

# DVRN960 Series

Real Time 960H Video Recorders

H.264, Real Time, Full Mobile Apps, HDMI, VGA, BNC, CMS

## OSD MANUAL

Version 1.1

### SUPPORTED MOBILE VIEW & CMS APPS



\* iPhone & iPad Apps Available via App Store  
Mac CMS App Available via Mac App Store  
Android App Available via Play Store

**Northern**★

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## Menu System Overview

The detailed functions and settings of **DVRN960** can be set by entering the intuitive Graphical User Interface (GUI) OSD setup menu. Collaborating with a USB mouse, setting up the DVR can be easy as operating a PC. This chapter particularizes the items and options in the OSD setup menu.

### < Account and Password >

Click on the Menu icon in the Live Panel and select an account to login. There are two preset accounts: “admin” and “user”. Next, enter a corresponding password. The preset password for the administrator account “admin” is “1234”, while the preset password for the account “user” is “4321”.



**NOTE:** It is strongly suggested to change the preset password to prevent unauthorized access to the unit.

An icon displayed at the status bar will show the authority level of the account. Under logout condition, the icon will show “Guest”. When an account is logged in, its authority level number (1~8) will be shown.

Before users logout, other functions can also be accessed without having to login again. There are two ways to logout: manually logout by clicking on the Esc icon in the Live Panel, or auto logout when users are not using the DVR for a preset period of time (default 5 minutes) at Live / Menu mode.

### < USB Mouse Operation >

A USB mouse must be connected in order to operate the DVR. To use the USB mouse, please refer to the following descriptions.

#### <Scroll wheel>

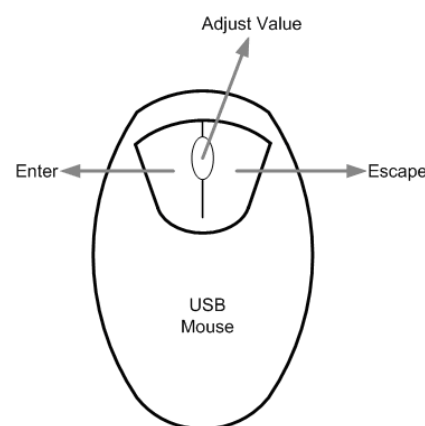
Scroll wheel is used to adjust values in the OSD setup menu.

#### <Left Button>

In the OSD setup menu or selection interface, click left button to make selection or save settings.

#### <Right Button>

Click the right button to exit from certain OSD setup menu without saving any changes.



## < Key Usage of Virtual Keyboard >

A virtual keyboard shows up in some setting items, such as camera title, unit name, etc. The virtual keyboard displays as below.

!	@	#	*	-	_	+	=	,	.	/	←	
1	2	3	4	5	6	7	8	9	0	Del		
A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
a	b	c	d	e	f	g	h	i	j	k	l	m
n	o	p	q	r	s	t	u	v	w	x	y	z
<<		>>			Space			Cancel			OK	

### <To input characters>

Click on the desired characters to select characters.

### <To move the cursor in title entry field>

Select "<<" / ">>" or just use the USB mouse to move the cursor to left / right in the title entry field.

### <To delete previous character>

Click on <←> to delete the previous character.

### <To delete current character>

Click on <Delete> to delete the current character.

### <To exit the virtual keyboard>

Click on <OK> to save the setting and exit. Otherwise, select <Cancel> to exit without saving changes.



**NOTE:** If a USB keyboard is connected and when any key on the keyboard is pressed, the cursor on the virtual keyboard will be automatically moved to <OK>.

## System Setup

Select <System> from the Main Menu to enter the System menu. The items in the System menu are described in the following sections.

System	
System/Version Info	
Language	English
Date/Time	
Unit Name	DVR
Show Unit Name	No
User Management	
Network Setup	
RS485 Setup	
Audio Output/Key Beep	

### < System/Version Info >

The System/Version Info menu allows users to view system information, such as hardware and software version. From the System menu, select <System/Version Info>, and the following menu is displayed. The first five items are “read-only”, for users’ information only. The items in this menu are described in the following subsections.

System/Version Info	
Model Name	****
Video System	NTSC
Hardware	**_**_**
Software	****_****_****_****
MAC Address 1	**.***.***.***.***.***
Software Upgrade	
Software Upgrade Via Internet	

#### ■ **Model Name**

This item shows the model name of the DVR.

#### ■ **Video System**

This item shows the current video system of the DVR.

#### ■ **Hardware**

This item shows the hardware version of the DVR.

#### ■ **Software**

This item shows the software version installed on the DVR.

### ■ **MAC Address 1**

This item identifies the first Media Access Control (MAC) address of the DVR.

### ■ **Software Upgrade**

This item is used for updating software of the **DVRN960** via local device. The menu is displayed as follows.

Software Upgrade	
Upgrade Version	Select
XXXX-XXXX-XXXX-XXXX	No

Connect a USB storage device containing the upgrade software to the DVR; the available upgrade files will be listed in the menu. To update the system, choose a file and select <Yes> to start the upgrade process. The **DVRN960** will download the software, update the system files, and reboot automatically.

The upgrade process may take several minutes to save the changes in the memory of the system. After the DVR is rebooted, please check the software version again.



**NOTE:** No power interruption is allowed during the software update.



**NOTE:** Do not remove the external USB ThumbDrive before the DVR completely shuts down. Removing the external USB ThumbDrive before shutdown may cause the system to update improperly.

### ■ **Software Upgrade Via Internet**

The item is used to upgrade the software of the DVR via the internet. Select one of the listed software versions and choose <Yes>. The DVR downloads the software, updates the system files, and reboots automatically.

## < Language >

The Language item allows users to select the language for the OSD setup menu and screen messages. Language selection immediately takes effect when the selection is made. Click the pull-down list next to <Language> to select a preferred language.

## < Date / Time >

Users can set the current date, time and other OSD parameters in this menu. In System menu, select <Date/Time>; the Date/Time menu displays as follows.

Date/Time	
Date	2014/03/11
Time	PM 10:39:26
Time Zone	OFF
Date/Time Display	1 Row
Date Display Mode	Y/M/D
Time Display Mode	12 HR
Daylight Saving Time Setup	
Network Time Protocol Setup	



**NOTE:** The reset Date / Time only applies to new video. The date and time of previously recorded videos will not be changed.



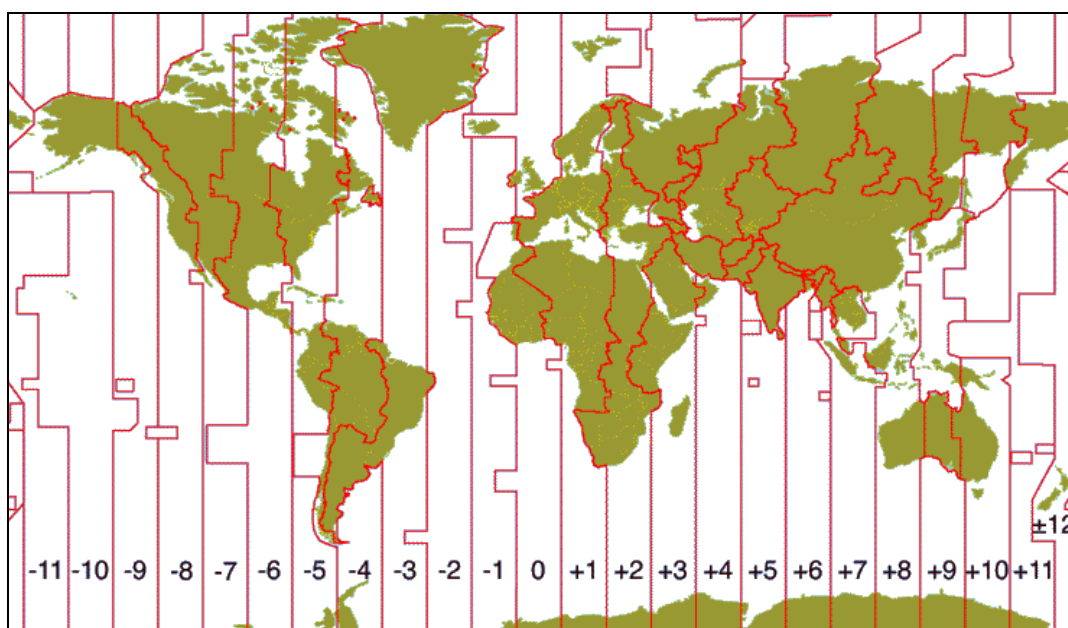
**NOTE:** To avoid database corruption, formatting the database is recommended after changing Date / Time setting.

### ■ *Date / Time*

Select <Date> or <Time> to adjust the settings. UP / DOWN are used to change the value in the selected field.

### ■ *Time Zone*

Click the box next to <Time Zone> to select users' local time zone. Please refer to the following figure or visit [www.greenwichmeantime.com](http://www.greenwichmeantime.com) to find out users' local time zone.





**NOTE:** <Time Zone> must be set to users' local time zone, or <Network Time Protocol Setup> will not be accessible.

### ■ ***Date / Time Display***

Users are allowed to set the date / time OSD display in 1 / 2 row(s), or set to <OFF> to disable this item. Choose a preferred format from the pull-down list.

### ■ ***Date Display Mode***

This menu allows users to set the display type of the date. Three options are provided: <Y/M/D>, <M/D/Y> or <D/M/Y>. “Y” represents “Year”, “M” represents “Month” and “D” represents “Day”. Choose a preferred type from the pull-down list.

### ■ ***Time Display Mode***

Users can set the time format to <12 HR> or <24 HR>. Choose a desired format from the pull-down list.

### ■ ***Daylight Saving Time Setup***

This function is for people who live in certain regions to observe Daylight Saving Time. The menu displays as follows:

Daylight Saving Time Setup		
Daylight Saving Time		Off
DST Start	Mar 2nd Sun 02:00	
DST End	Nov 1st Sun 02:00	
DST Bias		60 Min

#### - ***Daylight Saving Time***

Select <On> to enable, or <Off> to disable the function. If the function is disabled, the DST Start / End time and DST Bias will be grayed out and cannot be accessed. If this function is enabled, the date/time information will be shown on the screen with a DST icon when users are playing back the recorded video or searching video in the event list. “S” indicates summer time and “W” indicates winter time.

#### - ***DST Start / End***

These items are used to set duration of daylight saving time. Choose time from the pull-down list, and click the UP / DOWN buttons to change the settings.

### - DST Bias

This item allows users to set the amount of time to move forward from the standard time for daylight saving time. Available options are <30>, <60>, <90> and <120> minutes.

## ■ Network Time Protocol Setup

After time zone is set, the <Network Time Protocol Setup> option will be available.

Network Time Protocol Setup	
NTP Server	time.nist.gov
Automatically Time Sync	Off
Manually Time Sync	No

### - NTP Server

Enter this item to setup a feasible time server. The default time server is time.nist.gov. Users can change it to any other time server if desired. IP addresses of other time servers are listed below for reference.

129.6.15.28	129.6.15.29	132.163.4.101
132.163.4.102	132.163.4.103	128.138.140.44
192.43.244.18	131.107.1.10	69.25.96.13
206.246.118.250	208.184.49.9	64.125.78.85
207.200.81.113	64.236.96.53	68.216.79.113

### - Automatically Time Sync

Select <On> and the time will be synced once an hour.

### - Manually Time Sync

Select <Yes> to sync the time immediately.

## < Unit Name >

Users are allowed to assign a unit name, up to 11 characters, to the **DVRN960**.

Follow the steps below to edit the unit name.

- Select <Unit Name> from the System menu. A virtual keyboard displays as below.

