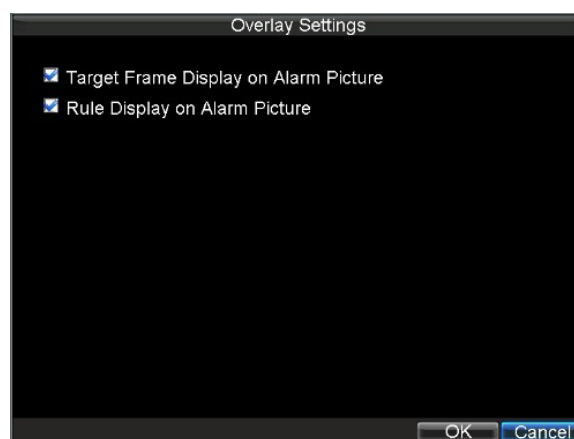


Figure 21. Intelligent Settings Menu

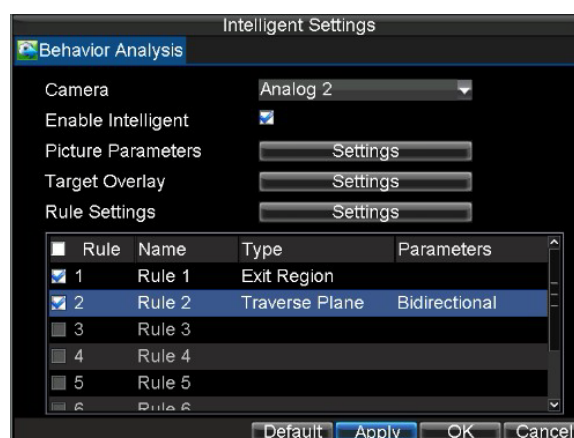
2. Select the camera you want to set intelligent function on and check the Enable Intelligent checkbox.
3. If the DVR should be able to capture and upload JPEG picture that triggered by intelligent alarm, you need to enter Settings for Picture Parameters, shown in Figure 22, check the Upload Pictures checkbox and select image quality in the Quality drop-down list.

**Figure 22. Picture Settings**

4. To set the rule display status on image, you need to enter Overlay Settings by clicking Settings for Target Overlay, shown in Figure 23.

**Figure 23. Overlay Settings**

5. Set one or more rules for this camera in Rule Settings menu, then check the checkbox of available rules to include them in the rule list, shown in Figure 24, click Apply button to get the settings done.

**Figure 24. Include the Rules to list**

## Rule Settings

Maximum eight rules can be included for one channel and users are allowed to choose rule from following types: Traverse Plane, Enter Region, Exit Region, Invasion, Loiter, Left Take, Parking, Run and High Density.

To set rules for camera:

1. Enter the Intelligent Settings interface by clicking Menu > Settings > Intelligent > Rule Settings, shown in Figure 25.



Figure 25. Rule Settings

2. Select a Rule No. and you can set Rule Name accordingly.
3. Select a desired type in the drop-down list of Rule Type, the settings of Rule Parameters may become available depends on the rule type you configured.
4. For each rule, you may need to set an activated region. Region Settings are further explained in the next section.
5. Enter Handle settings menu, as shown in Figure 26, select Triggered Camera tab.

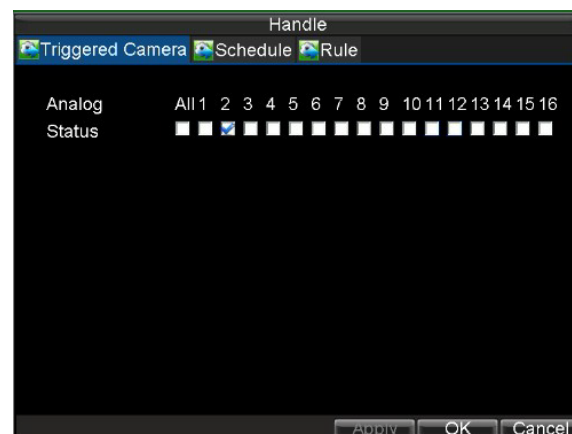


Figure 26. Rule Handle Menu

6. Select cameras to trigger for recording or actions when alarm occurs by checking the checkboxes under the desired cameras.
7. Click Schedule tab to set the activated schedule for this rule, there are two time segments can be set.
8. Select Rule tab to configure alarm handling.

**Note:** for the polygon region settings, minimum three edges should be drawn, and maximum ten edges can be drawn.



Region settings for Traverse Plane:

1. In the Rule Settings menu, select rule type as Traverse Plane, and choose a desired direction type, there are three available options including: Bidirectional, From Left to Right and From Right to Left.
2. Enter Region Settings, left-click mouse to draw the line, left-click mouse to determine the terminals, shown in Figure 27, DVR will detect and analyze if the object crosses the line in wrong direction.



**Figure 27. Region settings for Traverse Plane**

---

3. Right-click mouse and select Finish to complete settings.

Region settings for Enter Region or Exit Region:

1. In the Rule Settings menu, select rule type as Enter Region or Exit Region.
2. Enter Region Settings, left-click mouse to draw the specific monitoring field, it supports polygon, shown in Figure 28. DVR will detect and analyze if there is object enter into or exit from this filed.



**Figure 28. Region settings for Enter Region or Exit Region**

---

3. Right-click mouse and select Finish to complete settings.

Region settings for Invasion:

1. In the Rule Settings menu, select rule type as Invasion, and enter a duration time, the DVR will give information if an object intrude this specific filed and the duration is longer than the value you set.
2. Enter Region Settings, left-click mouse to draw the specific monitoring field, it supports polygon, shown in Figure 29. DVR will detect and analyze if there is object enter into or exit from this filed.



**Figure 29. Region settings for Invasion**

---

3. Right-click mouse and select Finish to complete settings.

Region settings for Loiter:

1. In the Rule Settings menu, select rule type as Loiter, and enter a duration time, the DVR will give information if an object loiter in the specific filed and the duration is longer than the value you set.
2. Enter Region Settings, left-click mouse to draw the specific monitoring field, shown in Figure 28.
3. Right-click mouse and select Finish to complete settings.

Region settings for Left Take:

1. In the Rule Settings menu, select rule type as Left Take, and enter a duration time, the DVR will give information if an object is left in or taken away from the specific filed.
2. Enter Region Settings, left-click mouse to draw the specific monitoring field, shown in Figure 30.



**Figure 30. Region settings for Left Take**

---

3. Right-click mouse and select Finish to complete settings.

Region settings for Parking:

1. In the Rule Settings menu, select rule type as Parking, and enter a duration time, the DVR will give information if a vehicle is parked in the specific filed.
2. Enter Region Settings, left-click mouse to draw the specific monitoring field, shown in Figure 31.



**Figure 31. Region settings for Parking**

---

3. Right-click mouse and select Finish to complete settings.

Region settings for Run:

1. In the Rule Settings menu, select rule type as Run.
2. Set a value for Distance(%) , the DVR will give information if speed of moving object dramatically increase accordingly to the value you set.
3. Enter Region Settings, left-click mouse to draw the specific monitoring field.
4. Right-click mouse and select Finish to complete region settings

Region settings for Run:

1. In the Rule Settings menu, select rule type as High Density.
2. Set a value for Density(%) , the DVR will give information if there are objects fill up the monitoring field accordingly to the value you set.
3. Enter Region Settings, left-click mouse to draw the specific monitoring field, shown in Figure 32.



**Figure 32. Region settings for Parking**

---

4. Right-click mouse and select Finish to complete region settings.

# **C H A P T E R 8**

## **Network Settings**

# Configuring Network Settings

Network settings must be configured before you're able to use your DVR over the network.

## Configuring Basic Settings

To configure basic network settings:

1. Enter the Network Settings menu, shown in Figure 1 by clicking Menu > Settings > Network.

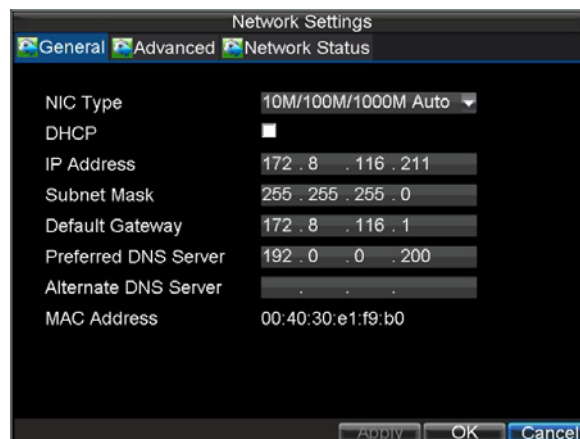


Figure 1. Network Settings Menu

2. Select the **General** tab.
3. If you have a DHCP server running and would like your DVR to automatically obtain an IP address and other network settings from that server, check the **DHCP** checkbox. You may check the DHCP status by going to the **Network Status** tab, as shown in Figure 2.

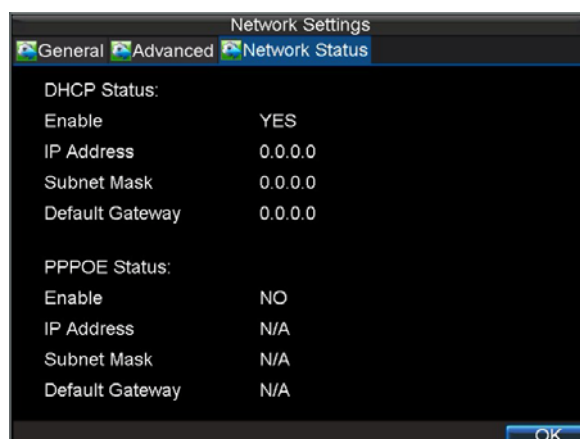


Figure 2. Network Status

4. If you would like to configure your own settings, enter the settings for:
  - **IP Address:** IP address you would like to use for your DVR.
  - **Subnet Mask:** Subnet Mask of network.
  - **Default Gateway:** IP address of your Gateway. Typically the IP address of your router.
  - **Preferred/Alternate DNS Server:** The preferred and alternate Domain Name System (DNS)

- Server to be used with your DVR.
5. Click OK to save and exit the Network Settings menu.

## Configuring PPPoE Settings

Your DVR also allows for Point-to-Point Protocol over Ethernet (PPPoE) access. To set up PPPoE access:

1. Enter the Network Settings menu by clicking Menu > Settings > Network.
2. Select the **General** tab, as shown in Figure 3.

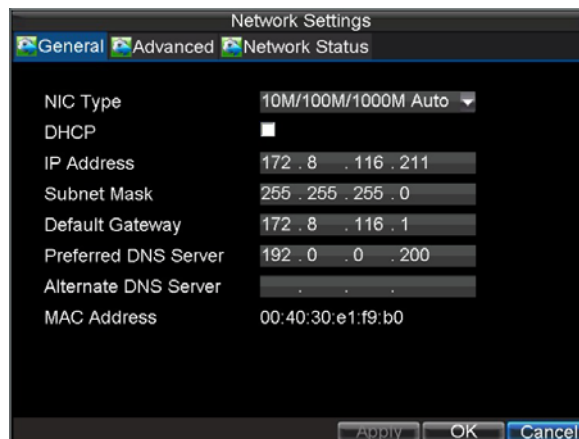


Figure 3. Network Settings Menu

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3. Select the **Advanced** tab. This will take you to the advanced network settings menu, shown in Figure 4.

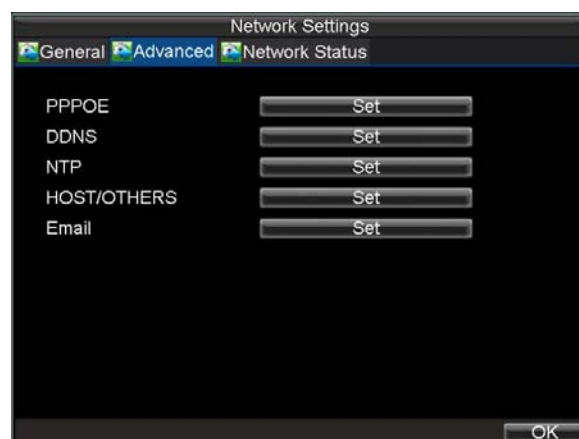


Figure 4. Advanced Network Settings

---

4. Click the Set button next to **PPPoE** to enter PPPoE settings menu, shown in Figure 5.

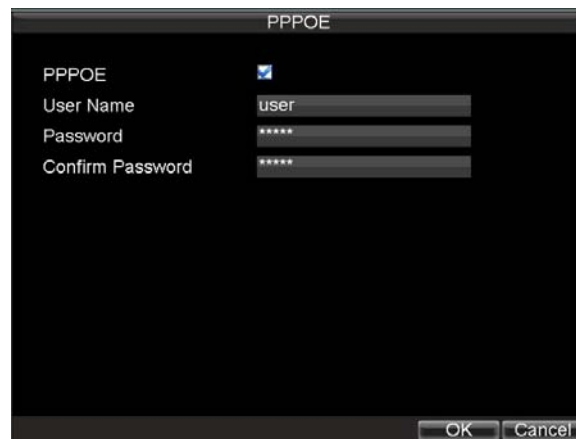


Figure 5. PPPoE Settings

5. Check the **PPPoE** checkbox to enable feature.
6. Enter **User Name**, **Password**, and **Confirm Password** for PPPoE access. PPPoE credentials can be obtained from your network administrator. Once the setup is completed, your DVR will automatically *dial-up* into your network after rebooting.
7. Click OK button to save and exit Network Settings menu. You may be now asked to restart your DVR for settings to take place. To check on the status of your PPPoE connection, go to Menu > Settings > Network and select the **Network Status** tab.

## Configuring DDNS

If your DVR is setup to use PPPoE as its default network connection, you may setup Dynamic DNS (DDNS) to be used in conjunction.

To setup DDNS:

1. Enter the Network Settings menu by clicking Menu > Settings > Network.
2. Select the **Advanced** tab.
3. Select the Set button next to **DDNS** to enter the DDNS settings menu, shown in Figure 6.



Figure 6. DDNS Settings Menu

4. Check the **DDNS** checkbox to enable feature.
5. Select **DDNS Type**. There are three different DDNS type to choose from, IpServer, PeanutHull, DynDNS and NO-IP.
  - **IpServer:** Enter **Server Address** for IpServer.
  - **PeanutHull:** Enter **User Name** and **Password** obtained from the PeanutHull website

(Figure 6).

- **DynDNS:** Enter **Server Address** for DynDNS (i.e. members.dyndns.org) (Figure 7). Under DVR Domain Name, enter the domain obtained from the DynDNS web site. Lastly, enter the **User Name** and **Password** registered in the DynDNS network.
- **NO-IP:** Enter the account information in the corresponding fields. Refer to the Dyndns settings.

