Long River
Vision Systems

USER'S Guide

For 4/8-Channel Network Video Recorder Products

Prepared by: P.Shi
Created: 08/23/2014
Last Updated: 08/25/2016

Rev: 5

Revision history

Release No.	Date	Comment
Rev. 1	8/22/2014	Initial draft
Rev. 2	09/06/2014	Add troubleshooting & FAQs
Rev. 3	01/27/2015	(1) Updated embedded web GUI to support HTTP session. (2) Added RTSP/RTP interface for live H264/AAC streaming. (3) Updated the document format/layout.
Rev.4	04/05/2015	(1) Implemented PTZ camera interface. (2) Updated embedded web GUI to support PTZ control.
Rev.5	08/19/2016	(1) Support 8 channels. (2) Updated Live view GUI display for easy channel navigation. (3) NTP time management. (4) Software remote update and kernel updates. (5) Improved security features such as A. Encrypted password authentication. B. Only allowed signed software updating. (6) Support FTP file uploading (7) Email alert with ssmtp. (8) Support web server SSL

TABLE OF CONTENTS

1. INTRODUCTION

Welcome you choose Long River Video System's 4/8-Channel serial Network Video Recorder (a.k.a. 4/8CH NVRs) products.
4/8CH NVR is a Web UI based DVR system that can support up to 4/8 channels Audio/Video recordings, live streaming and remote playback functions. It can seamlessly work with most popular browsers such as Firefox, Chrome, Safari or Internet Explorer 10.0 on any computing devices and without installing any operating system dependent apps.

1.1. Product Overview

Figure 1. 4 Channel H264 NVR

- 4 channel D1 Video inputs and 4 Channel Audio inputs.
- 8 channel D1 video inputs and 8 channel Audio inputs.

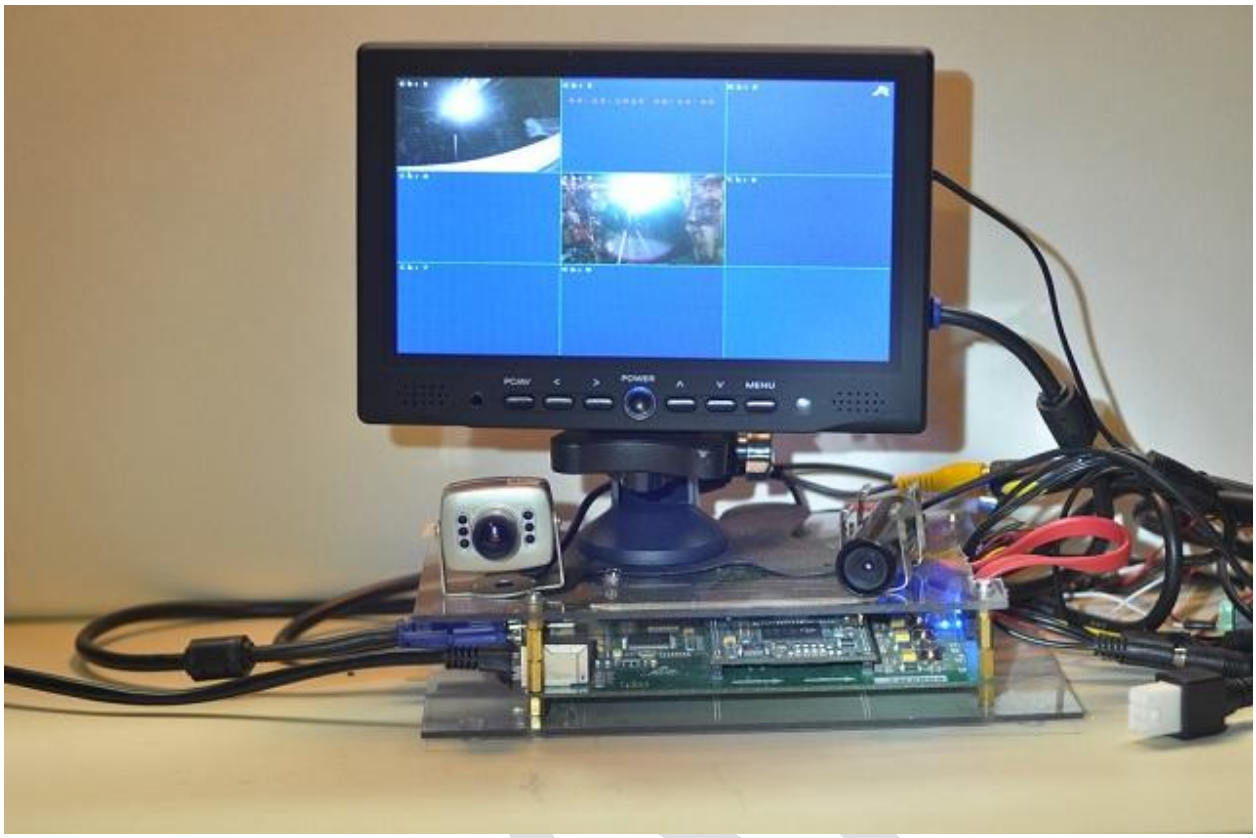
- 

Figure 2. 8 Channel H264 NVR Prototype

Video Format: H.264/MJPEG/JPEG; Audio Compress format: G.711, G.726, AAC-LC etc.

4 different recording modes: Manual, schedule, motion detection and alarm recording mode.

Recording file formats: MP4 (.mp4) for H264 + AAC_LC, AVI (.avi) for MJPEG + G7.11/LPCM) and H.264 (.h264) format. Accurate Audio/Video synchronization recording which is good for law enforcement application.

RS485 port support PELCO-P, PELCO-D PTZ camera.

- Embedded Web UI interfaces w/ security level.
- Live streaming:
  HTTP websockets (TCP), RTSP/RTP (UDP), HTTPS/SSL/TLSv1/SSLv3
- Remote PTZ camera control
- Support FTP file transferring and email alert
- Web based files/disk management.
- Support on-line application and system (kernel) updating.

1.2. About This Manual

The level of coverage provided in this manual assumes that you have RCA/BNC interfaced NTSC/PAL CCD cameras and microphones. The manual

starts from installation, quick tutorial, to advanced configurations from WEB UI.

1.3. Acronyms and Abbreviations

AAC-LC - (Advanced Audio Coding – Low Complexity)
CIF- Video resolution (352x288 for PAL; 352x240 for NTSC)
D1 - video resolution (704x576 pixels for PAL; 704x480 pixels for NTSC)
DVR - Digital Video Recorder
FPS - Frame per second
G.711 - Pulse Code Modulation
G.726 - Adaptive Differential Pulse Code Modulation
H.264/MPEG-4 Part 10 or **AVC**(Advanced Video coding) a video compression standard defined by ISO/IEC 14496-10
HD1 - Half D1 (352x576 pixels for PAL; 352x480 pixels for NTSC)
LAN - Local Area Network
LRVS - Long River Video Systems
MIME - MultiPurpose Internet Mail Extensions
NVR - Network Video Recorder
NTSC - *National Television System Committee*
NTP - *Network Time Protocol*
OSD - *On-Screen Display*
PAL - *Phase* Alternating Lines
PTZ - Pan/Tilt/Zoom
QCIF - video resolution (176x144 for PAL; 176x120 for NTSC)
QVGA - video resolution (320x240 pixels)
RTP - The Real–time Transport Protocol
RTSP - The Real Time Streaming Protocol
SAD – sum of absolute differences for motion detection
SATA - Serial ATA interface
SMTP - Simple Mail Transfer Protocol
SSL - Secure Sockets Layer
VGA - Video Graphics Array

Disclaimer

The LRVS does not assume any liability arising out of the application or use of any products, or software described herein. This documentation is subject to change without notice. Please visit http://www.lrvs.net for the latest version.

2. HARDWARE SETUP

2.1. Install Hard Driver

Open the DVR case and connect a Serial ATA(SATA) Hard Driver with a power cable and SATA data cable, and then secure hard drive onto the bottom of cases with 4 screws.

Note 1: If there are two SATA Ports, always connect the first hard drive to the first SATA port, and then the second hard driver for SATA 2 ports et ac.

It is recommend to use large capacity (over 500GB) and high spin speed (RPM) hard drive, such as 7200RPM to realize high throughput (at least 1.5Gb/s) of video recording.

Figure 3. Installation of SATA Hard driver

Note2: For lower power consumption and lower currency draw, it is highly recommend using 2.5” hard drive instead of 3.5” hard drive.

Note 3: For some hardware board, SD card or USB dangle is available for media recording, please connect LRVS on how to customize solutions.

2.2. NVR Peripherals Connections

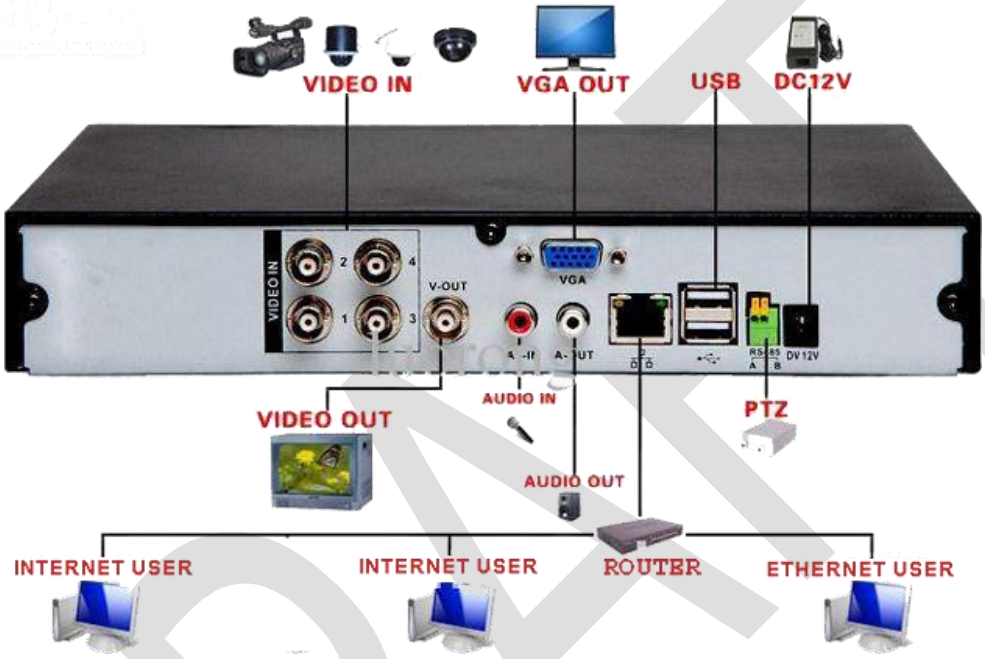


Figure 4 NVR’s peripherals connection

- Camera connections:

Most of case, extension cables may be need to for the long connection (not included in the product):

Connect a camera’s DC and BNC socket or RCA jack to the extension cable’s DC and BNC plugs/RCA-M.

Connect the extension cable’s DC socket to the DC plug on the power adapter.

Connect the extension cables BNC plug to a BNC socket (CH1, CH2, CH3 or CH4) on the back of NVR.

Without extension cable:

Connect a camera’s BNC or RCA jack to BNC socket of NVR by BNC male to male connector or RCA to BNC converter.

If it is a PTZ camera, connect camera PTZ input to PTZ interface.

