User Manual

TD-2000 3D Intelligent Sensor

Quick Configuration Guide

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Introduction

TD-2000 embeds data capturing, stereo vision analytics and deep learning technology into one single device, which represents state-of-the-art technology and next generation video sensor for traffic intelligence purpose. Compared to other 3D sensors, its patented 'DeepCount' technology based on deep learning renders it superior in accuracy as it incessantly improves its count quality over time with the sensor being deployed over time. TD-2000 is ideal for use in both indoor and outdoor environments and any levels of traffic flow by brick-and-mortar businesses and organizations to build applications based on traffic analytics.

The TD sensor technical documentation suite includes:

- Quick Start Guide
- *Quick Configuration Guide (this document)*
- TD Remote Access Manager User Guide

About this Document

The TD-2000 3D Intelligent Sensor Quick Configuration Guide details basic configuration instructions for IT departments and implementation engineers to set up the device properly for operating in most cases. For advanced configurations, contact our technical representatives for assistance.

Prerequisites for Configuration

Before attempting to configure the sensor, make sure that you have installed the Sensor hardware components by following the steps as described in the TD-2000 3D Intelligent Sensor Quick Start Guide.

TD-2000 3D Intelligent Sensor Web Interface

Using the Web Interface

The TD-2000 3D 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 default IP address of 192.168.1.8. All sensors are shipped to customers with this default IP address. Input it into browser address bar, then access into the following setting page.

Present date and time

Firmware version   Switch languages   Sign off

Navigating menu

Parameter setting area. Layout may vary depending on menu

TD | Intelligence Technology

Configuring TD-2000 3D 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
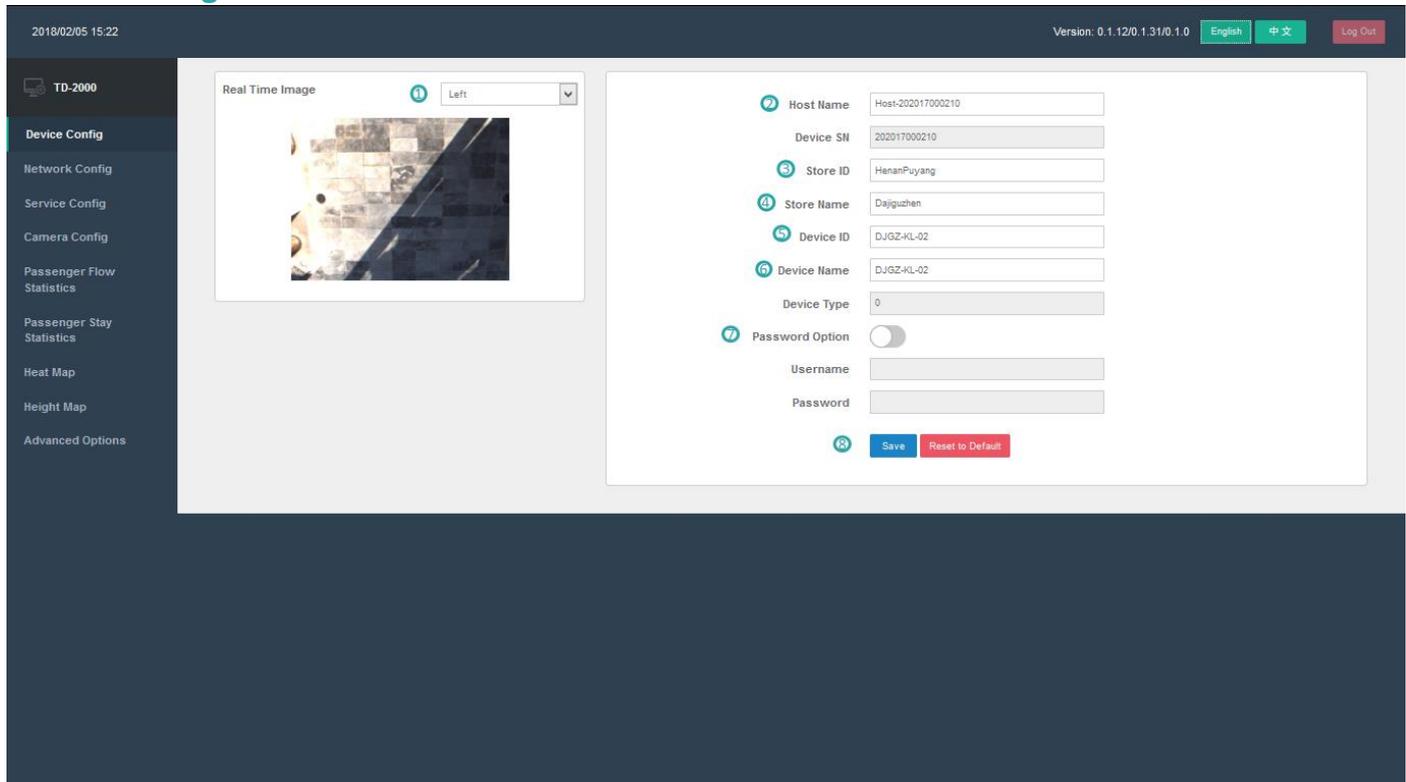
1. **Real Time Image:** Select the left or right lens' captured image as the real time image for displaying.

