

DHD Network Video Recorder User Manual

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About this document

This document includes instructions for operating the DHD Network Video Recorder Series.

Disclaimer

Please be aware that this user manual may cover a range of product specifications for various models. Characteristics and features discussed and/or illustrated in this manual may not be applicable or available to all models. We reserve the right to change product specifications, designs and equipment without notice and without incurring obligation.

Caution

- Do not drop or strike the equipment
- Do not install the equipment near naked flames or heat sources
- Do not expose this unit to rain, moisture, smoke or dusty environments
- Do not cover the opening of the unit with cloth or plastic or install this unit in a poorly-ventilated place. Allow 10cm between this unit and its surroundings
- Do not continue to operate the unit under abnormal conditions such as detection of smoke, strange smell or no display on screen whilst power is turned on
- Do not touch the power connection with wet hands
- Do not damage the power cord or leave it under pressure
- To avoid unnecessary magnetic interference, do not operate this unit near magnets, speaker system, etc.
- All connection cables must be grounded properly

CAUTION
RISK OF EXPLOSION IF BATTERY IS REPLACED WITH AN
INCORRECT TYPE.





Introduction

The DHD DVR Series are hybrid network video recorders that offer a standalone solution for managing both IP cameras and HD analogue camera. The built-in high-quality decoder can deliver 5MP/ 3MP/ 1080P/ 720p/ D1/ VGA/ CIF camera streams. Each channel can be individually configured to record in SD or HD resolution to suit your needs.

The internal HDMI and VGA engine supports adaptive motion refinement technology, which 8 and 16 channels provides HDMI output with maximum resolution of 4K resolution. The 4 channels maximum output resolution is 1080P. The DHD DVR Series can be easily installed in all environments through the TCP/IP network, and the support of IPScan utility and Web Services Dynamic Discovery (WS-Discovery) protocol allows for searching all the cameras on the network and can generate a preview thumbnail of each channel. The self-diagnostic feature can estimate remaining recording time and monitor HDD S.M.A.R.T status, network status, and other information.

Files recorded by the hybrid DVR can be exported to USB DVD and USB flash drive, or the files can be downloaded via Backup Manager, Remote Player, FTP client software, or Network Places. Mobile phone support for iOS and Android allows for remote viewing of connected cameras at high frame rates. Browser-based HTML5 live monitoring and video playback features are also supported for various browsers..

The hybrid DVR also supports external METADATA device, such as POS, ATM, GPS, etc. METADATA can be embedded within videos and saved as a database where you can search for METADATA history according to content, date, and time.

Features

- Standalone hybrid DVR
- Support up to 5MP IP camera and AHD cameras
- Support 4K HDMI (applies only to 8-ch and 16ch) and VGA output
- Support iOS and Android viewer apps
- Metadata can be embedded into videos for GPS, ATM & POS integration
- Supports Setup Wizard for easy installation
- HTML5 streaming multiple browser supported
- Easy setup for alarm and motion detection
- P2P easy remote access supported

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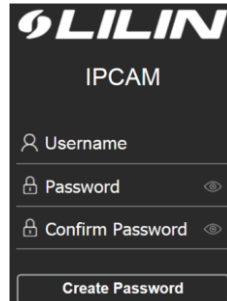
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Chapter 1 Login

Due to security reason, create the username and password for the first login. To login to the IP camera, please create the username and password on the login page. Press **Confirm** to complete the setting and login simultaneously.



Minimum Password Strength Requirements:

1. The password length must be 8 or more characters.
2. The password must include at least 1 number (0 ~ 9), 1 uppercase letter, 1 lowercase letter and 1 symbol(~ ? / + = , ; : . ' @ # ¥ % ^ & * () _ -).

Note: Please preserve the credential for accessing the camera properly. Forgetting the credential for accessing the camera, please perform hardware factory default.

Chapter 2 Getting Started

You will see the following screen through HDMI or VGA connection once you power on the DHD:



The information shown on the top of the screen is described as follows:

- Division/Sequential Name: Click to select a camera division to display.
- System Date/Time
- HDD: The top shows the current number of hard drives being used for recording. And on the bottom shows the storage capacity used.
- Network Status (Mbps): The top side Rx is received throughput in Mbps and the bottom side Tx is transmission throughput in Mbps. Circle color represents:

Green: Giga
 Orange: 100Mbps
 Red: Error Status

Note: This information is available depending on models.

Move mouse cursor slightly to display the DHD controls (as shown in the image below):



Below controls can be seen at the bottom of the screen:

Icons	Description
	Controls for the number of split-screens.
	Click to activate the sequential mode, which will show videos channels in the order you specify.
	Click to turn on/off the audio.
	Click to broadcast your message through a microphone.
	Click to activate a specific DO output.

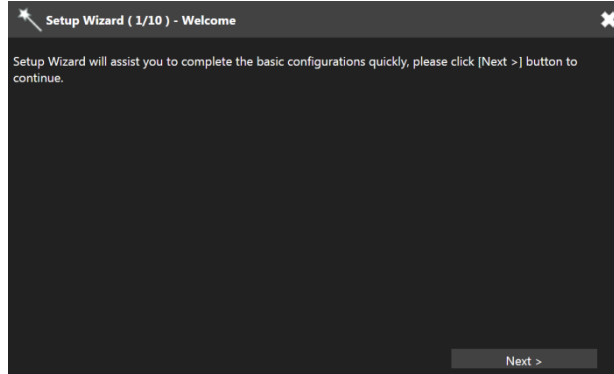
Note: This information is available depending on models.

Below are DHD controls that are at the upper-left corner of the screen:

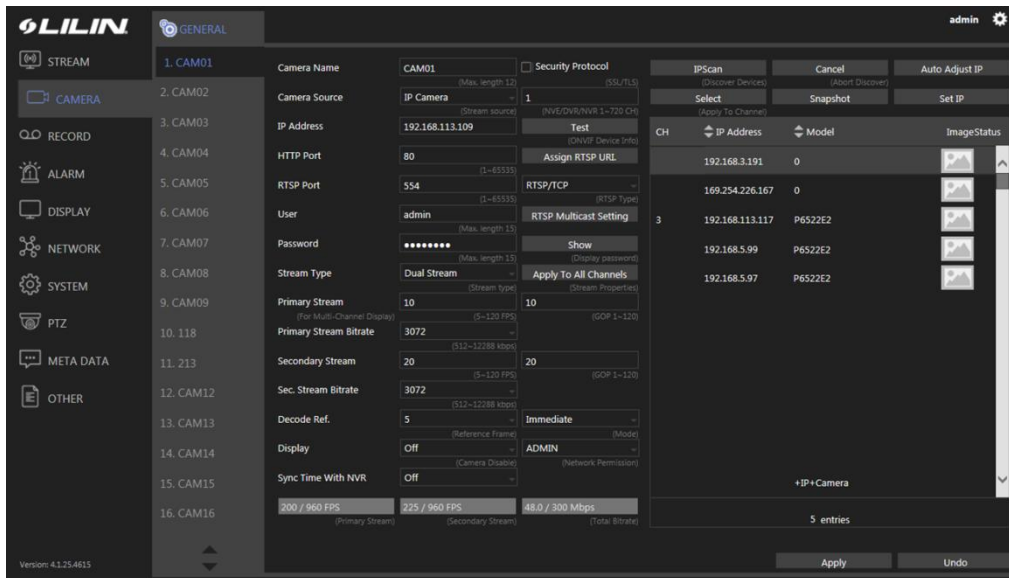
Icons	Description
	DHD Settings
	Freeze
	Alarm Event
	Playback / Backup
	Schedule/Manual: Indicates whether the current recording setting is scheduled recording or manual recording. Click to switch.

Chapter 2-1 DHD Settings Quick Guide

If you access the **DHD SETTINGS** for the first time, you will see **Setup Wizard** on the screen as below, which provides you with quick configurations for the DHD, including language, password, date, time, storage, network, P2P, and camera. Please follow the instructions to finish necessary setup and start recording. To prevent the wizard from appearing again, be sure to check **No longer use Setup Wizard**. Whenever you want to run **Setup Wizard** again, go to **DHD SETTINGS> SYSTEM > MAINTENANCE**, and click **Run** to start **Setup Wizard**.



Or, you may see the setting menu below:



Note: Click the gear icon at the upper-right corner of the screen to change the DHD language.

Chapter 2-2 Freeze

Click to freeze the real-time video, and the icon will be highlighted in blue.

Chapter 2-3 Alarm Event

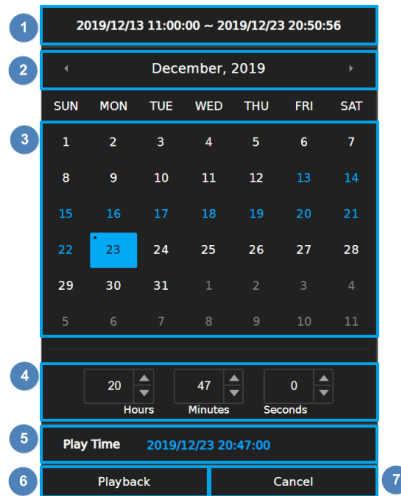
Click to enter the ALARM EVENT page. If alarm function is enabled for your camera, any alarms triggered will be recorded in the event history. And when the recording mode is switched from the **Schedule** to **Manual**, a record entry will also be saved in the event history. The list shall be according to the sequence of events triggers.

The screenshot shows the ALARM EVENT page interface. It features a calendar on the left for selecting dates, a search bar at the top for event periods and search durations, and a list of event records in the center. The interface includes various filters and controls for searching and managing event data.

1. Start Time Picker: Select event start time to search
2. End Time Picker: Select event end time to search
3. Event Period: Recorded event duration
4. Search Period: Display search duration
5. Channel Number: Select channel number to search
6. Event Type Search: Select event type to search
7. Preview: A snapshot of event triggered
8. Event Date Time: Time of event has been recorded
9. Event channel number and channel name
10. Event Type: Type of event has been recorded
11. Pages Number: Number of pages on display
12. Playback: Click to play selected video
13. Backup: Click to export the recorded video to USB storage
14. Search: Click to start event search
15. Cancel: Click to leave event page and go back to live view

Chapter 2-4 Playback / Backup

Click calendar icon to enter the PLAYBACK page as shown below:



1. Recorded Period: Recorded data duration
2. Month Picker: Select the month by clicking on the left/right arrow
3. Date Picker: Select a date by clicking on it
 - No recording
 - The date has recorded data
 - Current date
 - Selected data
4. Time Picker: Select hours/minutes/seconds by clicking on up/down arrow
5. Play Time: selected date/time for playback
6. Playback: Click to play the selected video recording
7. Cancel: Click to go back to playback page

Chapter 2-4-1 Playback

Please select a date and time from the calendar and time picker respectively, to start playing desired recorded video or alarm video to enter the Playback as following screen:



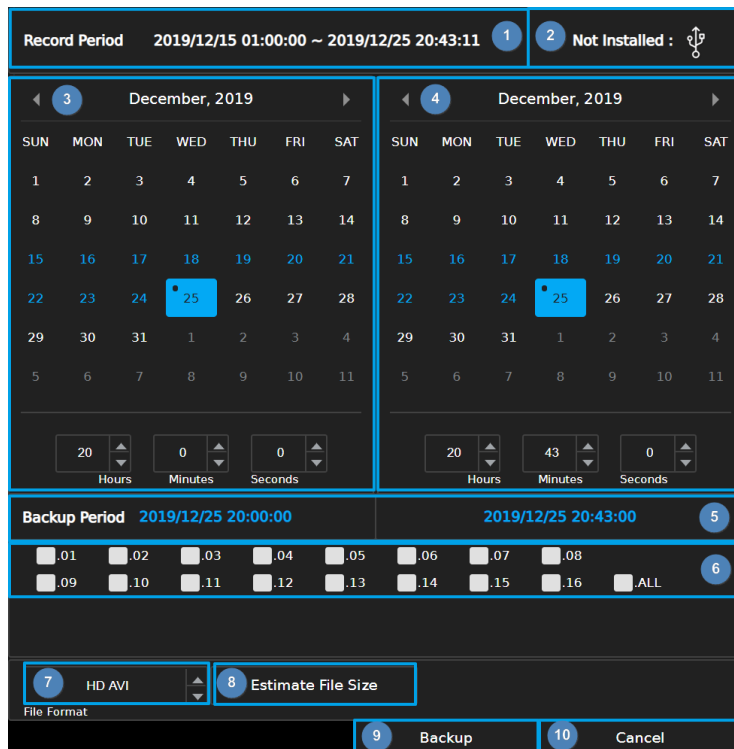
Details of the controls at the bottom of the **PLAYBACK** screen are described as follows:

Icons	Description
	Slow Rewind
	Rewind: click repeatedly to adjust the speed of respective actions (up to 64x)
	Stop
	Pause
	Play
	Fast Forward: click repeatedly to adjust the speed of respective actions (up to 64x)
	Slow Forward
	Choose the number of split-screens according to your needs
	Audio on/off
	Click to export the recorded video to a USB device.
	Calendar: Click to enter playback page
	Return: Click to return to previous page

Note: This information is available depending on models.

