User Manual
For

X7-E1608 MDVR

Mobile Digital Video Recorder

Notice

The information in this manual was current when published. The manufacturer reserves the right to revise and improve its products. All specifications are therefore subject to change without any notice.

The purpose of this manual is to kindly aid the user for the operation for our MDVR. The user should have a basic understanding of computer operation and basic knowledge of how to connect peripherals and make some settings.

Copyright

Guarantee & Warnings

1) **Electrical Apparatus Safety**
   All installation and operation should comply with local electrical safety norms.
2) **Transportation**
   In the process of transportation, storage and installation, please avoid heavy stress, violent vibration, impact and water splashing.
3) **Installation**
   Install the equipment in accordance with the requirements, handle carefully. Do not heavily press the equipment before the MDVR installation is finished.
4) **Requirements on Engineers & Technicians**
   All the work of checking and maintenance should be done by qualified technicians and engineers. We do not undertake any responsibility caused by unauthorized modifications.
5) **Requirements on Environment**
   The equipment should be installed and stored in a cool and dry place, away from direct sunlight, flammable or explosive substances, etc. Keep gaps not less than 3cm around the device to facilitate ventilation for cooling.
6) **Accessories**
   Make sure to use accessories from the manufacturer recommended in the attachment.
   Insulate circuit ground and metal shell for all the peripherals.
   Before installation, please open the package and ensure that all parts are included.
   If there are any problems, please contact us as soon as possible.

Description

Term	Description	Term	Description
MDVR	Mobile Digital Video Recorder	LAN	LAN Network
FPS	Picture Frames Per Second	MPEG	Picture Format
GPS	Specially for Antenna of GPS System	TCP/IP	TCP/IP Protocol
HDD	Hard Disk for Recording	USB	USB Flash Interface
IR	Remote Control IR Receiver	DB44	A/V Input, Output.IO/ALARM Output
DB26	Alarm Input/RS232/RS485	UPS	Power to Switcher and MDVR

Contents

1. PRODUCT CHARACTERISTICS

1.1. OVERVIEW

X7-E1608 is a cost effective and function-extensive device specially designed for Mobile Video surveillance and intelligent dispatch. It adopts high speed processor and built-in operating system, combining with H. 264 video compression / decompression technology, 4G/3G network technology, GPS locating technology and WIFI technology. It can realize 720P high definition, WD1, WHD1, WCIF, D1, CIF, HD1, CIF video recording and vehicle driving information recording, as well as remote video upload. With center software it also achieves alarm linkage central monitoring, vehicle intelligent dispatching management and playback analysis based on central database. It is powerful with strong anti-vibration, totally metal appearance design, flexible installation, easy maintenance and high reliability.

1.2. FEATURES

1.2.1. HARDWARE FEATURES:

1) All the modules are connected with exquisite connectors, supporting quick disconnection, which is safe and easy to maintain;
2) Supports DC8~36V wide voltage output. There are protection for over voltage, under voltage, short circuit and over current;
3) Supports dual 2.5" SATA hard disks of large-capacity;
4) Built-in mechanical anti-vibration technology;
5) Adopts rich interfaces: 2xDB44, 1xserial ports (DB26), 1xCP4 aviation interface, 1xUSB, 1xfan connector, 2x RJ45, 1xpower aviation interface and 1x3Pin debugging serial port;
6) Convenient operation: CP4 touch panel, remote control, mouse, keyboard, PTZ controller are optional. It can even equips with a special extension cable for remote control;
7) Built-in wireless module: Built-in GPS module, 4G/3G (FDD-LTE/TDD-LTE/EVDO/TD-SCDMA/WCDMA);
8) Aviation interface: It adopts professional aviation interface with waterproof and anti-vibration ability.

1.2.2. SOFTWARE FEATURES:

1) 24-hour single-file recording mode. Time line mode playback, makes the operation more convenient;

2) Supports dual streams for main/sub stream recordings and mirror recording;
3) Built-in H.264 codec, user can manually configure the video coding attributes
4) A series of synchronous operation: Information record, recording playback, file backup, network transmission, etc.;
5) Supports multiple languages;
6) Adapts dynamic coding technology to adjust the dynamic change of 4G/3G network bandwidth and ensure the fluency of monitoring video;
7) Multi-information display: vehicle number, time/date information, channel information, alarm information, GPS information, speed information, etc. User can set video recording overlay and information record;
8) Supports Multi-recording modes: vehicle switch recording, timing switch recording, manual recording, alarm recording, and latent shutdown recording, etc.; supports continuous recording and loop recording; supports power protection to ensure that the last video data is not lost;
9) Local recording: 720P/WD1/WHD1/WCIF/D1/HD1/CIF resolution optional;
10) Driving record: provides statistics on speed, turning, brake, reverse, opening door, etc.;
11) Network function: supports break point uploading continually, which can realize the remote video surveillance, video download, remote alarming and network timing of the equipment, network setting and remote upgrade, etc.;
12) High-speed backup: supports high-speed backup through USB2.0, as well as built-in and external SD cards;
13) Device upgrade: upgrade all items that can be upgraded at one time;
14) Alarm linkage: supports linkage switch value output, image display, etc.;
15) Storage format: formats device hard disk and external USB devices and SD cards.

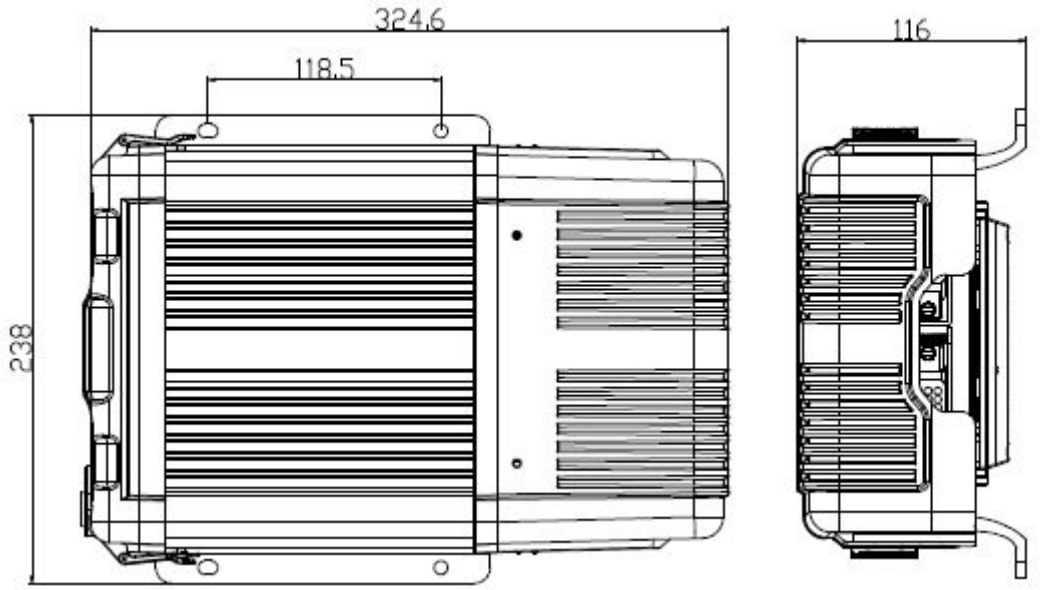
1.3. SPECIFICATIONS

Items		Technical Index
Product Series		X7-E1608
Function Overview		Preview, Recording, Playback, Network, Locating
System	OS	Linux 3.0.8
	Control Mode	CP4, Easy Check, Network, Mouse(3G/4G/WIFI)
Video	Input	16 channels WD1+8 channels IPC(720P)
	Output	3 channels
	Total Resource	(16 x 25)FPS WD1 @ PAL/(16 x 30)FPS WD1@NTSC +(8 x 30)FPS 720P
	Video Signal Standard	Electrical level:1Vpp Impedance:75Ω NTSC/PAL Optional
Audio	Input	24 channels(8 channels IPC)
	Output	3 channels
	Audio Signal Standard	Electrical level:2Vpp Input impedance:4.7kΩ
Display	Display Split	1/4/9
	OSD	Locating, alarm, vehicle number, speed and date/time
	Operation Interface	Graphical User Interface
Recording	Video/Audio Compression	Video: H.264
		Audio: ADPCM, G.711U, G.711A
	Image Resolution	Analog: PAL:WD1(928X576), WHD1(928X288), WCIF(464X288), D1(704X576), HD1(704x288), CIF(352x288); NTSC:WD1(928X480), WHD1(928X240), WCIF(464X240), D1(704x480), HD1(704x240), CIF(352x240); Digital: 720P(1280X720)
	Image Quality	8 levels adjustable
	Recording Mode	Boots up/manual/schedule/Alarm event recording(sensor trigger, speed, external acceleration sensor, alarm button)
	Pre-recording	0-60 minutes
	Post-recording	0-30 minutes
	Mirror Recording	Yes
Playback	Playback Channel	4 channels by local playback
	Search Mode	Date/time, channel, event
Network	Ethernet	RJ45x2 (10/100/1000Mbps)
	WIFI	802.11b/g/n
	3G/4G	EVDO/WCDMA/TDD-LTE/FDD-LTE

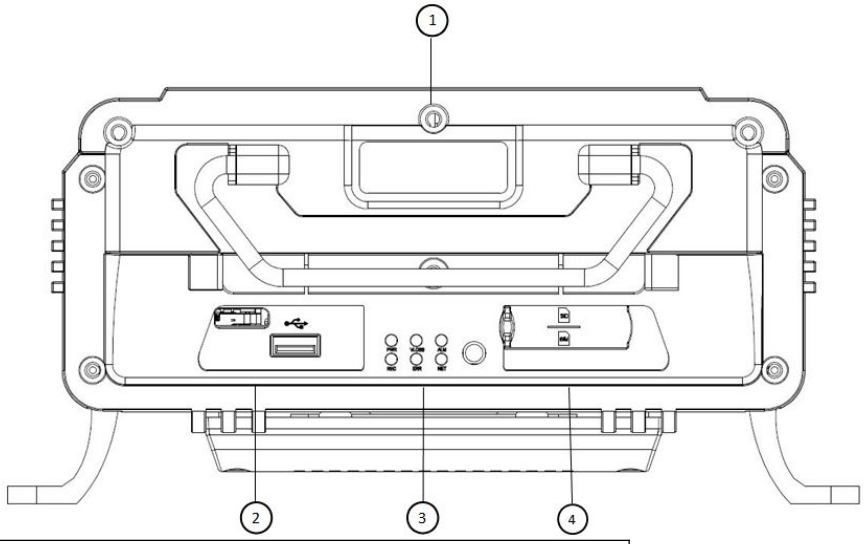
Locating	GPS	Location tracking, speed detection and time sync
Storage	Hard disk	2.5" SATA hard disk x 2
Interface	USB	USB 2.0 x 2 (1 at front panel, 1 at rear panel)
	SD	SD x 1
	SIM	SIM slot x 1
	Serial ports	RS232 x 2, RS485 x 2
	Sensor	8 inputs, 2 outputs
	Speed	1 channel pulse speed detection
	Interface	Control panel (CP4)(Optional)
	Intercommunication	I MIC interface
Power	Input	DC8-36V, ACC
	Output	5V@1000mA, 12V@1000mA
	Max Power Consumption	162W
	Standby Power Consumption	≈0W
Physical Characteristics	Dimension(L x W x H)	324.6 x 238 x 116 mm
	Weight	4.2 kg
Environment	Operating Temperature	-40℃- +70℃(With heater) or -10℃- +70℃
	Operating Relative Humidity	8%-90% (No Condense)

1.4. EXTERNAL INTERFACE

Dimension (Unit: mm)

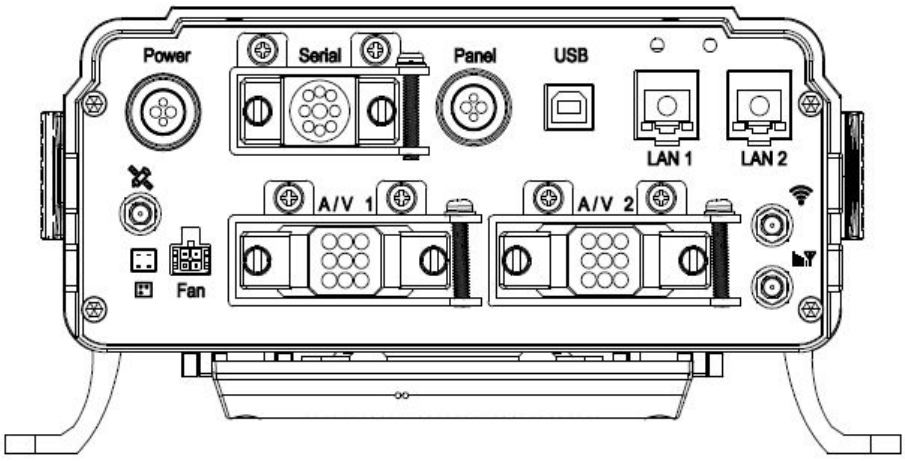


Front Panel



Serial No.	Description
1	Hard disk module
2	USB interface
3	LED status
4	Slots of SD card and SIM card

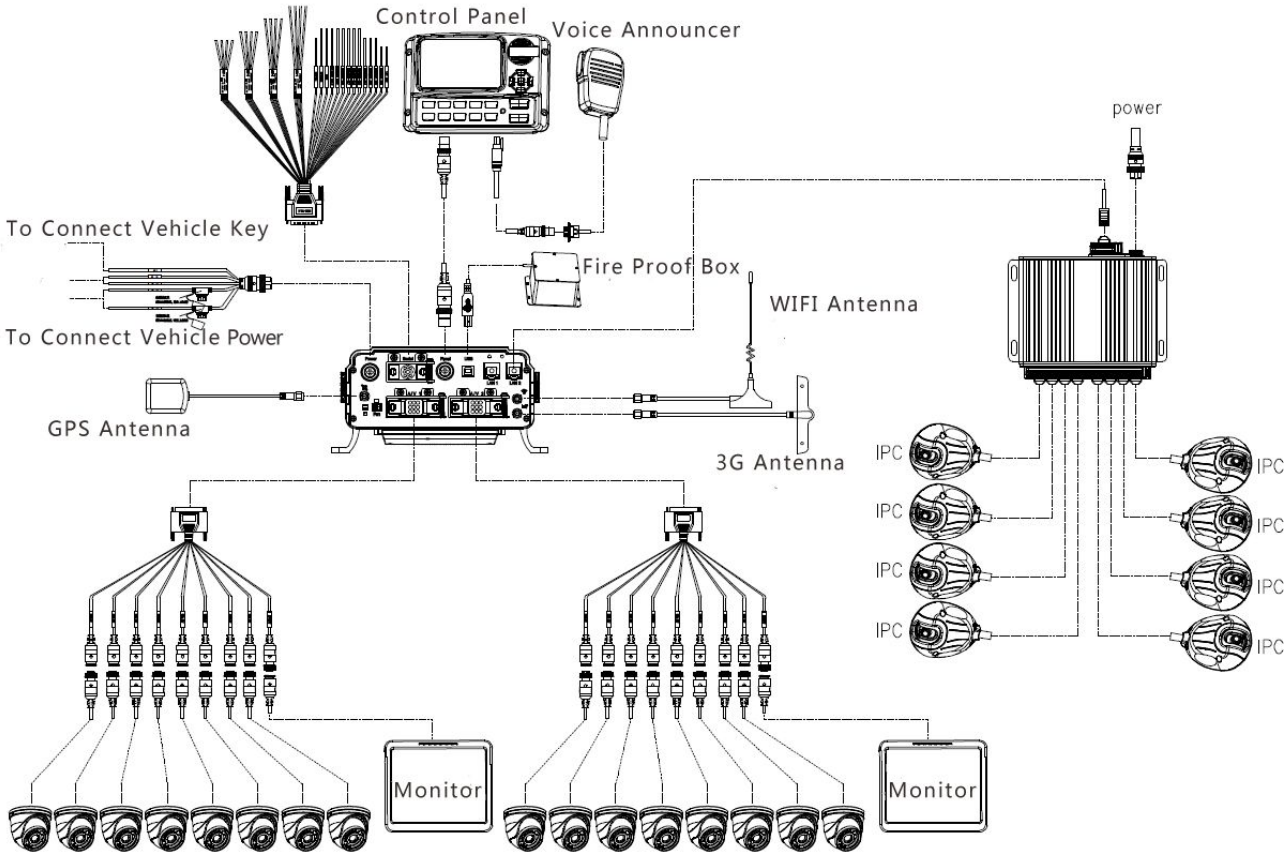
Rear Panel



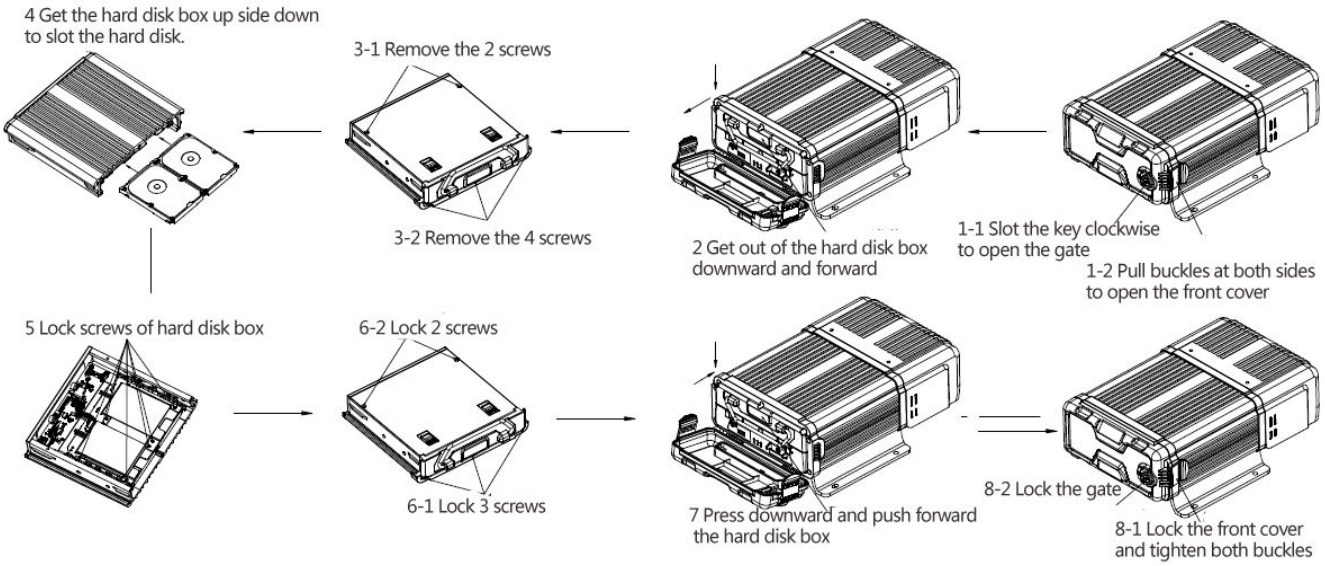
Serial No.	Print	Description
1	Power	DC 8-36 V Power Input
2	Serial	The Interfaces of Serial Port, Switch and pulse
3	Panel	Control panel (CP4)
4	A/V 1~2	Analog audio/video input&output

5	LAN 1~2	RJ45(1000M)
6		GPS Antenna Interface
7		3G/4G Antenna Interface
8		WIFI Antenna Interface
9	USB	USB 2.0 Interface
10	Fan	Fan Interface

