

Xnap™ Box Hello!

Quick Start Guide
(version 2.2.3)

Welcome to Xnap™ Box (version 2018). Let me introduce:



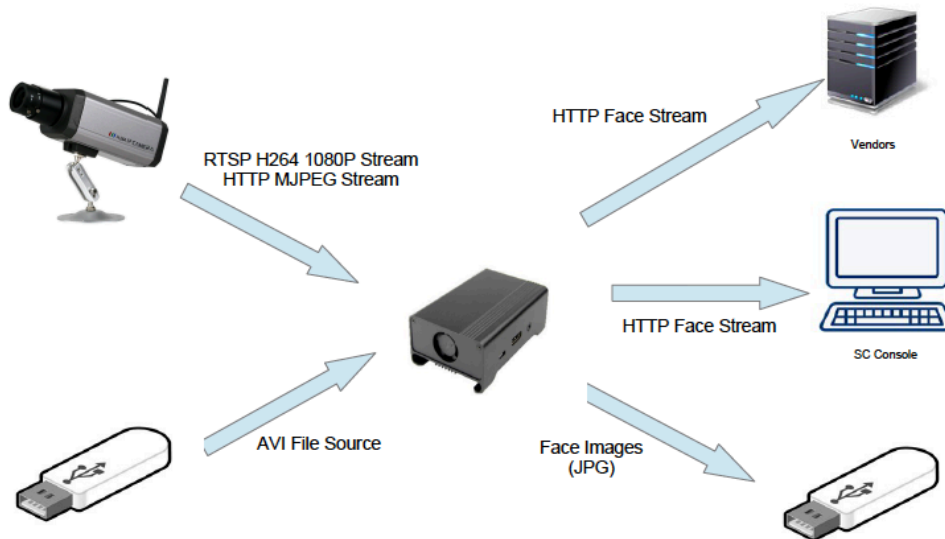
(the appearance of the unit on your hand might look different as we improve the product from time to time)

Xnap™ Box is a low power consuming, fully embedded Face Detection Processor that turns your video surveillance camera into a smart camera that can identify human faces from video.

Xnap™ Box processes video from any standard 1080p RTSP H.264 / HTTP MJPEG IP camera / USB UVC H.264 or MJPEG / MJPEG AVI video file.

Your surveillance camera is now a smart camera – and more. Without significant wiring changes to your current surveillance camera and NVR system, Xnap™ Box reads second video stream (or primary stream if your camera supports multiple client access) of your cameras or USB file source (FAT32), decode it and detect all faces/objects visible in video frames at least 15fps (configurable), and crop all faces/objects out of background, and send face/object stream in HTTP protocol to enable real-time identification or post-event analysis and / or identification.

Xnap™ Box is designed for seamless integration with third-party face recognition system to form large-scale surveillance system with automatic face detection and tracking. Product comes with well-documented sample codes and email support service to enable software developer to integrate the output of Xnap™ Box with their existing surveillance system.



1

Getting Start

Firstly, please connect your Xnap Box with one Ethernet cable to your network switch and USB cable to the USB power adaptor supplied.



Please use our bundled or certified USB power adaptor and bundled or certified USB cable only to ensure the maximum performance of the device. QuickCharge 2.0/3.0 charger and/or USB cable does not boost the performance. On the contrary, they could make the device works slower. The following error indicator will be displayed on the Home Page as a warning.



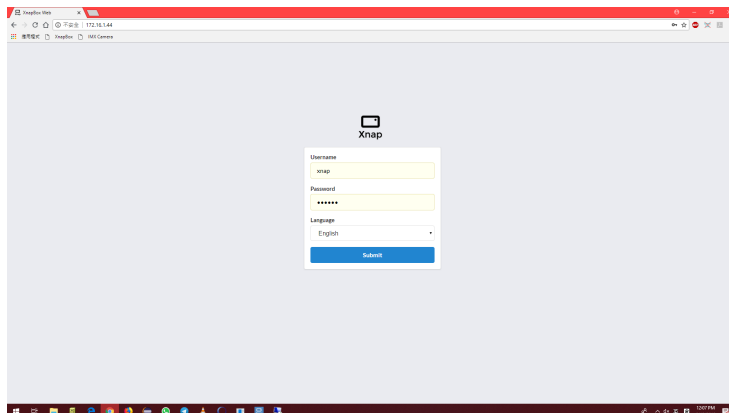
Secondly, please prepare your PC to link with Xnap Box device by setting the Ethernet adaptor with the same network number:



Default factory IP address of Xnap Box

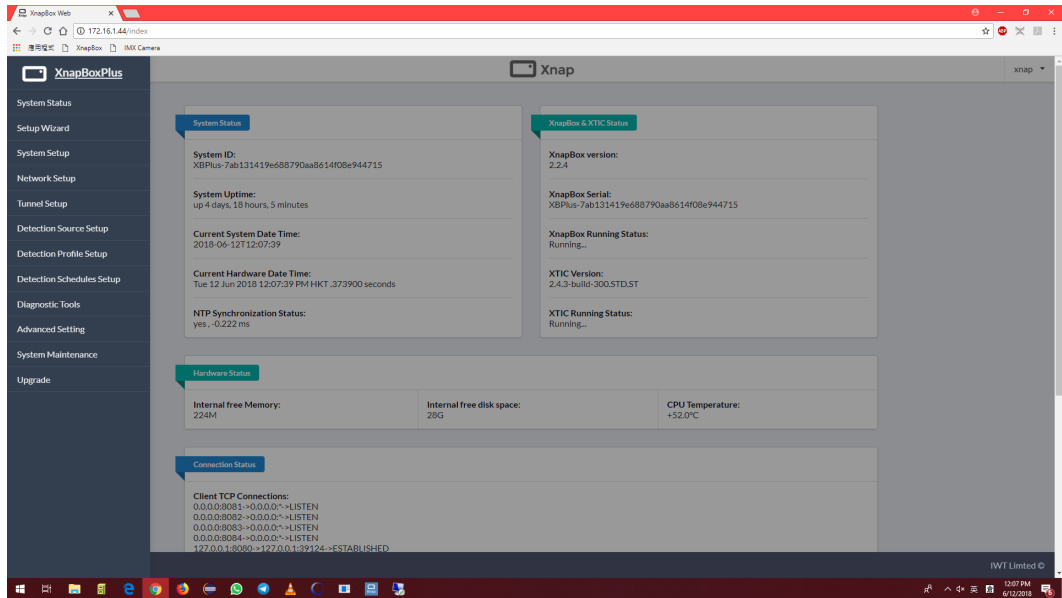
Wired Ethernet adaptor: 172.16.1.240

Thirdly, please launch one of these Internet browser: Firefox, Safari or Google Chrome. (Microsoft Internet Explorer 11/Edge are not supported), fill in the IP address of device in the Address (URL) field, and press ENTER key.



You should be able to see the Home Page of Administration Web Tool, like the screen

shot below:

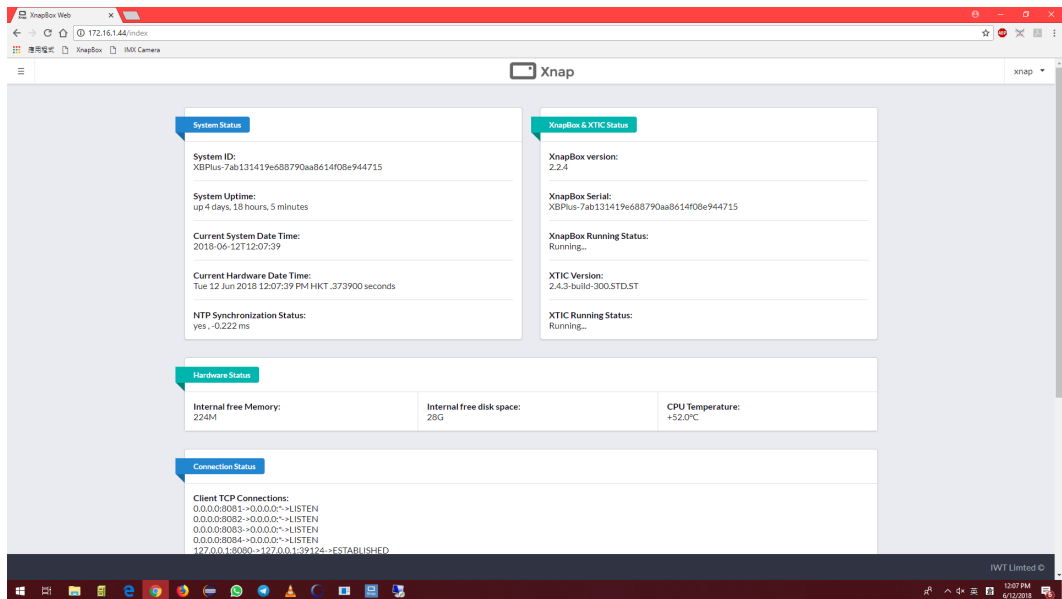


After logging in, navigate to different pages with the side menu bar on the left-hand side