Figure 7. DynDNS Settings

## Configuring an NTP Server

A Network Time Protocol (NTP) Server may also be setup on your DVR to keep the date and time current and accurate.

To setup an NTP server:

1. Enter the Network Settings menu by clicking Menu > Settings > Network.
2. Select the **Advanced** tab.
3. Select the Set button next to **NTP** to enter the NTP settings menu, as shown in Figure 8.

Figure 8. NTP Settings Menu

4. Check the **NTP** checkbox to enable feature.
5. Set NTP settings:
  - **Synchronize Every:** Time in minutes to synchronize with NTP server.
  - **NTP Server:** IP address of NTP server.
  - **NTP Port:** Port of NTP server.
6. Click OK to save and exit menu.



**Note:** Time synchronization interval has a range of 0-10080min, normally 60min. If the DVR is used on a public network, you should use a NTP server that has a time synchronization function, such as the server at the National Time Center (IP Address: 210.72.145.44). If the DVR is setup in a more customized network, NTP software can be used to establish a NTP server used for time synchronization.

## Configuring a Remote Alarm Host

With a remote alarm host set, the DVR will send a signal to the host when an alarm is triggered. The remote alarm host must have the Network Video Surveillance software installed.

To set up a remote alarm host:

1. Enter Network settings menu by clicking Menu > Settings > Network.
2. Select the **Advanced** tab.
3. Click the Set button next to **Host/Others** to enter the Host/Others menu, as shown in Figure 9.

Figure 9. Host/Others Menu

4. Enter **Alarm Host IP** and **Alarm Host Port**. Alarm Host IP is the IP of the remote PC which has the Network Video Surveillance software installed. The Alarm Host Port must be the same as software's alarm monitor port (default port is 7200).

## Configuring Multicast

Setting up multicasting solves limitation issues when streaming videos through a network access device. A multicast address spans the Class-D IP range of 224.0.0.0 to 239.255.255.255. It is suggested that the IP address range of 239.252.0.0 to 239.255.255.255 be used.

To set up multicasting:

1. Enter the Network Settings menu by clicking Menu > Settings > Network.
2. Select the **Advanced** tab.
3. Click the Set button next to **Host/Others** to enter the Host/Others menu.
4. Set **Multicast IP**, as shown in Figure 10. When adding a device to the Network Video Surveillance software, the multicast address must be the same as the DVR's multicast IP.

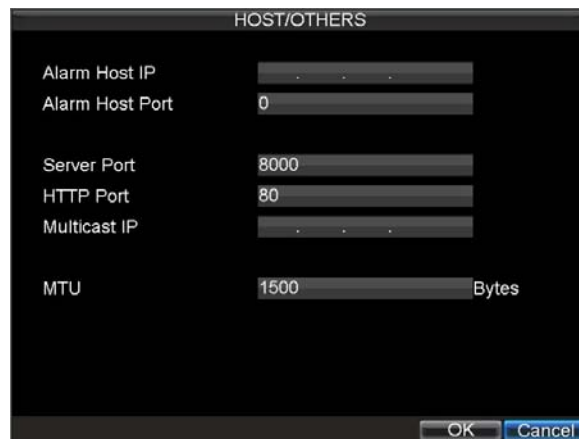


Figure 10. Host/Others Menu

5. Click OK to save and exit menu.

## Configuring MTU

MTU is the abbreviation of Maximum Transmission Unit. Unit is represented by bytes.

To change MTU:

1. Enter the Network Settings menu by clicking Menu > Settings > Network.
2. Select the **Advanced** tab.
3. Click the Set button next to **Host/Others** to enter the Host/Others menu.
4. Enter new **MTU** for this device, as shown in Figure 11.

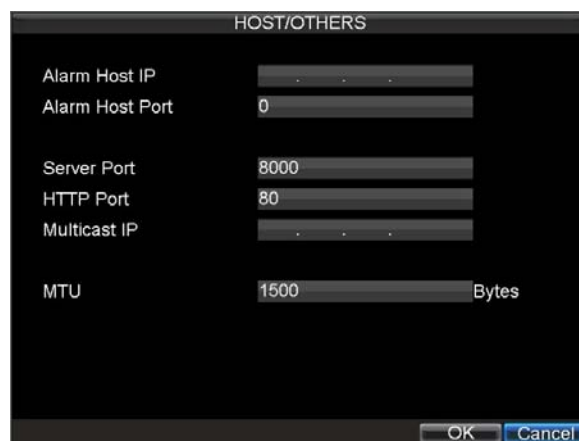


Figure 11. Host/Others Menu

**Note:** The virtual value of MTU is from 500 to 9676.

## Configuring Server and HTTP Ports

If you would like to change the server and HTTP ports from the default settings, you can do so in the Network Settings menu. The default server port is 8000 while the default HTTP port is 80.

To change the default ports:

1. Enter the Network Settings menu by clicking Menu > Settings > Network.
2. Select the **Advanced** tab.
3. Click the Set button next to **Host/Others** to enter the Host/Others menu.
4. Enter new **Server Port** and **HTTP Port**, as shown in Figure 12.

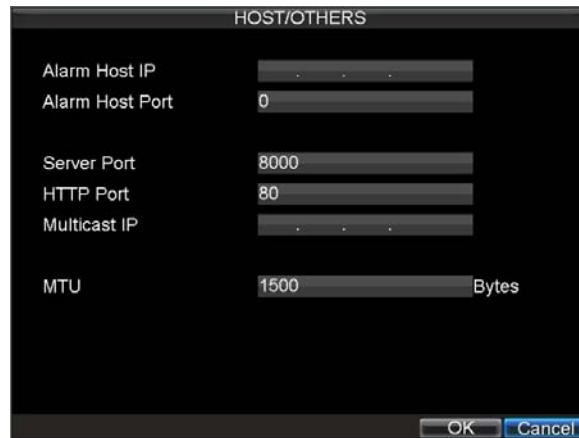


Figure 12. Host/Others Menu

**Note:** The Server Port has a port range of 2000-65535 and is used for remote client software access. The HTTP port is used for remote internet browser access.

## Configuring E-mail Settings

To configure E-mail settings:

1. Enter the Network Settings menu by clicking Menu > Settings > Network.
2. Select the **Advanced** tab.
3. Click the Set button next to **E-mail** to enter the E-mail menu. The E-mail menu is shown in Figure 13.

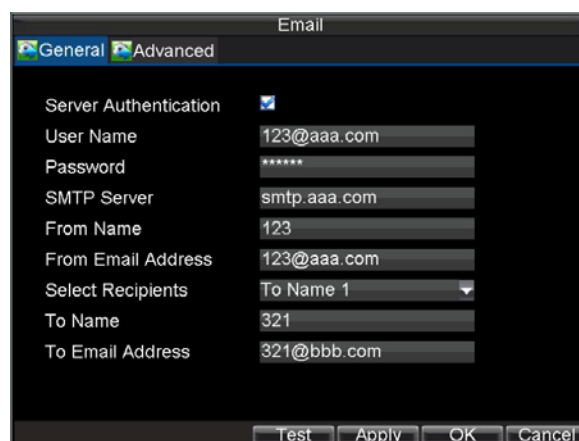


Figure 13. E-mail Menu

4. Enter e-mail settings. Please refer to Figure 13 for details.
5. Click the Test button to test e-mail settings.
6. Select **Advanced** tab to enable **Attached JPEG File** if you want to send email with alarm images, the interval is the time of two adjacent alarm images. You can also set SMTP port and enable SSL here.

- Click the OK button to save and exit the E-mail menu.

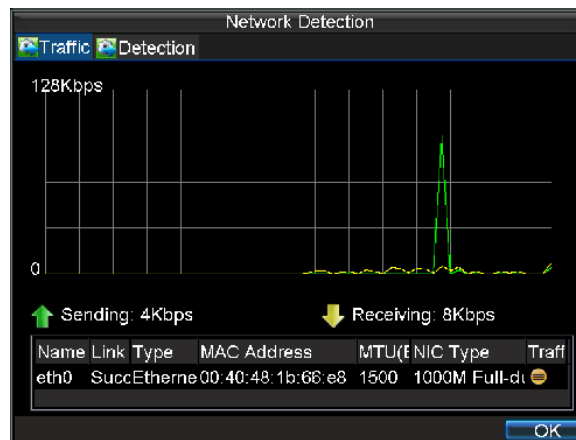
**Note:** It is recommended that the e-mail settings be tested after they are entered. This can be accomplished by clicking the Test button in the E-mail menu.

## Viewing Network Traffic

You can view the network traffic to obtain real-time information of DVR such as linking status, MTU, sending/receiving rate, etc.

To view network traffic:

- Enter the Network Traffic interface by clicking Menu > Maintenance > Network Detection.



**Figure 14. Network Traffic Interface**

- You can view the sending rate and receiving rate information on the interface. The traffic data is refreshed every 1 second.

## Configuring Network Detection

You can obtain network connecting status of DVR through the network detection function, including network delay, packet loss, etc.

### Testing Network Delay, Packet Loss

To view network traffic:

1. Enter the Network Traffic interface by clicking Menu > Maintenance > Network Detection.
2. Click the **Detection** tab to enter the Network Detection menu, as shown in Figure 15.

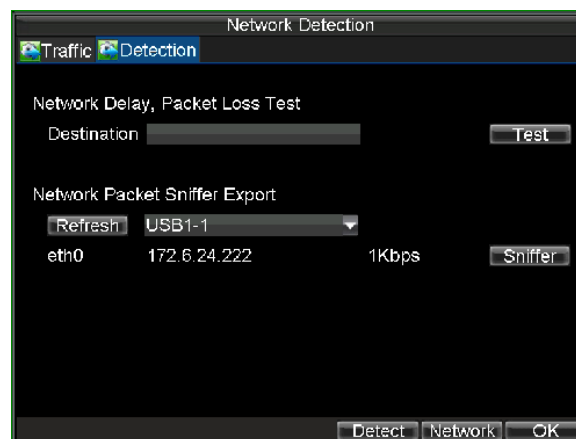


Figure 15. Network Detection Interface

3. Enter the destination address in the text field of **Destination**.
4. Click the **Test** button to start testing network delay and packet loss. The testing result will pop up on the window. If the testing is failed, the error message box will pop up as well. Refer to Figure 16.



Figure 16. Testing Result of Network Delay and Packet Loss

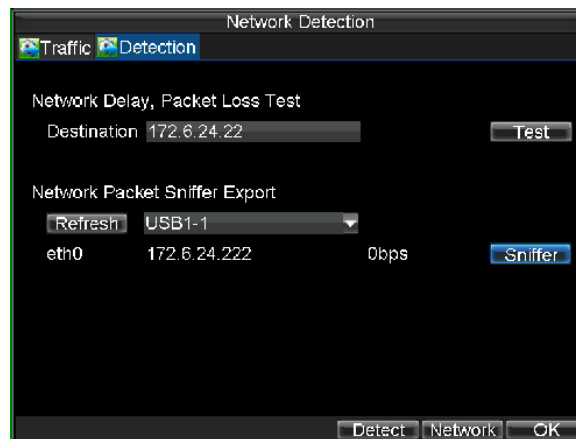
### Exporting Network Packet

By connecting the DVR to network, the captured network data packet can be exported to USB-flash disk, SATA/eSATA CD-RW and other local backup devices.

To export network packet:

1. Enter the Network Traffic interface by clicking Menu > Maintenance > Network Detection.
2. Click the **Detection** tab to enter the Network Detection interface.
3. Select the backup device from the dropdown list of Device Name, as shown in Figure 18.

**Note:** Click the **Refresh** button if the connected local backup device cannot be displayed. When it fails to detect the backup device, please check whether it is compatible with the DVR. You can format the backup device if the format is incorrect.



**Figure17. Export Network Packet**

4. Click the **Sniffer** button to start exporting.
5. After the exporting is complete, click **OK** to finish the packet export, as shown in Figure 18.



**Figure 18. Packet Export Attention**

# **C H A P T E R 9**

## **PTZ Controls**

## Navigating PTZ Menus

PTZ menus can be navigated through with either the mouse or the front panel/remote. For quick access to certain PTZ settings, right clicking with the mouse in a display while in PTZ control mode will bring up the PTZ settings menu. This menu is shown in Figure 1.



Figure 1. Mouse PTZ Settings Menu

---

The items that can be found on this menu include:

- **Camera:** Select a PTZ camera.
- **Call Preset:** Call a PTZ preset.
- **Call Patrol:** Call a PTZ sequence.
- **Call Pattern:** Call a PTZ pattern.
- **Preset Settings:** Enter PTZ preset configuration menu.
- **Patrol Settings:** Enter PTZ patrol configuration menu.
- **Pattern Settings:** Enter PTZ pattern configuration menu.
- **PTZ Menu:** Enter the menu of PTZ.
- **PTZ Settings:** Enter PTZ setting menu.

## Configuring PTZ Settings

Settings for a PTZ camera must be configured before it can be used. Before proceeding, verify that the PTZ and RS-485 of the DVR are connected properly.

To configure PTZ settings:

1. Enter the PTZ Settings menu by clicking Menu > Settings > PTZ. The PTZ Settings menu is shown in Figure 2.





Figure 2. PTZ Settings Menu

2. Select channel where PTZ camera is installed next to **Camera** label.
3. Enter PTZ settings so it matches that of the PTZ camera.
4. Click OK button to save and exit menu.

## Setting PTZ Presets, Patrols & Patterns

Your DVR allows you to customize presets, patrols and patterns for a connected PTZ camera.

## Understanding PTZ Controls

Before setting presets, patrols and patterns, it's important to understand some of the features of the PTZ control panel, shown in Figure 3.

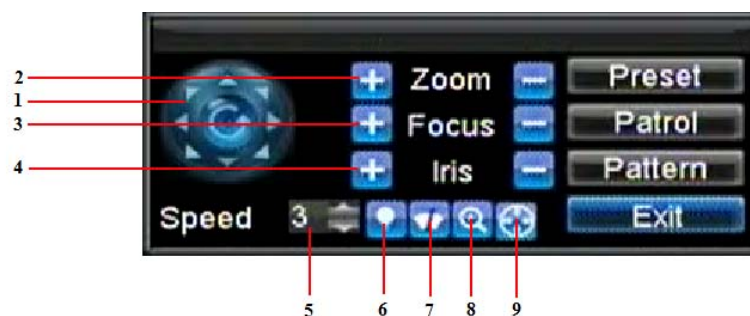


Figure 3. PTZ Control Interface

The controls on the PTZ panel include:

1. **Directional Pad/Auto-scan Buttons:** Controls the movements and directions of the PTZ. Center button is also used to start auto-scan of PTZ.
2. **Zoom:** Used to zoom in and out with the PTZ.
3. **Focus:** Used to adjust the focus of the PTZ.
4. **Iris:** Used to open up or close the iris of the PTZ.
5. **Speed:** Adjusts the movement speed of the PTZ.
6. **Light:** Turns PTZ light (if applicable) on and off.
7. **Wiper:** Turns PTZ wiper (if applicable) on and off.
8. **Zoom In:** Instantly zooms PTZ in.
9. **Center:** Centers PTZ.

