



FACIT
DATA SYSTEMS

FACIT SAMSUNG PEOPLE COUNTER INSTALLATION GUIDE

VERSION 2.1

01/10/2017

INTRODUCTION TO THIS GUIDE

This guide provides a comprehensive overview of the Facit People Counter application. It is a step by step instruction guide for the installation, setup, configuration and maintenance of our video analytics software. It further explains the layout of the web interface, the elements comprising it and how users may use the interface to retrieve data from and interact with the People Counter application.

INTENDED AUDIENCE

This manual is intended for users seeking information on the features, installation, configuration and maintenance of Facit Data Systems' Camera Based People Counter application.

TABLE OF CONTENTS

FACIT SAMSUNG PEOPLE COUNTER	1
INSTALLATION GUIDE	1
INTRODUCTION TO THIS GUIDE	2
INTENDED AUDIENCE	2
1. INTRODUCTION TO FACIT PEOPLE COUNTER.....	4
1.1. FEATURES.....	4
1.2. Camera Placement	4
1.3. Guidelines	4
1.4. POSITIONING.....	5
1.5. DISTANCE / HEIGHT.....	6
1.6. CAMERA TILT	6
1.7. LIGHTING CONDITIONS.....	6
1.8. CAMERA VIEW.....	6
2. GETTING STARTED	7
2.1. Firmware Upgrade	8
2.2. Installing the PeopleCounter Application	14
3. WEB INTERFACE OVERVIEW	18
3.1. LICENSE.....	18
4. LIVE VIEW.....	19
5. SETTINGS	20
5.1. SITE SETTINGS	20
5.1.1. OPERATING HOURS.....	21
5.2. CONFIGURATION & SETTINGS	22
5.3. REPORT SCHEDULING	27
5.3.1. FTP Configuration	27
5.3.2. Email Configuration	28
5.4. MASTER SLAVE.....	29
5.5. ARCHIVER SETTINGS.....	29
6. REPORTS.....	31
6.1. MASTER REPORTS.....	32
6.1.1. CATEGORY	32
6.1.2. COMPARISON GRAPH	32
6.1.3. DOWNLOAD: PDF/CSV	33
7. TROUBLESHOOTING.....	34
7.1. TESTING ACCURACY.....	34
7.2. ACCEPTABLE RANGE OF ACCURACY	34
7.3. POSSIBLE ADJUSTMENTS	34
8. FURTHER DETAILS.....	36

1. INTRODUCTION TO FACIT PEOPLE COUNTER

The Facit People Counter application is an optimised, fully embedded camera based solution developed for Samsung IP cameras.

1.1. FEATURES

Facit Data Systems' Bi-directional People Counter is a video analytics solution designed to accurately count the number of people entering and leaving a selected location. The application further converts this raw people counting data into meaningful patterns to help users identify key performance indicators and make informed decisions. Some of the important features are:

- **Integration with existing hardware:** No extra hardware installations required.
- **Live View:** Allows users to use the IP camera for live monitoring.
- **Remote Management:** Management of the People Counter product remotely over IP, adjustment and modification of software parameters.
- **Live Count:** Know the exact figures for visitor attendance on any given day.
- **Statistics:** Daily data is automatically updated to a database. Historical data can be viewed and matched with sales statistics to deduce best sales intervals and impacts of advertising campaigns.

1.2. CAMERA PLACEMENT

For increased accuracy of the People Counter, a surveillance camera needs to be mounted according to the guidelines outlined in the next section. Incorrect camera placement may adversely affect the accuracy of people counting.

1.3. GUIDELINES

The correct camera placement is illustrated in figure.

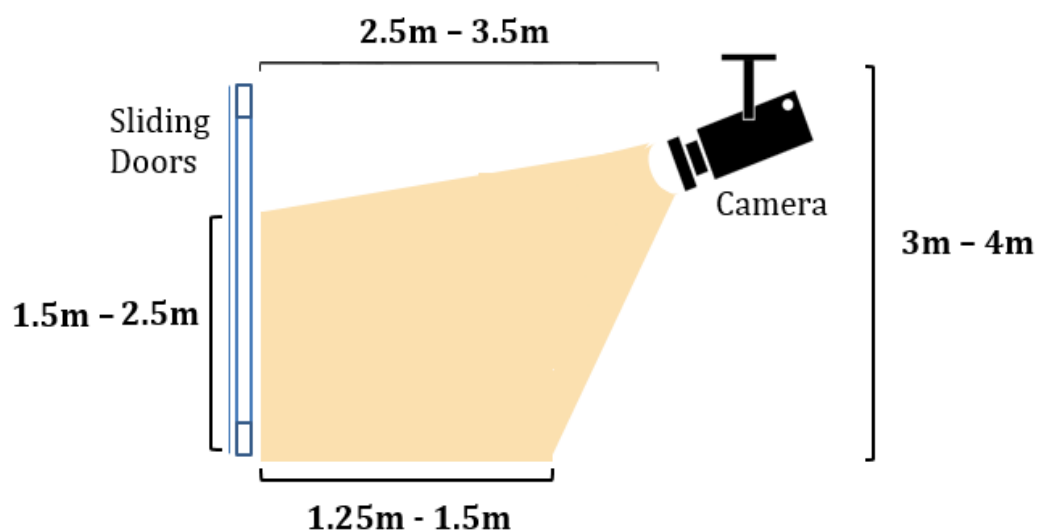


Figure 1 : Camera Positioning for the People Counter

1.4. POSITIONING

The People Counter Camera needs to be positioned directly in front of and above the entrance or exit doorway, not to the side, as shown in the figure



Figure 2 : Incorrect Camera

The camera needs to be exactly in line with and facing the centre of the doorway. For example, in places with sliding doors, this centre can be located as the point where parting panels of the automatic doors meet.

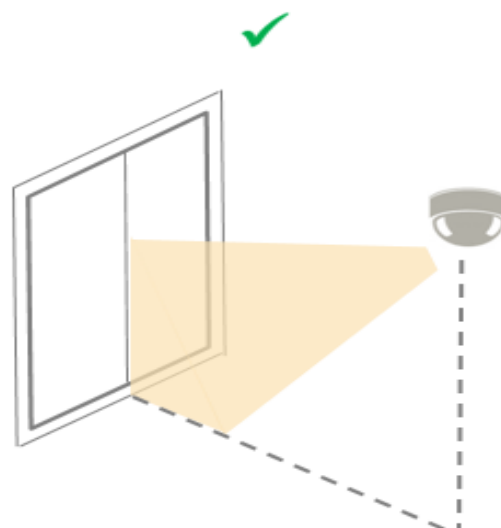


Figure 3 : Correct Camera Placement

1.5. DISTANCE / HEIGHT

The recommended distance for the camera to be located from the entrance/exit doorway is approximately 2.5 - 3.5 meters. The recommended height is approximately 3 - 4 meters.

1.6. CAMERA TILT

The camera tilt should be adjusted from the camera view as follows:

- Length of doorway visible in the camera view should be approximately 1.5 - 2.5 meters.
- Length of floor visible in camera view should be approximately 1.25 - 1.5 meters.

1.7. LIGHTING CONDITIONS

The camera should be mounted in a sufficiently well-lit area. An acceptable level of lighting is the same as what is required by the human eye for image detection.

Avoid placing the camera in direct sunlight. Excessive lighting or poorly lit areas will both hinder detection and undermine the accuracy of the People Counter.

1.8. CAMERA VIEW

Within the camera view, make sure there are no constantly moving objects, such as an escalator, or objects casting sharp shadows.

2. GETTING STARTED

Firstly, the PeopleCounter application must be manually installed on the camera(s). However, before installation, camera firmware upgrades need to be made.

STEP 1

Launch a web browser on any computer. Enter the camera's IP address into the browser's address bar.

http://<camera IP address>/

For example: <http://192.168.2.40/>

NOTE! Make sure your Web browser is configured to accept cookies and allow popups.

STEP 2

Users receive an authorisation prompt requesting their username and password. To access the camera device, enter the required Username and password.

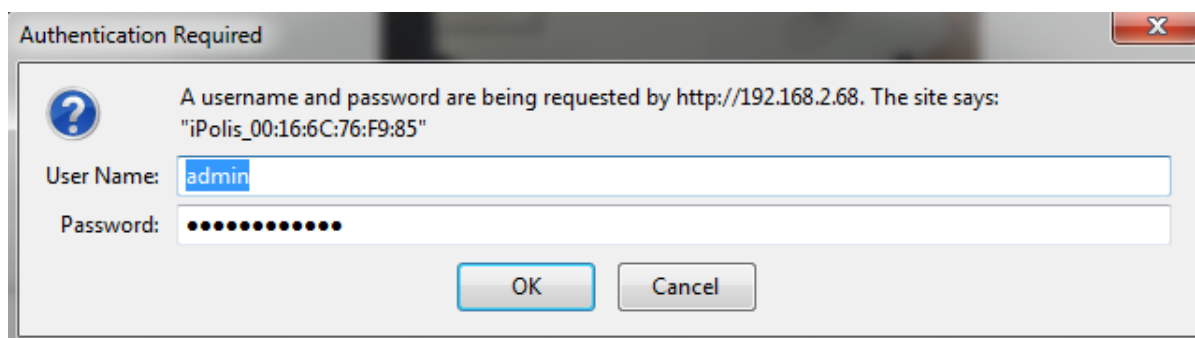


Figure 4: User Authentication

NOTE! When connecting to a camera for the first time, you may receive a “plugin not installed” error notification as shown in the figure below.

Allow the internet browser to install the required web viewing plugin. After installation, restart the browser and re-enter the camera's IP address.

