BU-3028-IVS

People Counting Guide

Version 1.0

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1. Overview

The BU-3028-IVS has built-in video analytic function for object counting. It is a standalone function built into the camera's firmware without the need for external software or device. The object counting function can be used to count people or cars. This guide will focus on using BU-3028-IVS's "Object Counting" function to do people counting in places like shopping malls, stores, or super market.

The Object Counting works by defining 2 zones on the video image. When a person crosses the center border between 2 zones, the camera will register a count. The camera can count people from "Zone1 to Zone2", "Zone2 to Zone1", or both directions.
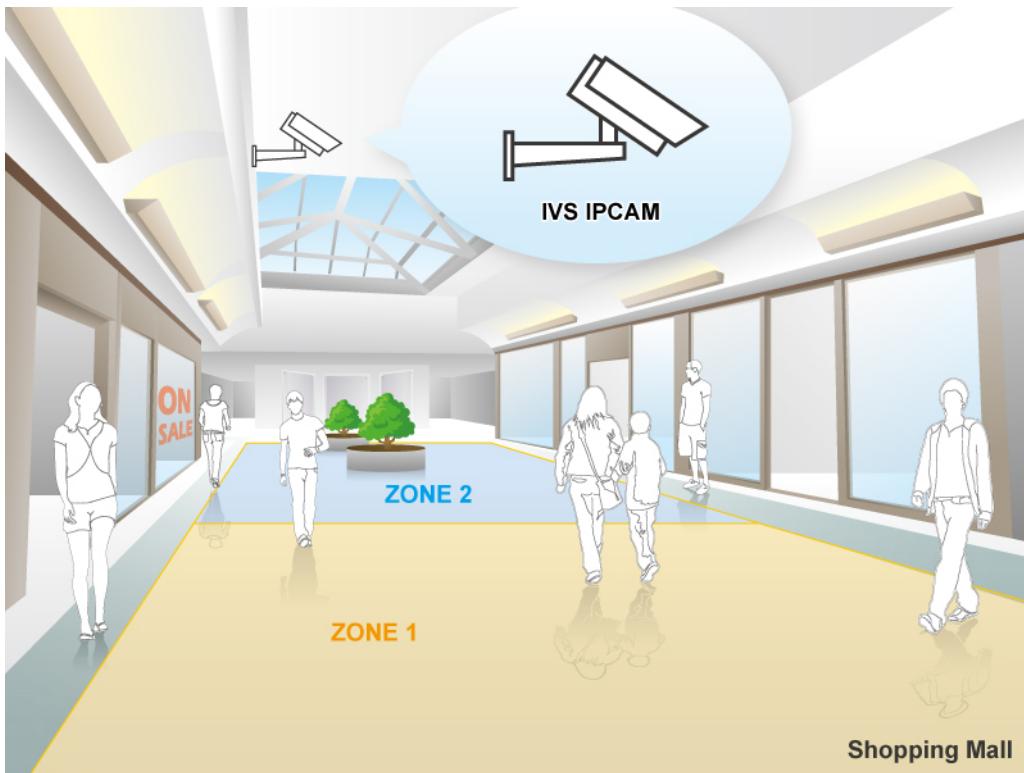
The important factors for successful people counting installations are:

- Choose the right installation location
- Choose the correct resolution and frame rate
- Calibrate the object size
- *Make sure "counting result overlay" option is enabled and please remember to click on "Apply" button to save settings.*

We will guide you through the procedure in the following articles.

2. Hardware Installation Guidelines

■ It is recommended to have at least 3 meter of vertical clearance (from floor to ceiling) for best performance.
■ The followings are basic installation guidelines to get the best people counting results. However, the people counting function can still work in less than ideal conditions.

