



UShop⁺

UCAM

UCAM-130 / User Manuel

V1.0.5.3A

ADVANTECH

Enabling an Intelligent Planet

UCAM Smart Camera Web Interface

Using the Web Interface

The UCAM-130 Intelligent Sensor includes the browser-based web interface, which allows you to configure and manage the sensor directly.

To fully access the web interface, your computer should be installed with Internet Explorer 10.0 or newer, or the latest version Google Chrome or Mozilla Firefox.

Accessing the Web Interface

To access the web interface, use the DHCP(Dynamic Host Configuration Protocol) to get IP address. All sensors are shipped to customers with DHCP. Input it into browser address bar, then access the following setting page.

Present date and time

Firmware version

Switch languages

Sign off

UCAM-130

Device Config

Network Config

Service Config

Camera Config

Path Linking

Customer Flow Statistics

Heat Map

Height Map

Advanced Options

Real Time Image

Left

Host Name

Device SN

Store ID

Store Name

Device ID

Device Name

Device Type

Password Option

Username

Password

Save

Reset to Default

Navigating menu

Parameter setting area. Layout may vary depending on menu items

Configuring UCAM-130 Intelligent Sensor

Once you access the web interface, navigate the menu options on the left side and start configuring all necessary parameters by following the forthcoming instructions.

Device Configuration

The screenshot shows the UCAM-130 web interface. The top bar displays the date and time (2020/05/15 13:20), the version (1.0.5.3A/1.0.5.5/1.4.2.1), and language options (English, 中文) along with a Log Out button. The sidebar menu on the left lists various configuration options, with 'Device Config' currently selected. The main area is divided into two sections. The left section, labeled '1 Real Time Image', shows a live camera feed of a store interior. The right section contains configuration parameters labeled 2 through 8: '2 Host Name' (HTY_GX_04), 'Device SN' (202019000830), '3 Store ID' (4ypKIGmonypu), '4 Store Name' (HTY_GX_Door4), '5 Device ID' (WIEE-IABA-QYEJ-IMYF), '6 Device Name' (HTY_GX_04), 'Device Type' (0), '7 Password Option' (a toggle switch), 'Username', and 'Password'. At the bottom of the configuration section are 'Save' and 'Reset to Default' buttons.

1. **Real Time Image:** Select the left or right lens' captured image as the real time image for displaying.
2. **Host Name:** Enter the Hostname for the sensor on your network.
3. **Store ID:** Enter the customer-specific classification for a store or site number.
4. **Store Name:** Enter the customer-specific classification for a store or site number, often a reference to the city or locale where the store is.
5. **Device ID:** Enter an alphanumeric code to uniquely identify the sensor within a site.
6. **Device Name:** Enter a brief name for the sensor that is derived from Device ID.
7. **Password Option:** Sensor can be password protected to prevent unauthorized users from accessing the web. Enable Password Option then input the username and password, click **[Save]**.
8. **[Save]:** Use the permanent, non-volatile memory (Flash) of the sensor to store the effects of a change.
[Reset to Default]: Restore the current values back to the factory defaults. The values are not permanently saved until you click the **[Save]** button.

Network Configuration

1. **Device IP:** Enter the IP address for the sensor on your network. **DHCP** is default setting, and you may disable it to active static IP address.
2. **Subnet Mask:** Enter the Network Mask for the sensor on your network.
3. **Gateway IP:** Enter the Default Gateway IP address for the sensor on your network.
4. **DNS Server IP:** Enter the DNS (Domain Name System) Server for the sensor on your network.
5. **Local Web Server Port:** Enter the Port number for the sensor for HTTP/HTTPS communication.
6. **[Save]:** Store the effects of a change.

[Import Config]: Click the button, a pop-up window will appear for you to select the configuration file that you created and exported before for easy setting up.

[Export Config]: Click the button to export current network settings and save the file in your specified directory for future use.

Service Configuration

1. **Primary/Secondary Report Server Address:** Enter the primary/secondary data delivery destination server. Make sure to tick **Activate** if you will use Secondary Report Server.
Primary/Secondary Report Server Port: Enter the primary/secondary server port number to which the sensor should attempt to deliver data.
Primary/Secondary Report Server Directory: Enter your specified primary/secondary report server directory. (Note that server end configuration also needs to be set, contact our technical representatives for details).
2. **[Upload Setting]:** Click the button into the **Upload Setting** page to set parameters for uploading reports to the Primary/Secondary Report Server respectively.
[Clear Report]: Clear all historical count data.
3. **Time Server Selection:** Specify the server that you wish to use its time for synchronizing the date and time on the sensor by selecting from the listed options (Primary Report Server, Secondary Report Server, NTP Server). Click **[Test Setting]** to see if the connection with your selected server is successful or not.
Time Server Address: Automatically filled up once the **Time Server** is selected.
Time Server Port: Automatically filled up once the **Time Server** is selected.
Time Zone: Set the time zone based on the physical locations of devices.
4. **[Time Correction]:** Click the button, a pop-up window will appear. Click **[Sync Time]** to synchronize the date and time of the sensor with your selected server under properly functioning network situation. If there is no server connected on the site network, set time manually in **Set Time** and click **[Confirm]**. Note that this is a one-time setting when time synchronization is not used, which is subject to time drift.

Time Server Selection Primary Report Server

Time Server Address

Time Server Port

Time Zone

Sync Time

Set Time

Confirm Return

5. **Remote Control Server Address/Port:** Enter the IP address and Port number of your Remote Control Server. Click **[Test Setting]** to see if the connection with your Remote Control Server is successful or not.

6. **[Save]:** Store the effects of a change.

[Import Config]: Click the button, a pop-up window will appear for you to select the configuration file that you created and exported before for easy setting up.

[Export Config]: Click the button to export current service settings and save the file in your specified directory for future use.