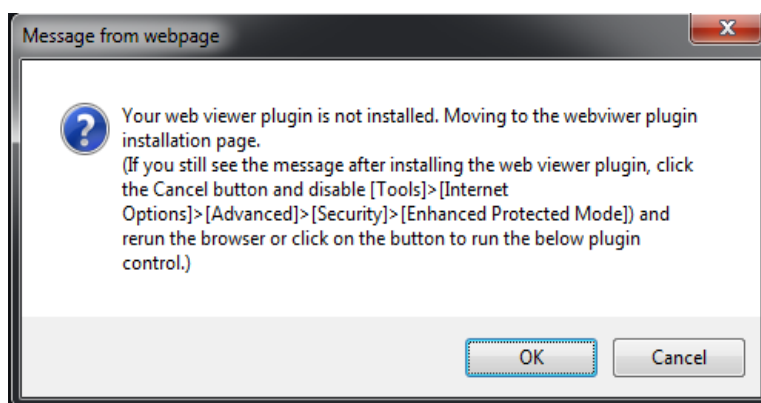


Figure 4 : Browser Plugin Error

STEP 3

Re-enter the Camera's IP address in the browser window. This launches the iPolis network Camera Web Viewer page.

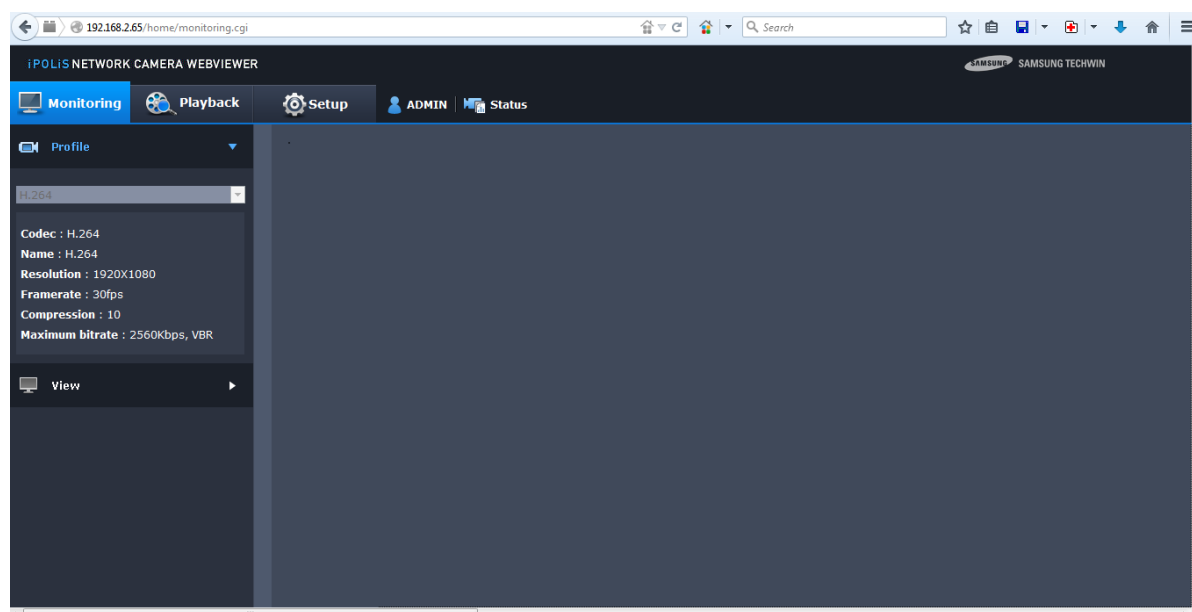


Figure 5 : iPolis Network Camera Web Viewer

2.1. FIRMWARE UPGRADE

For operation of the PeopleCounter application, surveillance camera firmware needs to be upgraded. This necessary camera firmware upgrade is provided to clients alongside the PeopleCounter product software.

STEP 1

Click **Setup**.

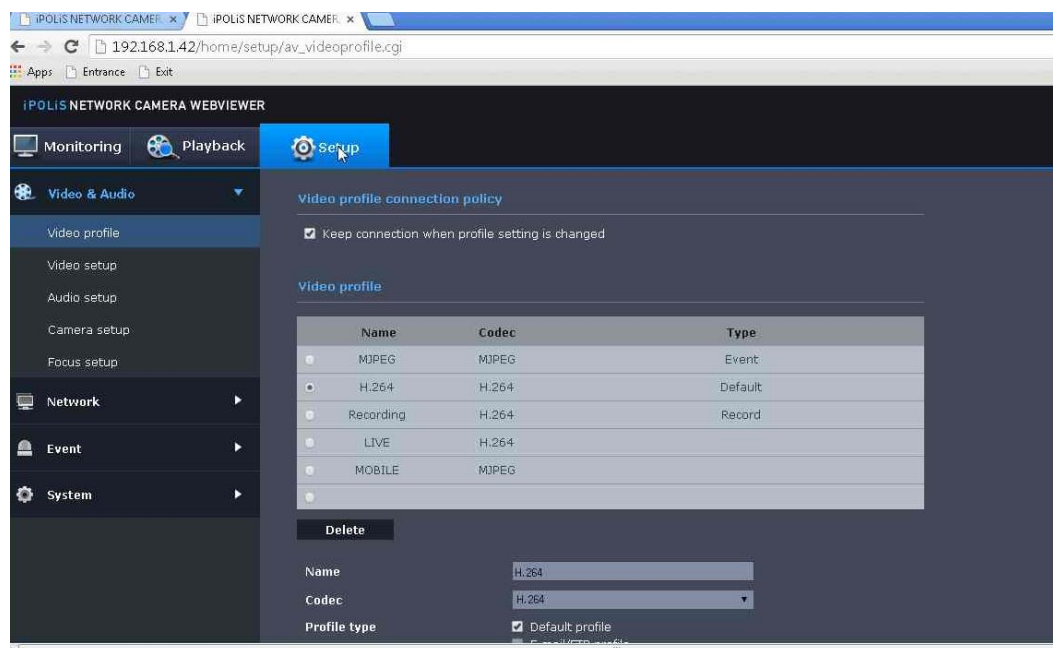


Figure 6 : Enter Setup

STEP 2

Click **System** from the menu list on the left side of the window. Select Upgrade/Reboot from the drop down menu.

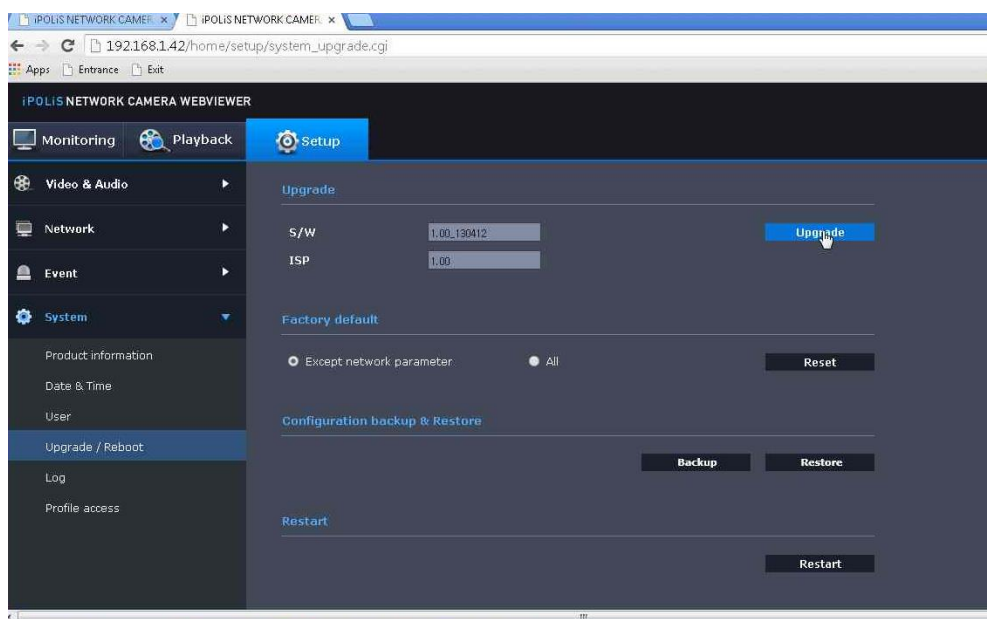


Figure 7 : Upgrade tab

STEP 3

The current firmware version is displayed in the Upgrade section of the tab. To update firmware, click **Upgrade**.

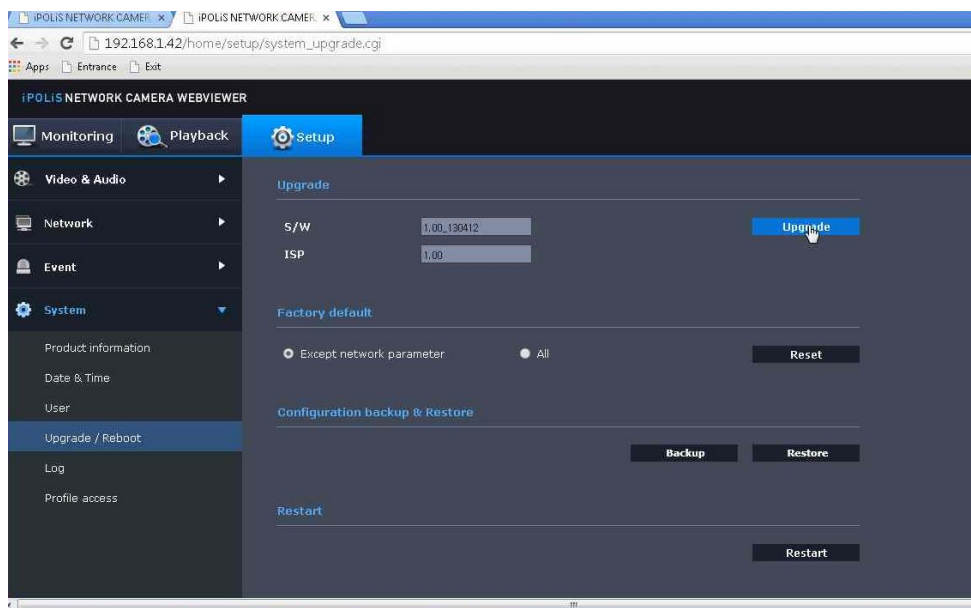


Figure 8 : Replace firmware version

STEP 4

In the Upgrade window, click **Browse**.