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.
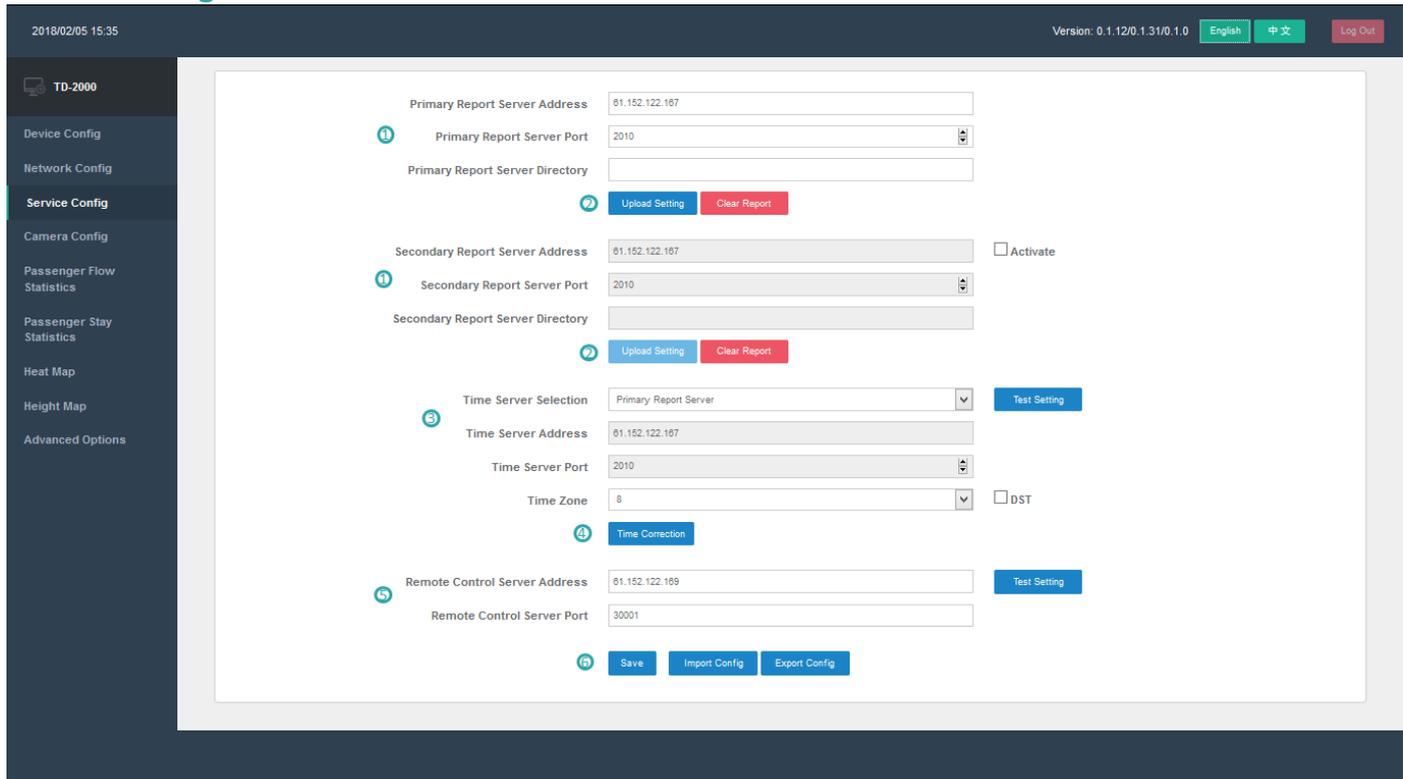
Network Configuration
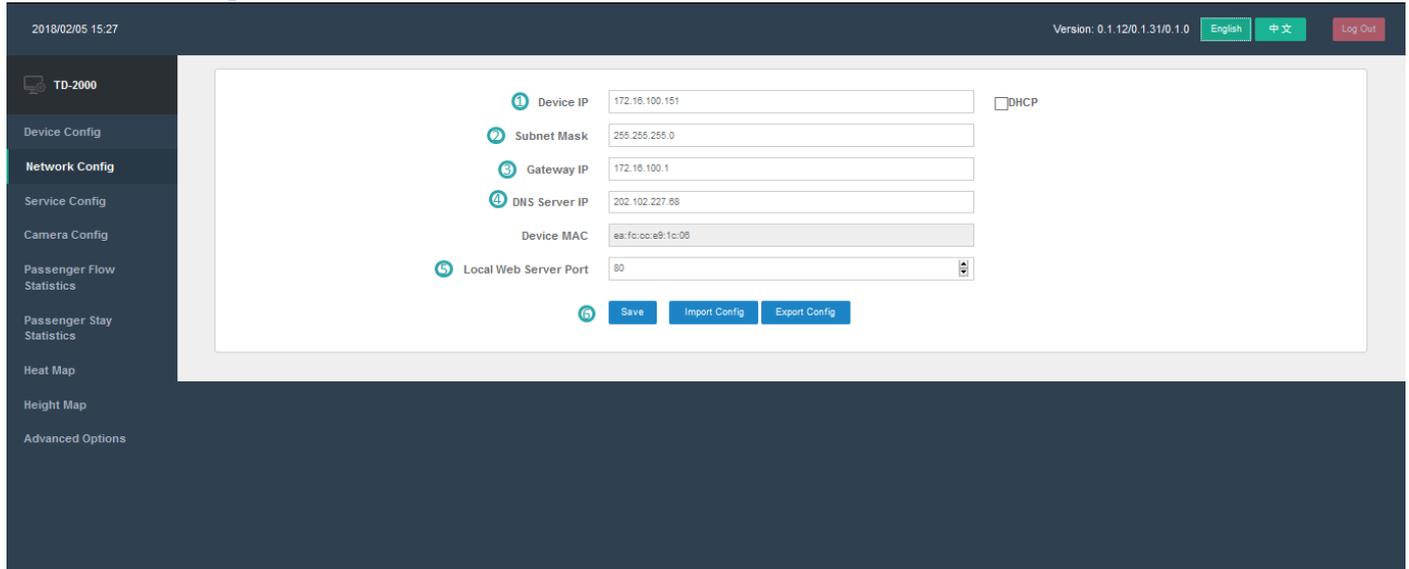
1. **Device IP:** Enter the IP address for the sensor on your network. Default IP Address is **192.168.1.8**.
   DHCP is supported, and you may enable it by ticking the choice.