1 Avoid tilting the camera forward or backward.
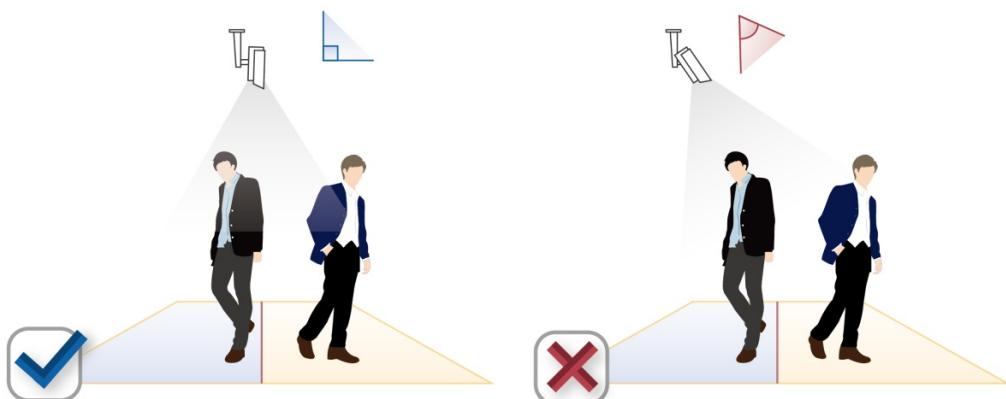
2 Make sure there is enough illumination.
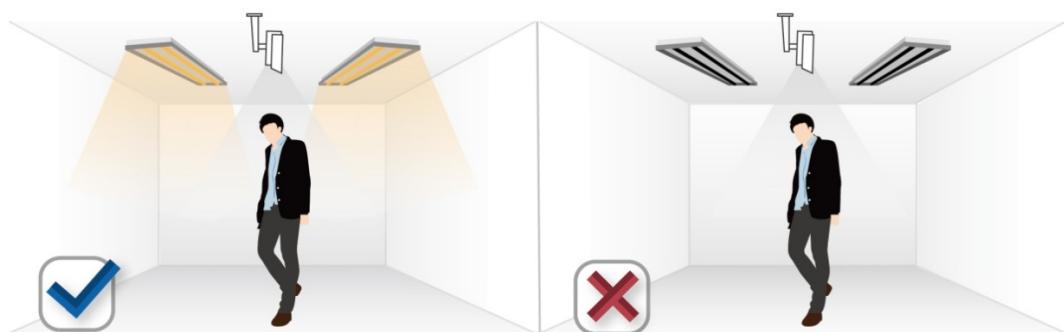
3 Avoid direct sunlight into the counting zone.
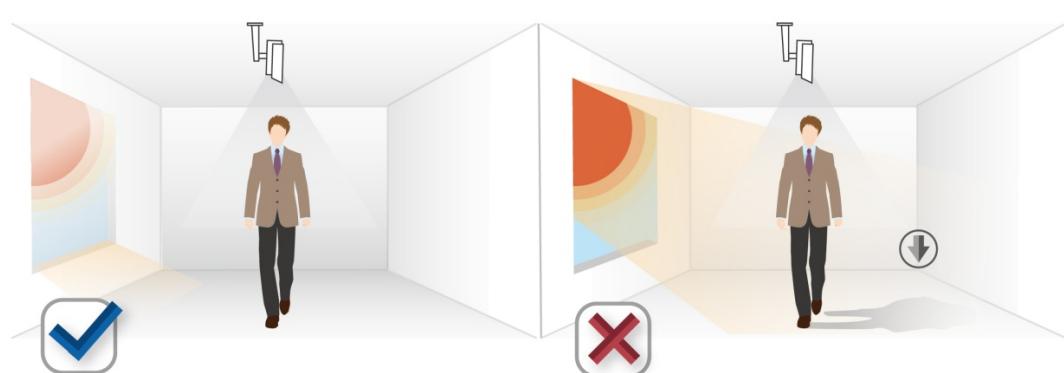
4 Avoid moving escalator in counting area.
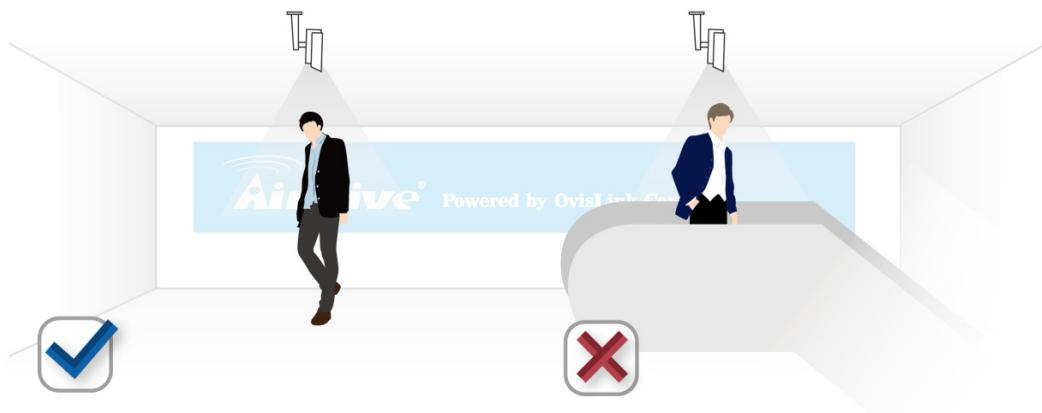
5 Avoid swing door near center border.
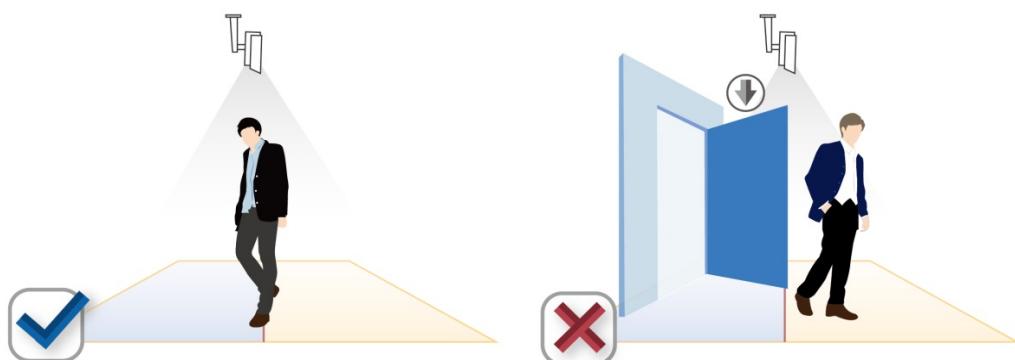
3. Camera Configuration

3.1 Finding camera using AirLive IP Wizard

The IPCAM's default IP address is 192.168.1.100，but this address can change when there is DHCP server (router) in your network. Therefore, please install AirLive IP Wizard to find your camera.

1. Install the "AirLive IP Wizard" from the installation CD or download it from this link.

2. Run the "setup.exe" and open the AirLive IP Wizard.

3. The IP Wizard will auto search and list out the camera found. Double click on the camera that you want to configure.
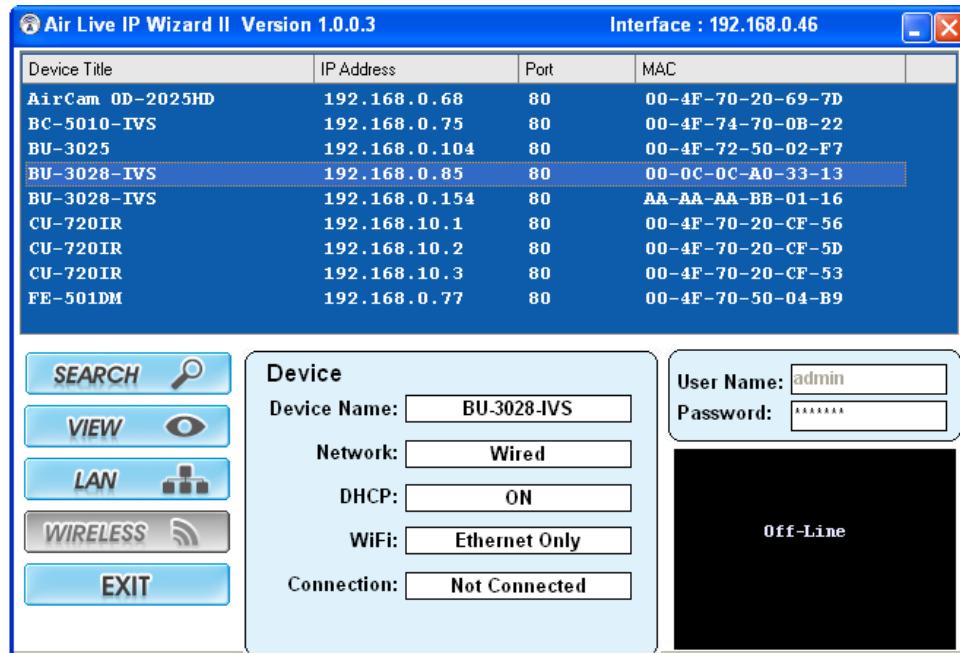
4. The IPCAM's web configuration will open automatically after double click. Please enter the "admin" for username and "airlive" for password.

5. After entering the correct username and password. You will enter the camera's web configuration page. When prompted to install "Media Control" from "OvisLink Corp", please select "Yes" to install.

3.2 Enable Camera's Video Analytic Function

Please use Internet Explorer as the default browser. If you are using IE 11, please go to "Setup->Compatibility View Settings" and add the camera's IP address to the list.