1.5. SYSTEM DIAGRAM

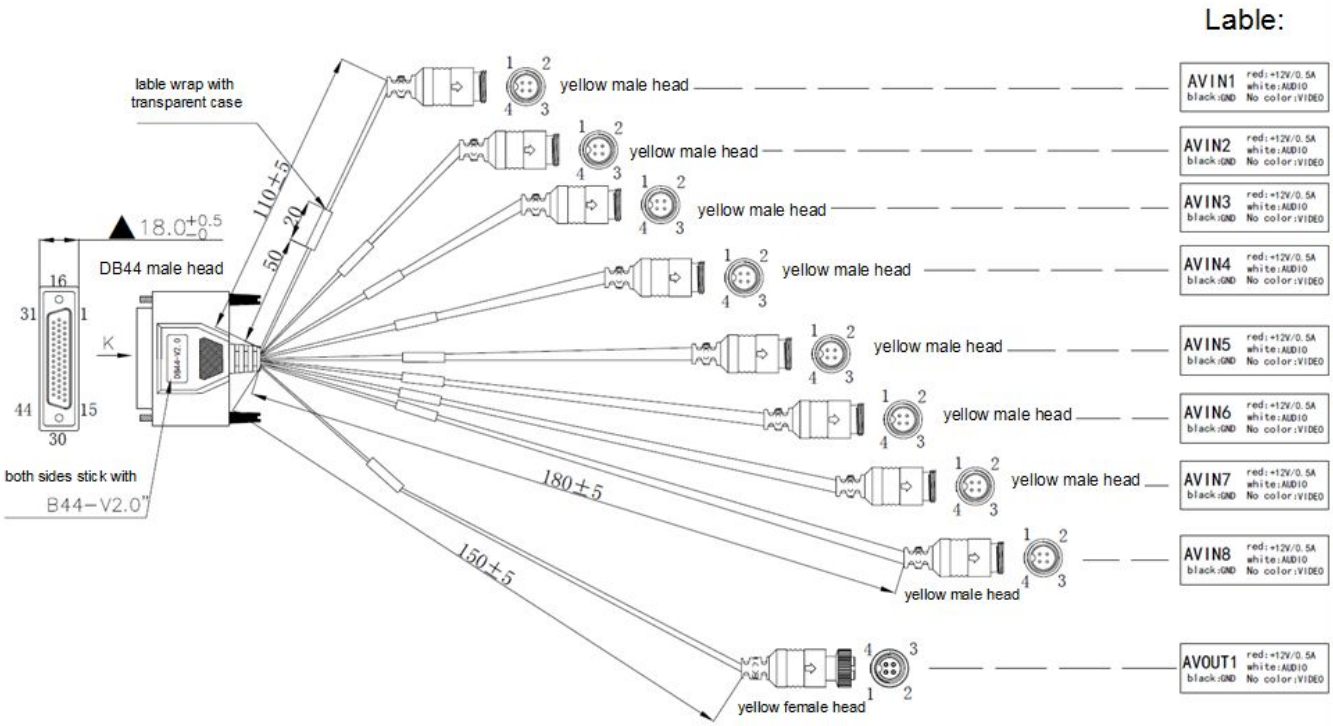


1.6. HARD DISK INSTALLATION INSTRUCTION

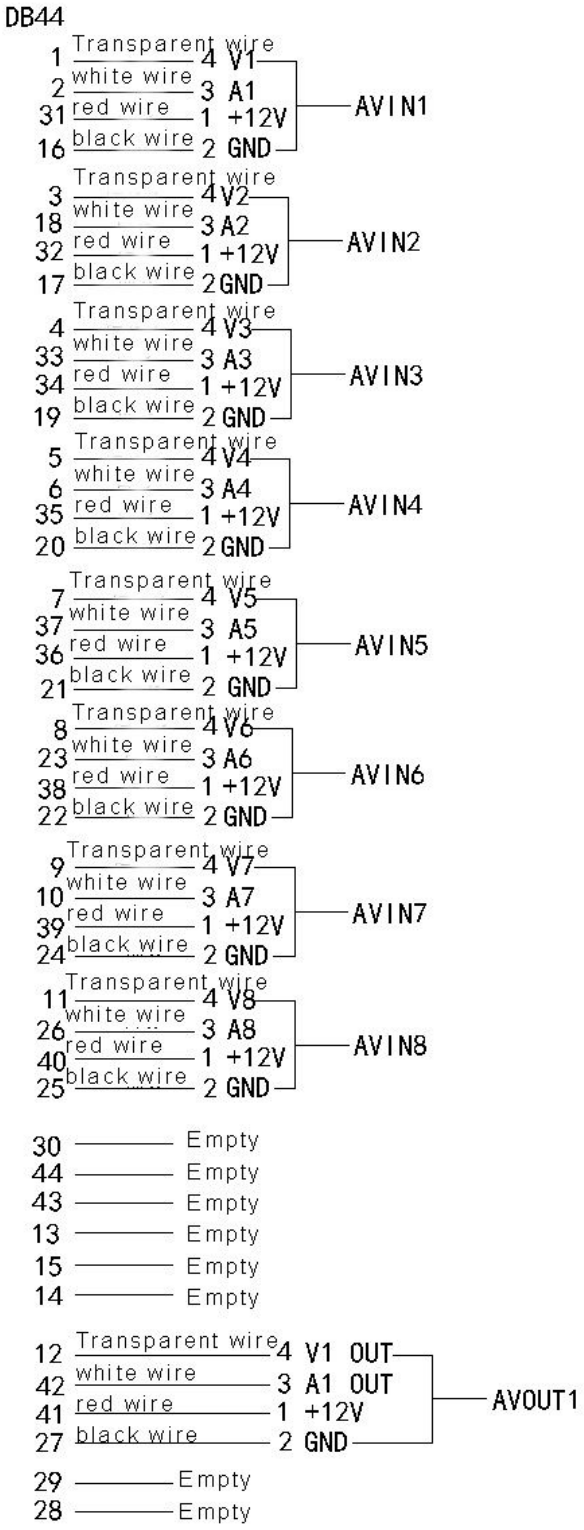


1.7. EXTERNAL WIRE DIAGRAM

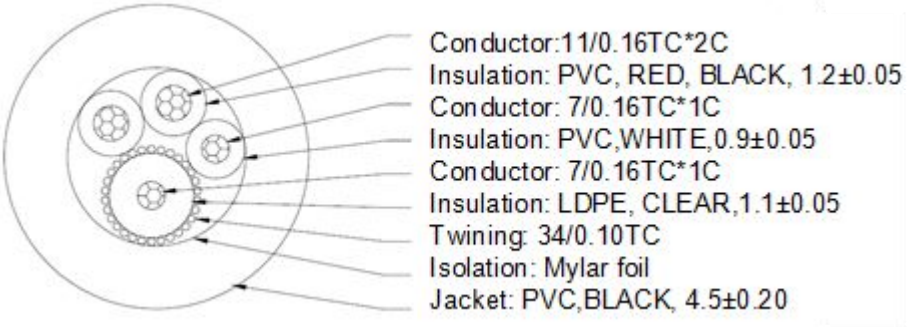
1.7.1. DB44 CABLE (Analog A/V input/output)



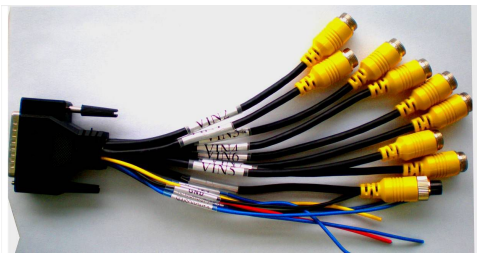
Signal Definition:



Sectional view



Definition and interface of DB44

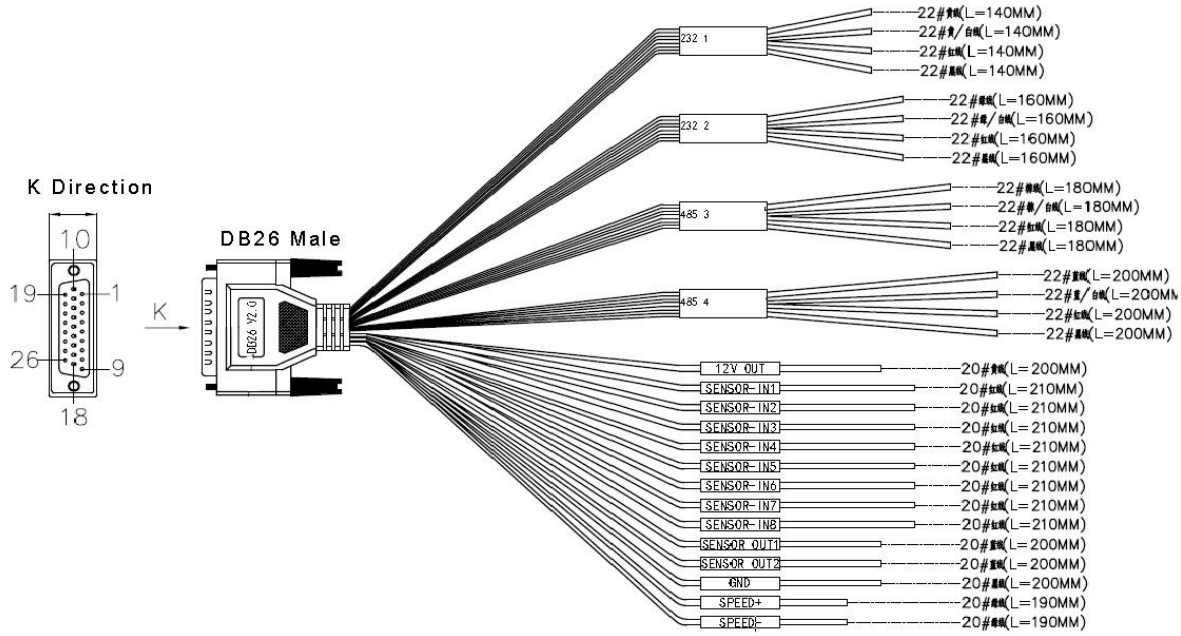


DB44

Definition of DB44

Interface	Name	Description
Audio/Video Input	VIN1~VIN8	The port is Aviation Male. There are 4 audio/video inputs of a 4-channel MDVR, while there are 8 audio/video inputs of a 8-channel MDVR, Pin1 with 12V power output, pin2 with GND, pin3 with audio input, pin4 with video input.
Audio/Video Output	AV OUT	The port is Aviation Female, audio/video output, pin1 with 12V power output, pin2 with GND, pin3 with audio input, pin4 with video input.

1.7.2. DB26 CABLE



DB26

1	232TXD-1	232-1
2	232RXD-1	
19	+5V	
20	GND	
10	232TXD-2	232-2
11	232RXD-2	
19	+5V	
20	GND	
3	485A-3	485-3
4	485B-3	
21	+5V	
22	GND	
12	485A-4	485-4
13	485B-4	
21	+5V	
22	GND	
5	12V OUT	
14	SENSOR-IN1	
23	SENSOR-IN2	
6	SENSOR-IN3	
15	SENSOR-IN4	
7	SENSOR-IN5	
16	SENSOR-IN6	
25	SENSOR-IN7	
8	SENSOR-IN8	
24	SENSOR OUT1	
26	SENSOR OUT2	
9	GND	
17	SPEED+	
18	SPEED-	

Definition and interface of DB26

DB26

Definition of DB26

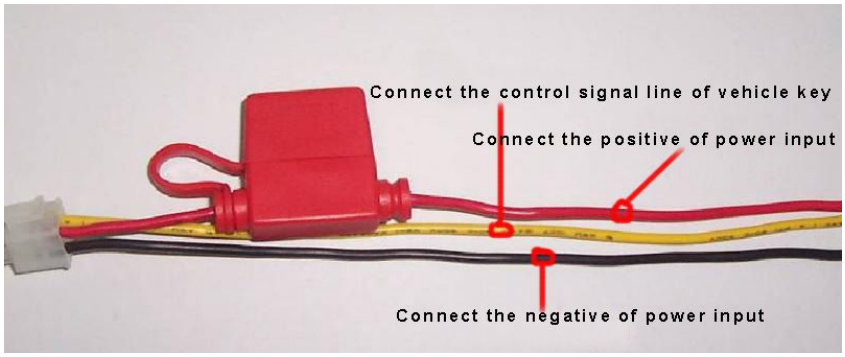
Port	Interface	Description
RS485	RS232-1	1: 232TX, 2:232RX, 3:5V，4:GND
	RS232-2	1: 232TX, 2: 232RX, 3: 5V，4: GND
	RS485-3	1: 485A, 2: 485B, 3: 5V，4: GND
	RS485-4	1: 485A, 2: 485B, 3: 5V，4: GND
Alarm input	SENSOR1~8	8 alarm input，2V is low level，5V~30V is high level
Speed sensor	SPEED+ SPEED-	To connect with speed pulse

1.7.3. POWER CABLE

Below is a power cable, one end is 4PIN white connector which can be insert into the back panel of MDVR. Red cable and black cable can be connected with the battery of vehicle; red cable is “+”, black is “－”, yellow is ignition. MDVR will start to work automatically when you turn on the engine, it switches off when you turn off the engine. The yellow cable should be connected with the key which is related with the dash board.

Attention：

1) Make sure the voltage is 12V to 36 V before you connect the MDVR to the battery, otherwise, the MDVR will be damaged by the power which is higher than 36V.
2) Pay attention to the insulation of the wires to avoid short circuit.
3) Yellow cable much be connected with the engine, otherwise, the MDVR will not support the feature for shut-down delay, which will result in video loss.



Power cable

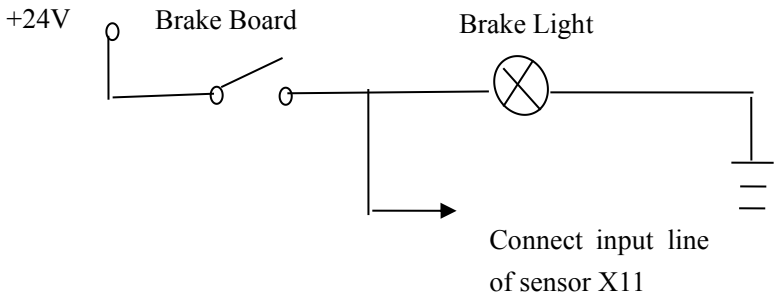
1.7.4. GPS AND GPRS ANTENNA

GPS Antenna

GPRS Antenna

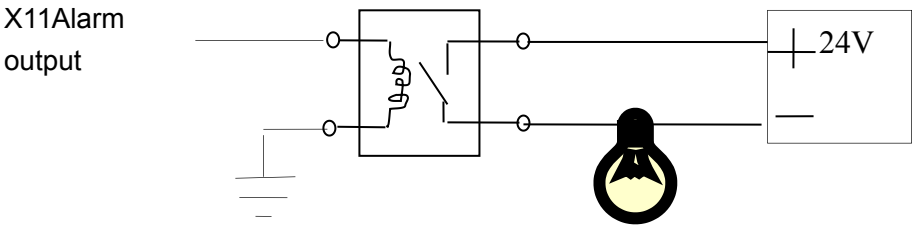
1.7.5. ALARM INPUT / OUTPUT

MDVR has 8 alarm input and 2 alarm output. Alarm input works to inspect the electrical level, it can detect different signals of the vehicle, like braking, turning direction, etc. Please see the diagram below to simulate the working mode. When you press the brake, the MDVR will detect the high level pulse, otherwise, it detects the low level pulse.



Alarm output is level output with 200mA drive capability. If user wants to drive a device of large power, an external relay is needed.

Following is the diagram of alarm output::



2. LOCAL MANAGEMENT

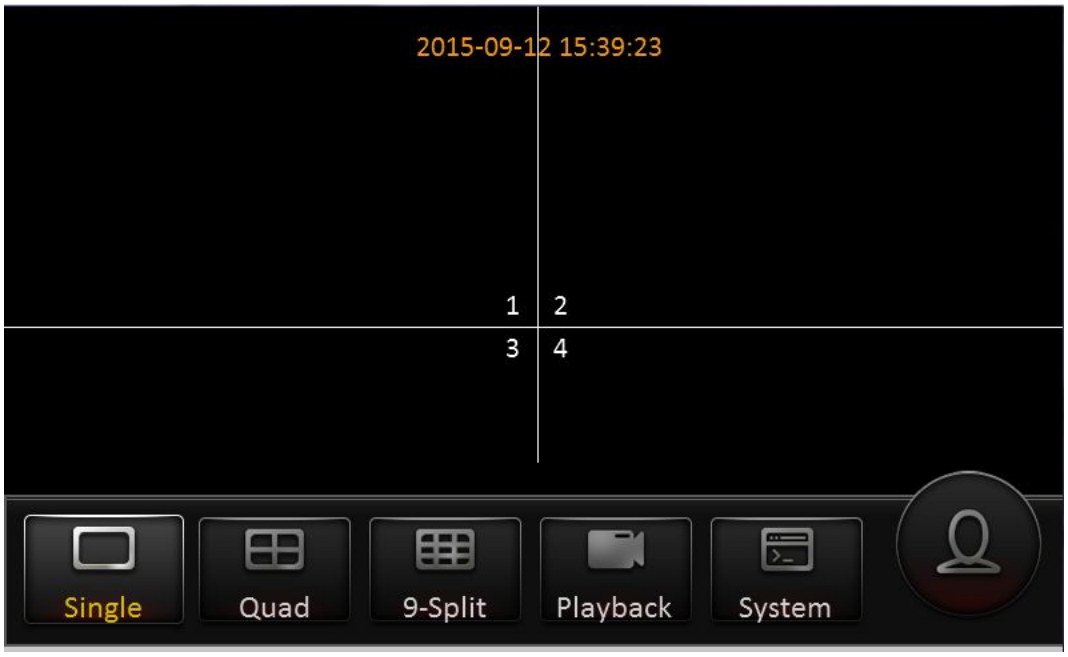
N9M supports 3 kinds of local setting methods:

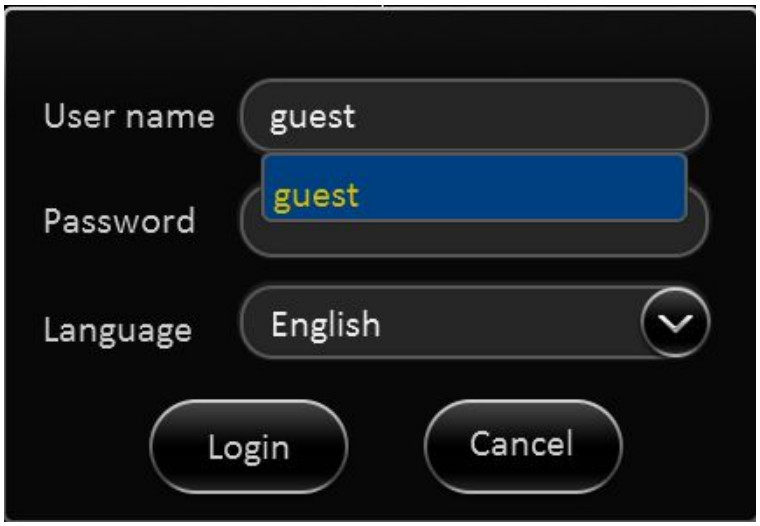
1) Connect monitor to mobile DVR and make sure it can play real time output image. Then connect mouse to USB interface at the front panel to have MDVR parameter setting.
2) Connect the touch panel CP4 to mobile DVR to have MDVR parameter setting. (RS232 serial port is needed when they are model X1 and M1, while model X3, X5 and X7 can connect to the panel interface directly.)
3) Model X5 supports MDVR parameter setting via remote controller.

2.1. LOGIN INTERFACE

When operate the device, user needs to have permission certified.

1) Press the remote control 【LOGIN / LOCK】or【SETUP】, the login screen will pop up.
2) Right click the mouse, the shortcut menu will pop up, left click login picture, login screen will pop up.
3) Left click on the login button to login and right click to log out.





Login Notice:

1) Software is automatically assigned by user name and password, it can be divided into user and administrator privileges.
2) Password options cannot be closed, but it can be set to null; when it is empty, user do not need to enter the password to login。

Login interface Introduction:

➢ **User name：**

1) Select users from the drop-down box. There are admin and user as defaults.
2) Currently, it can show two users and one admin.

➢ **Password：**

1) User can enter the operation interface if entering the right password;
2) User must enter the right password again if entering the wrong ones;
3) Click cancel to exit the login interface;

➢ **Language：**

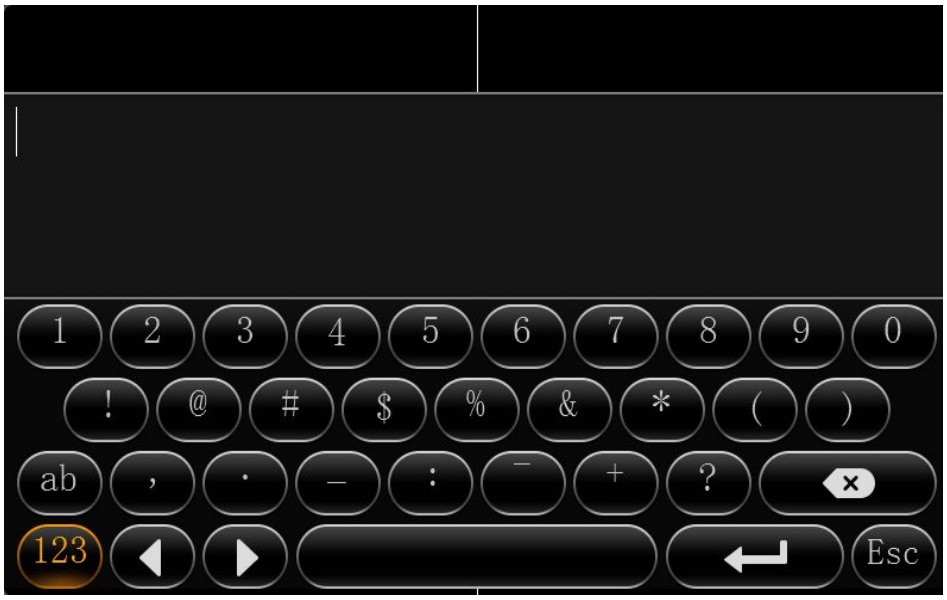
1) It supports language switch. "language" (Lang) means the current interface adopts Chinese;
2) It will automatically switch once selecting the language.
3) Currently, it supports Chinese and English;
4) After switching languages, it will not restore language option when user restores the factory Settings;

Default password and permission table is as follows:

Default Password	Related User	Related Authority
admin	admin	All Authorities
User	user	Search and playback

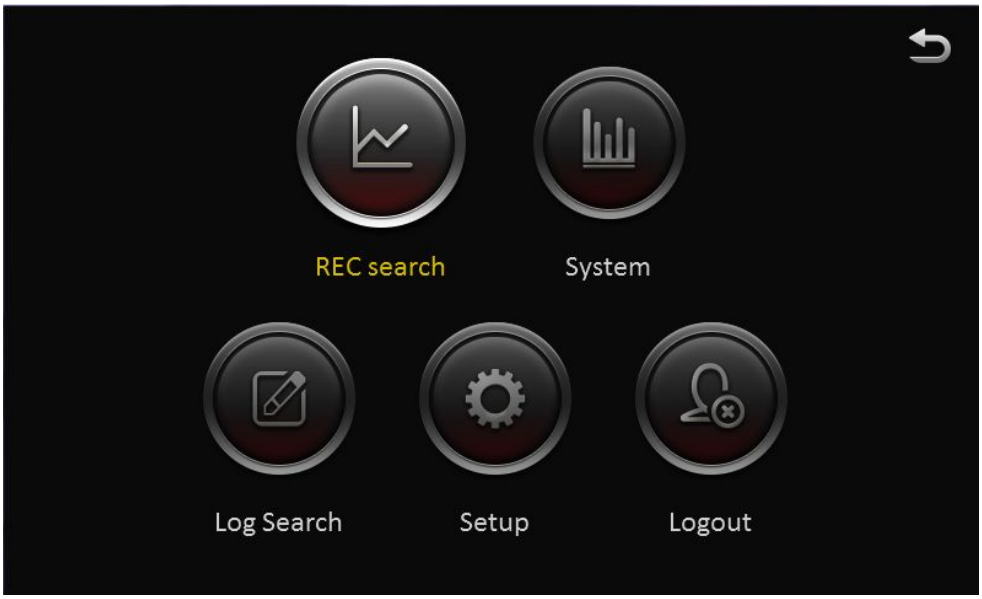
The password input Instruction:

1) User can set password with remote controller (only applicable to model X5), mouse or touch panel CP4. Move cursor to password, click Enter and enter the right number.



2) Move the cursor to the number position, press【Enter】or left click mouse button to select the corresponding number.
3) Move the cursor to 【123】, press 【Enter】or mouse to choose input type, such as numbers, letters, or special characters.
4) 【ab】means lower case letters,【123】means numbers,【AB】means capital letters; the highlighted place of background refers to the current cursor position.
5) Move Cursor to , Press【Enter】or left click mouse to move between the contents that have entered.
6) Move Cursor to , Press 【Enter】or left click mouse to delete the previous input contents.
7) Move Cursor to , Press 【Enter】or the left click mouse to exit the keypad, the entered contents will be written to the edit box.
8) Move Cursor to【Esc】 position, Press【Enter】or the left click mouse to exit the keypad, the entered contents will not be written to the edit box.

Main interface



2.2. RECORD SEARCH:

Video search interface contains video file search, video data backup and video playback function.

When there is a hard disk or SD card, enter the video search interface. Following is the REC Search interface:

In the calendar, the color below the dates means:

a. **No color** means no video.

b. **Green** means common video.

