



# UCAM Installation Guide

V2.0

120A - 1.6.9.10A

130A - 0.2.1.A

**ADVANTECH**

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## Version History

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Version No.	Last update	Chapter	Content
V1.0	07/17/2017	all	
V2.0	10/8/2018	Add UCAM 130	

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## 1. Version Information

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### 1.1 UCAM Version

Date	UCAM-120A	UCAM-130A
2018/01/08	1.6.5A	
2018/03/12	1.6.9A	
2018/05/21	1.6.9.10A	
2018/07/01		0.2.1A

## 2. Camera Setup

### 2.1 Reaching UCAM via UShop Tool

#### 2.1.1 DHCP

Make sure the network configuration is set to DHCP, and connect to the DHCP server. Then use "UShop Tool" to search installed UCAM.

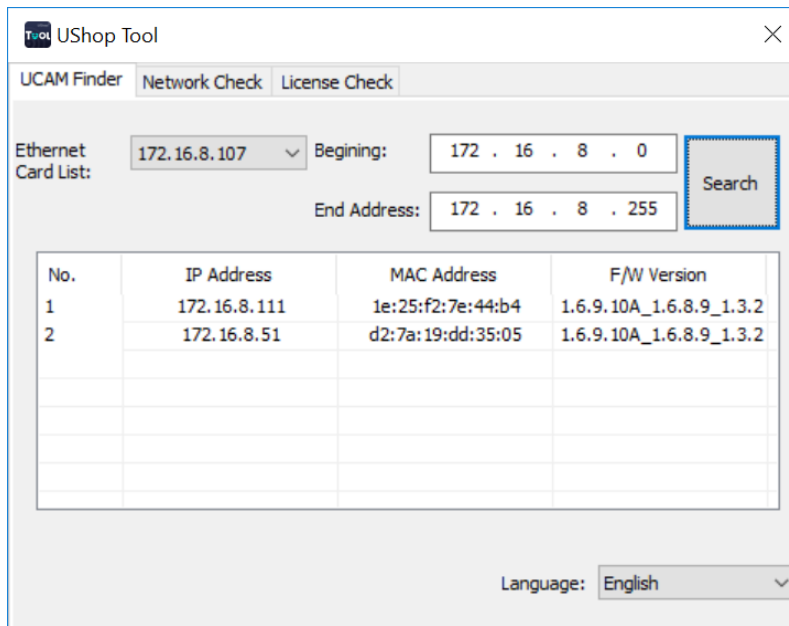


Figure-1, Searching UCAM with UShop Tool

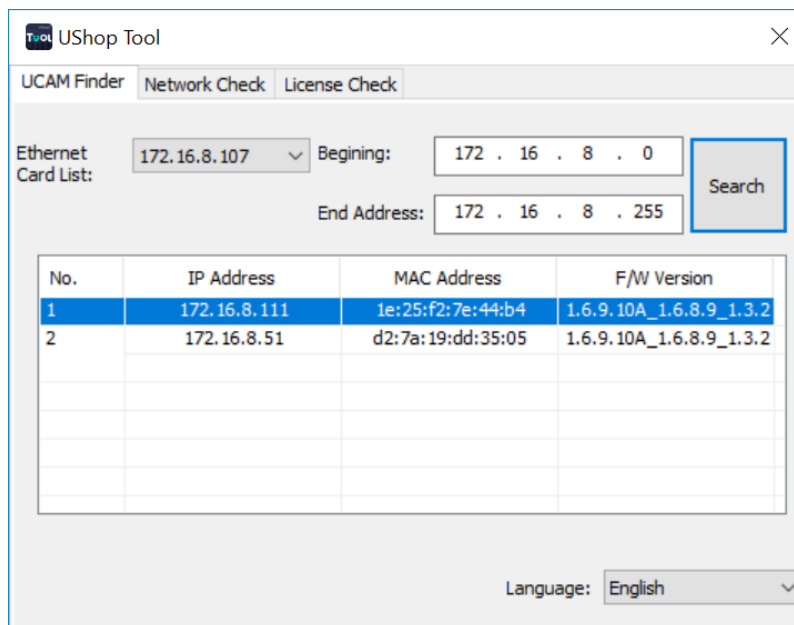


Figure-2, Double Click UCAM to Open Browser

### 2.1.2 Static IP

Open browser and connect to **192.168.1.8** directly.

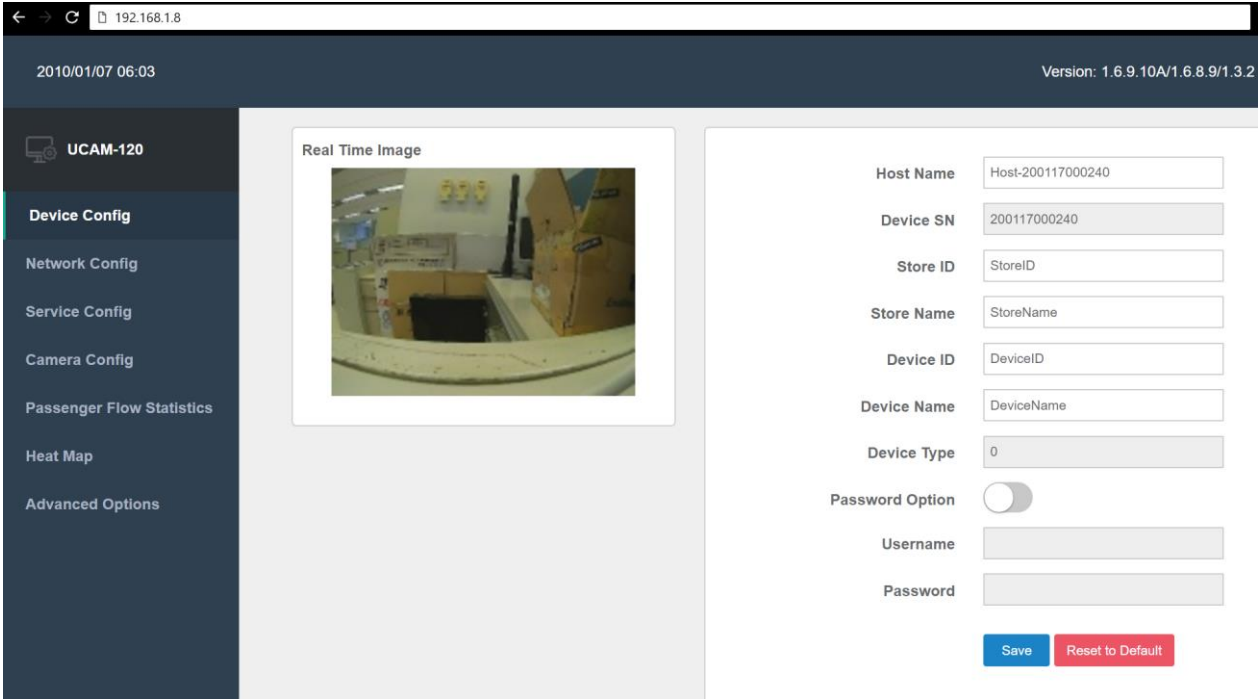


Figure-3, connecting to 192.168.1.8

## 2.2 Confirm Firmware Version

Check the current version on the upper right (Figure-4) in UCAM, and update the firmware to the latest version if the firmware version is lower than the version that listing on 1.1

**Note:** You may refer to the appendix I for the firmware update SOP.

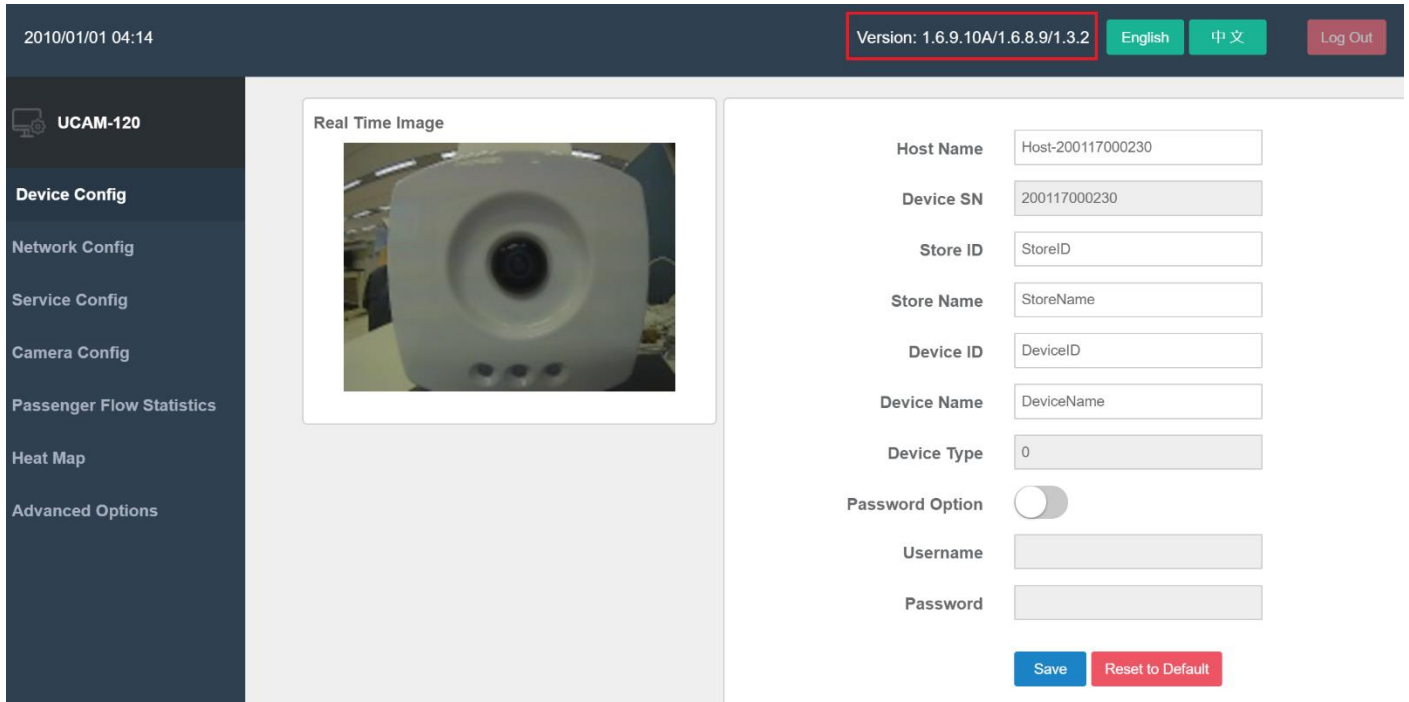


Figure-4, Conform Firmware version



## 2.3 Network configuration

UCAM support both DHCP and fixed IP network configuration, please set up the network base on the circumstances.