## Customizing Presets

Presets can be set to move your PTZ camera to a desired preset location at the click of a button.

To setup and use custom PTZ presets:

1. Enter the PTZ Control interface, shown in Figure 3 by clicking PTZ in the mouse menu or the PTZ button on the front panel.
2. Select the Preset button to enter the Preset Management menu.
3. In the Preset Management menu, shown in Figure 4, you may:
  - **Configure Preset:** Use the PTZ control panel to adjust the position of the preset. Select a Preset number and click the Set button to save preset location.
  - **Clear Preset:** Select a Preset number and click the Clear button to delete the preset. You may also select the Clear All button to delete all presets.
  - **Call Preset:** Select a Preset and click the Call button.

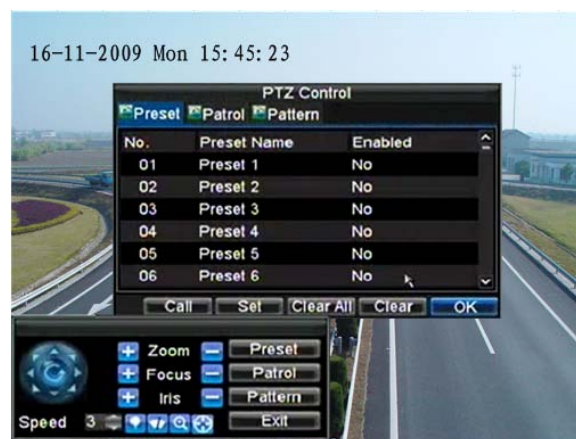


Figure 4. Preset Management Menu

**Note:** Only valid presets can be called and deleted.

## Customizing Patrols

Patrols can be setup to move the PTZ to different key points and have it stay there for a set duration before moving on to the next point. The key points are defined by presets which can be set following the steps above in *Customizing Presets*.

To set up and use PTZ patrols:

1. Enter the PTZ Control interface, shown in Figure 3 by clicking PTZ in the mouse menu or the PTZ button on the front panel.
2. Select the Patrol button to enter the Patrol Management menu, shown in Figure 5.



Figure 5. Patrol Management Menu

3. In the Patrol Management menu, you may:
  - **Configure Patrol:**
    1. Select a **Patrol Number** to set.
    2. Select valid presets (See *Customizing Presets*) and click the Set button to enter the Patrol configuration menu. A sequence should have at least 2 valid presets.
    3. Set the **Key Point No.**, **Duration**, and **Speed** (Figure 6). The **Key Point No.** determines the order at which the PTZ will follow while cycling through the patrol. The **Duration** refers to the time span to stay at the corresponding key point. The **Speed** defines the rate at which the PTZ will move from one key point to the next.



Figure 6. Patrol Configuration Menu

4. Click OK to return to Patrol Management menu and repeat steps 2-3 to configure other key points.
5. After all key points have been configured, click OK to save and exit menu.
- **Clear Patrol:**
  1. Select a valid **Patrol Number**.
  2. Click the Clear button to delete patrol.
- **Call Patrol:**
  1. Select a valid **Patrol Number**.
  2. Click the Start button to call the patrol, select the stop button to stop the patrol, as shown in Figure 7.



Figure 7. Patrol Management Menu

## Customizing Patterns

Patterns can be setup by recording the movement of the PTZ.

To setup and use PTZ patterns:

1. Enter the PTZ Control interface, shown in Figure 3 by clicking PTZ in the mouse menu or the PTZ button on the front panel.
2. Select the Pattern button to enter the Pattern Management menu, shown in Figure 8.



Figure 8. Pattern Management Menu

3. Select a **Pattern Number**.
4. To record a new pattern, select the Run Record button to start recording of the movements of the PTZ. Use the PTZ control panel to move the PTZ. The PTZ movements will be recorded until the Stop Record button is clicked.
5. To run a pattern, click the Run Pattern button on a valid pattern. The PTZ will move according to the path that was defined until Stop Pattern is clicked.
6. Click OK to save and exit from menu.

# **CHAPTER 10**

## **Camera Management**

## Configuring IP Cameras

Depending on the model of your DVR, IP cameras can be configured and used in conjunction with regular analog cameras. IP cameras are supported in DS-9000/9600 only. Please refer to following table for the performance of supported cameras, and the number of IP cameras listed below is the maximum recording cameras that supported in the certain resolution.

Models	Analog cameras	IP cameras			
		4CIF IP cameras	HD720P IP cameras	UXGA IP cameras (half real time)	UXGA IP cameras (real time)
HVR					
DS-9004	4	4	2	2	1
DS-9008	8	8	4	4	2
DS-9016	16	8	4	4	2
NVR					
DS-9004	0	4	2	2	1
DS-9008	0	8	4	4	2
DS-9016	0	16	8	8	4

**Note:** For DS-9000 model, if used as a NVR, it can support 4/8/16 4CIF IP cameras or 2/4/8 IP cameras at HD720p or UXGA(half real-time) resolution.

Before configuring IP cameras, please ensure that all IP cameras are connected to the same network as your DVR and that the network settings for your DVR is properly setup (See *Configuring Network Settings*). If the IP cameras are not in the same LAN, please make sure the value of server port and RTSP port in IP cameras are different with each other, and the ports mapping have been made properly.

To configure IP cameras:

1. Enter the Camera Management menu, shown in Figure 1 by clicking Menu > Settings > Camera.

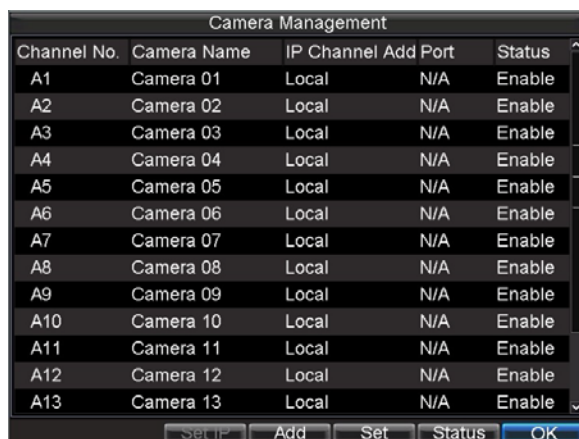
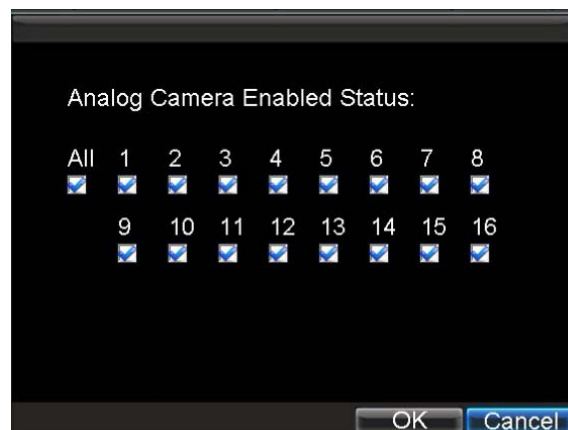


Figure 1. Camera Management Menu

2. Determine number of analog channels to disable. Please note that in order to add more than 8 IP cameras at 4CIF or 4 IP cameras at 720p/ UXGA resolution, you will need to disable some analog channels. Disabling 2 analog channels will add 1 IP camera at 4CIF resolution, and disabling 4 analog channels will add 1 IP camera at 720p/UXGA resolution.
3. To disable analog channels, click the Status button to enter the Camera Enabled Status menu, shown in Figure 2. Uncheck checkboxes to disable corresponding channels. Click OK to save setting. A confirmation message will appear on the screen asking you to reboot the DVR. Click Yes to reboot. After the system has rebooted, enter back into the Camera Management menu and continue with the following steps.



**Figure 2. Camera Enabled Status Menu**

4. Select the Add button to enter IP Channel Settings menu, shown in Figure 3.



**Figure 3. IP Channel Settings Menu**

5. Select the IP device from the list. The devices found in the list are those supported by SADP and are found by the DVR. If no devices were found, you may manually enter the camera parameters in the fields below.
6. Enter IP camera parameters. This includes the IP address (domain name), manage port, channel port, manufacturer and password of the IP camera. It can support adding Hikvision, Sony and Panasonic IPC. It can also support DVS connection.
7. Select OK to save and return to the Camera Management menu.
8. If IP camera was added successfully, the **Status** for that camera would show that it is *Connected* (Figure 4). If it does not, click the Set button to verify that the parameters were entered correctly. You may also delete an added channel by clicking the Delete button.

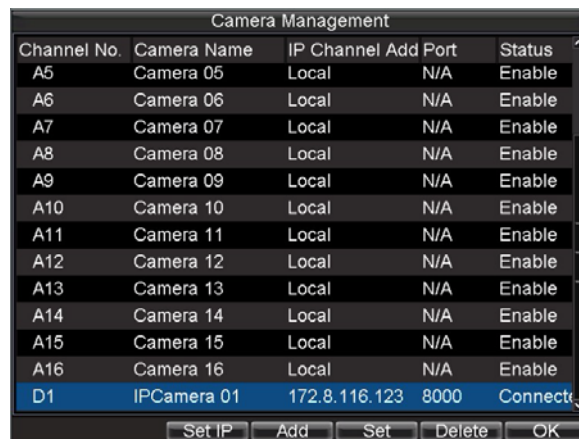


Figure 4. Camera Management Menu

9. Click OK to exit out of the Camera Management menu.

To adjust IP camera compression settings:

1. Enter the Record Settings menu, shown in Figure 5 by clicking Menu > Settings > Record.

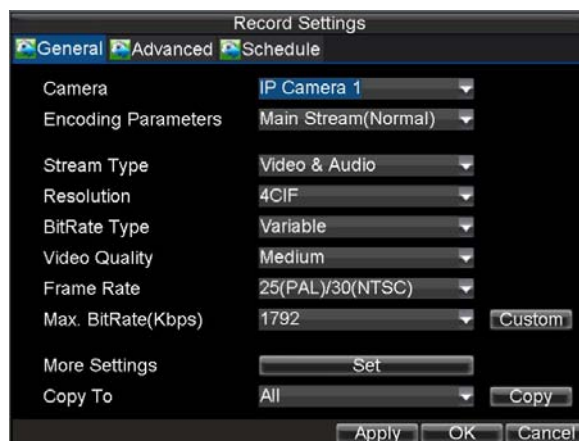


Figure 5. Record Settings Menu

2. Select the **General** tab.
3. Select the IP camera to configure next to the **Camera** label.
4. Adjust IP camera compression settings. If the IP camera was added successfully, the DVR will show OSD, channel name and the compression parameters in accordance to the IP camera's current settings.
5. Select the **Sub stream** next to the **Encoding Parameters** to set sub stream parameters. Sub stream is only used for live video viewing.
6. Click OK to save and exit out of menu.

**Note:** The quality of resolution, frame rate and bit rate depends on the performance of the IP camera.

## Configuring OSD Settings

On Screen Display (OSD) settings can be configured in the Camera Management menu. The OSD is shown in each display during Live View mode and includes the time and date as well as the camera name.

To configure OSD settings:



1. Enter the Camera Management/Settings menu, shown in Figure 1 by clicking Menu > Settings > Camera.
2. Select channel to setup OSD settings under **Channel #**. Click the Set button. (DS-9100HFI-RH will directly enter Camera Settings menu when click Camera icon.)
3. Configure desired OSD settings, as shown in Figure 6.

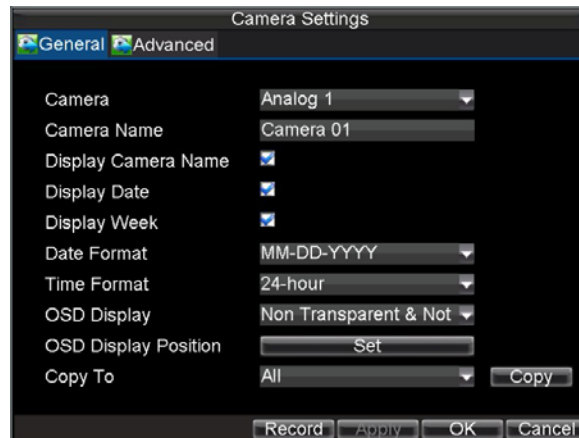


Figure 6. OSD Settings Menu

## Setting up Privacy Mask

You may setup privacy mask to mask off sensitive or private areas in the field of view of a camera.

To setup privacy mask:

1. Enter the Camera Management/Settings menu, shown in Figure 1 by clicking Menu > Settings > Camera.
2. Select channel to setup privacy mask under **Channel #**. Click the Set button. (DS-9100 series DVR will directly enter Camera Settings menu when click Camera icon.)
3. Select the **Advanced** tab to enter the Advanced Camera Settings menu, shown in Figure 7.

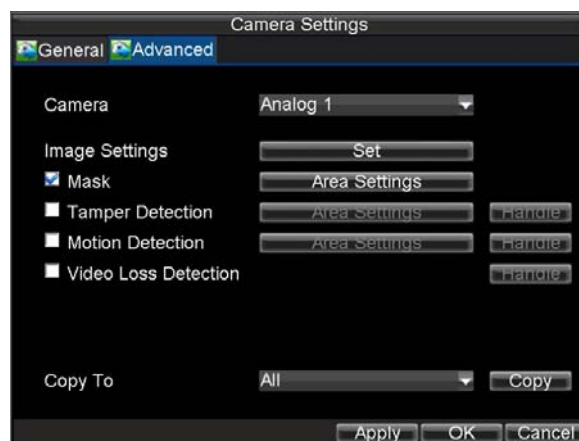


Figure 7. Advanced Camera Settings Menu

4. Check the **Mask** checkbox to enable feature.
5. Click the Area Settings button to enter Area Settings menu.
6. Set mask area, as shown in Figure 8.



**Figure 8. Setting Mask Area**

---

7. Select OK to save and exit mask setup interface.

**Note:** Up to 4 areas can be configured.

## Adjusting Display Settings

Display settings such as the brightness, contrast, saturation and hue can also be adjusted in the Camera Management menu.