Chapter 2-4-2 Backup

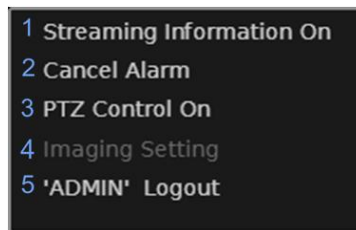
If you need to back up recorded files, click the backup icon to enter the BACKUP page as shown below and select the backup range, channel number and the file format as desired.



1. Recorded Period: Recorded data duration
2. USB Status: USB flash drive status detection, click for server to re-detect the USB device.
3. Start Time Picker: Select start time to backup
4. End Time Picker: Select end time to backup
5. Backup Period: Selected backup duration
6. Channel Number: Select channel number to backup
7. Backup File Format: Select backup file format
8. Estimate File Size: Estimate file size of selected period
9. Backup: Click to start backup
10. Cancel: Click to go back to previous page

Chapter 2-5 Context Menu

Mouse right-click on live view screen and will display below image:



1. Streaming Information On/Off: Click to turn on/off the streaming information in live view.
2. Cancel Alarm: Click to turn off the channel display pop up view and resume to previous view temporarily.
3. PTZ Control On: Click to display the PTZ control page in live view page, single screen.
4. Imaging Setting: Click to turn on the image setting page in live view page, single screen.
5. "Account" Login/Logout: Click to login/logout manually.

Chapter 2-5-1 Streaming Information

When streaming information is turned on, the video resolution and frame rate will be on display.



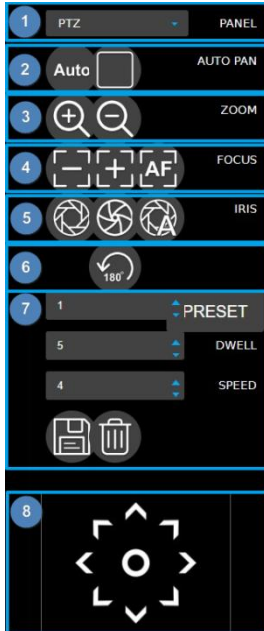
Note: Displayed information is according to camera setting.

Chapter 2-5-2 Cancel Alarm

When alarm popup is enabled, specific view will pop up when alarm is triggered. Click **Cancel Alarm** to disable alarm view and resume to previous view for 5 seconds.

Chapter 2-5-3 PTZ Control On/Off

To control PTZ camera, display the specific channel on single screen and turn on the PTZ control.

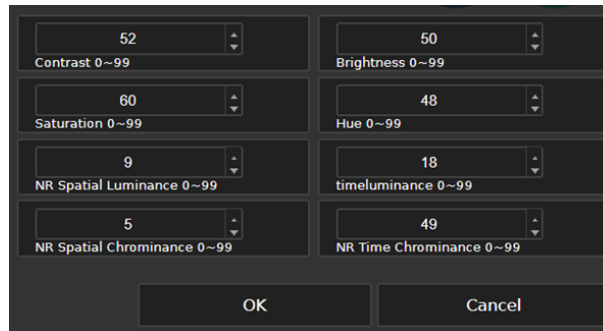


1. Panel: PTZ/Fisheye mode switch
2. Autopan: Auto Pan Start Auto Pan Stop
3. Zoom: Zoom In Zoom Out
4. Focus: Focus Near Focus Far Auto Focus
5. Iris: Iris Open Iris Close Auto Iris
6. Flip: 180° Instant Flip
7. Preset Position Settings:
 - Preset: PRESET 1~255 preset position programmable
 - Dwell: DWELL Dwell time at preset position during autopan.
 - Speed: SPEED Moving speed from one preset position to another during autopan.
 - Save Preset Delete Preset
8. Joystick: Click on any arrow key to move the PTZ camera and click On the icon to display PTZ OSD control.



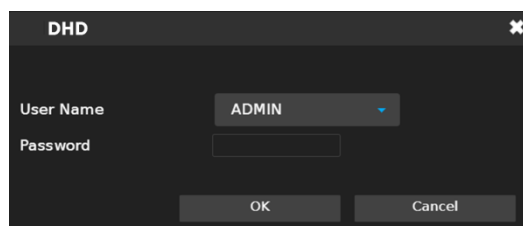
Chapter 2-5-4 Imaging Setting

In this page, you can adjust the camera parameters including **Contrast**, **Brightness**, **Saturation**, and **Hue** by clicking on **up/down** arrow and press **OK** to save changes..



Chapter 2-5-5 Account Login/Logout

If user wants to login or logout of the system, please click on **Account Login/Logout** and fill in below fields.

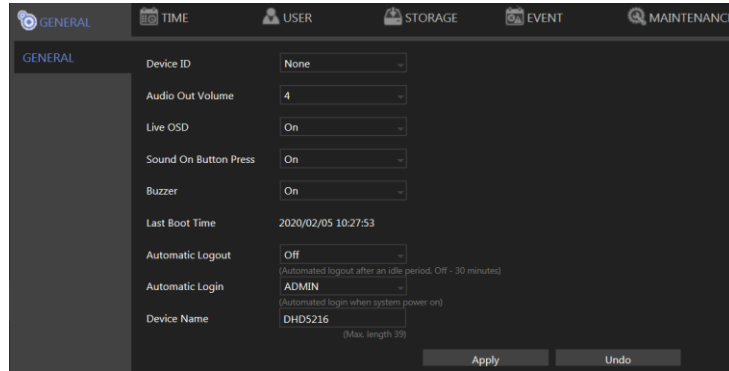


Chapter 3 DHD Settings

Chapter 3 System Setup

Click to enter **DHD SETTINGS** and click **SYSTEM** in the left pane, where you are allowed to adjust system configurations of the DHD. The details of the tabs are described as follows:

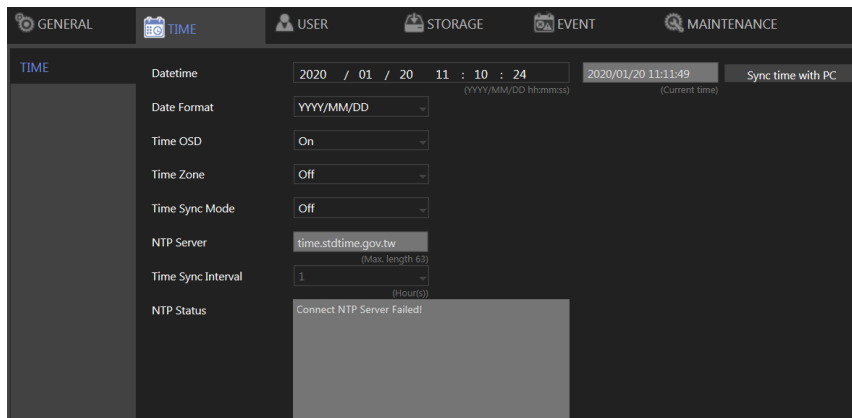
Chapter 3-1 General



- Device ID: Assign an ID for the DHD to be controlled by the remote controller.
- Audio Out Volume: Adjust the volume of the DHD.
- Live OSD: On, off, or no camera name.
- Sound On Button Press: Switch on/off the sound when pressing remote control buttons.
- Buzzer: Switch on/off the sound when an alarm is triggered.
- Last Boot Time: Shows the last time the system is rebooted.
- Automatic Logout: Log out automatically after 30 minutes of inactivity.
- Automatic Login: Specify user account to log on automatically when the system power on.

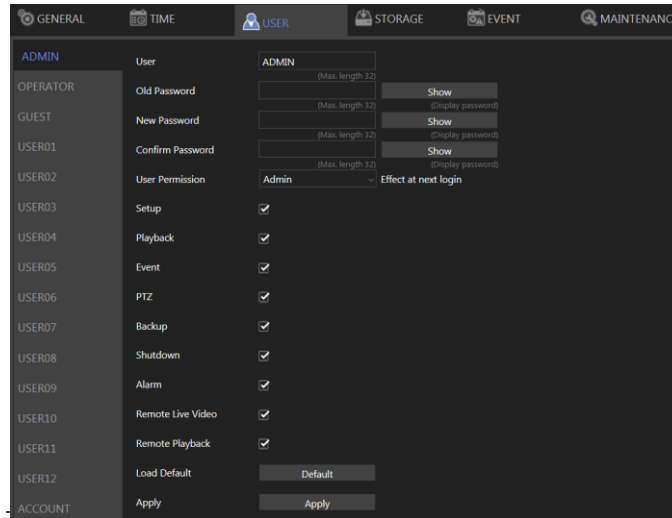
Note: Availability depends on model.

Chapter 3-2 Time



- Date/Time: Set the date/time of the DHD.
- Date Format: Modify the date display format.
- Time OSD: Switch on/off the time to be displayed on the screen.
- Time Zone: Change the time zone of the location where the DHD is installed.
- Time Sync Mode: Choose how you would like the time to be synced.
- NTP Server: Enter the NTP server you want to use.
- Time Sync Interval: Choose the interval for the time to be synced.
- NTP Status: The status of connection to selected NTP server will appear here.

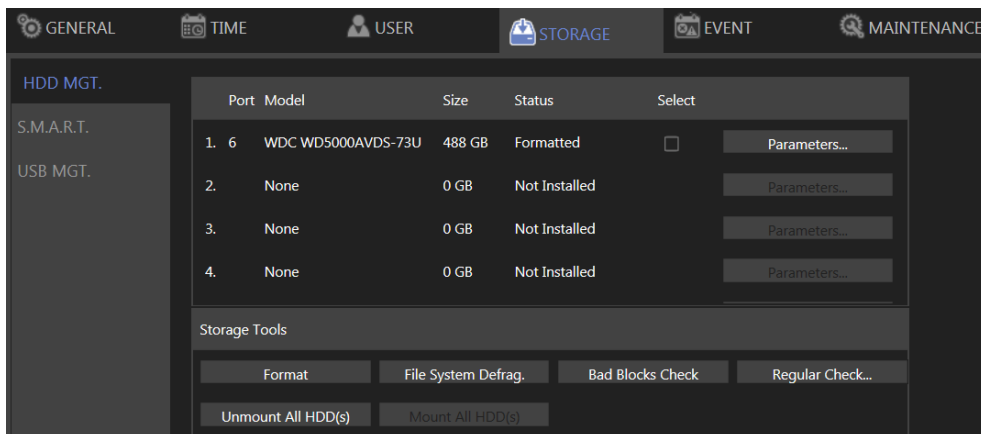
Chapter 3-3 User



The DHD supports up to 15 sets of individual user settings including administrator (ADMIN), operator, and guest, to which you can assign different access privileges.

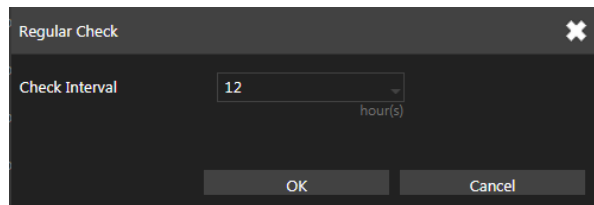
- User: Enter the name of the user (applicable only to User01–12).
- Old Password, New Password, and Confirm Password: If you would like to change the password, enter your previous password and enter the new password and confirm the password. Press **Show** to reveal the password.
- User Permission: Set the access privileges of the user to administrator, operator, or guest.
- Load Default: Restore to the default settings.