Please follow the step below to enable camera's video analytics function.
1. Click on "Configurations" on left menu bar
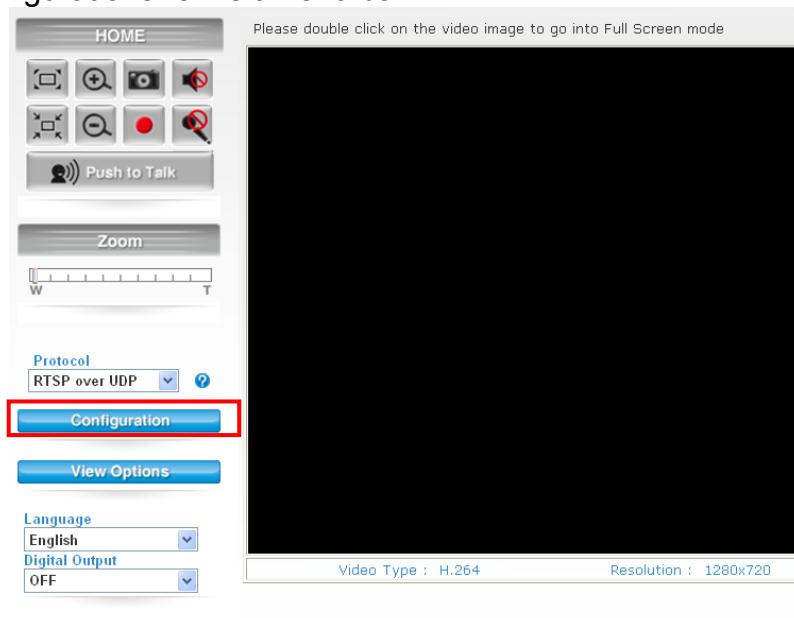
2. Click on "Video" on the left menu bar and select "enable" Intelligent Video Analytics.
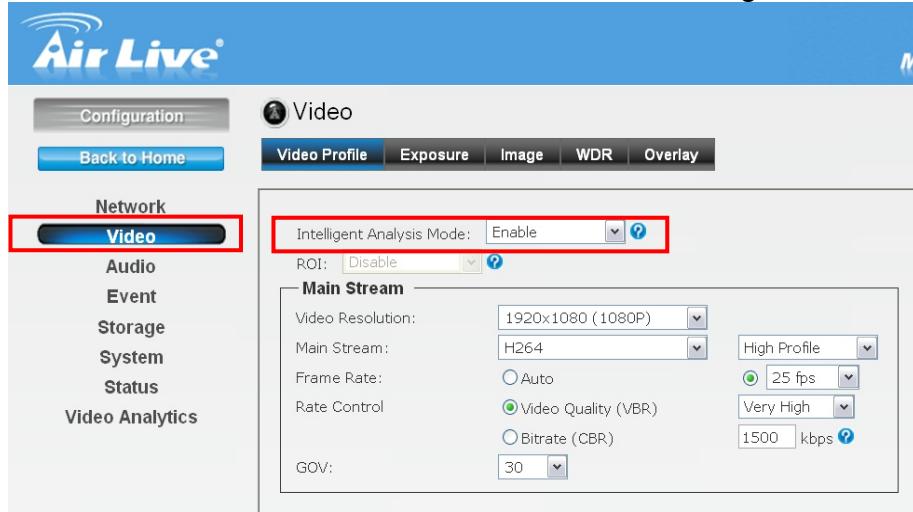
3.3 Setting Resolution and Frame Rate

On the video page, it is important to set the resolution and frame rate correctly.

⚠ Please remember to click on "Apply" button after finish settings.

Installation Site	Main Stream Resolution	Main Stream Frame Rate	Second Stream Frame Rate
Shiny surface such as marble or granite floor	1280x720	10FPS	15FPS
Non-shiny surface such as carpet or matt wood.	1920x1080	10FPS	15FPS
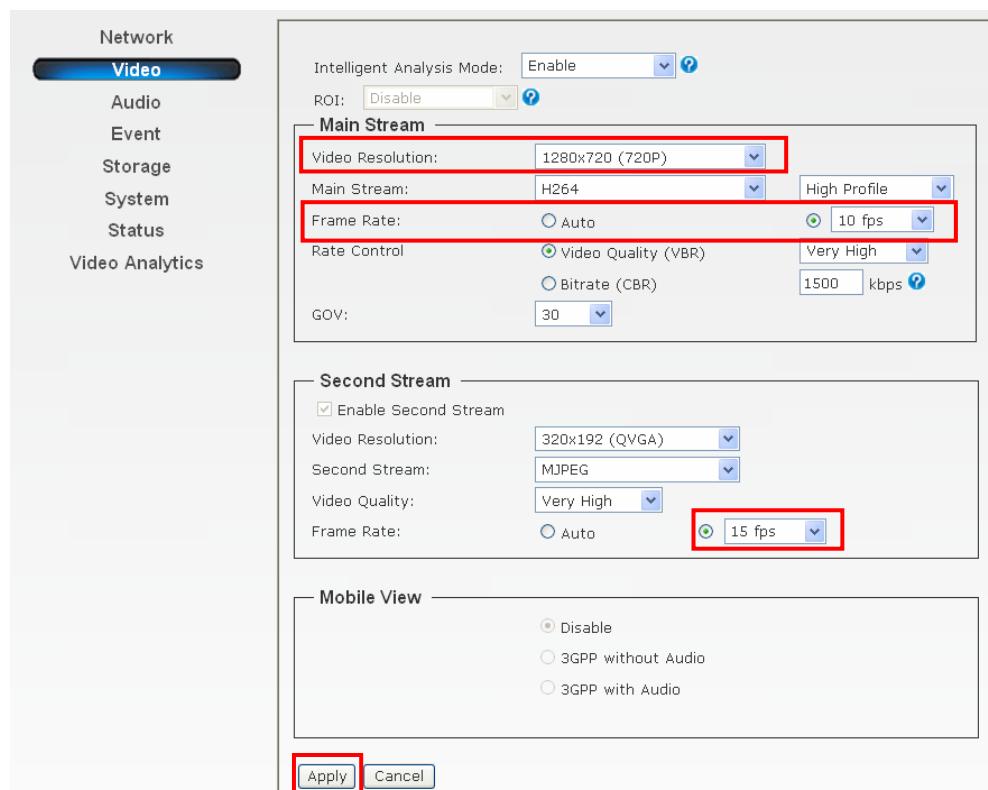
3.4 Configure Object Counting Function