2

System Status

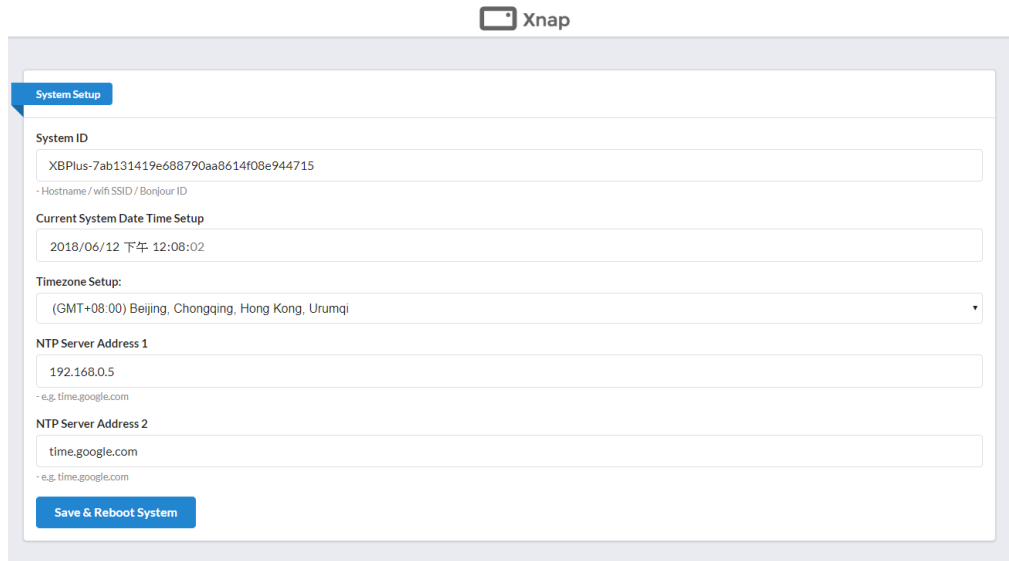
The landing page after login is system status. All the configurations, system status and software versions are on this page. It also shows the connections to live view port and the statistics of live stream capture.



3

System Setup

This page lets you set the System ID along with the date and time settings



The screenshot shows the 'System Setup' page of the Xnap interface. At the top, there is a logo for 'Xnap'. Below it, the page title is 'System Setup'. The form contains several sections: 'System ID' with a text input field containing 'XBPlus-7ab131419e688790aa8614f08e944715' and a sub-label '- Hostname / wifi SSID / Bonjour ID'; 'Current System Date Time Setup' with a text input field containing '2018/06/12 下午 12:08:02'; 'Timezone Setup' with a dropdown menu showing '(GMT+08:00) Beijing, Chongqing, Hong Kong, Urumqi'; 'NTP Server Address 1' with a text input field containing '192.168.0.5' and a sub-label '- e.g. time.google.com'; and 'NTP Server Address 2' with a text input field containing 'time.google.com' and a sub-label '- e.g. time.google.com'. At the bottom of the form is a blue button labeled 'Save & Reboot System'.



Make sure you have a decent NTP server in your network as it is very important to keep the clock of Xnap Box as accurate as possible. Correct time record of face captured is a must for a reliable surveillance or post-event analysis system.

4

Network Setup


You can configure these basic network settings of Xnap Box just like any other standard network device. These are common network parameters and they should be pretty much self-explanatory.



Please be careful when entering IP address of wire Ethernet port of Xnap Box. Invalid characters or symbol could cause failure of core system startup. In addition, IE 6.0 will be automatically fill in blank values in a couple fields which will cause the irrecoverable box startup failure.



We strongly recommend keeping record of IP address, Xnap Box ID in safe place.