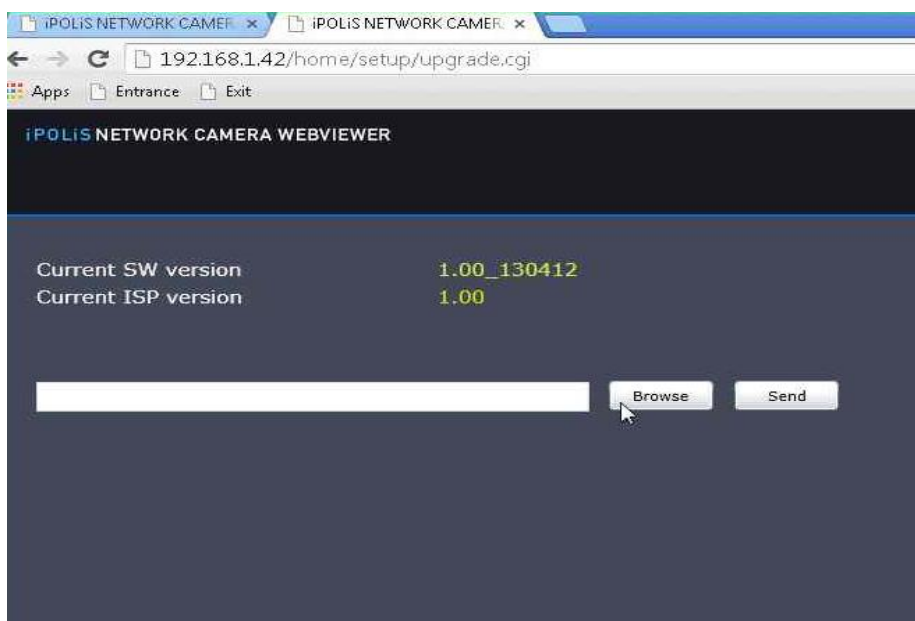


Figure 9 : Browse for Upgrade

STEP 5

In the explorer window, navigate to the location containing the firmware upgrade image file. Select it and click **Open**.

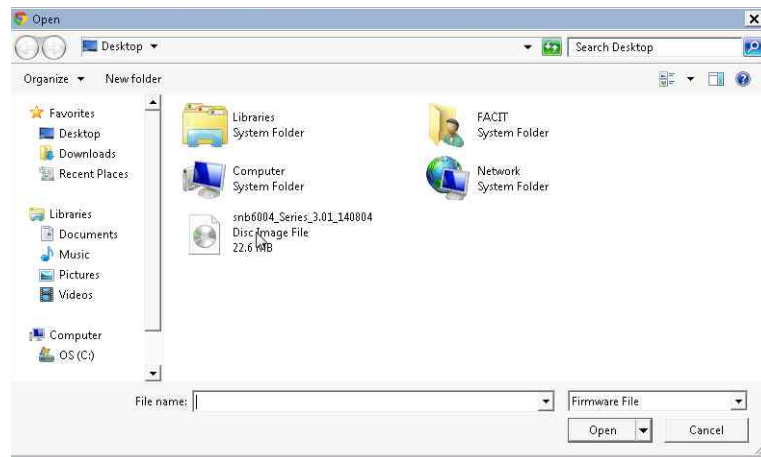


Figure 10 : Select firmware Image File

STEP 6

Click **Send**.



Figure 11 : Start Upgrade

This initiates the firmware upgrade process.

STEP 7

Once upgrade completes, click **Close**.

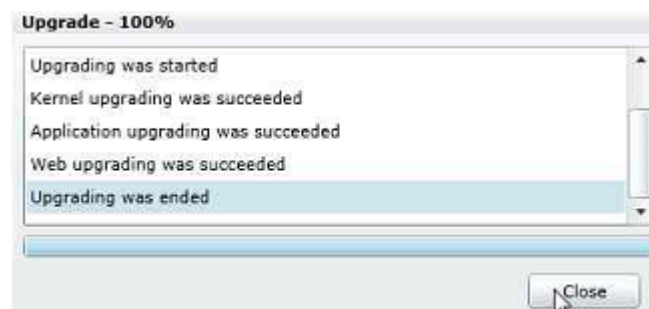


Figure 12 : Upgrade Complete Notification

STEP 8

The web viewer once again requests User Authentication. Give the required Username and password.

STEP 9

At first Login after firmware upgrade, the Ipolis Web Viewer requests an administrator password change. Enter a new administrator password and click **Apply**.



Administrator password change

New password

Confirm new password

. If the password is 8 to 9 letters long, then it should be a combination of at least three types upper/lower case alphabets, numbers and special characters.
. If the password is 10 to 15 letters long, then it should be a combination of at least two types upper/lower case alphabets, numbers and special characters.
. User name should be different from password.
. The following special characters are available for use. ~`!@#\$%^&*()_-+=|{ }[];?/
. Refrain from using the password which uses consecutive or repeated text string since it has vulnerable security. (Ex: abcde123456, aaaaa11111, qwerty!@#%)

Figure 13 Change Administrator Password Request

NOTE! In some instances, Google chrome users may find the Apply button inoperative. In that case, simply switch to Microsoft Windows Internet Explorer for the password update process. Once the password is changed, you may return to using any internet browser.

NOTE! Make sure you do not change the default port settings in the Ipolis Web Viewer. The default settings are provided in Figure 14.

Port	
HTTP	80
HTTPS	443
RTSP	554 ☒ Use timeout
Device port	4520

Figure 14 : Default Port Settings

STEP 10

Configure Date and Time settings on the camera. To do this, go to **Setup > Date & Time**. The following page opens up in the Ipolis Web Viewer:

Figure 15 : Date & Time tab

- Select your Timezone from the dropdown menu.
- If daylight saving rules apply to your time zone, check the “use daylight saving time” option.
- Click **Apply**.
- Configure System Time Setup. Use either of the following two options:

Manual: Select the date and time from the drop down lists in the following format

yy : mm : dd hh : mm : ss (time is in 24 hr format)

Synchronise with PC viewer: Allow the camera to obtain its date and time settings from the PC running the Ipolis Web Viewer.

2.2. INSTALLING THE PEOPLECOUNTER APPLICATION

Return to the main Ipolis Web Viewer window.

NOTE! Make sure Date and Time Settings are correctly configured onto the camera device before proceeding. Refer to Step 10 of the Firmware Upgrade section for details.

Step 1

Click on the **Setup** tab.

Step 2

Click on **System** in the menu list on the left side of the screen.

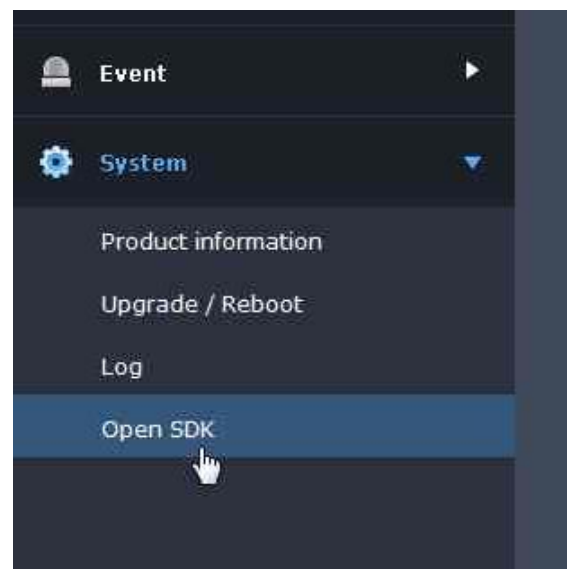


Figure 16 : Open SDK

Step 3

Click on the **Open SDK** tab from the drop down menu.

The following window is launched:

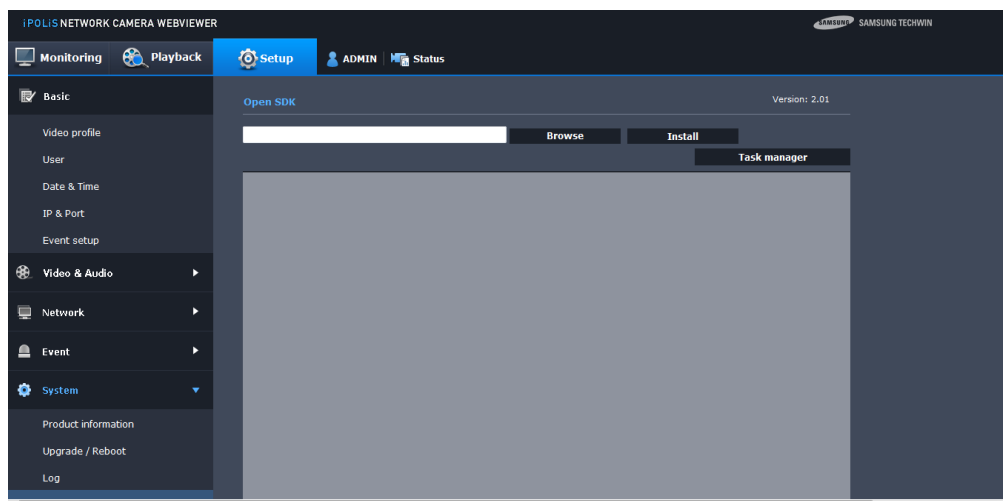


Figure 17 : SDK window

Step 4

Click on **Browse**. Navigate to the folder containing the PeopleCounter .cap installation file and select it.

Step 5

Click **Install**.

A confirmation request will be received, as shown in Figure 18. Click **OK**.