Chapter 3-4 Storage HDD MGT

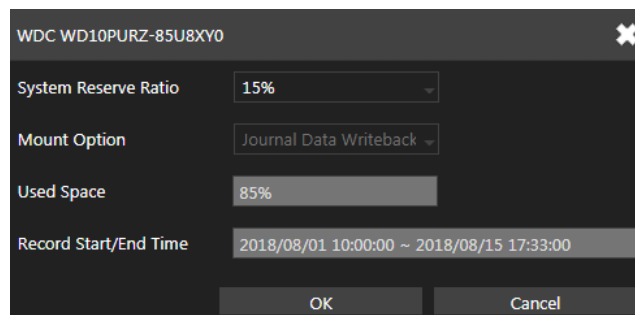


In **HDD MGT.**, there are HDD format, file system defrag, check HDD malfunctioned blocks, and HDD periodic inspection. Select a desired HDD and click **Format**, **File System Defrag**, **Bad Block Check**, or **Regular Check**.

Regular Check:

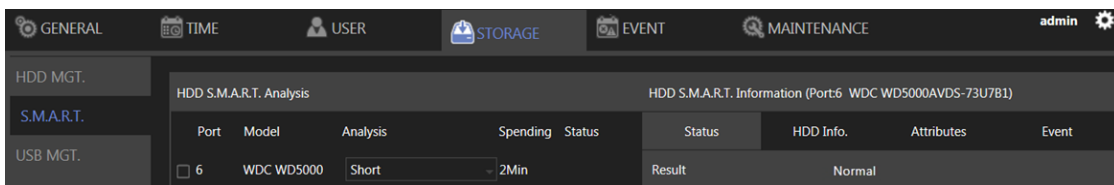


Allows you to set the interval between system checks:
Parameters: Click each device to enter the screen below.



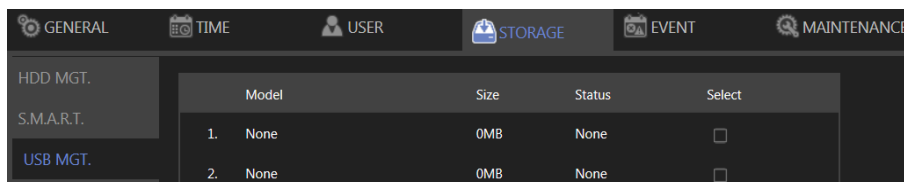
System Reserve Ratio allows you to allocate the percentage of HDD space that will not be occupied by recorded files. In **Mount Option**, choose the writing mode for the hard drive.

Chapter 3-4-1 S.M.A.R.T.



The S.M.A.R.T. status of your hard drive is displayed in **S.M.A.R.T.**, where you can run analysis (either short or extended) on the HDD. Choose between **Short** or **Extended** analysis and click **Analysis** to start the process. You will see HDD status, information, attributes, and event history under **HDD S.M.A.R.T. Information**.

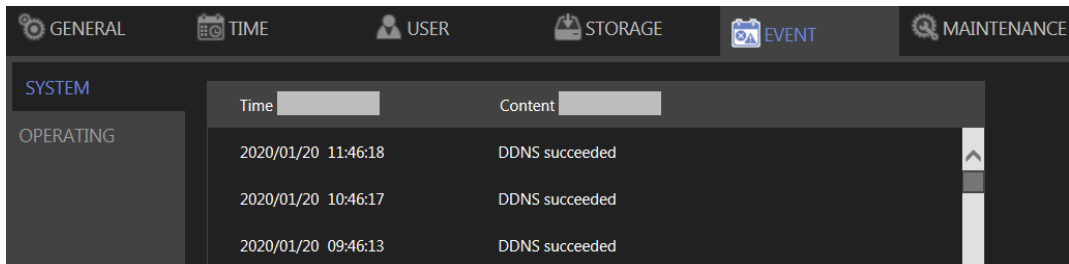
Chapter 3-4-2 USB MGT.



Connect a USB device (flash drive or hard drive) to the DHD, and check the one you want to format under this page, and then click **Format**.

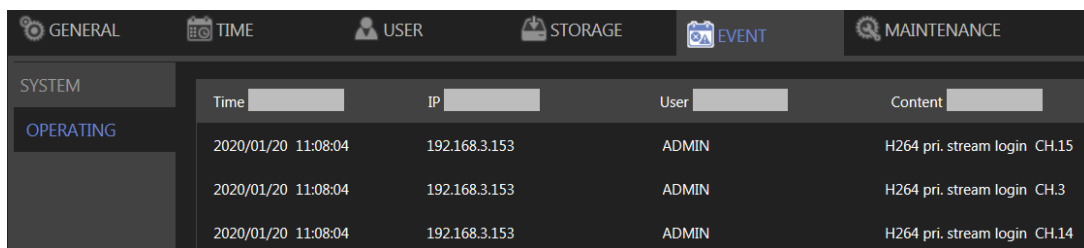
Chapter 3-5 Event

Chapter 3-5-1 System



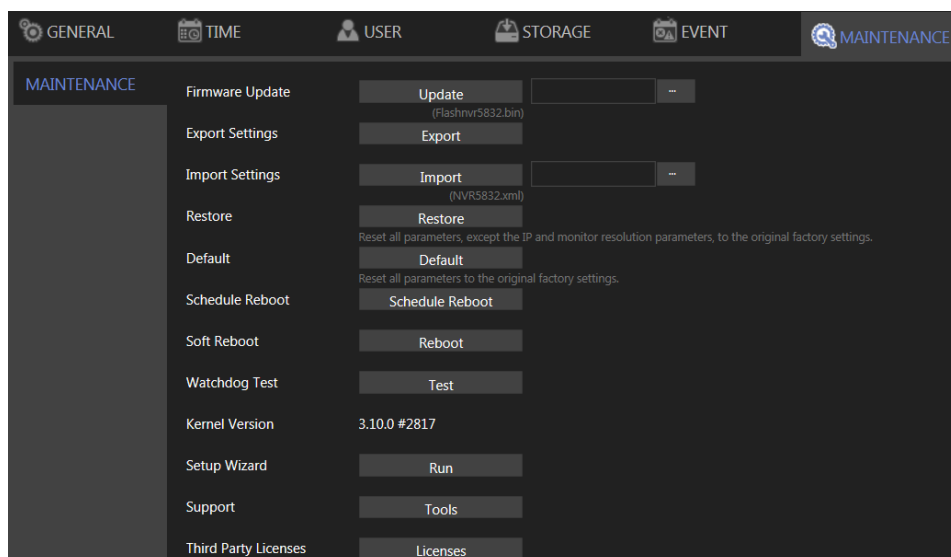
The search field in this page allows you to search for specific event reports at different time and of different content. Press **Download** to export the event report, **Reload** to update.

Chapter 3-5-2 Operating



You can examine the operating status of different users under this page. Press **Download** to export the event report, **Reload** to update.

Chapter 3-6 Maintenance



- Firmware Update: Choose a firmware file and click **Update** to proceed firmware update.
- Export Settings: Click **Export** to copy system settings to a USB flash drive.
- Import Settings: Click **Import** to apply a system setting that is stored in the plugged USB flash drive.
- Factory Reset: Click **Reset** to restore the system to the factory settings.

- Soft Reboot: Click to soft reset the system.
- Watchdog Test: Click to test the system watchdog function. This will reboot the DHD.
- Kernel Version: The kernel version of the system.
- Setup Wizard: Click to execute the quick setup wizard.
- Support: Click to open server execution log options dialog, record system execution details.

Chapter 3-6-1 Firmware Update

The local DHD firmware update method is as follows:

1. Create a "firmware" folder to the root directory of the USB flash drive.
2. Put the firmware of the DHD to the created "firmware" folder.
3. Plug the flash drive into the USB Port in the DHD rear panel.
4. Click the gear icon in the upper left corner of the DHD to enter the DHD's Menu.

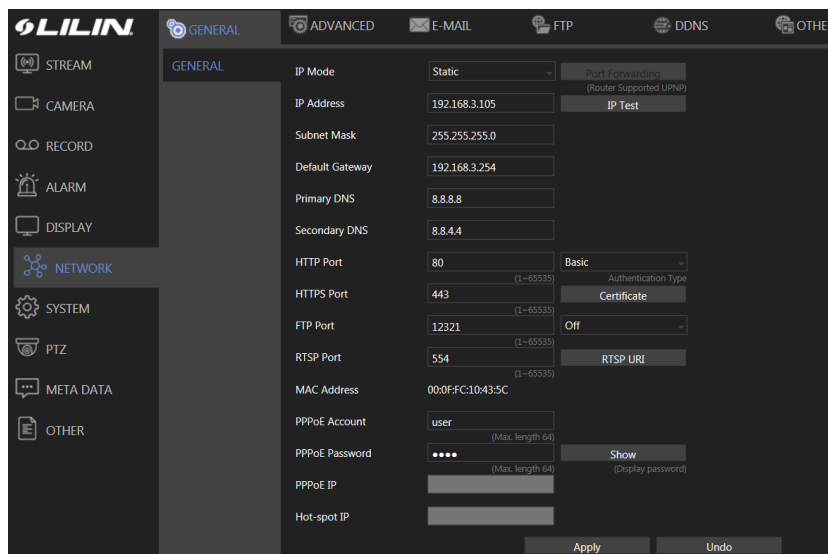


5. Click **SYSTEM > MAINTENANCE**, select the correct firmware file, then click the **Update** button to firmware update, and press **Submit** to start the firmware update.

Chapter 4 Network Setup

Click to enter **DHD SETTINGS**, and click **NETWORK** in the left pane.

Chapter 4-1 General



Enter the required information in the fields:

- IP Mode: Select the connection type of the DHD from **Static**, **DHCP**, and **PPPoE**.
- IP Address: Enter the IP address you want to use, and press **IP Test** if necessary.
- Subnet Mask: Enter the desired subnet mask.
- Default Gateway: Enter the desired default gateway.
- Primary DNS: Enter the first priority DNS server.
- Secondary DNS: Enter the secondary DNS server in case the primary DNS is not available.
- Video Port: Specify a desired video port.
- HTTP Port: Specify a desired HTTP port.
- HTTPS Port: Specify a desired HTTPS port and configure HTTPS.
- FTP Port: Specify the desired FTP port.
- MAC: This is the MAC address of your DHD.
- PPPoE Account: If you choose to connect through PPPoE, enter the account name here.
- PPPoE Password: Enter the required password for PPPoE connection.
- PPPoE IP: Your PPPoE IP will be displayed here.
- Hotspot IP: Your hotspot IP will be displayed here.

Note: When connected to an Android device via a USB connector, please turn on the USB tethering function to assign a hotspot IP to the DHD.

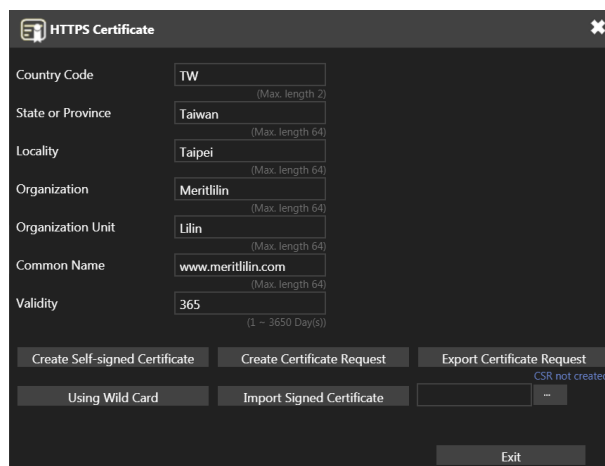
Chapter 4-1-1 Configuring HTTPs PORT

LILIN DHD DVR series support HTTPs (Hypertext Secure Transmission Protocol) service. HTTPs is an Internet protocol that ensures the integrity and confidentiality of data as it travels between users' computers and websites. When users visit any website, they want a secure and private online experience.