### 2.3.1 DHCP

Click DHCP checkbox and save the settings. Figure-5

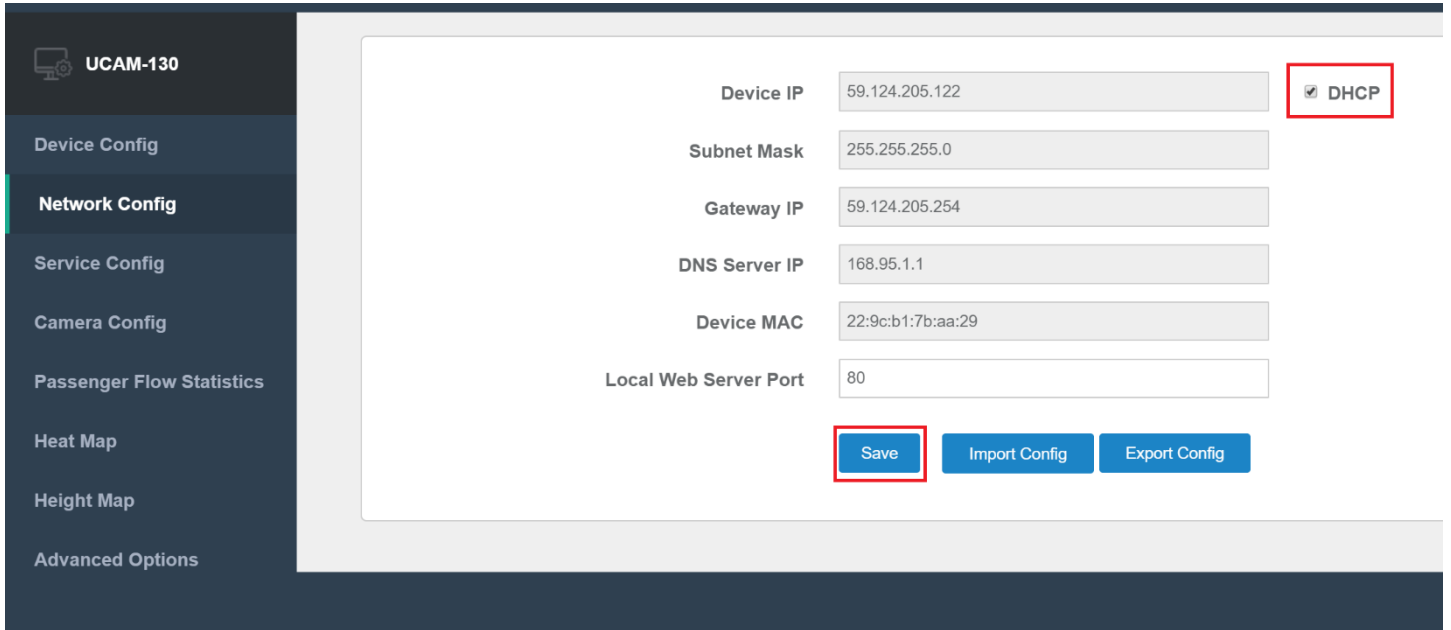


Figure-5, enable DHCP for UCAM

### 2.3.2 Fixed IP

Make sure use static IP address. subnet mask, gateway and DNS are correct.

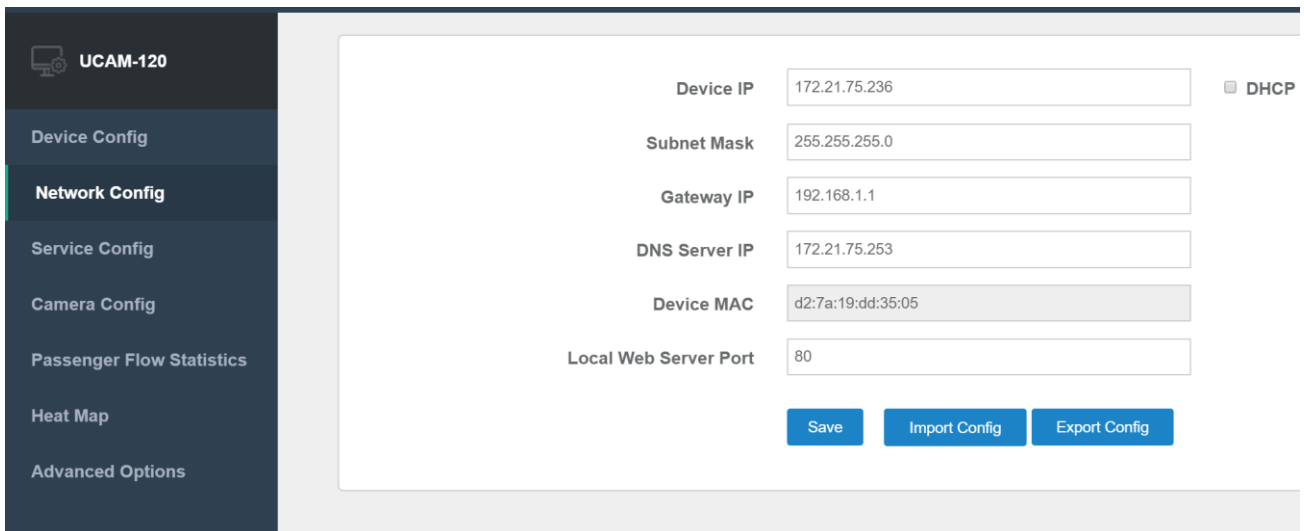


Figure-6

## 2.4 Setup NTP Time Server

(1) Fill in the NTP Server Address, port and time zone.

**Note:** Enable the DST checkbox if the device is under daylight saving Time area.

(2) Press " Test Setting" to check the NTP server availability. If the time server is not available(Figure-10), please check the correction of the NTP server information or the network status.

(3) Click "Save" button to confirm the NTP settings (Figure-11), then you can see the successful message(Figure-12).

**Example:** NTP Server suggestion

Time Server Selection	NTP Server
Time Server Address	0.pool.ntp.org / 1.pool.ntp.org
Time Server Port	123
Time Zone	8