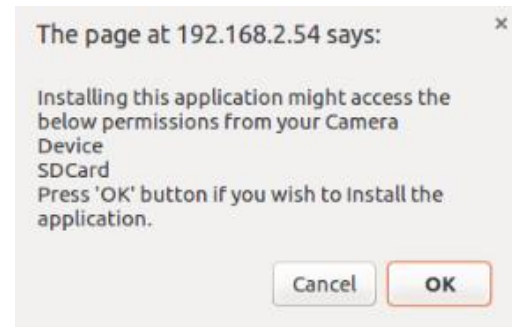


Figure 18 : Confirm Installation

Once installation completes, the PeopleCounter application appears in the Open SDK window, as shown in Figure 19. It is recommended to tick the **Auto start** option and click **Apply**.

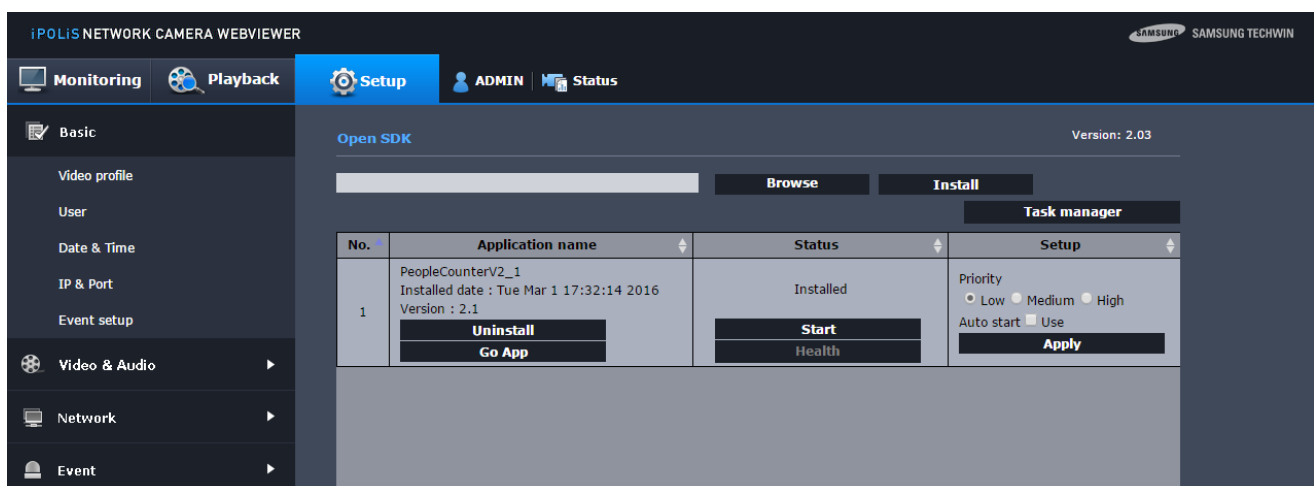


Figure 19 : PeopleCounter Application installed

Step 6

To enable the FTP / Email functionality

Go to **Events** tab and set button for **App Event Enable ON** and check **Event Action Setup** for **Email** and **FTP**, as shown in Figure 20. Press **Apply** to save changes.

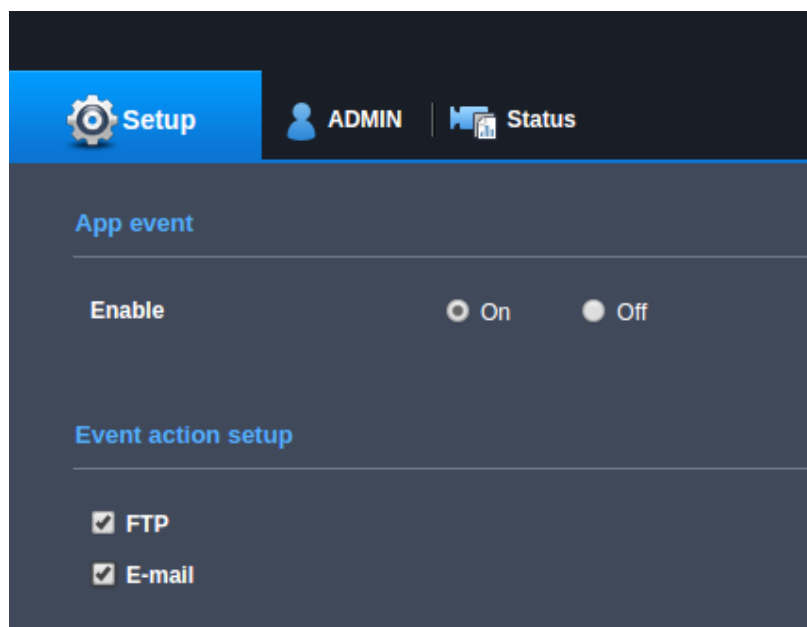


Figure 20 : Settings to enable Email and FTP

Go to **Event** setup page within the **Basic** tab and check boxes for **Event**, **FTP** and **Email** within the Type **App Event** as shown in Figure 21.

Basic		Event list					
Type	Enable	FTP	E-mail	Record	Alarm output		
> Alarm input	☐	☐	☐	☐	Off		
> Time schedule	☐	☐	☐	☐			
> Tampering detection	☐	☐	☐	☐	Off		
> Motion detection/Video analytics	☐	☐	☐	☐	Off		
> Face detection	☐	☐	☐	☐	Off		
> Audio detection	☐	☐	☐	☐	Off		
> Network disconnection	☐			☐	Off		
> App event	☒	☒	☒				

Figure 21 : Settings for Event setup to enable Email and FTP

Step 7

In Figure 19, the application status reads “Installed”. To start the application, click the **Start** button.

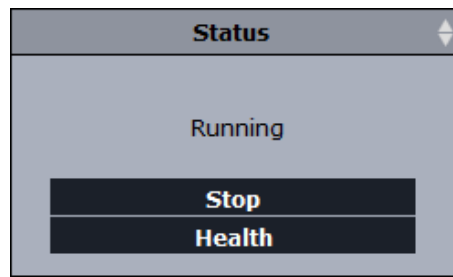


Figure 22 : Updated application

The Status box should now read “Running”, as shown in Figure 22.

Step 8

The PeopleCounter web interface can now be accessed from any PC or mobile device using a web browser.

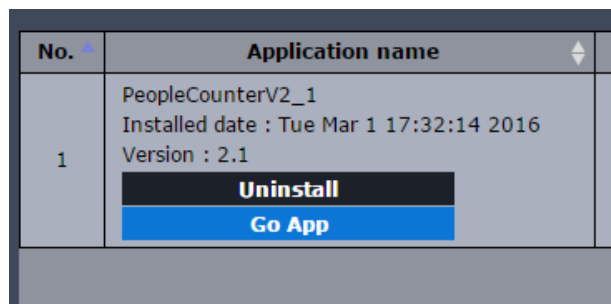


Figure 23 : Launching the PeopleCounter

Click **Go App** to launch the PeopleCounter Web Interface.

NOTE! Make sure your Web browser is configured to accept cookies and allow popups. Pop up blockers will prevent the web interface from launching in a new tab.

Step 9

The PeopleCounter web interface is launched in a new browser window. Switch to the new window to begin using the application.

NOTE! Recommended internet browsers for the Facit PeopleCounter web interface are Google chrome and Mozilla Firefox web browsers.

3. WEB INTERFACE OVERVIEW

The Facit Data Systems' Camera Based People Counter comes with a web application allowing users to configure camera devices and monitor customer traffic data from a single, easy to use web-based interface.

3.1. LICENSE

At first launch, the web interface requests License information.

- Enter your generated License Key.
The software will attempt to activate the licence automatically.
- Once the license activates, re-launch the web interface.



The screenshot shows a web form titled "License". It contains three fields: "MAC" with the value "ACCC8E04F8D3", "App Name" with the value "FacitPCv2", and "License Key" which is an empty text input field. To the right of the "License Key" field is a red "X" icon. Below these fields is an orange "Save" button.

Figure 24 : License Key

NOTE! The licence provided is for a single camera. To activate the People Counter Application on more than one camera, you will require a new licence key per camera.

NOTE! The date and time on your camera must be correct otherwise you may face issues in license validation.

The web interface has 3 tabs; Live, Reports and Settings. The interface opens to the Live tab. To navigate between tabs, click the corresponding tab.

4. LIVE VIEW



Live People Count



12:36:06
Monday, March 14, 2016



543
Customers In



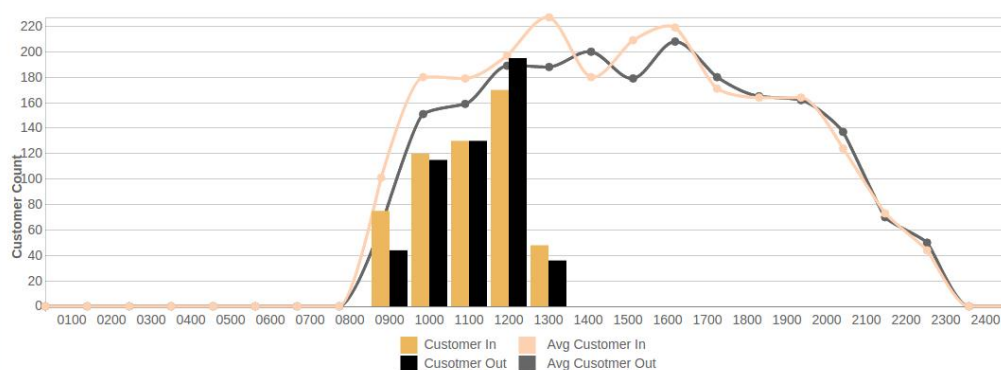
0800 - 2200
Opening Hours



520
Customers Out



Count Graph



© Facit Data Systems

Figure 25 : Live Tab

The Live tab of the interface contains the following features:

Today's Count Graph

A real time bar graph of the People Counter indicates the Bi-directional People Count at the end of every hour of the current day.

