User’s Manual

Of Linux DVR

TABLE OF CONTENTS

Chapter 1 Preface

Thanks for choosing Marchen products.

Linux DVR is a PC-based DVR based on embedded Linux platform. Operation is plug-and-play, utilizing built-in Linux OS and DVR software on flash disk. It combines the advantages of traditional PC-based DVR and standalone DVR.

Marchen's Linux DVR is powered by H.264 DSP hardware compression. It supports max. 36 channels fully real-time live view and recording. It is the best solution for high quality surveillance applications.

Important notice

To use English version software or other versions' software except simplified Chinese version, make sure that you are connecting English version DVR cards. The language mismatch could result in the software malfunctions.

Software functions and specifications may be changed without prior notice

Manual Conventions

The following conventions are used throughout this manual.

Type	Stand for	Examples
[Key]	Keys on the keyboard	[Enter]
Italic	User in each authority level	*[Admin]*
Bold	Name of a window, Section/Option title in the Window/Field name/Buttons	**Local Resolution**

Caution Message: These messages are to advise you to proceed carefully. Failure to pay attention could result in damage to the system and may put personal or environment at risk.

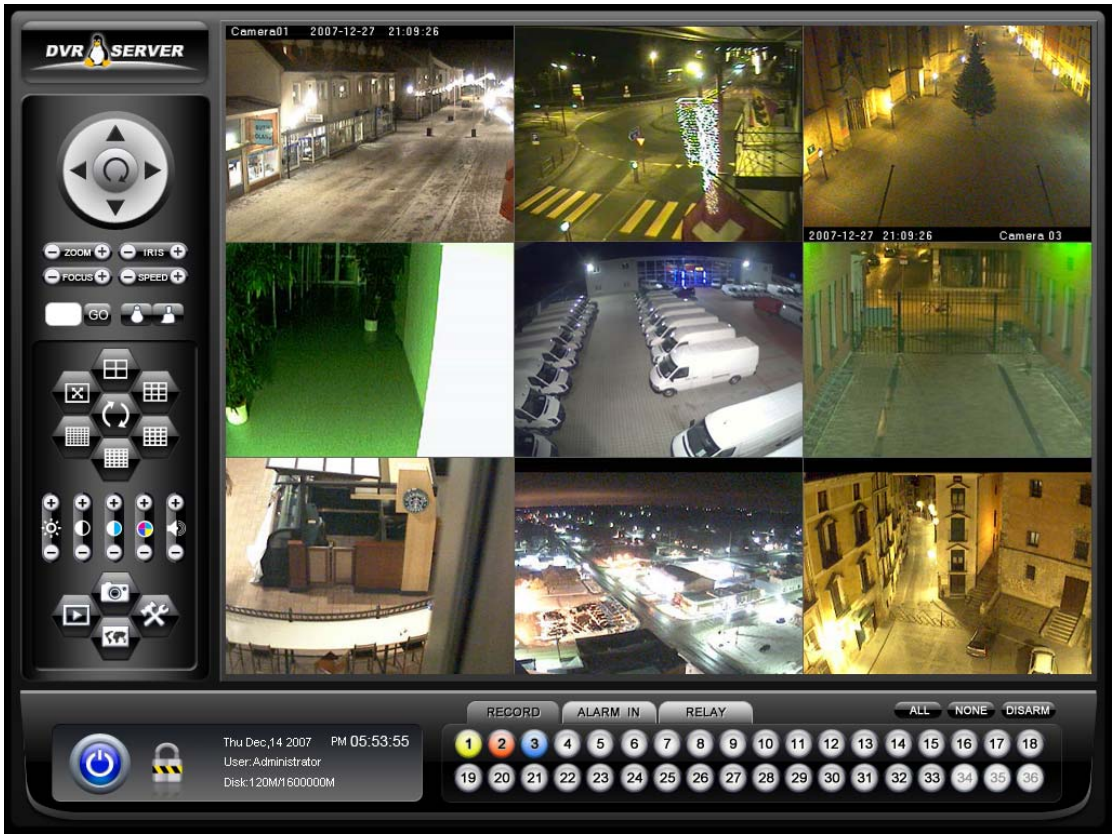
Informational Message: These messages are intended to provide additional information for the purpose of clarification.

Chapter 2 Installing Hardware

Please refer to **Installing Guide of Linux DVR**.

Chapter 3 Introducing Linux DVR System

Initiate the Professional or Enhanced Linux DVR system, the following Live View Screen will appear.

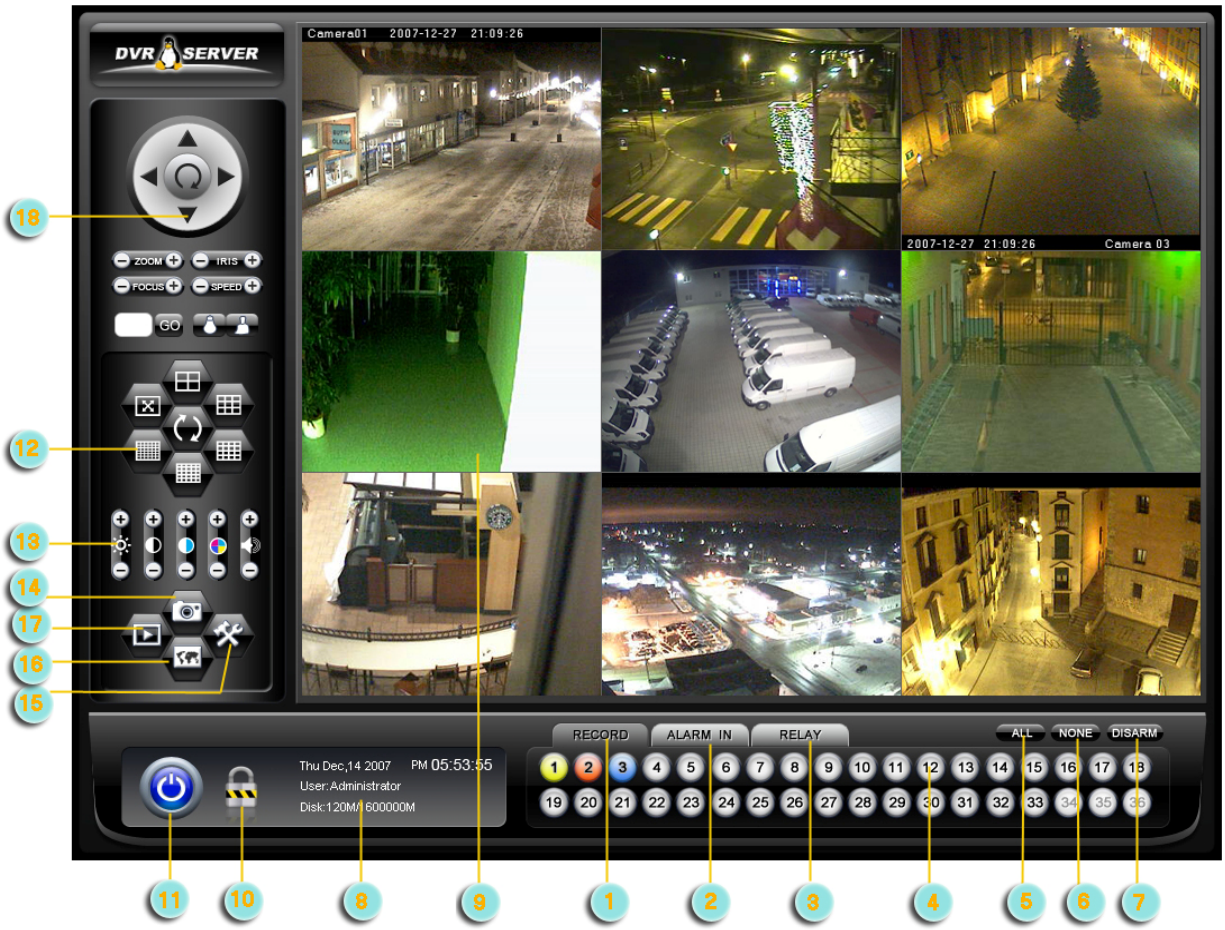


3.1 Live View Screen

Live View is the main GUI (Graphic User Interface) when the DVR is first started. Under **Live View Screen**, you can view videos from the cameras connected to the DVR. These functions are accessible via Live View:

- Screen layout control
- Image control
- Channel recording status / Manual recording control
- Sensor input status / Sensor input control
- Replay output status / Relay output control
- Search and Playback
- System configuration
- PTZ
- E-map
- Snapshot

The introductions of buttons on **Live View Screen** are as followed.