!	@	#	*	-	_	+	=	,	.	/	←
1	2	3	4	5	6	7	8	9	0	Del	
A	B	C	D	E	F	G	H	I	J	K	L
N	O	P	Q	R	S	T	U	V	W	X	Y
a	b	c	d	e	f	g	h	i	j	k	l
n	o	p	q	r	s	t	u	v	w	x	y
<<		>>		Space		Cancel		OK			

- Click to add the wanted character to the entry field (up to 11 characters).
- After the unit name is entered, click <OK> to save the setting and exit.

## < Show Unit Name >

This item enables the unit name of the **DVRN960** to be shown on the monitor. Select <Yes> to show or select <No> to hide.

## < User Management >

The DVR provides the option to create up to seven sets of usernames and passwords with customized authority, excluding the preset “admin” account. The menu is as the following.

User Management	
Password Protection	On
Auto Logout	300 Sec
Account Setup	
Permissions Setup	
Load Default Setting	No

### ■ Password Protection

Select <On> to request for username and password for accessing functions listed in <Permissions Setup>, or select <Off> to allow free access.

### ■ Auto Logout

Users can setup time for automatic logout of system when no operation is performed. Select from <60 Sec>, <120 Sec>, <300 Sec> and <600 Sec>. Alternatively, select <Disabled> and the system will not automatically logout.

## ■ Account Setup

Setup customized username, password, and authority level in this menu. Click the box next to <Account> to select items. Note that the account is case sensitive. The privilege level ranks from level 1~8, and level 8 is the highest authority level. Alternatively, select <Disable> to stop using the account. A second password can also be specified, if required.

Account Setup		
Account:	admin	Mod
Password:	****	Mod
Privilege:	Level 8	
2nd PW...	Off	
2nd PWD:		Mod
<div style="display: inline-block; border: 1px solid black; padding: 2px 10px;">Confirm</div> <div style="display: inline-block; border: 1px solid black; padding: 2px 10px; margin-left: 10px;">Cancel</div>		



**NOTE:** The account name and privilege level of the preset “admin” account cannot be changed.

## ■ Permissions Setup

Users can setup the authority level permitted to access the functions listed in this menu. The functions include: Playback/Search, Covert Camera, Dome Control, Live Operation, Call Control, Export Data, Menu Access, System Setup, Monitor Setup, Camera Setup, Record Setup, Sequence Setup, Event Setup, Database Setup, Configuration, AUX Setup and Shutdown. Scroll to view these items. In accordance with users' privilege level in <Account Setup>, the authority level here also ranks from level 1~8, with level 8 as the highest level. Users can access any function that is equivalent to or lower than their privilege level. Alternatively, select <DISABLE> to allow free access.

Permissions Setup	
Item	Authority
Playback/Search	DISABLE
Covert Camera	LEVLE8
Dome Control	DISABLE
Live Operation	DISABLE
Call Control	DISABLE
Export Data	DISABLE



**NOTE:** The “Menu Access” cannot be set to <DISABLE>.

When the account does not have the authority to access certain functions, an error message will be displayed on the screen.

### ■ **Load Default Setting**

This item is to restore the default settings. Select <Yes> to load default setting or select <No> to exit.

## **< Network Setup >**

The Network Setup menu allows users to configure the network by specifying the network related settings, such as IP address and Netmask, etc. Check with the network administrator and/or network service provider for more specific information. The menu is as the following. Items in this menu are described in the following sections.

Network Setup	
LAN Select	LAN
LAN Setup	
Web Port	80
DDNS Setup	
UPnP Setup	

### ■ **LAN Select**

This item allows users to select the network type among <LAN>, <PPPoE>, and <None>. If the internet connection is a local area network communication, please select <LAN>.

If the internet connection is a broadband medium, such as DSL Line or cable modem, please select <PPPoE>. PPPoE stands for Point-to-Point Protocol over Ethernet. It is a specification for connecting the users on an Ethernet to the Internet through a common broadband medium.

If <None> is selected, users do not need to set further LAN or PPPoE settings. Therefore, the second item <LAN Setup> will be inaccessible.

## ■ LAN Setup

The network related settings in the LAN Setup menu are associated with the network service type. If users select <LAN> for <LAN Select>, then the PPPoE related menu items will not be displayed.

Select <LAN Setup> in <Network Setup> and use the virtual keyboard to set parameters. The menu displays as follows.

LAN Setup		
DHCP		On
IP	192.168.1.150	
Netmask	255.255.255.0	
Gateway	192.168.1.1	
DNS	0.0.0.0	
PPPoE Account		
PPPoE Password		
Connect At Booting		Yes
Network Restart		No

### - DHCP

This item allows users to obtain a dynamic IP address from DHCP (Dynamic Host Configuration Protocol) server when the DVR boots up. When users use DHCP, the settings are dynamic and will change every time the DVR powers on or off.

If DHCP is enabled (On), a dynamic IP will be assigned to **DVRN960**. In this case, users do not need to configure the Ethernet settings, including IP address, Netmask, Gateway, and DNS settings. These items will be “read-only”.

If users wish to use a permanent address, set DHCP to <Off> to manually set IP Address, Netmask, Gateway, and DNS. Check with the network system administrators or IT personnel for appropriate values for these settings.

### - IP

This item is used to configure the IP (Internet Protocol) address of the DVR. The IP address is the identifier for the DVR on a TCP/IP LAN or WAN. Note that to set a static IP address, DHCP must be set to <Off>.

- **Netmask**

Netmask is a 32-bit mask used to divide an IP address into subnets and specify the networks available hosts. Its value is defined by the network administrator. It takes the form as `***.***.***.***`, for example, 255.255.255.255.

This item allows users to enter the value of the Netmask for the DVR. Please note that to configure this item, DHCP must be set to <Off>.

- **Gateway**

Gateway is a node on a network that serves as an entrance to another network. Users are allowed to specify the IP address of the gateway or router associated with this DVR. To configure this item, DHCP must be set to <Off>.

- **DNS**

DNS is the abbreviation for “Domain Name Server”, which is an Internet service that translates domain names (e.g. www.DNS.com) into IP addresses. The advantage of using DNS is that domain names are easier to be memorized.

This item allows users to specify the IP address of the Domain Name System associated with the DVR. To configure this item, DHCP must be set to <Off>.

If the server is unavailable when DHCP is enabled, the DVR will search for the network server and boots up more slowly. This network search continues until it times out.

- **PPPoE Account**

The item allows users to setup the PPPoE login username.



**NOTE:** For accessing the PPPoE settings, select <PPPoE> as the Network Type under <LAN Select>.

To setup the login username, follow the steps:

- Select <PPPoE Account> from the LAN Setup menu. A virtual keyboard displays.
- Click to add the desired characters to the entry field.
- When it is done, click <OK> to save the setting and exit.

### - PPPoE Password

The item allows users to setup the PPPoE password. Follow the steps to setup the login password.

- Select <PPPoE Password> from the LAN Setup menu and a virtual keyboard displays.
- Click to add the wanted characters to the entry field.
- When it is done, click <OK> to save the setting and exit.

### - Connect At Booting

The DVR is allowed to automatically connect to the internet when it is powered up. Select <Yes> to connect at booting; otherwise, select <No>.

### - Network Restart

Network restart is required after network settings are changed. Select <Yes> to restart the network connection.

## ■ Web Port

To avoid the default service port (port 80) being jammed, this item enables users to change port 80 to another port.

To change the web port, users can click the UP / DOWN buttons to adjust the setting.

## ■ DDNS Setup

Dynamic Domain Name System (DDNS) allows a DNS name to be constantly synchronized with a dynamic IP address. In other words, it allows a dynamic IP address to be associated to a static domain name, so users can connect to it by the domain name.

Select <DDNS Setup> from <Network Setup>. The menu displays as below.

DDNS Setup		
Enable DDNS		Off
Service Provider		iview-ddns
Host Name		XXXX_XXXX
DDNS Port		80
DDNS Account		
DDNS Password		
Submit/Update		No
ezDDNS		No

## - Enable DDNS

The item is used to enable or disable the Dynamic Domain Name Service. Select <On> to enable the service, or <Off> to disable.

## - Service Provider

There are three different service providers: <iview-ddns>, <dyndns> and <Changelp>. When <iview-ddns> is selected, users can setup preferred <Host Name> and <DDNS Port>. The DDNS address will be as <http://hostname.ddns.iview-ddns.com> after users submit the setting. For example, if the chosen host name is “**H264DVR**”, then the address will be: <http://H264DVR.ddns.iview-ddns.com>.

Alternatively, when <dyndns> is selected, users first need to obtain accounts from the website <http://dyn.com/dns/>. The further required items are <Host Name>, <DDNS Account>, and <DDNS Password>.



**NOTE:** If <dyndns> or <Changelp> is selected, <DDNS Port> and <ezDDNS> will be grayed out. The ezDDNS function is only available for the iview-ddns provider.

## - Host Name

The item allows users to setup a domain name, which is used for accessing the **DVRN960** via internet on the remote PC.

To setup the host name of the DVR, follow the steps below.

- Select <Host Name> from <DDNS Setup>. A virtual keyboard displays as below.

!	@	#	*	-	_	+	=	,	.	/	←
1	2	3	4	5	6	7	8	9	0	Del	
A	B	C	D	E	F	G	H	I	J	K	L
N	O	P	Q	R	S	T	U	V	W	X	Y
a	b	c	d	e	f	g	h	i	j	k	l
n	o	p	q	r	s	t	u	v	w	x	y
<<		>>		Space			Cancel		OK		

- Click to add characters to the entry field.
- When it is done, click <OK> to save the setting and exit.



**NOTE:** Each **DVRN960** should have its unique host name.

---

- **DDNS Port**

The item allows users to setup the port for DDNS. Click the UP / DOWN buttons to change the port.

- **DDNS Account**

Users who use DynDNS or ChangelP as the service provider have to input a DDNS account name. Follow the same step as described in <Host Name> setup to input a valid account name.

- **DDNS Password**

Users who are using DynDNS as the service provider have to input a DDNS password. Follow the same step as described in <Host Name> to input the password goes with the valid user name.

- **Submit / Update**

When the settings are completed, select <Yes> to submit the settings.



**NOTE:** If more than one **DVRN960** has the same domain name, only the first one will be submitted successfully.

- **ezDDNS**

**ezDDNS** enables the users to register for host name automatically. Select <Yes>, and the following will be displayed.

ezDDNS Submit/update ok!  
Host name is XXXX\_XXXXXX  
Press any key to return



**NOTE:** The DVR must be connected to the \*Real IP address, or be assigned a specific port using \*\*Port Forwarding technique.

\*A "**Real IP**" is an IP address that is assigned to users by the ISP.

\*\*A "**Virtual IP**" is an IP address assigned either manually or through DHCP. When users are assigned a Virtual IP, users must use **Port Forwarding** technique to assign a specific port to DVR.

## ■ **UPnP Setup**

UPnP is the abbreviation for Universal Plug and Play, which is a technology that integrates a universal protocol for widespread plug-and-play devices to ease the network implementation. When a PC and a DVR both are both installed the UPnP function, the PC can automatically recognize the DVR in the same local area network. The advantage of this function is that PCs can connect to the DVR via the remote control software by directly clicking on the icon representing the DVR in **<My Network Places>** folder. The menu will be as the following.

UPnP Setup	
UPnP	On
UPnP NAT Traversal	No

### - **UPnP**

Set the first item UPnP to **<ON>** and the DVR is now with UPnP function.

### - **UPnP NAT Traversal**

The UPnP NAT traversal function will help to automatically setup a router if the DVR connects to the internet via a router. Select **<Yes>** and the settings of router will be taken care by the DVR itself.

## **< RS485 Setup >**

This menu allows users to setup the parameters of the DVR's RS-485 communication port. From the System menu, select **<RS485 Setup>**. The following menu is displayed.

