



IPTV MultiViewer

User Manual

2018.12

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1.1 System introduction

1.2 Screenshots of Monitoring Wall

The screenshot displays a BlueTop MultiViewer interface with six video feeds arranged in a 2x3 grid. The top-left feed shows a temperature gauge with '25°C' and '0°C' markings. The top-middle feed shows a large digital clock displaying '14:57:52' and the date '2015-02-16'. The top-right feed shows a man in a dark uniform. The bottom-left feed shows the text 'Video Scramble' and 'Audio Scramble'. The bottom-middle feed shows a ship on a screen. The bottom-right feed shows a table of data with columns for 'Station', 'Frequency', 'Power', 'Signal', 'Status', and 'Remarks'. Below the video feeds is a table with columns: Start Time, Input, Service, Message, Threshold, Cleared, and Duration.

Start Time	Input	Service	Message	Threshold	Cleared	Duration
2015-02-16 14:54:17	Input-2	CCTV-8HD	Audio Scramble	5s		
2015-02-16 14:54:17	Input-2	CCTV-8HD	Video Scramble	5s		

Chapter II Running Environment

Bluetop could provide full package including hardware and software license. MVS-213 is model of Multiviewer server, which handle multiple services with customized license. Also customer could build their own system to meet BOM configuration as below.

2.1 MVS-213 Hardware & License Package

Model	Description
HawkEye DG MVS-213	2RU Industrial Chassis; CPU: Inter (R) Core(TM)i7-6700 3.4GHz RAM: 16GB Graphics card: Inter(R) HD Graphics 530 (version:21.20.16.4664) Network card:1000M *2 HDMI output *2 redundant power *2
BMV-16	Support 16 CH Service decoding license
BMV-32	Support 32 CH Service decoding license
BMV-48	Support 48 CH Service decoding license
BMV-64	Support 64 CH Service decoding license
BMV-80	Support 80 CH Service decoding license
BMV-96	Support 96 CH Service decoding license
BMV-112	Support 112 CH Service decoding license
BMV-128	Support 128 CH Service decoding license
BMV-ULT	Support unlimited Service decoding license

* Order would be delivered with Software plus USB Key;

*No limitation of SD or HD service counting;

*License might be customized according to request;

*Hardware might be changed without notice.

2.2 Benchmark

MVS-213					
Service Type	MPEG2 SD	MPEG2 HD	H.264/AVC SD	H.264/AVC HD	H.265 4K
Max. amount	35CH	24CH	45CH	25CH	1CH

Source counted as:


- MPEG-2 SD 3.5Mbps 720*576
- MPEG-2 HD 18Mbps 1920*1280
- H264 SD 1.2Mbps 720*576
- H.264 HD 8Mbps 1920*1280
- H.265 25Mbps 3840*2160

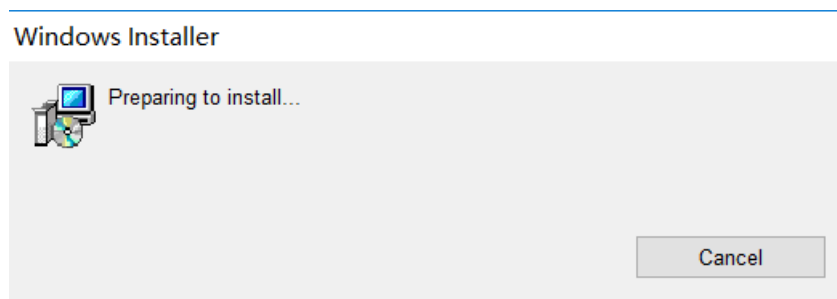
Chapter III Installation Instruction

3.1 Installation of MySQL Database

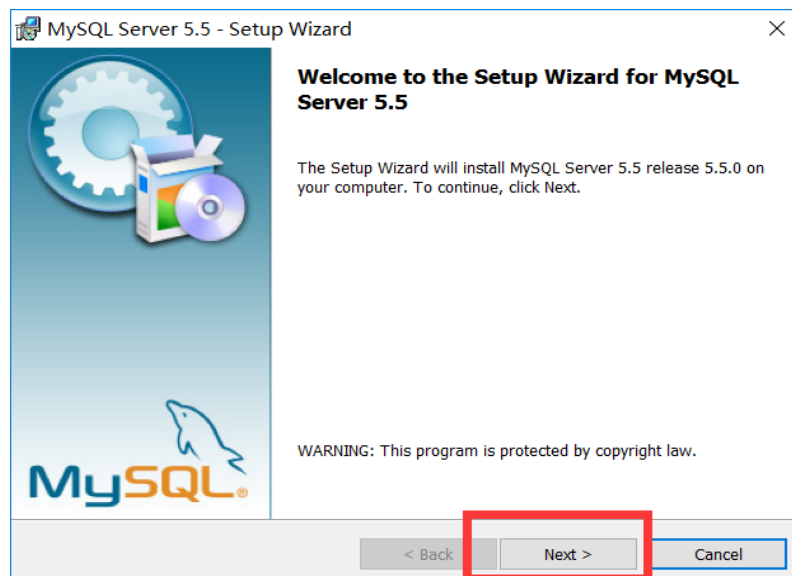
Please purchase MySQL directly for any commercial use.

Notices for installation of MySQL database:

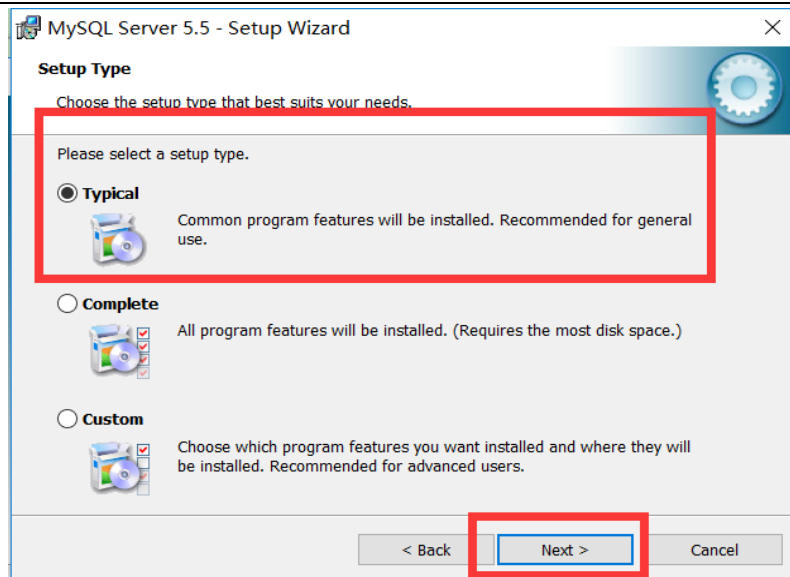
Step-1: Double click  `MySQL [5.5.0] _Setup_X86.msi`, open the database installer. Please wait for the prompt.



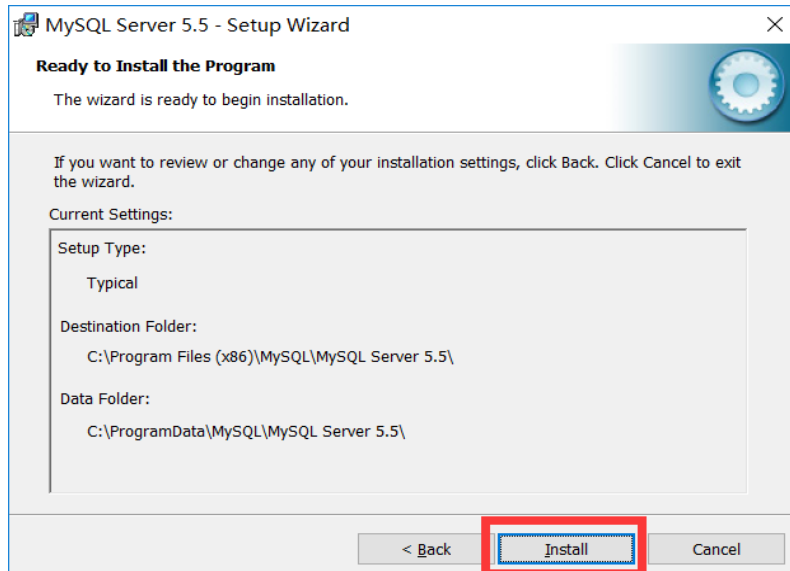
Step-2: Install as shown below.



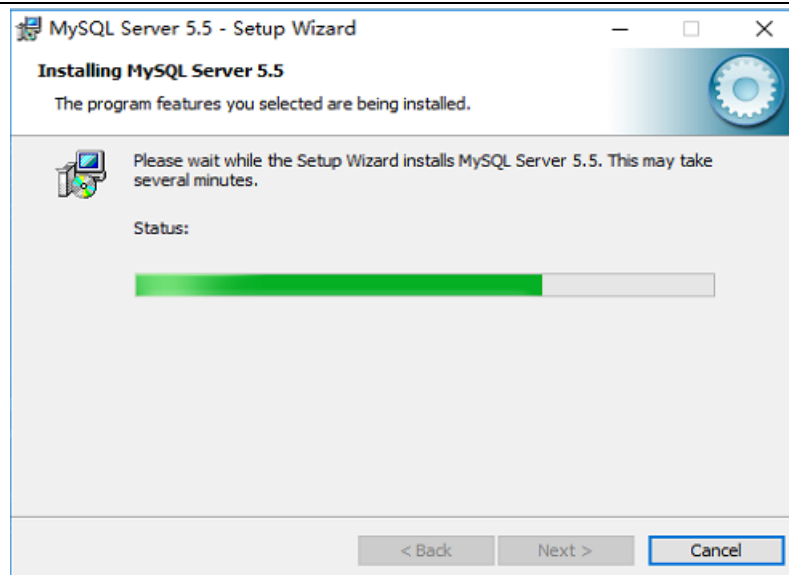
Click "Next".



Select “Typical” and click “Next”.



Click “Install”.



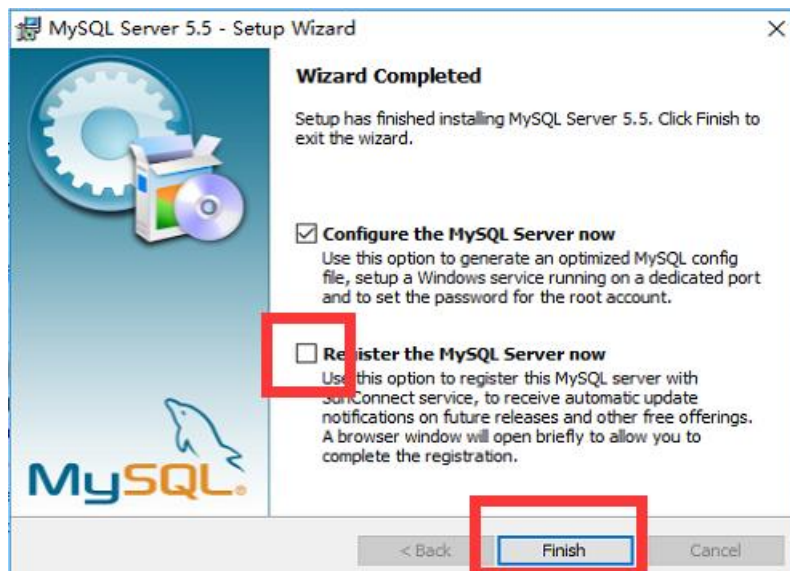
Please wait.



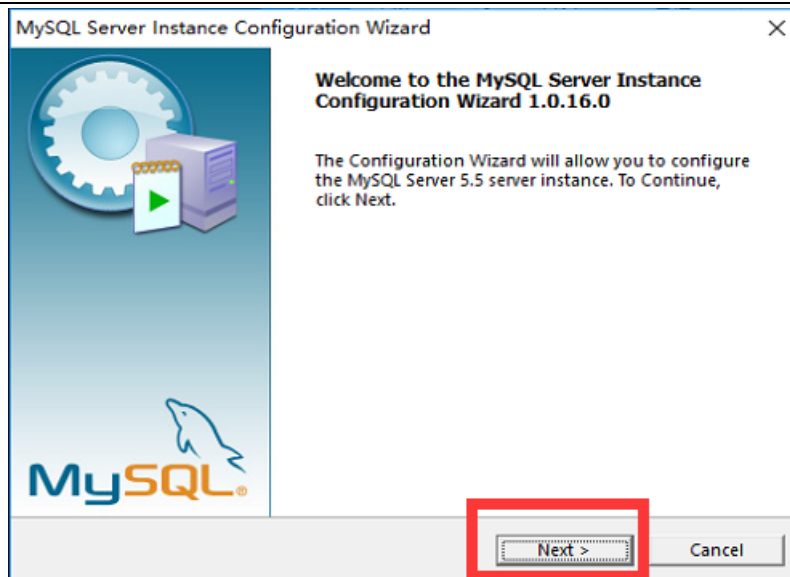
Click “Next”.



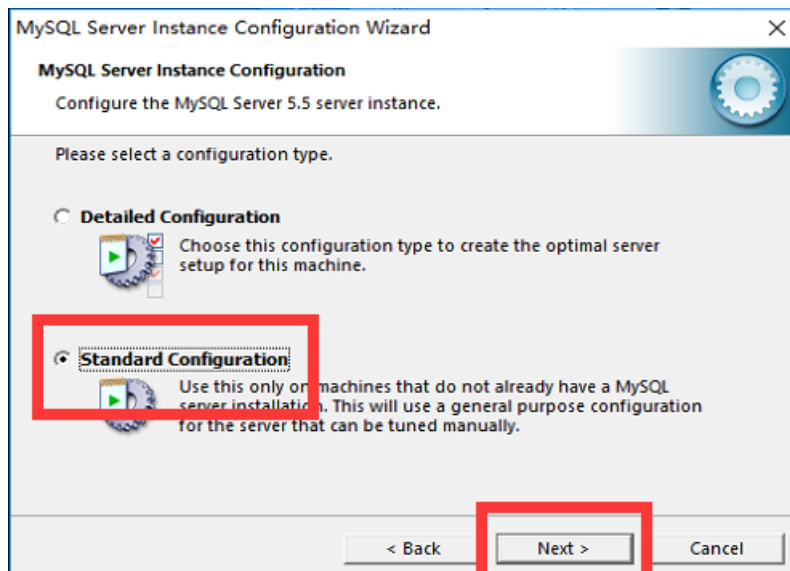
Click "Next".