Plug in the camera power adapter into the wall socket.

RCA interface camera (Left) BNC interface camera (Right)

- Microphone/speaker connections:

Connect the Microphone or Camera's Audio (if equipped) output (RCA-F) to Audio-in of NVR (RCA-F) through (RCA Male to male connector or extension cable)

Connect a speaker to audio out of NVR.

- **Network connection:**

Connect the NVR through Ethernet CAT 5 cable (good for 100Mbps) to a switch or router. Please make sure NVR LAN address is in the same network. (See Advanced settings section on how to change IP address).

- Monitor:

To real-time preview all channels locally, a monitor with VGA input can be connected through VGA interface.

- **DVR power**: 12V DC adapter.

2.3. LEDs:

LEDs on front panel from left to right:

Alarm – Green (on) - alarm input is active , record video if alarm record is enabled.

Off – alarm input is not active

REC – Green (on) if any channel is in recording state .
Off – None of channels is in recording state.
POWER – RED (on) when the device is powered by DC-12V adapter.
IR – unused, not active in the current solution.

3. GETTING STARTED

3.1. Log In

Open a browser that support HTML5 in the URL address bar, enter, **192.168.1.10 .**
The default NVR network configuration:

IP address: **192.168.1.10**
Subnet mask: **255.255.255.0**
DHCP server is off.

Log in to the NVR; Type **admin** for the user name. The default password is **password**.

(This picture need to be updated)

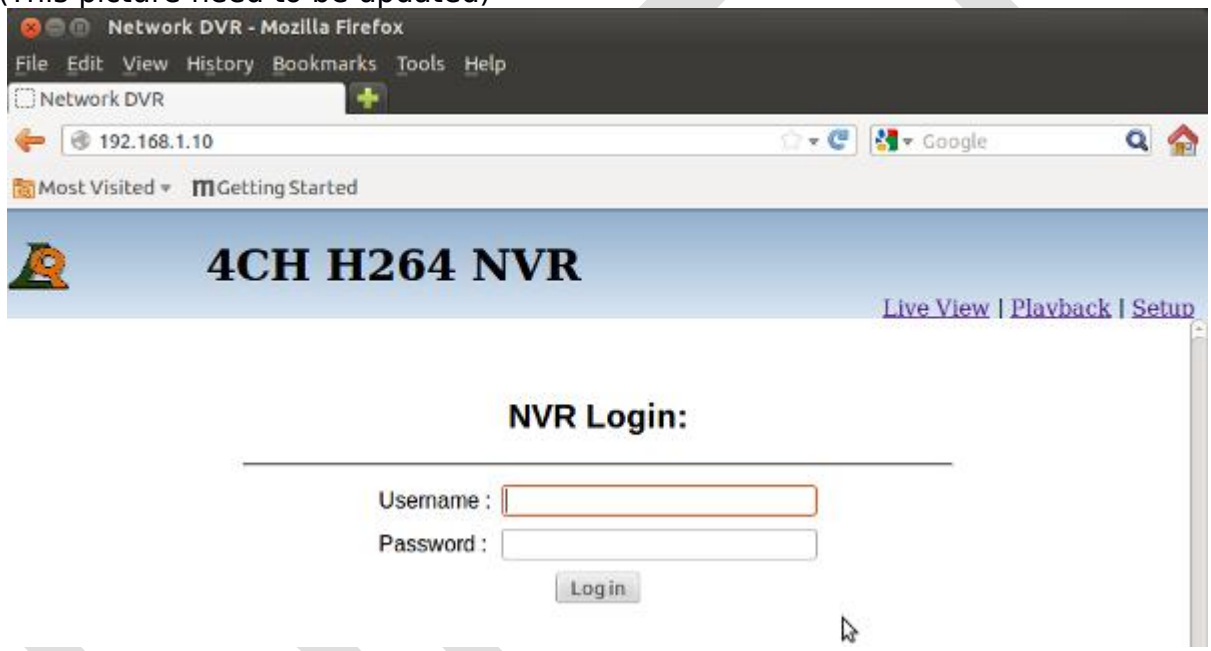


Figure 5. NVR log in window

To log in properly, the web browser must enable cookie feature. If the current web page does not get refreshed over an hour or current session is closed, Re-authentication is required by redirecting to the login window and login again.

New Security feature in NVR 1.0 : The password is encrypted during transferring. The web server only stores hashed password.

3.2. Live View

After logging on successfully, the main window will live show all available channels' videos (shown as following figure).

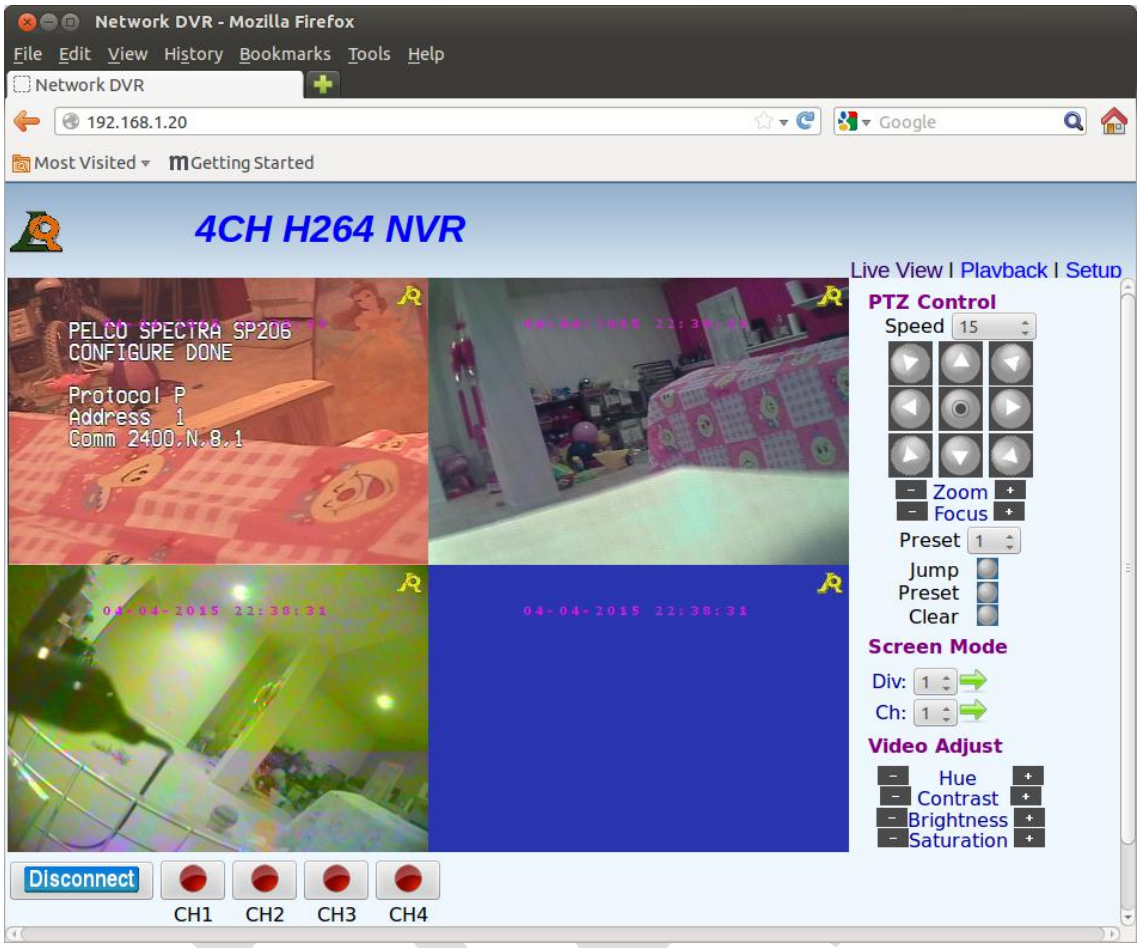


Figure 6. NVR live view window

For 8 channel device

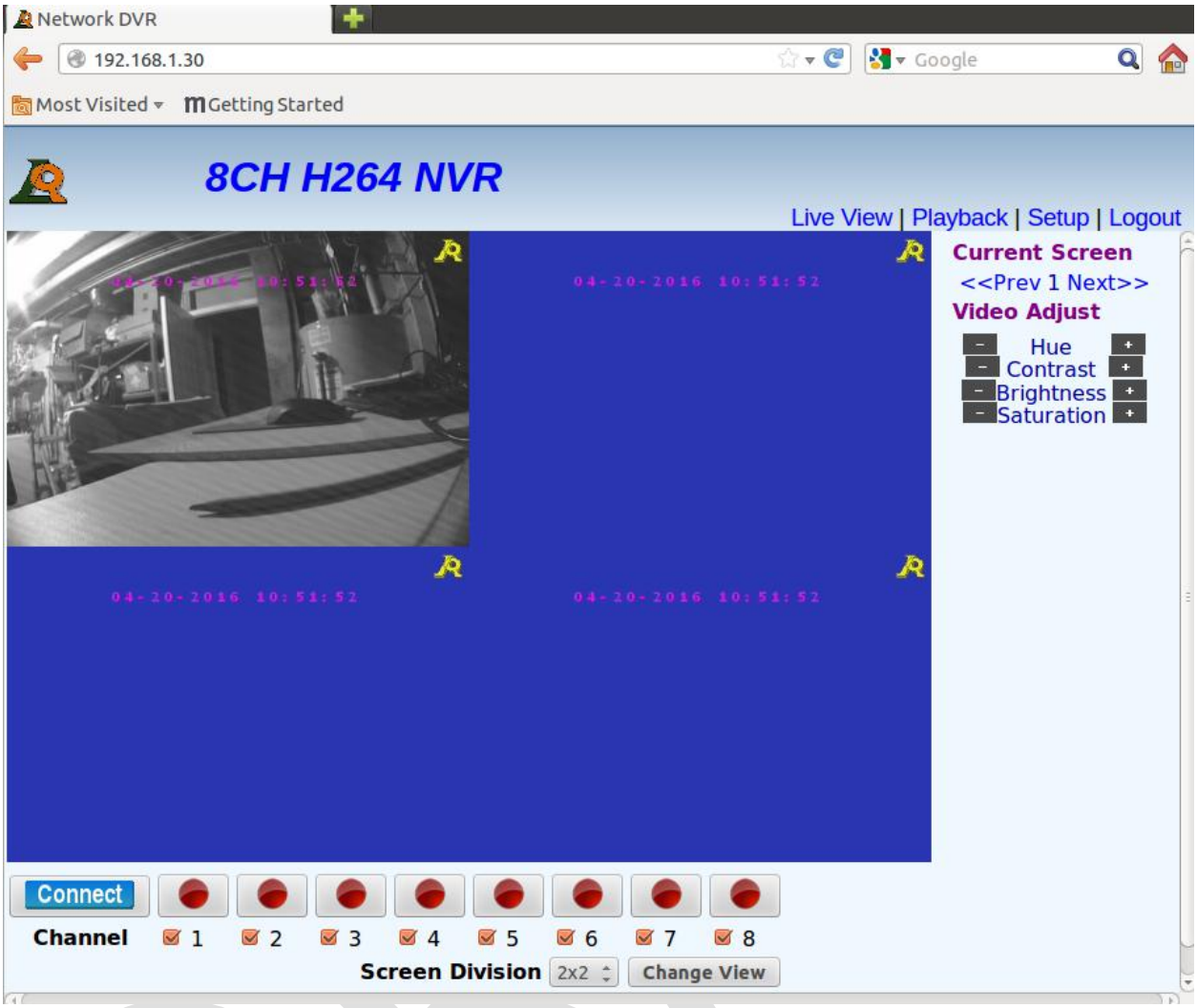


Figure 7 8 channel Live view window

New added feature in 8 Channel DVR device:

- Enable/disable individual channels
- Screen Division: 1x1 (Single channel VGA 640x480 display)
- 2x2 (QVGA , 4 channels, 320x240 display)
- 3x3 (all channel display, Not supported yet)
- Channels/Screen Navigation: Current Screen(for multiple channels)/Current Channel (single channel)
- **<< Prev** : Previous available channel
- Current channel/Screen number
- **Next >>**: Next available channel,

E.g.