RS485 Setup	
Unit ID	224
Baud Rate	9600
Bits	8
Stop	1
Parity	None

## ■ **Unit ID**

This item is used to change the RS-485 ID address of the DVR. The ID is in the range of **<1>** to **<255>**.

## ■ **Baud Rate**

The Baud rate options for associated with the protocol are **<2400>**, **<4800>**, **<9600>**, **<19200>**, **<38400>**, and **<57600>**.

### ■ **Bits**

Users can specify the bits in a word associated with this protocol. The available options are <6>, <7> and <8> bits.

### ■ **Stop**

Users can specify the stop bit associated with this protocol. Options are <1> and <2> stop bits.

### ■ **Parity**

This item is used to specify the parity associated with this protocol. Options are <Odd>, <Even> and <None>.

## < Audio Output/Key Beep >

Enter this menu to setup the audio output or key beep.

Audio Output/Key Beep	
Audio Output	Live/PB
Key Beep	On

### ■ **Audio Output**

This item is for setting the audio output mode. The available options are as below.

#### **Live/PB:**

Select this item to play the recording sounds of live image in live mode, and sounds of recorded video in playback mode respectively.

#### **Always Live:**

Select this item to play live sounds in both live mode and playback mode.

#### **OFF:**

Select this item to disable the audio output function.

### ■ **Key Beep**

This item is used to enable or disable the key tone. Select <On> to enable the key tone, or <Off> to disable.

## Monitor Setup

---

The Monitor setup menu allows users to adjust the quality of the displayed image. Select <Monitor> from the Main Menu, and the following menu is displayed.

Monitor	
Show Camera Name	Yes
Monitor Brightness	50
Monitor Contrast	50
Monitor Chrominance	50
OSD Transparency	0 %
VGA Resolution	720P
Show Color Bar	
Mouse Sensitivity	90%
Hide Status Bar	No
Status Bar Size	Medium

### < Show Camera Name >

This item allows users to choose whether to display the camera name on the screen or not. The default is <Yes>, which displays the camera names with the video.

### < Monitor Brightness >

This item is for users to adjust the brightness of the monitor. Click the UP / DOWN buttons to adjust the value. Users can also click the <Num> button next to <Monitor Brightness> to directly input the value from the numeral keyboard. The value ranges from <0> to <100>.

### < Monitor Contrast >

This item is used to adjust the color contrast of the monitor. Click the UP / DOWN buttons to adjust the value. The range of the contrast value is <0> to <100>.

### < Monitor Chrominance >

This item can be used to adjust the chrominance of the monitor. Users can adjust the value by clicking the UP / DOWN buttons. The value of the monitor chrominance ranges from <0> to <100>.

### < OSD Transparency >

This item allows users to set the OSD setup menu transparent in a certain degree, so that users can view the live images while configuring the OSD settings. The options are <0%>, <15%>, <30%>, <45%>, <60%>, <75%>, and <90%>.

## < VGA Resolution >

This item allows users to select appropriate VGA resolution for the VGA monitor connected to the DVR. The options are <1024\*768>, <1280\*1024>, <720P>, and <1080P>.



**NOTE:** After the VGA resolution is altered, the system will reboot to apply the change. Please make sure your monitor can support the selected resolution before changing monitor settings. When connecting monitors with a 4:3 aspect ratio it is recommended to use 1024x468 or 1280x1024 resolutions only.

## < Show Color Bar >

Choose this item to display color bar pattern on the screen. The color bar helps to adjust the monitor hue, saturation, text color, and display options. Right click to exit the color bar pattern display and return to the OSD setup menu.

## < Mouse Sensitivity >

This item allows users to set the sensitivity of the connected mouse. Starting from <10%>, with 10% increment, the maximum value is <100%>.

## < Hide Status Bar >

Users can choose whether to hide the status bar. The default setting is <No>. If users decide to hide the status bar, set this item to <Yes>.

## < Status Bar Size >

This item allows users to select the displaying size of the status bar. The default setting is <Medium>. The other available displaying sizes are <Small> and <Large>.

## Camera Setup

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The items in the Camera setup menu enable users to set camera parameters, including camera title, dome protocol and ID for each connected camera.

### < Analog Camera >

Items in this menu are described in the following subsections.

Camera Setup	
Analog Camera Select	CH01
Dome Protocol	None
Dome ID	0
Camera Name	CH1
Covert	No
Termination	Yes
Adjust Video	
Audio Association	Yes
Copy Settings	

#### ■ **Analog Camera Select**

This item is used to select a camera for setting the parameters. The related settings will follow the selected camera, such as dome protocol and camera title. Select a channel from the pull-down list.

#### ■ **Dome Protocol**

If the connected camera is a dome camera, click the box next to <Dome Protocol> and select the communication protocol associated with the dome camera from the pull-down list. The available protocol includes <DSCP>, <AD422>, <Pelco D>, <Pelco P>, <Fastrax 2>, <JVC>, <Panasonic\_C>, <Panasonic\_N>, <GE RS-485>, and <GE RS-422>. The default is set to <None>.

#### ■ **Dome ID**

This item is used to assign an ID number (from 0 to 255) to the selected dome camera. Note that the ID number must match the ID address set by the dome camera.

#### ■ **Camera Name**

This item allows the users to change the name of each connected camera. By default, the names of cameras are numbered from 1 through 16 for 16CH models (8CH models are from 1 to 8, and 4CH models are from 1 to 4). The new name will be displayed on screen after the setting is completed.

Follow these steps to enter a new name for a camera.

- Click <Camera Name>, and a virtual keyboard with alphanumeric characters is displayed as below.

!	@	#	*	-	_	+	=	,	.	/	←
1	2	3	4	5	6	7	8	9	0	Del	
A	B	C	D	E	F	G	H	I	J	K	L
N	O	P	Q	R	S	T	U	V	W	X	Y
a	b	c	d	e	f	g	h	i	j	k	l
n	o	p	q	r	s	t	u	v	w	x	y
<<		>>		Space			Cancel		OK		

- Click to add characters to the entry field. Each title can contain up to 11 characters.
- After name entry is completed, click <OK> to save the setting and exit. Otherwise, either right click the mouse or click <Cancel> to abort.

## ■ Covert

If users wish to hide the display of the camera, select <Yes>. Note that the display in the remote monitoring software will also be hidden. Otherwise, choose <No> and the live image of the camera will be shown on the monitor.

## ■ Termination

This item is used to enable / disable the 75-termination resistor inside the unit to adjust the image quality of each camera. <Yes> indicates the termination resistor is enabled, while <No> indicates the termination resistor is disabled.

## ■ Adjust Video

Enter this menu to adjust video display settings.

Adjust Video	
Brightness	0
Contrast	0
Saturation	0
Hue	0
Reset	No

### - Brightness

Click the box next to <Brightness> and click the UP / DOWN buttons to adjust the brightness of the camera. The range of brightness values is <-128> to <127>.

- **Contrast**

Click the box next to <Contrast> and click the UP / DOWN buttons to adjust the contrast of the camera. The range of contrast values is <-128> to <127>.

- **Saturation**

Click the box next to <Saturation> and adjust the color saturation of the camera by clicking the UP / DOWN buttons. This value will be ignored on monochrome monitors. The range of saturation values is <-128> to <127>.

- **Hue**

Click the box next to <Hue> and adjust the hue of the camera. Click the UP / DOWN buttons to adjust the numeric value. The range of hue values is <-128> to <127>.

- **Reset**

Select <Yes> for this item to reset the above video adjustment settings.

- **Audio Association**

The item is used to establish the connection between the selected camera and its corresponding audio-in channel. Click the box next to <Audio Association> to select <Yes> or <No> to setup the connection.

- **Copy Settings**

This item allows users to copy the settings of the currently-selected analog camera to any other connected analog cameras. Enter this menu and select one or more target analog cameras. Then select <Confirm> to apply the settings.

Copy Settings							
Copy To:							
01	02	03	04	05	06	07	08
09	10	11	12	13	14	15	16
Select All		Deselect All		Confirm		Cancel	

## Record Setup

The following factors will influence the total record time of **DVRN960**:

- HDD capacity
- Image quality settings
- Recording rate (Picture per Second)
- Event settings

The greater the recording rate and the higher the quality setting are, the shorter the recording duration. Most of the related factors can be set here in this submenu.

The Record menu allows users to set recording quality, recording schedules, and other recording parameters. Click <Record> in the Main Menu, and the following menu will be displayed.

Record	
Record Mode Setup	
Schedule Setup	
Preset Config	Best Quality
ezRecord Setup	
Advance Schedule Setup	
Data Lifetime Setup	
Circular Recording	On
Audio Recording	On
Purge Data	

### < Record Mode Setup >

Enter this menu to setup record resolution. The relative record settings, such as preset configuration, will follow the record mode setting. The menu is displayed as the following.

Record Mode Setup	
Record Resolution	WD1
Record Format	H264
Max Rec. PPS	480
CBR/VBR	CBR

#### ■ **Record Resolution**

Select resolution of the recorded video from WD1, D1, and HD1.

#### ■ **Record Format**

The video format will be H.264 compression. This item is “read-only”.

### ■ **Max Rec. PPS**

This item will remain constant. With different video systems, NTSC and PAL, the maximum recording PPS varies.

For NTSC video system, the maximum recording PPS is 480 for 16CH models. For 8CH models, the maximum recording PPS is 240, while for 4CH models, it will be 120.

As for PAL video system, the maximum recording PPS will be 400 for 16CH models, 200PPS for 8CH models, and 100PPS for 4CH models.

### ■ **CBR / VBR**

This item allows users to select an encoding method for the unit.

CBR, Constant Bit Rate, is a way to encode a file at a fixed rate. It also indicates a CBR file has consistent file size and quality.

VBR, Variable Bit Rate, allocates an appropriate amount of data per second, depending on the complexity of the video file.

It is strongly suggested to use CBR encoding when reliable video quality is the top priority.



**NOTE:** Since a VBR file does not have a fixed size, the HDD space usage cannot be calculated; thus, ezRecord function is not supported for VBR mode. Therefore, if ezRecord is selected as the preset record configuration, the option of this menu item will automatically be set as <CBR>.

## < Schedule Setup >

This submenu is used to set the day and night time, or weekend recording schedule. The Day and Night Schedules are used to define daytime and night time; the Weekend Schedule can be modified for weekends and holidays. Select <Schedule Setup> from the Record menu; the following menu is displayed.

Schedule Setup	
Day Time Start	AM 06:00
Day Time End	PM 06:00
Night Time Start	AM 06:00
Night Time End	PM 06:00
Weekend Schedule	On
Weekend Start	Fri PM 06:00
Weekend End	Mon AM 06:00

### ■ **Day / Night Time Start / End**

The Day / Night Start Time and End Time determines the duration of day / night recording time. Time is indicated in 1-minute increment. The time display format in this menu is based on the setting of <Time Display Mode> in <System>.

### ■ **Weekend Schedule**

<Weekend Schedule> determines whether a weekend schedule is in effect. Choose <On> to enable the related weekend settings.

### ■ **Weekend Start / End**

<Weekend Start> indicates the specific day and time when the weekend schedule should begin, for example, Fri PM 06:00. <Weekend End> indicates the specific day and time when the weekend schedule should end, for example, Mon AM 06:00. Time is indicated in 1-minute increment.

Note that the value users have set indicates when the regular Day and Night schedule ends, and Weekend recording begins.

## < Preset Record Configuration >

<Preset Config> is used to select the preset recording quality. Different preset recording quality levels are offered for users to choose: <Best Quality>, <Standard>, <Extended Record>, <Event Only>, <ezRecord>, <512Kbps DSL>, <256Kbps DSL>, <128Kbps DSL>, and <Adv. Schedule>. The default setting is <Best Quality>.