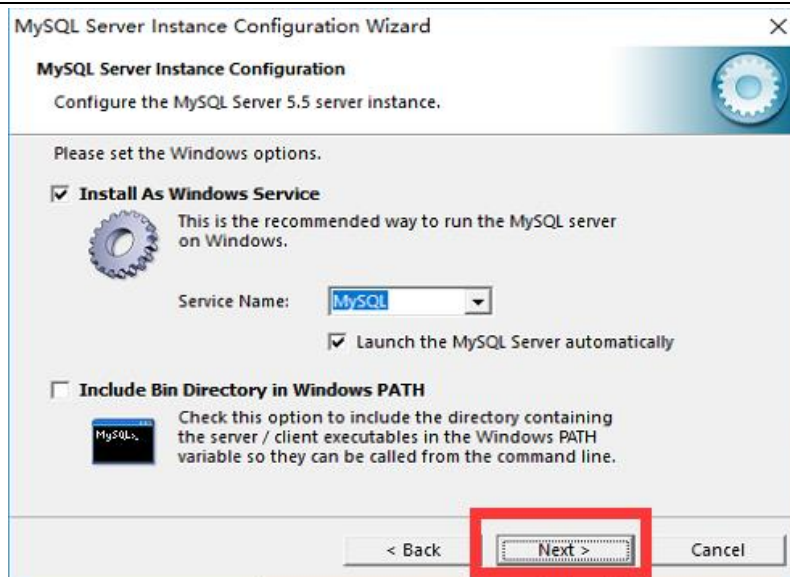
Remove the checkmark in front of "Register the MySQL Server now" and click "Finish".



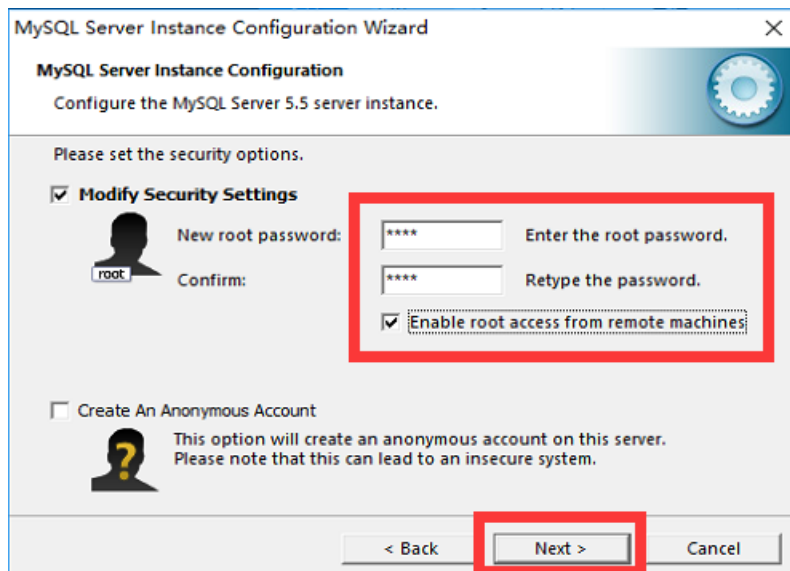
Click “Next”.



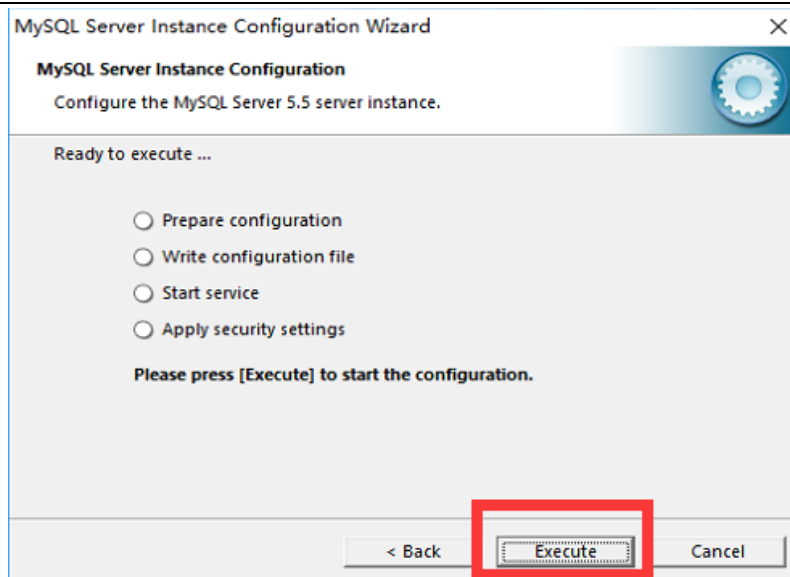
Select “Standard Configuration” and click “Next”.



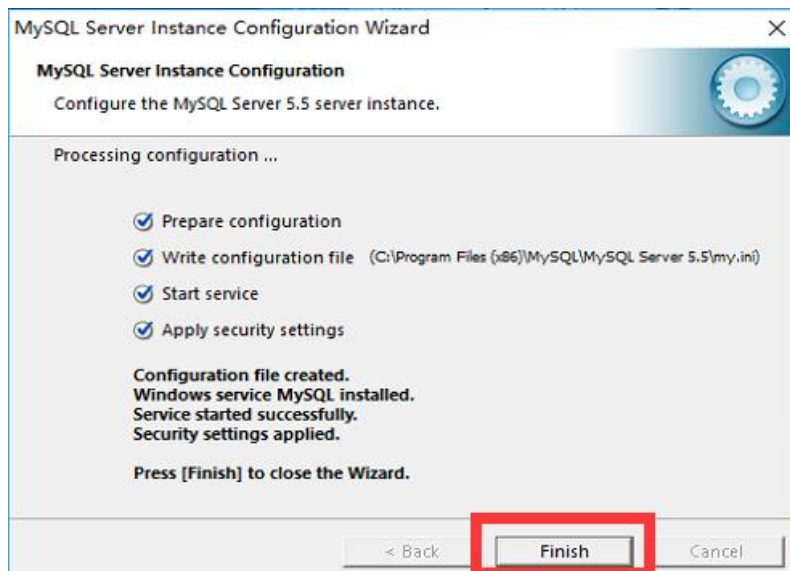
Click “Next”.



Enter “root” 【New root password】 in the following figure, enter “root” after the below “Confirm” and check the below “Enable root access from remote machines”



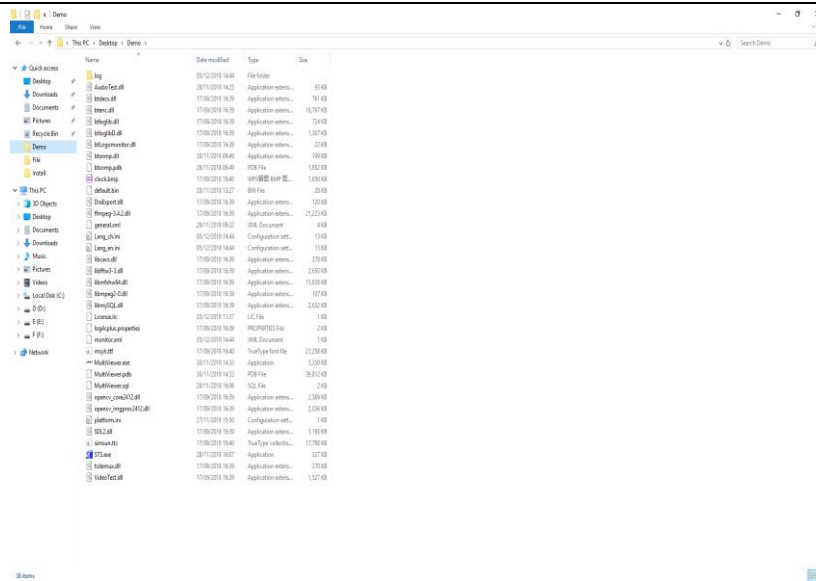
Click “Execute”.




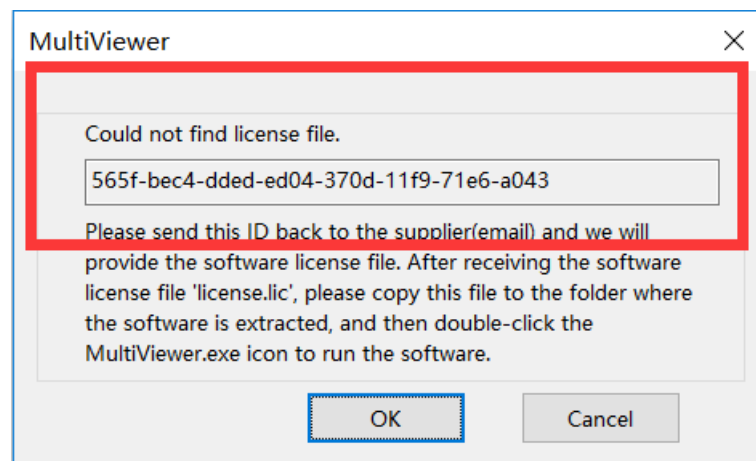
Click “Finish”.Complete database installation.

3.2 Installation of Bluetop MultiViewer Software

Extract Multiverwer into an empty folder  BluetopDemo.zip



Double click  and run Bluetop MultiViewer Software for the first time, the following dialog pops up.



Please send the contents of the red box back to the supplier and we will provide the software license file. After receiving the software license file 'license.lic', please copy this file to the folder where the software is extracted, and then double-click the MultiViewer.exe icon to run the software.

3.3 Un-installation of Multiviewer

Remove the unzipped folder completely.

Chapter IV Operation Instruction

4.1 Main User Interface

The main interface of the Bluetop MultiViewer Software includes tool bar, channel information, playing window and system information. The software main interface is shown as the figure 4-1:

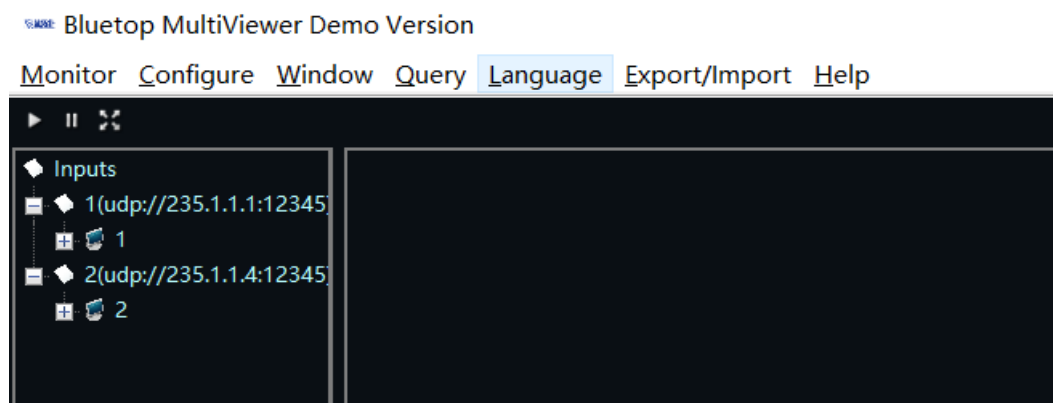
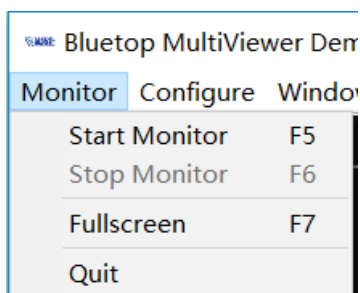
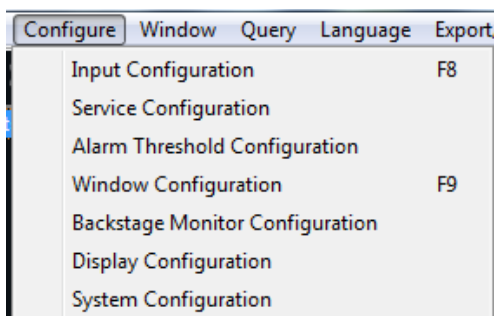


Figure 4-1

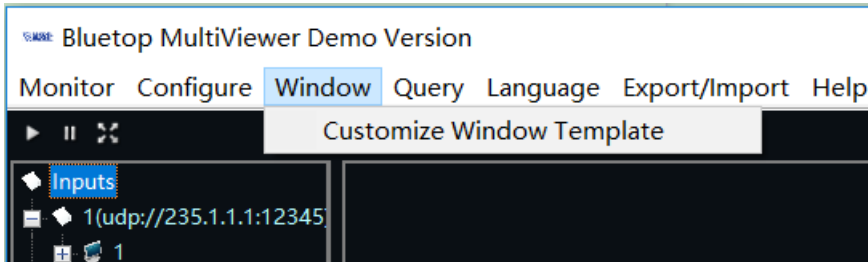
- ① Monitor: This button is to start monitor after configuration



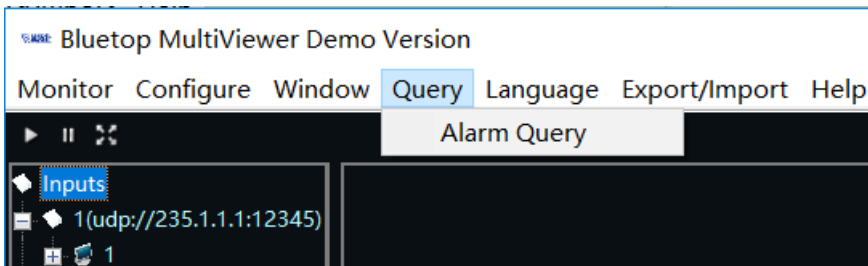
- ② Configure: This button is most important function to configure the stream source