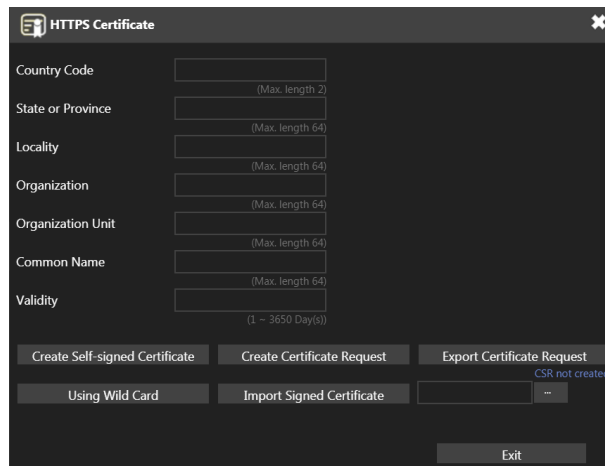
HTTPs can be regarded as the advanced security version of HTTP. The SSL protocol is added as a security certificate. Therefore, the website can prevent data thief from directly seeing the transmitted data even if they intercept the transmitted information by using the encryption on the agreement.

There are three options to set HTTPs service:

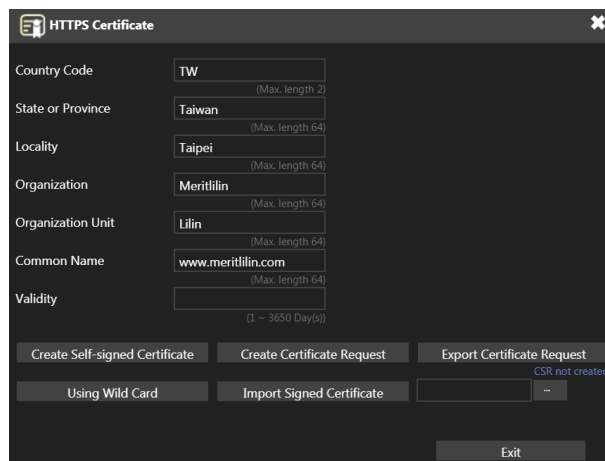
1. The first option is to create a free self-signed certificate by filling-in the blank field below. Then, click **Create Self-signed Certificate**.



- The second option is to use the wild card by clicking **Using Wild Card**.

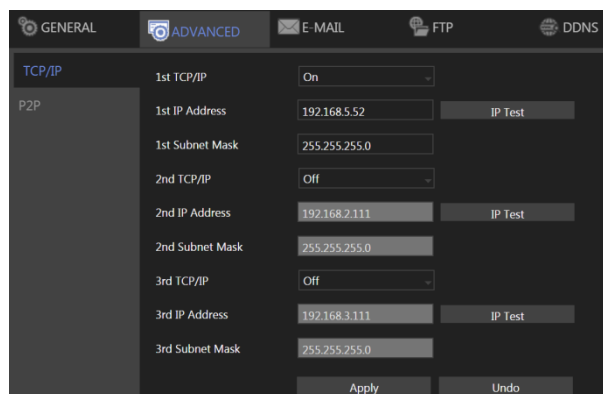


- The third option is to purchase an SSL certificate by filling-in the blank field below and click on **Create Certificate Request**. Then, click on the **Export Certificate Request** to download the request into a PC and use to apply for official certification. After purchasing the SSL certificate from a third party company, click on the **Import Signed Certificate**.



Chapter 4-2 Advanced

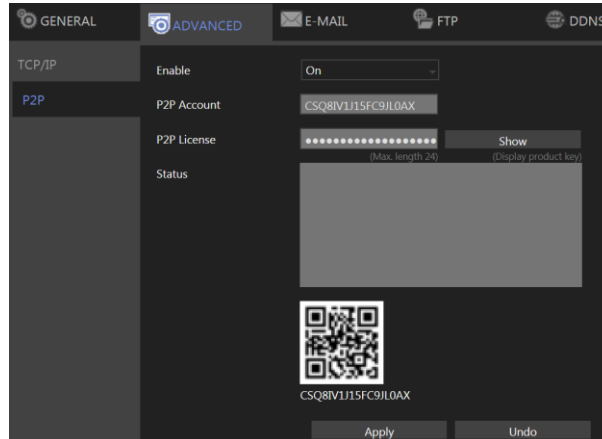
Chapter 4-2-1 TCP/IP



DHD supports three sets of virtual IP addresses. When **TCP/IP** is switched **On**, the DHD can access the camera or another DHD using the specific IP.

Note: When **Analog Auto** is selected as the camera source, the IP addresses of the cameras will be changed automatically. The IP addresses of the cameras will be in sequence assigned after the IP address of the DHD.

Chapter 4-2-2 P2P



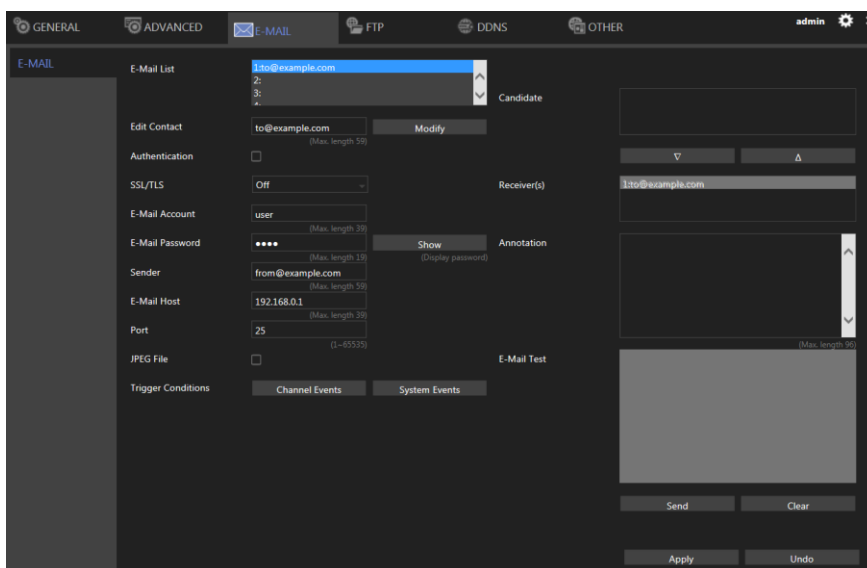
Note:

1. You can purchase a P2P account from your dealer.
2. Availability depends on models.
3. When activated successfully, a QR code will appear on the screen, and you can access the DHD with a dedicated App by scanning the QR code.

- Enable: Choose **On** to activate the service.
- P2P Account: Enter your account ID.
- P2P License: Enter your license code.

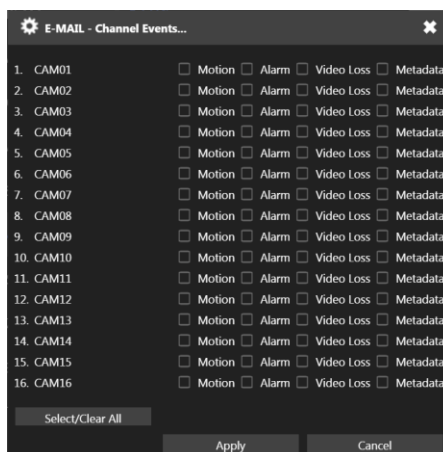
Chapter 4-3 E-Mail

When an alarm is triggered, the DHD can automatically send e-mail notifications to the recipients you designated. The setting options are described below:



- Send E-Mail: Check the box to enable sending e-mail notifications when an alarm is triggered.
- E-Mail List: The list shows all saved e-mail addresses.
- Edit Contact: Enter the email address you want to save as contacts and click **Modify**.
- Authorization: Check if your e-mail account requires login authorization.
- SSL/TLS: Check if your e-mail sever requires encryption.
- E-Mail Account: Enter the account name of your e-mail.
- E-Mail Password: Enter the password of your e-mail.
- Sender: Enter the name you would like to display in the e-mail.
- E-Mail Host: Enter the IP address of your e-mail server.
- Port: Enter the port of your e-mail server.
- JPEG File: Check to also attach JPEG photos when an alarm is triggered.
- Candidate: Choose an email address and press Down or Up arrows to add contacts as recipients.
- Receiver: The list of recipient(s).
- Annotation: Content of the email notification.
- Trigger Conditions: Designate when to send the notification email by **Channel Events** and **System Events**.
- E-Mail Test: Click to send the testing email to verify out the settings.

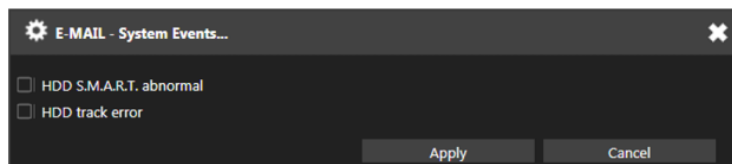
Channel Events: Click to open the dialog below.



Note: How many channels depends on model

- Motion: Check to send e-mail when movements are detected.
- Alarm: Check to send e-mail when external alarms are set off.
- Video Loss: Check to send e-mail when connection with IP Camera is lost.
- Metadata: Metadata: Check to send e-mail when metadata is received.

System Events: Click to open the dialog below.



- HDD S.M.A.R.T. abnormal: Check to send E-Mail when an S.M.A.R.T. error is detected.
- HDD track error: Check to send E-Mail when an HDD error is detected.

Chapter 4-4 FTP

When an alarm is triggered, the DHD can automatically send snapshots to the FTP server you designated. The setting options are described below:

- FTP Server: Enter the IP address of the FTP server.
- Port: Enter the port of the FTP server.
- Account: Enter the account name of the FTP server.
- Password: Enter the password of the FTP server
- Prefix & Postfix: Specify the prefix and postfix of snapshot files.
- File Name Format: Change the file name format to suit your need.

Check the cameras that you want to send notifications to the FTP when an alarm is triggered, and specify the folder name where the images are saved.

For details about **Trigger Conditions** and **Channel Events**, please refer to the descriptions above.

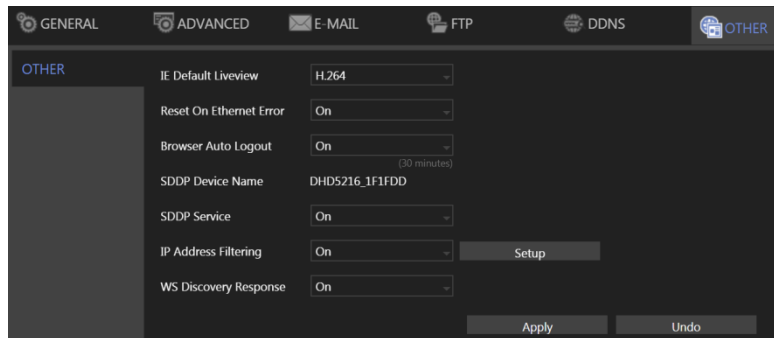
Chapter 4-5 DDNS

With DDNS, you can access a DHD connected to the Internet through the DDNS URL, whatever the actual IP is. The setting options are described below:

- Server: Choose the DDNS server you want to use.
 - Hostname: Enter the hostname of the DDNS server.
 - User: Enter the username to log in to the DDNS server.
 - Password: Enter the password to log in to the DDNS server.
 - WAN IP: Enter your **WAN IP** if the DHD cannot automatically get the correct address.
 - Check Interval: Choose the time interval you want the system to check the DDNS connection.
- Note:** The DDNS feature requires Internet connection.