## < ezRecord Setup >

This item aims to ease the complicated record settings, and to make the setup much easier. Note that this item can be accessed only when <ezRecord> is selected as the option for <Preset Config>.

Select <ezRecord Setup> from <Record> and the menu is displayed as below.

ezRecord Setup	
How Many Days To Record	22 Days
Daytime Record	Yes
Night Record	Yes
Weekend Record	Yes
Average Normal PPS	30
Average Normal Quality	Best

Follow these steps to Setup ezRecord:

- Click the box next to <How Many Days To Record>, and click the UP / DOWN buttons or scroll the mouse wheel to choose an option. The average normal PPS and Quality will be adjusted automatically. The maximum of recording days depends on the size of the installed HDD. In other words, the larger the size of the installed HDD, the more days the DVR can record.
- Click the box next to <Daytime Record>, which determines whether the DVR will record during daytime. Select <Yes> to enable daytime recording, or <No> to disable.
- Repeat the same procedures above for <Night Record> and <Weekend Record>, respectively. Note that <Weekend Record> will be inaccessible if <Weekend Schedule> in <Schedule Setup> is set to <Off>.
- Click the box next to <Average Normal PPS>, and select a value from the pull-down list. <How Many Days To Record> will be computed automatically.
- Select a preferred quality under <Average Normal Quality>. <How Many Days To Record> will be computed automatically.



**NOTE:** The current number of connected cameras will affect the recording quality automatically calculated through <ezRecord Setup>. Therefore, once the number of the connected cameras is changed, users should re-access the <ezRecord Setup> menu for the DVR to reset the values.

## < Advance Schedule Setup >

When <Adv. Schedule> is selected as the option for <Preset Config>, users need to further configure the schedule and recording settings under this menu. Click <Advance Schedule Setup>, and the menu is shown as below.



**NOTE:** <Advance Schedule Setup> can only be accessed when <Preset Config> is set to <Adv. Schedule>.

Advance Schedule Setup	
Schedule Table	
Recording Profile Setup	
Holiday Setup	

### ■ Schedule Table

In this menu, users can assign recording type for days in a week by hours. Moreover, the recording type for pre-defined holidays can also be specified here. Refer to the steps below to setup the schedule table.

Schedule Table																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Sun																								
Mon																								
Tue																								
Wed																								
Thu																								
Fri																								
Sat																								
Hol																								

Recording Type

Best Qty

Standard

Extended

Profile 1

Profile 2

Profile 3

Evt Only

Best Quality ▾

Confirm

Cancel

- Click on a preferred recording type at the bottom.
- Click at any grid of time to assign the selected recording type.
- Click on any hour on the top to fill up the column.
- Click on any day on the left to fill up the roll.
- Click on the top left grid to always record with the selected recording type.
- Click on the <Confirm> button to save the setting.

## ■ **Recording Profile Setup**

Enter this menu to setup normal and event recording options for Profile 1, Profile 2 and Profile 3 for each channel. Follow the steps below to complete the setting.

Recording Profile Setup				
Camera Select				CH01
	Profile 1	Profile 2	Profile 3	
Normal PPS	30	30	30	
Normal Qlty	Best	Best	Best	
Event PPS	30	30	30	
Event Qlty	Best	Best	Best	
Copy Settings				

### - **Camera Select**

The item is used to select a desired channel for setting the parameters. Click the box next to <Camera Select> to select a channel from the pull-down list.

### - **Normal PPS**

Normal PPS (Picture Per Second) is used to set the recording rate for normal videos. Users can setup different PPS for each channel and profile according to the application.

### - **Normal Qlty**

This item is used to set the picture size for normal video recording. The available options are: <Low>, <Fair>, <Mid>, <High>, and <Best>.

### - **Event PPS**

Event PPS is used to set the event recording rate for event videos. Normally, the Event PPS is set to equal or greater than Normal PPS; the setting depends on the application. If the Event PPS is set to <0>, the **DVRN960** will stop recording event video when alarm occurs.

### - **Event Qlty**

The item is used to set the picture size for event video recording. The available options are: <Low>, <Fair>, <Mid>, <High>, and <Best>.

### - Copy Settings

This function is for users to copy the settings of the currently-selected camera to any other connected cameras. Click <Copy Settings> and select one or more target cameras. After the selection, click <Confirm> to apply the settings.

## ■ *Holiday Setup*

The DVR also allows users to define holidays that require special monitoring and recording settings. The Holiday Setup menu is as below.

Holiday Setup	
Holiday List	
Add Holiday	01/01

- Select a date for <Add Holiday> and the date will be added to the holiday list.
- Select <Holiday List> to see all added holidays.
- Users can also remove holidays in the <Holiday List> menu.

## < Data Lifetime Setup >

Data Lifetime indicates the duration that a video is saved and recallable in the HDD. Only those videos recorded within Data Lifetime can be displayed on the screen and played back. The video exceeds Data Lifetime will be hidden and cannot be retrieved for playback.

Data Lifetime Setup	
Data Lifetime Mode	General
Data Lifetime	0 Days
Data Lifetime By Day	
Data Lifetime By Channel	



**NOTE:** To playback a video beyond the data lifetime, extend the duration till the recording data / time of the video is included.

### ■ **Data Lifetime Mode**

This item allows the user to choose preferred data lifetime mode. There are three types of data lifetime mode: General, By Day, and By Channel. When a specific mode is selected, further settings of the other two will be grayed out and cannot be accessed.

### ■ **Data Lifetime**

When data lifetime mode is set as <General>, this item will be accessible. Click the UP / DOWN buttons to set the data lifetime. The value ranges from <1> to <365> days. Alternatively, select <0> to disable this function.

### ■ **Data Lifetime By Day**

When data lifetime mode is set as <By Day>, this item will be accessible. Enter this menu and users can setup data lifetime of each weekday separately. The value ranges from <1> to <365> days. Alternatively, select <0> to disable this function.

### ■ **Data Lifetime By Channel**

When data lifetime mode is set as <By Channel>, this item will be accessible. Enter this menu and users can setup data lifetime of each channel separately. The value ranges from <1> to <365> days. Alternatively, select <0> to disable this function.

## < Circular Recording >

Users can choose to record video in circular mode or in linear mode. If circular mode is selected, the DVR will store new videos into the HDD spaces while overwriting the oldest recorded videos. Alternatively, if linear mode is selected, the DVR will stop recording when HDD is full. The percentage of HDD usage will be displayed as an icon in the status bar. Furthermore, an alert icon will be displayed in the status bar when HDD usage reaches 98%. In the mean time, an internal buzzer will start beeping.

From the Record menu, set <Circular Recording> to <On> or <Off> to enable or disable the circular recording mode.

## < Audio Recording >

This item allows users to enable / disable audio recording function of the DVR. When it is set to <On>, audio input is recorded and saved with the video. When it is set to <Off>, audio is ignored.

## < Purge Data >

This item is used to delete the Normal or Event videos. In <Record>, select <Purge Data>; the <Purge Data> menu is shown as below.

Purge Data	
Purge All Data	No
Purge All Event Data	No
Purge Event Before	2000/01/01
Start To Purge	No

### ■ **Purge All Data**

This item is used to delete all videos from the database. Set this item to <Yes>, and start the deletion by setting <Start to Purge> to <Yes>.

### ■ **Purge All Event Data**

This item is used to delete all event videos from the database. Select <Yes> and start the deletion by setting <Start to Purge> to <Yes>.

### ■ **Purge Event Before**

This item is used to delete event video before a specific date. Select a preferred date and start the deletion by setting <Start to Purge> to <Yes>.

### ■ **Start To Purge**

After the videos to be deleted are selected, set this item to <Yes> to start the deletion, or select <No> to cancel.

## Sequence Setup

The Sequence menu allows users to set the camera sequence schedule and dwell time for main and call monitor. Select <Sequence> in Main Menu, and the menu displays as follows. Items in the Sequence menu are described in the subsections.

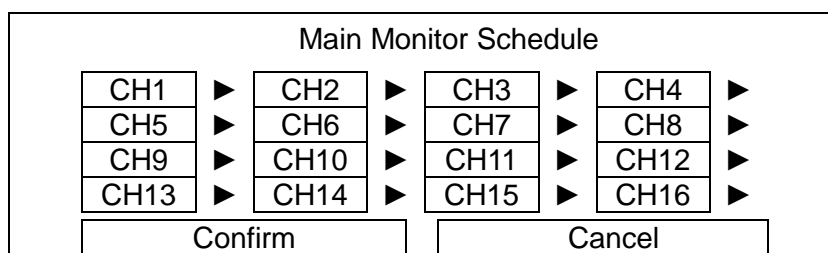
Sequence	
Main Monitor Dwell	5 Sec
Main Monitor Schedule	
Call Monitor Dwell	5 Sec
Call Monitor Schedule	

### < Main / Call Monitor Dwell >

These items are used to set the dwell time, which is the duration of time elapsed before switching to the next channel. The dwell time ranges from 1 to 120 seconds.

### < Main / Call Monitor Schedule >

This item is used to set sequence schedules of the main / call monitor. Click <Main Monitor Schedule>, and the menu is displayed as follows.



Follow these steps to set a sequence:

- Assign a channel to the order of the sequence.
- Continue the step until the sequence is completed.
- To setup a sequence with less than the maximum number of entries, select <Circular> to end the sequence.
- Follow the same steps to setup <Call Monitor Schedule>.

The maximum number of entries in a sequence equals to the number of channels. A camera or multiple cameras can be included in the sequence multiple times.

## Event Setup

This menu allows users to determine behaviors of the **DVRN960** in response to alarm events. In the Main Menu, select <Event>, and the following menu is displayed. Items in the Event menu are described in the following subsections.

Event	
Internal Buzzer	On
Event Icon	On
Alert Notification Setup	
Event Full Screen	None
Event Duration	20 Sec
Per Channel Config	
E-mail Management	

### < Internal Buzzer >

This item allows users to enable / disable internal buzzer of the **DVRN960**. Set to <On>, the buzzer is activated in response to alarm events. Set to <Off>, the buzzer is not activated.

### < Event Icon >

This item enables (On) / disables (Off) the display of event icons on the main monitor when an alarm event occurs. The event icons are represented by a letter respectively. The descriptions are as the following table.

Event Icon	Event Type
<b>A</b>	Alarm in event
<b>M</b>	Motion detection event
<b>L</b>	Video loss event

## < Alert Notification Setup >

This function allows users to send alert notifications to the CMS program which is installed to the computer. For detailed setup instruction, please refer to the CMS user's manual.

Alert Notification Setup	
Alert Configuration Set	1
Alert Notification	OFF
Alert IP	0.0.0.0
Alert Port	9999
Alive Interval	120 Sec

### ■ **Alert Configuration Set**

<Alert Configuration Set> provides 3 sets of Alert Notification, IP, and Port.

### ■ **Alert Notification**

Four options are included in this item; <OFF>, <Event>, <Alive>, and <Both>.

<OFF>: The Alert Notification is turned off.

<Event>: When the alarm is triggered, the DVR will send an alert message to the CMS.

<Alive>: The DVR will send an alive message to the CMS every *N* second to show users that the connection between the DVR and CMS is active. The time interval *N* can be adjusted in <Alive Interval>.

<Both>: This enables the DVR to send both Event and Alive alert messages to the CMS.

### ■ **Alert IP**

The Alert IP must match the IP address of the computer which installed the CMS.

### ■ **Alert Port**

The ports for DVR and the CMS Alert **MUST** be the same.

### ■ **Alive Interval**

Users can define the time interval (1 to 255 seconds) between each alive message. This item will not be accessible if the alert notification menu is set to <OFF> or <Event>.

## < Event Full Screen >

This function allows the DVR to display the alarm channel in full-screen when an alarm is triggered.