 Xnap

Network Setup

-e.g. 192.168.99.1 -e.g. 192.168.99.254

Use This IP


Use This IP

-e.g. 192.168.99.2 -e.g. 192.168.99.3

Save & Reboot System

5 Tunnel Setup

This sets up tunnel to IWT's cloud server so this Xnap Box can be accessed from the cloud

 Xnap

Tunnel Status

- port 80 not established
- port 8080 not established
- port 8081 not established

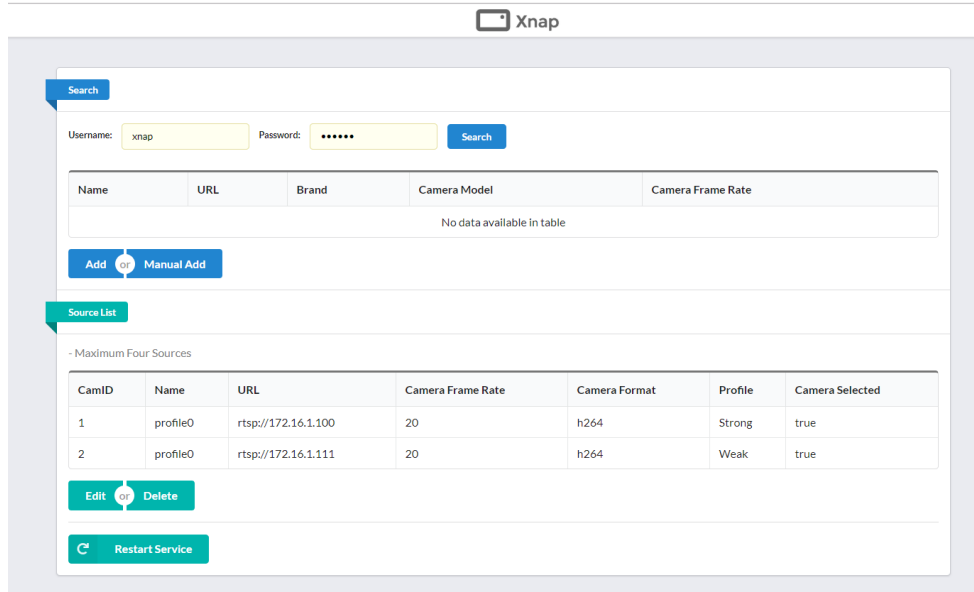
SSH Tunnel Setup

SSH Tunnel

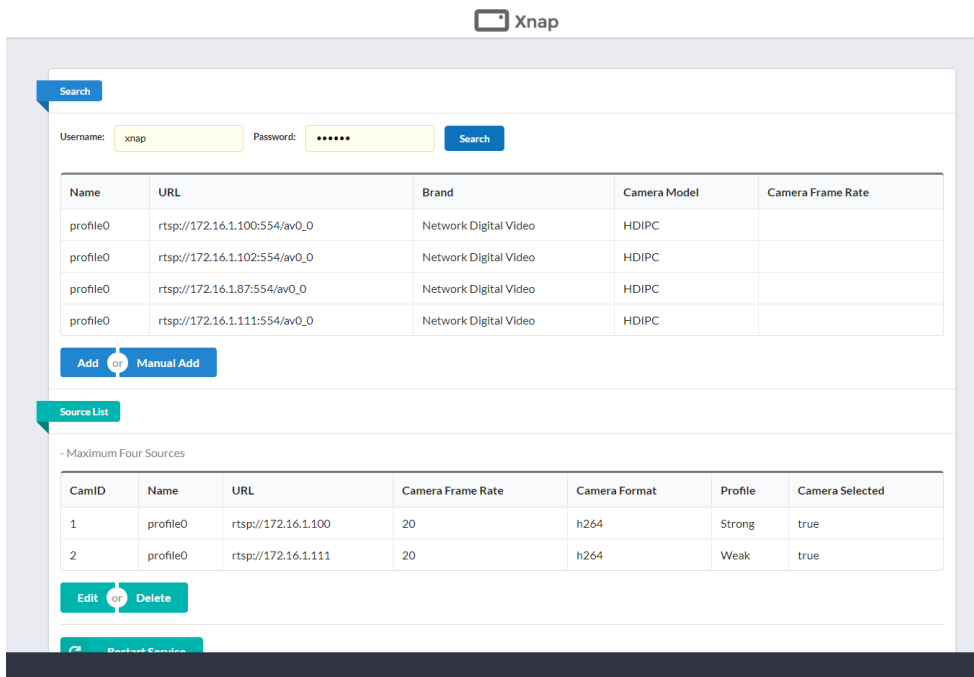
Save & Restart Services

6 Detection Source Setup

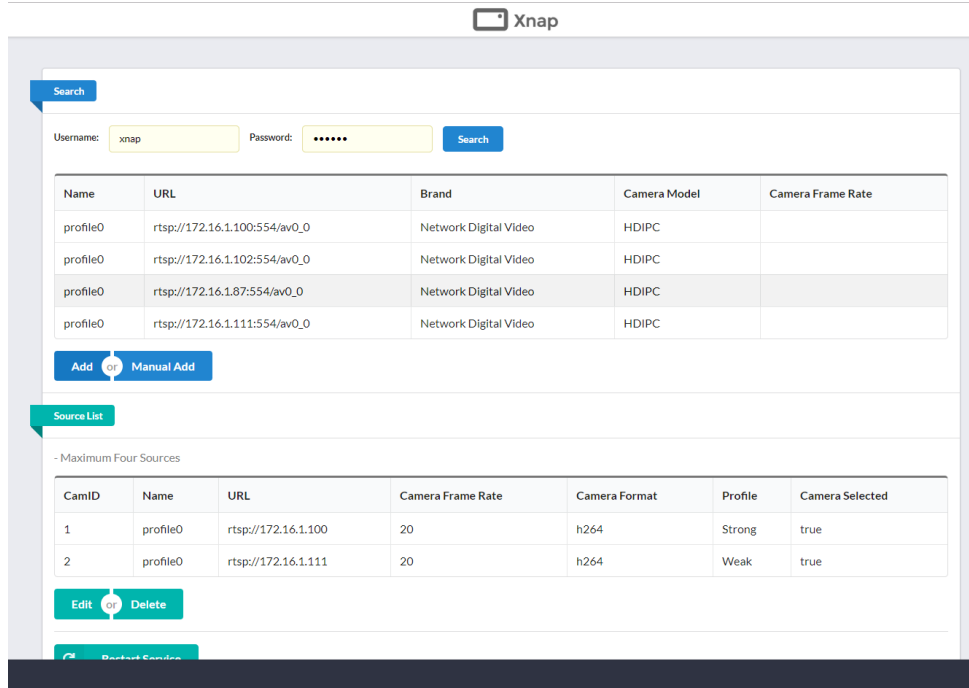
This page sets up Xnap Box to fetch live stream from different sources. The upper part is for searching camera through ONVIF. The bottom part are the sources that the Xnap Box stored.



To search cameras through ONVIF, just click on 'Search'. Some devices require username and password to get discovered. In that case type in username and password before searching.



After searching, click on the camera desired and click add.



The following pop up will have all the information filled if the camera is added through ONVIF search. You can also manually add cameras using Manual Add. Fill in the required information such as name, URL etc.

Profile sets the detection parameters for the chosen source. Select the required profile with which the Xnap Box will fetch the source. Set true to enable and false to disable the selected profile. You can create several profiles and get them saved for future use. No matters how many profiles were saved, only one of them can be turn by setting "Select" to "True" at any given moment.

You can also edit stored source by choosing the source and then click edit.

7 Detection Profile Setup