1. **Record Tab** – Displays channels' recording status
2. **Alarm / Sensor Input Tab** – Displays sensor input status
3. **Relay Output Tab** – Displays alarm relay output status
4. **Camera / Sensor / Relay Selector**

In **Record Tab**, it indicates the channels' recording status.

 (Yellow): In motion detection status.

 (Red): Motion detected

 (Blue): In recording status (caused by motion, manual or schedule)

 (Purple): The channel is available

 (Gray): The channel is not available (DVR card does not provide this channel. For example, for a 16-ch system, 17-32 will be unavailable.

It also supports Manual Recording operations:

- Left click on channel number to start manual recording.
- Right click on channel number to cancel manual recording.

- Click **All** button to start recording on all the channels.
- Click **None** button to cancel recording on all the channels.
- Click **Disarm** to cancel alarm on the all the channels.

In **Sensor Input Tab**, it indicates the sensors status.

It also supports sensor input detection operations:

- Left click on sensor number to enable detection on sensor input.
- Right click on sensor number to disable detection on sensor input.
- Click **All** button to enable detection on all the sensor inputs.
- Click **None** button to disable detection on all the sensor inputs.

To enable sensor input detection, be sure that alarm card has been attached in the linux DVR.

In **Relay Output Tab**, it indicates the relay output status.

It also supports relay output control operations:

- Left click on relay output number to start relay output.
- Right click on relay output number to stop relay output.
- Click **All** button to start relay output on all the ports.
- Click **None** button to stop relay output on all the ports.

To start relay output, be sure that alarm card has been attached in the linux DVR.

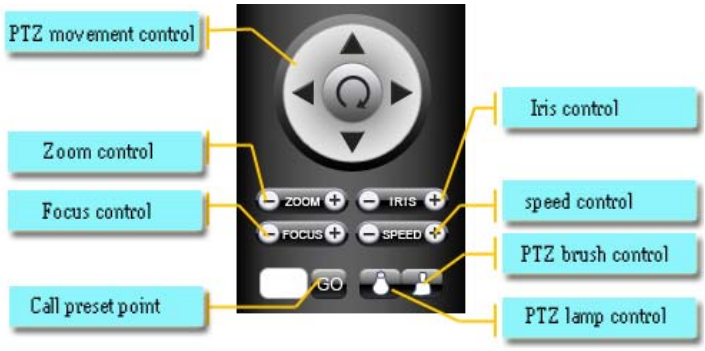
5. **All :** Select **All** Cameras / Sensors / Relays
6. **None:** Cancel All Cameras / Sensors / Relays
7. **Disarm:** Disarm / Cancel Alarm Status
8. **Information Panel** – Displays time, date, user and disk usage.
9. **Live View Panel** – Displays the videos from the cameras.
10. **Logout** 
11. **Power off / Restart** 
12. **Screen Layout** – Changes the screen layout of the live view.

- For a 16-ch system, **25-window** and **36-window** display button is unavailable.
- Click the **Manual Cycle display** button will manually switch to next window(s). For example, if current screen layout is 4-window, click it to see next 4-window.

13. **Image Control** – Image parameters adjustment, for example, Brightness, Hue, Contrast and Saturation.

Click on the image control icons  to restore default setting.

14. **Snapshot** –  Snapshots a picture for the selected camera. The pictures can be browsed in the **Search / Playback Screen**.
15. **System Configuration Button** - 
16. **E-Map Button** - 
17. **Search / Playback Button** - 
18. **PTZ Control Panel** - Displays the PTZ control section.



Before operating PTZ, be sure that a PTZ camera is selected, and the PTZ communication parameters has been configured appropriately.

3.2 Configuration Screen

In the **Live View Screen**, click System Configuration Button -  to enter **Configuration Screen**.

- **Camera -** camera configuration & motion detection regions setup
- **Record -** recording parameters & record schedule setup
- **COM -** RS232 COM port setup, mainly for PTZ communication protocols setup.
- **Alarm -** alarm input & output setup
- **Exception -** exception management
- **Local -** general parameters, such as video format, time, language, etc.
- **Network -** network parameters
- **Disk -** disk status and management
- **User -** user management
- **Preview -** preview window setup
- **Upgrade -** upgrade button
- **Factory mode -** restore to default mode
- **Log -** system log history
- **About -** system information
- **More -** reserved for advanced functions.

3.3 Search / Playback Screen – File List Playback

In the **Live View Screen**, click Search / Playback Button  to enter **Playback Screen**. System provides two kind of search mode, i.e. **File List Playback** and **Time-line Playback**. **File List Playback** is the default playback mode.

1. **Recording Files List Panel** – Lists files that meet search filters.
2. **Search Filter** – Includes time, recording type and channel number.
3. **Play** – Click this button to play / browse the selected file.

Before playing a file, make sure one file has been selected.
Before start playing a new file, be sure to stop playing current file first.

4. **Calendar** – Chooses a date to search recording files.

In the Calendar Panel, the date with bold font type has recording file inside.

5. **Event Search** –  Click this button to enter **Event Search** mode.
6. **Time-line Playback button** –  Click this button to switch to **Time-line Playback** mode.
7. Return to **Live View Screen** 
8. **File List Playback button** –  Click this button to switch to **File List Playback** mode.
9. **Clip Edit** button

   When playing a file, click  to start a video clip. Then click  to finish a clip.
10. **Backup** –  Click this button to backup selected files.

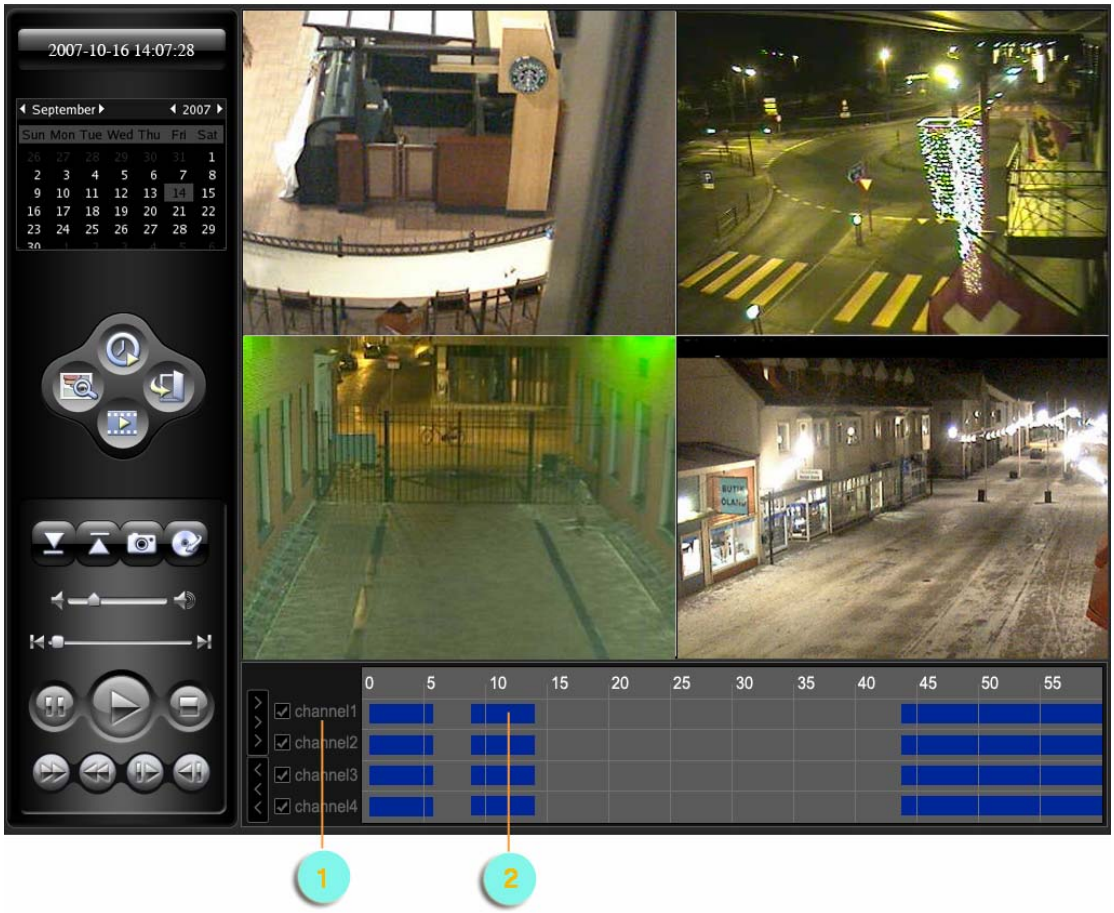
Before backup, make sure a backup device has been attached. System supports backup files to USB disk, USB HDD, USB CDRW and IDE CDRW.
Some backup device may be not compatible in Linux DVR. It is better to use recommended device.