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.

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Server 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.
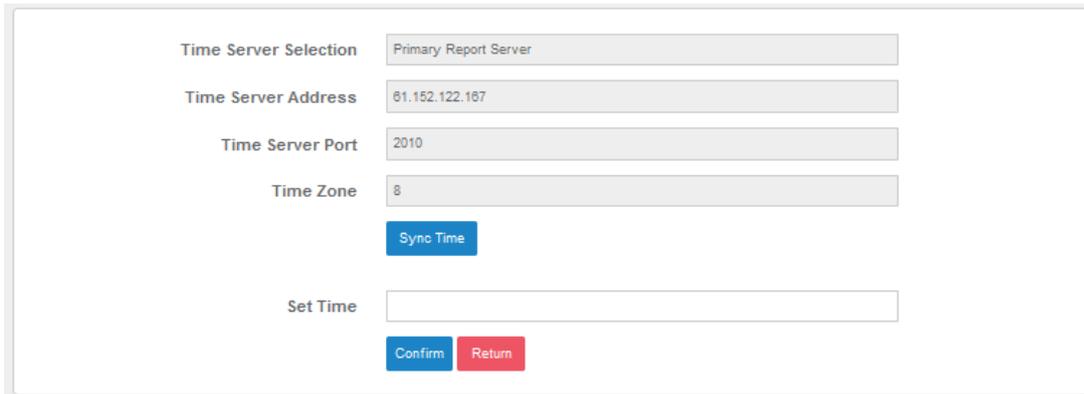   **Primary/Secondary Report Server Port:** Enter the primary/secondary server port number to which the sensor should attempt to deliver data.
   Primary/Secondary Report Server Directory: Enter your specified primary/secondary report server directory. (Note that server end configuration also needs to 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. You can set the time zone and activate **DST** based on the physical locations of devices.
   **Time Server Address:** Automatically filled up once the **Time Server** is selected.
   Time Server Port: Automatically filled up once the **Time Server** is selected.

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.

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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
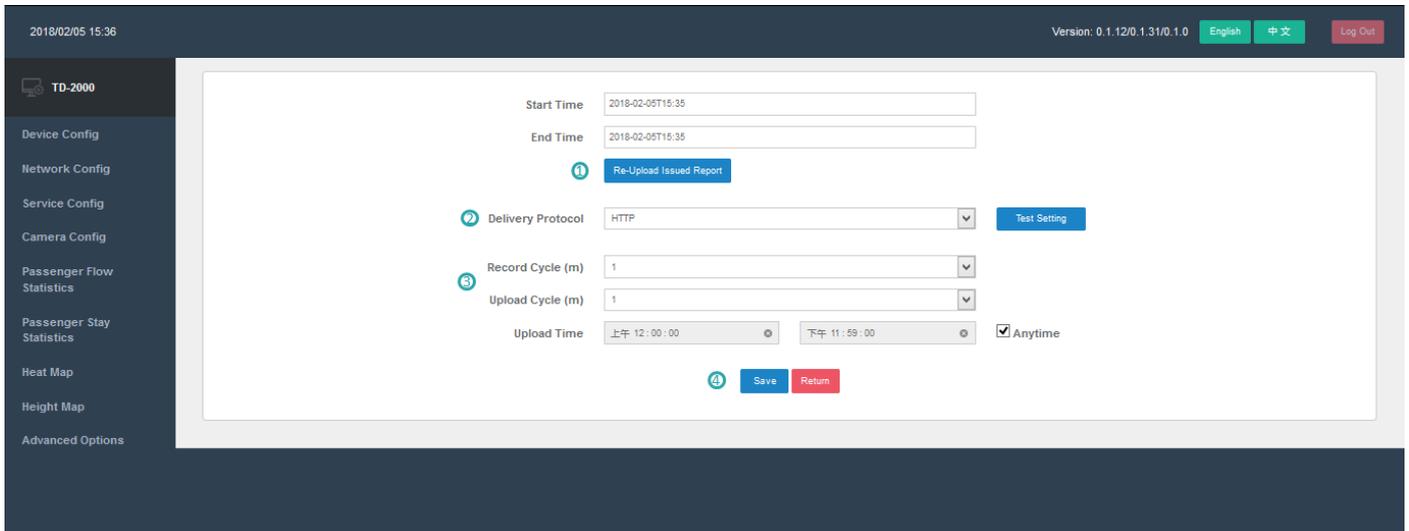
1. **[Re-Upload Issued Report]:** Sensor can create on-demand report delivery requests for a specific range of dates and times in a designated format. This operation only resends the data within 90 days and can't resend if the cached data has been cleared. Set the **Start Time** and **End Time** accordingly 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. **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.