Upload Setting

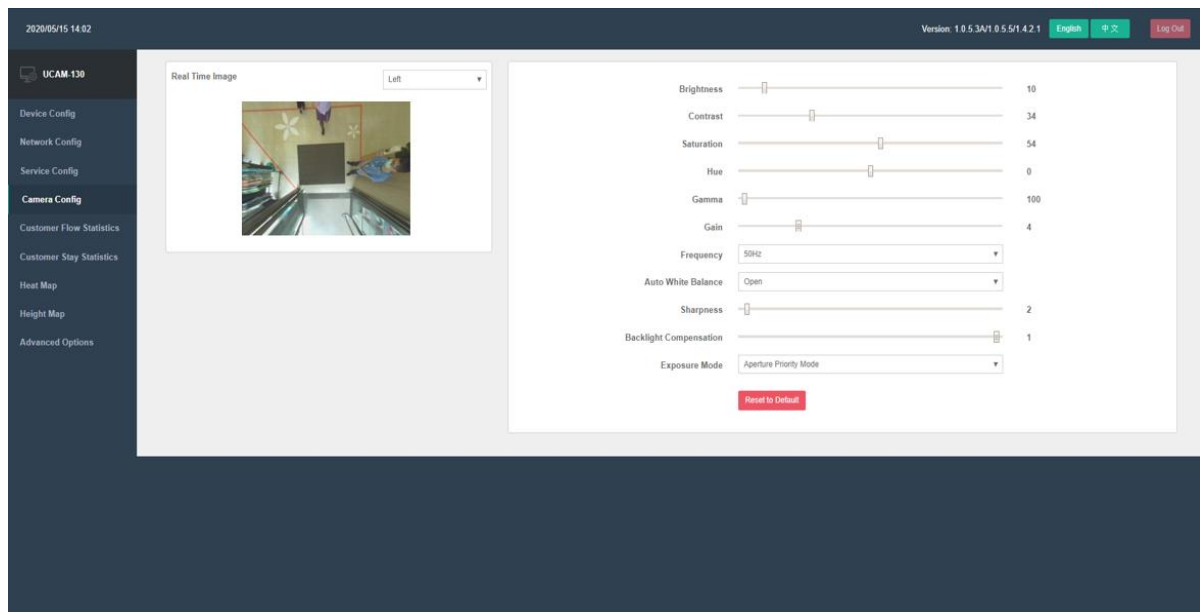
1. **[Re-Upload Issued Report]:** Sensor can create on-demand report delivery requests for a specific range of dates and times in a designated format. This operation only resends the data within 90 days and can't resend if the cached data has been cleared. Set the **Start Time** and **End Time** accordingly and then click **[Re-Upload Issued Report]** for report delivery.
2. **Delivery Protocol:** Specify the protocol for uploading reports by selecting from the listed options (**HTTP, HTTPS, FTP, FTPS**).
3. **Data Format:** Specify the data format for uploading data by selecting from the listed options (**XML, Pipe Delimited, DAT,JSON**).
4. **Record Cycle(m):** Select a record level (time interval of every 1 min, 5 mins, 10 mins, 15 mins, 30 mins or 60 mins) for the count report.
Upload Cycle(m): Select an upload level (time interval of every 1 min, 5 mins, 10 mins, 15 mins, 30 mins or 60 mins) for the count report.
Upload Time: Select data upload time. By default, **Anytime** is checked.
5. **[Save]:** Store the effects of a change.
[Return]: Return to the previous main page (**Service Configuration**).

Camera Configuration

1. **Box Color** : Select either **Black** or **White** as the color of the selection frame.
2. **Device Angle**: Set the mounting angles (**X** and **Y** axes accordingly) for tilt installation.
Device Height: Set the sensor height within the range of **230cm-1400cm** based on the height of installation spot on site and the lens options (2.2mm standard lens supporting the maximum 500cm installation height, or 8.0mm optional lens supporting the maximum 1400cm installation height).
3. **[Auto Adjust]** : You may click the button to automatically adjust the angle and height value.
4. **Count Once** : This feature is provided in order to set the sensor to count people only once if they cross over enter and exit areas multiple times while in the sensor field of view. If the **count once** box is not selected, a single person can cause multiple enter and exit counts if they stay in the sensor field of view and cross over the enter and exit areas multiple times.
5. **Track Mode** : This feature allows you to select to track either the head or foot of an object, which is especially useful when you specify/draw zones on the ground to determine the exact area where you want to track for dwelling statistics.
6. **Family Count** : This feature allows you to count persons as a family unit when they are very close to each other. When the distance between them is less than 10cm, the sensor will combine the counting only for one as a family count. This request is usually performed for those retail clients as they might count the same family only once regardless of the number of people in the family.
7. **Image magnification factor**: Zoom the captured image (**1X**, **2X**, or **4X**) when necessary. It is usually helpful for better viewing the captured image when the sensor is installed at a height above than normal situations so that you will be able to enlarge the view and make the tracking objects not looking too small for the sensor. Under such scenario, the sensor could still work properly while being mounted at a high position.

Make sure to click **[Save]** to store the parameters as set.

Advanced Config: This will allow you to adjust more parameters such as the brightness, contrast, exposure etc. for obtaining an even better viewing effect of the captured image. Should you have difficulties in adjusting the parameters, please consult our technical engineers.



8. **Video Type:** **Verify video** and **Original video** can be selected to record.
Video Recording: Showing recording status.

- The sensor is not recording
- The sensor is recording

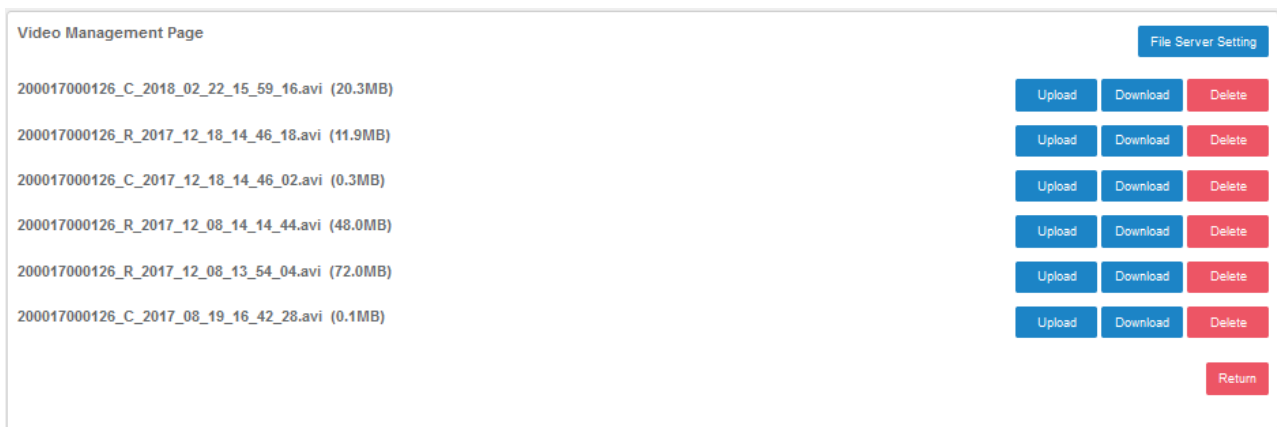
[Quick Recording]: Click the button to record a 10 minutes video clip immediately. This operation can be stopped by clicking **[Quick Stop]**.

Recording Time: Enter the recording start and end time.

[Start Recording]: Start recording a video clip based on the time slot as set.

[Clear Videos]: Clear all recorded videos on this sensor.

9. **Download Address:** Click the URL link to manage the video clips through the pop-up Video Management Page as shown below. All recorded videos can be downloaded or removed by clicking corresponding buttons. You may set the file server for keeping the recorded videos by clicking the **[File Server Setting]** and set the server address, port etc. to your designated location.