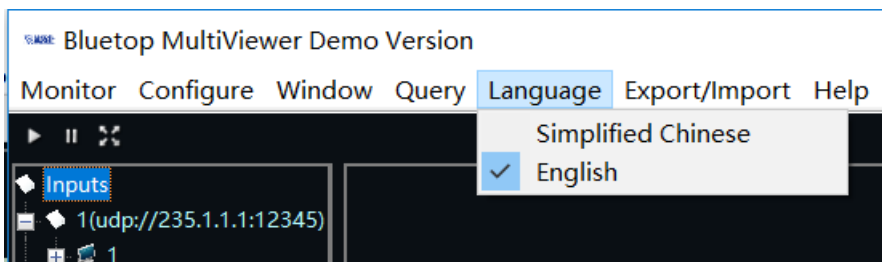
- ③ Window: This button is to start window(screen) layout, where provide template and customization



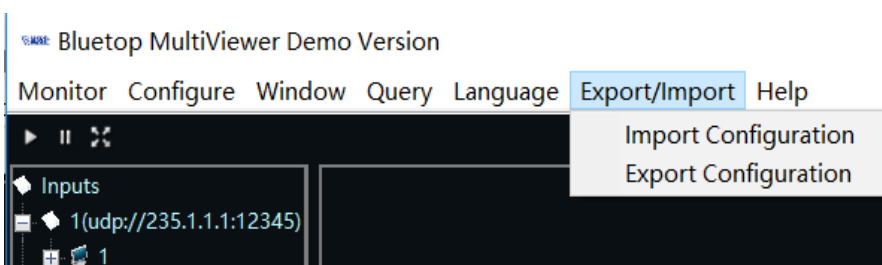
- ④ Query: This button is to query alarm history



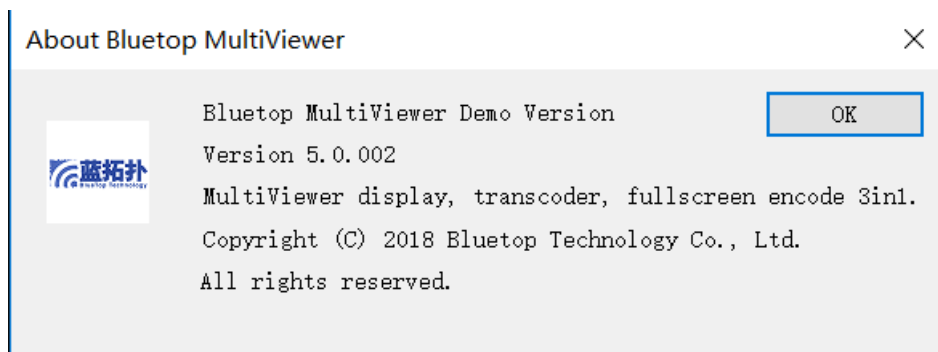
- ⑤ Language: Multiviewer provide English and Chinese switch



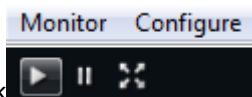
- ⑥ Export/Import: Save and load the configuration history




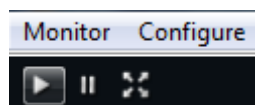
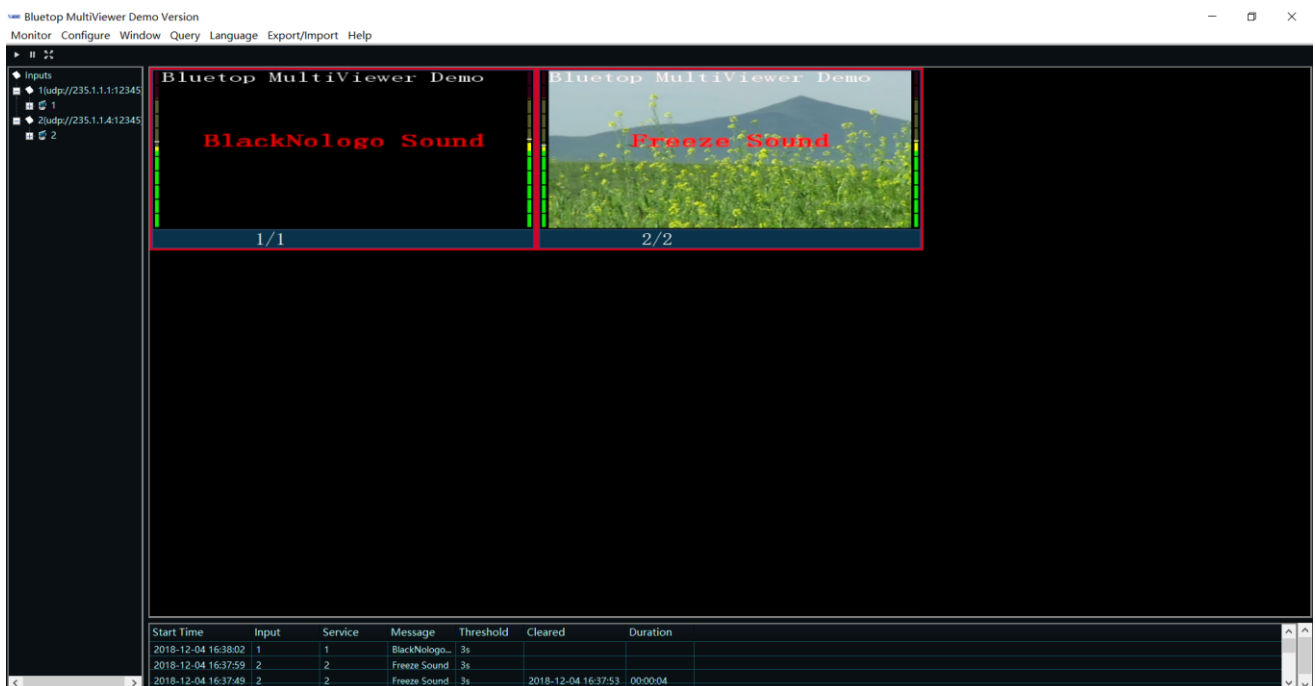
- ⑦ Help: User Manual and software version information




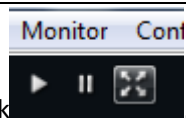
4.2 Tools bar (play, pause, full screen)




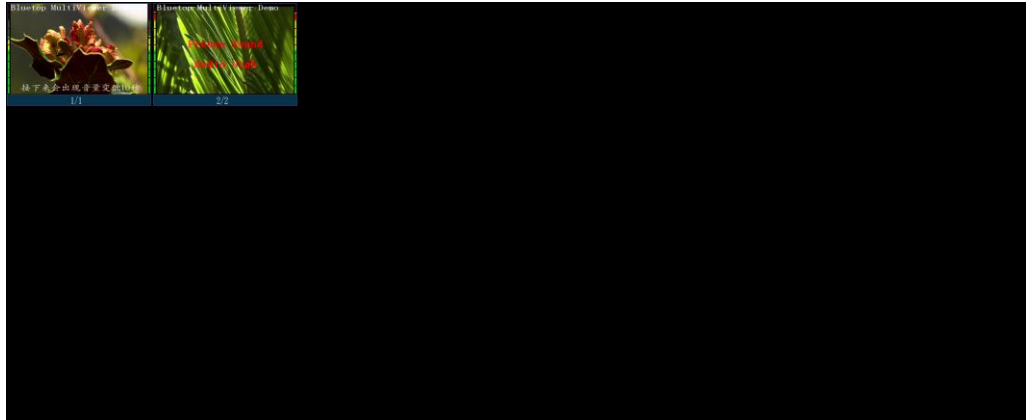
Click  button, the play window will display the program image and monitoring starts, shown as below. To double click the program image in playing, this program will zoom out to the full playing window. To double click it again, the image will restore to the original size. To click the program image in playing, you can play accompanied sound of this program.



【Pause】: To click  button, the software will not decode the program and pause monitoring.



【Full Screen】To click , the playing window will zoom out to the full screen. Double click the window will restore to original size, shown as below:



Double click program image under full screen state, the program will display on the full screen.

4.3 Configure

Launching the Bluetop MultiViewer, user needs to configure and run monitoring via the following steps and instructions of each functional tab.

4.3.1 Input Configuration

Click **Configure**, setup input sourcing step by step and then click **Analyse All**, the software will decode and all feeding streams.

*Note:

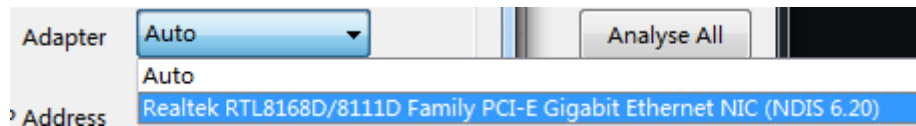
IP addresses and port number: enter the IP address and port number of code stream. The multicast addresses range from 224.0.0.0 to 239.255.255.255

Step-1: Input signal name, user can input a text to mark or name the stream. The default is Input-x and user can customize signal name.

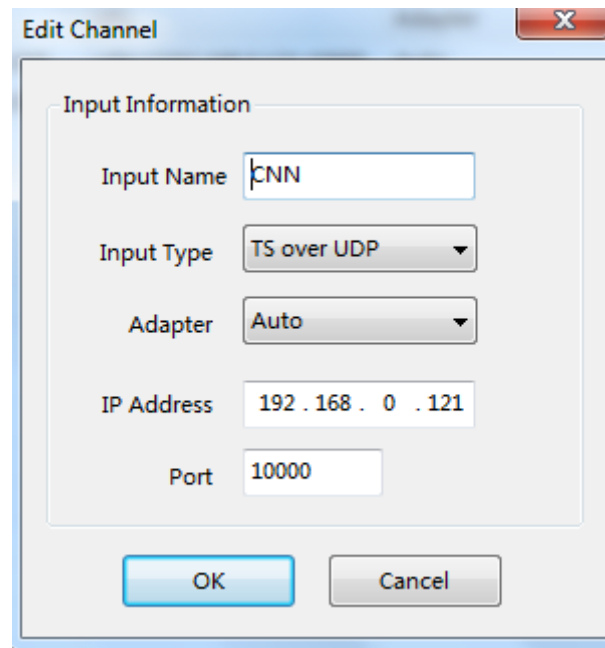
Step-2: Input type, user can select the type of feeding streams from TSoVerUDP, RTSP streaming, RTMP streaming, Http Streaming,HLS Streaming,File.

Step-3: Select the right NIC as Adapter:

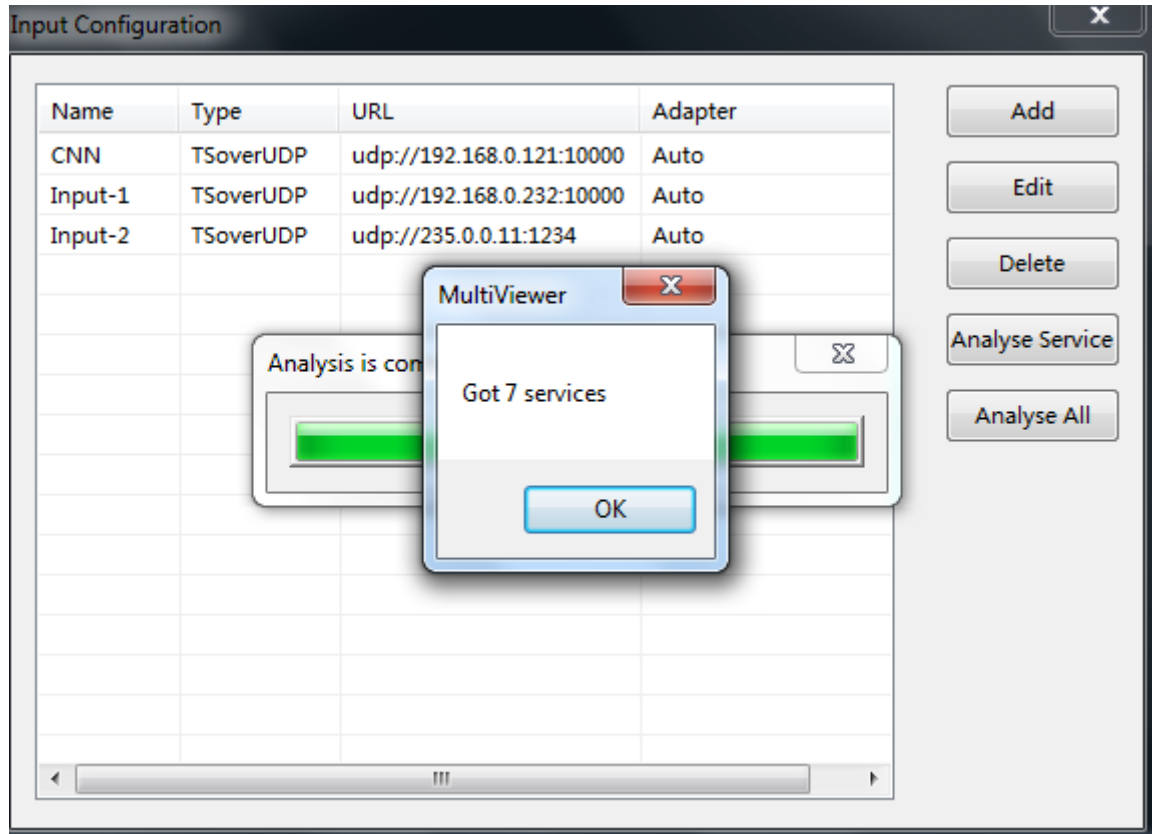
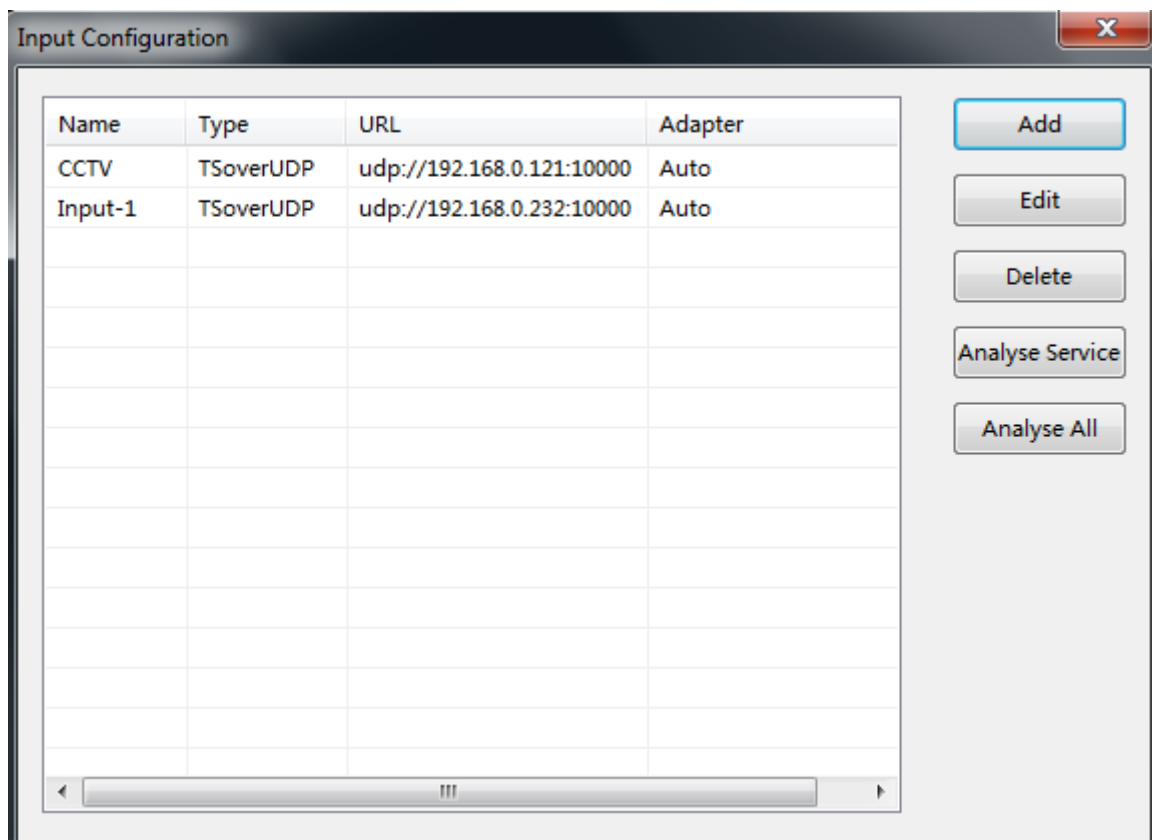
Allocate network adapter: when two Ethernet interfaces are available, you can receive data by using two Ethernet interfaces.



