Heat Mapping Delivery Manual For HikCentral Professional

London RD Center/Carl
April 2023

Contents

1. Solution Overview 1
1.1 Solution Background 1
1.2 Solution Introduction 1
1.3 Solution Topology 2
1.4 Products List 2
2 Preparation Before Delivery 4
2.1 Basic Information Collection 4
2.2 Confirm the network environment 4
2.3 Platform Server Requirements 4
2.3.1 SYS server requirements 4
2.3.2 CS server requirements 5
2.3.3 Server and client operating system requirements 5
2.4 HCP license 6
3. Configuration instructions 7
3.1 Device configuration 7
3.1.1 Draw the heat map area 8
3.1.2 Setting Heat map Parameters 10
3.1.3 Arming Schedule 11
3.1.4 Link Method 11
3.1.5 Setting of Shielded Region 12
3.1.6 View heat map information 13
4. Application of heat mapping in HCP 16
4.1 Heat Analysis report 16
4.1.1 Add fisheye camera to HCP 16
4.1.2 Configure Heat Analysis Group 16
4.1.3 View the heat analysis report 17
4.1.4 Add heat analysis report to dashboard 22
4.1.5 Exporting the heat analysis report on the local PC 24
5. View and use heat map analysis on HCP client 25

1 Solution Overview

1.1 Solution Background

Heat map analysis is based on artificial intelligence analysis technology, which identifies the temperature information of the human body by visualizing the flow of people in the real world with colors.

Heat mapping provides incredible insight and value to business operations such as retail stores and other shopping areas, where retailers often want to know which products customers are most interested in and which promotional products are attracting customers to the store.

With heat mapping technology, retailers can see a color map of the time shoppers spend in specific store areas. This sheds light on hot spots and dead zones, and how many people actually bought a particular product, as opposed to those who just walked by and decided to pick it up.

By layering this data over time, retailers can gain insight into how to best place items in the store and how to best design the overall store layout.

1.2 Solution Introduction

Hikvision's fisheye camera captures panoramic HD images over an impressively wide area, while its heat mapping feature provides color-coded maps. The color meanings of this graph serve as an intelligent reference for business operations.

Fewer cameras are required to use Hikvision hardware than heat mapping solutions from other manufacturers. Installation is also cost-effective, making it an ideal solution for locations such as independent shopping malls.

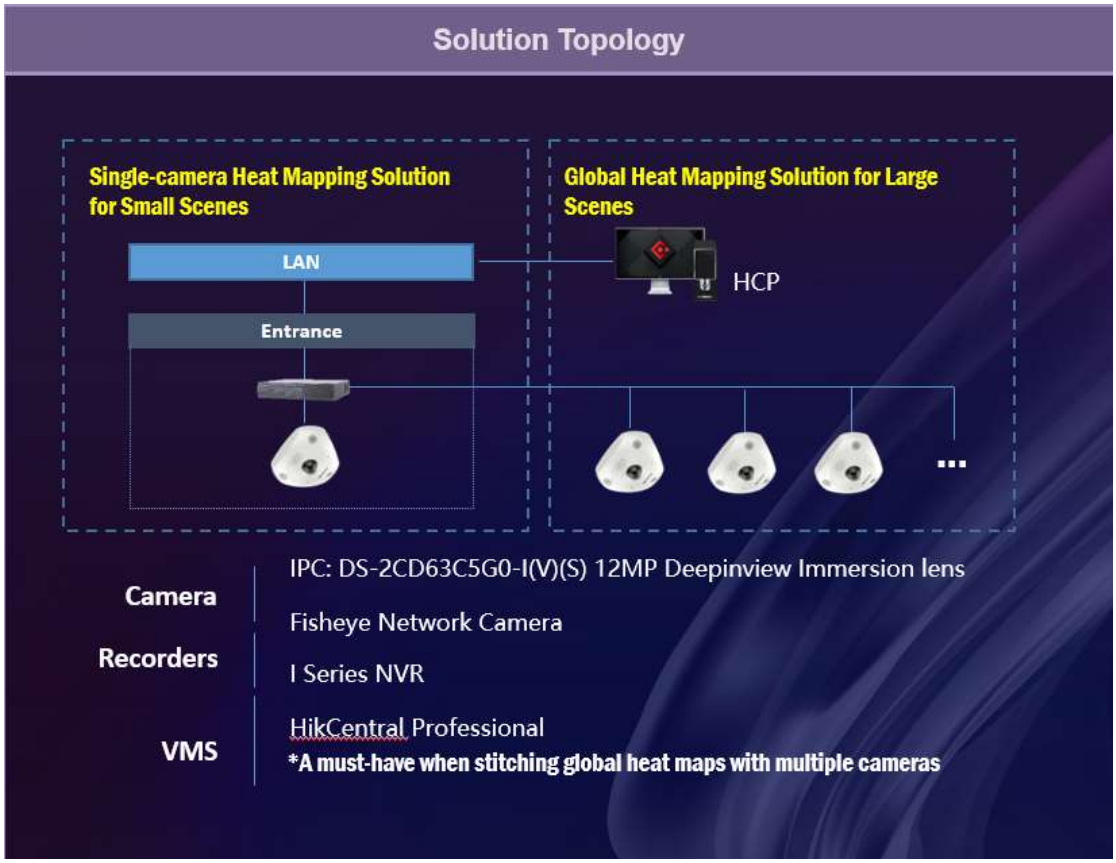
- **Product display optimization:** Store owners can use heat map technology to understand the most popular types of products in the store and where are the hot spots, thereby increasing the probability of purchase, thereby increasing revenue.
- **Promotional activity analysis:** Through passenger flow heat mapping analysis, it can reveal the popularity of products in the promotion area, so as to measure whether the promotion products or activities are successful in attracting customers

to make purchases.

1.3 Solution Topology

Heat mapping` analysis can be implemented with the following product combinations:

(1) Fisheye Camera + HCP; (2) I Series NVR + Fisheye Camera + HCP



1.4 Products List

Product Name	Product Image	Product Model	Produce Features
Fisheye IPC		DS-2CD63C5G0-I(V)(S)	● Heat mapping: Based on deep learning algorithm, the camera counts the number of people and presents an intuitive map ● A variety of dewarping modes: the image can be dewarped to a normal image for intuitive viewing ● Built-in microphone and speaker: The camera supports two-way audio for real-time audio security monitoring and communication ● Built-in infrared light: 15 meters infrared range provides good visibility in low light or even zero light environment ● High-resolution 12 MP: captures clear images even when dewarped into 4-image PTZ mode
I-Series NVR		iDS-9632NXI-I8/X（Example）	● H.265+/H.265/H.264+/H.264 video format ● Intelligent analysis based on deep learning algorithm, up to 16 channels of perimeter protection ● Up to 8 channels of face recognition in video streams, and up to 16 channels of face recognition in face pictures ● Video structuring up to 8 channels ● Up to 32 IP cameras can be connected ● Up to 16-channel 1080p decoding capability

2 Preparation Before Delivery

2.1 Basic Information Collection

Before the project is delivered, it is necessary to obtain the basic information of the project so that the project can be delivered smoothly. The main points are as follows:

- **Basic project information:** including project background, project scale, software version, etc.
- **Device connection method: i**ncluding device model, device firmware version, device quantity, etc.
- **Network environment:** including network topology and bandwidth.

2.2 Confirm the network environment

Generally speaking, regardless of the network situation, the following information needs to be confirmed in advance before the project is implemented and deployed:

- Confirm the network deployment between the monitoring center and all clients, whether the HCP server and the client are in the same LAN, and whether they include security protection media, such as firewalls, route mapping, etc.;
- Confirm that the network between the device and the platform server can be connected (for example, tools such as Socket Tool can be used to check key ports) to ensure that the device can be added to the platform normally;
- Confirm the network interconnection between the servers in the monitoring center. It is recommended that the network port of the central switch be gigabit or above;
- Confirm the egress bandwidth of the customer to access the Internet (if the web and APP need to be accessed on the external network)

2.3 Platform Server Requirements

2.3.1 SYS server requirements

- Control Client and SMS services **cannot be used** in a virtual machine environment. Check the performance of the central management server where HCP is installed to ensure that the server performance meets the installation requirements.
- If the HCP is installed in a virtual machine environment, it is recommended that

the configuration of the **virtual machine be 1.5 times the required configuration. If a normal server requires 8G of memory, the recommended configuration of the virtual machine is 8G*1.5, that is, 12G of memory,** and so on.

- If the hardware configuration of the virtual machine needs to be changed or migrated to another server, such as hardware information such as CPU and RAM, please deactivate the HCP license, and then reactivate it after the update is complete.
- SYS Server (Without RSM) is as follows:

SYS Configurations			
Feature	Low-End	High-End	
CPU	Intel® Core™ i5-8500 @ 3.00 GHz	Intel® Xeon® E-2124 @ 3.30 GHz	Intel® Xeon® Silver 4110 @ 2.10 GHz
RAM	8 GB	16 GB	16 GB
NIC	GbE Network Interface Card	GbE Network Interface Card	GbE Network Interface Card
HDD for OS	SATA-II 7200 RPM Enterprise Class HDD	SATA-II 7200 RPM Enterprise Class HDD	SATA-II 7200 RPM Enterprise Class HDD
HDD for Picture Storage	Surveillance-class HDD or high performance network HDD. It should support 10 MB/s writing and 10 MB/s reading.	Enterprise-class HDD or high performance network HDD. It should support 20 MB/s writing and 20 MB/s reading.	Enterprise-class HDD or high performance network HDD It should support 20 MB/s writing and 20 MB/s reading.
HDD Capacity	At least 650 GB	At least 650 GB	At least 650 GB
OS	Microsoft® Windows 8.1 64-bit	Microsoft® Windows Server 2012 (R2) 64-bit	Microsoft® Windows Server 2012 (R2) 64-bit

[Note]: Please refer to the document "HikCentral Professional V2.4 System Requirements & Performance" for the update of functions and performance requirements implemented by different configurations.