If the user chooses the channel 1, 2, 5,6,7, and screen division 1x1
The channel rotation (Left wind) 1<-2 <- 5 <-6 <-7 <-1,
Right wind 1 ->2 -> 5 -> 6 ->7 ->1

-

3.2.1. Record Videos

-Clicking button  will start recording on that channel. For example, recording channel 1& 2 as shown in Figure 6: (FIXME: need change this picture)

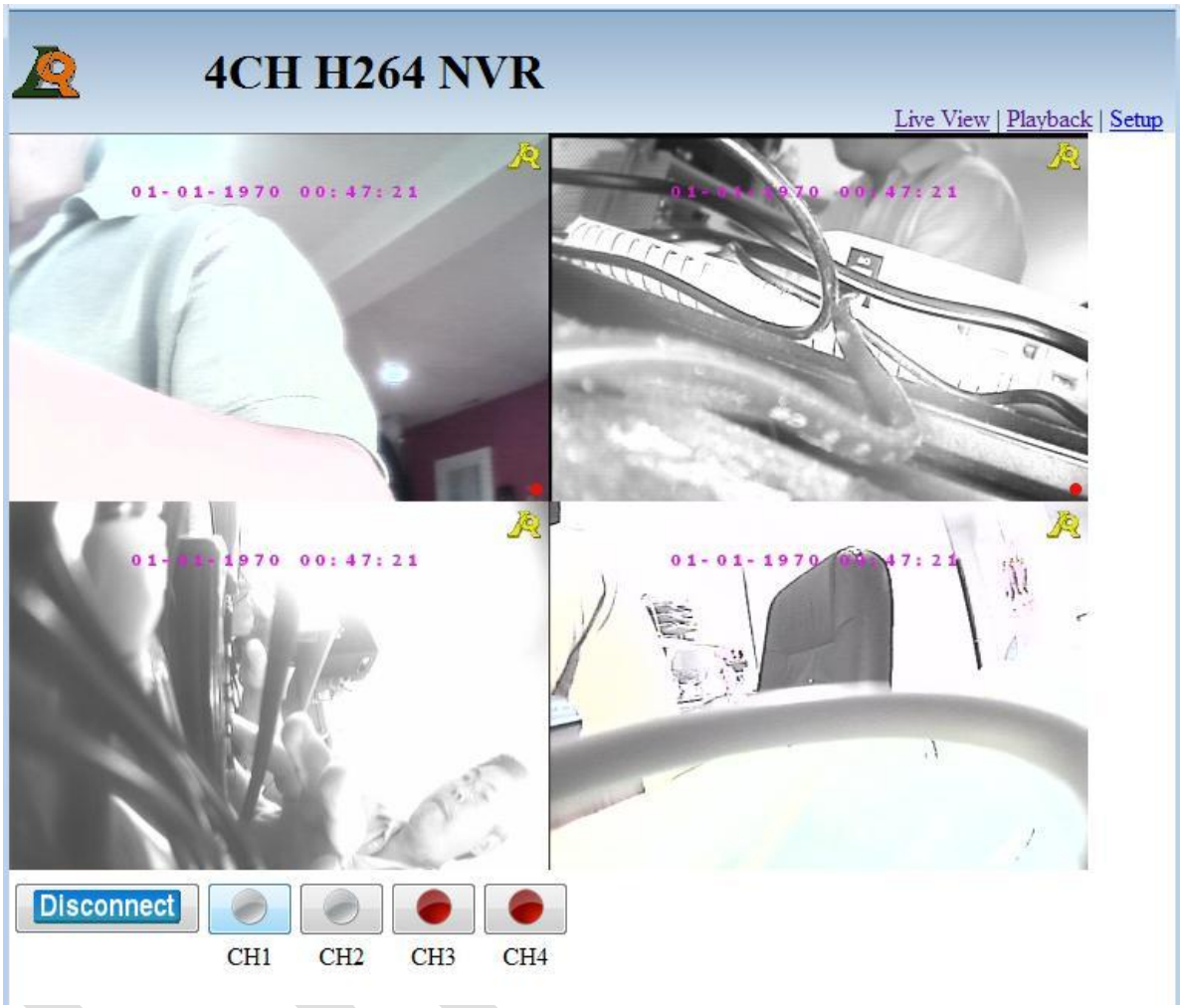


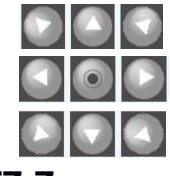
Figure 8. Channel 1& 2 are in recording states

3.2.2. PTZ Control

If the PTZ camera is connected (See Camera settings). PTZ control panel will be shown on the right of live view window:
PTZ Control:

- **PTZ speed** - 1~64 (max) , 255 (turbo).

PTZ move Matrix:

 Left-up, up, right-up

 Left, stop, right

 Left-down, down, right-down

PTZ Zoom:

 Zoom out

 Zoom In

PTZ Focus:

Focus Far

Focus near

PTZ Preset: support 16 preset position.

Jump - go to preset point.

Preset - Set preset location.

Clear - Clear current preset location.

3.2.3. Screen Mode:

Division: 1 Display one channel only.
4 Display 4 channels

Ch: Current active channel/Camera, which is valid for Video adjust.

3.2.4. Video Adjust:

Hue - adjust current camera image hue

Contrast - adjust current camera image contrast

Brightness - adjust current camera image brightness.

Saturation - Adjust current camera image saturation.

Note: video adjust is based on current default value.

3.3. Local Preview

If the local monitor is connected to VGA output, it will show the following picture:

Figure 9 NVR local monitor view

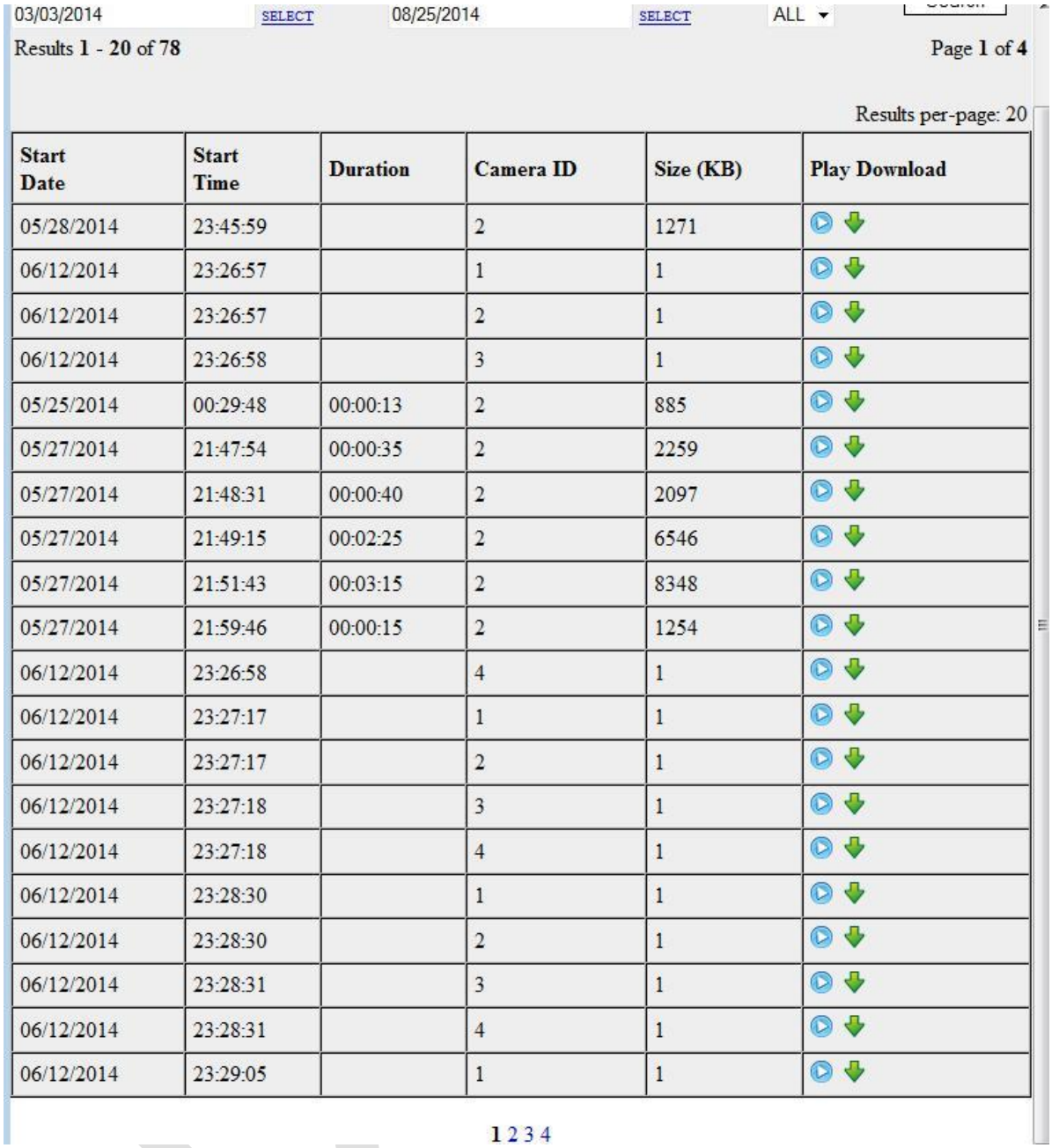
You will notice that only one OSD string is shown on decoded streams.

3.4. Playback video clips

- Click “Playback” menu will switch to playback window:

Figure 10. Playback search window

-Search video clips with “Start Date”, “End Date” and “Camera ID”



03/03/2014 SELECT 08/25/2014 SELECT ALL

Results 1 - 20 of 78 Page 1 of 4

Results per-page: 20

Start Date	Start Time	Duration	Camera ID	Size (KB)	Play Download
05/28/2014	23:45:59		2	1271	
06/12/2014	23:26:57		1	1	
06/12/2014	23:26:57		2	1	
06/12/2014	23:26:58		3	1	
05/25/2014	00:29:48	00:00:13	2	885	
05/27/2014	21:47:54	00:00:35	2	2259	
05/27/2014	21:48:31	00:00:40	2	2097	
05/27/2014	21:49:15	00:02:25	2	6546	
05/27/2014	21:51:43	00:03:15	2	8348	
05/27/2014	21:59:46	00:00:15	2	1254	
06/12/2014	23:26:58		4	1	
06/12/2014	23:27:17		1	1	
06/12/2014	23:27:17		2	1	
06/12/2014	23:27:18		3	1	
06/12/2014	23:27:18		4	1	
06/12/2014	23:28:30		1	1	
06/12/2014	23:28:30		2	1	
06/12/2014	23:28:31		3	1	
06/12/2014	23:28:31		4	1	
06/12/2014	23:29:05		1	1	

1 2 3 4

Figure 11. Playback search results

-Click to play the video clips and Click to download video clips to the local device

Figure 12. Playback video clip

Depend on the installation of browser's plug-in, Some file formats such as raw H264 files can not be played

3.5. RTSP Streaming

Current RTSP service supports 4 RTSP sessions:

CH1: Ch1 H264 video streaming (High Streaming) + Ch1 Audio streaming(AAC).