This page lets user to set up different profiles for different source to use. There are three default profiles – strong, medium, weak and four custom profiles.

Sample Window Size – sets the size of the sample window

Best Dimension Sampling – choose the top (n) number of images in largest size among the “sampling window size”. This option is mutually exclusive with “best sharpness sampling”.

Best Sharpness Sampling - choose the top (n) number of images in good sharpness index among the “sampling window size”. This option is mutually exclusive with “best dimension sampling”.

Tacking ROI Coeff – Sets the region of interest of each tracking face. The higher value this coefficient will cost more CPU power but less likely to lost track of a person even when moving fast.

Tracking Lifetime – lifetime (in frames) of the tracker when the person is lost tracked. When the person’s face is blocked for a few frames, the tracker can track the person if the lifetime of tracker is longer. This requires more CPU power for longer lifetime.

Tracking Per Full Frame – Full frame detections detects new faces but also requires more CPU power. More tracking means using less CPU power but slightly slower to detect new faces.

Blur Filtering Threshold – filter out face image with sharpness index which is below your desired level.

TrackID Filtering – filter out faces images that only appeared (n) frames. It is to filter out false positives

LiveView Multiplier – The multiplier for the LiveView output. 1 for original size as the input, 0.25 for quarter of the size of original input. Higher value uses more CPU power and bandwidth


Face Detection Strength – The strength of face detection. Higher cost more CPU power but detects more faces.

