Chapter 1 Guide ........................................................................................................5

Chapter 2 Main Interface ...........................................................................................8

2.1 Device Management ..............................................................................................8
  2.1.1 Add IP Device ........................................................................................................9
  2.1.2 Modify IP camera ..................................................................................................12
  2.1.3 Delete IP camera device .......................................................................................12

2.2 Live View and Screen Menu ..................................................................................12
  2.2.1 Live View ...............................................................................................................12
  2.2.2 Screen Menu ........................................................................................................12

2.3 POS/LPR Function ................................................................................................22
  2.3.1 POS Function ........................................................................................................22
  2.3.2 LPR Function ........................................................................................................36

2.4 Video Analysis Function .......................................................................................38
  2.4.1 Unattended Object Detection ................................................................................41
  2.4.2 Missing Object Detection .....................................................................................42
  2.4.3 Movement Direction Detection ............................................................................43
  2.4.4 Intrusion Detection ...............................................................................................45
  2.4.5 Tripwire Detection ...............................................................................................46
  2.4.6 Object Counting ....................................................................................................47
  2.4.7 Motion Detection ..................................................................................................48
  2.4.8 Video Analysis Playback ......................................................................................51

2.5 Virtual Matrix Function .......................................................................................53
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5.1</td>
<td>Monitor Setup</td>
<td>53</td>
</tr>
<tr>
<td>2.5.2</td>
<td>Group Setup</td>
<td>55</td>
</tr>
<tr>
<td>2.5.3</td>
<td>Monitor Control</td>
<td>56</td>
</tr>
<tr>
<td>2.5.4</td>
<td>Operations on local TV Client</td>
<td>57</td>
</tr>
<tr>
<td>2.6</td>
<td>Information Panel</td>
<td>57</td>
</tr>
<tr>
<td>2.7</td>
<td>Control Panel</td>
<td>58</td>
</tr>
<tr>
<td>2.7.1</td>
<td>Device List</td>
<td>58</td>
</tr>
<tr>
<td>2.7.2</td>
<td>Color/Audio Adjust</td>
<td>59</td>
</tr>
<tr>
<td>2.7.3</td>
<td>PTZ Control</td>
<td>59</td>
</tr>
<tr>
<td>2.7.4</td>
<td>DI/DO Control</td>
<td>60</td>
</tr>
<tr>
<td>2.8</td>
<td>Toolbar Panel</td>
<td>60</td>
</tr>
<tr>
<td>2.9</td>
<td>Log Panel</td>
<td>62</td>
</tr>
<tr>
<td>3.1</td>
<td>General Setting</td>
<td>63</td>
</tr>
<tr>
<td>3.1.1</td>
<td>General Setting</td>
<td>63</td>
</tr>
<tr>
<td>3.1.2</td>
<td>NTP Setting</td>
<td>64</td>
</tr>
<tr>
<td>3.1.3</td>
<td>DST Setting</td>
<td>64</td>
</tr>
<tr>
<td>3.1.4</td>
<td>Reboot Setting</td>
<td>65</td>
</tr>
<tr>
<td>3.1.5</td>
<td>PTZ Keyboard</td>
<td>65</td>
</tr>
<tr>
<td>3.2</td>
<td>Network Setting</td>
<td>67</td>
</tr>
<tr>
<td>3.2.1</td>
<td>Network Setting</td>
<td>68</td>
</tr>
<tr>
<td>3.2.2</td>
<td>Email Setting</td>
<td>69</td>
</tr>
<tr>
<td>3.2.3</td>
<td>P2P Setting</td>
<td>69</td>
</tr>
</tbody>
</table>
3.3 Record Schedule Setting .................................................................70
3.4 Log Color Setting .........................................................................72
3.5 Exception Setting ..........................................................................72
3.6 RAID Setting ................................................................................72
3.7 User Management ..........................................................................75

Chapter 4 Playback ..............................................................................77
4.1 Backup ..........................................................................................80
4.2 Capture Picture and View ..............................................................80
4.3 Icon Search ....................................................................................81
4.4 DST Playback ................................................................................82

Chapter 5 Channel Setting .................................................................83
5.1 Display Setting ...............................................................................83
5.2 Video Setting ................................................................................84
5.3 Motion Detection ............................................................................84
  5.3.1 Area Setting ..............................................................................84
  5.3.2 Detection Schedule .................................................................85
5.4 Privacy Mask ................................................................................85
5.5 Alarm Input Setting ........................................................................86
5.6 PTZ Setting ....................................................................................87
5.7 Linkage Setup .................................................................................89
  5.7.1 Motion Alarm ............................................................................89
  5.7.2 Sensor Alarm ............................................................................90
  5.7.3 Video Analysis Alarm ...............................................................92
Chapter 1 Guide

By default, the Guide Interface will show up automatically when the System boots up by pressing the Power ON button. In the Guide, you can setup system language, modify super user’s password, adjust system date and time, add three specific device types automatically to the system and input network IP address according to your local network configuration.

Setup 1:
In the picture, you can set up system language. Click the “Cancel” button can exit the Guide. But for your first time to enter the System, you should finish network settings in the Guide and then register your System after Guide.

Setup 2:
Click “Next” button to continue the Guide settings, you will enter the Login window.

The default user ID and password are both admin, you have to input them to log in System. You can also change the password by checking the “Modify Password” box.
Tips:
1. For security, please modify password after your first login.
2. You should input the same new password for twice, and the new password will take effect.
3. Double click the input area will bring up a software-keyboard interface whenever you need to input anything. It doesn’t support software-keyboard when system language is Chinese.

Setup 3:
Click “Next” button to continue. You can modify system date and time in this Interface. Enable Auto Search&Add Devices, System can add IP cameras automatically according to your configuration, shown in picture blow.

Tips:
In general, please do not modify the system date. The system may not boot up successfully next time with wrong date, and you must restart system and enter the Motherboard BIOS to modify the system date when it happens. About specific steps, please refer to the Appendix A for details.

Setup 4:
Click “Next” to continue, you will enter network settings. Please input correct IP Address, Mask Address, Gateway Address, and DNS Server IP.

Tips:
There will be a button showing up in the blow interface and the interface of Network Setting in System Setting after you changed the motherboard of the SSD. Before configuring network information, please click it to clear the old network information. It won’t show up unless you change another motherboard for the same SSD.
Click “OK” to complete the Guide setup.

Notice:
1. If user wants to use DHCP, need to enable DHCP on router.
2. You can check the DHCP IP address in System setting >> Network Setting
3. If you have set static IP for NVSS, but you want to change to be DHCP, then clear the network configuration, then enable DHCP to save, it will get IP automatically.
Chapter 2 Main Interface

The main interface contains five parts: Information Panel, Live View, Toolbar Panel, Log Panel, and Control Panel.

2.1 Device Management

Before you get any camera live view or recording, you should add it to the connection list of Device Management first, shown in picture below. All these cameras will be added to group 1 automatically.
There are three ways to get into the Device Management interface: ① select Add Device option in right-click context menu; ② select Device option in system Main menu of context menu; ③ click on icon in toolbar panel.

2.1.1 Add IP Device

1. Add IP Device manually

Click on button to bring up a sub window shown blow, you can add an IP Camera, HD Analog DVR or NVR manually.

【Device Name】Set an alias for the new IPC/IP device, the device name you set will be shown as IPC/IP device name in the preview channel and Device List.

【IP Address】Input the IP address of the IPC/IP device, it is an IP address or IP alias of an IPC/IP device which is connected through DNS Server.

【Connect Port】Set the port through which connects to IPC/IP device.

【User’s ID/Password】If the user has no right to visit this IPC/IP device or password mismatch, the connection will be cut down.

【Device’s Type】Select the corresponding type for the IPC/IP device. Now our System supports the following types of IP products: NV Series IPC, DH Series IPC, NT Series, NVJ Series, DX Series IPC, and ONVIF protocol IPC. When you add a face detection camera, please use NVJ series.

【Stream Type】Select main stream, sub stream or double stream for device. If you want to use the record sub stream function in the IP device, you should select the data stream type as Double Stream.

【Max. Channel Num.】Select the number of channels you want to get from the IP device (1 by default, and it is used when add standalone DVR / NVR). The maximum is 256 channels.

2. Auto Search and Add Device

Click on button to bring up the following “Auto Search&Add Device”
interface. IPC can be added in batches here.

【Adapter IP Address】 some motherboards support two network adapters, please select one through which you want to search IPC firstly. The adapter’s IP address has been set in the guide.

【Device Type】 Select the corresponding device type for the IPC.

【Device Named Type】 It has two kinds of naming patterns: Name as IP address and User Defined.

①Name as IP address: Software will take the IP address of the camera as its device name;
②User Defined: In this mode, please input the name which you want to set for cameras into Custom Name blank.

【Device Custom Name】 In User Defined mode, input custom name for a series of IP cameras. Then the system will assign this name as a prefix for each IPC of this series. E.g. input NT Series IPC, then the cameras will be named as:
- NT Series IPC_1
- NT Series IPC_2
- NT Series IPC_3 etc.

【Generated IP Start Address】 【Generated IP End Address】 Before searching, please set a range of IP address for IPC to be generated, the starting IP address and the end IP address should be filled into these two bars.

【Stream Type】 By default, IPC connection should be double stream.

【Connect Port】 Set the port through which connects to IPC.

【Login User/Login Password】 It is similar to a passport to connect IPC with System.

After configurations are finished, click on button to start auto search & add devices, and press this button to stop, shown in picture blow.
Tips:
It will keep searching till the given range of IP address is finished.

3. IPC Search

Click on **IPC Search** button to bring up “Devices List” interface. Users can add cameras in batches here.

The System will display all the IP cameras that are found and can be connected. You can also sequence the searched IPC by clicking the head of any column.

Press **Update Device List** button to refresh device list when there is a new connecting IPC that can’t be found.

Press **Clear Device List** to clear IP cameras from the list.
Press **Hide added device** to filter added cameras.

You can modify IPC’s network information in this interface. Click “Update Device List” to find it again after you modify it, and it takes time to find it sometimes.
Tips:
1. For the same type of cameras, the Login Password will be consistent with the last time by default when you add cameras here. This avoids the trouble that the user has to enter a password every time a camera is added when the real password don’t match the default password.
2. For searching DH Series IP cameras, users have to connect them with a switch under the router, and connect the router to one network port of the system. You can only search the IPC which connected to the one as Network listen adapter. You can't search the ones which have the same network segment of the unchecked router.
3. Please select different Adapter IP Address to search cameras under different routers connected in different network port of the System.
4. The whole NV Series IPC can be searched whichever Adapter IP Address you selected, no matter the cameras are connected under which network port of the System.

2.1.2 Modify IP camera
Press Modify Device button to modify IP camera information, the interface is the same with Add IP Camera.

2.1.3 Delete IP camera device
Press Delete Device button to delete a connected device.

2.2 Live View and Screen Menu

2.2.1 Live View
Live view displays camera’s real-time video. You can drag&drop any camera from Device List to any live view sub-window. You also can scroll the wheel of mouse to magnify the selected image, eight times largest. In the magnified screen, you can click and hold down the left mouse button to move to convert the perspective. Right-click to restore the enlarged image.

2.2.2 Screen Menu
Users can single-right-click image area to pop up screen menu, shown in picture blow:
1. Main Menu
To bring up the right-click context menu, right-click once at any live view area. Choose “Main Menu” to enter system main menu interface. There are 8 options: System Setting, Channel Setting, Device Management, Playback, Backup, HDD Management, Lock Screen (ON/OFF) and Power Management. You can move the mouse to highlight one icon, and then left-click on it to enter sub-menu.

Note:
If you disabled the "Local Login" in "System Setting-->User Management", the icon  would be hidden in both areas of Main Menu and toolbar panel.