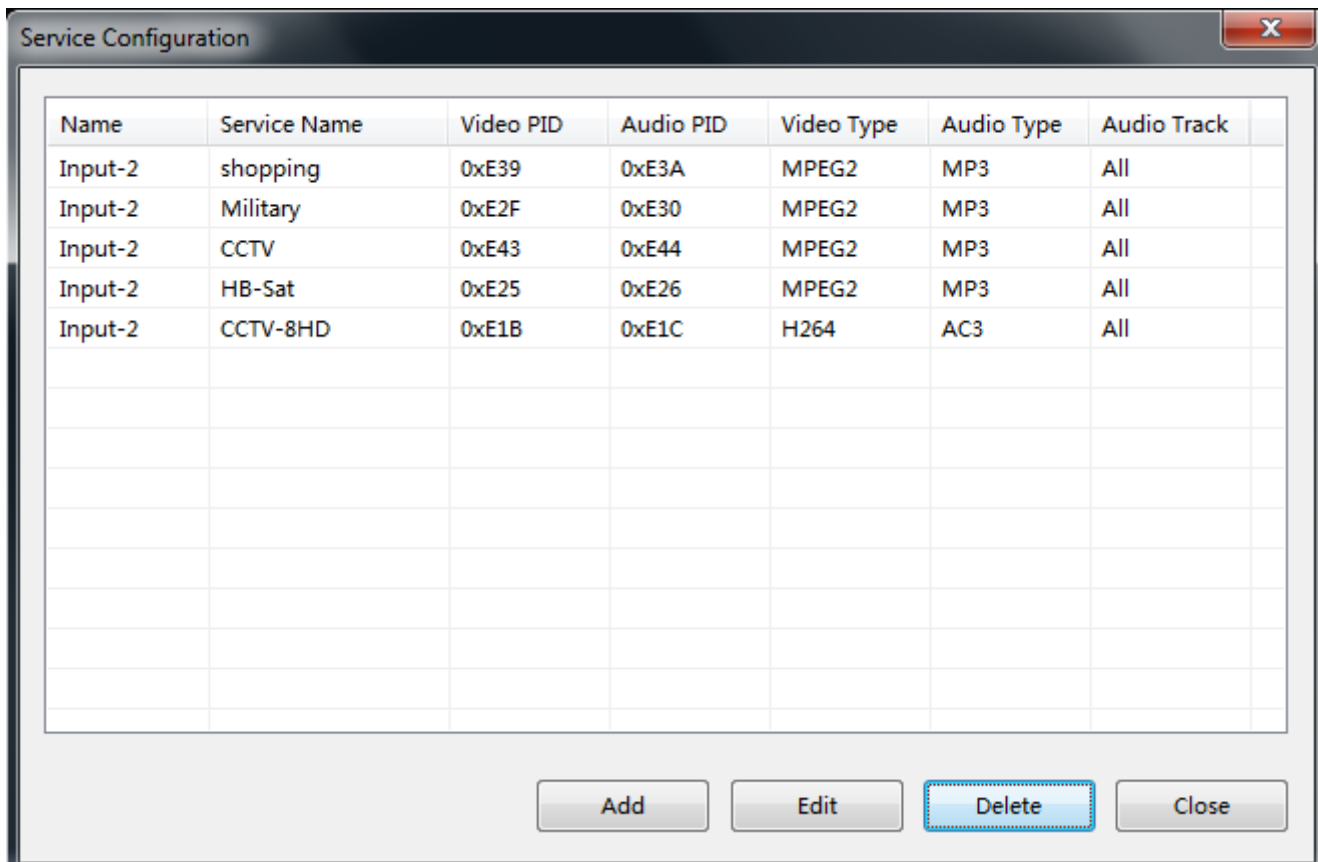
Step-4: Click Edit button to modify the selected service information and click OK.

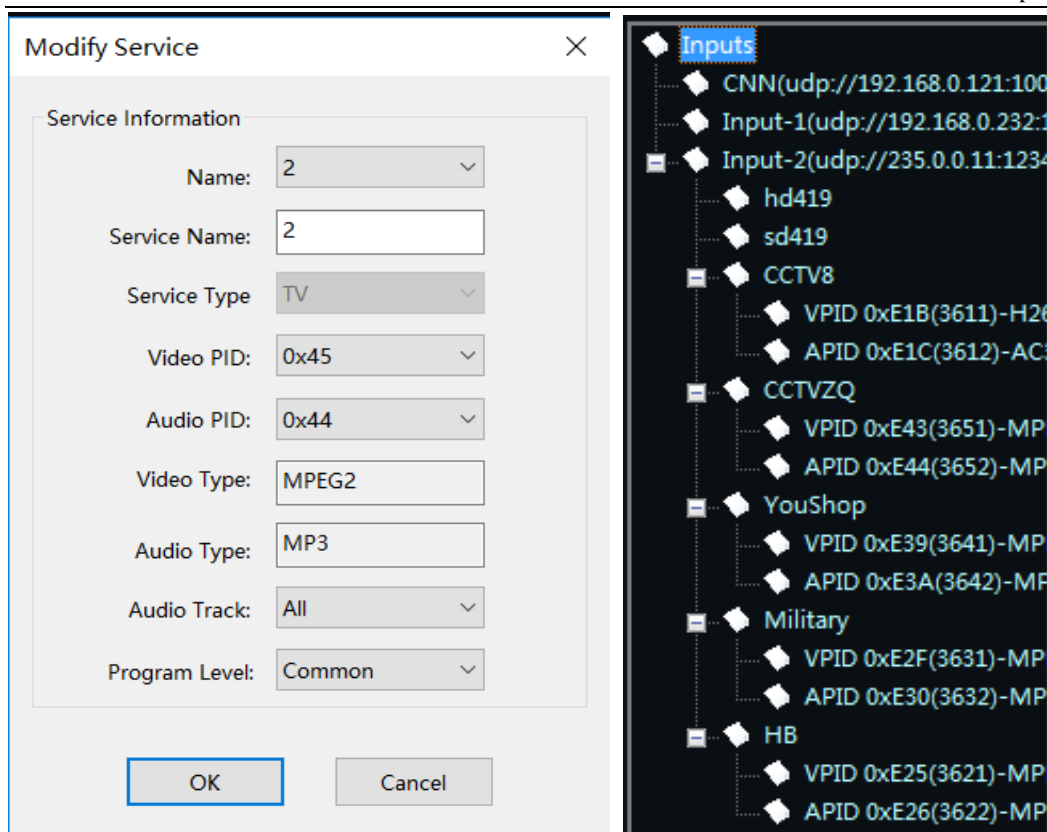


Step-5: Analyse service: select one service to click Analyse Service, or select All to Analyze all input services. Waiting for the process bar and a pop-up window will indicate how many service approached.



4.3.2 Service Configuration





4.3.3 Alarm Threshold Configuration

This option is for Alarm type selection or enabling also duration time setting:

Alarm Threshold Configuration

Service Name: 2

☐ Alert
 ☐ Apply to all

Monitor Preferences

☒ Select All

☒ Service Lost
 Duration 1 s

☒ Decode Fail
 Duration 1 s

☒ Video Lost
 Duration 1 s

☒ Audio Lost
 Duration 1 s

☒ Color Bar
 Duration 3 s

☒ Color Frame
 Duration 3 s

☒ Mute
 Duration 1 s

☒ ColorBar Mute
 Duration 3 s

☒ Freeze Mute
 Duration 3 s

☒ Color Mute
 Duration 3 s

☒ BlackNologo Sound
 Duration 3 s

☒ BlackNologo Mute
 Duration 3 s

☒ BlackLogo Sound
 Duration 3 s

☒ BlackLogo Mute
 Duration 3 s

☒ Freeze Sound
 Duration 3 s

Threshold 97 %

☒ Audio High
 Duration 2 s

Threshold -20 dBFS

☒ Audio Low
 Duration 2 s

Threshold -65 dBFS

Default

OK

Cancel

Service lost: if the feeding streaming receiving rate keeps zero for 3s, it will generate signal break alarm. When the signals break, no other alarms are generated.

Video lost: when the code rate of the service video PID keeps zero for a period (namely user-set “alarm time” parameter) in the network code stream receiving, it will generate video loss warming. When a video is lost, the system will not generate static frame, black image, color stripe and decoding failure alarm.

Audio lost: when the code rate of the service audio PID keeps zero for a period (namely user-set “alarm time” parameter) in the network code stream receiving, it will generate audio loss warming. When an audio is lost, the system will not generate high volume, low volume and decoding failure alarm.

Freeze: when the program video image keeps static for a period (namely user-set “alarm time” parameter), it will generate the freeze alarm.

Black: when the program video image keeps black for a period (namely user-set “alarm time” parameter), it

will generate the black image alarm.

Color bar: when the program video image keeps color stripe for a period (namely user-set “alarm time” parameter), it will generate the color stripe alarm.

Audio High: when the program volume keeps higher than a threshold for a period (namely user-set “alarm time” parameter), it will generate the high volume alarm.

Audio Low: when the program volume keeps lower than a threshold for a period (namely user-set “alarm time” parameter), it will generate the low volume alarm.