4. **[Save]:** Store the effects of a change.
    [Return]: Return to the previous main page (**Server Configuration**).

Camera Configuration
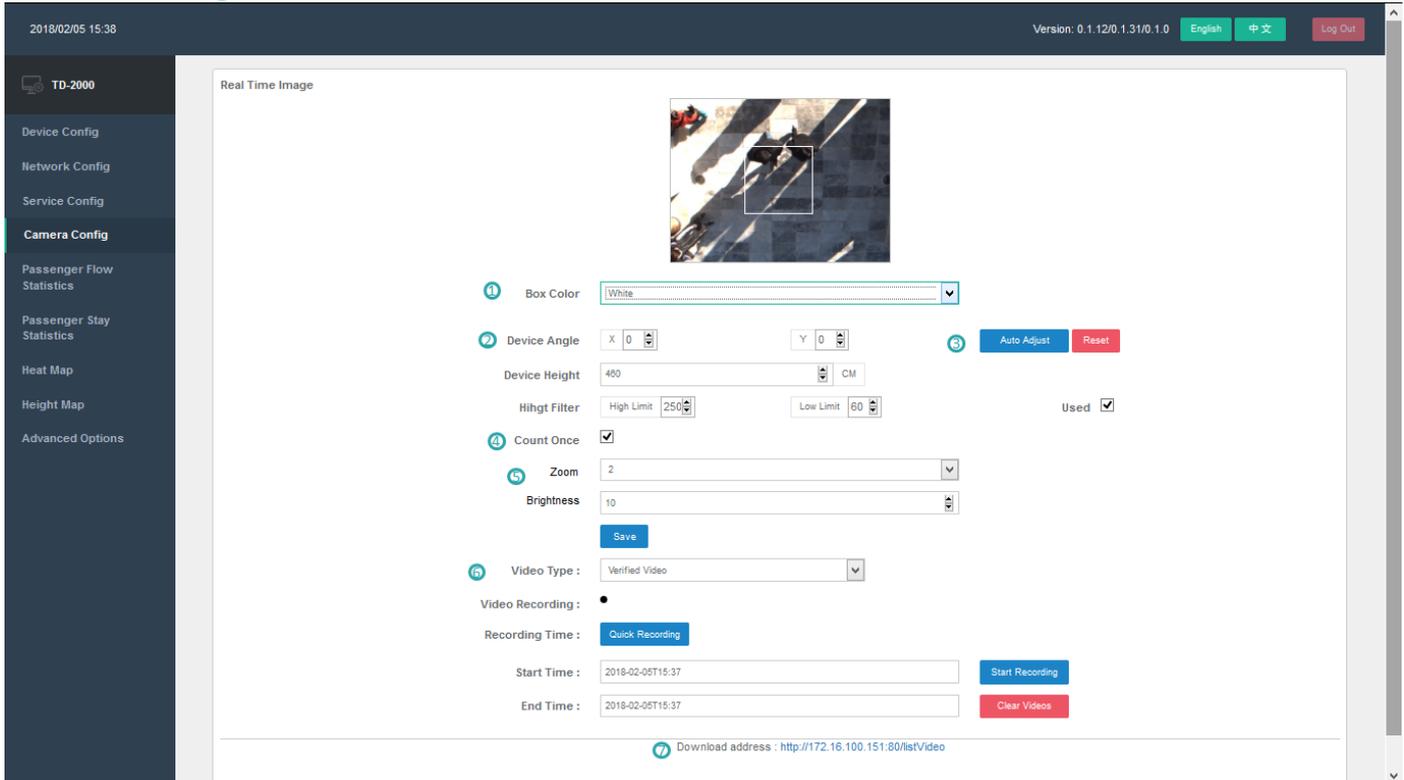
1. **Box Color**：Select either **Black** or **White** as the color of the selection frame.

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 **250cm-500cm** and based on the height of installation on site.
   Height Filter：The Sensor supports counting objects within a specified height range. Set the High and Low limits you wish to use for filtering objects. Make sure to tick **Used** if you need to enable the filtering option.

3. **[Auto Adjust]**：You may click the button to automatically adjust the angle and height value.
   [Reset]: Click the button to reset the parameters to default settings.

4. **Count Once**：This function 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 sensor field of view and cross over the enter and exit areas multiple times.

5. **Zoom:** Zoom the captured image (**1X, 2X,** or **4X**) when necessary. Zooming is usually used for better viewing the captured image when the sensor is installed at a height above than normal.
   Brightness: Increase the brightness value when necessary. It is usually used for better viewing the captured image when the sensor is installed in dim light environment.