Chapter 4-6 Other

The DHD also supports other protocols such as SDDP, and related configurations can be modified in the **OTHER** tab. The setting options are described below:



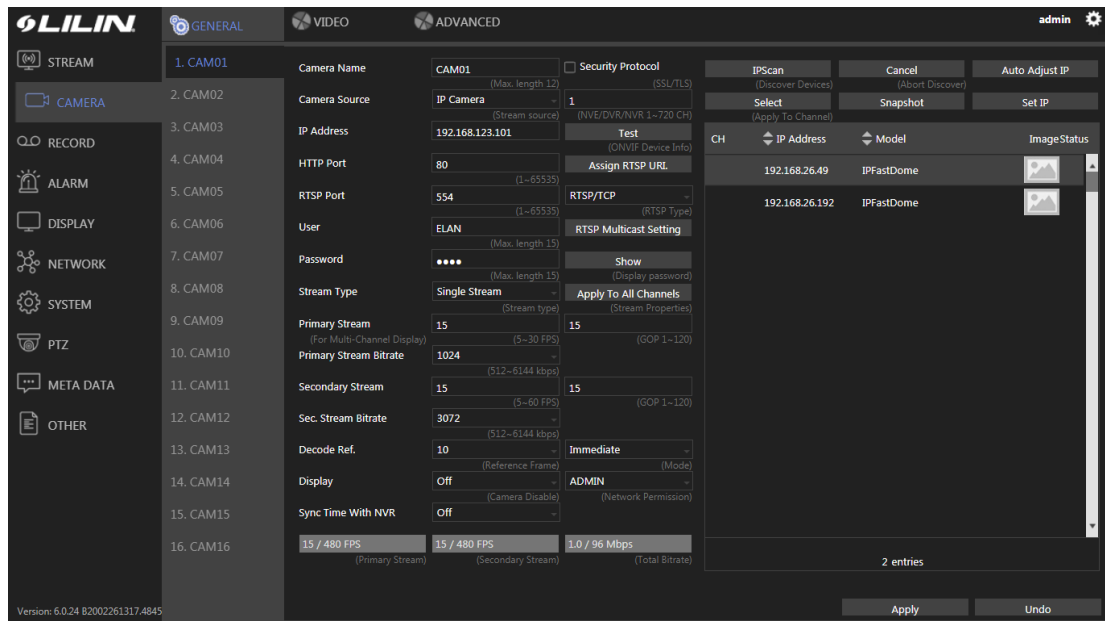
- IE Default Live View: Select the default streaming type (H.264 or MJPEG) when streaming using Internet Explorer.
- Reset on Ethernet Error: Reset the PHY when an Ethernet error is detected, and leave a record entry in the event table
- Browser Auto Logout (30 Minutes): Log out automatically after 30 minutes of inactivity.
- SDDP Device Name: The device name shown on the SDDP network.
- SDDP Service: Switch on/off the SDDP service.
- IP Address Filtering: Switch on/off the IP filtering function, press **Setup** to open the filtering IP address setting dialog.
- WS Discovery Response: Enable/disable device detection on network.

Note: Availability depends on model.

Chapter 5 Camera Setup

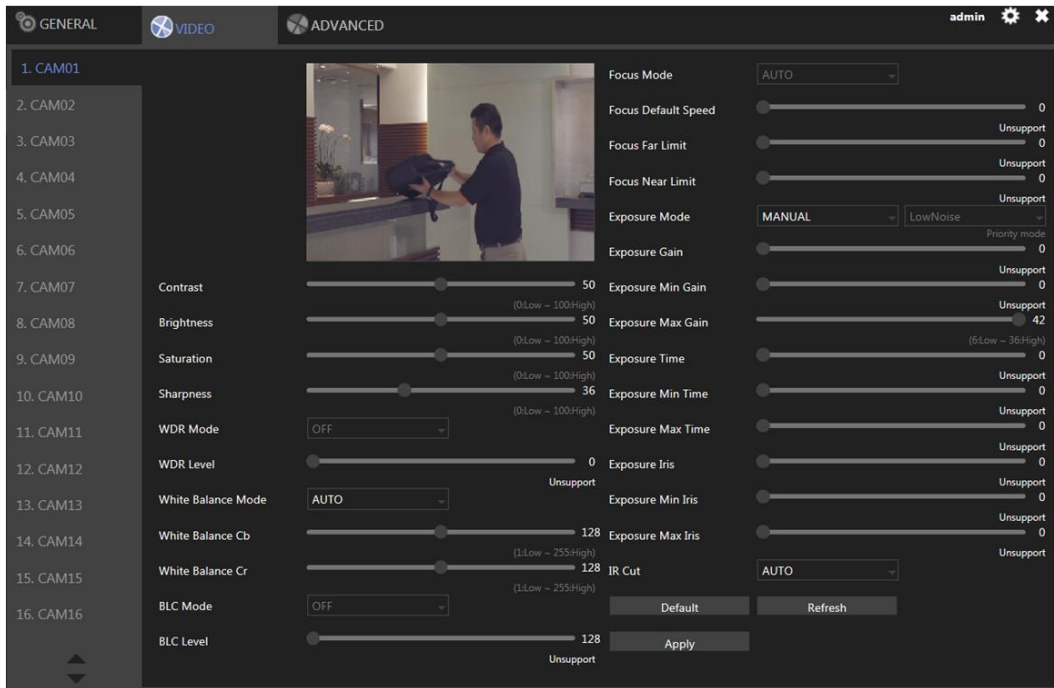
Click to enter **DHD SETTINGS**, and press **CAMERA** in the left pane to enter the **CAMERA SETUP** page. The setting options are described below.

Chapter 5-1 General



- Camera Name: Enter the camera name to be displayed on the streaming screen.
- Camera Source: Allocate a DHD channel for the camera. Select Off, IP camera, or Analog Auto.
- IP Address: Enter the IP address of the camera you want to connect.
- HTTP Port: Enter the port for HTTP connection.
- RTSP Port: Enter the port for RTSP connection.
- User: Enter the username required for camera authorization.
- Password: Enter the password required for camera authorization.
- Stream Type: Choose whether to stream only the primary video or dual (primary & secondary) videos.
- Primary Stream: Select the FPS and GOP for the primary stream.
- Primary Stream Bitrate: Select the bitrate for the primary stream.
- Secondary Stream: Select the FPS and GOP for the secondary stream (available only if **Dual Stream** is activated in **Stream Type**).
- Sec. Stream Bitrate: Select the bitrate for the secondary stream.
- Decode Ref. : Select the number of reference frame for the decoder, and choose **Immediate** for lower latency or **Smooth** for smoother but higher latency video.
- Display: Disable the video function (live feeds and playback) of the selected camera.
- Sync Time with DVR: Turn **On** for the camera to sync time with the DHD.
- Security Protocol: Check box to allow HTTPS connections to the IP camera. The recommended HTTP port setting is 443.
- Test: Press to check ONVIF device information including manufacturer, model #, firmware version, serial # and hardware ID.
- Assign RTSP URL: Assign required RTSP URL, DHD will connect to camera via required RTSP URL but not Onvif.
- RTSP Multicast Setting: Assign required RTSP multicast port.
- IPScan: Click **IPScan** to scan for connected devices on the network.
- Cancel: Click **Cancel** to stop scanning.
- Auto Adjust IP: Automatically assign IP for connected cameras.
- Snap: Show snapshot thumbnails for all the cameras.
- Set IP: Assign an IP address to the camera.


Chapter 5-2 Video

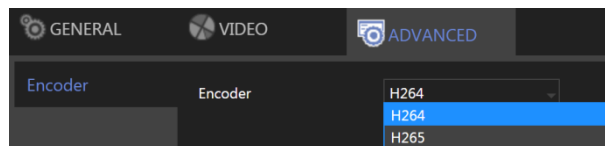


In this page, you can adjust several camera parameters including **Contrast**, **Brightness**, **Saturation**, and **Sharpness**.



Click **Default** to restore the DHD to its factory settings. Click **Refresh** to update the preview image.

Chapter 5-3 Advanced

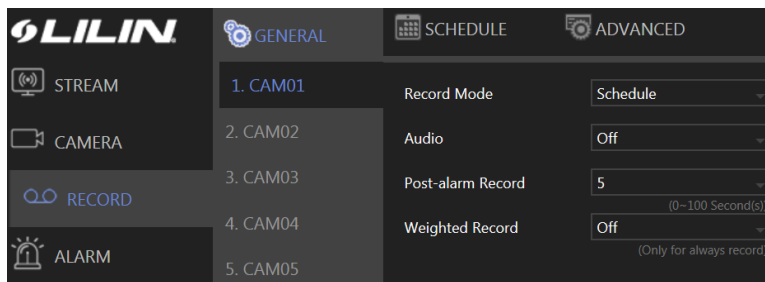
To select a video recording format H.264 or H.265, click  gear icon to enter **DHD SETTINGS**, press **CAMERA** in the left pane to enter the **CAMERA SETUP** page and press **ADVANCED**.



Chapter 6 Record Setup

Click  to enter **DHD SETTINGS**, press **RECORD**  in the left pane to enter the **RECORD SETUP** page. To adjust recording or schedule settings, the setting options are described below.

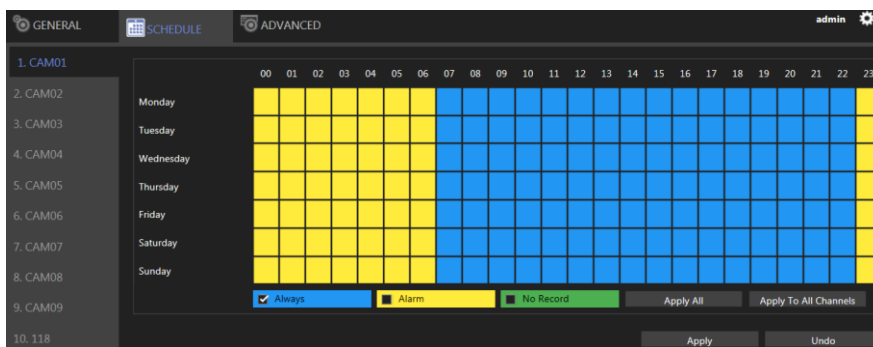
Chapter 6-1 General



- Record Mode: Switch on/off scheduled recording.
- Audio: Switch on/off audio recording.
- Post-alarm Record: Enable to record after an event takes place. Set the time (second) for the DHD to record after the alarm is triggered.
- Weighted Record: If any alarm is triggered when **Weighted Record** is turned on, the recording frame rate will be adjusted to the pre-determined value (which can be set in **CAMERA SETUP**). Otherwise, the DHD will record at a lower frame rate (approximately 4–5 FPS).

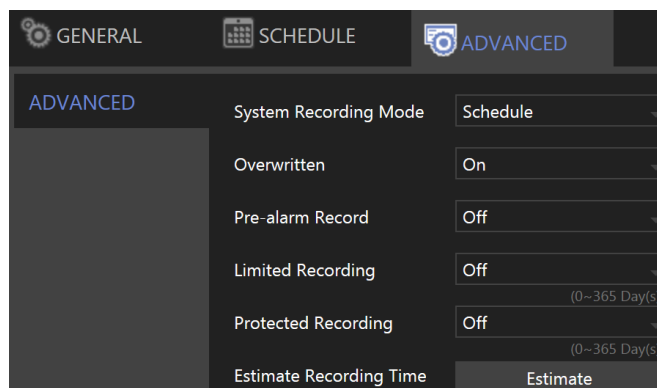
Note: System Recording Mode must set to **Schedule** and Recording schedule set to **Always**.

Chapter 6-2 Schedule



To modify the recording schedule, switch the recording type from **Always** (continuous recording), **Alarm** (record only when an alarm is triggered), or **No Record** (disable recording), and highlight the desired date and time accordingly. Click **Apply All** to apply your selection of recording type to all dates and time.