Average Count Graph

A continuous line graph provides comparative analysis for users by plotting the average number of people detected in the store every hour for that particular day over the past 4 weeks.

Customers In

A running count showing the live count of customers coming in.

Customer Out

A running count showing the live count of customers going out.

Live Video Feed

Live video feed from the selected camera running the People Counter application.

NOTE! Make sure that live video feed is displaying in the browser window. If video is unavailable, recheck your camera connections and refresh the browser page.

5. SETTINGS

To ensure accurate counting function of the camera, the Facit People Counter needs to be carefully configured before use. How well the camera is configured determines the accuracy of people counting results.

There are five sections of the settings tab:

- Licence (refer to section 4.1)
- Site Settings
- Configuration & Settings
- Report Scheduling
- Memory Card
- Master Slave
- Archiver Settings

5.1. SITE SETTINGS

Each Store needs to be assigned a unique Store ID and Store Location. Enter both, then click **Save**.

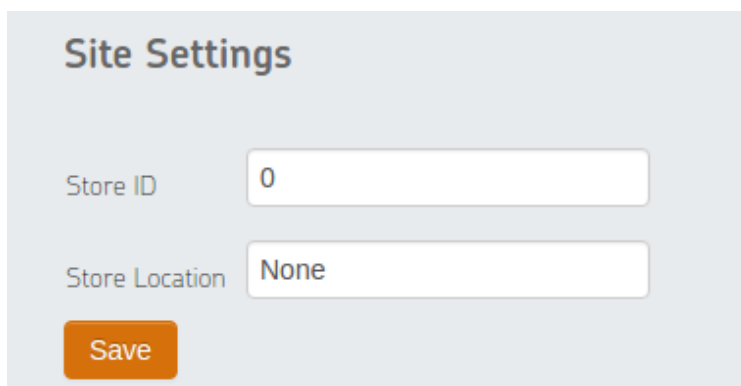
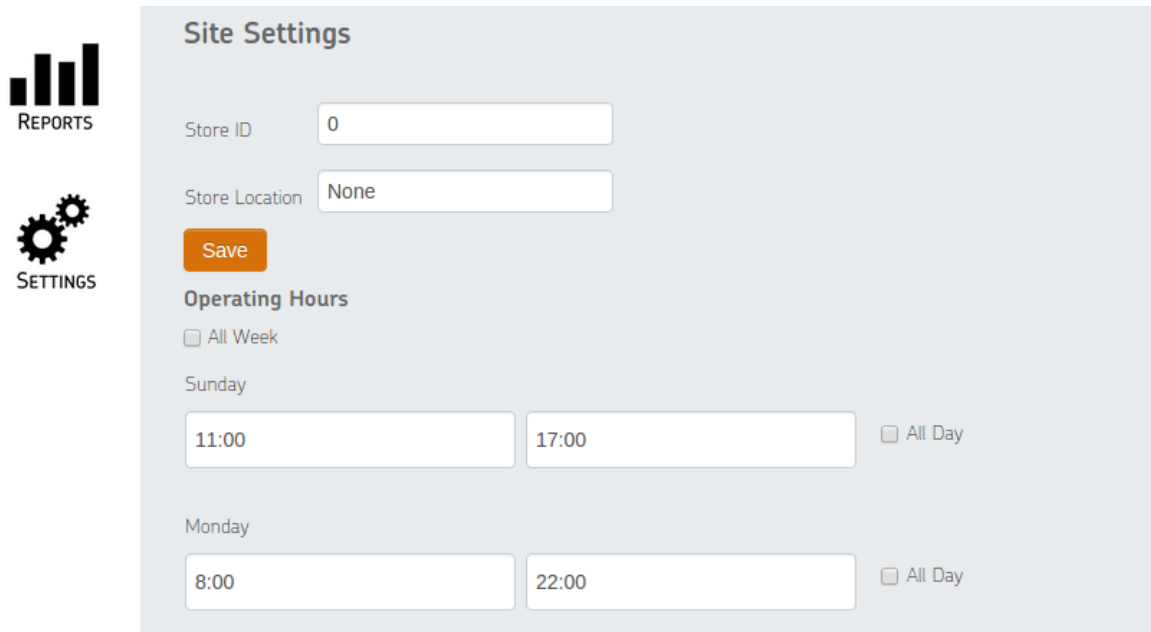
The image shows a web interface for 'Site Settings'. It has a light gray background. At the top, the title 'Site Settings' is displayed in a bold, dark blue font. Below the title, there are two input fields. The first is labeled 'Store ID' in a light gray font, and it contains the value '0'. The second is labeled 'Store Location' in a light gray font, and it contains the value 'None'. Below these fields is an orange button with the word 'Save' in white text.

Figure 26 : Site Settings

5.1.1. OPERATING HOURS

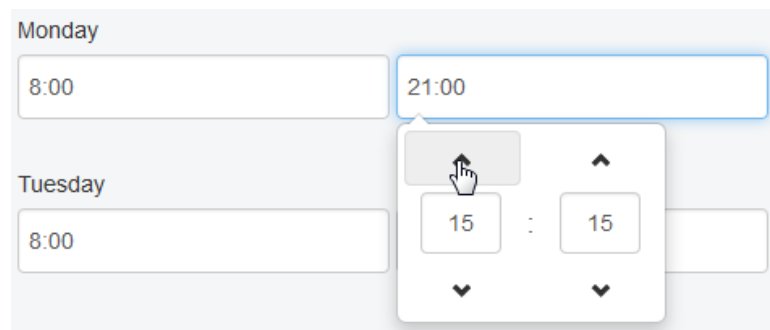


The image shows a 'Site Settings' form. On the left, there are two icons: a bar chart labeled 'REPORTS' and a gear icon labeled 'SETTINGS'. The main form area is titled 'Site Settings' and contains the following fields:

- Store ID:** A text input field with the value '0'.
- Store Location:** A dropdown menu with the value 'None'.
- Save:** An orange button.
- Operating Hours:** A section with a checkbox for 'All Week' (unchecked).
- Sunday:** Two time input fields showing '11:00' and '17:00', with an 'All Day' checkbox to the right.
- Monday:** Two time input fields showing '8:00' and '22:00', with an 'All Day' checkbox to the right.

Figure 27 ; Operating Hours

In the Site Settings tab, users can set the time duration for which they want the People Counter application to execute on the camera. The People Counter automatically activates at the configured start time and begins its customer counting function. At the stated end time, the counter automatically turns off. Customer data recorded within the configured time interval is saved to the database.



This image is a close-up of the time selection interface. It shows the 'Monday' and 'Tuesday' sections. For Monday, the start time is '8:00' and the end time is '21:00'. For Tuesday, the start time is '8:00'. A time picker is open over the '21:00' field, showing a hand cursor pointing to the '15' minute slot. The picker has up and down arrows for the minutes and a colon separator.

Figure 28 : Store Timings

- For each day of the week, two-time slots are given. Enter the corresponding timings for each day. For example, these could be the opening and closing times of the store.
- If the store is open all day on a particular day, check the “All Day” option.
- If the store is open round the clock, all days of the week, check the “All week” option, given directly below the Store Timings heading. This activates the People Counter application 24 hrs a day for all days of the week without having to manually set the time for each day of the week.

5.2. CONFIGURATION & SETTINGS

The People Counter application offers Bi-directional Counting as well as uni-directional counting in a specified direction. Bi-directional count means simultaneous counting of people entering and leaving a particular region. Uni-directional counting means people moving in a specified direction. The Configuration & Settings section configures the detection region in the camera view and specifies the direction in which counting is desired. It is recommended to use the system in Auto Tuning mode and just the Region of Interest (ROI) needs to be defined. However, advanced settings are also available for fine tuning of parameters, in case desired accuracy is not achieved.

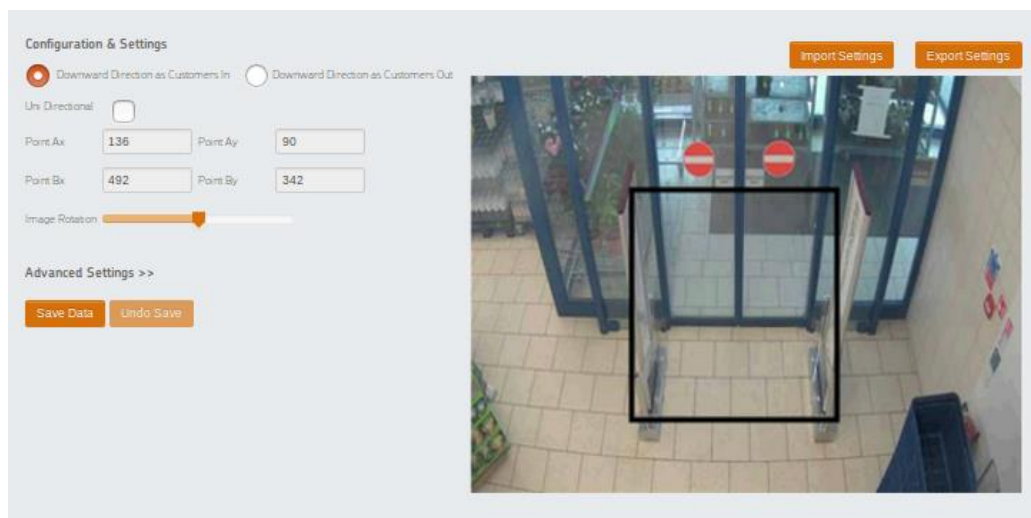


Figure 29 : Defining Region of Interest (ROI)

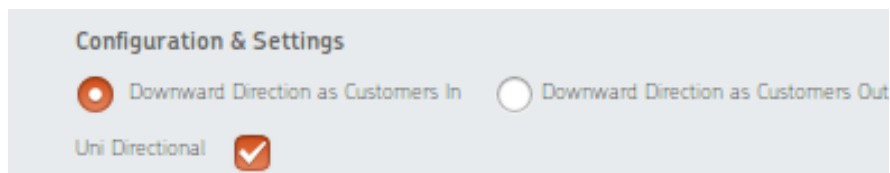


Figure 30 Options for determining Customers In direction and Uni/Bi-directional Counting

Image Rotation:

Image Rotation is used in case where the Camera is placed in such a way that people moving away from camera should be considered as **IN** or people moving toward camera should be considered as **Out**, for these conditions we should rotate the image to an angle of 180.