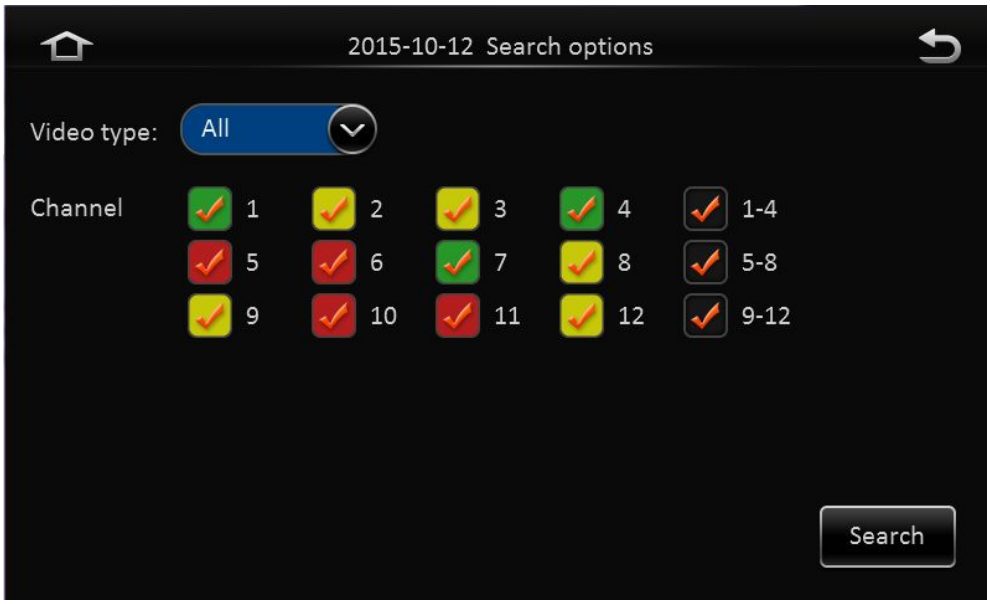
c. **Red** means alarm video.

d. **Yellow** means there are alarms and the video files are automatically lock (lock video).

Source: select the source of the video, there are main video, sub video and mirror video.

The main record means HDD record while sub record and mirror record are dual-stream records.

Select the date with record, click next, and then enter the following interface:
Following are the search options and search result interface:



Video type: User can choose all record, alarm record or normal record.
Channel: The channel is optional and mark with color that has record. The channel with gray cannot be chosen if there is no record. As to different record type, it will show different relates.
Click search button in the record search detail page, user can enter then record search result page.
Time Bar: Time bar shows three time points, 0 o'clock, 12 o'clock, 24 o'clock. It shows what type of videos during the time according to the marked channel.
Channel No: According to the situation of video for each channel video the day, the video will be displayed on the time line. Tick the channel if user wants to playback the video.
Note: channel number is displayed from 1~20, please up page up/page down button to change channel

Button description

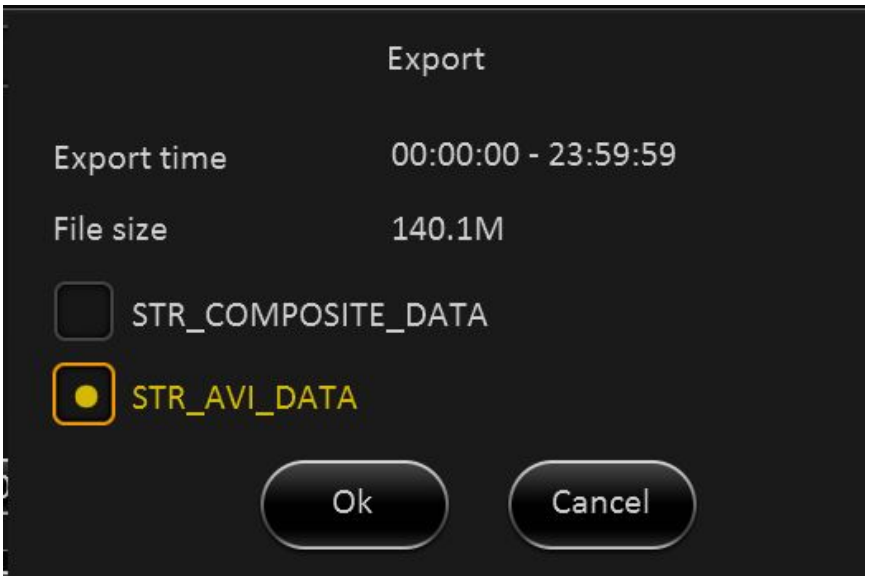
Video playback: Choose the channel No., select start time to play < default start from 0 >, click the playback button to playback the video.

In playback interface, user can choose fast forward or fast backward to play the video, the button in the middle of screen can switch the channels. The image stops and it will not exit automatically when playing to the last video of the day.

Time period settings: Click the time setting button, select start time and end time, it will back up or playback the video in the selected time period. Click clip to export the video, the file format can be.264< comprehensive file >, also can be.avi format.

Video export: Select the channel that has the video files, click this button, all the video files in the effective time period will be exported to the external USB peripherals, file format can be.264<comprehensive file >, also can be avi format.

User can also get out the hard drive or SD card, export and playback the video by professional software.



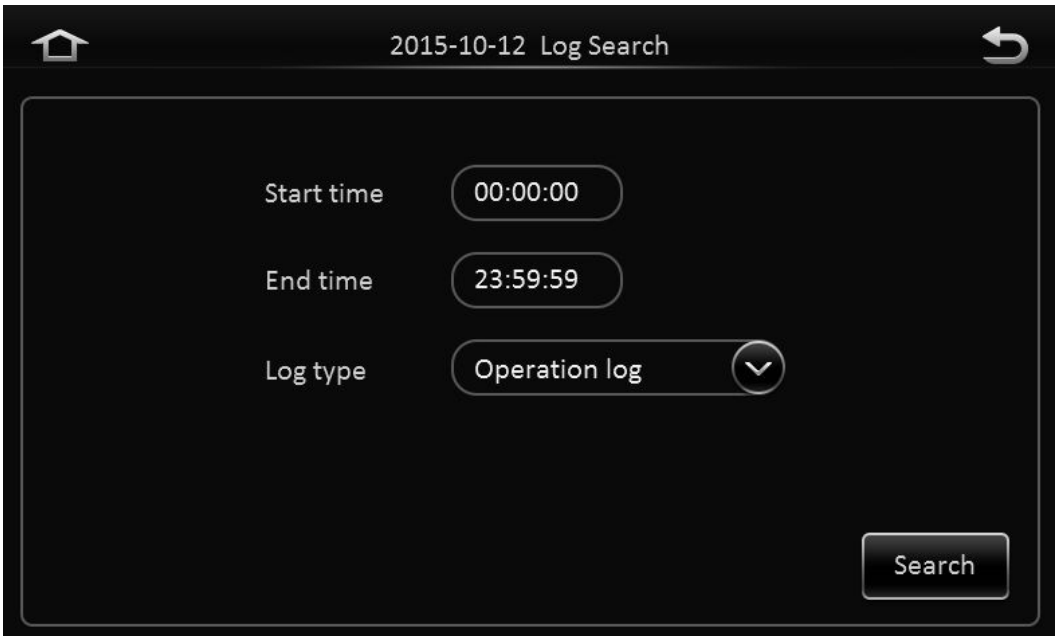
2.3. LOG SEARCH

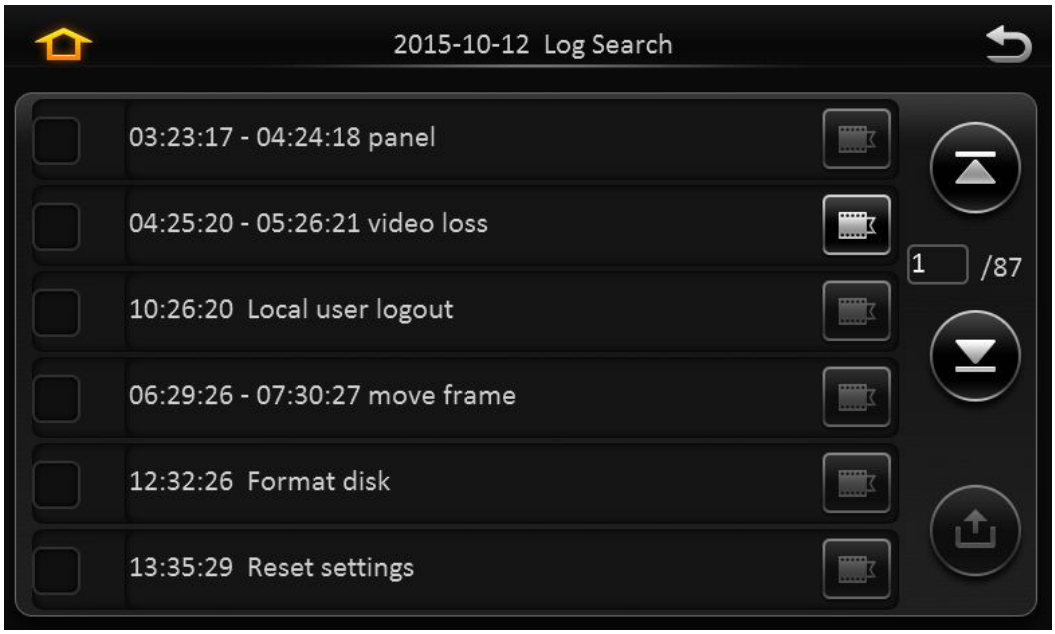
In the log search interface, it records and displays all alarm events and login operation log. Enter the "log query", the interface will be shown as following:

Log Search interface instruction:

Calendar: the date with log will be marked on the calendar with green color.

Remark: There is no color classification in the “log mark”, and all are green ones.





Log search interface instruction:

Start time: the start time for searching log files

End time: the end time for searching log files

Log types: classification of log search, including the operation log and alarm log and locking log

Operation log search interface instruction

Log includes the following information:

Log time: the time when event is triggered

Log name: event content

Supports page up/page down and export all log files of the specified date.

Do not support link to video file.

Log search

Alarm type: It includes all alarms, IO alarm , panic alarm and over speed alarm.

Log includes the following information:

Log time: the time when event is triggered
Log name: event content
Supports page up/page down and export all log files of the specified date.

Supports link to video file, click on  button to playback video files

Lock log search

Log includes the following information:
Log time: the time of when event triggered.
Log name: event content
Log will be recorded according to channel number, each channel will have a lock log file.
Support page up and page down.
Can't export all log files of the specified date.

Can link to video file, click on  button to playback video files.

Unlock: Select log, and unlock it. Then the alarm log of lock will be cleared.

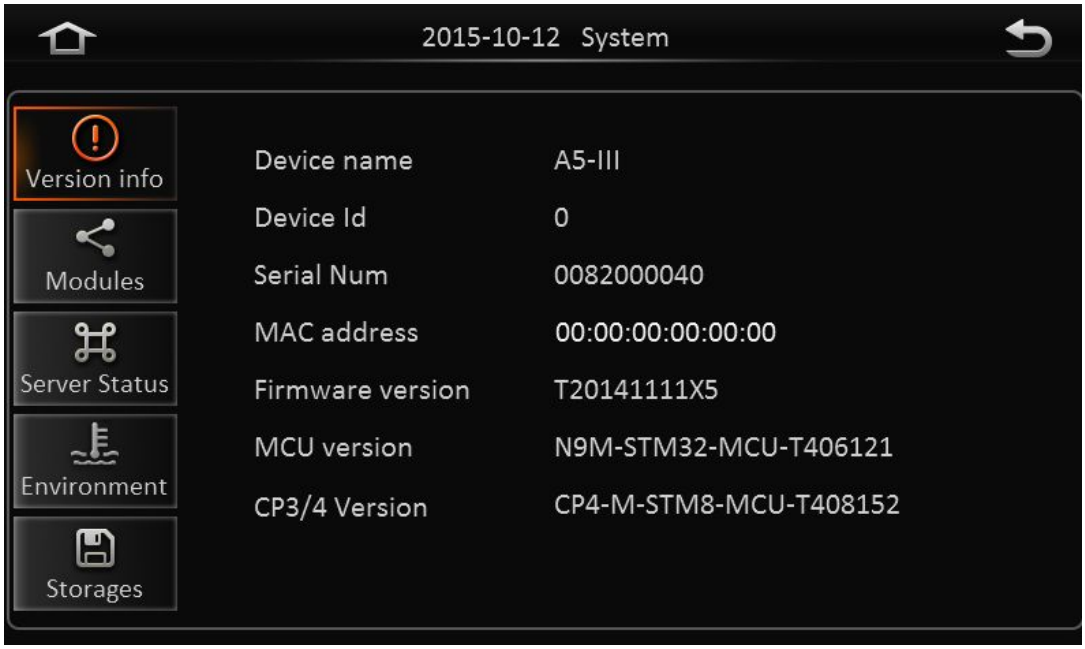
Remark:

When lock the video file, system will record alarm log and lock log. The locked video file can only be unlocked from alarm log.

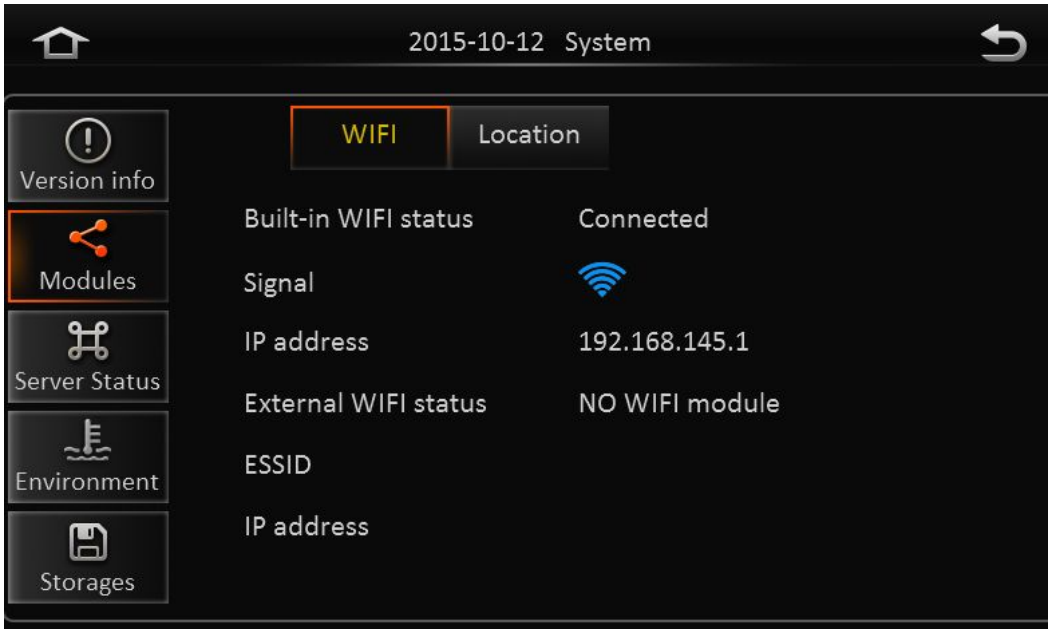
2.4. SYSTEM STATUS

User can login the interface with no access restrictions.

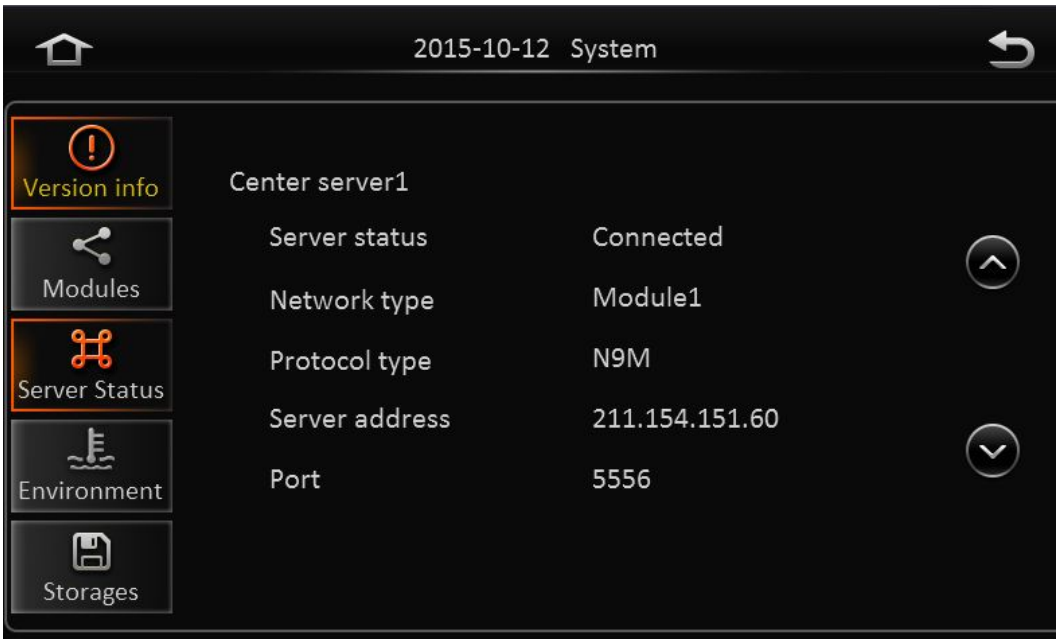
- System- Version information



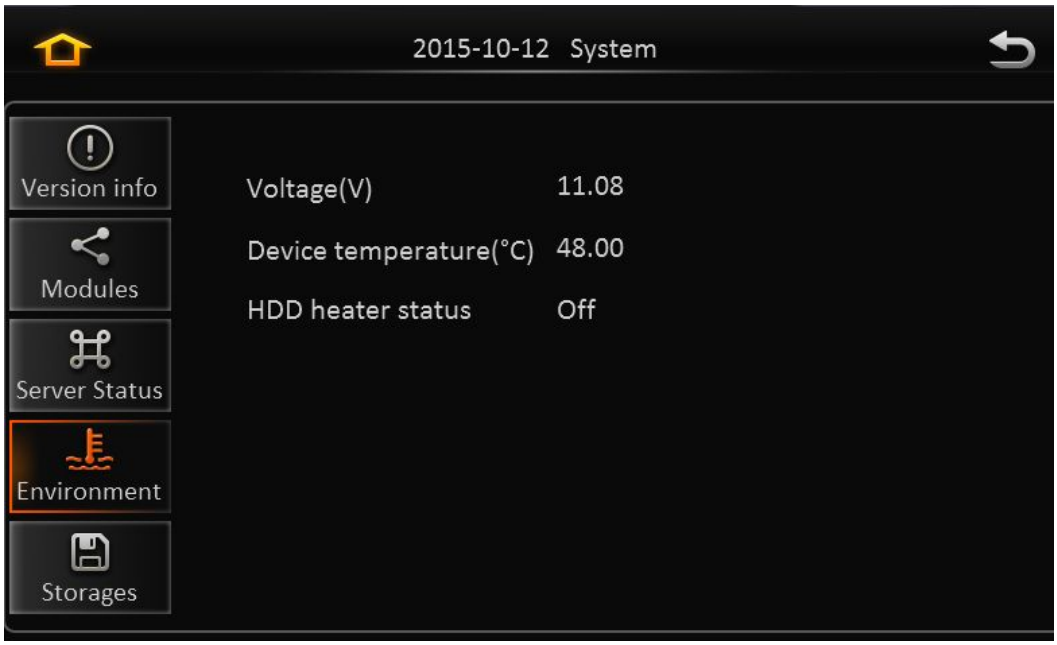
- System- Modules



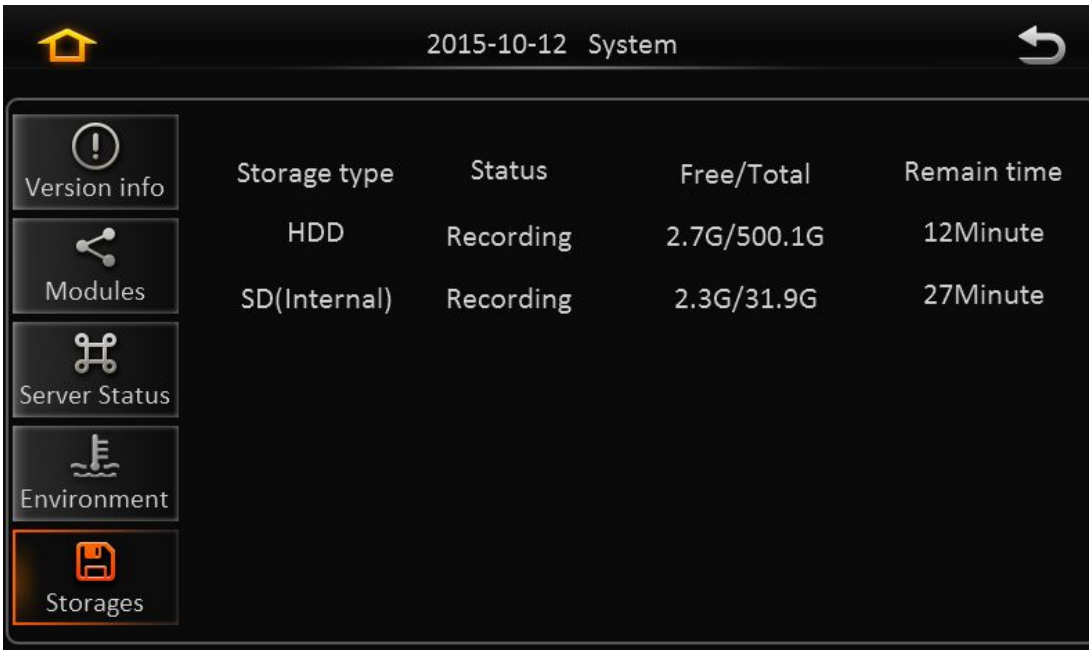
➢ System-Server status



➢ System - Environment



➢ System-Storage:



2.5. BASIC SETUP

Click setup button and enter the following interfaces:

2.5.1. REGISTER INFOMATION (SETUP VEHICLE INFORMATION)

➢ Register information-Device info:

Device ID: Currently, it is not useful.

- Register information- Vehicle info

Vehicle Number：When connected with PAD, the vehicle number is needed.

Vehicle plate：Input manually.

Line number：Input manually.

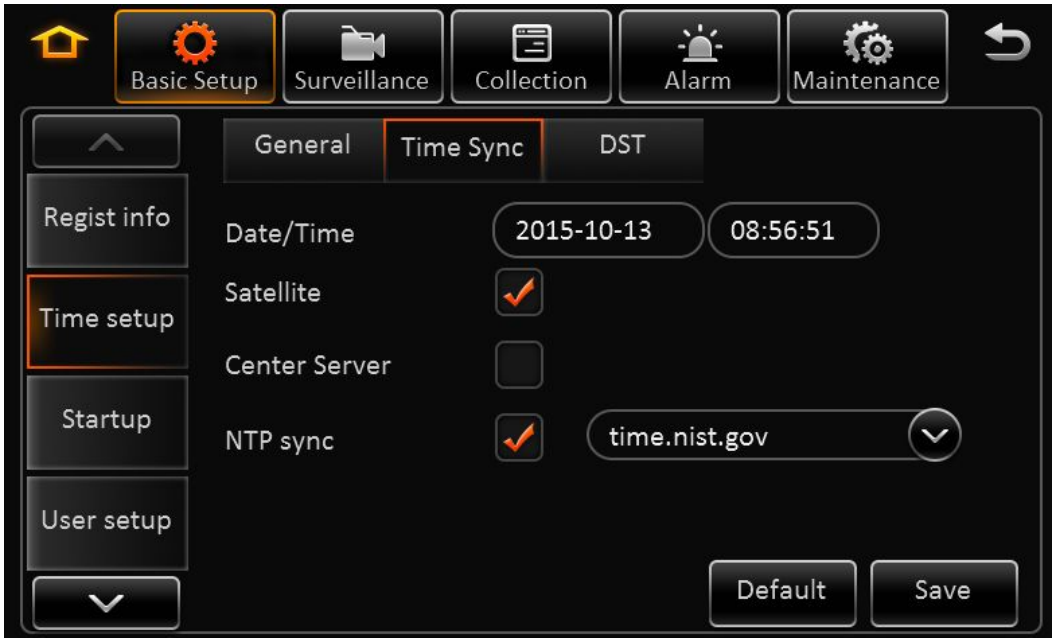
- Register information—Driver info:

Driver number: Input manually.
Driver name: Input manually.