[Upload] :Upload the recorded video clip to the file server

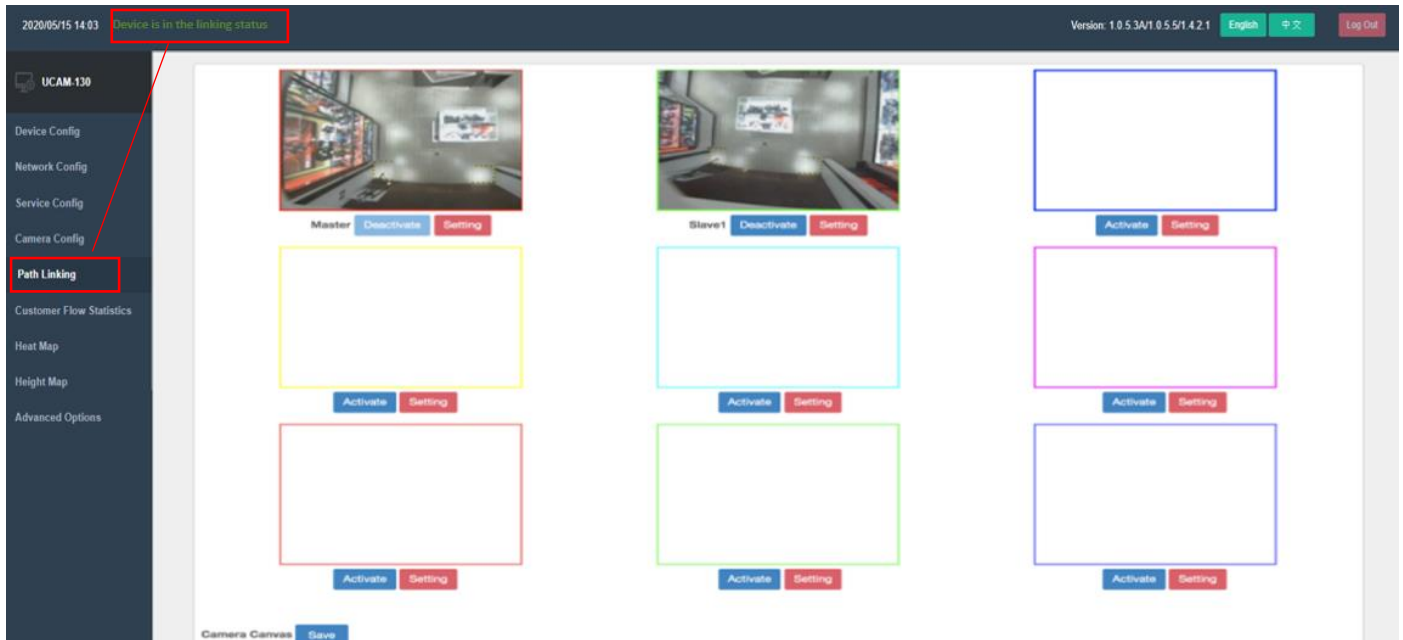
[Download] :Download the recorded video to your local drive

[Delete] : Remove the video clip from the device

[File Server Setting] : set the server address, port, path and transmission protocol for your FTP

Path Linking

Path Linking is used to combine multiple sensors while minimizing double counting in their overlapping areas, for the purpose of obtaining better accuracy in the case of wide entrance or large coverage area. This feature can be accessible through the navigating menu on the left and its configuration procedure is very simple.



Path Linking sensors include one primary sensor and several slave sensors. Once the primary sensor is activated, the slave sensors can be added. Notice that the firmware version of all slave sensors must be the same as the primary sensor and they have not been configured with Path Linking yet. If the sensor is being enabled with Path Linking, you may find the notification “Device is in the linking status” on the top left corner of the above window.

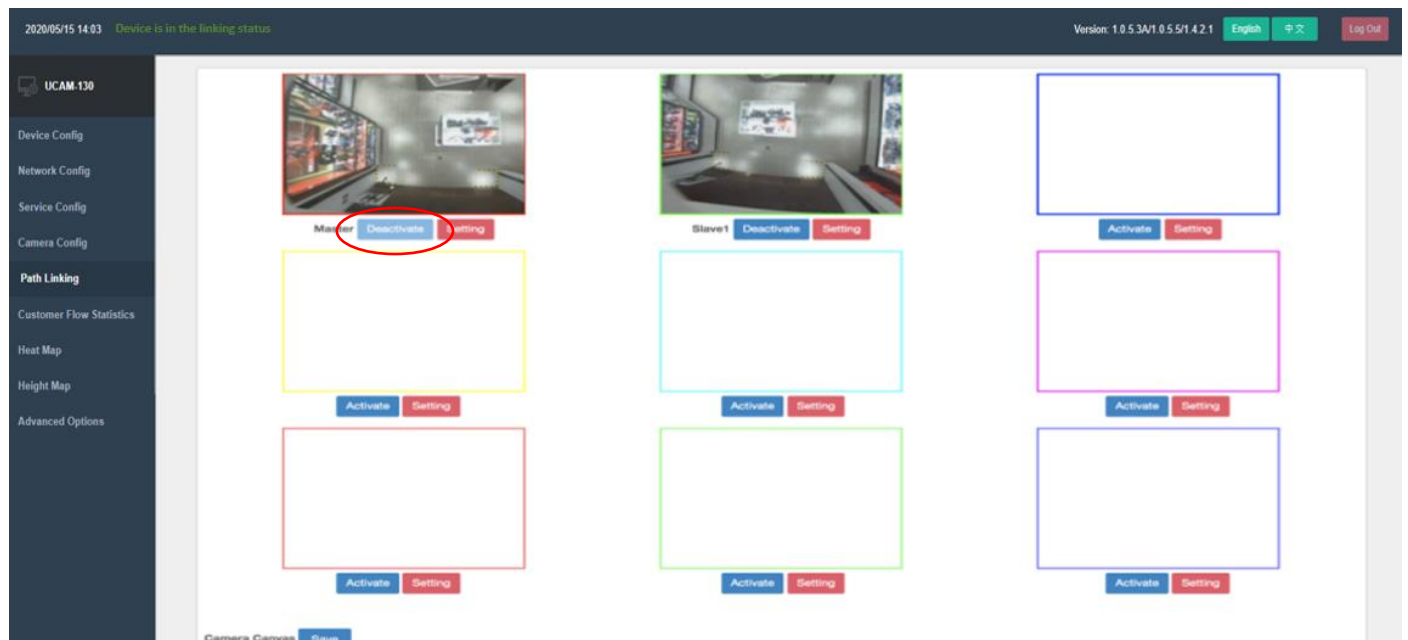
Make sure the followings are set accurately and then follow the forthcoming steps to enable Path Linking.