Ch2~Ch4: H264 video streaming only.

For example, to live view channel 1 H264 video and AAC audio, assume the username and password are both admin, RTSP port is 10544, the "rtsp://"url will be:

rtsp://admin:admin@192.168.1.10:10554/CH1

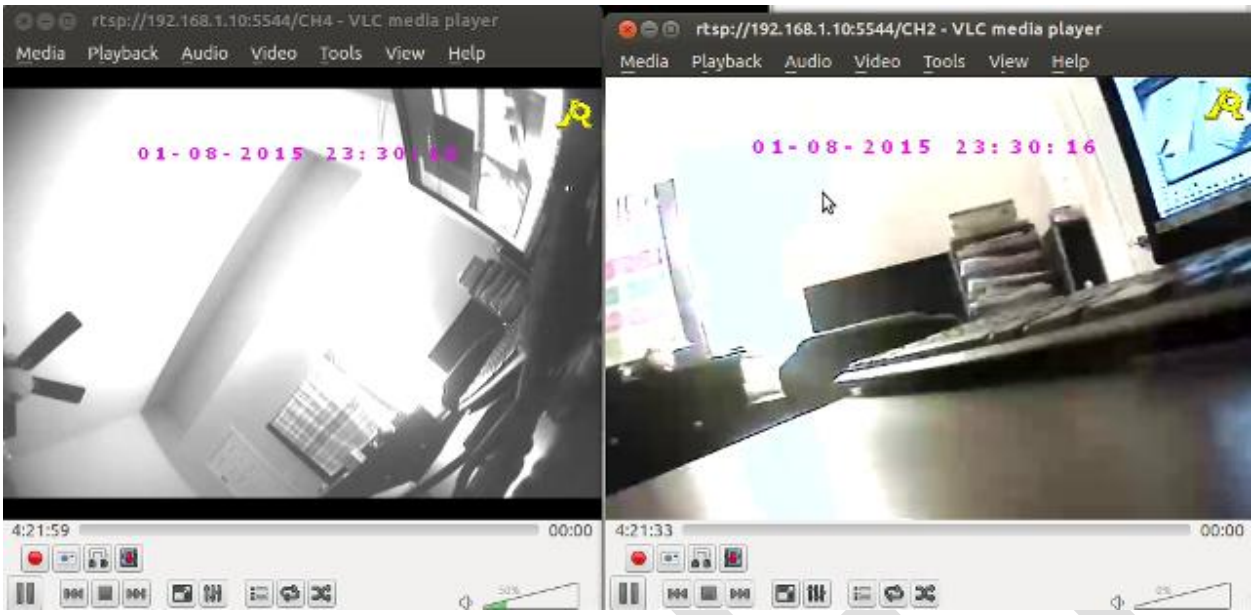


Figure 13 RTSP connections through VLC

Note: RTSP streaming need extra RTSP client software , such as VLC tool runs on the PC or mobile device. The username and password for RTSP streaming is same with embedded GUI. RTSP service supports both Basic and Digest authorization.

4. ADVANCED SETUPS

Changing NVR settings is the first step that should be taken by a new user before using the device. The settings can be accessed from the “Setup” menu in the main pages. There are twelve groups’ settings that can be changed to fit user’s needs. To make the new settings take effect immediately, it is recommend rebooting the system after saving current settings.

4.1. Network Settings

The default NVR network configuration is

IP address: 192.168.1.10
Subnet mask: 255.255.255.0
DHCP client: disabled.

To use the device at the first time, the user needs a PC that is configured in the same network (such as 192.168.1.xx) to change the device IP address.

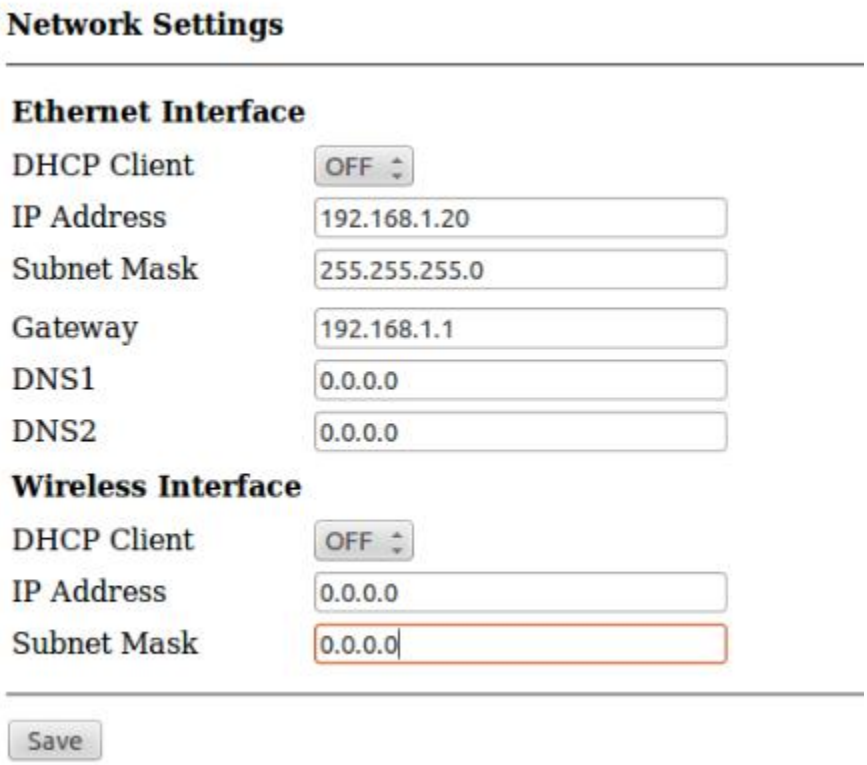


Figure 14. Network setting window

Note: 1. Wireless interface is not available on current hardware platform.

2. Hard reset can restore NVR network configuration factory settings: 192.168.1.10/255.255.255.0, please refer to xxxx for restoring factory settings.

4.2. Video Settings

Video Settings page is related to Video/Audio inputs and codec parameters for streaming and recording.

- Video Input Mode: **NTSC**, **PAL** or **AUTO**

- **Main Stream** (for local recording):

  Main Stream Picture Size, support

  - **QCIF**; **CIF**; **2CIF**; **HD1**; **D1**; **QVGA**: 320x640; **VGA**:640x480

  Video Codec: **H264**/**MJPEG**/**JPEG**

  MJPEG Frame rate: **1~ 30FPS** (PAL 25FPS and NTSC 30FPS)

  H264 Frame rate: from **1~30FPS** (PAL 25FPS and NTSC 30FPS)

  GOP (Key frame interval) 0 ~1000

  Picture quality level: 0 (best) ~ 5(worst).

- **Minor Stream** (video streaming over the internet)

  Minor Stream Picture Size: **CIF/QCIF**; **QVGA**

  Minor Video Codec **MJPEG**, current only supports MJPEG for HTTP transmission.

  Frame Rate: 1~30FPS (25FPS for PAL and 30FPS for NTSC)

- **Audio**

  Audio Codec: support

  - **AAC**, **G711**, **G726**, **LPCM**; **AAC**-**LC**; **MP3**; **ADPCMA**; **AMR**

  Total Channel: **0~4**. To support multiple audio channels, jump connections are required from the main board.

  Sound Mode: **Mono**.

- **Live Streaming**

  Enable/Disable WebSocket streaming (default enabled)

  HTTP Websockets streaming port: (default port 8888)

  Enable/Disable RTSP streaming (default enabled).

  RTSP Streaming port: (default port 554)

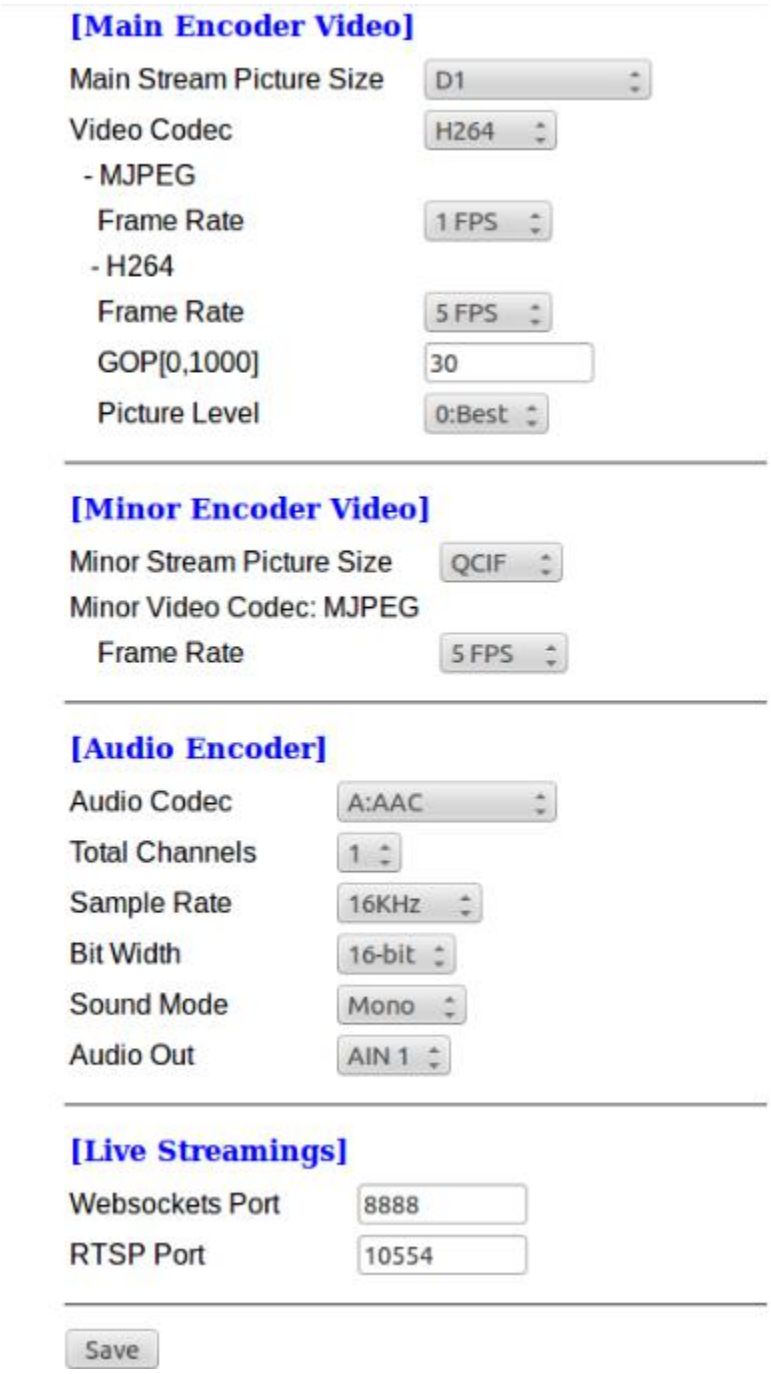


Figure 15. Video input and encoding window

4.3. Video Output Settings

- Background color:
  - RED
  - GREEN
  - BLUE

BLACK

- Screen resolution:
  800x600 60HZ;
  1024x768 60Hz;
  1280x1024 60Hz;
  1440x900 60Hz;
- Display mode:
  - DIV1 1 channel
  - DIV4 (4 channels).