Drop Full Frame – this decides whether to drop full frame detections when all face detectors in Xnap Box are busy. Setting true will lower the CPU cost but could cost some misses of face detection. Setting false will ensure every full frame detection are carried out.

Min Face Size – minimum size of the face to be detection. Making it smaller will cost more CPU power. Suggested sizes are above 80. Default 120 should be enough for most cases.

Max Face Size – Maximum size of the faces to be detected.

Top/Bottom/Left/Right Margin – Set the region of interest for the source. For example, setting top margin as 50 will make XnapBox ignore top 50% of the frame. This can decrease the CPU usage as user sets a smaller region to do face detection.




Detection Profile Setup

Profile

Sampling Window Size <input type="text" value="40"/> <small>- Please Enter 1-60</small>	Best Dimension Sampling <input type="text" value="0"/> <small>- Cannot Exceed Sampling Window Size Value</small>	Best Sharpness Sampling <input type="text" value="1"/> <small>- Cannot Exceed Sampling Window Size Value</small>
Tracking ROI Coeff <input type="text" value="2.0"/>	Tracking Lifetime <input type="text" value="10"/> <small>- Please Enter 1-30</small>	Tracking Per Full Frame <input type="text" value="10"/> <small>- Please Enter 1-30</small>
Blur Filtering Threshold <input type="text" value="0"/> <small>- Please Enter 0-100</small>	TrackID Filtering <input type="text" value="0"/> <small>- Please Enter 1-30</small>	Live View Multiplier <input type="text" value="0.25"/> <small>- Please Enter 0.0-1.0</small>
Face Detection Strength <input type="text" value="3"/>	Drop Full Frame <input type="text" value="true"/>	
Min Face Size <input type="text" value="120"/> <small>- Please Enter 80-300</small>	Max Face Size <input type="text" value="1200"/> <small>- Please Enter 80-2000</small>	
Top Margin <input type="text" value="0"/> <small>- Total of Top and Bottom Margin should not Exceed 100</small>	Bottom Margin <input type="text" value="0"/>	
Left Margin <input type="text" value="0"/> <small>- Total of Left and Right Margin should not Exceed 100</small>	Right Margin <input type="text" value="0"/>	

8 Detection Schedule Setup (in up-coming version)

Sets the schedule for running face detection.