2.5.2. TIME SETUP

- Time setup-General
  Date format: Setup the date format of device
  Time format: 24 hours or 12 hours
  Time zone: Range from -12th district ~ +13th district

- Time-Time Sync



Date/Time: Device time, from 2000-01-01 to 2036-12-31

Satellite: Synchronize time with GPS satellite. Once GPS signal changes to valid, device will synchronize time

Center Server: synchronize time with center server

NTP sync: synchronize time with NTP server

Remark:

1) Synchronize time according to time zone
2) Multi-mode can be selected for time synchronization. If one works, the others take no affect. Otherwise, it switches to another sync mode every 5 minutes.

➢ Time setup-DST

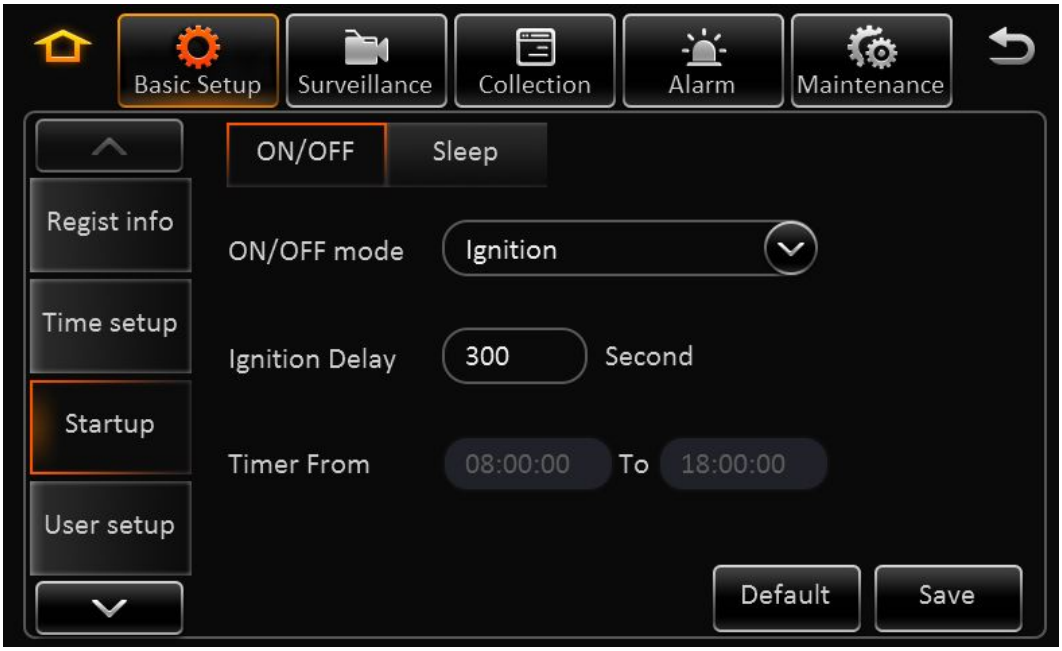
Enable: Select to enable

Offset: After enabling DST, adjust the hour manually

Mode: Setup DST according to week or date
Start: Time to start DST
End: Time to end DST

2.5.3. START UP

- Startup-ON/OFF

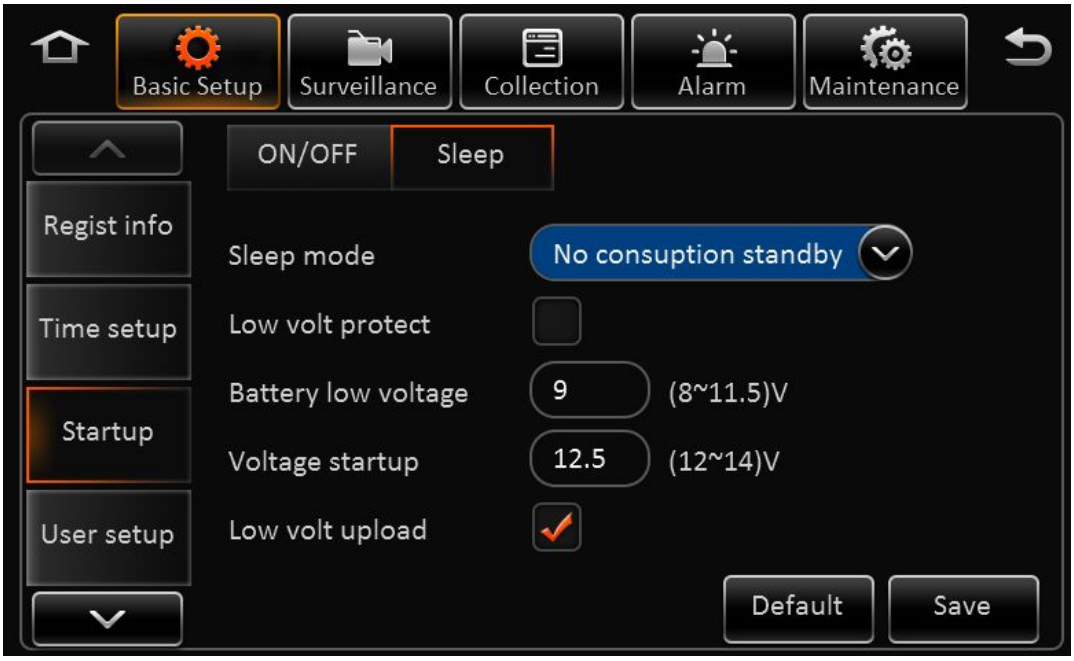


ON/OFF mode: 3 modes, including ignition, timer and ignition or timer.
Ignition: Input ignition delay time for shutdown delay function
Timer: When setup the start mode as Timer, please setup the start time and end time
Under this mode, MDVR's start up or shut down time will not affect the ignition.

Remark:

If use setup as Ignition or Timer Mode, Ignition ON or Timer start time can trigger MDVR start up. And only when Ignition off and Timer end time, MDVR will shut down.

- Start-Sleep



Sleep Mode: Currently, there is only no consumption standby mode available.
Low Volta protect: Enabling the low voltage shutdown protection mode selected.
Battery low voltage: Protect the vehicle battery. When consistently below the standard value, it will countdown shutdown. As for a 12V vehicle, the default is 9V, while a 24V vehicle is 21V.
Voltage start up: low-voltage protection, when the battery voltage is consistently greater than the standard value, it will automatically boot. As for a 12V vehicle, the default is 12.5V, while a 24V vehicle is 24.5V.
Low volt upload: The low-voltage protection will be reported to the platform after it is ticked.

2.5.4. USER SETUP

In the basic settings, click user settings, enter the following interface, user can enter setting menu.

User name: The default ones are admin and user.
User Group: It is divided into administrator and ordinary user.
It supports delete user function. Select the user and click "Delete User" button. Please be noted that the administrator cannot be deleted.
It supports add user function. Click "Add User" button, then enter the following interface.

Remark:

1) Only administrators can add users.
2) Users can add up to two.
3) User name cannot be empty, not the same with the existed user name while the user password can be empty.

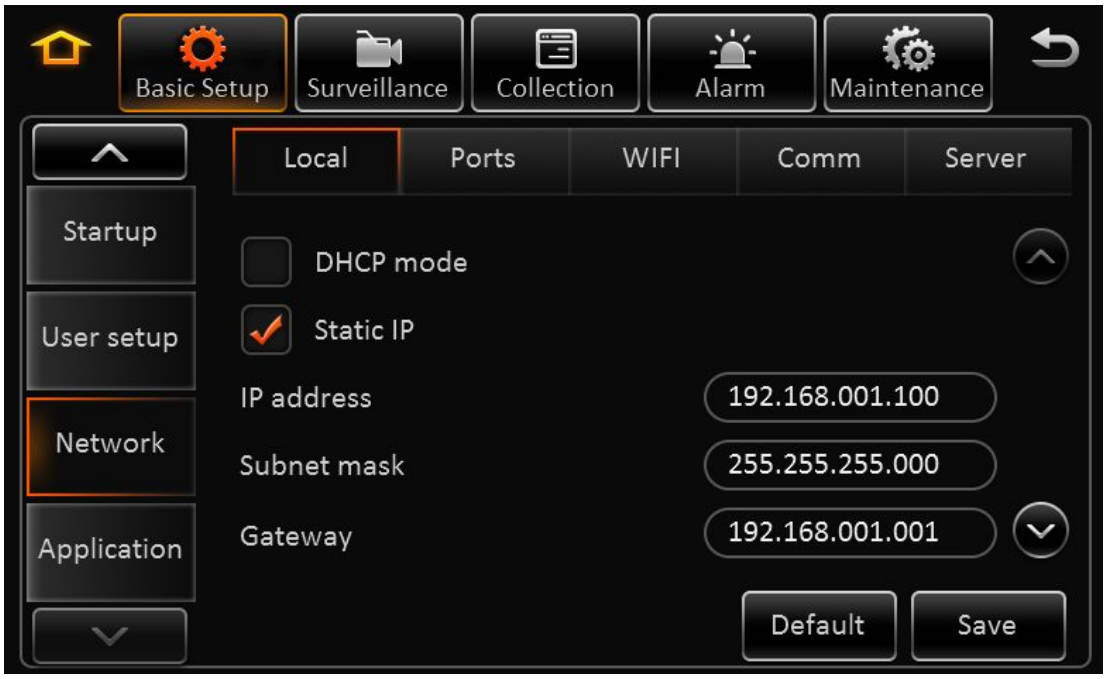
User name and password can be modified. Select a user, click the "Edit User" button, enter the following interface:

Modify the user name and password to confirm the operation temporarily. There is no need to verify the old password, Administrator user name cannot be modified.

2.5.5. NETWORK

In the basic settings, click Network Settings, enter the following interface, user can set network parameters.

- Network - Local



Automatically obtain IP: Dynamic acquisition, DNS can also be statically configured to dynamically obtain.

Use the following IP: Static IP, need to use a static DNS.

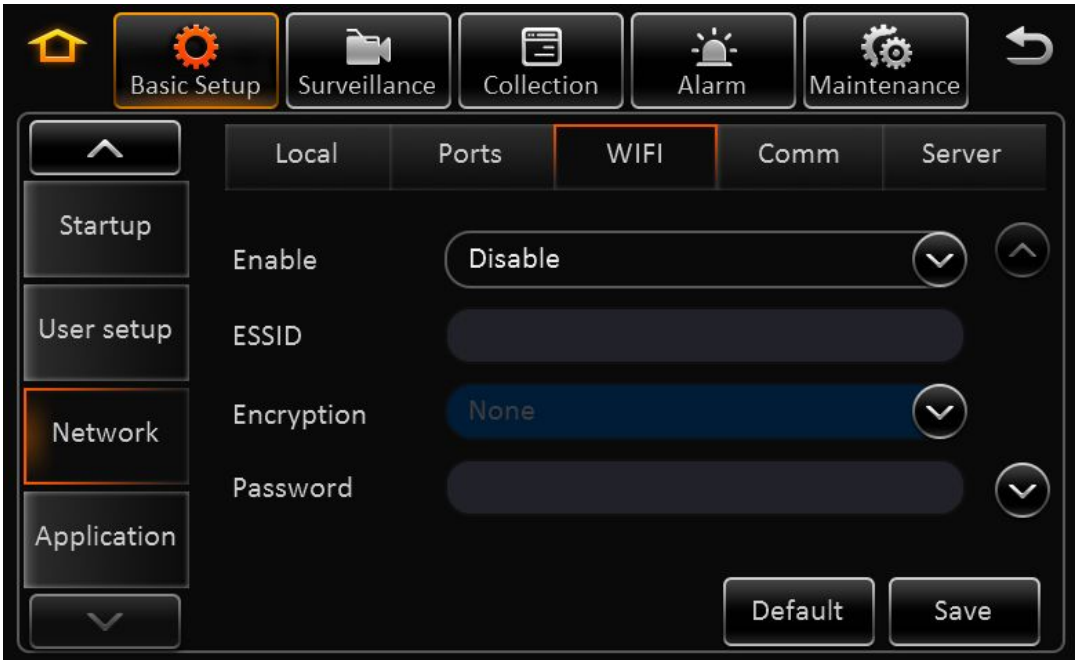
Remark:

Switch from static IP to automatically obtain IP mode, it can display dynamic IP, but the static IP parameters will not be covered, to restore the last saved static IP after switching back.

- Network Settings - Ports:

WEB port No.: The default is 80.

- Network- WIFI



Enable: Select to enable WIFI
ESSID: Manually input the address of AP
Encryption: It supports NONE, WEP and WPA
Password: Manually input
Static IP: Select to use static IP, or MDVR will get dynamic IP

➢ Network-Communication:

Dialing wireless network, user needs to choose the module type and setup dialing parameters

When entering the dialing setup interface, it searches the wireless module type automatically. It shows No Service when there is no module.
Network type: The default one is Mix, 2G/3G and 2G/3G/4G optional.
Dialing parameter：It includes access point, user name, password, data service number, and enter SIM

parameters provided by the manufacturer. The default is empty, the program comes with empty arguments by dialing.

Certification：Supports PAP or CHAP.

Remark:

When there is SIM and normal 3G/4G signal, it will dial automatically.

- Network- Server

Center server: It supports 6 servers at most, and server 1 cannot be deleted manually.

ON: Enable the current server.

Protocol type: The default one is N9M.

Enable network: There is local, WIFI and module optional

Register server address: To run the registration server address.

Registration server port: To run the registration server port.

Media server address: To run the media server address.

Media server port: To run the media server port.

2.5.6. APPLICATION

➢ Application-FTP Client

FTP Enable: Enable FTP.
Server: To run FTP server address.
Port: To run FTP server port. (The default one is 21.)
User name/password: The accounts distributed by FTP server.

2.6. SURVEILLANCE

2.6.1. LIVE VIEW

➢ Live view-->Preview

Real-time Setting Interface:

Preview audio: Enable the audio when live view the video.

Image setup: Set the live-view parameters, including brightness, contrast, etc.

Startup Screen: Set the live-view screen, it can be single-screen or quad screen or nine screen

Channel: Set the channel when live-view

➢ Live view-Auto Loop:

Screen: Totally 32 screens can be added.

Mode: 1x1, 2x2, 3x3 optional.

Channel: Included channel number.

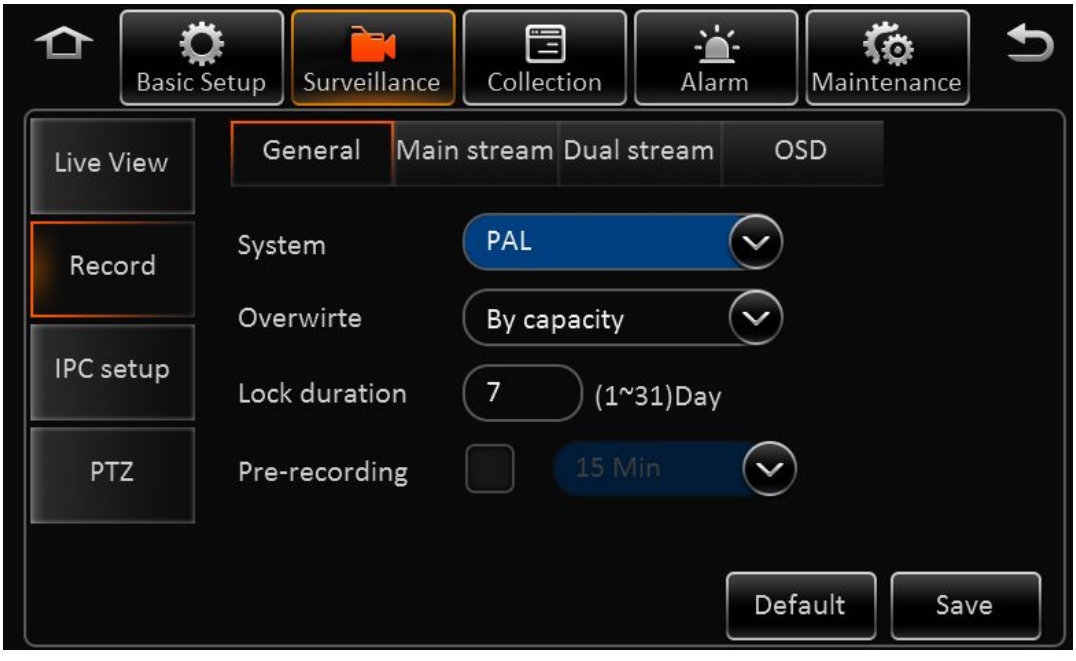
Duration: Duration for each screen.
Edit: Delete or Edit.
Add screen: Add polling screen
Auto polling: Enable the auto pulling

- Live view-Live OSD :

It displays the information on screen, such as time, speed, license plate, GPS...
The default is only the time, and the position cannot be set.

2.6.2. RECORD

- Record-->General



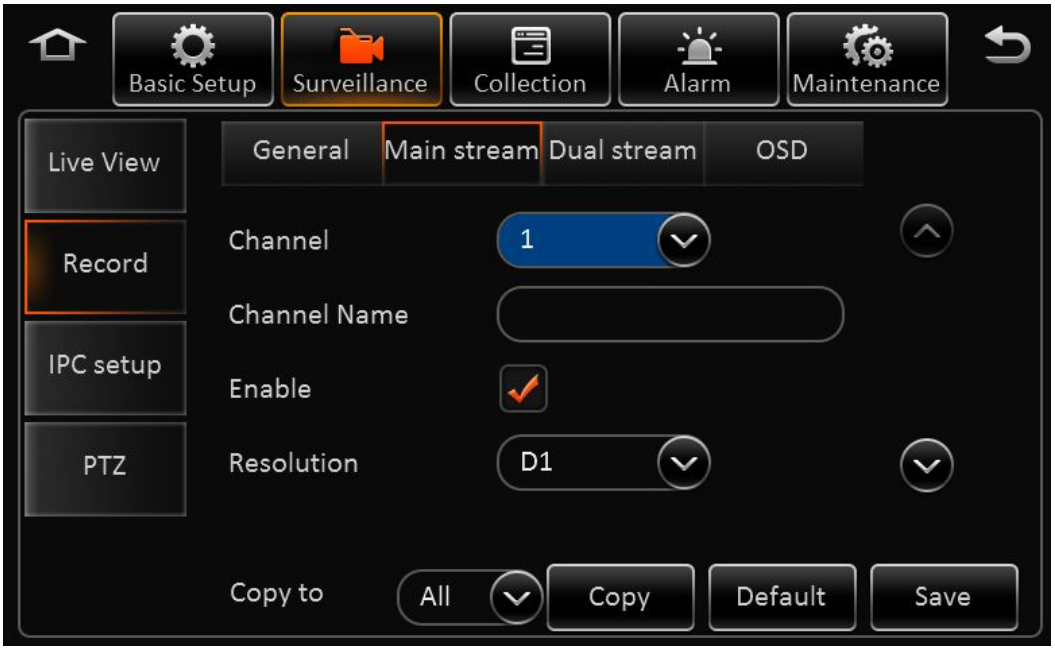
Video type: Default is PAL, NTSC optional

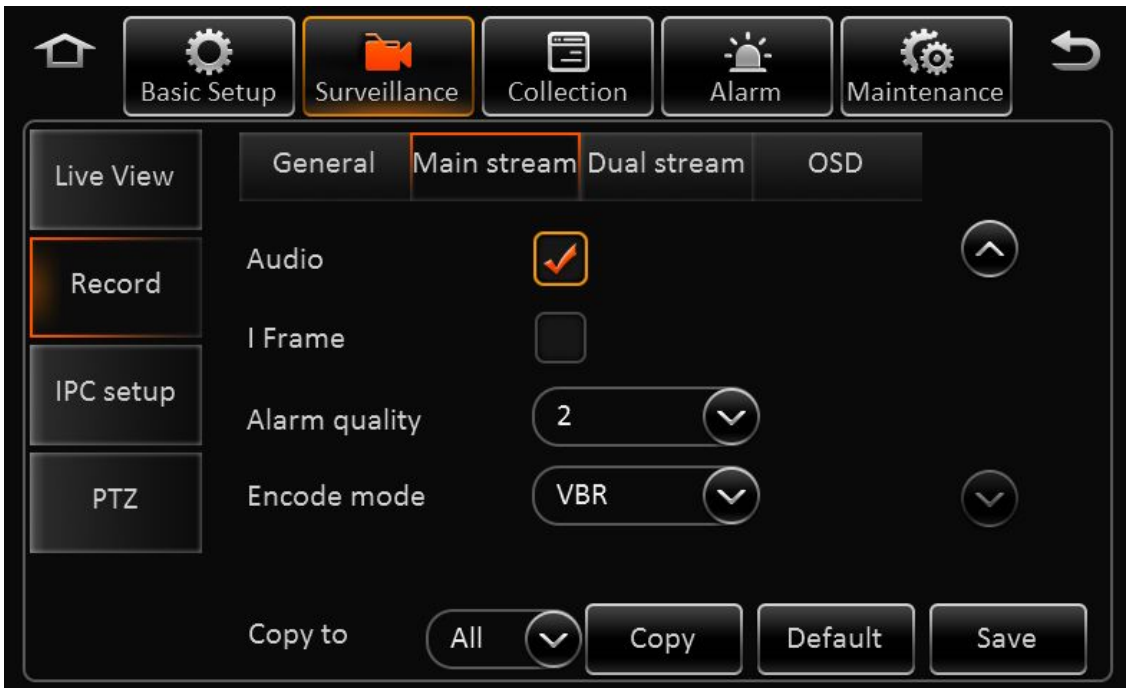
Overwrite: The earliest recording file will be deleted while the HDD or SD card is full to realize loop recording.

Lock duration: Protect the record file to be deleted by fault, default is 7 days.

Pre-recording: Pre-record before the alarm happens. Default is 15min, 0-60min optional.

- Record-->Main Stream:





Channel: The total channel numbers of the device, including analog and digital channels.
Channel name: Change the name manually.
Enable: Enable the main stream record function
Resolution: The analog channel supports D1/HD1/CIF/WD1/WHD1/WCIF while the digital one supports 720P.
Frame Rate: Frame Rate of the recording.
Quality: Picture Quality of the recording.
Record mode: Ignition, Time, Event optional. Each channel can be set separately. The sub-stream and mirror record are the same
Audio: Enable the audio. Note: Audio cannot be record separately
I frame: Enable to let the frame rate invalid, record file that does not have alarm is I frame only.
Alarm quality: The alarm image is different from the normal recording image.
Encode mode: It supports VBR and CBR modes.