Select <None> to disable this function, or select <Main> to display the alarm channel on Main Monitor when an alarm is triggered. Choose <Call> to display the alarm channel on Call Monitor. Alternatively, select <Both> to display the alarm channel on both Main Monitor and Call Monitor.

## < Event Duration >

This item determines the duration of the buzzer and Alarm Out relay function after an alarm is triggered. The available event duration range is from 5 seconds to 999 seconds.

## < Per Channel Config >

This menu is used to configure the <Video Loss Detect>, <Motion Detect>, <Alarm In> and <Alarm Out> settings for each channel. The menu is displayed as below.

Per Channel Config	
Channel Select	CH01
Video Loss Detect	Off
Motion Detect	Off
Detection Config	
Alarm In	OFF
Alarm Out	OFF
Copy Event Settings	

### ■ **Channel Select**

The item is used to select a desired channel for setting the parameters. Click the box next to <Channel Select> to select a channel.

### ■ **Video Loss Detect**

This item allows users to enable or disable Video Loss as an alarm event. Select <On> to enable Video Loss alarm events, or <Off> to disable.

### ■ **Motion Detect**

This item allows users to enable or disable motion detection function of the DVR. Select <On> to enable Motion Detect alarm events, or <Off> to disable. If motion detection function is enabled, it is required to define motion detection parameters, such as detection area and sensitivity settings in <Detection Config>.

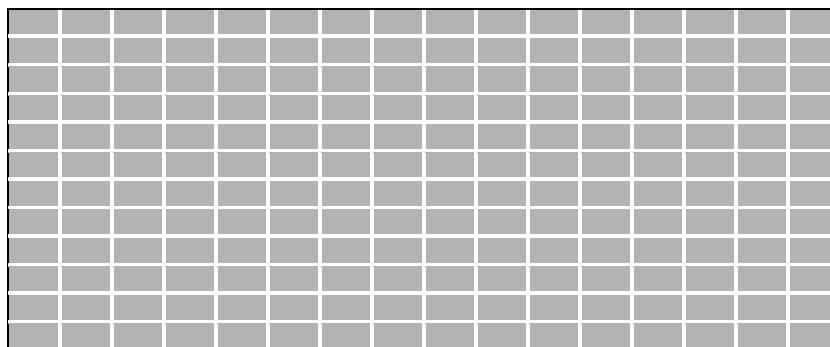
## ■ **Detection Configuration**

If <Motion Detection> is enabled, the motion detection parameters should be setup. Select a channel in <Channel Select>, and then click <Detection Config>. The Detection Configuration menu displays as follows.

Detection Config	
Detected Area Setup	
Sensitivity	88%
Area Threshold	6%

### - **Detected Area Setup**

The Detected Area, consisting of 192 (16×12) detection grids, is displayed as below. Follow the steps to setup the detected area.



- Click and drag the mouse to select or de-select a detection area. A pull-down list will be displayed after the mouse is released.
- Select <Block Select> to set the grid(s) as a motion detection area, or select <Cancel> to abort.
- Then, right click the USB mouse, another pull-down list, which include <Select All>, <Deselect All>, and <Confirm>, will be shown.
- Click on <Select All> to select all grids as motion detection area. Alternatively, select <Deselect All> to deactivate all grids.
- After the setting is completed, right click and select <Confirm> to save the setting, and return to the <Detection Config> menu.

### - **Sensitivity**

This item is used to set the sensitivity of detection grids. A greater value indicates more sensitive motion detection. A motion alarm will be triggered once the amount of motion detected area exceeds the Threshold value.

Adjust the value by clicking the UP / DOWN buttons next to

<Sensitivity>. The value is increased by 4% increment.

### - Area Threshold

<Area Threshold> means the motion trigger level. If the percentage of the triggered grids out of the total detection area is greater than the set value, the motion alarm will be triggered.

For example, if 10 grids are selected, and the <Area Threshold> value is set to 70%, the motion alarm will be triggered when 7 grids are motion-detected.

Adjust the percentage by clicking the UP / DOWN buttons next to <Area Threshold>. The value is increased by 1% increment.

## ■ Alarm In

This item allows users to enable / disable alarm input detection. According to users' application, select <N/O> (Normal Open) or <N/C> (Normal Close) to enable the alarm input detection, or select <OFF> to disable the detection.

If <Alarm In> is set to <N/C>, but no device is installed, an alarm will be triggered and the Event Icon <A> will always be displayed on the monitor until this item is changed to <N/O> or <OFF>, or when a device is installed to the unit.

## ■ Alarm Out

This item allows users to enable / disable the alarm output on the selected channel to activate the relay. The signal can be a light or siren to caution an alarm event. Select <ON> to enable the alarm output, or <OFF> to disable.

## ■ Copy Event Settings

This item allows users to copy the event settings of the currently-selected camera to any other connected cameras. Enter this menu and select one or more target cameras. Then select <Confirm> to apply the settings.

Copy Event Settings							
Copy To:							
01	02	03	04	05	06	07	08
09	10	11	12	13	14	15	16
Select All		Deselect All		Confirm		Cancel	

## < E-mail Management >

Three sets of e-mails can be defined in this menu for receiving event / alarm notices.

E-mail Management	
E-mail Select	1
E-mail Activate	Off
E-mail Address	
E-mail Video Attachment	Off
E-mail Video Attachment Size	100KB
Event/Alarm Selection	
SMTP Server Setup	

### ■ **E-mail Select**

Select a number to setup its e-mail related settings.

### ■ **E-mail Activate**

This item enables (On) / disables (Off) the e-mail notification of events / alarms. When an event / alarm is triggered and <E-mail Activate> is enabled, an e-mail regarding the event / alarm will be sent to the pre-defined e-mail address.



**NOTE:** In order to send an event notification e-mail successfully, be sure that the DVR is connecting to the internet.

### ■ **E-mail Address**

This item is used to edit the e-mail address where event / alarm notification will be sent. Follow these steps to setup the e-mail address.

- Click the box or the keyboard icon next to <E-mail Address>. A virtual keyboard displays.
- Click to add the e-mail address to the entry field.
- After finishing the settings, click <OK> to save the settings and exit.

### ■ **E-mail Video Attachment**

The function allows the DVR to send a brief AVI video regarding the event / alarm. In other words, the notification e-mail will attach an AVI video that contains one event / alarm of the event channel. Select <On> to enable this function; or select <Off> to disable it.



**NOTE:** The video clips of the e-mail attachment will **ONLY** be in \*.avi format. Please download the Divx Player from [www.divx.com](http://www.divx.com) to play the \*.avi files.

## ■ **E-Mail Attachment Size**

According to users' needs, users can set the video size under this item. The maximum size is 500 KB.

## ■ **Event/Alarm Selection**

This menu lists different types of events and alarms that users can choose whether to send notification e-mails when any of them occurs. Select <Yes> to enable e-mail notification of the chosen event / alarm. Otherwise, select <No> to disable it.

Event/Alarm Selection	
Event/Alarm	Selection
Motion Detect Event	YES
Video Loss Event	YES
Alarm Trigger Event	YES
UPS Power Failure Alarm	NO
Disk Error Alarm	YES

## ■ **SMTP Server Setup**

Simple Mail Transfer Protocol (SMTP) is a protocol for sending e-mail messages between servers. SMTP is a relatively simple, text-based protocol that one or more recipients of a message are specified and the message text is transferred.

Select <SMTP Setup> from <E-mail Management>; the menu displays as follows.

SMTP Setup	
E-mail via SMTP	Off
SMTP Server	
SMTP Port	25
SMTP Account	
SMTP Password	
Use SSL Connection	Off

### - **E-mail via SMTP**

The item enables users to determine whether to send e-mails via SMTP. Select <On> to send e-mail via SMTP; if not, select <Off>.

### - **SMTP Server**

This item enables users to set the SMTP server. Contact the network service provider for more specific information.

Follow the steps to setup the SMTP Server.

- Select <SMTP Server> from the SMTP Setup menu. A virtual keyboard displays.

!	@	#	*	-	_	+	=	,	.	/	←	
1	2	3	4	5	6	7	8	9	0	Del		
A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
a	b	c	d	e	f	g	h	i	j	k	l	m
n	o	p	q	r	s	t	u	v	w	x	y	z
<<			>>			Space		Cancel		OK		

- Click to add characters to the entry field.
- When it is done, click <OK> to save the settings and exit.

### - SMTP Port

The item is used to change SMTP port to another port, if necessary. SMTP usually is implemented to operate over Internet port 25.

To change the SMTP port, click the UP / DOWN buttons to change the values in the selected field.

### - SMTP Account

The item allows users to setup the SMTP username. Follow these steps to setup the login username.

- Click <SMTP Account> from the SMTP Setup menu. A virtual keyboard displays.
- Click to add characters to the entry field.
- When it is done, click <OK> to save the settings and exit.

### - SMTP Password

The item allows users to setup the SMTP password. Follow these steps to setup the password.

- Select <SMTP Password>, and a virtual keyboard displays.
- Click to add characters to the entry field.
- When it is done, click <OK> to save the settings and exit.

### - Use SSL Connection

SSL stands for Secure Sockets Layer, which provides communications security over the Internet. Select <On> for this item to enable SSL connection. Otherwise, select <Off> to disable SSL connection.

## Database Setup

The menu displays information of internal and external HDDs. In the Main Menu, select <Database>, and the following menu is displayed.

Database	
Total Size	xxxGB
Free Size	xxxGB (Circular)
Avail. Rec Time	Circular
Internal Disks	
Data Protection	
Repair On Power Loss	On



**NOTE:** If the detection of HDDs fails, the message “HDD fail” will be displayed.

### < Total / Free Size >

Total Size shows the total storage capacity of HDD that was added to the database. The Free Size indicates free space available for recording into the HDD. “Circular” will be shown if the DVR is set to record in circular mode. The information is “read-only”.

### < Avail. Rec Time >

This item indicates the available time duration for recording. If the DVR is set to record in circular mode, this item will show “Circular”. This information is “read-only”.



**NOTE:** If VBR mode is selected in <Record Mode Setup>, the available time will not be able to be calculated. Thus, no value will be displayed for this item.

## < Internal Disks >

Select <Internal Disks> to view information of the storage devices connected to the DVR. The menu is displayed as below.

Internal Disks			
Device Name	Active	Detail	Action
#: xxxxxxxx-xxxxxx	Yes	No	None

<Device Name> and <Active> are “read-only”. The number in front of the device name represents the SATA port that the HDD is connected to. If no storage device is connected to the DVR, the message “No Available Items!” will be displayed.



**NOTE:** If the file system of the internal HDDs is not compatible for the DVR, the system will format the internal HDDs automatically without notification.

### Active

This item indicates if the HDD is added to the database. <Yes> means the HDD is added to the database.

### Detail

This item enables users to view the S.M.A.R.T. information of the selected internal disks. Click and select <Yes>, and the S.M.A.R.T. information of the selected internal disk will be displayed on the screen.

### Action

This item allows users to add the HDD to the database or remove it from the database. The options are <NONE> (no action), <ADD> (add the selected HDD to the database), <REMOVE> (remove the selected HDD from the database), <FORMAT> (format the selected HDD), and <REPAIR> (repair the selected HDD).



**NOTE:** Before detaching an external HDD from the DVR, **ALWAYS** remember to remove it from the database first.

## < Data Protection >

Enter this menu to select the data users wish to protect from data purging or overwriting.