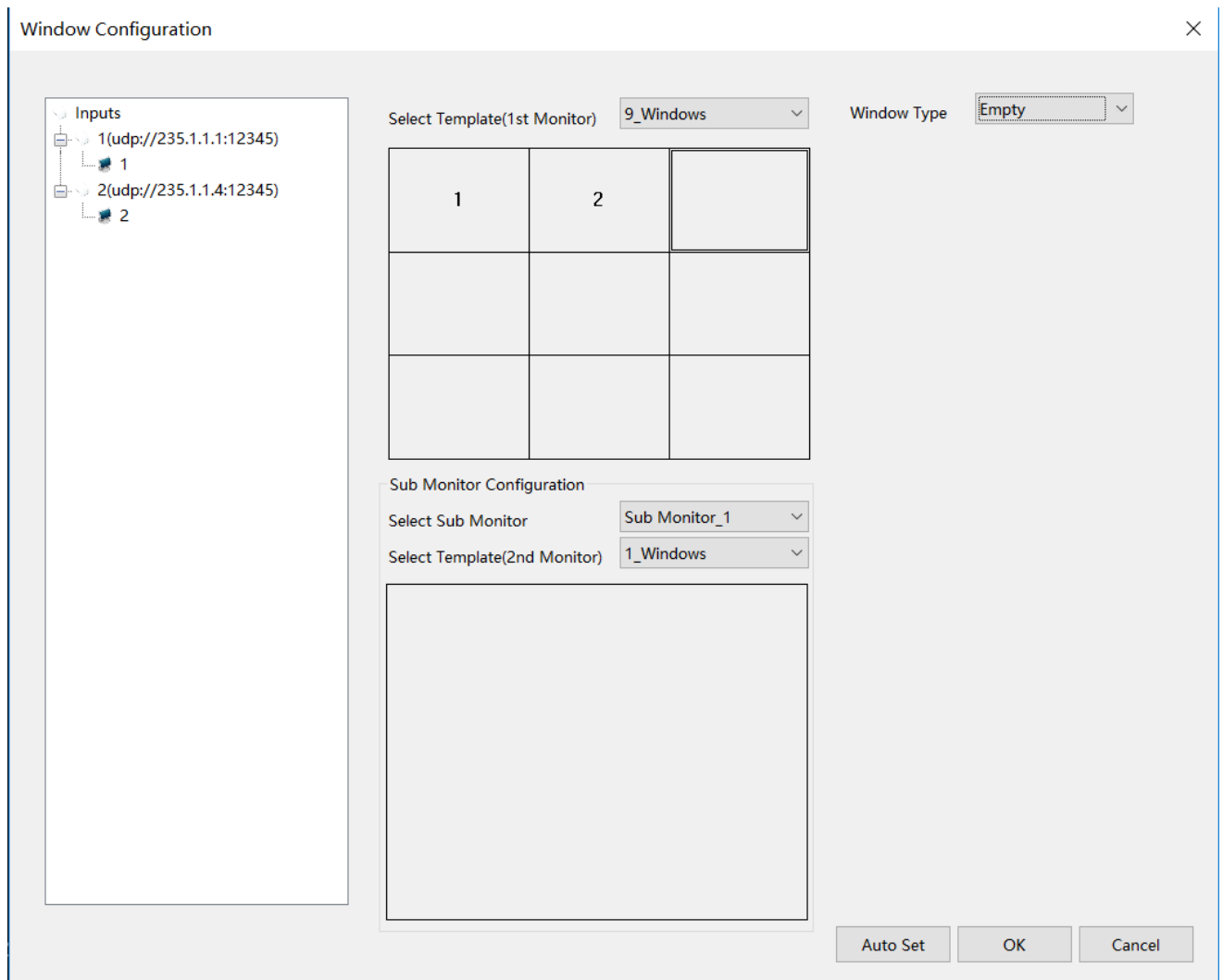
Decode fail: when the video keeps for 10s or the audio decoder cannot decode the input data, it will generate decoding failure alarm. When the input code stream is the scrambled stream or includes incorrect format, it will generate decoding failure alarm.

Video Scrambled: when feeding stream are encrypted, the Bluetop Multiviewer software couldn't decode.

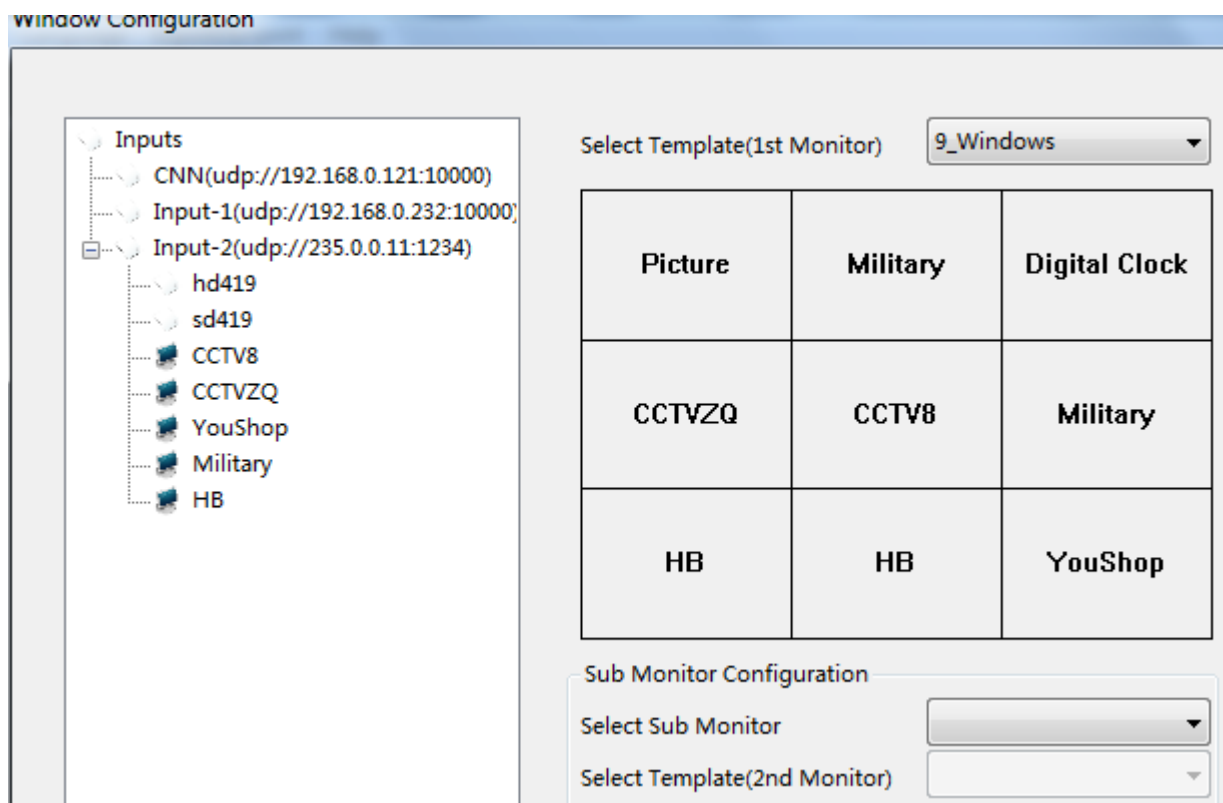
Audio Scrambled: when feeding stream are encrypted, the Bluetop Multiviewer software couldn't decode.

4.3.4 Window Configuration

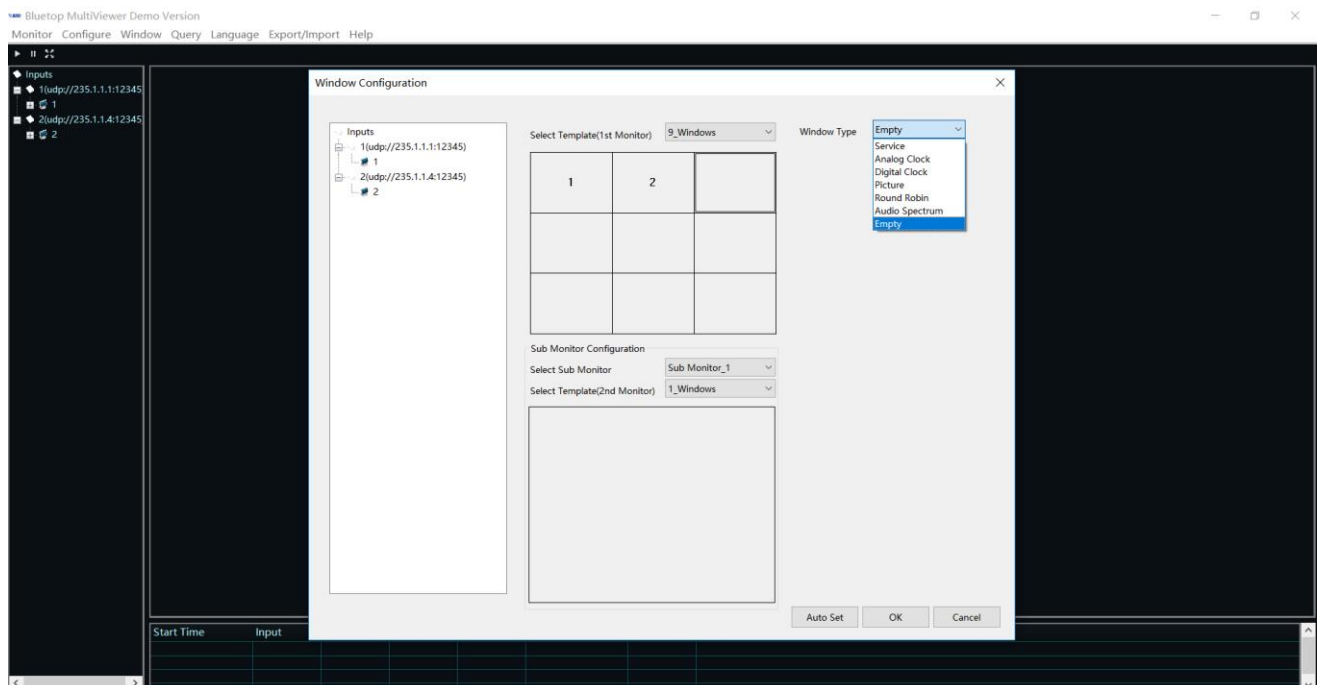
A user can set main screen and save screen image division mode. Besides common audio and video program, the Bluetop MultiViewer Software can display analog clock, digital clock, static image ,carousel,Audio spectrum. The fixed templates include single image, two images, four images, nine images, twelve images, thirteen images, sixteen images, twenty images, twenty five images, thirty six images. To select a template from the right drop-down of the “Select main screen template”, the following window will display schematic diagram of this template.



Drag the input service directly into rectangler, or select service type to set



Also support real-time digital or analog clock to window by selecting the digital or analog clock type

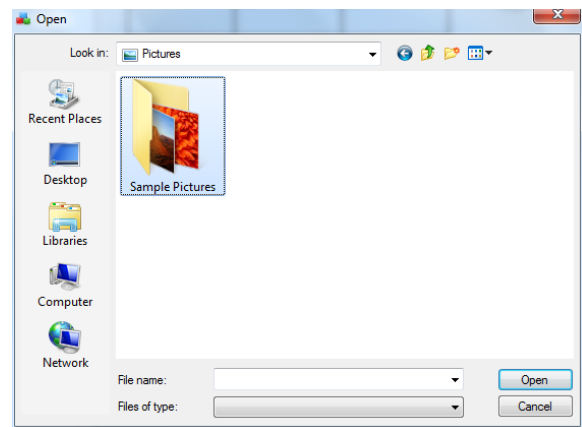


Also support picture shown in window by selecting picture type (bmp, jpg, jpeg, gif and png image)

Window Type

Select Picture

PIC_PATH



Round Robin option is also available by selecting service and set threshold between 5 to 3600secs

hd419
CCTV8
CCTVZQ
HB

sd419
Military
YouShop

>>

<<

Cycle Time(5-3600s)

s

Picture	Military	Digital Clock
CCTVZQ	CCTV8	Military
HB	HB	Round Robin

Split the decoding images into two different monitors by selecting or dragging services into main monitor and sub monitor (it only enable when server connect with two monitors)

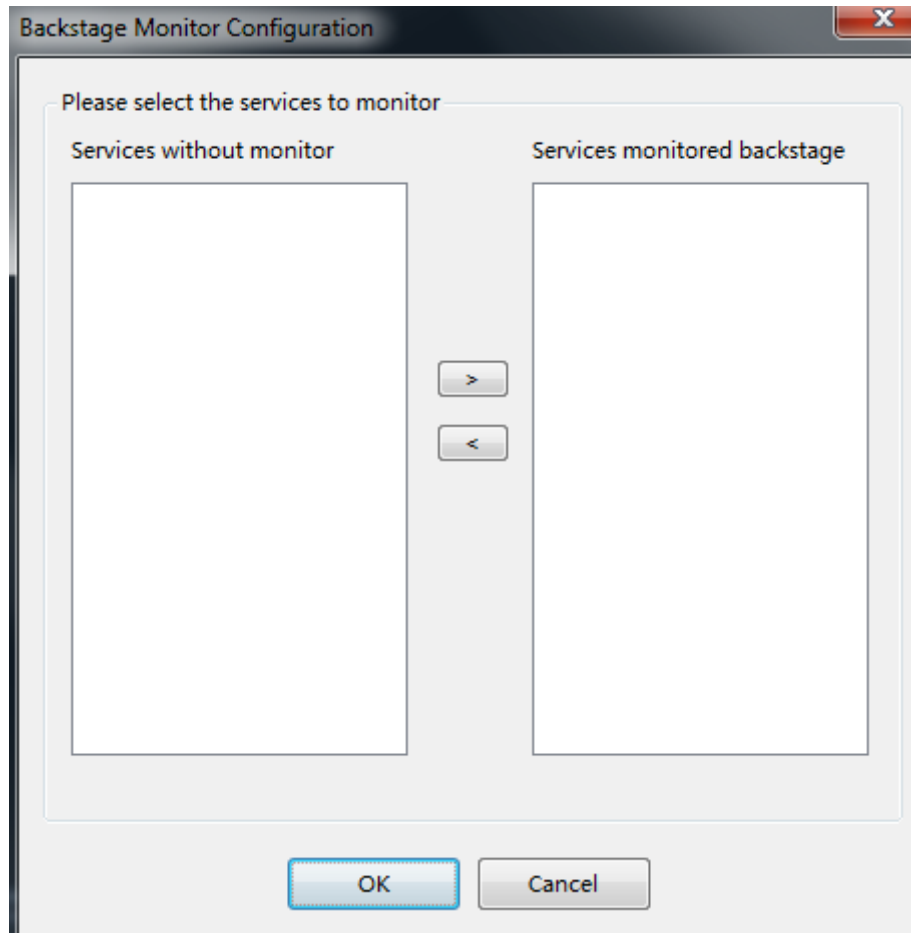
Sub Monitor Configuration

Select Sub Monitor

Select Template(2nd Monitor)

4.3.5 Backstage Monitor Configuration

This option enabled for some service which are not needed to be decoded on window monitor.