2.3.2 CS requirements

Check the performance of the PC to ensure that the installation requirements as follows:

Configurations			
Feature	Configuration 1	Configuration 2	Configuration 3
CPU	Intel® Core™ i5-9400/F	Intel® Core™ i3-8100k @ 3.60 GHz	Intel® Core™ i7-8700k @ 3.70 GHz
RAM	8 GB	8 GB	16 GB
NIC	GbE Network Interface Card	GbE Network Interface Card	GbE Network Interface Card
Graphics Card	NVIDIA® GeForce GTX 1050Ti	Intel® UHD Graphics 630+GT1030	NVIDIA® GeForce RTX 2080
OS	Microsoft® Windows 10 (64-bit)	Microsoft® Windows 10 (64-bit)	Microsoft® Windows 10 (64-bit)
Performance in Software Decoding			

[Note]: Please refer to the document "HikCentral Professional V2.4 System Requirements & Performance" for the update of functions and performance requirements implemented by different configurations.

2.3.3 Server and client operating system requirements

In the actual project, the recommended operating systems of the server and PC are as follows:

Browser	Google Chrome® 84 and above Firefox® 84 and above Safari® 11 and above Microsoft® Edge 89 and above Internet Explorer® 11 and above
OS for Server*	Microsoft® Windows 11 64-bit Microsoft® Windows 10 64-bit Microsoft® Windows 8.1 64-bit Microsoft® Windows 7 SP1 64-bit Microsoft® Windows Server 2019 64-bit Microsoft® Windows Server 2016 64-bit Microsoft® Windows Server 2012 R2 64-bit Microsoft® Windows Server 2012 64-bit Microsoft® Windows Server 2008 R2 SP1 64-bit **For Windows 8.1 and Windows Server 2012 R2, make sure it is installed with the rollup (KB2919355) updated in April, 2014.*
OS for Control Client	Microsoft® Windows 11 64-bit Microsoft® Windows 10 64-bit Microsoft® Windows 8.1 64-bit Microsoft® Windows 7 SP1 64-bit Microsoft® Windows Server 2019 64-bit Microsoft® Windows Server 2016 64-bit Microsoft® Windows Server 2012 R2 64-bit Microsoft® Windows Server 2012 64-bit Microsoft® Windows Server 2008 R2 SP1 64-bit Mac **For Windows 8.1 and Windows Server 2012 R2, make sure it is installed with the rollup (KB2919355) updated in April, 2014.*

[Note]: It is not recommended to install any other unnecessary software on the central management server; check the number of network cards of the server, and configure the fixed static IP of the server; if the firewall of the system is enabled, you need to check the port dependency table "HikCentral Professional V2.4 Communication" Matrix" to open.

2.4 HCP license

If the platform wants to use the HCP V2.4 heat mapping analysis normally, it needs to confirm whether to purchase the sales items of the following licenses:

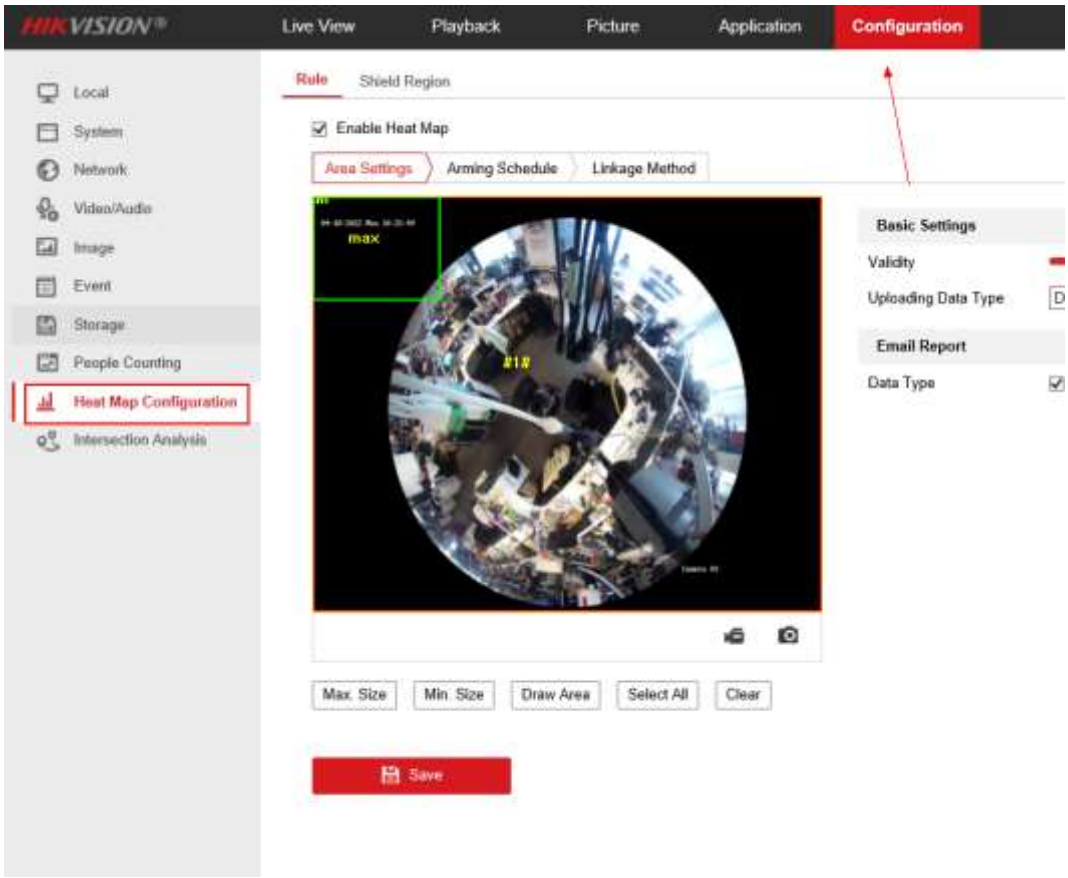
HikCentral-P-BI Report-Module: Supported, Intelligent: Supports heat mapping, person feature analysis, people counting, queue management, queue analysis. **Material**

number (401000038)

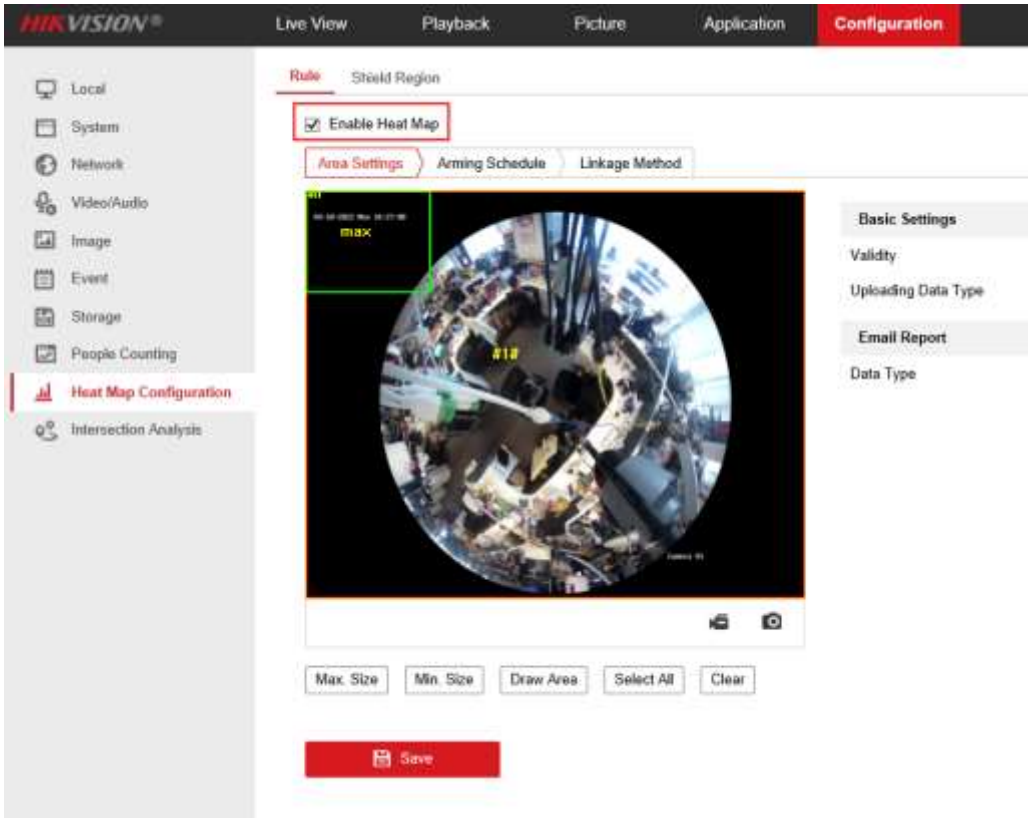
3. Configuration instructions

3.1 Device configuration

- Open the device web page, and enter the configuration and heat map configuration pages in turn;