Chapter 6-3 Advanced

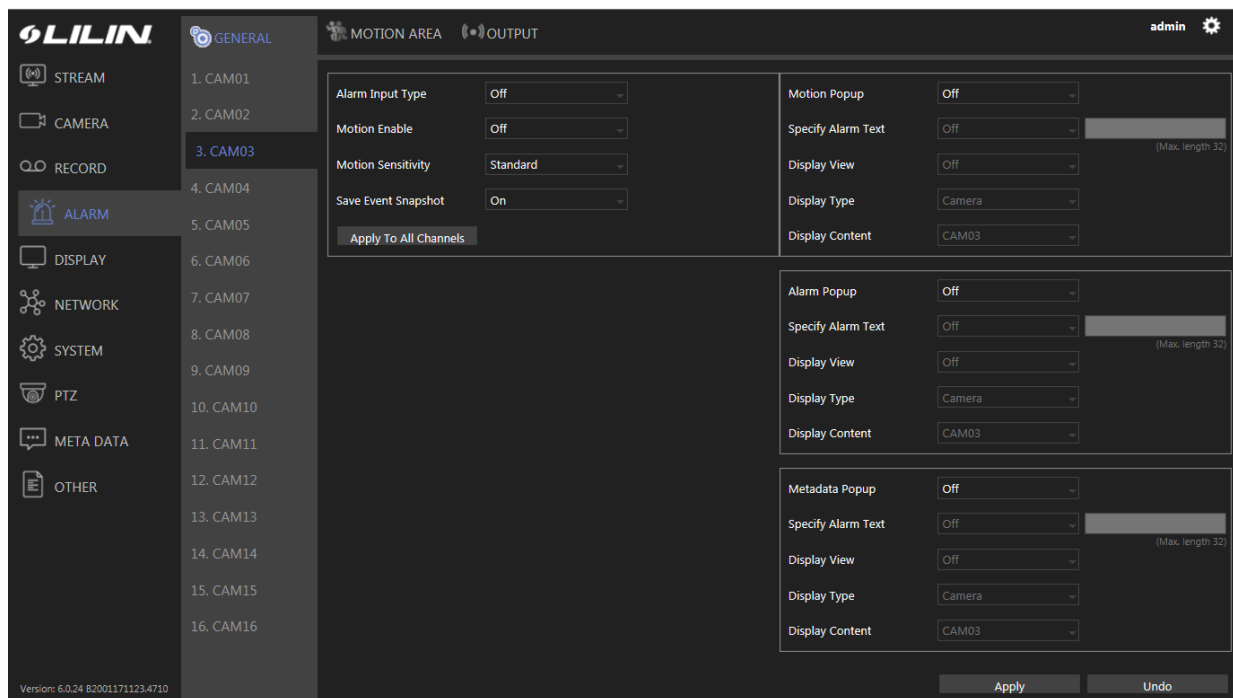


- System Recording Mode: Choose between **Manual** or **Scheduled** recording.
- Overwritten: Switch on to overwrite old files when the storage is full.
- Pre-alarm Record: Switch on to start recording for a period before an alarm occurs.
- Limited Recording: Set the number of days to record (from now to the designated day).
- Protected Recording: Set how many days of video the DHD will preserve.

Chapter 7 Alarm Setup

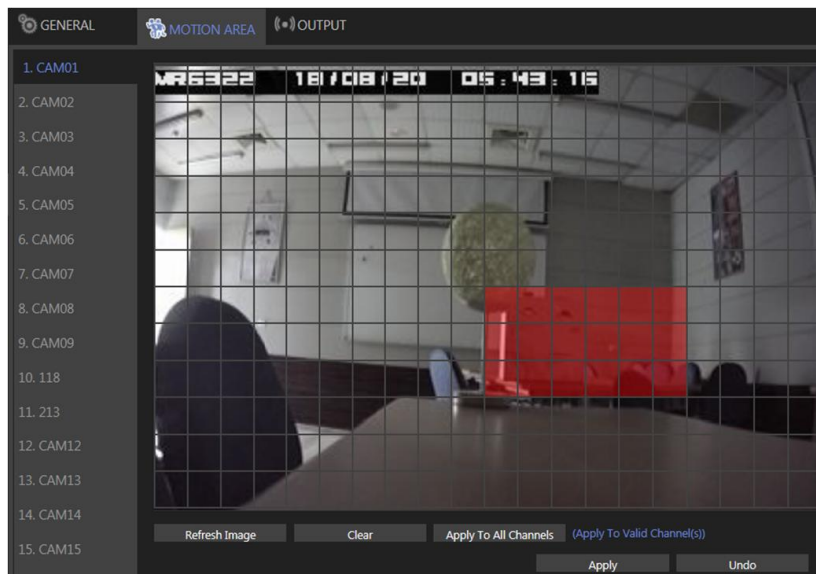
Click to enter **DHD SETTINGS**, press **ALARM** in the left pane to enter the **ALARM SETUP** page. The setting options are described below:

Chapter 7-1 General



- Alarm Input Type: Set the alarm sensor to **Normally Open (NO)**, **Normally Closed (NC)**, or **IP Camera**. The last option will trigger the alarm only when receiving a signal from IP cameras.
- Motion Enable: Switch on/off motion detection. Remember also to set the motion detection area in the tab **MOTION AREA**.
- Motion Sensitivity: Adjust the sensitivity of motion detection. Higher sensitivity indicates that the alarm can be more easily triggered.
- Save Event Snapshot: Enable to store a snapshot on the hard drive when an alarm is triggered.
- Motion Popup: The display view pops up when the motion is triggered.
- Specify Alarm Text: The alarm text displays on the channel when the alarm is triggered
- Display View: Turn on/off the display view when the alarm is triggered.
- Display Type: Switching display view to camera/view when alarm is triggered.
- Alarm Popup: The display view pops up when the alarm input is triggered
- Metadata Popup: The display view pops up when the metadata event is triggered
- Display Content: Camera: Switch display to the selected channel. View: Switch display to the selected split view group.

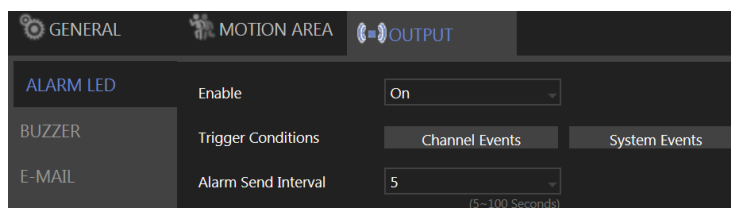
Chapter 7-2 Motion Area



Click and drag across the grid to highlight motion detection areas. Click **Apply All Channels** to apply the areas to all camera channels.

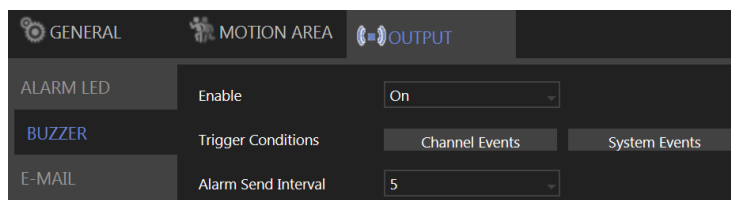
Chapter 7-3 Output

Chapter 7-3-1 Alarm Led



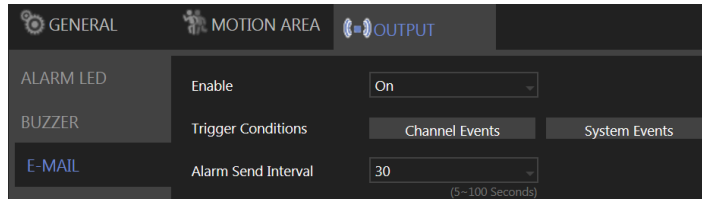
- Enable: Turn **On** to activate the alarm LED.
- Trigger Conditions: See **Channel Events** and **System Events** above for more details.
- Alarm Send Interval: Set the frequency of LED blinking when an alarm is triggered.

Chapter 7-3-2 Buzzer



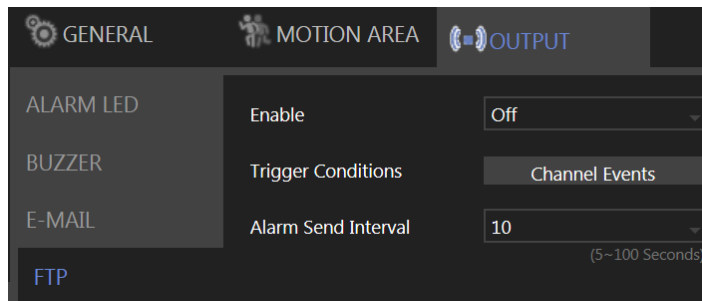
- Enable: Turn **On** to activate the buzzer.
 - Trigger Conditions: See **Channel Events** and **System Events** above for more details.
 - Alarm Send Interval: Set the frequency of buzzer beeping when an alarm is triggered.
- Note:** **SYSTEM SETUP > GENERAL > Buzzer** must be enabled.

Chapter 7-3-3 E-Mail



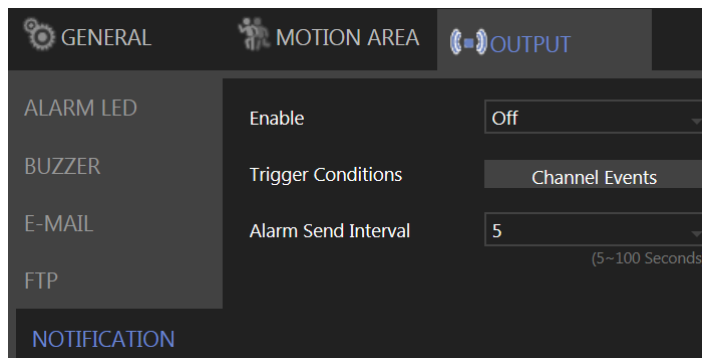
- Enable: Turn **On** to activate e-mail sending.
- Trigger Conditions: See **Channel Events** and **System Events** above for more details.
- Alarm Send Interval: Set the frequency of sending alarm notification e-mail when an alarm is triggered..

Chapter 7-3-4 FTP



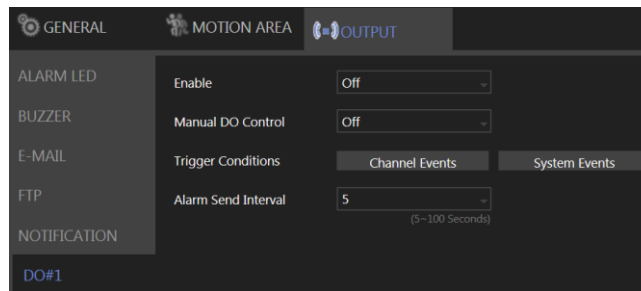
- Enable: Turn **On** to activate FTP sending.
- Trigger Conditions: See **Channel Events** and **System Events** above for more details.
- Alarm Send Interval: Set the frequency of sending image files to an FTP server when an alarm is triggered.

Chapter 7-3-5 Notification



- Enable: Turn **On** to activate app push notification sending.
- Trigger Conditions: See **Channel Events** above for more details.
- Alarm Send Interval: Set the frequency of sending the app push notification when an alarm is triggered.

Chapter 7-3-6 DO#1–N (manual DO control)



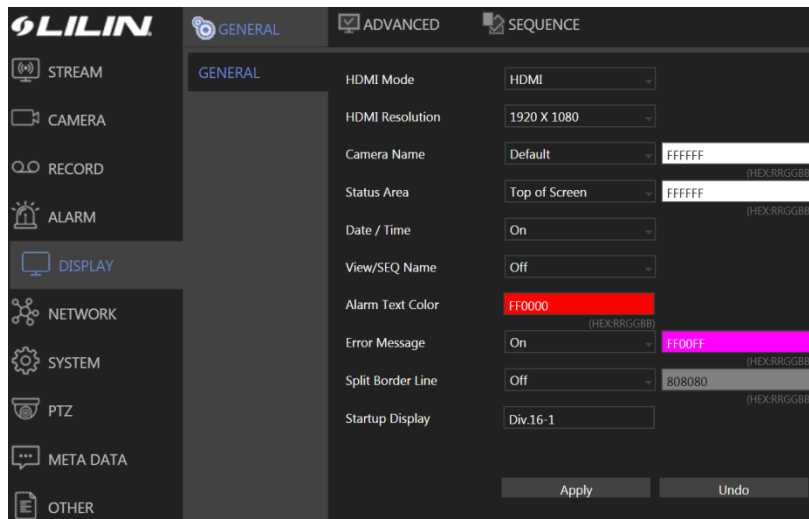
Manual DO control: Turn **On** to enable directly DO control, in live video window will show the corresponding DO number icon, click to control.

For other options, please refer to the descriptions above.