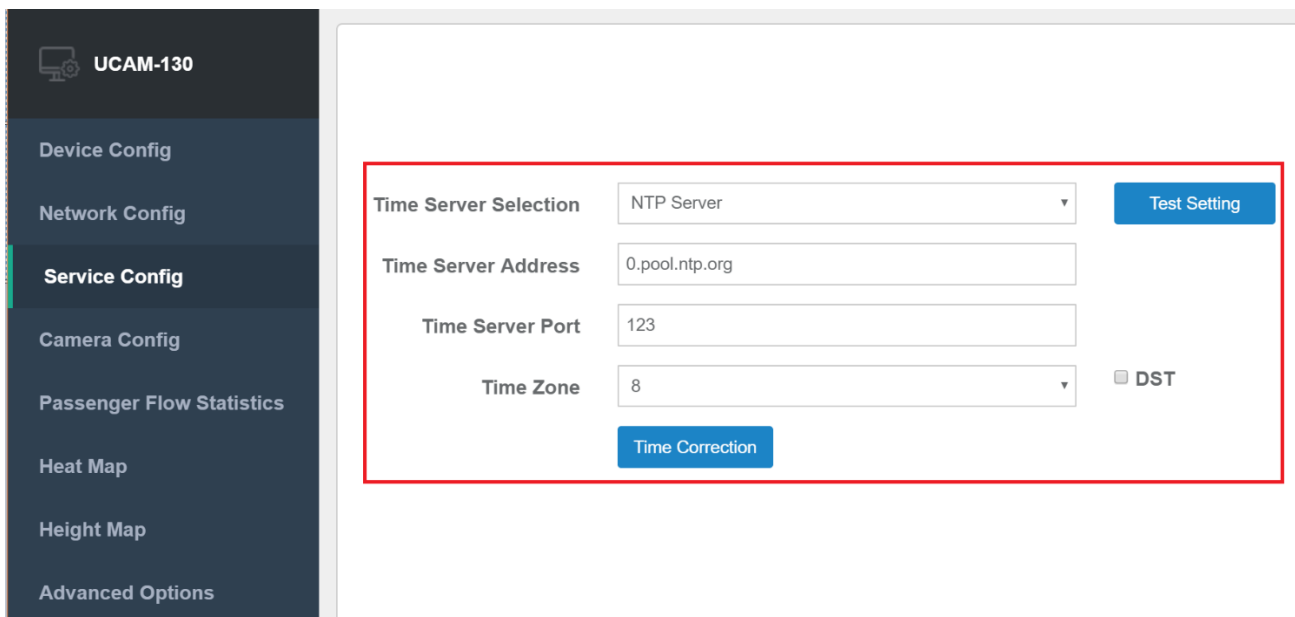


Figure-7, Fill NTP server information

Time Server Selection

Time Server Address

Time Server Port

Time Zone

DST

Figure-8, Testing NTP Server availability

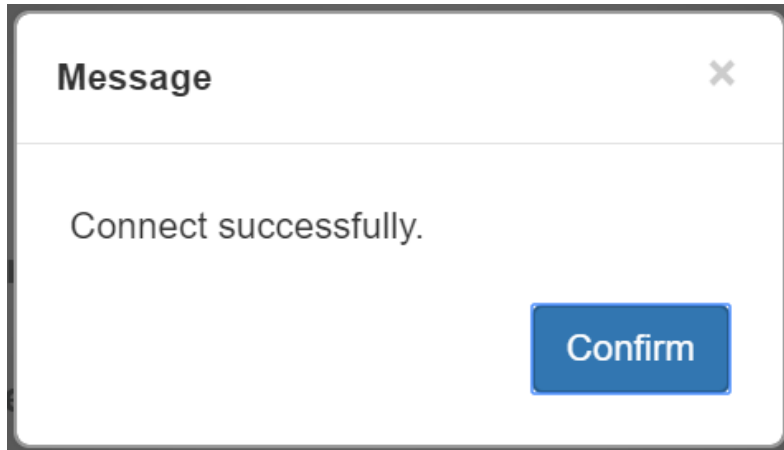


Figure-9, NTP server testing successful

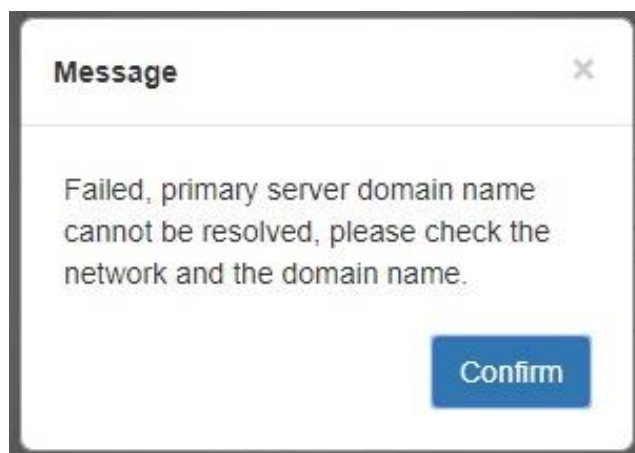


Figure-10, NTP server testing fail

**Time Server Selection**

**Time Server Address**

**Time Server Port**

**Time Zone**   DST

**Remote Control Server Address**

**Remote Control Server Port**

Figure-11, Confirm the NTP server settings

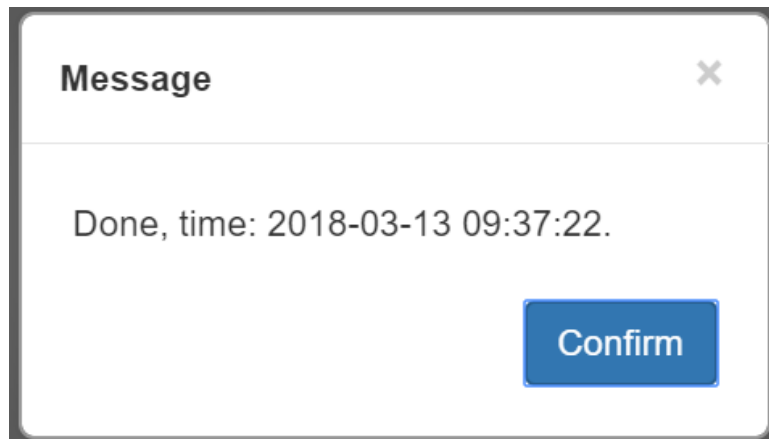


Figure-12, Confirm message and timestamp

## 2.5 Connect UCAM to UShop+ Store BI Service

Advantech provides both public and private cloud for the UShop+ solution, config your UCAM base on which type of cloud you use.

### 2.5.1 Connect Information

	Public Cloud	Private Cloud
Primary Report Server Address	hub.ushop-plus.com	Custom Server Address
Primary Report Server Port	80	1234
Primary Report Directory	/portals/data	

### 2.5.2 Public Cloud Example

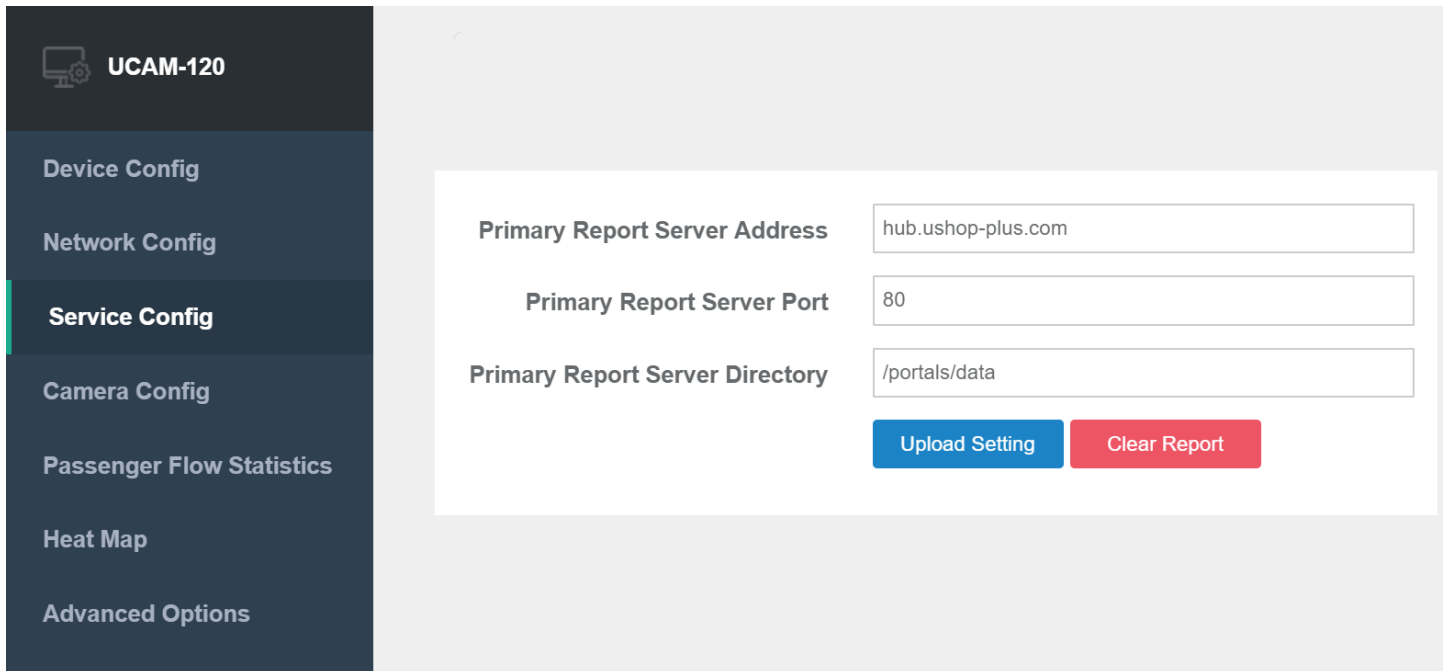


Figure-13, Public cloud Example Screenshot

### 2.5.3 Private Cloud Example

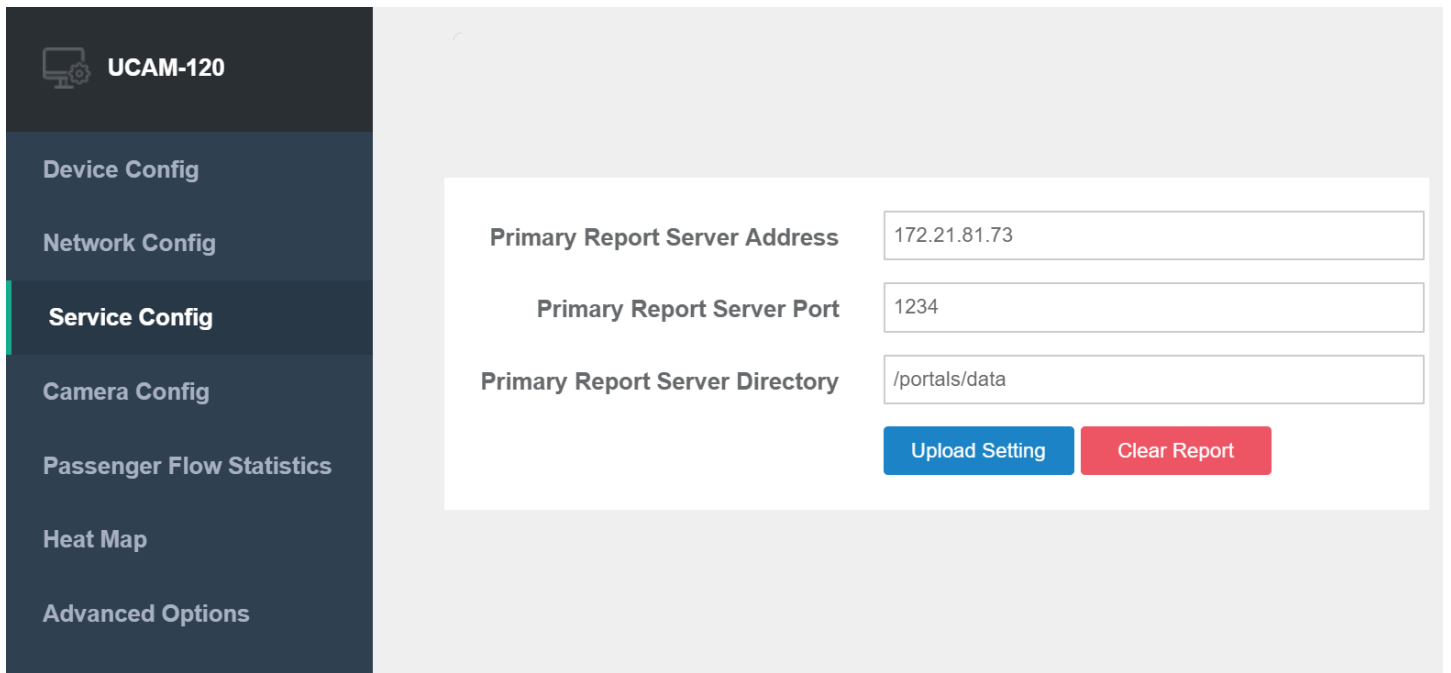


Figure-14, Private Cloud Example Screenshot

## 2.6 Binding UCAM to Store

Before binding UCAM to store, please make sure the store has been created on UShop+ Store Management.

### 2.6.1 Get Store ID from UShop+

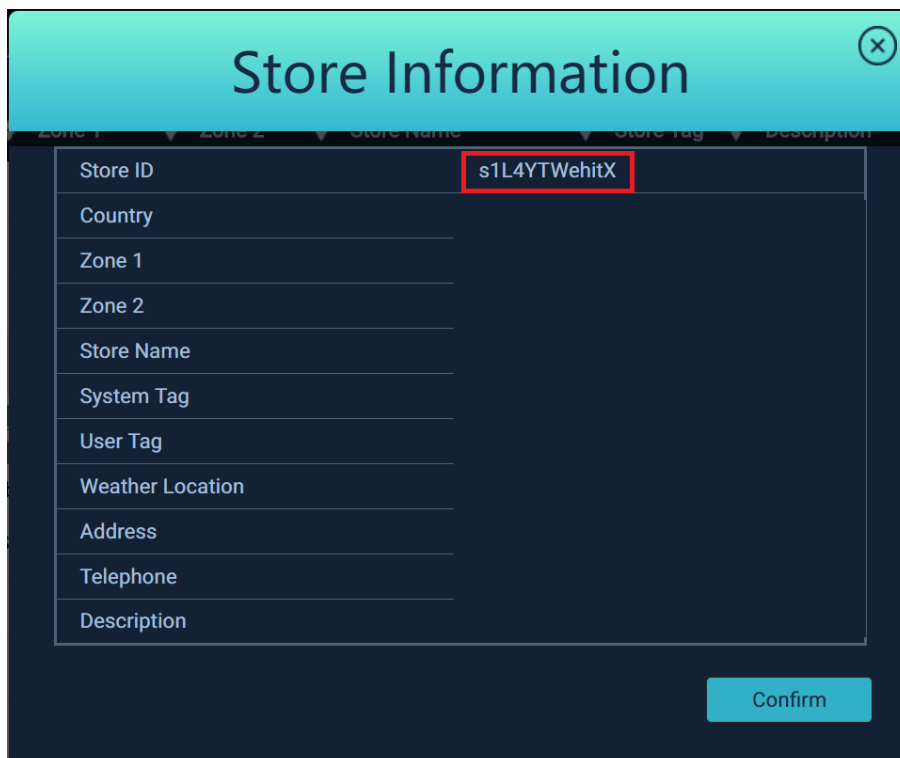


Figure-15, Get Store ID on Store BI



### 2.6.2 Get UCAM Device Serial Number

The UCAM device serial number is on the label at the back of the camera. There are total of 19 digits including "-" (Figure-16).