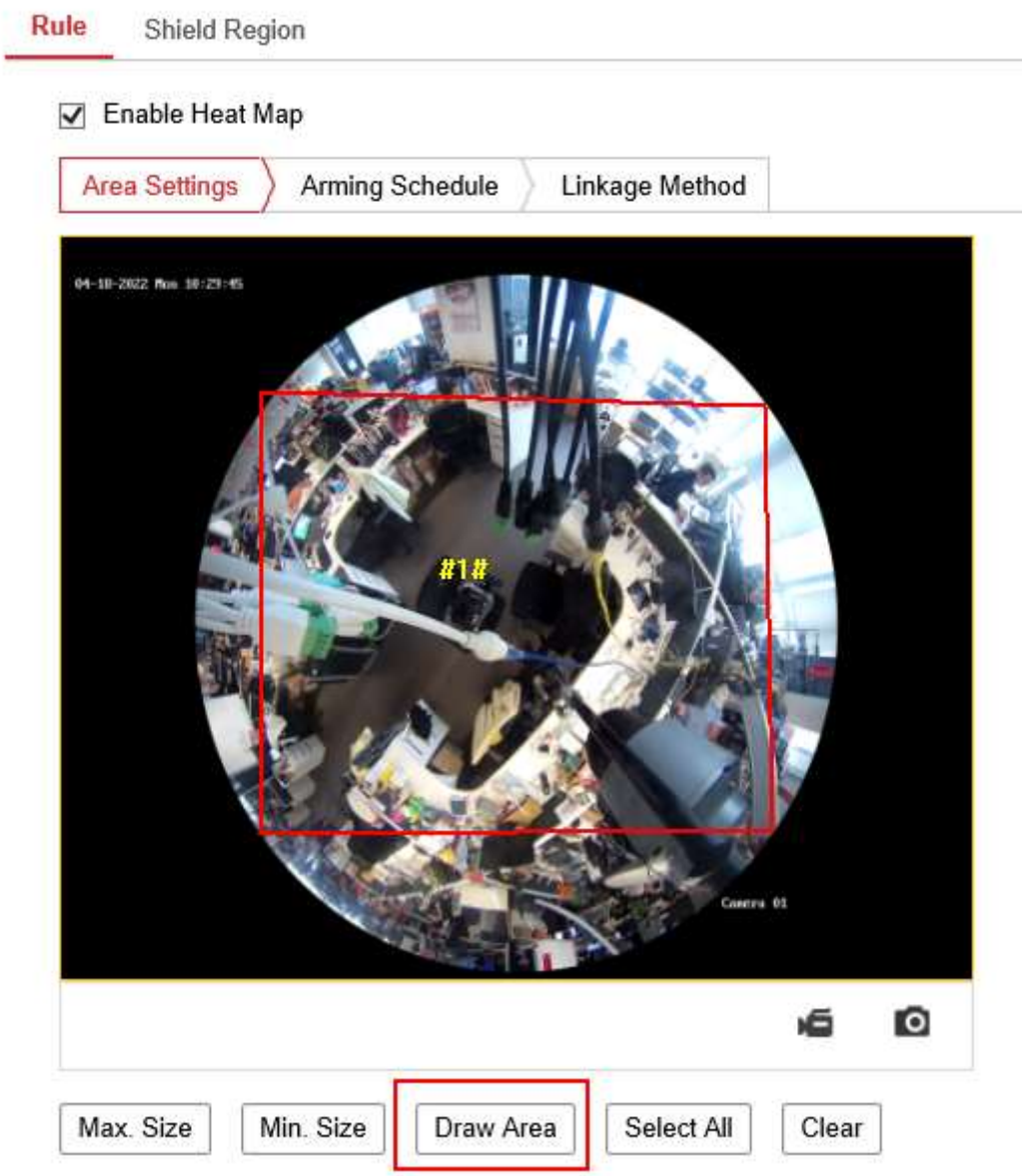


- Check the option to turn on the heat map function under the rule;



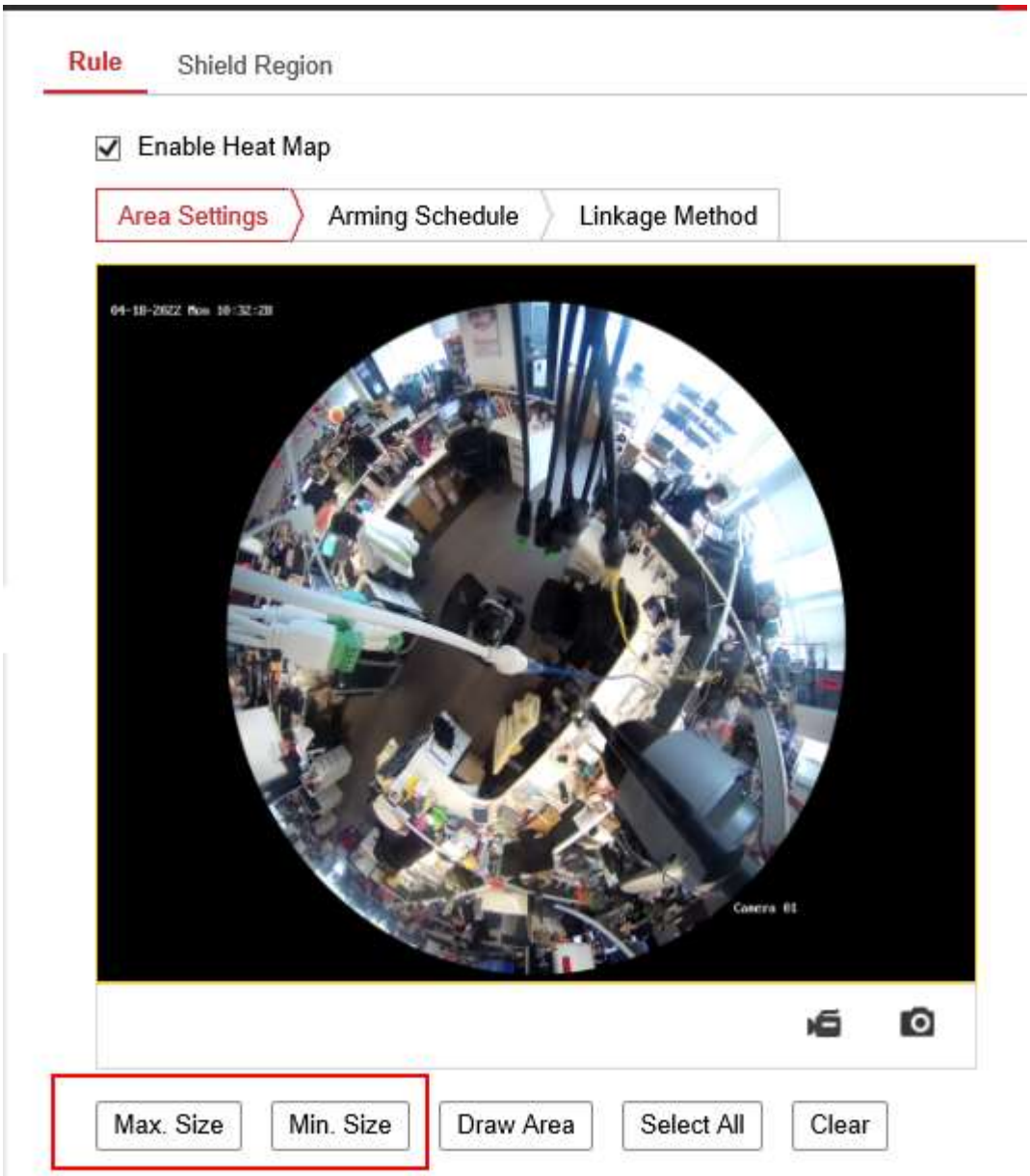
3.1.1 Draw the heat map area

- Click Draw Area to define the area where you want to count visitors. In the live view window, left-click the four endpoints to draw the area, and right-click to complete the area drawing.



[Note]: You can click "Select All" to select the entire live view window as the configuration area. Or click Clear to delete the currently drawn area.

- Set the maximum value, size and minimum value, click the corresponding button and draw the size of the valid target on the real-time image, targets smaller or larger than the valid target size cannot trigger detection.



[Note]:

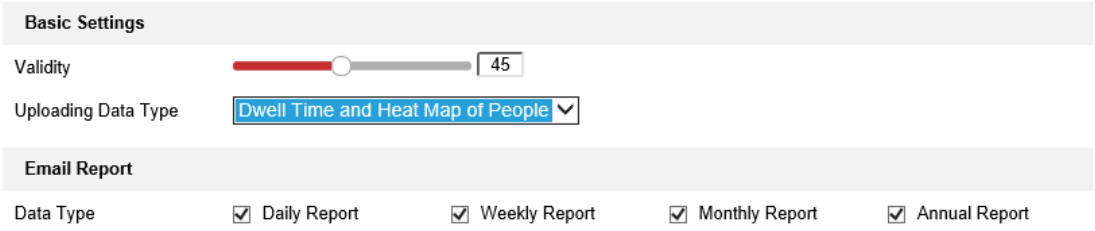
Max.Size: The maximum size of valid targets, larger size targets will not trigger detection.

Min.Size: The minimum size of valid targets, smaller targets will not trigger detection.

3.1.2 Setting Heat map Parameters

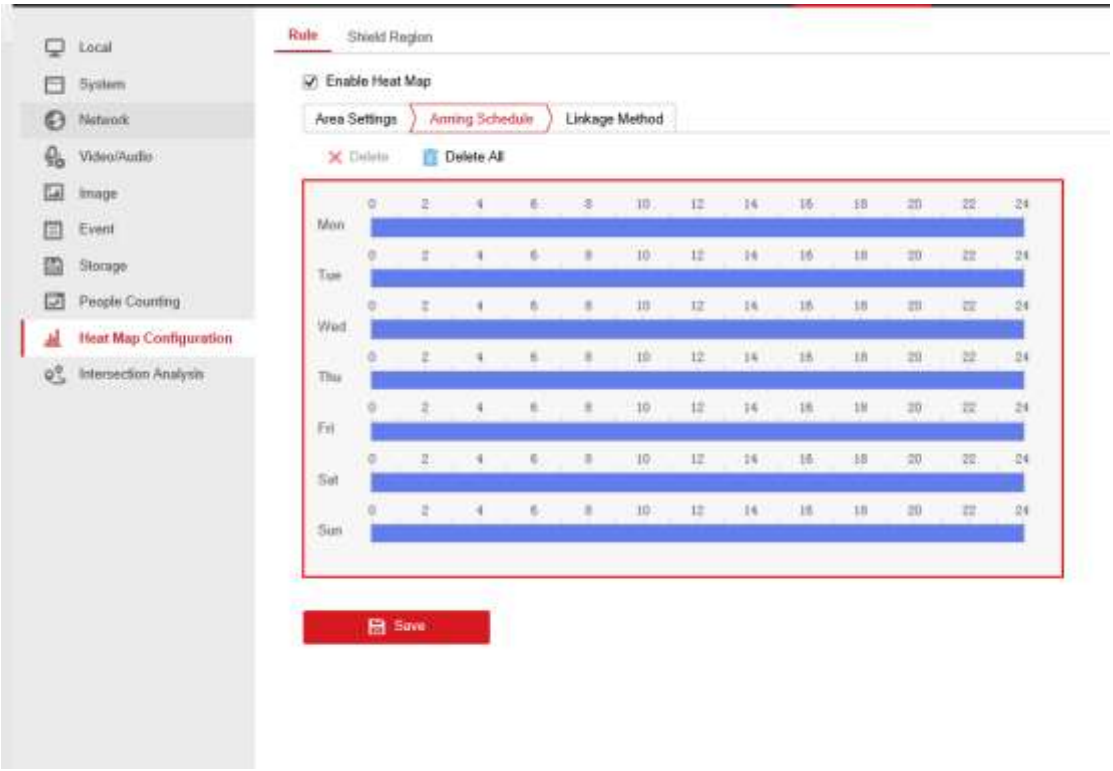
- **Validity**: The camera uses this value to judge whether the target it detects is valid, invalid targets will not be included in the statistics, the higher the value set, the harder the target is to be considered valid.