- Record- Dual stream

Storage: The storage type for sub stream, internal SD and external SD optional.

Record mode: Mirror record, alarm back-up record and sub stream.

- **Mirror record:** Channel is selectable. Video resolution and frame rate are the same with main stream.
- **Alarm backup:** Channel is selectable. The parameters are the same with main stream
- **Sub stream:** Channel is selectable. Recording parameters are configurable

Sub stream includes channel number, enable or not, audio, resolution, frame rate and image quality.

Sub stream channel: It is selectable according to recording mode.

➢ Record-->OSD

Embedded key information to video file for easily check when playback.

2.6.3. IPC SETUP

- IPC setup:

Channel: It includes the analog channels and IPC channels. Analog channel will not be shown if it connects to network camera.

Enable: Enable to operate IPC.

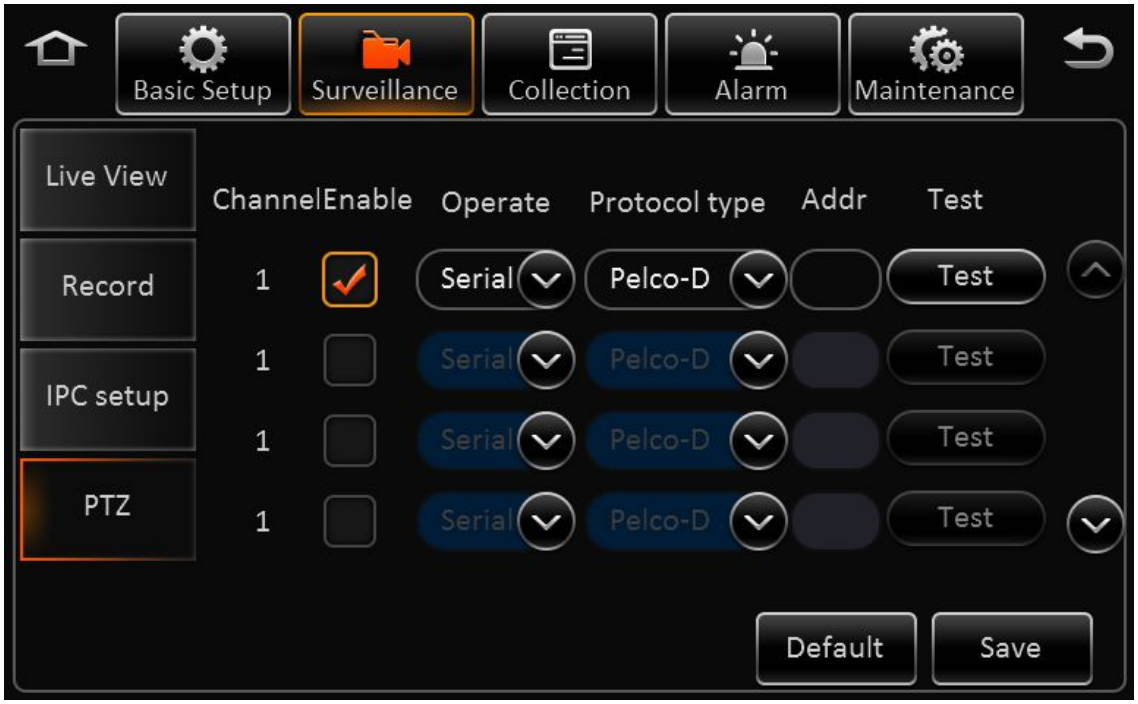
IP and port: Display channel details after searching.

Setup: Search and edit IP camera recording parameters

Fast setup: Search all the IP cameras in LAN network, and auto assign IP address to IP camera.

IPC local address: To search network camera of local area network at Intranet. The default one is 10.100.100.1.

2.6.4. PTZ

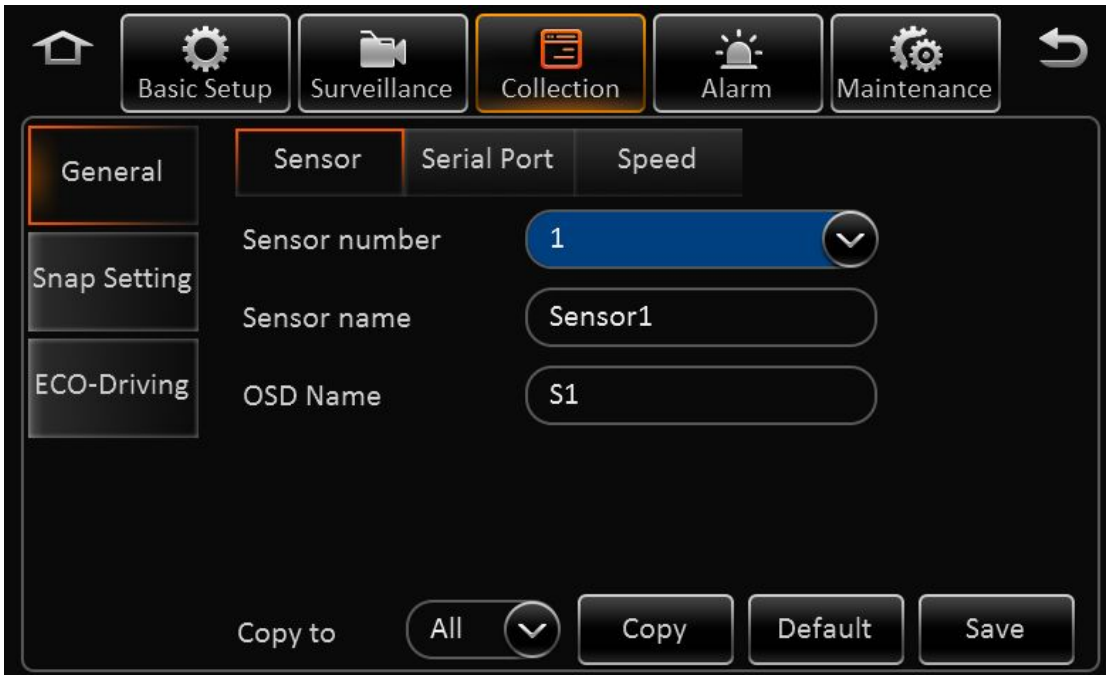


Channel: It includes analog channels and IPC channels.
Enable: Enable PTZ.
Operate: It includes serial, N9M and ONVIF. It supports Pelco-D and Pelco-P PTZ protocols with serial mode.
Address: It is valid with serial mode.
Test: It is to test PTZ is available or not. Click it to pop up PTZ control panel.

2.7. DATA COLLECTION

2.7.1. GENERAL

- General-->Sensor



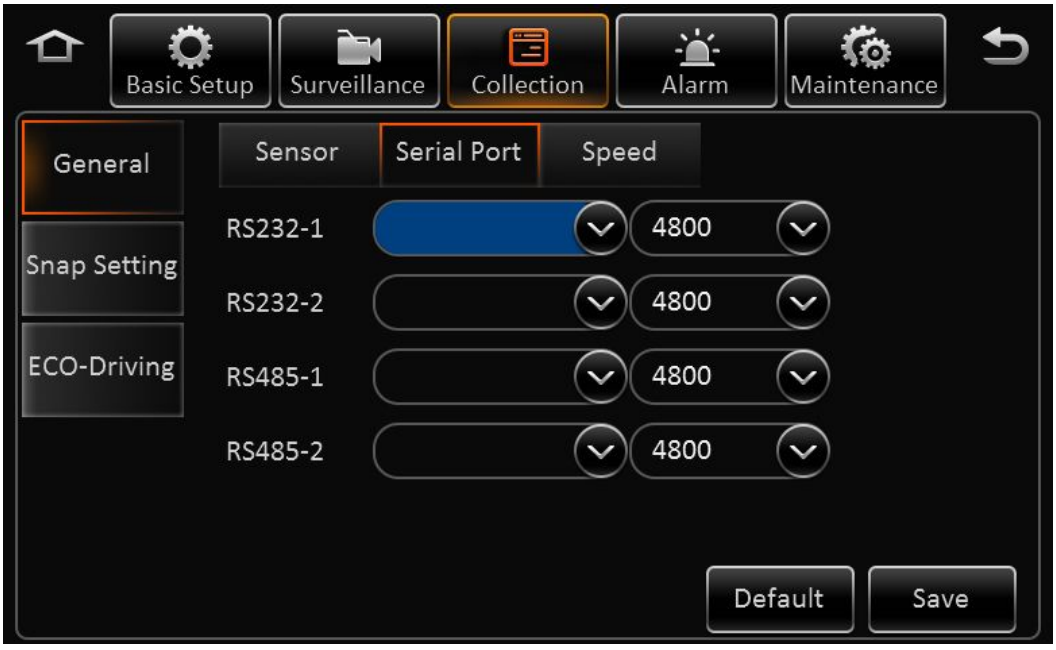
Sensor number: The total alarm input numbers of MDVR.

Sensor name: IO sensor name, it can set manually. The sensor name of alarm setting interface will update synchronously after setting.

OSD name: The information embedded to video image.

Copy: Copy the configuration and use it for other sensors.

- General-->Serial port:



RS232-1 and RS232-2, with the following features: three axis sensor, expansion, 485 bus and GPS data.

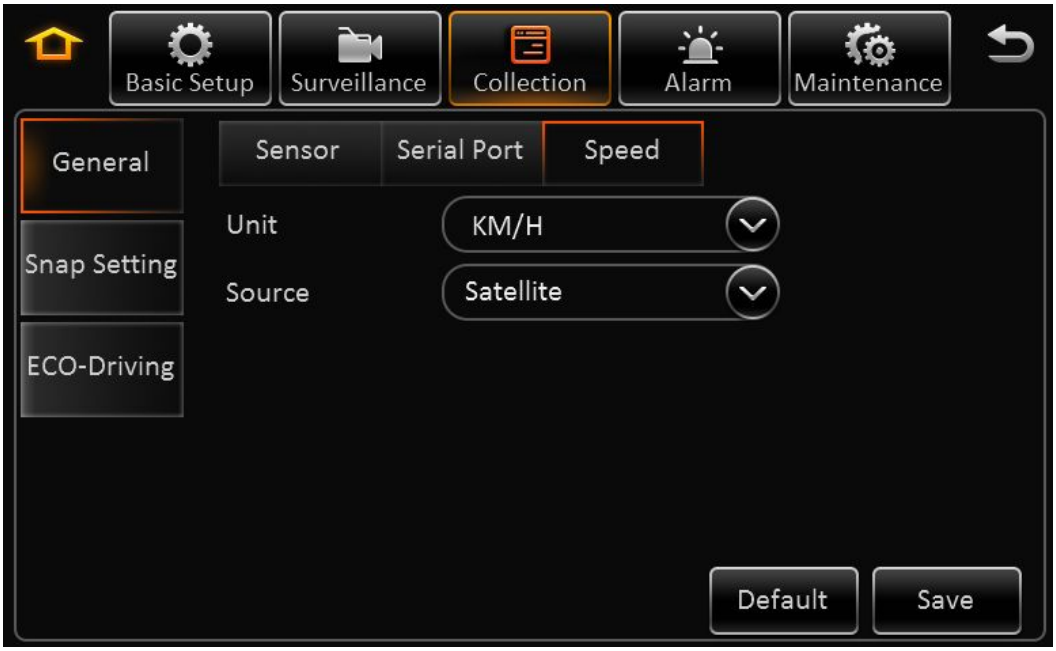
RS485-1 and RS485-2, with the following features: PTZ, control panel, 485 bus and GPS data.

Baud Rate: 2400-115200, 9 classes optional.

Remarks:

Model X3, X5 and X7 equip 4 serial ports, while model M1 and X1 equip only one RS232 port, but it can realize the following features: expansion, control panel, 485 bus, GPS data, three axis sensor, PTZ and integrated printer.

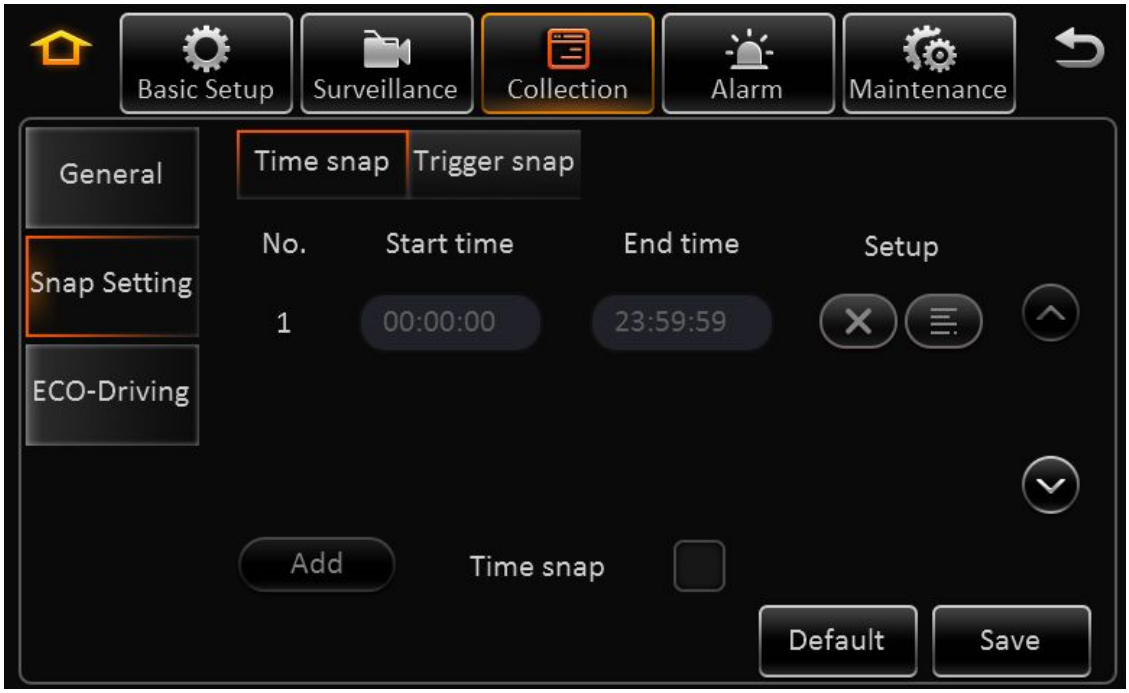
- General-->speed



Unit: KM/H and MPH selectable.
Source: GPS, pulse or both optional.
Calibration mode: No need to calibrate if setup as satellite mode.

2.7.2. SNAP SETTING

- Snap Setting-->Time snap



Start time: Start to snap.

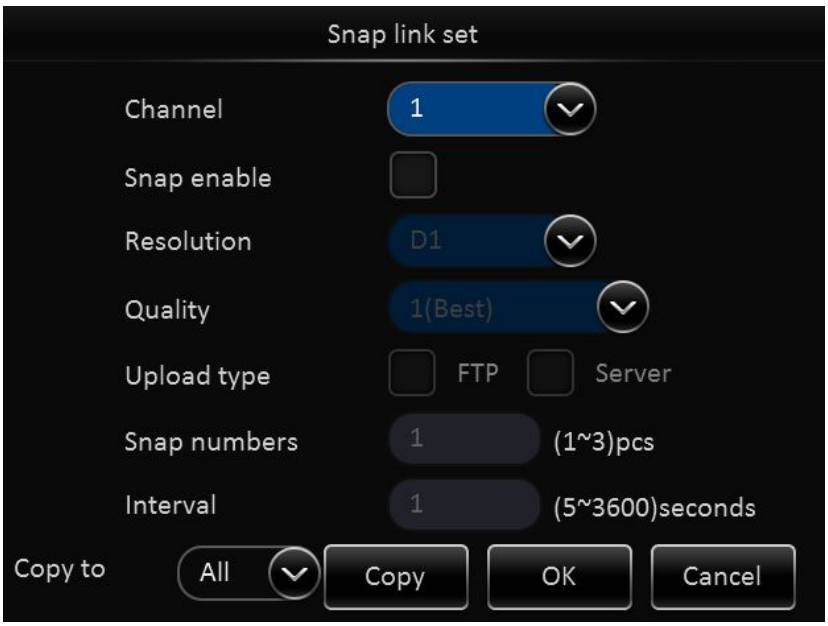
End time: Stop snapping.

Setup: Delete and set.

Time snap: Enable to snap at the setting time.

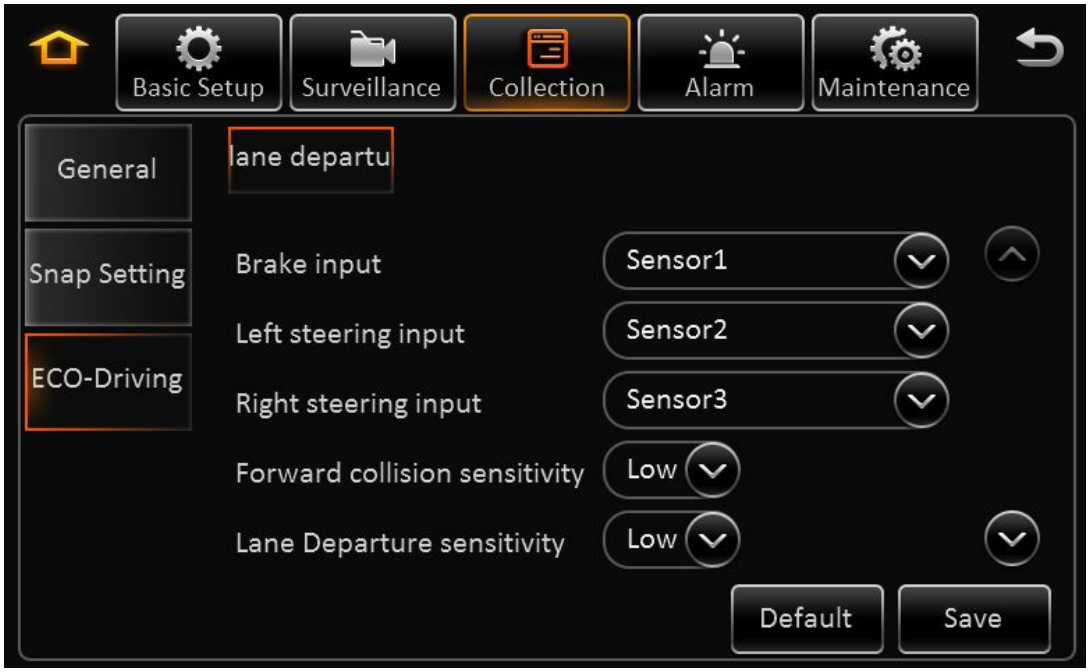
Add: To add snap period, and it supports 8 pieces at most.

- Snap Setting--> Trigger snap



Trigger snap: It snaps when alarm is trigger.

2.7.3. ECO-DRIVING (It is still developing.)



2.8. ALARM

2.8.1. BASE

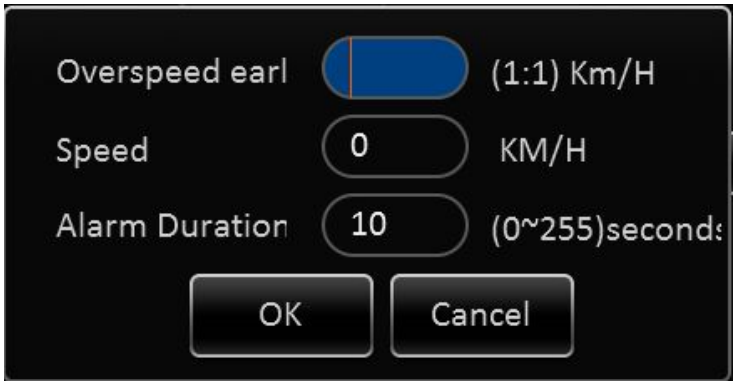
- Base-->Speed alarm

Name: The current name is over speed

Enable：Enable or disable, tick to enable

Alarm type: It includes the following types, important and general.

Trigger:

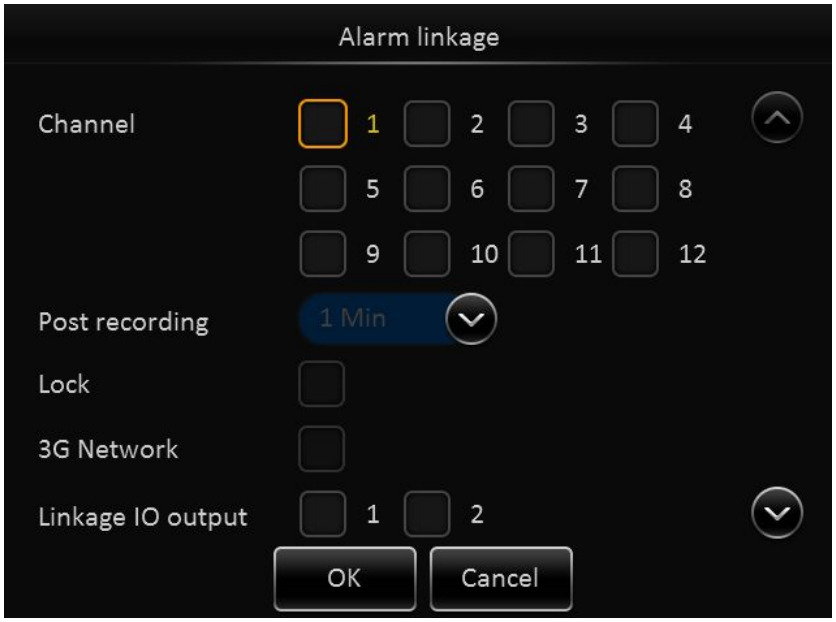


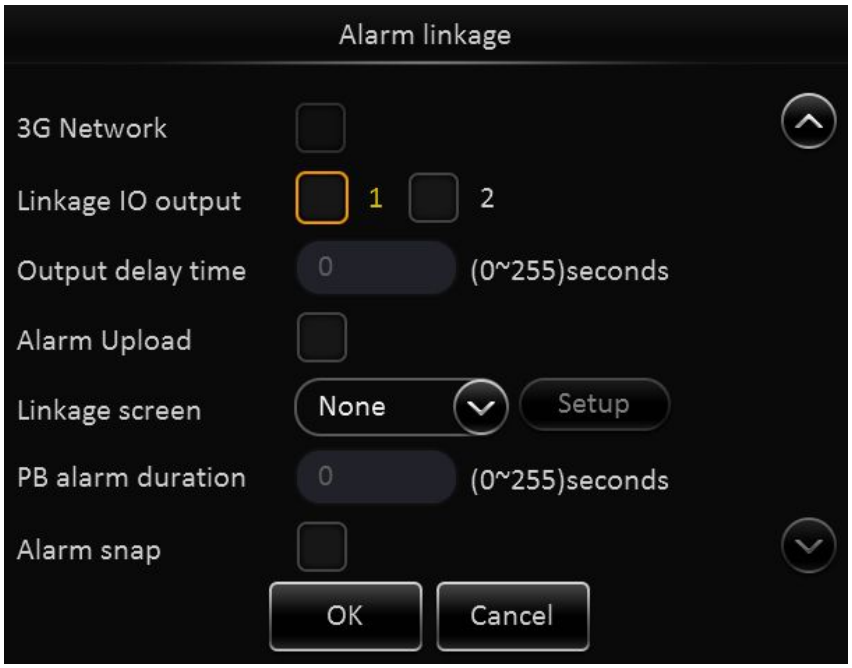
Over speed pre alarm difference: To set the pre alarm data. For example, if speed is 60 km/hour, and over speed pre alarm difference is 10 km/hour, TSS sends over speed alarm broadcast and records when it reaches 50 km/h.