Figure 16. Video local preview settings

4.4. Recording Settings

4.4.1 Record input

There are four different recording modes:

1. **Manual record mode**: toggling record button on main window to start/stop certain channel recording. Un-checking “Record Enable” will disable manual record mode.
2. **Sensor/Alarm Input mode:** Enable sensor/Alarm input. Please note: sensor/alarm is open-drain connection (low voltage level is active).
3. **Schedule record mode**: time string with delimit of “;”. **Note**: manually stopping recording can only skip current time slot and recording will still start at next time slot.
4. **Motion detection mode**: Check the channel box to enable motion detection of channel and at same time to set SAD threshold value.

4.4.2 Recording file settings

Record file Format: support

- **H264 (.h246):** raw h.264 file
- **MJPEG (.mjp)**
- **JPEG (.jpg):** snapshot
- **AVI (.avi):** Video: MJPG + Audio
- **MP4 (.mp4):** Video: H.264 + AAC_LC

Maximum File Size (MB): The new file will be created to continue recording if the recorded file size reaches this threshold (MBytes)

Maximum File time limit(Sec): The new file will be created to continue recording if the recorded time is longer than this value (unit: seconds)

Pre recording time: 0~30 seconds.

Post recording time: 0~30 seconds

4.4.3 Disk setting

Overwrite :

- **Enabled** - When the disk is full, the oldest video clip will be deleted to save more space for new recording files;
- **Disable** – stop recording when the disk is almost full.

Drive full limit: If **overwrite** is disabled, when the disk's usage is over this percentage , the NVR will stop recording.

Normal Level: it will give warning when the disk is over this level.

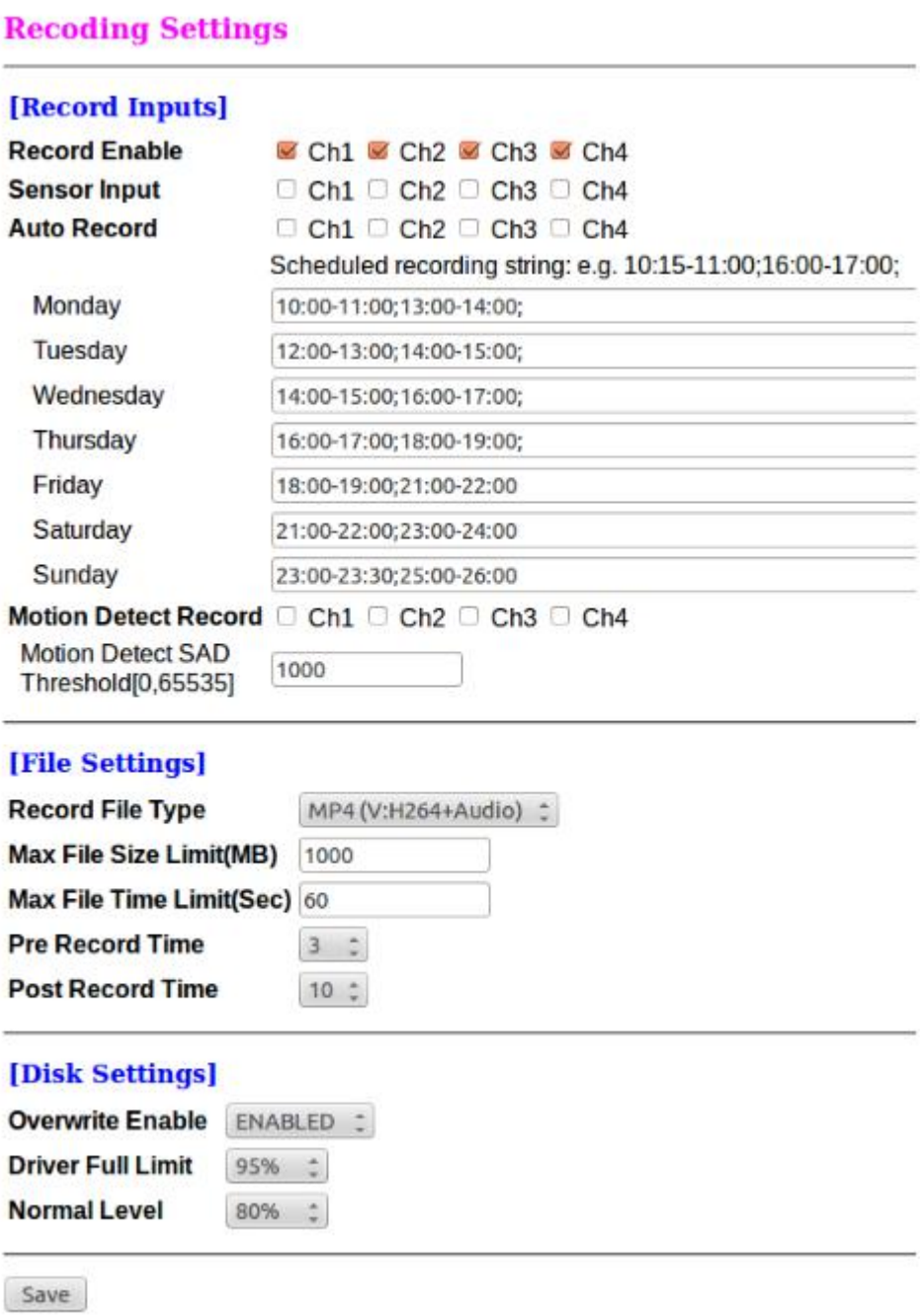


Figure 17. 4 channel Video recording settings

For 8 channel devices

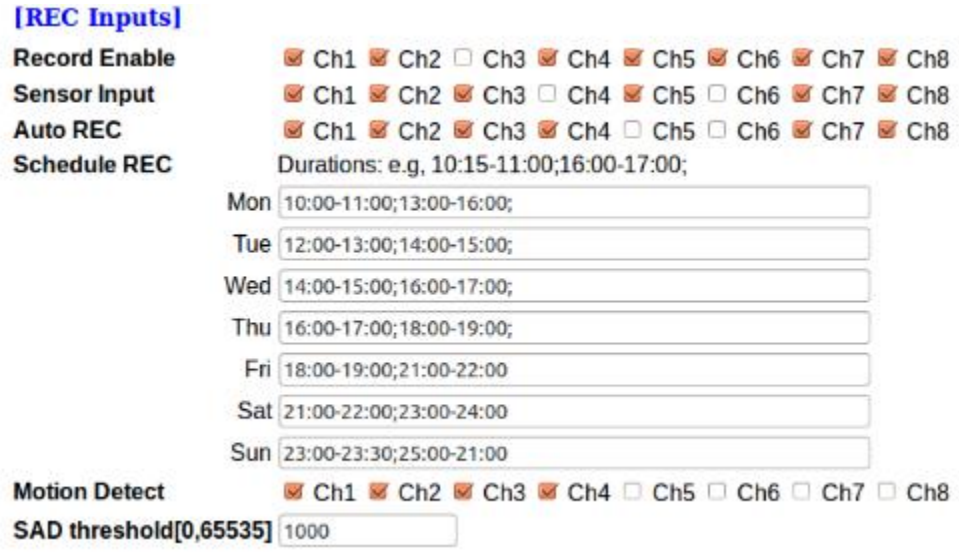


Figure 18. 8 Channel video settings

4.5. Camera Settings

Currently, it only supports Pelco protocol based PTZ camera.

PTZ camera connection :

Connected - Live view window will show PTZ control panel on the right.

Disconnect - No PTZ control panel is displayed.

Pelco Protocol: Pelco D or Pelco P protocol.

Address - Pelco camera address,

Note: Pelco P protocol is "zero indexed" the address $00 corresponds to address 1

Default Speed:

For Pelco P:

Pan Speed $00 to $3F and $40 for Turbo

Tilt Speed $00 to $3F

For Pelco D:

Pan speed is from $00 (stop) to $3F(high speed) and $FF for "turbo" speed.

Tilt speed is in the range $00 (stop) and $3F(maximum speed).

Note: This speed is applied for Pan and Tilt. Do not use "0xFF" for Pelco P", if the user select 255 0xFF, the firmware will use 0x40 instead.

RS485 baud rate:

The Pelco protocol use no parity, one start bit , eight data bits and one stop bis. Where the supported baud rate includes

- 2400 (2400, 8, N, 1,1)
- 4800 (4800, 8, N, 1,1)
- 9600 (9600, 8, N, 1,1)

- 19200 (19200, 8, N,1,1)
- 38400 (38400, 8, N,1,1)
- 57600 (57600, 8, N, 1,1)
- 115200 (115200,8,N,1,1)

RS48d device name :
e.g /dev/ttyAMA1 AMBA PL011 UART chip for RS485

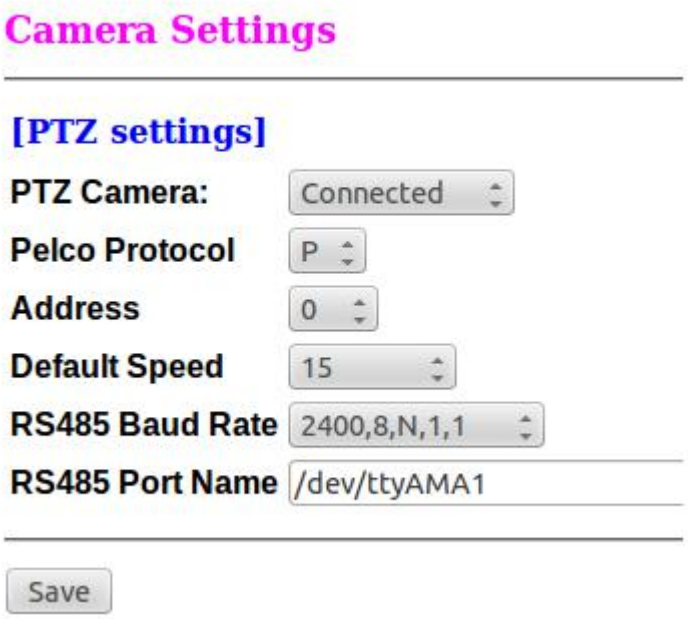


Figure 19. Camera Settings

4.6. Disk & Files Management

The administrator can use this tab do disk& file operations: such as format disk, delete video clips or protect video files by marking read-only.

By default, the system maps the video media such as HDD flash drive to /disk1. If the user would like to use USB flash driver, it need connect LRVS on how to mount USB device and link USB flash driver to /disk1.

Figure 20. Remote disk & file management.

4.7. FTP Upload

The recorded video clips be can scheduled and uploaded to remote sites such as iCloud store sites that support ftp connection.