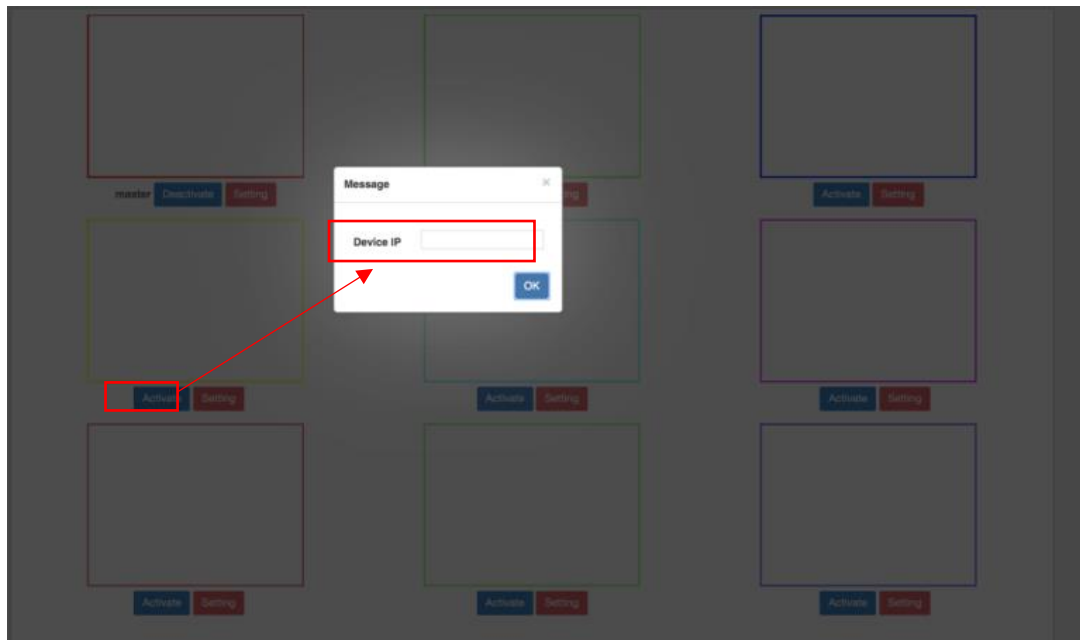
1. Sensor height: you may check if the sensors’ heights are set with reasonably correct value (in “**Camera Config**”)
2. Three magnifications of 1/2/4 can be selected, and different lens magnifications can exist in the stitching lens. Tilt angle: now only can be set as 0° as tilt-installed sensors cannot be enabled with Path Linking
3. Tracking Pattern: forced to **track foot** (in “**Camera Config**”)
4. **Close** “Family Counting” (in “**Camera Config**”)
5. **Close** “Real Time Reporting” (in “**Customer Stay Statistics**”)

First, click the button **[Activate]** to activate the primary sensor.

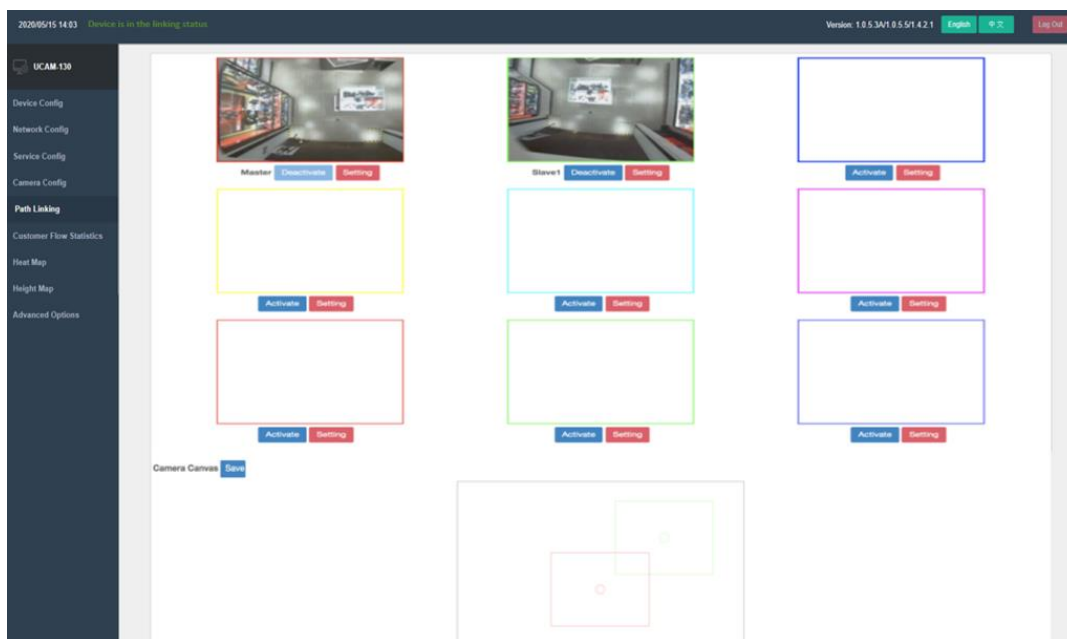


Then you will find the button of the primary sensor has been changed to “**Deactivate**” (as shown below). Now you can add (up to 9) slave sensors one by one in the rest squares by clicking the **[Activate]** buttons under the squares. You may enter the slave sensors’ IP address in the pop-up window

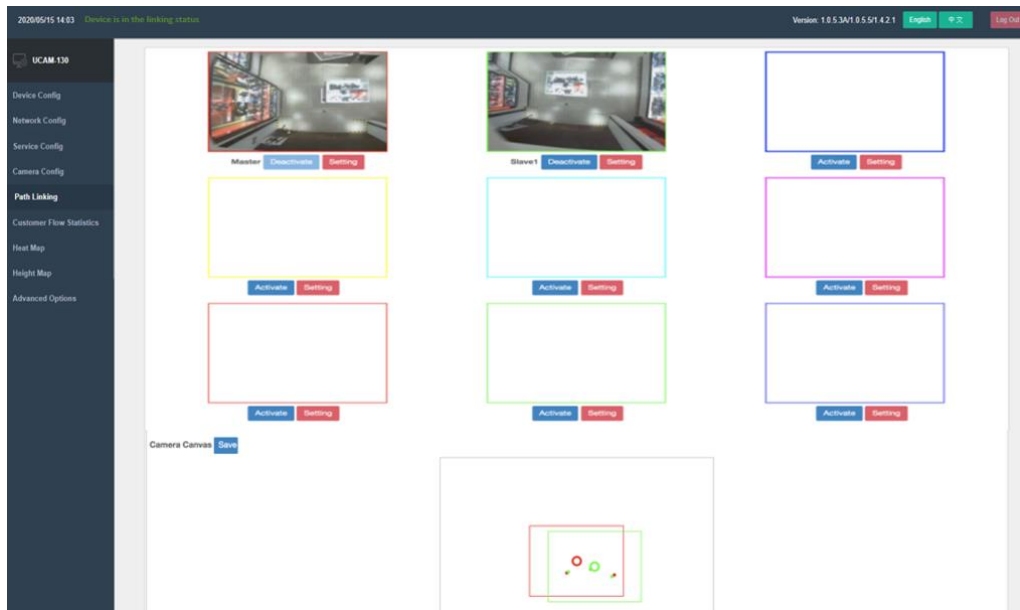




After the slave sensors are added, their fields of view will be displayed in the “**camera canvas**” area of the configuration page, differed by various colors (e.g. as below Primary sensor in Red, Slave Sensor-1 in Green, Slave Sensor-2 in Blue).