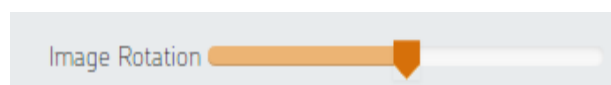


Figure 31 : Image Rotation

Direction Specification:

The People Counter application can count either people coming towards the camera or going away from the camera. By default, the people coming towards the camera are considered as people entering the area and this count is shown on the live page as the “Customers In”. Similarly, the count of people going away from the camera is shown as “Customers Out”. This direction can be reversed by rotating image using **Image Rotation** option on the settings page.

Also, by default, the application is in the Uni-Direction mode. To operate in the bi-directional mode, simply uncheck the **Uni-Directional** checkbox.

Defining Region of Interest:

Select the required rectangular region with your cursor in the camera view window to specify the Region of Interest. The fields for **Point Ax**, **Point Ay**, **Point Bx** and **Point By** are automatically updated.

Advanced Settings:

Auto Mode

People Counter recommends using the Auto Tuning mode, which can be selected by clicking the **Auto Tuning** box in the Advanced Setting. By clicking the **Auto Tuning** box, only the options for **Tuning Time**, **Articles to Track**, **Article area** and **People Speed** are available. The recommended range for **Tuning Time** field is 15-60.

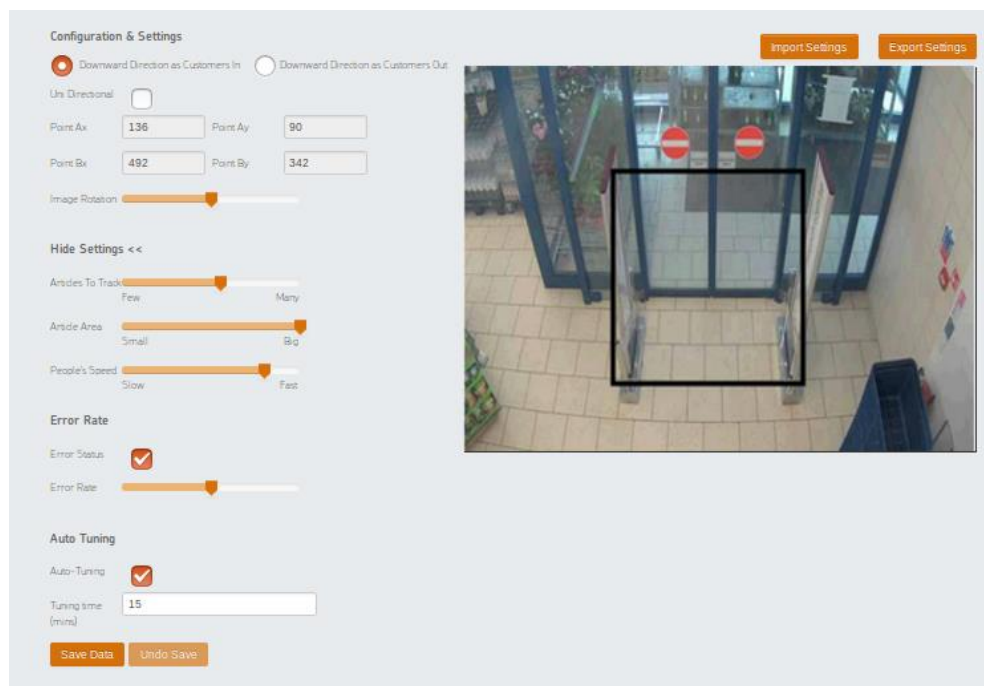


Figure 32 : Advanced Settings: Auto Mode

Manual Mode

If the Auto Tuning Mode is not selected, then the **Tuning time** field is disabled and you may need to set the values of up to 6 parameters i.e. **Detection Sensitivities** for upward and downward direction movement and the **Movement Angles** in the upper half and lower half of the ROI for the upward and downward directions. The number of parameters available in this mode depends on the settings of the **UniDirectional** checkbox shown in the figure. If the box is unchecked then all the options are available to the user i.e. the user has to set the detection sensitivities and angles of movement for both the directions as shown in figure. However, if the box is checked then only the options for the direction which is selected by the user are shown.

The screenshot displays the 'Configuration & Settings' window for the Facit Samsung People Counter. The interface is divided into several sections:

- Configuration & Settings:** Includes radio buttons for 'Downward Direction as Customers In' (selected) and 'Downward Direction as Customers Out'. There are 'Import Settings' and 'Export Settings' buttons.
- Uni Directional:** A checkbox that is currently unchecked.
- Point Coordinates:** Input fields for Point Ax (136), Point Ay (90), Point Bx (492), and Point By (342).
- Image Rotation:** A horizontal slider.
- Hide Settings <<:** A button to collapse settings.
- Articles To Track:** A slider between 'Few' and 'Many'.
- Article Area:** A slider between 'Small' and 'Big'.
- People's Speed:** A slider between 'Slow' and 'Fast'.
- Error Rate:** Includes a checked 'Error Status' checkbox and an 'Error Rate' slider.
- Auto Tuning:** Includes an unchecked 'Auto-Tuning' checkbox, a 'Tuning time (min)' field set to 15, and a checked 'Display Angles' checkbox.
- Maximum Downward Movement Angle:** Two sliders for 'Upper Half' and 'Lower Half', both ranging from 'Narrow' to 'Wide'.
- Maximum Upward Movement Angle:** Two sliders for 'Upper Half' and 'Lower Half', both ranging from 'Narrow' to 'Wide'.
- Detection Sensitivity:** Two sliders for 'Downward' and 'Upward' directions, both ranging from 'Low' to 'High'.
- Buttons:** 'Save Data' and 'Undo Save' buttons at the bottom.

On the right side of the window, there is a live video feed of a store entrance. A black rectangular ROI (Region of Interest) is overlaid on the glass doors. Red arrows indicate movement directions: two pointing up (outward) and two pointing down (inward). A large red 'X' is drawn over the ROI.

Figure 33 : Manual Tuning Mode

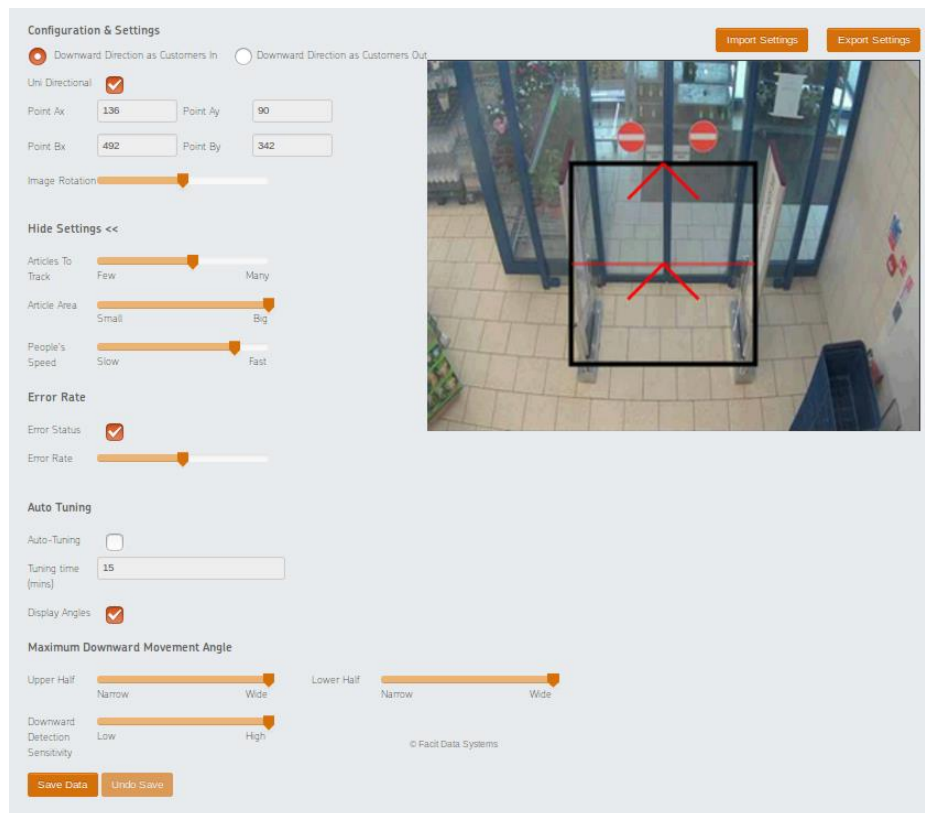


Figure 34 : The Unidirectional Mode

Maximum Downward Movement Angle: This section is enabled when the **Auto-Tuning** check is disabled and either the **UniDirectional** check is enable or disable. Two sliders are associated with this option. These sliders are used to determine the angle of movement in the upper half and lower half of the ROI for people moving towards the camera. It's the range of angles at which people are coming towards the camera measured from the vertical axis. Selecting the **Display Angles** checkbox displays the angles on the ROI. Any movement by a person that is at an angle which is more than the specified range will be ignored by the algorithm e.g. if a person crosses the ROI from the left to right direction, then he will not be counted by the application.

Maximum Upward Movement Angle: Similar to the **Maximum Downward Movement Angle** but sets the angles for the upward movement i.e. for people moving away from the camera.