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

6. **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

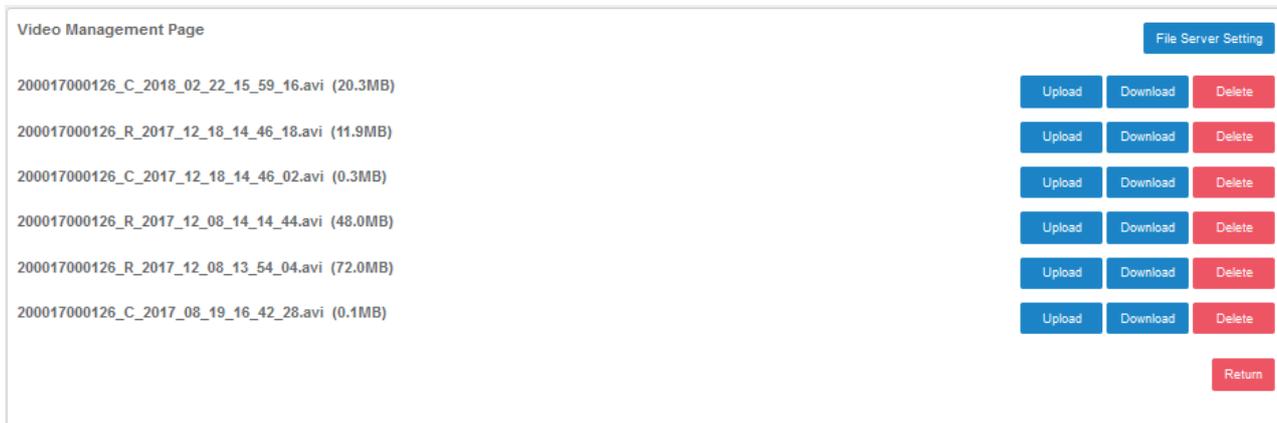   **[Quick Recording]:** Click the button to record a 10 minutes video clip immediately. This operation can be stopped by clicking **[Quick Stop].**
   Recording Time: Enter the recording start and end time.
   [Start Recording]: Start recording a video clip based on the time slot as set.
   [Clear Videos]: Clear all recorded videos on this sensor.

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7. **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.
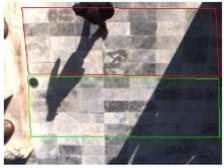
Video Management Page			
200017000126_C_2018_02_22_15_59_16.avi (20.3MB)	Upload	Download	Delete
200017000126_R_2017_12_18_14_46_18.avi (11.9MB)	Upload	Download	Delete
200017000126_C_2017_12_18_14_46_02.avi (0.3MB)	Upload	Download	Delete
200017000126_R_2017_12_08_14_14_44.avi (48.0MB)	Upload	Download	Delete
200017000126_R_2017_12_08_13_54_04.avi (72.0MB)	Upload	Download	Delete
200017000126_C_2017_08_19_16_42_28.avi (0.1MB)	Upload	Download	Delete

File Server Setting

Return

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Customer Flow Statistics

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 Customers 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.

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Count Setting
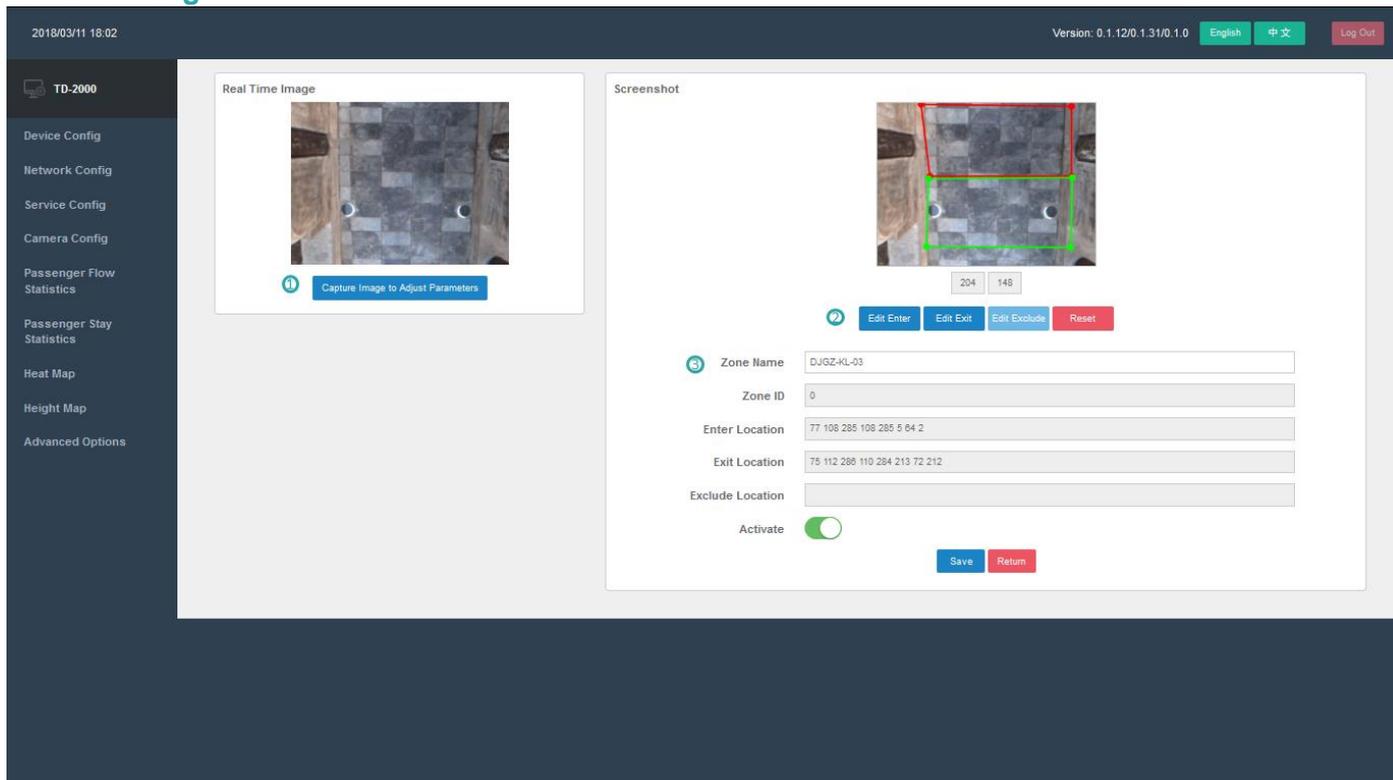
1. **[Capture Image to Adjust Parameters]:** Click the button, the most recent screenshot of real-time monitoring images will display on the right side for adjusting parameters.