2. Split View
Move the mouse to highlight Split View in the right-click context menu to bring up the sub menu for more option. The split view supports up to 144.
3. Group View & Setting

Move the mouse to highlight Group View & Setting in the right-click context menu to bring up the sub menu for more options. It includes:

- ① Select a pre-defined group to display.
- ② Enter “Preview Group Setting” to configure viewing group.
- ③ Save the current live view to any group by clicking “Save the Current View as” shown in the picture blow.

You can step in the **Preview Group Setting** sub window shown blow.

---

It lists all the devices & cameras connected to the system. To see detailed...
information of the camera, stop your mouse above the camera name.

You can drag&drop any camera in device list to any display window, and double-click it to cancel the display of one camera in one window.

---

**Default Stream Type** --When you drag&drop one camera, system will use default stream type for this camera if you don’t change Stream Type in the sub-window.

Note:

You can manually change the stream type of each camera by modifying the “stream type” in each window. This setting will overwrite the “Default Stream Type”.

**Group** --Pick one group from the drop-down list to set, system supports maximum of 16 groups.

**Group Name** --Set group alias and split mode.

**System Start Display Group** --Check this box of any group to display it automatically when system starts up next time.

**Interval** --You can drag&drop multiple cameras into any sub-window for switch viewing, and the display interval are disable/ 5/10/15/ 20 seconds etc.

4. **Preview Channel Management**

Move the mouse to highlight Preview Channel Management in the right-click context menu to bring up the sub menu for more options.
Full Screen: make the live view area full screen;
Default Proportion Display: screen displays by default;
5. Instant Playback
Right click on an image area to pop up the context menu, select Instant Playback to bring up sub-menu. There are 6 options: 10sec/30sec/1min/3min/5min/8min. Select one option to begin instant playback.
--press this button to select the channel which you want to check its instantly recording, it will show all connected cameras;

-- press this button to play;

-- press this button to pause;

-- press this button to play next frame;

--press this button to grab a picture, when a picture is grabbed, there will be a dialog pop up to ask for a file name. The size of the image is resolution of the video be played;

--press this button to do reverse playback, and system will only play the I frame of the video, click  button to back to normal mode;

--press this button to speed up the video play, the system will only play the I frame when you adjust to the highest speed, click  button to back to normal mode;

--press this button to exit the instant playback.
6. Layout Management

You can manage the layout in **Layout Management** setting.

**Load the Default Interface**: Display live view, information panel, control panel, toolbar panel and log panel.

**Load the Classical Interface**: Hide all panels, display video only.

**Show Control Panel**: Check (uncheck) to display (hide) the control panel;

**Show Toolbar Panel**: Check (uncheck) to display (hide) the toolbar panel;

**Show Log Panel**: You can check (uncheck) to display (hide) the log panel.

7. Other Function

**Camera Data Stream Statistics**: Bring up this interface to track video stream status. There are 4 columns: Channel Name, Instant Value, Record Average Value and Record Loss. Record Loss will cause video skipping/jumping when playback.

Tips:
- when you find all video channels have skip frame issue, you can check this page to confirm if you have a network issue in switch.

Firstly, check the switch which connect with the system and make sure that it is a 1000M
Secondly, we need to think about the processing capacity of the switch. For example, you have 128 cameras which connect with NVSS, each of them sets the main stream is 3Mbps, then you can figure out the total instant value should be 384Mbps, but it is far from 384Mbps when you check 'Camera Data Stream Statistics', it may be 100Mbps. Then we have reasons to doubt processing capacity of the switch, it caused dropped data packet seriously. You should change a switch to have a test. Maybe network cable only can work in 100Mbps.

Log Search: It will pop up the Log Search sub menu, shown in picture blow. There are three log contents: Device Alarm, Local Operation and Exception. You can filter the log by these three contents and its filter parameter.

Export system parameters: Backup the system settings according to your need, You need a USB stick to save the system file.
Import system parameters: Restore the system settings from backup file.

Tips:
If you want to import 32bit system parameters file to 64bit system, please check "Import 32bit system parameters" and the system will find 32bit system file from the USB stick you insert.

Synergy configuration: Share multiple systems on the server's desktop just by moving your mouse off the edge of one System screen to another.

Configure a server

The server will share its keyboard and mouse with clients. It needs to know about all clients that will connect to it. To tell server about these clients, click "Configure Server".
1. To add a new client, drag a screen (top right) on the grid;
2. To remove a client, drag the screen to the trash can (top left);
3. To move a client, drag the existing screen to another cell.
   Once you added a client to your grid, it names as "Unnamed". You can double click on the icon to modify its name and do some settings.

Configure a client
After configuring your server, in the client’s "Server IP" text box, input server IP to connect corresponding client to the server, shown in the picture blow.

Restart the Synergy: Click here to restart synergy after system reboots.
About Registration: Click here to get system’s S/N and registered license number. Click "Upgrade" to expand license number of the system.
User Guide: Click here to open user’s manual to help users understand software’s functions faster and more accurately.

8.Add Device
Click “Add Device” in context menu, it will pop up the Device Management interface. You can add, modify, delete or search IPC in the sub-window.

9.Manual Record
You can start or stop the manual record function by clicking Manual Record.

10.POS Function
Please refer to Chapter 2.3.

11.Video Matrix Function
Please refer to Chapter 2.5.

2.3 POS / LPR Function

2.3.1 POS Function
Firstly, You should enable “POS Function” in system setting.
Move the mouse to highlight POS Function in the right-click context menu to bring up the sub menu for more options. It includes: ① POS Setup; ② POS Monitor; ③ POS Playback.

2.3.1.1 POS Setup

Click on the button to bring up the interface of POS Function Setup.

1. Connect Setup
There are two kinds of connection methods: COM and LAN.
COM: Select COM port connection method and set parameters;
LAN: Select network connection and set parameters.

a. COM Setup
All available Com ports are listed in the drop-down list. Select one COM Port that you’d like.
Device: Select a pos device to connect to this COM Port.
Name: Set a name for current connection.
Baud: Set the baud rate for this COM Port.
Stop: Set the stop bit. It includes two: 0, 1.
Data: Set the data bit. It includes four: 5,6,7,8.
Parity: Set the parity. It includes none, odd or event.
Associated cameras: Choose associated camera(s) to display pos data by pressing button.

---This status of channel means it has been selected by other COM or LAN.

-- This status of channel means it has been selected by current COM.

b. LAN Setup
There are maximum of 64 LANs for you to choose to connect to pos device, you can set a number of LANs at the same time if necessary.
**Device:** Select a pos device to connect to this LAN.

**Name:** Set a name for current connection.

**Protocol:** Select a protocol from TCP, UDP.

**Port:** Set a port to connect.

**Buffering Time:** Set the buffering time as you want.

**Associated Cameras:** Choose associated camera(s) by pressing button.

---

This status of channel means it has been selected by other LAN or COM.

This status of channel means it has been selected by current LAN.

Press button to test connection status, if pops up a window, that is to say, the connection is OK.

The pos data will be shown on the window when text data is sent from pos, shown in picture blow, you can press button to begin saving pos data and press it again to end saving.
c. Camera Setup

First, choose a camera to have a setup.

**Text Position:** By default, text is set to upper left of the video view window. As text contents increasing, it will be displayed farther from the top.

**Text delay time:** Set time for text to stay on the screen.

**Lines number per screen:** Set the desired lines (1-8) to display text. Disabled if “by transaction” is displayed.

**Font Color:** Set different values of RGB for font color.

**Copy to:** Click it to copy current setup to someone or all.
2. Data Filter Setup

Press `Data filter setup` button to set post-text filter rules for POS device

a. Line Break
Set a rule to separate each line.

**Priority:** Default priority 1, and you can’t modify it.

**Type:** Choose a type for data. Data types must be either ‘Hex’ or ‘ASCII’.  
**Position/Offset:** Select a position to search the data string (e.g. start to search from begging
---- not useful right now)

**Operation:** Select an operator to be used when comparing ‘Data’ with data from POS.  
**Data:** Set Data that will trigger the operation.

When system receives the character or string, which is equal to the setting here, system will process these characters as below:

- Only line break character or string set here – discard;
- Any other characters and string before line break character or string set here – discard line break character or string and display the other characters or strings and change to new line.

b. Include
Set a rule for a line with a string or character to be displayed.

**Priority:** Set the priority of this rule.

**Type:** Choose a type of data. Data types must be either ‘Hex’ or ‘ASCII’.  
**Position/Offset:** Select a position to search the data string (e.g. start to search from begging
---- not useful right now)

**Operation:** Select an operator to be used when comparing ‘Data’ with data from POS.  
**Data:** Set Data that will trigger the operation.
c. Exclude
Set a rule for a line with a string or character to be not displayed.

**Priority:** Set the priority of this rule.

**Type:** Choose a type of data. Data types must be either ‘Hex’ or ‘ASCII’.

**Position/Offset:** Select a position to search the data string (e.g., start to search from begging not useful right now)

**Operation:** Select an operator to be used when comparing ‘Data’ with data from POS.

**Data:** Set Data that will trigger the operation.

d. Invalid
Set a rule to discard a string or character.

**Priority:** Set the priority of this rule.

**Type:** Choose a type of data. Data types must be either ‘Hex’ or ‘ASCII’.

**Position/Offset:** Select a position to search the data string (ex. Start to search from begging
not useful right now)

**Operation:** Select an operator to be used when comparing ‘Data’ with data from POS.

**Data:** Set Data that will trigger the operation.

![POS function setup](image)

**e. Replace**

Set a rule to make the character or string to be replaced.

**Priority:** Set the priority of this rule.

**Type:** Choose a type of data. Data types must be ‘Hex’ or ‘ASCII’.

**Old:** Enter data string that needs to be replaced.

**Data:** Enter a new data string that will take a place of the Old Data.
3. Device Setup

Click on the button to open “Device Setup” interface, shown in picture blow.

**Device list:** Spare devices for selection

**Available list:** Click on the icon to add device(s) from Device list to Available list which can be used to connect to LAN/COM port

Press button to add a device named “New Device”, and you can double-click it to edit its name.
2.3.1.2 POS Monitor

Select a channel in the live view window that POS device sends POS data to and click on **POS Monitor** button from the context menu to enter **POS Monitor** interface, it shows the details about pos information and the corresponding LAN on the left side. It shows up to 100 items of pos data every time you just entered **POS Monitor** interface.
1. Parameter Setup

Click on the POS setup button. The interface is shown below.

**Max show record count:** Set the POS Record Count to be displayed after entering POS Monitor. The max count is 500.

**Playback setup:** Set forward time and back time for playback of POS monitor.

![POS setup interface](image)

2. Filter Setup

![POS setup interface](image)

**Keyword:** Set keyword as a identifier to catch user’s attention.

**Color:** Set the color for the keyword.

**Only work between:** Set the working time, such as: if set the color of SHOPPING to be green
and the work time between 00:00:00 and 23:59:59, when the SHOPPING appears in this period, it will be displayed in green on the screen, shown in the picture blow.

Enable alarm: After enable it and set the alert message what you want to display, when the keyword appear, it will trigger the alarm out, and display the alarm message shown blow.

Enable email: Click the check box to enable it, when the keyword appears, it will send email automatically.

Select a piece of content and double-click it to play back video. The window is shown below:
On the left side of window displays the image of camera, and on the right side of window displays the text, you can also show the text on the image by checking \(\text{Show text}\).

The video playing time is based on the Forward time and Back time which was set in parameter setup.

### 2.3.1.3 POS Playback

Click \(\text{POS Playback}\) in right-click context menu to enter multi-channels POS playback interface. There are two ways to have POS playback: normal POS playback and POS Extended Search.

- **Normal POS playback:** Users can only search pos data in a day to playback.
- **POS Extended Search:** Users can search pos data in a few days to playback.

#### Steps of normal POS playback:

1. You can select any kind of event type to search. Here is POS event by default.
2. Select the date and time to playback. The blue date indicates the record data but not always pos data. The yellow date means current day you select, you can click the yellow date to select a period of time.
3. Select channel to playback video. After one window is selected via clicking the black window on the right, you can choose one channel and double click its pos text in the frame to display its image and text.