Speed: It is the alarm speed.

Alarm duration: Alarm output duration

Linkage: When alarm triggered, link to other business operation.





Channel: Link to recording channel, optional.
Post recording: It means the recording duration after the alarm has been removed.
Lock: Enable to link recording lock when there is alarm.
3G network: When it is set as sensor trigger dial mode, it enables 3G network as it triggers alarm.
Linkage IO output: Enable to link alarm output when alarm is triggered.
Output delay time: It means the alarm output duration after alarm is removed.
Alarm upload: Enable to upload to platform.
Linkage screen: Enable to link the channel to show full image when there is alarm. (Depends on the MDVR model, display split 1/4/9 optional.)
PB alarm duration: It means the available alarm duration after urgent alarm is removed.
Alarm snap: Enable to link snap.

- Base- Panic alarm:

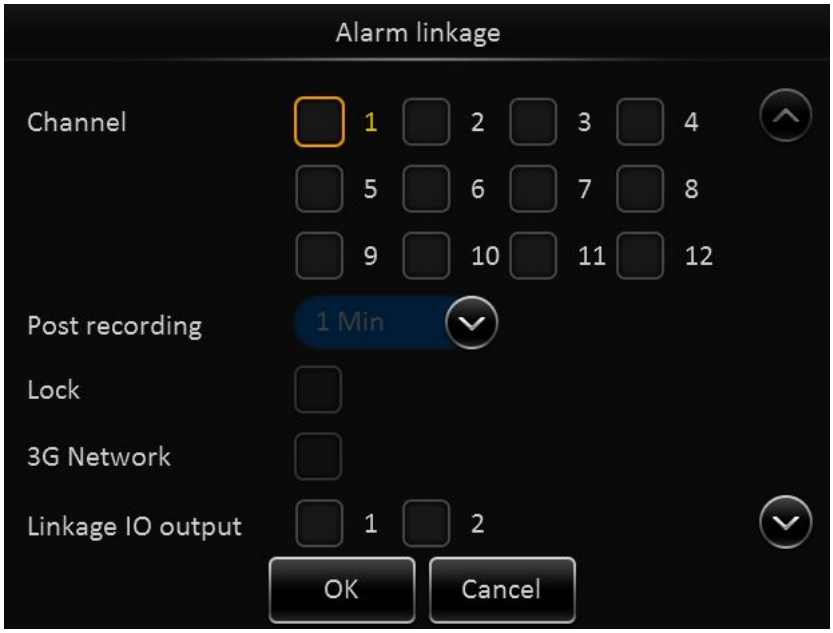
Name: The current name is panic.

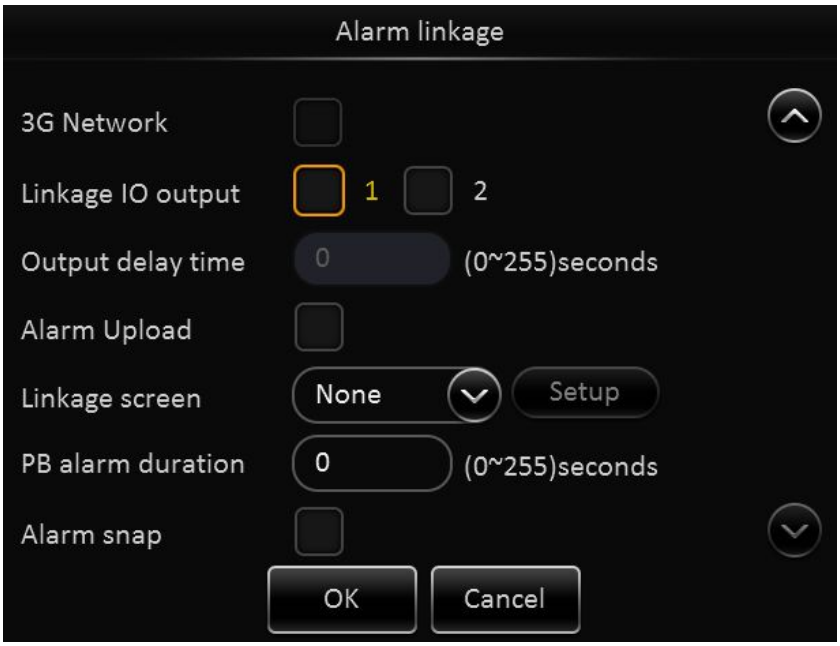
Enable：Enable to panic button.

Alarm type: Important type and general type optional.

Trigger: Click any button to delay the time till it reaches the setting time to alarm.

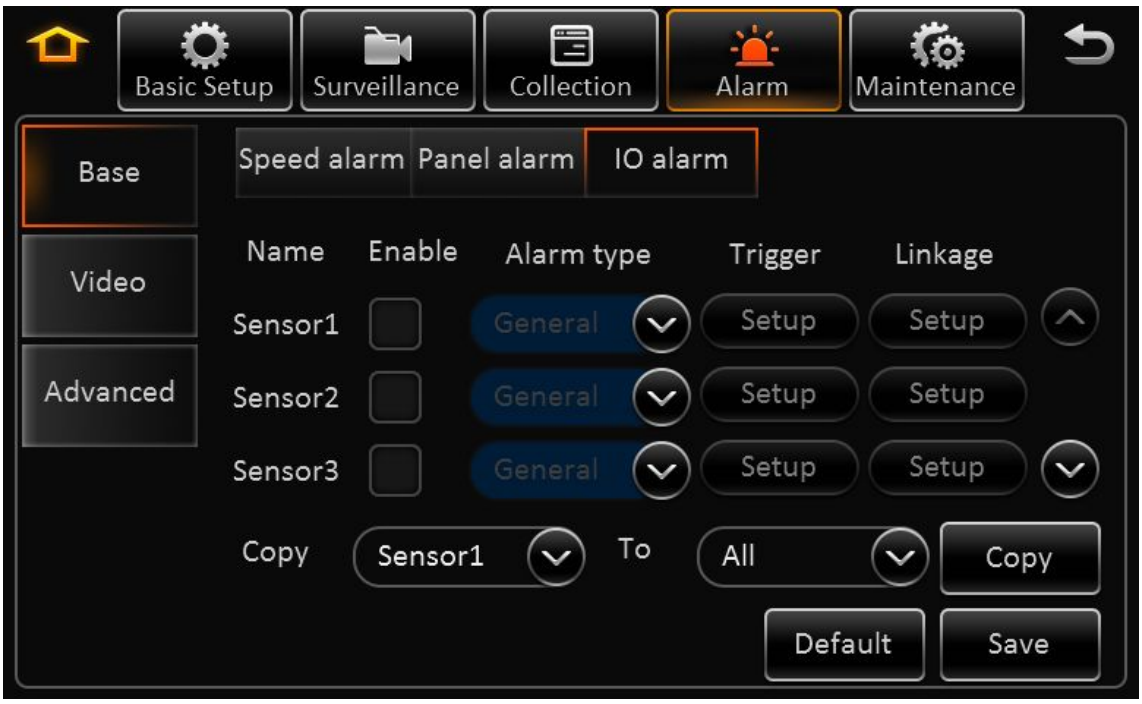
Linkage: When alarm is triggered, link to business operation.





Channel: Link to recording channel, optional.
Post recording: It means the recording duration after the alarm has been removed.
Lock: Enable to link recording lock when there is alarm.
3G network: When it is set as sensor trigger dial mode, it enables 3G network as it triggers alarm.
Linkage IO output: Enable to link alarm output when alarm is triggered.
Output delay time: It means the alarm output duration after alarm is removed.
Alarm upload: Enable to upload to platform.
Linkage screen: Enable to link the channel to show full image when there is alarm. (Depends on the MDVR model, display split 1/4/9 optional.)
PB alarm duration: It means the available alarm duration after urgent alarm is removed.
Alarm snap: Enable to link snap.

- Base – IO alarm interface:



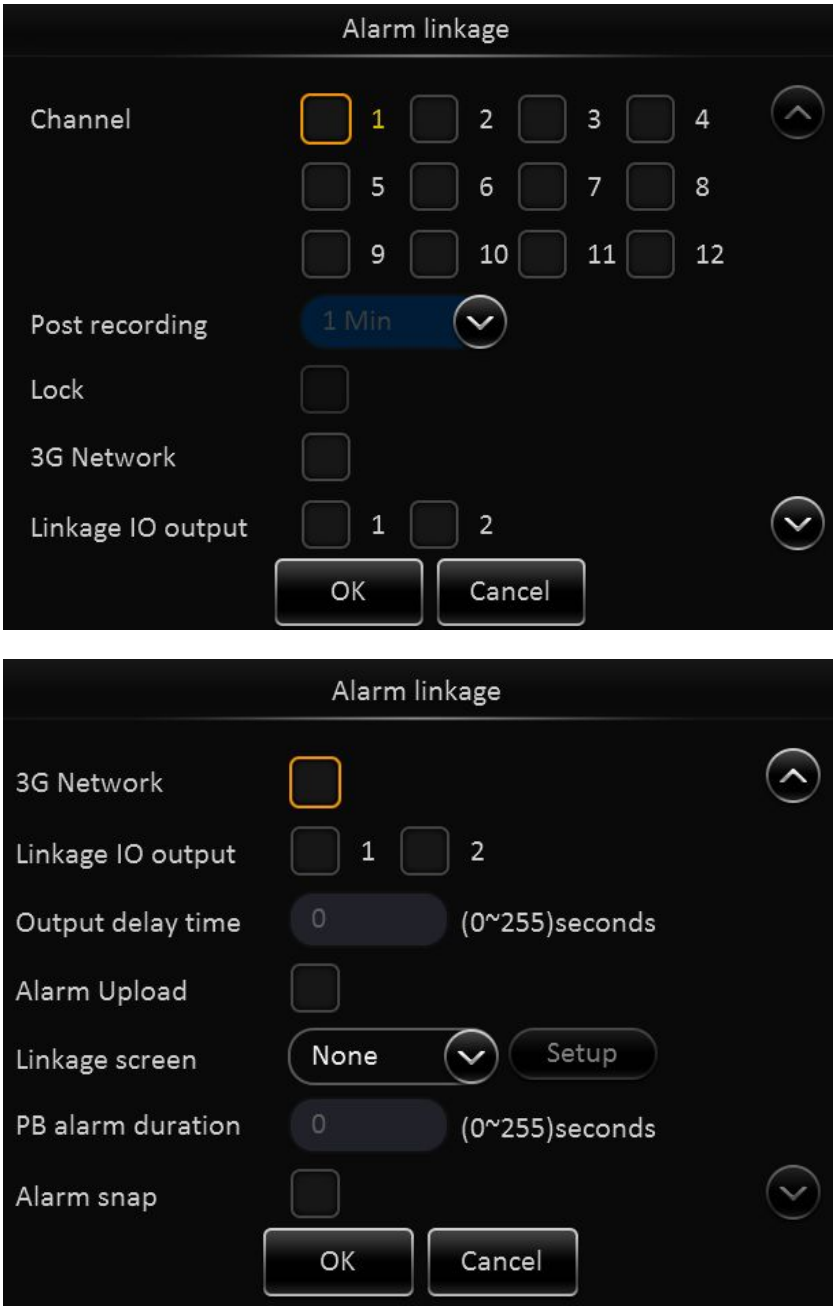
Name: From Sensor1 to Sensor8 (It includes all the alarm input numbers.)

Enable: Enable the sensor alarm.

Alarm type: Important type and general type optional.

Trigger: Low and high optional. It triggers alarm when it is low as default.

Linkage: When alarm is triggered, link to business operation.



Channel: Link to recording channel, optional.
Post recording: It means the recording duration after the alarm has been removed.
Lock: Enable to link recording lock when there is alarm.
3G network: When it is set as sensor trigger dial mode, it enables 3G network as it triggers alarm.
Linkage IO output: Enable to link alarm output when alarm is triggered.
Output delay time: It means the alarm output duration after alarm is removed.
Alarm upload: Enable to upload to platform.
Linkage screen: Enable to link the channel to show full image when there is alarm. (Depends on the MDVR model, display split 1/4/9 optional.)
PB alarm duration: It means the available alarm duration after urgent alarm is removed.
Alarm snap: Enable to link snap.

2.8.2. VIDEO

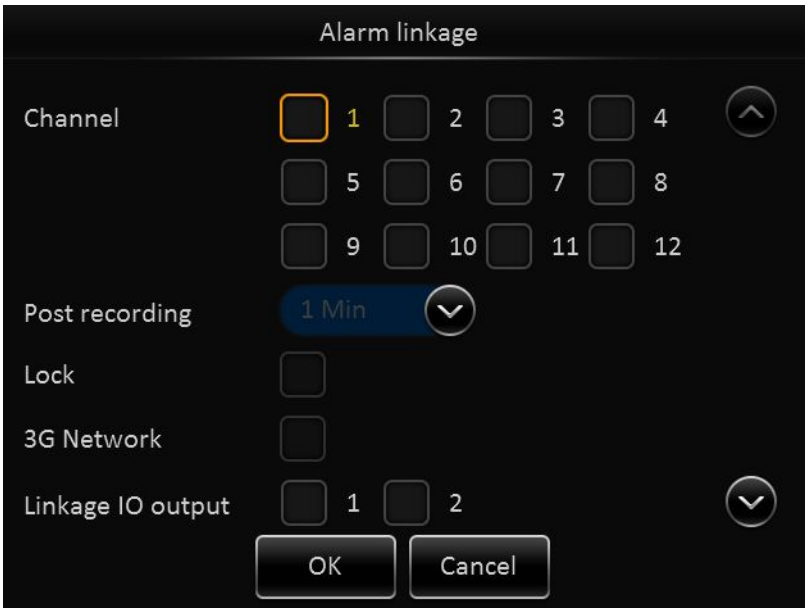
- Video-Video loss

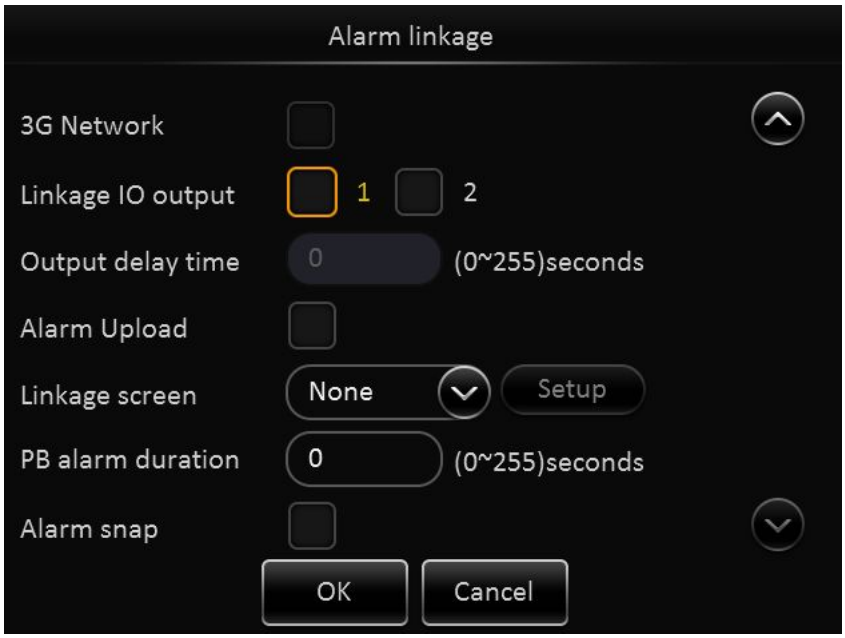
Name: The default name is video loss.
Enable: Enable the video loss.
Alarm type: Important type and general type optional.
Trigger:

Video loss set: It includes all video channels that can be selected.

Set period: Set the checking period when video loss alarm is triggered.

Linkage: When alarm is triggered, link to business operation.





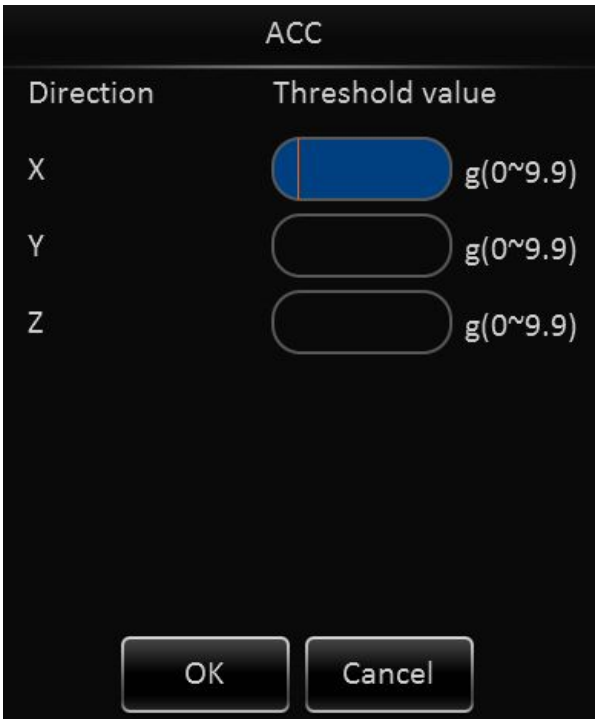
Channel: Link to recording channel, optional.
Post recording: It means the recording duration after the alarm has been removed.
Lock: Enable to link recording lock when there is alarm.
3G network: When it is set as sensor trigger dial mode, it enables 3G network as it triggers alarm.
Linkage IO output: Enable to link alarm output when alarm is triggered.
Output delay time: It means the alarm output duration after alarm is removed.
Alarm upload: Enable to upload to platform.
Linkage screen: Enable to link the channel to show full image when there is alarm. (Depends on the MDVR model, display split 1/4/9 optional.)
PB alarm duration: It means the available alarm duration after urgent alarm is removed.
Alarm snap: Enable to link snap.

2.8.3. ADVANCE

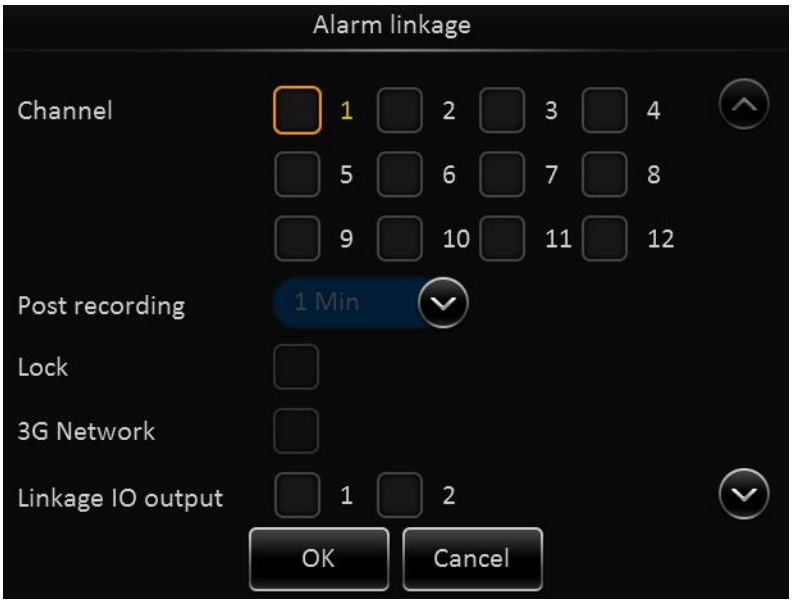
Name: The default name is ACC alarm.

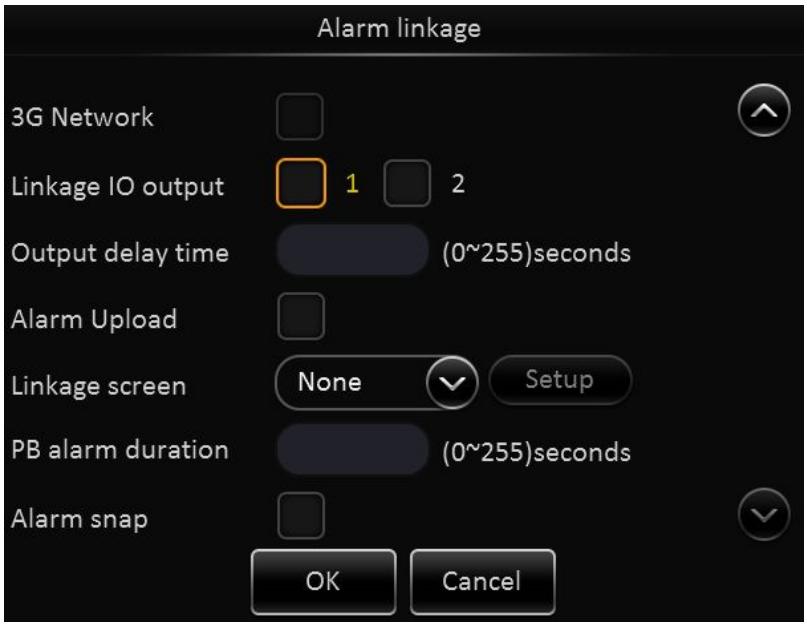
Enable: Enable the ACC alarm.

Trigger: Set the threshold value of X/Y/Z.



Linkage: When alarm is triggered, link to business operation.





Channel: Link to recording channel, optional.
Post recording: It means the recording duration after the alarm has been removed.
Lock: Enable to link recording lock when there is alarm.
3G network: When it is set as sensor trigger dial mode, it enables 3G network as it triggers alarm.
Linkage IO output: Enable to link alarm output when alarm is triggered.
Output delay time: It means the alarm output duration after alarm is removed.
Alarm upload: Enable to upload to platform.
Linkage screen: Enable to link the channel to show full image when there is alarm. (Depends on the MDVR model, display split 1/4/9 optional.)
PB alarm duration: It means the available alarm duration after urgent alarm is removed.
Alarm snap: Enable to link snap.
X:0.0, Y:0.0, Z:0.0: The real time acceleration information.

2.9. MAINTENANCE

After login, click setup>Maintenance, and then enter into the page as follow.

2.9.1. CONFIGURATION

In the configuration page, user can export and import the configuration file.