11. **Snapshot** –  Snapshots a picture in the current playback window.
12. **Voice Adjust bar / Play Progress bar** 

13. Play Control buttons

3.4 Search / Playback Screen – Time-line Playback

In the **File List Playback** mode, click  to switch to **Time-line Playback** mode.



1. Channels selector – Selects channels to playback.

   Click  to go to next camera. Click  to go back to previous camera.

> System supports max 4 channels to playback simultaneously. Up to 4 channels can be selected at one time.

2. Recording Time Selector

> In **Hour View** mode, right click to switch to **Minute View** mode.
> In **Minute View** mode, right click to switch to **Hour View** mode.

Chapter 4 Configuring the System

In the **Live View Screen**, click System Configuration Button -  to enter **Configuration Screen**.

- **Camera -** camera configuration & motion detection regions setup
- **Record -** recording parameters & record schedule setup
- **COM -** RS232 COM port setup, mainly for PTZ communication protocols setup.
- **Alarm -** alarm input & output setup
- **Exception -** exception management
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- **Disk -** disk status and management
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- **Preview -** preview window setup
- **Upgrade -** upgrade button
- **Factory mode -** restore to default mode
- **Log -** system log history
- **About -** system information
- **More -** reserved for advanced functions.

4.1 Local Setup

- **Language**: System supports multiple languages.

- **Input Mode**: Selects video display mode

System supports more than 10 languages. Please contact supplier to add/modify languages.
Users have to set software language appropriately in accordance with dvr card versions. For Chinese version DVR cards, only the Chinese version software will be used appropriately. For English version DVR card, all the software versions except Chinese version will be used appropriately. Please contact the supplier for special requirements.

Restart computer to enable the setting.

- **OSD time format –** PAL or NTSC

Restart computer to enable the setting.

- **Separator**: Defines the separator in OSD time.

Restart computer to enable the setting.

- **Device Name**

Change in device name may result in the lost of old recording data in Linux DVR.

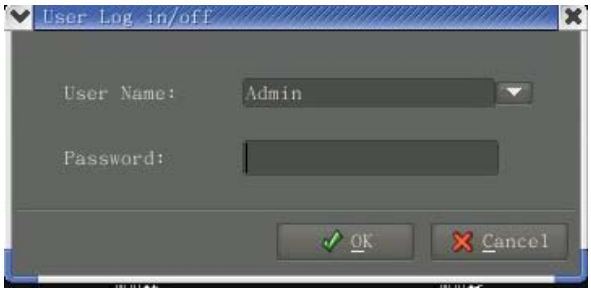
Restart computer to enable the setting.

- **Device ID**

Change in device ID may result in the lost of old recording data in Linux DVR.

Restart computer to enable the setting.

- **Use Password**: Checks this box to verify user's privilege. When this box is checked, system will enter **User Right Authentication Screen** first when system boot up, and system will verify user's privilege when he configure Linux DVR.



The default user is *Admin,* without password.

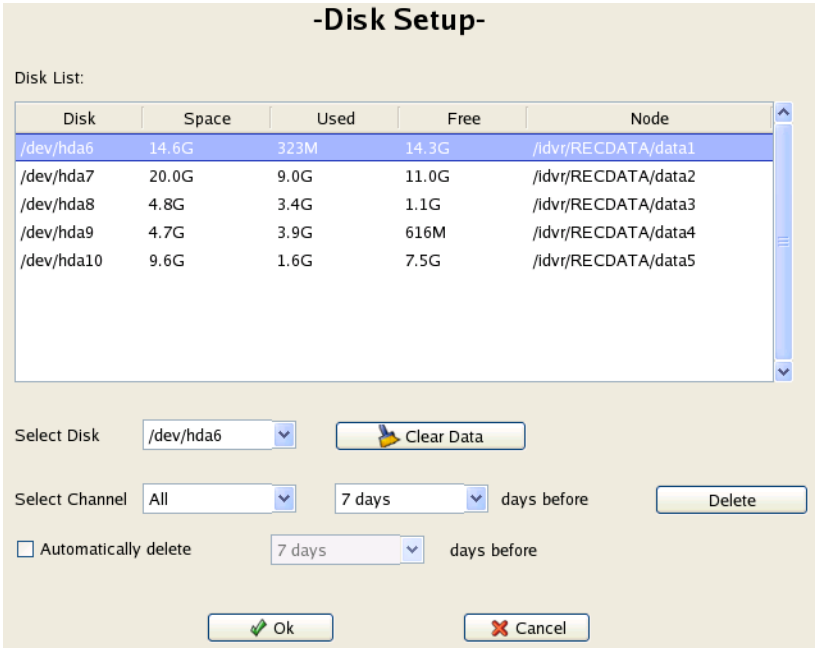
- **Screen saver**
- **Auto Reboot**: Defines automatically reboot interval

In this example, Linux DVR will reboot at 0:00 every day.

- **Edit time**: Modify system time here.

Change in system time may result in the lost of old recording data in Linux DVR.

4.2 Disk Setup



It displays hard disk information here.

To delete all the recording files in a hard disk, please select a disk, and then click **Clear Data**.

Before clear data, make sure that the recording files in this disk are useless, or have been saved in another disk.

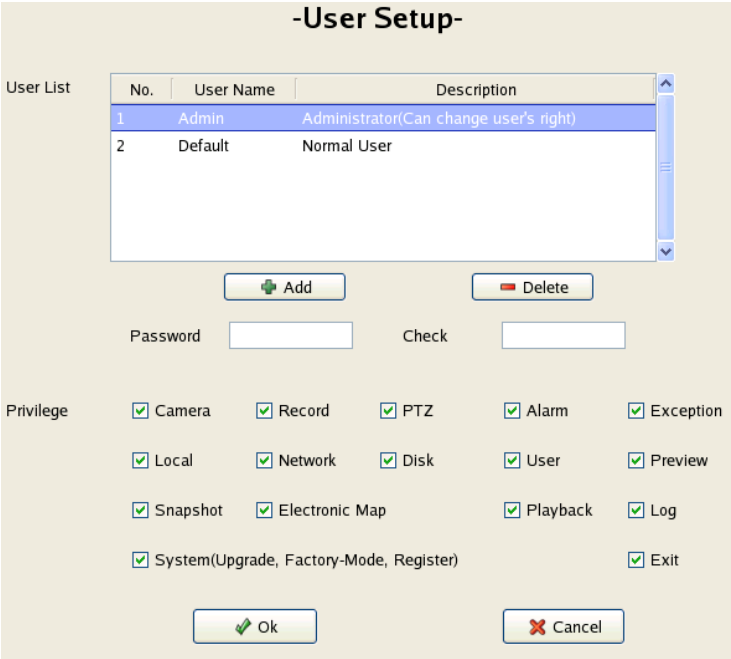
To delete recording files some days before, please select channel (s), days, and then click **Delete**, system will delete the recording files these days before.

To delete recording files automatically, check the **Automatically Delete** box, and choose days, system will then automatically delete the recording files these days before. When the box has been checked, system will check this operation every day.

The operation will be checked every day.

4.3 User Setup

System supports multi-user management.

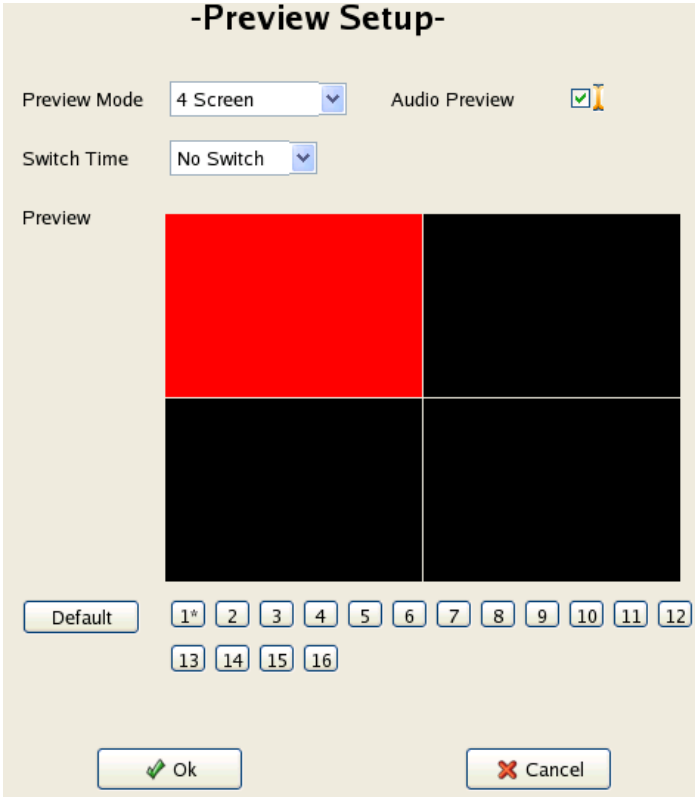


To add a user:

1. Click **Add**
2. In the popup window, input user name, press **Ok**
3. Select the user
4. Input **Password** and **Check** it again.
5. Define **Privileges** for the user.
6. Press **Ok** to save and exit.