#### Steps of POS Extended Search:

1. Click the button \(\text{Extended Search}\), input start time and end time by keyboard (or select start/end time box then click a date from calendar and input the time);
2. After selecting time, click \(\text{start searching}\) to search pos data to playback.
<table>
<thead>
<tr>
<th>Forward Time:</th>
<th>set the forward time of the video.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backward Time:</td>
<td>set the backward time of the video.</td>
</tr>
<tr>
<td>Channel:</td>
<td>Select one channel which has POS data to playback;</td>
</tr>
<tr>
<td>Show Text:</td>
<td>Check the box and show POS text on the image window;</td>
</tr>
<tr>
<td>Filter:</td>
<td>Filter the content including the keyword. Double-click one filtered item can playback.</td>
</tr>
</tbody>
</table>

---

Adjust the audio;
-- Adjust the playing speed;

-- Press this button to close all cameras;

-- Press this button to play;

-- Press this button to pause;

-- Press this button to play next frame;

-- Press this button to grab a picture. You can check the picture in the local playback.

Note:
The pos text can be exported to USB flash disk by right-clicking mouse on the left contents after plugging in USB stick.

2.3.2 Remote POS Function

Remote POS function is used to backup POS data. Local NVSS enabled remote POS function can connect with another NVSS which is enabled POS function to get all POS data directly. Then user can preview and playback same POS data on local NVSS and another NVSS at the same time.

Enable “Remote POS function” in system setting here

2.3.3 LPR Function

LPR is the abbreviation of License Plate Recognition. If you add road traffic monitoring device, the captured license plate can be checked and displayed in the preview window of the software, and you can also play back the record in the LPR Playback.
2.3.3.1 LPR Playback

Please follow the steps blow to do settings:
1. please make sure that you have configured the corresponding area and other related settings for the camera by logging in its browser, for details, please refer to the user manual of the device.
2. Add a road traffic monitoring device to the software.
3. The default color of license plate showed in the preview window is red, and you can Enable POS function and find the path "POS Function --> POS Setup --> Connect setup --> Camera setup", to configure the font color you prefer to.
4. Enable LPR function in System Setting.
5. Back to the main interface, click-and-drag the device to a preview window, the recognized license plate will be shown on the window.

2.3.3.2 LPR Playback

Click **LPR Playback** in right-click context menu to enter multi-channels LPR playback interface.

The operations are similar to POS Playback, please refer to **section 2.3.1.3**
2.4 Video Analysis Function

There are 7 intelligent video analysis functions: Unattended Object Detection, Missing Object Detection, Movement Direction Detection, Intrusion Detection, Tripwire Detection, Face Detection, Object Counting.

Before using this feature, please enter the System Setting to enable video analysis function as shown below.

To enter “Video Analysis Setting” interface, please select one camera in live view window and right click the image, choose “Video Analysis Setup” from right-click context menu.
Parameters Introduction
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>To adjust the resolution of the image for video analysis. The lower the value, the more close to the original image resolution. For example: the resolution of the source video is 1024<em>768, you set the image scale as 2, then the length and width will be shrunk to 1/2 of original resolution, about 512</em>384 for detection. It is 1 by default.</td>
</tr>
<tr>
<td>2</td>
<td>To adjust the sensitivity of the area you selected. The lower the value, the more sensitive the system. It is 10 by default.</td>
</tr>
<tr>
<td>3</td>
<td>To set the minimum acreage of detection zone to trigger alarm. Its unit is percent, if the acreage of missing or unattended area exceeds the setting value of the areas you selected, system will trigger alarm. The default value is 2%</td>
</tr>
<tr>
<td>4</td>
<td>To set the minimum acreage of each 32<em>32 pixel. Its unit is percent, if the acreage of motion object exceeds the setting value of a 32</em>32 unit. The unit will be active. The default value is 10%.</td>
</tr>
<tr>
<td>5</td>
<td>This option allows you to specify the duration time of an missing or unattended object to invoke the detection</td>
</tr>
<tr>
<td>6</td>
<td>The minimum area can be detected. You can click the button, then use the mouse to outline the minimum detection region on the screen. Click the button again to get the minimum detection region.</td>
</tr>
<tr>
<td>7</td>
<td>The maximum area can be detected. The opposite settings to above minimum size setting.</td>
</tr>
<tr>
<td>8</td>
<td>The direction you have set. Click the button, then use the mouse to outline the arrow on the screen, the arrow indicates direction. Click the button again to get the direction value. Tips: Only the last draw direction is available.</td>
</tr>
<tr>
<td>9</td>
<td>Set an offset value in pixels to allow certain of movement offset. For example you set the value 3, if one object moves in a range of 3 pixels, system will ignore this movement.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Set the scene of camera view</td>
<td>To adjust the objects’ movement speed. If the detected objects move fast, please set the value faster. On the opposite please set the value slower.</td>
</tr>
<tr>
<td>Enable the software to start Intelligent Video Analysis function. Click the button to set the time schedule for intelligent video analysis function.</td>
<td>Enable the software to trigger an alarm output. Click the button to assign output device.</td>
</tr>
</tbody>
</table>

2.4.1 Unattended Object Detection
To detect any unattended objects within the camera view, please follow the steps below:

1. Click to select Unattended Object Detection from the drop-down list.

2. Click the button then left-click on the video to start drawing the detection area; you should left-click mouse at each corner and right-click to stop drawing. You can draw any irregular zone and multiple zones to meet your requirements.

3. If you want to modify detection zone, please delete it by clicking button and draw again.

4. Set proper Image Scale, Sensitivity, Volume Ratio, Duration Time according to your camera scene or just keep default. (Reference: Parameters Introduction)

5. Check on Trigger Alarm output and set alarm out port if you have alarm device hardware connection.

6. Click button to start the function.

7. If you have modified the parameters, please click the button to save them.

8. While you click the Start or Apply button, the system will automatically capture the image for reference, you can see the image by clicking button.

When any unattended object appears and remains stationary for the duration time, a warning message will appear and its location will be highlighted with red box in live video, the selected alarm audio and output will be activated, and the event will be recorded as unattended object in system Log for later retrieval.

**Application:** Applied in airport, oil filed and other high-risk fields.

**Tips:**
- You can also stop the alarm manually by single-right-click its preview screen and click the “Clear Alarm” option.

**2.4.2 Missing Object Detection**
To detect any missing objects within the view, please follow the steps below:

1. Click and select Missing Object Detection from the drop-down list.

2. Click the button then left-click on the video to start drawing the detection area, you should left-click mouse at each corner and right-click to stop drawing, you can draw any irregular zone and multiple zones to meet your requirements.

3. If you want to modify detection zone, please delete it by clicking button and draw again.

4. Set proper Image Scale, Sensitivity, Volume Ratio, Duration Time according to your camera scene or just keep default. (Reference: Parameters Introduction)

5. Check on Trigger Alarm output and set alarm out port if you have alarm device hardware connection.

6. Click button to start the function.

7. If you have modified the parameters, please click the button to save them.

8. While you click the Start or Apply button, the system will automatically capture the image for reference, you can see the image by clicking button.

When any object, which you have outlined the regions for, disappears from the camera view for 3 seconds, a warning message will appear and its location will be highlighted with red box in the live video, the selected alarm and output will be activated, and the event will be recorded as missing object in system Log for later retrieval.

Application: Applied in the museum, the exhibition and other places which have the valuable things.

2.4.3 Movement Direction Detection
To detect movement direction within the camera view, please follow the steps below:

1. Click \textit{Choose analysis function} and select Movement Direction Detection from the drop-down list.

2. Click the \textit{Start draw detection zone} button then left-click on the video to start drawing the detection area, you should left-click mouse at each corner and right-click to stop drawing, you can draw any irregular zone and multiple zones to meet your requirements.

3. Click button \textit{Angle} on the right of Angle then use the mouse to draw an row on the image. Click the button \textit{Angle} again to get direction angel value.

4. If you want to modify detection zone, please delete it by clicking button \textit{Delete detection zone} and draw again.

5. Set proper Image Scale, Sensitivity, Volume Ratio, Duration Time according to your camera scene or just keep default. (Reference: Parameters Introduction)

6. Check on Trigger Alarm output and set alarm out port if you have alarm device hardware connection.

7. Click the \textit{Start} button to start the function.

8. If you have modified the parameters, please click the \textit{Apply} button to save them.

when a moving object appears in the detection zone, the reverse arrow direction object will be highlighted with red box, the selected alarm audio and output will be activated, and the event will be recorded as movement direction alarm in system Log for later retrieval. At the same time the object along with the arrow direction will be highlighted with green box.

\textbf{Application}: Applied in road and other places which allow one-way movement.
2.4.4 Intrusion Detection

To detect intrusion within the camera view, please follow the steps below:

1. Click and select Intrusion Detection from the drop-down list.

2. Click the button then left-click on the video to start drawing the detection area, you should left-click mouse at each corner and right-click to stop drawing, you can draw any irregular zone and multiple zones to meet your requirements.

3. If you want to modify detection zone, please delete it by clicking button and draw again.

4. Set proper Image Scale, Sensitivity, Volume Ratio, Duration Time according to your camera scene or just keep default. (Reference: Parameters Introduction)

5. Check on Trigger Alarm output and set alarm out port if you have alarm device hardware connection.

6. Click the button to start the function.

7. If you have modified the parameters, please click the button to save them.

When any object intrudes the detection zone you have drawn, its location will be highlighted with red box in the live video, the selected alarm audio and output will be activated, and the event will be recorded as Intrusion detection alarm in system Log for later retrieval.

Application: Applied in the heavily guarded military centers or bank, the museum and other places which need prevention appear suspicious characters.
2.4.5 Tripwire Detection

To detect tripwire within the camera view, please follow the steps below:

1. Click and select Intrusion Detection from the drop-down list

2. Click the button then single-left-click on the video to start drawing the detection area, you should left-click mouse at each corner, and single-right-click to stop drawing, you can draw any irregular zone and multiple zones to meet your requirements.

3. If you want to modify detection zone, please delete it by clicking button and draw again.

4. Click the button to draw tripwire, only the last drawing is available.

5. Click button on the right of Angle, then use the mouse to draw an arrow on the image. Click the button again to get direction angel value.

6. Set proper image scale, sensitivity, minimum size, maximum size, angle, minimum offset according to your camera scene or just keep default. (Reference: Parameters Introduction)

7. Check on Trigger Alarm output and set alarm out port if you have alarm device hardware connection.

8. Click the button to start the function.

9. If you have modified the parameters, please click the button to save them.

When any object steps on the tripwire and moves reverse direction of the arrow you have draw, its location will be highlighted with red box in the live video, the selected alarm audio and output will be activated, and the event will be recorded as tripwire detection alarm in system Log for later retrieval.

**Application:** Applied in prevention through border, fence, through the subway route and other places.
2.4.6 Object Counting

To count object within the camera view, please follow the steps below:

1. Click and select Object Counting from the drop-down list.

2. Click the button then single-left-click on the video to start drawing the detection area, you should left-click mouse at each corner, and single-right-click to stop drawing, you can draw any irregular zone and multiple zones to meet your requirements.

3. If you want to modify detection zone, please delete it by clicking button and draw again.

4. Click the button to draw tripwire, only the last drawing is available.

5. Click button on the right of Angle then use the mouse to draw an row on the image. Click the button again to get direction angel value.

6. Setup proper image scale, sensitivity, minimum size, maximum size, angle, minimum offset. It is suggested to keep default. (Reference: Parameters Introduction)

7. Check on Trigger Alarm output and set alarm out port if you have alarm device hardware connection. (Reference: Parameters Introduction)

8. Click the button to start the function.

9. If you have modified the parameters, please click the button to save them.

The object counting provides bi-directional counting of objects under the surveillance area. The arrow indicates direction, when an object appearing in the detection zone steps on the tripwire and moves along the direction of the arrow, it would be counted as 1 out, otherwise when an object steps on the tripwire and moves reverse direction of the arrow, it would be counted as 1 in.