Next you can set the relative positions of path linking sensors. To combine two adjacent sensors, select three easy-to-identify reference points in their overlapping area and click them on the camera captured images (shown on the top half of the window), the selected points will appear accordingly in their fields of view (i.e. colored squares in the “**camera canvas**” area). Click the center points of the colored squares and drag them to overlap the selected points. Follow the same procedure to make sure all sensors are combined. If you need to re-select the reference points, just refresh the webpage. To facilitate overlapping the selected points, you may click **[Set]** to set the rotation angles for views from different angles.



Once all sensors are combined properly, make sure click the **[Save]** button on the “**camera canvas**”. Then you just need to configure the traffic counting and customer stay statistics in the corresponding configuration pages for the primary sensor. No packets will be transmitted from the slave sensors.

When Path Linking is enabled, don’t change the parameters in “Network Config”. The time server and the set time of the slave sensors shall keep unchanged as well.

Customer Flow Statistics

2020/05/15 14:05

Version: 1.0.5.3A/1.0.5.5/1.4.2.1

English

Log Out

UCAM 130

Device Config

Network Config

Service Config

Camera Config

Path Linking

Customer Flow Statistics

Heat Map

Height Map

Advanced Options

Customer Enter and Exit Image

Min FPS: 4.32016

Avg FPS: 12.1085

Management for Enter and Exit Area

Num	Zone Name	Zone ID	Enter Number	Exit Number	Active State	Operation	Reset
1	Zone-PF1	0	646007	403317	●	Modify	Reset
2	Zone-PF2	1	0	0	●	Modify	Reset
3	Zone-PF3	2	0	0	●	Modify	Reset
4	Zone-PF4	3	0	0	●	Modify	Reset
5	Zone-PF5	4	0	0	●	Modify	Reset
6	Zone-PF6	5	0	0	●	Modify	Reset
7	Zone-PF7	6	0	0	●	Modify	Reset
8	Zone-PF8	7	0	0	●	Modify	Reset

Management for Abnormal Customer Flow

Switch: ☐

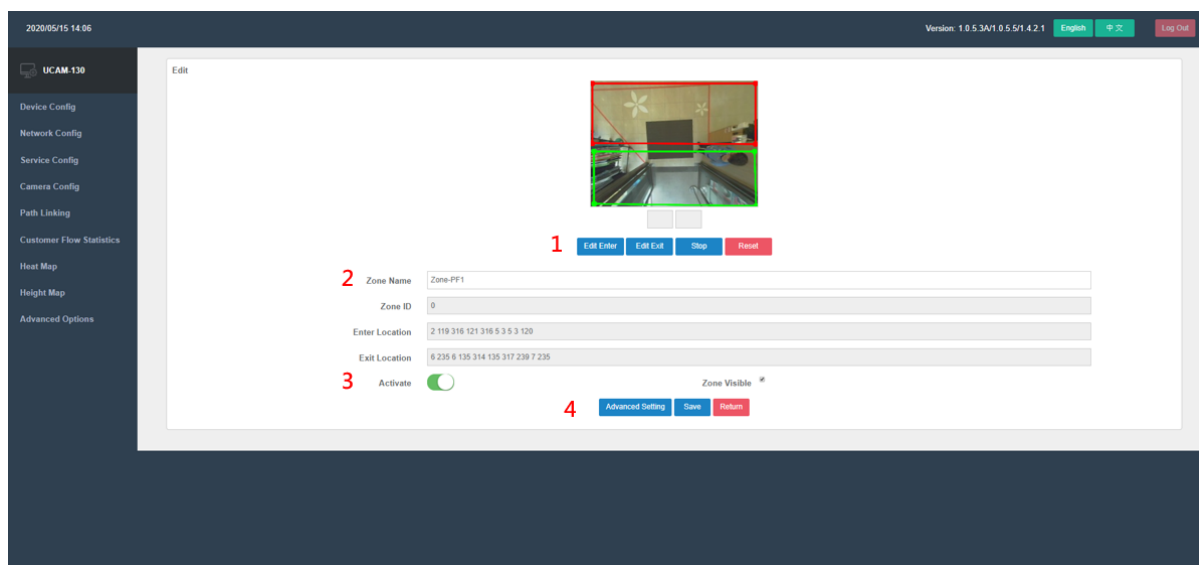
Identify Abnormality:

Record Evidence:

Clear Images:

1. The Sensor can support setting up to 8 zones for counting in and out traffic flow. **Enter / Exit Numbers** represent real time statistics of customer flowing in and out. **Active State** shows whether a zone is active.
[Modify]: Click the button into **Count Setting** page.
[Reset]: Rest count number to 0.
2. **Management for Abnormal Customer Flow** is used for warning operators when abnormal traffic flow is detected, which applies to specific customer needs. Check with our service representatives if you need more information about it.

Count Setting



1. The sensor counts traffic in when people move from the **Exit** area into the **Enter** area and counts traffic out when they move from the **Enter** area into the **Exit** area. The **Enter** area is close to site interior and the **Exit** area is close to site exterior. They are represented by drawing red line frame and green line frame respectively and shall not overlap with each other for accurate counting.

[Edit Enter]: Draw the red line framed **Enter** area by single-clicking points on the screenshot and double-clicking the final point so that all points are connected with lines to construct an automatic closed frame.

[Edit Exit]: Draw the green line framed **Exit** area by single-clicking points on the screenshot and double-clicking the final point so that all points are connected with lines to construct an automatic closed frame.

[Edit Counting]: Draw a yellow line framed area (using similar method as above) for counting. Only in this area, the footfall traffics are counted. **Note the following rules while you use Counting area:**

- 1) The valid Counting area must cover **Enter/Exit** areas, and **Exclusion** areas (if any)
- 2) The Counting area is effective only if you enable '**Count Once**' in **Camera Config**
- 3) With '**Count Once**' being enabled, counting starts immediately once a person leaves the effective Counting area

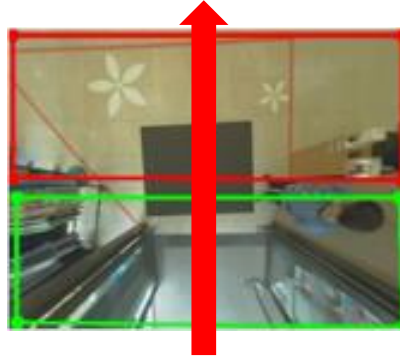


[Edit Exclude]: Exclusion area allows you to exclude employee channels or other areas that are **not** counted as statistics. Drawing a purple line frame using similar drawing method as described above. **Note the following rules while you use**

Exclusion area:

- 1) If you have defined/drawn a **Counting** area, the **Exclusion** area must be contained in the Counting area
- 2) No counting if a person passes across the **Exclusion** area, nevertheless skipping the **Enter/Exit** areas
- 3) No counting if a person doesn't skip the **Enter/Exit** areas, but passes across the **Exclusion** area eventually
- 4) If overlaps exist between the areas (**Enter/Exit/Exclusion**), the priority is: **Enter > Exit > Exclusion** area.