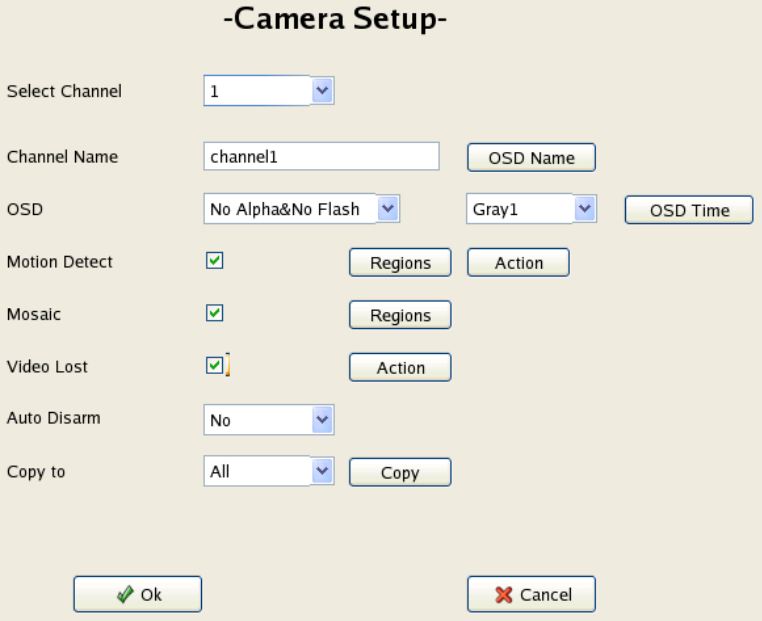
The default user is *Admin,* without password.
To enable privilege authentication, be sure that the **Enable Password** box in **Local Setup Screen** has been checked.

4.4 Preview Setup



Preview Mode: Select the default screen layout in **Preview Mode**.
Audio Preview: Check **Audio Preview** to enable audio listening.
Switch time: Choose **Switch Interval** to start cycle display. The system will cycle the channels according to the **Screen Layout** mode in sequence.
Preview: User can re-organize camera sequence in the **Preview Panel**. For example, if user wants to display camera 1 in the 5th split screen, click number **5** to change to 5th split screen.

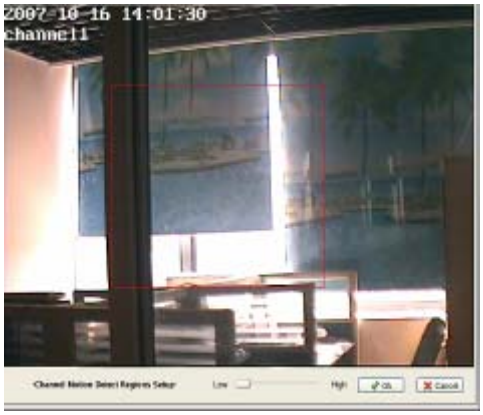
4.5 Camera Setup



Channel Name: Inputs channel name
OSD Name: Adjusts the **OSD** (Over Screen Display) position of channel name
OSD: Selects OSD display mode and font color.
OSD Time: Adjusts the **OSD** (Over Screen Display) position of date / time
Motion Detect: Checks this box to enable motion detection, and click **Regions** to define detect regions and sensitivity.

In the **Region Setup** window, left-click to drag detection region (s). And define the sensitivity for them.

- Right-click a region to cancel it.
- Regions can not be overlapped.



Up to four regions can be set.
By default, the channel is not in motion detection status if no region is set.
To enable motion detection recording, you have to set **Motion Detection Recording Schedule**. Please refer to **4.6 Record Setup.**

Click **Action** to define channel alarm processing when motion detected.
Channel Record: By default, the channel with scheduled motion detection recording will

be recording when a motion in this channel is detected. You can also choose another channel to be in recording.

Screen Alarm: Check this box to display **Motion Detection** character on the video screen.

Sound Alarm: Check this box to beep from motherboard.

Remote Alarm: This option is not valid now. By default, all remote clients will receive alarm messages.

Relay Alarm: Check this box and then select relay output ports to enable relay output when motion detected.

Mosaic: To set privacy mask protection, check the box, and then define mask regions.

Video Lost: Check the box to enable video lost detection, and define alarm actions.

Auto Disarm: To set a delay time to automatically cancel alarm when the channel is on alarm status. Choose **No** to disable this function.

Copy to: Copy this channel's setting to another channel or all channels.

4.6 Record Setup

When disk is full: Choose **Overwrite Data** or **Stop Recording** when Hard disk is full.
Encoding Type: Choose **CBR** (Constant Bit Rate), or **VBR** (Various Bit Rate)

VBR allows a codec to change its bit-rate dynamically to adapt to the "difficulty" of the audio and video being encoded. In the example of a swinging PTZ or other rapid movement, a higher bit-rate to achieve good quality is required, while less active scenes can be coded adequately with fewer bits. For this reason, VBR can achieve lower bit-rate for the same quality, or a better quality for a certain bit-rate. Hard drive capacity can be substantially increased.
In **CBR** encoding, the bit-rate is constant regardless of scene activity

Quality: Choose image quality from Best, Very good, good and normal here.
Frame Rate: Also known as fps (frames-per-second). Choose a value from 1 to 25 in PAL mode, or 1 to 30 in NTSC mode.

Thirty (30) is "real-time," "real-motion" video in the NTSC (North America) video standard.
Twenty-five (25) is "real-time," "real-motion" video in the PAL (International) standard.

Resolution: Describes the detail an image holds. Choose CIF, 2CIF or D1 here.

CIF (Common Intermediate Format) is used to standardize the horizontal and vertical resolutions in pixels of YCbCr sequences in video signals.
Video resolutions (in pixels):
CIF (NTSC 352 × 240) - (PAL 352 × 288)
2CIF (NTSC 704 × 240) - (PAL 704 × 288)
D1 (NTSC 704 × 480) - (PAL 704 × 576)

Apply Schedule: Check this box and click **Record Schedule** to define a recording schedule.

Weekday: Choose a week day to set schedule.
Full Time: Check this box to set all day recording. To set time segment recording, please un-check this box.
Record Type: Select **Continuous** (Recording continuously) or **MD/Alarm** (Recording will be triggered by motion detection or sensor input only).
Section: Defines time segments here if **Fulltime** is unchecked. Up to 4 sections can be set.

The time sections can not be overlapped.

Copy to: Copy this day's setting to other week days. Select a week day or **All**, then press **Copy** to replicate this day's setting to other week days.

Pre-record time: Defines an estimated recording time before motion/sensor trigger the recording. Choose from 5 second (default value), 10 second, 15 second, 20 second, 25 second, 30 second, No pre-record or max time.

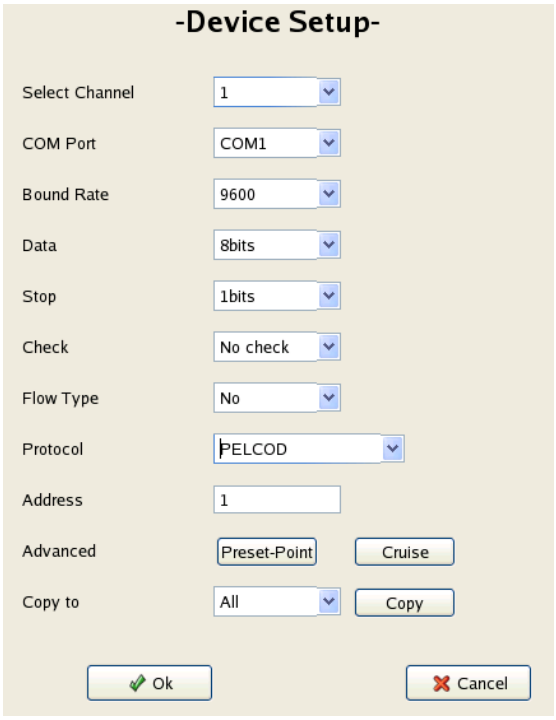
This option is only valid in **Motion/Alarm** recording mode.
The pre-record time is just an estimated time. If the bit rate (Max bit rate) is very low, and set "**5 Seconds**", the actual pre-record time may be more than 5 seconds. Contrarily, if the bit rate is high, the actual pre-record time maybe less than 30 seconds.
Max time is to save data until filling up the Pre-record buffer. The Pre-record time is related to bit rate. The lower bit rate, the longer Pre-record time will be.