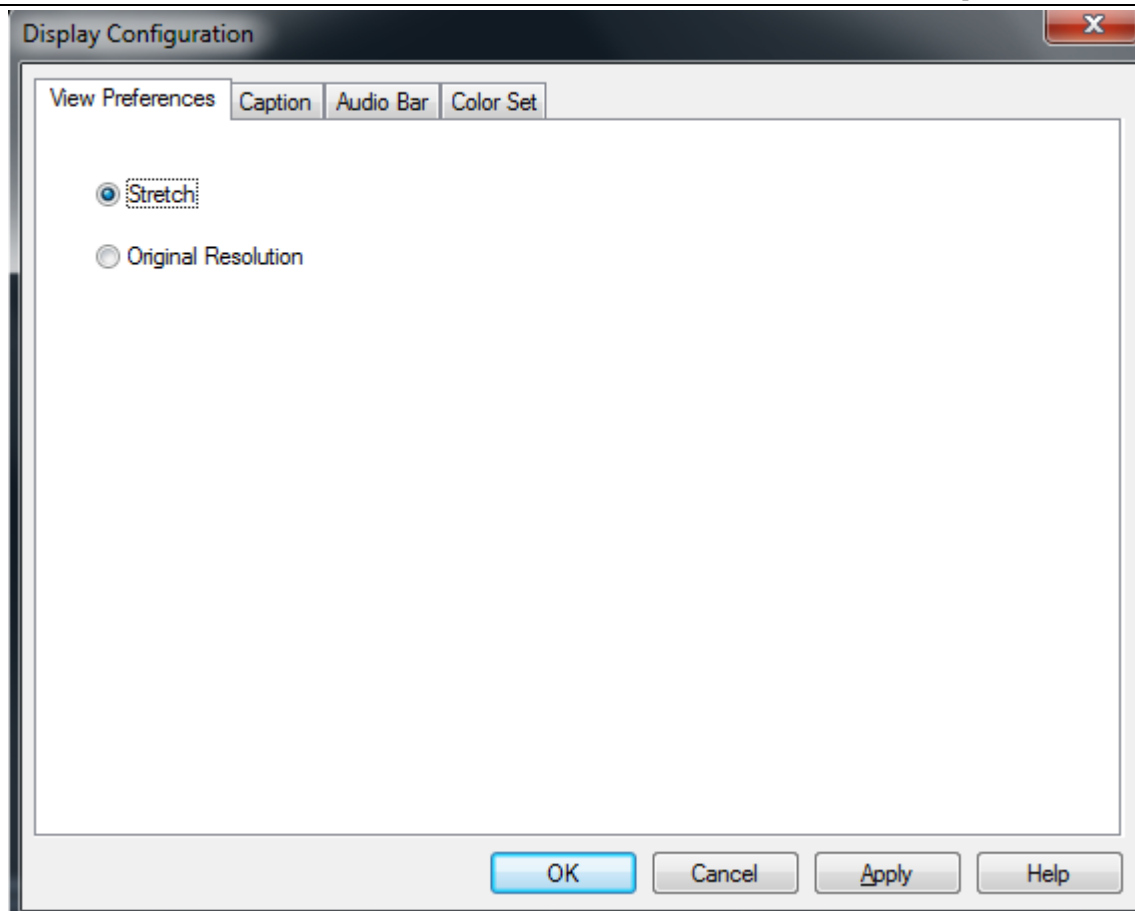


4.3.6 Display Configuration

View Preference Tab:

There are two options: Stretch and original resolution,

- stretch service to fit 16:9
- Original resolution: use service original resolution, if 4:3 would have black aspect border corlor, and set **edge color** in color set tab

**Caption Tab:**

Set service name display color, style, font as preference

- Caption scroll: the service name text would scrool when tick this box;
- Caption height: set the height by pixel or proportion;
- Caption font: set the color ot service name or just name;

Display Configuration

View Preferences
Caption
Audio Bar
Color Set

☒ Caption Scroll

Caption Height

☐ Set by Pixel
Pixel

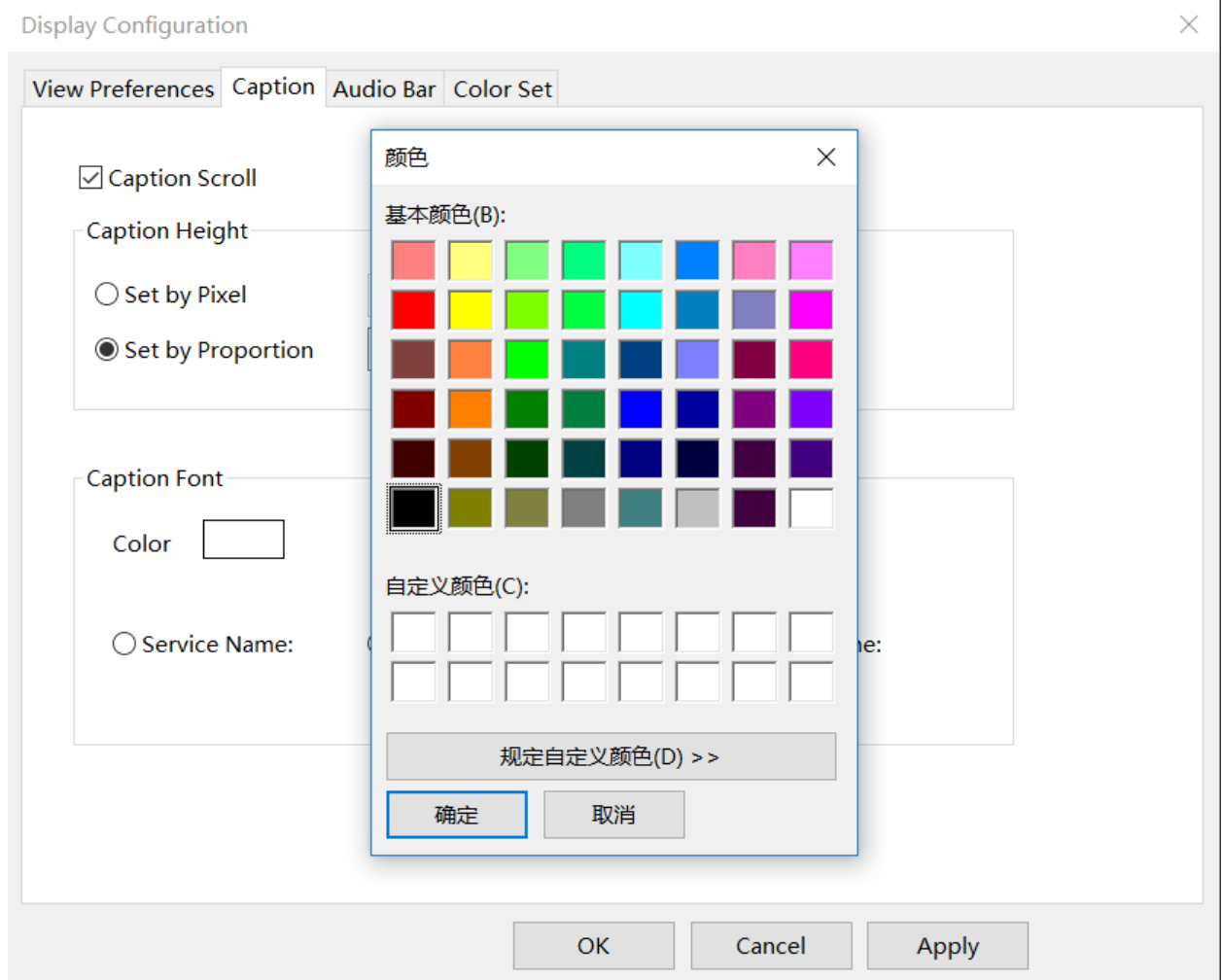
☒ Set by Proportion
%

Caption Font

Color

☐ Service Name:
☐ Name:
☒ Service Name:/Name:

OK
Cancel
Apply



Audio Bar Tab

This tab provide options for audio bar and 5.1 Dobly setting:

- Audio bar postion: set audiobar to bothside, or both on left side,both on right side
- Audio bar direction: set audiobar to horizon or vertical
- Audio bar width: default as 8 pixel, also set 0 to hide
- Mono Service: some service contain two audio PIDs, set decode type by ticking
- 5.1 channel: set the position of 5.1 dobly

Display Configuration

View Preferences
Caption
Audio Bar
Color Set

Audio Bar Position(TV)

Separately on Both Sides
Separately on Both Sides
Both on Left Side
Both on Right Side

Audio Bar Direction

Audio Bar Width
8
Pixel

Mono Service

☒ Show Double Channel
☐ Show Single Channel

5.1 Channel

☒ Front Left
☒ Center
☒ Front Right
☒ Surround Left
☒ Surround Right
☒ Subwoofer

Audio Bar Colour Set

OK
Cancel
Apply

Display Configuration
×

View Preferences
Caption
Audio Bar
Color Set

Audio Bar Position(TV)
Separately on Both Sides

Audio Bar Direction
Vertical
Horizon
Vertical

Audio Bar Width
Pixel

Audio Bar Colour Set

Mono Service

☒ Show Double Channel
☐ Show Single Channel

5.1 Channel

☒ Front Left
☒ Center
☒ Front Right

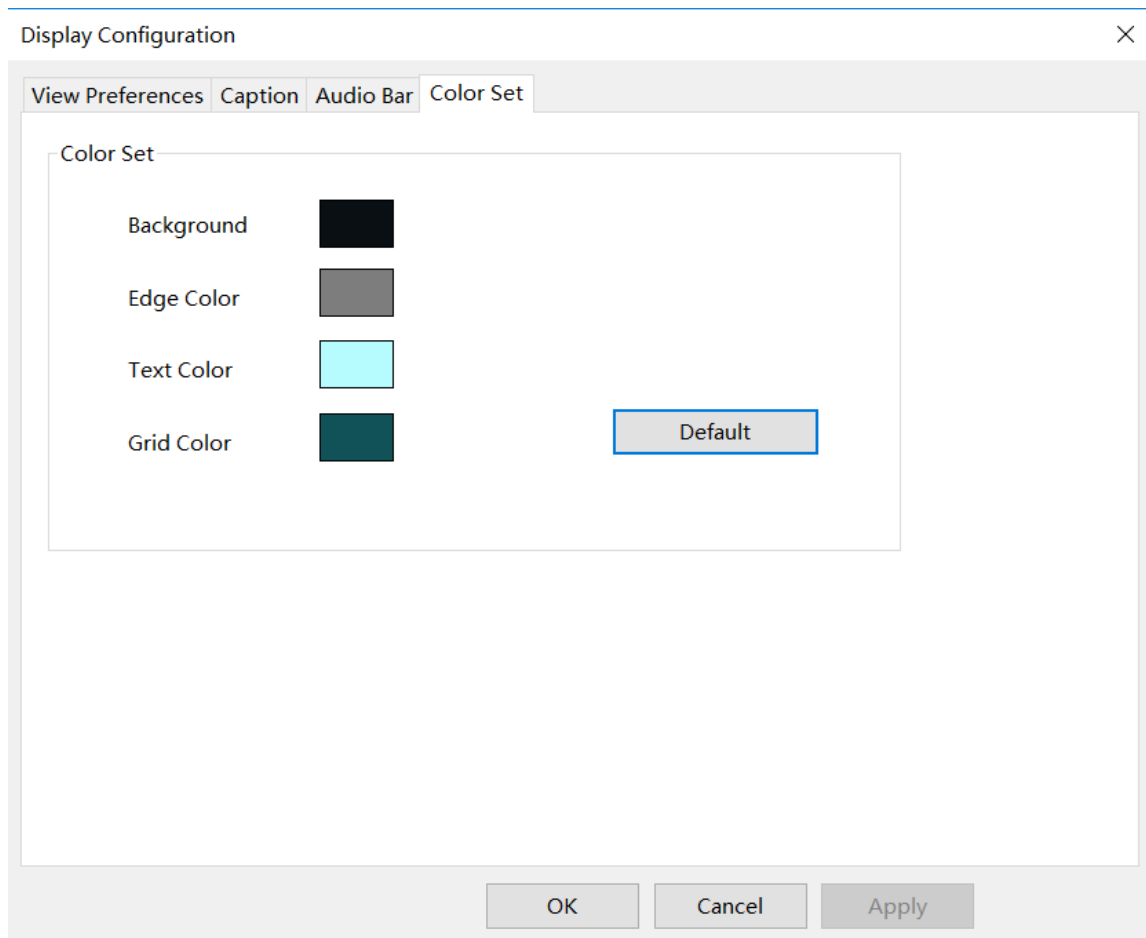
☒ Surround Left
☒ Surround Right
☒ Subwoofer

OK
Cancel
Apply

Color Set Tab:

This tab support color setting for decoding service on window:

- Background: default as black
- Edge: default as grey
- Text: default as blue
- Grid: default as green



4.3.7 System Configuration

Startup Settings Tab

This tab provide customized launching style of software:

- Auto Start Software
- Auto Monitor
- Auto Fullscreen
- User Name and Password

System Configuration
×

Startup Settings
Advanced Settings
Warning Settings

☐ Auto Start Software

User Name(Windows Login):

☐ Auto Start Monitor

Password(Windows Login):

☐ Auto Fullscreen

OK
Cancel
Apply

Alarm Settings Tab

This tab provide alarm log interface with SNMP or HTTP to 3rd party

- Whether to monitor only key frames
- Video monitoring accuracy: Default precision 2
- HTTP
- SNMP trap

System Configuration
×

Startup Settings
Advanced Settings
Warning Settings

Warning Settings

☐ Test key frame ?