Data Protection				
Date Time	Event	Loc.	Lock	
2014/03/06 PM 01:29:08	Yes	INT01	NO	
2014/03/06 PM 01:42:41	Yes	INT01	NO	
2014/03/07 AM 09:36:02	Yes	INT01	NO	
2014/03/07 PM 12:45:31	No	INT01	NO	
2014/03/07 PM 12:55:56	No	INT01	NO	
First Page				
<div> <div>&lt;&lt;&lt;</div> <div>&lt;&lt;</div> <div>&lt;</div> <div>&gt;</div> <div>&gt;&gt;</div> <div>&gt;&gt;&gt;</div> </div>				

The first column shows the date/time information. The second column shows whether the data contains event videos. The third column shows the location where the data is stored. From the fourth column, users can change the option to <YES> to protect the selected data. When the data is no more important, users can change the option back to <NO>.

## < Repair On Power Loss >

This item enables the DVR to do auto HDD scan after it is powered on, if the DVR previously experienced unexpected power loss or was not shutdown properly. If auto scan fails, formatting of HDD is required. The preset is <On>. This helps to secure the data saved in the HDD. Therefore, it is suggested to keep this function enabled.



**NOTE:** If password protection is enabled, login with authorized account will be prompted before HDD format. For details of HDD scan, please refer to the User's Manual for more information.

## Configuration

The Configuration menu can be used to restore the default factory settings, import / export configuration, and view / export system log. Select <Configuration> from the Main Menu, and the following menu is displayed. Items in this menu are described in the following subsections.

Configuration	
Load Factory Default	No
Import Config	
Export Config	
System Log	
Operation Log	Off

### < Load Factory Default >

This item is to load the factory default setting. Select <Yes> to restore the factory default setting from the “read-only” memory, or select <No> to cancel.

### < Import Configuration >

This item allows users to load a DVR configuration that is saved in an external drive. To import a configuration that was previously exported, make sure the device with the saved configuration is connected to the DVR. Select <Import Config> from the Configuration menu. The following menu is displayed.

Import Config	
Config Name	Select
xxxx-xxxx	No
xxx-xx	No

Select one of the available configuration files, and choose <Yes> to start importing the configuration.



**NOTE:** If the record mode of the imported configuration is different from the DVR's current configuration, a warning message “Warning!! System will reboot if record mode differ” will be shown.



**NOTE: DO NOT** remove the external device used for importing configuration before the DVR completely reboots, otherwise it will be formatted.

## < Export Configuration >

Users are allowed to save a DVR configuration by exporting it to an external drive, such as a USB Flash Drive. Before exporting the configuration, make sure the device in which the configuration will be saved is attached to the DVR correctly. Select <Export Config> from the Configuration menu. The following menu is displayed.

Export Config	
Copy Destination	
Config Name	
Begin Export	No

Items in this menu are described in the following sections.

### ■ **Copy Destination**

Select this item to list available destinations (external storage devices) where the configuration can be exported. Select a destination and choose <Yes> to set it as the copy destination. Note that saving a different configuration to the same destination with the same file name will overwrite the previous configuration file without warning.

Copy Destination	
Device Name	Select
XXXX-XXXX	No



**NOTE:** For models with built-in DVD+RW, it is not allowed to select the DVD+RW as a copy destination.

### ■ **Configuration Name**

This item allows users to assign a name to the exported configuration file. Use the virtual keyboard to enter the configuration file name. Note that the file name can only contain up to 15 characters, including spaces.

### ■ **Begin Export**

Select <Yes> to begin exporting the configuration file, or <No> to abort the export.



**NOTE:** It is strongly recommended to export configuration before upgrading the DVR system. Also, backup the configuration routinely is recommended, in case for unexpected condition.

## **< System Log >**

Select <System Log> and a list of system logs will be displayed on the screen. Users can export the system log as a data file to an external storage device. Connect a USB storage device and select <Export> to export the system log file to the USB storage device. Note that in the mean time, a digital signature file will also be exported.

## **< Operation Log >**

Set <Operation Log> to <On> and operation logs will start to be recorded in the system log. Alternatively, set to <Off> and operation logs will not be part of the system log.

## Export

The Export menu enables users to export recorded video with or without digital signature to a USB storage device, or to a DVD+RW. Make sure an external storage device is available and connected to the appropriate port for video export.

The exported videos will be named by the exporting date and time, and classified by event types. When the recorded video is exported with digital signature, the output will be four files, including \*.gpg, \*.avi (\*.drv), \*.sig and readme.txt. Exporting a video whose size is 1GB with digital signature may take about 30 minutes.



**NOTE:** For models with built-in DVD+RW, the inserted disc will be ejected when its capacity is 99% full.

Export							
Select Device							
Select Ch:	Ch1	Ch2	Ch3	Ch4	Ch5	Ch6	All
From:	2014/03/07 AM 07:50:05						
To:	2014/03/09 PM 03:09:18						
Select Events							
Data Type	Normal						
Export Format	Original						
Digital Signature	No						
Erase Disc	No						
Begin Export	No						



**NOTE:** The system log will keep records of all video exportations, including duration, start time, and end time.

## < Select Device >

The available external devices for exporting video will be listed by name and free size in the Select Device menu. The Select Device menu displays as follows.

Select Device		
Device Name	Available	Sel
xxx-xxx-x-x-xx	256 MB	NO
xx-xxx-xx-xxxx	7565 MB	NO



**NOTE:** The DVR only exports files to external USB drives with FAT32 format. Please format the external device (<Database> → <External Device>, select the device to format), or make sure the USB drive is in FAT32 format before it is connected to the DVR.



**NOTE:** The volume of the FAT32 file system can only be up to 2TB. Therefore, it is not recommended to format any HDD with capacity greater than 2TB to FAT32 file system; otherwise, the volume beyond 2TB will be wasted.

### Device Name

The item shows the name of the available devices.

### Available

The item shows the free space of the available devices.

### Sel

Set this item to <Yes> to set the selected device as the exporting destination.



**NOTE:** For models with DVD+RW, the item <Erase Disc> from the Export menu will be grayed out when the selected device is not a DVD+RW. For models without DVD+RW, the item <Erase Disc> cannot be accessed.

## < Select Channel >

The item is used to select channels to export. Click to select or de-select a channel.



**NOTE:** This item is only available when <Export Format> is set to <DRV> or <AVI>. If <Export Format> is set to <Original>, all channels will be selected.

## < From / To Time >

These items are used to set the time which data export begins and ends. Click to select the date / time by clicking the UP / DOWN buttons or scrolling the mouse wheel.



**NOTE:** When the Start / End Time are set, remember to select the exporting Data Type.

## < Select Events >

Select the item to display the event list for exporting event video. Set <Sel> column of the exporting event(s) to <YES>.



**NOTE:** This item is only available when <Data Type> is set to <Event> or <Both>.

## < Data Type >

This item is used to select the exporting video type. The options are <Normal> (export normal videos only), <Event> (export event videos only) and <Both> (export both normal and event videos).



**NOTE:** If users want to export the selected event video by using the item <Select Event>, users have to set <From> and <To> to the same day and time. Otherwise, not only the selected event video will be exported to the selected destination, but also other event videos recorded during the period between <From> and <To>.

## < Export Format >

This item is for selecting the exporting video format. The options are <DRV>, <AVI>, and <Original>. The DRV and AVI files are compressed video files, while the original files are raw data of the unit's recorded video.

The DRV and original files can only be played back with the remote monitoring software and **DVRPlayer**, and multiple-camera video can be played back from one file. The AVI files can be played back with Windows Media Player. Note that if multiple channels are exported for AVI files, each channel is exported to an individual file.



**NOTE:** <Select Ch:> is only available when <Export Format> is set to <DRV> or <AVI>. If the video format is set to <Original>, all channels will be selected under <Select Ch:>.

## < Digital Signature >

The Digital Signature function enables users to export videos with the unit's unique signature key. It aims to authenticate that a video clip was exported from the unit and has not been modified. Users can export video clips with or without a digital signature file (\*.sig). Set the item to <Yes> to export with the signature file, or <No> to export without it.

Make sure that an external storage device, such as a USB Hard Drive or USB ThumbDrive, is available and connected to the correct port for exportation.

For more information about verifying digital signature, see [\*\*Appendix B: DVR Player\*\*](#).

## < Erase Disc >

This function is used to remove information found on a DVD+RW disk prior to writing new information. Select <Yes>, and the data on the DVD+RW will be erased when the exporting process begins.



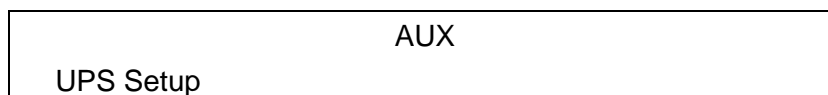
**NOTE:** This item can only be accessed by models with built-in DVD+RW. For models without DVD+RW, this item will be grayed out and cannot be accessed.

## < Begin Export >

Set this item to <Yes> and the DVR will prepare to export the selected recorded video. The Backup Confirmation window will be displayed for users to double confirm the data of the exporting video. Click <Yes> to begin the exportation.

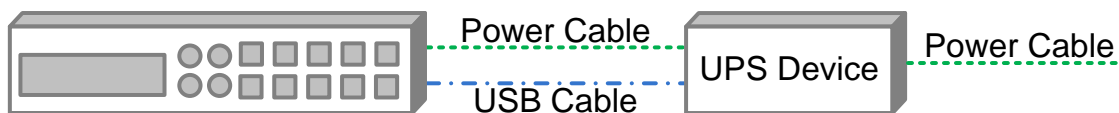
## AUX Setup

The AUX setup menu is for users to configure the settings of UPS. The AUX setup menu is displayed as below

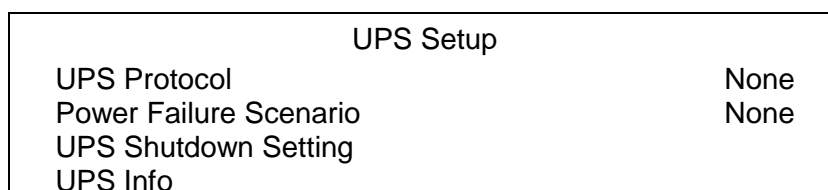


### < UPS Setup >

When users wish to connect the DVR to the power source via a UPS device, the required connections are illustrated as the following figure. The USB cable is for data communication between the DVR and the UPS device.



The UPS Setup menu is as the following.



#### ■ **UPS Protocol**

This item is for users to select an appropriate UPS protocol. Note that if the UPS protocol is set to <None>, <UPS Info> will be grayed out and not available for setup.

#### ■ **Power Failure Scenario**

For this item, users can choose what action the DVR should take when power failure occurs. If <Shutdown> is selected, users have to do further setting under <UPS Shutdown Setting>. Otherwise, select <None>, and the power of the DVR will be cut off when electricity of the UPS device totally runs out.

## ■ **UPS Shutdown Setting**

When <Power Failure Scenario> is set to <Shutdown>, this item will be available. Users have to setup under which condition the DVR should begin to automatically shutdown. The menu is shown as below.

UPS Shutdown Setting	
Min Remaining Battery Level	5 %
Min Remaining Run Time	5 mins
Delay To Activate	10 secs



**NOTE:** The DVR will begin to shutdown when one of the first two conditions is satisfied.

### - **Min Remaining Battery Level**

For this item, users can decide the DVR should begin to shutdown when the remaining battery level reaches the specific percentage. The ranges are from 5% to 95%.

### - **Min Remaining Run Time**

For this item, users can decide the DVR should begin to shutdown when the remaining run time reaches the specific value. The range is from 5 minutes to 30 minutes.

### - **Delay To Activate**

This item allows users to set the delay time before the DVR begins to shutdown. The ranges are from 10 seconds to 20 seconds.

## ■ **UPS Info**

After UPS protocol is set to <APC>, this item will be available. Users can check UPS related information as shown below.

UPS Info	
UPS Model	*****
UPS Protocol	*****
UPS Status	Lost Communication
Remaining Battery Level	77 %
Remaining Run Time	93 mins
Query Time	16 secs ago

### - **UPS Model**

This item shows the model name of the UPS device.