Delay time: Defines the delay time after the alarm (motion detection or sensor input) has been triggered. The option is also valid only in **Motion/Alarm** recording mode.
Copy to: Copy this channel's setting to other channels. Select a channel or **All**, then press **Copy** to replicate this channel's setting to other channels.

4.7 COM Setup

COM Setup is used to set PTZ communication parameters and PTZ functions.

To use PTZ functions, be sure that all PTZ cameras are connected in COM1 port of Linux DVR. If you are using multiple PTZ cameras, make sure to set same bound rate for them.



COM Port: Use COM1 by default. COM2 is reserved for alarm card.

Bound Rate: Displays a drop down list menu for bound rate settings.

Data: Displays a drop down list menu for data bit settings.

Stop Bit: Displays a drop down list menu for stop bit settings.

Check: Displays a drop down list menu for parity settings.

Flow type: Displays a drop down list menu for flow control types.

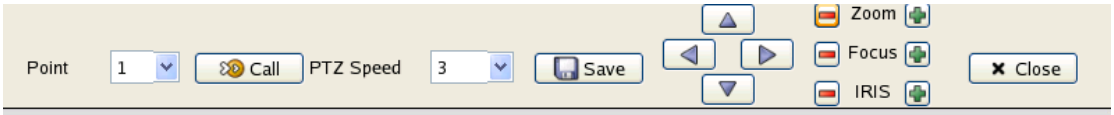
Protocol: Displays a drop down list menu for supported PTZ protocols.

Address: Indicates the address to be used for the PTZ camera. This address has to be unique across all enabled PTZ cameras.

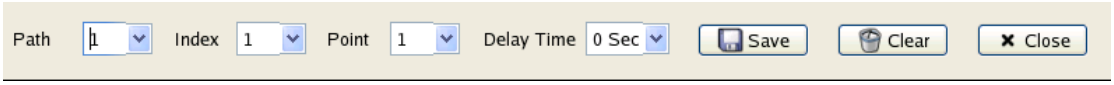
Advanced: Provide PTZ functions here. These functions are only valid when a **PTZ Protocol** has been selected.

Copy to: Copy this channel's setting to other channels. Select a channel or **All**, then press **Copy** to replicate this channel's setting to other channels.

Preset-Points: To set basic PTZ functions here, such as set preset point, call preset point, set PTZ movement speed, PTZ movement control, ZOOM control, Focus control and IRIS control.

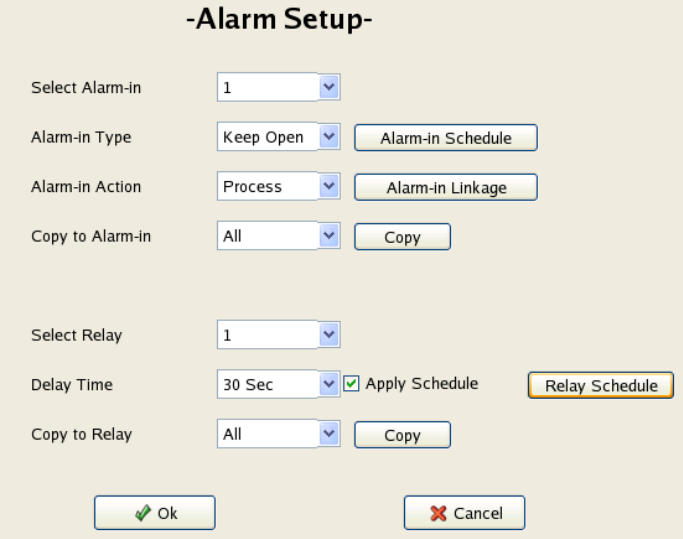


Cruise: To set PTZ cruise plan here.



4.8 Alarm Setup

To use alarm/sensor input functions, be sure that alarm card is connected to COM2 port of Linux DVR.



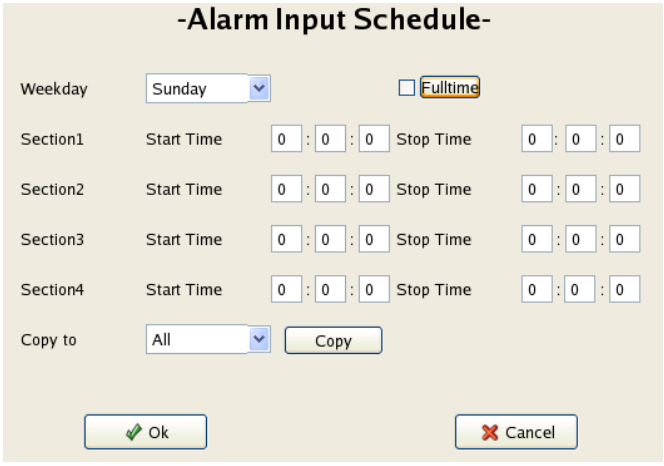
Select Alarm-in: Select an alarm/sensor input port.

Alarm-in Type: Choose **Keep Open** or **Keep Close** here. The setting has to be in accordance with the alarm card setting.

Alarm-in Action: Choose **Process** or **Do not process** here.

Only when **Process** is selected in **Alarm-in Action**, the **Alarm-in Schedule** and **Alarm-in Linkage** can be set.

Alarm-in Schedule: Defines sensor input detection schedule here.



Weekday: Choose from Monday to Sunday.

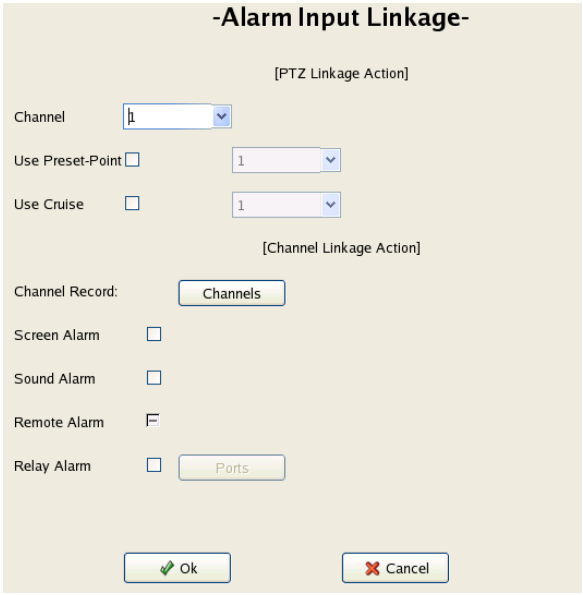
Full Time: Check this box to set all day detection.

Section: Defines time segments here if **Fulltime** is unchecked. Up to 4 sections can be set.

The time sections can not be overlapped.

Copy to: Copy this day's setting to other week days. Select a weekday or **All**, then press **Copy** to replicate this day's setting to other week days.

Alarm-in Linkage: Defines actions when a sensor input is detected.

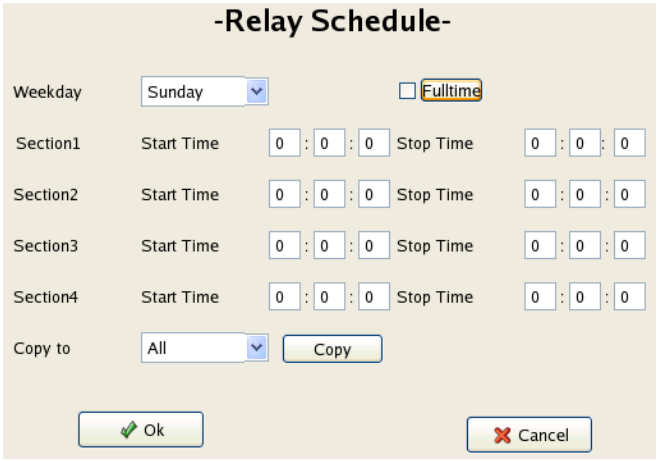


Channel: Select a camera channel here.
User Preset-Point: Check this box to call preset point when sensor input detected.
Use Cruise: Check this box to apply a cruise plan when sensor input detected.