Test Precision:
Precision2

Alarm report url:
http://127.0.0.1:3000/

☒ Auto Start SNMP TRAP

TRAP IP:
192 . 168 . 2 . 121

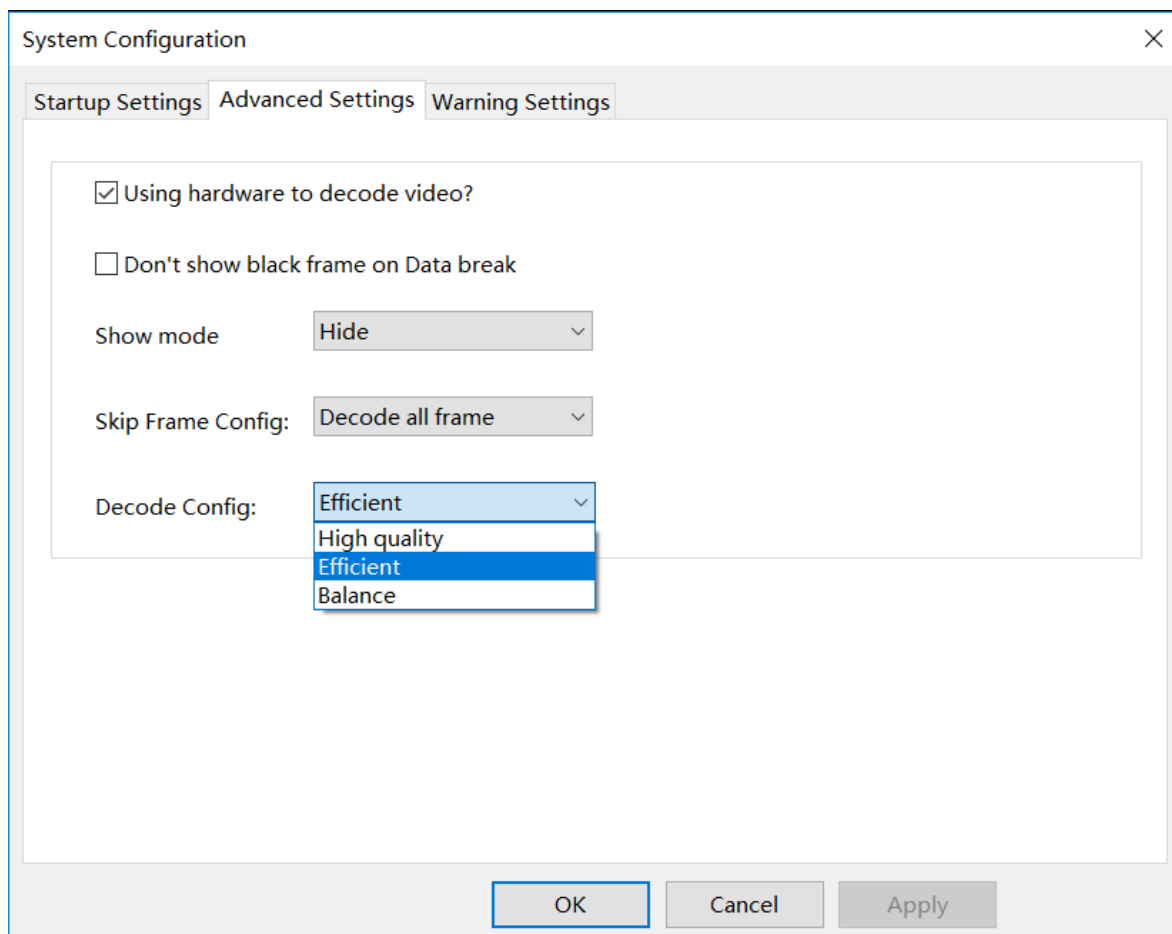
TRAP Port:
162

OK
Cancel
Apply

Advanced Settings Tab

This functional tab provide H.264 format service's decode efficiency in order to save CPU capacity:

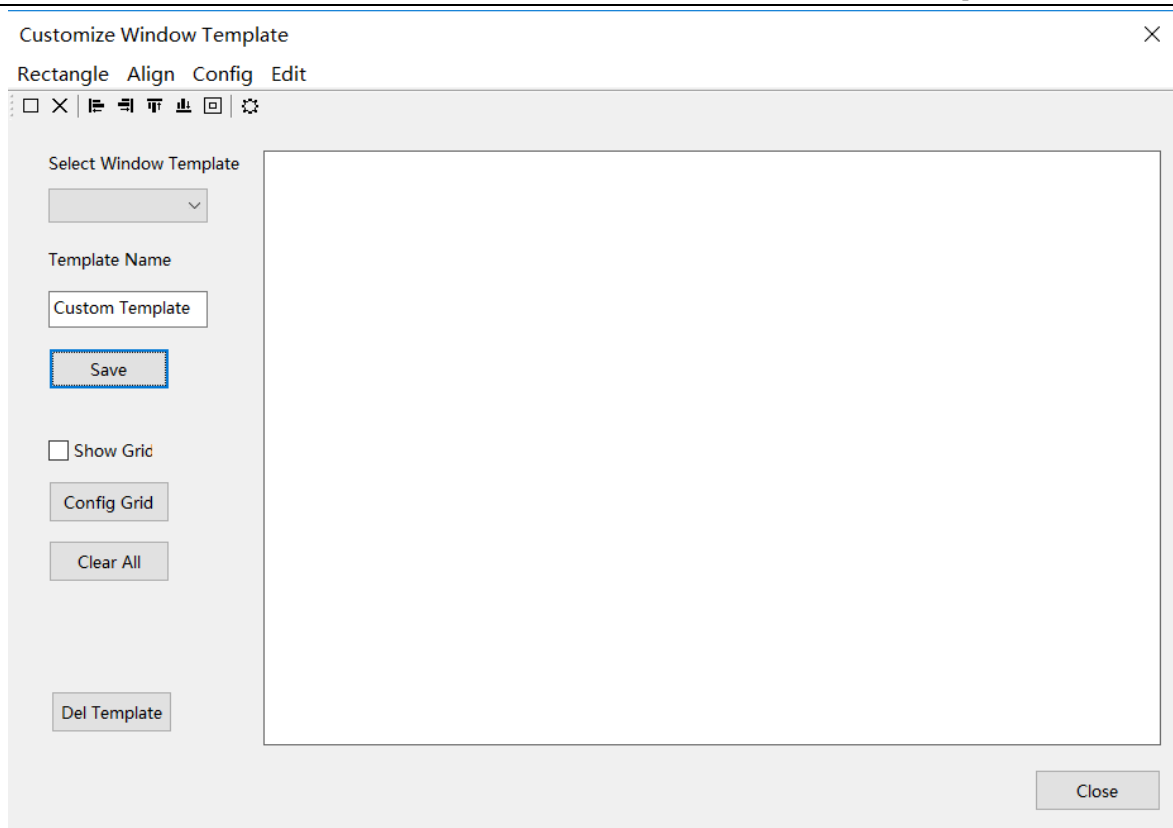
- Using hardware to decode video?---Decoding method: hardware or software.
- Don't show black frame on Data break---Display the last frame when the signal is interrupted.
- Show mode---How child processes are displayed:Hide,Mini,Max.
- Skip Frame Config:Decocde all frame,Decode I frame only.
- Decode Config:High quality,Efficient,Balance



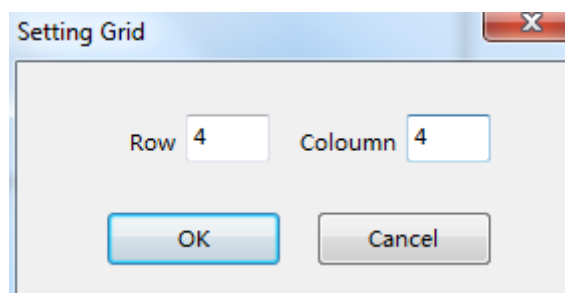
4.4 Window


4.4.1 Customize Window Template

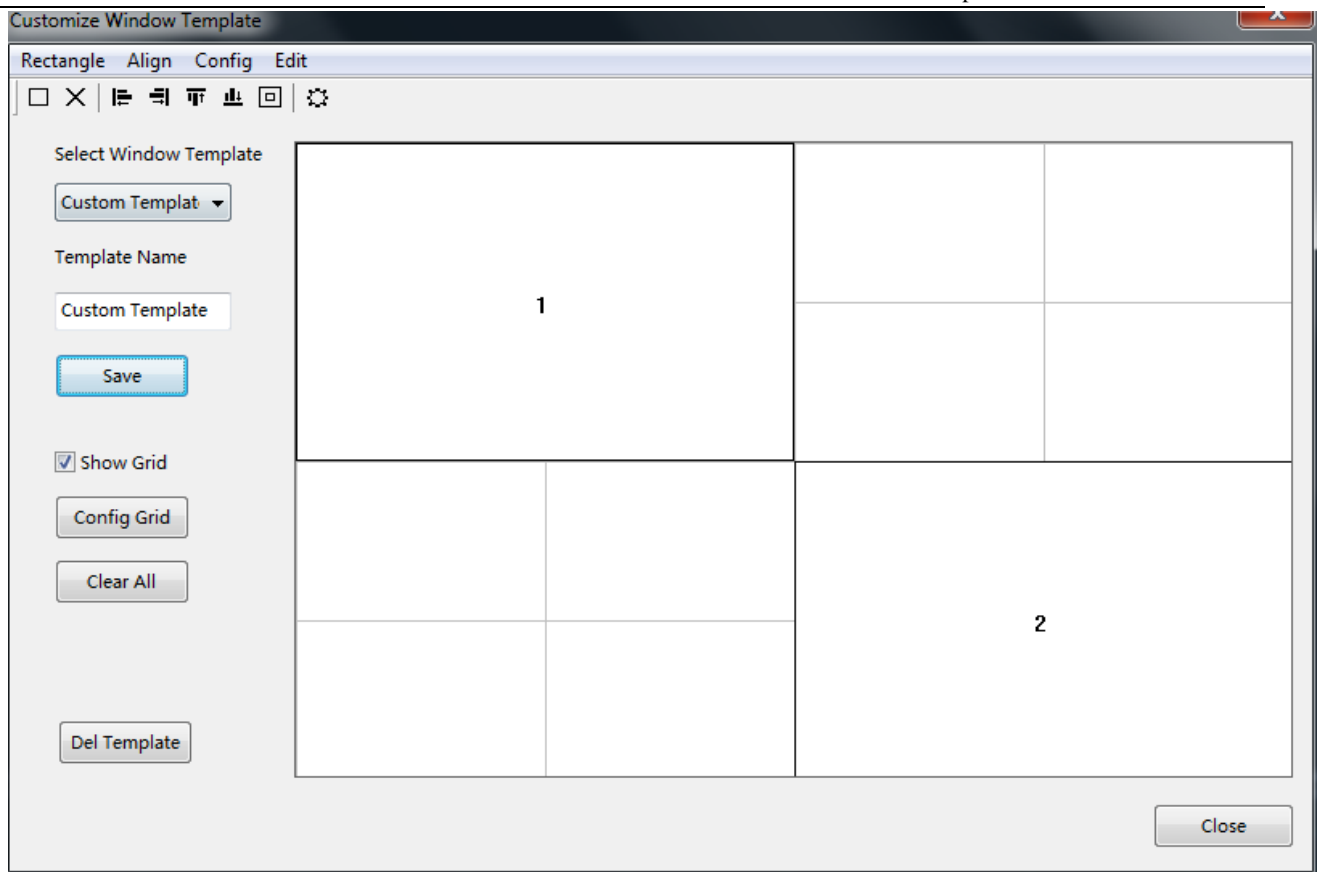
Layout Tool: This tool could support draw window much more easier and flexible.





A user can draw the image template at will on demand. Select a customize template from the right drop-down of the “Select customize template” (The template name cannot use the number in the existing template name alone: for example, if there is a template with 9 screens, the new template cannot be named 9), set grid’ s row and column and shown as below:

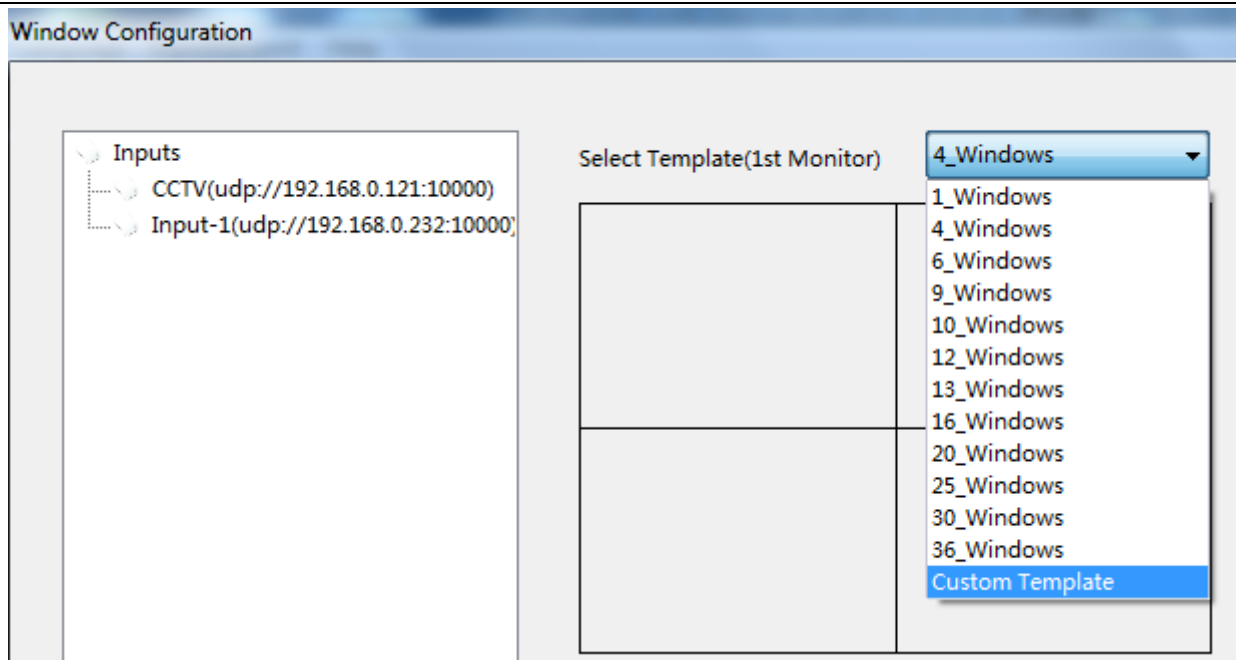


Click  to define rectangular:



To click  button, you can start to draw a template. To click and drag the mouse, you can draw the image rectangle.