Please go to "Video Analytics" menu and select "Object Counting"
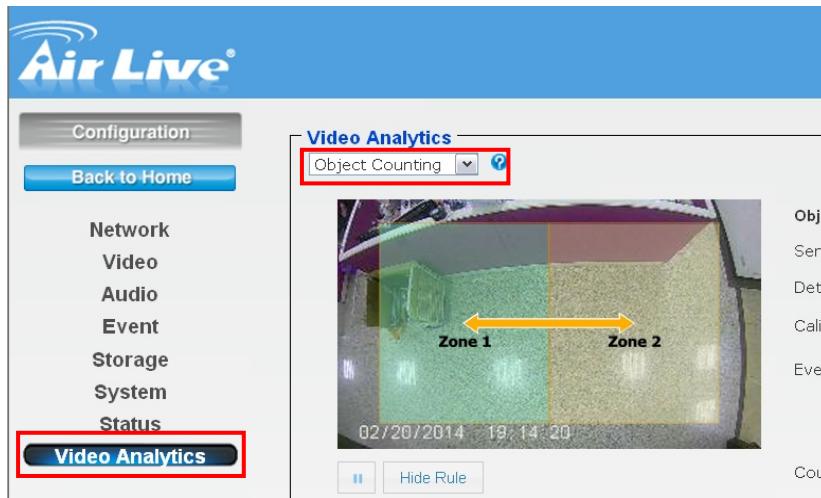

Below is the main page for Object Counting.
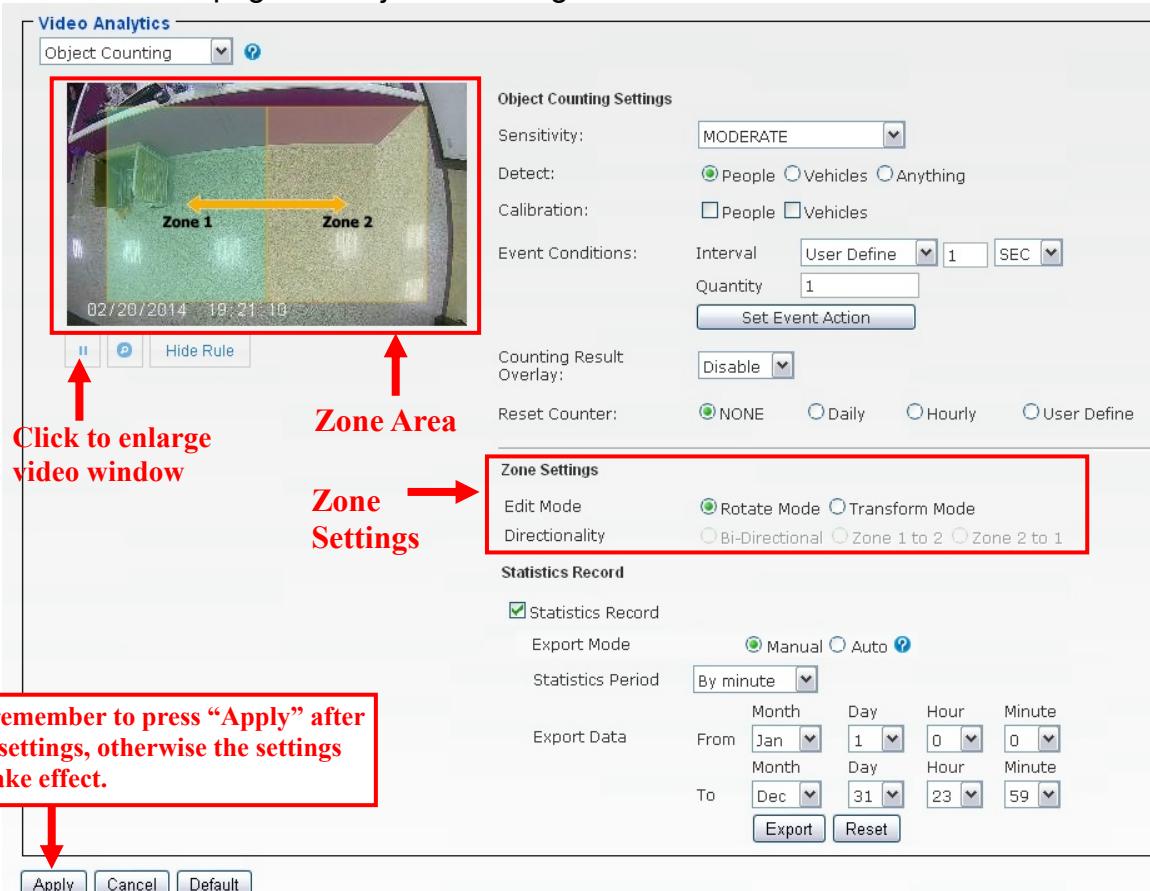
The first step is to set the zones according to your environment. The controls are separated in Zone Area and Zone Settings as indicated above.

6

Zone Settings

- Rotate Mode: this is the default mode. When you click inside the "Zone Area", you can rotate, move, and resize the zone by holding the "change points".
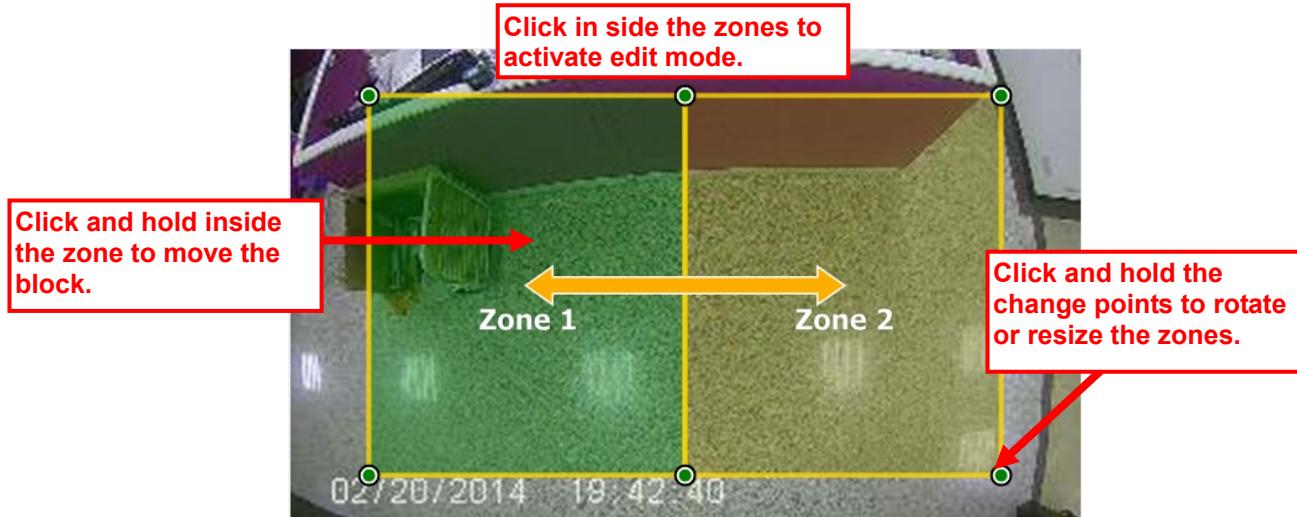
- Transform Mode: In this mode, you can freely change the shape of the zones to fit your installation site.

- Directionality: The camera's people counting function register a count when a person walks from one zone to another zone. You can choose to count from Zone1 to Zone2, Zone2 to Zone 1, or both directions.