Chapter 8 Display Setup

DISPLAY provides several adjustable DHD parameters such as resolution, default number of split views, and more other options. The details of these settings are described as follows:

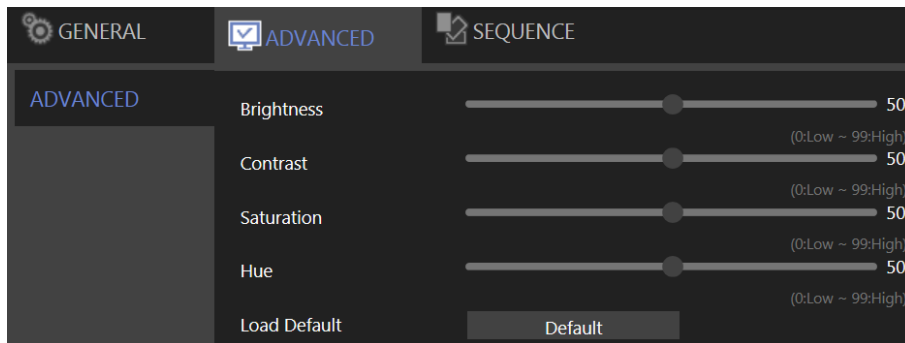
Chapter 8-1 General



- HDMI Mode: Switch the output mode between DVI and HDMI.
- HDMI Resolution: Select a screen resolution that fits your screen.
- Camera Name: Adjust the channel name OSD position on local live view display. Opposite field is to select channel name text color for on-screen display.
- Status Area: Adjust the status OSD position on local live view display. Opposite field is to select status text color for on-screen display.
- Date / Time: Enable or disable the date and time OSD from the local live view screen.
- View/SEQ Name: Turn on/off View/Sequence OSD on split screen view
- Alarm Text Color: Select alarm text color for on-screen display.
- Error Message: Turn on/off error message in live view.
- Split Border Line: Select borderline size/color on split screen view
- Startup Display: Specify video to display after the DVR startup is completed.

Note: Availability depends on model.

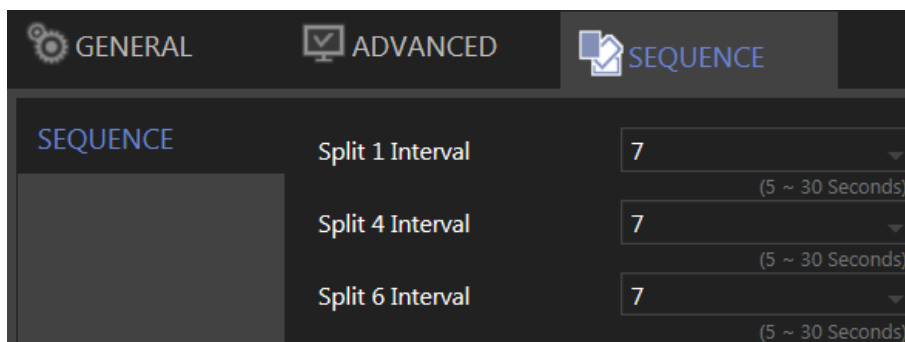
Chapter 8-2 Advanced



In this page, you can adjust brightness, contrast, saturation and hue of the DHD output. Click **Load Default** to restore to the factory settings.



Note: Availability depends on model.

Chapter 8-3 Sequence

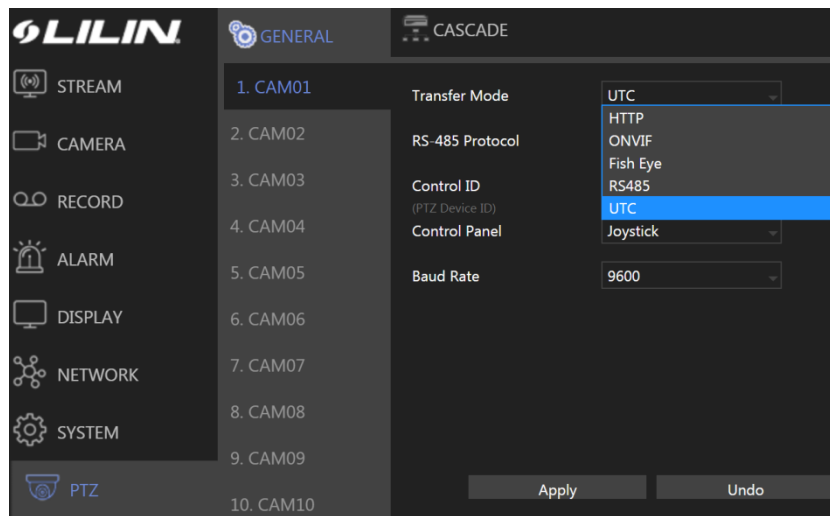


You are allowed to view videos of multiple cameras in sequence. Specify the **Sequence Interval** for the DHD to switch to the next camera or camera group for monitoring.

Chapter 9 PTZ Setup

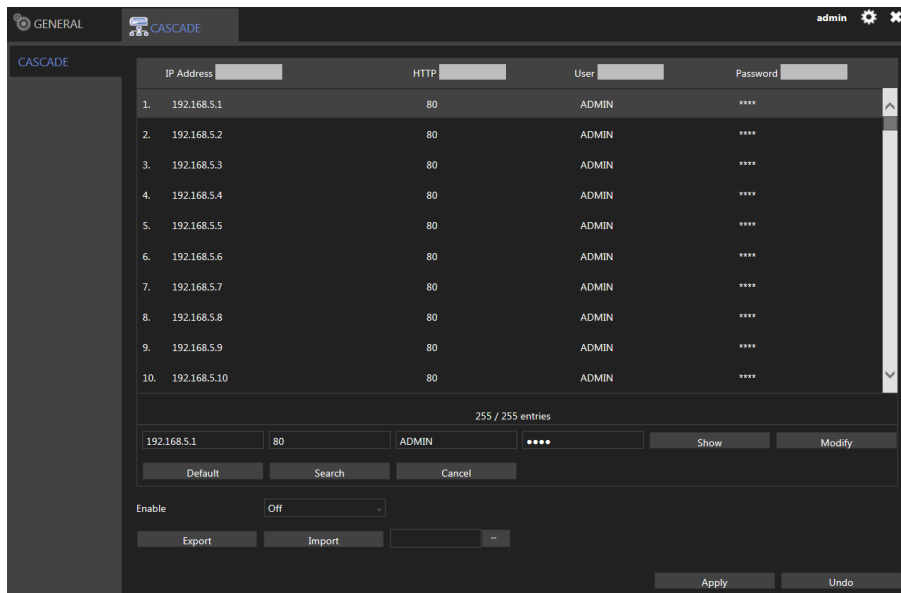
Click  to enter **DHD SETTINGS**, press **PTZ**  in the left pane to enter the **PTZ SETUP** page. The setting options are described below:

Chapter 9-1 General

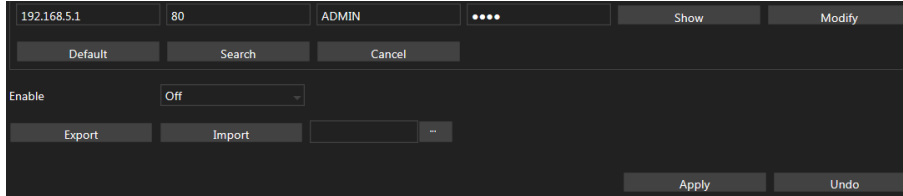


- Transfer Mode: Choose a PTZ communication protocol from **HTTP**, **ONVIF**, **Fish Eye** or **UTC**. Otherwise use **RS-485**.
- RS-485 Protocol: Choose a RS-485 control protocol for your RS-485 PTZ device.
Note: Transfer Mode must be set to **RS-485**. Availability depends on models.
- Control ID: Choose the corresponding device ID to control the camera.
- Control Panel: The type of PTZ control panel.
- Baud Rate: The baud rate of RS-485 communication.

Chapter 9-2 DHD Cascade



This tab allows you to cascade multiple DHDs or adjust relevant settings. For detailed instructions on how to use the DHD cascade function, visit our official website. Enter **Support > SDK**, and download the document named **DVR/NVR IR/keyboard serial commands over HTTP**. The settings listed in this tab are described in details as follows:

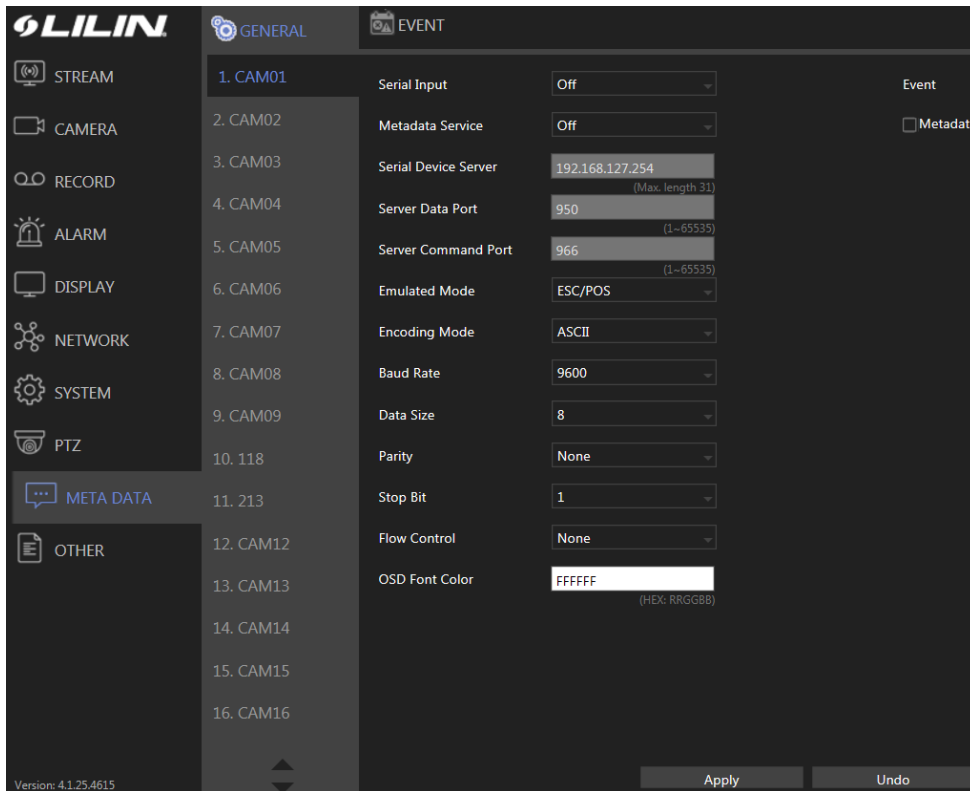


- Show/Hide: Reveal or hide the password.
- Modify: Apply the changes you've made.
- Default: Restore to factory settings.
- Search: Find all other DHD(s) connected to your network.
- Export: Export the settings to the USB flash drive connected to the DHD.
- Import: Load the settings from the USB flash drive connected to the DHD.

Chapter 10 Metadata Setup

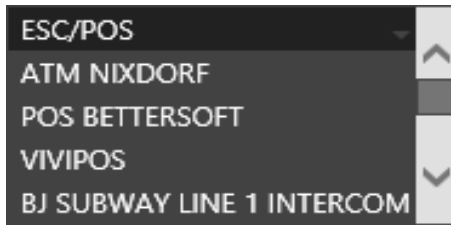
Click to enter **DHD SETTINGS**, and press **METADATA** in the left pane to enter the **METADATA SETUP** page. The setting options are described below:

Chapter 10-1 General



The DHD supports various external devices such as GPS or POS, and in this page you are allowed the change the settings for these devices. The setting options are described as follows:

- Serial Input: Select the USB port to which your external device is connected.
- Metadata Service: Turn **On** to enable using external devices.
- Serial Device Server: Enter the server IP for your serial device.
- Server Data Port: Enter the port of your serial device.
- Server Command Port: Enter the command port of the device.
- Emulated Mode: Choose an emulation type from the drop-down menu (see image below).

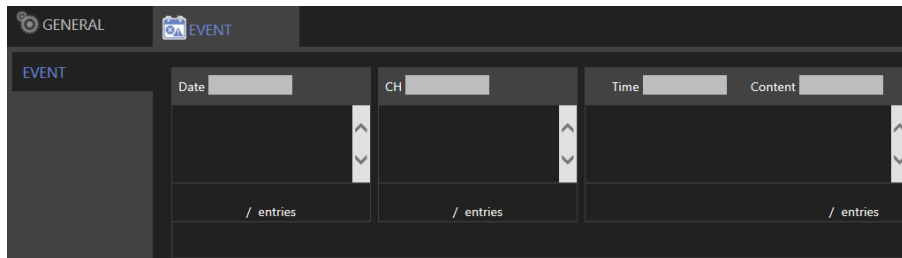


- Encoding Mode: Choose between ASCII and UTF-8.
- Baud Rate: Select an option suitable for your device.
- Data Size: Select an option suitable for your device.
- Parity: Select an option suitable for your device.
- Stop Bit: Select an option suitable for your device.
- Flow Control: Select an option suitable for your device.
- OSD Font Color: Choose a color for the OSD font from the spectrum (see image below).