Figure-16, License sample on UCAM

### 2.6.3 Setting device configuration

Fill in Store ID, Store Name, Device ID (Device Serial Number) and Device Name to Device Config Tab (Figure-17).

Figure-17, Fill in Store ID, Store Name, Device ID and Device Name



### 3. Check Data Upload Result

This step validates the success of UCAM upload the data to UShop+ Cloud.

#### 3.1 Check result in UCAM Advanced Options

Click "Reboot" button and double confirm the timestamp. The timestamp of "Successful Upload(p)" should be later than "Failed Upload(p)" (Figure-18).

The screenshot shows the UCAM-120 Advanced Options page. On the left is a navigation menu with 'Advanced Options' selected. The main content area includes a 'Refresh Time of Webpage Images (ms)' field set to 200. Below this is a 'Reboot Device' section with a red 'Reboot' button. Further down is a 'Firmware Update' section with 'Select' and 'Update' buttons. A 'Validity of License : Unlimited' message is present. The 'Device Capacity' section contains a table with columns: Total Capacity (7.0GB), Used Capacity (838MB), Available Capacity (5.9GB), Used Percentage (13%), Video Capacity (0.0MB), and Image Capacity (0.0KB). The 'Device Log' section contains a table with columns: Start Time, Successful Upload (p), Failed Upload (p), Successful Upload (s), Failed Upload (s), and Other History Record. The 'Successful Upload (p)' entry is 2018/03/14 13:43:05 and the 'Failed Upload (p)' entry is 2018/03/13 15:11:50. A 'Check' button is located at the bottom right of the log table.

Figure-18, "Successful Upload" should later than "Failed Upload"

#### 3.2 Check result on Store BI

##### 3.2.1 Check the Device Status is Correctly Registered in Store BI

Follow the instruction to check the device status on UShop+. Management Center > Store Management tab, the device status should be "Registered" on the store you just binding (Figure-19).

Online	Jupiter	Callisto	StoreA	I'm Store A	Store Data Input	Modify	Delete
Device Name	Device Status	Device Ip Addr	Device Type				
Gate	Registered	172.16.8.160	UCam				

Figure-19, Device Status should display as "Registered"

### 3.2.2 Enable Device by Cloud Operator

Please contact your UShop+ cloud operator to enable cloud service after local setup is completed.

### 3.2.3 Check Device Status on Store BI

After the activation of the cloud service, the device status will switch from "registered" to "Online" after the UShop+ Cloud received first counting data (Figure-20).

Device Name	Device Status	Device Ip Addr	Device Type
Gate	Online	172.16.8.160	UCam

Figure-20, Device Status should shows "Online"

## 4. Setup People Counting Rule

### 4.1 Camera Height

The best suggestion of camera height is between 2.5M to 5M from the ground to ceiling. Fill in the camera height in "Device Height" filed (Figure-21).

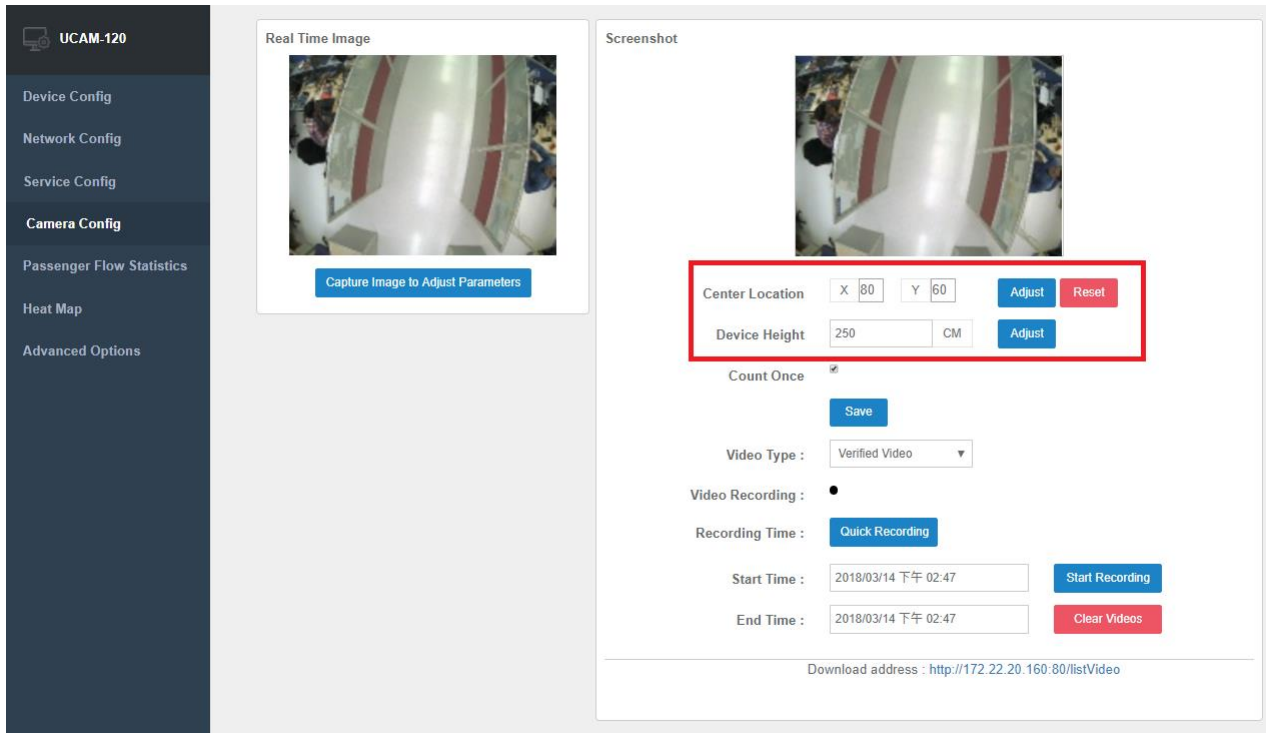
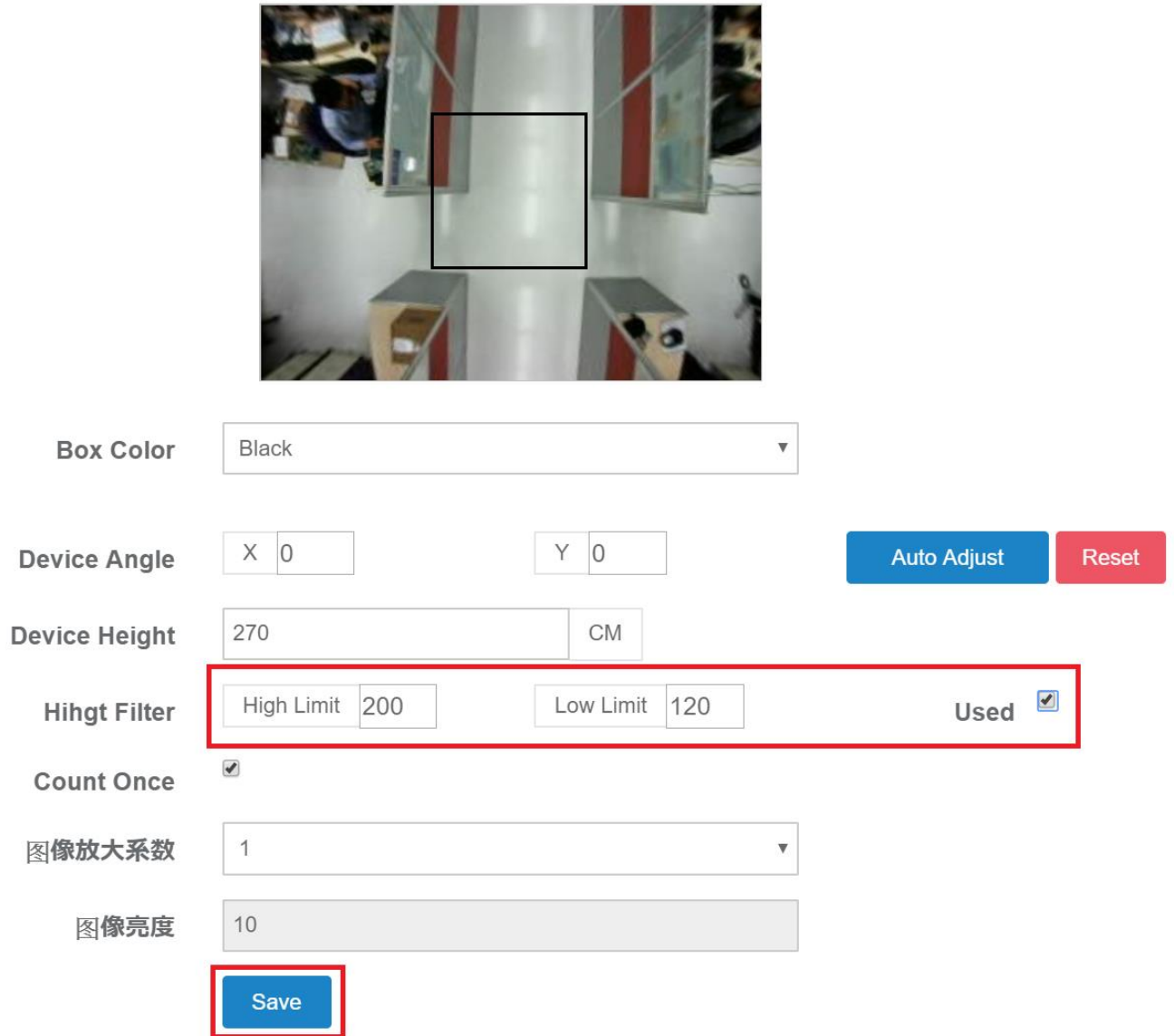


Figure-21, Modify Camera Height

#### 4.1.1 Filtering Object with height (UCAM 3D only)

The UCAM 3D provide height filtering function, you can filter out the uninteresting object by setting up height filter, e.g. child, shopping cart, etc. make sure enable the checkbox and click "Save" button to apply the filter settings (Figure-22).