**Application:** Applied in the market, the highway and other places which need monitoring.
2.4.7 Motion Detection

---start all devices’ motion detection for smart search.

Note: This function will cost software CPU to decode all channel videos and do Motion detection, it will take a lot of CPU resource, if it is not Intel core i7 CPU, please not open all channels motion detection;

---stop all devices’ motion detection for smart search.

You can enter the motion detection parameter setting interface by pressing “Start” button first and then checking the Enable local motion alarm, the specific interface is shown blow.

---After you enabled local motion alarm, system will then link to a PTZ preset of a camera according to your setup when a motion alarm detected in this camera.
Parameters Introduction

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong></td>
<td>To set the minimum acreage of detection zone to trigger alarm. Its unit is percent, if the acreage of motion area exceeds the setting value of the areas you selected, system will trigger alarm. The default value is 2%.</td>
</tr>
<tr>
<td><strong>2</strong></td>
<td>To adjust the sensitivity of the area you selected. The lower the value the more sensitive the system. The default value is 10.</td>
</tr>
<tr>
<td><strong>3</strong></td>
<td>It will divide the detection zone you drew into several 32<em>32pix pieces, if you set sub grid ratio to be 10%, then a object come in, each piece will detect whether there is more than 10% in 32</em>32pix piece changed, if yes, this piece will alarm with green box</td>
</tr>
</tbody>
</table>
To detect any motion detection within the camera view, please follow the steps below:

1. Click the button then single-left-click on the video to start drawing the detection area, you should left-click mouse at each corner, and single-right-click to stop drawing, you can draw any irregular zone and multiple zones to meet your requirements.

2. If you want to modify detection zone, please delete it by clicking button and draw again.

3. You can click the button to choose full screen as detection zone.

4. Set the proper sensitivity, volume ratio, it is suggested to keep default. (Reference: Parameters Introduction)

5. Click the button to start monitoring for the application.

6. If you have modified the parameters, you shall click the button to save them.

7. Check to disable motion alarm signal from IP devices. Enable local motion detection can trigger the corresponding motion alarm records.

**Link to PTZ**

Click the button, the Link to PTZ sub-window will pop up:

1. Linkage Zone: Users can set max. 16 Detection zones, and each zone link to a PTZ preset of a special channel of a device.

2. Schedule: Users can set time schedule for Linkage Action.

3. Select Device: Select the device with PTZ channel which you want to use.

4. Select Channel: Select the channel with PTZ which you want to turn to a preset.
5. Preset NO.: Select the preset NO. which you want to ask the PTZ channel to turn to when the alarm happened in the Zone.

2.4.8 Video Analysis Playback

Click “Video Analysis Playback” option in context menu to enter multi-channels video analysis playback interface.

Steps:
①. select one event type to search.
②. select the date and time. Blue date indicates the record data but not always pos data. The yellow date means current day you select, you can click the yellow date to select a period of time.
③. Double-click a message displayed in the left information box to playback the recorded video.

Forward Time: set playback forward time of the video.
Backward Time: set playback backward time of the video.

For example, if you select “Face detection alarm” as event type, and select the yellow date to search an assigned period. We can see the search result shown blow. You can double click the face photo to playback.
If you select “Smart search” as event type, you can see the interface shown below. You need to set Ratio and Sub Ratio firstly, then press play button and draw a rectangle on the playback window. Then you can get the video data when there are motion in the rectangle.

**Channel:** Select one channel to playback its data;

-- Adjust the audio;
-- Adjust the playing speed;

-- Press this button to close all cameras;

-- Press this button to play;

-- Press this button to pause;

-- Press this button to play next frame;

-- Press this button to grab a picture, when a picture is grabbed, there will be a dialog pop up to ask for a file name.

Tips:
All results of video analysis can be exported to flash disk by right-click on the left information box.

2.5 Virtual Matrix Function

Before using this feature, please enable “Virtual Matrix Function” in System Setting.

2.5.1. Monitor Setup

You can single-right-click to enter the interface of Virtual Matrix Setup in the main interface.
The IP “127.0.0.1” client is called the second monitor. It means dual monitors (includes the main monitor and the second monitor) connected to system. The IP “192.168.0.237” client is IP Matrix machine. The main monitor is current monitor that you can do all functions of system on, and the second monitor of system and all monitors of IP Matrix machine which connect to system are defined as Virtual Matrix monitors.

---Click on this button to help system recognize the second monitor.

---Adjust the second monitor’s image to display more friendly.

---It’s a client just like this, select it and click button to delete it from Virtual Matrix List.

---Select one monitor from Virtual Matrix List, then click button to add this monitor to Monitor List (or double click one monitor to add it).

---Select one monitor from Monitor List, then click button to remove it.

---click this button to remove all monitors in the Monitor List.

---Select one monitor from Monitor List, then click button to enter the interface of Monitor Setup (or just double click one monitor to enter).
You can modify monitor(s)’s name here.

2.5.2. Group Setup

You can set as many as 16 groups for each TV monitor. Select a group from the drop down list to set it, you can define its name and partitions, the changed name will be active after saving configurations. There are 1/4/9 and 16 partitions modes.

**Default Stream Type** --It includes “Main Stream” and “Sub Stream”. After you select one default stream type, each camera you dragged to the sub-window would be displayed as the selected stream.

Note:

You can manually change the stream type of each camera by modifying the stream type in each sub-window. This setting will overwrite the “Default Stream Type”.

---You can select any monitor to configure camera displaying sequence or switch viewing interval. If there is only one monitor, this option would be not selectable.

---Select a group to setup, support maximum 16 groups.

---Define group’s name and partitions.

---Check this checkbox and save it for the system to show next time the system boots up.

---You can drag multiple cameras into one sub-window for switch viewing, and the switch interval options are disable/5/10/15 and 20 seconds etc.
2.5.3. Monitor Control

Select “Virtual Matrix Function>>Open All Monitor” in context menu to view all the monitors connected to the system, you can drag them to anywhere on the main interface, the names of cameras on TV client will be shown in the monitor window. Also you can open only one monitor at a time via selecting it below “Close All Monitor”.

You can adjust the view mode, select cameras or groups to display, and control PTZ on the monitor you opened just now.

View: Click this button to adjust window split mode, including 1/4/6/9/13 and 16 views mode. And click “restart”, the current TV client will be restarted.

: Click this button to select a group set in Virtual Matrix Setup to display, or click “Close All” to close all images.

Tips:
You can drag cameras from Device List panel or preview interface to monitor window to display.

PTZ: Click “PTZ” button to enter PTZ control menu. PTZ can only be controlled when select PTZ camera, it is similar to the operation on PTZ control panel. But you can only call the preset set in channel setting.

Hide: Click “Hide” button to hide monitor window.

Close Image: Single-right-click on one sub-window of monitor window, and then press “Close Image” to close current video view.
**Pause/Continue Sequence:** Single-right-click in any sub-window to pop up a sub-menu, then press “Pause Sequence” to stop sequence in that window. After “Pause Sequence” is pressed, it will turn to “Continue Sequence”, when you enter the sub-menu again, press it to continue the sequence in this window.

### 2.5.4. Operations on local TV Client

Right-click on the local TV Client to bring up following menu. You can adjust camera displaying sequence and image displaying mode here.

```
Setup
Pause Sequence
Pause All Windows Sequence
Continue All Windows Sequence
Wide Screen Display(16:9)
```

### 2.6 Information Panel

This panel shows product's logo, current date and system time, CPU occupancy rate and the information about HDD.

The color of CPU percentage is changing according to its value. Usually, the higher CPU causes the darker color. 0-70% the text color would be #23; 70-80% the text color would be #78; 80-90% the text color would be #12; 90-100% the text color would be #23.

Move close to or stop above each HDD icon to get its SN, status, used memory and recording begin time and end time.

HDD status: The left-hand icons mean RAID enabled.

- --The HDD is waiting for formatting;
- -- The HDD is formatting;
- --The HDD is empty;
--The HDD is writing;

--The HDD is full;

--The HDD is error.

Note:
1. A 1TB HDD would cost about 2 minutes to format and mount to the system.
2. Don't uninstall the HDD which is writing or formatting, it would cause bad track and damage its file system.
3. Don't uninstall the HDD when RAID is properly running.
4. You need wait for about 20 seconds before see the HDD icon when you insert one new HDD.

2.7 Control Panel

2.7.1 Device List

All the connected IP devices will be shown in the Device List. You can get detailed connection information when the mouse stops above a camera figure.

You can also know the connection and recording status about camera.

Device status:
- --The IPC is online;
- --The IPC is offline;
- --The NVR/DVR is online;
- --The NVR/DVR is offline.

Recording status:
- -- The camera is in normal continuous record mode;
- -- The camera is in manual record mode;
- -- The camera is in motion detection record mode;
- -- The camera is in sensor alarm record mode.

You can preview any video in the device list by dragging the camera to any live view window. The drop-down box gives the choice of main stream or sub stream for camera preview.

-- you can open the all connected cameras' image by clicking this button.
2.7.2 Color/Audio Adjust

The detailed function of each button:

- Move slider to adjust the brightness of the image which you select, click this button to resume its default value;
- Move slider to adjust the contrast of the image which you select, click this button to resume its default value;
- Move slider to adjust the hue of the image which you select, click this button to resume its default value;
- Move slider to adjust the saturation of the image which you select, click this button to resume its default value;
- Move slider to adjust the volume, click this button to turn off the audio.

-- Click this button and select cameras to copy the color and audio adjustment to them.

2.7.3 PTZ Control

The detailed function of each button:

- Please set presets for PTZ cameras in Channel Setting first, then you can select a PTZ camera in live view window and click on this button to pop up this menu to call a preset or tour group.
- Move the slider to adjust PTZ speed. It ranges from 1 to 128, the bigger number the faster speed.
- Zoom in and zoom out.
- Override the PTZ camera’s auto-iris and brighten or darken the image.
-- Adjust focus, normally used for motorized zoom camera. PTZ camera has auto focus function.

-- Direction control by pressing and holding these buttons.

-- Auto Pan depends on PTZ camera hardware function. Many companies set Auto Pan disabled by default.

2.7.4 DI/DO Control

You can get the name of DI/DO when the mouse stops above the number button. You can set DI status in Channel Setting. When there is no alarm triggered out, you can press the number button to output alarm forcibly and the button will become blue. Press it again, the output will be closed and the button will become gray.

The status of DI/DO:

1 -- DI/DO port is not in alarm trigger.

1 -- DI/DO port is in alarm trigger.

2.8 Toolbar Panel

Split View

Press button to set split view mode of the main screen.

System Setting

Press button to enter the System Setting interface, please refer to Chapter 3 for details.

Playback

Press button to enter Playback sub-menu to search local video/audio data. Please refer to Chapter 4 for details.

Group View & Setting

Press button to bring up sub-menu in which you can:

1 Call pre-stored
group; ② Save current view into a group; ③ Enter Preview Group Setting interface.

**Manual Record**

Press button to begin Manual Record for all cameras, the record status will change to immediately, and press it again to stop Manual Record. Manual Record has priority to overwrite all other system record settings.

**Capture**

Press button to grab a picture of a selected camera to local hard disk. You can view and download the captured picture in the Search Images of playback.

*Note:* If the size of all the captured pictures exceeds 2G, system would automatically delete half of them to free disk space.

**Channel Setting**

Press button to enter Channel Setting window.

**Device management**

Press button to enter Device Management sub window.

**E-Map**

Firstly, make the “E-Map Function” enable in System Setting.

Press button to enter E-map window.

**Lock Screen (ON/OFF)**

Firstly, make “Local Password” in System Setting enable.