- **UPS Protocol**

This item shows the protocol of the UPS device.

- **UPS Status**

This item will show the connection status between the DVR and the UPS device. Refer to below for the description of each displayed value.

- Unknown**

This will be displayed when no UPS device is connected.

- Lost Communication**

This means there might be problems due to the USB cable connection between the DVR and the UPS device.

- Online**

This will be shown when everything is in good condition.

- On Battery**

This will means the power source is not available. The DVR is running based on the battery of the UPS device.

- **Remaining Battery Level**

This item shows the remaining battery level of the UPS device.

- **Remaining Run Time**

This item shows the remaining run time of the UPS device.

- **Query Time**

This item tells the last retrieving time of the UPS information. Normally, the information will be refreshed every 5 seconds when the UPS status is <Online> or <On Battery>. However, when there is error on USB cable connection and the UPS status shows <Lost Communication>, the query time will be more than 5 seconds.

## Shutdown

---

This menu is used to shutdown or reboot the DVR. If users must shutdown the **DVRN960** for any reason, please follow the proper shutdown and power-on procedures to avoid any potential damages to the DVR.

Shutdown	
Power Off	
Reboot	
Power Key Privilege	Auth

### < Power Off >

Select this item to shutdown the DVR. Do not remove the power source during shutdown procedure until the monitor turns black.

### < Reboot >

Select this item to reboot the DVR. The message “System rebooting...” will be displayed on the monitor which indicates the DVR is rebooting.

### < Power Key Privilege >

According to the setting of this item, users are able to quick shutdown the DVR via long pressing the Power Key. This item defines the action of the Power Key. The options are <Auth>, <Confirm>, <Direct>, and <Disable>. The following explains each option.

**<Auth>:** This will ask users to login with an authorized account, when Password Protection function is enabled. If Password Protection function is disabled, the action will be the same as the next option <Confirm>.

**<Confirm>:** When this option is selected, a confirmation message will be shown after the Power Key is long pressed. Users can confirm or cancel the quick shutdown function.

**<Direct>:** For users who wish to enable the quick shutdown function without any confirmation or login process, select this option and the DVR will automatically shutdown after the Power Key is long pressed.

**<Disable>:** Select this option to disable the quick shutdown function.

## Appendix A: Record Duration

The record duration varies based on the HDD capacity and the settings of resolution, recording quality and events. The following tables give a sample calculation of record duration according to different HDD capacities with different settings of resolution and recording quality, excluding consideration of events. The recording quality refers to the quality setting of <Recording Profile Setup> under <Advance Schedule Setup> from the Record menu.



**NOTE:** Record duration times are based on actual tests and represent average file sizes. Performance may vary from specific installations and usages. In addition, for each channel, audio recording requires 8 KB per second (or 0.7 GB per day) for data storage.

The following three tables are categorized by record resolution. Each table lists how many days the DVR can record (audio included).

WD1	Recording Quality Mode									
NTSC: 30PPS PAL: 25PPS (Per Channel)	Low (4 KB)		Fair (5 KB)		Mid (6 KB)		High (7 KB)		Best (8 KB)	
	NTSC	PAL	NTSC	PAL	NTSC	PAL	NTSC	PAL	NTSC	PAL
<b>1 TB Internal Storage</b>										
16CH Models	4.44	5.27	3.59	4.27	3.01	3.59	2.59	3.09	2.28	2.72
8CH Models	8.87	10.54	7.17	8.54	6.02	7.17	5.18	6.18	4.55	5.44
4CH Models	17.75	21.09	14.35	17.07	12.04	14.35	10.37	12.37	9.11	10.87
<b>2 TB Internal Storage</b>										
16 CH Models	8.91	10.58	7.20	8.57	6.04	7.20	5.20	6.21	4.57	5.46
8CH Models	17.82	21.17	14.40	17.14	12.08	14.40	10.41	12.41	9.14	10.91
4CH Models	35.63	42.33	28.80	34.28	24.16	28.80	20.81	24.83	18.28	21.82

D1	Recording Quality Mode									
NTSC: 30PPS PAL: 25PPS (Per Channel)	Low (2 KB)		Fair (3 KB)		Mid (4 KB)		High (5 KB)		Best (6 KB)	
	NTSC	PAL	NTSC	PAL	NTSC	PAL	NTSC	PAL	NTSC	PAL
<b>1 TB Internal Storage</b>										
16CH Models	8.45	9.94	5.82	6.89	4.44	5.27	3.59	4.27	3.01	3.59
8CH Models	16.89	19.89	11.64	17.38	8.87	10.54	7.71	8.54	6.02	7.17
4CH Models	33.79	39.78	23.27	27.56	17.75	21.09	14.35	17.07	12.04	14.35
<b>2 TB Internal Storage</b>										
16CH Models	16.96	19.97	11.68	13.83	8.91	10.58	7.20	8.57	6.04	7.20
8CH Models	33.92	39.93	23.36	27.67	17.82	21.17	14.40	17.14	12.08	14.40
4CH Models	67.83	79.86	46.72	55.33	35.63	42.33	28.80	34.28	24.16	28.80

HD1 NTSC: 30PPS PAL: 25PPS (Per Channel)	Recording Quality Mode									
	Low (1 KB)		Fair (2 KB)		Mid (3 KB)		High (4 KB)		Best (5 KB)	
	NTSC	PAL	NTSC	PAL	NTSC	PAL	NTSC	PAL	NTSC	PAL
<b>1 TB Internal Storage</b>										
16CH Models	15.41	17.86	8.45	9.94	5.82	6.89	4.44	5.27	3.59	4.27
8CH Models	30.82	35.73	16.89	19.89	11.64	17.38	8.87	10.54	7.71	8.54
4CH Models	61.64	71.45	33.79	39.78	23.27	27.56	17.75	21.09	14.35	17.07
<b>2 TB Internal Storage</b>										
16CH Models	30.93	35.86	16.96	19.97	11.68	13.83	8.91	10.58	7.20	8.57
8CH Models	61.87	71.72	33.92	39.93	23.36	27.67	17.82	21.17	14.40	17.14
4CH Models	123.74	143.44	67.83	79.86	46.72	55.33	35.63	42.33	28.80	34.28

## Appendix B: DVRPlayer

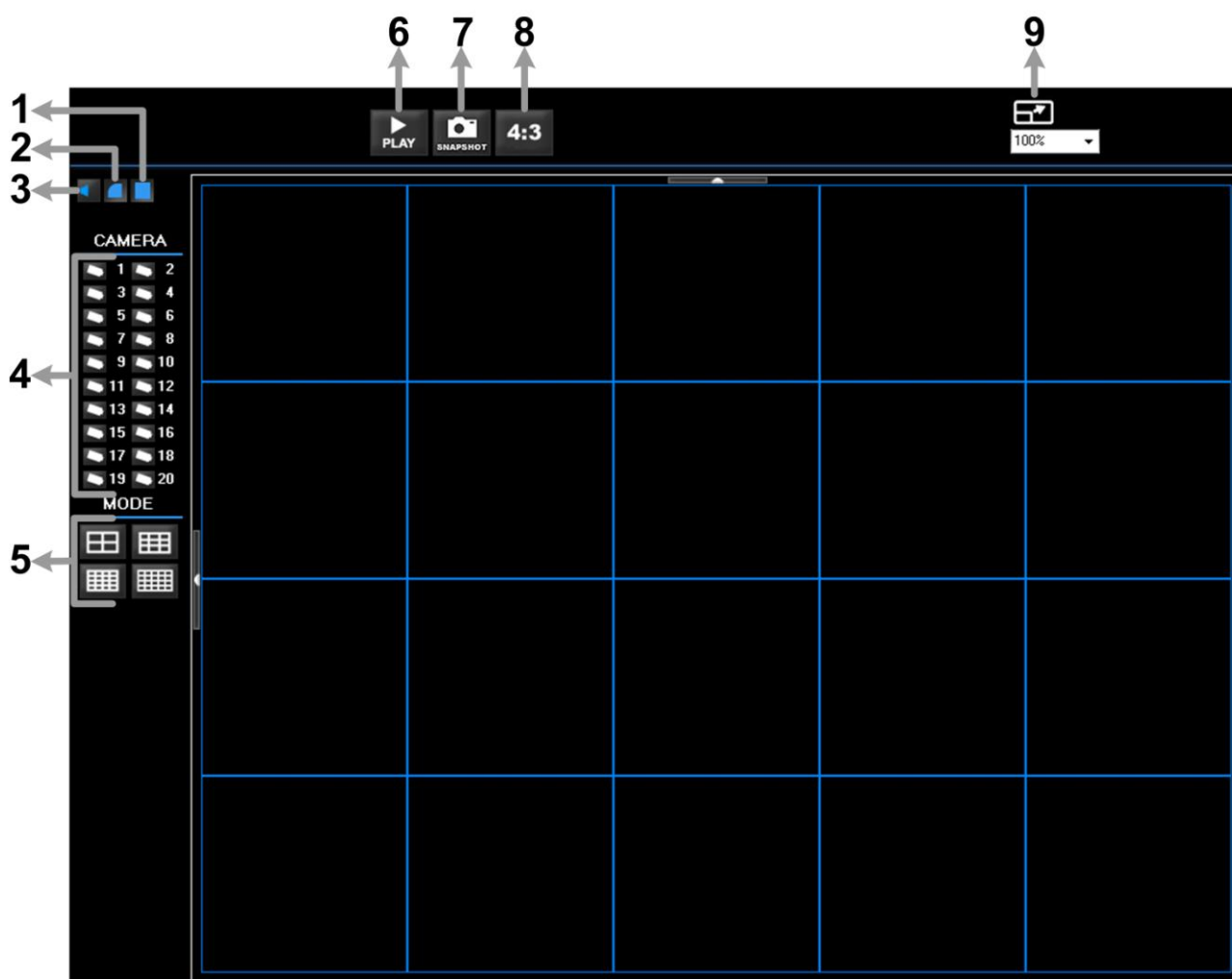
**DVRPlayer** is a software that enables users to playback the \*.drv files recorded by the DVRs at a PC site.



**NOTE:** The **DVRPlayer** can **ONLY** accept and playback \*.drv files.

First, connect to the DVR via **DVRRemote**. Then download the **DVRPlayer.zip** file by clicking on the link. Extract the zip file to the same folder. Double click on the **DVR\_Player.exe**, and the main window of the **DVRPlayer** displays as below.

The main window of the **DVRPlayer** displays a list of cameras and mode selection buttons at the left-hand side. Using the mode selection buttons, users can select a desired viewing mode, including 4-window, 9-window, 16-window, and 20-window.