- **Upload data type**: There are two options for uploading data type, stay time of people and heat map, if you choose stay time type, upload data will only upload stay time information; Will contain data for people's dwell time as well as heat map.
- **E-mail report:** Data report can be sent by e-mail, and the report types include daily report, weekly report, monthly report and annual report.



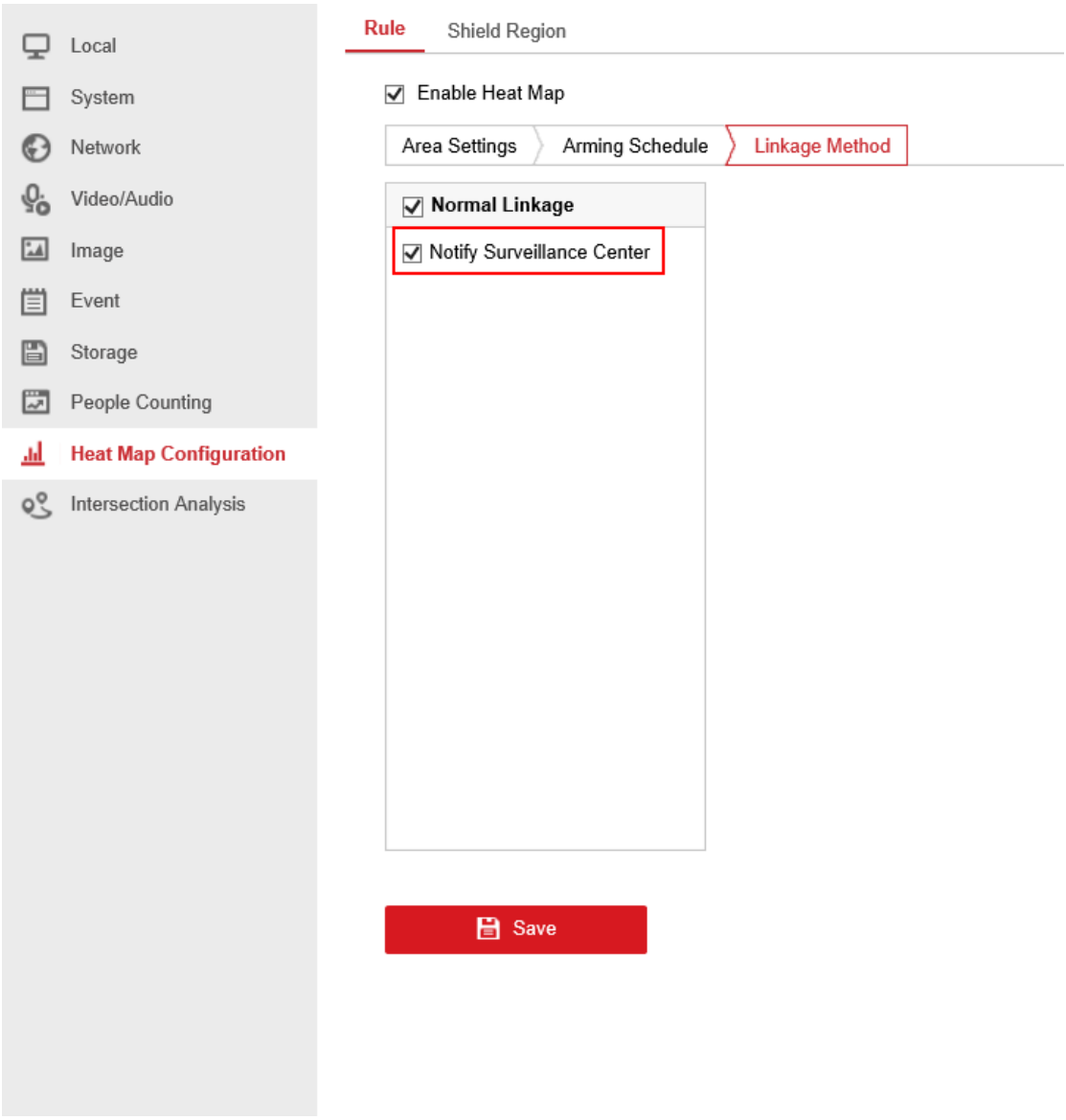
3.1.3 Arming Schedule

Go to the Arming Schedule tab, click and drag the mouse on the time bar to set the arming plan. **(The all-day arming schedule is taken as an example here, and the user can customize the arming time range)**



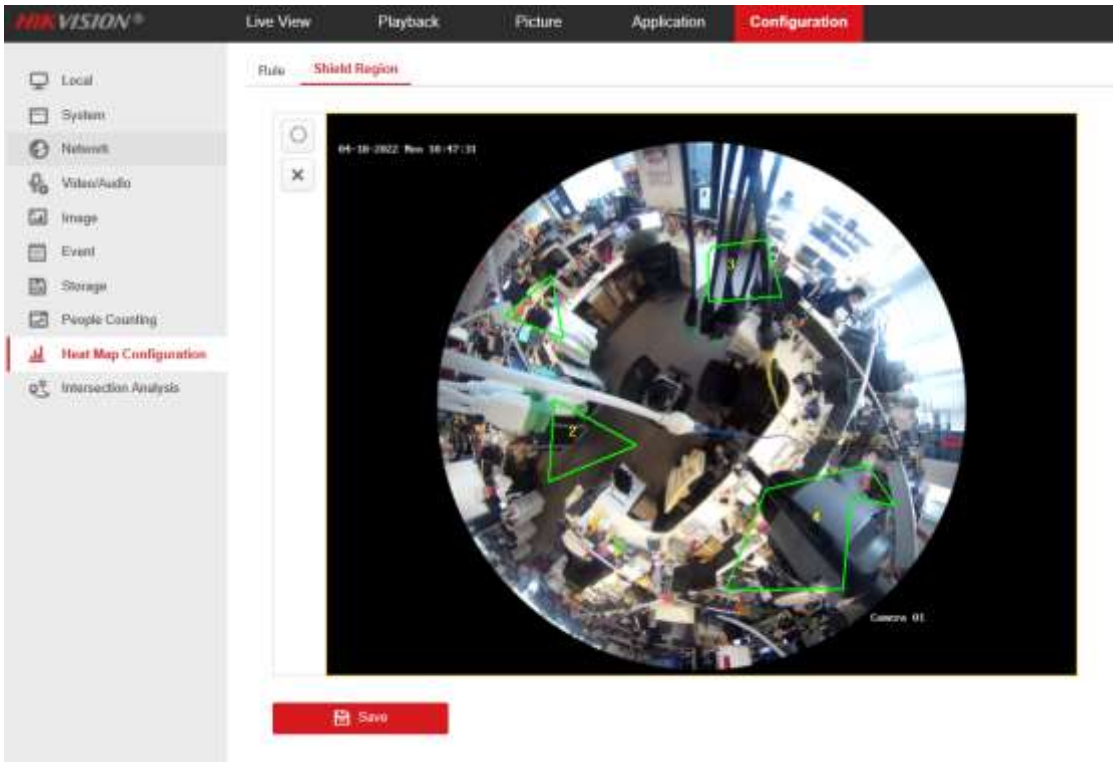
3.1.4 Link Method

Go to the Link Method tab, and check the Notify Surveillance Center check box.



3.1.5 Setting of Shielded Region

If necessary, you can configure a shielded region to shield the area that you do not want to count the heat map statistics, up to 4 shielded areas can be configured.

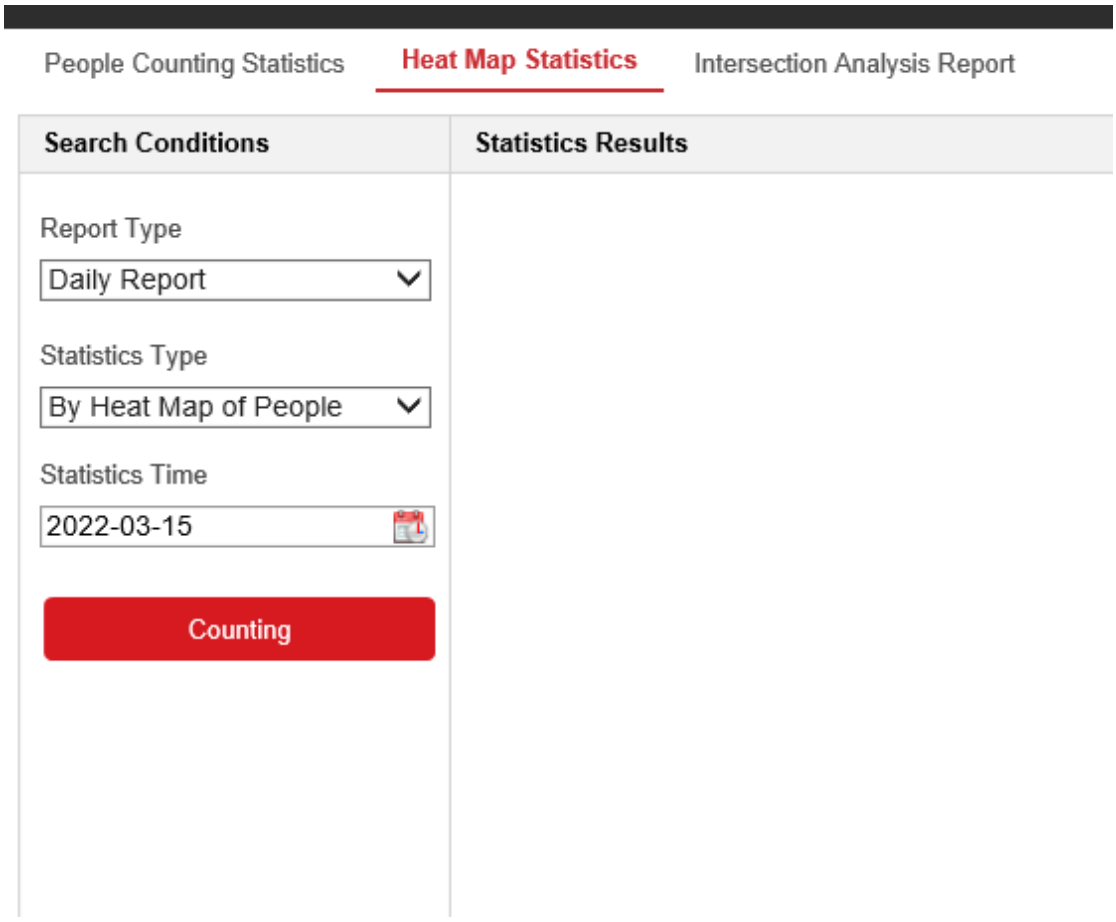


3.1.6 View heat map information

Heat mapping stats will be calculated in the app tab, go to the app to check the count stats.