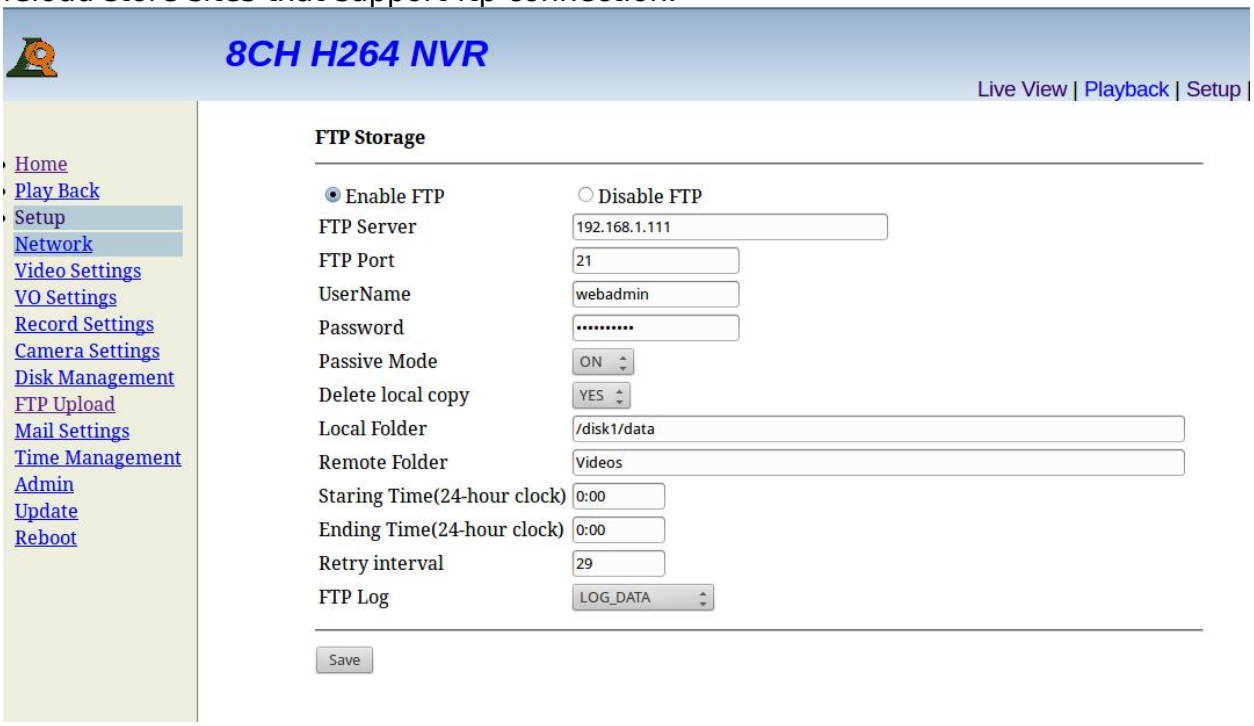


Figure 21. FTP settings.

FTP Server - Destation FTP website or IP address.
FTP Port - FTP port used by FTP server. The default port is 21
User Name - the default UserName
Password - FTP access password
Passive mode - Yes/no

Delete local copy - YES/NO.

YES: delete local files once the file is uploaded successfully.

No : keep the old video file even though it gets uploaded successfully.

Warning: when the disk is nearly full (over predefined threshold value , see Disk Management section) , the oldest video ciples will be deleted to release disk space (under the threshold).

Local folder: local video clips. Depend on store media (HDD, SD, or USB), the folder may be different, please connect LRVS on how symbol link your need device to the new folder.

Remote folder: Remote folder on the ftp server (destination directory)

Starting time: Start FTP transferring time.

Ending time: FTP ending time.

Note: current software (NVR 1.0) only support 1 time slot.

Retry interval - FTP transferring loop interval.

FTP Log - FTP logsfolder position:

Note: FTP log are daily based log files (new log file is created for every day , which usually is at the same folder of video clips. The log file names have the following formats:

ftp_hostname_YYYY_MMDD.log.

4.8. Mail Settings

The NVR software stack (since version 1.0) has integrated ssmtp mail client and can send mail alerts when motion detection is enabled. The captured picture at the moment of motion detection, typically as JPEG picture format, will be attached in the mail.

The motion detected picture is named afer :

Hostname_cam%d_YYYYMM_HHMMSS.JPG

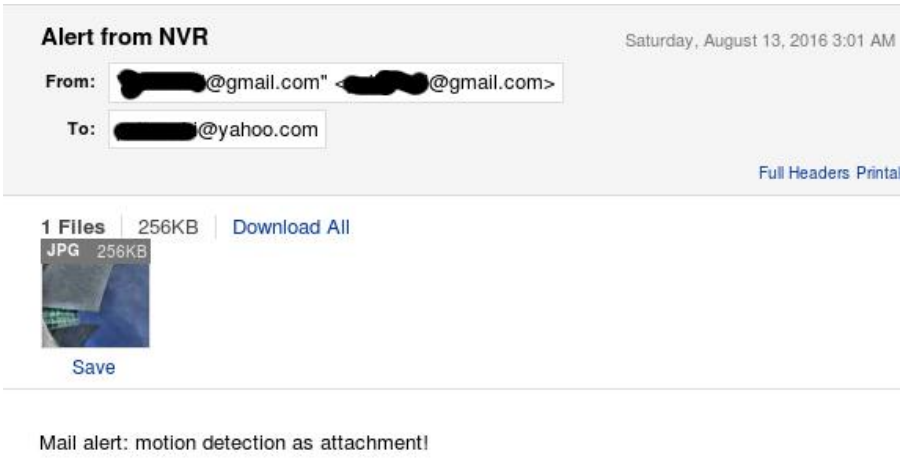


Figure 22. Mail alert sample.

To enable email alert, the user has to get familiar with **ssnmp** settings, (Figure 23 shows an example). Please refer to **ssmtp** program on detail configurations.

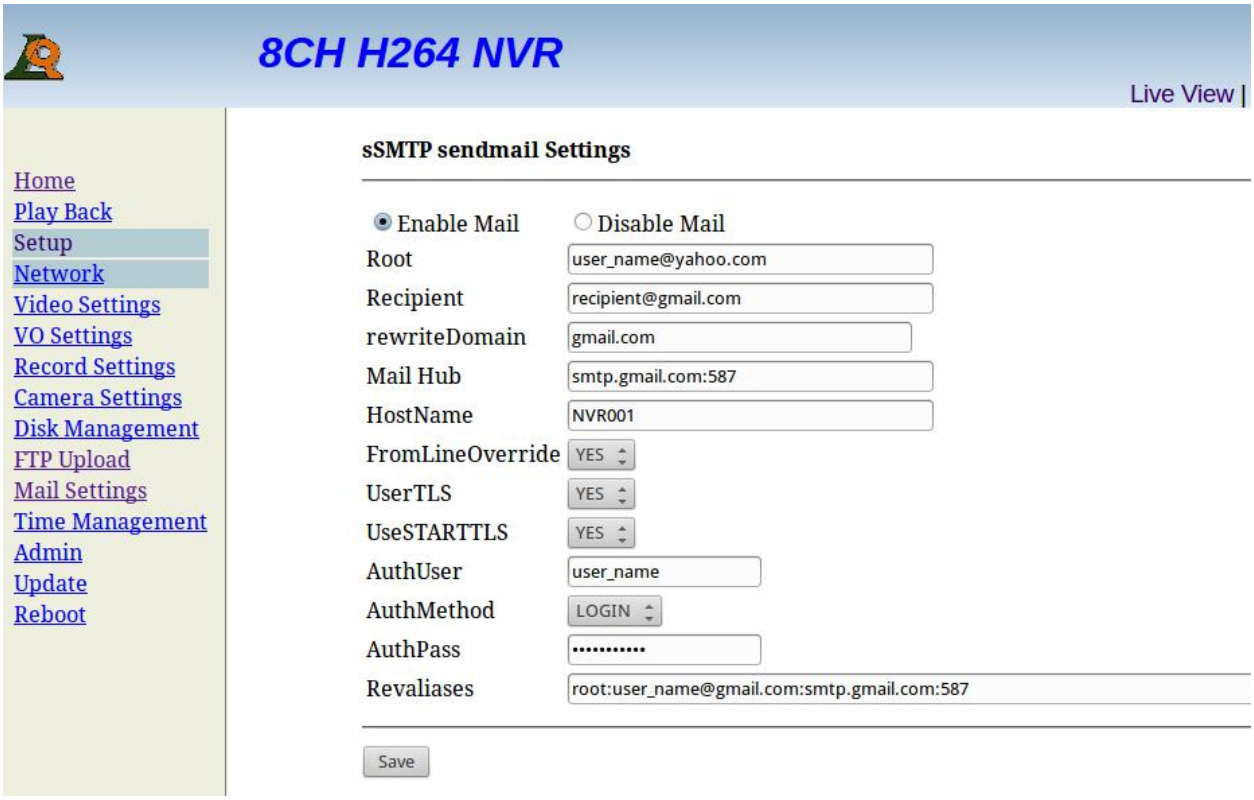


Figure 23. ssmpt mail settings.

Root: (From) The person who sends this mail
Recipient: (To) the recipient who got this mail, it support multiple addresses (delimited with ";")
rewriteDomain: Where will the mail seem to com from.
Hostname: NVR device name (Warning configure the device name will change the device name)
FromLIneOverride: Are user allowed to set their own from address?
YES - Allow ther user to specify their own from address
NO - Use the system generated from : address
UserTLS: Specifies whether ssmtp user TLS to talk to the SMTP server.
UserSTARTTLS: Specifies whether ssmtp does a EHLO/STARTTLS before staring SSL negotiaiotn. See RFC2487
AuthUser: The user name to use for SMTP AUTH".
AuthPass: The password to us for SMTP AUTH
AuthMethod: The authorization method to use. Plain text or "cram-md5" etc.
Revaliases: Create aliases for local username (optional)

4.9. Time Management

There are 3 different time sources available to synchronize NVR local clock.

1. **NTP server**
   Enable NTP server will make DVR device auto sync to any available NTP server with certain interval. Currently support two NTP servers only.
2. **Manual Update**
3. **Synchronize with local PC**

Note: It is recommended to choose NTP server at the default time source. The other two configurations only update the device time once and can not auto sync local time.

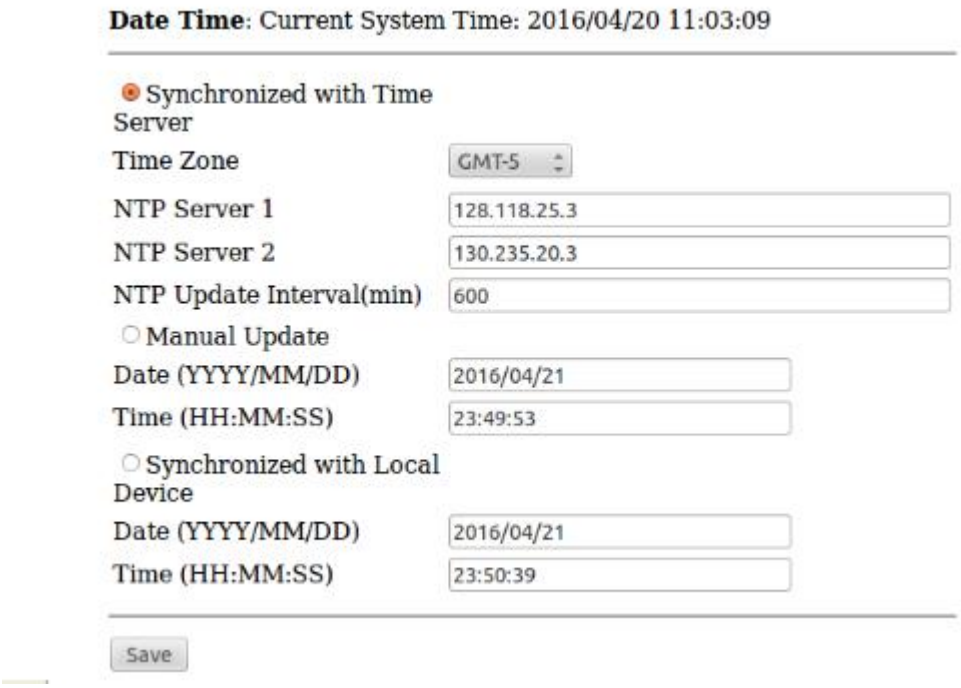


Figure 24. time setting

4.10. User account

The user can change remote accessed user name and password in this page.