To adjust display settings:

1. Enter the Camera Management/Settings menu, shown in Figure 1 by clicking Menu > Settings > Camera.
2. Select channel to adjust display settings under **Channel #**. Click the Set button. (DS-9100 will directly enter Camera Settings menu when click Camera icon.)
3. Select the **Advanced** tab to enter the Advanced Camera Settings menu, shown in Figure 7.
4. Click the Set button next to the Image Settings label.
5. Adjust the display settings, as shown in Figure 9. Brightness, contrast, saturation and hue can be adjusted. The adjustments of display settings not only affect live images, but also recorded images.



**Figure 9. Display Settings**

---

# **C H A P T E R 1 1**

## **RAID Configuration**

**Note:** This Chapter is available for DS-9000HFI-RH, DS-9100HFI-RH and DS-9600NI-RH models only.

## Configuring RAID

The DS-9000/9100HFI-RH is capable of realizing Redundant Array of Independent Disk, supporting RAID0, RAID1, RAID5 and RAID10 RAID types. Prior to operation, please install the array adapter and HDD properly. It is recommended to use the same HDDs (including model and capacity) for array creation and configuration so as to maintain reliable and stable running of the disks.

**Note:** The ST31000525SV/ST31000340NS HDD models are not supported for array configuration currently.

### Creating Array

Before recording, it needs to create the array in the RAID menu.

#### One-touch Configuration

To configure array by One-touch Configuration:

1. Enter the RAID Settings menu, shown in Figure 1 by clicking Menu > Settings > RAID.

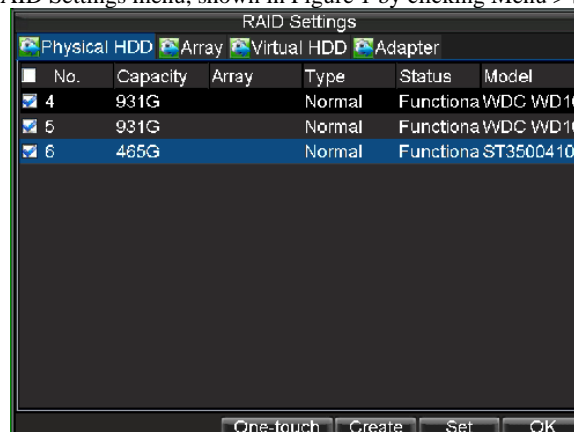


Figure 1. RAID Settings Menu

2. Click the **One-touch** button to start array configuration.

**Note:** When the One-touch Array Configuration is selected, the device can automatically enable the installed HDDs for array creation. As the default array type is RAID 5, thus at least 3 hard disks must be installed.

3. Edit the Array Name and then click the OK button to start array configuration.



Figure 2. One-touch Array Configuration

4. When the array configuration is complete, click the **OK** button on the pop-up Attention box to

finish the settings.



Figure 3. One-touch Array Configuration is Complete

**Note:**

- 1) After completion of One-touch Configuration, the device will create 1 array and 8 virtual disks automatically. And the array capacity will be equally allocated to each virtual disk.
- 2) By default, the foreground initialization is used when the configuration is finished. And the hard disk can be used only after the initialization is complete.

## Adding Array

To add an array:

1. Enter the RAID Settings menu, shown in Figure 4 by clicking Menu > Settings > RAID.

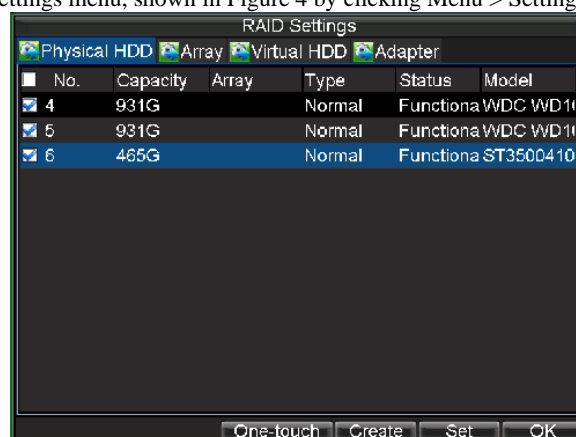


Figure 4. RAID Settings Menu

2. Select the physical HDD from the list.
3. Click the **Create** button to enter the Create Array interface.
4. Edit the Array Name.
5. Set the RAID Level to RAID 0, 1, 5 or 10.
6. Select the physical HDD to be used for array creation.

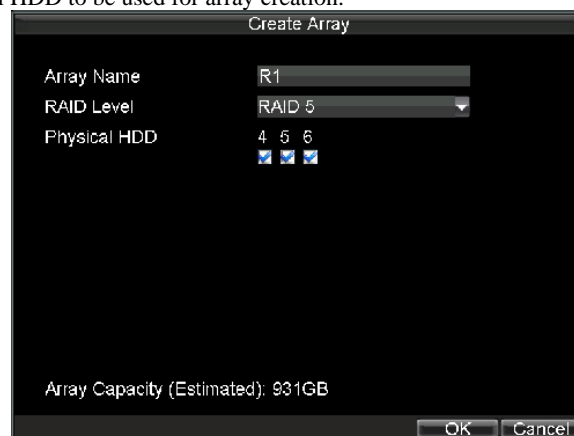


Figure 5. Create Array

7. Click the **OK** button to continue the creation of array.
8. In the pop-up Attention box, click the **Yes** button to finish the array creation.

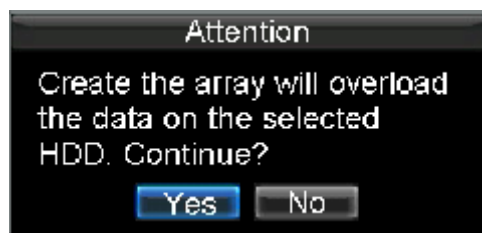


Figure 6. Attention

**Note:** During the creation of array, corresponding error message box will pop up if the estimated array capacity is not enough for creating the array.

## Deleting Array

To delete an array:

1. Enter the RAID Settings menu, shown in Figure 4 by clicking Menu > Settings > RAID.
2. Select the **Array** tab to enter the Array interface, as shown in Figure 7.

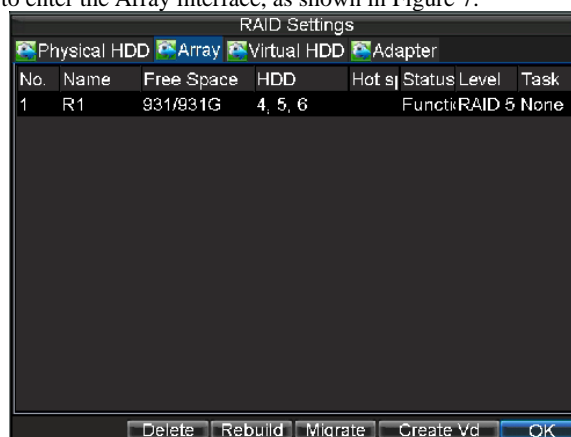


Figure 7. Array List

3. Select the Array from the list to be deleted.
4. In the pop-up Attention box, click the **Yes** button to confirm the array deletion.
5. Click the **OK** button to finish the array deletion.



Figure 8. Attention for Array Deletion

**Note:** Before deleting the array, all virtual disks existing under this array must be deleted first in the Virtual HDD interface.

## Rebuilding Array

The working status of array includes *Functional*, *Degraded* and *Offline*. By viewing the array status, you can take immediate and proper maintenance for the disks so as to ensure the high security and reliability of the data stored in the disk array.

When there is no disk loss in the array, the working status of array will change to *Functional*; when the number of lost disks has exceeded the limit, the working status of array will change to *Offline*; in other conditions, the working status is *Degraded*.

When the array is in *Degraded* status, user can restore it to *Functional* by array rebuilding.

**Note:** If there is no virtual disk created in the array and no physical HDD exception exists, then it doesn't need to rebuild the array when the array status restores to *Functional*.

## Auto-rebuilding

### Rebuilding Hot Spare Disk

When the auto-rebuild function is enabled, the hot spare disk will be automatically used for array rebuilding if the array is in *Degraded* status.

To rebuild a hot spare disk:

1. Enter the RAID Settings menu by clicking Menu > Settings > RAID.
2. Select the **Adapter** tab to enter the Adapter interface, as shown in Figure 9.
3. Enable the Auto-rebuild function by clicking its checkbox.
4. Click the **Apply** button.

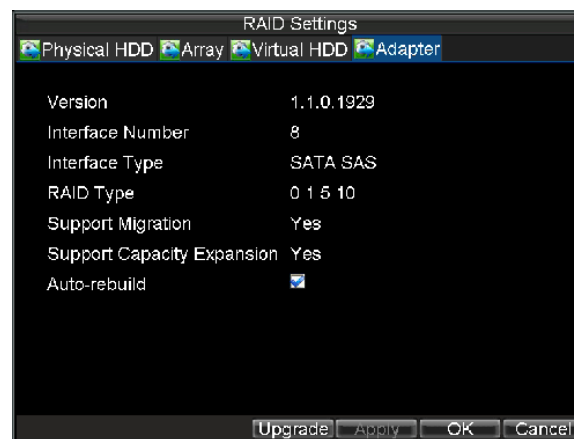


Figure 9. Adapter

5. Select the Physical HDD tag in RAID Settings menu to enter the Physical HDD interface.

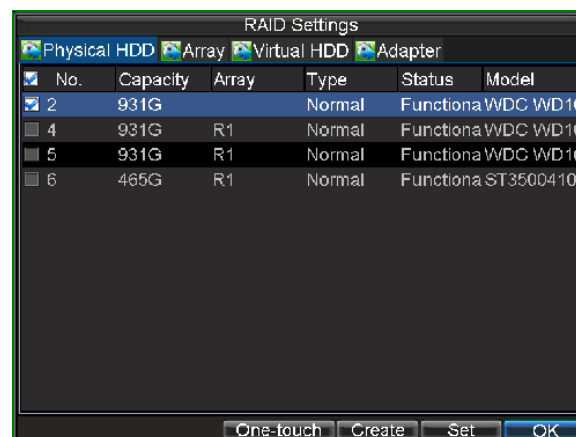


Figure 10. Select Physical HDD

6. Select the Physical HDD from the list and then click the **Set** button to enter Set Hot Spare interface.

**Note:** It is recommended to use the same HDDs (including model and capacity) for setting hot spare so as to maintain reliable and stable running of the disks.



Figure 11. Set Hot Spare

7. Set the hot spare type of the selected HDD to Global Hot Spare or specified hot spare.  
**Global hot spare:** it can be used as the hot spare for any array created in the system.  
**Specified hot spare:** it can be used as the hot spare for the specified array only.
8. Click the **OK** button to confirm the settings.
9. Start auto-rebuild task.  
 When the system has detected HDD exception or the array is in *Degraded* status, the auto-rebuild task will be automatically started.

### Rebuilding Physical HDD

When the system has detected HDD exception or the array is in *Degraded* status, you can replace the exception HDD with new functioning physical HDD in the same SATA interface to start the auto-rebuild task.

To rebuild a physical HDD:

1. Enter the RAID Settings menu by clicking Menu > Settings > RAID.
2. Select the **Adapter** tab to enter the Adapter interface, as shown in Figure 12.
3. Enable the Auto-rebuild function by clicking its checkbox.
4. Click the **Apply** button.



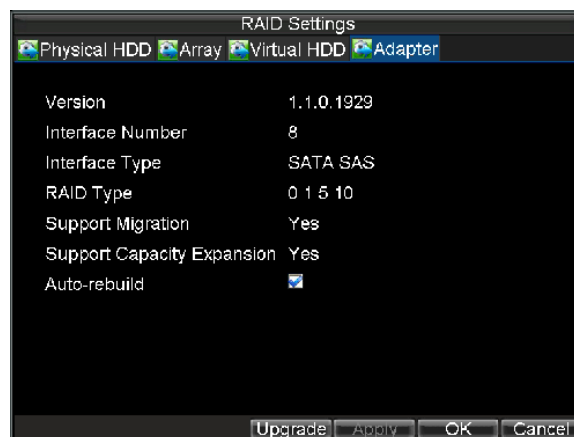


Figure 12. Adapter

5. Start rebuilding of physical HDD.

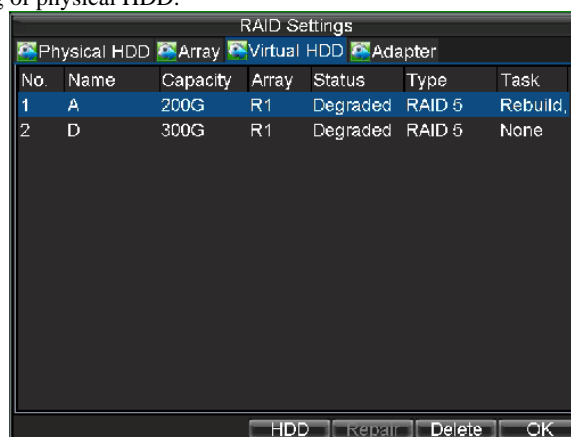


Figure 13. Rebuild Array

When the system has detected HDD exception or the array is in *Degraded* status, replace the exception HDD with new functioning physical HDD in the same SATA interface, and then the auto-rebuild task will be automatically started.

**Note:** It is recommended to use the same HDDs (including model and capacity) for replacement and then set the new physical HDD to *Normal* type so as to maintain reliable and stable running of the disks.

### Rebuilding Array Manually

When the system has detected HDD exception or the array is in *Degraded* status, you can select the idle physical HDD for manual rebuilding of array.

To rebuild an array manually:

1. Enter the RAID Settings menu by clicking Menu > Settings > RAID.
2. Select the **Array** tab to enter the Array interface, as shown in Figure 14.

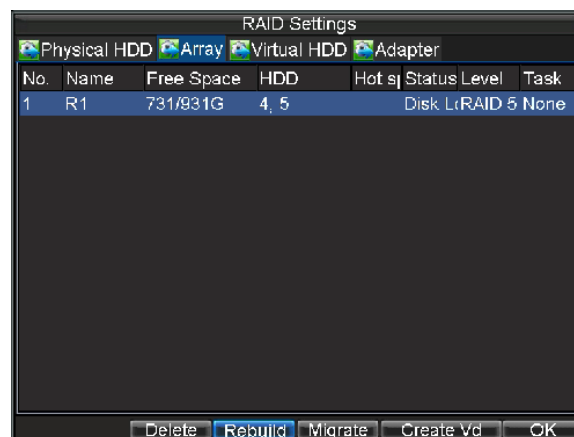


Figure 14. Select Array for Rebuilding

3. Select the array for rebuilding.
4. Click the **Rebuild** button to enter Rebuild Array interface.

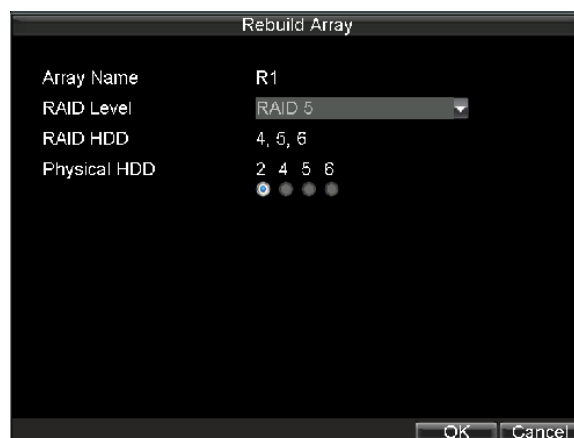


Figure 15. Rebuild Array

5. Select the physical HDD for array rebuilding.
  6. Click the **OK** button to confirm the array rebuilding
- Note:** Make sure virtual disks have been created before operating array rebuilding; otherwise, corresponding message box will pop up.
7. Return to the Virtual HDD interface to view the rebuilding status under Task bar.