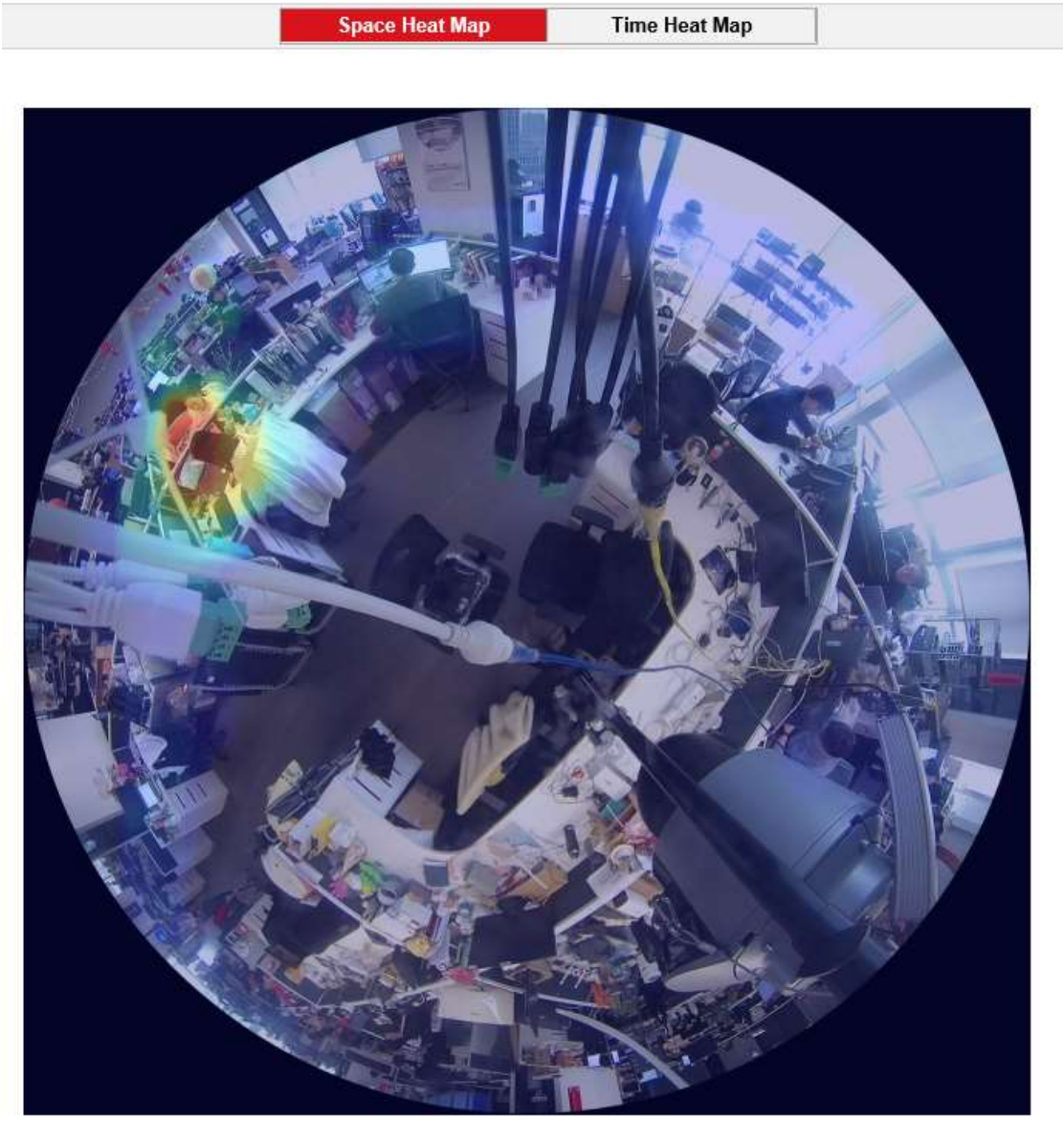
The operation steps are as follows:

- Select the report type, including daily, monthly, weekly, and annual reports.
- Select the statistics type, you can choose the heat map by stay time and people, and by stay time.
- Set the statistics time, if you select any report type except daily report, the camera will generate the report of the week, calendar month and calendar year to which the set date belongs.

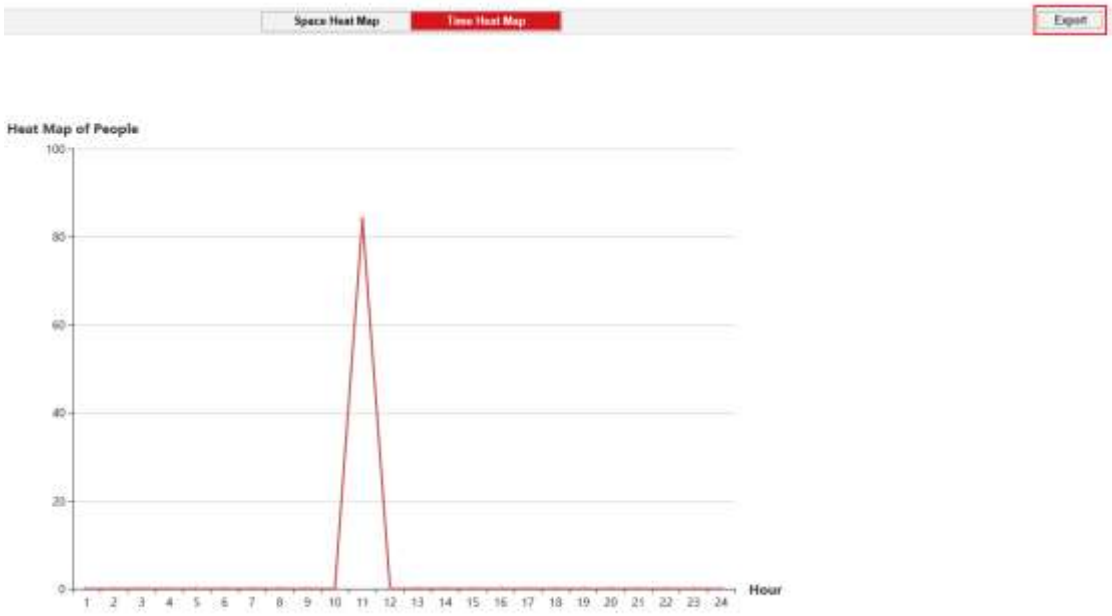


- Select the chart mode for statistical display. For heat map, you can choose time heat map and space heat map.

- Click Counting



[Note]: When selecting the time heat map, you can export the data as an excel file by clicking Export in the upper right corner of the interface and setting the save path.



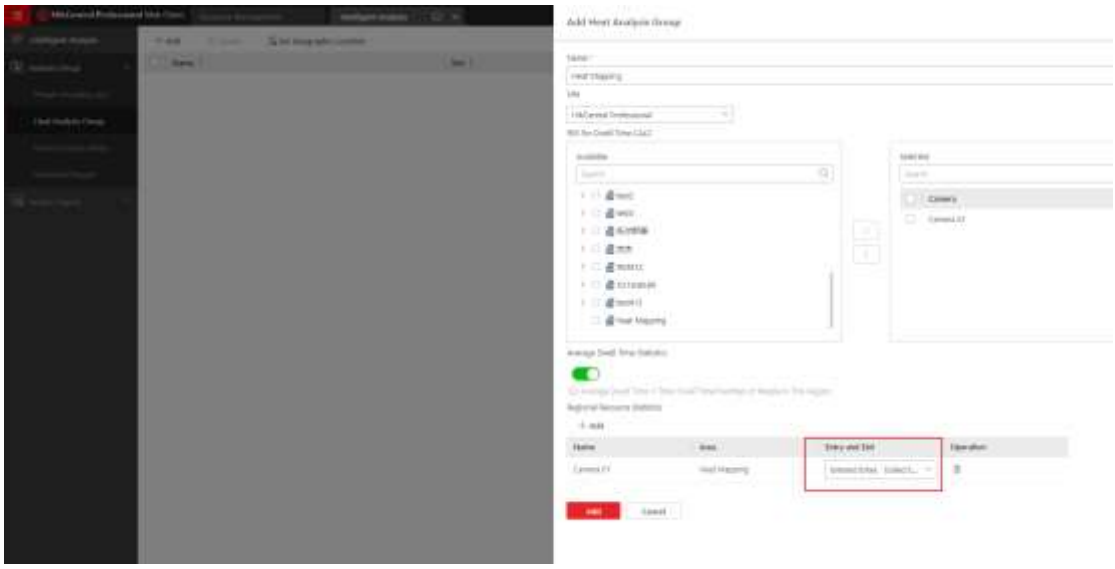
4. Application of heat mapping in HCP

4.1 Heat Analysis report

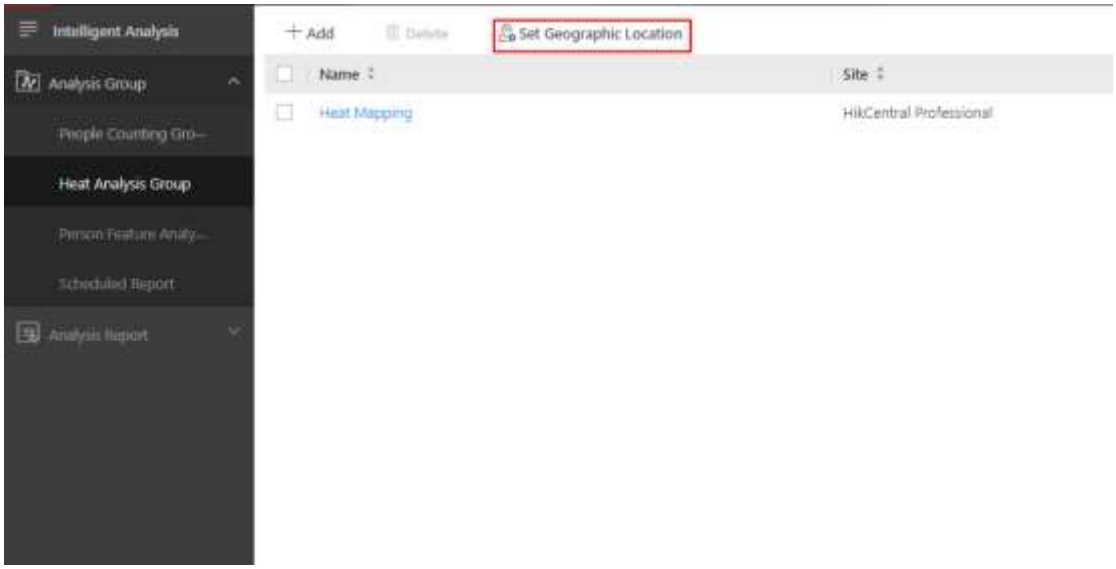
4.1.1 Add fisheye camera to HCP

4.1.2 Configure Heat Analysis Group

- Configure the heat map analysis group, add configuration resource points, set the associated resource points in and out, and click Add to add.