Example (see below picture): Counting won't take place if the person leaves the store by passing across the **Exclusion** area while skipping the **Enter** area.



[Stop]: Pause the live video from the device.

[Reset]: Clear all settings in this page.

2. **Zone Name:** User-configurable text string to identify the zone.
3. **Activate:** Start/Stop the function of this zone.
Zone Visible: If you setup and enable multiple counting zones there will be many green or red zones in the page. This feature allows you to choose to display or not display the drawn lines for each individual counting zone. Notice that it will only impact the display of this webpage. Even the counting zone is invisible, it will still count normally.
4. **[Advanced Setting]:** You can set the height filtering function, and real-time report sampling interval in the Advanced Setting page. Note that the real-time report sampling interval is only applicable to real-time reports.

Maximum Counting Height	<input type="text" value="200"/>	Activate <input type="checkbox"/>
Minimum Counting Height	<input type="text" value="120"/>	
RealTime Report Sampling Interval (s)	<input type="text" value="1"/>	Activate <input type="checkbox"/>
<input type="button" value="Save"/> <input type="button" value="Return"/>		

Maximum Counting Height: Set the upper limit of the range of human heights that can be regarded as valid counting

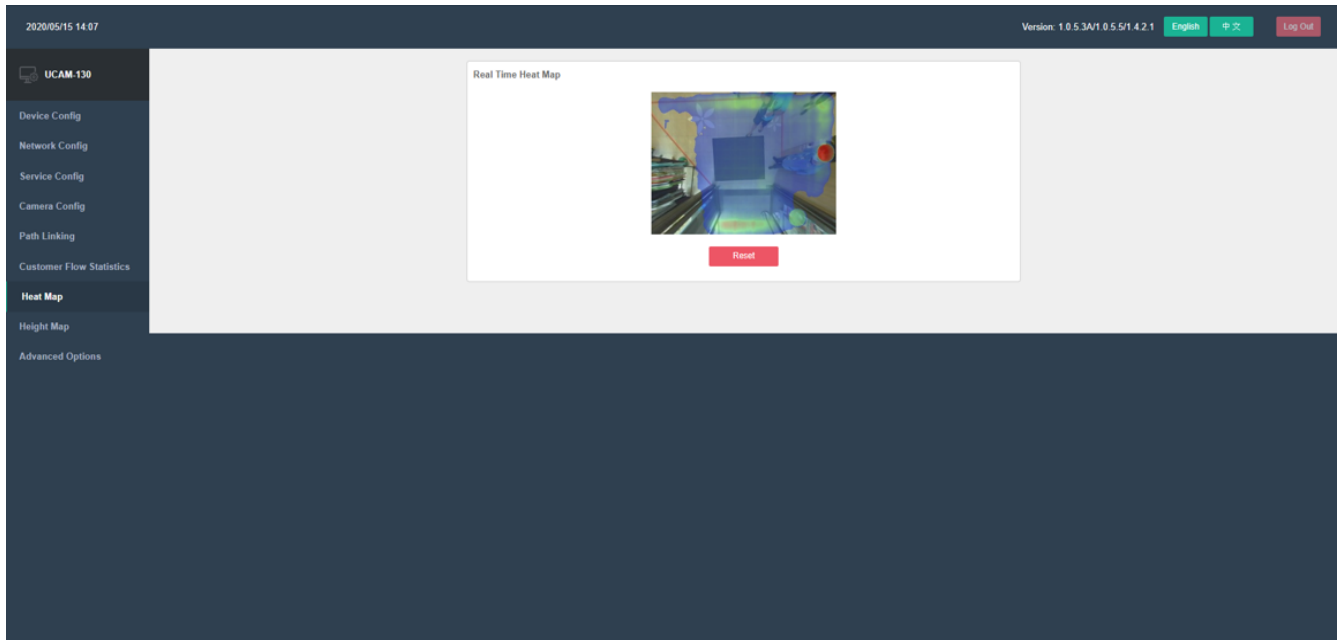
Minimum Counting Height: Set the lower limit of the range of human heights that can be regarded as valid counting

Real-time report sampling interval: Set the time interval for the report to receive data. Support intervals (seconds): 1/5/10/15/30/60

Don't forget to Click **[Activate]** after setting the parameters and **[Save]**.

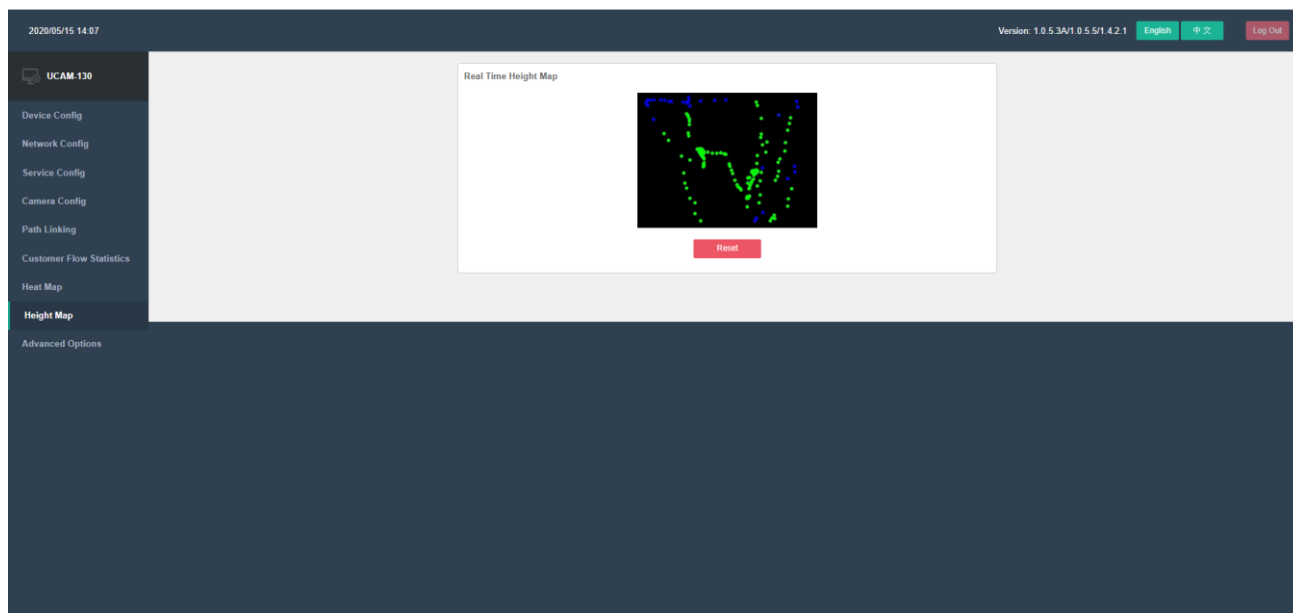
Heat Map

Heat Map is a vivid way to demonstrate the traffic density by using a color-coded heat map of all traffics. Red represents high density of traffic flow while blue represents low traffic volume. Heat Map is for displaying only, without the need to set any parameters.