2. 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 Exclude]: Exclusion lines are used to assist in discarding employee tracks or other activity that occurs in areas in which you do not wish to count. Draw the lines accordingly based on your need.
   [Reset]: Clear all settings in this page.

3. **Zone Name:** User-configurable text string to identify the zone.
   Activate: Start/Stop the function of this zone.

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Customer Stay Statistics

1. **Management for Stay Area:** the Sensor can support up to 8 zones for counting traffic in the zones and presenting stay time.

    Zone Occupation Time: time accumulates as long as the specific zone is not idle. Zone Occupation Time shows the total time.

    Total Serving Number: Total number of clients served in a specific zone.

   **Average Serving Time:** Average time served per client in a specific zone.

2. **Min Occurrence Time:** Set the minimum time a person shall stay in the zone. The Sensor counts the time and number only when the person stays in the zone longer than the Min Occurrence Time as set.

    Max Merging Time: Set the maximum time a person may not show up in the zone. The Sensor will not count the person leaving the zone longer than the Max Merging Time.

3. **Dynamic Display for Stay Time:** Display clients' stay time in each activated zone in real time.

4. **[Modify]:** Click the button into **Zone Setting** page.

Zone Setting
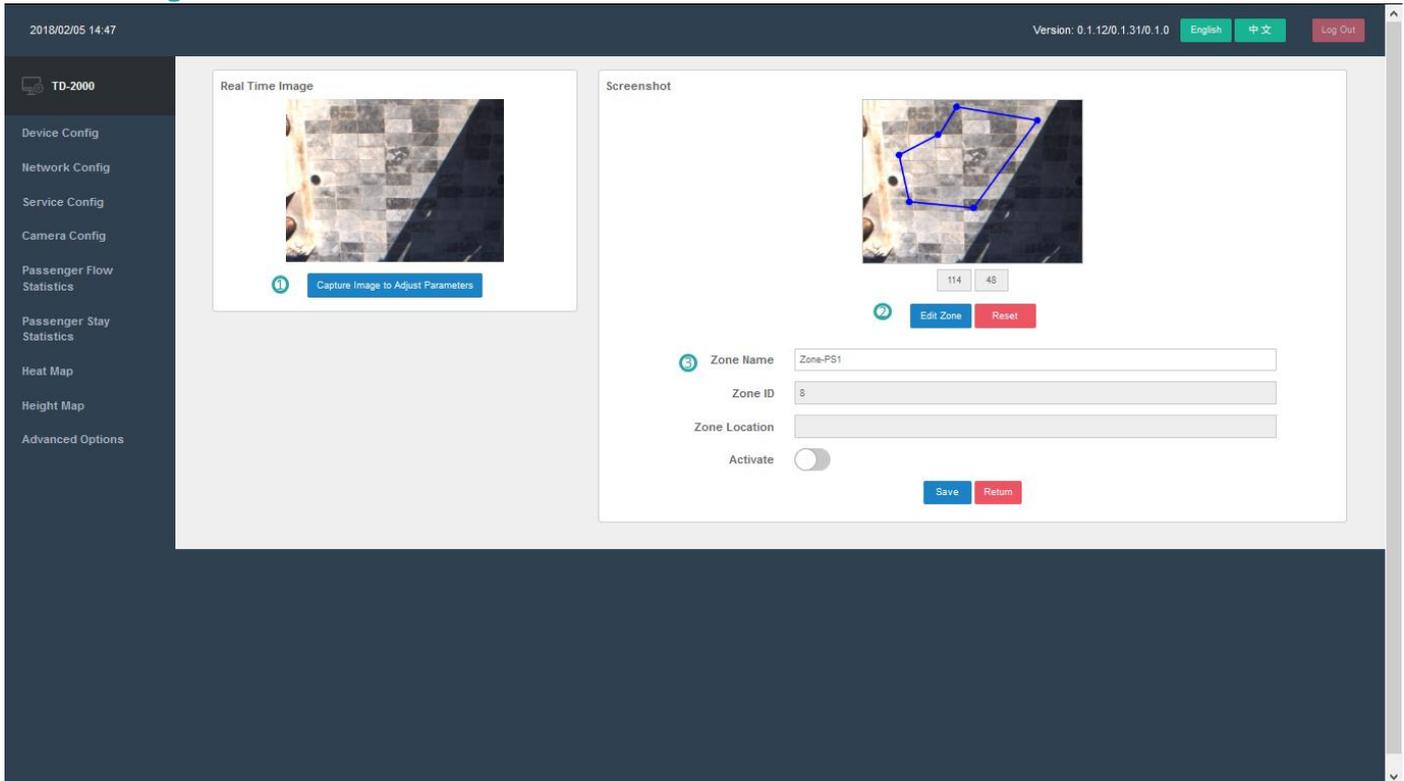
1. **[Capture Image to Adjust Parameter]:** Click the button, the most recent screenshot of real-time monitoring images will display on the right side for setting parameters of a zone.