- *You must first click on the zone block inside the Zone Area first before you are allowed to choose the direction*.

※ *Please enlarge the Zone 1 and Zone 2 as big as possible. The bigger zone is more accuracy.*

Zone size is big.

Zone size is too small.

※ *Please extend the length of the moving path as long as possible.*
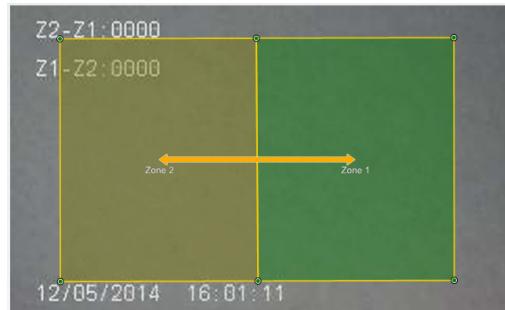
The length of the moving path is longer.
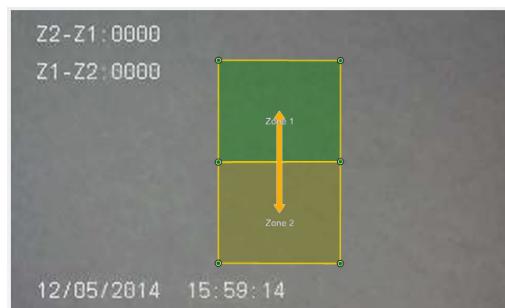
The length of the moving path is too short.

※ *If the moving direction is from Zone 1 to Zone 2, user can set bigger Zone 1 to increase the accuracy.*
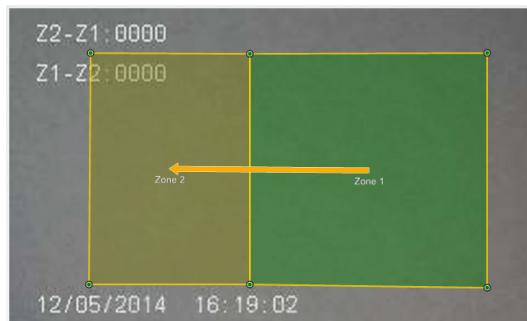
Zone 1 size is bigger

After you set the zone area correctly, the next step is to calibrate the object size according to your installation.

Calibration

Your installation height and location can change the size of a person as perceived by the camera. It is important to calibrate the maximum and minimum people size after installation.

You can perform calibration by checking the "people" in the calibration field.
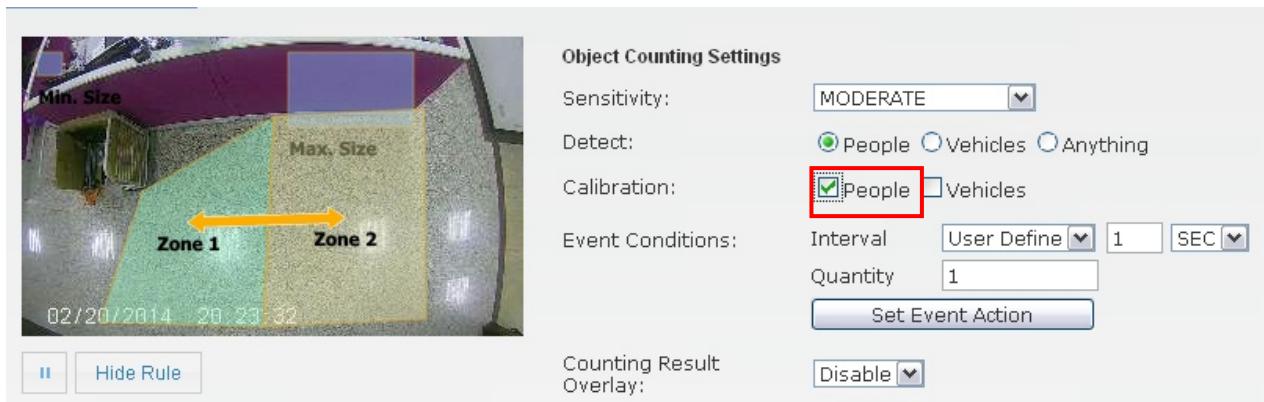
On the Zone Area, two windows label "Max Size" and "Min Size" will appear.
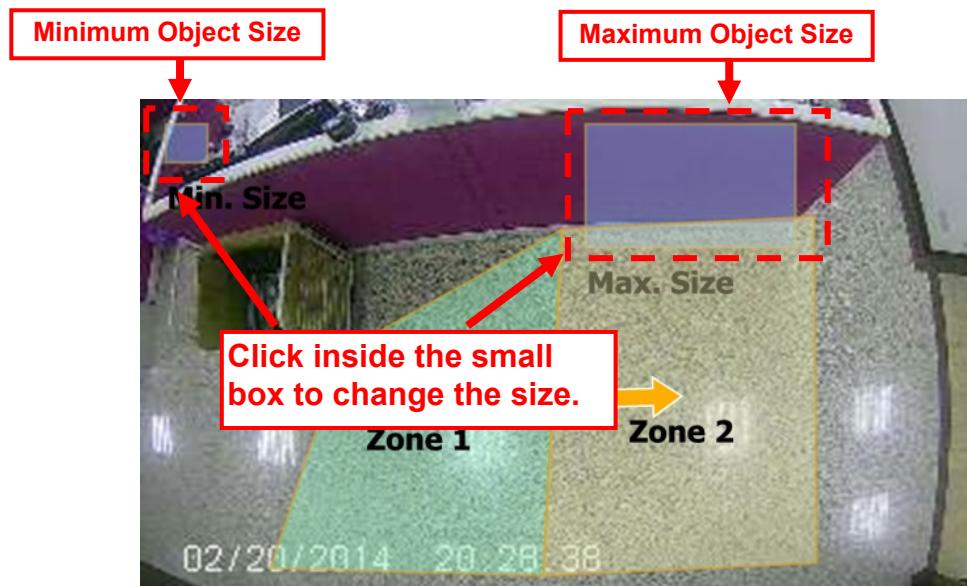
Click on either "Min. Size" or "Max. Size" window to change the size of the maximum and minimum objects.

- Max. Size: Object larger than this size will be counted as more than one object. You should set it to the size of a large adult.