Press button to prevent unauthorized user to operate system. Press it again, the login dialog box will be displayed as shown blow. Input your User ID and password then press OK to unlock it.
Note:
1. Default User ID is “admin”, password is “admin” too.

2. If you disabled the Local Password, the icon would be hidden in toolbar panel.

**Power**

Press button to enter the power management sub-menu as shown below.

![Power Off Menu](image)

You have three options to choose: Logout, Restart or Shutdown.

Note:
If the buffer of data is being written to the HDD, it will spend a little more time to shut down the system.

### 2.9 Log Panel

The log panel displays all real-time system log information. You can search all log history in Log Search. You can also set different font color for different log information in the Log Color Setting.
Chapter 3 System Setting

The System Setting includes 7 parts: General Setting, Network Setting, Record Schedule Setting, Log Color Setting, Exception Setting, RAID Setting and User Management.

3.1 General Setting

3.1.1 General Setting

【Language】Set system language.
【Display Resolution】Set system display resolution, normally system will automatically adjust its display resolution according to the monitor’s resolution. You can also choose other resolution supported by the monitor in the drop-down box.
【Date Format】Set OSD date format. There are three options: YYYY-MM-DD, MM-DD-YYYY, DD-MM-YYYY.
【System Date】Display the current system date. You can only change the date in BIOS.
【System Time】Display the current system time, you can adjust the time here.
【Enable the Wizard】Enable or disable the wizard when the system starts up.
【POS Function】Enable or disable the POS Function.
【Virtual Matrix Function】Enable or disable the Virtual Matrix function.
【Keyboard Shortcut】Turn on or turn off the shortcut function of computer keyboard.
【Alarm Camera Popup Interval】Setup the time interval for the alarm pop-up cameras.
【Device ID】Display the ID of System.
【System Version】Display the system OS version.
【Software Version】Display the system software version.
【Switch System Mode】Turn on or turn off the Linux Desktop. For high security system, please turn off Linux Desktop function to prevent operators to do something unrelated with surveillance.
Note:

We add explanations for some functions, double click on such as Keyboard Shortcut, to pop up help information, shown as below.

3.1.2 NTP Setting

After you enable NTP(Network Time Protocol) feature, please choose correct Time Zone for your system. Normally you don’t need to change this setting.

3.1.3 DST Setting

After you enable DST(Daylight Saving Time) feature, please follow the setup interface to configure Start Time, End Time and DST Bias.
3.1.4 Reboot Setting

Setting 1-2 times reboot per week is necessary to free RAM resource, it will be helpful to keep system more stable for long time working.

【Reboot】Check on Reboot checkbox to enable reboot function.
【Reboot At】Set auto-reboot date here.
【Reboot Time】Set auto-reboot time here.

3.1.5 PTZ Keyboard

【Enable PTZ Keyboard】Set Enable to turn on the PTZ keyboard function.
【Keyboard IP】Input the IP address of IP keyboard.
【Keyboard Port】Input keyboard port number. After finishing these settings, the IP address of system can be searched and displayed on the screen of IP keyboard.

Double click the device name from Device List to add it into left panel which lists cameras that will be controlled by the IP Keyboard. Click button “Monitor Setting” to enter Monitor Setting interface, you can adjust monitors display sequence and modify monitor’s name.

Operations on IP Keyboard:
1. ESC: Return to the previous interface.
2. SETUP: Press the button to get into system setting of the keyboard. There are Network Mode, Sound, Language, Password and Default. You can only use the joystick to choose options.

Network Mode: It includes two options (Static and DHCP) that you can choose through the
Sound: You can choose whether open the sound of the keyboard or not.
Language: Set IP Keyboard language.
Password: Set keyboard’s password.
Default: Click to restore your keyboard settings to default.
3.Inquiry: You can view the client list by pressing the button.
4.Lock: Press the button to lock keyboard system. Press it again to input the password to unlock it.
5.Single: Current window maximize and restore.
6.Full: Full screen and restore.
7.Views: Press the button and input a number for split views, press the button “OK” to take effect.
8.CAM: Press the button and then input camera number set in the System(PTZ Keyboard Setting), it will show the camera with single view.
9.Win+/Win-: Press the button to select a window on the monitor.
10.Group: Press the button and then input group number set in the System-->Virtual Matrix Setup to show the group.
11.MON: Press the button and then input the monitor number (you can view the number in the PTZ Keyboard Setting-->Monitor Setting in System), then you can control the monitor you choose.
12.Title: Press the button to show/hide all video title.
13.REC.: Press the button to make all record types change to manual record. Press it again to restore.
14.Grab: Press the button to grab. (it only works on the software decode)
15.Tours: Please select the PTZ camera and then press the button to input the Tour Group number set in the System.
16.Alarm On: Press the button to Enable the alarm camera popup.
17.Alarm Off: Press the button to Disable the alarm camera popup.
18.Inst Play: Press the button to input the number (1-9, represents 1min-9min), and then current window will be instantly played back. If you input “0”, it will get into local playback. Press the “Stop” button to exit playback.
19.Set Preset: Please select a PTZ camera first. Press the button and then input number to set a preset.
20.Clear Preset: Please select a PTZ camera first. Press the button and then input number to clear the preset.
21.Call Preset: Please select a PTZ camera first. Press the button and then input number to call the preset.
22.Focus+, Focus-: Auto-focus setup of the PTZ camera overrides, adjusts to focus the image.
23.Zoom in, Zoom out: Zoom function of the PTZ camera control.
24.Iris+, Iris-: Overrides the PTZ cameras auto-iris and brighten or darken the image.
25.Auto Pan, Wiper, Relay: It can not work now, please wait for the function update.....

3.2 Network Setting
3.2.1 Network Setting

【Network Card Working mode】Independent Working Mode: Each network interface works as normal. The Network Card Binding Mode: all the network card are bound with the same one IP address. A prepared network card will replace the wrong network card to continue working.

【Network Adapter】There are multiple network adapters on the motherboard, please choose network adapter one by one to configure.

【IP Address】Please input static IP address here according to your local network configuration.

【Mask Address】Please input the subnet mask here.

【Gateway Address】Please input the default gateway here. For your attention: Only the “Network Listen Adapter” could be input Gateway Address.

【MAC Address】Display the adapter MAC address.

【Preferred DNS Server】Please input first DNS Server here if the System is connecting to WAN.

【Alternate DNS Server】Second DNS server here.

【Network Listening Adapter】Please choose the network adapter which can be connected by clients.

【Server Port】Display the data port of the system, you can modify it here.

【HTTP Port】Display the http port of the system, you can modify it here.

---There will be a button showing up in the above interface and the interface of network setting in the Guide after you changed the motherboard of the SSD. Before configuring network information, please click it to clear the old network information. It won’t show up unless you change another motherboard for the same SSD.
3.2.2 Email Setting

【SMPT Server】 SMTP server address, e.g.: mail.jstHybridNDVR.com.
【SMPT Port】 SMTP listening port for connect request.
【Login User ID】 The ID of Email box.
【Login Password】 The password of Email box.
【Auth. Type】 Login Email box, operator should select SMTP authentic type. Or select “simple login”.
【SSL Security】 Security protocol for Email box.
【Email Title】 Enter title of the Email to be sent.
【Sender Address】 Enter email address of sender. It should be the same with Login User ID.
【Send To】 Set the address of receiver.
【Copy To】 Set another address of receiver.
【Send Attachment】 Check on to enable attachment sent with Email.

When the setup is finished, user can press  to test the function.

3.2.3 P2P Setting

【Enable P2P】 Enable or disable the P2P function.
【P2P Connect Port】 Set the port number for P2P connection.
【P2P Connect ID】 The serial number can be scanned from the below QR code. This serial number is used to login when you want to connect the System by P2P in the mobile client. It is same as the device ID. For CMS connection, you can input this P2P ID and port directly when add device in CMS;
【Push Message】 Enable this function to push alarm message to mobile client from server.
3.3 Record Schedule Setting

【Camera Name】Select the camera that you want to configure.
【Pre-Event Record】Select the time would like to start recording before an alarm triggered, when the system is in Motion Detection mode or in Sensor Detection mode, it can record video prior to the alarm being triggered.
【Post Record Time】Select the time would like to stop recording after an alarm has been triggered, when the system is in Motion Detection mode or in Sensor Detection mode, it can stop recording after the alarm has already ended.

【Record Sub Stream】Select to enable /disable record sub stream, if you select enable, you can remote playback the sub-stream video in clients, useful for low speed internet connection.

【Record Days】Select different days for different cameras according to your need. The number you choose determines the days that you can search record data in the local playback, and remote playback.

【Copy to】Select the cameras you want to copy to, and press the button to paste the same record schedule to the selected camera.

【Recording Schedule Setup】

One block of pane equals to half an hour. Firstly, click record mode icon like , then click schedule diagram, holding down the left mouse button and moving it to select an area (drag & drop).

The record mode:

1.  -- Normal record. The system is always recording video;

2.  -- Sensor record. The system begins to record only when there is a sensor triggered alarm;

3.  -- Motion record. The system begins to record video only when it detects a moving object;

4.  -- Motion or Sensor record. The system begins to record video with it either detects a moving object or one of the sensors has been triggered;

5.  -- Normal & Motion record. The system works as continuous record but meanwhile save the motion detection information for smart search.

6.  -- Not record. The system stops recording any video.

71
3.4 Log Color Setting

Log Color means system log font color, please follow blow interface to choose the color you like.

Note:
Selecting corresponding log type and cameras is one of the necessary conditions to output Motion Alarm log, Sensor Alarm log and Video Analysis Alarm log.

![Log Color Setting Interface](image)

3.5 Exception Setting

Set system how to take action when exception occurs. There are two types of corresponding action: ① Audio Warning; ② Send Email. The system exceptions include HDD Error, HDD Full, Reboot Exception, Record Exception and Device Disconnected. Please follow the blow interface to do setup.

![Exception Setting Interface](image)

3.6 RAID Setting

This feature don’t need RAID card. It is best that the HDDs which are used to RAID have the same capacity.

First, make sure there are three HDD at least, then enable RAID function in the local “System Setting--->RAID Setting”. The system will restart to take effect.

When your system has more than three HDDs, you can enable this RAID function. But we suggest at least six HDDs with two RAID groups, because when some HDD of one RAID group gets wrong, then you need replace it with a new HDD, the RAID will take time to rebuild and during this period, it can not be used to record.

RAID 5 consists of block-level striping with distributed parity. Upon failure of a single drive,
subsequent reads can be calculated from the distributed parity such that no data is lost. RAID 5 requires at least three disks, $S_{\text{size}} = (N - 1) \times \min (S_1, S_2, \ldots, S_N)$.

RAID 6 consists of block-level striping with double distributed parity. Double parity provides fault tolerance up to two failed drivers, it requires a minimum of four disks, $S_{\text{size}} = (N - 2) \times \min (S_1, S_2, S_3, \ldots, S_N)$.

Note:
1. If you enable this function, all the disks will be formatted, all the history record data will be lost.
2. This function may cause higher CPU usage.
3. If your system has issue, and there is issue on raid group at the same time, then raid group couldn’t rebuild after you reimaged system.

【Create RAID Group】Select HDD to create RAID group, please select three HDD at least, click to start creating. In the process of creating, please don’t pull the disk out as far as possible.

【Modify RAID Group】There are all your created RAID group. You can check the information of group here, or delete one of them.
【Rebuild RAID Group】 When one disk of group is error, the status of group will turn to abnormal, you can rebuild it here.

Pic 3-6-2
Select the abnormal RAID group in the item of RAID group name, plug in new HDD, then click to rebuild it.

Note:
Before rebuilding it, please delete the broken HDD in the interface of" Modify RAID Group".
Then, select one HDD to rebuild the abnormal group. It will take a long time to rebuild it, and this disk cannot record until finished. 1TB disk space will take about 2 hours to rebuild.