Box Color: Black

Device Angle: X 0 Y 0 Auto Adjust Reset

Device Height: 270 CM

Hihgt Filter: High Limit 200 Low Limit 120 Used

Count Once:

图像放大系数: 1

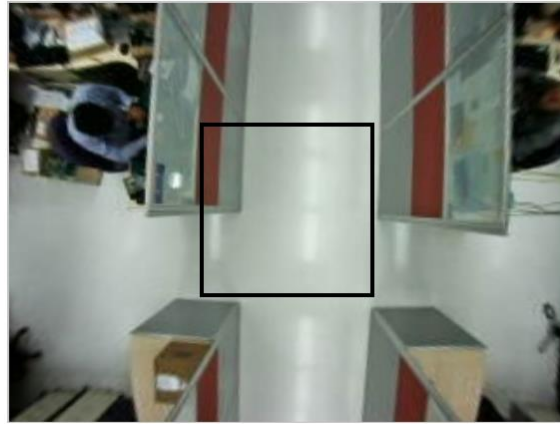
图像亮度: 10

Save

Figure-22, setting up filter range

#### 4.1.2 Count Once

UCAM has a function to avoid marked object who repeat crossing between leave and enter area by enable "count once" button. Make sure to enable the checkbox and click "save" the settings (Figure-23).



Box Color Black

Device Angle X  Y

Device Height  CM

Hihgt Filter High Limit  Low Limit

Count Once

图像放大系数 1

图像亮度

Auto Adjust Reset

Used

Save

Figure-23

### 4.1.3 Enable Online Learning (UCAM 3D only)

Go to Advanced tab and enable "Online Learning" to get higher accurate (Figure-24).

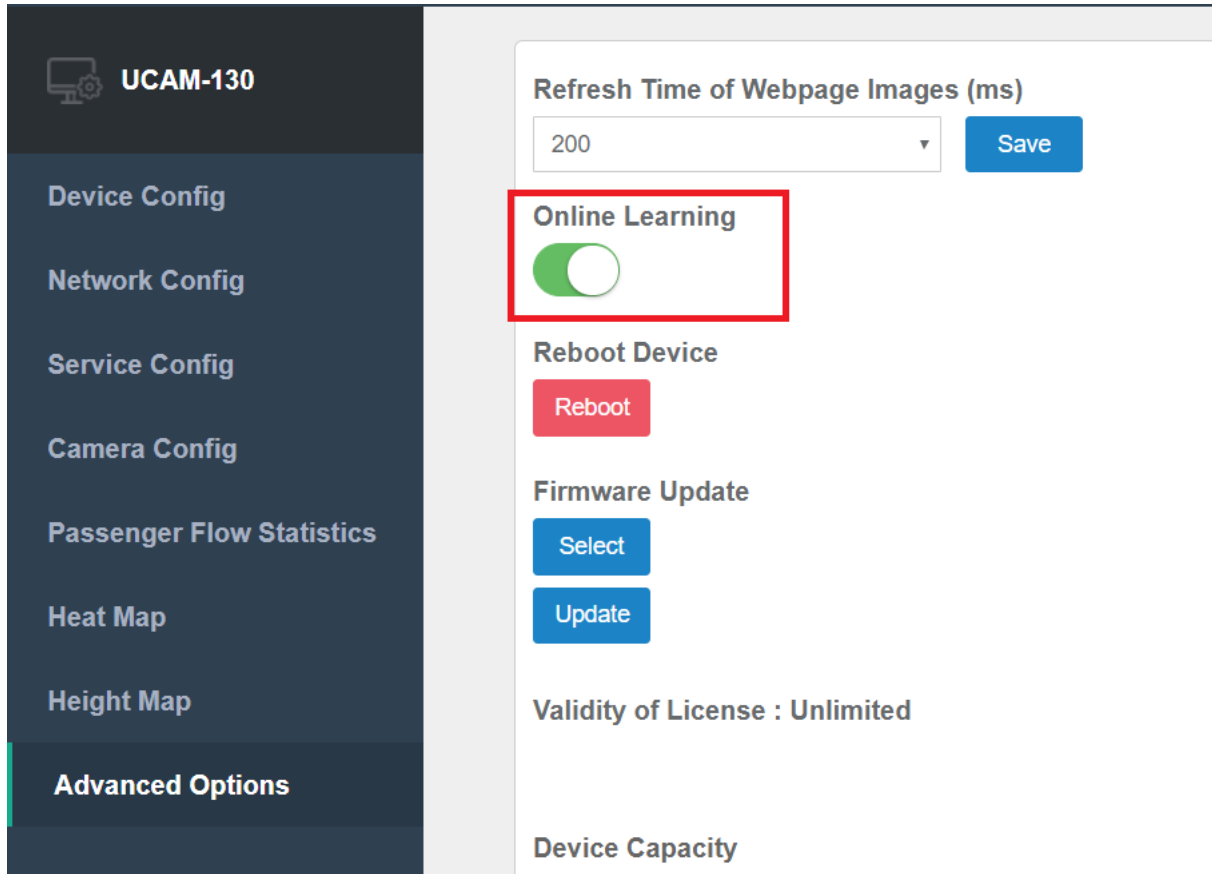


Figure-24

## 4.2 Modify Camera Settings

Go to Passenger Flow Statistics tab, and click "Modify" (Figure-25).

The screenshot shows the UCAM-120 web interface. On the left is a sidebar with navigation options: Device Config, Network Config, Service Config, Camera Config, **Passenger Flow Statistics** (highlighted with a red box), Heat Map, and Advanced Options. The main content area is titled "Passenger Enter and Exit Image" and contains a camera feed. To the right of the feed are two input fields: "Min FPS" with the value 17.3373 and "Avg FPS" with the value 19.18. Below the feed is a table titled "Management for Enter and Exit Area".

Num	Zone Name	Zone ID	Enter Number	Exit Number	Active State	Operation	Reset
1	Zone-PF1	0	8616	8637	●	<a href="#">Modify</a>	<a href="#">Reset</a>
2	Zone-PF2	1	0	0	●	<a href="#">Modify</a>	<a href="#">Reset</a>
3	Zone-PF3	2	0	0	●	<a href="#">Modify</a>	<a href="#">Reset</a>
4	Zone-PF4	3	0	0	●	<a href="#">Modify</a>	<a href="#">Reset</a>
5	Zone-PF5	4	0	0	●	<a href="#">Modify</a>	<a href="#">Reset</a>
6	Zone-PF6	5	0	0	●	<a href="#">Modify</a>	<a href="#">Reset</a>
7	Zone-PF7	6	0	0	●	<a href="#">Modify</a>	<a href="#">Reset</a>
8	Zone-PF8	7	0	0	●	<a href="#">Modify</a>	<a href="#">Reset</a>

Figure-25, Modify counting rules

## 4.3 Capture the Detect Sample

Click "Capture Image to Adjust Parameters" to obtain the counting sample. Make sure the sample is clear when capture the image to adjust parameters (Figure-26).

The screenshot shows the "Real Time Image" section of the UCAM-120 interface. It features a camera feed showing a person walking through a corridor. Below the feed is a blue button with the text "Capture Image to Adjust Parameters", which is highlighted with a red box.

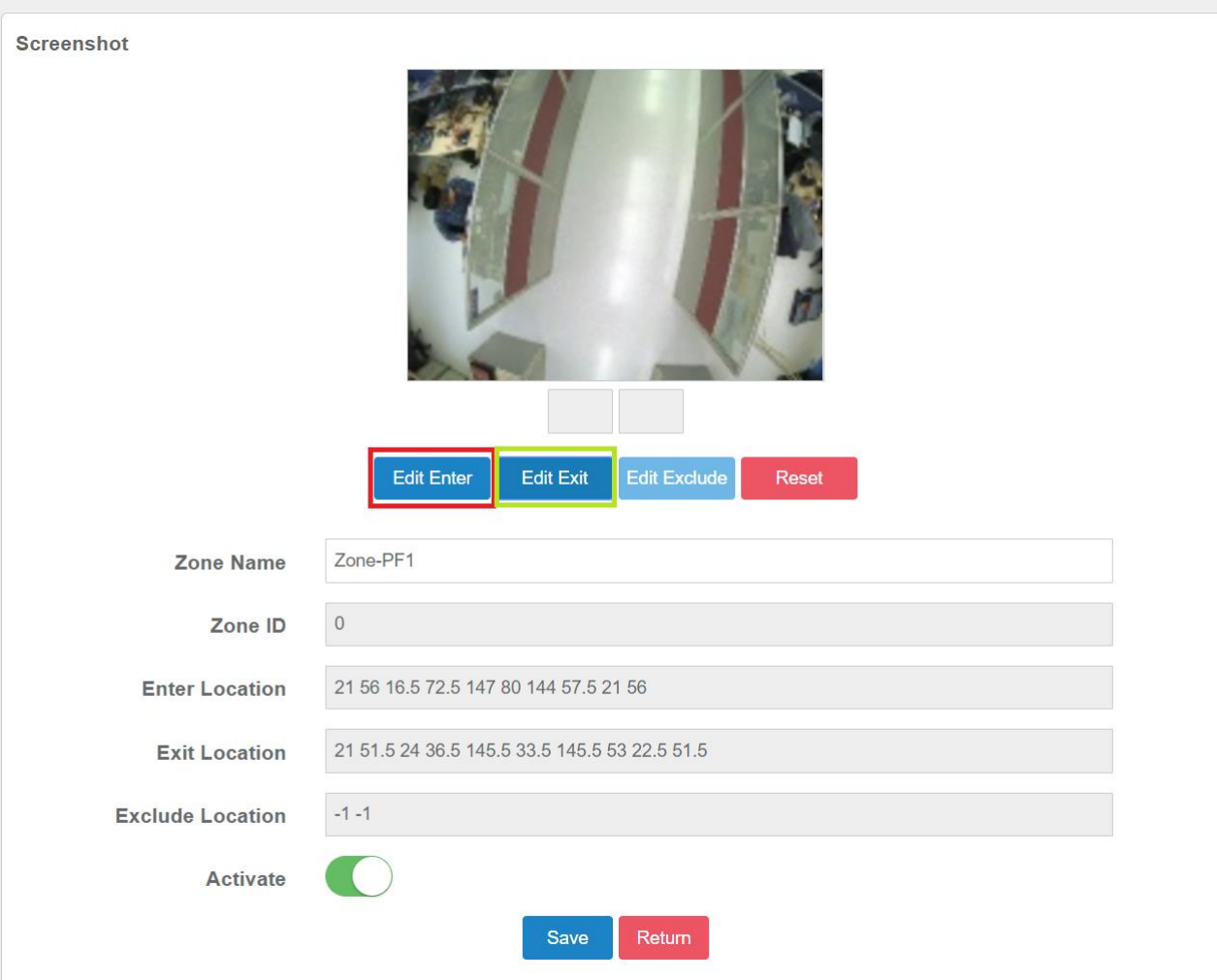
Figure-26, Capture Image to Adjust Parameters

## 4.4 Draw the Counting area

### 4.4.1 The Setting Counting Area

Click "Edit Enter" and "Edit Exit" to draw in and out counting area (Figure-27).