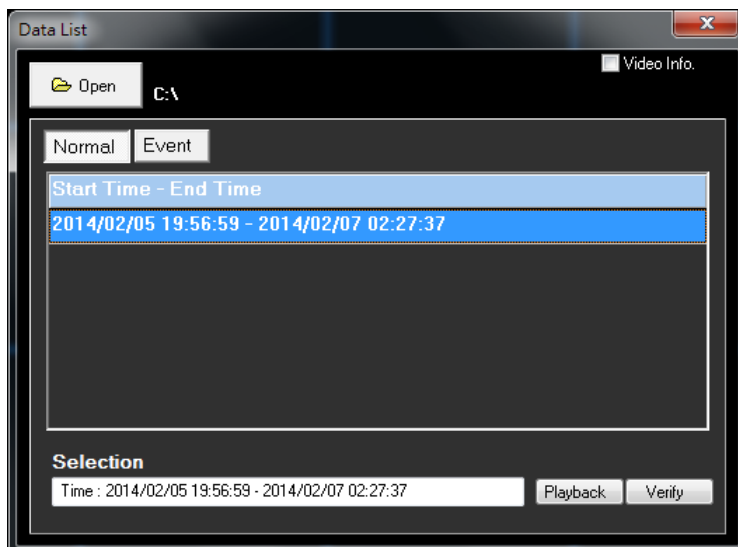


The functional items are:

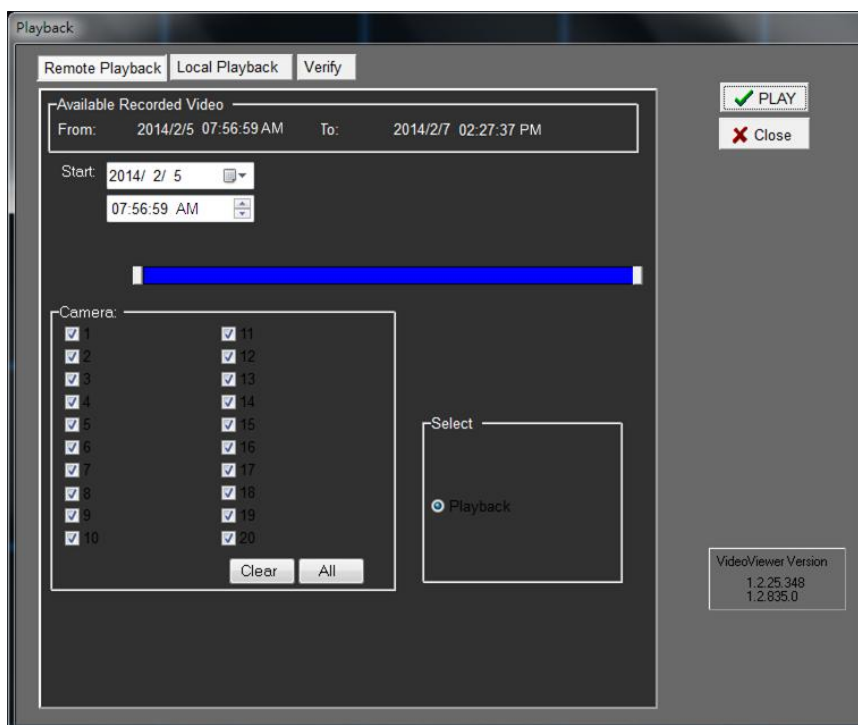
1	Deflicker On/Off	4	Camera Selection	7	Capture Snapshot
2	Smooth Image On/Off	5	Mode Selection	8	Change Viewing Aspect to 4:3
3	Audio On/Off	6	Play Recorded *.drv Files	9	Change Picture Size

**Playback the videos on the Data List**

Click <PLAY> on the toolbar at the top of the main window. The “Data List” window displays, shown as the figure below:



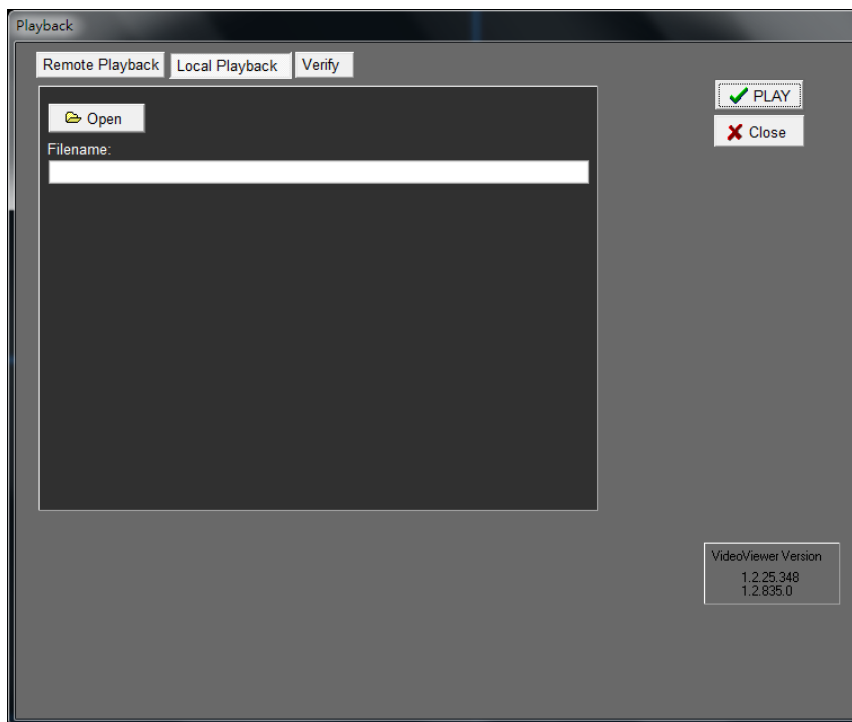
The “Data List” shows all recorded videos, “Normal” and “Event” separately, that are stored in the destination folder appeared at the top. Note that users can also click <Open> on the top to select a different folder which contains recorded videos. Select one from the list and click <Playback> at the bottom, then the “Playback” window will be shown as below:



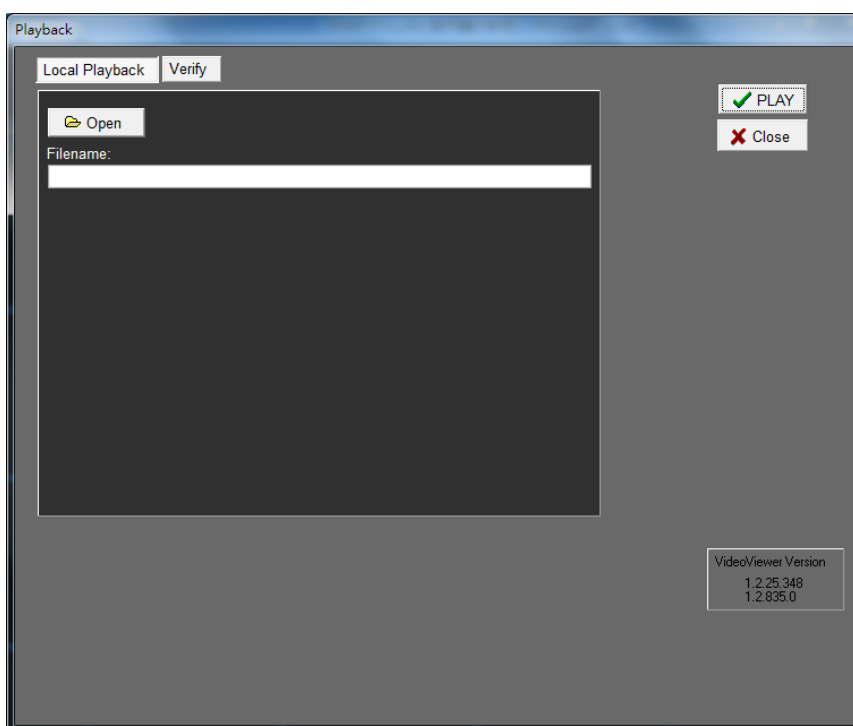
In the <Tool Playback> tab, users can set starting time and displaying cameras of the selected video. Then click <PLAY> on the upper right-hand corner of the window to start playback the video with selected starting time and displaying camera on the main window.

**Local Playback the selected \*.drv files**

In the <Local Playback> tab, as shown below, users can click <Open> to select a specific \*.drv file and click <PLAY> to playback the file on the main window.



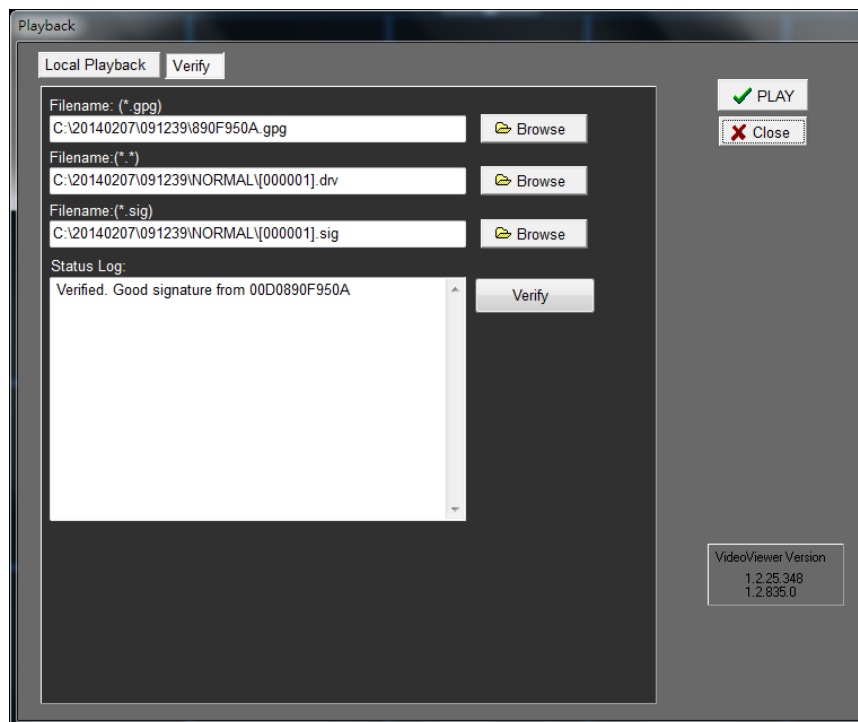
**Note:** If users click the close button at the top-right corner of the “Data List” window, the following “Playback” window with <Local Playback> tab and <Verify> tab only. The function of <Verify> tab will be described on the next page.



**Verify digital signature of exported videos**

In the <Verify> tab, shown as below, users can authenticate videos with digital signatures. Follow the steps below to complete the verification.

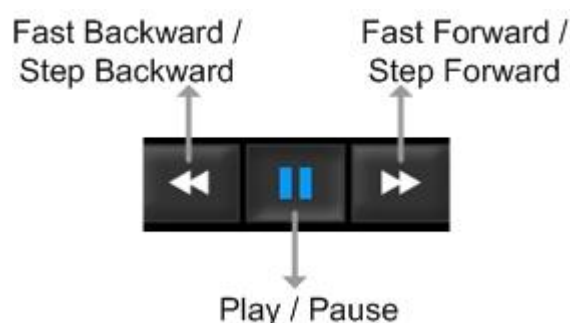
- Select any video from the Data List and click <Verify> at the bottom, then the “Playback” window will be displayed returning a GOOD or BAD signature result in the <Status Log> field. A GOOD signature indicates the exported clip has not been altered, whereas a BAD signature means the video might be changed at some point.



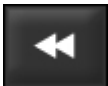



- Alternatively, click <Browse> to select the \*.gpg, \*.drv (or \*.avi), \*.sig files, which belong to the video to be authenticated, respectively. After all files are selected, click <Verify> button to start verifying digital signature.

## **Playback Controls**

When the video starts to playback on the main window, the playback control buttons will be displayed on the toolbar at the top of the main window. Please refer to below picture:



Refer to the following table for description of playback control buttons used while playing back the \*.drv file.

ICON	BUTTON	DESCRIPTION
	Fast Backward / Step Backward	<ol style="list-style-type: none"> <li>1. Click to playback the video backward. Click repeatedly to select the desired playback speed from 1X, 2X, 4X, 8X, 16X and 32X.</li> <li>2. When the playback is paused, click once to move one step backward.</li> </ol>
	Play	Click to resume the playback. The icon is displayed when the playback operation is paused.
	Pause	Click to pause the playback. The icon is displayed while playing back the video.
	Fast Forward / Step Forward	<ol style="list-style-type: none"> <li>1. Click to playback the video forward. Click repeatedly to select the desired playback speed from 1X, 2X, 4X, 8X, 16X and 32X.</li> <li>2. When the playback is paused, click once to move one step forward.</li> </ol>