Downward Detection Sensitivity: This detection sensitivity parameter is for the count of people coming towards the camera.

Upward Detection Sensitivity: This detection sensitivity parameter is for the count of people going away from the camera.

Advanced Parameters

Some fine-tuning parameters are used to improve the counting accuracy. These parameters should only be tweaked if changing the above parameters is not improving the accuracy of the application.

Articles to track: This parameter is increased if there are too many misses. The increase in this parameter should be done carefully as increasing this parameter increases the computational complexity of the application and may also cause an application crash. Decrease this parameter if there are too many extra counts.

Article Area: This parameter is linked with the distance between the camera and the ROI. For ROIs that are closer to the camera, this parameter should be increased. If the ROI is distant from the camera or if the camera is zoomed out a lot then this parameter should be decreased. However, decreasing this parameter too much can cause the application to crash.

People's Speed: If the application is giving extra counts frequently, for example counting a person twice, then try increasing this parameter. If however, the application is missing people very frequently, for example, when two people enter one after the other but the application counts them as one person then try decreasing this parameter. Please note that the application is not going to give 100% results so any occasional misses or extra counts should not lead to changing this parameter.

Error Rate:

Error Rate is linked with the reporting section. In some environments where the accuracy is between 90% to 95%, we can add 5% error rate to make the result 100% by setting the parameter to -5. Similarly, we can increase the value if the accuracy is above 100%. Use this parameter to incorporate observed errors in measurement for adjusted reporting.

Save Data:

Once all the settings are adequately configured, click the **Save Data** button.

Undo Data:

Undo Data button undoes the current setting changes.

5.3. REPORT SCHEDULING

Facit Data Systems' People Counter App offers two report transfer mechanisms, FTP or Email. Reports contain statistical information, detailing the people count at the end of each hour.

- Check the preferred file transfer method. FTP and Email can both be activated if required.
- Select your preferred Reporting Frequency

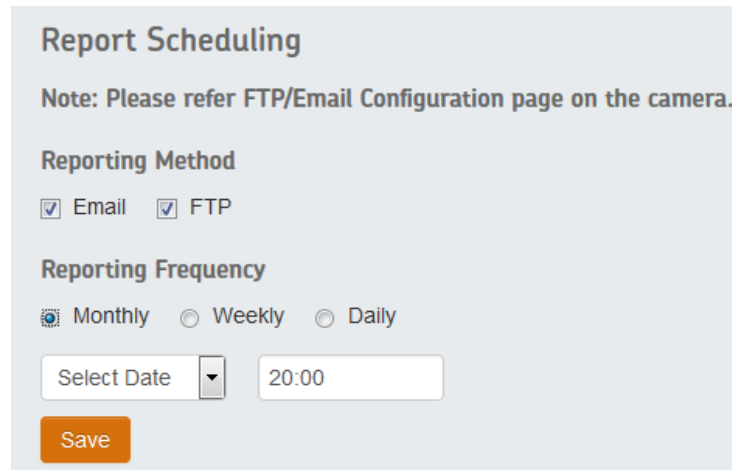


Figure 35 : Report Scheduling

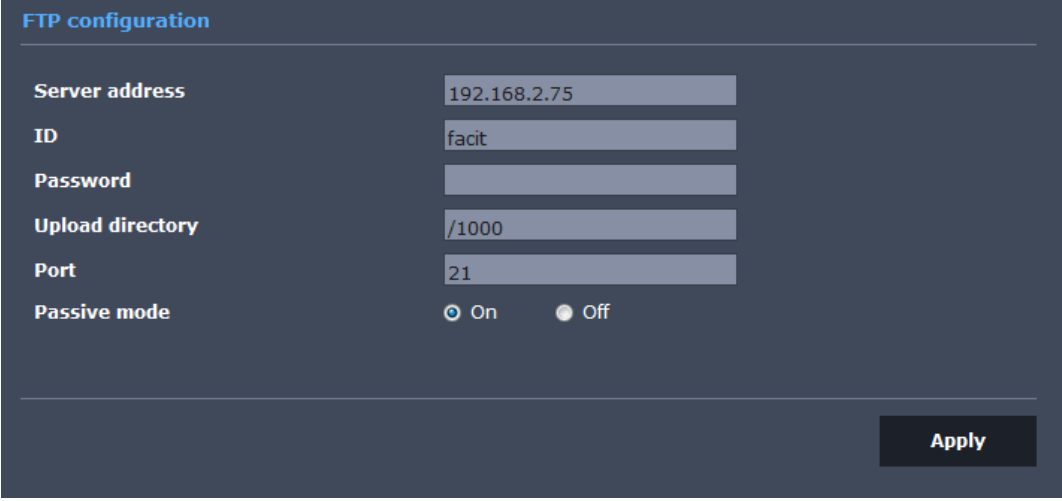
When selecting Reporting frequency, also specify the date, day of the week and time of day as required. **Click Save.**

Once users make the selection for the transfer mechanism, these changes also need to be enabled on the camera device.

- Go to the Facit Application Settings page.
- Go to Email/FTP Settings.

NOTE! Make sure the Server is turned on before configuring these settings. If the new settings are successfully configured, a “success” notification will appear next to the FTP and Email Configuration headings.

5.3.1. FTP CONFIGURATION



FTP configuration	
Server address	192.168.2.75
ID	facit
Password	
Upload directory	/1000
Port	21
Passive mode	☒ On ☐ Off
Apply	

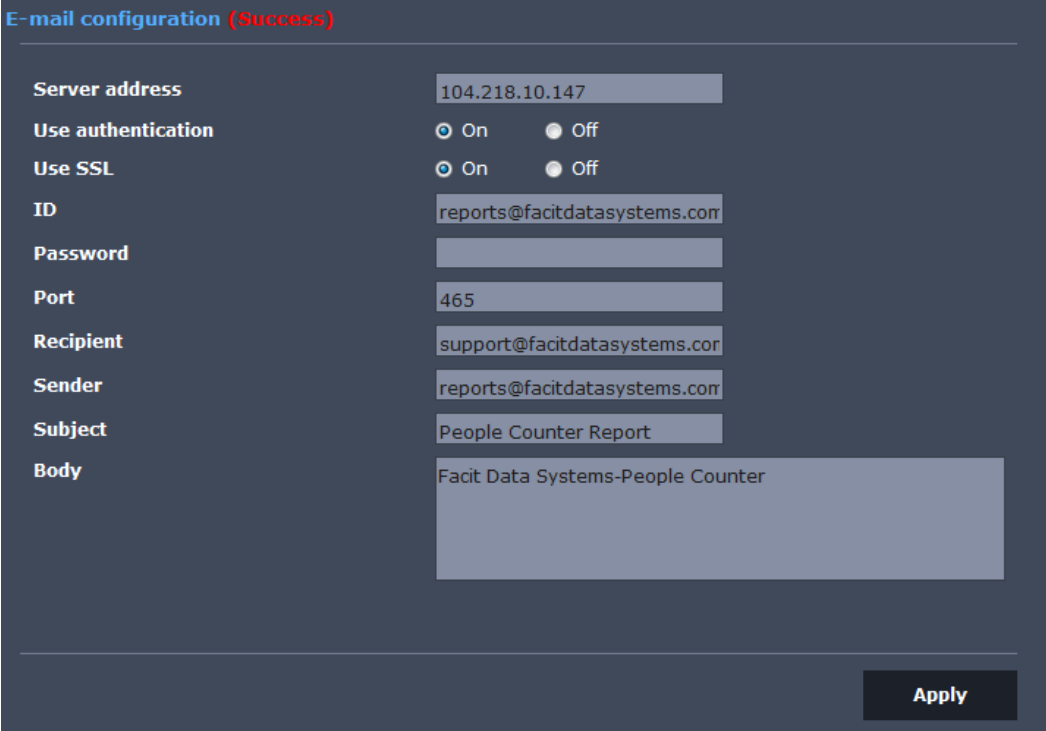
Figure 36 : Sample Camera FTP Settings

For Report transfers by FTP, fill out all required data fields. These include the *Server Address*, *Server ID*, *Server Password*, *Upload Directory* (where the data files will be stored) and *Port number* (set 21 by default).

Click **Apply**.

5.3.2. EMAIL CONFIGURATION

For report transfers by Email, turn On “Use Authentication” and “Use SSL” options. Fill out all the data fields under Email Configuration.



E-mail configuration (Success)	
Server address	104.218.10.147
Use authentication	☒ On ☐ Off
Use SSL	☒ On ☐ Off
ID	reports@facitdatasystems.com
Password	
Port	465
Recipient	support@facitdatasystems.com
Sender	reports@facitdatasystems.com
Subject	People Counter Report
Body	Facit Data Systems-People Counter
Apply	

Figure 37 : Camera Email configuration

<i>Server Address</i>	Provide the server address for the email server you use.
<i>ID</i>	Provide a valid ID from which the email is generated. This should be an ID from the same email server as provided in the Server Address.
<i>Password</i>	Enter the password for the email ID provided.
<i>Port</i>	This is set to 465 by default.
<i>Recipient</i>	Enter a Recipient Email address. This could be an ID on any email server.
<i>Sender</i>	Provide a Sender's email Address.

Click **Apply**.

5.4. MASTER SLAVE

This section is used to configure master/slave settings for our Application.

This can be used to view combined reports from different cameras in the network.

A camera is set as slave as default.

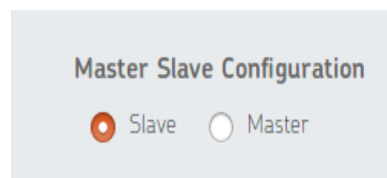


Figure 38 : Master Slave button

To get combined reports, change it to master mode. Now this turns our camera into a master camera that can receive data from other cameras in the network. To add camera to our master slave setup, enter the IP address of the camera running our application in slave mode and also give it a name and then click on **Add IP**.