Screenshot



**Edit Enter** **Edit Exit** **Edit Exclude** **Reset**

**Zone Name** Zone-PF1

**Zone ID** 0

**Enter Location** 21 56 16.5 72.5 147 80 144 57.5 21 56

**Exit Location** 21 51.5 24 36.5 145.5 33.5 145.5 53 22.5 51.5

**Exclude Location** -1 -1

**Activate**

**Save** **Return**

Figure-27 Setting Counting Area



#### 4.4.2 The Drawing Rule

The UCAM counting rule is based on the area, the **enter area** should show as **red color**, and **exit area** should show as **green color**. Make sure counting area are drawing as the following principles:

- (1) The red and green area **must not** overlap, but the gap between these two areas should be as close as possible to each other (Figure-28).

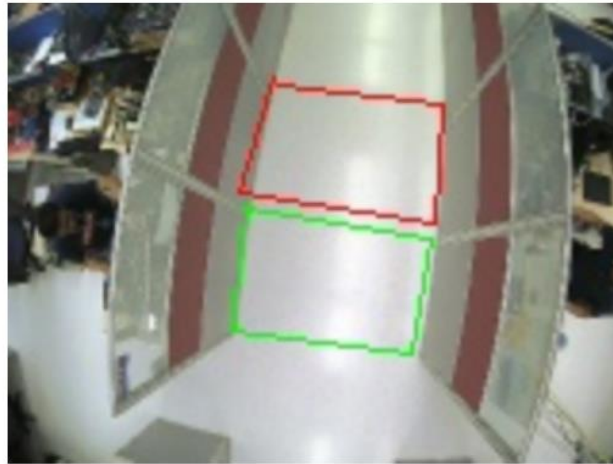


Figure-28 Counting Area

- (2) The efficiency detection zone is  $\frac{2}{3}$  area from the center of the captured image, Please make sure the two-area gap is inside of  $\frac{2}{3}$  area from the center of the captured image, especially when the counting circumstance is complicated (Figure-29).

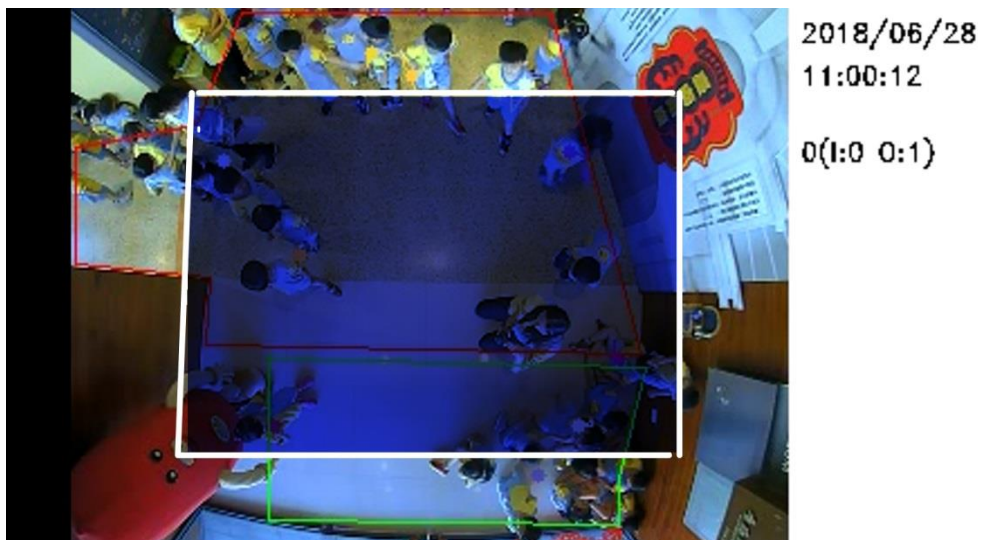


Figure-29 Efficiency Detection Zone

- (3) Each counting area must **at least twice longer** than people head size (Figure-30).

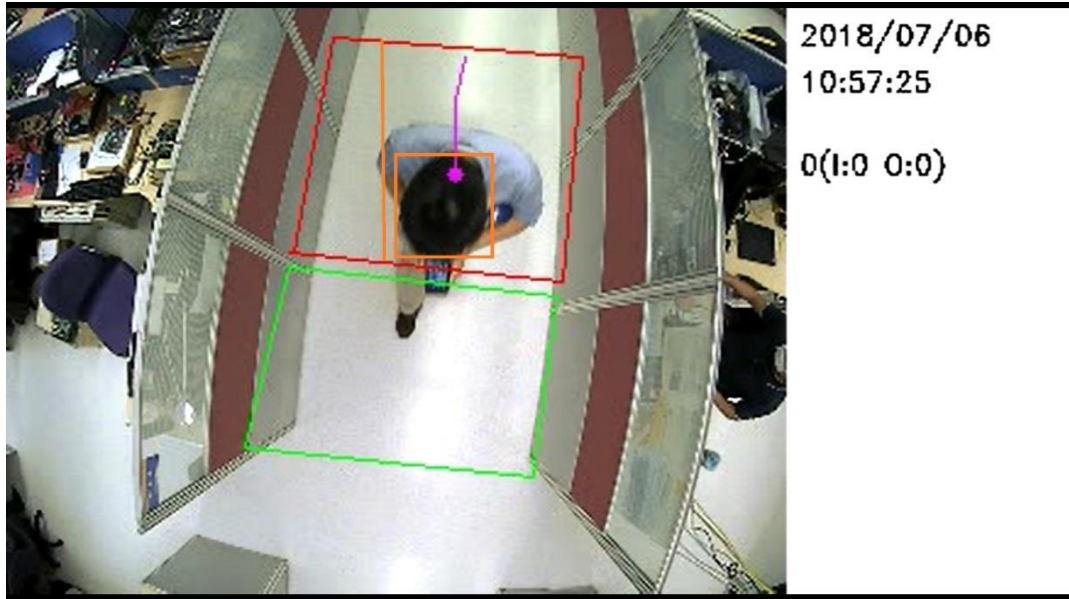
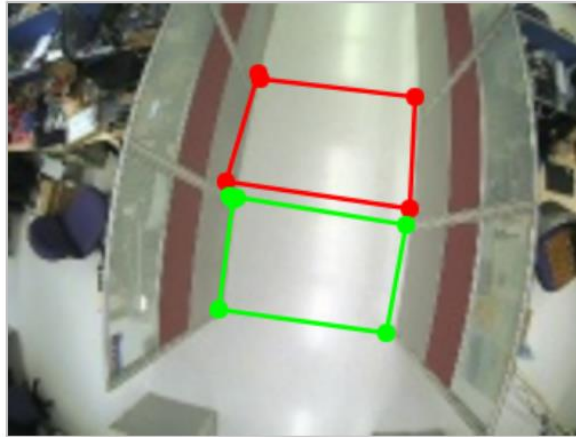


Figure-30 Counting Area Setting

#### 4.4.3 Saving Counting Rule

After completing the drawing of the counting area, make sure to enable the "Activate" switch and click the "Save" button to save the counting rule (Figure-31).

Screenshot



**Zone Name**

**Zone ID**

**Enter Location**

**Exit Location**

**Exclude Location**

Figure-31, Save Counting rule example.

## 4.5 Counting Rule

### 4.5.1 UCAM Counting Process

The UCAM counting rules are as below steps:

(1) The UCAM mark human as an object (Figure-32).

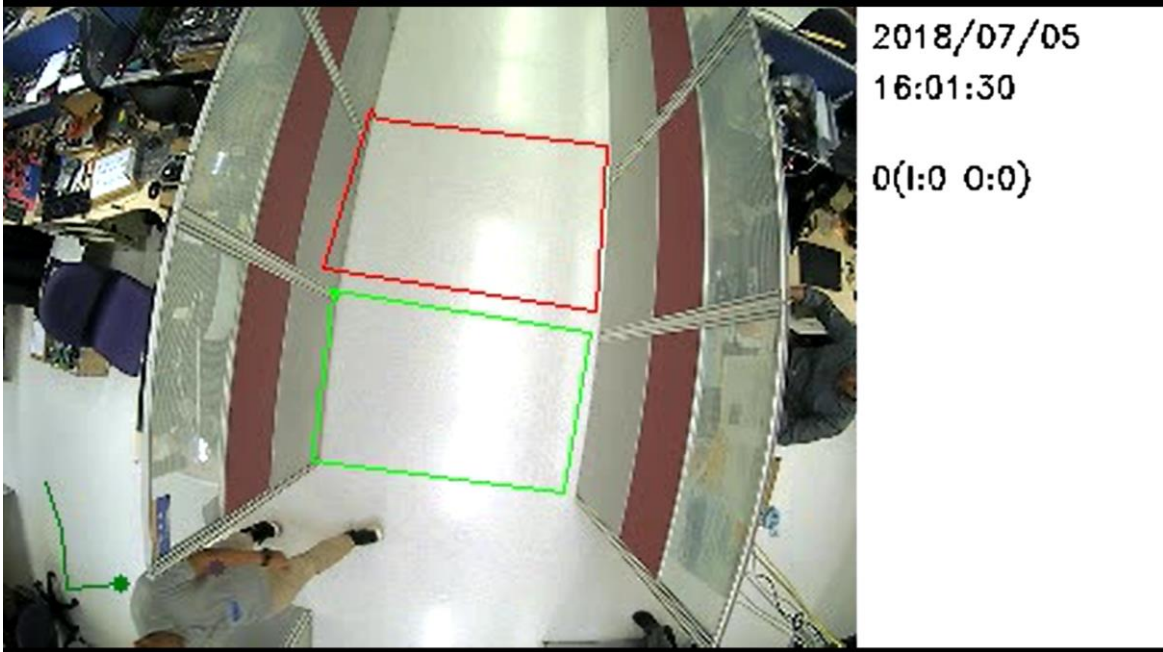


Figure-32, Mark Human as an Objects

(2) The object enters in the green area/exit area (Figure-33).