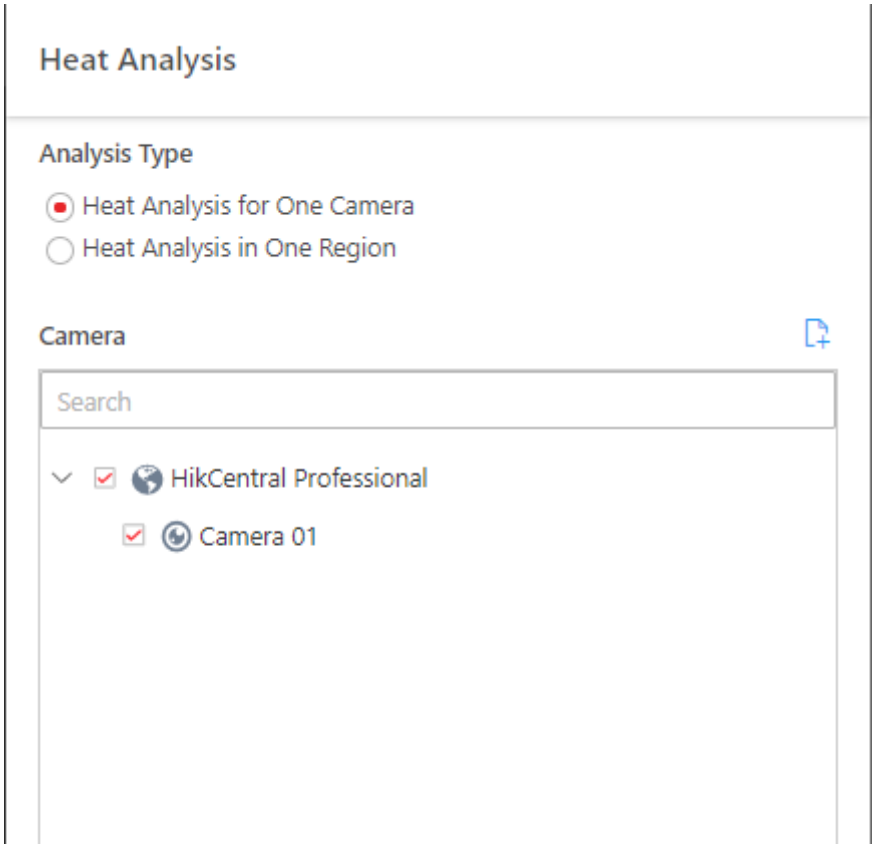


- You can also configure it on the map



4.1.3 View the heat analysis report

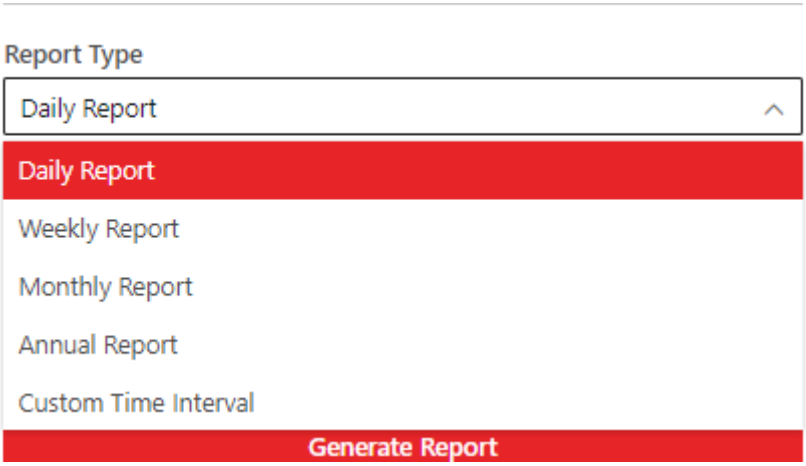
- **Analysis types:** You can analyze a single camera, or you can analyze a heat map for a certain area
- **Select a single camera:** A heat map analysis report will be generated based on the data of the selected camera, the data of different cameras will be displayed, and the data of different cameras can be compared.
- **Select a region:** A heat map analysis report will be generated based on the data of the selected heat map analysis group, and the data of different groups will be displayed, and the data of different groups can be compared.



- Add camera or region for analysis

[Note]: Only the online IPC or heat map analysis group is displayed here, and up to 20 thermal analysis cameras can be selected for simultaneous statistics.

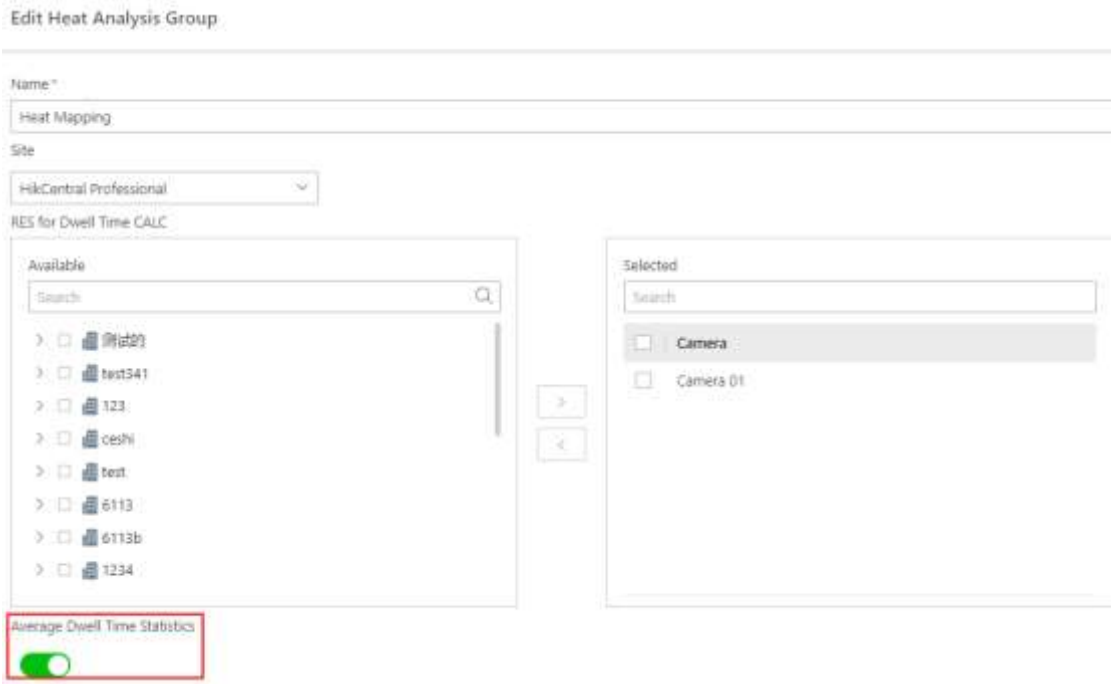
- **Report type**: You can choose the report of the day, month, year or custom time period
- **Daily report**: The daily report shows the data of each day, and the platform will calculate the number of people or the time of people staying in each hour of the day.
- **Weekly, monthly, annual reports:** Compared with daily reports, weekly, monthly and annual reports are not submitted every day, so it can save time, the platform will calculate every day of the week, every day of the month, every month of the year the number of people or the duration of their stay.
- **Custom time interval:** Users can customize the number of days in the report, and analyze the number of people or the staying time of people in each day or month of the custom time interval.

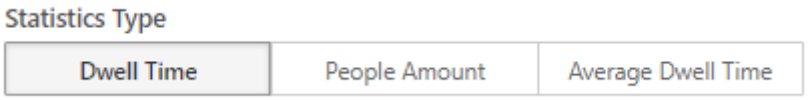


- **Statistical Type:** Select the Dwell Time, People Amount, or the Average Dwell Time