When RAID is enabled, do not unplug any normal HDD, or else it will be detected as error HDD and need to be rebuilt.

**RAID Group status:**
- The RAID Group is waiting for formatting;
- The RAID Group is formatting;
- The RAID Group is empty;
- The RAID Group is writing;
- The RAID Group is full;
- The RAID Group is used, but it is not full;
- The RAID Group is error;
- The RAID Group is rebuilding.

### 3.7 User Management

![User Management Interface]

**ID** List the number of users.

**User Name** Show all user names.
【Auth. Level】【Show the user type.】

【Local Password】【Enable or disable User Management function. Selecting Enable will activate the lock button in the main interface.】

【Lock Screen Delay Time】【Select “Disable” to disable the automatically lock screen function, or you can select 3,6,9,12,15 minutes interval to lock the system automatically after nobody operates on the system.】

【Network Password】【When you enable this function, remote access client must pass system authentication.】

【Add New User】【Click Add New User icon to add new user. It will pop up “User Information” interface, as shown blow.】

In the User Information window, please input the user ID and password then select its user level type. Please follow the screen to check/uncheck the general user rights for the new user.

For cameras permissions, there are 5 types of operation permissions:① playback, ② capture picture, ③ channel setting, ④ preview video, ⑤ PTZ control. Please pick one type of Channel Setting permission then click on button to assign this permission to corresponding camera(s).

【Modify】【Select a user from user list, then click Modify button to modify it.】

【Delete】【Select a user from user list, then click Delete button to delete it.】

Note: Only the Super User has the right to add or delete a user, the it also has the right to manage the password for each user.
Chapter 4 Playback

There are two ways to enter the Playback interface: ① Choose Playback in the Main Menu; ② press the icon on the Toolbar Panel. The default split view is four window views.

The first step is to choose date in the calendar panel. Blue-colored dates means there is recording data, gray-colored dates means there is no recording data, and yellow-colored dates means currently selected data. Please follow the screen to operate, see pictures below.

Tips:
1. When the mouse moves close to, or stops at a icon, a short description tip about the button’s meaning will show up immediately.
2. Right click the picture to switch full screen viewing mode. Double click one image to switch between one split and multiple split.
6. Double click Time Bar to choose the actual camera & time to play in the highlight sub-window.

3. Choose record type to filter non-relation data.

4. Click to choose split view.

5. Click to choose cameras to play.

--- Press this icon to show up all recorded data in the active day.

--- Press this icon to show up all Motion Detect Record data in the active day.

--- Press this icon to show up all Sensor Alarm Record data in the active day.

--- Press this icon to show up all Manual Record data in the active day.

--- Click these buttons to zoom in / zoom out the time bar. You also can scroll the mouse wheel to zoom in / zoom out the time bar too.

--- Click these buttons to move the time bar slices.

--- Input camera name for fast search and play.

--- Click this button to start a video clip when the camera is playing back (only for highlighted channel), click on it again to stop the video clip.

--- After finish the video clip, click on this button to save the file, then it will bring up Backup interface, refer to 4.1 Backup.

--- Click these buttons to show other channels.
--- Press this button to set split viewing mode of playback windows, there are 1/ 4/9 /16 splits;

--- Press this button to play all cameras in current split view. If the cameras number exceeds the split view number, you should be asked for choosing.

--- Press this button to close all playing video and bring up the calendar panel for searching other date;

--- click this button to go back 1 minute, right click this button to choose how many minutes you want to go back.

--- click this button to go forward 1 minute, right click this button to choose how many minutes you want to go forward.

-- press this button to pause, press it again to play;

-- press this button to play next frame;

-- Adjust playing speed. Click the button to resume normal playing speed;

-- Adjust the audio. Click the button to close the audio.

--- Press this button to grab a picture, when a picture is grabbed, there will be a dialog popped up to ask for a file name. The size of the image is resolution of the video.
4.1 Backup

-- Press this button to enter the Backup interface. You can also press the icon in the Main Menu to enter Backup interface.

Before you enter Backup interface, please make sure you have plugged in the USB stick with enough free space.

**Backup Camera** Select the backup camera(s).

**Select Begin Time** 【Select End Time】 Select the beginning time and end time of the video to be backed up.

**Backup Data Size** Show the file size info(MB). Please click Check button to update file size after you modify any camera or any backup time.

**Merge Unit** Set the size for each file to be backed up. You can set it to be 200M to 999M.

**Convert Quality** Choose one among High, Default and Low.

For your attention:

1. If your system time (Shown in Information Panel) is not synchronized with camera’s time (shown in camera’s OSD), when you playback the backup data, you will find the camera OSD time is earlier or later than the backup time you set before.

2. The backup video can be played back with third party player such as Windows Media Player.

3. Due to the differences of computer hardware and software version, some backup video with special resolution (such as 1600*1200 pixels, 2048*1536 pixels, 2562*1920 pixels) couldn’t be played by Windows Media Player. Please use VLC Media Player instead of Windows Media Player.

4.2 Capture Picture and View
Click on the button to enter the window of Picture View, as shown below. If you want to download or copy captured image, please use a USB stick.

![Picture View Window]

--- Select the channel which you want to view the grabbed picture in the drop list. Then all grabbed images of selected channel will be listed on the left side. You can double click the image name to display it on the right side.

- **Unmount** -- Click this button to uninstall your flash disk.
- **Copy All** -- Click this button to copy all the pictures in the list to the flash disk.
- **Copy** -- Click this button to copy the selected pictures to the flash disk.
- **Delete All** -- Click this button to delete all pictures in the list.
- **Delete** -- Click this button to delete the selected pictures.
- **Exit** -- Click this button to exit the Picture View.

### 4.3 Icon Search

Click on Icon Search button to enter following interface. This feature will be very useful to easily and quickly find out how an event was happening and going forwards. In Icon Search, it can playback one camera at different periods of time, showing images in multiple windows. Every sub-window shares an interval time defined by I Frame Interval.
4.4 DST Playback

Press DST button to enter the DST playback. DST function consists of two kinds of record types. 1) The record is the bias time you set in the DST Setting; 2) If you changed the system time to an earlier time (more than one minute), the video recording at the second time can be played back in DST.
Chapter 5 Channel Setting

There are two ways to enter Channel Setting interface: ① choose Channel in the Main Menu; ② click the button in the Toolbar panel.

The Channel Setting includes 7 sections: ① Display Setting, ② Video Setting, ③ Motion Detection, ④ Privacy Mask, ⑤ Alarm Input Setting, ⑥ PTZ Setting and ⑦ Linkage Setting.

For your attention:
Not all models of IP camera fully support the configuration in this section due to the firmware version of IP camera might mismatch the software version of system. If you get warning message “Device can’t support this function” or the settings you have saved still don’t take effect, please run a web client to log in the camera to configure parameters.

5.1 Display Setting

In this interface, you can configure IP camera’s image parameters and OSD info, please follow the screen to do settings.

For your attention:
1). If the selected device is an IP camera, its Channel NO. and Channel Name are the same.
2). The channel name of IP camera is set when you first add it in Device Management, you can also modify it in Channel Name bar.
3). The channel name of DVR/NVR can’t be modified here. You can modify it in Device Management.
5.2 Video Setting

Please refer to camera specifications and local network bandwidth to configure the Video Setting. We strongly recommend that you choose double stream connection when you add IP Device. The main stream is used for recording and full screen preview. The sub-stream is used for preview 4 or more split viewing mode.

5.3 Motion Detection

Check the checkbox in front of Enable to enable the motion detection function, then you can set the detection area and schedule.

5.3.1 Area Setting

Hold down the left mouse button and draw a rectangular zone or multiple zones on the image to set detection area. You can also set the whole area by pressing the Select All button, or clear the area(s) you set by pressing the Clear All button.

Move the slider to adjust sensitivity, from left to right is low to high. For some models of IP camera, motion detection can only be set in IE web client.
5.3.2 Detection Schedule

Press the button [Schedule Edit] to bring up “Edit Schedule” sub-window to setup motion detection working time table, as shown blow.

Note:
1) Each time segment should not be overlapped.
2) If you need 100% reliable motion detection, please turn on the motion detection in Intelligent Video Analysis (IVA) operation.

5.4 Privacy Mask

Click the check box of Enable to enable the Privacy Mask function. Users are allowed to setup several four-sided privacy mask zones that cannot be viewed by the operator. The privacy mask can prevent certain surveillance areas to be viewed or recorded.
Operations: Hold down the left mouse button and drag a rectangular zone or multiple zones on the image you would like to hide. You can also clear the zone(s) by pressing the Clear button.

5.5 Alarm Input Setting

The system will automatically detect the alarm in/out port for each IP device/IP camera. If alarm feature is not available for the selected device, a warning message “Device can’t support this function” will pop up. The alarm type means sensor type, NC = Normal Close, NO = Normal Open. After choosing correct sensor type, please click on button “Edit” to set the sensor working time table, see picture blow.

Note:

The time of each period should not be overlapped.
5.6 PTZ Setting

Before you configure the PTZ setting, please make sure that the PTZ camera can be controlled in the Control Panel of main interface. If not (for some cameras), maybe you should log into the PTZ camera by IE web client to configure correct protocol and baud rate.

The PTZ preset saves in 2 modes Call Preset and Save Preset. Only those presets saved in Call Preset mode can be executed call. The Save Preset mode is used for special purpose such as to implement PTZ system reserved feature.

Scheme:
The Scheme means system will automatically call the preset or a tour group according to a scheduled time table. When the system time reach, the PTZ camera will auto move to preset position or run a preset tour. If you want add a tour into a scheme, please setup tour at first.

Tour:
Tour means you can put different preset position in a sequential group, each preset position could be defined a staying time. When a tour is running, the PTZ camera will continuously move between preset positions according to the sequence and time table saved in the group. You can save up to 8 tour groups.
1. Set PTZ speed.

2. Set preset’s position and zoom/focus/iris to move the camera to aim position.

3. Set preset name, number and mode.

4. Click “Add” to finish one preset. Repeat step 2/3/4 to add more presets.

5. Click “Apply&Save” to save the configuration.

1. Choose preset or tour group.

2. Choose date.

3. Choose execution time.

4. Click “Add”.

5. Click “Apply&Save” to save the configuration.
5.7 Linkage Setup

Linkage Setting is used for alarm-out feature configuration. Through alarm linkage setting, every camera’s alarm signal could be used to trigger multiple alarm-out ports and multiple PTZ cameras to call preset.

5.7.1 Motion Alarm

【Select Device】 / 【Channel NO.】 If the Select Device is a DVR/NVR/DVS(IP Server), the channel NO would be selectable from drop-down list. If the Select Device is a IP camera, the Channel NO would be equaled to the selected device.

【Enable】 Check on to enable the motion alarm linkage function for this camera.
【Policy】 Three handle policies will be available to correspond the alarm as follows:
【Audio Warning】 Indicate the alarm with sound;
【Send Email】 Send an email alert when the alarm is triggered
【Output Log】 Write system log.

Note:
It won’t output motion alarm log in log panel until you check “Output Log” as well as checking the corresponding channels in “System setting—Log Color Setting—Alarm Information”.

【Trigger Alarm Output】 Choose which alarm-out port(s) to be triggered by above camera.
【Trigger PTZ】 You can enable this function to trigger a PTZ camera to call a special preset when there is alarm input.

1. Choose tour group.
2. Choose preset number.
3. Choose idle time.
4. Click “Add” to add tour group.
5. Repeat step 1/2/3/4 to add other tour groups.
6. Click “Apply&Save” to save the configuration.
【PTZ Server】 / 【PTZ Channel】 If the PTZ Server is a DVR/NVR/DVS(IP Server), the PTZ Channel would be selectable from dropdown list. If the PTZ Server is a IP camera, the PTZ Channel would be equalled to the selected device.

【Preset NO.】 Select the aim preset of the PTZ channel you selected.