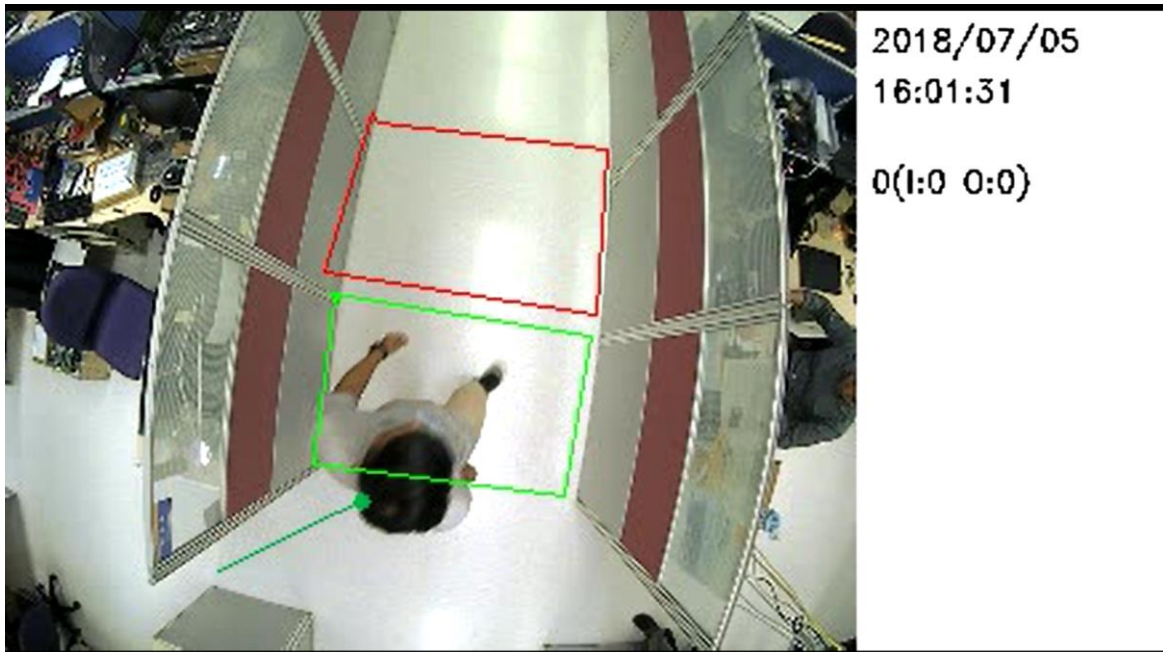


Figure-33, The object enters in the counting area

(3) The object enters in the red area/enter area (Figure-34)

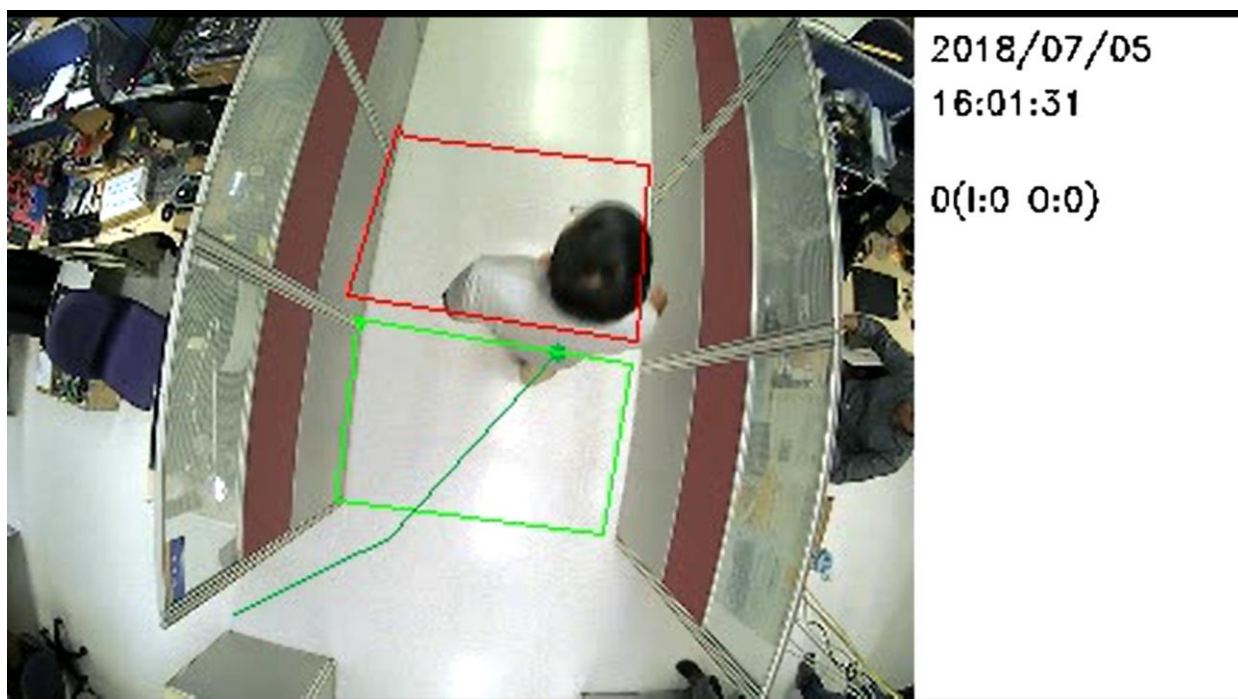


Figure-34

(4) The object leave the red area/enter area (Figure-35)

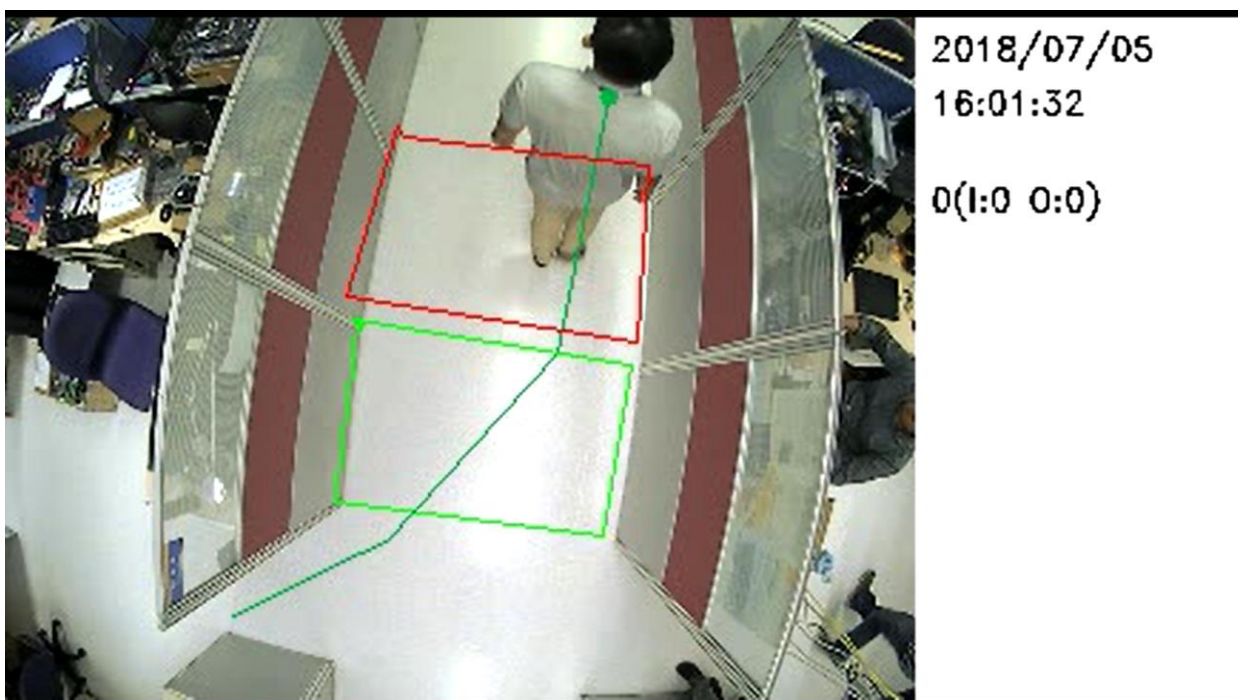


Figure-35

(5) The object counts as one IN traffic (Figure-36).