Channel Record: Select a channel to trigger recording.
Screen Alarm: Check this box to display **Alarm Linkage** character on the video screen.
Sound Alarm: Check this box to beep from motherboard.
Remote Alarm: This option is not valid now. By default, all remote clients will receive alarm messages.
Relay Alarm: Check this box and then select relay output ports to enable relay output when sensor input detected.

Copy to Alarm-in: Copy this sensor's setting to other sensor ports.

Select Relay: Select a relay output port.
Delay time: Define dwell time of relay output.
Apply Schedule: Check this box to set relay output schedule.
Relay Schedule: Defines relay output schedule here.



Weekday: Choose from Monday to Sunday.

Full Time: Check this box to set all day relay output.

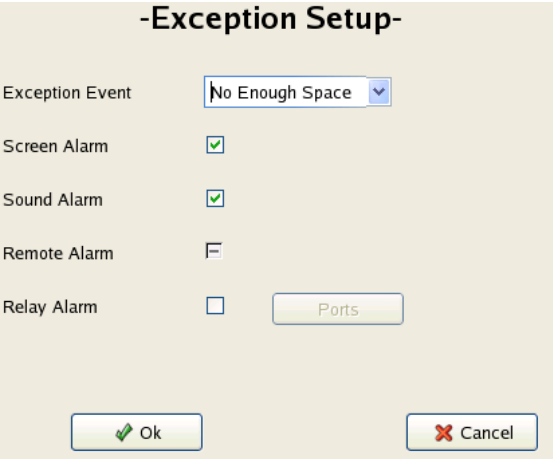
Section: Defines time segments here if **Fulltime** is unchecked. Up to 4 sections can be set.

The time sections can not be overlapped.

Copy to: Copy this day's setting to other week days. Select a weekday or **All**, then press **Copy** to replicate this day's setting to other week days.

Copy to Relay: Copy this relay output port's setting to other relay ports.

4.9 Exception Setup



Exception Event: Displays a drop down list menu for baud rate settings.

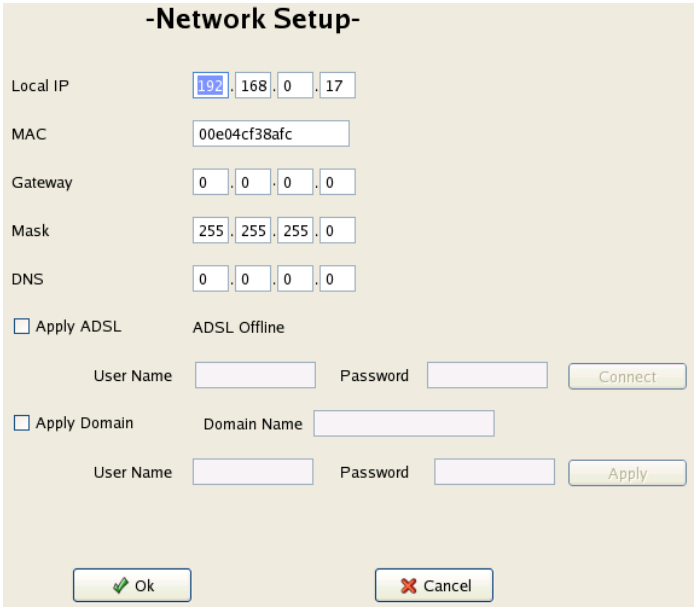
Screen Alarm: Check this box to display exception information on the video screen.

Sound Alarm: Check this box to beep from motherboard.

Remote Alarm: This option is not valid now. By default, all remote clients will receive alarm messages.

Relay Alarm: Check this box and then select relay output ports to enable relay output when exception generated.

4.10 Network Setup



Local IP: Indicates the IP of Linux DVR server. By default, it is 192.168.0.7.
MAC: Indicates the MAC address of Linux DVR server. When an Ethernet card is detected, it will display its MAC address here automatically.
Gateway: Indicates the gateway IP to go out LAN. By default, it is 192.168.0.1.
Mask: Indicate the network mask of the IP segment. By default, it is 255.255.255.0.
DNS: Indicates the DNS server IP. By default, it is 192.168.0.1.
Apply ADSL: Check this box to set ADSL **user name** and **password**, and then press **Connect** to automatically dial-up. It will display **ADSL online** when successfully.
Apply Domain: Check this box to input **domain name**, **user name** and **password,** so the internet users can access this DVR server with its domain name.

The Linux DVR server has built-in domain application provided by 3322. You have to input domain name get from 3322, for example, http: //marchen.3322.org
For new users, please apply for domain name from this website:
http://www.3322.org/

Chapter 5 Using the System

5.1 How to Live View

In the **Live View Screen**, you can use the Screen Layout panel.

- For a 16-ch system, **25-window** and **36-window** display button is unavailable.
- Click the **Manual Cycle display** button will manually switch to next window(s). For example, if current screen layout is 4-window, click it to see next 4-window.

You can re-organize live view camera layout and define cycle display mode in **Preview Setup page**. Please refer to **4.4 Preview Setup**.

To adjust the image parameters, use Image Control Panel.

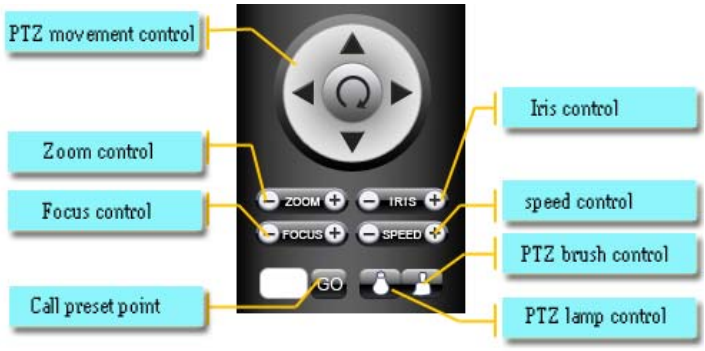
Image Control – Image parameters adjustment, for example, Brightness, Hue, Contrast and Saturation.

Click on the image control icons  to restore default setting.

Snapshot –  Snapshots a picture for the selected camera. The pictures can be browsed in the **Search / Playback Screen**. Please refer to **5.8 How to Browse Pictures.**

5.2 How to PTZ Control

To control PTZ movement, use the PTZ Control Panel in the Live View Screen.



Before operating PTZ, be sure that a PTZ camera is selected, and the PTZ communication parameters has been configured appropriately.

To set PTZ communication parameters and define PTZ functions, pls go to COM Setup Page. See details in **4.7 COM Setup**.

All the PTZ cameras in same Linux DVR should be connected to COM 1 only, and set same bound-rate for them.

5.3 How to Manual Recording

To start recording manually, use the **Record Tab** in **Live View Screen**.

Basic operations:

- Left click on channel number to start manual recording.
- Right click on channel number to cancel manual recording.
- Click **All** button to start recording on all the channels.
- Click **None** button to cancel recording on all the channels.
- Click **Disarm** to cancel alarm on the all the channels.

The manual recording settings will be cancelled after the software restart.

When the channel is in schedule recording status, it can not set to manual recording.

Recommendation: Manual Recording is used for temporary recording, and Schedule Continuous Recording is for long-time continuous recording.

To set recording image quality, frame rate, resolution, please refer to **4.6 Record Setup.**

5.4 How to Schedule Continuous Recording

Please follow these steps to set **Schedule Continuous Recording**.

Step 1 In the **Live View Screen**, click **System Configuration Button** -  .
Step 2 In the **Configuration Screen**, click **Record Setup**.
Step 3 In the **Record Setup Screen**, check **Apply Schedule** and click **Record Schedule**.
Step 4 In the **Record Schedule** Screen, selects **Record Type** as **Continuous**, and defines a schedule for it. Please refer to **4.6 Record Setup**.

Step 5 The recording schedule will be active immediately after pressing **Ok** in the **Record Setup Screen**.

5.5 How to Schedule Motion Detection Recording

Please follow these steps to set **Schedule Motion Detection Recording**.