5.7.2 Sensor Alarm

In the Sensor Alarm interface, the configuration steps is similar to above Motion Alarm
configuration except one more choice—【Trigger Record Camera】It means you can select camera(s) to record when alarm is triggered.
5.7.3 Video Analysis Alarm

Before you implement this function, please make sure that the Video Analysis Function is working. The operation in this tag is similar to Motion Alarm tag, please refer to above Motion Alarm setting.
Chapter 6 E-Map

The E-map function offers users a platform to get a visual overview of the locations and distributions of the installed cameras and alarm input devices. You can get the live view of the cameras on the map, and you will get notification messages from the map when alarm is triggered. If you use multiple monitors with NVSS, Emap function will be shown on another monitor automatically.

The first step is to enable E-map Function in System Setting.

Secondly, click the icon on the Toolbar Panel to enter the E-map interface, see picture blow.
6.1 Add an E-map

For your first time to open E-map function, please add a map at first.
Steps:

1. In the mode of **Edit Map** by default, Click the icon 🌍 to open E-map info dialog box;
2. Click the button ⋮ to select a map file from the local path;
3. Click "OK" to finish the map adding.

Tips:
1. The picture format of the map can only be *.jpg, *.png, *.bmp;
2. Only one map can be added at a time.

After finishing the map adding, the map added will be displayed in the map display area. Scroll the mouse wheel to zoom in/out the map, or click-and-drag the yellow window in the lower-right corner to adjust the map area for view.

Click the button “Edit Map” or “Map Preview” in the E-map toolbar to enter the map editing mode or map preview mode.

--- Add a map the first time you open E-map function, or replace added map.
--- Delete the map.
--- Add a camera or cameras in batches as the hot spot(s) on the map (or you can click-and-drag the camera from Device List to the map directly).
--- Add an alarm input sensor as the hot spot on the map (or you can click-and-drag the alarm input sensor from Device List to the map directly).
--- It does not take effect here.
--- Modify the information of the selected hot spot.
--- Delete the selected hot spot.
--- Clear the alarm information displayed on the map.
--- It does not take effect here.

6.2 The Hot Spot Function

The cameras and alarm inputs can be added on the map and are called the hot spots. You can get the live view by double clicking the camera on the map and check alarm information of the surveillance area through these hot spots.
6.2.1 Add Hot Spots

There are two methods to add cameras as hot spots:

The steps of method 1:

1. Under the mode of map editing, click the icon  in the E-map toolbar to enter Add Hot Spot dialog box;
2. Check the checkbox to select cameras to be added.
3. Besides, you can double-click the corresponding box to select the name color.
4. Click “OK” to save the settings. The icons of added cameras changed from  to  in the device list. You can click-and-drag cameras icons to move the hot spots to the desired locations.

The steps of method 2:

Click-and-drag the camera icons one by one from the device list to the map directly to add the hot spots.

6.2.2 Modify Hot Spot

In the mode of map editing, there are three ways to modify the information of added hot spots, including changing current hot spot or selecting color: ① you can double-click the camera icons on the map; ② click the icon  in the toolbar panel; ③ select the hot spot and right-click it, then select Modify.

6.2.3 Delete Hot Spot

In the mode of map editing, click the icon  in the toolbar panel or right-click the hot spot and then select Delete to delete the hot spot.

6.2.4 Hot Spot Preview

Steps:

1. Click the button Map Preview to enter the mode of map preview;
2. Double-click the icon  on the map or right-click it and select Preview Video to get the live view of cameras;
3. If you have set the alarm linkage action for camera hot spots, the icon will appear and twinkle near the hot spot when there is alarm triggered, click the alarm icon to bring up the alarm type.
Chapter 7 Face Recognition

Face recognition function includes face detection, face matching, face retrieval. User can set a normal camera or face detection camera to detect a face. NVSS can finish the whole process of face recognition if use normal camera, but will assume more CPU than use detection cameras. Face recognition is always used to build black / white list, when there is face has a higher similarity than the one set in black list, NVSS will pop up the alarm monitor to show information about this face.

7.1 Camera Installation

7.1.1 Camera Installation Position

Camera should be installed in proper position right above the entrance so all people’s face can be detected even when they come from entrance together. User can install camera according to the following picture.

- \( h \) is the height of camera position, it should be 2m to 2.5m
- \( a \) is the overlooking angle of camera, it should be no more than 15°
- \( d \) is the horizontal distance between camera and entrance, it is related to the focal length of lens

People walking towards camera with face visible frontally, to keep the target face captured longer time to get a clearer picture for recognition. There is a comparison picture as follows.
7.1.2 Camera Installation Environment

Indoor/outdoor environment with good constant illumination, There are two illumination conditions needed if you want to get a better face picture.
1. Enough illumination
2. When lens face to strong light, it need use WDR camera
7.2 Face Recognition Setup

User can add / modify / delete face information in black / white List Setup, set face alarm in Face Alarm Setup, add cameras to detect faces in Camera Setup here.

The first step is to enable Face Recognition in System Setting, it needs 16 license to enable this function.

Then, right click on the main interface to set face recognition function.
Click [Face Recognition Setup], the interface will be shown as the following picture.
There are five ways to add faces into database, the first way is to add face manually. User can click on the Blacklist Setup interface to add faces manually, it will pop up a interface as follows.
The pictures captured in NVSS will be listed on the left, you can select a directory here. Desktop is the pictures on desktop, Catchpic is the picture captured in NVSS and USB. If you want to detect a face on the picture of USB, insert USB to NVSS, select Catchpic as a directory, then click Open USB to get the picture from USB. Click Remove USB to remove USB. Double click a picture to show picture in the face detection zone, click Face Detection to detect the faces on this picture, detected faces will be listed on the middle window, user must input name here, you can also input some other informations here, then click Add to add this face to the right window, also you can click Delete to delete the face you have added on the right window, then click Save to save faces to black list, NVSS support to add multiple faces for a UID.

The second way is to add face automatically. Click Import Face to choose a format of pictures’ name here, it can be .png, .jpg, .bmp. Then select a directory from NVSS or USB to add faces with all informations. It will input all information of corresponding face into face list according to pictures’ name. There will pop up a information to let you know the importing has been finished. Then, click Export face to export face pictures to USB.

The third way is to import face database file. When you want to build another new NVSS systes, you can insert a USB to old NVSS, then export face database file to USB by click Export Database, wait several minutes to make sure the file has been exported completely. Insert USB to new NVSS system, then click Import Database, new NVSS will recognise face database file automatically and start to import, all the face information will be imported into new NVSS, it will restrat after finished.
Notice: 

- **Export Face** is used to export face pictures to USB, **Export Database** is used to export face database file which can only be used in NVSS to USB.

The fourth way is to add face from live view, right click on the captured face which is shown on the bottom of live view.

It will pop up a window to add current face to black / white list, input name or ID, then click **Search**, it will show a existing face information of black / white list, click **Import** to add this face to an exist person. Also User can click **New** to add a new face with new UID. Interface is as follows.

The fifth way is to add face from face recognition playback. Please refer [chapter 7.3](#).

User can click **Modify** to modify all the information of a face except UID. Click **Delete** to delete the information of a face, also you can click **Delete All** to delete all the face informations of black list. If you need to search a certain person, you can input UID or name here, also keep it to be null, then click **Search** to show all the face information.
7.2.2 Build white list

There are six ways to add faces, user can check the detail of the first five ways in chapter 7.2.1, the sixth way is to add all faces which aren’t a face of white list automatically, this kind of way is better than other ways, because face recognition will be influenced by the quality of database face, it will add captured faces directly which is with the same condition(light, angel etc) with live view of camera, this way makes face recognition function be more accurate. It is always used in some place with large traffic. Such as school, factory, super market etc.

Face will be added with UID(automatic generation) and name(capture time). User can enable this function here, you can set to add Max. 30000 faces, then it will stop adding after added 30000 faces. It will add multiple faces with different angel of a same person with different UID, there is a way to merge them into a UID, choose a added face, then input score here, the score is a filter threshold between 70 and 85, it will list all the similar faces as following picture.
Select all the similar faces, then click to merge all the faces, it will be shown as following picture.

Also you can change name or ID of captured faces one by one, then search with name or ID to merge them, don’t input name or ID to show all face information back, you must input a number if you select to search with score.
7.2.3 Face Alarm Setup

It includes face picture setting, camera filter threshold setting, camera linkage alarm.

--- It is used to set the face picture, user can set it to be 20%, 30%, 40%, 50%, 60%. The percent is more higher, then the face picture will be shown with more background.

--- It is used to define the width of alarm monitors, there are size 1, size 2, size 3, size 4, size 5. Size5 is the widest, size1 is the narrowest.

--- If there is a person stay at the front of a face detection camera all the time, NVSS will alarm again after the time you set here. User can set from 5s to 60s. If the one disappear from the live view of cameras and back again in this period time, then it will still alarm.

--- Set the faces which is shown on live view, when you select ‘show all faces’, it will show all the captured faces. when you select ‘only show stranger faces’, then it would only show the faces didn’t recognize by NVSS.

--- If captured face and black list face have a higher similarity than the one you set here, black list alarm monitor will show information of this face. Similarity of 85% is the one we suggest to set, click to set several period time with different threshold.
If captured face and black list face have a higher similarity than the one you set here, white list alarm monitor will show information of this face. Similarity of 85% is the one we suggest to set. Click to set several period time with different threshold, it will pop up a window as follows.

---

**Schedule Setting**

<table>
<thead>
<tr>
<th>Perio NO</th>
<th>Start Time</th>
<th>End Time</th>
<th>Alarm Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perio1</td>
<td>15:30:00</td>
<td>17:59:59</td>
<td>95%</td>
</tr>
<tr>
<td>Perio2</td>
<td>00:00:00</td>
<td>23:03:00</td>
<td>85%</td>
</tr>
<tr>
<td>Perio3</td>
<td>15:00:00</td>
<td>23:59:59</td>
<td>85%</td>
</tr>
<tr>
<td>Perio4</td>
<td>00:00:00</td>
<td>00:00:00</td>
<td>85%</td>
</tr>
</tbody>
</table>

---

**Linkage Type**

User can choose to set black list, white list and stranger separately.

**Audio Alarm**

User can choose audio here for each linkage type. NVSS support to add audio customerly, copy video to path ‘/usr/jstnvr/Alarm Sound’, need to make sure the format of audio is .wav.

**Send Email**

Send email when there is alarm.

**Face Statistics**

Write face alarm information to face statistics.

**Push Alarm to App**

Push alarm message to APP.

**Trigger Alarm Output**

Support to choose device to show alarm as DO, there is an alarm out delay time which used to set to close DO.

### 7.2.4 Camera Setup

User can add / delete / modify devices to detect faces, the devices can be normal cameras, face detection cameras or cameras of another face detection NVSS.
Select all the information about camera’s setting, then click to add this camera, it will be shown on the right window. Double click the name of a camera listed on the right window to modify its information, click , then click to save the modified information. Click to delete this device. NVSS support to choose detection zone on a camera’s live view by click , you will see a interface as the following picture, User can draw a zone or select all zone to detect a face.
Notice:

There is a face detection device type you can choose, Local Video Stream means a normal camera on local NVSS. Local NVSS will capture face and get face feature from live video stream of a normal camera, it will assume a lot of CPU resource of local NVSS. Please refer the following form 1 to get more information. FR Camera or Remote Device stands for two situations, the one is face capture camera, it will transfer a face to local NVSS to get face feature which assume less CPU than a local device. The other one is the camera on remote face detection NVSS, remote face detection NVSS will capture faces and get face feature, then transfer face feature to local device to do face recognition. This solution almost won’t assume CPU resource of local NVSS which is always used in large project by cascading multiple NVSS as the following picture. Please Form 2 when you choose remote device.