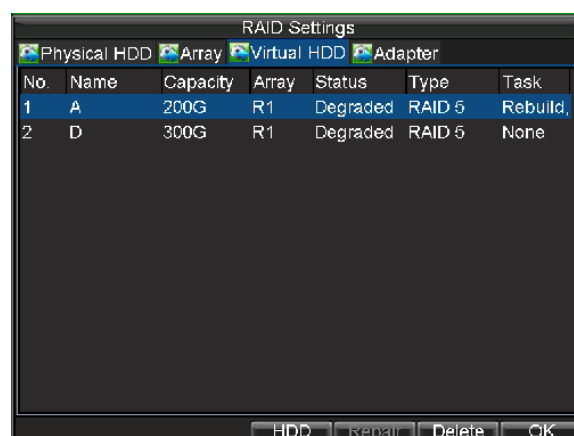


Figure 15. Rebuild Array

## Migrating Array

If it needs to add the physical HDD during the normal working of array to enhance the security, you can take the array migration.

To migrate an array:

1. Enter the RAID Settings menu by clicking Menu > Settings > RAID.
2. Select the **Array** tab to enter the Array interface, as shown in Figure 15.



Figure 15. Array

3. Select the array for migration.
4. Click the **Migrate** button to enter Migrate Array interface.

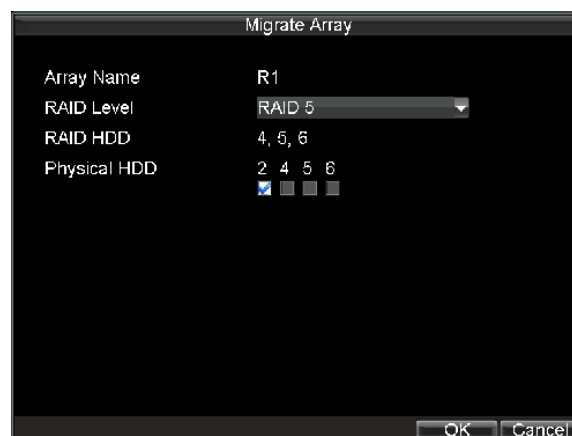


Figure 16. Migrate Array

5. Select the target RAID level and physical HDD for array migration.
6. Click the **OK** button to start the array migration.

**Note:**

- 1) Make sure virtual disks have been created before operating array rebuilding. Or else, corresponding message box will pop up.
- 2) Currently the migration to RAID 5 is supported only.
7. Return to the Array interface to view the migrating progress.

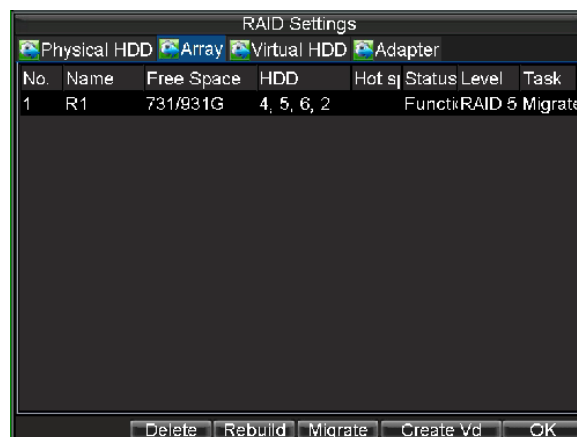


Figure 17. Migration is Complete

**Note:** After the array migration is complete, the array and each virtual disk capacity will be refreshed. Now, it needs to reboot the device and expand capacity for each virtual disk. Please refer to the *Expanding HDD Capacity* section of *Chapter 12* for expanding capacity of virtual disk.

## Configuring Virtual HDD

### Creating Virtual Disk

To create a virtual disk:

1. Enter the RAID Settings menu by clicking Menu > Settings > RAID.
2. Select the **Array** tab to enter the Array interface, as shown in Figure 18.

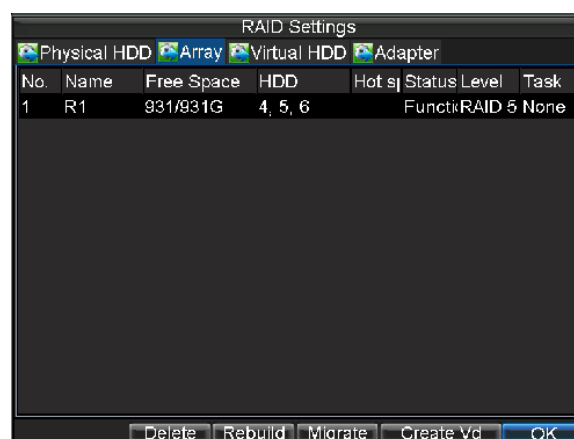


Figure 18. Array

3. Select the array from the list for creating virtual disk.
4. Click the **Create Vd** button to enter the Create Virtual Disk interface.

**Note:** Up to 8 virtual disks can be created for the array.

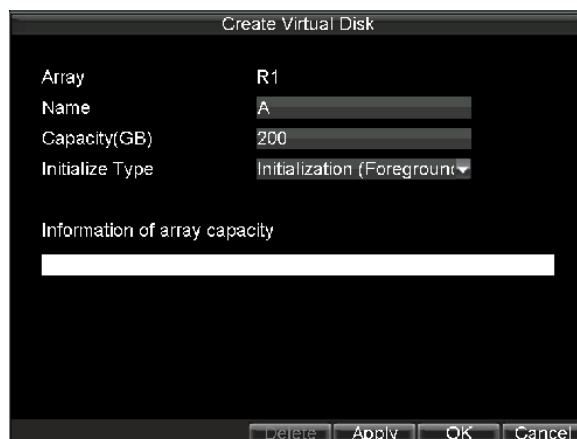


Figure 19. Create Virtual Disk

5. Edit the name of virtual disk and set the capacity.

**Note:** At least 100GB capacity must be configured for each virtual disk.

**Initialization (Foreground):** The foreground initialization usually takes long time, which depends on the HDD capacity. During the foreground initialization, the virtual disk is not allowed to use.

**Initialization (Background):** The background initialization usually takes long time, which depends on the HDD capacity. During the background initialization, the virtual disk is allowed to use.

**Initialization (Fast):** The fast initialization usually takes short time, which is not relevant to the HDD capacity.

It is recommended to select the foreground initialization when the hard disk is used on the DVR for the first time.

6. Click the **OK** button to confirm the creation of virtual disk.
7. Return to the RAID Settings menu.
8. Click the **Virtual HDD** tab to enter the Virtual HDD interface. The created virtual disks will be listed on the interface.



Figure 20. Created Virtual Disk

## Deleting Virtual Disk

To delete a virtual disk:

1. Enter the RAID Settings menu by clicking Menu > Settings > RAID.
2. Click the **Virtual HDD** tab to enter the Virtual HDD interface.
3. Select the virtual disk from the list to be deleted.
4. Click the **Delete** button.

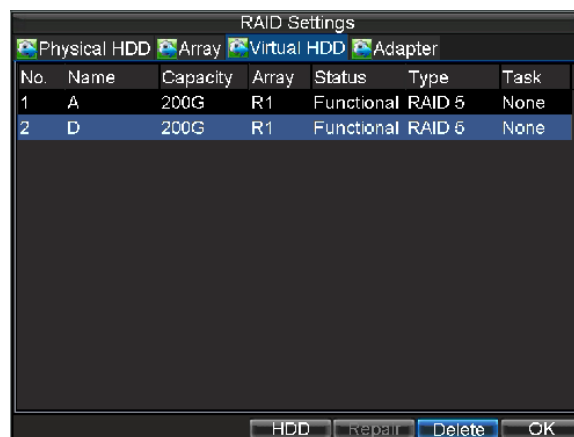


Figure 21. Delete Virtual Disk

- In the pop-up Attention box, click the **Yes** button to confirm the virtual disk deletion.

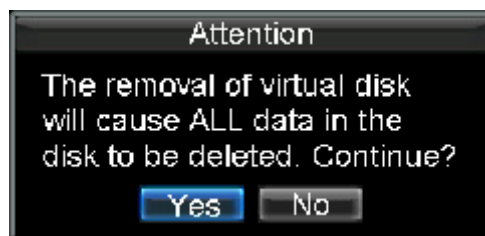


Figure 22. Confirm Virtual Disk Deletion

- Click the **OK** button to finish the virtual disk deletion.



Figure 23. Virtual Disk Deletion Is Complete

## Repairing Virtual Disk

When an array restores to *Degraded* or *Functional* from the previous *Offline* status, it needs to repair its virtual disks.

To repair a virtual disk:

- Enter the RAID Settings menu by clicking Menu > Settings > RAID.
- Click the **Virtual HDD** tab to enter the Virtual HDD interface.
- Select the virtual disk from the list to be deleted.
- Click the **Repair** button to start repairing the selected virtual disk.



Figure 24. Repair Virtual Disk

5. Click the **OK** button to finish the virtual disk deletion.

## Upgrading Array

To upgrade an array:

1. Enter the RAID Settings menu by clicking Menu > Settings > RAID.
2. Select the **Adapter** tab to enter the Adapter interface, as shown in Figure 25.

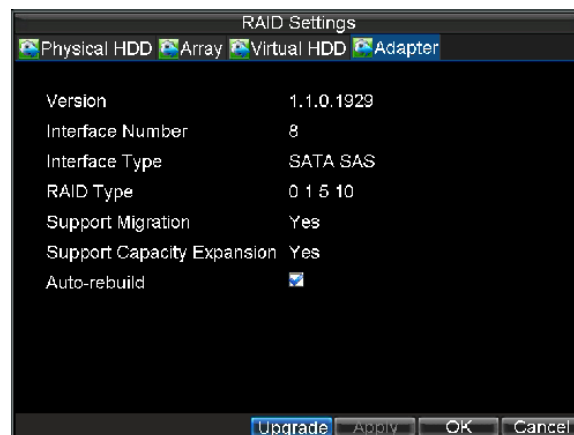
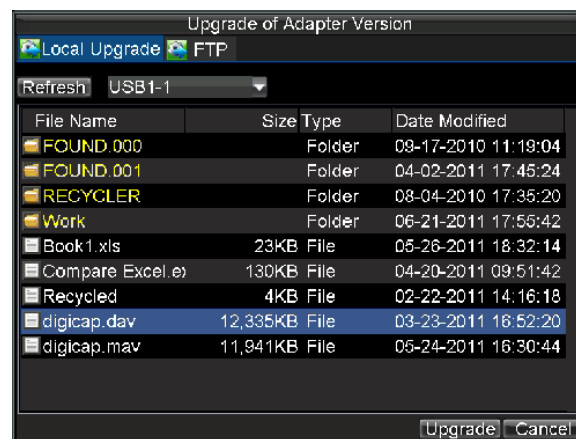


Figure 25. Array Upgrade

3. Click the **Upgrade** button to enter the Upgrade of Adapter Version interface.



**Figure 25. Array Upgrade**

**Note:** The adapter version can be upgraded by local backup device or by FTP server. Please refer to the *Updating System Firmware* section of *Chapter 12* for the same instructions.



## **C H A P T E R 1 2**

### **HDD Management**

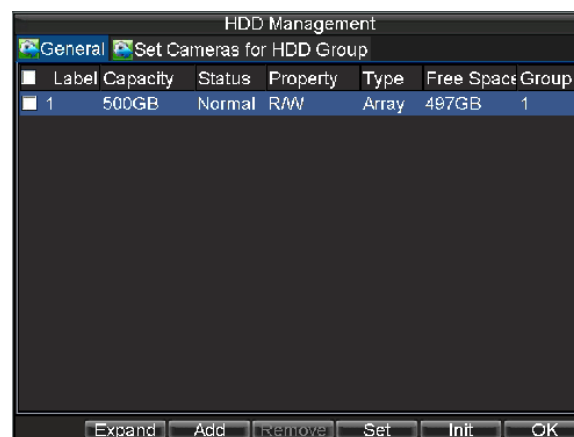
# Managing HDDs

## Initializing HDDs

A newly installed hard disk drive (HDD) must be first initialize before it can be used with your DVR. Initializing the HDD will erase all data on it.

To initialize a HDD:

1. Enter the HDD Management menu by clicking Menu > HDD, shown in Figure 1.



**Figure 1. HDD Management Menu**

---

2. Select HDD to initialize.
3. Click the Init button.
4. Select OK button to begin initialization. After the HDD has been initialized, the status of the HDD will change from *Abnormal* to *Normal*.

## Setting Network HDD

Add the allocated “DVR Storage Space” of NAS or disk of IP SAN to DVR, this part will work as network HDD.

To set a network HDD:

1. Enter the HDD Management menu, shown in Figure 2 by clicking Menu > HDD.

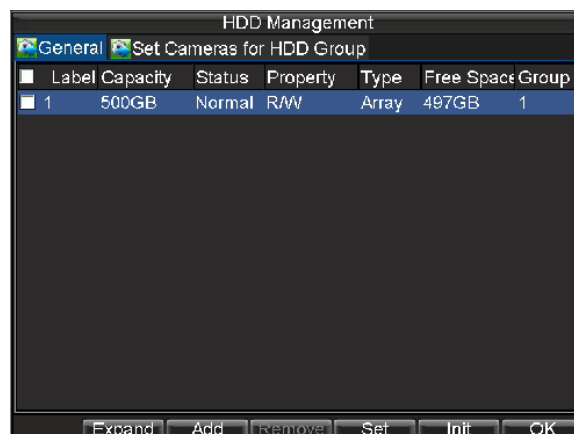


Figure 2. HDD Management Menu

- Click **Add** to enter **Network HDD** menu.
- Select type as NAS or IP SAN, shown in Figure 3 when selected as NAS.