Step 1 In the **Live View Screen**, click **System Configuration Button** -  .
Step 2 In the **Configuration Screen**, click **Camera Setup**.
Step 3 In the **Camera Setup Screen**, checks **Motion Detect**, and then clicks **Regions**.
Step 4 In the **Region Setup Screen**, left-click to drag detection region (s). And define the sensitivity for them. Please refer to **4.5 Camera Setup**.
Step 5 In the **Record Setup Screen**, check **Apply Schedule** and click **Record Schedule**.
Step 6 In the **Record Schedule** Screen, selects **Record Type** as **MD/Alarm**, and defines a schedule for it. Please refer to **4.6 Record Setup**.
Step 7 The recording schedule will be active immediately after pressing **Ok** in the **Record Setup Screen**.

5.6 How to File-list Playback

Please follow these steps.

Step 1 In the **Live View Screen**, click Search / Playback Button  to enter **Playback Screen**. **File List Playback** is the default playback mode.

Step 2 In the **File List Playback Screen**, selects a date in the **Calendar Panel**.

In the Calendar Panel, the date with bold font type has recording file inside.

Step 3 Defines search filters, i.e. time, recording type, channel number, then press **Search**.

Check **Play Continuously** to play all the files listed continuously. Otherwise, you have to stop playing current file before choosing another file to play.

Step 4 All the related recording files will be listed.

Step 5 Double click a file to play it, or select a file, and then click **Play** to open it.

- In **Recording Files List Panel**, double click recording file (with type as recording) to play it automatically, or double click picture file (with type as **Picture**) to open in **Picture Browser**.
- To play video file, it is not necessary to check the **backup** field. The **Backup** field is used to select files to save.

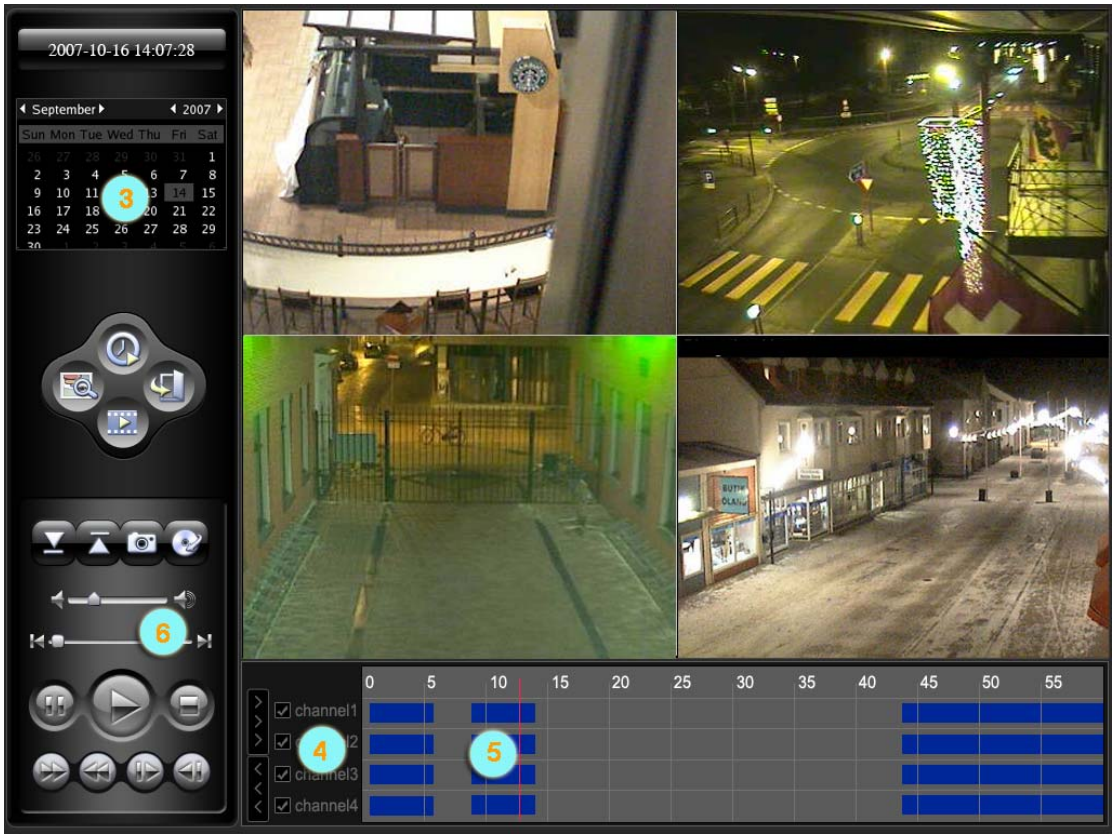
Step 6 Control play progress in **Play Control Panel**.

5.7 How to Time-line Playback

Please follow these steps.

Step 1 In the **Live View Screen**, click Search / Playback Button  to enter **Playback Screen**. **File List Playback** is the default playback mode.

Step 2 In the **File List Playback** mode, click  to switch to **Time-line Playback** mode.



Step 3 In the **Time-line Playback mode**, selects a date in the **Calendar Panel**.

Step 4 Select channels to playback.

Click  to go to next camera. Click  to go back to preview camera.

System supports max 4 channels to playback simultaneously. Up to 4 channels can be selected at one time.

Step 5 Select a time.

In **Hour View** mode, right click to switch to **Minute View** mode.
In **Minute View** mode, right click to switch to **Hour View** mode.

Step 6 Control play progress in **Play Control Panel**.

Only **Pause**, **Play** and **Stop** button is valid here.
To do other control operations, please go to **File List Playback Mode**.

5.8 How to Browse Pictures

To browse pictures took from Live View Screen or Playback Screen, please follow these steps.

Step 1 In the **Live View Screen**, click Search / Playback Button  to enter **Playback Screen**.

Step 2 In the **File List Playback** mode, set filters to search picture files.

Step 3 in the **Recording Files List Panel**, double click file with **Type** as **Picture** to enter **Picture Browser Screen** directly.

Step 4 Basic functions:

- ZOOM in/out
- Previous
- Next
- Auto play
- Dwell time of auto play

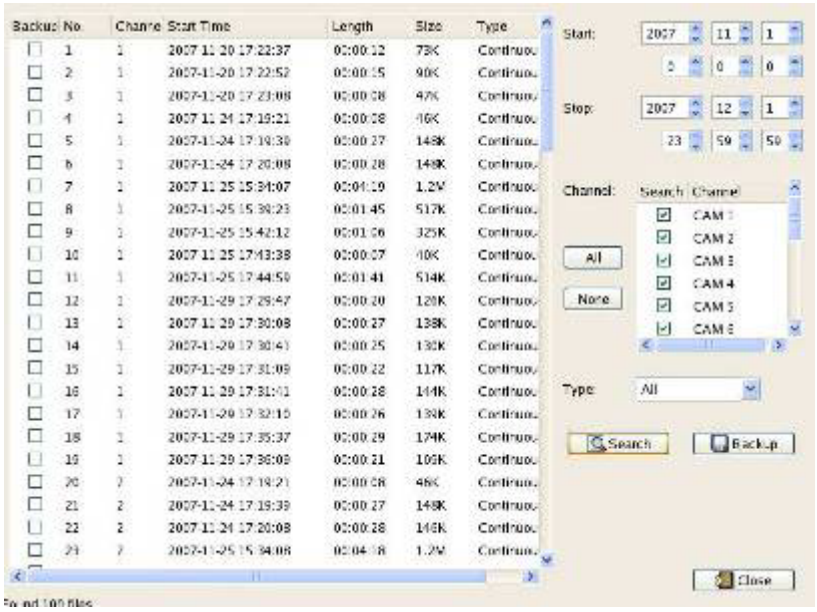
5.9 How to Backup Data

Before backup, make sure a backup device has been attached. System supports backup files to USB disk, USB HDD, USB CDRW and IDE CDRW.
Some backup device may be not compatible in Linux DVR. It is better to use recommended device.

Follow these steps to backup data.

Step 1 In the **Live View Screen**, click Search / Playback Button  to enter **Playback Screen**.

Step 2 In the **File List Playback Screen**, click  to Enter backup screen.



Step 3 Defines search filters, i.e. date, time, recording type, channel number, then press **Search**.
Step 4 In the file list panel, double click to select the files, and press **Backup** to begin backup them.

Step 6 In the pop up window, select a backup device.

Step 7 Press **Ok**, system will prompt the backup progress. When finished, remove the

backup device.

If the backup device has been attached and there is no backup device is listed here, it means the backup device is not compatible with Linux DVR server. Change another disk or CDRW, and do it again.
The files in backup device can be accessed in Windows computer directly.

5.10 How to Search Event

Please follow these steps.

Step 1 In the **Live View Screen**, click Search / Playback Button  to enter **Playback Screen**. **File List Playback** is the default playback mode.

Step 2 In the **File List Playback Screen**, selects a date in the **Calendar Panel**.