Face Recognition of Large Application
Form 1:

<table>
<thead>
<tr>
<th>CPU</th>
<th>Analysis channels</th>
<th>Frame per second</th>
<th>Max Faces in per camera</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel Celeron</td>
<td>1</td>
<td>2</td>
<td>&lt;=2</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1</td>
<td>&lt;=4</td>
</tr>
<tr>
<td>Intel Core i3</td>
<td>2</td>
<td>2</td>
<td>&lt;=2</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>1</td>
<td>&lt;=4</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>2</td>
<td>&lt;=2</td>
</tr>
<tr>
<td>Intel Core i7</td>
<td>2</td>
<td>3</td>
<td>&lt;=2</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2</td>
<td>&lt;=3</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1</td>
<td>&lt;=7</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>3</td>
<td>&lt;=2</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>2</td>
<td>&lt;=3</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>1</td>
<td>&lt;=7</td>
</tr>
</tbody>
</table>

Form 2:

<table>
<thead>
<tr>
<th>CPU</th>
<th>Total faces analyzed per second</th>
<th>Analysis channels</th>
<th>Average Max Faces in per camera</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel Celeron</td>
<td>4</td>
<td>1</td>
<td>&lt;=3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>&lt;=2</td>
</tr>
<tr>
<td>Intel Core i3</td>
<td>16</td>
<td>2</td>
<td>&lt;=5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>&lt;=4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>&lt;=3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8</td>
<td>&lt;=2</td>
</tr>
<tr>
<td>Intel Core i7</td>
<td>32</td>
<td>4</td>
<td>&lt;=8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>&lt;=5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8</td>
<td>&lt;=4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10</td>
<td>&lt;=3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>16</td>
<td>&lt;=2</td>
</tr>
</tbody>
</table>

Filter Threshold —— Filter Threshold is used for filter face which will list on the bottom of live view interface. It is designed for the situation when you set frame rate to be multiple frames. A face may be captured several times in a short time, if the similarity between two faces is higher than the fileter shreshold, then face won’t be shown on live view, this option is only effective when you choose local device to detect face.

Frame Rate —— Frame Rate is used to limite the frames of a camera should analysis in per second. this option is only effective when you choose local device to detect face.

Detection Mode —— User can set NVSS to detect Max face or all faces of each frame.

Min Face —— It will limite the pixel of a face which can be detected by NVSS. >=60 pix means NVSS will detect the faces which are with a higher pixel than 60 pixel.

Face Quality Score —— face quality score is used to filter the unclear faces.
which are not good for face recognition. The score is higher, the face recognition will be more accurate, but it will discard some faces.

### 7.3 Face Statistics

Right click on the main interface, then select face statistics.

Face alarm statistics is used to induct face alarm information. Check the following interface.

1. Check the information of an exist person in face list which can be used to do staff attendance
2. Check the visitors flowrate in a period time, used in some super market.
3. Check visitors in and out of the situation, used in residential quarters
Select a period of time to search here

Select a search condition here

**All**: It will search all the information about face alarm

**Designated Face**: Search face alarm information of an existing face in black / white list. It will show as following picture when you select designated face,

Click `Search Face`, it will pop up the following interface

Input a ID or name of black / white list, then click `Search` to show the face information on the right window as following picture.
Select it, then click [OK], the face picture will be shown on the face statistics main interface as follows.

Then click [Search], it will be shown as follows.

**Other condition**: It will show two options as follows, you can search face alarm information according to alarm type or channel.

There are three options which are black list alarm, white list alarm and stranger alarm for alarm type.
When you select a channel here, it will be shown as follows.

Also you can search with two options at the same time. It will be shown as follows.
7.4 Face Recognition Playback

Right click on the main interface, then select face recognition playback.

User can choose a period of time and click [Start Search], it will show the formation of all captured faces. Filter threshold won’t take effect here. Interface is as follows.
Right click on a face picture, it will show a list as follows.

---Export this face picture you choose to USB

---All the faces in current page will be exported into USB.

---it will search current face automatically

---Add face to black / white list. It will pop up a windows as the following picture, you can search the person you want to add face from black / white list by name or ID firstly, then click , information about this person will be shown on the right, click information on the left to choose it, then click to add new face for this person. Also User can input a name, then click to add a new face with new ID into black / white list.
Set filter threshold and time to search a certain person by clicking , then it will pop up a window, you can input a ID or name of black / white list to search. Interface is as follows.

Click to search automatically, similar faces will be list here, double click a face picture to display a short video about this face. Interface will be like the following picture.

If you choose a long period time to search, it will need some time to finish, you can click to stop searching, click to see the next page of face pictures, there are 100 faces in one page. Click to come back to previous page.
Chapter 8 Remote Help (TeamViewer)

Note:
Only supported by Desktop version with 64GB MATA card. Those mSATA cards bought before v1.4.3 can't update to support Desktop version.

【Switch System Mode】User can set the System to desktop mode or none desktop mode, Team viewer can only run under desktop mode

【Minimize Window】Click Minimize Window in Screen menu to back to desktop
TeamViewer is a proprietary computer software package for remote control, desktop sharing, and file transfer between computers.

When TeamViewer is started on System, it generates a partner ID and password (user-defined passwords are also supported). To establish a connection between a local client and a remote client, TeamViewer generated ID and password of either client are required. The local client requires the remote client's ID and password to gain control over the remote client, whereas the remote client requires the local client's ID and password to gain control over the local client.
Appendix A: Modify the System Date in BIOS

1. Enter BIOS

Restart the system, press DEL key constantly to enter the BIOS when the system is being started. Our System system includes two kinds of motherboard:
The motherboard of SV6-B75A6:

The motherboard of GA-B75-D3V:

2. Modify the System Date

After you enter the main interface of BIOS, then select the row of System Date by pressing
↑and ↓keys.
Set the date that you want by using the TAB key to switch between data elements.

3. Save and Exit

If you have set your system date successfully, now, press F4 to save and exit of SV6-B75A6 motherboard, for GA-B75-D3V motherboard press F10.
Then the System system will start up.
Appendix B: Enable the Hot Plug

1. Enter BIOS

   Restart the system, press DEL key constantly to enter the BIOS when the system is being started.

   We take the SV6-B75A6 motherboard for example here, other motherboards are similar.

2. Enable the Hot Plug

   Press “←” or “→” to switch the screen and select the Advanced screen.

Select the “SATA Configuration” and Enter it.
Enter the “SATA Mode Selection” and select the “AHCI” mode. Then there are many “Serial ATA Port”, select the “Hot Plug” option and enter it, and enable the hot plug here.

Repeat this step to enable all hot plug of every serial ATA port.

3. Save& Exit

Press “F4” to save and exit, the system will restart.

Note:
The settings of different motherboard is different, maybe some motherboard does not support this function;
Appendix C: Frequently Asked Questions and Solutions

1. Why the live preview is frame skip?

(1) Please run a web client to log in the camera to check whether it is the reason of camera.
(2) Please check all the channels in the system to make sure whether it is caused by switch you use.
Firstly, check the switch which connect with your system and make sure that it is a 1000M switch.
Secondly, we need to think about the processing capacity of the switch. For example, you add 128 cameras to Device List, and configure each camera's main stream 3Mbps, then you can figure out the total instant value should be 384Mbps, but it is far from 384Mbps when you check Camera Data Stream Statistics in your software, it may be 200Mbps. Then we have reasons to doubt the processing capacity of the switch, it causes a serious data packet loss. You should change a switch to have a test.
(3) If there is only one or two cameras having the problem, then check the brand of your cameras. It may be caused by the cameras and software compatibility issues.

2. There is live preview of cameras, but why it can't record?

1. If you can only preview the image with the sub-stream, and you cannot preview the image with the main stream, then we have to think about compatibility issues between cameras and our software.
2. If you can preview the image with the main stream, please check Record schedule setting in system setting which decides the record mode.

3. When I click on the icon in toolbar panel, there is no response, then I click again, it says "Other program is already running", why?

1. In desktop mode, the interface of subroutine will be hidden behind the main interface sometimes. You need to exit the main window (right click to choose Minimize Window or press Alt+9), or press Alt+Tab to switch window.
2. If it is inconvenient for you, please switch it to non-desktop mode in System setting, then it will work as an embedded system.

4. My system always takes a very long time to boot, is there any problem?

Please press Esc key to check the startup process of background, if you find that the smartd service is stuck while booting, then you should check whether there is a bad hardware disk, pull out the bad one to restore boot speed.

5. The software crashes frequently when shows the main interface, it can't work as usual.

This kind of issue always happened when you added new cameras with onvif protocol which had compatible issues with software. It crashes because of the compatible issues when it receives the data of video stream. The watch dog in the software will detect the crash and reboot system.

124
solutions is as follows.

1. In desktop mode, please run the command (rm -rf /usr/jstnvr/paramcamera/dvparam.dat) in the terminal.
2. In non-desktop mode, we will help you to restore your system.

6. **There is no response when I run instant playback function.**

   Please choose the window which has a live preview and right click on instant playback. There will be no response when you choose a window with no image.

7. **When visiting the Web Client, it happens that the loading interface is abnormal.**

   Please check whether you installed the plugin unit properly and clear the buffer of your browser, and then reopen your browser.

8. **After hot swap, the system can't recognize HDD when I insert it into the running system.**

   Please enter the BIOS of motherboard to enable the hot-swapped in the HDD or SATA Configuration, then save and restart.

9. **I can't send email successfully**

   Please check the related settings carefully, especially the server address and port. You can test settings via Foxmail or Outlook, if sends successfully, then it will be ok in our software.

10. **NTP can't correct the time of cameras with onvif protocol.**

    It is due to the compatibility, please consider to set correct time zone in the IE interface of related IPC devices.

11. **The remote playback is not normal when the system is doing the local playback.**

    It is normal, the program is designed like this. when playing back locally, the system doesn't allow remote playback to avoid the usage of CPU too high, also in case the speed of HDD is not so enough that cause the loss of video clips.

12. **Calculate the Hard Disk Size after creating the RAID**

    RAID5: Please choose the smallest Hard Disk of every RAID group, then multiply by total amount of Hard Disk minus 1
    RAID6: Please choose the smallest Hard Disk of every RAID group, then multiply by total amount of Hard Disk minus 2

13. **Something about cellphone app**

    Please search "NVSS Client" from Google market for Andriod phone; For iPhone users, please download it from App Store; NVSS Client support two kinds of ways to connect: TCP and P2P.
14. The used mSata card is used on a new motherboard, but there is still old cameras information showing in playback list. I can't find the new one.

Please delete the file named Camera.ini in the path:/usr/jstnvr/SetPara/Camara.ini. And then reboot the system.

15. The software is freezing and both the keyboard and mouse have no response

The OS is dead because of the video card driver, it can be solved if you use the motherboard with hardware watch dog like our company. If not, I suggest you to change a motherboard.

16. Some cameras in the software always disconnect.

Please check the instant value in Camera Data Stream Statistics, if the Record Average Value is less than the one you set in cameras, we have reason to believe that the issue is caused by network. Especially, when the total instant value is not more than 100Mbps, but in fact it should be 200Mbps or 300Mbps, it must be caused by network. The bad network may be caused by crystal head and cable quality. Normally, 100M just need to connect with 2345 line, but 1000M need to connect 8 lines and must make sure line connectivity. But many self-adaption switch don't need to make sure the 8 lines are line connectivity, it just looks like line connectivity, but in fact it is not more than 100M.

17. If you are prompted with “called runscript when not marked in progress” when installing the cmsClient software under Win10 operating system, please do the following steps to solve the problem:

1. In the taskbar below the computer desktop, right-click to find the task manager and get into it;
2. Click the details to find the Windows file explorer (explorer.exe) and right-click to end the task;
3. Click the “File” on the top left of the task manager, and then click the button “run the new task”;
4. In the pop-up dialog box, click the button “Browse” to find the path “System > Windows> explore.exe”.
5. Select the “explorer.exe” file and then right-click, select “run as administrator” to complete the operation.
6. You can install the software after finishing the above operations.