Figure 3. Network HDD Menu

- Select **Add** button to add network HDD to HDD list.
- Select the network HDD to initialize. After initialization, the network HDD can be used.

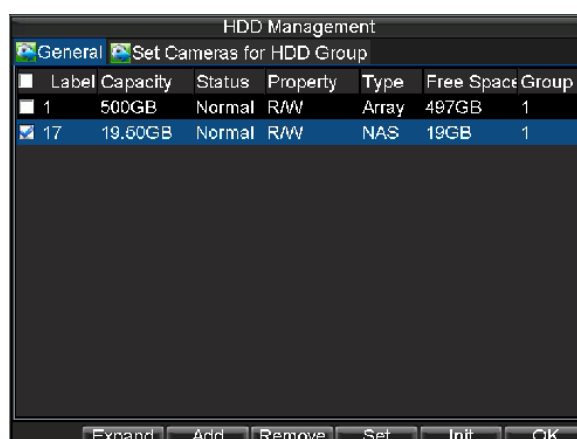


Figure 4. HDD Management Menu

## Setting HDD Groups

Your DVR can separate multiple HDDs into groups. Videos from specified channels can be set to be recorded onto a particular HDD group.

To setup a HDD group:

1. Enter the HDD Management menu by clicking Menu > HDD.
2. Select HDDs to be added to group.
3. Select Set button to enter HDD Settings menu.
4. Set the **HDD Group Number**, as shown in Figure 5.

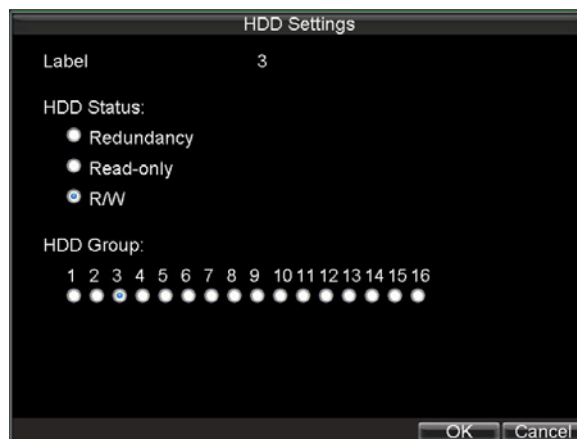


Figure 5. HDD Settings Menu

5. Select OK to save and exit menu.

**Note:** By default, all HDDs belong to group 1.

To setup specified channels to be recorded onto a particular HDD group:

1. Select **Set Cameras for HDD Group** tab to enter setup interface.
2. Select channels for the group.
3. Select the HDD group you want the channels to be recorded on, as shown in Figure 6.

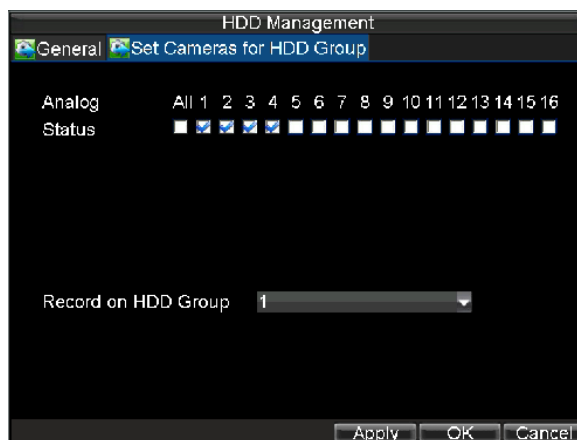


Figure 6. Set Cameras for HDD Group

4. Select OK to save and exit menu.

## Setting HDD Status

You may change the behavior of your HDD by changing its status. The status of a HDD can be set to redundancy, read-only or read/write (R/W).

### Setting HDD to Read-Only

A HDD can be set to read-only to avoid important recorded files from being overwritten when the HDD becomes full.

To set a HDD to read-only:

1. Enter the HDD Management menu by clicking Menu > HDD.
2. Select HDD to protect.
3. Select the Set button to enter the HDD Settings menu, as shown in Figure 7.

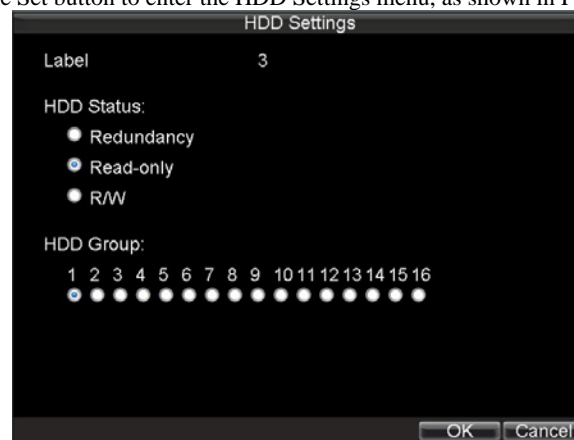


Figure 7. HDD Settings Menu

4. Set **HDD Status** to **Read-Only**.
5. Select OK to save and exit menu.

**Note:** Once set to read-only, the HDD cannot be written to until it is set back to read/write (R/W). If the HDD that is currently being written to is set to read-only, the data will be recorded to the next HDD. If there is only one HDD present, setting it to read-only will cause the DVR to not record.

### Setting HDD to Redundancy

In order to use HDD redundancy on your DVR, you will need to have at least two disk installed. Setting up HDD redundancy will allow your DVR to redundantly record a copy of the videos onto multiple drives as a safeguard against losing all your files in case of disk failures.

To set a HDD to redundancy:

1. Enter the HDD Management menu by clicking Menu > HDD.
2. Select HDD to set redundancy on.
3. Select the Set button to enter the HDD Settings menu, as shown in Figure 7.
4. Set **HDD Status** to **Redundancy**.
5. Select OK to save and exit menu.

**Note:** The HDD that is set to redundancy is used to store an extra copy of the recording. If a HDD is set to redundancy, at least one HDD should be set to the R/W status.

## Expanding HDD Capacity

**Note:** This Section is available for DS-9000HFI-RH, DS-9100HFI-RH and DS-9600NI-RH models only.

After array migration and device reboot, you can expand the capacity for each virtual disk.

To expand the capacity of a virtual disk:

1. Enter the HDD Management menu by clicking Menu > HDD.

**Note:** You can also enter the HDD Management by clicking the **HDD** button in RAID Settings > Virtual HDD interface.

2. Select the virtual disk for capacity expansion.
3. Click the **Expand** button to start capacity expansion, as shown in Figure 8.



Figure 8. Expand HDD Capacity

## Checking HDD Status

You may check the status of any of the installed HDDs on your DVR at anytime.

To check the status of a HDD:

1. Enter the HDD Management menu by clicking Menu > HDD.
2. The status of your HDD is listed under the **Status** column. If the status is listed as *Normal* or *Sleeping*, the HDD is in working order. If it is listed as *Abnormal* and has already been initialized, the HDD needs to be replaced. If the HDD is *Uninitialized*, you will need to initialize it before it can be use in your DVR. Please refer to **Initializing HDDs** for further instructions.

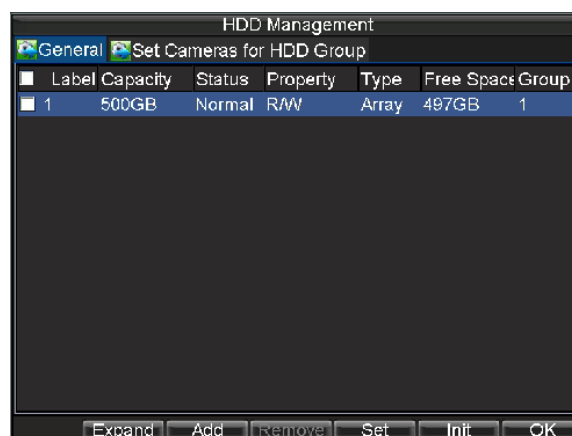


Figure 9. Checking HDD Staus

## Configuring HDD Alarms

HDD alarms can be set to trigger when an HDD is uninitialized or in an abnormal state.

To set HDD alarms:

1. Enter Exception menu, shown in Figure 10 by clicking Menu > Settings > Exception.



Figure 10. Exception Menu

---

2. Select HDD Error under **Exception Type**.
3. Select trigger action. Trigger actions are further explained in *Understanding Exception Trigger Options*.

# **C H A P T E R 1 3**

## **DVR Management**



# Configuring System Settings

## Configuring General Settings

General settings such as the system language can be configured in the General Settings menu of your DVR.

To configure general settings:

1. Enter the General Settings menu, shown in Figure 1 by clicking Menu > Settings > General.

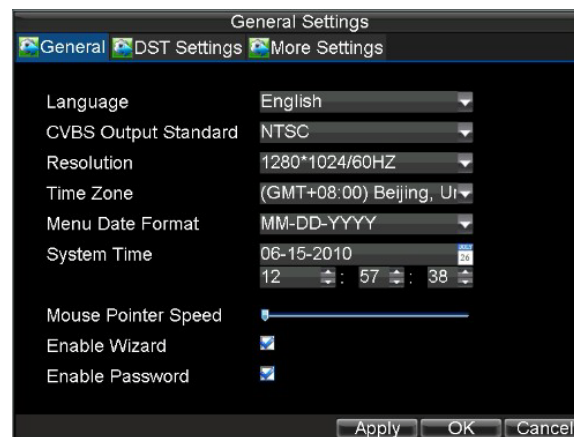


Figure 1. General Settings Menu

2. Select the **General** tab.
3. Configure general settings. These settings include:
  - **Language:** Default language used in DVR menus.
  - **CVBS Output Standard:** Video output standard: NTSC and PAL.
  - **Resolution:** VGA or HDMI output resolution.
  - **Time Zone:** Time zone to use for DVR.
  - **Menu Date Format:** Format to use for date.
  - **System Time:** System time and date.
  - **Mouse Pointer Speed:** Speed of mouse pointer.
  - **Enable Wizard:** activate/deactivate the Wizard when booting up.
  - **Enable Password:** Enable/disable system password.

**Note:** If the video standard is different between the input and the output, you may notice flickering in Live View mode.

## Configuring Advanced Settings

To configure more advanced settings:

1. Enter the General Settings menu, shown in Figure 1 by clicking Menu > Settings > General.
2. Click the **More Settings** tab; this will take you to the More Settings menu, shown in Figure 2.

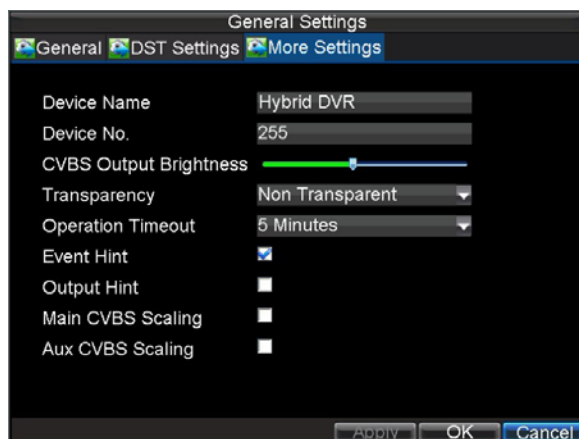


Figure 2. More Settings Menu

3. Configure settings, including:
  - **Device Name:** Name to use for DVR.
  - **Device No.:** Device number to use for DVR.
  - **CVBS Output Brightness:** Video output brightness.
  - **Transparency:** Menu transparency.
  - **Operation Timeout:** Set timeout time for menu inactivity. For example, if timeout time was set to 5 minutes, after 5 minutes of inactivity in the General Settings menu, you'll be returned to the Live View.
  - **Event Hint:** To display hint when live view, if exception happens.
  - **Enable Output Hint:** To display output status in live view.
  - **CVBS Scaling:** Enable/disable video output scaling for main/aux video output.

## Configuring RS-232 Port Settings

To configure RS-232 devices to be used with the DVR:

1. Enter the RS-232 Settings menu, shown in by clicking Menu > Settings > RS232.

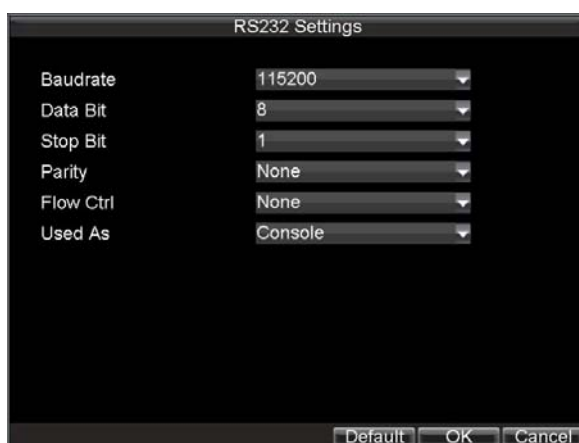


Figure 3. RS-232 Settings Menu

2. Configure RS-232 Settings.
3. The RS-232 port can be used in two ways:
  - **Parameter Control:** Connect a PC to the DVR using the PC serial port. Device parameters can then be set using software such as HyperTerminal. The serial port

parameters must be the same as the DVR's when connecting with the PC serial port.

- **Transparent Channel:** Connect a serial device directly to the DVR. The serial device will be controlled remotely by the PC through the network and the protocol of the serial device.

**Note:** Please note that the remote control features through the RS-232 port are limited.

## Managing User Accounts

By default, your DVR comes with one user account, the *Administrator* account. The *Administrator* user name is *admin* and the password is *12345*. The default password for *Administrator* should be changed right away for security reasons. The *Administrator* has the authority to add, delete or configure parameters for many of the system functions.

### Adding a New User

You may add up to 31 new users to your DVR. To add new users:

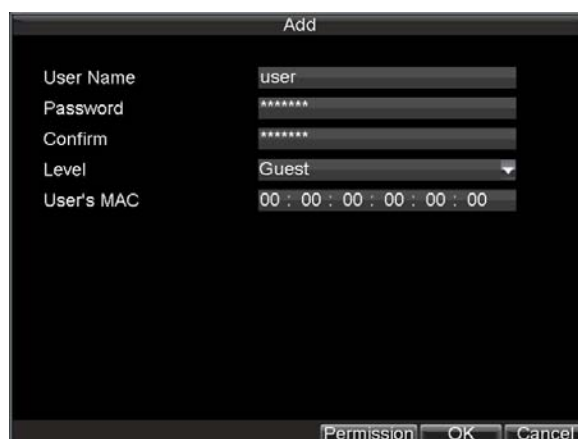
Enter the User Settings menu, shown in Figure 4 by clicking Menu > Settings > User.