Step 3 Click the  to enter **Event Search Screen**.

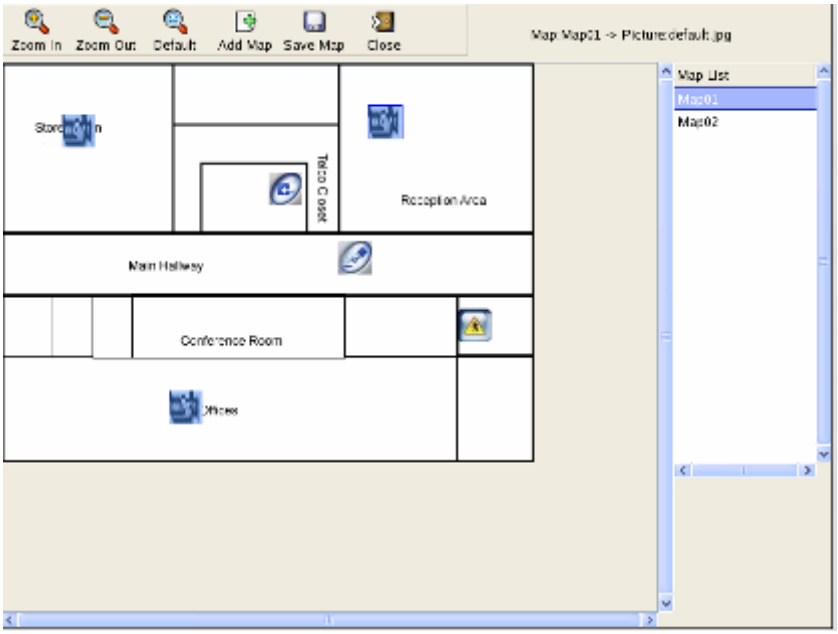
Step 4 Defines search filters, i.e. time, event type, channel number, then press **Search**.

Step 4 In the event list panel, double click to play the recording file.

5.11 How to Use E-map

System supports map import, map edit, multi-layer map, etc.

To enter E-map Screen, just click E-map button  in Live View Screen.



By default, system has one map inside it. If you want to import new map or change camera/sensor/relay icons, please see **Import new e-map**.

How to import e-map:

1. Prepare a USB disk, and create a directory named **iDVR**. (in Windows computer)
2. Create a new directory named **emap** under **iDVR** folder.
3. Create a new directory named **icons**, and create these jpg format files
   - camera0.jpg – Camera 0 icon
   - camera1.jpg –Camera 1 icon
   - camera2.jpg –Camera 2 icon
   - connect.jpg –Connector icon to link to another map layer
   - input0.jpg –Sensor 0 icon
   - input1.jpg –Sensor 1 icon
   - input2.jpg –Sensor 2 icon
   - output0.jpg –Relay output 0 icon
   - output1.jpg –Relay output 1 icon
   - output2.jpg –Relay output 2 icon

The file name of these pictures should not be changed.
Each jpg picture should be 32 X 32 Pixel Resolution.

4. Create a new director named **maps** under **emap** folder, and copy maps you want to import.

The file structure will be like this:

Removable disk:

- iDVR
  - emap
    - icons
    - maps

The map should be in jpg format.
The map resolution should not be too higher. It is recommended to use map smaller than 600pix X 600pix.

5. Insert this USB disk into the Linux DVR Server.
6. In the E-map setup page, press **Add Map.**
7. In the pop up window, choose map from the list, and press **Ok**.
8. The imported map will be displayed in **Map List** panel (right side), double click it to open it.

How to add camera/Sensor/Relay output on map:

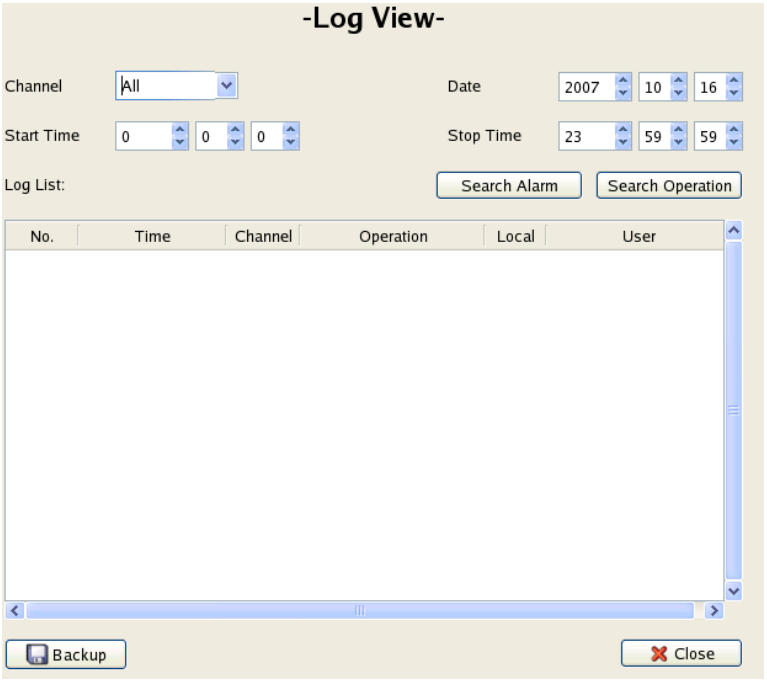
1. In the **Map List** pane, double click one map to open it
2. In the map display region, right-click it and select **Add camera**
   or you can add Alarm-in sensors by right-click and select **Add Alarm-in**
   or you can add Alarm-relay by right-click and select **Add Alarm-relay**
3. Double click the Camera icon, and you can preview video in bottom-right window.
4. When the camera or sensor is on alarm status, the related icons will turn red.

How to create multi-layer map:

1. In the **Map List** pane, double click one map to open it
2. In the map display region, right-click and select **Add Connector**
3. In the pop up window, select another map and press **Ok.**
4. Two-layer map is created. You can click the connector icon to enter next layer map.

5.12 How to Search Logs

To enter log search window, click System Configuration Button -  to enter **Configuration Screen**, and then click **Log**.



Channel: Indicates channels to be filtered.
Date: Indicates the date to search.
Start time: Indicates the begin time to search.
Stop time: Indicates the end time to search.
Search Alarm: Click it to list alarm logs.
Search Operations: Click it to list operation logs.
Backup: Click it to backup log to USB disk or USB HDD. Be sure that a backup device has been attached.

5.13 How to Use Maintenance Mode

Maintenance is used for maintenance purpose, such as HDD format, upgrade, etc.

How to enter Maintenance mode:
When the Linux DVR Server is loading, it will prompt
Load basic drivers [Ok]
Load sound drivers [Ok]
Ok, idvr installed
Ok, usr installed
Ok, extra packages installed
Load net card driver [Ok]
Load graphic driver [Ok]
Load HK video capture card driver [Ok]
Then system will prompt
=======Press any key to enter maintenance mode======
Please click any key here to enter maintenance mode.

System provides many advanced maintenance options to double-secure your system.

1. **Reboot**
2. **Recovery original settings – factory mode**
3. **Upgrade idvr from usb disk – idvr-usb.md only**
4. **Get Capture Card Information**
5. **Disk tools – format, bad blocks check**
6. **Format USB disk**
7. **Reflash iDVR boot disk**

Reboot: To reboot Linux DVR server immediately.
Recovery original settings: To restore default settings.
Upgrade idvr from usb disk: To upgrade Linux DVR server from a USB disk. Pls refer to 5.13 How to Upgrade.
Get Capture Card Information: To get capture card information manually, which will used for software registration.

Be sure that at least one capture card is attached.

Disk tools: To format hard disks.

Be sure that there is no important data is in hard disks.

Format USB disk: To format USB disk attached.

Be sure that there is no important data is in USB disks.

Reflash iDVR boot disk: To upgrade Linux DVR completely.

Be sure to do it guided by suppliers.

5.14 How to Upgrade

The upgrade function can be used for:

- Software upgrade
- Software registration
- E-map import

There are many ways provided by system to upgrade Linux DVR server:

1. Use **Upgrade button** in the System Configuration Screen.
2. Use **Upgrade option** (the 3th option) in the System Maintenance mode.
3. Use **Upgrade function** provided in Client software.
4. Use **Linux Files Viewer** to copy upgrade files into DVR Server directly.

For detailed information, please request the supplier.

Chapter 6 Windows IE Remote Access

Please refer to Remote Operation Guide of Linux DVR.

Chapter 7 Client Software

Please refer to Remote Operation Guide of Linux DVR.