Insert flash drive to export the configuration file to the root folder, the file name is ***ConfigFile***

Insert flash drive to import configuration file into MDVR, and it will display the notice when import successfully.

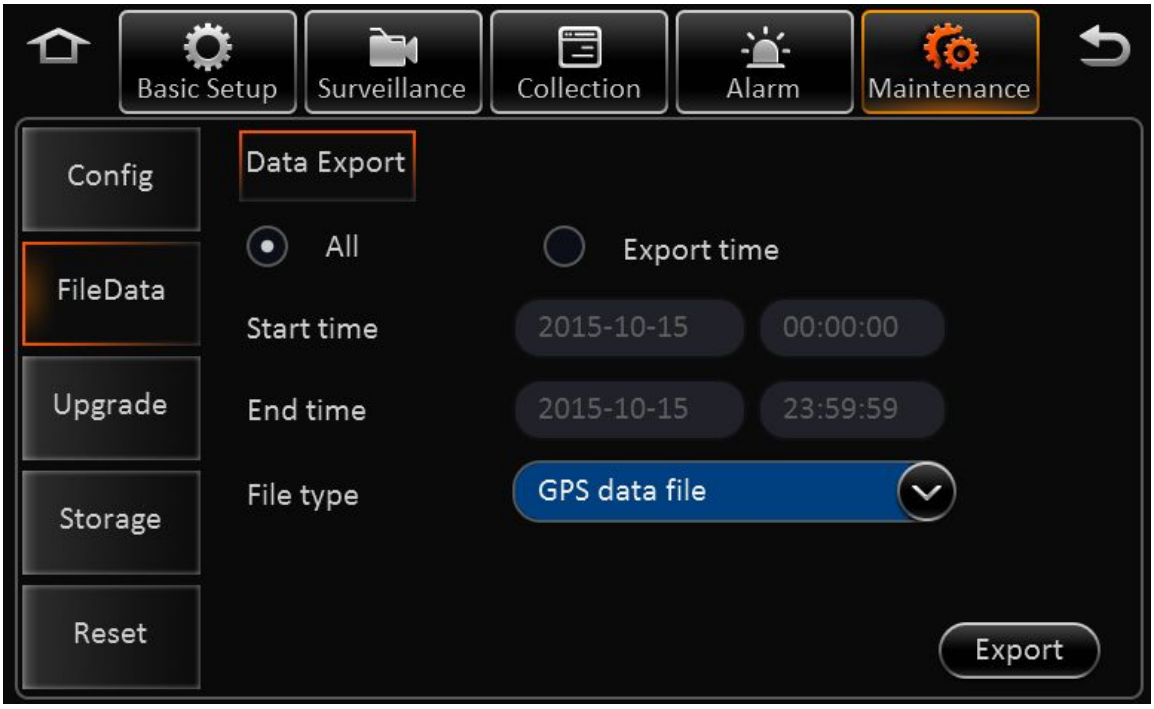
Remark:

It won't import the register info and speed adaption info.

2.9.2. DATA EXPORT

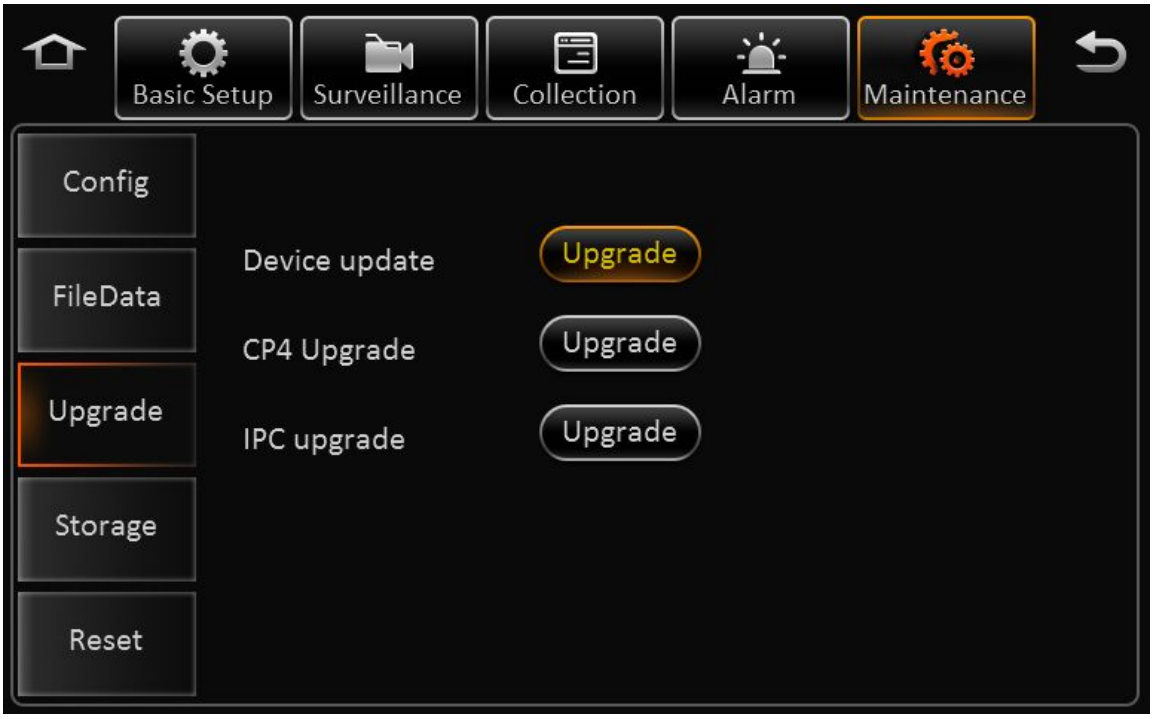
User can export any file.

File type: GPS data file, vehicle info file, ACC info file, Can info file, Dial info file and Captured pic.



2.9.3. UPGRADE

In the page of upgrade, user can upgrade software.



Put the upgrade file in flash drive. Currently, device firmware, microcontrollers firmware, CP4 firmware and IPC firmware can be put inside.

Insert flash drive and enter the upgrade interface, click software upgrade and it will indicate that upgrade file is importing.

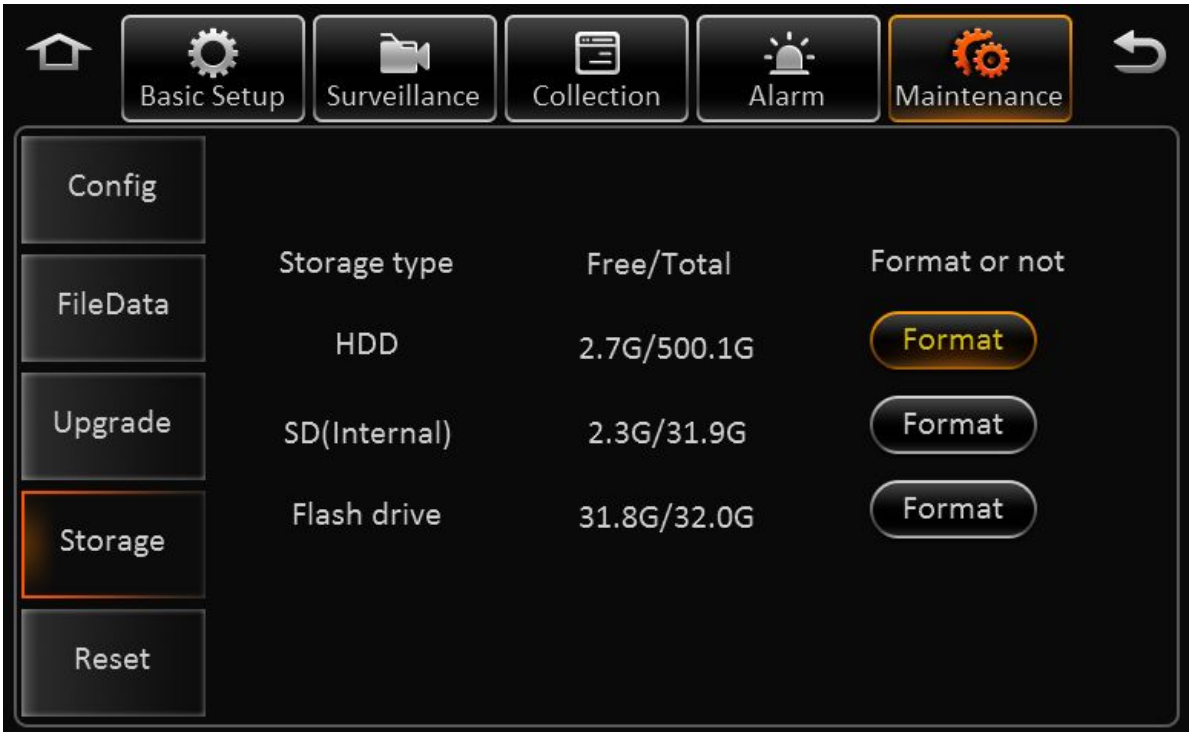
MDVR reboot up and enter into upgrade interface after importing successfully.

Remark:

1) Make sure don't power off during upgrading.
2) Put the upgrade file into the folder "upgrade", which is at the root directory if the USB drive
3) It support upgrade firmware, LOGO, MCU, and MCU for CP4.
4) Firmware and MCU will package in one file, and it will upgrade MCU first, and then firmware.
5) The name of the LOGO are: logo_update(10.12.15).jpg and logo_cvbs(11.12.15).jpg
6) Please don't put many files in the same folder when it is upgrading, otherwise, it will upgrade one randomly.

2.9.4. STORAGE

In this page, user can format all the storage.



Storage type: HDD, SD card (Internal), SD card (External), USB drive

Free/Total

- Not exist: Didn't find the HDD (not install or broken)
- Unformatted: Means the HDD has been detected, but unformatted.(New HDD)
- Capacity info: Display the correct info means HDD working fine

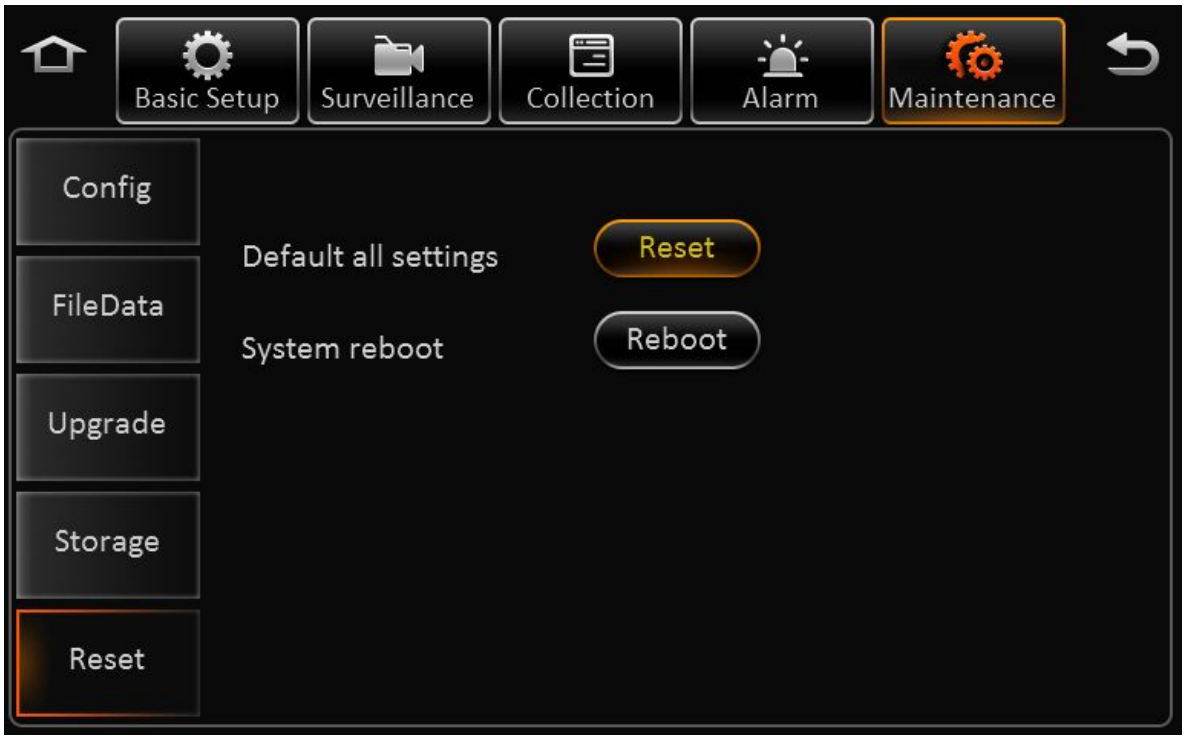
Format:

Click format and it will refresh the current formatted volume information after formatting successfully.

It can record after formatting successfully and no need to reboot up.

2.9.5. DEFAULT

In this page, you can click the default button to reset the parameters to factory settings.



Click reset to restore the original data.

Remark:

For, language, MAC address, register info, CMS server info, speed adaption parameter will not change during default settings.

3. WEB MANAGEMENT

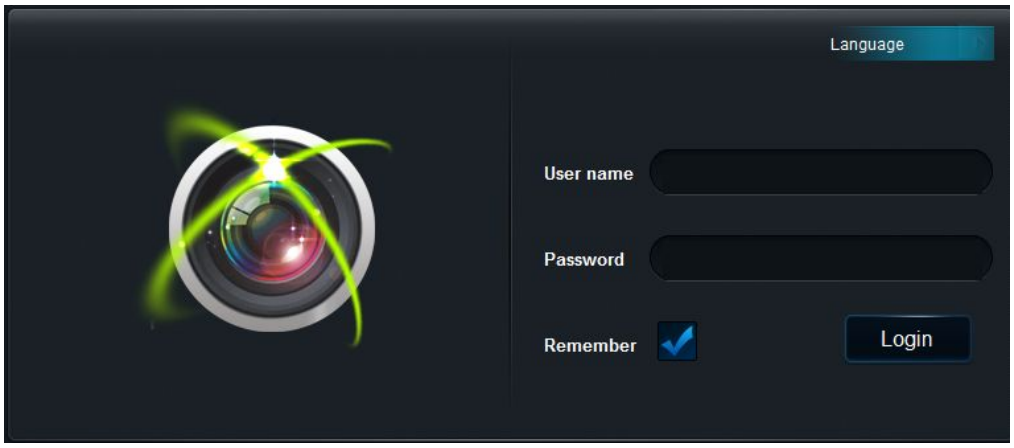
3.1 LOGIN INTERFACE

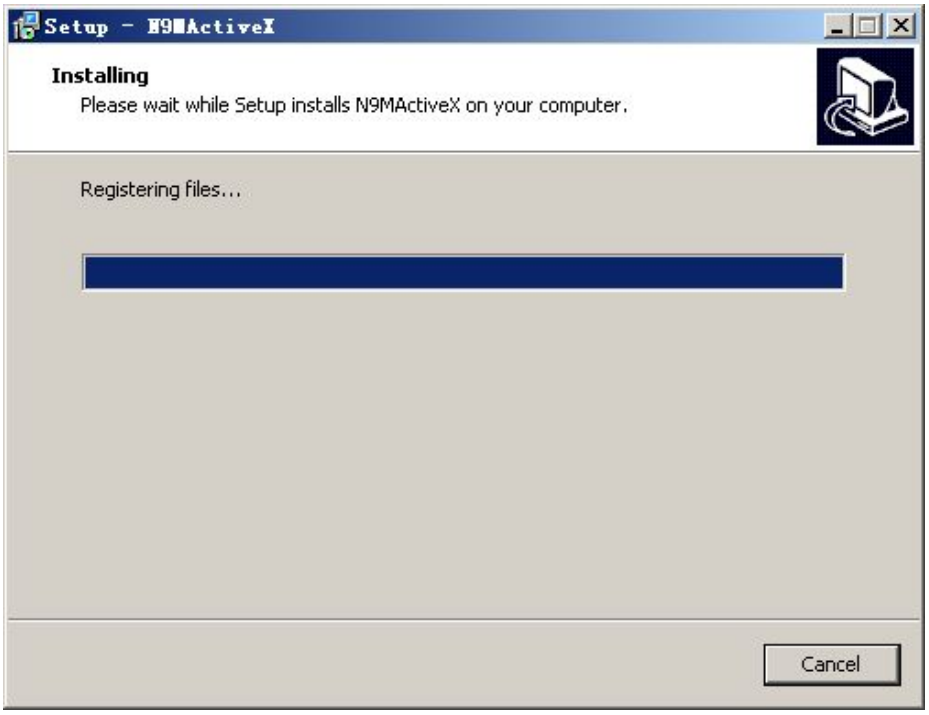
1) Connect MDVR into local area network, set relevant information to make sure the computer can visit the MDVR.

2) Open browser and input http:// IP address of MDVR. It will go to the WEB login interface of MDVR. And the default IP address is 192.168.1.100

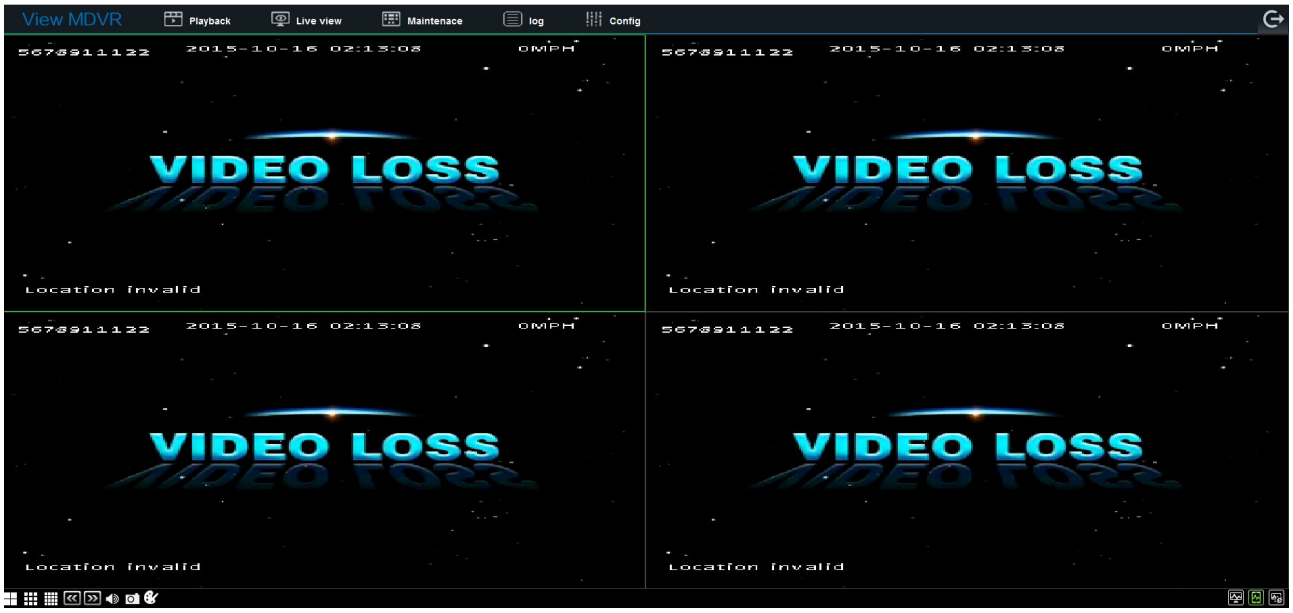
3) Interface will pop up a window to install N9M activex, click install.

4) Refresh the web page, enter default user name admin/admin to log in.





3.2 MAIN INTERFACE

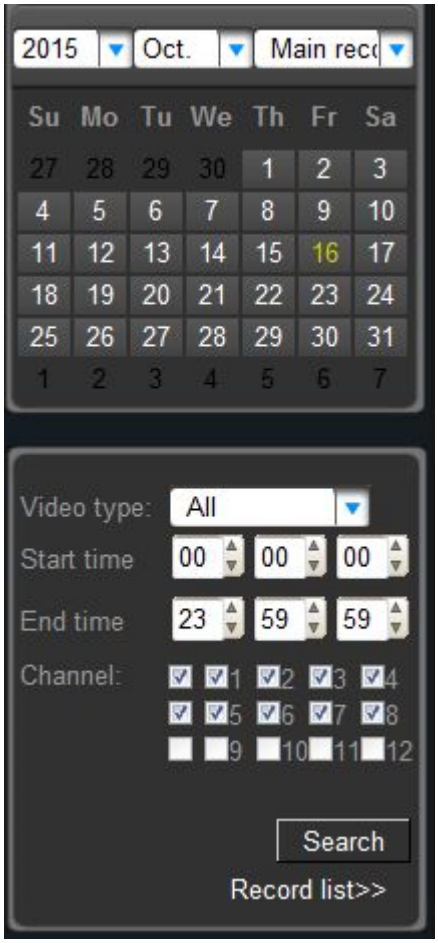


Icons: quad, 9-split, preview, next page, sound, capture and video parameters.

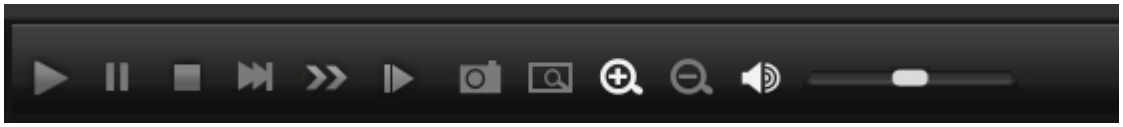
Stream switch: main stream, sub-stream and network transmission sub stream.