**Figure 4. User Settings Menu**

---

1. Select the Add button to enter the Add User menu, shown in Figure 5.



**Figure 5. Add User Menu**

---

2. Enter information for new user, including **User Name**, **Password**, **Level** and **User's MAC**.
3. The **Level** is the user level and is separated into two tiers.
  - **Operator:** The Operator user level has the authority to configure two-way audio in network settings and all parameters in channel settings.
  - **Guest:** The Guest user can not configure network settings, but can configure the local playback as well as the remote playing in channel settings.
4. If **User's MAC** is configured and enabled, the user may only access the DVR from that particular MAC address.
5. Select the Permission button to enter the Permission Settings menu, shown in Figure 6.

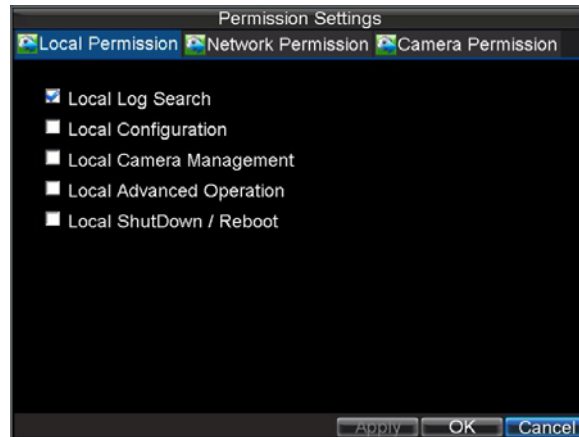


Figure 6. Permission Settings Menu

6. Configure privileges for local settings under **Local Permission** tab. The local settings include:
  - **Local Log Search:** Search and view logs of DVR.
  - **Local Configuration:** Configure and restore parameters to factory defaults. Introduce settings to or export settings from DVR.
  - **Local Camera Management:** Enable and disable analog channels. Ability to add and delete IP cameras
  - **Local Advanced Operation:** HDD management (including the initialization and changing the properties of a disk). Ability to update system firmware as well as to stop the relay output
  - **Local Shutdown/Reboot:** Shutdown or reboot the DVR.
7. Click on the **Network Permission** tab to configure network privileges, as shown in Figure 7. The network settings include:

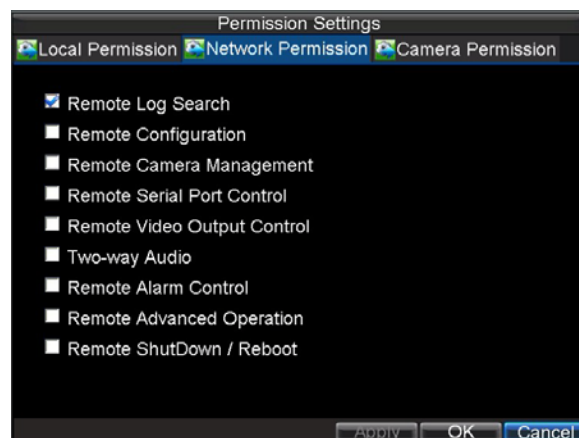


Figure 7. Network Privileges Menu

- **Remote Log Search:** Remotely view logs that are saved on the DVR.

- **Remote Configuration:** Remotely configure parameters, restore parameters to factory defaults and import settings to as well as export settings from DVR.
  - **Remote Camera Management:** Remotely enable and disable analog channels. Add and delete IP cameras.
  - **Remote Serial Port Control:** Configure settings for RS232 and RS485 ports.
  - **Remote Video Output Control:** Send remote button control signal.
  - **Two-Way Audio:** Ability to use two-way radio between the remote client and the DVR.
  - **Remote Alarm Control:** Remote alert or control the relay output of the DVR. Alarm and exception settings must be configured properly to upload to host.
  - **Remote Advanced Operation:** Remotely manage hard disk drives (initializing and setting properties for HDDs). Ability to remote update system firmware and stop of the relay output
  - **Remote Shutdown/Reboot:** Remotely shutdown or reboot the DVR.
8. Click on the **Camera Permission** tab to configure channel privileges, as shown in Figure 8. The channel Settings include:



Figure 8. Camera Permission Menu

- **Remote Live View:** Select and view live video over the network.
  - **Local Manual Record:** Locally start and stop manual recording on any of the channels.
  - **Remote Record Starting:** Remotely start and stop manual recording on any of the channels.
  - **Local Playback:** Locally play recorded files that are on the DVR.
  - **Remote Playback:** Remotely play and download recorded files that are on the DVR.
  - **Local PTZ Control:** Locally control PTZ cameras.
  - **Remote PTZ Control:** Remotely control PTZ cameras.
  - **Local Video Export:** Locally backup recorded files from any of the channels.
9. Click the OK button to save and exit menu.

**Note:** If you forget the password to your DVR, contact your supplier with the serial number of your DVR to obtain a secure code to reset your DVR.

## Deleting a User

To delete a user from the DVR:

1. Enter the User Settings menu by clicking Menu > Settings > User.
2. Select user to delete.
3. Click the Delete button to delete user.
4. Click the OK button to exit menu.

## Modifying a User

To modify a user:

1. Enter the User Settings menu by clicking Menu > Settings > User.
2. Select user to modify.
3. Click the Modify button to enter the Modify menu, shown in Figure 9.

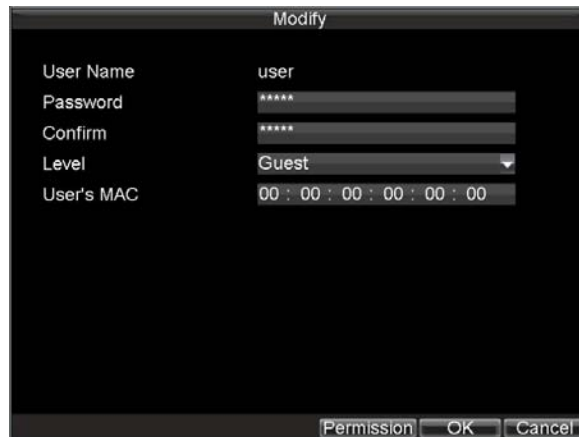
The screenshot shows a 'Modify' window with a dark background. It contains several input fields: 'User Name' with the text 'user', 'Password' with six asterisks, 'Confirm' with six asterisks, 'Level' with a dropdown menu showing 'Guest', and 'User's MAC' with the text '00 : 00 : 00 : 00 : 00 : 00'. At the bottom right, there are three buttons: 'Permission', 'OK', and 'Cancel'.

Figure 9. Modify User Menu

---

4. Edit user information.
5. To modify user permissions, click on the **Permission** button. Permissions settings are defined in the section above, *Adding a New User*.
6. Click the OK button to exit menu.

## Managing System

### Importing & Exporting Configuration

Configuration information from your DVR can be exported to a USB device and imported into another DVR. This will allow you to efficiently setup the same configuration on numerous DVRs.

To import or export DVR configuration:

1. Enter the Import/Export Configuration menu, shown in Figure 10 by clicking Menu > Maintenance > Configuration.

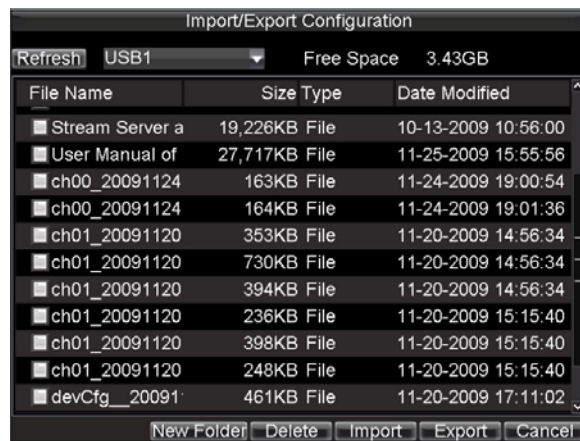


Figure 10. Import/Export Configuration Menu

2. Click Export to export a configuration file to USB device. USB device must be connected at this point to the DVR.
3. To import a configuration file, select the file from the USB device and click the Import button. After the import process is completed, you must reboot the DVR.
4. Click Cancel to exit out of menu.

## Updating System Firmware

The firmware on your DVR can be updated using two methods. These methods include updating via an USB device or over the network via a FTP server.

To update via an USB device:

1. Connect USB device to DVR. The firmware file must be located in the root directory of your USB device.
2. Enter the Firmware Update menu, shown in Figure 11 by clicking Menu > Maintenance > Upgrade.

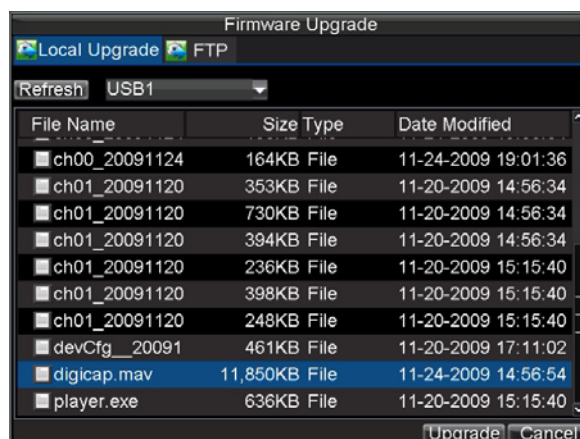


Figure 11. Firmware Update Menu

3. Select the **Local Upgrade** tab.
4. Select the firmware on the USB device.
5. Select **Upgrade** to begin the update process.
6. After the system firmware has been updated, reboot the DVR.

To update via a FTP server:

1. Configure PC (running FTP server) and DVR to be in the same Local Area Network. Run the 3rd-party TFTP software on the PC and copy the firmware into the root directory of TFTP.
2. Enter the Firmware Update menu by clicking Menu > Maintenance > Upgrade.
3. Select the **FTP** tab, shown in Figure 12.

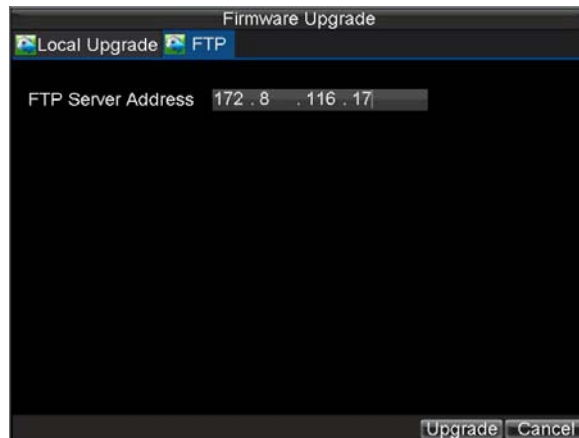


Figure 12. FTP Firmware Update

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4. Input the FTP server address.
5. Select **Upgrade** to begin update process.
6. After the system firmware has been update, reboot the DVR.

**Note:** If the DVR fails to update, please contact your system supplier for further assistance.

## Restoring Default Settings

To restore default factory settings to your DVR:

1. Enter the Default Settings menu, shown in Figure 13 by clicking Menu > Maintenance > Default.



Figure 13. Default Settings Menu

---

Select OK to restore factory defaults.

**Note:** Network information such as IP address, subnet mask and gateway will not be restored.



## Viewing System Information

To view system information:

1. Enter into the Information menu, shown in Figure 14 by clicking Menu > Maintenance > Information.

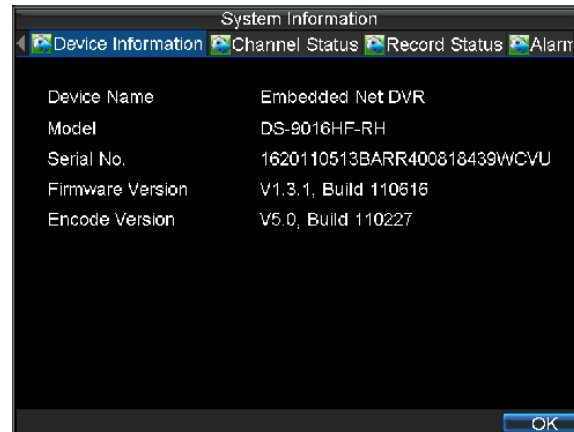


Figure 14. System Information

- **Device Information:** The model number of the DVR, serial No., the current firmware version installed on DVR, etc.
- **Chan Status:** Cameras working status in DVR such as motion, tampering, video loss and video exception.
- **Record Status:** Recording status of the cameras, including: stream type, frame rate, bit rate, resolution, record type, etc.
- **Alarm Status:** The status of external alarm in/out on DVR .
- **Network Status:** Network status such as IP address, gateway, DNS server, client port, etc.
- **HD Status:** Hard disk status on DVR .

2. Select OK to return to the previous screen.

## Viewing System Logs

Many events of your DVR are logged into the system logs.

To access the system logs and search for these events:

1. Enter the Log Search menu, shown in Figure 15 by clicking Menu > Maintenance > Log Search.



Figure 15. Log Search Menu

2. Set Search parameters.
3. Click the Search button to begin search. If logs matching the search criteria are found, it will be displayed in a list similar to that of Figure 16.

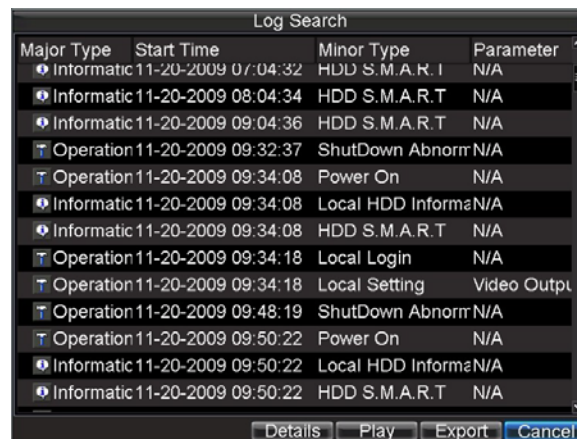


Figure 16. Log Search Results

4. To view more detail information about a particular log entry, select the entry and click the **Details** button.
5. If applicable, you may also view the associated video to the selected log entry by clicking the **Play** button.
6. Log files can also be exported onto a USB device. To export a log file, connect a USB device to the DVR, select the log file to export and click the **Export** button. This will take you to the Log Search Export menu, shown below in Figure 17. Click the Export button to export log onto USB device. The exported file will be named according to the time it was exported (i.e. 2000062991627.txt).