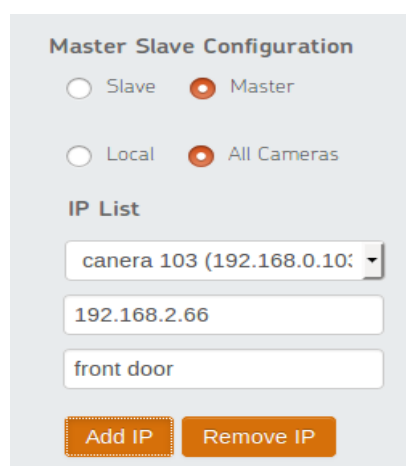


Figure 39 : Adding Slave Cameras

5.5. ARCHIVER SETTINGS

People Counter raw data can be sent to centralized server or to cloud, which can be used for further analytics.

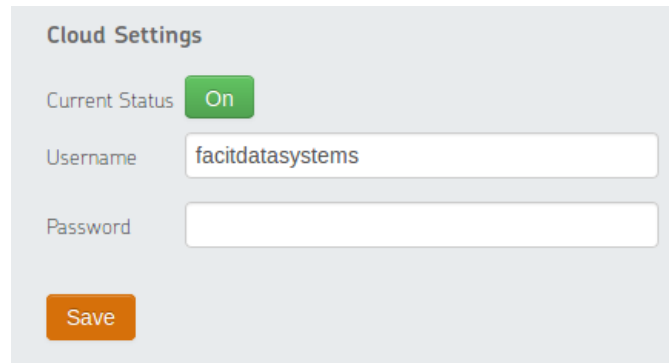
A screenshot of a 'Cloud Settings' form. The form has a light gray background. At the top, the title 'Cloud Settings' is in bold. Below it, 'Current Status' is followed by a green button labeled 'On'. Underneath, 'Username' is followed by a text input field containing 'facitdatasystems'. Below that, 'Password' is followed by an empty text input field. At the bottom left of the form is an orange button labeled 'Save'.

Figure 40 : Sample Camera Email Settings

This is disabled by default. After turning it on by clicking on the button, fill in the username and password fields.

Username is the email address register over the Facit Cloud Server.

6. REPORTS



Figure 41 : Reports tab

This tab displays graphs giving exact figures for customer attendance for the current day as well as activity trends for any selected date in either direction. Graphs are colour coded, illustrating activity trends over hourly intervals for different days of the week. The key provided below the graph describes the colour coding pattern and the corresponding traffic densities.

In general, traffic densities increase from lighter to darker shades.

Placing the cursor on any of the colour coded shades opens up a side window below the graph illustrating the exact figures for the selected date and time interval. This is shown in the figure.

The side panel displays the following information:

Total Customers

The total number of people detected entering the store on the selected day.

Weekly Performance

This weekly performance bar chart is provided for current and average customer attendance comparison. It illustrates the number of people detected in the selected hour interval over the past week.

6.1. MASTER REPORTS

Master Reports section is used to see the comparison between different People Counter Areas/Regions. It can also be used for the cases where there are more than one entrance and you want to see the combined sum of all the entrances. You can also see comparison between different entrance categories.

6.1.1. CATEGORY

Categories can be added by clicking on report settings button. All the Cameras are listed in the camera drop down list.

Category Name	Camera Name	Action
Main Entrance	Entrance 1	Delete
Main Entrance	Entrance 2	Delete
Sub Entrance A	Entrance 3	Delete
Sub Entrance B	Entrance 4	Delete

Figure 42 : Categories

6.1.2. COMPARISION GRAPH

There are two types of comparison graph, line graph and bar graph. Line graph show the weekly counts of each category. Historical data can be seen by changing the date.

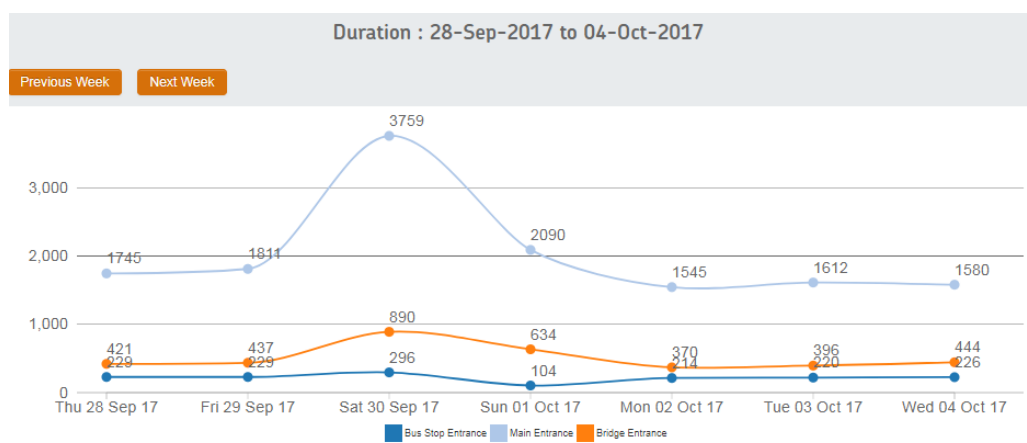


Figure 43 : Weekly Comparison Graph

Whereas bar graph shows the hourly break down comparison of each category. Data of different dates is shown while moving the mouse over any category data in weekly comparison graph.

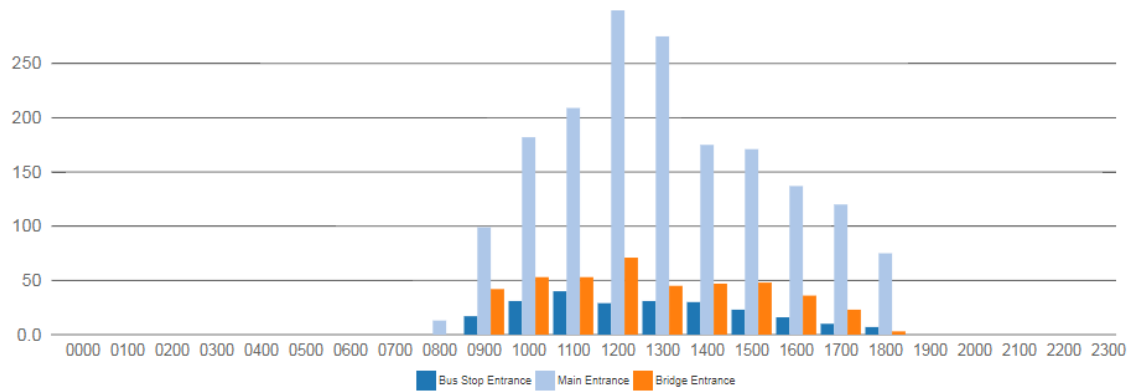


Figure 44 : Hourly Comparison Graph

6.1.3. DOWNLOAD: PDF/CSV

The People Counter application allows users to download customer activity graphs displayed in the reports section to their computer. The **PDF** and **CSV** buttons download data files in their respective file formats.

7. TROUBLESHOOTING

This section guides users in testing and resolving any inaccuracies in the people counting function.

7.1. TESTING ACCURACY

Shift to the Live tab. Every time a person crosses the detection region in a direction specified on the Settings page the corresponding count value should increase by 1. For example, if the “Downward Direction as Customers In” in the uni-directional mode options are selected by the user, then the Customers In value should increase by 1 whenever a person crosses the detection region coming towards the camera. For the “Downward Direction as Customers out” option in the unidirectional mode, the Customers Out value should change whenever a person moving toward the camera crosses the detection region. For the Bi-directional mode, both values should change accordingly.

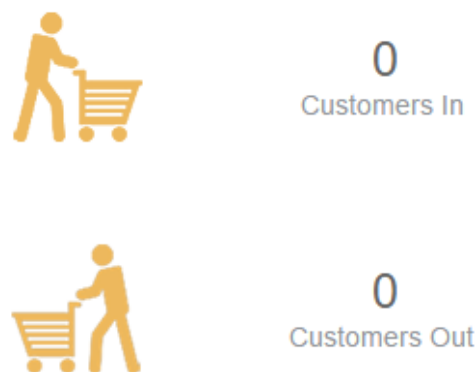


Figure 45 : Real Time People Count

For a set time interval, e.g. 2-5 minutes, manually count the number of people seen entering the test location. Compare this with the people count generated for the same interval by the Facit People Counter software.

7.2. ACCEPTABLE RANGE OF ACCURACY

If counting results are within 10% accuracy, the configuration was successful. However, if the counting results differ by more than 10%, results are inaccurate and the application needs to be reconfigured.

To reconfigure camera settings, log in to the web interface and return to the Configuration & Settings tab.

7.3. POSSIBLE ADJUSTMENTS

You can make the following changes to improve the People Counter application's results:

Camera Positioning

- Recheck and make sure that the camera's positioning is according to the guidelines provided in this document.

Detection Region

- Make sure that detection region is placed exactly over the area where customers walk through when they enter.

You may need to observe a few customers walking through the camera view in order to determine the likely trajectory of incoming pedestrians. In some cases, positioning of advertisements boards, stalls or obstacles like shopping carts or equipment storage may alter the expected trajectories of customers, making them pause to look at notice boards or forcing them to go around obstacles. Both of these will affect people counting accuracy.

- Remove any such obstacles from the entranceway, if present, giving pedestrians a clear path into the store. Reposition the detection regions if necessary.

Advanced Settings

- Refer to the Advanced Parameters section in section 6.2 to see the possible adjustments that can be made in the application's settings for improving the accuracy of the application.

Recheck results from the Live Tab. Continue doing this until you are satisfied with the camera's counting accuracy.

If none of the possible sources of error appear to affect the performance of the People Counter application, please contact Facit Data Systems' customer services.

8. FURTHER DETAILS

For any further assistance, please contact the Facit Data Systems technical support team at support@facitdatasystems.com.