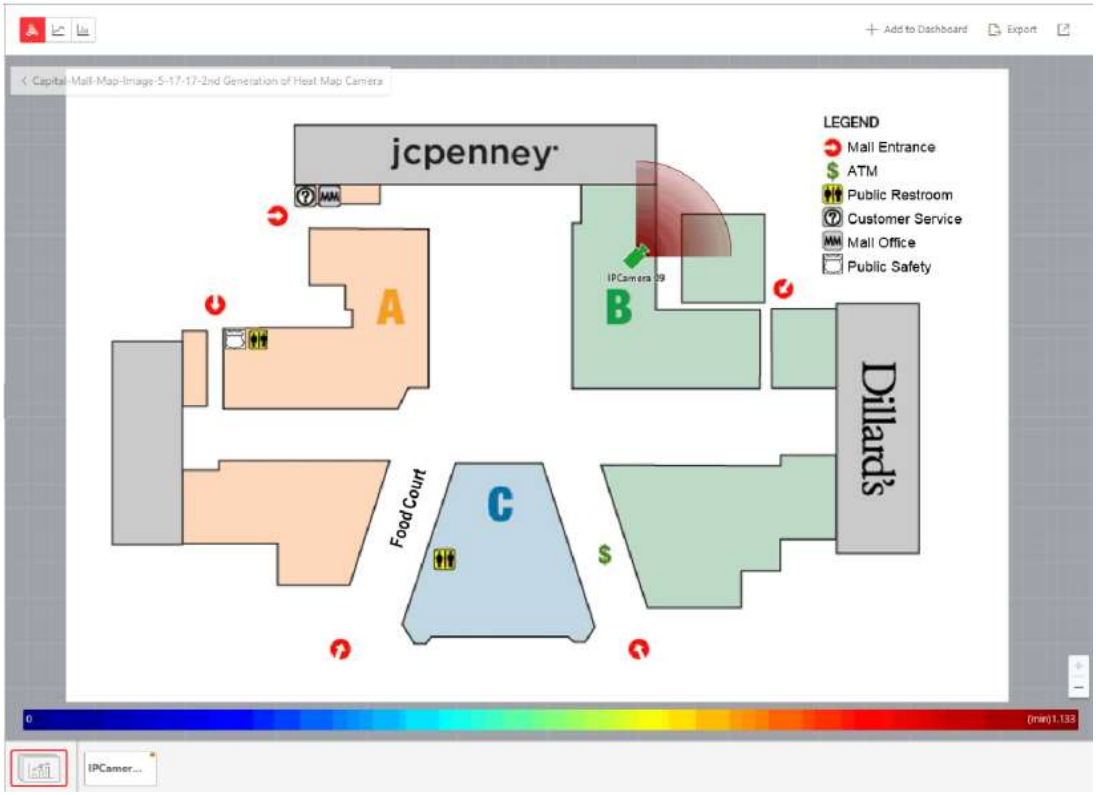
[Note]: The corresponding option must be turned on in the heat map analysis group for the average dwell time. You need to add resources (including doors and cameras) to this group to calculate the number of people staying here

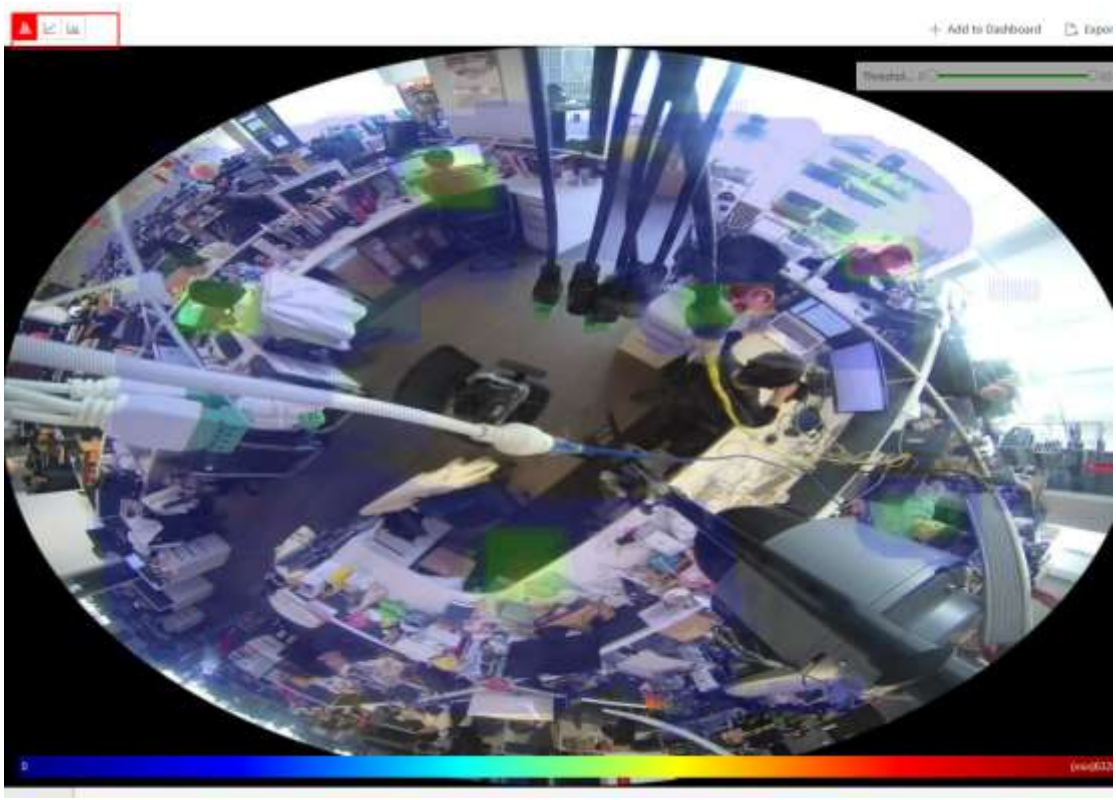
- **Dwell time:** For each IPC, the number of minutes people stayed in the same location during each time period.
- **People Amount:** The number of people detected by each IPC in each time period.
- **Average Dwell Time:** The average length of stay per person spent in the same location during each time period per IPC.

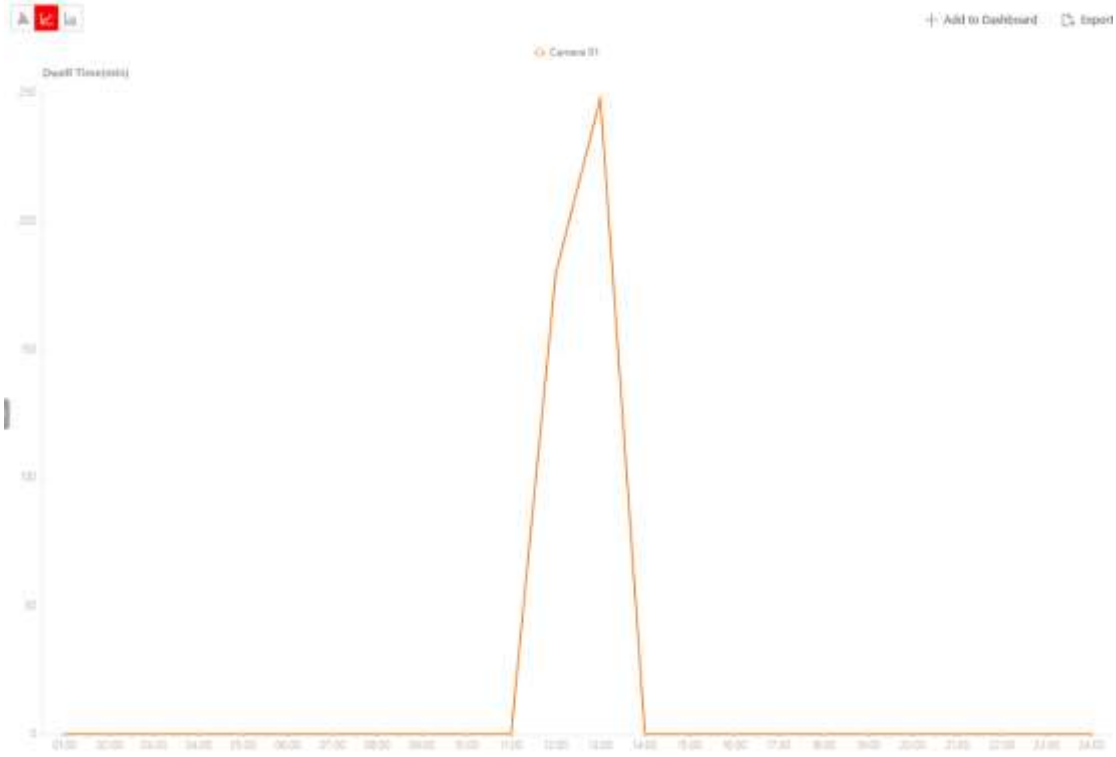




- **Report type:** After clicking Generate Report, you can choose the actual heat map of the camera or the line chart and bar chart. (**The heat analysis generated by a single camera is used as an example. The following are the actual heat map of the camera, the line chart, and the bar chart**)