Note:

1. User account in this page is for web access only and not administrative user . The device has only one super user -root and be access over remote console (such as telnet) or serial port. Please contact LRVS for default root access information.

2. NVR device does not store User's password information. The password is hashed and encrypted with MD5 algorithm when transferring from web browser (JavaScript), please refer to section 5 (network security) for secure password protection.

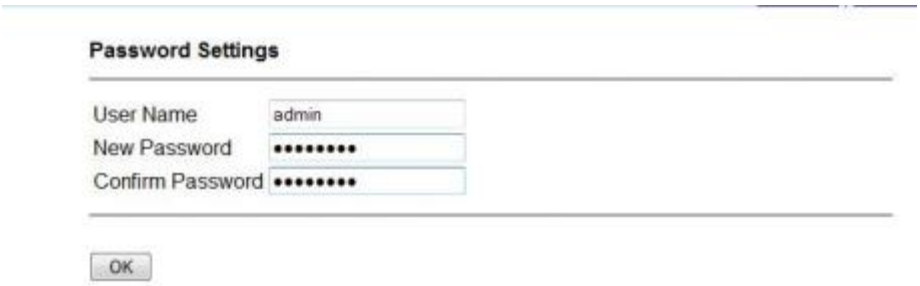


Figure 25. User account

4.11. Upgrade

- Images update includes kernel (operating system), file system image (root file system and NVR applications (web server, CGIs, programs)

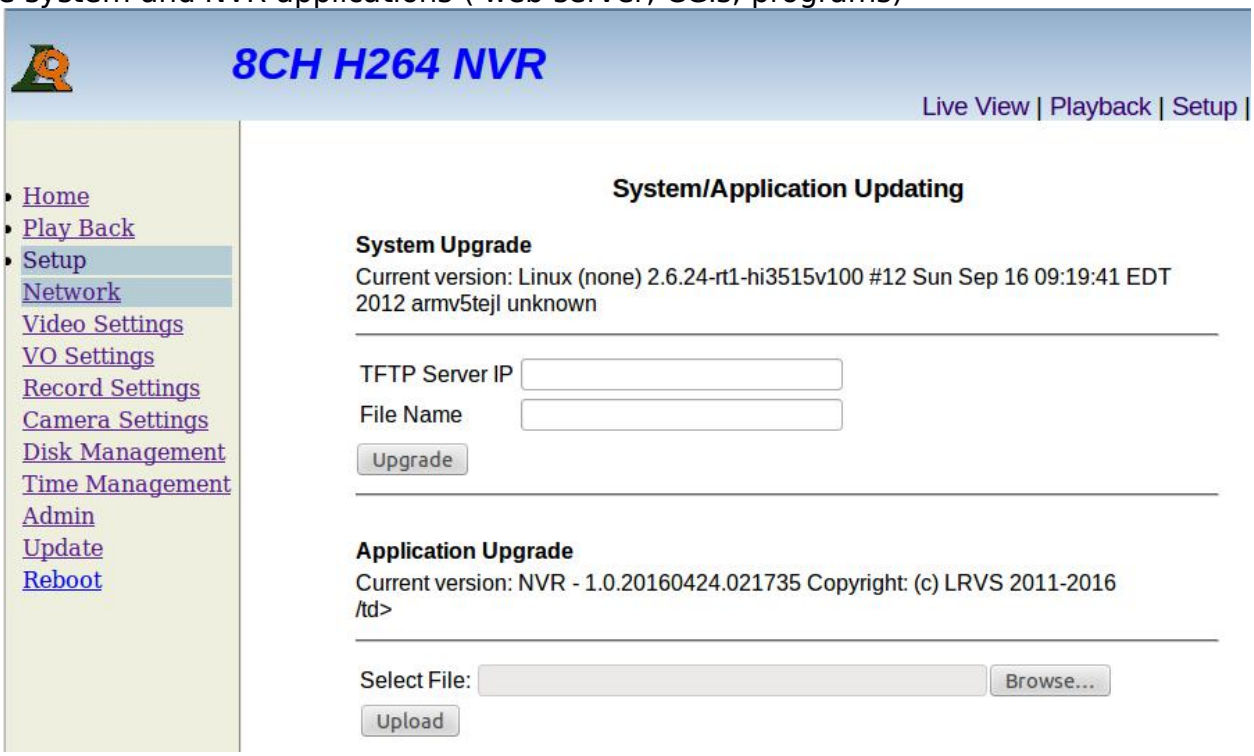


Figure 26. System & application update

To update new Images, the user need contact the LRVS for new available kernel images:

1. Get new kernel image , install TFTP server program on the host machine and save it in TFTP server's root folder .
2. Configure hostname or NVR device in the same local network, start TFTP server program (such as SolarWinds TFTP server) on host machine. Meanwhile, input TFTP server IP address and image file .

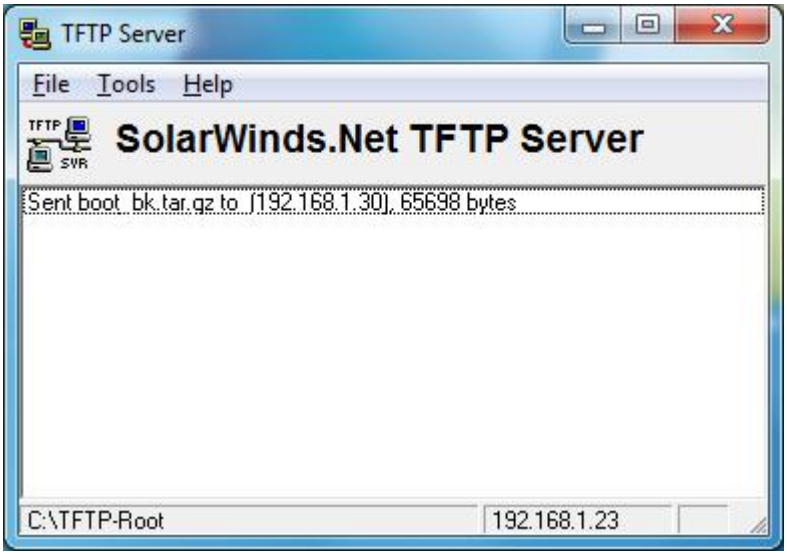


Figure 27. TFTP server GUI

Note: All updated images files are signed by the LRVS and are authenticated during updating process. Unsigned images will be discarded by the uploading routine.

Figure 28. System Updgrade

Warning: for the version 1.0, only released kernel images have signature control but not including updated applications. The user should get updated kernel and applications directly from LRVS or granted party. The LRVS won't take any responsibility if the user update their own applications over this interface.

.

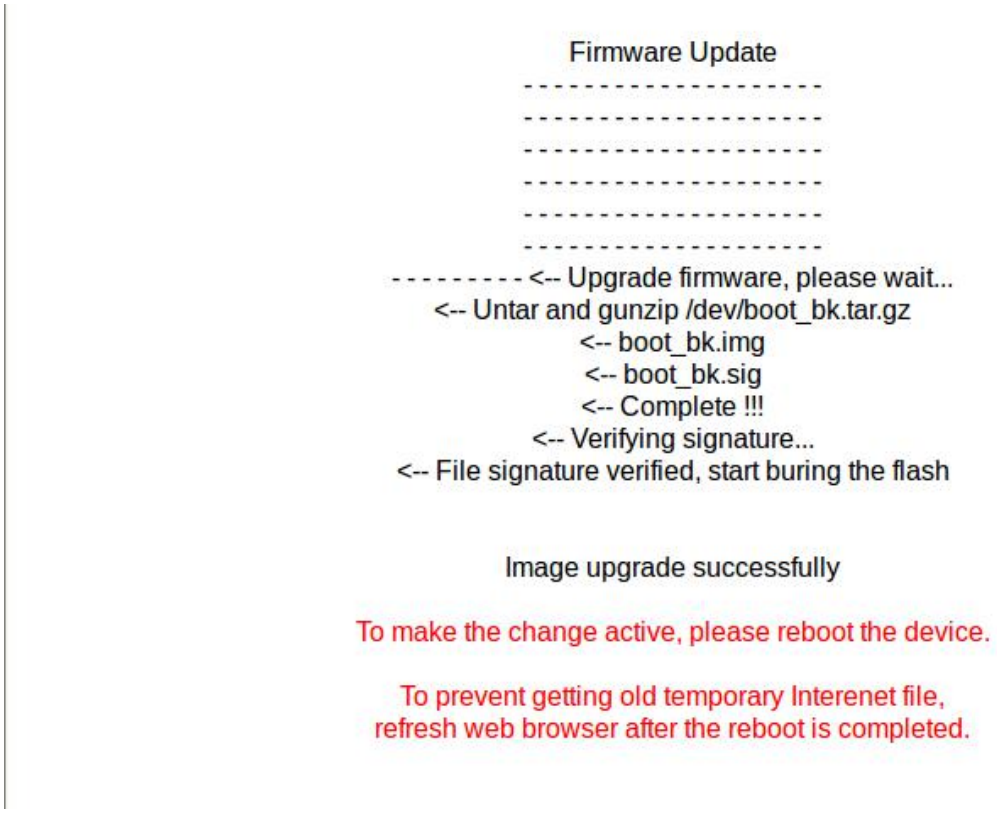
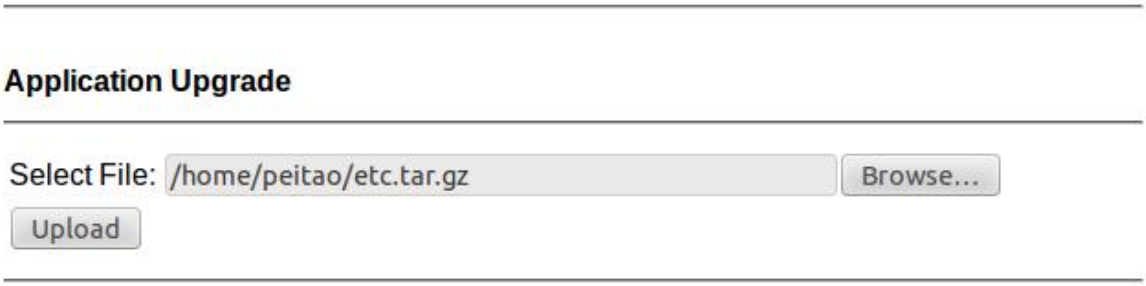


Figure 29. Kernel update output

- **Applications upgrade**: Applications includes DVR application , configurations and web interface management scripts and programs.