2. **[Edit Zone]:** Draw the blue line framed zone 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.
   [Reset]: Clear all settings in this page.

3. **Zone Name:** User-configurable text string to identify the zone.
   Activate: Start/Stop the function of this zone.

   After a zone is set and activated, the sensor will count the number of people served when they move into the zone and counts the time people stay.
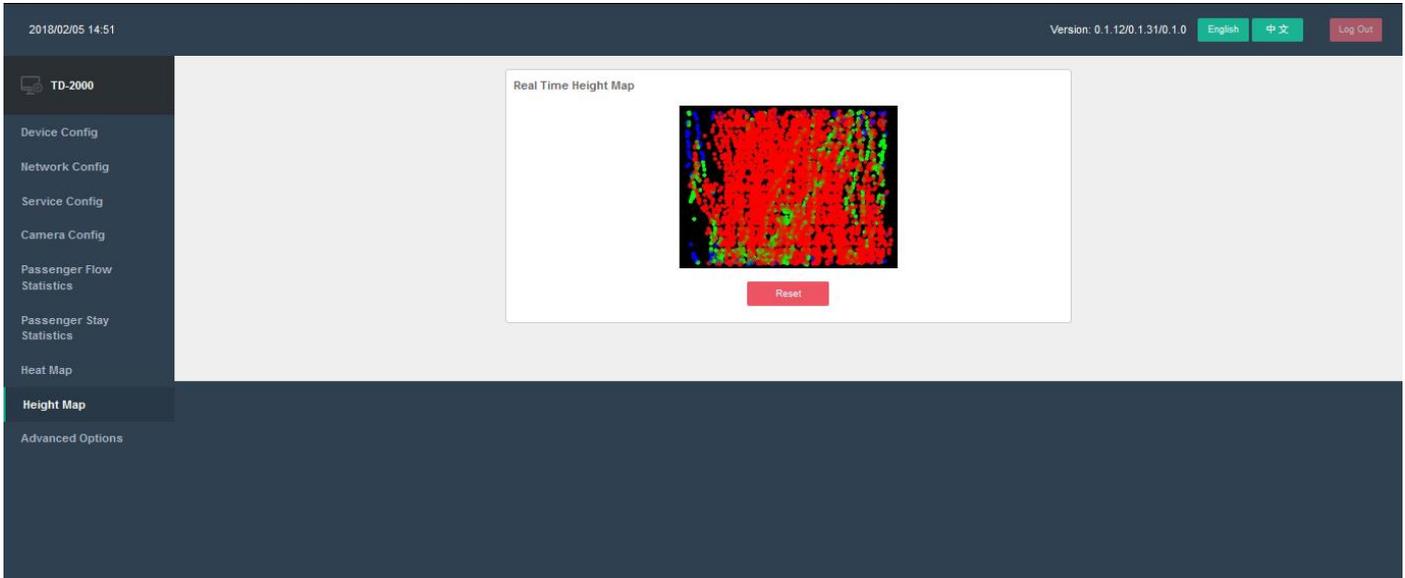
Heat Map