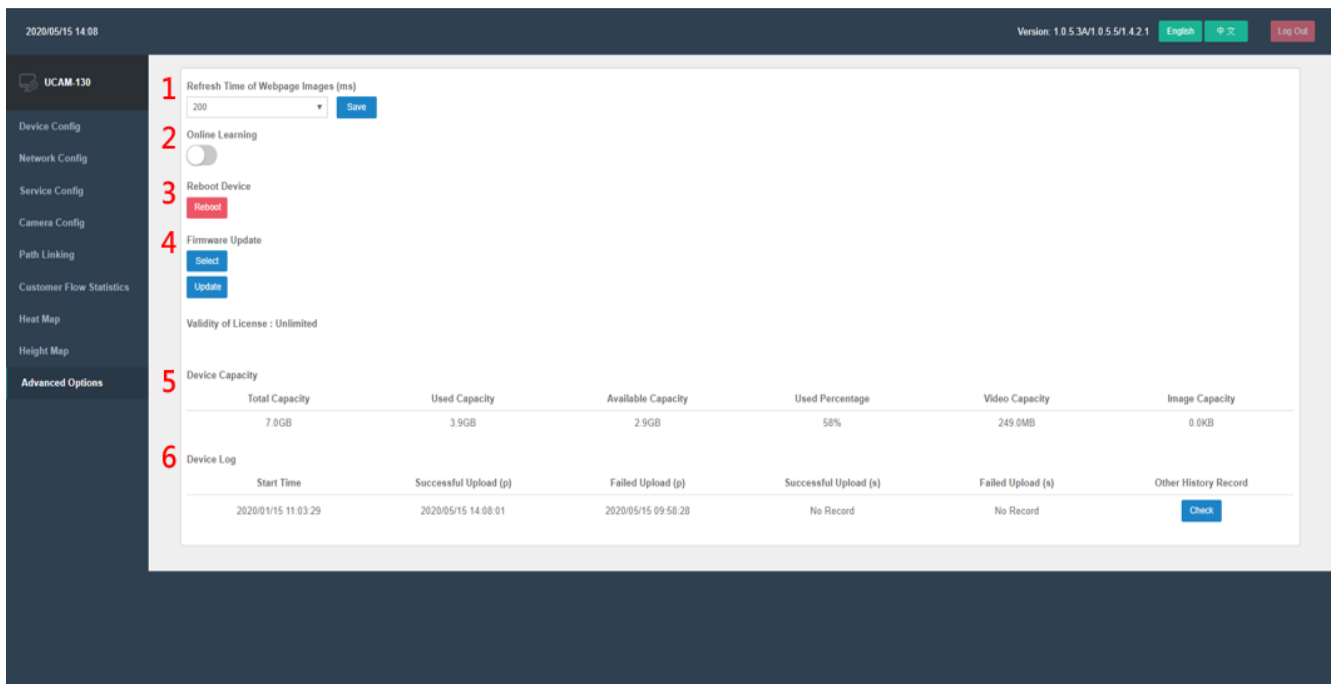


Height Map

The height map is used for the purpose of setting the height of sensor properly. When the height map shows mostly red, you may need to decrease the height value as set in **Camera Configuration**. When it shows mostly blue, then you need to increase the height value. If the height value is set properly, the height map should be presented green in general.



Advanced Options



1. **Refresh Time of Webpage Images:** Set the time interval for refreshing images captured from the Sensor. **200ms/500ms/1000ms/1500ms/2000ms/5000ms** are supported for selecting.
2. **Online Learning:** Switch the button to activate online learning, which is one of the most important features of the Sensor capable of improving its accuracy through deep learning technology. Make sure the Sensor is connected to internet for enabling the feature.
3. **Reboot Device:** Click the button **[Reboot]** to reboot the sensor.
4. **Firmware Update:** Update the firmware on sensor
 - 1) Click **[Select]**
 - 2) Choose firmware file
 - 3) Click **[Update]**
 - 4) Wait for 60 seconds until the sensor reboots automatically after upgrading
5. **Device Capacity:** shows how the device capacity is being occupied.
6. **Device Log:** shows the main logs such as the start time and failure information of the device.
7. **Other History Record:** Click **[Check]** to see other relevant logs for technician troubleshooting.

UCAM-130 Signal Lights Indicators

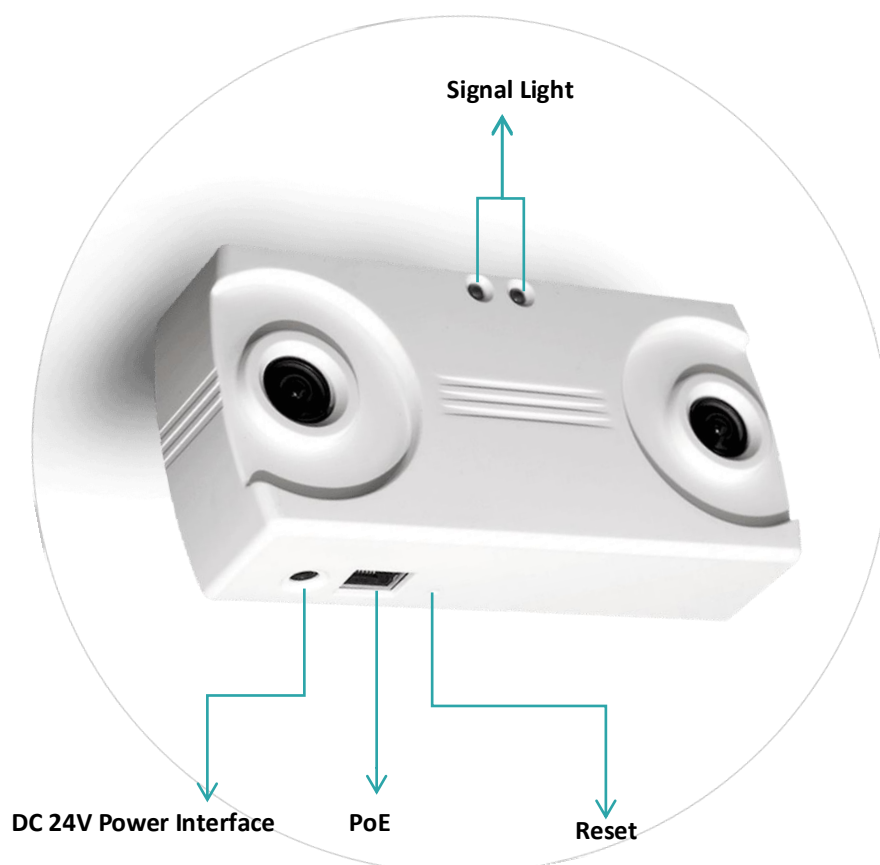
The UCAM-130 3D Intelligent Sensor can be diagnosed by observing its signal lights after being installed and configured through the web interface. There are two signal lights on the device. The signal light on the left (refer to the picture) indicates different status of device with three colors: red, orange and green.