Output

Figure 30. Application update

Warning: as the release of NVR1.0, all application and web content of NVRs are stored on the flash, updating root file image will erase original configurations and restore to factory setting. It is recommended to back up current configuration first

4.12. Reboot

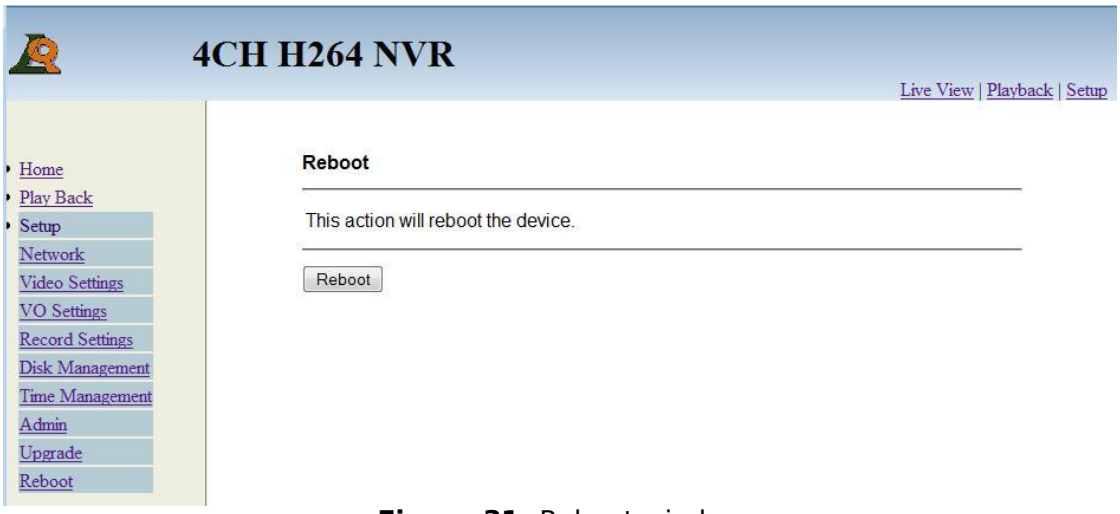


Figure 31. Reboot window

- Save current configurations:

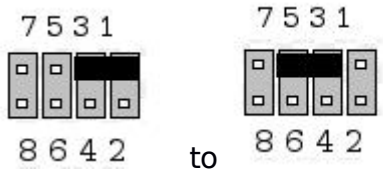
The DVR was designed with dual redundant settings. (when active settings get corrupted, it can be recovered from backup settings). Note: As the NVR 1.0 release, there is no web interface to export current configurations. The user may need root privilege,and mount NFS file system, copy all configuration files (typically **.ini** and ***.conf** files) from /usr/etc, or /etc folders.

- Restore to factory settings:

under some circumstance, if NVR can not boot up or the user configured wrong parameters such as IP address and can not access the device, the last chance is to reset to factory settings:

For 8 CH NVR, we need change the jumper of J16 from Pin1&3 to Pin5&3 on the PCB board for around 10 seconds, then change the jump back to Pin1&3.

Warning : After resetting, the user need reconfigure NVR devices settings. He/she can also update the configurations over update web interface. Please contact LRVS on how to create configuration files and install package.



5. NETWORK SECURITY

As NVR 1.0 released, NVR has integrated the following secure features:

- The user name/password are MD5 encrypted at web client side and then transferred to NVR's web server (See User account section). All user name and passwords configured in NVR is hashed store.
- Active session/cookie. the NVR webserver will renew active session every 15 minutes(when live stream is running. The user need re-login website when current session expires.
- Wesockets authentication for live streaming and command.(note, it is still based on **ws** protocol, **wss** protocol is still under development).
- Support https, SSL/TLS connections . The NVR stack (version 1.0.0 later) supports SSL3.0 /TLS1.0 connections. To enable SSL access NVR device , the user just need type:
  https://NVR_IP_ADDDRESS.

While, the configurations for SSL certificate are published for web interface. Two SSL configure files (SSL private key and SSL certificate files) has to be updated when the user wants to user their SSL certificate. Please refer to **openssl** document on how to create ssl_key.pem and create ssl certificate request for CA authority. You have to log onto the device with administrator account (root) to upload the following files:

/usr/etc/ssl_cert.pem
/usr/etc/ssl_key.pem

Please contact the LRVS to how to create update package or import the two files.

Warning: Once the NVR device is accessed with SSL /TLS connection, the NVR live stream (websockets ws protocol) won't be available in v1.0. the next version to support wss will try to fix this issue.

6. TROUBLESHOOTING & FAQS

Q1: Where is the control interface for PTZ camera?
A1: The NVR app has integrated Pelco D Protocol in version 0.5 (phase 1), however, the Web UI for PTZ camera is to be developed in phase 2. Please contact LRVS for latest updates.

Q2: Where to change live view image effects, e.g., brightness, contrast, hue, and saturation?
A2: We will support this feature in Web UI (phase 2) soon.

Q3: Why can I not playback video clips on hard drive?
A3: First, please make sure your browser has installed video plug-in such as VLC web or Shockwave flash plug-ins to support file format. Also if possible, changing

video recording file format such as MP4 file container for H264 file format such that your browser can play it

Q4: Why do some video clips not start playing until it finishes downloading?
A4: When the NVR does real-time video recording for MP4 file format, all meta data are placed at the end of a recorded file. and the player (browser plug-in) need to access meta data before starting playback. To allowing the player to start playback while downloading the content, video file has to be processed by tools to move all meta data to the beginning of file.

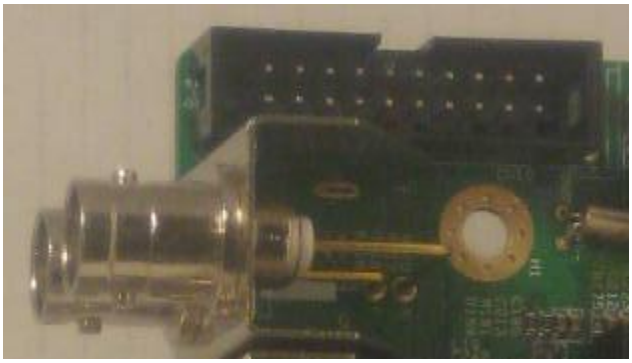
Q5: I can not live view images even in the local network?
A5: First exclude camera connect issue by (1). Checking whether video out has video preview (connect monitor); (2).Checking whether the web server is on (can access setup page etc); (3). Checking whether port 8080 (web socket) and 80 are blocked by network firewall.

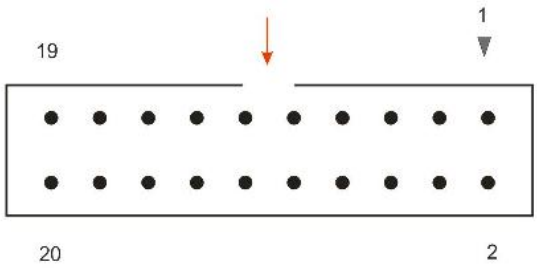
Second, check web browser software: the NVR live streams videos over web socket, which also requires web browser to support HTML5 canvas feature to draw video stream in the browser. So it is high recommended to use latest version browsers such as Firefox, Chrome, Safari or Internet Explorer 10.0 later version.

Q6: How can I access NVR on an internal network by one Internet IP address?
A6: You need create NAT entry for NVR web server and forward HTTP session from your public Internet IP address (host name) to internal NVP device (such as 192.168.1.10), at same time, add NAT/port forward port 8080 (web socket) to the NVR.

Q7: I only see one Audio input, where other audio input for 2, 3, 4? Where the alarm input/output connections?

For Hi3515 serial devices with 20 pins connectors:





1 - Power (Gnd)
2 - Gnd (Power)
9 - Gnd
10 - Gnd
11 - AIN2
13 - AIN4
14 - AIN3
16 – Alarm input 1
17 - Alarm input 4
18 - Alarm Input 2
19 - Alarm output (Push-pull output)
20 – Alarm input 3

Q8: Why can I not see Rtsp streamings over Rtsp port?
A8: (1) First check allocated Rtsp port is not blocked by firewall.
(2) Make sure username , password and port in “rtsp://” url are correct:
(3) Some RTSP client tools such as Quicktime has not been verified completely.

Q9: Can not control PTZ camera?
A9: First make sure, PTZ RS485 port and address are pre-configured properly. For example, for Pelco P protocol , address $00 corresponds to address 1. The second , Check supported PTZ commands. Please refer to web UI API document for troubleshooting..

Q10: **I forget NVR access IP address, what should I do?**
A10: If you forget NVR’s network setting. First try to check whether NVR’s DHCP is enabled by connecting the NVR device to DHCP network and see any new IP address allocated from the DHCP server. Or if you are in windows Network, try to ping NVR’s hostname (default: LVRS-4CH-DVR). Otherwise, try ping possible NVR device static IP in the last pre-configured network, saying 192.168.1.xxxx.

If none of above worked, the user must hard-reset the device, restore network setting to the factory, please refer to xxxx on jumper settings.

Q11: **When I recorded the video and found the video recording time was not correct?**
A11: That was probably the NVR’s system time is not syncronized with the timer server or local time is not correct. The reason for this may be due to bad battery on NVR’s PCB board, or the NTP timer client (daemon) is not running, or none of NTP

time server is available. Please choose NTP time synchronization by inputting active NTVP server with proper interval.

Q12: How to export and import NVR configurations?
A12: Sorry, there is no Web UI interface to export/save NVR configurations, you need super user account to do that. Please contact LRVS on detail procedure. However, if you have save NVR configurations, you can use update interface to change NVR configurations.

Q13: Can not get email alert on motion detection?
A13: It is not trivial to trace where the issue is from? First of all, you need know your smtp server settings, such as port number, use TLS, user name, password etc. For example, if you want to send email from Gmail account, you need the following basic settings:

SMTP Server: smtp.gmail.com
SMTP port: 587
SMTP use name: your_gmail_account@gmail.com
SMTP password: ********
Use SMTP authentication: Yes
Use SMTP TLS/SSL: Yes

Sometimes, if the mails fails at TLS authentications, the user may need provide their certificate file to pass authentication of smtp server. Unfortunately, this configuration is not opened on Web UI. The user may need super use privilege to upload their TLS_CA file to certain folder. (Contact LRVS for detail procedure).

If the issues are not from ssmtp setting, the user may need check NVR device's network settings: such as : NVR device's gateway, default routing table, host name. Such as : eth0 setting:

IP address: 192.168.1.10
Network mask: 255.255.255.0
Default gateway: 192.168.1.1
HostName: nvr123

For advanced user who has super user privilege, he/she can remote log on to NVR device with telnet command , and manually send email through ssmtp command, such as
#ssmtp -v recipient@mail.com
and open "dead.letter" of the same folder to get detail failure reason.

Q14: How to communicate with NVR device programmingly?
A14: The LRVS has an internal development document: NVR device development cook book, which defines detail web UI interfaces and illustrates how to control NVR device with different sample codes (C language and java script for web front end).

Q15: Does NVR device support secure websocket connection (i.e. wss connection)?
A15: Current version does not support SSL and wss websocket simultaneously. We are working on integrating **wss:**// protocol and SSL/TLS connection into one web client.