- Event Metadata: Enable/disable recording of events triggered by Metadata in the event log.

Chapter 10-2 Event

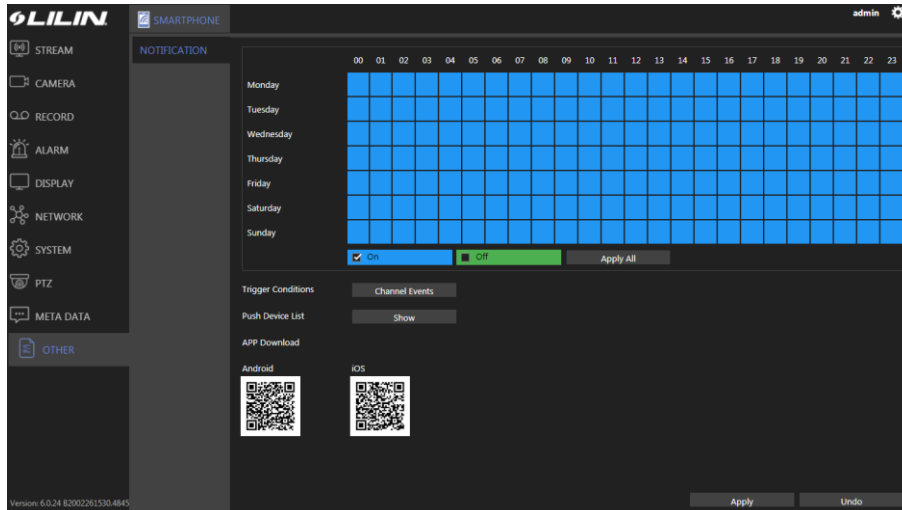


This tab displays a history of received metadata. You are allowed to search for events based on time, channel, or content.

Chapter 11 Other Setup

Click to enter **DHD SETTINGS**, and press **OTHER** in the left pane to enter the **OTHER SETUP** page. The setting options are described below:

Chapter 11-1 Smartphone



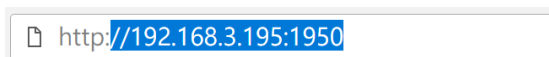
This tab provides settings for sending alarm notifications to your smartphone that is paired with the DHD. You can download **LILINViewer** in App Store or Google Play for your iPhone, iPad, and other Android devices.

- Trigger Conditions: See **Channel Events** above for more details.
- Push Device List: Click **Show** to open a dialog, display all registered mobile devices that required push notification.
- APP Download: Scan the QR code to download LILINViewer.

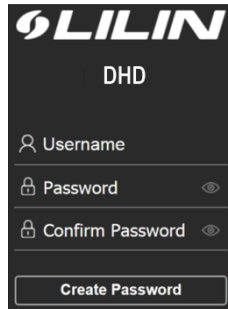
Chapter 12 Stream

Once the network configurations are completed and cameras connected, you can remotely view live streams of cameras via an Internet browser, and access other functions such as playing recorded video and backing up video files.

Note: IE 10 or above, or Chrome are recommended
Enter the DHD IP address or domain name in the address bar:



Due to security reason, create the username and password for the first login. To login to the DHD, please create the username and password on the login page. Press **Confirm** to complete the setting and login simultaneously.



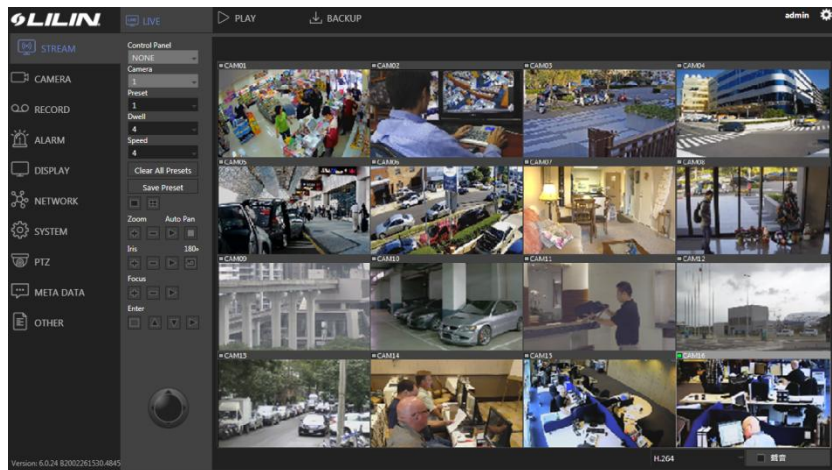
Minimum Password Strength Requirements:

1. The password length must be 8 or more characters.
2. The password must include at least 1 number (0 ~ 9), 1 uppercase letter, 1 lowercase letter and 1 symbol (~ ? / + = , ; : . ' @ # ¥ % ^ & * () _ -).

Note: Please preserve the credential for accessing the DHD properly. Forgetting the credential for accessing the DHD, please contact your local distributor.

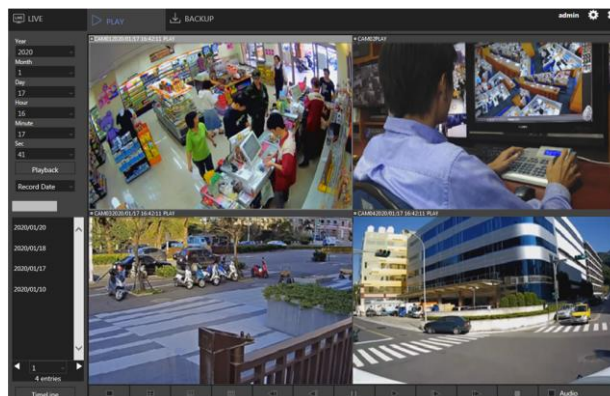
Note: DHD remote access requires corresponding access privileges.

Chapter 12-1 Live

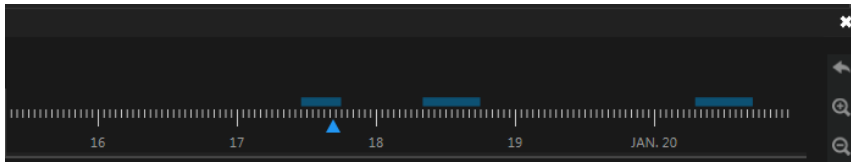


The **LIVE** tab displays the streams of all connected cameras. With the control buttons and joystick you can control the movement of the selected camera.

Chapter 12-2 Play

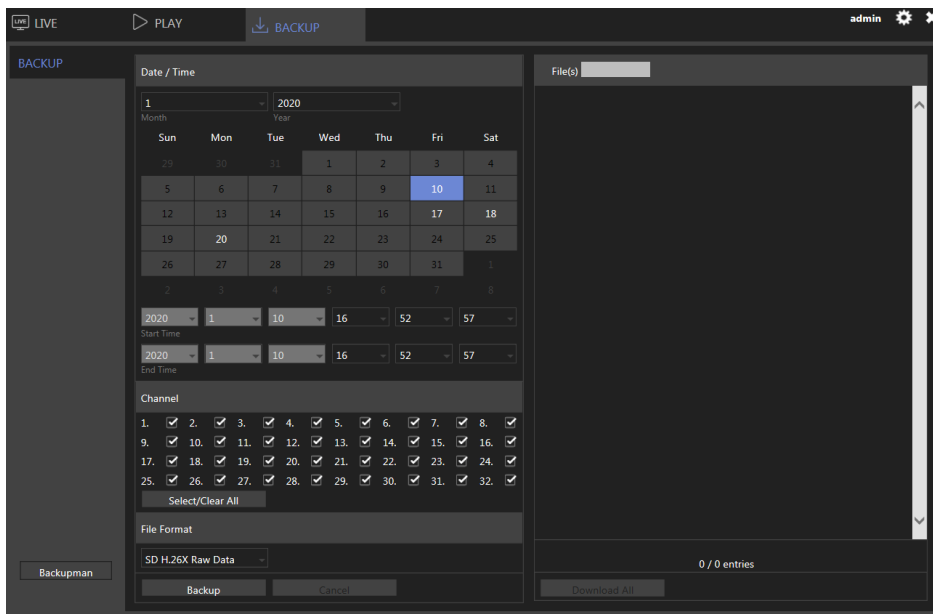


In **PLAYBACK**, you can view recorded videos according to date/time, alarm/manual history table, and timeline.



Note: Clicking the icon at the upper right of the **TimeLine** reverts to **Playback** menu.

Chapter 12-3 Backup



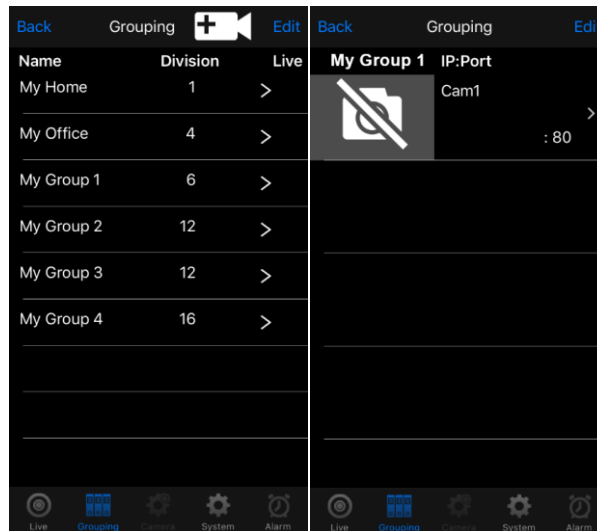
In **BACKUP**, you could back up recorded videos by choosing the date/time, channel, and file format. Click **Backup** to start the backup process.

Appendix Install LILINViewer

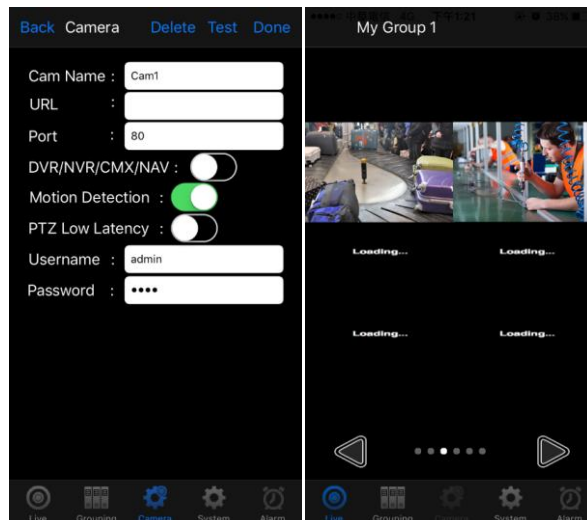
Search and download LILINViewer in the iOS App Store or Android Play Store. Or you can scan the QR code below:



For iOS User
Open **LILINViewer**, and then tab **Grouping**.

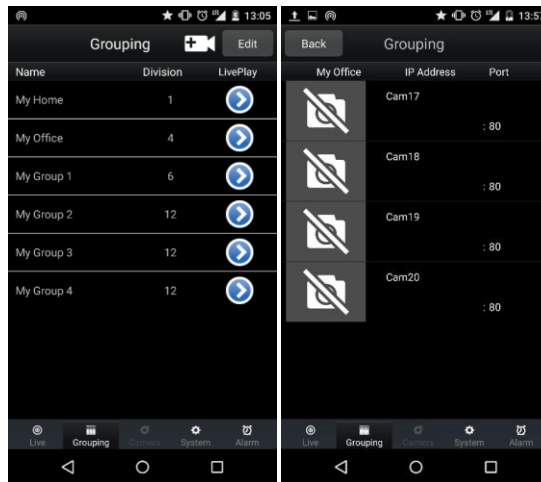


Tap a group, and tap the camera field to add a DHD.
Next, enter the required DHD information, and then tap **Done** to save. Tap **Live** to monitor the DHD.



For Android Users

Open **LILINViewer**, and go to tab **Grouping**.



Tap a group, and tap the camera field to add a DHD.

Next, enter the required DHD information, and then tap **Done** to save. Tap **Live** to monitor the DHD.