- Min. Size: Object smaller than this size will not be counted. You should set it to the size of a small child.
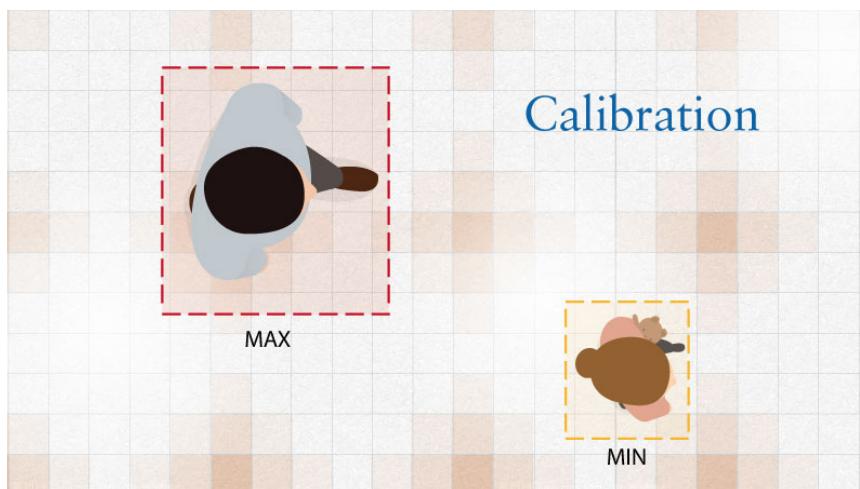
Other Important Settings

- Detect: Please choose "People".

- Sensitivity: "Moderate to High" is the recommended settings.
- Counting Result Overlay: Please "enable" this setting. Enable this setting will display the counting result on screen.
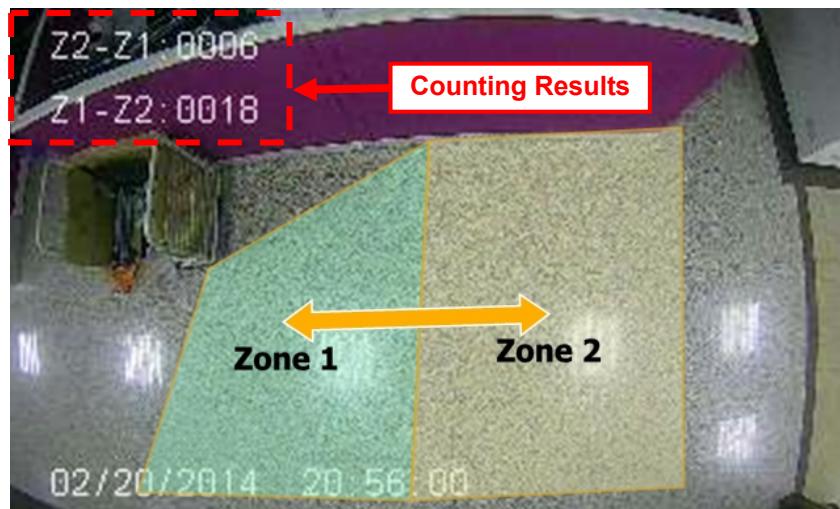
- **Result Counter:** the displayed counting result will reset to zero according to the choices.

- **Statistic Records:** Please enable this item. We recommend choose "hourly" which can report the number of counting in each hour for up to 30 days. When you choose "by minute", the camera will hold the per-minute data for 48 hours. Choosing daily will hold daily count for 30 days.

- **Statistic Chart Display:** When enabled, it will show the counting result in a statistic graph. It is not recommended to turn on this function as it might use a lot of CPU resource which can influence counting performance. If you use this function, please remember to **turn it off** after finish using it.


Event Action

The camera's objection counting function not only can do counting, it can also perform certain action when event conditions are met. For example; it can be set if the number of people counted exceeds100 in the last 10 minutes, it will send an email to the operator. This can be used for crowd management.

Example:

Setting if the number of people exceeds 100 people in 10 minutes between 7am to 9pm, the camera will sound a voice message "Number of people exceeded. Please send more personnel to serve the customers".

1. Please make sure BU-3028-IVS is connected to external speaker.

2. Please record a voice message on your PC using Windows Sound Recorder, then save the voice file. The format should be 8 KHz mono .wav file. The file size should be less than 100KB.

3. Go to the camera's UI, and then select "Configuration->Audio". Check "Enable Speaker". Click on "Browse" to select the audio file you want to record. Then select "Upload". After upload finished, please press the "Apply" button to save settings.
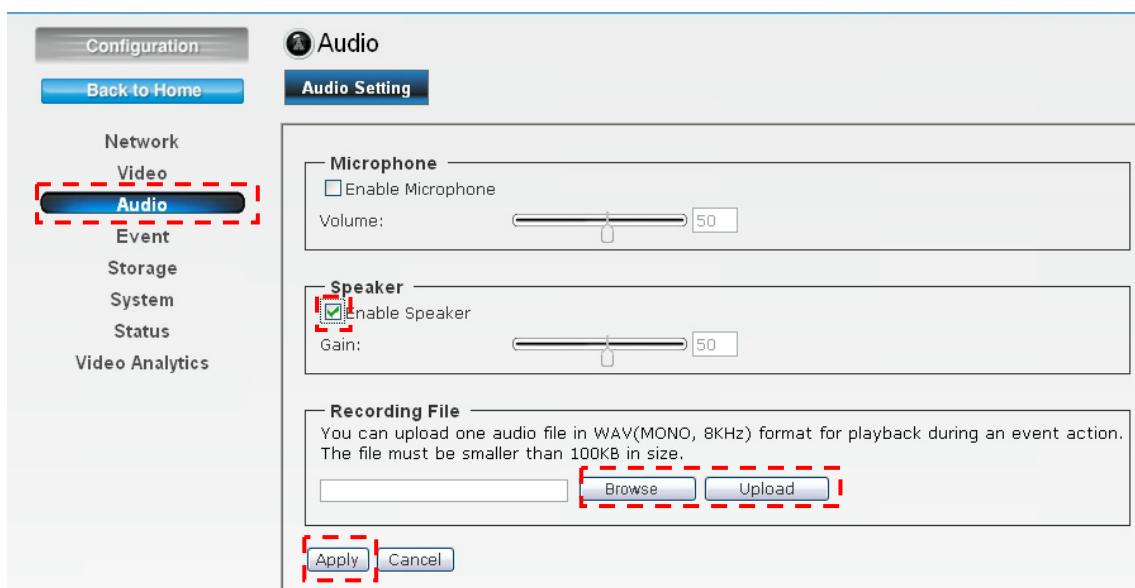
4. Go to "Video Analytics" and "Object Counting". Change Interval to 10 minutes and quantity to "100". Then press "Apply" button to save settings.
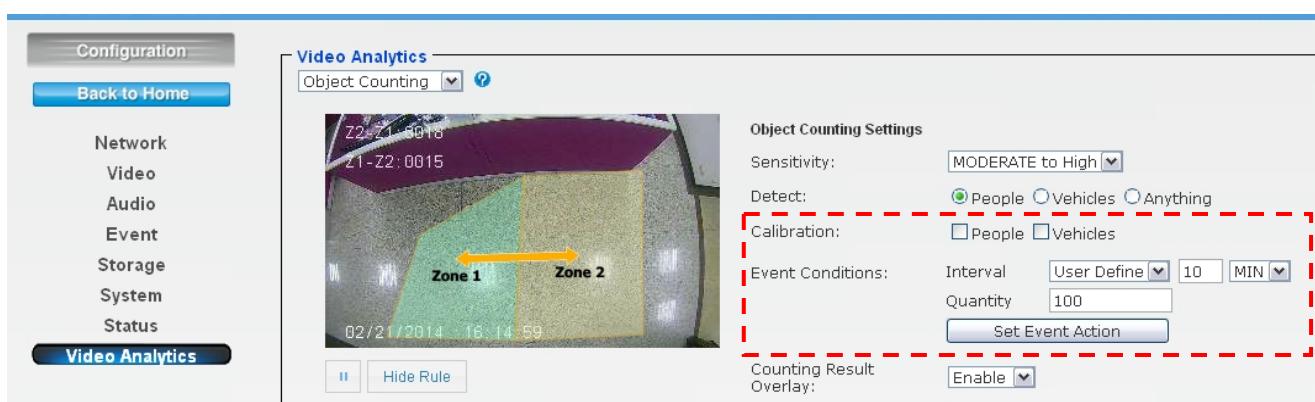
5. Now, please click on "Set Event Action". Click on "Add". Then the following screen will appear. Please enter the data as shown below. Please remember to click on "Save" after finish settings.