To click  button, the customized template would be saved and auto shown in window configuration:



4.5 Query

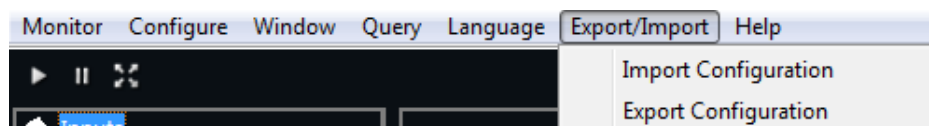
4.5.1 Alarm Query

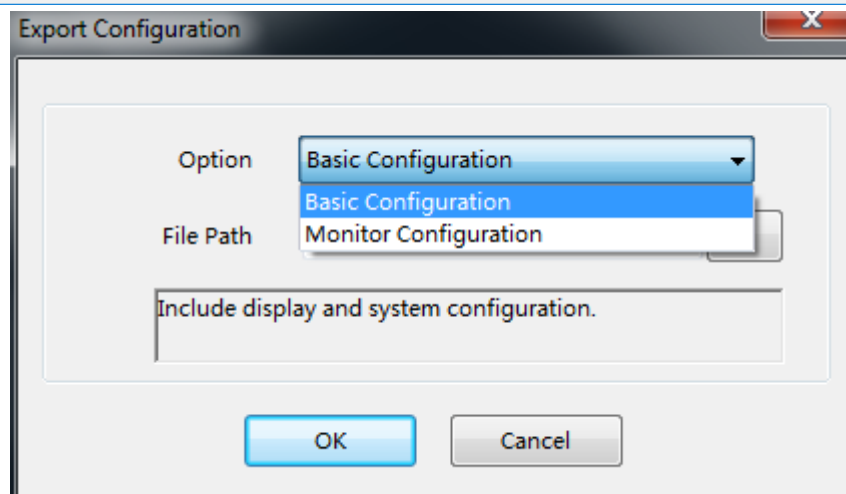
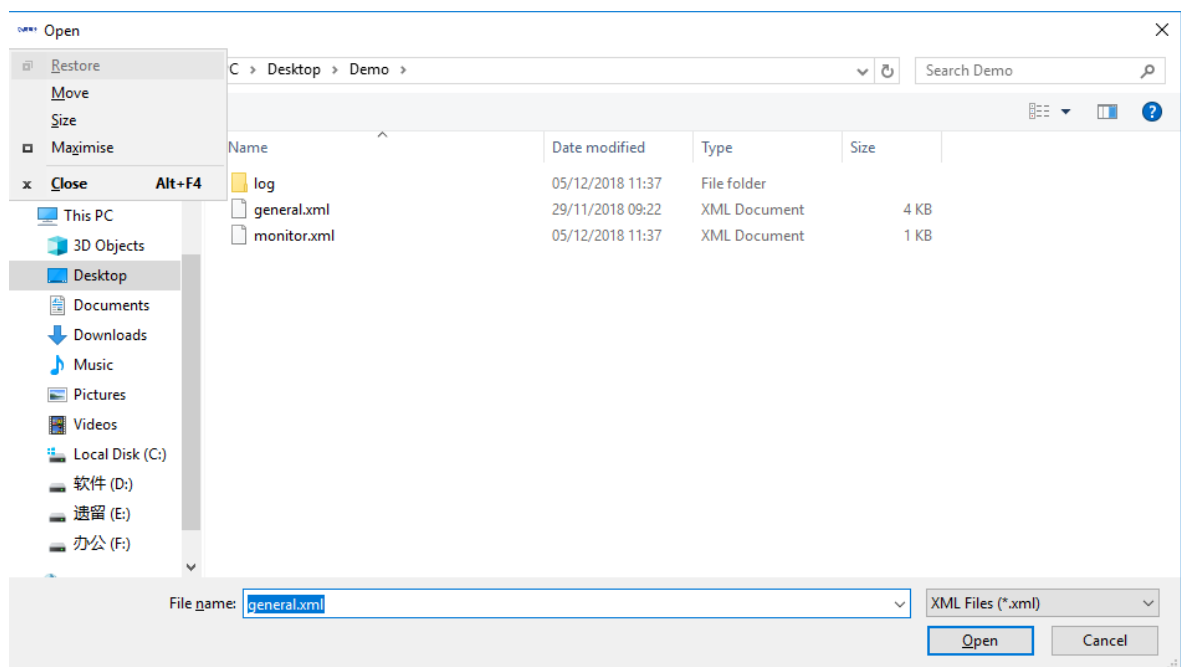
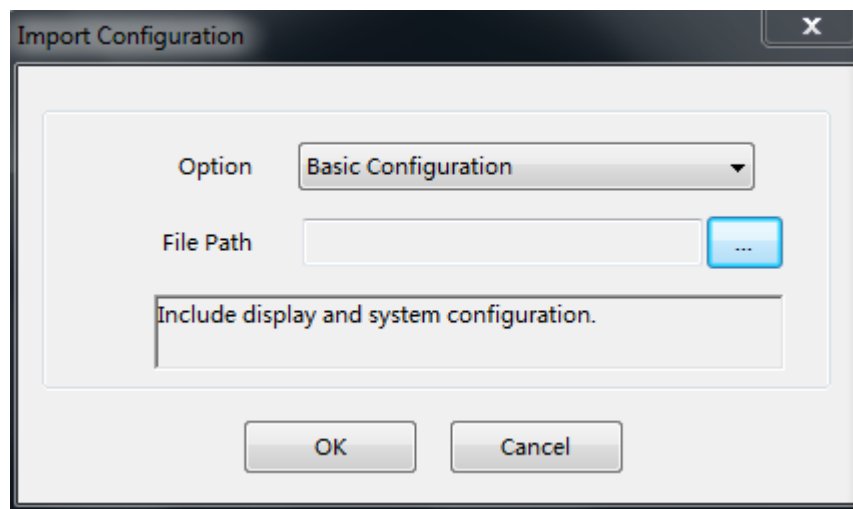
Click Query button and search the alarm by service, name, in a certain period time, shown as below:

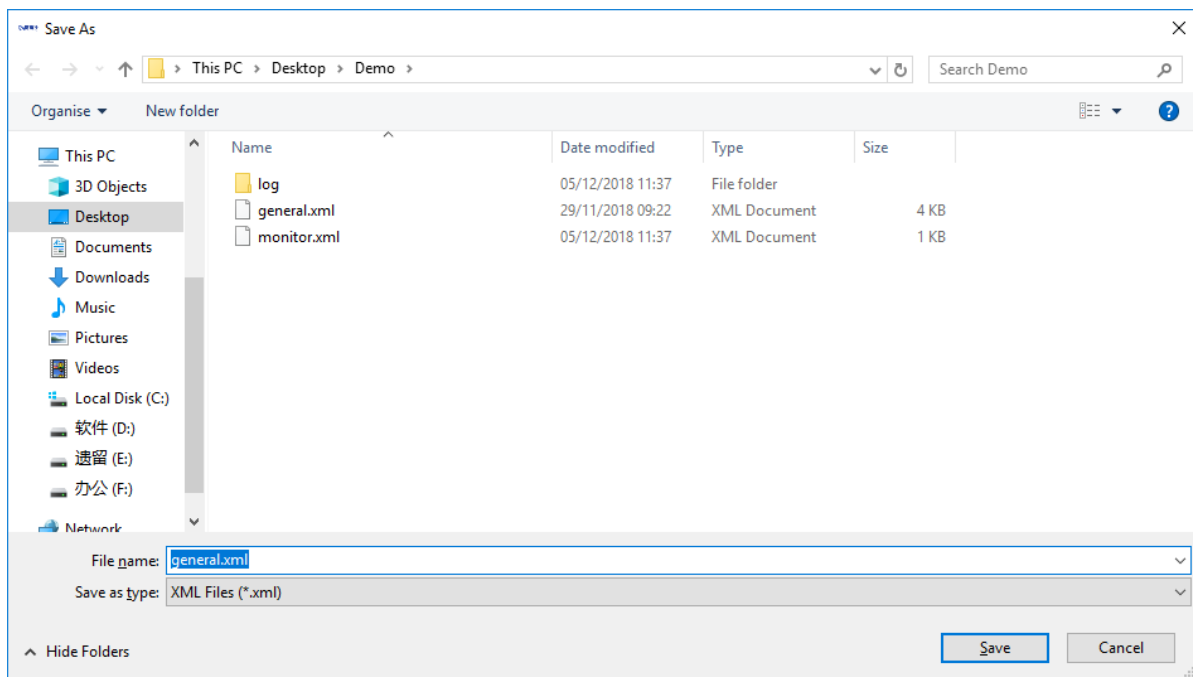
[illegible]

4.6 Import/Export

Import/export page is designed for saving “basic configuration”, “monitor configuration” into XML files, or import/load these configurations from XML file, shown as below:



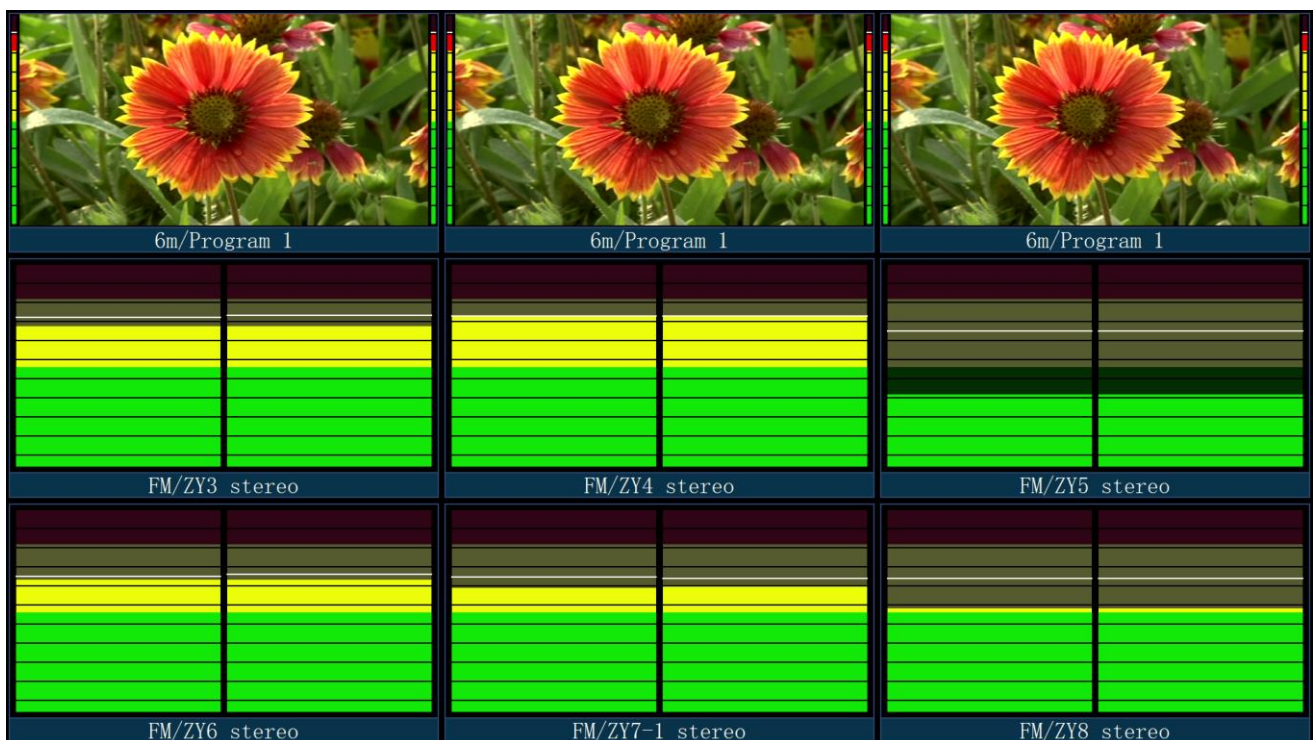




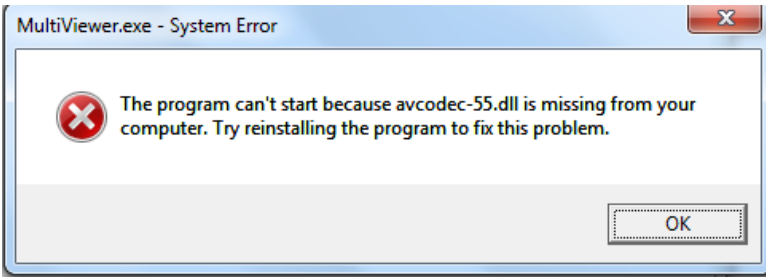



Chapter V Radio Program Monitoring

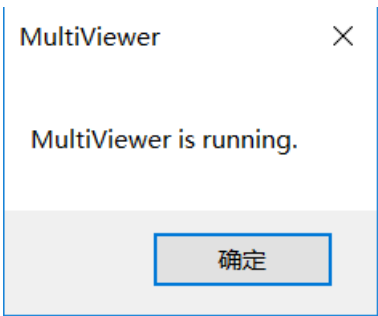
5.1 Radio program monitoring

Bluetop MultiViewer Software also supports radio program monitoring. When “Analyze All”, the MultiViewer Software will automatically analyze whether the program is a radio program in the stream. For a radio program, the software will display left and right volume bar and can monitor the audio loss, high volume and low volume, shown as below:



Chapter VI Troubleshooting

Error Pop-Up Window or Message	Solution
	<p>Installation not successful, please uninstall the software and reinstall.</p>
	<p>No valid Video PID or Audio PID detected from feeding stream</p>
	<p>Seriously Mosaic might be caused by CPU capacity overloaded, check the hardware configuration of Mosaic server</p>
	<p>Black window might be caused by encrypted stream, please confirm the stream is free or not</p>
<p>Error Message: "Cannot connect to database"</p>	<p>Please refer MySQL database installation steps</p>
<p>Error Message: "Invalid License"</p>	<p>Please contact Bluetop or reseller to renew the license file.</p>

	<p>The software has been opened, please do not open it again. If you can't find the software that has already been opened, please close the MultiViewer process and re-open it in the task manager in the windows system.</p>
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