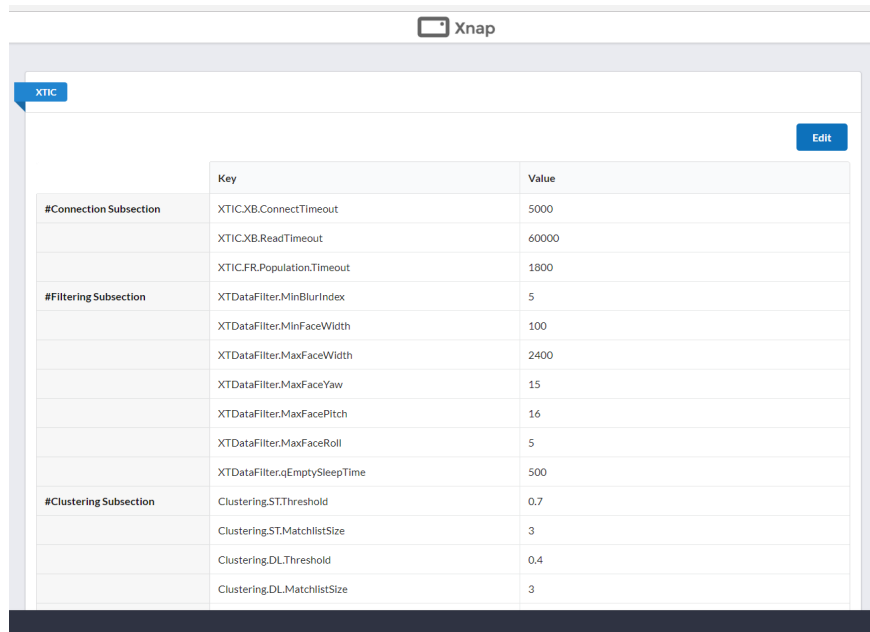
Detection Schedules Setup

- Maximum Ten Schedules

Id	Frequency	Start Time	End Time	Weekday
No data available in table				

9 Advanced Setting (in up-coming version)

Advanced settings for XTIC and Xnap Box

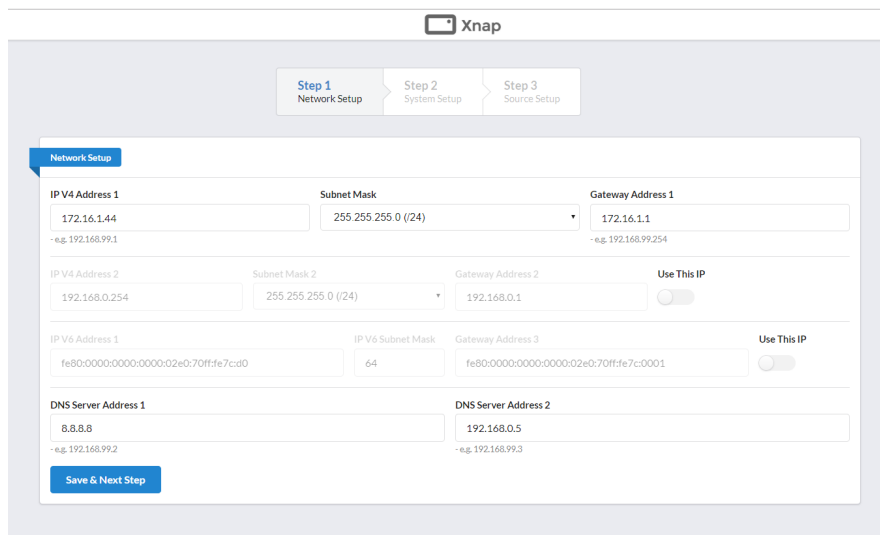


	Key	Value
#Connection Subsection	XTIC.XB.ConnectTimeout	5000
	XTIC.XB.ReadTimeout	60000
	XTIC.FR.Population.Timeout	1800
#Filtering Subsection	XTDataFilter.MinBlurIndex	5
	XTDataFilter.MinFaceWidth	100
	XTDataFilter.MaxFaceWidth	2400
	XTDataFilter.MaxFaceYaw	15
	XTDataFilter.MaxFacePitch	16
	XTDataFilter.MaxFaceRoll	5
	XTDataFilter.qEmptySleepTime	500
#Clustering Subsection	Clustering.ST.Threshold	0.7
	Clustering.ST.MatchlistSize	3
	Clustering.DL.Threshold	0.4
	Clustering.DL.MatchlistSize	3

10 Setup Wizard (in up-coming version)

Setup Wizard helps user to configure the Xnap Box plus for the first time. It goes through all the essential settings: Network Setup, System Setup and Source Setup.

Page1:



Step 1 Network Setup | Step 2 System Setup | Step 3 Source Setup

Network Setup

IP V4 Address 1: 172.16.1.44 (e.g. 192.168.99.1) | Subnet Mask: 255.255.255.0 (/24) | Gateway Address 1: 172.16.1.1 (e.g. 192.168.99.254)

IP V4 Address 2: 192.168.0.254 | Subnet Mask 2: 255.255.255.0 (/24) | Gateway Address 2: 192.168.0.1 | Use This IP:

IP V6 Address 1: fe80:0000:0000:0000:02e0:70ff:fe7c:cd0 | IP V6 Subnet Mask: 64 | Gateway Address 3: fe80:0000:0000:0000:02e0:70ff:fe7c:0001 | Use This IP:

DNS Server Address 1: 8.8.8.8 (e.g. 192.168.99.2) | DNS Server Address 2: 192.168.0.5 (e.g. 192.168.99.3)

Save & Next Step

Page2:

Xnap

Step 1 Network Setup **Step 2 System Setup** Step 3 Source Setup

System Setup

System ID
 XBPlus-7ab131419e688790aa8614f08e944715
- Hostname / wifi SSID / Bonjour ID

Current System Date Time Setup
 2018/06/12 下午 12:07:56

Timezone Setup:
 (GMT+08:00) Beijing, Chongqing, Hong Kong, Urumqi

NTP Server Address 1
 192.168.0.5
- e.g. time.google.com

NTP Server Address 2
 time.google.com
- e.g. time.google.com

[Back](#) [Save & Next Step](#)

Page3:

Xnap

Step 1 Network Setup Step 2 System Setup **Step 3 Source Setup**

Search

Username: Password: [Search](#)

Name	URL	Brand	Camera Model	Camera Frame Rate
No data available in table				

[Add](#) [Manual Add](#)