> ⚠ *Note: The Event Name does not allow spaces in between words. Please enter the event name as one single word.*

4. Retrieve Counting Data

You can retrieve the counting results using one of the methods below:
- Export data from camera's web interface manually.
- Let camera send the daily counting report automatically to remote FTP or Samba Server.
- Retrieve Data using CGI Commands. If you are a developer or system integration, you can use this method to get data for your CMS or management system.

Export Data from Camera's Web UI

Please go to the Object Counting page (Configuration->Video Analytics->Object Counting). You can select the date, time, and format you want to export. The keeping time of the data depends on the "Statistic Period" you choose:

- By minute: 48 hours
- Hourly: 30days
- Daily: 30days
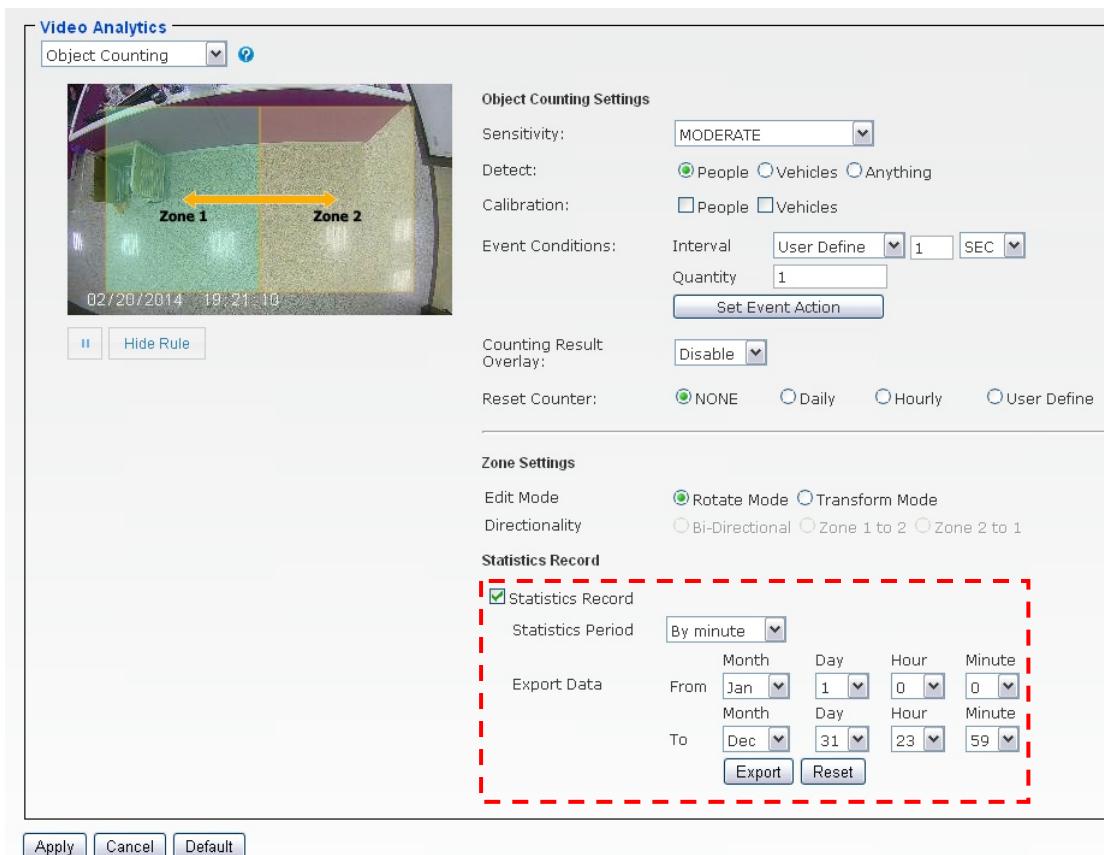
Camera Auto Send Counting Report

The camera will automatically send counting report to remote FTP or File Server. This function provides great advantage for large installations because data can be uploaded via internet to a centralized server. In addition, there is no need to configure the server when there is a new camera installation. *The auto export function is now available. If you do not find this function in your firmware, please go to AirLive website to download or contact our tech support by email at tech@airlive.com.*
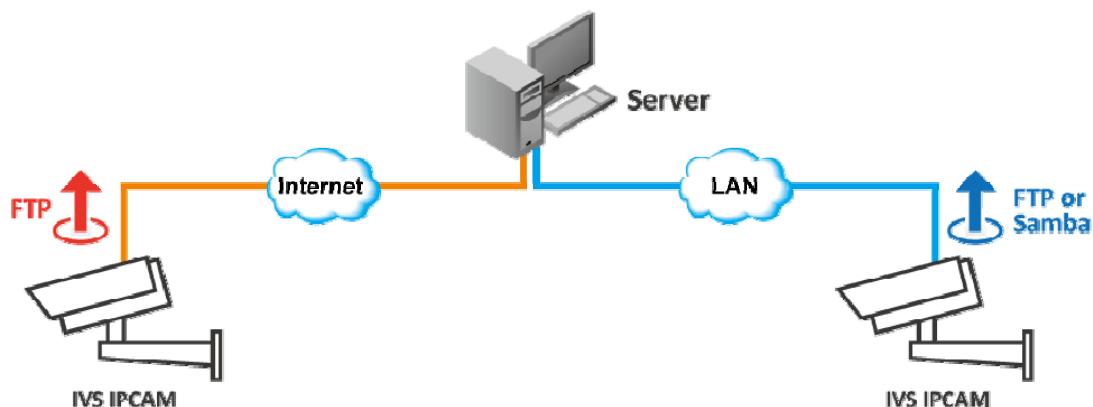
Configuration Steps:

Please go to the "Video Analytics"->"Object Counting" configuration page. The Statistic Record page is on the lower right side.
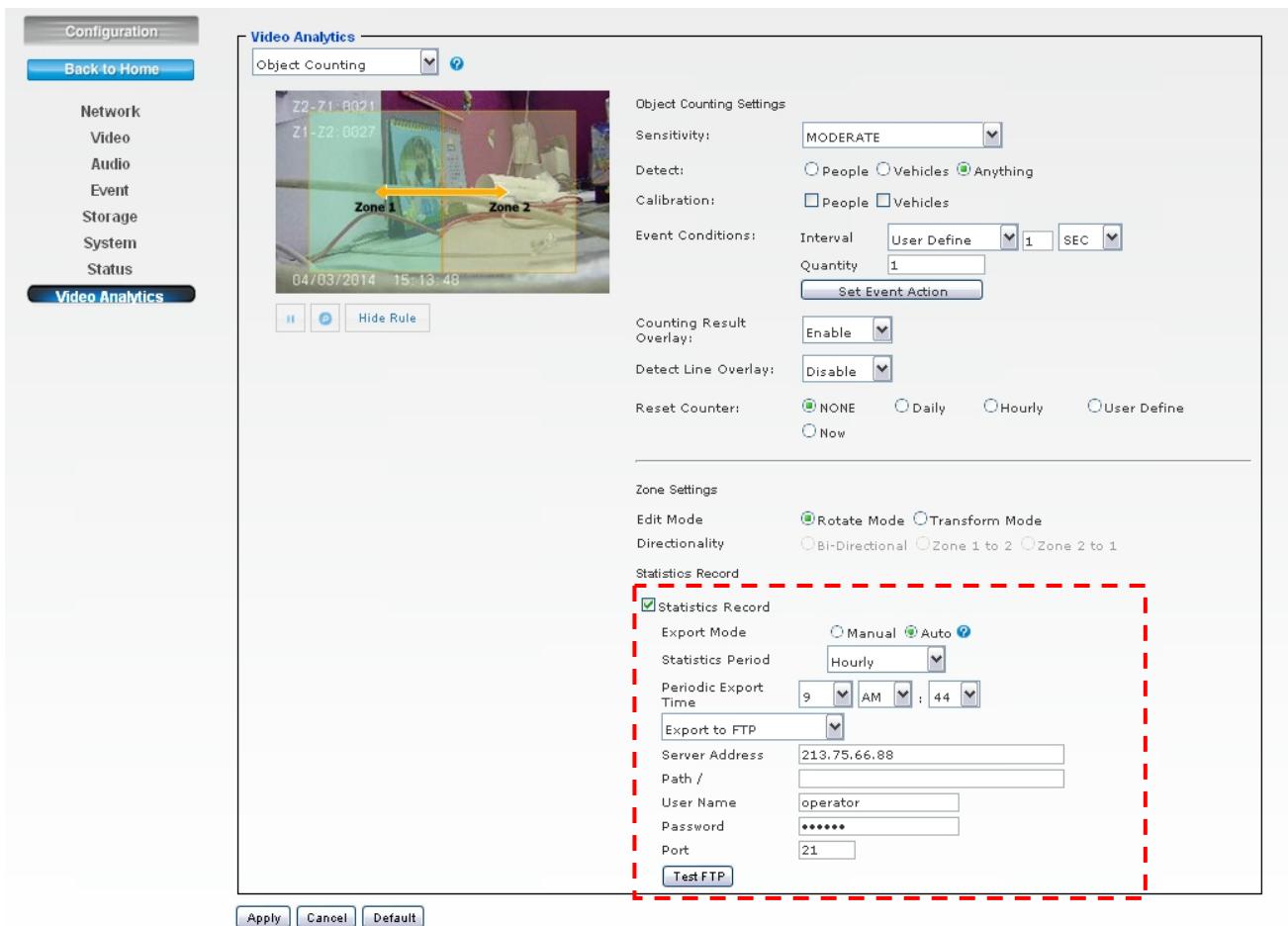
Now check the "Statistic Record" checkbox and fill in the information

1. Check the "Statistic Record" box
2. Export Mode: select "Auto"
3. Statistic Period: please choose the report format you prefer
   - By minute: the record file will show the number of occurrence in each minute
   - By hour: the record file will show the number of occurrence every hour. This is the recommended format to use.
   - By daily: the record file will show the number of occurrence daily.
4. Periodic Export Time: The camera will send counting report once a day. You can choose what time the camera should send the report.
5. Choose whether to send the counting report via FTP or Samba. Samba means local file server or NAS. In this example, we will choose FTP.
6. Server Address: Please enter the IP address of your FTP server
7. Path: This is to specify the file directory path. Leave it blank if you want to put it under root directory.
8. Username and Password: Enter the FTP account's information
9. Port: the server port of the FTP server. The default is 21 but it can be changed according to your server setup.
10. Click on "Test FTP" to check if your FTP information is correctly entered.
11. *Make sure to click on the "**Apply**" button to save settings*.
12. After correct settings are made, the counting report to send to remote server under the file name "BU3028_<ivs type>_<year-date-time>.csv". The file can be opened using spreadsheet program such as Microsoft Excel.".

	A	B	C	D	E	F	G
			C7		fx		
1	Datetime	Total Zone	Total Zone	Max Zone1	Max Zone2 to Zone1		
2	2014-5-20	19	33	1	2		

CGI Command to Export Statistic Records

Note: This requires administrator access (administrator authorization).

Method: Get

Syntax:
http ://<servername>/cgi/admin/va_trigger.cgi?action=<value>[&<parameter>=<value>...]

With the following parameters and value

<parameter>=<value>	Value	Description
action=<string>	export	
mode	fd oc	Which records of IVS function will be exported. fd=Face Detection oc=Object Counting

period	0~2	Which records of period will be selected. 0=Minutely 1=Hourly 2=Daily
begin	month-day%20 hour:minute	Search time begins,%20 is the html character code of space, ex: 10-21%2012:31
end	month-day%20 hour:minute	Search time ends,%20 is the html character code of space, ex: 10-21%2012:31

Example:

Export daily face detection statistics records from Jan.1 to Dec. 31http://myserver/cgi/admin/va_trigger.cgi?action=export&mode=fd&period=2&begin
=1-1%200:0&end=12-31%2023:59

Return:

Succeed	HTTP/1.1 200 OK Content-Type: text/csv Content-Length: 40 Connection: keep-alive Content-Disposition: attachment; filename=fd_event_log.csv Set-Cookie: fileDownload=true; path=/ 2014-02-12 13:58,3 2014-02-12 13:59,3