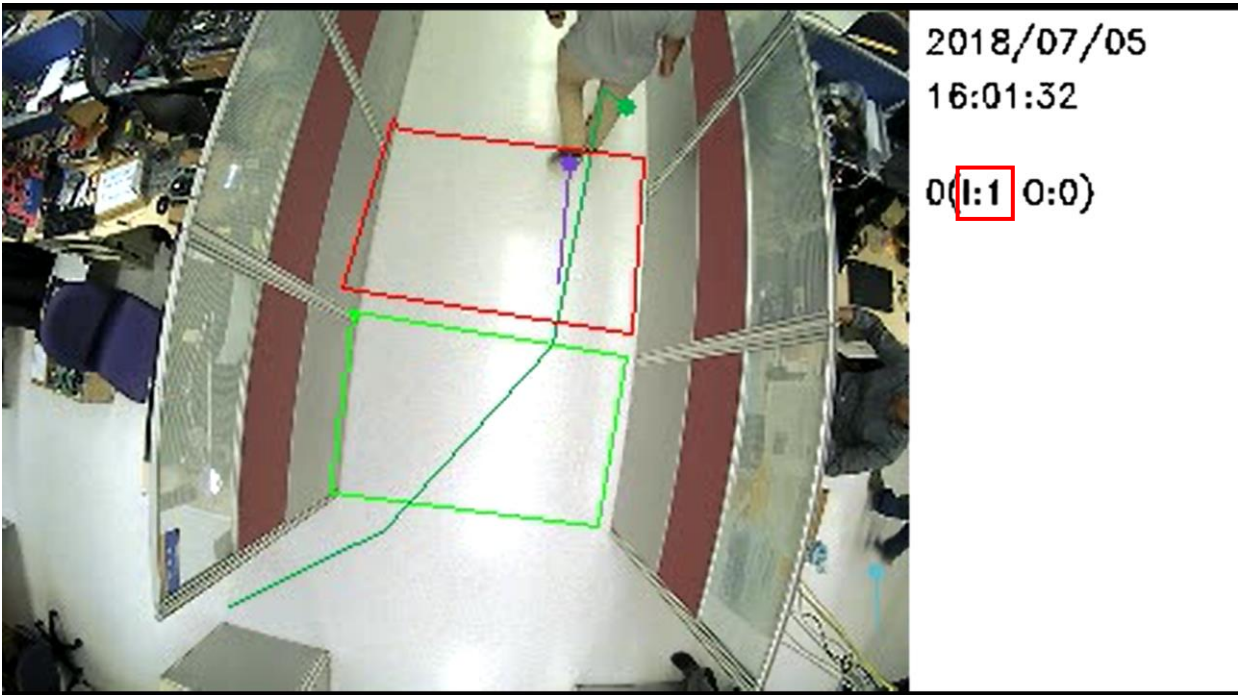


Figure-36, The object counts as one IN traffic

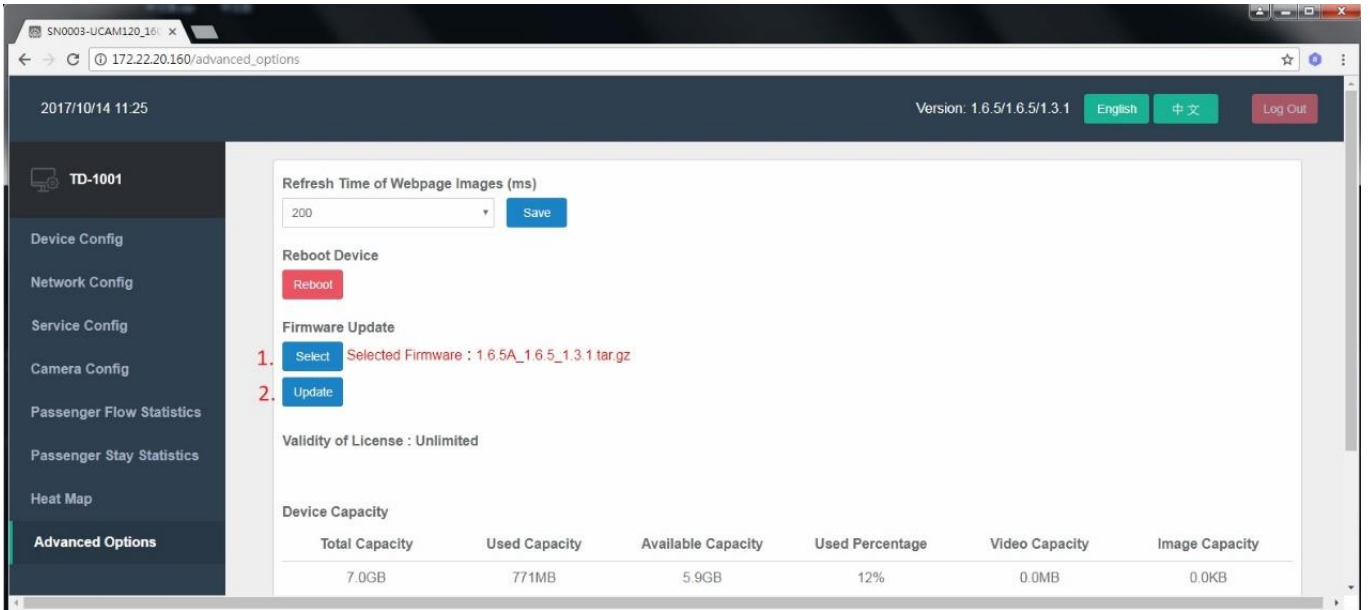
**Note:** The UCAM only counts when the object passes through both red and green area to the object tracking path. UCAM won't count if the object enters in the green or red area only.

# Appendix

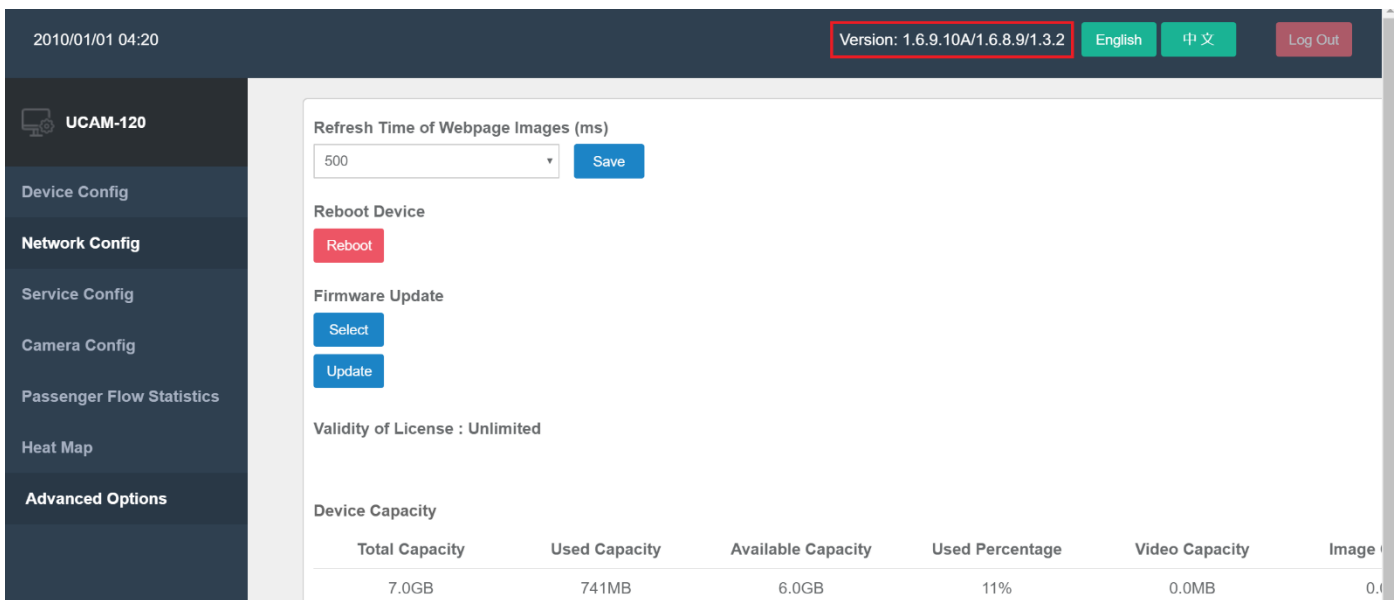
## Appendix I

### Update UCAM Firmware

Select new firmware file, click "Update" button



New version would be shown after update on right of top



## Appendix II

### UCAM trouble shooting

The UCAM smart sensor can be diagnosed by observing the signal lights after being installed and configured through the web interface. There are three signal lights on the device. The signal light in the middle indicates different status of device with three colors: red, orange and green.

<b>Color of Signal Lights</b>	<b>Indicators</b>
Constant red	Device error, hardware problem
Flashing orange	Connectivity issue, unable to connect with the server
Flashing green	Functioning properly

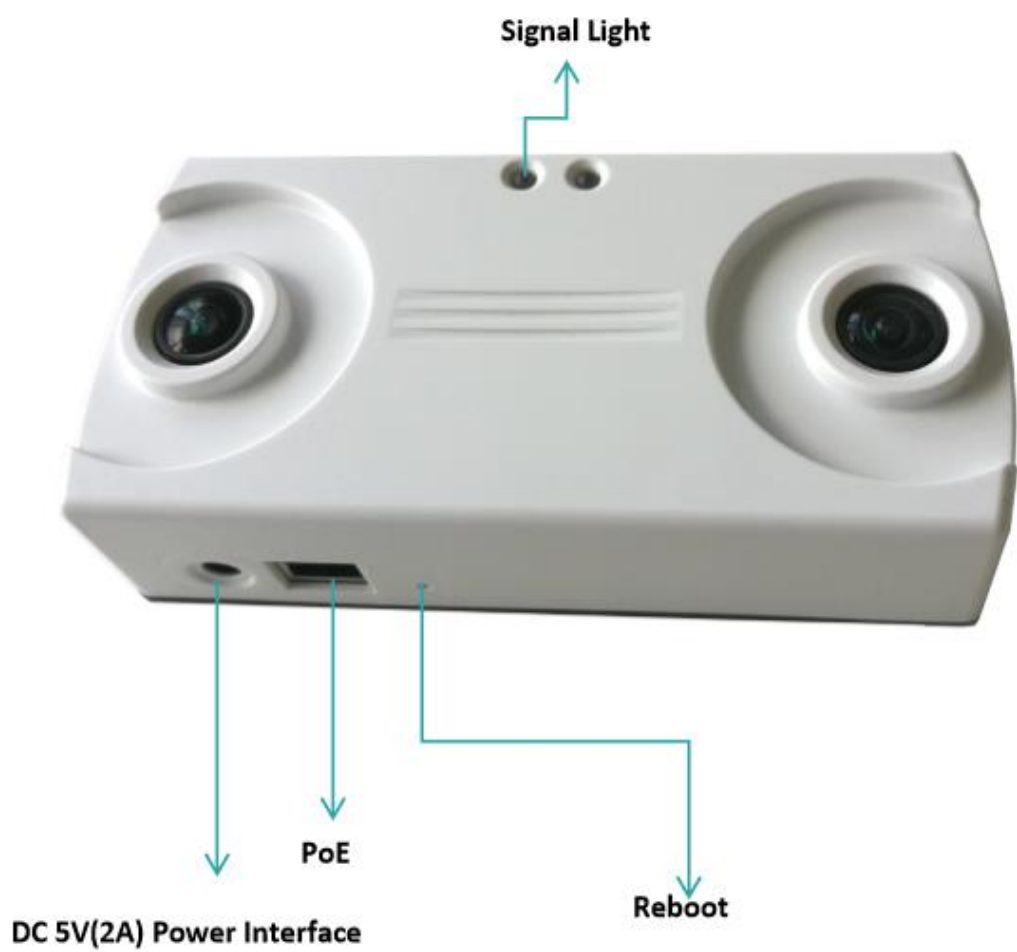
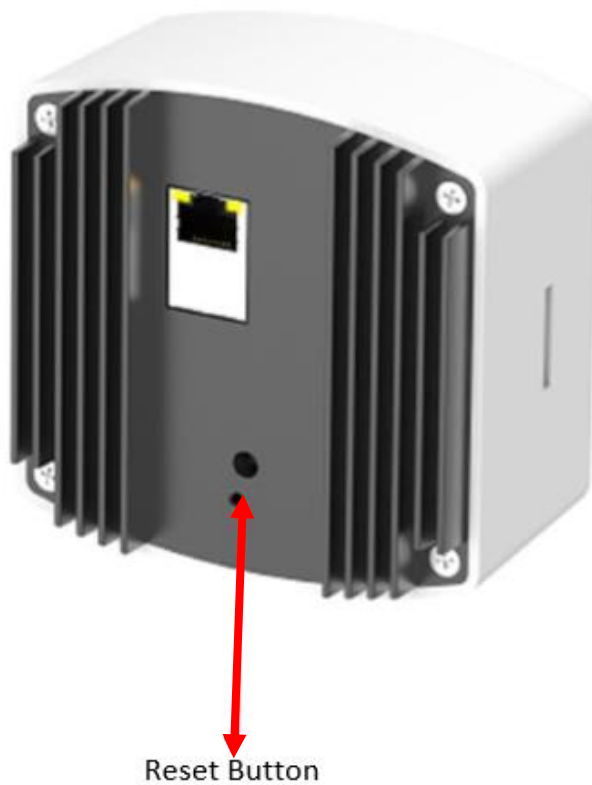
### **Reset Device**

The UCAM smart sensor can be reset by pressing the reset button located in the reverse side of device.

### **Reset Button**

Use the end of a paper clip, pin or SIM eject tool to press the button no less than 10 seconds and then release. The device will be reset to factory default settings and reboot automatically. Make sure the device is powered on when you reset it.





## Appendix III

### Counting Verification

UCAM provides verify recording function for validate counting results. You can click “Quick Recording” button to record the verified video. You can also book a period to record the verified video (Figure-37).

Download the verified video by clicking downloads link. Make sure to draw the counting area before process to record the verified video.

After downloading the verified video, be sure to delete the video to avoid running out of memory (Figure-38).

Figure-37



Figure-38