**Figure 17. Log Search Export Menu**

---

7. Click Cancel to exit out of menu.

## **C H A P T E R 1 4**

### **Appendix**

# Glossary

- **Dual Stream:** Dual stream is a technology used to record high resolution video locally while transmitting a lower resolution stream over the network. The two streams are generated by the DVR, with the main stream having a maximum resolution of 4CIF and the sub-stream having a maximum resolution of CIF.
- **DVR:** Acronym for Digital Video Recorder. A DVR is device that is able to accept video signals from analog cameras, compress the signal and store it on its hard drives.
- **HDD:** Acronym for Hard Disk Drive. A storage medium which stores digitally encoded data on platters with magnetic surfaces.
- **DHCP:** Dynamic Host Configuration Protocol (DHCP) is a network application protocol used by devices (DHCP clients) to obtain configuration information for operation in an Internet Protocol network.
- **HTTP:** Acronym for Hypertext Transfer Protocol. A protocol to transfer hypertext request and information between servers and browsers over a network
- **DHCP:** PPPoE, Point-to-Point Protocol over Ethernet, is a network protocol for encapsulating Point-to-Point Protocol (PPP) frames inside Ethernet frames. It is used mainly with ADSL services where individual users connect to the ADSL transceiver (modem) over Ethernet and in plain Metro Ethernet networks.
- **DDNS:** Dynamic DNS is a method, protocol, or network service that provides the capability for a networked device, such as a router or computer system using the Internet Protocol Suite, to notify a domain name server to change, in real time (ad-hoc) the active DNS configuration of its configured hostnames, addresses or other information stored in DNS.
- **Hybrid DVR:** A hybrid DVR is a combination of a DVR and NVR.
- **NTP:** Acronym for Network Time Protocol. A protocol designed to synchronize the clocks of computers over a network.
- **NTSC:** Acronym for National Television System Committee. NTSC is an analog television standard used in such countries as the United States and Japan. Each frame of an NTSC signal contains 525 scan lines at 60Hz.
- **NVR:** Acronym for Network Video Recorder. An NVR can be a PC-based or embedded system used for centralized management and storage for IP cameras, IP Domes and other DVRs.
- **PAL:** Acronym for Phase Alternating Line. PAL is also another video standard used in broadcast televisions systems in large parts of the world. PAL signal contains 625 scan lines at 50Hz.
- **PTZ:** Acronym for Pan, Tilt, Zoom. PTZ cameras are motor driven systems that allow the camera to pan left and right, tilt up and down and zoom in and out.
- **USB:** Acronym for Universal Serial Bus. USB is a plug-and-play serial bus standard to interface devices to a host computer.

## FAQ

- **Why does my DVR make a beeping sound after booting?**

There are a few reasons for the warning beep your DVR makes after booting.

1. There is no HDD present in the DVR.
2. The HDD has not been initialized.
3. The HDD is defective.

If you wish to use your DVR without any HDDs, you may disable this warning beep in the Exception Settings menu (See *Setting Exception*).

- **Why does the DVR seem unresponsive when operating with the IR remote control?**

If your DVR seem unresponsive when using the IR remote and you have read through the section *Using the IR Remote Control*, please check:

1. Check that the batteries are installed correctly in the remote, making sure that the polarities of the batteries are not reversed.
2. Make sure the batteries are fresh and are not out of power.
3. Make sure the remote has not been tampered with.
4. Check around and make sure there are no fluorescent lamps in use.

- **Why does the PTZ seem unresponsive?**

If the PTZ seem unresponsive, please check:

1. Check that the RS-485 cable is properly connected.
2. Check that the dome decoder type is correct.
3. Check that the dome decoder speed configuration is correct.
4. Check that the dome decoder address bit configuration is correct.
5. Check to make sure that the main board RS-485 interface is not broken.

- **Why is there no video recorded after setting the motion detection?**

If there are no recorded video after setting the motion detection, please check:

1. Check that the recording schedule is setup correctly by following the steps listed in *Scheduling a Recording*.
2. Check that the motion detection area is configured correctly (See *Setting Up Motion Detection*).
3. Make sure that channels are being triggered for motion detection (See *Setting Up Motion Detection*).

- **Why doesn't the DVR detect my USB export device for exporting recorded files?**

There's a chance that the DVR and your USB device is not compatible. Please refer to our company's website to view a list of compatible devices.

- **My DVR is in Live View mode and the menu will not come up. It does not respond to the mouse, front panel, remote or keyboard.**

Your DVR may be in auxiliary mode. This occurs when the MAIN/SPOT button is pushed on the front panel. To return to the previous mode of operation, press the MAIN/SPOT button again.

# List of Compatible IP Cameras

## List of Hikvision IP Cameras Supported by DS-9000/9600

IPC Platform	IPC Type	Model	Sub Stream	IPC Resolution	Main Stream Resolution Supported by DS-9000	IPC Sub Stream Resolution	Sub Stream Resolution Supported by DS-9000	Audio Compression	Encoding Format/ Transmission/ Packaging Format	Latest Version	Supported by DS-9000 V1.1.0	Supported by DS-9000 V1.2.0	Supported by DS-9000 V1.3.0
6446 Platform	SD IP Camera	DS-2CD802PF/NF(-E)(-D)(-IR1)(-IR3)(-IR5) DS-2CD812PF/NF(-E)(-D)(-IR1)(-IR3)(-IR5) DS-2CD892PF/NF(-E)(-D)(-IR1)(-IR3)(-IR5) DS-2CD832F(-E) DS-2CD702PF/NF(-E) DS-2CD712PF/NF(-E) DS-2CD792PF/NF(-E) DS-2CD732F(-E)	Yes	4CIF/DCIF/2CIF/CIF/QCIF	4CIF/DCIF/2CIF/CIF/QCIF	CIF/QCIF	CIF/QCIF	G722	HIK H.264+ HIK RTSP+PS	V2.0 build 090811	Yes	Yes	Yes
								G711	Standard H.264+ Standard RTSP+RTP	V2.0 build 090522	No	Yes	Yes
									Standard MPEG4+ Standard RTSP+RTP	V2.0 build 090715	No	Yes	Yes
		DS-2CD802PF/NF-W DS-2CD812PF/NF-W DS-2CD892PF/NF-W DS-2CD832F-W	Yes	4CIF/DCIF/2CIF/CIF/QCIF	4CIF/DCIF/2CIF/CIF/QCIF	CIF/QCIF	CIF/QCIF	G722	HIK H.264+HIK RTSP+PS	V2.0 build 090629	Yes	Yes	Yes
	HD IP Camera	DS-2CD852MF-E DS-2CD752MF(-E) DS-2CD752MF(-I)F B(H)	Yes	UXGA/HD900P/HD720P/S VGA/VGA/4CIF/DCIF/2CIF/CIF/QCIF	UXGA(12.5fps)/720P/VGA/4CIF/DCIF/2CIF/CIF/QCIF	CIF/QCIF	CIF/QCIF	G722	HIK H.264+HIK RTSP+PS	V2.0 build 100521	Yes	Yes	Yes
								G711	Standard H.264+ Standard RTSP+RTP	V2.0 build 100329	No	Yes	Yes
									Standard MPEG4+ Standard RTSP+RTP	V2.0 build 090629	No	Yes	Yes
		DS-2CD862MF-E DS-2CD762MF(-I)F B(H)	Yes	XVGA/720P/VGA	720P/VGA	CIF	CIF (320*240)	G722	HIK H.264+HIK RTSP+PS	V2.0 build 100521	Yes	Yes	Yes
								G711	Standard H.264+ Standard RTSP+RTP	V2.0 build 100329	No	Yes	Yes
									Standard MPEG4+ Standard RTSP+RTP	V2.0 build 090629	No	Yes	Yes
365 Platform	SD IP Camera	DS-2CD7133F-E	Yes	VGA	640*480	CIF/QVGA	CIF/320*240	G711	Standard H.264+ Standard RTSP+RTP	V3.0 build 110117	No	Yes	Yes
		DS-2CD733F-E DS-2CD833F-E DS-2CD8133F-E	Yes	VGA	640*480	CIF/QVGA	CIF/320*240	G711	Standard H.264+ Standard RTSP+RTP	V3.0 build 110117	No	No	Yes
		DS-2CD893PF/NF-E DS-2CD893PFWD-E DS-2CD893NFW-D-E DS-2CD793PF/NF-E DS-2CD793PFWD-E DS-2CD793NFW-D-E	Yes	704*576	4CIF	CIF	CIF	G711	Standard H.264+ Standard RTSP+RTP	V3.0 build 110117	No	No	Yes
	HD IP Camera	DS-2CD7153-E	Yes	1600*1200/1600*912/1280*960/1280*720/800*600/4CIF/VGA/	CIF/4CIF/640*480/1600*1200/1280*720	CIF/QVGA	CIF/320*240	G711	Standard H.264+ Standard RTSP+RTP	V3.0 build 110117	No	Yes	Yes

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		DS-2CD8153F-E DS-2CD853F-E DS-2CD753F-E DS-2CD8253F-EI	Yes	1600*1200/1600*912/1280*960/1280*720/800*600/4CIF/VGA/CIF	CIF/4CIF/640*480/1600*1200/1280*720	CIF/QVGA	CIF/320*240	G711	Standard H.264+ Standard RTSP+RTP	V3.0 build 110117	No	No	Yes
		DS-2CD854F-E DS-2CD754F-E DS-2CD8254F-EI	Yes	1920*1080/1600*1200/2048*1536/1280*720	1280*720/1600*1200/1920*1080	320*240	320*240	G711	Standard H.264+ Standard RTSP+RTP	V3.0 build 110117	No	No	Yes
		DS-2CD883F-E DS-2CD783F-E	Yes	1920*1080/2560*1920/2048*1536/1280*720/1600*1200	1280*720/1600*1200/1920*1080	320*240	320*240	G711	Standard H.264+ Standard RTSP+RTP	V3.0 build 110117	No	No	Yes
		DS-2CD863PF/NF-E DS-2CD763PF/NF-E	Yes	1280*960/1280*720/640*480	1280*720/640*480	352*288/320*240	CIF/320*240	G711	Standard H.264+ Standard RTSP+RTP	V3.0 build 110117	No	No	Yes
6467 Platform	HD IP Camera	DS-2CD876MF/BF	Yes	1600*1200	UXGA	640*480	VGA	G711	Standard H.264+ Standard RTSP+RTP	V2.0 build 101102	No	No	Yes
		DS-2CD886MF/BF-E	Yes	1920*1080/2560*1920/2048*1536/1280*720	1080P/720P	640*480	VGA	G711	Standard H.264+ Standard RTSP+RTP	V2.0 build 101102	No	No	Yes
		DS-976	No	UXGA	UXGA	No	No	No	Standard H.264+ Standard RTSP+PS	V2.2 build 110526	No	No	Yes
		DS-976-V	No	UXGA	UXGA	No	No	No	Standard H.264+ Standard RTSP+PS	V2.2 build 110512	No	No	Yes
		DS-2CD977	No	1080P	1080P	No	No	No	Standard H.264+ Standard RTSP+PS	V2.0 build 110218	No	No	Yes
6446 Platform	SD IP Camera	DS-2DF1-601/2/3/4/5/6/7/8H(F) DS-2DF1-611/2/3/4/5/6/7/8H(F) DS-2DF1-631/2/3/4/5/6/7/8H(F)	Yes	4CIF/DCIF/2CIF/CIF/QCIF	4CIF/DCIF/2CIF/CIF/QCIF	CIF/QCIF	CIF/QCIF	G722	HIK H.264+HIK RTSP+PS	V2.0.1 build 100513	Yes	Yes	Yes
	HD IP Camera	DS-2DF1-671	Yes	VGA/720P/XVGA	720P/VGA	CIF/QCIF	CIF (320*240)	G722	HIK H.264+HIK RTSP+PS	V2.0.1 build 100617	No	Yes	Yes
		DS-2DF1-672		VGA/720P/XVGA	720P/VGA	CIF/QCIF	CIF (320*240)	G722	HIK H.264+HIK RTSP+PS	V2.0.2 build 101225	No	Yes	Yes
		DS-2DF1-6732	Yes	VGA/720P/XVGA	720P/VGA	CIF/QCIF	CIF (320*240)	G722	HIK H.264+HIK RTSP+PS	V2.0.2 build 101225	No	No	Yes
	SD DVS	DS-6101HF DS-6102HF	Yes	4CIF/DCIF/2CIF/CIF/QCIF	4CIF/DCIF/2CIF/CIF/QCIF	CIF/QCIF	CIF/QCIF	G722	HIK H.264+HIK RTSP+PS	V2.0 build 091027	Yes	Yes	Yes



## List of Third-party IP Cameras Supported by DS-9000/9600

IPC Manufacturer	Model	Sub Stream	IPC Resolution	Main Stream Resolution Supported by DS-9000	IPC Sub Stream Resolution	Sub Stream Resolution Supported by DS-9000	Audio Compression	Encoding Format/Transmission/Packaging Format	Latest Version	Supported by DS-9000 V1.1.0	Supported by DS-9000 V1.2.0	Supported by DS-9000 V1.3.0
Sony	SNC-DF40/DF70	No	640*480(VGA) 480*360 384*288 320*240(QVGA) 256*192 160*120(QQVGA)	640*480 320*240			G711U-Law	MPEG4		Yes	Yes	Yes
Panasonic	WV- NP240	No	VGA QVGA	640*480 320*240			G726A-Law	MPEG4		Yes	Yes	Yes
Sanyo	VCC-HD4000	No	1920*1080p 1280*720p 960 * 540p 640 * 360p 320 *180p	1280*720 640*360 320*180			Not support	H.264		No	Yes	Yes
Axis	207W/207MW	No	1280*1024 1280*960 1280*720 640*480 640*360 480*360 480*270 352*288 320*240 320*180 240*180 240*135 176*144 160*120 160*90	1280*720/640*480			G711u-Law, G726	MPEG4		No	No	Yes
Zavio	f3105	No	320*240/640*480/1280*720/1280*1024 (frame rate: 1, 2, 3, 4, 5, 7, 10, 15, 20, 30)	320*240/640*480/1280*720			Not support	MPEG4		No	No	Yes
ACTI	acm7411	No	320*240/640*480/1280*720/1280*1024/ (frame rate: 1, 2, 3, 4, 5, 6, 7, 10, 15, 30)	320*240/640*480/1280*720			Not support	MPEG4		No	No	Yes
Arecont	ARE-AV5105DN	No		640*480			Not support			No	No	Yes
Vivotec	ABUS	No	1600*1200/1280*960/640*480/320*240 (frame rate: 1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20, 25)	1600*1200/640*480/320*240			Not support	MPEG4		No	No	Yes
Infinova	V6201-M	No	D1/2CIF/CIF/QCIF/ 640*480/1280*720/1280*960 (Frame rate: 1, 2, 4, 6, 8, 10, 12, 15, 20, 30N/25P) (Note: the resolution actually supported is 640*480/1280*720/1280*960)	640*480/1280*720			G711u-Law	MPEG4		No	No	Yes