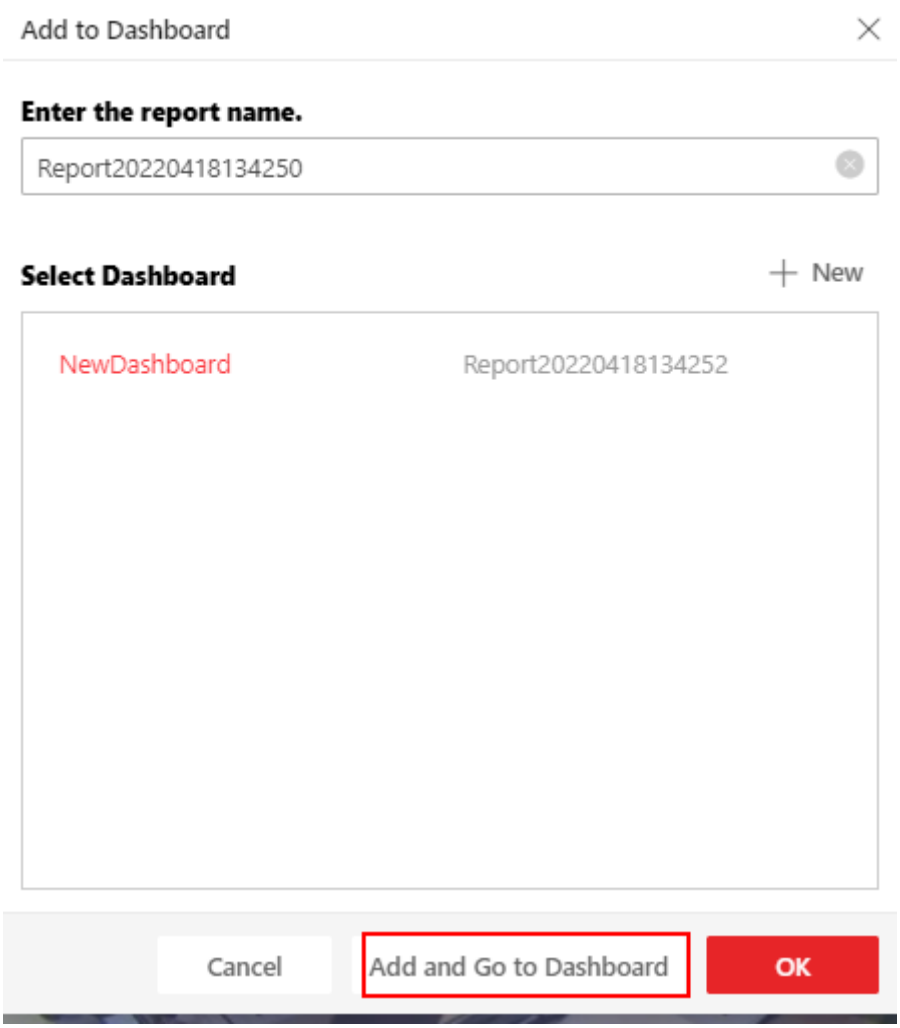


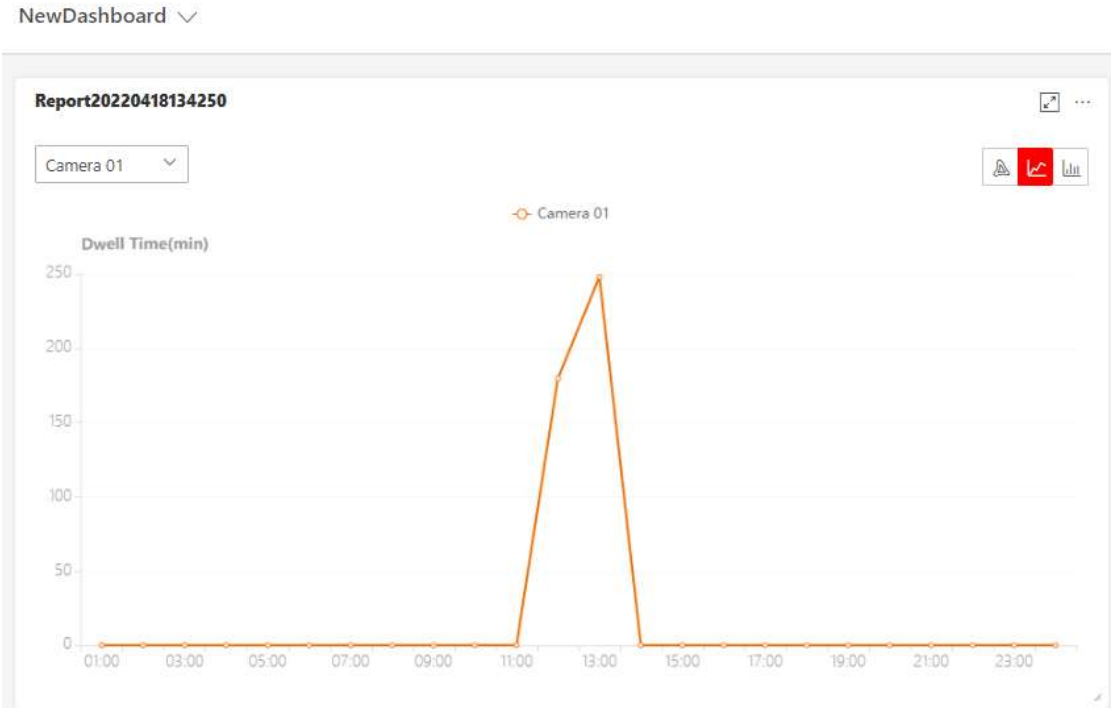

Add to Dashboard


Add to Dashboard

4.1.4 Add heat analysis report to dashboard

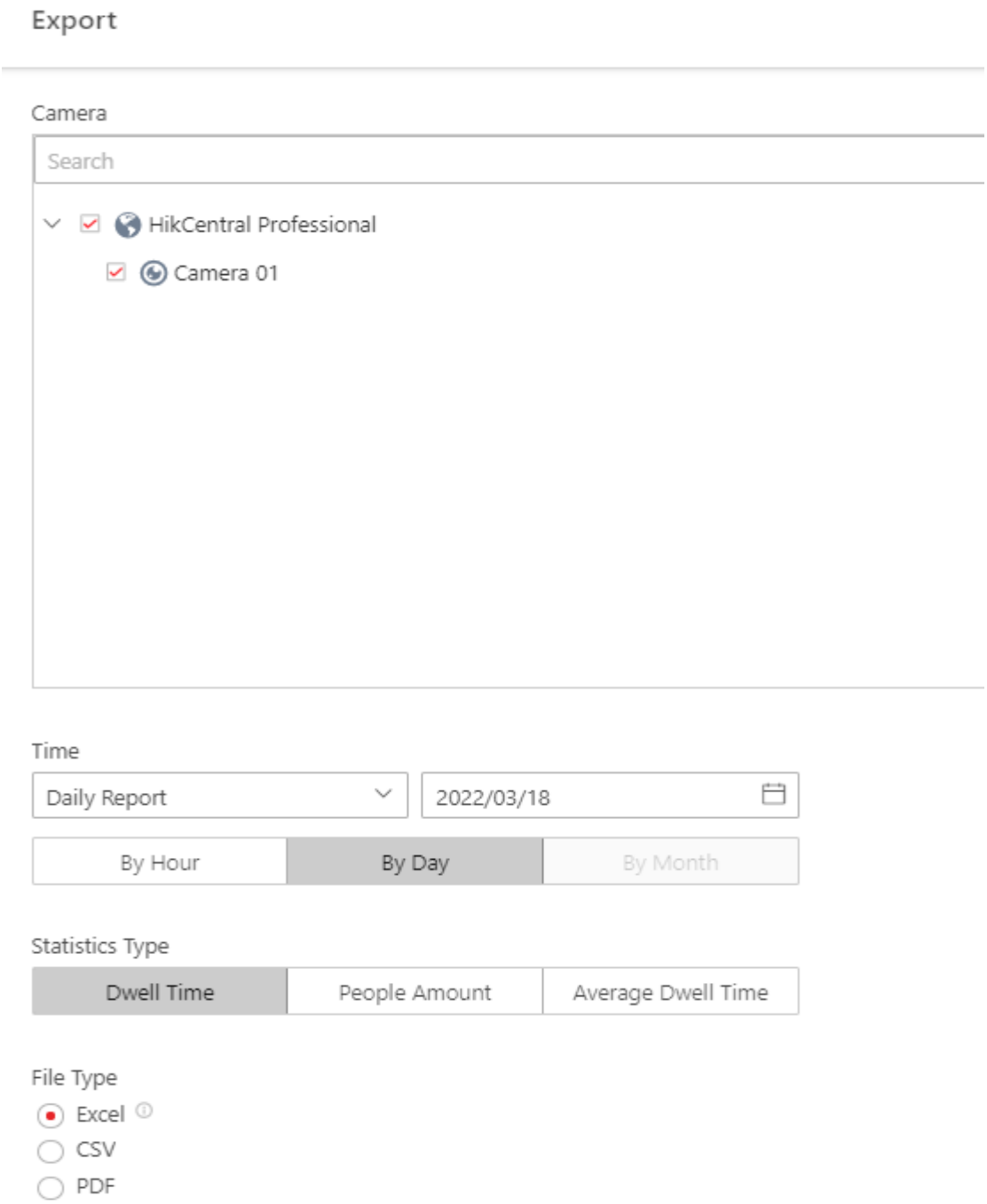
On the page where the heat analysis report is generated, click the Add to Dashboard button in the upper right corner, and select the corresponding dashboard to display.

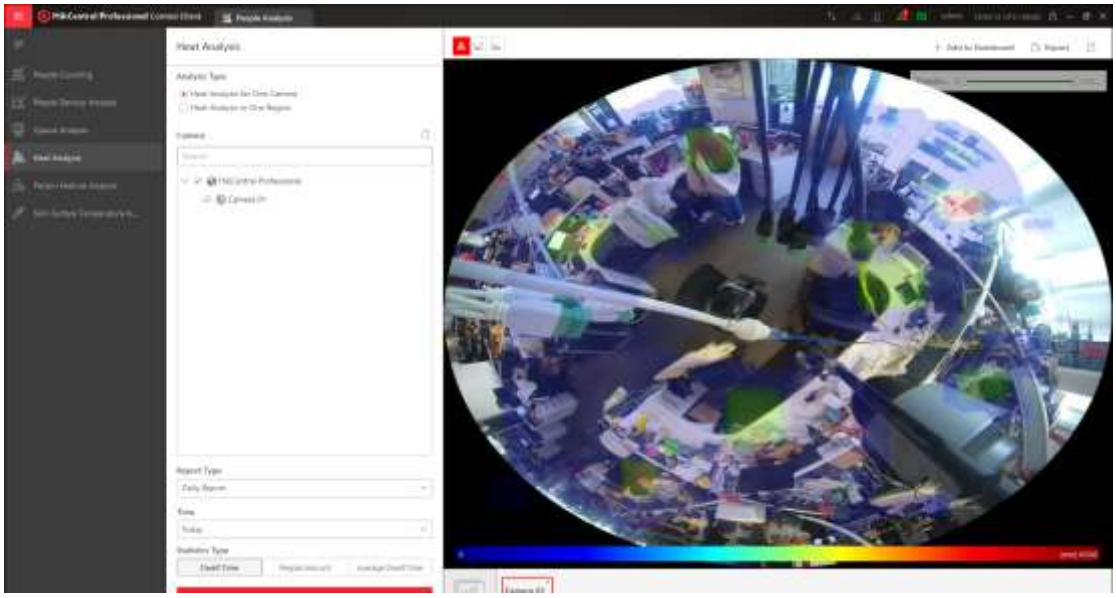

Add to Dashboard
Enter the report name.
Report20220418134250
Select Dashboard
New
NewDashboard
Report20220418134252
Cancel
Add and Go to Dashboard
OK


NewDashboard
Report20220418134250
Camera 01
Camera 01
Dwell Time(min)
250
200
150
100
50
0
01:00
03:00
05:00
07:00
09:00
11:00
13:00
15:00
17:00
19:00
21:00
23:00

4.1.5 Exporting the heat analysis report on the local PC

After generating the heat analysis report, click Export in the upper right corner, select the resource point to be exported, the corresponding time, report type and statistics type, and file format. Here you can export files in three formats: **Excel, CSV, and PDF.**



5. View and use heat map analysis on HCP client

Open the HCP client, find the person analysis in the intelligent analysis, and then click the heat analysis. The interface here is the same as that of the HCP server, and you can perform the same operations in **Chapter 4.**