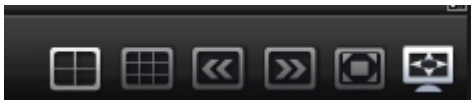
Log out: log out and come to the log in interface

3.3 PLAYBACK

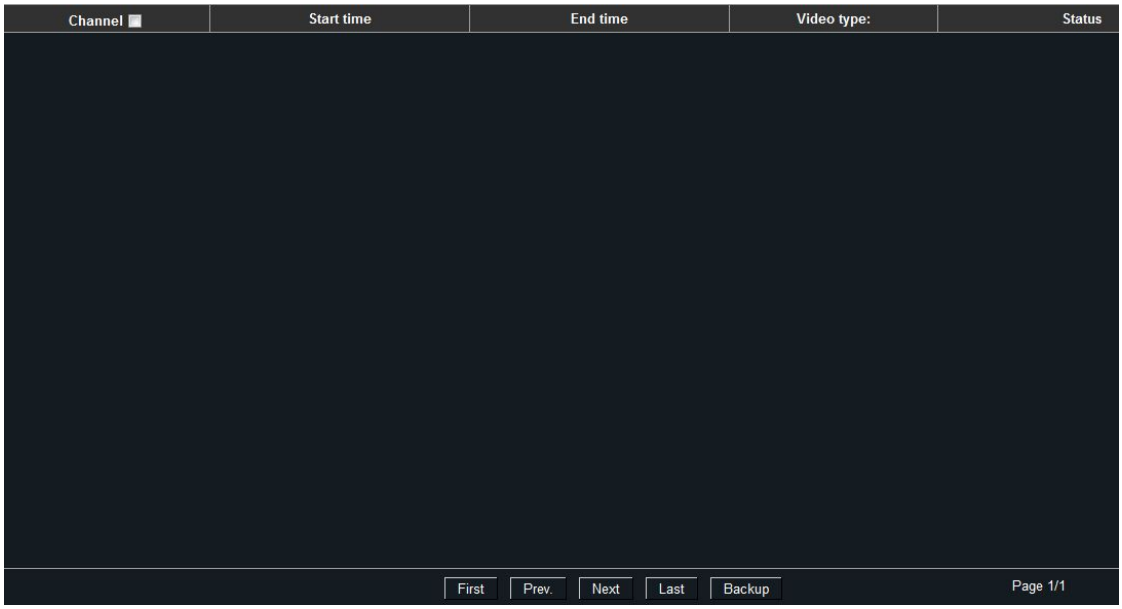


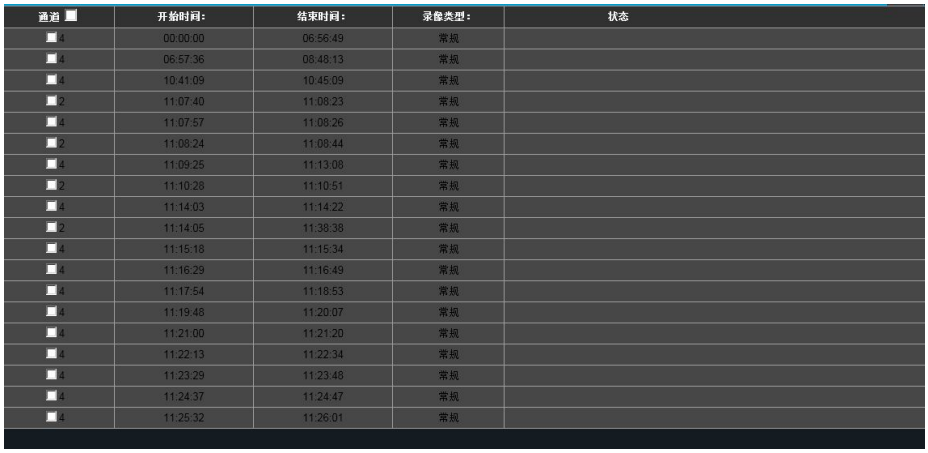
If the date is marked as color green, it means there is recording.





Recording playback window: Video window, play time-line, play control button, window switch...

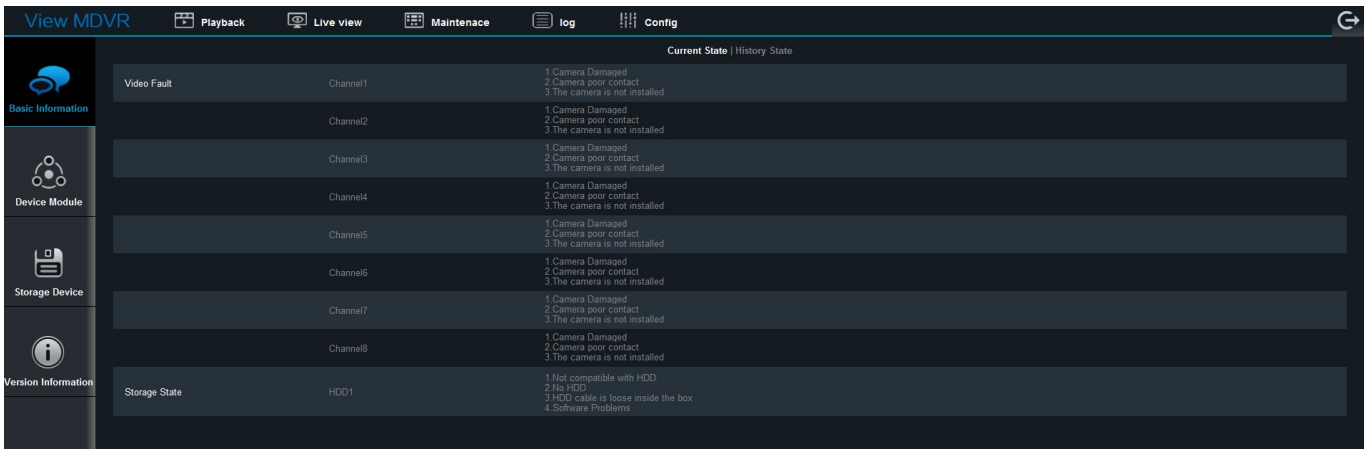




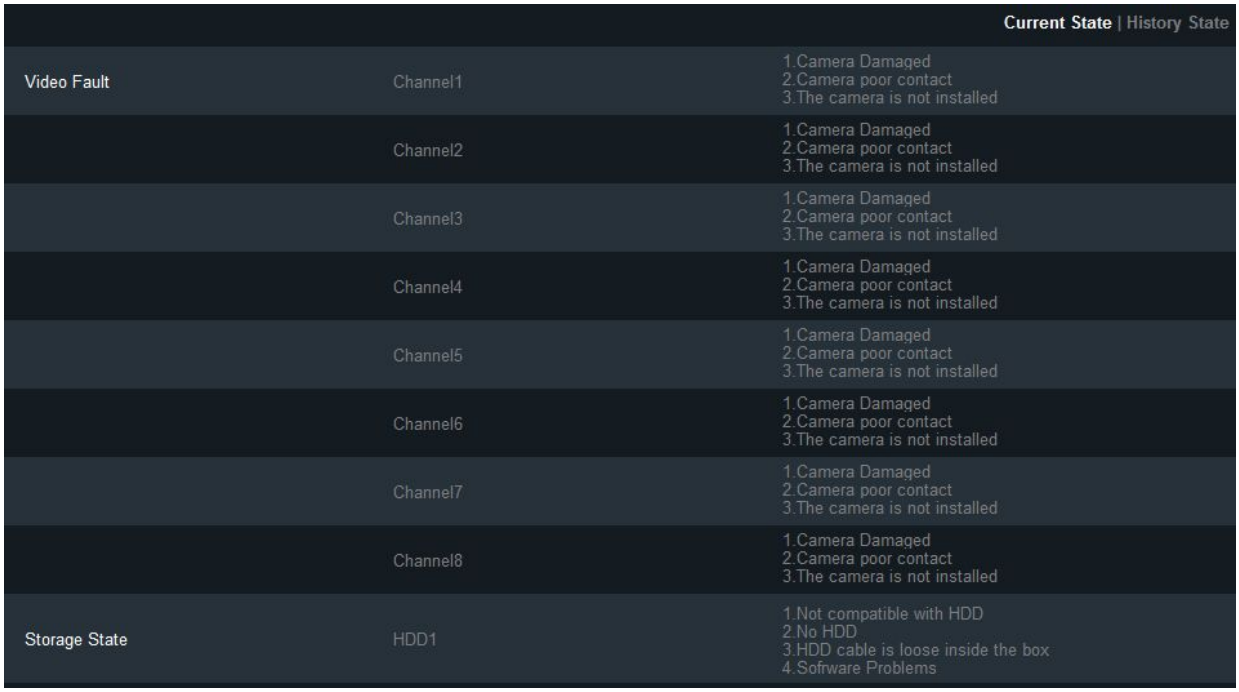
Record list: It displays all the record. Click backup download video file to local computer hard disk.

3.4 MAINTENANCE

3.4.1. BASIC INFORMATION



Basic information: It contains the current state & history state of channel video and storage.



3.4.2. DEVICE MODULE

Device module: It is about the current state of module, WIFI module and satellite location module.

Module1	Network type	Unknown
	Moduel status	exist
	SIM card status	No SIM card
	Signal	(0 dBm)
	Dial status	Unknown status
Module2	Network type	Unknown
	Moduel status	not exist
	SIM card status	No SIM card
	Signal	(0 dBm)
	Dial status	undefined
WIFI Module	Moduel status	not enabled
	Signal	
Satellite Location Module	Moduel status	Invalid GPS Signal
	Signal	
	Location plant number	0

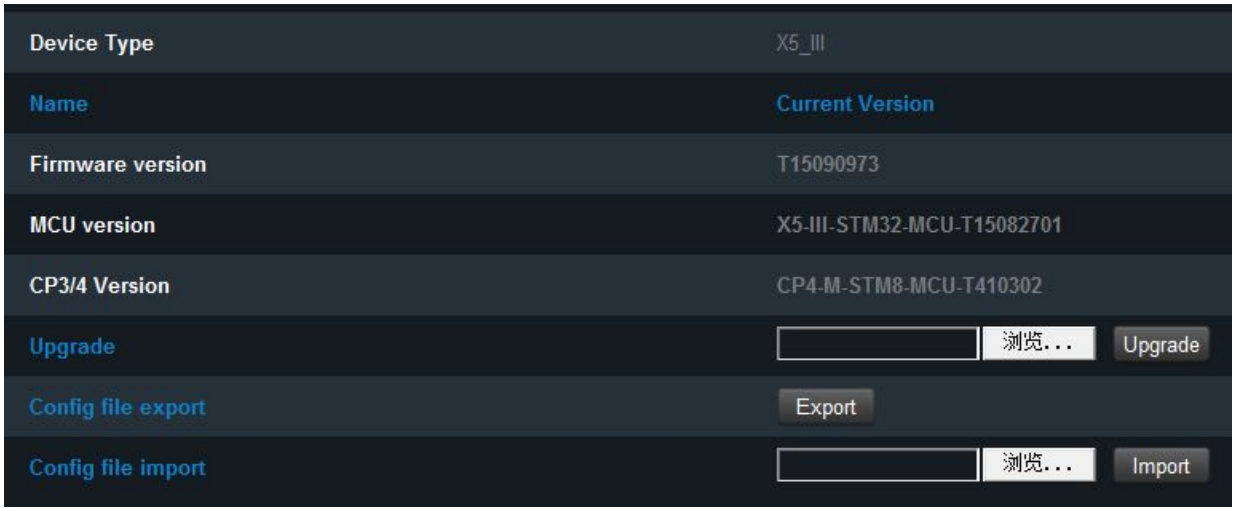
3.4.3. STORAGE DEVICE

Storage device: There are the volume information & format operation of storage (hard disk/flash drive/SD card), and the path of snap & record backup.

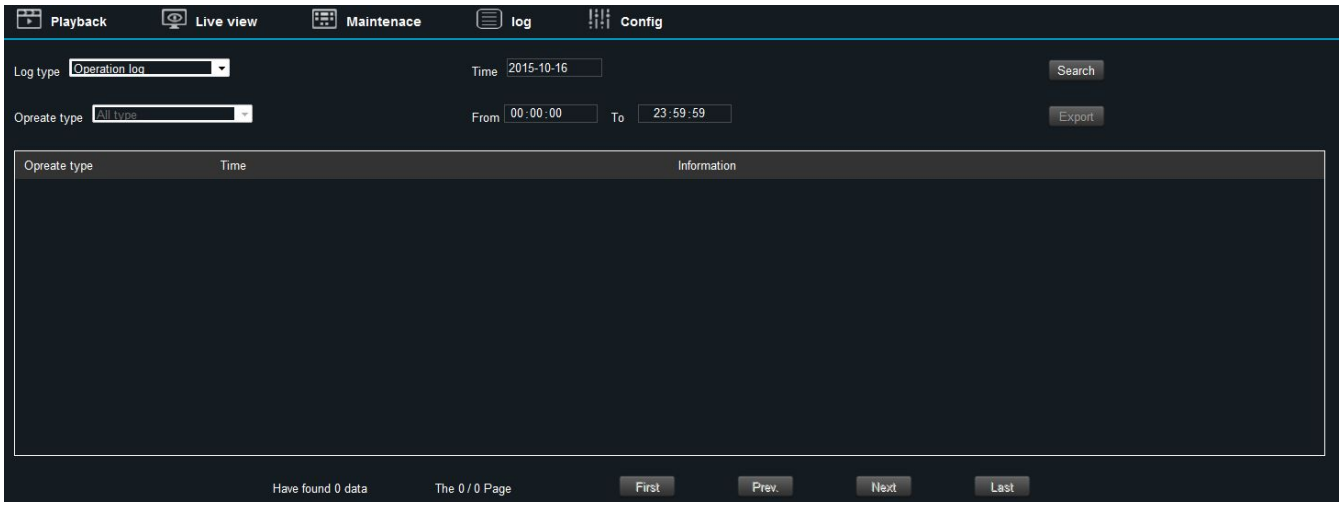
Storage Name	Free/Total	Format
HDD	None	
SD(Internal)	None	
Flash drive	None	
Local storage		
Snap Path	C:\Users\Administrator\NVR\ Browse	
Record backup path	C:\Users\Administrator\NVR\ Browse	

3.4.4. VERSION INFORMATION

Version information: There are device type, name, firmware version, MCU version, CP3/4 version, upgrade, configuration file export and configuration file import.

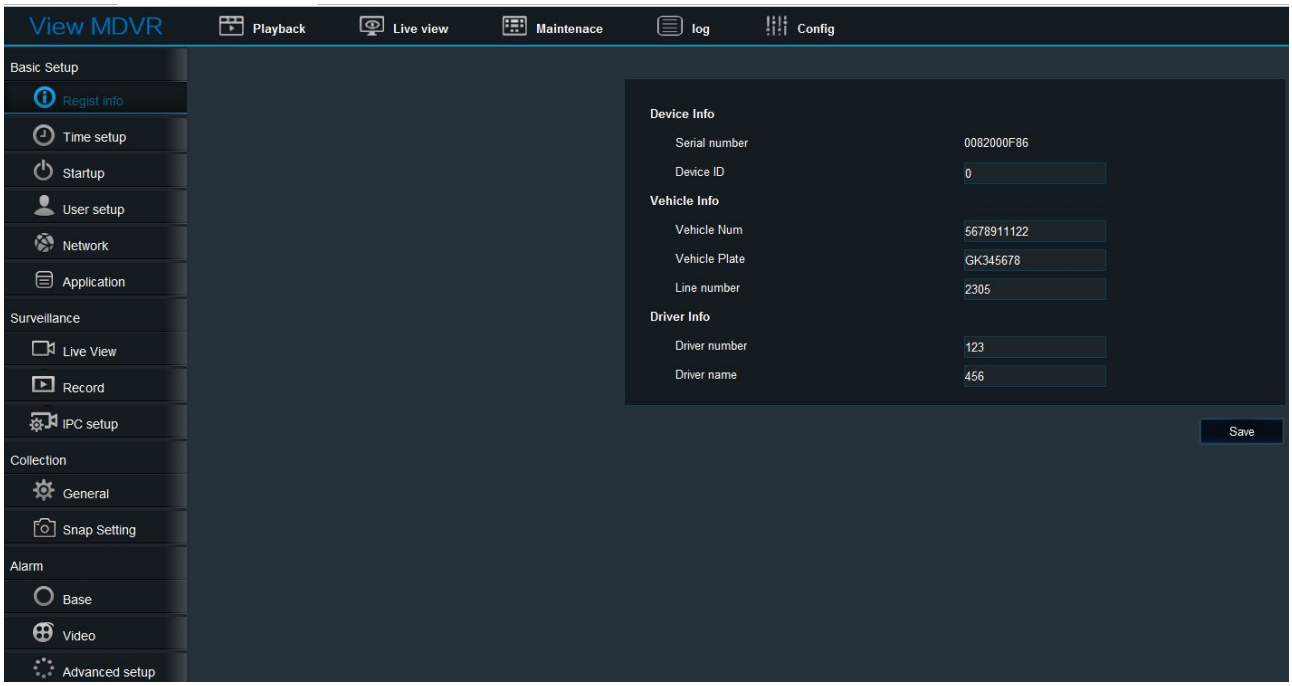


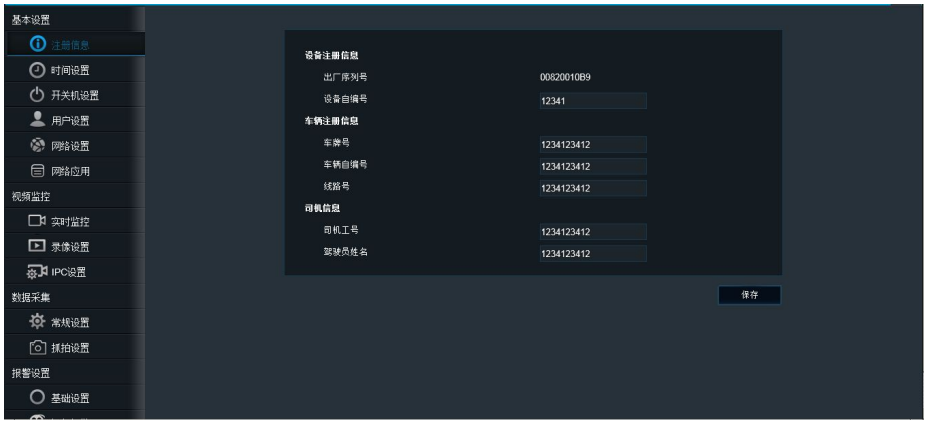
➢ Log



Log: There is Log type (operation log, alarm log and locked log), operation type (IO alarm, panel alarm, speed alarm, video loss and ACC alarm) date, and log export.

3.5 CONFIGURATION





The parameter setting is the same as the local setting. User can view the operation at the local setting.

4. STORAGE CAPACITY CALCULATION

1) Image Quality & Streams

Resolution	Image quality	1	2	3	4	5	6	7	8
Stream Kbps	720P	6144	4800	4128	3456	2784	2112	1440	768
	WD1	2662	1997	1599	1331	1170	1040	936	832
	WHD1	1664	1248	998	832	728	650	585	520
	WCIF	1040	780	624	520	455	405	364	325
	D1	2048	1536	1230	1024	900	800	720	640
	HD1	1280	960	768	640	560	500	450	400
	CIF	800	600	480	400	350	312	280	250

2) Record File Size Calculation

Rec. file size for each channel is:

Recording time (s) x Stream (Kbps) / 8 / 1024 = File Size (MB)

e.g. The file size of the Image 1 with D1 resolution within 1 hour:

3600 x 2048 Kbps / 8 / 1024 = 900 MB

3) **Image Quality & Resolution**

Resolution	Image quality	1	2	3	4	5	6	7	8
Record **(MB)**	720P	2700	2109	1814	1518	1223	928	632	337
	WD1	1170	878	702	585	514	456	411	365
	WHD1	731	549	438	365	320	285	257	229
	WCIF	456	343	274	229	199	178	160	143
	D1	900	675	540	450	395	351	316	281
	HD1	562	422	337	281	246	219	198	176
	CIF	351	264	211	176	153	137	123	110

5. FAQ

1) The system can't start?

Usually this problem results from the incorrect power connection. Please follow below steps to check the power connection:

1. Check the input power, whether the power wire is connected correctly, whether the ground wire is connected back to the battery, and whether the fuse on the power wire is in good condition.
2. Check whether the ACC signal wire input to the power is with voltage higher than 7 V.
3. Check whether the device key is closed.

2) The MDVR restarts uninterruptedly?

Please follow below steps to check it:

1. Check whether the voltage of MDVR is insufficient. If the voltage is less than the start-up voltage of the device, the device would always restart.
2. The problem in hard disk/SD card may cause the failure to start. Take off the storage part and check whether it is broken down.

3) The device can't record?

Usually this problem results from the storage disk or camera. Please follow below steps to check it:

1. Check whether the storage disk is installed, whether it is in good contact, and whether the disk can be read normally in computer.
2. Check whether the storage disk is formatted. The storage disk should be formatted before normally storing record files.
3. Check whether there is video signal input into the device from camera, and whether there is video/image on the screen.

4) There is no voice in record file?

Please follow below steps to check it:

1. Check whether there is an external pickup, or whether the camera features with the function of audio collection.
2. Access to Video Channel Settings, check if Audio is set on.
3. There must be video input into the channel for recording and it must record normally.

5) The GPS works abnormally?

Please follow below steps to check it:

1. Check whether the GPS antenna is installed correctly. There is a silk print logo on the GPS antenna holder behind the host device.
2. Check whether the antenna receiver is sheltered. It should not be covered by any stuff, which may cause it not to receive signals.
3. Environmental influence such as tree shades, being inside tunnel, driving near tall building or elevated roads, thunderstorms or other weather influence, etc. can also cause signal loss or receiving wrong signals.

6) The device can't shutdown in ignition switch mode?

Please follow below steps to check it:

1. Check if the ACC line connection mode is correct; and check whether there is voltage on ACC yellow line when the key is turned off.
2. If the device has been set with schedule recording, it can't shutdown if it is still during recording time

of the task table.

7) **Which IP waterproof level does Streamax device support?**
Currently, X7 and X5-E0804 support waterproof IP 54.

8) **How to install the WIFI antenna?**
The antenna must be installed on unobstructed place of the roof, and be fixed with glue.

9) **The device cannot be shut down when in ignition ON/OFF mode.**
Check if the ACC signal wiring is correct and if there is voltage for ACC signal line after the key is turned off .
If you have set timing recording, and at the current time it is still in task recording, the device may be impossible to be shut down.

10) **GPS anomaly.**
Check if the GPS antenna is properly installed. There is silkscreen GPS identification on the GPS antenna pedestal on the back of the MDVR device. Check if the antenna connector is blocked and make sure the antenna connector not be covered by other things.
Trees block, being inside the tunnel, driving near tall buildings or viaduct, thunderstorms and other environmental effects may also cause to receive no GPS signal or error signal.

11) **No voice in video files.**
See if there is an external microphone, or if the camera cannot capture audio;
Enter into the video channel settings, then check if the audio is open;
Ensure video input and normal recording, on which the audio recording channels must be based.

12) **The device doesn't record.**
Make sure the storage part is installed and of fine contact, the data can be read on PC, and the storage device is not formatted.
Check if there are video signal input to the main device, and whether there are video images in the channel pictures.

13) **Why has the MDVR device always been in a state of restart?**
Check whether the MDVR device voltage is insufficient. If the device voltage does not reach the start voltage, the device will restart.
Hard disk or SD card may cause the MDVR device unable to start. You need to remove the storage device and then boot up to verify whether it is caused by the storage device.

14) **Why the MDVR device cannot start?**
Check the device input power to see if the power wiring is correct, if there is ground wire connected back to the battery, and if the fuse of the power wire is n good condition;
Check whether there is voltage(more than 7V) on power input ACC signal wire;
Check whether the hard disk key is turned off.

15) **What is the log in user name and password for new device?**
The default user name and password are both "admin". The device password can be set as empty.

16) **How to update the firmware?**
Change the previous file folder name "dvrupgrade" to "upgrade". Change the file name FWX15-0401-05-01-V01V01V01V491087 to RMMDVR_X5_III_T2014111005_convert

17) **In the ON/OFF of basic settings, the low voltage protection is 8V, why?**
After testing, when the battery is lower than 8V, the voltage will lower down quickly. Therefore the lowest voltage is set to be 8V. When it is lower than 8V, the MDVR device will recognize it as external power-off and then enter into shutdown state.