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

Other Settings

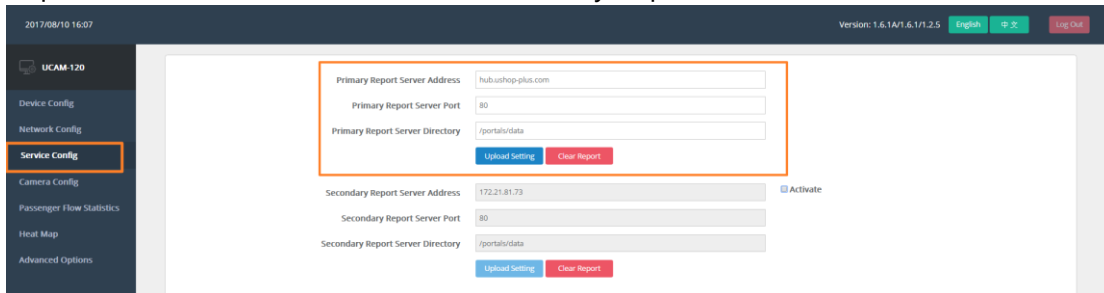
The UCAM-130 3D Intelligent Sensor can be manually reset by pressing the **[Reset]** button located on one side (as shown in the picture) of the device.

[Reset]: 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.



UCAM-130 Data Integration Guideline

1. Implment HTTP Data Server and set to Primary Report Server Address/Port.



2. UCAM data packet delivery walkthrough with HTTP Server

XML Data Packet Delivery Walkthrough

Data packet: The data packet is sent from the camera in the form of an HTTP POST to the IP address configured in the Clarity 2100 Configuration Application. The target specified in the HTTP header is / (POST / HTTP/1.1). The Content-Length in the HTTP Header describes the length of the XML message (262 in this example).

```

POST / HTTP/1.1
Accept: image/gif, image/x-bitmap, image/jpeg, image/pipeg, application/vnd.ms-excel, application/msword, application/x-shockwave-flash, text/*, */*
Accept-Language: en-us
Content-Type: application/x-www-form-urlencoded
Accept-Encoding: gzip, deflate
User-Agent: Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; .NET CLR 1.0.3705)
Content-Length: 262
Connection: Keep-Alive
<CRLF> <-- End of HTTP header
<?xml version="1.0" encoding="UTF-8"?>

<Metrics SiteId="112" Sitename="Test">
<Properties>
<MacAddress>00:b0:d6:26:b1</MacAddress>
<IpAddress>10.3.2.115</IpAddress>
<Timezone>-5</Timezone>
<DST>1</DST>
</Properties>
<ReportData Interval="1">
<Report Date="2007-07-09">
<Object Id="0" DeviceId="cam115" ObjectType="0">
<Count StartTime="17:22:00" EndTime="17:23:00" Enters="0" Exits="0" Status="0"/>
</Object>
</ReportData>
</Metrics>
        
```

HTTP Header

Data Packet

Data

Once a connection to the server has been established, the camera sends the XML packet for the one minute increment and waits for an Acknowledgement message from the server. If the server sends a positive acknowledgement (ACK), the data packet is deleted from the camera and the connection is closed. If the server sends a negative acknowledgement (NACK), the data packet is buffered in the camera. The camera attempts to send the data packet every 10 seconds until it is able to connect.

Ack: A simple HTTP response message with the response code set to 200. The content length should be set to zero.

```

HTTP/1.1 200 OK
Content-type: text/html
Connection: close
Content-Length: 0
<CRLF>
        
```

Acknowledgement

Nack: A simple HTTP response message with the response code set to a value OTHER than 200. The content length should be set to zero.

```

HTTP/1.1 400 Bad Request
Content-type: text/html
Connection: close
Content-Length: 0
<CRLF>
        
```

Negative Acknowledgement

3. UCAM Metadata Paramter List:

Parameter	Value Description	Notice
DeviceName	Filled Device name	
DeviceId	Filled Device ID	
Sitename	Filled Store Name	
Siteld	Filled Store ID	
MacAddress	Device Mac address	
IpAddress	Connected IP address	
HttpPort	80	Local web Server http port
HttpsPort	443	Local web Server https port
HostName	Host-device serial number	Host name of local web server
HwPlatform	120	Device Type (UCAM 2D:120, UCAM 3D:130)
TimeZone	8	Selected Time Zone
DST	0: OFF, 1: ON	Daylight saving time
DeviceType	0	0: Standard, Other: ODM/Customized
SerialNumber	Device Serial Number	
Interval	1	Data Upload Period (minute)
Date	YYYY-MM-DD	
ObjectType	0	0: In/Out counting
Name	Zone-PF1	Name of Selected Counting Zone
Id	0	ID of Selected Counting Zone
StartTime	HH:MM:SS	Start Time of package update
EndTime	HH:MM:SS	End Time of package update
Enters	0	Counting number of enter zone
Exits	1	Counting number of exist zone
Status	0: Normal 4: Too Dark, need to be adjusted 5: Too Bright, need to be adjusted	Light status of installed site

4. UCAM Metadata sample:

Sample XML file from FTP server_2D.xml

```

1  <?xml version="1.0" ?>
2  <Metrics DeviceName="testDevice" DeviceId="1" Sitename="testSite" SiteId="1">
3    <Properties>
4      <MacAddress>86:98:f0:1d:b9:91</MacAddress>
5      <IpAddress>192.168.1.8</IpAddress>
6      <HttpPort>80</HttpPort>
7      <HttpsPort>443</HttpsPort>
8      <HostName>testHost</HostName>
9      <HwPlatform>1100</HwPlatform>
10     <TimeZone>8</TimeZone>
11     <DST>0</DST>
12     <DeviceType>0</DeviceType>
13     <SerialNumber>1</SerialNumber>
14   </Properties>
15   <ReportData Interval="1">
16     <Report Date="2017-02-17">
17       <Object DeviceName="testDevice" DeviceId="1" ObjectType="0" Name="zone1" Id="0">
18         <Count StartTime="10:24:00" EndTime="10:25:00" Enters="0" Exits="0" Status="0" />
19       </Object>
20     </Report>
21   </ReportData>
22 </Metrics>

```