Heat Map is a vivid way to demonstrate traffic density by using a color-coded heat map of all tracks.
Red represents high density of traffic flow while blue represents low traffic volume.
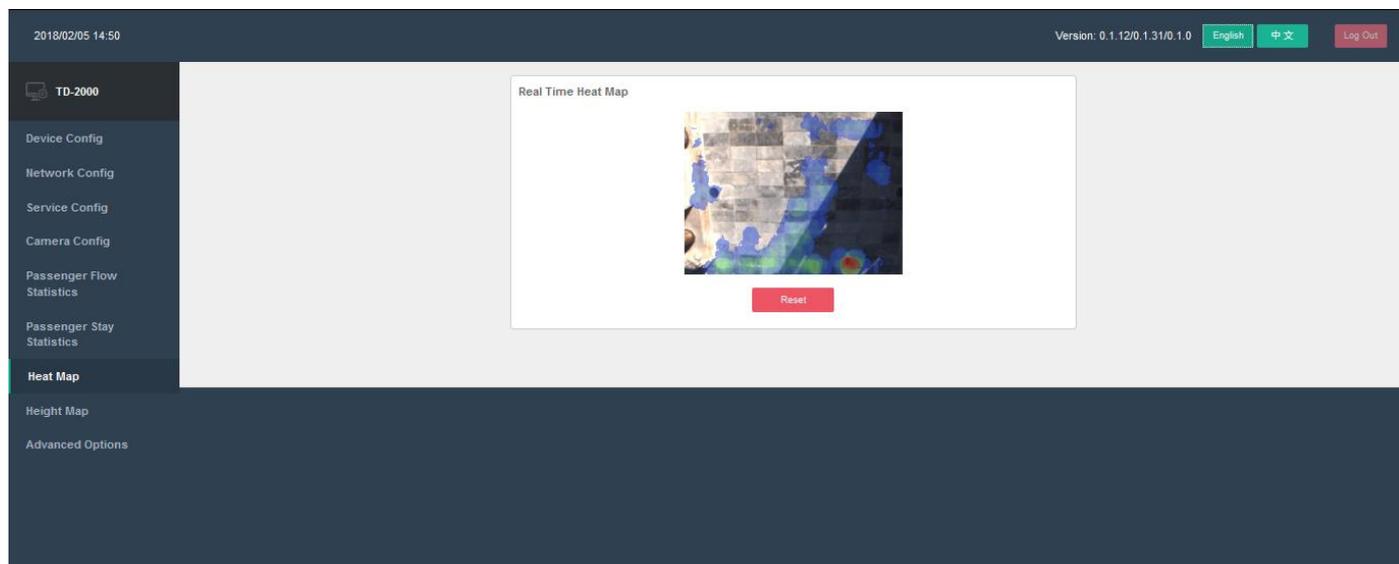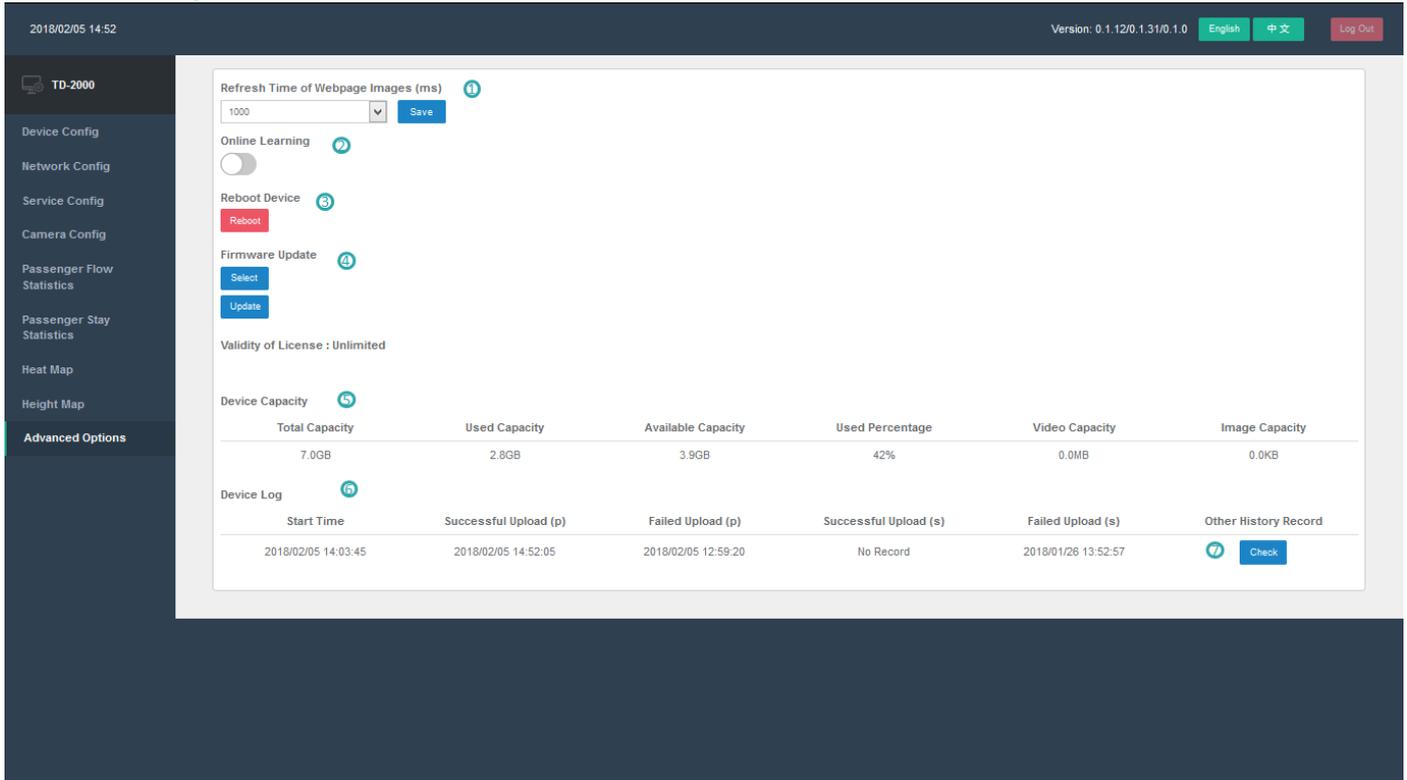
Height Map

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
   - Click **[Select]**
   - Choose firmware file
   - Click **[Update]**
   - 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.

TD-2000 Signal Lights Indicators

The TD-2000 3D Intelligent Sensor can 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 TD-2000 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.

Signal Light

PoE

DC 5V(2A) Power Interface

Reset

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