Source List

- Maximum Four Sources

CamID	Name	URL	Camera Frame Rate	Camera Format	Profile	Camera Selected
1	profile0	rtsp://172.16.1.100	20	h264	Strong	true
2	profile0	rtsp://172.16.1.111	20	h264	Weak	true

[Edit](#) [Delete](#)

[Back](#) [Confirm All Setting & Reboot](#)

11 Diagnostic Tools

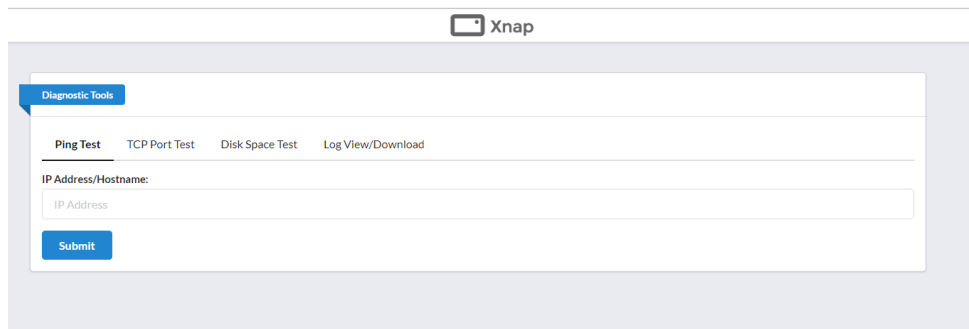
Tools for testing

Ping test – type in an address to see if the Xnap Box can ping it to test connectivity and to aid diagnosis when connection problem occurs.

TCP Port Test – type in an address and port to see if Xnap Box can connect through TCP connection

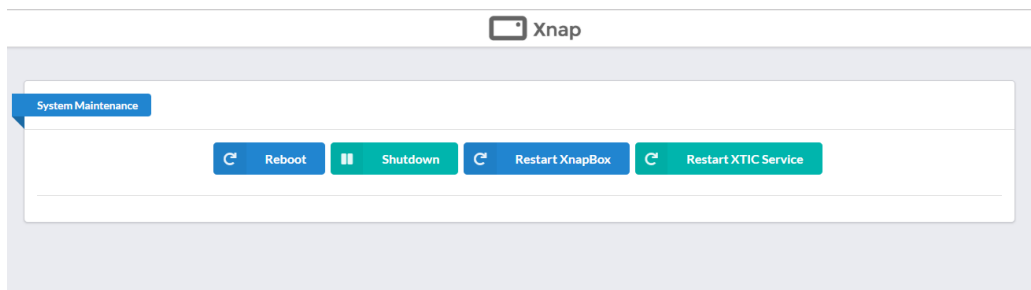
Disk Space Test – shows disk usage

Log View/Download – View and download the Logs from Xnap Box for debug purpose



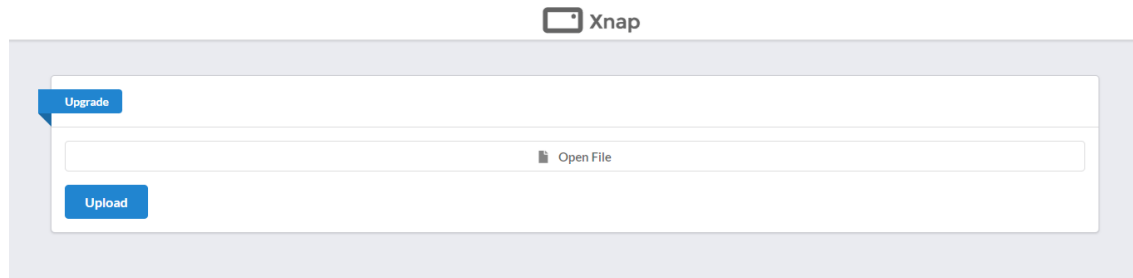
12 System Maintenance

Basic operation for reboot, shutdown and restarting Xnap Box service or XTIC service



13 Upgrade

Upgrade the software by opening the upgrade file provided by us.



14 Software integration

Xnap Box is NOT designed for end-user but it will be a powerful tool for software developers to simplify the interface between state-of-the-art face recognition system and industrial standard H. 264/MJPEG IP camera. Xnap Box come with SDK, we called it Xnap Box Image Grabber, and document stored on GitHub.

<https://github.com/xnapdev>

Currently, SDK come with 3 favors, Java, .Net, and Python.

Visit our support website at <https://xnapbox.wordpress.com/> for more upcoming update of Xnap Box.